Owner's manual 2027

EC 300

Item no.: 3215292en



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. 17)	Stamp of the contractual partner
Engine number (p. 18)	

The Owner's Manual contained the latest information for this model series at the time of going to print. 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, differences from illustrations and descriptions, misprints, and other errors. The models portrayed partly contain special equipment that does not belong to the regular 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. Ensure that this work is carried out or supervised by trained personnel from an authorized contractual partner, and that any special tools required are used.
	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. An appropriate driver's license is needed to drive the vehicle on public roads.

Have any faults that impair safety immediately remedied by an authorized contractual partner.

Adhere to the information and warning labels 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 (68.0 °F)
Ambient air pressure	1,013 mbar (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

Handling the vehicle responsibly reduces the risk of conflict with other road users and the surrounding area. The future of motorcycling also depends on using motorcycles legally, being environmentally conscious and respecting the rights of others.

When disposing of used oil, other operating and auxiliary fluids, and used components, the laws and regulations of the respective country must be observed.

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. An authorized partner will be happy to help.

2.7 Owner's manual

Read this owner's manual carefully and in full before riding off for the first time. The owner's manual contains information and tips on how to operate, handle, and service your vehicle, as well as advice on optimum tuning and how to avoid injuries.

Tip

Save this owner's manual on your smartphone, for example, so that you can access it at any time.

An authorized contractual partner will be happy to assist you if you are unsure.

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 contractual partner and on the GASGAS website.

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

A printed copy can be ordered from the following address.

Website for printed copy: https://print.ktm.com

2.8 Use definition – intended use

(EU model)

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

This vehicle is only authorized for operation on public roads in the homologated (restricted) version.

The derestricted version of this vehicle must only be operated in closed off areas away from public highway traffic.

This vehicle is designed for use in offroad endurance competition, and not primarily for use in motocross.

(US model)

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

This vehicle is not approved for use on public roads.

This vehicle is designed for use in offroad endurance competition, and not primarily for use in motocross.

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 Important notes

3.1 Manufacturer's warranty, implied warranty

The work prescribed in the service schedule must only be carried out by an authorized contractual partner 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, accessories

For safety reasons, only spare parts and accessories approved by GASGAS may be used. They may only be installed by an authorized contractual partner. GASGAS accepts no liability for other products and any resulting damage or loss.

Certain spare parts and accessory products are specified in parentheses in the descriptions. Authorized contractual partners will be happy to help.

The current GASGAS Technical Accessories for your vehicle are available from your authorized contractual partner 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.

A list of services that have already been carried out on the vehicle can be found in the Service area on the international GASGAS website:

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

Authorized contractual partners will be happy to answer any questions regarding the services performed.

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

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.

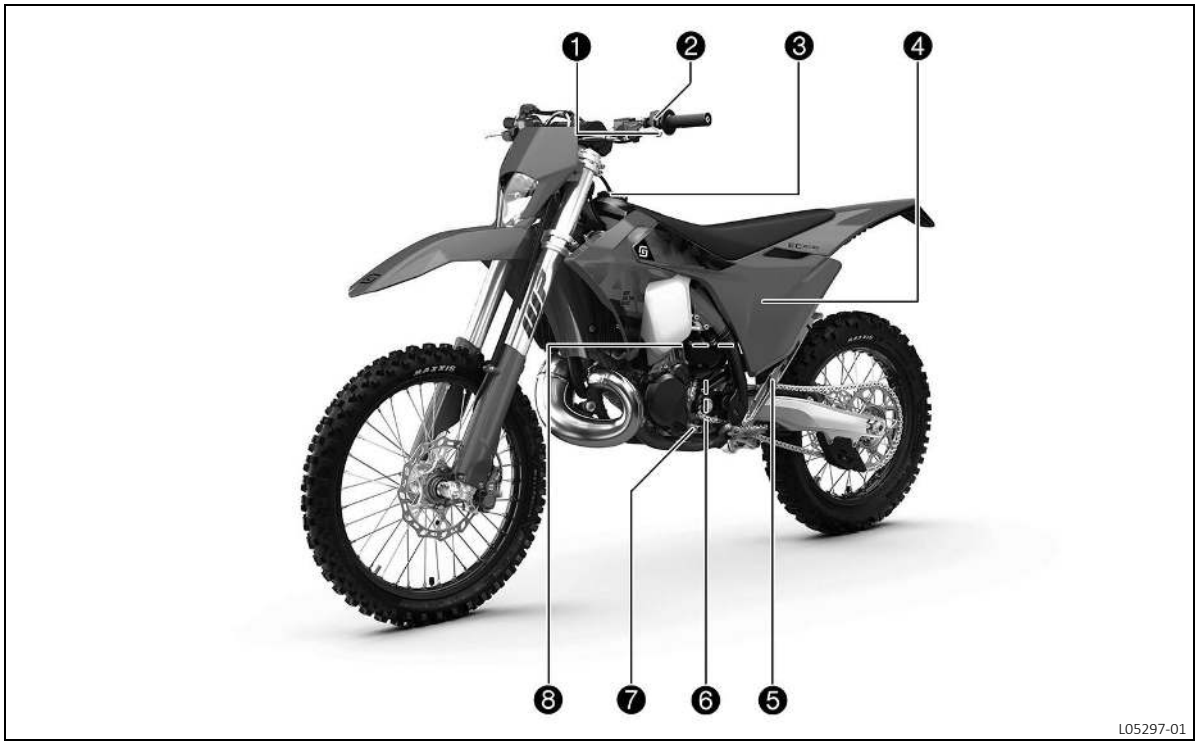
3.6 Customer service

Authorized contractual partners will be happy to answer questions about the vehicle and GASGAS.

The list of authorized contractual partners can be found on the GASGAS website.

