# Owner's manual 2026

**MC 125**

Item no.: 3215266en




GASGAS

# Dear GASGAS customer

Congratulations on your decision to purchase a GASGAS motorcycle. You are now the owner of a state-of-the-art sports vehicle which, with proper care, will bring you pleasure for a long time to come.

We hope you enjoy your bike and have a safe journey at all times!

You can enter the serial numbers of your vehicle below to find the serial numbers more quickly if required:

| | |
|---|---|
| Vehicle identification number (p. 14) | Dealer stamp |
| Engine number (p. 14) | |

The owner's manual contained the latest information for this model series at the time of publication. However, minor differences due to further developments in design cannot be ruled out completely.
All specifications are non-binding. GASGAS GmbH specifically reserves the right to modify or delete technical specifications, prices, colors, forms, materials, services, designs, equipment, etc., without prior notice and without specifying reasons, to adapt these to local conditions, as well as to stop production of a particular model without prior notice. GASGAS accepts no liability for delivery options, deviations from figures and descriptions, as well as misprints and other errors. Some of the models shown partly contain special equipment that does not belong to the standard scope of supply.

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## 1.1 Conventions

### 1.1.1 Icons

| | |
|---|---|
| ✓ | Indicates a desired result (e.g. of a work step or a function). |
| ✗ | Indicates an undesired result (e.g. of a work step or a function). |
|  | All work marked with this symbol requires specialist knowledge and technical understanding. Make sure that this work is carried out or supervised by trained personnel from an authorized GASGAS workshop with any special tools required. |
|  | Indicates a page reference. |
|  | Indicates information with more details. |
|  | Indicates a tip, e.g. to simplify work. |
| » | Indicates the result from a test step. |
| ◀ | Indicates the end of an activity, including any rework. |

### 1.1.2 Formatting

| | |
|---|---|
| **Proprietary name** | Indicates a proprietary name. |
| **Name** ® | Indicates a protected name. |
| **Brand** ™ | Indicates a brand available on the open market. |
| **Underlined terms** | Refer to technical details of the vehicle or indicate technical terms that are explained in the glossary. |

### 1.1.3 Abbreviations

| | |
|---|---|
| 2-pc. | two-part |
| Part no. | Part number |
| or | respectively |
| approx. | circa |
| etc. | et cetera |
| poss. | possibly/possible |
| if necessary | if necessary |
| cmpl. | complete |
| min. | at least |
| no. | number |
| no fig. | no figure |
| s. | see |
| among others | among others/not limited to |
| and the like | and the like |
| etc. | et cetera |
| cf. | compare |
| e.g. | for example |

## 2.1 Safety instructions

**Function of the safety instruction**

Safety instruction brings attention to dangers when handling the product. Hazards are classified, named, described, and supplemented with information on how to avoid them.

- If there is a safety instruction before a list of instructions, the danger exists throughout the entire activity.
- If there is a safety instruction immediately before an instruction, the next step presents a danger.

**Safety instruction layout**

All safety instructions are identified by a signal word and a warning symbol. The combination of signal word and warning symbol determines the degree of danger.



**DANGER**
Indicates an imminent danger that leads to serious injury or death.



**WARNING**
Indicates a potentially imminent danger that could lead to serious injury or death.



**CAUTION**
Indicates a potentially imminent danger that can lead to minor or slight injuries.



**NOTE**
Indicates a situation that can lead to damage to the product or the product environment.



**NOTE**
Indicates a situation that can lead to environmental damage.

## 2.2 Ban on tampering

No changes may be made to the noise control equipment and components.

**Tampering that is prohibited**

- Removing or disabling any devices or components used for noise control before the new vehicle is sold or delivered to the end customer.
- Removing or disabling any device or component used for noise control for purposes other than service, repair, or replacement during the service life of the vehicle.
- Use of the vehicle after a device or component used for noise control has been removed, disabled, or inadequately maintained.

**Examples of prohibited tampering**

- Removing or drilling through rear mufflers, baffle plates, manifolds, or other components that conduct exhaust gases.
- Removing or puncturing parts of the intake system.
- Replacing moving parts of the vehicle, or parts of the exhaust system or intake system, with parts other than those specified by the manufacturer.

## 2.3 Safe use



**DANGER**
**Danger of accidents** A rider who is not fit to ride poses a danger to themself and to others.
– Do not operate the vehicle if you are not fit to ride due to alcohol, drugs, or medication.
– Do not operate the vehicle if you are physically or mentally incapable of doing so.

**DANGER**

**Danger of poisoning** Exhaust gases are toxic and inhaling them may result in unconsciousness and death.

- Always ensure that there is sufficient ventilation when running the engine.
- Use suitable exhaust extraction when starting or running the engine in an enclosed space.

**WARNING**

**Danger of burns** Some vehicle components become hot when the vehicle is operated.

- Do not touch any parts such as the exhaust system, radiator, engine, damper, or brake system before the vehicle parts have cooled down.
- Allow the vehicle parts to cool down before performing any work on the vehicle.

The vehicle should only be used when it is in perfect technical condition, for its intended purpose, and in a safe and environmentally-friendly manner.

The vehicle must only be used by trained persons.

Have malfunctions that impair safety promptly rectified by an authorized GASGAS workshop.

Observe the information and warning stickers on the vehicle.

## 2.4 Protective clothing

**WARNING**

**Risk of injury** Missing or inadequate protective clothing increases the risk of injury.

- Wear appropriate protective clothing such as helmet, boots, gloves as well as pants and a jacket with protectors on all rides.
- Always wear protective clothing that is in good condition and meets the legal regulations.

In the interest of your own safety, GASGAS recommends operating the vehicle only with suitable protective clothing.

## 2.5 Work rules

Unless specified otherwise, the ignition must be switched off during all work (models with ignition lock, models with transponder key) or the engine must be at a standstill (models without ignition lock or transponder key).

Special tools are required for some work. The tools are not part of the vehicle, but can be ordered using the number in parentheses. Example: bearing puller (15112017000)

Unless otherwise noted, normal conditions apply to all tasks and descriptions.

| | |
|---|---|
| Ambient temperature | 20 °C<br>(68.0 °F) |
| Ambient air pressure | 1,013 mbar<br>(14.69 psi) |
| Relative air humidity | 60 ±5 % |

During assembly, use new parts to replace parts which cannot be reused (e.g. self-locking screws and nuts, expansion screws, seals, sealing rings, O-rings, pins, and lock washers).

A thread lock (e.g. **Loctite®**) is required for some screw connections. Observe the manufacturer's specific instructions for use.

If thread lock (e.g. **Precote®**) has already been applied to a new part, do not apply any additional thread lock.

After disassembly, clean the parts that are to be reused and check them for damage and wear. Replace damaged or worn parts.

After completing a repair or service, check the operating safety of the vehicle.

## 2.6 Environment

If you use your motorcycle responsibly, you can ensure that problems and conflicts do not occur. To protect the future of the motorcycle sport, make sure that you use your motorcycle legally, be environmentally aware, and respect the rights of others.

When disposing of used oil, other operating and auxiliary fluids, and used components, comply with the laws and regulations of the respective country.

As motorcycles are not subject to the EU regulations governing the disposal of end-of-life vehicles, there are no legal regulations that pertain to the disposal of an end-of-life motorcycle. Your authorized GASGAS dealer will be happy to advise you.

## 2.7 Owner's manual

It is important that you read this owner's manual carefully and completely before making your first trip. The owner's manual contains useful information and many tips on how to operate, handle, and service your vehicle. Only then will you find out how to customize the vehicle ideally for your own use and how you can protect yourself from injury.



**Tip**

Store the owner's manual on your terminal device, for example, so that you can read it whenever you need to.

If you would like to know more about the vehicle or have questions on the material you read, please contact an authorized GASGAS dealer.

The owner's manual is an important component of the vehicle. If the vehicle is sold, the owner's manual must be downloaded again by the new owner.

The owner's manual can be downloaded multiple times using the QR code or the link on the delivery certificate.

The owner's manual is also available for download from your authorized GASGAS dealer and on the GASGAS website. A printed copy can also be ordered from your authorized GASGAS dealer.

International GASGAS website: https://www.gasgas.com/

## 2.8 Defined use – intended use

This vehicle has been designed and built to withstand the typical stresses and strains of racing. This vehicle complies with the currently valid regulations and categories of the top international motorsports organizations.



**Note**

Only use this vehicle on designated tracks away from public roads.

## 2.9 Improper use

The vehicle may only be used as intended.

Improper use can result in danger to people, property and the environment.

Any use of the vehicle beyond the intended and defined use constitutes misuse.

Improper use includes the use of operating and auxiliary materials that do not meet the required specifications for the respective use.

## 3.1 Manufacturer's warranty, implied warranty

The work specified in the service schedule must only be carried out in an authorized GASGAS workshop and confirmed in the electronic proof of service, as otherwise all warranty claims will be void. Damage or secondary damage caused by tampering with and/or conversions on the vehicle are not covered by the manufacturer's warranty.

## 3.2 Auxiliary material, operating material

Use operating materials and auxiliary materials in accordance with the operating instructions and specifications.

## 3.3 spare parts

For your own safety, only use spare parts and accessory products that are approved and/or recommended by GASGAS and have them mounted by an authorized GASGAS workshop. GASGAS accepts no liability for other products and any resulting damage or loss.

The part numbers of some spare parts and accessories are given in brackets in the respective descriptions. Your authorized GASGAS dealer will be glad to advise you.

The current accessories for your vehicle are available from your authorized GASGAS dealer and on the GASGAS website.

International GASGAS website: https://www.gasgas.com/

## 3.4 Service

A prerequisite for perfect operation and prevention of premature wear is that the service, care, and tuning work on the engine and chassis is properly carried out as described in the owner's manual. An incorrect suspension setting can lead to damage and breakage of chassis components.

Use of the vehicle under arduous conditions, such as on sand or on wet, dusty and muddy surfaces, can result in significantly increased wear of components, such as the powertrain, brake system, air filter, or suspension components. For this reason, it may be necessary to inspect or replace parts before the next scheduled service interval.

Please adhere to the prescribed run-in times and service intervals at all times. Strictly adhering to this will ensure a much longer service life for your motorcycle.

The relevant mileage or time interval is whichever occurs first.

## 3.5 Figures

Some of the figures in this document contain optional extras.

For clarity, some components may be shown disassembled or may not be shown at all. Disassembly is not always absolutely necessary in order to carry out the activities described. The textual information takes precedence.

## 3.6 Customer service

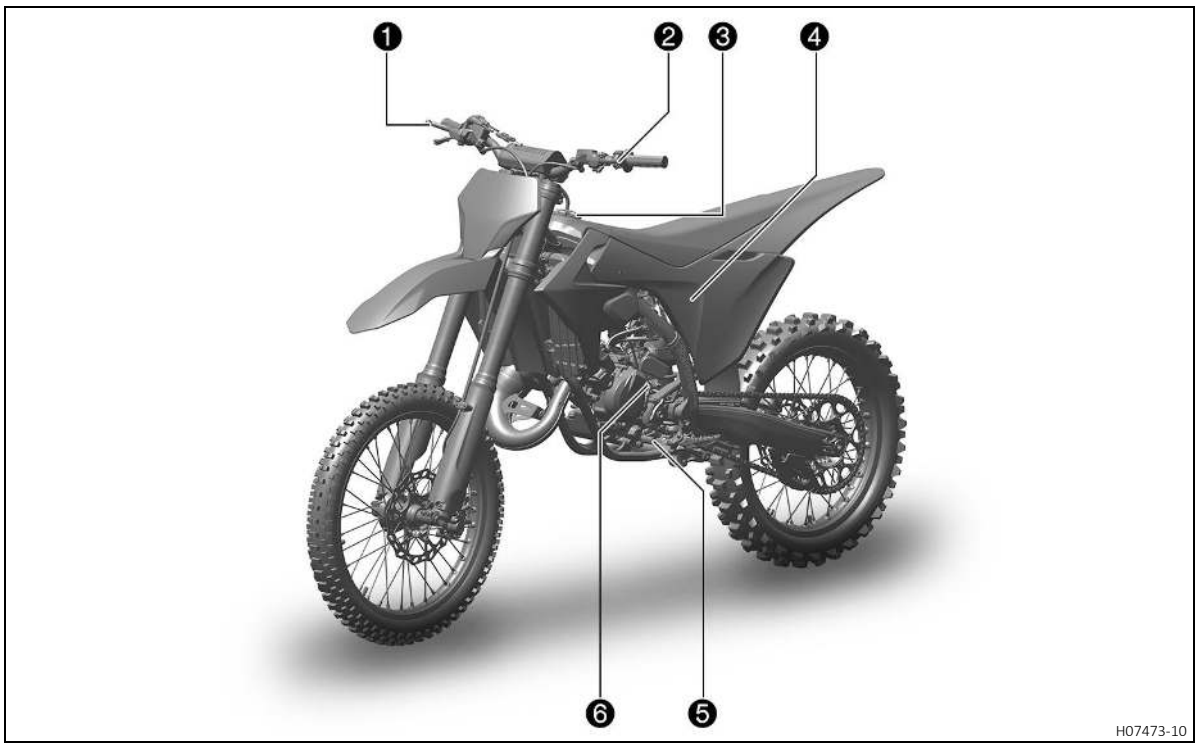
Your authorized GASGAS dealer will be happy to answer any questions you may have regarding your vehicle and GASGAS.

A list of authorized GASGAS dealers can be found on the GASGAS website.

International GASGAS website: https://www.gasgas.com/

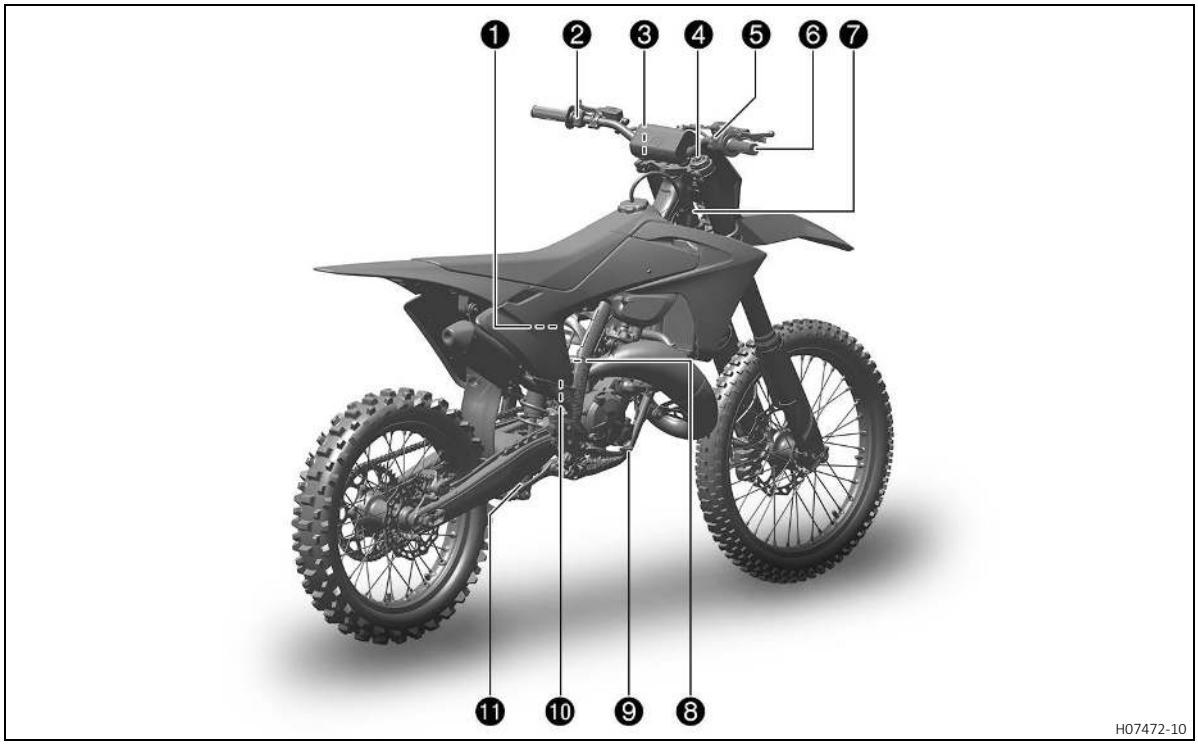
# 4 View of the vehicle

## 4.1 View of vehicle, front left (example)




1. Handbrake lever (p. 16)
2. Clutch lever (p. 16)
3. Fuel tank cap
4. Air filter box cover
5. Gear shift lever (p. 20)
6. Engine number (p. 14)

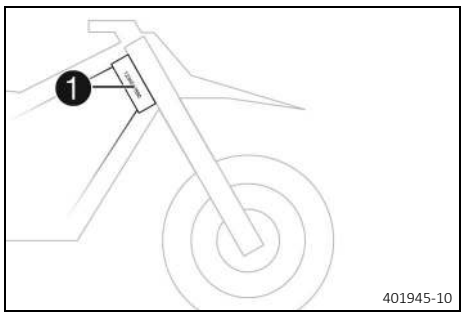
## 4.2 View of vehicle, rear right (example)




1. Shock absorber compression adjustment
2. Combination switch (p. 17)
3. Fork air pressure adjuster
4. Fork compression adjustment
5. Kill switch (p. 16)
5. Electric starter (p. 17)
6. Throttle grip (p. 16)
7. Vehicle identification number
8. Idle speed adjustment screw (p. 19)
9. Brake pedal (p. 20)
10. Cold start button (p. 19)
11. Shock absorber rebound adjuster

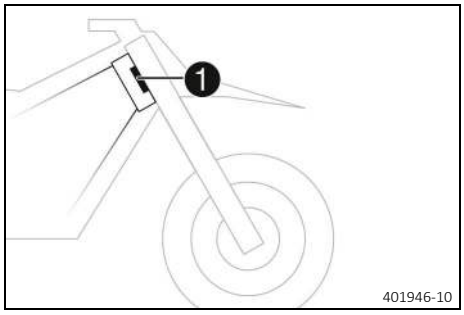
# 5 Serial number

## 5.1 Vehicle identification number



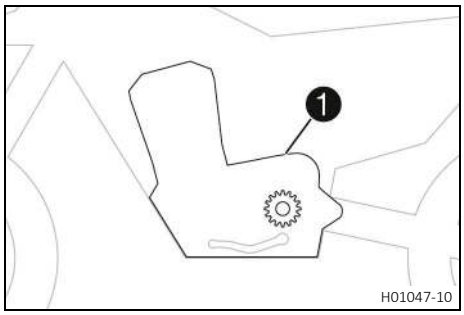

The vehicle identification number ❶ is stamped on the right-hand side of the steering head.

## 5.2 Frame label



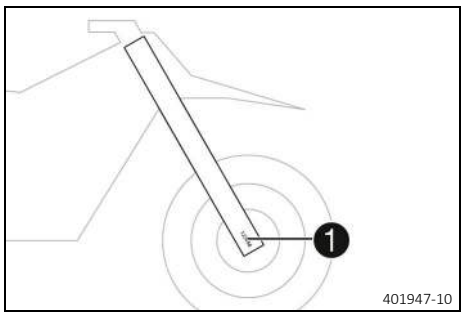

Frame label ❶ is fixed to the front of the steering head.

## 5.3 Engine number



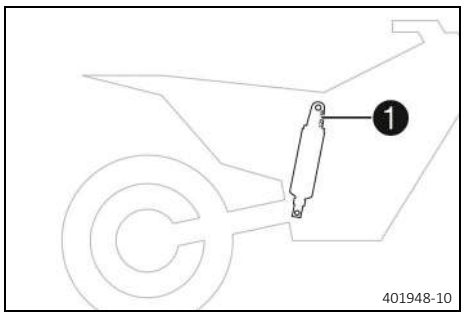

The engine number ❶ is stamped on the left side of the engine above the front sprocket.

## 5.4 Fork part number



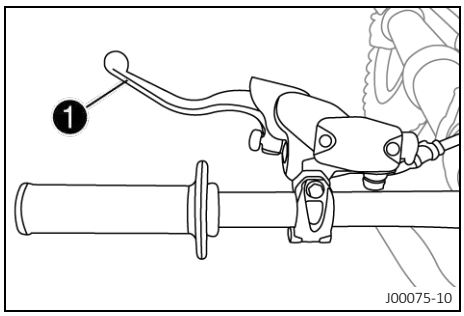

Fork part number ❶ is stamped on the inside of the fork shoe.

## 5.5 Shock absorber part number



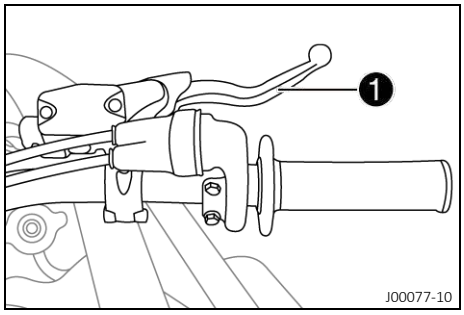

Shock absorber part number ❶ is stamped on the top right of the shock absorber.

## 6.1 Clutch lever



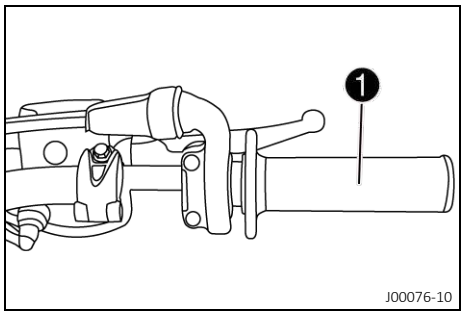

Clutch lever ❶ is fitted on the left side of the handlebar.
The clutch is activated hydraulically and adjusts itself automatically.

## 6.2 Handbrake lever



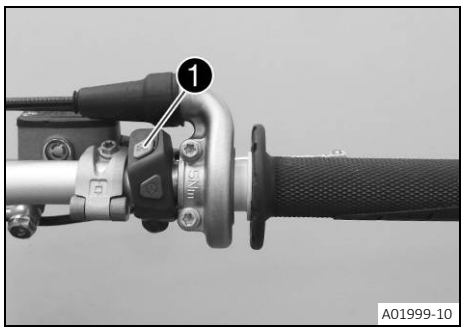

Hand brake lever ❶ is fitted on the right side of the handlebar.
The front brake is engaged using the hand brake lever.

## 6.3 Throttle grip




The throttle twist grip ❶ is fitted on the right side of the handlebar.

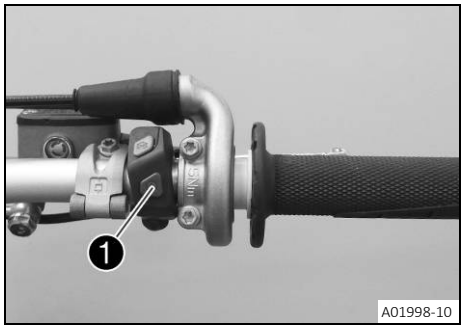
## 6.4 Kill switch




Kill switch ❶ is fitted on the right side of the handlebar.

| Condition | Meaning |
|---|---|
| Kill button ⊗ is not pressed. | In this position, the ignition circuit is closed, and the engine can be started. |
| The kill button ⊗ is pressed and held. | In this position, the ignition circuit is interrupted, a running engine stops, and an engine at standstill will not start. |

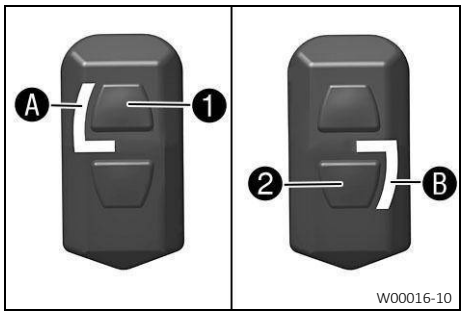
## 6.5 Electric starter




Electric starter ❶ is fitted on the right side of the handlebar.

| Condition | Meaning |
|---|---|
| Electric starter in the basic position. | No function. |
| Electric starter pressed. | In this position, the starter motor is actuated. |

## 6.6 Combination switch

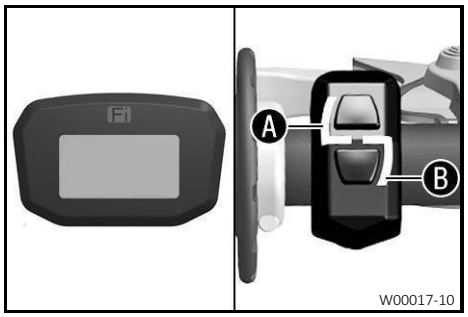



The combination switch is fitted on the left side of the handlebar.

| Condition | | Meaning |
|---|---|---|
| ❶ | Lean | Lean mapping is activated when white indicator light Ⓐ lights up. This mapping is recommended for firm/hard surfaces. |
| ❷ | Rich | Rich mapping is activated when green indicator light Ⓑ lights up. This mapping is recommended for sandy/loose surfaces. |

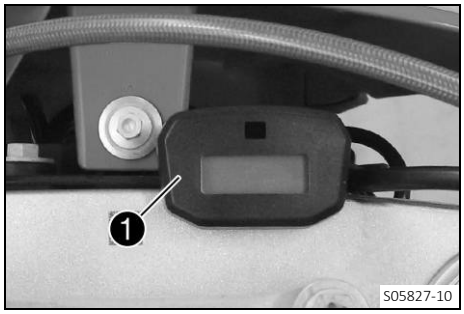
The engine characteristic can be changed using button ❶ and button ❷ on the combination switch.

## 6.7 Overview of indicator lights




| Condition | | Meaning |
|---|---|---|
| Fi | Failure indicator lamp lights up or flashes red | The **OBD** has detected a failure in the vehicle electronics. Come safely to a halt, and contact an authorized GASGAS workshop. |
| L | Indicator light Ⓐ lights up white | Lean mapping is activated. This mapping is recommended for firm/hard surfaces. |
| 7 | Indicator light Ⓑ lights up green | Rich mapping is activated. This mapping is recommended for sandy/loose surfaces. |

## 6.8 Dashboard




Dashboard 1 is fitted in the front of the handlebar.

The dashboard shows the total operating hours of the engine.

The operating hours are counted when the engine is started and stopped when the engine is switched off.

**Note**

Nothing can be cleared or modified on the dashboard.

As soon as the diagnostics tool is connected, the hourmeter starts running.

Before longer diagnostic sessions, unplug the hourmeter behind the number plate.

## 6.9 Opening the fuel tank cap

**DANGER**

**Fire hazard** Fuel is highly flammable.

The fuel in the fuel tank expands when warm and can escape if overfilled.

- Do not refuel the vehicle in the vicinity of open flames, glowing, or smoldering objects.
- Make sure that nobody smokes in the vicinity of the vehicle during the refueling process.
- Switch off the engine for refueling.
- Make sure that no fuel is spilled; particularly not on hot parts of the vehicle.
- If any fuel is spilled, wipe it up immediately.
- Do not overfill the fuel tank.

**WARNING**

**Danger of poisoning** Fuel is harmful to health.

- Do not allow fuel to come into contact with skin, eyes, or clothing.
- Consult a doctor immediately if fuel has been ingested.
- Do not inhale fuel vapors.
- Rinse the affected area immediately with plenty of water in the event of contact with skin.
- Rinse eyes thoroughly with water and consult a doctor immediately if fuel comes into contact with eyes.
- If fuel spills on to your clothing, change the clothing.
- Store fuel properly in a suitable container and keep out of the reach of children.

**NOTE**

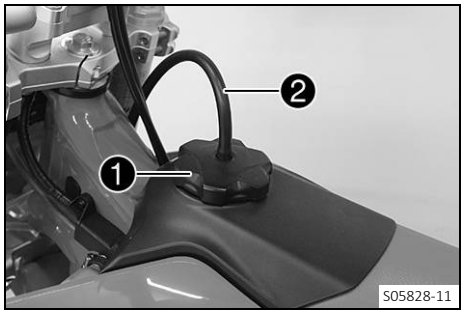
**Environmental hazard** Improper handling of fuel is dangerous to the environment.

- Do not allow fuel to enter the groundwater, the soil, or the sewage system.




- Turn fuel tank cap 1 counterclockwise and lift it off.

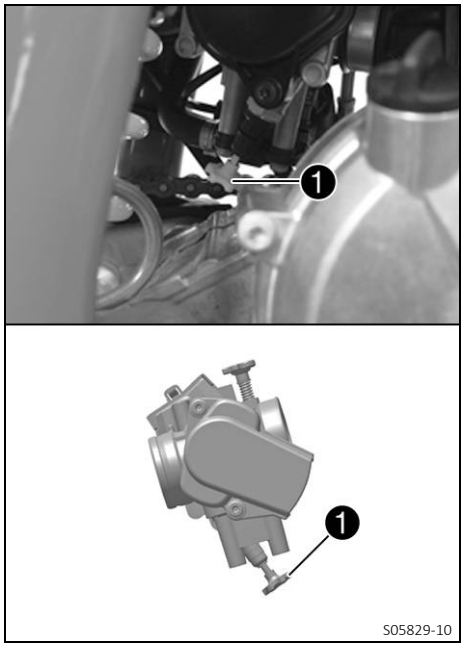
## 6.10 Closing the fuel tank cap




– Mount fuel tank cap ❶ and turn it clockwise until the fuel tank is tightly closed.

| |
|---|
| Route hose of fuel tank vent ❷ without kinks. |

## 6.11 Cold start button




Cold start button ❶ is fitted to the bottom of the throttle body.

The electronic fuel injection extends the injection time when the engine is cold and the ambient temperature is low. To help the engine burn the increased amount of fuel, it must be supplied with additional oxygen by pushing the cold start button.

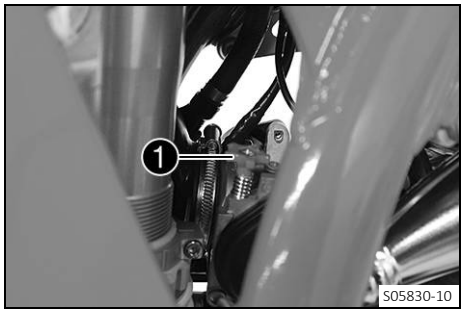
After briefly opening up the throttle and then releasing the throttle twist grip again, or turning the throttle twist grip towards the front, the cold start button returns to its original position.

**Note**

Check whether the cold start button has returned to its basic position.

| Condition | Meaning |
|---|---|
| The cold start button is pushed in all the way to the stop. | Cold start button activated |
| The cold start button is in the basic position. | Cold start button deactivated |

## 6.12 Idle speed adjustment screw




The idle setting of the throttle body substantially influences the vehicle's starting behavior, a stable idle speed, and the vehicle's response when the throttle is opened.

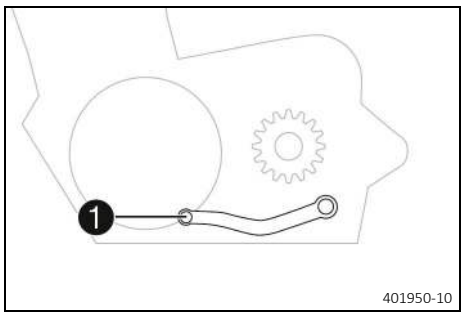
An engine with a correctly set idle speed is easier to start than an engine with the idle speed set incorrectly.

The idle speed is adjusted using idle speed adjusting screw ❶.

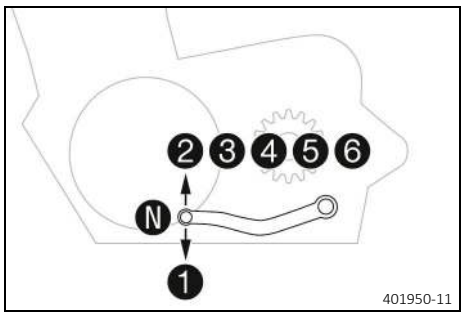
Increase the idle speed by turning the idle speed adjustment screw clockwise.

Decrease the idle speed by turning the idle speed adjustment screw counterclockwise.

## 6.13 Gear shift lever

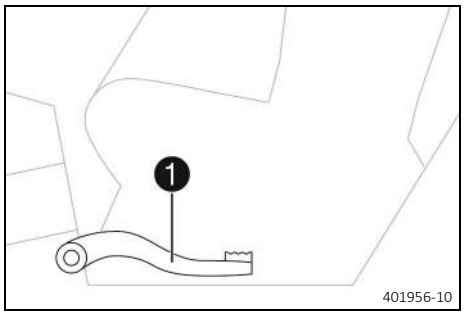



Gear shift lever ❶ is mounted on the left of the engine.



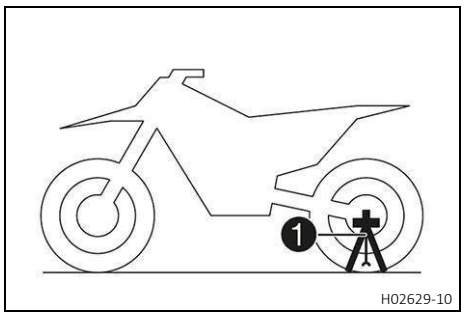

The gear positions can be seen in the figure.
The neutral or idle position is between the first and second gears.

## 6.14 Brake pedal




Brake pedal ❶ is located in front of the right footpeg.
The rear brake is operated with the brake pedal.

## 6.15 Plug-in stand




The support for plug-in stand ❶ is on the left side of the wheel spindle.
The plug-in stand is used for parking the motorcycle.
The plug-in stand is used as a fork support when transporting the motorcycle.

**Note**
The plug-in stand must be removed before riding.

## 7.1 Notes on preparing for first use

**DANGER**
**Danger of accidents** A rider who is not fit to ride poses a danger to themself and to others.
– Do not operate the vehicle if you are not fit to ride due to alcohol, drugs, or medication.
– Do not operate the vehicle if you are physically or mentally incapable of doing so.

**WARNING**
**Danger of accidents** The vehicle is not designed to carry passengers.
– Do not ride with a passenger.

**WARNING**
**Danger of accidents** The brake system fails in the event of overheating.
If the brake pedal is not released, the brake pads grind continuously.
– Take your foot off the brake pedal when you are not braking.

**WARNING**
**Danger of accidents** Not adapting the riding style constitutes a major risk.
– Adapt the vehicle speed to the road conditions and your riding ability.

**WARNING**
**Danger of accidents** Total weight and axle loads influence the handling characteristic.
– Do not exceed the maximum permissible total weight or the axle loads.

**WARNING**
**Risk of injury** People who act without authorization endanger themselves and others.
– Never leave the vehicle unattended while the engine is running.
– Secure the vehicle against unauthorized access.

**WARNING**
**Danger of accidents** Different tire profiles on the front and rear wheels can make it more difficult to control the vehicle.
– Make sure that only tires of the same tread type are mounted to the front and rear wheel.

**WARNING**
**Risk of injury** Missing or inadequate protective clothing increases the risk of injury.
– Wear appropriate protective clothing such as helmet, boots, gloves as well as pants and a jacket with protectors on all rides.
– Always wear protective clothing that is in good condition and meets the legal regulations.

**Note**
When using the motorcycle, remember that others may be disturbed by excessive noise.

– Ensure that the pre-delivery inspection has been carried out by an authorized GASGAS workshop.
  ✓ The delivery certificate is transferred upon vehicle handover.
– Read the entire owner's manual before riding for the first time.
– Get to know the controls.
– Adjust the basic position of the clutch lever. (p. 77)
– Adjust the basic position of the hand brake lever. (p. 80)
– Adjust the basic position of the brake pedal. (p. 86)
– Adjust the basic position of the gear shift lever. (p. 116)
– Get used to the handling characteristics of the motorcycle on suitable terrain before undertaking a more challenging ride.

**Note**

This vehicle is not approved for use on public roads.

When off-road, it is recommended that you be accompanied by another person with another vehicle so that you can help each other.

- Also, ride as slowly as possible and in a standing position to get a better feel for the motorcycle.
- Do not make any off-road trips that exceed your ability and experience.
- Hold the handlebar firmly with both hands and keep your feet on the footpegs when riding.
- Do not take any luggage.

| The maximum permissible total weight and the maximum permissible axle loads must not be exceeded. | |
|---|---|
| Maximum permissible total weight | 335 kg<br>(738.5 lb) |
| Maximum permissible front axle load | 145 kg<br>(319.7 lb) |
| Maximum permissible rear axle load | 190 kg<br>(418.9 lb) |

- Check the spoke tension. (p. 96)

| The spoke tension must be checked after half an hour of operation. |
|---|

- Run in the engine. (p. 22)

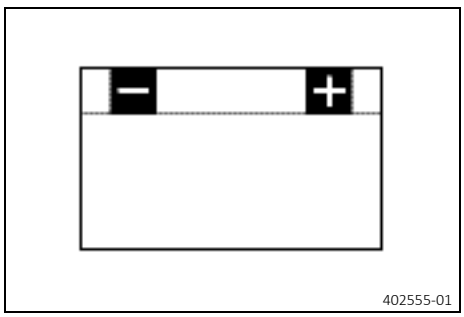
## 7.2 Running in the engine

- During the running-in time, do not exceed the specified engine power.

| Maximum engine power | |
|---|---|
| during the first 3 operating hours | < 70 % |
| during the first 5 operating hours | < 100 % |

- Avoid fully opening the throttle.

## 7.3 Starting performance of lithium-ion batteries at low temperatures




Lithium-ion batteries are far lighter than lead batteries, have a low self-discharge rate, and have more starting power at temperatures over 15 °C (60 °F). At low temperatures, however, the starting power of lithium-ion batteries drops to below that of lead batteries.

Several attempts to start may be required. Press the start button for 5 seconds, and wait 30 seconds between attempts. The pauses are necessary so that the heat created can be distributed through the lithium-ion battery without damaging the lithium-ion battery.

If the charged lithium-ion battery is unable to actuate the starter motor or does so only weakly at temperatures below 15 °C (60 °F), the battery is not faulty but needs to be warmed up internally to increase its starting power (current output).

The starting power increases as the battery warms up.

## 7.4 Preparing the vehicle for difficult operating conditions

**Note**
Use of the vehicle under difficult conditions, such as on sand or on wet and muddy surfaces, can result in significantly increased wear of components, such as the powertrain, brake system, or suspension components. For this reason, it may be necessary to inspect or replace parts before the next scheduled service interval.

– Prepare the air filter box cover for securing. (p. 64)
– Clean the air filter and air filter box. (p. 63)

| |
|---|
| Check the air filter approx. every 30 minutes. |

– Check the electrical socket connector for humidity and corrosion and to ensure it is firmly seated.
  » If moisture, corrosion, or damage is found:
    – Clean and dry the socket connector, or change it if necessary.
– Change the mapping. (p. 113)

| |
|---|
| Select mapping to match the background. |

– Riding on dry sand. (p. 23)
– Riding on wet sand. (p. 24)
– Rides on wet and muddy surfaces. (p. 24)
– Riding at high temperatures or slow speed. (p. 25)
– Riding at low temperatures and in snow. (p. 25)

## 7.5 Preparing the vehicle for rides on dry sand



F03669-01

– Mount the air filter dust protection.

| |
|---|
| Read the accompanying mounting instructions. |
| Air filter dust protection cover (A46009620000) |



F03670-01

– Mount the air filter sand protection.

| |
|---|
| Read the accompanying mounting instructions. |
| Air filter sand protection (A46006922000) |




– Clean the chain.

| Chain cleaner (p. 147) |
|---|

– Mount the steel sprocket.
– Grease the chain.

| Universal oil spray (p. 143) |
|---|

– Clean the radiator fins.
– Straighten the bent radiator fins carefully.

Condition: Regular use in sand

– Change the piston every 10 operating hours.

## 7.6 Preparing the vehicle for rides on wet sand




– Mount the air filter water protection.

| Read the accompanying mounting instructions. |
|---|

| Air filter water protection (A46006921000) |
|---|




– Clean the chain.

| Chain cleaner (p. 147) |
|---|

– Mount the steel sprocket.
– Grease the chain.

| Universal oil spray (p. 143) |
|---|

– Clean the radiator fins.
– Straighten the bent radiator fins carefully.

Condition: Regular use in sand

– Change the piston every 10 operating hours.

## 7.7 Preparing for rides on wet and muddy surfaces




– Mount the air filter water protection.

| Read the accompanying mounting instructions. |
|---|

| Air filter water protection (A46006921000) |
|---|


600868-01

– Mount the steel sprocket.
– Clean the motorcycle. (p. 121)
– Straighten the bent radiator fins carefully.

## 7.8 Preparing vehicle for rides at high temperature or slow speed


600868-01

– Adjust the secondary transmission to the road conditions.

**Note**
The engine oil quickly gets hot if the clutch has to be operated very often due to an excessively high secondary transmission.

– Clean the chain. (p. 70)
– Clean the radiator fins.
– Straighten the bent radiator fins carefully.
– Check the coolant level. (p. 99)

## 7.9 Preparing the vehicle for low temperatures or snow



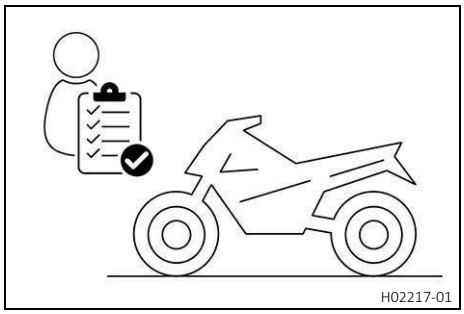
F03668-01

– Mount the air filter water protection.

| Read the accompanying mounting instructions. |
|---|
| Air filter water protection (A46006921000) |

## 8.1 Checks and maintenance measures when preparing for use

**Note**
Before every trip, check the condition of the vehicle and ensure that it is safe to operate.
The vehicle must be in perfect technical condition when it is being operated.


H02217-01

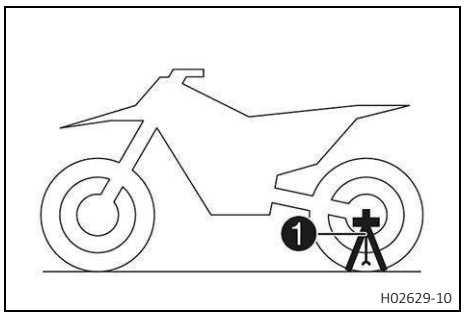
- Check that the electrical equipment is functioning properly.
- Check the gear oil level. (p. 118)
- Check the brake fluid level for the front brake. (p. 81)
- Check the brake fluid level for the rear brake. (p. 87)
- Check that the brake pads of the front brake are secured. (p. 83)
- Check that the brake pads of the rear brake are secured. (p. 88)
- Check that the brake system is functioning properly.
- Check the coolant level. (p. 99)
- Check the chain for dirt. (p. 70)
- Check the chain, rear sprocket, engine sprocket, and chain guide. (p. 72)
- Check the chain tension. (p. 71)
- Check the tire condition. (p. 95)
- Check the tire pressure. (p. 96)
- Check the spoke tension. (p. 96)

  The spoke tension must be checked regularly as incorrect spoke tension will severely impair riding safety.
- Clean the dust boots of the fork legs. (p. 47)
- Bleed the fork legs. (p. 46)
- Check the air filter.
- Check the settings of all controls and ensure that they can be operated smoothly.
- Check all screws, nuts, and hose clamps regularly for tightness.
- Check the fuel level.

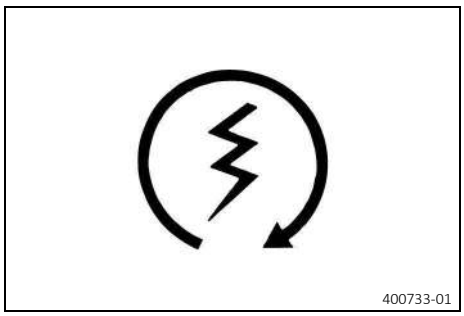
## 8.2 Starting the vehicle

**DANGER**
**Danger of poisoning** Exhaust gases are toxic and inhaling them may result in unconsciousness and death.
- Always ensure that there is sufficient ventilation when running the engine.
- Use suitable exhaust extraction when starting or running the engine in an enclosed space.

**NOTE**
**Engine failure** Running a cold engine at high engine speeds negatively impacts the service life of the engine.
- Always warm up the engine at low engine speeds.




– Remove plug-in stand ❶.
– Shift the transmission into the neutral position.




Condition: Ambient temperature: < 20 °C (< 68.0 °F)

– Press the cold start button in all the way to the stop.
– Press the electric starter.

| |
|---|
| Press the electric starter for a maximum of 5 seconds. Wait for 15 seconds before making another attempt at starting. |
| After 6 unsuccessful starting attempts, do not try again, and check the vehicle for other malfunctions instead. |

**Note**

At low temperatures, wait for 30 seconds.

At temperatures below 6 °C (43 °F), several attempts at starting may be necessary to warm-up the lithium-ion battery and thereby increase the starting power.

The malfunction indicator light lights up during the starting process.

## 8.3 Starting off

**Note**

The plug-in stand must be removed before riding.

– Pull the clutch lever, shift into first gear, release the clutch lever slowly and at the same time carefully open the throttle.

## 8.4 Shifting, riding

**WARNING**

**Danger of accidents** If you downshift at high engine speed, the rear wheel blocks and the engine races.

– Do not downshift to a lower gear at high engine speeds.

**Note**

If you hear unusual noises while riding, stop immediately, switch off the engine, and contact an authorized GASGAS workshop.

First gear is used for starting off or for steep inclines.

– Shift into a higher gear when conditions allow (incline, riding situation, etc.). To do so, release the throttle while simultaneously pulling the clutch lever, shift into the next gear, release the clutch lever and open the throttle.
– If you pushed the cold start button while starting, open the throttle briefly and release the throttle twist grip or turn the throttle twist grip forward.
  ✓ The cold start button goes to the basic position.

– After reaching maximum speed by fully opening the throttle twist grip, turn the throttle back so that it is ¾ open. This will reduce the speed slightly, but the fuel consumption will be considerably lower.
– Only open the throttle as much as the engine can handle. Abruptly opening the throttle increases fuel consumption.
– To shift down, brake and close the throttle at the same time.
– Pull the clutch lever and shift into a lower gear, release the clutch lever slowly, and either open the throttle or shift again.
– Switch off the engine if you are likely to be running at idle speed or stationary for a long time.

| ≥ 1 min |
|---|

– Avoid riding the clutch frequently or for too long. This causes the gear oil, engine, and cooling system to heat up.
– Ride at a low engine speed instead of at a high engine speed when riding the clutch.

## 8.5 Braking

**WARNING**
**Danger of accidents** A spongy pressure point on the front or rear brake reduces the brake action.
– Do not drive the vehicle if the brake system has a spongy pressure point.

**WARNING**
**Danger of accidents** Braking with excessive force locks the wheels.
– Adapt your braking to the riding situation and the road conditions.

**WARNING**
**Danger of accidents** Moisture and dirt impair the brake system.
– Brake carefully several times to dry out and remove dirt from the brake pads and the brake discs.

– On sandy, wet, or slippery surfaces, use mostly the rear brake.
– Always finish braking before the going into a bend. Shift into a lower gear that suits the speed.
– Use the brake action of the engine on long downhill stretches. Shift down one or two gears, but do not overrev the engine when doing so. This means that significantly less braking is required and means the brake system does not overheat.

## 8.6 Stop, park

**WARNING**
**Danger of burns** Some vehicle components become hot when the vehicle is operated.
– Do not touch any parts such as the exhaust system, radiator, engine, damper, or brake system before the vehicle parts have cooled down.
– Allow the vehicle parts to cool down before performing any work on the vehicle.

**WARNING**
**Risk of injury** People who act without authorization endanger themselves and others.
– Never leave the vehicle unattended while the engine is running.
– Secure the vehicle against unauthorized access.

**NOTE**
**Fire hazard** Hot vehicle components pose a fire hazard and explosion risk.
– Do not park the vehicle near materials which are highly flammable or explosive.
– Allow the vehicle to cool down before covering it.

**NOTE**
**Material damage** The vehicle may be damaged if parked incorrectly.
Damage can occur if the vehicle rolls away or falls over.

The components for parking the vehicle are designed only for the weight of the vehicle.
- Park the vehicle on a firm and level surface.
- Make sure that nobody sits on the vehicle when it is parked on a stand.

---

- Brake the motorcycle.
- Shift the transmission into the neutral position.
- Press and hold kill button ⊗ while the engine is idling until the engine stops.
- Park the motorcycle on firm ground.

## 8.7 Transportation

**NOTE**

**Fire hazard** Hot vehicle components pose a fire hazard and explosion risk.
- Do not park the vehicle near materials which are highly flammable or explosive.
- Allow the vehicle to cool down before covering it.

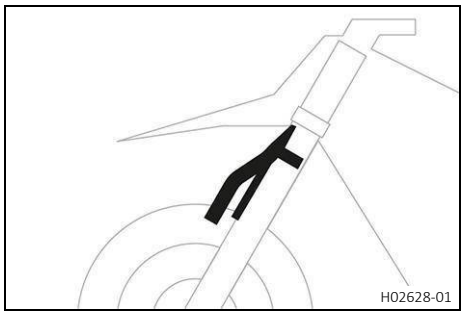
**NOTE**

**Material damage** The vehicle may be damaged if parked incorrectly.

Damage can occur if the vehicle rolls away or falls over.

The components for parking the vehicle are designed only for the weight of the vehicle.
- Park the vehicle on a firm and level surface.
- Make sure that nobody sits on the vehicle when it is parked on a stand.

---



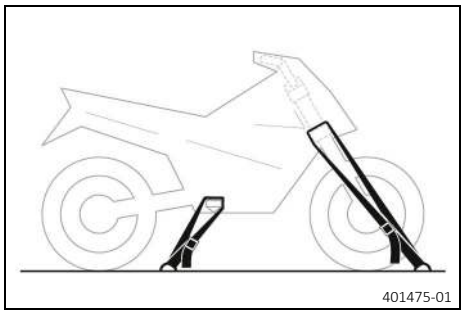

- Switch off the engine.
- Mount the plug-in stand on the fork legs.

| |
|---|
| Make sure the brake line runs in front of the plug-in stand and does not become wedged. |

| |
|---|
| Plug-in stand (A46029094000) |

**Note**

The plug-in stand is included in the scope of supply.




- Use tension belts or other suitable devices to secure the motorcycle against falling over or rolling away.

| |
|---|
| Only tighten the tie downs to the point that the plug-in stand is firmly in contact with the fender and tires. |
| Make sure that the plug-in stand is aligned with the underside of the fender. |

## 8.8 Refueling

**DANGER**

**Fire hazard** Fuel is highly flammable.

The fuel in the fuel tank expands when warm and can escape if overfilled.

- Do not refuel the vehicle in the vicinity of open flames, glowing, or smoldering objects.
- Make sure that nobody smokes in the vicinity of the vehicle during the refueling process.
- Switch off the engine for refueling.
- Make sure that no fuel is spilled; particularly not on hot parts of the vehicle.
- If any fuel is spilled, wipe it up immediately.
- Do not overfill the fuel tank.

**WARNING**

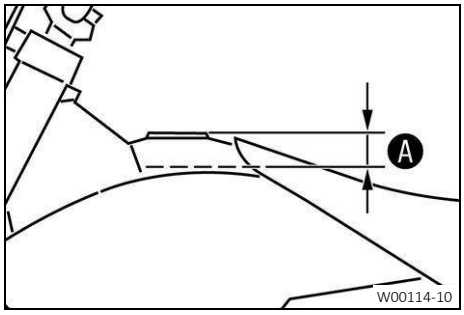
**Danger of poisoning** Fuel is harmful to health.

- Do not allow fuel to come into contact with skin, eyes, or clothing.
- Consult a doctor immediately if fuel has been ingested.
- Do not inhale fuel vapors.
- Rinse the affected area immediately with plenty of water in the event of contact with skin.
- Rinse eyes thoroughly with water and consult a doctor immediately if fuel comes into contact with eyes.
- If fuel spills on to your clothing, change the clothing.
- Store fuel properly in a suitable container and keep out of the reach of children.

**NOTE**

**Environmental hazard** Improper handling of fuel is dangerous to the environment.

- Do not allow fuel to enter the groundwater, the soil, or the sewage system.




- Switch off the engine.
- Open the fuel tank cap. (p. 18)
- Fill the fuel tank with fuel no higher than A.

| | |
|---|---|
| Level A | 35 mm<br>(1.38 in) |

| Total fuel tank capacity, approx. | |
|---|---|
| Super unleaded (98 octane) mixed with 2-stroke engine oil (p. 142)<br>Mixture ratio: 1:40 | 7.9 l<br>(2.09 liq. $gal_{US}$) |

- Close the fuel tank cap. (p. 19)

## 9.1 Service schedule

Any further work that results from the service work must be ordered separately and invoiced separately.

Different service intervals may apply in your country, depending on the local operating conditions.

If the vehicle is used in particularly harsh conditions such as heavy rain, mud, sand, snow, extreme temperatures, frequent full load etc., shorter service intervals than those in the table may be necessary.

Individual service intervals and scopes may change in the course of technical developments. The most up-to-date service schedule is available for authorized dealers for the electronic proof of service. Your authorized dealer will be happy to advise you.

| | After one operating hour | After 15 operating hours / Every 15 operating hours | Every 45 operating hours | Every 90 operating hours | Every 24 months |
|---|---|---|---|---|---|
| Read out the fault memory using the diagnostics tool. | ○ | ● | ● | ● | ● |
| Check that the electrical equipment is functioning properly | ○ | ● | ● | ● | |
| Check and charge the 12 V battery | ○ | ● | ● | ● | ● |
| Check that the brake pads of the front brake are secured. (p. 83) | ○ | ● | ● | ● | ● |
| Check that the brake pads of the rear brake are secured. (p. 88) | ○ | ● | ● | ● | ● |
| Check the brake discs. (p. 80) | ○ | ● | ● | ● | ● |
| Check the brake lines for damage and tightness | ○ | ● | ● | ● | ● |
| Check the brake fluid level for the front brake. (p. 81) | ○ | ● | ● | | |
| Change the brake fluid for the front brake. | | | | ● | ● |
| Check the brake fluid level for the rear brake. (p. 87) | ○ | ● | ● | | |
| Change the brake fluid for the rear brake. | | | | ● | ● |
| Check/correct the fluid level of the hydraulic clutch. (p. 77) | | | ● | | |
| Change the hydraulic clutch fluid. (p. 78) | | | | ● | ● |
| Check the free travel on the hand brake lever. (p. 80) | ○ | ● | ● | ● | ● |
| Check the free travel of the brake pedal. (p. 86) | ○ | ● | ● | ● | ● |
| Check the idle speed | ○ | ● | ● | ● | ● |
| Change the gear oil. (p. 119) | ○ | ● | ● | ● | ● |
| Check all hoses (e.g. fuel, cooling, bleeder, drainage, etc.) and boots for cracking, leaks, and correct routing | ○ | ● | ● | ● | ● |
| Check the cables for damage and that there are no kinks in the routing | | ● | ● | ● | ● |
| Check that the clutch cables are undamaged, routed without kinks, and set correctly | | ● | ● | ● | ● |
| Check the frame. (p. 75) | | ● | ● | ● | |
| Check the swingarm. (p. 75) | | ● | ● | ● | |
| Check the swingarm bearing for play. | | | ● | ● | |
| Check the heim joint on the shock absorber for play. | | | ● | ● | |
| Check the shock absorber linkage. | | ● | ● | ● | |
| Check the tire condition. (p. 95) | | ● | ● | ● | ● |
| Check the tire pressure. (p. 96) | ○ | ● | ● | ● | ● |

| | After one operating hour | After 15 operating hours / Every 15 operating hours | Every 45 operating hours | Every 90 operating hours | Every 24 months |
|---|---|---|---|---|---|
| Check the wheel bearing for play. | | ● | ● | ● | |
| Check the hubs | | ● | ● | ● | |
| Check the rim run-out. | ○ | ● | ● | ● | |
| Check the spoke tension. (p. 96) | ○ | ● | ● | ● | |
| Check the chain, rear sprocket, engine sprocket, and chain guide. (p. 72) | ○ | ● | ● | ● | |
| Check the chain tension. (p. 71) | ○ | ● | ● | ● | ● |
| Grease all moving parts (e.g., hand lever, chain, etc.) and check for smooth operation | ○ | ● | ● | ● | ● |
| Check the basic setting of the throttle position sensor. | | ○ | ● | ● | ● |
| Change the spark plug and spark plug connector. | | ● | ● | ● | |
| Change the fuel filter. | | | | ● | ● |
| Check the clutch. | | ● | ● | ● | |
| Clean the air filter and air filter box. (p. 63) | | ● | ● | ● | ● |
| Change the damping material on the main silencer. (p. 66) | | | ● | ● | |
| Carry out fork service. | | | ● | ● | |
| Service the shock absorber. | | | ● | ● | |
| Check all screws, nuts, and hose clamps for a tight fit | ○ | ● | ● | ● | ● |
| Change the fuel screen. (p. 117) | ○ | ● | ● | ● | ● |
| Check the fuel pressure. | ○ | | ● | ● | ● |
| Check the frost protection and coolant level. (p. 98) | | | ● | ● | |
| Check the coolant level. (p. 99) | ○ | ● | | | |
| Change the coolant. (p. 102) | | | | | ● |
| Check the steering head bearing play. (p. 53) | ○ | ● | | | |
| Lubricate the steering head bearing. (p. 54) | | | ● | ● | ● |
| Check the starter drive. | | | ● | ● | ● |
| Check the reed valve housing, diaphragm, and intake manifold. | | ● | ● | ● | |
| Perform minor engine service. (Change the piston. Check the cylinder head. Change the O-rings of the manifold and the cylinder head. Check the cylinder and Z-dimension. Clean the exhaust control. Check the exhaust control for function and smooth operation. Program the exhaust control end positions. Check the pressure sensor flange for cracks and damage. Remove combustion residues from the exhaust port. Change the bracket for the crankshaft position sensor.) | | ● | ● | ● | |
| Perform major engine service including removing and re-installing the engine (Change the connecting rod, big (bottom) end bearing and crankshaft pin Check the transmission and shift mechanism Change all the engine bearings, the radial shaft seal rings, and the seals.) | | | ● | ● | |
| Final check: check vehicle for operating safety | ○ | ● | ● | ● | ● |
| Take a test ride | ○ | ● | ● | ● | ● |
| Read out the fault memory after the test ride using the diagnostics tool. | ○ | ● | ● | ● | ● |

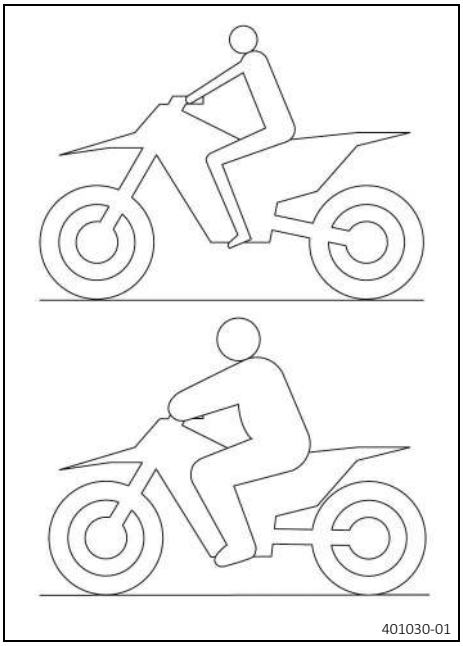
| | Every 24 months | Every 90 operating hours | Every 45 operating hours | After 15 operating hours / Every 15 operating hours | After one operating hour |
|---|---|---|---|---|---|
| Enter electronic proof of service | ○ | ● | ● | ● | ● |

○ One-time interval

● Periodic interval

## 10.1 Checking the basic chassis setting with the rider's weight

**Note**
When adjusting the basic chassis setting, first adjust the shock absorber and then the fork.




- For optimal motorcycle riding characteristics and to avoid damage to forks, shock absorbers, swingarm, and frame, the basic settings of the suspension components must match the rider's weight.
- As delivered, GASGAS offroad motorcycles are adjusted for an average rider's weight (with full protective clothing).

| | |
|---|---|
| Standard rider's weight | 75 kg ... 85 kg<br>(165.3 lb ... 187.4 lb) |

- If the rider's weight is above or below this range, the basic setting of the suspension components must be adjusted accordingly.
- Small weight differences can be compensated for by adjusting the preload, but in the case of large weight differences, the springs must be replaced.

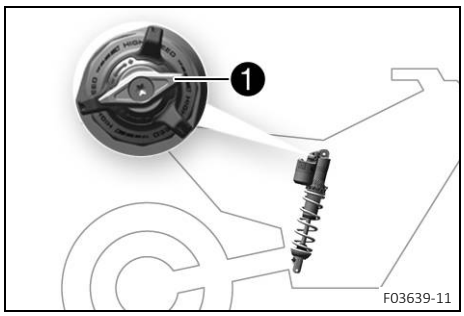
## 10.2 Compression damping of the shock absorber

The compression damping of the shock absorber is divided into two ranges: high-speed and low-speed.
High-speed and low-speed refer to the compression speed of the rear wheel suspension and not to the vehicle speed.
The high-speed compression has an effect, for example, when landing after a jump: the rear wheel suspension compresses quickly.
The low-speed compression has an effect, for example, when riding over long bumps: the rear wheel suspension compresses slowly.
These two ranges can be adjusted separately, although the transition between high-speed and low-speed is floating. As a result, changes in the high-speed range affect the compression damping in the low-speed range and vice versa.

## 10.3 Adjusting the low-speed compression damping of the shock absorber

**CAUTION**
**Risk of injury** Parts of the shock absorber will move erratically if the shock absorber is detached incorrectly.
The shock absorber is filled with highly compressed nitrogen.
- Please follow the description provided.

**Note**
The effect of the low-speed compression adjustment can be seen in slow to normal compression of the shock absorber.




– Turn adjusters ❶ clockwise up to the last perceptible click.
– Turn counterclockwise by the number of clicks corresponding to the shock absorber type.

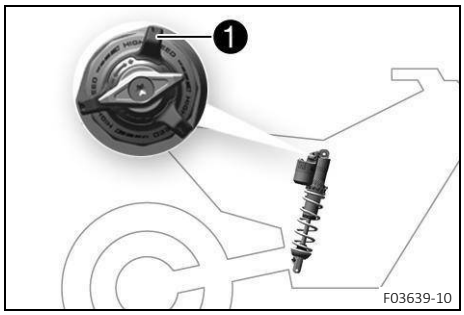
| Low-speed compression damping | |
|---|---|
| Comfort | 17 clicks |
| Standard | 15 clicks |
| Sport | 13 clicks |

**Note**
Turning clockwise increases damping; turning anticlockwise reduces damping.

## 10.4 Adjusting the high-speed compression damping of the shock absorber

**CAUTION**
**Risk of injury** Parts of the shock absorber will move erratically if the shock absorber is detached incorrectly.
The shock absorber is filled with highly compressed nitrogen.
– Please follow the description provided.

**Note**
The effect of the high-speed compression adjustment can be seen in the fast compression of the shock absorber.



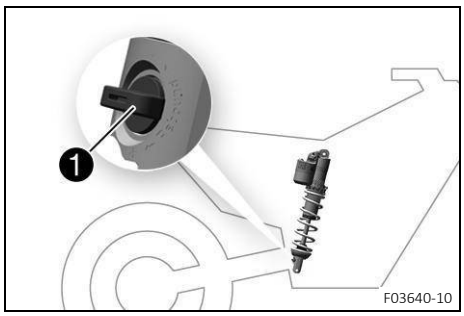

– Turn adjusters ❶ clockwise all the way to the stop.
– Turn counterclockwise by the number of turns corresponding to the shock absorber type.

| High-speed compression damping | |
|---|---|
| Comfort | 2 turns (720°) |
| Standard | 1.5 turns (540°) |
| Sport | 1 turn (360°) |

**Note**
Turning clockwise increases damping; turning anticlockwise reduces damping.

## 10.5 Adjusting the rebound damping of the shock absorber

**CAUTION**
**Risk of injury** Parts of the shock absorber will move erratically if the shock absorber is detached incorrectly.
The shock absorber is filled with highly compressed nitrogen.
– Please follow the description provided.




– Turn adjusters ❶ clockwise up to the last perceptible click.
– Turn counterclockwise by the number of clicks corresponding to the shock absorber type.

| Rebound damping | |
|---|---|
| Comfort | 17 clicks |
| Standard | 15 clicks |
| Sport | 13 clicks |

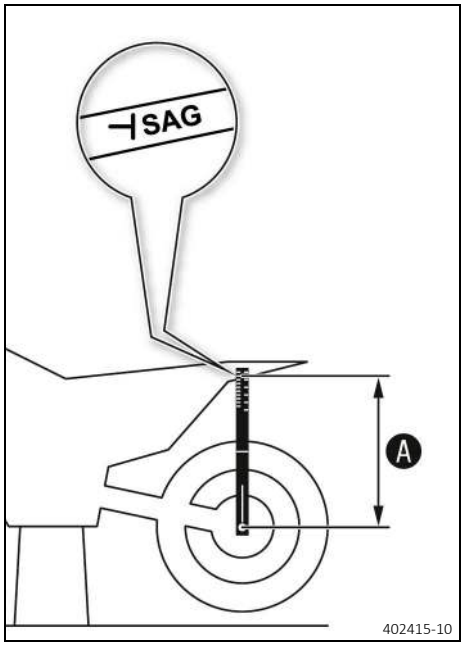
**Note**
Turning clockwise increases damping; turning anticlockwise reduces damping on rebound.

## 10.6 Measuring the dimension of the unloaded rear wheel

**Preparatory work**

– Raise the motorcycle with a lift stand. (p. 46)

**Main work**




– Position the sag scale in the rear axle and measure the distance to **SAG** marking on the rear fender.

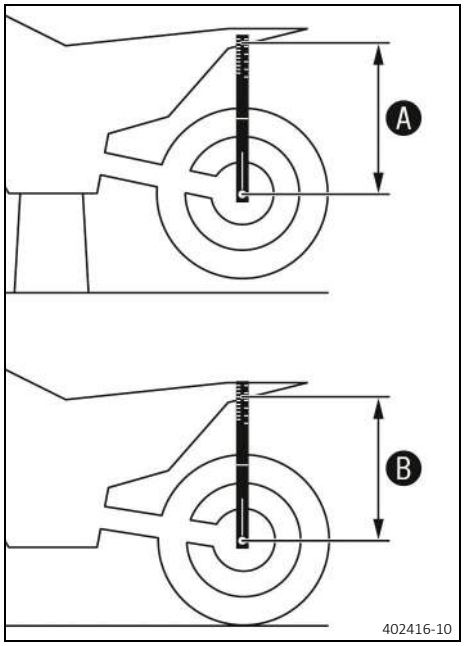
| Sag scale (00029090200) |
|---|

– Note the value as dimension Ⓐ.

**Reworking**

– Remove the motorcycle from the lift stand. (p. 46)

## 10.7 Checking the static sag of the shock absorber




– Measure the dimension of the unloaded rear wheel. (p. 36)
– Hold the motorcycle upright with aid of an assistant.
– Remeasure the distance between the rear axle and the **SAG** marking on the rear fender using the sag scale.
– Note the value as dimension B.

**Note**

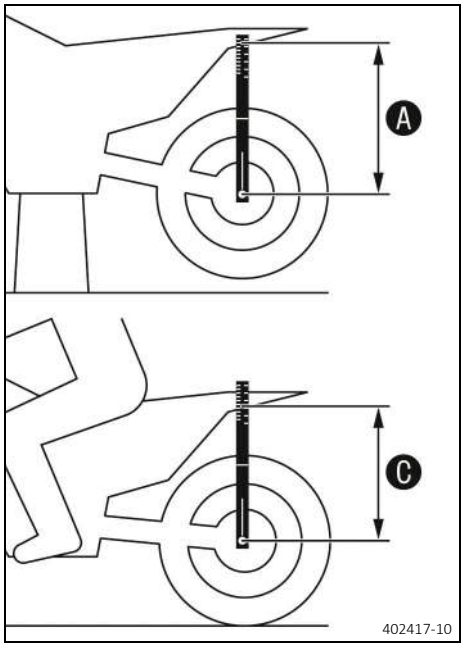
The static sag is the difference between measurements A and B.

– Check the static sag.

| | |
|---|---|
| Static sag | 35 mm<br>(1.38 in) |

» If the static sag is more or less than the specified value:
– Adjust the preload for the shock absorber. (p. 38)

## 10.8 Checking the rider sag of the shock absorber




– Measure the dimension of the unloaded rear wheel. (p. 36)
– With another person holding the motorcycle, the rider, wearing full protective clothing, sits on the seat in a normal seating position (feet on footpegs) and bounces up and down a few times.
✓ The rear wheel suspension levels out.
– Another person now remeasures the distance between the rear axle and the **SAG** marking on the rear fender using the sag scale.
– Note the value as dimension C.

**Note**

The rider sag is the difference between measurements A and C.

– Check the rider sag.

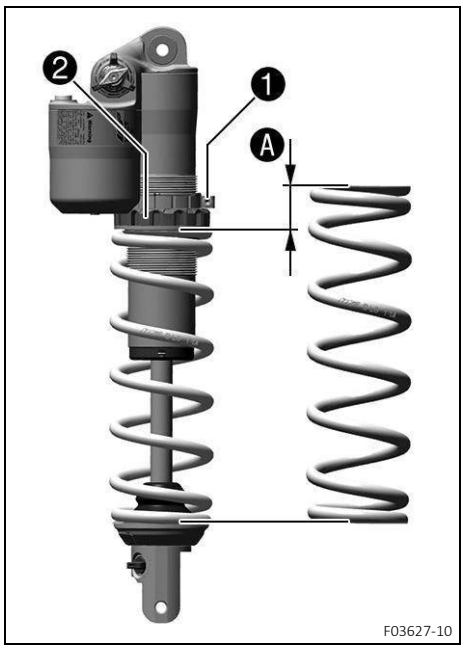
| | |
|---|---|
| Rider sag | 105 mm<br>(4.13 in) |

» If the rider sag differs from the specified measurement:
– Adjust the rider sag. (p. 39)

## 10.9 Adjusting the preload for the shock absorber

**CAUTION**
**Risk of injury** Parts of the shock absorber will move erratically if the shock absorber is detached incorrectly. The shock absorber is filled with highly compressed nitrogen.
– Please follow the description provided.

**Note**
Before changing the preload, make a note of the present setting, e.g., by measuring the spring length.




**Preparatory work**
– Raise the motorcycle with a lift stand. (p. 46)
– Remove the frame protector. (p. 60)
– Remove the shock absorber. (p. 56)
– After removing the shock absorber, clean it thoroughly.

**Main work**
– Loosen screw 1.
– Turn adjusting ring 2 until the spring is no longer under tension.

| Hook wrench (90129051000) |
|---|

**Note**
If the spring cannot be fully released, the spring must be removed to accurately measure the spring length.

– Measure the total spring length while the spring is not under tension.
– Tension the spring by turning adjusting ring 2 to the specified degree A.

| | |
|---|---|
| Preload | 8 mm<br>(0.31 in) |

**Note**
Depending on the static sag and/or the rider sag, it may be necessary to increase or decrease the spring preload.

– Tighten screw 1.

| Screw, shock absorber adjusting ring | |
|---|---|
| M5 | 5 Nm<br>(3.7 ft·lb$_f$) |

| Make sure that the adjusting ring does not touch any other components when installed. |
|---|

**Reworking**
– Install the shock absorber. (p. 57)
– Check the free travel of the brake pedal. (p. 86)

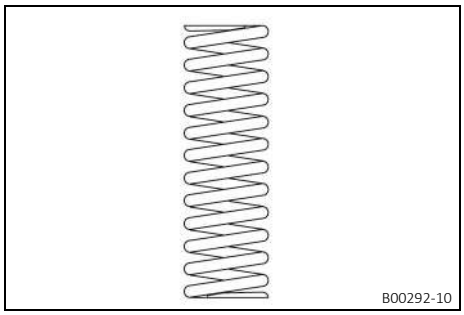
– Install the frame protector. (p. 60)
– Remove the motorcycle from the lift stand. (p. 46)

## 10.10 Adjusting the rider sag

**Preparatory work**

– Raise the motorcycle with a lift stand. (p. 46)
– Remove the frame protector. (p. 60)
– Remove the shock absorber. (p. 56)
– After removing the shock absorber, clean it thoroughly.

**Main work**




– Select and mount a suitable spring.

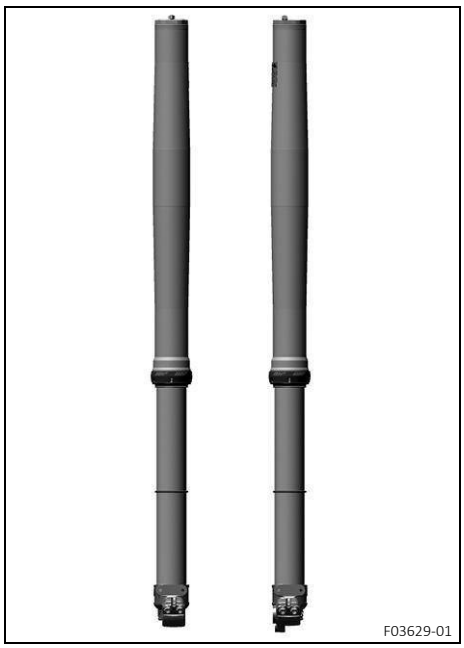
| Spring rate | |
|---|---|
| Weight of rider: 65 kg … 75 kg (143.3 lb … 165.3 lb) | 36 N/mm (205.6 $lb_f$/in) |
| Weight of rider: 75 kg … 85 kg (165.3 lb … 187.4 lb) | 39 N/mm (222.7 $lb_f$/in) |
| Weight of rider: 85 kg … 95 kg (187.4 lb … 209.4 lb) | 42 N/mm (239.8 $lb_f$/in) |

**Note**
The spring rate is shown on the outside of the spring.

**Reworking**

– Install the shock absorber. (p. 57)
– Check the free travel of the brake pedal. (p. 86)
– Install the frame protector. (p. 60)
– Remove the motorcycle from the lift stand. (p. 46)
– Check the static sag of the shock absorber. (p. 37)
– Check the rider sag of the shock absorber. (p. 37)
– Adjust the rebound damping of the shock absorber. (p. 35)

## 10.11 XACT air suspension




Air suspension is used in the **WP XACT** fork.

In this system, the suspension is located in the left fork leg and damping in the right fork leg.

As fork springs are no longer required, a significant weight advantage is achieved when compared to conventional forks. The response on slightly uneven surfaces is significantly improved.

In normal driving mode, suspension is provided exclusively by an air cushion. A steel spring is located in the left fork leg as an end stop.

**Note**

If the fork frequently bottoms out, then the fork air pressure must be increased to avoid damage to the fork and frame.

The air pressure in the fork can be quickly adjusted to the rider's weight, surface conditions, and the rider's preference using a fork air pump. The fork does not have to be dismantled. The time-consuming mounting of harder or softer fork springs is not required.

If the air chamber loses air due to a damaged seal, the fork will still not sag. In this case the air is retained in the fork. The suspension travel is maintained as far as possible. The damping becomes harder, and the riding comfort is reduced.

As with a conventional fork, the damping can be adjusted in rebound and compression stages.

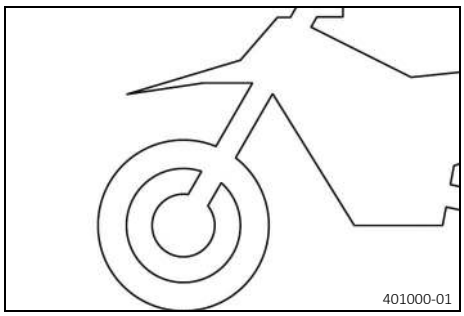
The rebound adjustment is located at the lower end of the right fork leg.