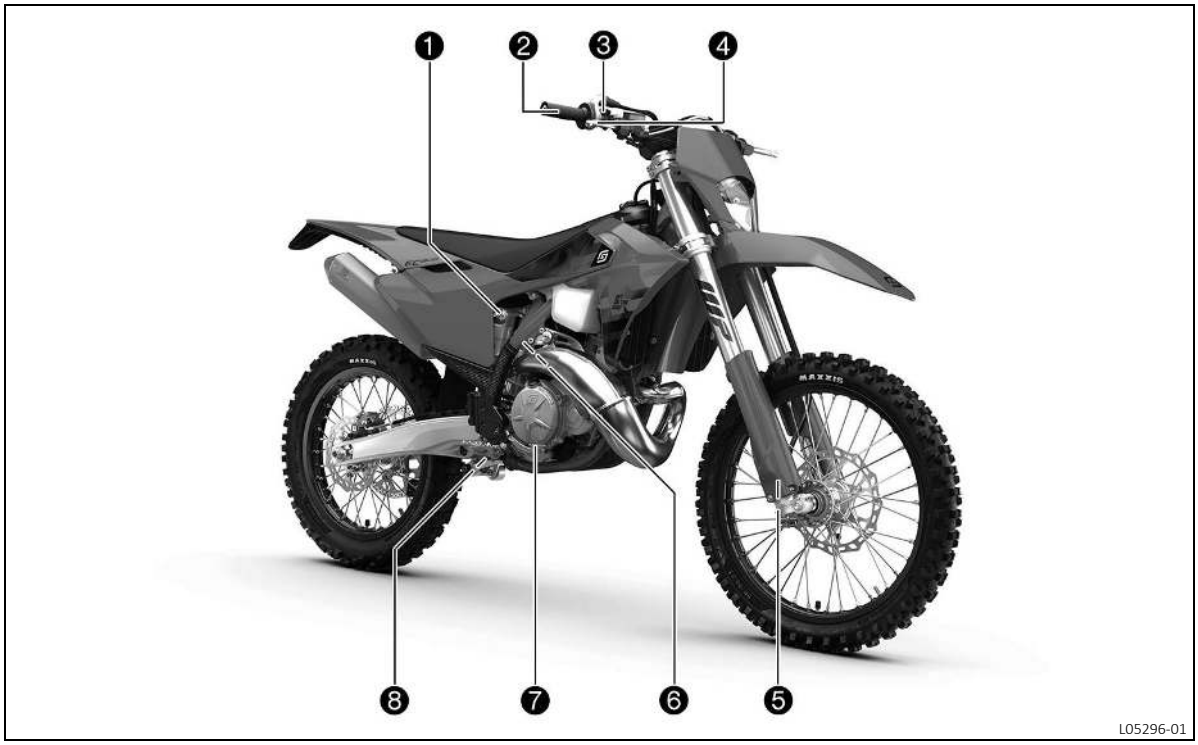
International GASGAS website: https://www.gasgas.com/

4.1 View of vehicle, front left (example)



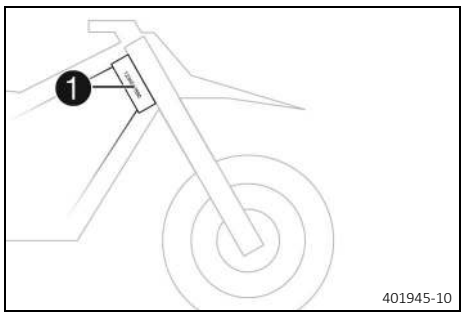
1. Clutch lever (p. 19)
2. **(EU model)**
   Horn button (p. 19)
2. **(EU model)**
   Light switch (p. 20)
2. **(EU model)**
   Turn signal switch (p. 20)
3. Fuel tank cap
4. Air filter box cover
5. Side stand (p. 24)
6. Engine number (p. 18)
7. Gear shift lever (p. 24)
8. Cold start button (p. 22)

4.2 View of vehicle, front right (example)



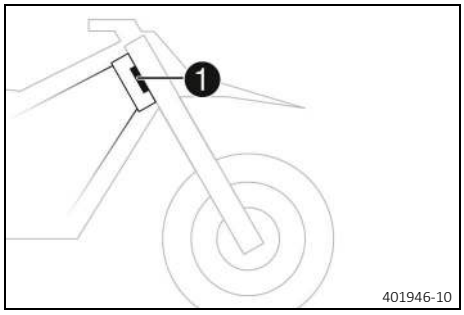
1. Shock absorber compression adjustment
2. Throttle grip (p. 19)
3. Electric starter (p. 20)
3. Kill switch (p. 21)
4. Handbrake lever (p. 19)
5. Fork part number (p. 18)
6. Idle speed adjustment screw (p. 23)
7. Brake pedal (p. 24)
8. Shock absorber rebound adjustment

5.1 Vehicle identification number



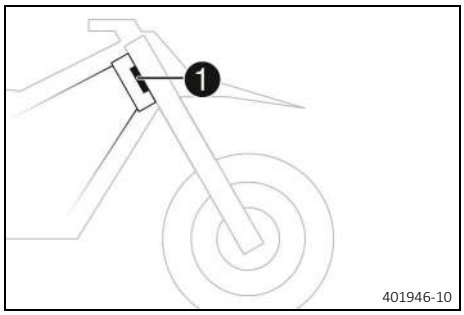
The vehicle identification number ❶ is stamped on the right-hand side of the steering head.

5.2 Type label (EU model)



The type label ❶ is located on the front frame tube.

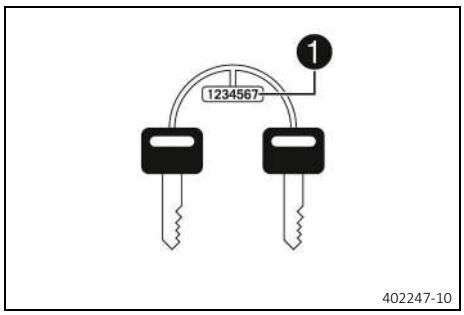
5.3 Frame label (US model)



Frame label ❶ is located on the front frame tube.