The compression adjustment is located at the upper end of the right fork leg.

## 10.12 Checking the basic setting of the fork

**Note**

For various reasons, no exact rider sag can be determined for the fork.




- Smaller differences in the rider's weight can be compensated for by the fork air pressure.
- However, if the fork frequently bottoms out (hard end stop on compression), the fork air pressure must be increased, within the specified values, to avoid damage to the fork and frame.
- If the fork feels unusually hard after extended periods of operation, the fork legs need to be bled.

## 10.13 Adjusting the fork air pressure

**WARNING**

**Danger of accidents** Modifications to the suspension settings that are not properly coordinated can impair the handling and overload components.

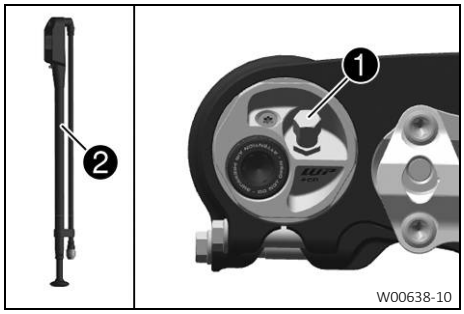
- Only make adjustments within the recommended range.
- Ride slowly to start with after making adjustments to get the feel of the new handling characteristics.

**Note**
Check or adjust the air pressure under the same conditions at the earliest 5 minutes after switching off the engine.
The air suspension is located in the left fork leg. The pressure and rebound damping is located in the right fork leg.

**Preparatory work**

– Raise the motorcycle with a lift stand. (p. 46)

**Main work**




– Remove protection cap ❶.
– Fully put fork air pump ❷ together.

| |
|---|
| Fork air pump (79412966100) |

**Note**
The fork air pump is included as part of the motorcycle's accessory pack.

– Connect the fork air pump to the left fork leg.

| |
|---|
| Read the accompanying instructions. |

✓ The fork air pump indicator switches on automatically.
✓ A little air escapes from the fork leg when connecting.

**Note**
This is due to the volume of the hose and is not due to a defect in the fork air pump or the fork.

– Adjust the air pressure as specified.

| |
|---|
| Do not set the air pressure outside the specified range. |

| Air pressure | |
|---|---|
| Weight of rider: 65 kg … 75 kg (143.3 lb … 165.3 lb) | 8.4 bar (121.8 psi) |
| Weight of rider: 75 kg … 85 kg (165.3 lb … 187.4 lb) | 8.6 bar (124.7 psi) |
| Weight of rider: 85 kg … 95 kg (187.4 lb … 209.4 lb) | 8.8 bar (127.6 psi) |

| | |
|---|---|
| Gradual change of the air pressure in steps by | 0.2 bar (2.9 psi) |
| Minimum air pressure | 7 bar (102 psi) |
| Maximum air pressure | 12 bar (174 psi) |

– Disconnect the fork air pump from the left fork leg.
✓ When disconnecting, excess pressure will escape from the hose – the fork leg itself does not lose any air.
✓ The fork air pump display switches off automatically after 80 seconds.
– Mount the protection cap.

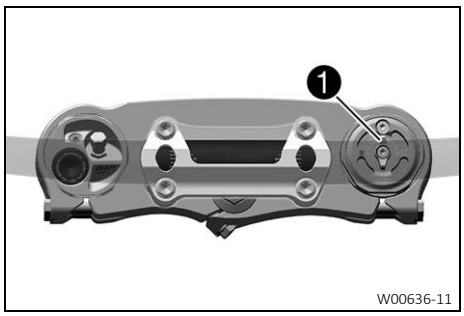
| |
|---|
| Only mount the protection cap by hand. |

**Reworking**

– Remove the motorcycle from the lift stand. (p. 46)

## 10.14 Adjusting the compression damping of the fork

**Note**
The hydraulic compression damping determines the fork suspension behavior.




– Turn adjusters 1 clockwise all the way to the stop.

**Note**
Adjusters 1 are located at the top end of the fork legs.

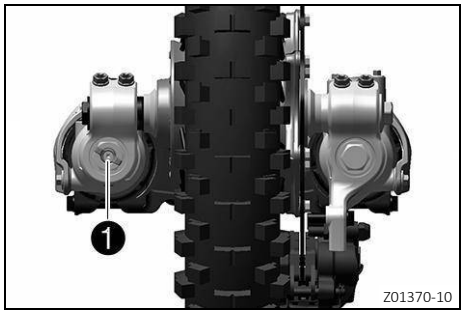
– Turn clockwise by the number of clicks corresponding to the fork type.

| Compression damping | |
|---|---|
| Comfort | 17 clicks |
| Standard | 12 clicks |
| Sport | 7 clicks |

**Note**
Turning clockwise increases damping; turning counterclockwise reduces damping during compression.

## 10.15 Adjusting the rebound damping of the fork

**Note**
The hydraulic rebound damping determines the fork suspension behavior.




– Turn adjusting screw 1 clockwise all the way.

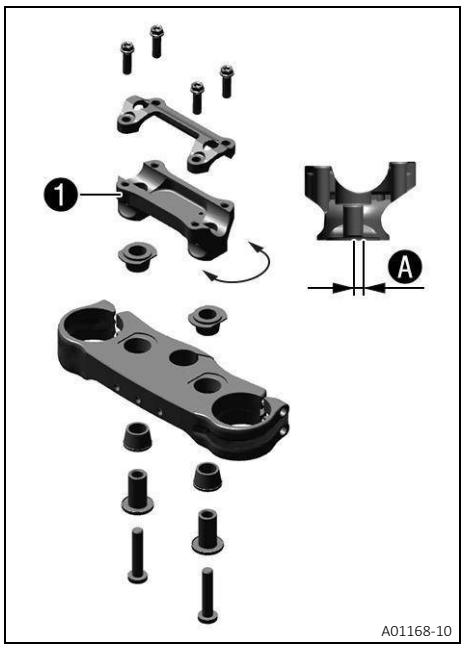
**Note**
Adjusting screw 1 is located at the lower end of the right fork leg.

– Turn clockwise by the number of clicks corresponding to the fork type.

| Rebound damping | |
|---|---|
| Comfort | 17 clicks |
| Standard | 12 clicks |
| Sport | 7 clicks |

**Note**
Turning clockwise increases damping; turning anticlockwise reduces damping on rebound.

## 10.16 Handlebar position




The holes on handlebar mount ❶ are placed at a distance of Ⓐ from the center.

| | |
|---|---|
| Hole distance A | 3.5 mm<br>(0.138 in) |

The handlebar can be mounted in 2 different positions. This allows the handlebar to be mounted in the most comfortable position for the rider.

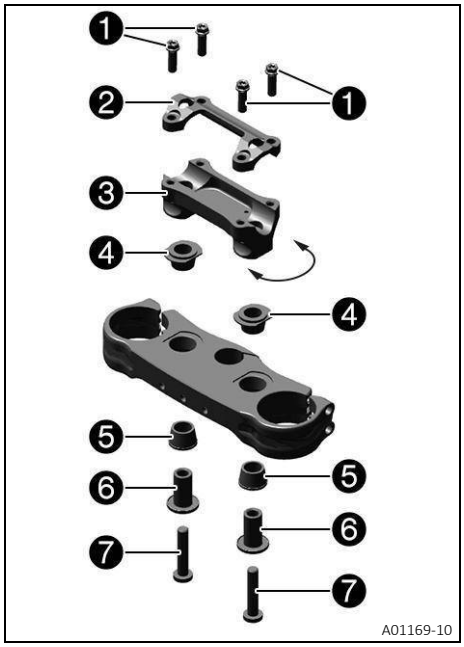
**Note**
In addition, the handlebar can be mounted rigidly or on a rubber support.

## 10.17 Adjusting the handlebar position

**WARNING**
**Danger of accidents** A repaired handlebar poses a safety risk.
If the handlebar is bent or straightened, the material becomes fatigued. The handlebar may break as a result.
– Change the handlebar if the handlebar is damaged or bent.

**Note**
The handlebar can be mounted rigidly or on a rubber bearing.

**Preparatory work**
– Remove the handlebar pad.




**Main work**

– Remove screws ❶. Remove handlebar clamp ❷. Remove the handlebar and lay it to one side.

| |
|---|
| Protect the components against damage by covering them. |
| Do not kink the cables or lines. |

– Remove screws ❼ and bushings ❻. Remove handlebar mount ❸.

– Select one of the following alternatives.

**Adjusting the handlebar position with handlebar clamp with rubber bushings**

– Position the rubber bushings ❹ and ❺.

– Place handlebar mount ❸ in the desired position.

**Note**
The handlebar mount is longer and higher on one side.

– Mount screws ❼ and bushings ❻ and tighten.

| Screw, handlebar mount | |
|---|---|
| M10 | 40 Nm<br>(29.5 ft·lb$_f$)<br>**Loctite® 243** |

– Position the handlebar.

| |
|---|
| Make sure the cables and wiring are positioned correctly. |

– Position handlebar clamp ❷.

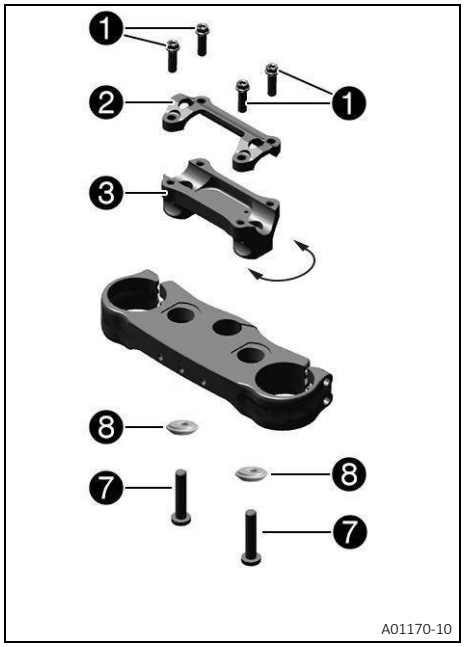
– Mount screws ❶, but do not tighten yet.

| Handlebar clamp screw | |
|---|---|
| M8 | 20 Nm<br>(14.8 ft·lb$_f$) |

– Tighten screws ❶ evenly.

| |
|---|
| First fasten the handlebar clamp with screws ❶ onto the longer, higher side of the handlebar mounts. |

| Handlebar clamp screw | |
|---|---|
| M8 | 20 Nm<br>(14.8 ft·lb$_f$) |




**Adjusting the handlebar position with the rigid handlebar clamp**

– Place handlebar mount ❸ in the desired position.

**Note**
The handlebar mount is longer and higher on one side.

– Mount screws ❼ and bushings ❽ and tighten.

| Screw, handlebar mount | |
|---|---|
| M10 | 40 Nm<br>(29.5 ft·lb$_f$)<br>**Loctite® 243** |

| Rigid handlebar clamp bushing (A46001038010) |
|---|

✓ The conical side of the bushing faces downward.

– Position the handlebar.

| Make sure the cables and wiring are positioned correctly. |
|---|

– Position handlebar clamp ❷.

– Mount screws ❶, but do not tighten yet.

| Handlebar clamp screw | |
|---|---|
| M8 | 20 Nm<br>(14.8 ft·lb$_f$) |

– Tighten screws ❶ evenly.

| First fasten the handlebar clamp with screws ❶ onto the longer, higher side of the handlebar mounts. |
|---|

| Handlebar clamp screw | |
|---|---|
| M8 | 20 Nm<br>(14.8 ft·lb$_f$) |

**Reworking**

– Mount the handlebar pad.

## 11.1 Raising the motorcycle with a lift stand

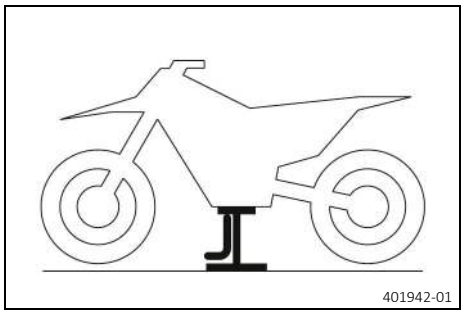
**NOTE**

**Material damage** The vehicle may be damaged if parked incorrectly.

Damage can occur if the vehicle rolls away or falls over.

The components for parking the vehicle are designed only for the weight of the vehicle.

– Park the vehicle on a firm and level surface.
– Make sure that nobody sits on the vehicle when it is parked on a stand.




– Raise the motorcycle at the frame underneath the engine.

| Lift stand (81329955100) |
|---|

✓ Neither wheel is in contact with the ground.
– Secure the motorcycle against falling over.

## 11.2 Removing the motorcycle from the lift stand

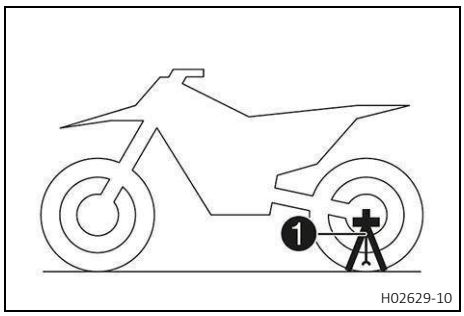
**NOTE**

**Material damage** The vehicle may be damaged if parked incorrectly.

Damage can occur if the vehicle rolls away or falls over.

The components for parking the vehicle are designed only for the weight of the vehicle.

– Park the vehicle on a firm and level surface.
– Make sure that nobody sits on the vehicle when it is parked on a stand.




– Remove the motorcycle from the lift stand.
– Remove the lift stand.
– To park the motorcycle, insert plug-in stand ❶ on the left side of the wheel spindle.

| Remove the plug-in stand before riding. |
|---|

| Plug-in stand (A46029094000) |
|---|

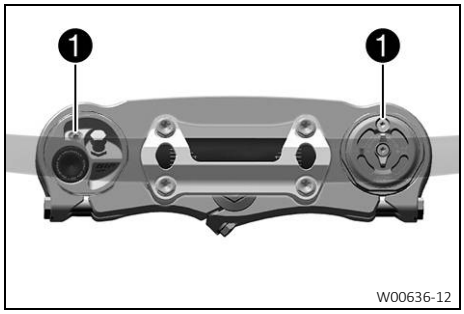
**Note**

The plug-in stand is included in the scope of supply.

## 11.3 Bleeding the fork legs

**Preparatory work**

– Raise the motorcycle with a lift stand. (p. 46)




**Main work**

– Loosen bleeder screw 1.
  ✓ Any excess pressure escapes from the inner fork.
– Tighten the bleeder screw.

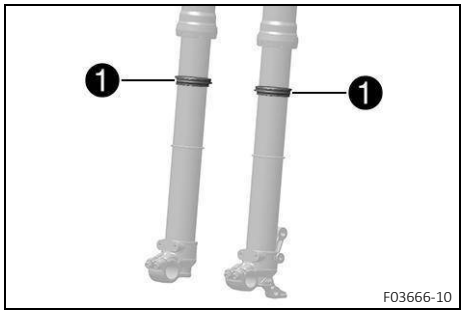
**Reworking**

– Remove the motorcycle from the lift stand. (p. 46)

## 11.4 Cleaning the dust boots of the fork legs

**Preparatory work**

– Raise the motorcycle with a lift stand. (p. 46)
– Remove the fork protector. (p. 48)




**Main work**

– Push dust boot 1 downward on both fork legs.

**Note**
The dust boots should remove dust and coarse dirt particles from the inner fork tubes. Over time, dirt can accumulate behind the dust boots. If this dirt is not removed, the oil seals behind can start to leak.

**WARNING**
**Danger of accidents** Oil, grease or wax on the brake discs reduces the brake action.
– Always keep the brake discs free of oil, fat and wax.
– Clean the brake discs with brake cleaner when necessary.

– Clean and oil the dust boots and the inner fork tube of both fork legs.

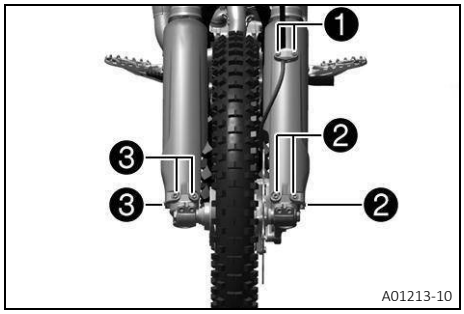
| Universal oil spray (p. 143) |
|---|

– Press the dust boots back into their installation position.
– Remove excess oil.

**Reworking**

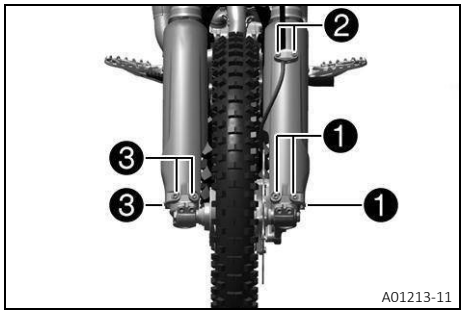
– Install the fork protector. (p. 48)
– Remove the motorcycle from the lift stand. (p. 46)

## 11.5 Removing the fork protector




– Remove screws ❶ on the left fork leg. Take off the clamp.
– Remove screws ❷ on the left fork leg. Take off the left fork protector.
– Remove screws ❸ on the right fork leg. Remove the right fork protector.

## 11.6 Installing the fork protector




– Position the fork protector on the left fork leg. Mount and tighten screws ❶.

| Remaining screws on chassis | |
|---|---|
| M6 | 10 Nm (7.4 ft·lb$_f$) |

– Position the brake line and the clamp. Mount and tighten screws ❷.
– Position the fork protector on the right fork leg. Mount and tighten screws ❸.

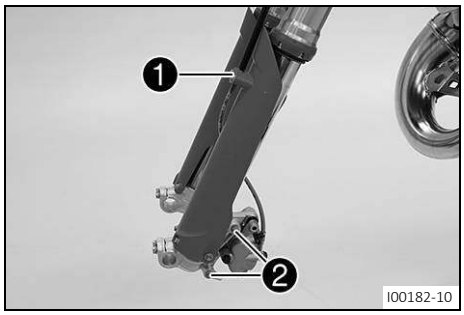
| Remaining screws on chassis | |
|---|---|
| M6 | 10 Nm (7.4 ft·lb$_f$) |

## 11.7 Removing the fork legs

**Preparatory work**

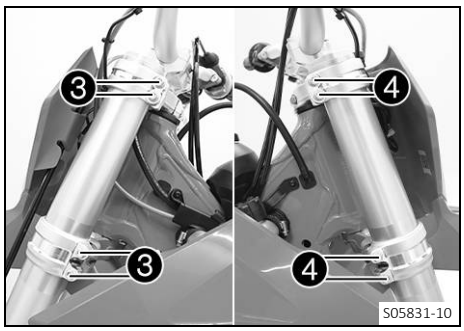
– Raise the motorcycle with a lift stand. (p. 46)
– Remove the front wheel. (p. 92)

**Main work**



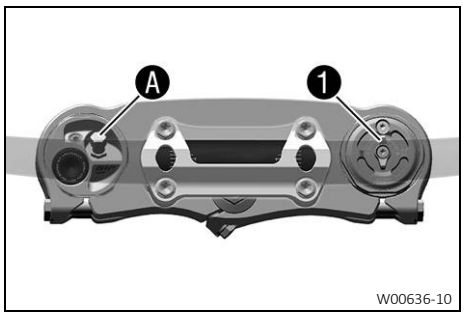

– Remove screw ❶ and take off the clamp.
– Remove screws ❷ and take off the brake caliper.
– Allow the brake caliper and the brake line to hang loosely to the side.

Do not actuate the hand brake lever when the front wheel is removed.




– Loosen screws ❸. Remove the left fork leg.
– Loosen screws ❹. Remove the right fork leg.

## 11.8 Installing the fork legs



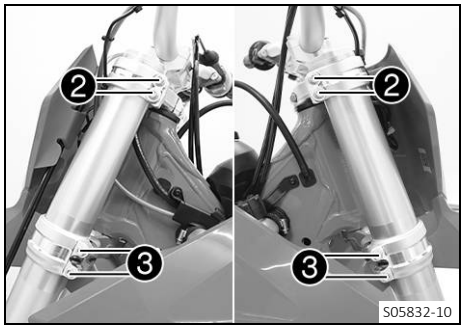

**Main work**

– Position the fork legs.

| |
|---|
| Grooves are milled into the side of the upper end of the fork legs. The second milled groove (from the top) must be flush with the upper edge of the upper triple clamp. |

✓ Bleed screw ❶ of the right fork leg is positioned to the front.
✓ Valve Ⓐ of the left fork leg faces the front.

**Note**
The air suspension is located in the left fork leg. The pressure and rebound damping is located in the right fork leg.

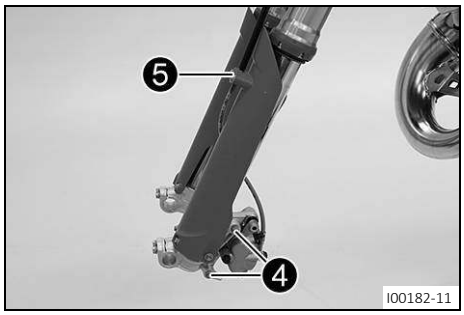



– Tighten screws ❷.

| Screw, top triple clamp | |
|---|---|
| M8 | 20 Nm<br>(14.8 ft·lb$_f$) |

– Tighten screws ❸.

| Screw, bottom triple clamp | |
|---|---|
| M8 | 15 Nm<br>(11.1 ft·lb$_f$) |




– Position the brake caliper. Mount and tighten screws ❹.

| Screw, front brake caliper | |
|---|---|
| M8 | 25 Nm<br>(18.4 ft·lb$_f$)<br>**Loctite® 243** |

– Position the brake line and the clamp. Mount and tighten screws ❺.

| Remaining screws on chassis | |
|---|---|
| **EJOT PT®** – K60×25 | 2 Nm<br>(1.5 ft·lb$_f$) |

**Reworking**

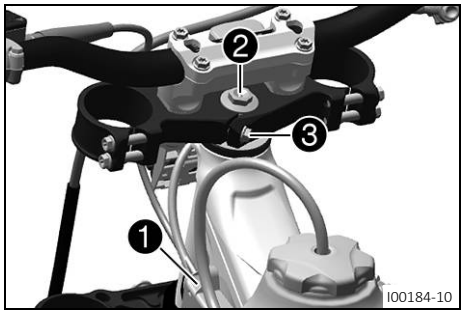
– Install the front wheel. (p. 93)

## 11.9 Removing the lower triple clamp

**Preparatory work**

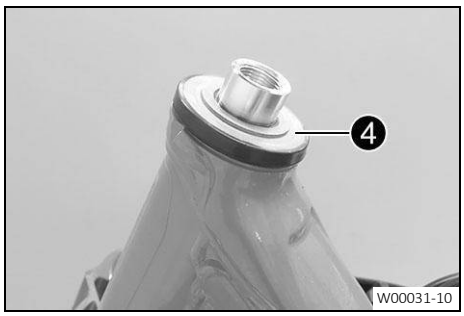
- Raise the motorcycle with a lift stand. (p. 46)
- Remove the front wheel. (p. 92)
- Remove the fork legs. (p. 48)
- Remove the number plate. (p. 55)
- Remove the front top fender. (p. 55)
- Remove the handlebar pad.

**Main work**



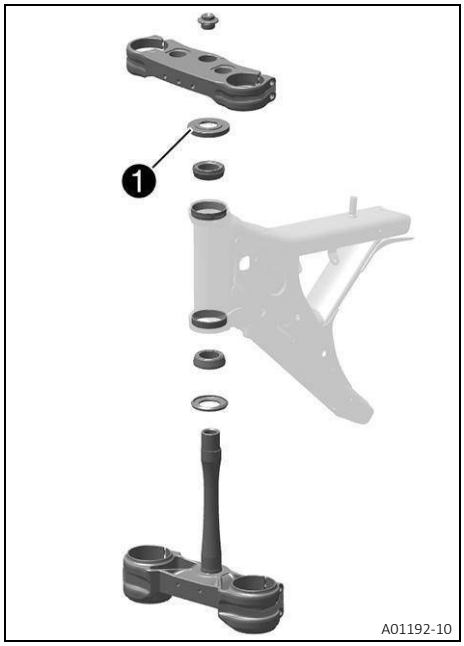

- Remove screw 1. Detach the wiring harness.
- Remove screw 2.
- Remove screw 3.
- Take off the upper triple clamp with the handlebar and place to one side.

| |
|---|
| Protect the components against damage by covering them. |
| Do not kink the cables or lines. |




- Remove steering head seal 4.
- Remove the steering stem from the lower triple clamp.
- Remove the upper steering head bearing.

## 11.10 Installing the lower triple clamp



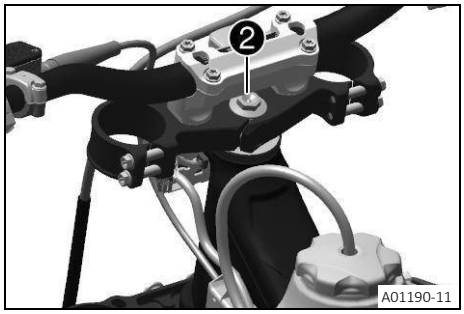

**Main work**

– Clean the bearing and sealing elements, check for damage, and grease.

| High viscosity grease (p. 143) |
|---|

– Insert the lower triple clamp with the steering stem. Mount the upper steering head bearing.

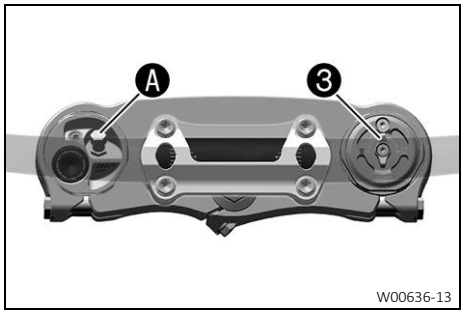
– Push on steering head seal ❶.




– Position the upper triple clamp and handlebar.

– Mount screw ❷, but do not tighten yet.

| Screw, top steering head | |
|---|---|
| M20×1.5 | 12 Nm<br>(8.9 ft·lb$_f$) |




– Position the fork legs.

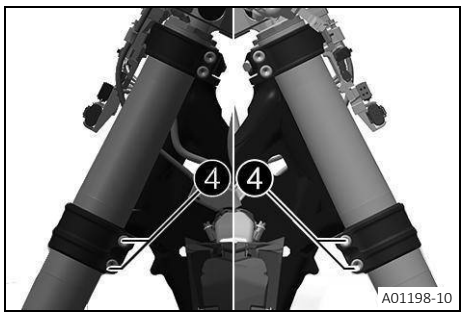
✓ Bleed screw ❸ of the right fork leg is positioned to the front.

✓ Valve Ⓐ of the left fork leg faces the front.

**Note**

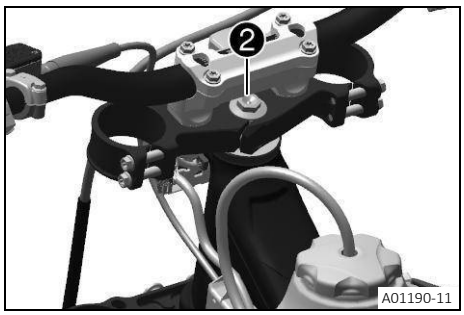
Grooves are milled into the side of the upper end of the fork legs. The second milled groove (from the top) must be flush with the upper edge of the upper triple clamp.

The air suspension is located in the left fork leg. The pressure and rebound damping is located in the right fork leg.



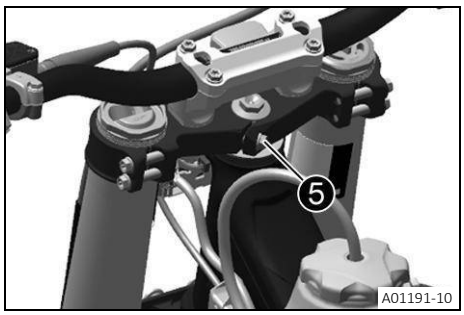

– Tighten screws ❹.

| Screw, bottom triple clamp | |
|---|---|
| M8 | 15 Nm<br>(11.1 ft·lb$_f$) |



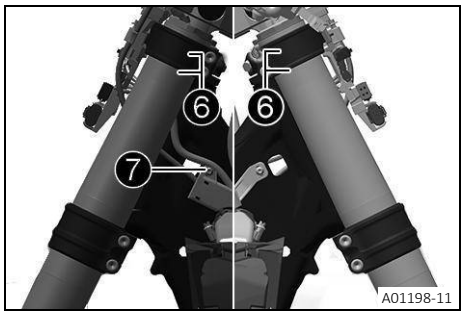

– Tighten screw ❷.

| Screw, top steering head | |
|---|---|
| M20×1.5 | 12 Nm<br>(8.9 ft·lb$_f$) |




– Mount and tighten screw ❺.

| Screw, upper steering stem | |
|---|---|
| M8 | 20 Nm<br>(14.8 ft·lb$_f$)<br>**Loctite® 243** |

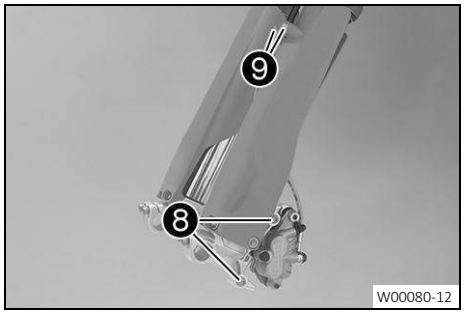



– Using a plastic hammer, tap lightly on the upper triple clamp to avoid stresses.
– Tighten screws ❻.

| Screw, top triple clamp | |
|---|---|
| M8 | 20 Nm<br>(14.8 ft·lb$_f$) |

– Secure the wiring harness with the left cable bracket.
– Mount and tighten screw ❼.

| Remaining screws on chassis | |
|---|---|
| M6 | 10 Nm<br>(7.4 ft·lb$_f$) |




– Position the brake caliper.
– Mount and tighten screws ❽.

| Screw, front brake caliper | |
|---|---|
| M8 | 25 Nm<br>(18.4 ft·lb$_f$)<br>**Loctite® 243** |

– Position the brake line and the clamp.
– Mount and tighten screws ❾.

| Remaining screws on chassis | |
|---|---|
| **EJOT PT®** – K60×25 | 2 Nm<br>(1.5 ft·lb$_f$) |

**Reworking**

– Install the front top fender. (p. 56)
– Mount the handlebar pad.
– Mount the number plate. (p. 55)
– Install the front wheel. (p. 93)
– Check the wiring harness, cables, and brake and clutch lines for freedom of movement and correct routing.
– Check the steering head bearing play. (p. 53)
– Remove the motorcycle from the lift stand. (p. 46)

## 11.11 Checking the steering head bearing play

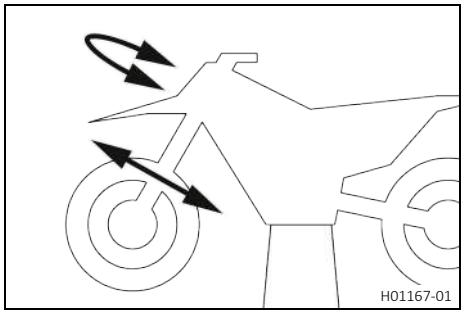
**WARNING**
**Danger of accidents** Incorrect steering head bearing play can impair the handling characteristic and damage components.
– Correct incorrect steering head bearing play immediately.

**Note**
If the vehicle is operated for a lengthy period with play in the steering head bearing, the bearings and the bearing seats in the frame can become damaged.

**Preparatory work**

– Raise the motorcycle with a lift stand. (p. 46)

**Main work**




– Move the handlebar to the straight-ahead position. Move the fork legs to and fro in the direction of travel.

| Play should not be detectable on the steering head bearing. |
|---|

» If there is detectable play:
– Adjust the steering head bearing play. (p. 54)

– Move the handlebar back and forth over the entire steering range.

| It must be possible to move the handlebar easily over the entire steering range. There should be no detectable detent positions. |
|---|

» If detent positions are detected:
– Adjust the steering head bearing play. (p. 54)
– Check the steering head bearing and adjust if necessary.

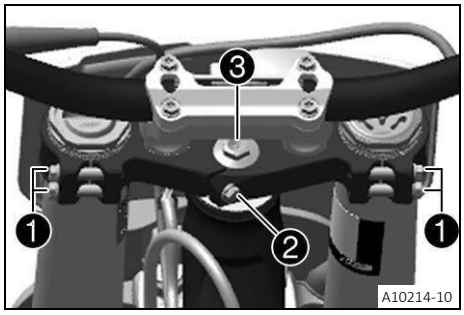
**Reworking**

– Remove the motorcycle from the lift stand. (p. 46)

## 11.12 Adjusting the steering head bearing play

**Preparatory work**

– Raise the motorcycle with a lift stand. (p. 46)
– Remove the handlebar pad.




**Main work**

– Loosen screws 1.
– Remove screw 2.
– Loosen and retighten screw 3.

| Screw, top steering head | |
|---|---|
| M20×1.5 | 12 Nm (8.9 ft·lb$_f$) |

– Using a plastic hammer, tap lightly on the upper triple clamp to avoid stresses.
– Tighten screws 1.

| Screw, top triple clamp | |
|---|---|
| M8 | 20 Nm (14.8 ft·lb$_f$) |

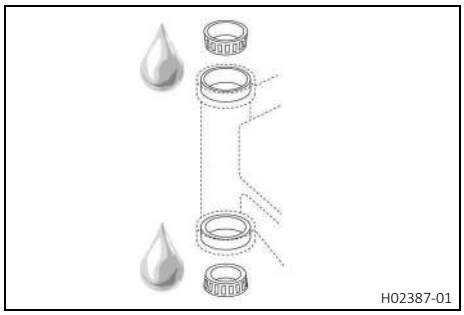
– Mount and tighten screw 2.

| Screw, upper steering stem | |
|---|---|
| M8 | 20 Nm (14.8 ft·lb$_f$) **Loctite® 243** |

**Reworking**

– Check the steering head bearing play. (p. 53)
– Remove the motorcycle from the lift stand. (p. 46)
– Mount the handlebar pad.

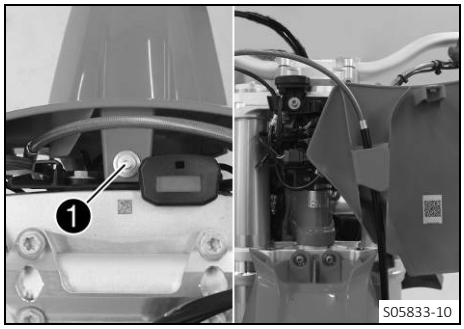
## 11.13 Lubricating the steering head bearing




– Remove the lower triple clamp. (p. 50)
– Install the lower triple clamp. (p. 51)

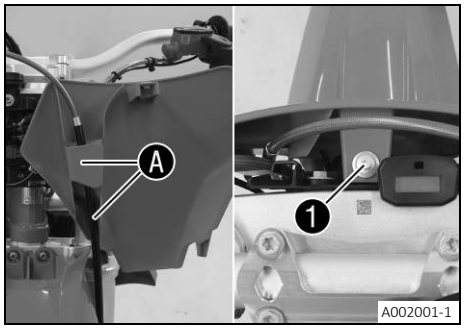
**Note**
The steering head bearing is cleaned and lubricated in the course of removal and installation of the lower triple clamp.

## 11.14 Removing the number plate




– Remove screw ❶.
– Unhook the number plate from the brake line and remove it.

## 11.15 Mounting the number plate




– Position the brake line in holders Ⓐ on the number plate.
– Position the number plate.
– Mount and tighten screw ❶.

| Remaining screws on chassis | |
|---|---|
| **EJOT PT®** – K60×25 | 2 Nm<br>(1.5 ft·lb$_f$) |

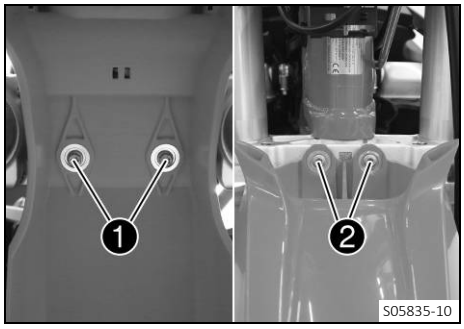
✓ The holding lugs engage in the fender.

## 11.16 Removing the front top fender

**Preparatory work**

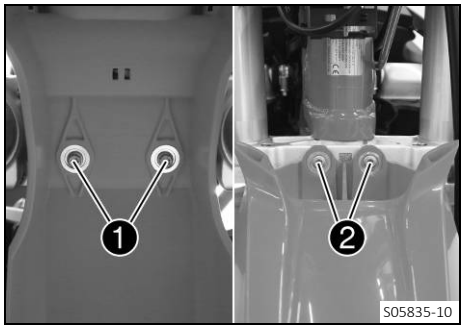
– Remove the number plate. (p. 55)

**Main work**




– Remove screws ❶ and ❷.
– Remove the front fender.