5.4 Key number

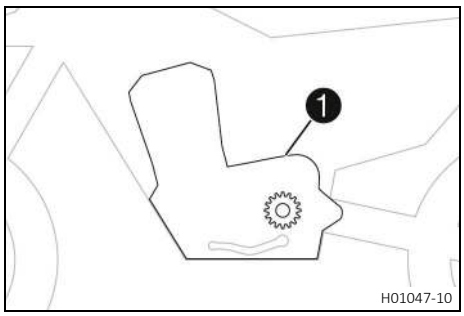
(EU model)



The key number ❶ for the steering lock is stamped onto the key connector.

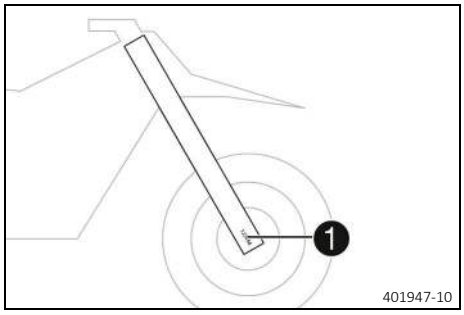
5 Serial number

5.5 Engine number



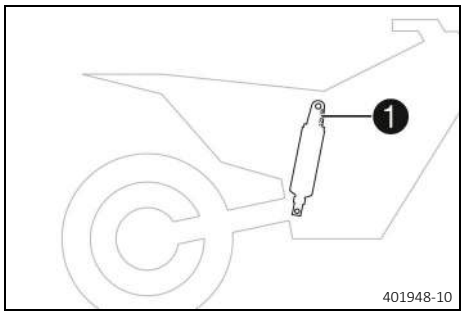
The engine number ❶ is stamped on the left side of the engine above the front sprocket.

5.6 Fork part number



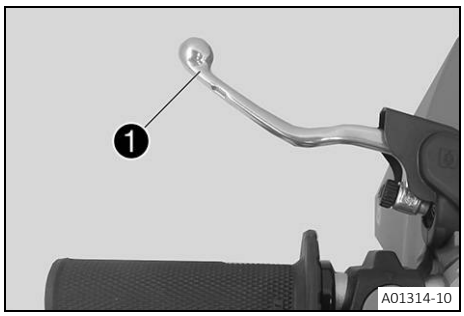
Fork part number ❶ is stamped on the inside of the fork shoe.

5.7 Shock absorber part number



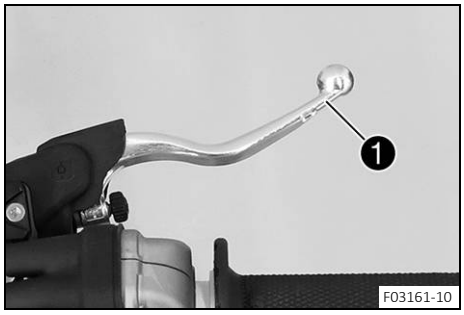
Shock absorber part number ❶ is stamped on the top right of the shock absorber.

6.1 Clutch lever



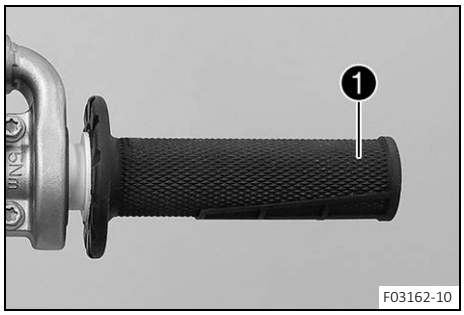
Clutch lever ❶ is fitted on the left side of the handlebar.
The clutch is activated hydraulically and adjusts itself automatically.

6.2 Handbrake lever



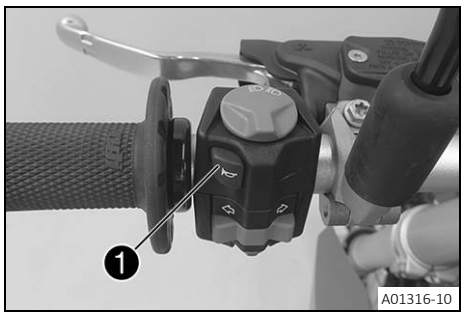
Hand brake lever ❶ is fitted on the right side of the handlebar.
The front brake is engaged using the hand brake lever.

6.3 Throttle grip



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

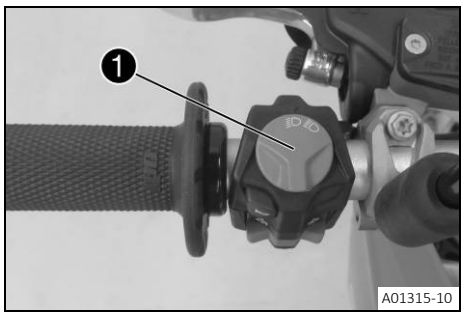
6.4 Horn button (EU model)



Horn button ❶ is fitted on the left side of the handlebar.

Condition	Meaning
Horn button in the basic position	No function
Horn button pressed	The horn is operated in this position.

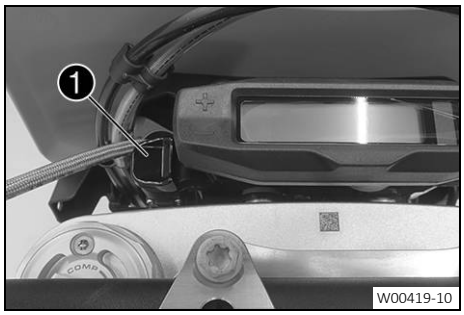
6.5 Light switch (EU model)



Light switch ❶ is fitted on the left side of the handlebar.

Condition		Meaning
	Light switch is in the central position.	In this position, the low beam and the tail light are switched on.
	The light switch is turned counterclockwise.	In this position, the high beam and the tail light are switched on.