## 11.17 Installing the front top fender




**Main work**

– Position the front fender.
– Mount and tighten screws ❶ and ❷.

| Screw, fender on triple clamp | |
|---|---|
| M6 | 12 Nm (8.9 ft·lb$_f$) |

**Reworking**

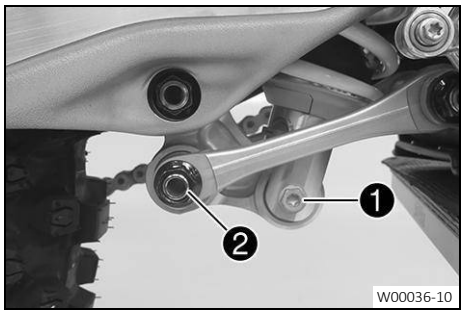
– Mount the number plate. (p. 55)

## 11.18 Removing the shock absorber

**Preparatory work**

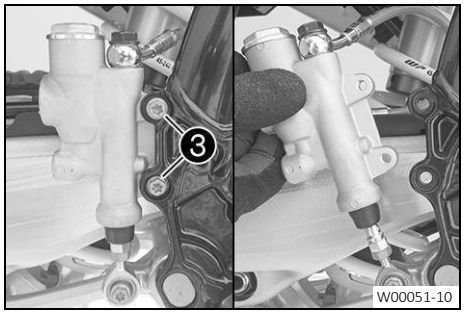
– Raise the motorcycle with a lift stand. (p. 46)
– Remove the frame protector. (p. 60)

**Main work**

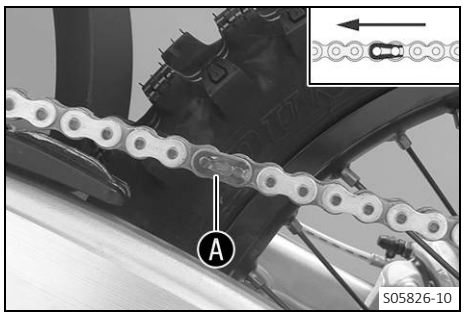



– Remove screw ❶.
– Remove screw connection ❷.

**Tip**
Raise the swingarm slightly to be able to remove the screws more easily.

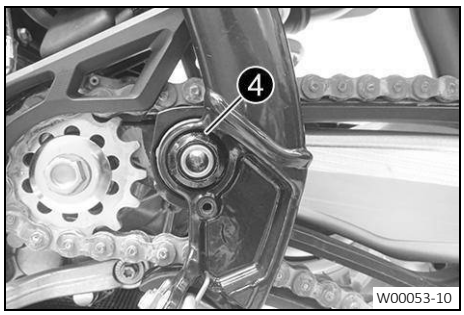



– Remove screws ❸.
– Pull brake cylinder off of the push rod.

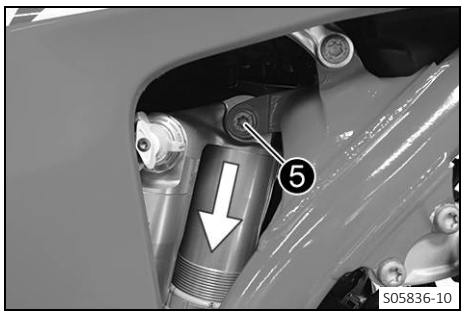



– Remove connecting link Ⓐ on the chain.
– Take off the chain.

| Protect the components against damage by covering them. |
|---|




– Remove nut ❹ and the swingarm pivot.
– Push the swingarm back and secure it against falling over.




– Hold the shock absorber and remove screw ❺.
– Remove the shock absorber carefully at the bottom.

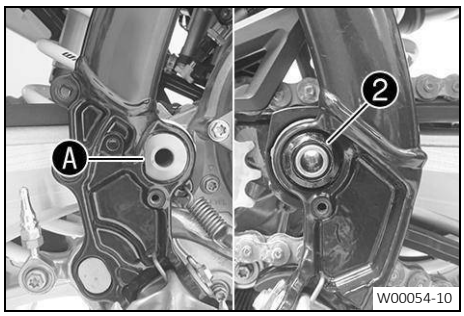
## 11.19 Installing the shock absorber




**Main work**

– Carefully position the shock absorber into the vehicle from the bottom.
– Mount and tighten screw ❶.

| Top shock absorber screw | |
|---|---|
| M10 | 60 Nm<br>(44.3 ft·lb$_f$)<br>**Loctite® 2701** |

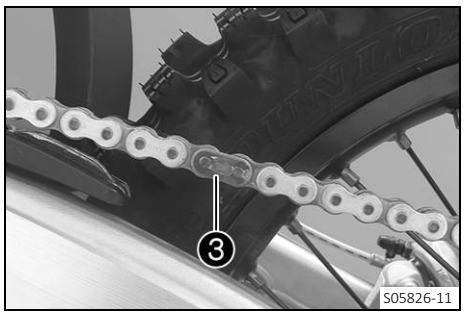



– Position the swingarm and fit the swingarm pivot.

| Pay attention to flat area Ⓐ. |
|---|

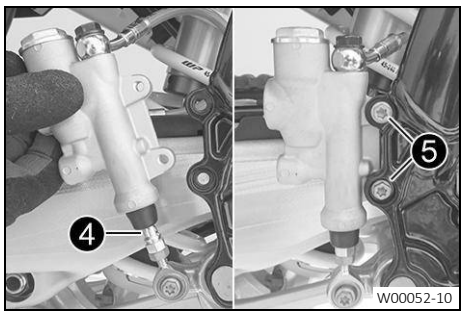
– Mount and tighten nut ❷.

| Nut, swingarm pivot | |
|---|---|
| M16×1.5 | 100 Nm<br>(73.8 ft·lb$_f$) |




– Mount the chain.
– Connect the chain with connecting link ❸.

| The closed side of the master link clip must face in the direction of travel. |
|---|



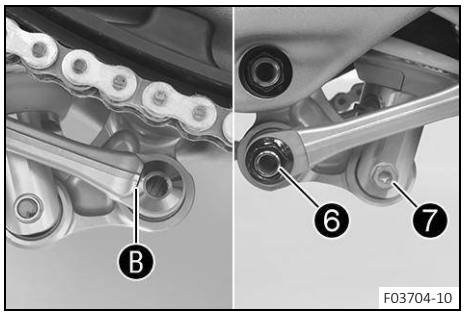

– Position the brake cylinder.

| Ensure that the dust boot is properly seated. |
|---|

✓ Push rod ❹ engages in the brake cylinder.

– Mount and tighten screws ❺.

| Remaining screws on chassis | |
|---|---|
| M6 | 10 Nm<br>(7.4 ft·lb$_f$) |




– Position the power valve control lever and linkage lever.
– Mount and tighten screw connection ❻.

| Nut, pull rod on triangular lever | |
|---|---|
| M14×1.5 | 60 Nm<br>(44.3 ft·lb$_f$) |

| Pay attention to flat area Ⓑ. |
|---|

– Mount and tighten screw ❼.

| Bottom shock absorber screw | |
|---|---|
| M10 | 60 Nm<br>(44.3 ft·lb$_f$)<br>**Loctite® 2701** |

**Tip**
Raise the swingarm slightly to be able to mount the screw more easily.

**Reworking**

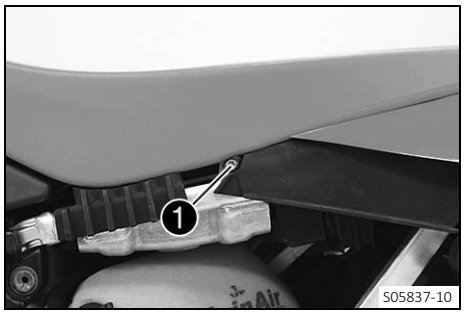
– Check the free travel of the brake pedal. (p. 86)
– Install the frame protector. (p. 60)
– Remove the motorcycle from the lift stand. (p. 46)

## 11.20 Removing the seat

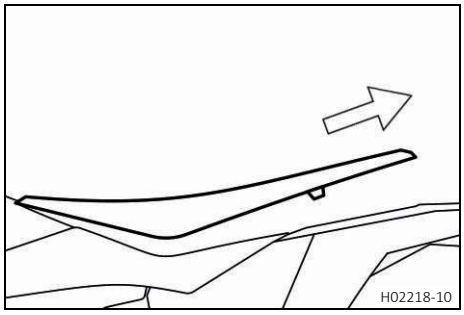
**Preparatory work**

– Remove air filter box cover. (p. 60)

**Main work**



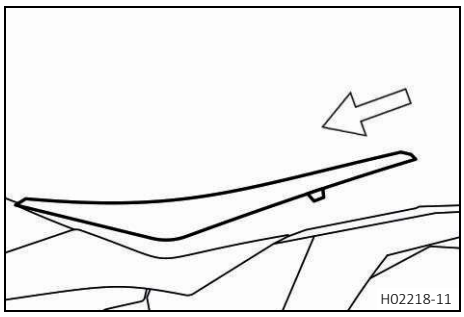

– Remove screw 1.



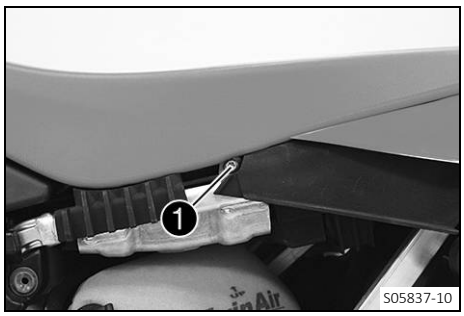

– Push the seat forward and take it off in an upward direction.

## 11.21 Mounting the seat

**Main work**




– Place the seat on the fuel tank and slide it backwards into the brackets.
– Make sure the seat is latched in place correctly.



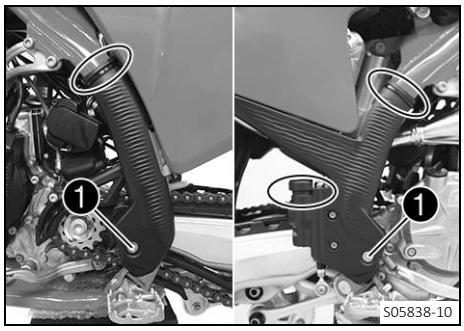

– Mount and tighten screw 1.

| Screw, seat installation | |
|---|---|
| M6 | 8 Nm<br>(5.9 ft·lb$_f$) |

**Reworking**

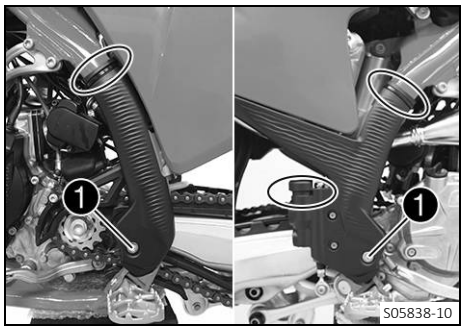
– Install the air filter box cover. (p. 61)

## 11.22 Removing the frame protector




– Remove the cable ties.
– Remove screws 1 and bushings.
– Take off the left frame protector.
– Push the right frame protector to the front and take off at the bottom.

## 11.23 Installing the frame protector




– Position the left frame protector.
– Insert the right frame protector from below and push it to the rear.
– Mount screw 1 and bushing and tighten.

| Screw, frame protector | |
|---|---|
| M5 | 3 Nm<br>(2.2 ft·lb$_f$) |

– Secure the frame protector with cable ties.

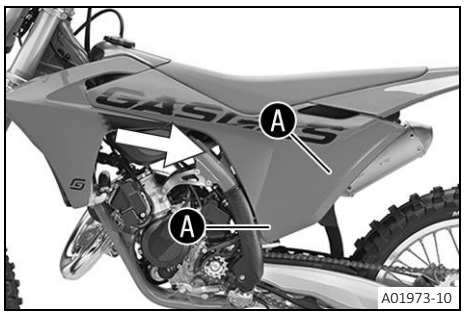
| Turn the head of the cable tie so far back that it does not touch any other components. |
|---|

## 11.24 Removing air filter box cover

Condition: Air filter box cover secured

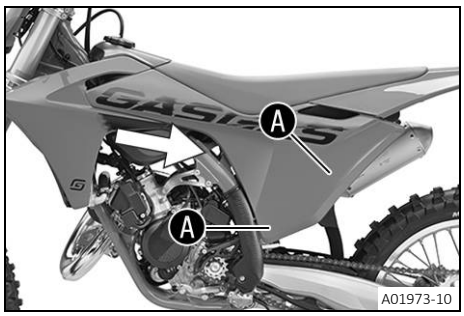



– Remove screw 1.




– Pull off the air filter box cover sideways in areas A and remove toward the rear.

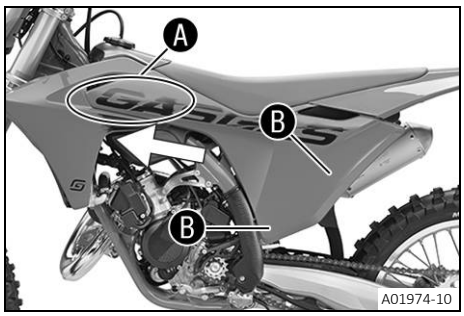
Condition: Air filter box cover not secured




– Pull off the air filter box cover sideways in areas A and remove toward the rear.

## 11.25 Installing air filter box cover

Condition: Air filter box cover secured




– Slide the air filter box cover forward and hook into area A.
– Engage the air filter box cover in areas B.

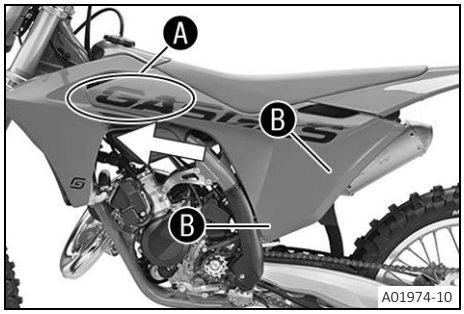
| |
|---|
| Ensure that the air filter box cover is correctly hooked in to areas A and B. |




– Mount and tighten screw 1.

| Screw, air filter box cover | |
|---|---|
| **EJOT PT®** – MK60×20 – Z | 3 Nm<br>(2.2 ft·lb$_f$) |

Condition: Air filter box cover not secured




– Slide the air filter box cover forward and hook into area A.
– Engage the air filter box cover in areas B.

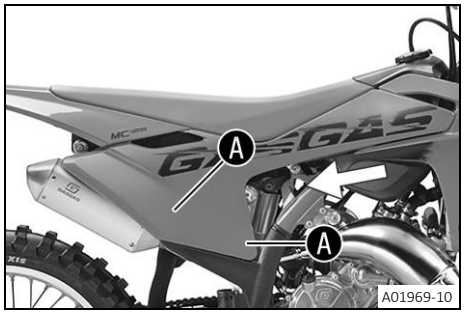
Ensure that the air filter box cover is correctly hooked in to areas A and B.

## 11.26 Removing the right side panel

**Preparatory work**

– Remove the frame protector. (p. 60)

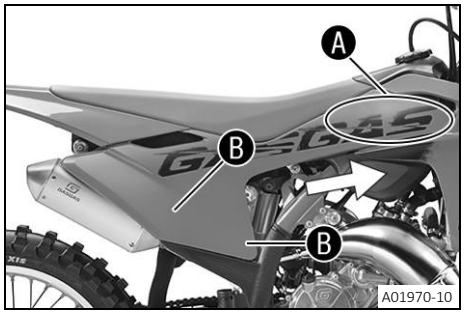
**Main work**




– Pull the right side panel off sideways in areas A and remove toward the rear.

## 11.27 Installing the right side panel

**Main work**




– Slide right side panel forward and hook into area A.
– Clip side panel in areas B.

Ensure that the side panel is correctly hooked in to areas A and B.

**Reworking**

– Install the frame protector. (p. 60)

## 11.28 Removing the air filter

**NOTE**

**Engine failure** Unfiltered intake air has a negative effect on the service life of the engine.
Dust and dirt can enter the engine if there is no air filter or if the air filter is mounted incorrectly.

– Only operate the vehicle if an air filter is correctly fitted.

**NOTE**

**Environmental hazard** Hazardous substances cause environmental damage.

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

**Preparatory work**

– Remove air filter box cover. (p. 60)

**Main work**




– Detach tab ❶.
– Remove the air filter with the air filter support.

## 11.29 Cleaning the air filter and air filter box

**NOTE**

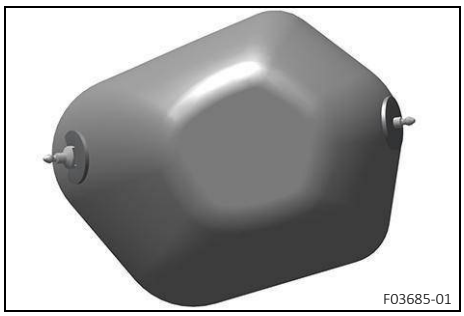
**Environmental hazard** Hazardous substances cause environmental damage.

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

**Preparatory work**

– Remove air filter box cover. (p. 60)
– Remove the air filter. (p. 63)

**Main work**




– Wash the air filter thoroughly in special cleaning liquid and allow it to dry properly.

| |
|---|
| Do not clean the air filter with fuel or petroleum as these substances will damage the foam rubber. |
| Only press the air filter to dry it, do not wring it out. |

| |
|---|
| Air filter cleaning agent (p. 147) |

– Oil the dry air filter with a high-grade air filter oil.

| Oil for foam air filter (p. 144) |
|---|

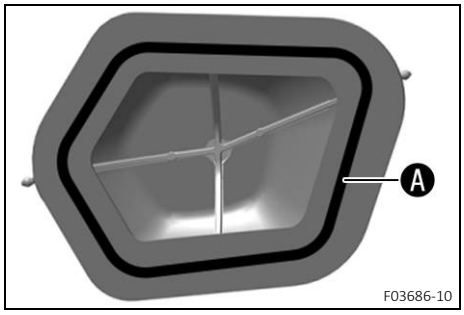
– Clean the air filter box.
– Clean the intake flange and check it for damage and that it is firmly seated.

**Reworking**

– Install the air filter. (p. 64)
– Install the air filter box cover. (p. 61)

## 11.30 Installing the air filter

**Main work**

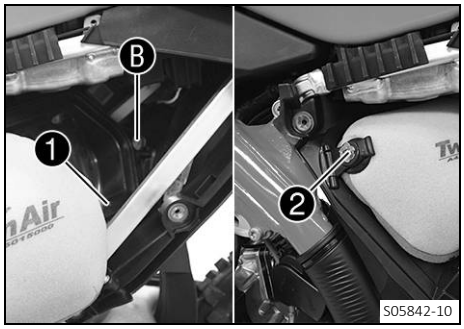



– Mount the clean air filter on the air filter support.

| The marking on the air filter support must face upwards. |
|---|

– Grease the air filter in area A.

| Long-life grease (p. 143) |
|---|




– Insert air filter and position retaining pin 1 in bushing B.

| The marking on the air filter must face upwards. |
|---|

✓ The air filter is correctly positioned.
– Secure the bottom retaining pin with holding tab 2.

**Note**
If the air filter is not mounted correctly, dust and dirt may enter the engine and result in damage.

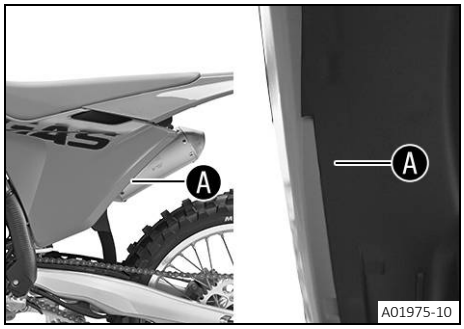
**Reworking**

– Install the air filter box cover. (p. 61)

## 11.31 Preparing the air filter box cover for securing

**Preparatory work**

– Remove air filter box cover. (p. 60)




**Main work**

– Drill a hole at marking Ⓐ.

| | |
|---|---|
| Diameter | 6 mm<br>(0.24 in) |

**Reworking**

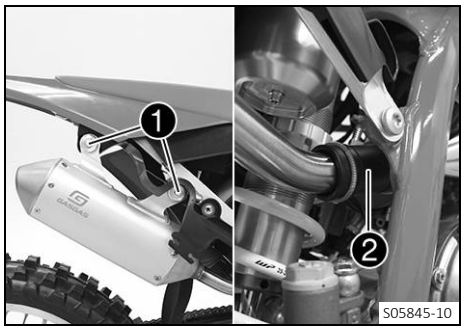
– Install the air filter box cover. (p. 61)

## 11.32 Removing the muffler

**WARNING**
**Danger of burns** The exhaust system gets hot when the vehicle is driven.
– Allow the exhaust system to cool down before performing any work on the vehicle.

**Preparatory work**

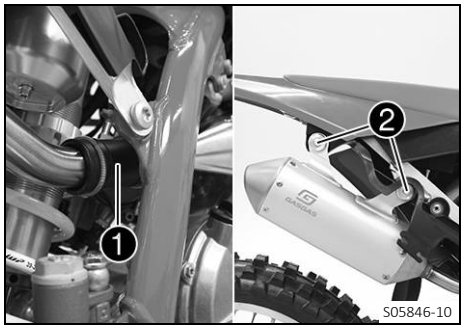
– Remove the frame protector. (p. 60)
– Remove the right side panel. (p. 62)




**Main work**

– Remove screws ❶ with the washers.
– Pull off the muffler from the expansion chamber at sleeve ❷.

## 11.33 Installing muffler




**Main work**

– Position the muffler in sleeve ❶.
– Mount and tighten screws ❷ with the washers.

| Remaining screws on chassis | |
|---|---|
| M6 | 10 Nm<br>(7.4 ft·lb$_f$) |

**Reworking**

– Install the right side panel. (p. 62)
– Install the frame protector. (p. 60)

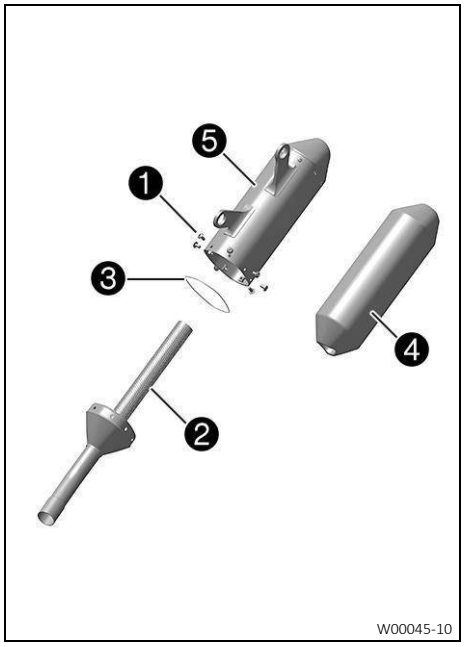
## 11.34 Changing the damping material on the main silencer

**WARNING**
**Danger of burns** The exhaust system gets hot when the vehicle is driven.
– Allow the exhaust system to cool down before performing any work on the vehicle.

**Note**
Over time, the fibers of the damping wool escape into the air, and the muffler "burns out".
Not only does this make the noise level higher, but the performance characteristics also change.

**Preparatory work**

– Remove the frame protector. (p. 60)
– Remove the right side panel. (p. 62)
– Remove the muffler. (p. 65)




**Main work**

– Remove screws 1. Pull out inner tube 2 with O-ring 3.
– Pull damping material 4 off the inner tube.
– Clean the parts that need to be reinstalled and check for damage.
– Mount new damping material 4 on the inner tube.
– Mount O-ring 3 on inner tube 2.
– Slide outer tube 5 over the inner tube with the new damping material and the O-ring.
– Mount and tighten all screws 1.

| Screws on muffler | |
|---|---|
| M5 | 7 Nm<br>(5.2 ft·lb$_f$) |

**Reworking**

– Install the muffler. (p. 65)
– Install the right side panel. (p. 62)
– Install the frame protector. (p. 60)

## 11.35 Removing the fuel tank

**DANGER**

**Fire hazard** Fuel is highly flammable.

The fuel in the fuel tank expands when warm and can escape if overfilled.

- Do not refuel the vehicle in the vicinity of open flames, glowing, or smoldering objects.
- Make sure that nobody smokes in the vicinity of the vehicle during the refueling process.
- Switch off the engine for refueling.
- Make sure that no fuel is spilled; particularly not on hot parts of the vehicle.
- If any fuel is spilled, wipe it up immediately.
- Do not overfill the fuel tank.

**WARNING**

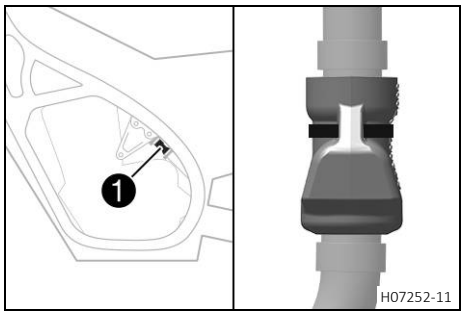
**Danger of poisoning** Fuel is harmful to health.

- Do not allow fuel to come into contact with skin, eyes, or clothing.
- Consult a doctor immediately if fuel has been ingested.
- Do not inhale fuel vapors.
- Rinse the affected area immediately with plenty of water in the event of contact with skin.
- Rinse eyes thoroughly with water and consult a doctor immediately if fuel comes into contact with eyes.
- If fuel spills on to your clothing, change the clothing.
- Store fuel properly in a suitable container and keep out of the reach of children.

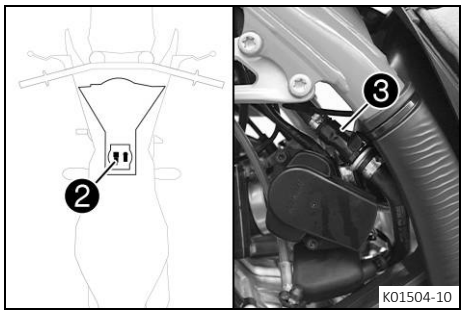
**Preparatory work**

- Remove the frame protector. (p. 60)
- Remove the right side panel. (p. 62)
- Remove air filter box cover. (p. 60)
- Remove the seat. (p. 59)

**Main work**




- Remove the cable tie of protection cap ❶.
- Remove the protection cap of the fuel line.




- Unplug socket connector ❷ of the fuel pump.
- Clean quick-lock coupling ❸ thoroughly with compressed air.

  Dirt must not enter into the fuel line. Dirt in the fuel line clogs the injector!

- Disconnect the quick-lock coupling.

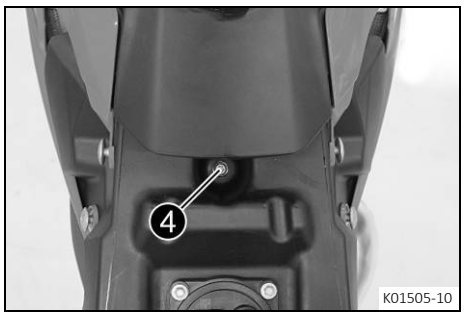
**Note**

Remaining fuel may flow out of the fuel hose.

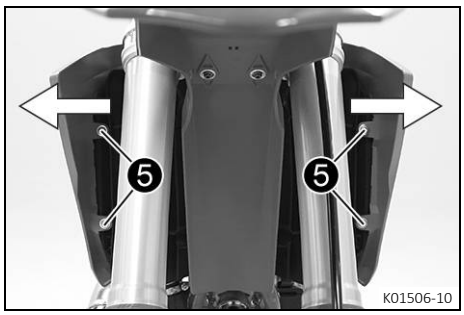
- Mount the wash cap set.

  Wash cap set (81212016100)

- Pull the fuel tank vent hose off the fuel tank cap.




– Remove screw ❹ with the rubber bushing.



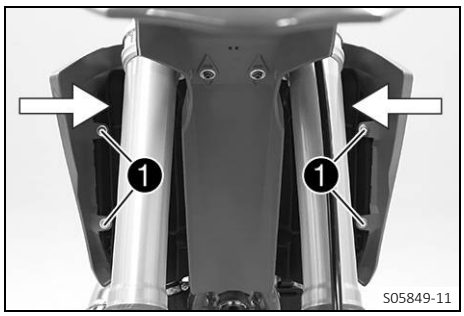

– Remove screws ❺ with collar bushings.
– Pull both spoilers laterally off the radiator and lift off the fuel tank.

## 11.36 Installing the fuel tank

**DANGER**
**Fire hazard** Fuel is highly flammable.
The fuel in the fuel tank expands when warm and can escape if overfilled.
– Do not refuel the vehicle in the vicinity of open flames, glowing, or smoldering objects.
– Make sure that nobody smokes in the vicinity of the vehicle during the refueling process.
– Switch off the engine for refueling.
– Make sure that no fuel is spilled; particularly not on hot parts of the vehicle.
– If any fuel is spilled, wipe it up immediately.
– Do not overfill the fuel tank.

**WARNING**
**Danger of poisoning** Fuel is harmful to health.
– Do not allow fuel to come into contact with skin, eyes, or clothing.
– Consult a doctor immediately if fuel has been ingested.
– Do not inhale fuel vapors.
– Rinse the affected area immediately with plenty of water in the event of contact with skin.
– Rinse eyes thoroughly with water and consult a doctor immediately if fuel comes into contact with eyes.
– If fuel spills on to your clothing, change the clothing.
– Store fuel properly in a suitable container and keep out of the reach of children.

**Main work**
– Check the throttle cable routing. (p. 75)

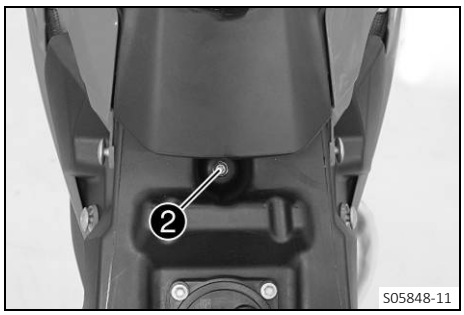



– Position the fuel tank and fit both spoilers to the side of the radiator.

| |
|---|
| Make sure that no wires or cables are trapped or damaged. |

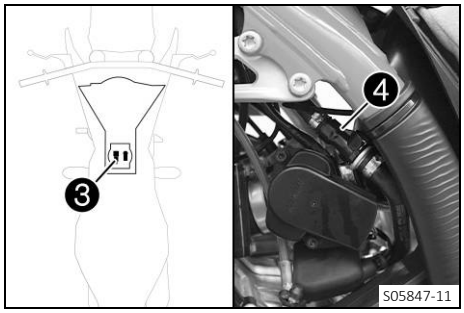
– Attach the fuel tank vent hose to the fuel tank cap.
– Mount and tighten screws ❶ with the collar bushings.

| Screw, fuel tank spoiler on radiator | |
|---|---|
| M6 | 6 Nm<br>(4.4 ft·lb$_f$) |




– Mount and tighten screw ❷ with the rubber bushing.

| Remaining screws on chassis | |
|---|---|
| M6 | 10 Nm<br>(7.4 ft·lb$_f$) |




– Plug in fuel pump socket connector ❸.
– Remove the wash cap set and thoroughly clean the quick-lock coupling using compressed air.

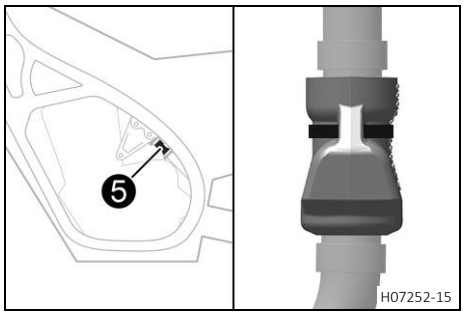
| |
|---|
| Dirt must not enter into the fuel line. Dirt in the fuel line clogs the injector! |

– Spray silicone spray onto a lint-free cleaning cloth and lightly lubricate the O-ring of the quick-lock coupling.

| |
|---|
| Silicone spray (p. 144) |

– Join quick-lock coupling ❹ of the fuel line.

| |
|---|
| Route the wire and fuel line at a safe distance from the exhaust system. |

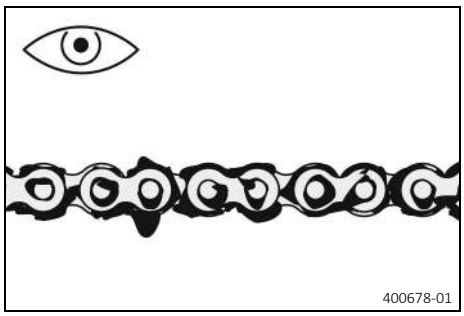



– Mount protection cap ❺ of the fuel line.
– Secure the protection cap with the cable ties.

**Reworking**

– Mount the seat. (p. 59)
– Install the air filter box cover. (p. 61)
– Install the right side panel. (p. 62)
– Install the frame protector. (p. 60)

## 11.37 Checking the chain for dirt




– Check the chain for coarse dirt accumulation.
  » If the chain is very dirty:
    – Clean the chain. (p. 70)

## 11.38 Cleaning the chain

**WARNING**
**Danger of accidents** Oil, grease or wax on the brake discs reduces the brake action.
– Always keep the brake discs free of oil, fat and wax.
– Clean the brake discs with brake cleaner when necessary.

**WARNING**
**Danger of accidents** Lubricants on the tires reduces the road grip.
– Remove lubricants from the tires using a suitable cleaning agent.

**NOTE**
**Environmental hazard** Hazardous substances cause environmental damage.
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

**Note**
The service life of the chain depends largely on its maintenance.

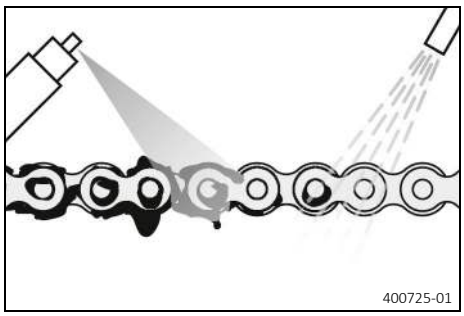
**Preparatory work**
– Raise the motorcycle with a lift stand. (p. 46)

**Main work**
– Rinse off the loose dirt with a gentle jet of water.
– Remove old grease residues with a chain cleaner.

| Chain cleaner (p. 147) |
|---|

– After drying, apply chain spray.

| Off-road chain spray (p. 143) |
|---|




**Reworking**
– Remove the motorcycle from the lift stand. (p. 46)

## 11.39 Checking the chain tension

**WARNING**

**Danger of accidents** Incorrect chain tension can damage components and result in an accident.

If the chain is tension is too high, the chain, front sprocket, rear sprocket, transmission, and rear wheel bearings wear more quickly. Some components may break if overloaded.

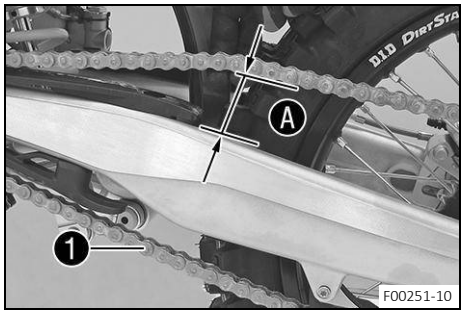
If the chain is too loose, the chain may fall off the front sprocket or the rear sprocket. This can damage the rear wheel or the engine.

– Check the chain tension regularly.
– Set the chain tension in accordance with the specification.

**Preparatory work**

– Raise the motorcycle with a lift stand. (p. 46)

**Main work**




– Pull the chain at the end of the chain slider upward to measure chain tension A.

| | |
|---|---|
| Chain tension | 58 mm … 61 mm (2.28 in … 2.40 in) |
| Lower chain section 1 must be taut. | |
| Chain wear is not always even, so repeat this measurement at different positions on the chain. | |

» If the chain tension does not meet the specification:
– Adjust the chain tension. (p. 71)

**Reworking**

– Remove the motorcycle from the lift stand. (p. 46)

## 11.40 Adjusting the chain tension

**WARNING**

**Danger of accidents** Incorrect chain tension can damage components and result in an accident.

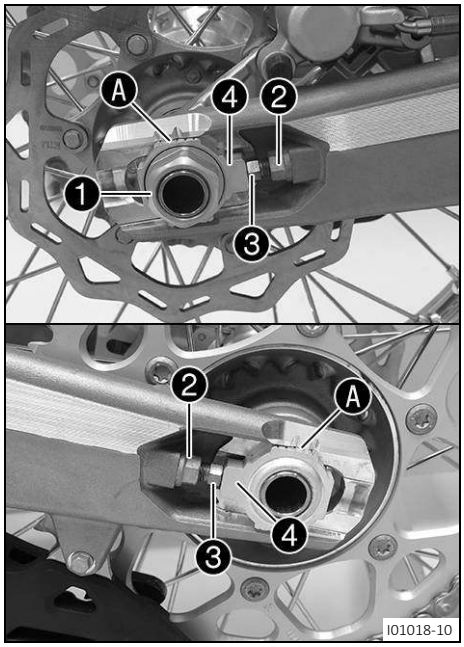
If the chain is tension is too high, the chain, front sprocket, rear sprocket, transmission, and rear wheel bearings wear more quickly. Some components may break if overloaded.

If the chain is too loose, the chain may fall off the front sprocket or the rear sprocket. This can damage the rear wheel or the engine.

– Check the chain tension regularly.
– Set the chain tension in accordance with the specification.

**Preparatory work**

– Raise the motorcycle with a lift stand. (p. 46)
– Check the chain tension. (p. 71)




**Main work**

– Loosen nut ❶.
– Loosen nuts ❷.
– Adjust the chain tension by turning adjusting screws ❸ on the left and right.

| | |
|---|---|
| Chain tension | 58 mm … 61 mm<br>(2.28 in … 2.40 in) |
| In order for the rear wheel to be correctly aligned, the markings on the left and right chain adjusters must be in the same position relative to reference markings Ⓐ. | |

– Tighten nuts ❷.
– Make sure that chain tension adjusters ❹ are fitted correctly on adjusting screws ❸.
– Tighten nut ❶.

| Nut, wheel spindle, rear | |
|---|---|
| M22×1.5 | 80 Nm<br>(59.0 ft·lb$_f$) |

**Note**

The wide adjustment range of the chain adjusters enables different secondary ratios with the same chain length.

Chain tension adjusters ❹ can be turned by 180°.