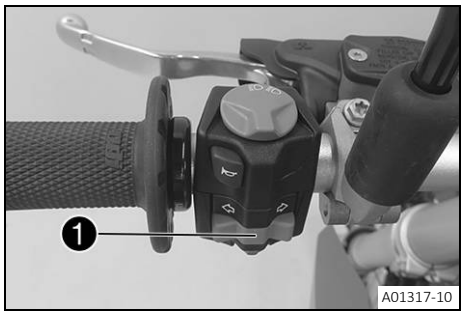
6.6 Light switch (US model)



The light switch ❶ is located to the left of the combination instrument.

Condition	Meaning
The tip switch is in the basic position.	In this position, the dipped beam and the tail light are switched off.
Light switch is pressed in until it clicks.	In this position, the dipped beam and the tail light are switched on.

6.7 Turn signal switch (EU model)



Turn signal switch ❶ is fitted on the left side of the handlebar.

Condition		Meaning
⇦	Turn signal switch pressed to the left	Left turn signal on.
⇨	Turn signal switch pressed to the right	Right turn signal on.

6.8 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.

6.9 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.

6.10 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

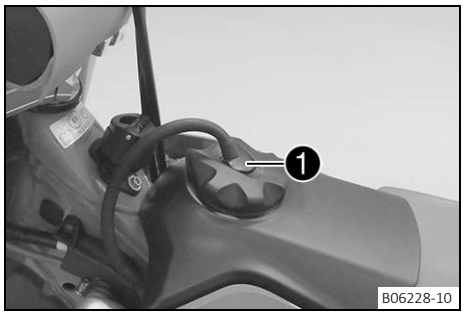
Danger of poisoning Fuel is harmful to health.

- 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

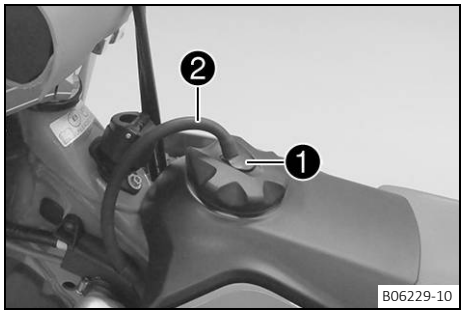
Environmental hazard Improper handling of fuel is dangerous to the environment.

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



- Press release button ❶, turn the fuel tank cap counterclockwise, and lift it off.

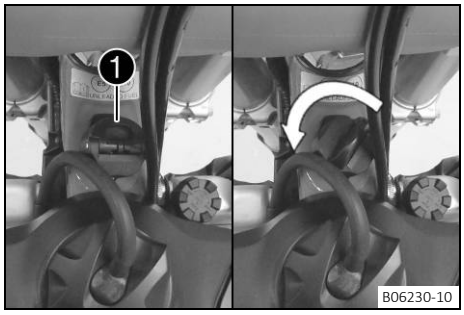
6.11 Closing the fuel tank cap



– Mount the fuel tank filler cap and turn it clockwise until release button ❶ engages.

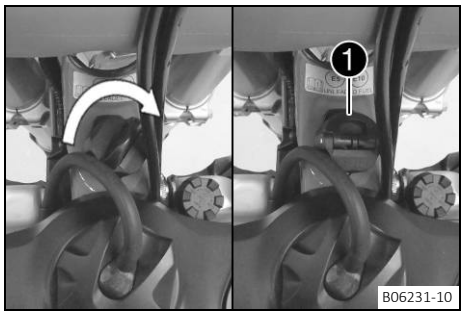
Route hose of fuel tank vent ❷ without kinks.

6.12 Opening 2-stroke oil tank cap



– Fold loop ❶ upward.
– Turn the 2-stroke oil tank cap counterclockwise and pull it up.

6.13 Closing 2-stroke oil tank cap



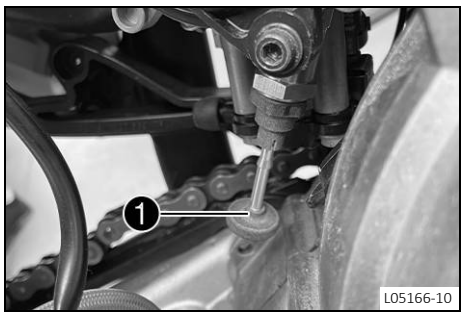
– Put the 2-stroke oil tank cap on and turn it clockwise.
  ✓ The 2-stroke oil tank cap engages.
– Fold loop ❶ down.

6.14 Cold start button

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 fuel quantity, it must be supplied with additional oxygen by pulling the cold start button.

Note
If the engine is warm, the cold start button must be deactivated.

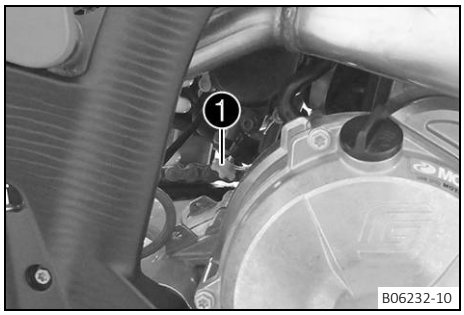
(EU model)



The cold start button ❶ is fitted on the side of the throttle valve body.

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

(US model)

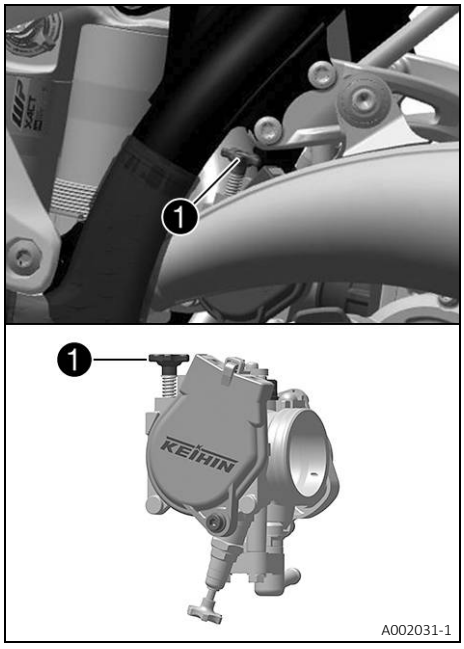


The cold start button ❶ is fitted on the side of the throttle valve body.