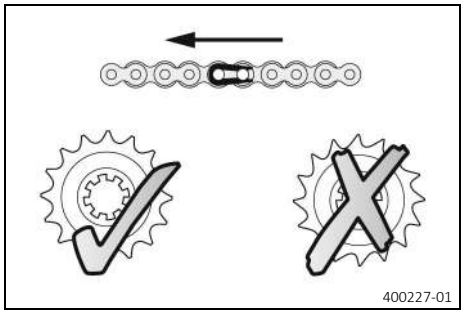
**Reworking**

– Remove the motorcycle from the lift stand. (p. 46)

## 11.41 Checking the chain, rear sprocket, front sprocket, and chain guide

**Preparatory work**

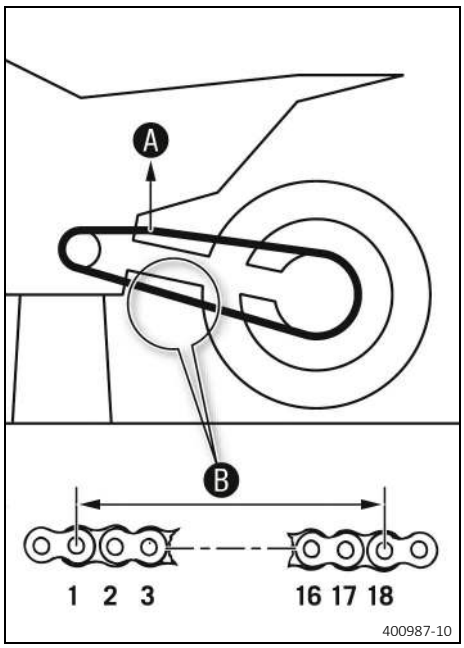
– Raise the motorcycle with a lift stand. (p. 46)




**Main work**

– Shift the transmission into the neutral position.
– Check the chain, rear sprocket, and front sprocket for wear.
  » If the chain, rear sprocket, or front sprocket is worn:
    – Change the drivetrain kit.

The front sprocket, rear sprocket, and chain should always be replaced together.




– Pull on the top section of the chain with the specified weight Ⓐ.

| | |
|---|---|
| Weight, chain wear measurement | 10 kg … 15 kg<br>(22.0 lb … 33.1 lb) |

– Measure distance Ⓑ of chain rollers in the lower chain section.

| | |
|---|---|
| Maximum distance Ⓑ of chain rollers at the longest chain section | 272 mm<br>(10.71 in) |
| Chain wear is not always even, so repeat this measurement at different positions on the chain. | |

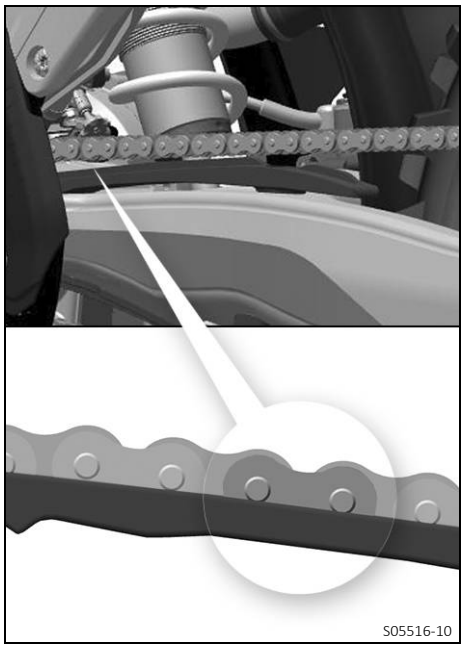
» If distance Ⓑ is greater than the specified measurement:

– Change the drivetrain kit.

When you replace the chain, you should also replace the rear sprocket and front sprocket.

**Note**

New chains wear out faster on old, worn front or rear sprockets.




– Check the chain slider at the top for wear.

» If the lower edge of the chain pins is in line with, or below, the chain slider:

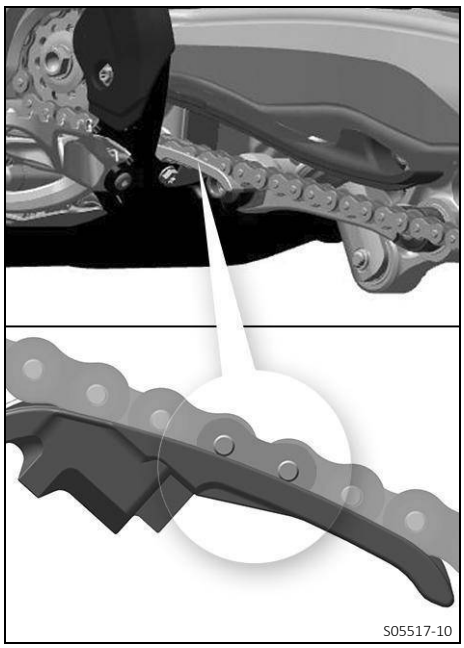
– Change the chain slider.

– Check that the chain slider is firmly seated.

» If the chain slider is loose:

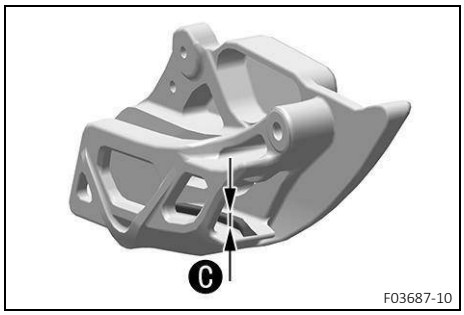
– Tighten the screws of the chain slider.

| Screw, chain slider guard | |
|---|---|
| M6 | 6 Nm<br>(4.4 ft·lb$_f$)<br>**Loctite® 243** |




– Check the chain slider for wear.
  » If the lower edge of the chain pins is in line with or below the chain slider:
    – Change the chain slider.
– Check that the chain slider is firmly seated.
  » If the chain slider is loose:
    – Tighten the screws of the chain slider.

| Screw, chain slider | |
|---|---|
| M8 | 15 Nm<br>(11.1 ft·lb$_f$) |




– Check the chain guide with a slide gage for dimension C.

| | |
|---|---|
| Minimum thickness C of the chain guide | 6 mm<br>(0.24 in) |

  » If the specifications have not been met:
    – Change the chain guide.




– Check that the chain guide is firmly seated.
  » If the chain guide is loose:
    – Tighten the screws on the chain guide.

| Remaining screws on chassis | |
|---|---|
| M6 | 10 Nm<br>(7.4 ft·lb$_f$) |
| Remaining nuts on chassis | |
| M6 | 10 Nm<br>(7.4 ft·lb$_f$) |

**Reworking**

– Remove the motorcycle from the lift stand. (p. 46)

## 11.42 Checking the frame




– Check the frame for damage, cracks, and deformation.
  » If the frame shows signs of damage, cracks, or deformation:
    – Change the frame.

| |
|---|
| Repairs on the frame are not permitted. |

## 11.43 Checking the swingarm




– Check the swingarm for damage, cracks, and deformation.
  » If the swingarm shows signs of damage, cracks, or deformation:
    – Change the swingarm.

| |
|---|
| Repairs on the swingarm are not permitted. |

## 11.44 Checking the throttle cable routing

**WARNING**
**Danger of accidents** The throttle cable can become kinked, jammed, or blocked if it has been routed incorrectly. If the throttle cable is kinked, jammed or blocked, the speed can no longer be controlled.
– Make sure that the throttle cable routing and the play in the throttle cable complies with the specification.

**Preparatory work**
– Remove the frame protector. (p. 60)
– Remove the right side panel. (p. 62)
– Remove air filter box cover. (p. 60)
– Remove the seat. (p. 59)
– Remove the fuel tank. (p. 67)




**Main work**

– Check the throttle cable routing.

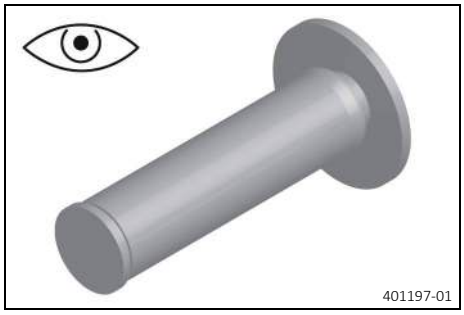
| |
|---|
| Both throttle cables must be routed, side by side, on the back of the handlebars, above the fuel tank bearing on the right of the frame to the throttle body. The throttle cable must be secured on the fuel tank bearing with a rubber band. |

» If the throttle cable routing is not as specified:
  – Correct the throttle cable routing.

**Reworking**

– Install the fuel tank. (p. 68)
– Mount the seat. (p. 59)
– Install the air filter box cover. (p. 61)
– Install the right side panel. (p. 62)
– Install the frame protector. (p. 60)

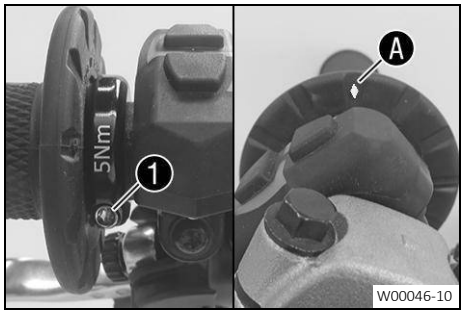
## 11.45 Checking the hand grip




– Check the hand grips on the handlebar for damage, wear, and that they are firmly seated.

**Note**
The hand grips are vulcanized onto a sleeve on the left and onto the grip tube of the throttle grip on the right. The left sleeve is clamped onto the handlebar.
The hand grip can only be replaced with the sleeve or the gas pipe.

» If a hand grip is damaged or worn:
  – Replace the hand grip.

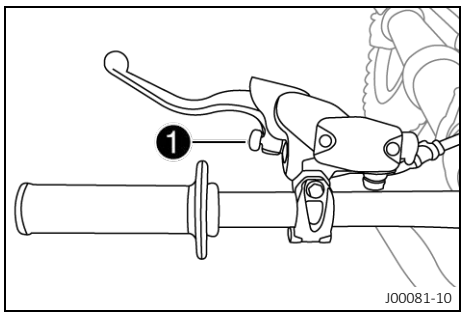



– Check that screw 1 is firmly seated.

| Screw, fixed grip | |
|---|---|
| M4 | 5 Nm<br>(3.7 ft·lb$_f$)<br>**Loctite® 243** |

| |
|---|
| Diamond A must be located at the top. |

## 11.46 Adjusting the basic position of the clutch lever




– Adjust the basic position of the clutch lever to your hand size by turning adjusting screw 1.

| |
|---|
| Only turn the adjusting screw by hand, and do not use force. |
| Do not make any adjustments while riding. |

**Note**

When the adjusting screw is turned counterclockwise, the clutch lever moves closer to the handlebar.

When the adjusting screw is turned clockwise, the clutch lever moves away from the handlebar.

The range of adjustment is limited.

## 11.47 Checking/correcting the fluid level of hydraulic clutch

**WARNING**

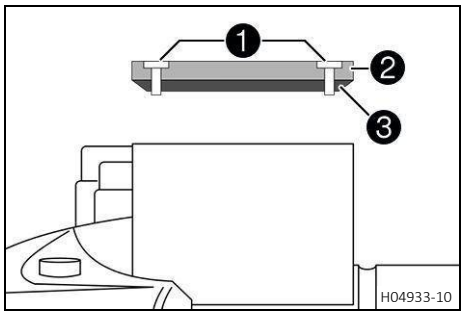
**Health hazard** Brake fluid is a harmful substance.

– Keep brake fluid out of the reach of children.
– Wear suitable protective clothing and safety glasses.
– Do not allow brake fluid to come into contact with the skin, the eyes, or clothing.
– Consult a doctor immediately if brake fluid has been ingested.
– Rinse the affected area with plenty of water in the event of contact with the skin.
– Rinse eyes thoroughly with water immediately and consult a doctor if brake fluid comes into contact with the eyes.
– If brake fluid spills on to your clothing, change the clothing.

**Note**

The fluid level rises with increasing wear of the friction plates.

Avoid contact between brake fluid and painted parts. Brake fluid corrodes paint.




– Move the hydraulic clutch fluid reservoir mounted on the handlebar into a horizontal position.
– Remove screws 1.
– Take off cover 2 with diaphragm 3.
– Check the fluid level.

| | |
|---|---|
| Fluid level below reservoir rim | 4 mm<br>(0.16 in) |

» If the fluid level does not meet the specifications:
– Correct the fluid level of the hydraulic clutch.

| |
|---|
| Brake fluid DOT 4 / DOT 5.1 (p. 145) |

– Position the cover with diaphragm. Mount and tighten the screws.

| |
|---|
| Immediately clean up any brake fluid that has overflowed or spilled with water. |

## 11.48 Changing the hydraulic clutch fluid

**WARNING**

**Health hazard** Brake fluid is a harmful substance.

- Keep brake fluid out of the reach of children.
- Wear suitable protective clothing and safety glasses.
- Do not allow brake fluid to come into contact with the skin, the eyes, or clothing.
- Consult a doctor immediately if brake fluid has been ingested.
- Rinse the affected area with plenty of water in the event of contact with the skin.
- Rinse eyes thoroughly with water immediately and consult a doctor if brake fluid comes into contact with the eyes.
- If brake fluid spills on to your clothing, change the clothing.

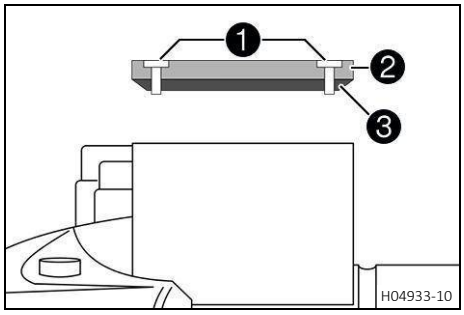
**NOTE**

**Environmental hazard** Hazardous substances cause environmental damage.

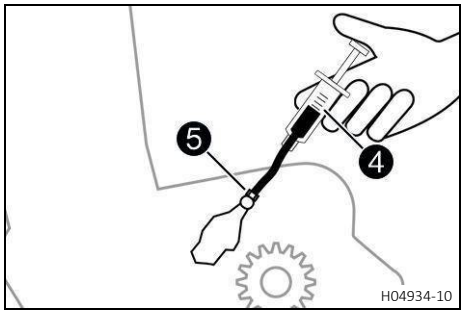
- Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

**Note**

Avoid contact between brake fluid and painted parts. Brake fluid corrodes paint.



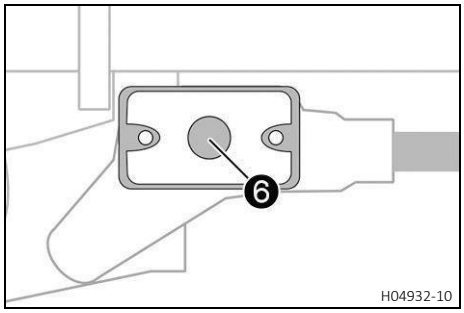

- Move the hydraulic clutch fluid reservoir mounted on the handlebar into a horizontal position.
- Remove screws 1.
- Take off cover 2 with diaphragm 3.




- Fill bleeding syringe 4.

| |
|---|
| Syringe (50329050000) |
| Brake fluid DOT 4 / DOT 5.1 (p. 145) |

- Remove the protection cap.
- On the clutch slave cylinder, release bleed screw 5 and mount bleeding syringe 4.




- Inject the liquid into the system until it escapes from bore 6 of the master cylinder without bubbles.
- Occasionally extract the fluid from the master cylinder reservoir to prevent overflowing.
- Remove the bleeding syringe. Tighten bleeder screw 5.
- Mount the protection cap.
- Correct the fluid level of the hydraulic clutch.

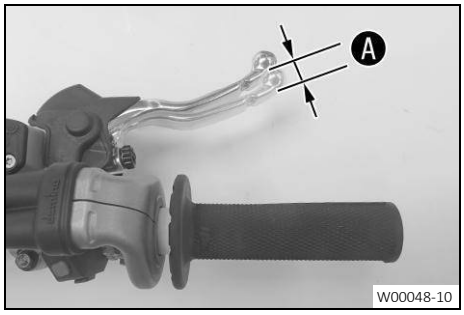
| | |
|---|---|
| Fluid level below reservoir rim | 4 mm<br>(0.16 in) |

– Position the cover with diaphragm. Mount and tighten the screws.

Immediately clean up any brake fluid that has overflowed or spilled with water.

## 12.1 Checking the free travel on the hand brake lever

**WARNING**
**Danger of accidents** The brake system fails in the event of overheating.
If there is no free travel on the brake lever, pressure builds up in the brake system.
– Set the free travel on the brake lever as specified.




– Push the hand brake lever forward and check free travel Ⓐ.

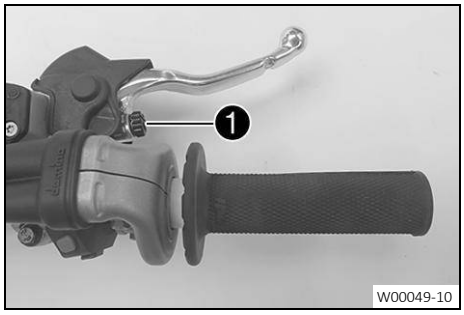
| | |
|---|---|
| Free travel of hand brake lever | ≥ 3 mm<br>(≥ 0.12 in) |

» If the free travel does not meet the specifications:
– Check brake system for damage.

## 12.2 Adjusting the basic position of the hand brake lever

**Preparatory work**
– Check the free travel on the hand brake lever. (p. 80)

**Main work**
– Adjust the basic position of the hand brake lever to your hand size by turning adjusting screw ❶.

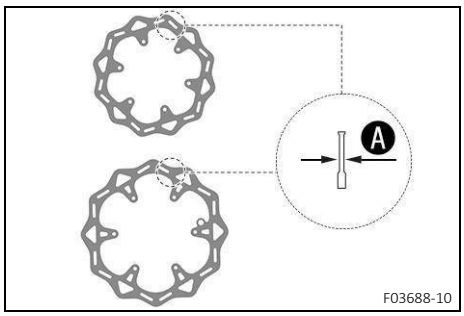



| |
|---|
| Only turn the adjusting screw by hand, and do not use force. |
| Do not make any adjustments while riding. |

**Note**
Turn the adjusting screw clockwise to increase the distance between the hand brake lever and the handlebar.
Turn the adjusting screw counterclockwise to decrease the distance between the hand brake lever and the handlebar.
The range of adjustment is limited.

## 12.3 Checking the brake discs

**WARNING**
**Danger of accidents** Worn-out brake discs reduce the braking action.
– Make sure that worn-out brake discs are replaced immediately.




– Check the brake disc thickness of the front and rear brake disc at several places on the disc to see if they conform to measurement A.

| Brake disc wear limit | |
|---|---|
| front | 2.5 mm (0.098 in) |
| rear | 3.5 mm (0.138 in) |

**Note**
Wear reduces the thickness of the brake discs at the contact surface of the brake pads.

» If the brake disc thickness is less than the specified value:
– Change the brake discs of the front brake.
– Change the brake discs on the rear brake.

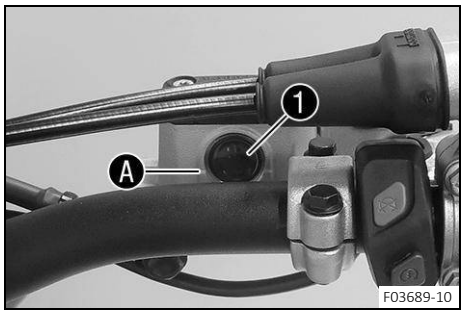
– Check the front and rear brake discs for damage, cracks, and deformation.
» If the brake disc shows signs of damage, cracks, or deformation:
– Change the brake discs of the front brake.
– Change the brake discs on the rear brake.

## 12.4 Checking the brake fluid level for the front brake

**WARNING**
**Danger of accidents** Brake fluid which is too old or of the wrong type impairs the function of the brake system.
– Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule.
– Make sure that only clean, approved brake fluid from a tightly sealed container is used.

**WARNING**
**Danger of accidents** An insufficient brake fluid level will cause the brake system to fail.
If the brake fluid level drops below the specified marking or the specified value, the brake system has a leak or the brake pads are worn down.
– Have the brake system checked and make sure that the problem has been eliminated before the vehicle is used again.

**Preparatory work**
– Check that the brake pads of the front brake are secured. (p. 83)

**Main work**



– Move the brake reservoir mounted on the handlebar to a horizontal position.
– Check the brake fluid level in sight glass 1.
» If the brake fluid level has fallen below marking A:
– Add brake fluid for the front brake. (p. 82)

## 12.5 Adding brake fluid for the front brake

**WARNING**
**Danger of accidents** Brake fluid which is too old or of the wrong type impairs the function of the brake system.
– Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule.
– Make sure that only clean, approved brake fluid from a tightly sealed container is used.

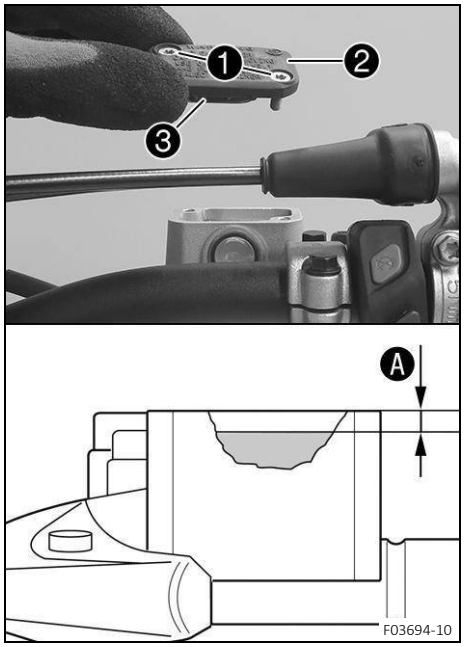
**WARNING**
**Danger of accidents** An insufficient brake fluid level will cause the brake system to fail.
If the brake fluid level drops below the specified marking or the specified value, the brake system has a leak or the brake pads are worn down.
– Have the brake system checked and make sure that the problem has been eliminated before the vehicle is used again.

**WARNING**
**Health hazard** Brake fluid is a harmful substance.
– Keep brake fluid out of the reach of children.
– Wear suitable protective clothing and safety glasses.
– Do not allow brake fluid to come into contact with the skin, the eyes, or clothing.
– Consult a doctor immediately if brake fluid has been ingested.
– Rinse the affected area with plenty of water in the event of contact with the skin.
– Rinse eyes thoroughly with water immediately and consult a doctor if brake fluid comes into contact with the eyes.
– If brake fluid spills on to your clothing, change the clothing.

**NOTE**
**Environmental hazard** Hazardous substances cause environmental damage.
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

**Note**
Avoid contact between brake fluid and painted parts. Brake fluid corrodes paint.

**Preparatory work**
– Check that the brake pads of the front brake are secured.
(p. 83)




**Main work**

– Move the brake reservoir mounted on the handlebar to a horizontal position.
– Remove screws 1.
– Take off cover 2 with diaphragm 3.
– Add brake fluid up to level A.

| | |
|---|---|
| Level A (brake fluid level below reservoir rim) | 5 mm (0.20 in) |

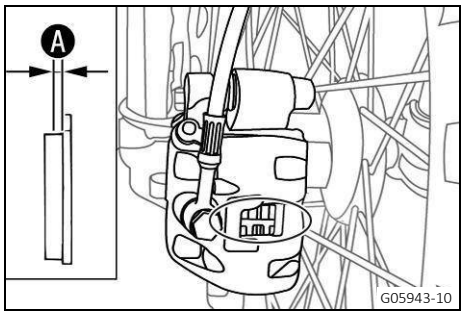
Brake fluid DOT 4 / DOT 5.1 (p. 145)

– Position cover 2 with diaphragm 3. Mount and tighten screws 1.

Immediately clean up any brake fluid that has overflowed or spilled with water.

## 12.6 Checking that the brake pads of the front brake are secured

**WARNING**
**Danger of accidents** Worn brake pads reduce the brake action.
– Make sure that worn brake pads are replaced immediately.




– Check all brake pads on both brake calipers for their lining thickness A.

| | |
|---|---|
| Minimum pad thickness A | ≥ 1 mm (≥ 0.04 in) |

» If it is less than the minimum thickness:
– Change the front brake pads. (p. 83)
– Check the brake pads for damage and cracking.
» If there is damage or cracking:
– Change the front brake pads. (p. 83)
– Check that the brake pads are secured.
» If the brake pads are not secured correctly:
– Secure brake pads, replace with new parts if necessary.

## 12.7 Changing the brake pads of the front brake

**WARNING**
**Danger of accidents** Brake pads which have not been approved alter the braking action.
– Only use brake pads approved and recommended by the vehicle manufacturer.

**WARNING**
**Danger of accidents** Incorrect servicing will cause the brake system to fail.
– Ensure that service work and repairs are performed professionally.

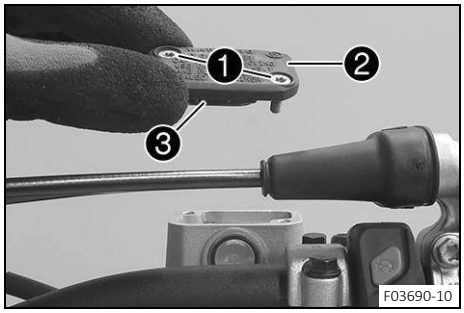
**WARNING**
**Danger of accidents** Brake fluid which is too old or of the wrong type impairs the function of the brake system.
– Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule.
– Make sure that only clean, approved brake fluid from a tightly sealed container is used.

**WARNING**
**Danger of accidents** Oil, grease or wax on the brake discs reduces the brake action.
– Always keep the brake discs free of oil, fat and wax.
– Clean the brake discs with brake cleaner when necessary.

**WARNING**
**Health hazard** Brake fluid is a harmful substance.
– Keep brake fluid out of the reach of children.
– Wear suitable protective clothing and safety glasses.
– Do not allow brake fluid to come into contact with the skin, the eyes, or clothing.
– Consult a doctor immediately if brake fluid has been ingested.
– Rinse the affected area with plenty of water in the event of contact with the skin.
– Rinse eyes thoroughly with water immediately and consult a doctor if brake fluid comes into contact with the eyes.
– If brake fluid spills on to your clothing, change the clothing.

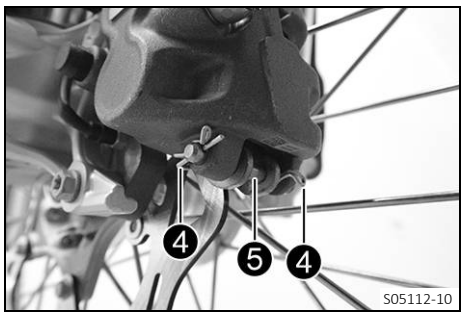
**NOTE**
**Environmental hazard** Hazardous substances cause environmental damage.
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

**Note**
Avoid contact between brake fluid and painted parts. Brake fluid corrodes paint.

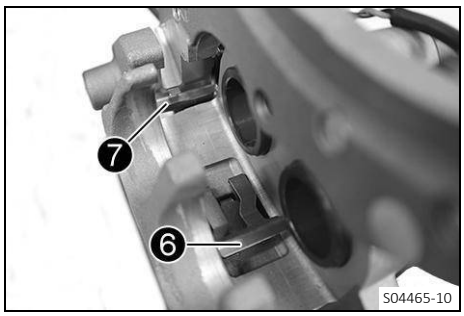



– Move the brake reservoir mounted on the handlebar to a horizontal position.
– Remove screws 1.
– Take off cover 2 with diaphragm 3.
– Manually press the brake caliper toward the brake disc to push back the brake piston. Ensure that brake fluid does not flow out of the brake reservoir, and siphon off excess if required.

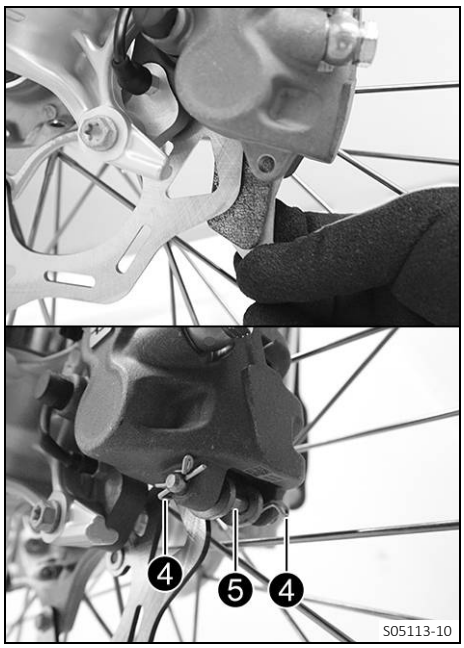
Do not operate the hand brake lever if the brake caliper has been removed.




– Remove cotter pin 4, pull out stud 5, and remove the brake pads.
– Clean brake caliper and brake caliper support.



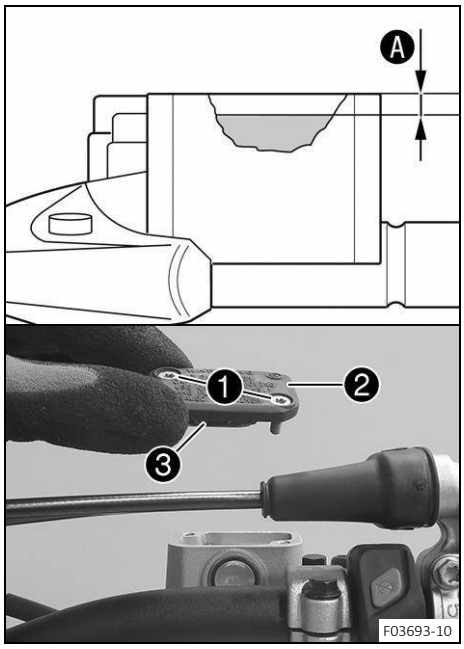

– Check that spring steel clip ❻ in the brake caliper and brake pad guide plate ❼ in the brake caliper support are properly seated.




– Insert the new brake linings.
– Insert pins ❺ and mount cotter pins ❹.

| |
|---|
| Make sure the brake pads and retaining spring are properly seated. |
| Mount the outer cotter pins from the front to the rear. Mount the inner cotter pins from the rear to the front. |
| Always replace brake pads in sets. |

– Operate the hand brake lever repeatedly until the brake pads are in contact with the brake disc and a pressure point is reached.




– Add brake fluid to level Ⓐ.

| | |
|---|---|
| Level Ⓐ (brake fluid level below reservoir rim) | 5 mm (0.20 in) |

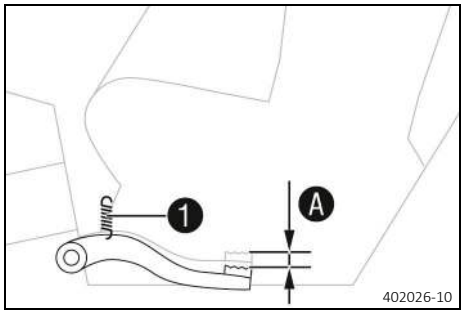
| |
|---|
| Brake fluid DOT 4 / DOT 5.1 (p. 145) |

– Position cover ❷ with diaphragm ❸.
– Mount and tighten screws ❶.

| |
|---|
| Immediately clean up any brake fluid that has overflowed or spilled with water. |

## 12.8 Checking the free travel of the brake pedal

**WARNING**
**Danger of accidents** The brake system fails in the event of overheating.
If there is no free travel on the brake lever, pressure builds up in the brake system.
– Set the free travel on the brake lever as specified.



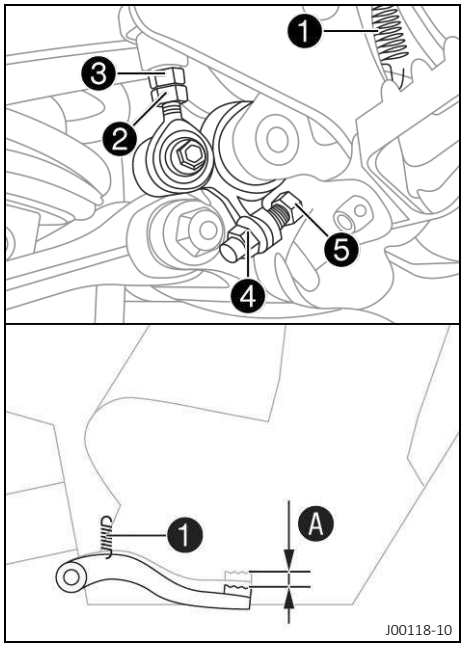

– Detach spring ❶.
– Move the brake pedal back and forth between the end stop and the brake pedal cylinder piston actuation and check free travel Ⓐ.

| | |
|---|---|
| Free travel of brake pedal | 3 mm … 5 mm<br>(0.12 in … 0.20 in) |

» If the free travel does not meet the specifications:
– Adjust the basic position of the brake pedal. (p. 86)
– Attach spring ❶.

## 12.9 Adjusting the basic position of the brake pedal

**WARNING**
**Danger of accidents** The brake system fails in the event of overheating.
If there is no free travel on the brake lever, pressure builds up in the brake system.
– Set the free travel on the brake lever as specified.




– Detach spring ❶.
– Loosen nut ❷ and unscrew it with push rod ❸ until you have maximum free travel.
– To adjust the basic position of the brake pedal to individual requirements, loosen nut ❹ and turn screw ❺ accordingly.

**Note**
The range of adjustment is limited.

– Turn push rod ❸ accordingly until you have free travel Ⓐ. If necessary, adjust the basic position of the brake pedal.

| | |
|---|---|
| Free travel of brake pedal | 3 mm … 5 mm<br>(0.12 in … 0.20 in) |

– Hold push rod ❸ and tighten nut ❷.

| Nut, brake pedal stop | |
|---|---|
| M8 | 20 Nm<br>(14.8 ft·lb$_f$) |

– Hold screw ❺ and tighten nut ❹.

| Remaining nuts on chassis | |
|---|---|
| M6 | 10 Nm<br>(7.4 ft·lb$_f$) |

– Attach spring ❶.

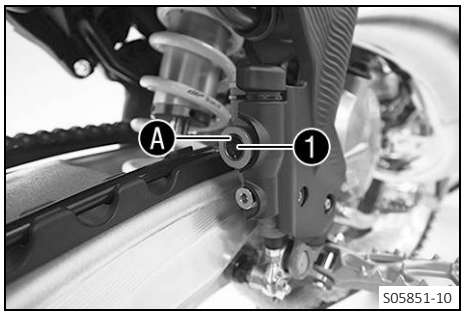
## 12.10 Checking the brake fluid level for the rear brake

**WARNING**
**Danger of accidents** Brake fluid which is too old or of the wrong type impairs the function of the brake system.
– Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule.
– Make sure that only clean, approved brake fluid from a tightly sealed container is used.

**WARNING**
**Danger of accidents** An insufficient brake fluid level will cause the brake system to fail.
If the brake fluid level drops below the specified marking or the specified value, the brake system has a leak or the brake pads are worn down.
– Have the brake system checked and make sure that the problem has been eliminated before the vehicle is used again.

**Preparatory work**
– Check that the brake pads of the rear brake are secured. (p. 88)

**Main work**
– Stand the vehicle upright.
– Check the brake fluid level in sight glass 1.
  » If the brake fluid level has fallen below marking A:
    – Add brake fluid for the rear brake. (p. 87)




## 12.11 Adding brake fluid for the rear brake

**WARNING**
**Danger of accidents** Brake fluid which is too old or of the wrong type impairs the function of the brake system.
– Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule.
– Make sure that only clean, approved brake fluid from a tightly sealed container is used.

**WARNING**
**Danger of accidents** An insufficient brake fluid level will cause the brake system to fail.
If the brake fluid level drops below the specified marking or the specified value, the brake system has a leak or the brake pads are worn down.
– Have the brake system checked and make sure that the problem has been eliminated before the vehicle is used again.

**WARNING**
**Health hazard** Brake fluid is a harmful substance.
– Keep brake fluid out of the reach of children.
– Wear suitable protective clothing and safety glasses.
– Do not allow brake fluid to come into contact with the skin, the eyes, or clothing.
– Consult a doctor immediately if brake fluid has been ingested.
– Rinse the affected area with plenty of water in the event of contact with the skin.
– Rinse eyes thoroughly with water immediately and consult a doctor if brake fluid comes into contact with the eyes.
– If brake fluid spills on to your clothing, change the clothing.

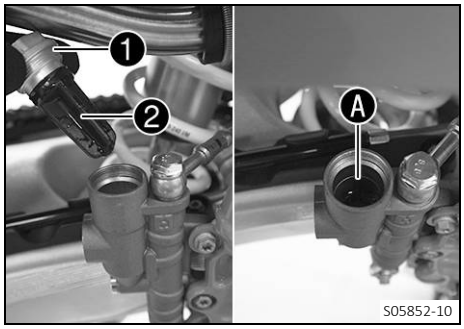
**NOTE**

**Environmental hazard** Hazardous substances cause environmental damage.

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

**Note**

Avoid contact between brake fluid and painted parts. Brake fluid corrodes paint.




**Preparatory work**

– Remove the frame protector. (p. 60)
– Check that the brake pads of the rear brake are secured. (p. 88)

**Main work**

– Stand the vehicle upright.
– Remove screw cap 1 with diaphragm 2 and O-ring.
– Add brake fluid to mark A.

| Brake fluid DOT 4 / DOT 5.1 (p. 145) |
|---|

– Mount and tighten screw cap 1 with diaphragm 2 and O-ring.

| Immediately clean up any brake fluid that has overflowed or spilled with water. |
|---|

**Reworking**

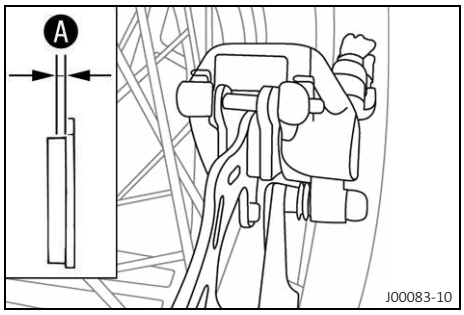
– Install the frame protector. (p. 60)

## 12.12 Checking that the brake pads of the rear brake are secured

**WARNING**

**Danger of accidents** Worn brake pads reduce the brake action.

– Make sure that worn brake pads are replaced immediately.




– Check all brake pads on both brake calipers for their lining thickness A.

| Minimum pad thickness A | ≥ 1 mm (≥ 0.04 in) |
|---|---|

» If it is less than the minimum thickness:
– Change the rear brake pads. (p. 89)

– Check the brake pads for damage and cracking.
» If there is damage or cracking:
– Change the rear brake pads. (p. 89)

– Check that the brake pads are secured.
» If the brake pads are not secured correctly:
– Secure brake pads, replace with new parts if necessary.

## 12.13 Changing the rear brake pads

**WARNING**
**Danger of accidents** Brake pads which have not been approved alter the braking action.
– Only use brake pads approved and recommended by the vehicle manufacturer.

**WARNING**
**Danger of accidents** Incorrect servicing will cause the brake system to fail.
– Ensure that service work and repairs are performed professionally.

**WARNING**
**Danger of accidents** Brake fluid which is too old or of the wrong type impairs the function of the brake system.
– Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule.
– Make sure that only clean, approved brake fluid from a tightly sealed container is used.

**WARNING**
**Danger of accidents** Oil, grease or wax on the brake discs reduces the brake action.
– Always keep the brake discs free of oil, fat and wax.
– Clean the brake discs with brake cleaner when necessary.

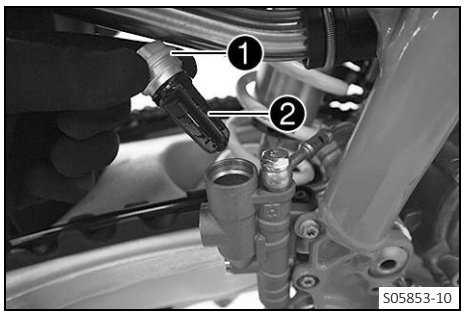
**WARNING**
**Health hazard** Brake fluid is a harmful substance.
– Keep brake fluid out of the reach of children.
– Wear suitable protective clothing and safety glasses.
– Do not allow brake fluid to come into contact with the skin, the eyes, or clothing.
– Consult a doctor immediately if brake fluid has been ingested.
– Rinse the affected area with plenty of water in the event of contact with the skin.
– Rinse eyes thoroughly with water immediately and consult a doctor if brake fluid comes into contact with the eyes.
– If brake fluid spills on to your clothing, change the clothing.

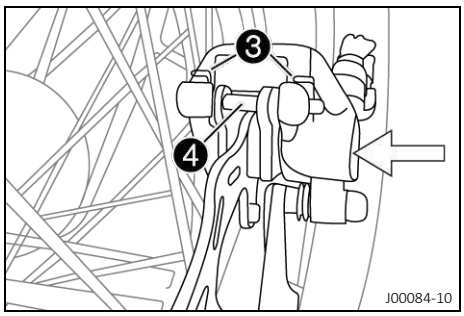
**NOTE**
**Environmental hazard** Hazardous substances cause environmental damage.
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

**Note**
Avoid contact between brake fluid and painted parts. Brake fluid corrodes paint.

**Preparatory work**
– Remove the frame protector. (p. 60)

**Main work**
– Stand the vehicle upright.
– Remove screw cap ❶ with diaphragm ❷ and O-ring.

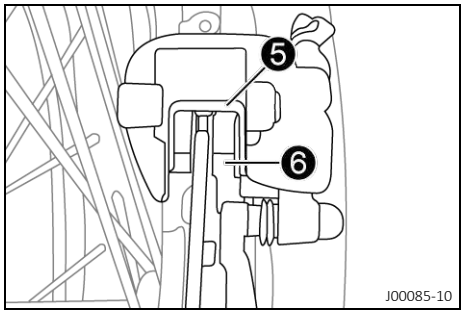





– Manually press the brake caliper toward the brake disc to push back the brake piston. Ensure that brake fluid does not flow out of the brake reservoir, and siphon off excess if required.

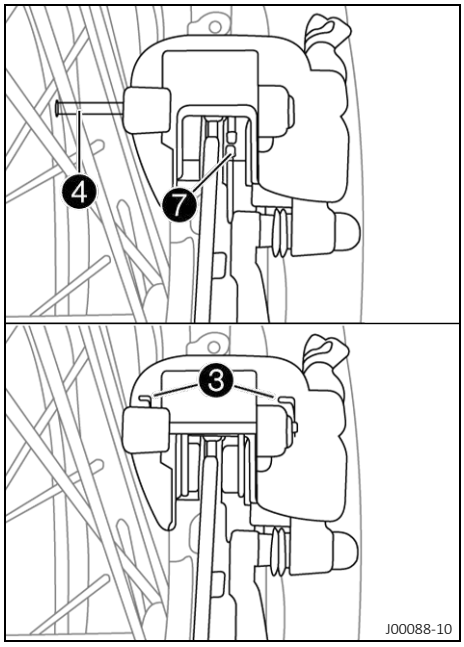
**Note**
Make sure that you do not press the brake caliper against the spokes when pushing back the brake pistons.

– Remove cotter pin ❸, pull out stud ❹, and remove the brake pads.
– Clean brake caliper and brake caliper support.




– Check that spring steel clip ❺ in the brake caliper and brake pad guide plate ❻ in the brake caliper support are properly seated.

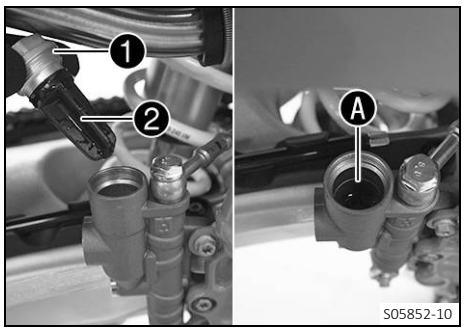
**Note**
The arrow on the spring steel clip points in the rotation direction of the brake disc.




– Insert the new brake pads, mount stud ❹ and cotter pins ❸.

**Note**
Always replace brake pads in sets.
Make sure that decoupling plate ❼ is mounted on the piston side of the brake pad.

– Actuate the brake disc repeatedly until the brake pads are in contact with the brake disc and a pressure point is achieved.




– Correct the brake fluid level to mark Ⓐ.

| Brake fluid DOT 4 / DOT 5.1 (p. 145) |
|---|

– Mount and tighten screw cap ❶ with diaphragm ❷ and O-ring.

**Note**
Immediately clean up any brake fluid that has overflowed or spilled with water.

**Reworking**

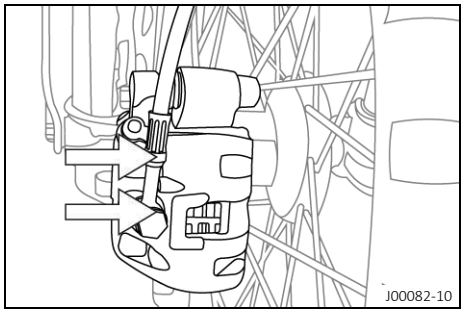
– Install the frame protector. (p. 60)

## 13.1 Removing the front wheel

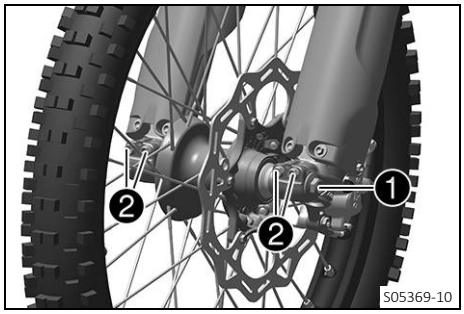
**Preparatory work**

– Raise the motorcycle with a lift stand. (p. 46)

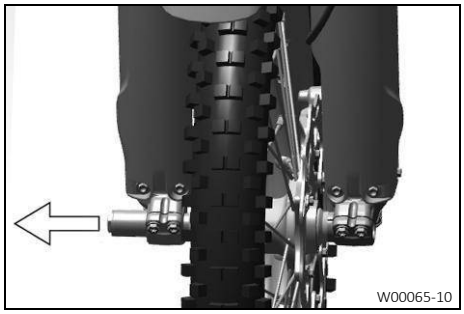
**Main work**




– Manually press the brake caliper toward the brake disc to push back the brake pistons.




– Loosen screw 1 by four turns.
– Loosen screws 2.
– Press on screw 1 to push the wheel spindle out of the fork shoe.
– Remove screw 1.



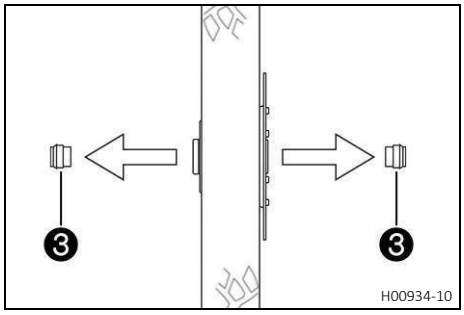

**WARNING**

**Danger of accidents** Damaged brake discs reduce the braking action.

– Always lay the wheel down in such a way that the brake disc is not damaged.

– Hold front wheel and remove wheel spindle. Take the front wheel out of the fork.

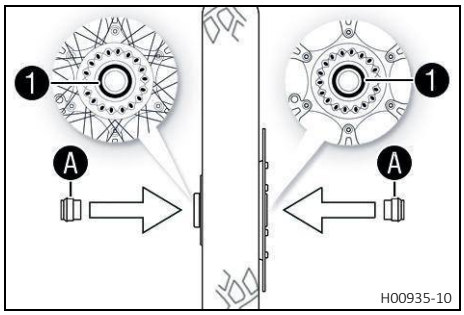
Do not actuate the hand brake lever when the front wheel is removed.




– Remove spacers 3.

## 13.2 Installing the front wheel

**WARNING**
**Danger of accidents** Oil, grease or wax on the brake discs reduces the brake action.
– Always keep the brake discs free of oil, fat and wax.
– Clean the brake discs with brake cleaner when necessary.



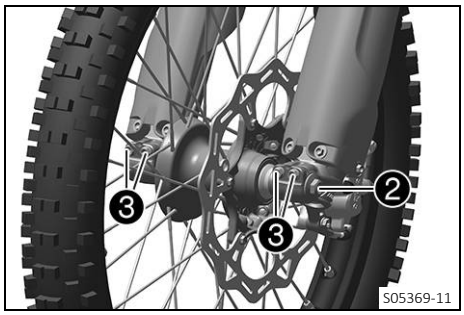

– Check the wheel bearing for damage and wear.
  » If the wheel bearing is damaged or worn:
    – Change the front wheel bearing.
– Clean and grease radial shaft seal 1 and contact surfaces A on the spacers.

| Long-life grease (p. 143) |
|---|

– Insert spacers.
– Clean and lightly grease the wheel spindle.

| Long-life grease (p. 143) |
|---|

– Position the front wheel and insert the wheel spindle.
  ✓ The brake pads are positioned correctly.




– Mount and tighten screw 2.

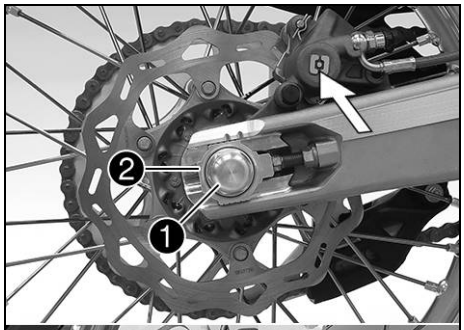
| Screw, wheel spindle, front | |
|---|---|
| M20×1.5 | 35 Nm (25.8 ft·lb$_f$) |

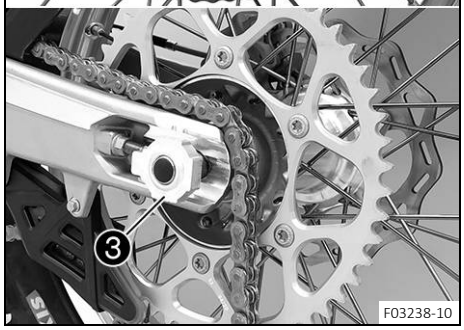
– Operate the hand brake lever several times until the brake pads are in contact with the brake disc.
– Remove the motorcycle from the lift stand. (p. 46)
– Operate the front brake and compress the fork a few times firmly.
  ✓ The fork legs straighten.
– Tighten screws 3.

| Screw, fork shoe | |
|---|---|
| M8 | 15 Nm (11.1 ft·lb$_f$) |

## 13.3 Removing the rear wheel

**Preparatory work**
– Raise the motorcycle with a lift stand. (p. 46)




**Main work**

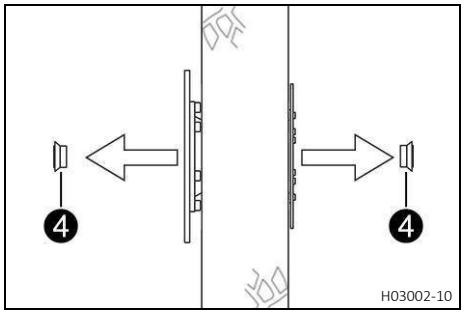
– Manually press the brake caliper toward the brake disc to push back the brake pistons.
– Remove nut ❶.
– Remove chain tension adjuster ❷.
– Pull out wheel spindle ❸ far enough to allow the rear wheel to be pushed forward.
– Push the rear wheel forward as far as possible.
– Remove the chain from the rear sprocket.

| Protect the components against damage by covering them. |
|---|

**WARNING**
**Danger of accidents** Damaged brake discs reduce the braking action.
– Always lay the wheel down in such a way that the brake disc is not damaged.

– Hold the rear wheel and remove wheel spindle. Take the rear wheel out of the swingarm.

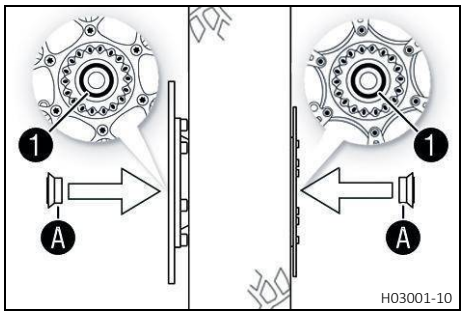
| Do not actuate the brake pedal when the rear wheel is removed. |
|---|




– Remove spacers ❹.

## 13.4 Installing the rear wheel

**WARNING**
**Danger of accidents** Oil, grease or wax on the brake discs reduces the brake action.
– Always keep the brake discs free of oil, fat and wax.
– Clean the brake discs with brake cleaner when necessary.

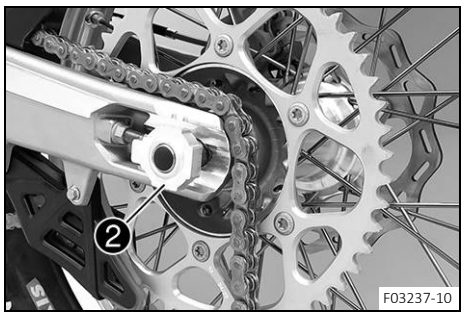



**Main work**

– Check the wheel bearing for damage and wear.
  » If the wheel bearing is damaged or worn:
    – Change the rear wheel bearing.
– Clean and grease radial shaft seal ❶ and contact surfaces Ⓐ on the spacers.

| Long-life grease (p. 143) |
|---|

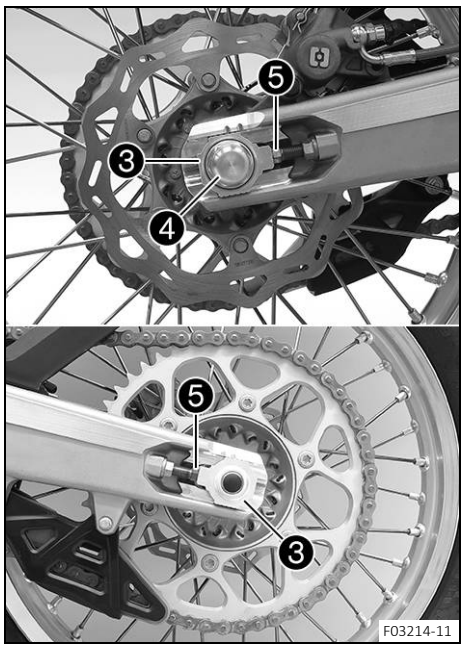
– Insert spacers.




– Clean and lightly grease the wheel spindle.

| Long-life grease (p. 143) |
|---|

– Position the rear wheel and insert wheel spindle ❷.
✓ The brake pads are positioned correctly.
– Attach the chain.




– Position chain tension adjuster ❸.
– Mount nut ❹ but do not tighten yet.
– Make sure that chain tension adjusters ❸ are fitted correctly on adjusting screws ❺.
– Check the chain tension. (p. 71)
– Tighten nut ❹.

| Nut, wheel spindle, rear | |
|---|---|
| M22×1.5 | 80 Nm<br>(59.0 ft·lb$_f$) |

**Note**
The wide adjustment range of the chain adjusters enables different secondary ratios with the same chain length.
Chain tension adjusters ❸ can be turned by 180°.

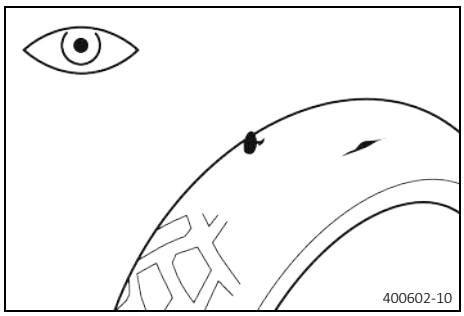
– Actuate the brake disc repeatedly until the brake pads are in contact with the brake disc and a pressure point is achieved.

**Reworking**

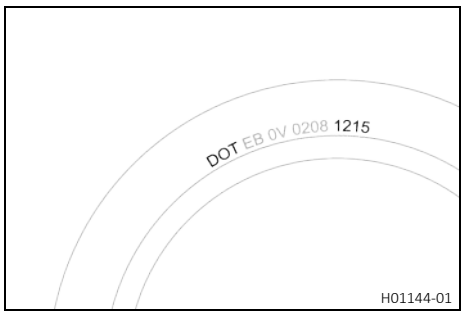
– Remove the motorcycle from the lift stand. (p. 46)

## 13.5 Checking the tire condition

**Note**
Only fit tires approved and/or recommended by GASGAS.
Other tires could have a negative effect on handling characteristics.
The type, condition, and pressure of the tires all have a major impact on the handling of the motorcycle.
The tires mounted on the front and rear wheels must have a similar profile.
Worn tires have a negative effect on handling characteristics, especially on wet surfaces.




– Check the front and rear tires for cuts, embedded objects, and other damage.
  » If the tires have cuts, run-in objects, or other damage:
    – Change the tires.



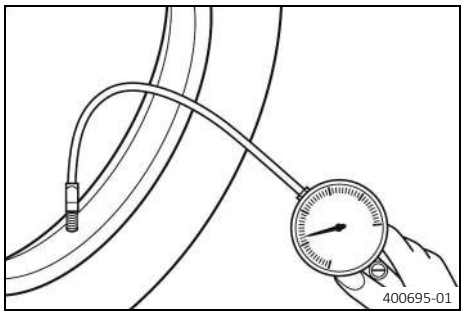

– Check the tire age.

**Note**
The tire date of manufacture is usually included on the tire label and is indicated by the last four digits of the **DOT** number. The first two digits indicate the week of manufacture and the last two digits the year of manufacture.
GASGAS recommends that the tires be changed after five years at the latest, regardless of the actual wear.

  » If the tires are older than five years:
    – Change the tires.

## 13.6 Checking the tire pressure

**Note**
Low tire pressure leads to abnormal wear and the tire overheating.
Correct tire pressure ensures optimal riding comfort and maximum tire service life.



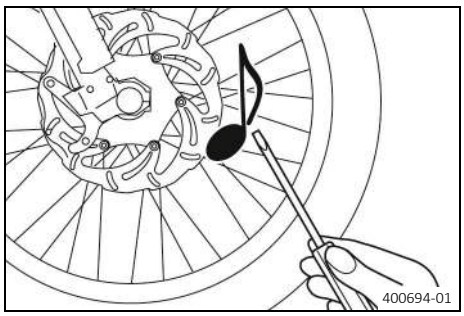

– Remove the protection cap.
– Check the tire pressure when the tires are cold.

| Off-road tire pressure | |
|---|---|
| front | 1.0 bar (14.5 psi) |
| rear | 1.0 bar (14.5 psi) |

  » If the tire pressure does not meet specifications:
    – Correct tire pressure.
– Mount the protection cap.

## 13.7 Checking the spoke tension

**WARNING**
**Danger of accidents** Incorrectly tensioned spokes impair the handling characteristic and can result in secondary damage.
If the spokes are too tight, they can break due to being overloaded.
Loose spokes can cause lateral or radial run-out in the wheel and other spokes will loosen as a result.
– Check the spoke tension regularly, especially on a new vehicle.




– Briefly tap each spoke with a screwdriver.

| |
|---|
| You should hear a high-pitched sound. |

**Note**

The frequency of the sound depends on the spoke length and spoke diameter.

If you hear different pitches on different spokes of equal length and diameter, this is an indication of different spoke tensions.

» If the spoke tension differs:

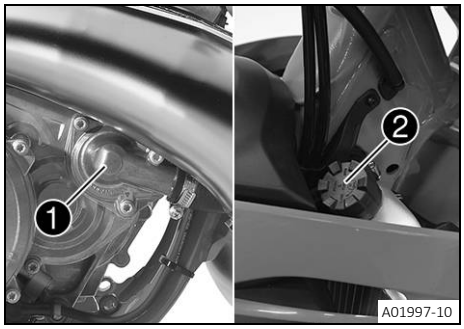
– Correct the spoke tension.

– Check the spoke torque.

| | |
|---|---|
| Spoke nipple, front wheel | |
| M4,5 | 6 Nm<br>(4.4 ft·lb$_f$) |
| Spoke nipple, rear wheel | |
| M4,5 | 6 Nm<br>(4.4 ft·lb$_f$) |

| |
|---|
| Torque wrench kit (58429094000) |

## 14.1 Cooling system




Water pump ❶ in the engine circulates the coolant.

The pressure resulting from the warming of the cooling system is regulated by a valve in radiator cap ❷. This ensures that operating the vehicle at the specified coolant temperature will not result in a risk of malfunctions.

| |
|---|
| 120 °C<br>(248.0 °F) |

The coolant is cooled by the air stream.

The lower the vehicle speed, the lower the cooling effect. Dirty cooling fins also reduce the cooling effect.

## 14.2 Checking the frost protection and coolant level

**WARNING**

**Health hazard** Coolant is harmful to health.

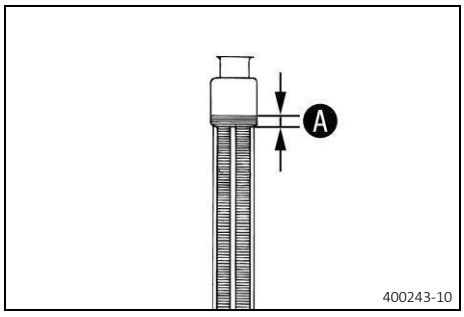
- Keep coolant out of the reach of children.
- Do not allow coolant to come into contact with skin, eyes, or clothing.
- Consult a doctor immediately if coolant has been ingested.
- Rinse the affected area immediately with plenty of water in the event of contact with skin.
- Rinse eyes thoroughly with water and consult a doctor immediately if coolant comes into contact with eyes.
- If coolant spills on to your clothing, change the clothing.
- Store coolant properly in a suitable container and keep out of the reach of children.

**WARNING**

**Danger of scalding** The coolant heats up and is under high pressure when the vehicle is operated.

- Do not open the radiator, the radiator hoses, or other cooling system components if the engine or the cooling system are at operating temperature.
- Allow the cooling system and the engine to cool down before you open the radiator, the radiator hoses, or other components of the cooling system.
- In the event of scalding, rinse the area affected immediately with lukewarm water.

Condition: The engine is cold




- Stand the motorcycle upright on a level surface.
- Take off the radiator cap.
- Check the frost protection in the coolant.

| |
|---|
| −45 °C … −25 °C<br>(−49.0 °F … −13.0 °F) |

  » If the frost protection in the coolant does not match the specified value:
    - Correct the frost protection in the coolant.
- Check the coolant level in the radiator.

| | |
|---|---|
| Coolant level Ⓐ above the radiator fins | 10 mm<br>(0.39 in) |

» If the coolant level does not meet the specifications:
– Correct the coolant level.

| Coolant | |
|---|---|
| Coolant (p. 146)<br>Antifreeze protection to at least: −25 °C (−13.0 °F) | 0.95 l<br>(0.251 liq. $gal_{US}$) |

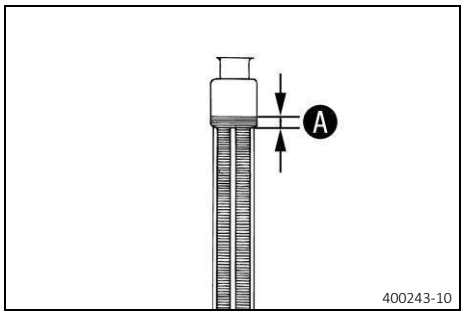
– Mount the radiator cap.

## 14.3 Checking the coolant level

**WARNING**
**Health hazard** Coolant is harmful to health.
– Keep coolant out of the reach of children.
– Do not allow coolant to come into contact with skin, eyes, or clothing.
– Consult a doctor immediately if coolant has been ingested.
– Rinse the affected area immediately with plenty of water in the event of contact with skin.
– Rinse eyes thoroughly with water and consult a doctor immediately if coolant comes into contact with eyes.
– If coolant spills on to your clothing, change the clothing.
– Store coolant properly in a suitable container and keep out of the reach of children.

**WARNING**
**Danger of scalding** The coolant heats up and is under high pressure when the vehicle is operated.
– Do not open the radiator, the radiator hoses, or other cooling system components if the engine or the cooling system are at operating temperature.
– Allow the cooling system and the engine to cool down before you open the radiator, the radiator hoses, or other components of the cooling system.
– In the event of scalding, rinse the area affected immediately with lukewarm water.

Condition: The engine is cold




– Stand the motorcycle upright on a level surface.
– Take off the radiator cap.
– Check the coolant level in the radiator.

| | |
|---|---|
| Coolant level A above the radiator fins | 10 mm<br>(0.39 in) |

» If the coolant level does not meet the specifications:
– Correct the coolant level.

| Coolant | |
|---|---|
| Coolant (p. 146)<br>Antifreeze protection to at least: −25 °C (−13.0 °F) | 0.95 l<br>(0.251 liq. $gal_{US}$) |

– Mount the radiator cap.

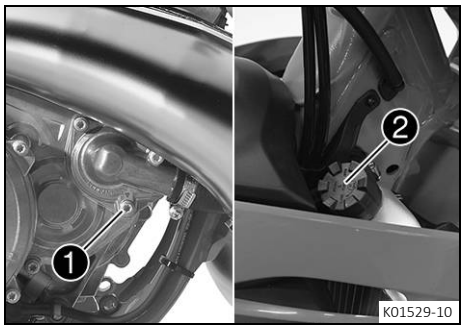
## 14.4 Draining the coolant

**WARNING**
**Health hazard** Coolant is harmful to health.
- Keep coolant out of the reach of children.
- Do not allow coolant to come into contact with skin, eyes, or clothing.
- Consult a doctor immediately if coolant has been ingested.
- Rinse the affected area immediately with plenty of water in the event of contact with skin.
- Rinse eyes thoroughly with water and consult a doctor immediately if coolant comes into contact with eyes.
- If coolant spills on to your clothing, change the clothing.
- Store coolant properly in a suitable container and keep out of the reach of children.

**WARNING**
**Danger of scalding** The coolant heats up and is under high pressure when the vehicle is operated.
- Do not open the radiator, the radiator hoses, or other cooling system components if the engine or the cooling system are at operating temperature.
- Allow the cooling system and the engine to cool down before you open the radiator, the radiator hoses, or other components of the cooling system.
- In the event of scalding, rinse the area affected immediately with lukewarm water.

Condition: The engine is cold

- Stand the motorcycle upright.
- Place an appropriate container under the water pump cover.



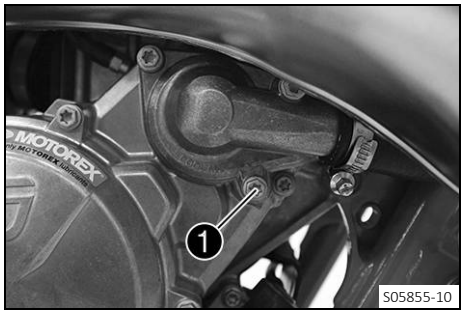

- Remove screw ❶. Take off radiator cap ❷.
- Completely drain the coolant.
- Mount screw ❶ with the new sealing ring and tighten.

| Coolant drain plug | |
|---|---|
| M6 | 10 Nm<br>(7.4 ft·lb$_f$) |

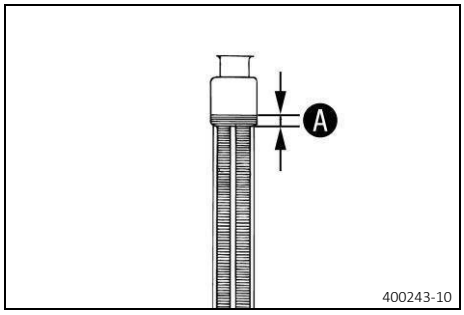
## 14.5 Refilling the coolant

**WARNING**
**Health hazard** Coolant is harmful to health.
- Keep coolant out of the reach of children.
- Do not allow coolant to come into contact with skin, eyes, or clothing.
- Consult a doctor immediately if coolant has been ingested.
- Rinse the affected area immediately with plenty of water in the event of contact with skin.
- Rinse eyes thoroughly with water and consult a doctor immediately if coolant comes into contact with eyes.
- If coolant spills on to your clothing, change the clothing.
- Store coolant properly in a suitable container and keep out of the reach of children.

**Main work**




– Make sure that screw ❶ is tightened.
– Stand the motorcycle upright.




– Pour coolant in up to level Ⓐ above the radiator fins.

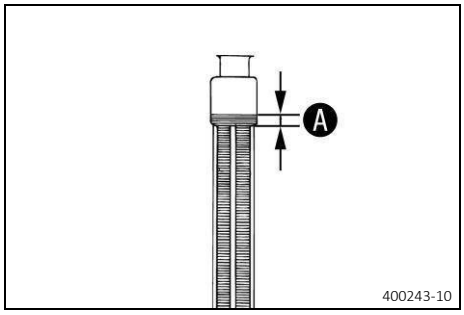
| |
|---|
| 10 mm<br>(0.39 in) |

| Coolant | |
|---|---|
| Coolant (p. 146)<br>Antifreeze protection to at least: −25 °C (−13.0 °F) | 0.95 l<br>(0.251 liq. $gal_{US}$) |




– Remove screw ❷ and wait until coolant emerges without bubbles.
– Mount and tighten screw ❷.

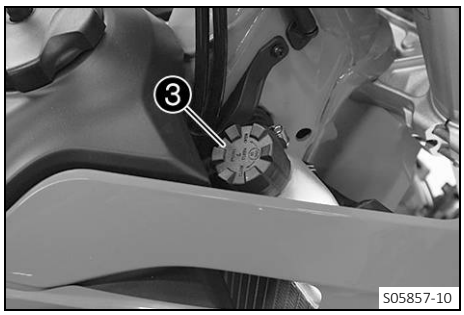
| Cylinder head bleed screw | |
|---|---|
| M6 | 8 Nm<br>(5.9 ft·$lb_f$) |




– Pour coolant in up to level Ⓐ above the radiator fins.

| |
|---|
| 10 mm<br>(0.39 in) |

| Coolant | |
|---|---|
| Coolant (p. 146)<br>Antifreeze protection to at least: −25 °C (−13.0 °F) | 0.95 l<br>(0.251 liq. $gal_{US}$) |




– Mount radiator cap ❸.

**DANGER**

**Danger of poisoning** Exhaust gases are toxic and inhaling them may result in unconsciousness and death.

– Always ensure that there is sufficient ventilation when running the engine.
– Use suitable exhaust extraction when starting or running the engine in an enclosed space.

– Allow the engine to warm up and cool down again.
– Check the transmission and cooling system for leaks.

**Reworking**

– Check the coolant level. (p. 99)

## 14.6 Changing the coolant

**WARNING**

**Health hazard** Coolant is harmful to health.

– Keep coolant out of the reach of children.
– Do not allow coolant to come into contact with skin, eyes, or clothing.
– Consult a doctor immediately if coolant has been ingested.
– Rinse the affected area immediately with plenty of water in the event of contact with skin.
– Rinse eyes thoroughly with water and consult a doctor immediately if coolant comes into contact with eyes.
– If coolant spills on to your clothing, change the clothing.
– Store coolant properly in a suitable container and keep out of the reach of children.

**WARNING**

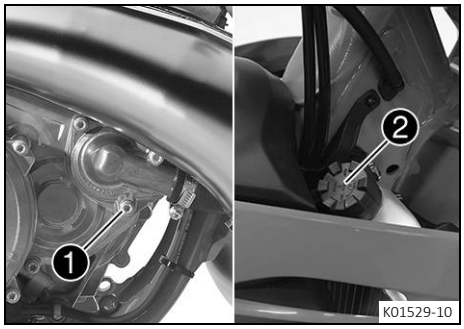
**Danger of scalding** The coolant heats up and is under high pressure when the vehicle is operated.

– Do not open the radiator, the radiator hoses, or other cooling system components if the engine or the cooling system are at operating temperature.
– Allow the cooling system and the engine to cool down before you open the radiator, the radiator hoses, or other components of the cooling system.
– In the event of scalding, rinse the area affected immediately with lukewarm water.

Condition: The engine is cold

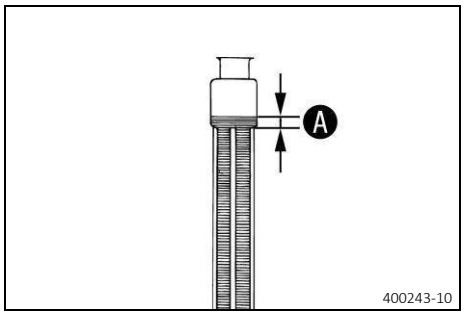
**Main work**

– Stand the motorcycle upright.
– Place an appropriate container under the water pump cover.




– Remove screw 1. Take off radiator cap 2.
– Completely drain the coolant.
– Mount screw 1 with the new sealing ring and tighten.

| Coolant drain plug | |
|---|---|
| M6 | 10 Nm<br>(7.4 ft·lb$_f$) |




– Pour coolant in up to level A above the radiator fins.

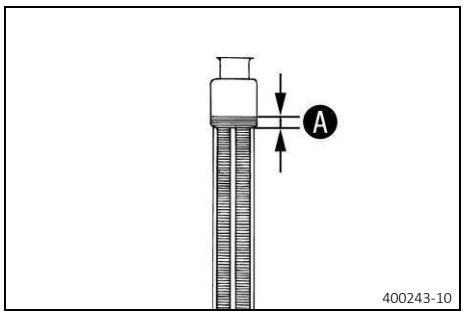
| 10 mm<br>(0.39 in) |
|---|

| Coolant | |
|---|---|
| Coolant (p. 146)<br>Antifreeze protection to at least: −25 °C (−13.0 °F) | 0.95 l<br>(0.251 liq. gal$_{US}$) |




– Remove screw ❸ and wait until coolant emerges without bubbles.
– Mount and tighten screw ❸.

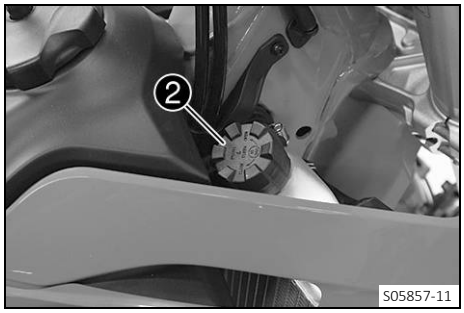
| Cylinder head bleed screw | |
|---|---|
| M6 | 8 Nm<br>(5.9 ft·lb$_f$) |




– Pour coolant in up to level Ⓐ above the radiator fins.

| 10 mm<br>(0.39 in) |
|---|

| Coolant | |
|---|---|
| Coolant 📖 (p. 146)<br>Antifreeze protection to at least: −25 °C (−13.0 °F) | 0.95 l<br>(0.251 liq. gal$_{US}$) |




– Mount radiator cap ❷.

**DANGER**

**Danger of poisoning** Exhaust gases are toxic and inhaling them may result in unconsciousness and death.

– Always ensure that there is sufficient ventilation when running the engine.
– Use suitable exhaust extraction when starting or running the engine in an enclosed space.

– Allow the engine to warm up and cool down again.
– Check the transmission and cooling system for leaks.

**Reworking**

– Check the coolant level. 📖 (p. 99)

## 15.1 Removing the 12 V battery

**CAUTION**

**Danger of burns** The regulator rectifier gets very hot when the vehicle is operated.

– Allow the regulator rectifier to cool down before performing any work.

**NOTE**

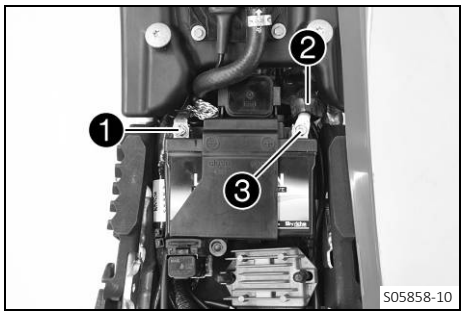
**Environmental hazard** 12-V batteries contain environmentally-hazardous materials.