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

6.15 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.

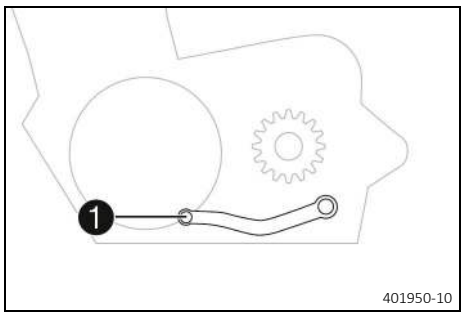
Note

If the idle speed is high, the engine is slow to run, the engine brake is low and the throttle response is aggressive, the adjusting screw must be turned counterclockwise.

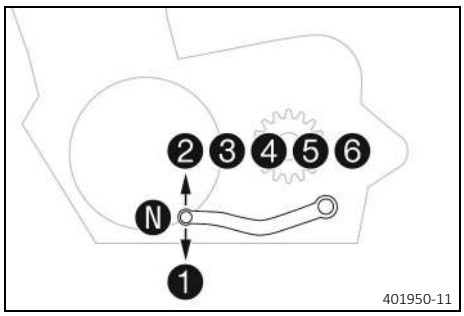
If the idle speed is low, the engine is running fast, the engine brake is high and the throttle response is not clean, the adjusting screw must be turned clockwise.

For optimum performance, it is recommended to adjust the idle speed using the dedicated functions in the diagnostics tool.

6.16 Gear shift lever

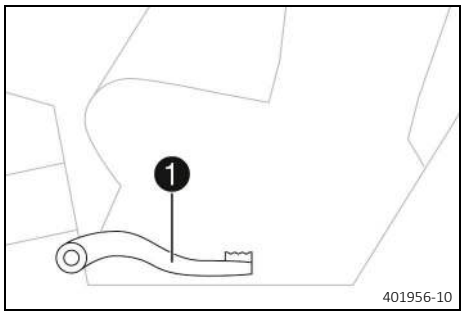


Gear shift lever ❶ is mounted on the left of the engine.



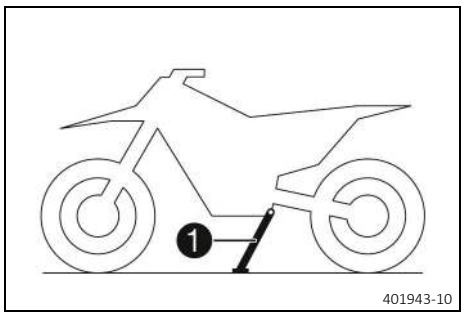
The gear positions can be seen in the figure.
The neutral or idle position is between the first and second gears.

6.17 Brake pedal

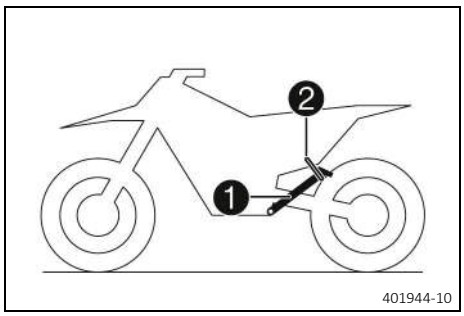


Brake pedal ❶ is located in front of the right footpeg.
The rear brake is operated with the brake pedal.

6.18 Side stand



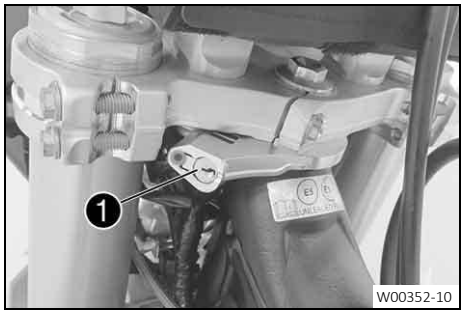
The side stand ❶ is located on the left of the vehicle.
The side stand is used for parking the motorcycle.



Note

When you are riding, side stand ❶ must be folded up and secured with rubber band ❷.

6.19 Steering lock (EU model)



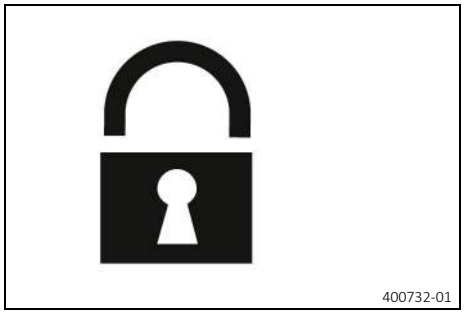
Steering lock ❶ is fitted on the left side of the steering head.
The steering lock is used to lock the steering. Steering and riding is then no longer possible.

6.20 Locking the steering (EU model)

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.



- Park the vehicle.
- Turn handlebar as far as possible to the right.
- Lubricate the steering lock regularly.

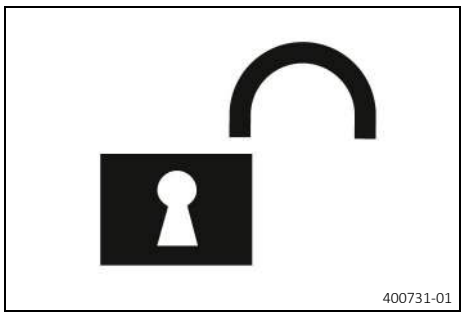
Universal oil spray (p. 174)

- Insert the key for the steering lock into the steering lock, turn it to the left, press it in, and turn it to the right. Pull out the key for the steering lock.

Never leave the key for the steering lock in the steering lock.

✓ Steering is no longer possible.