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

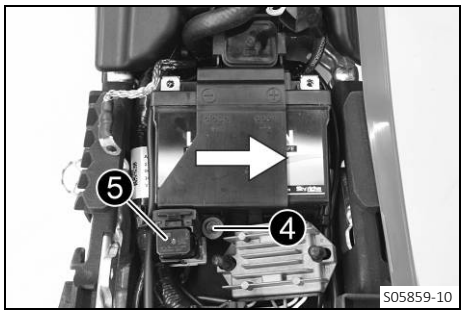
**Preparatory work**

– Remove air filter box cover. (p. 60)
– Remove the seat. (p. 59)

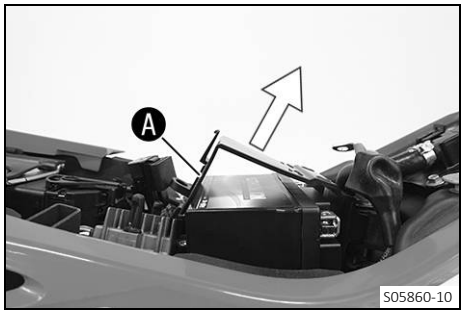
**Main work**




– Disconnect negative cable ❶ from the 12 V battery.
– Pull back positive terminal cover ❷ and disconnect positive cable ❸ from the 12-V battery.



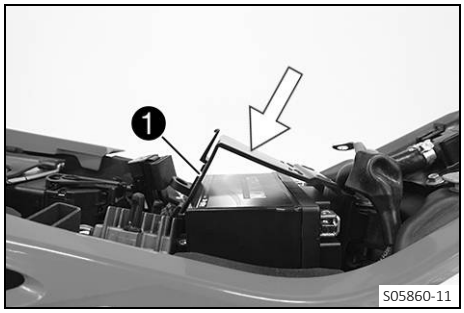

– Remove screw ❹.
– Pull starter relay ❺ off the holder and hang to the side.

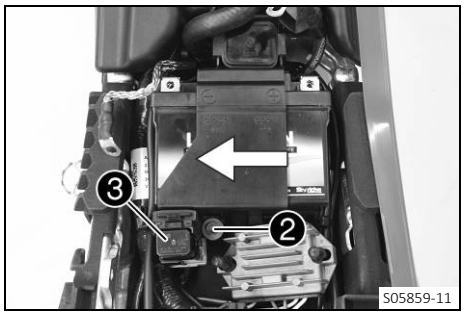


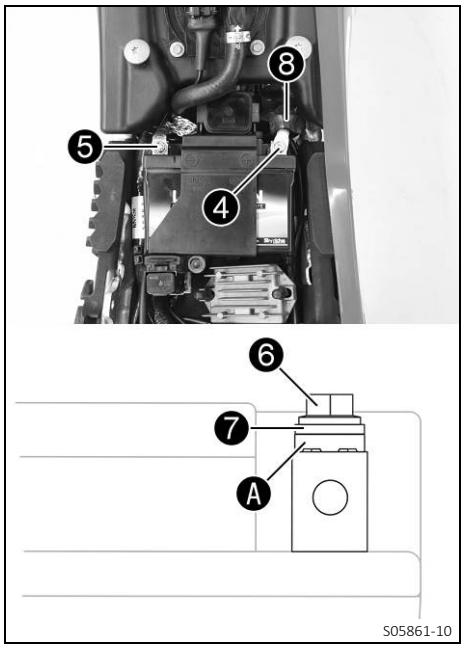

– Pull up battery holding bracket Ⓐ and remove the 12-V battery to the rear.

| Pay attention to the wiring harness. |
|---|

## 15.2 Installing the 12 V battery




**Main work**

– Pull up battery holding bracket ❶, insert the 12-V battery into the battery compartment with the terminals facing upwards and secure with battery holding bracket ❶.

| |
|---|
| Ensure that the cable is routed correctly. |

| |
|---|
| 12-V battery (HJTZ5S-FP-C) |

– Mount and tighten screw ❷.

| Remaining screws on chassis | |
|---|---|
| M6 | 10 Nm (7.4 ft·lb$_f$) |

– Mount starter relay ❸ onto the bracket and route the cable.

– Connect positive cable ❹ to the 12 V battery.

| Screw, battery terminal | |
|---|---|
| M5 | 2.5 Nm (1.84 ft·lb$_f$) |

– Connect negative cable ❺ to the 12 V battery.

| Screw, battery terminal | |
|---|---|
| M5 | 2.5 Nm (1.84 ft·lb$_f$) |

| |
|---|
| Contact disks Ⓐ must be mounted under screws ❻ and cable lug ❼ with the claws toward the battery terminal. |

– Slide positive terminal cover ❽ over the positive terminal.

**Reworking**

– Mount the seat. (p. 59)

– Install the air filter box cover. (p. 61)

## 15.3 Charging the 12 V battery

**WARNING**

**Risk of injury** 12-V batteries contain harmful substances.

- Keep 12-V batteries out of the reach of children.
- Keep the battery away from sparks or open flames.
- Only charge batteries in well-ventilated rooms.
- Maintain a minimum distance from flammable materials when charging 12-V batteries.

| | |
|---|---|
| Minimum distance | 1 m<br>(3 ft – 3 in) |

- Do not charge deeply discharged 12- V batteries if the charge is already below the minimum voltage.

| | |
|---|---|
| Minimum voltage before starting charging | 9 V |

- Dispose of 12 V batteries correctly if they have less than the minimum voltage.

**NOTE**

**Environmental hazard** 12-V batteries contain environmentally-hazardous materials.

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

**NOTE**

**Environmental hazard** Hazardous substances cause environmental damage.

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

**Note**

Even when there is no load on the 12 V battery, it discharges steadily each day.

The state of charge and the method of charging are very important for the service life of the 12 V battery.

Rapid recharging with a high charging current shortens the service life of the battery.

If the charging current or charging voltage are exceeded, the 12-V battery will be irreparably damaged.

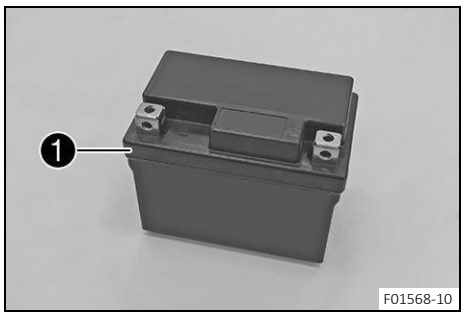
If the 12 V battery is left in a discharged state for an extended period, it will become deeply discharged and suffer a loss of capacity, destroying the battery.

The 12 V battery is maintenance-free.

**Preparatory work**

- Remove air filter box cover. (p. 60)
- Remove the seat. (p. 59)
- Remove the 12 V battery. (p. 104)

**Main work**




- Do not remove cover 1.
- Check the battery voltage.

» Battery voltage:
  - < 9 V
  – Do not charge the 12 V battery.
  – Replace the 12 V battery and dispose of the old 12 V battery properly.

» If the specifications have been met:
  Battery voltage:
  - ≥ 9 V
  – Connect a charger to the 12 V battery. Switch the charger on.

| | |
|---|---|
| Read the accompanying instructions. | |
| The charging current, charging voltage, and charging time must not be exceeded. | |
| Maximum charging voltage | 14.4 V |
| Minimum charging voltage | 3.0 A |
| Maximum charging time | 12 h |
| Recharge the 12 V battery regularly when the motorcycle is not being used. | 3 months |
| If the 12 V battery is depleted from starting the vehicle repeatedly, the battery must be charged immediately. | |

| |
|---|
| Battery charger and tester (A54029974000) |

**Note**
This charger tests whether the 12 V battery retains its voltage. It is also impossible to overcharge the 12 V battery with this charger. The charging time may be longer at low temperatures.

**Note**
These chargers are only suitable for lithium iron phosphate batteries.

– Switch off the charger after charging and disconnect from the 12 V battery.

**Reworking**

– Install the 12 V battery. (p. 105)
– Mount the seat. (p. 59)
– Install the air filter box cover. (p. 61)

## 15.4 Changing the main fuse

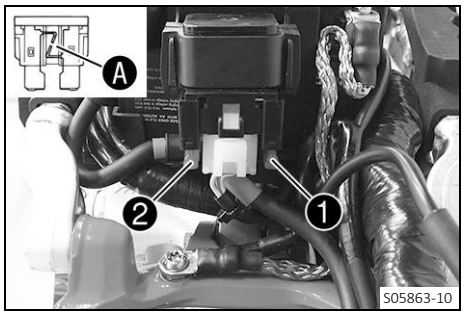
**WARNING**
**Fire hazard** Incorrect fuses overload the electrical system.
– Use only fuses with the prescribed amperage.
– Do not bypass or repair fuses.

**Note**
The main fuse protects all electrical power loads of the vehicle. It is located in the starter relay housing under the seat.

**Preparatory work**

- Press and hold kill button while the engine is idling until the engine stops.
- Remove air filter box cover. (p. 60)
- Remove the seat. (p. 59)
- Remove the frame protector. (p. 60)
- Remove the right side panel. (p. 62)
- Remove air filter box cover. (p. 60)
- Remove the seat. (p. 59)
- Remove the fuel tank. (p. 67)

**Main work**




- Remove the protection caps.
- Remove faulty main fuse 1.

**Note**
A faulty fuse has a burned-out fuse wire A.
A spare fuse 2 is located in the starter relay.

- Insert the main fuse.

| Fuse (58011109110) |
|---|

- Check that the electrical equipment is functioning properly.

**Tip**
Insert a new spare fuse so that it is available if needed.

- Mount the protection caps.

**Reworking**

- Install the fuel tank. (p. 68)
- Mount the seat. (p. 59)
- Install the air filter box cover. (p. 61)
- Install the right side panel. (p. 62)
- Install the frame protector. (p. 60)
- Mount the seat. (p. 59)
- Install the air filter box cover. (p. 61)

## 15.5 Changing the fuse of the fuel pump

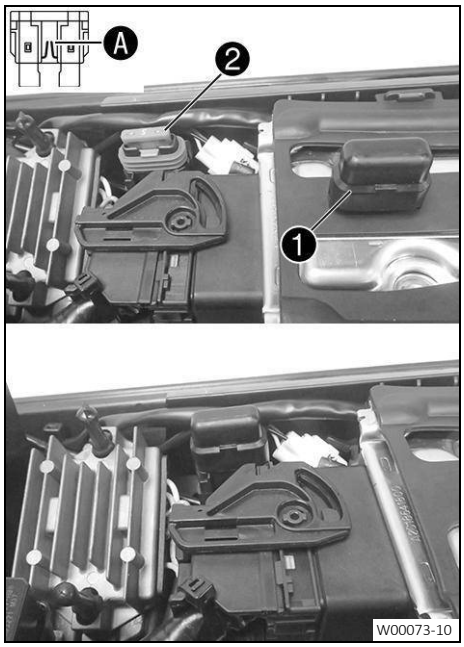
**WARNING**
**Fire hazard** Incorrect fuses overload the electrical system.
– Use only fuses with the prescribed amperage.
– Do not bypass or repair fuses.

**CAUTION**
**Danger of burns** The regulator rectifier gets very hot when the vehicle is operated.
– Allow the regulator rectifier to cool down before performing any work.

**Note**
The fuel pump is protected by the fuel pump fuse. The fuse is located under the seat.

**Preparatory work**
– Remove air filter box cover. (p. 60)
– Remove the seat. (p. 59)

**Main work**




– Remove protection cap ❶.
– Remove faulty main fuse ❷.

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

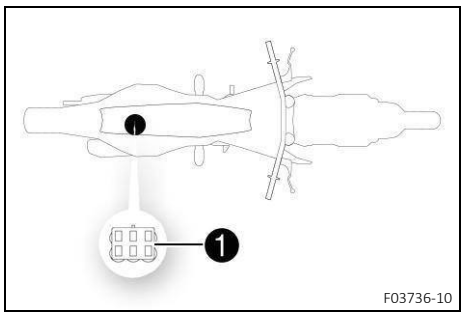
– Put in the new fuse for the fuel pump.

| Fuse (58011109105) |
|---|

– Check that the electrical equipment is functioning properly.
– Attach protection cap ❶.

**Reworking**
– Mount the seat. (p. 59)
– Install the air filter box cover. (p. 61)

## 15.6 Diagnostic connector




Diagnostic connector ❶ is located under the seat below the engine control unit.

**Note**

As soon as the diagnostics tool is connected, the hourmeter starts running.

Before longer diagnostic sessions, unplug the hourmeter behind the number plate.

## 16.1 Programming the end positions of the exhaust control

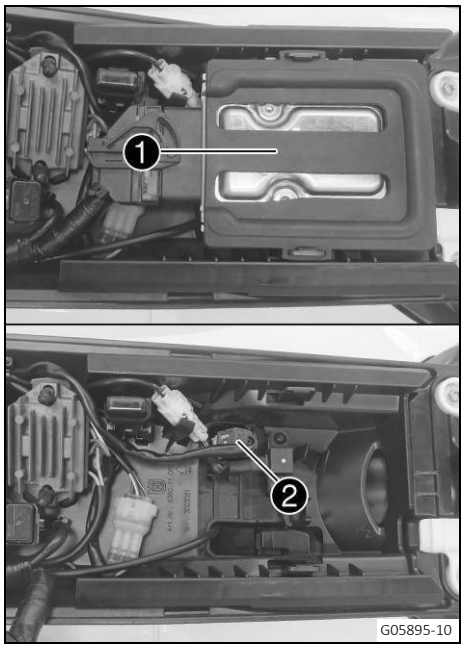
**Note**
If work has been carried out on the exhaust control, the end positions must be reprogrammed.

Condition: Engine is off

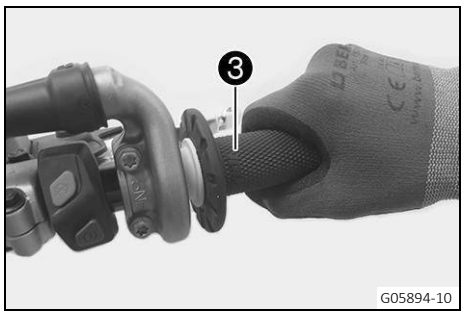
**Preparatory work**

– Remove air filter box cover. (p. 60)
– Remove the seat. (p. 59)

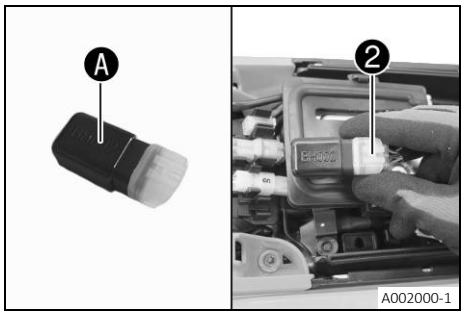
**Main work**




– Pull engine control unit ❶ upward and off the bracket and hang to the side.
– Pull diagnostics connector ❷ off the holder.




– Move throttle twist grip ❸ to where it is half open and hold in position.




– Plug wake-up connector Ⓐ into diagnostics connector ❷.

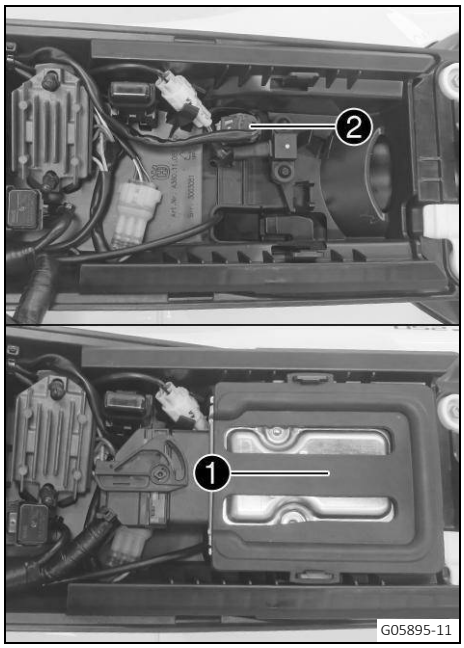
**Note**
Wake-up connector Ⓐ is in the motorcycle's accessory pack.

– Wait for at least five seconds.
  ✓ The end positions of the exhaust control are read. The procedure is clearly audible.
  ✓ The dashboard illumination is activated, the combination switch lights up green.
– Release the fixing from the throttle grip.

✓ The end positions of the exhaust control are programmed.

– Wait until you can no longer hear the exhaust control engine operating.

– Disconnect wake-up connector Ⓐ from diagnostic connector ❷.




– Mount diagnostics connector ❷ on the holder.

– Mount engine control unit ❶ on the bracket.

**Reworking**

– Mount the seat. (p. 59)

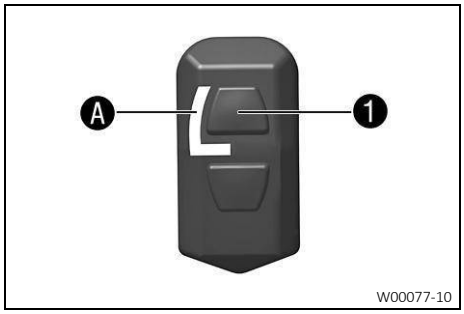
– Install the air filter box cover. (p. 61)

## 17.1 Changing the mapping

**Note**

The desired engine characteristic can be altered using the combination switch.
Changing the mapping also affects the response of the exhaust control.
The setting most recently selected is activated again when restarting.
The mapping can also be changed during the ride.

– Select one of the following alternatives.

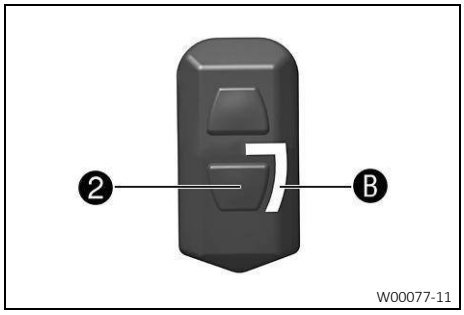



**Activating lean mapping:**

– Press button ❶.

| | |
|---|---|
| Engine speed | < 4,000 rpm<br>(< 66.67 Hz) |

✓ Indicator light Ⓐ lights up.
✓ Lean: Recommended for firm/hard surfaces



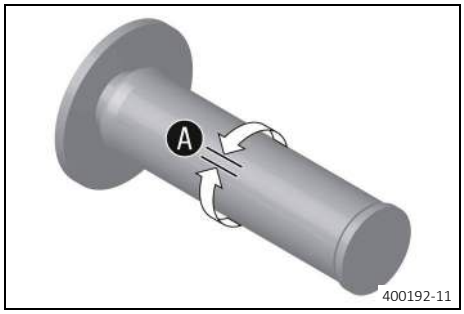

**Activating rich mapping:**

– Press button ❷.

| | |
|---|---|
| Engine speed | < 4,000 rpm<br>(< 66.67 Hz) |

✓ Indicator light Ⓑ lights up.
✓ Rich: Recommended for sandy/loose surfaces

## 17.2 Checking the play in the throttle cable




– Check the throttle grip for smooth operation.
– Move the handlebar to the straight-ahead position. Turn the throttle twist grip back and forth slightly and determine the play in throttle cable Ⓐ.

| | |
|---|---|
| Throttle cable play | 2 mm … 3 mm<br>(0.08 in … 0.12 in) |

» If the throttle cable play does not meet the specified value:
– Adjust the throttle cable play. (p. 114)

– Press the cold start button in all the way to the stop.

| |
|---|
| When the throttle twist grip is turned forward, the cold start button jumps back to the start position. |

» If the cold start button does not return to its original position:
– Adjust the throttle cable play. (p. 114)

**DANGER**

**Danger of poisoning** Exhaust gases are toxic and inhaling them may result in unconsciousness and death.

– Always ensure that there is sufficient ventilation when running the engine.
– Use suitable exhaust extraction when starting or running the engine in an enclosed space.

– Start the engine and let it run at idle speed. Move the handlebar back and forth over the entire steering range.

| The idle speed must not change. |
|---|

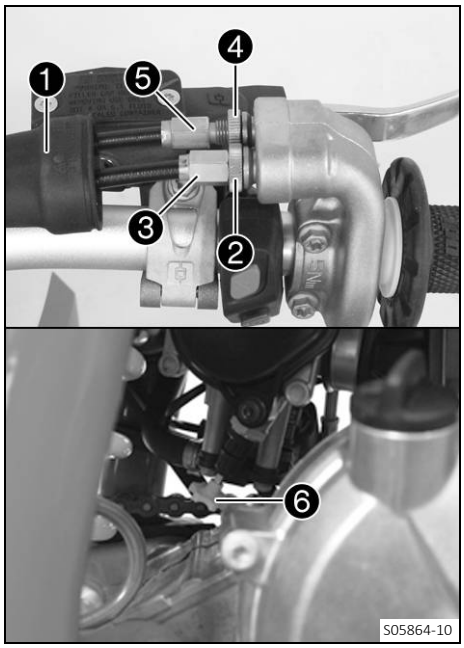
» If the idle speed changes:
– Adjust the throttle cable play. (p. 114)

## 17.3 Adjusting the throttle cable play

**Note**
If the correct routing of the throttle cables has already been secured, the fuel tank does not need to be removed.

**Preparatory work**

– Remove the frame protector. (p. 60)
– Remove the right side panel. (p. 62)
– Remove air filter box cover. (p. 60)
– Remove the seat. (p. 59)
– Remove the fuel tank. (p. 67)
– Check the throttle cable routing. (p. 75)




**Main work**

– Move the handlebar to the straight-ahead position.
– Push back boot 1.
– Loosen nut 2.
– Screw adjusting screw 3 in as far as possible.
– Loosen nut 4.
– Press cold start button 6 all the way to the stop.
– Turn adjusting screw 5 so that the cold start button moves to the basic position when the throttle twist grip is turned forward.
– Tighten nut 4.
– Turn adjusting screw 3 so that there is play in the throttle cable at the throttle twist grip.

| | |
|---|---|
| Throttle cable play | 2 mm … 3 mm<br>(0.08 in … 0.12 in) |

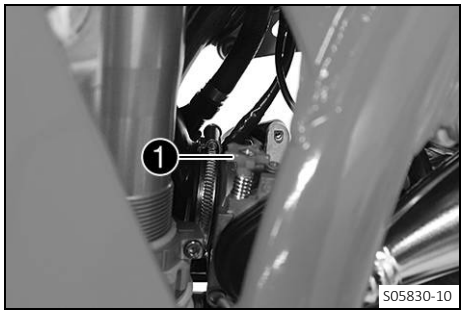
– Tighten nut 2.
– Slide on boot 1.
– Check the throttle grip for smooth operation.

**Reworking**

– Check the play in the throttle cable. (p. 113)
– Install the fuel tank. (p. 68)
– Mount the seat. (p. 59)
– Install the air filter box cover. (p. 61)
– Install the right side panel. (p. 62)
– Install the frame protector. (p. 60)

## 17.4 Adjusting the idle speed

**WARNING**
**Danger of accidents** The engine may suddenly come to a halt if the idle speed is set too low.
– Set the idle speed to the specified value.




– Run the engine until warm.
  ✓ The cold start button is in the basic position.

**DANGER**
**Danger of poisoning** Exhaust gases are toxic and inhaling them may result in unconsciousness and death.
– Always ensure that there is sufficient ventilation when running the engine.
– Use suitable exhaust extraction when starting or running the engine in an enclosed space.

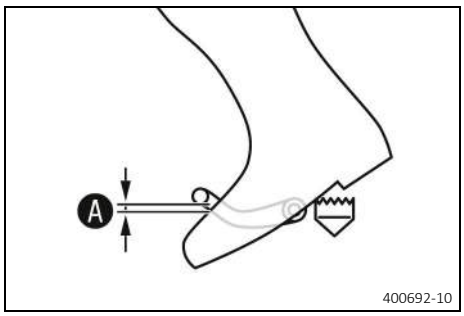
– Adjust the idle speed by turning idle speed adjusting screw 1 using a suitable rpm gauge.

| | |
|---|---|
| idle speed | 1,400 rpm … 1,500 rpm<br>(23.33 Hz … 25.00 Hz) |

**Note**
Turning counterclockwise lowers the idle speed.
Turning clockwise increases the idle speed.
Make the adjustment in small steps.
An incorrect idle speed can have a negative impact on overall engine running.

## 17.5 Checking the basic position of the gear shift lever

**Note**
When driving, the gear shift lever must not touch the rider's boot when in the basic position.
When the gear shift lever keeps touching the boot, the transmission will be subject to an excessive load.

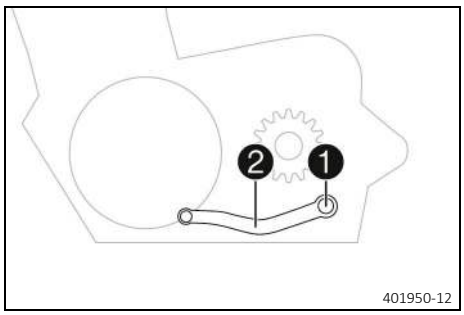



– Sit on the vehicle in the riding position and measure the distance Ⓐ between the upper edge of your boot and the shift lever.

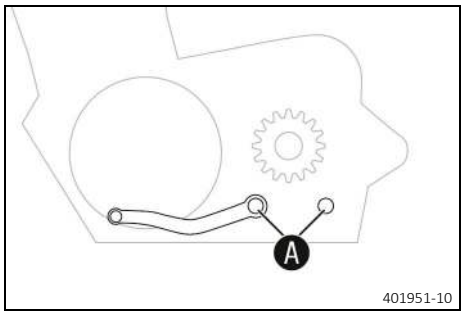
| | |
|---|---|
| Distance between the gear shift lever and upper edge of boot | 10 mm … 20 mm<br>(0.39 in … 0.79 in) |

» If the distance does not meet the specifications:
– Adjust the basic position of the gear shift lever. (p. 116)

## 17.6 Adjusting the basic position of the gear shift lever




– Remove screws ❶ with the washers and remove gear shift lever ❷.




– Clean toothing Ⓐ of the gear shift lever and shift shaft.
– Mount the gear shift lever on the shift shaft in the desired position and engage the toothing.

| |
|---|
| The gear shift lever must not come into contact with any other vehicle components during the shift procedure. |

**Note**
The range of adjustment is limited.

– Mount and tighten screw ❶ with the washers.

| Screw, shift lever | |
|---|---|
| M6 | 14 Nm<br>(10.3 ft·lb$_f$)<br>**Loctite® 243** |

## 18.1 Changing the fuel screen

**DANGER**

**Fire hazard** Fuel is highly flammable.

The fuel in the fuel tank expands when warm and can escape if overfilled.

- Do not refuel the vehicle in the vicinity of open flames, glowing, or smoldering objects.
- Make sure that nobody smokes in the vicinity of the vehicle during the refueling process.
- Switch off the engine for refueling.
- Make sure that no fuel is spilled; particularly not on hot parts of the vehicle.
- If any fuel is spilled, wipe it up immediately.
- Do not overfill the fuel tank.

**WARNING**

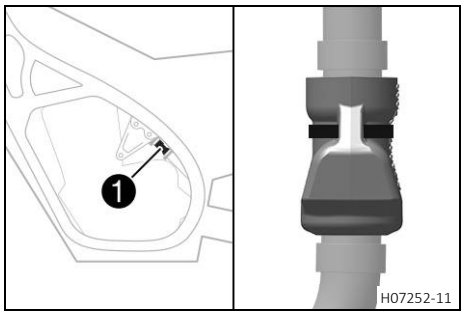
**Danger of poisoning** Fuel is harmful to health.

- Do not allow fuel to come into contact with skin, eyes, or clothing.
- Consult a doctor immediately if fuel has been ingested.
- Do not inhale fuel vapors.
- Rinse the affected area immediately with plenty of water in the event of contact with skin.
- Rinse eyes thoroughly with water and consult a doctor immediately if fuel comes into contact with eyes.
- If fuel spills on to your clothing, change the clothing.
- Store fuel properly in a suitable container and keep out of the reach of children.

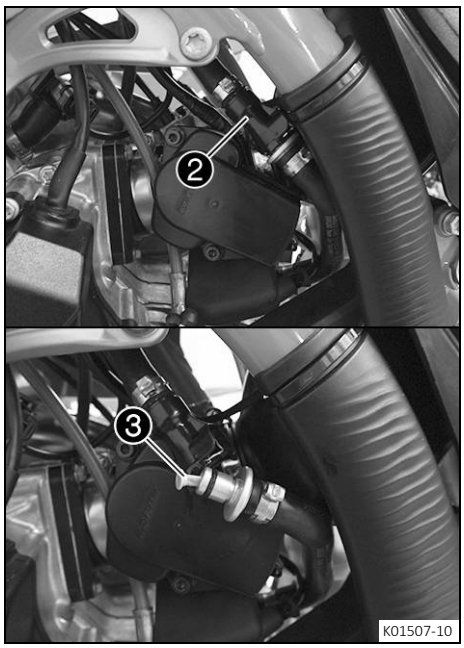
**NOTE**

**Environmental hazard** Improper handling of fuel is dangerous to the environment.

- Do not allow fuel to enter the groundwater, the soil, or the sewage system.




- Remove the cable tie of protection cap ❶.
- Remove the protection cap of the fuel line.




– Clean quick-lock coupling ❷ thoroughly with compressed air.

| |
|---|
| Dirt must not enter into the fuel line. Dirt in the fuel line clogs the injector! |

– Disconnect the quick-lock coupling.

**Note**
Remaining fuel may flow out of the fuel hose.

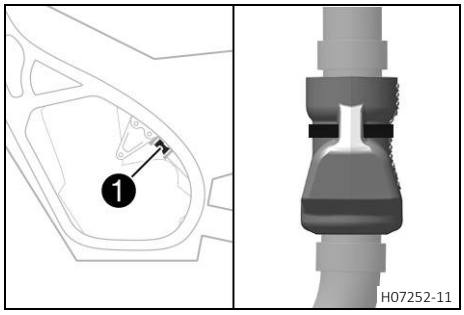
– Pull fuel screen ❸ out of the connecting piece.
– Slide the new fuel screen all the way into the connecting piece.
– Spray silicone spray onto a lint-free cleaning cloth and lightly lubricate the O-ring of the quick-lock coupling.

| |
|---|
| Silicone spray (p. 144) |

– Join quick-lock couplings.

**DANGER**
**Danger of poisoning** Exhaust gases are toxic and inhaling them may result in unconsciousness and death.
– Always ensure that there is sufficient ventilation when running the engine.
– Use suitable exhaust extraction when starting or running the engine in an enclosed space.

– Start the engine and check the response.



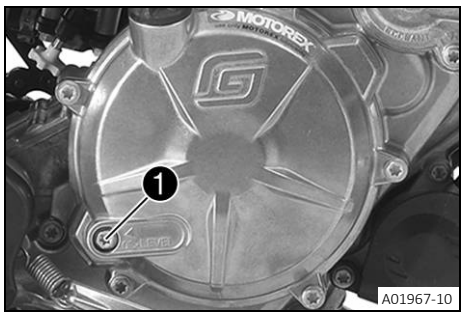

– Mount protection cap ❶ of the fuel line.
– Fit the cable tie of the protection cap.

## 18.2 Checking the gear oil level

Condition: The engine is cold

**Preparatory work**
– Stand the motorcycle upright on a level surface.

**Main work**




– Remove gear oil level check screw ❶.
– Check the gear oil level.

| |
|---|
| A small amount of gear oil should run out of the bore. |

» If no gear oil runs out:
– Add gear oil. (p. 120)

– Mount and tighten the gear oil level check screw.

| Screw, gear oil level check | |
|---|---|
| M6 | 8 Nm<br>(5.9 ft·lb$_f$) |

## 18.3 Changing the gear oil

**WARNING**

**Danger of scalding** Engine and gear oil heat up when the motorcycle is operated.

– Wear suitable protective clothing and safety gloves.
– In the event of scalding, rinse the area affected immediately with lukewarm water.

**NOTE**

**Environmental hazard** Hazardous substances cause environmental damage.

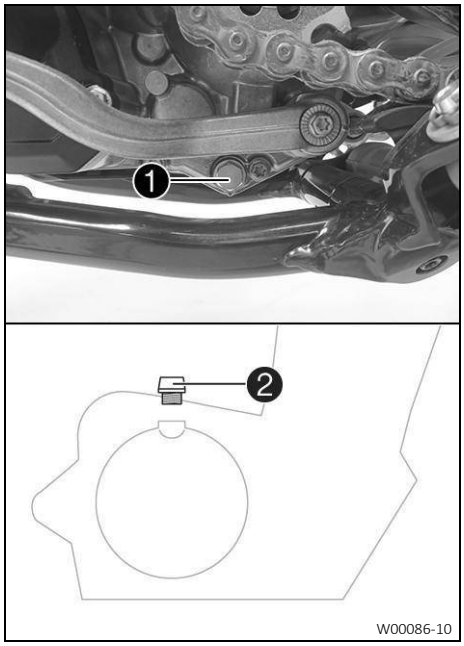
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

Condition: The engine is at operating temperature

**Preparatory work**

– Park the motorcycle on a level surface.
– Position an appropriate container under the engine.

**Main work**




– Remove gear oil drain plug ❶ with magnet.
– Remove oil plug ❷ with O-ring.
– Let the gear oil drain fully.
– Thoroughly clean the gear oil drain plug with a magnet.
– Clean the sealing area on the engine.
– Mount oil drain plug ❶ with the magnet and a new sealing ring and tighten it.

| Transmission drain plug with magnet | |
|---|---|
| M12×1.5 | 20 Nm<br>(14.8 ft·lb$_f$) |

– Add gear oil.

| Gear oil | |
|---|---|
| Engine oil (15W/50)<br>(p. 143)<br>Partially synthetic | 0.8 l<br>(0.21 liq. gal$_{US}$) |

– Mount and tighten oil plug ❷ with O-ring.

**DANGER**

**Danger of poisoning** Exhaust gases are toxic and inhaling them may result in unconsciousness and death.

– Always ensure that there is sufficient ventilation when running the engine.
– Use suitable exhaust extraction when starting or running the engine in an enclosed space.

– Start the engine and check it for leaks.

**Reworking**

– Check the gear oil level. (p. 118)

## 18.4 Adding gear oil

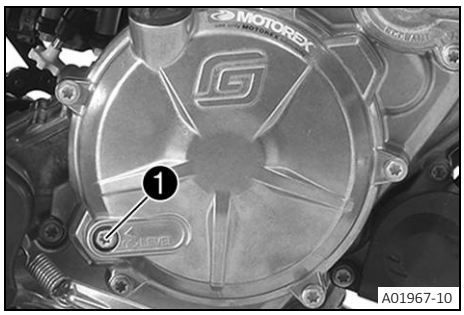
**Note**
Too little gear oil or poor-quality oil results in premature wear to the transmission.

Condition: The engine is cold

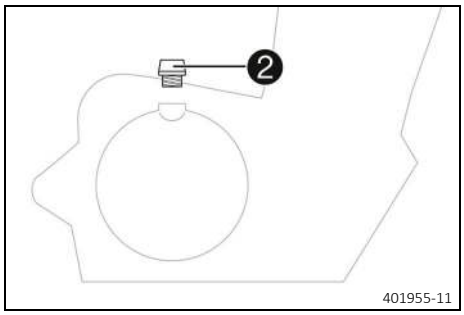
**Preparatory work**

– Park the motorcycle on a level surface.

**Main work**




– Remove gear oil level check screw 1.




– Remove oil plug 2 with O-ring.
– Add gear oil until it emerges from the bore of the gear oil level check screw.

| |
|---|
| Engine oil (15W/50) (p. 143)<br>Partially synthetic |

– Mount and tighten the gear oil level check screw.

| Screw, gear oil level check | |
|---|---|
| M6 | 8 Nm<br>(5.9 ft·lb$_f$) |

– Mount and tighten oil plug 2 with O-ring.

**Reworking**

**DANGER**
**Danger of poisoning** Exhaust gases are toxic and inhaling them may result in unconsciousness and death.
– Always ensure that there is sufficient ventilation when running the engine.
– Use suitable exhaust extraction when starting or running the engine in an enclosed space.

– Start the engine and check it for leaks.

## 19.1 Cleaning the motorcycle

**NOTE**

**Material damage** Components can be damaged or destroyed if a high-pressure cleaner is used incorrectly.

The high pressure forces water into the electrical components, socket connectors, clutch cables, and bearings, etc.

Too high a pressure can cause malfunctions and destroy components.

– Do not direct the water jet directly on to electrical components, socket connectors, clutch cables, or bearings.
– Maintain a minimum distance between the nozzle of the high-pressure cleaner and the component.

| | |
|---|---|
| Minimum distance | 60 cm<br>(23.6 in) |

**NOTE**

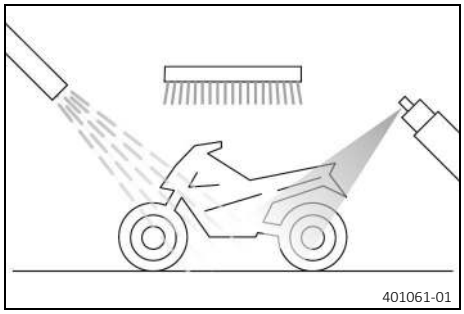
**Environmental hazard** Hazardous substances cause environmental damage.

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

**Note**

Clean the motorcycle regularly to maintain its value and appearance over a long period.

Avoid direct sunshine when cleaning the motorcycle.




– Seal the exhaust system to prevent water from entering into it.
– Remove the coarse dirt particles with a gentle water jet.
– Spray the heavily soiled parts with a standard commercial motorcycle cleaner and clean using a brush.

Never apply motorcycle cleaner to a dry vehicle; always rinse the vehicle with water first.

Environmentally neutral universal cleaning agent (p. 147)

**Note**

Use warm water containing standard motorcycle cleaner and a soft sponge.

– After rinsing the motorcycle with a gentle spray of water, allow it to dry thoroughly.
– Remove the cover from the exhaust system.

**WARNING**

**Danger of accidents** Moisture and dirt impair the brake system.

– Brake carefully several times to dry out and remove dirt from the brake pads and the brake discs.

– After cleaning, ride the vehicle a short distance until the engine warms up.

**Note**

The heat produced causes water to evaporate at inaccessible locations in the engine and on the brake system.