6.21 Unlocking the steering (EU model)

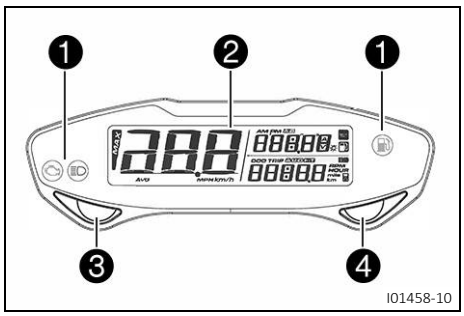


– Insert the key for the steering lock into the steering lock, turn it to the left, pull it out, and turn it to the right. Pull out the key for the steering lock.

Never leave the key for the steering lock in the steering lock.

✓ The handlebar can now be moved again.

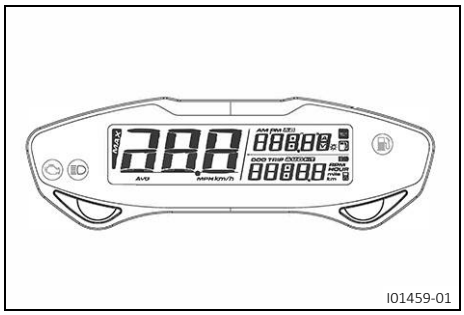
7.1 Dashboard



1. Indicator lamps
2. Display
3. Left button
4. Right button

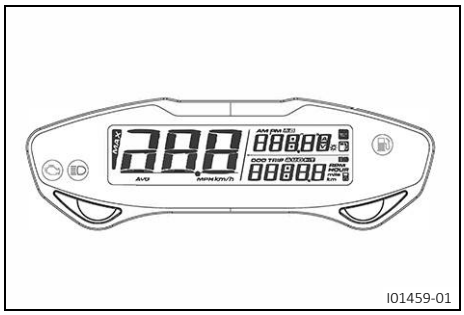
7.2 activation and testing

7.2.1 Activating the dashboard



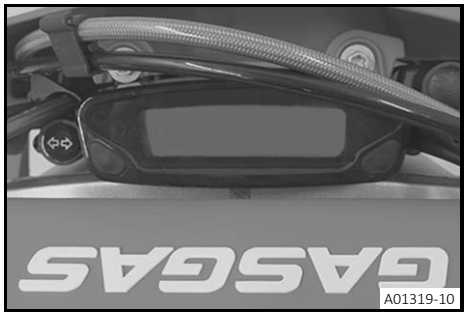
The dashboard is activated when one of the buttons is pressed or a pulse comes from the wheel speed sensor.

7.2.2 Display test



To enable you to check that the display is functioning properly, all display segments light up briefly.

7.3 Overview of indicator lights (EU model)



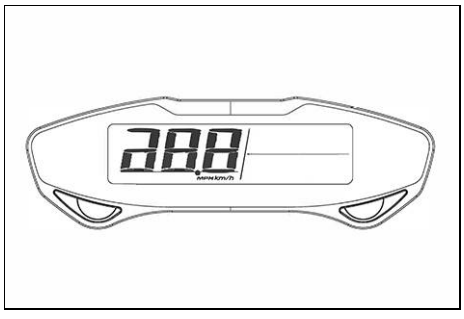
Condition		Meaning
	The high beam indicator lamp lights up blue	The high beam is switched on.
	Malfunction indicator lamp lights up/flashes yellow	The **OBD** has detected a failure in the vehicle electronics. Come safely to a halt, and contact an authorized dealer.
	The fuel level warning lamp lights up yellow	The fuel level has reached the reserve mark.
	Turn signal indicator lamp flashes green	The turn signal is switched on.
	The oil level warning lamp lights up red	Oil level has reached the **MIN** marking. Ride for no more than until the remaining fuel in the tank is depleted and at the next opportunity refuel with 2-stroke oil.

7.4 Overview of indicator lights (US model)



Condition		Meaning
	Malfunction indicator lamp lights up/flashes yellow	The **OBD** has detected a failure in the vehicle electronics. Come safely to a halt, and contact an authorized dealer.
	The fuel level warning lamp lights up yellow	The fuel level has reached the reserve mark.
	The oil level warning lamp lights up red	Oil level has reached the **MIN** marking. Ride for no more than until the remaining fuel in the tank is depleted and at the next opportunity refuel with 2-stroke oil.

7.5 Speed display



– Briefly and repeatedly press **«Left button»** until the speed appears in the left of the display.

The current speed is displayed on the left in display mode **SPEED**.

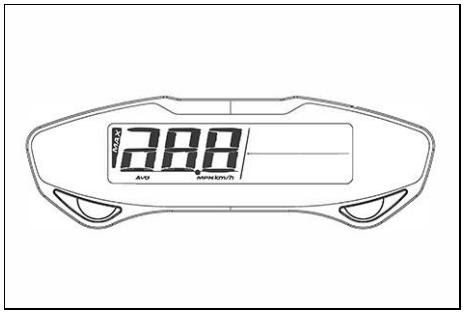
The current speed can be displayed in **km/h** or **mph**.

Note

Make the setting according to the country.

When an impulse comes from the front wheel, the left side of the display changes to the **SPEED** mode and the current speed is shown.

7.6 Display mode average speed and maximum speed



– Briefly and repeatedly press **«Left button»** until indicator **MAX** appears in the left of the display.

AVG (average speed 1) shows the average speed calculated on the basis of **Trip A** (tripmaster A) and **HOURS A** (stopwatch A).

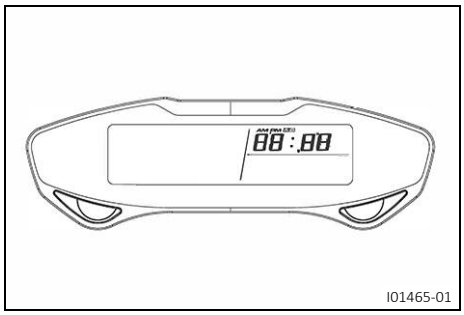
The calculation of this value is activated by the first impulse of the wheel speed sensor and ends 3 seconds after the last impulse.

Note

Average speed and max. speed are displayed alternately at intervals of 3 seconds.

– **«Right button»** Press for 2–3 seconds.	No function
– **«Right button»** Press briefly.	Next display mode
– Press **«Left button»** for 2–3 seconds.	No function
– Press **«Left button»** briefly.	Switches between **AVG** and the speedometer

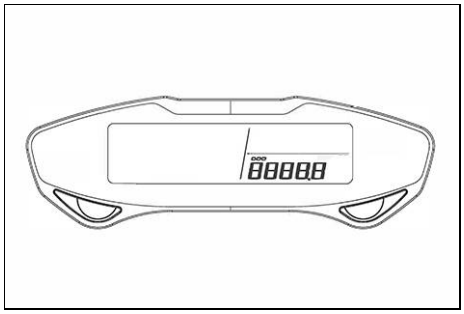
7.7 Time display



The time is displayed at the top right.

The time can be displayed in 24-hour or 12-hour format in all languages.

7.8 Display mode ODO (odometer)

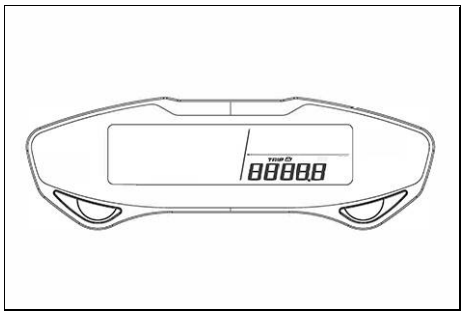


– **«Right button»** Briefly and repeatedly press until indicator **ODO** appears in the bottom right of the display.

The total traveled distance is shown in display mode **ODO**.

– **«Right button»** Press for 2–3 seconds.	No function
– **«Right button»** Press briefly.	Next display mode
– Press **«Left button»** for 2–3 seconds.	No function
– Press **«Left button»** briefly.	Switches between **AVG** and the speedometer

7.9 Display mode Trip A (tripmaster A)



– **«Right button»** Briefly and repeatedly press until **Trip A** appears in the top right of the display.

Trip A (tripmaster A) always runs and counts up to 999.9.

You can use it to measure trips or the distance between refueling stops.

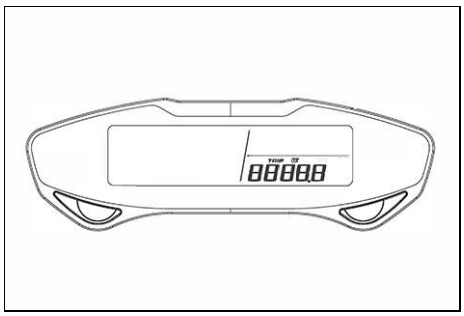
Trip A is linked to **AVG** (average speed) and **HOURS A** (stopwatch A).

Note

If it exceeds 999.9, the values **Trip A** , **AVG** and **HOURS A** are automatically reset to 0.0.

– **«Right button»** Press for 2–3 seconds.	**Trip A** is set to 0.0.
– **«Right button»** Press briefly.	Next display mode
– Press **«Left button»** for 2–3 seconds.	No function
– Press **«Left button»** briefly.	Switches between **AVG** and the speedometer

7.10 Display mode Trip B (tripmaster B)

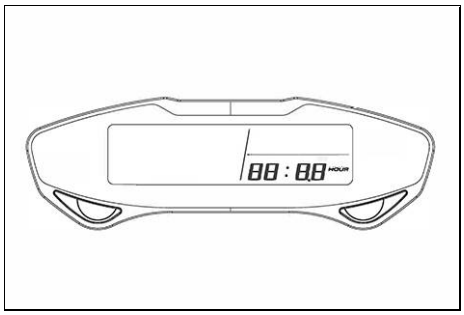


– **«Right button»** Briefly and repeatedly press until **Trip B** appears in the top right of the display.

Trip B (tripmaster B) always runs and counts up to 999.9.

– **«Right button»** Press for 2–3 seconds.	**Trip B** is set to 0.0.
– **«Right button»** Press briefly.	Next display mode
– Press **«Left button»** for 2–3 seconds.	No function
– Press **«Left button»** briefly.	Switches between **AVG** and the speedometer

7.11 The display mode Accumulated Ride Time



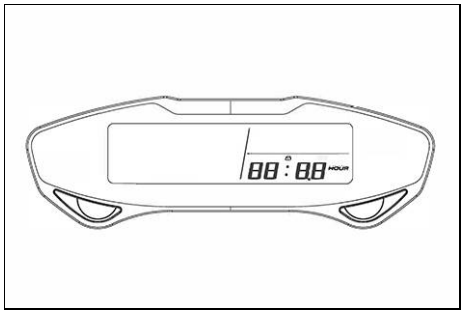
– **«Right button»** Briefly and repeatedly press until indicator **HOURS** appears in the right of the display.

HOURS shows the total trip time and runs until a pulse is received from the wheel speed sensor.

The calculation of this value starts with the first impulse from the wheel speed sensor and ends 3 seconds after the last impulse.

– **«Right button»** Press for 2–3 seconds.	No function
– **«Right button»** Press briefly.	Next display mode
– Press **«Left button»** for 2–3 seconds.	No function
– Press **«Left button»** briefly.	Switches between **AVG** and the speedometer

7.12 Display mode Trip Time 1

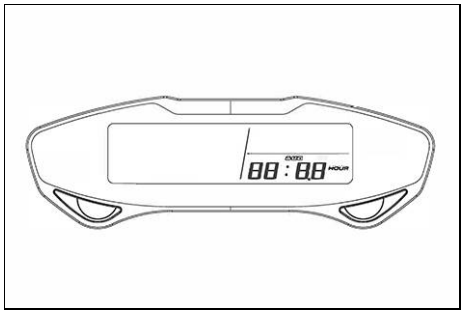


– **«Right button»** Briefly and repeatedly press until indicator **HOURS A** appears in the right of the display.