– After the motorcycle has cooled off, lubricate all moving parts and pivot points.
– Clean the chain. (p. 70)

**WARNING**

**Danger of accidents** Oil, grease or wax on the brake discs reduces the brake action.

– Always keep the brake discs free of oil, fat and wax.
– Clean the brake discs with brake cleaner when necessary.

– Treat bare metal (except for brake discs and the exhaust system) with an anticorrosive.

Preserving materials (p. 147)

– Treat all plastic parts and powder-coated parts with a mild cleaning and care product.

Cleaning agents for plastics, glass, lacquers, metals, windshields and visors (p. 147)

## 20.1 Storage

**WARNING**

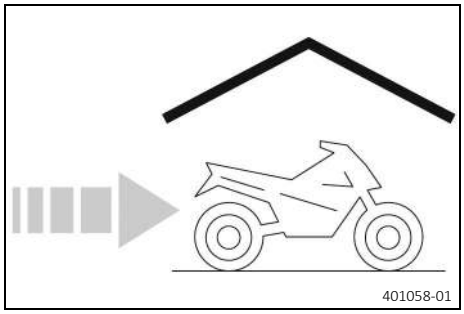
**Danger of poisoning** Fuel is harmful to health.

- Do not allow fuel to come into contact with skin, eyes, or clothing.
- Consult a doctor immediately if fuel has been ingested.
- Do not inhale fuel vapors.
- Rinse the affected area immediately with plenty of water in the event of contact with skin.
- Rinse eyes thoroughly with water and consult a doctor immediately if fuel comes into contact with eyes.
- If fuel spills on to your clothing, change the clothing.
- Store fuel properly in a suitable container and keep out of the reach of children.

**Note**

If you plan to garage the motorcycle for a longer period, perform the following steps or have them performed.

Before storing the motorcycle, check all parts for function and wear. If service, repairs, or replacements are necessary, you should do this during the storage period (workshops less busy). In this way, you can avoid long workshop waiting times at the start of the new season.




- When refueling for the last time before taking the motorcycle out of service, add fuel additive.

| |
|---|
| Fuel additive (p. 142) |

- Refuel. (p. 30)

**Tip**

Fill the fuel tank completely as specified, using fuel with the lowest possible ethanol content.

- Clean the motorcycle. (p. 121)
- Change the gear oil. (p. 119)
- Check the frost protection and coolant level. (p. 98)
- Check the tire pressure. (p. 96)
- Remove the 12 V battery. (p. 104)
- Charge the 12 V battery. (p. 106)

| | |
|---|---|
| Ideal charging and storage temperature of the lithium-ion battery | 10 °C … 20 °C<br>(50.0 °F … 68.0 °F) |

- Store the vehicle in a dry location that is not subject to large fluctuations in temperature.

**Note**

GASGAS recommends putting the motorcycle on a stand or lift.

- Raise the motorcycle with a lift stand. (p. 46)

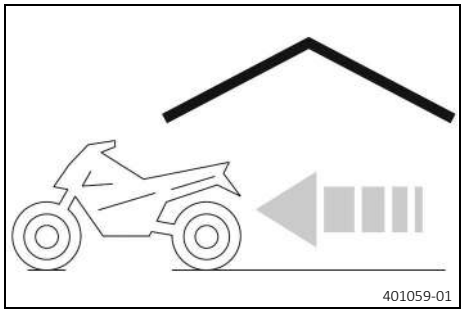
– Cover the vehicle with a tarpaulin or similar cover that is permeable to air.

**Note**

Do not use non-porous materials since they prevent humidity from escaping, and, as a result, contribute to corrosion.

Avoid running the engine of a motorcycle in storage for a short time only. Because the engine will not warm up sufficiently, the water vapor produced during combustion will condense, causing engine parts and the exhaust system to rust.

## 20.2 Preparing for use after storage




– Remove the motorcycle from the lift stand. (p. 46)
– Perform checks and maintenance measures when preparing for use. (p. 26)
– Take a test ride.

## 21.1 Troubleshooting

| Cause | Finding | Remedy |
|---|---|---|
| The engine does not turn over when the start button is actuated | Operating error<br>12 V battery discharged<br>Main fuse blown<br>Starter relay defective<br>Starter motor defective | – Carry out the starting procedure. (p. 26)<br>– Charge the 12 V battery. (p. 106)<br>– Check the charging voltage.<br>– Check the open-circuit current.<br>– Check the alternator.<br>– Change the main fuse. (p. 107)<br>– Check the starter relay.<br>– Check the starter motor. |
| The engine turns but does not start | Operating error<br>Quick-lock coupling not joined<br>Idle speed is not set correctly<br>Fuel supply interrupted<br>Fuel screen in the quick-lock coupling is clogged<br>Spark plug sooty or wet<br>Plug gap of spark plug too wide<br>Fault in ignition system<br>Short-circuit cable in wiring harness frayed, kill switch faulty<br>Connector or ignition coil loose or oxidized<br>Malfunction in the electronic fuel injection | – Carry out the starting procedure. (p. 26)<br>– Join quick-lock couplings.<br>– Adjust the idle speed. (p. 115)<br>– Check the fuel tank breather.<br>– Change the fuel screen. (p. 117)<br>– Clean and dry the spark plug and spark plug connector, or change if necessary.<br>– Adjust plug gap.<br>Plug gap of spark plug: 0.80 mm (0.0315 in)<br>– Check the ignition system.<br>– Check the kill switch.<br>– Clean the connector and treat with contact spray.<br>– Read out the fault memory using the diagnostics tool. |
| Engine does not speed up | Malfunction in the electronic fuel injection | – Read out the fault memory using the diagnostics tool. |
| Engine has too little power | Air filter is very dirty<br>Fuel filter is very dirty<br>Fuel screen is very dirty<br>Malfunction in the electronic fuel injection<br>Fuel supply interrupted<br>Exhaust system leaks, deformed or too little glass fiber filling in the silencer<br>Damaged membrane or reed valve housing | – Clean the air filter and air filter box. (p. 63)<br>– Change the fuel filter.<br>– Change the fuel screen. (p. 117)<br>– Read out the fault memory using the diagnostics tool.<br>– Check the fuel tank breather.<br>– Check exhaust system for damage.<br>– Change the damping material on the main silencer. (p. 66)<br>– Check the membrane and reed valve housing. |
| The engine dies during the trip | Lack of fuel<br>The engine takes in false air<br>Connector or ignition coil loose or oxidized | – Refuel. (p. 30)<br>– Check that the intake manifold is firmly seated.<br>– Clean the connector and treat with contact spray. |

| Cause | Finding | Remedy |
|---|---|---|
| Engine overheats | Too little coolant in cooling system<br>Too little air stream<br>Radiator fins very dirty<br>Foam formation in the cooling system<br>Damaged cylinder head or cylinder head gasket<br>Bent radiator hose<br>Thermostat defective | – Check the transmission and cooling system for leaks.<br>– Check the coolant level. (p. 99)<br>– Switch off the engine when standing.<br>– Clean the radiator fins.<br>– Drain the coolant. (p. 100)<br>– Refill the coolant. (p. 100)<br>– Check the cylinder head and cylinder head gasket.<br>– Change the radiator hose.<br>– Check the thermostat.<br>Opening temperature: 70 °C (158.0 °F) |
| Malfunction indicator lamp lights up or flashes | Malfunction in the electronic fuel injection | – Check the wiring for damage and the electrical plug-in connections for corrosion and damage.<br>– Read out the fault memory using the diagnostics tool. |
| White smoke development (steam in the exhaust gas) | Damaged cylinder head or cylinder head gasket | – Check the cylinder head and cylinder head gasket. |
| Gear oil emerges from the vent hose | Too much gear oil added | – Check the gear oil level. (p. 118) |
| Water in the gear oil | Damaged radial shaft seal ring or water pump | – Check the radial shaft seal ring and the water pump. |
| 12 V battery discharged | 12 V battery is not charging<br>unwanted electrical load | – Check the charging voltage.<br>– Check the alternator.<br>– Check the open-circuit current. |

## 22.1 Flash code

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>Malfunction indicator light lights up |
| **Error level condition** | Tilt sensor – input signal too low<br>Signal voltage: **≤** 0.2 V<br>Signal voltage: 3.7 V … 4.6 V<br>Tilt sensor – input signal too high<br>Voltage: **≥** 4.8 V |

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>02: Malfunction indicator light flashes 2x short |
| **Error level condition** | Crankshaft speed sensor – synchronization faulty<br>Time: **≥** 1 s<br>Crankshaft position sensor - too many impulses<br>Time: **≥** 0.1 s |

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>06: Malfunction indicator light flashes 6x short |
| **Error level condition** | Throttle valve position sensor circuit A – input signal too low<br>Voltage: **≤** 0.2 V<br>Time: **≥** 0.08 s<br>Throttle valve position sensor circuit A – input signal too high<br>Voltage: **≥** 4.7 V<br>Time: **≥** 0.08 s |

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>09: Malfunction indicator light flashes 9x short |
| **Error level condition** | Crankcase pressure sensor - short circuit to ground<br>Voltage: **≤** 0.4 V<br>Time: **≥** 0.1 s<br>Crankcase pressure sensor - open/short circuit to plus<br>Voltage: **≥** 4.6 V<br>Time: **≥** 0.1 s<br>Ambient air pressure sensor - short circuit to ground<br>Ambient air pressure sensor voltage: **≤** 0.4 V<br>Time: **≥** 1 s<br>Ambient air pressure sensor voltage: **≥** 4.6 V<br>Time: **≥** 0.1 s |

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>12: Malfunction indicator light flashes 1x long, 2x short |
| **Error level condition** | Coolant temperature sensor – input signal too low<br>Voltage: **≤** 0.1 V<br>Time: **≥** 3 s<br>Coolant temperature sensor – input signal too high |

| | |
|---|---|
| | Voltage: ≥ 4.8 V<br>Time: ≥ 3 s |

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>13: Malfunction indicator light flashes 1x long, 3x short |
| **Error level condition** | Intake air temperature sensor – input signal too low<br>Voltage: ≤ 0.2 V<br>Time: ≥ 3 s<br>Intake air temperature sensor – input signal too high<br>Voltage: ≥ 4.8 V<br>Time: ≥ 3 s |

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>14: Malfunction indicator light flashes 1x long, 4x short |
| **Error level condition** | Crankcase pressure sensor – difference too high between sensor and engine control unit |

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>21: Malfunction indicator light flashes 2x long, 1x short |
| **Error level condition** | Battery voltage - input voltage too low<br>Engine control unit power supply: ≤ 9.9 V<br>Time: ≥ 1 s<br>Battery voltage – input voltage too high<br>Engine control unit power supply: ≥ 16.10 V<br>Time: ≥ 1 s |

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>33: Malfunction indicator lamp flashes 3x long, 3x short |
| **Error level condition** | Injection valve 1, cylinder 1 – input signal too low<br>Time: ≥ 1 s<br>Injection valve 1, cylinder 1 – input signal too high<br>Time: ≥ 1 s |

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>34: Malfunction indicator lamp flashes 3x long, 4x short |
| **Error level condition** | Injection valve 2, cylinder 1 – input signal too low<br>Time: ≥ 1 s<br>Injection valve 2, cylinder 1 – input signal too high<br>Time: ≥ 1 s |

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>37: Malfunction indicator light flashes 3x long, 7x short |
| **Error level condition** | Ignition coil – circuit fault<br>Time: ≥ 2.0 s |

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>41: Malfunction indicator light flashes 4x long, 1x short |
| **Error level condition** | Fuel pump - short circuit to ground/open circuit<br>The engine is switched off: ≥ 0.4 s<br>Fuel pump – short circuit to plus<br>The engine is switched off: ≥ 0.4 s |

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>50: Malfunction indicator light flashes 5x long |
| **Error level condition** | Exhaust control actuator – no signal<br>Exhaust control actuator – temperature too high<br>Exhaust control actuator – incorrect setting<br>Exhaust control actuator – setpoint value signal faulty<br>Exhaust control actuator – input signal too low<br>Exhaust control actuator – input signal too high<br>Exhaust control actuator – mechanical error in the lower position<br>Exhaust control actuator – mechanical error in the upper position<br>Exhaust control actuator – mechanical error |

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>53: Malfunction indicator light flashes 5x long, 3x short |
| **Error level condition** | Sensor voltage 1 – open circuit/short circuit to ground<br>Sensor voltage 1 – short circuit to plus |

| | |
|---|---|
| **Blink code for malfunction indicator light** | <br>54: Malfunction indicator light flashes 5x long, 4x short |
| **Error level condition** | Sensor voltage 2 – open circuit/short circuit to ground<br>Sensor voltage 2 – short circuit to plus |

## 23.1 Engine

### 23.1.1 Technical data - engine

| | |
|---|---|
| Design | Single-cylinder 2-stroke engine, liquid-cooled, with diaphragm intake and exhaust control |
| Displacement | 124.8 cm³<br>(7.616 in³) |
| Stroke | 54.5 mm<br>(2.146 in) |
| Bore | 54 mm<br>(2.13 in) |
| Idle speed | 1,400 rpm … 1,500 rpm<br>(23.33 Hz … 25.00 Hz) |
| Exhaust control - beginning of adjustment | 7,200 rpm<br>(120.00 Hz) |
| Crankshaft bearing | 1 grooved ball bearing, 1 roller bearing |
| Big (bottom) end bearing | Needle bearing |
| Wrist pin bearing | Needle bearing |
| Piston | Aluminum |
| Piston rings | 2 half keystone rings |
| Engine lubrication | Mixture lubrication |
| X-dimension (upper edge of piston to upper edge of cylinder) | 0 mm … 0.10 mm<br>(0 in … 0.0039 in) |
| Z dimension (height of control flap) | 36.5 mm … 36.6 mm<br>(1.437 in … 1.441 in) |
| Primary transmission | 23:73 |
| Clutch | Multi-disc wet clutch / hydraulically activated |
| Transmission | 6 speed transmission, claw shift |
| Gear ratios | |
| 1st gear | 14:32 |
| 2nd Gear | 15:30 |
| 3rd Gear | 17:28 |
| 4th Gear | 19:27 |
| 5th Gear | 19:23 |
| 6th Gear | 22:24 |
| Gear ratios | |
| Ignition system | Electronic ignition |
| Spark plug | NGK BR10 ECMVX |
| Plug gap of spark plug | 0.80 mm<br>(0.0315 in) |
| Cooling | Liquid cooling, permanent circulation of coolant by water pump |
| Starting aid | Electric starter |

### 23.1.2 Capacities - engine

| | |
|---|---|
| Gear oil | |
| Engine oil (15W/50) (p. 143)<br>Partially synthetic | 0.8 l<br>(0.21 liq. $gal_{US}$) |
| Coolant | |
| Coolant (p. 146)<br>Antifreeze protection to at least: −25 °C (−13.0 °F) | 0.95 l<br>(0.251 liq. $gal_{US}$) |

## 23.2 Chassis

### 23.2.1 Technical data - chassis

| | |
|---|---|
| Frame | Central tube frame made of chrome molybdenum steel tubing |
| Fork | **WP XACT AER** |
| Suspension travel: | |
| front | 310 mm<br>(12.20 in) |
| rear | 300 mm<br>(11.81 in) |
| Triple clamp offset | 22 mm<br>(0.87 in) |
| Shock absorber | **WP XACT LDS** |
| Brake system | Disc brakes, floating brake calipers |
| Brake discs - diameter | |
| front | 260 mm<br>(10.24 in) |
| rear | 220 mm<br>(8.66 in) |
| Brake disc wear limit | |
| front | 2.5 mm<br>(0.098 in) |
| rear | 3.5 mm<br>(0.138 in) |
| Final drive | 13:50 |
| Chain | 5/8 x 1/4" |
| Rear sprockets available | • 48 teeth<br>• 50 teeth<br>• 52 teeth |
| Steering head angle | 63.9°<br>(1.115 rad) |
| Wheelbase | 1,490 ±10 mm<br>(58.66 ±0.39 in) |
| Seat Height unloaded | 956 mm<br>(37.64 in) |
| Ground clearance unloaded | 354 mm<br>(13.94 in) |

| | |
|---|---|
| Weight without fuel approx. | 92.5 kg<br>(203.93 lb) |
| Maximum permissible front axle load | 145 kg<br>(319.7 lb) |
| Maximum permissible rear axle load | 190 kg<br>(418.9 lb) |
| Maximum permissible total weight | 335 kg<br>(738.5 lb) |

### 23.2.2 Technical data - tires

| | |
|---|---|
| Off-road tire pressure | |
| front | 1.0 bar<br>(14.5 psi) |
| rear | 1.0 bar<br>(14.5 psi) |

| Tire front | Rear tire |
|---|---|
| **80/100 - 21 M/C 51M TT**<br>MAXXIS MX ST | **100/90 - 19 M/C 57M TT**<br>MAXXIS MX ST |
| The tires specified represent one of the possible series production tires. For alternative manufacturers, if any, contact an authorized dealer or qualified tire dealership. If local road approval regulations apply, these and the respective technical specifications must be observed. | |

### 23.2.3 Capacities - vehicle

| | |
|---|---|
| Total fuel tank capacity, approx. | |
| Super unleaded (98 octane) mixed with 2-stroke engine oil<br>(p. 142)<br>Mixture ratio: 1:40 | 7.9 l<br>(2.09 liq. $gal_{US}$) |

## 23.3 Electrics

### 23.3.1 Battery

| | | |
|---|---|---|
| 12-V battery | HJTZ5S-FP-C | Lithium-ion battery<br>Battery voltage: 12 V<br>Nominal capacity: 2.0 Ah<br>Maintenance-free |

### 23.3.2 Fuses

| | | |
|---|---|---|
| Fuse | 58011109105 | 5 A |
| Fuse | 58011109110 | 10 A |

### 23.3.3 Lamps

| | |
|---|---|
| Dashboard illumination and indicator lights | LED |

## 23.4 Fork

### 23.4.1 Technical data - fork

| | |
|---|---|
| Fork part number | A460C101Y406000 |

| | |
|---|---|
| Fork | **WP XACT AER** |
| Compression damping | |
| Comfort | 17 clicks |
| Standard | 12 clicks |
| Sport | 7 clicks |
| Rebound damping | |
| Comfort | 17 clicks |
| Standard | 12 clicks |
| Sport | 7 clicks |
| Air pressure | |
| Weight of rider: 65 kg … 75 kg (143.3 lb … 165.3 lb) | 8.4 bar<br>(121.8 psi) |
| Weight of rider: 75 kg … 85 kg (165.3 lb … 187.4 lb) | 8.6 bar<br>(124.7 psi) |
| Weight of rider: 85 kg … 95 kg (187.4 lb … 209.4 lb) | 8.8 bar<br>(127.6 psi) |
| Fork length | 950 mm<br>(37.40 in) |

### 23.4.2 Fork capacity

| | |
|---|---|
| Oil capacity, left outer assembly | |
| Fork oil (48601166S1) (SAE 4) (p. 143) | 240 ml<br>(8.12 fl. $oz_{US}$) |
| Oil capacity, right outer assembly | |
| Fork oil (48601166S1) (SAE 4) (p. 143) | 240 ml<br>(8.12 fl. $oz_{US}$) |
| Grease capacity, left cartridge | |
| Special grease (00062010053) (p. 144) | 5 g<br>(0.18 oz) |
| Oil capacity, right cartridge | |
| Fork oil (48601166S1) (SAE 4) (p. 143) | 380 ml<br>(12.85 fl. $oz_{US}$) |

## 23.5 Shock absorber

### 23.5.1 Technical data - shock absorber

| | |
|---|---|
| Shock absorber part number | A460C401Y408000 |

| | |
|---|---|
| Shock absorber | **WP XACT LDS** |
| Low-speed compression damping | |
| Comfort | 17 clicks |
| Standard | 15 clicks |

| | |
|---|---|
| Sport | 13 clicks |
| High-speed compression damping | |
| Comfort | 2 turns<br>(720°) |
| Standard | 1.5 turns<br>(540°) |
| Sport | 1 turn<br>(360°) |
| Rebound damping | |
| Comfort | 17 clicks |
| Standard | 15 clicks |
| Sport | 13 clicks |
| Preload | 8 mm<br>(0.31 in) |
| Spring rate | |
| Weight of rider: 65 kg ... 75 kg (143.3 lb ... 165.3 lb) | 36 N/mm<br>(205.6 $lb_f$/in) |
| Weight of rider: 75 kg ... 85 kg (165.3 lb ... 187.4 lb) | 39 N/mm<br>(222.7 $lb_f$/in) |
| Weight of rider: 85 kg ... 95 kg (187.4 lb ... 209.4 lb) | 42 N/mm<br>(239.8 $lb_f$/in) |
| Spring length | 240 mm<br>(9.45 in) |
| Gas assisted | 10 bar<br>(145 psi) |
| Static sag | 35 mm<br>(1.38 in) |
| Rider sag | 105 mm<br>(4.13 in) |
| Installation position | 456.3 mm<br>(17.965 in) |

### 23.5.2 Shock absorber capacity

| | |
|---|---|
| Oil capacity, shock absorber | |
| Shock absorber oil (50180751S1) (SAE 2.5) (p. 144) | Fill to the maximum mark |

## 23.6 Tightening torque

### 23.6.1 engine tightening torques

| | |
|---|---|
| Screw, outer reed petals<br>**EJOT DELTA PT®** – 3×6 | 1 Nm<br>(0.7 ft·$lb_f$) |
| Screw, reed valve support plate<br>**EJOT DELTA PT®** – M3×12 | 1 Nm<br>(0.7 ft·$lb_f$) |
| Detent arm screw<br>M5 | 6 Nm<br>(4.4 ft·$lb_f$)<br>**Loctite® 243** |

| | |
|---|---|
| Control lever locknut adjusting screw<br>M5 | 6 Nm<br>(4.4 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, control lever, exhaust control<br>M5 | 8 Nm<br>(5.9 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, power valve retaining bracket<br>M5 | 6 Nm<br>(4.4 ft·lb$_f$)<br>**Loctite® 2701** |
| Screw, shift drum bearing clamping plate<br>M5 | 6 Nm<br>(4.4 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, main shaft bearing clamping plate<br>M5 | 6 Nm<br>(4.4 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, exhaust control cover<br>M5 | 6 Nm<br>(4.4 ft·lb$_f$) |
| Screw, clutch spring retainer<br>M5 | 6 Nm<br>(4.4 ft·lb$_f$) |
| Stator screw<br>M5 | 6 Nm<br>(4.4 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, control flap lever, exhaust control<br>M5 | 8 Nm<br>(5.9 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, control gate, exhaust control<br>M5 | 8 Nm<br>(5.9 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, actuator cover<br>M5 | 6 Nm<br>(4.4 ft·lb$_f$) |
| Screw, actuator exhaust control<br>M5 | 6 Nm<br>(4.4 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, crankshaft position sensor<br>M5 | 6 Nm<br>(4.4 ft·lb$_f$)<br>**Loctite® 243** |
| Coolant drain plug<br>M6 | 10 Nm<br>(7.4 ft·lb$_f$) |
| Screw, water pump cover<br>M6×50 | 10 Nm<br>(7.4 ft·lb$_f$) |
| Screw, water pump cover<br>M6×60 | 10 Nm<br>(7.4 ft·lb$_f$) |
| Screw, intake manifold / diaphragm housing<br>M6 | 6 Nm<br>(4.4 ft·lb$_f$) |
| Exhaust flange screw<br>M6 | 10 Nm<br>(7.4 ft·lb$_f$) |
| Screw, gear oil level check<br>M6 | 8 Nm<br>(5.9 ft·lb$_f$) |

| | |
|---|---|
| Shift star screw<br>M6 | 10 Nm<br>(7.4 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, shift lever<br>M6 | 14 Nm<br>(10.3 ft·lb$_f$)<br>**Loctite® 243** |
| Bleed screw, water pump cover<br>M6 | 8 Nm<br>(5.9 ft·lb$_f$) |
| Screw, ignition cover<br>M6 | 8 Nm<br>(5.9 ft·lb$_f$) |
| Vacuum fitting, housing vent<br>M6 | 2 Nm<br>(1.5 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, water pump impeller<br>M6 | 6 Nm<br>(4.4 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, inner clutch cover<br>M6 | 10 Nm<br>(7.4 ft·lb$_f$) |
| Screw, outer clutch cover<br>M6 | 8 Nm<br>(5.9 ft·lb$_f$) |
| Screw, starter motor<br>M6 | 8 Nm<br>(5.9 ft·lb$_f$) |
| Screw, starter motor cover<br>M6 | 8 Nm<br>(5.9 ft·lb$_f$) |
| Screw, engine case<br>M6×50 | 10 Nm<br>(7.4 ft·lb$_f$) |
| Screw, engine case<br>M6×60 | 10 Nm<br>(7.4 ft·lb$_f$) |
| Screw, cylinder head<br>M7 | 18 Nm<br>(13.3 ft·lb$_f$) |
| Screw, cylinder base<br>M8 | 10 Nm<br>(7.4 ft·lb$_f$) |
| Nut, cylinder base<br>M8 | 23 Nm<br>(17.0 ft·lb$_f$) |
| Front sprocket screw<br>M10 | 60 Nm<br>(44.3 ft·lb$_f$)<br>**Loctite® 2701** |
| Transmission drain plug with magnet<br>M12×1.5 | 20 Nm<br>(14.8 ft·lb$_f$) |
| Nut, rotor<br>M12×1 | 50 Nm<br>(36.9 ft·lb$_f$) |
| Spark plug<br>M14×1.25 | 25 Nm<br>(18.4 ft·lb$_f$) |
| Nut, inner clutch hub<br>M18×1.5 | 120 Nm<br>(88.5 ft·lb$_f$) |
| Nut, primary gear wheel<br>M18LH×1.5 | 120 Nm<br>(88.5 ft·lb$_f$)<br>**Loctite® 243** |

| | |
|---|---|
| Screw, inner reed petals<br>**EJOT DELTA PT®** – 3,5×25 | 1 Nm<br>(0.7 ft·lb$_f$) |
| Screw, pressure sensor<br>**EJOT PT®** – K60×20 – AL | 2 Nm<br>(1.5 ft·lb$_f$) |

### 23.6.2 Chassis tightening torques

| | |
|---|---|
| Screw, hose clamp, throttle body | 2.8 Nm<br>(2.07 ft·lb$_f$) |
| Radiator hose clamp | 2.4 Nm<br>(1.77 ft·lb$_f$) |
| Air boot screw connection to throttle body<br>M4 | 5 Nm<br>(3.7 ft·lb$_f$) |
| Screw, fixed grip<br>M4 | 5 Nm<br>(3.7 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, throttle body cover<br>M5 | 2.6 Nm<br>(1.92 ft·lb$_f$) |
| Screw, brake pedal stub<br>M5 | 6 Nm<br>(4.4 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, frame protector<br>M5 | 3 Nm<br>(2.2 ft·lb$_f$) |
| Screw, shock absorber adjusting ring<br>M5 | 5 Nm<br>(3.7 ft·lb$_f$) |
| Screw, battery terminal<br>M5 | 2.5 Nm<br>(1.84 ft·lb$_f$) |
| Remaining nuts on chassis<br>M5 | 5 Nm<br>(3.7 ft·lb$_f$) |
| Remaining screws on chassis<br>M5 | 5 Nm<br>(3.7 ft·lb$_f$) |
| Nut, starter cable on starter motor<br>M6 | 4 Nm<br>(3.0 ft·lb$_f$) |
| Nut, throttle cable on throttle body<br>M6 | 3 Nm<br>(2.2 ft·lb$_f$) |
| Brake line guide screw on swingarm<br>M6 | 4.5 Nm<br>(3.32 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, brake disc, front<br>M6 | 14 Nm<br>(10.3 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, starter motor cable connection<br>M6 | 4 Nm<br>(3.0 ft·lb$_f$) |
| Screw, chain guide on swingarm, rear<br>M6×16 | 10 Nm<br>(7.4 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, chain guide on swingarm, front<br>M6×45 | 10 Nm<br>(7.4 ft·lb$_f$) |
| Screw, ground wire on frame<br>M6 | 10 Nm<br>(7.4 ft·lb$_f$) |

| | |
|---|---|
| Screw, seat installation<br>M6 | 8 Nm<br>(5.9 ft·lb$_f$) |
| Screw, connector support incl. dashboard<br>M6 | 5 Nm<br>(3.7 ft·lb$_f$) |
| Screw, throttle twist grip<br>M6 | 5 Nm<br>(3.7 ft·lb$_f$) |
| Screw, clutch lever<br>M6 | 5 Nm<br>(3.7 ft·lb$_f$) |
| Screw, ball joint of push rod on brake cylinder<br>M6 | 10 Nm<br>(7.4 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, chain slider guard<br>M6 | 6 Nm<br>(4.4 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, fuel tank spoiler on radiator<br>M6 | 6 Nm<br>(4.4 ft·lb$_f$) |
| Screw, fender to triple clamp<br>M6 | 12 Nm<br>(8.9 ft·lb$_f$) |
| Remaining nuts on chassis<br>M6 | 10 Nm<br>(7.4 ft·lb$_f$) |
| Remaining screws on chassis<br>M6 | 10 Nm<br>(7.4 ft·lb$_f$) |
| Screw, battery cable to starter relay<br>M6×16 | 6 Nm<br>(4.4 ft·lb$_f$) |
| Screw, starter cable to starter relay<br>M6×8 | 6 Nm<br>(4.4 ft·lb$_f$) |
| Screw, brake lever<br>M6 | 5 Nm<br>(3.7 ft·lb$_f$) |
| Brake pedal stop nut<br>M8 | 20 Nm<br>(14.8 ft·lb$_f$) |
| Screw, manifold on engine brace<br>M8 | 15 Nm<br>(11.1 ft·lb$_f$) |
| Screw, subframe, bottom<br>M8 | 35 Nm<br>(25.8 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, top triple clamp<br>M8 | 20 Nm<br>(14.8 ft·lb$_f$) |
| Screw, upper steering stem<br>M8 | 20 Nm<br>(14.8 ft·lb$_f$)<br>**Loctite® 243** |
| Screw, bottom triple clamp<br>M8 | 15 Nm<br>(11.1 ft·lb$_f$) |
| Screw, fork shoe<br>M8 | 15 Nm<br>(11.1 ft·lb$_f$) |
| Handlebar clamp screw<br>M8 | 20 Nm<br>(14.8 ft·lb$_f$) |
| Screw, subframe, top<br>M8 | 40 Nm<br>(29.5 ft·lb$_f$)<br>**Loctite® 2701** |

| | |
|---|---|
| Screw, chain slider<br>M8 | 15 Nm<br>(11.1 ft·lb$_f$) |
| Screw of chain pinion cover on frame<br>M8 | 15 Nm<br>(11.1 ft·lb$_f$) |
| Screw, front brake caliper<br>M8 | 25 Nm<br>(18.4 ft·lb$_f$)<br>**Loctite® 243** |
| Nut, rear sprocket screw<br>M8 | 35 Nm<br>(25.8 ft·lb$_f$)<br>**Loctite® 2701** |
| Nut, rim lock<br>M8 | 12 Nm<br>(8.9 ft·lb$_f$) |
| Remaining nuts on chassis<br>M8 | 25 Nm<br>(18.4 ft·lb$_f$) |
| Remaining screws on chassis<br>M8 | 25 Nm<br>(18.4 ft·lb$_f$) |
| Bushing, foot brake lever<br>M10 | 45 Nm<br>(33.2 ft·lb$_f$) |
| Engine bracket screw<br>M10 | 60 Nm<br>(44.3 ft·lb$_f$) |
| Screw, handlebar mount<br>M10 | 40 Nm<br>(29.5 ft·lb$_f$)<br>**Loctite® 243** |
| Bottom shock absorber screw<br>M10 | 60 Nm<br>(44.3 ft·lb$_f$)<br>**Loctite® 2701** |
| Remaining nuts on chassis<br>M10 | 45 Nm<br>(33.2 ft·lb$_f$) |
| Remaining screws on chassis<br>M10 | 45 Nm<br>(33.2 ft·lb$_f$) |
| Coolant temperature sensor<br>M10×1.25 | 10 Nm<br>(7.4 ft·lb$_f$) |
| Nut, frame on pull rod<br>M14×1.5 | 60 Nm<br>(44.3 ft·lb$_f$) |
| Nut, pull rod on triangular lever<br>M14×1.5 | 60 Nm<br>(44.3 ft·lb$_f$) |
| Nut, triangular lever on swingarm<br>M14×1.5 | 60 Nm<br>(44.3 ft·lb$_f$) |
| Nut, swingarm pivot<br>M16×1.5 | 100 Nm<br>(73.8 ft·lb$_f$) |
| Screw, top steering head<br>M20×1.5 | 12 Nm<br>(8.9 ft·lb$_f$) |
| Screw, wheel spindle, front<br>M20×1.5 | 35 Nm<br>(25.8 ft·lb$_f$) |
| Nut, wheel spindle, rear<br>M22×1.5 | 80 Nm<br>(59.0 ft·lb$_f$) |
| Screw-in nozzle, cooling system<br>M24×1.5 | 7.5 Nm<br>(5.53 ft·lb$_f$) |

| | |
|---|---|
| Spoke nipple, front wheel<br>M4,5 | 6 Nm<br>(4.4 ft·lb$_f$) |
| Spoke nipple, rear wheel<br>M4,5 | 6 Nm<br>(4.4 ft·lb$_f$) |
| Combination switch screw<br>**EJOT PT®** – K50×18 | 2 Nm<br>(1.5 ft·lb$_f$) |
| Screw, start button/kill switch<br>**EJOT PT®** – K50×18 – Wrench size T20 | 2 Nm<br>(1.5 ft·lb$_f$) |
| Screw, intake air temperature sensor<br>**EJOT PT®** – K50×18 – Wrench size T20 | 0.7 Nm<br>(0.52 ft·lb$_f$) |
| Screw, fuel pump on fuel tank<br>**EJOT PT®** – K60×30 – Z | 2.5 Nm<br>(1.84 ft·lb$_f$) |
| Screw, air filter box, on subframe<br>**EJOT PT®** – K60×20 – AL | 5 Nm<br>(3.7 ft·lb$_f$) |
| Screw, seat installation<br>**EJOT EJOFORM®** – K60×23/18 | 2.5 Nm<br>(1.84 ft·lb$_f$) |
| Remaining screws on chassis<br>**EJOT PT®** – K60×25 | 2 Nm<br>(1.5 ft·lb$_f$) |

## A Technical terms

| | | |
|---|---|---|
| OBD | On-board diagnosis | Vehicle system, which monitors the specified parameters of the vehicle electronics |

## B Fuels

### Super unleaded (98 octane) mixed with 2-stroke engine oil

**Standards**

→ DIN EN 228
→ JASO FD

**Properties**

| | |
|---|---|
| • Mixture ratio | 1:40 |

**Mixture ratio**

| | |
|---|---|
| • Super unleaded | 10 l |
| • 2-stroke engine oil | (2.6 liq. $gal_{US}$)<br>250 ml<br>(8.45 fl. $oz_{US}$) |

### Fuel additive

**Recommended supplier**

**MOTOREX®**
- **FUEL STABILIZER**

# C Operating supplies

## Off-road chain spray

**Recommended supplier**

**MOTOREX®**

- **CHAINLUBE OFF ROAD**

## Fork oil

**Order details**

- 48601166S1

**Standards**

- SAE 4 → SAE

## Universal oil spray

**Recommended supplier**

**MOTOREX®**

- **JOKER 440 SYNTHETIC**

## Long-life grease

**Recommended supplier**

**MOTOREX®**

- **Bike Grease 2000**

## Engine oil

**Recommended supplier**

**MOTOREX®**

- **TOP SPEED 4T**

**Standards**

→ JASO T903 MA2

- 15W/50 → SAE

**Properties**

- Partially synthetic

## High viscosity grease

**Recommended supplier**

**SKF®**

- **LGHB 2**

## Silicone spray

**Recommended supplier**

**MOTOREX®**

- **SILICONE SPRAY**

## Special grease

**Order details**

- 00062010053

**Recommended supplier**

**Klüber Lubrication®**

- **Klüberfood NH1 34-401**

## Shock absorber oil

**Order details**

- 50180751S1

**Standards**

- SAE 2.5 → SAE

## Oil for foam air filter

**Recommended supplier**

**MOTOREX®**

- **RACING BIO AIR FILTER OIL**

## D Brake fluid

### Brake fluid DOT 4 / DOT 5.1

**Recommended supplier**

**Castrol**

- **REACT PERFORMANCE DOT 4**

**MOTOREX®**

- **BRAKE FLUID DOT 5.1**

**Standards**

→ DOT

# E Coolant

## Coolant

| Recommended supplier | |
|---|---|
| **MOTOREX®** | |
| • **COOLANT M3.0** | |
| **Properties** | |
| • Antifreeze protection to at least | −25 °C<br>(−13.0 °F) |

## F Cleaning agents

### Chain cleaner

**Recommended supplier**

**MOTOREX®**

- **CHAIN CLEAN**

### Preserving materials

**Recommended supplier**

**MOTOREX®**

- **MOTO PROTECT**

### Air filter cleaning agent

**Recommended supplier**

**MOTOREX®**

- **RACING BIO AIR FILTER CLEANER**

### Cleaning agents for plastics, glass, lacquers, metals, windshields and visors

**Recommended supplier**

**MOTOREX®**

- **QUICK CLEANER**

### Environmentally neutral universal cleaning agent

**Recommended supplier**

**MOTOREX®**

- **MOTO CLEAN UNIVERSAL**

# G Icons

## G.1 Symbol colors

### G.1.1 Yellow and orange symbols

Yellow and orange symbols indicate a malfunction status that requires prompt intervention. Active driving aids are also represented by yellow or orange symbols.

| | |
|---|---|
|  | Failure indicator lamp lights up or flashes red |

### G.1.2 Green and white symbols

Green and white symbols convey information.

| | |
|---|---|
|  | Indicator light Ⓐ lights up white |
|  | Indicator light Ⓑ lights up green |

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