HOURS A (Trip Time A) displays the trip time on the basis of **Trip A** and continues to run until a pulse is received from the wheel speed sensor. The calculation of this value starts with the first impulse from the wheel speed sensor and ends 3 seconds after the last impulse.

– **«Right button»** Press for 2–3 seconds.	**HOURS A** is set to 0.0.
– **«Right button»** Press briefly.	Next display mode
– Press **«Left button»** for 2–3 seconds.	No function
– Press **«Left button»** briefly.	Switches between **AVG** and the speedometer

7.13 Display mode Trip Time 2

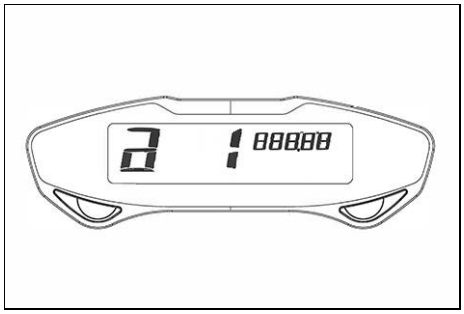


– **«Right button»** Briefly and repeatedly press until indicator **HOURS B** appears in the top right of the display.

HOURS B (Trip Time B) displays the trip time on the basis of **Trip B** and continues to run until a pulse is received from the wheel speed sensor. The calculation of this value starts with the first impulse from the wheel speed sensor and ends 3 seconds after the last impulse.

– **«Right button»** Press for 2–3 seconds.	**HOURS B** is set to 0.0.
– **«Right button»** Press briefly.	Next display mode
– Press **«Left button»** for 2–3 seconds.	No function
– Press **«Left button»** briefly.	No function

7.14 Setup menu



Condition: Motorcycle is stationary

– Press both buttons for 2–3 seconds.

The Setup menu displays the active functions.

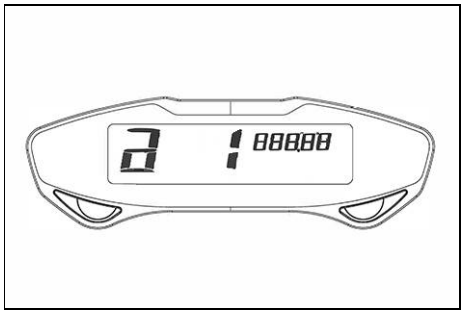
Note

Briefly and repeatedly press the **Right button** until the desired function is reached.

If no button is pressed for 20 seconds, the settings are automatically saved.

– **«Right button»** Press briefly.	Introduction to the selection process
– **«Right button»** Press for 2–3 seconds.	Closes the Setup menu
– Press **«Left button»** briefly.	Changes to the next display
– Press **«Left button»** for 2–3 seconds.	No function
– Wait 10–12 seconds.	Closes the Setup menu

7.15 Setting the clock



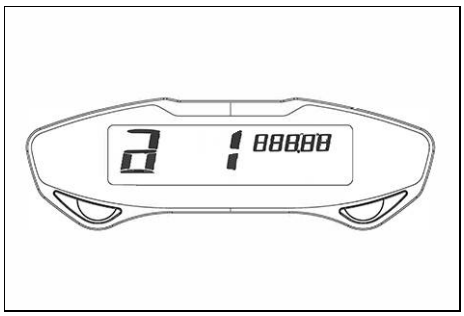
Condition: Motorcycle is stationary

– Press both buttons for 2–3 seconds.
– **«Right button»** Briefly and repeatedly press until indicator **Clock** appears in the display.
– Set the hours display using the **Right button**.
– **«Right button»** Press briefly.
  ✓ The next segment of the display flashes and can be set.
– By pressing the **Right button**, the following segments can be set in the same way as for the hour display.

Note

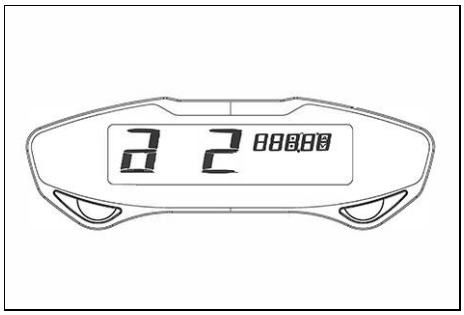
If no button is pressed for 15–20 seconds, or if a pulse comes from the wheel speed sensor, the settings are automatically saved and the setup menu is closed.

– **«Right button»** Press briefly.	Changes to the next value



– **«Right button»** Press for 2–3 seconds.	No function
– Press **«Left button»** briefly.	Increases the value
– Press **«Left button»** for 2–3 seconds.	Closes the Setup menu
– Wait 10–12 seconds.	Closes the Setup menu

7.16 Adjusting the light



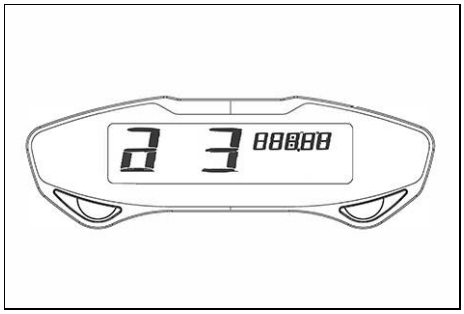
Condition: Motorcycle is stationary

– Press both buttons for 2–3 seconds.
– **«Right button»** Briefly and repeatedly press until indicator **Light** appears in the display.
– The brightness of the light can be adjusted by pressing the **Right button**.

Note
There are 5 possible settings.
If no button is pressed for 15–20 seconds, or if a pulse comes from the wheel speed sensor, the settings are automatically saved and the setup menu is closed.

– **«Right button»** Press briefly.	Changes to the next value
– **«Right button»** Press for 2–3 seconds.	No function
– Press **«Left button»** briefly.	Increases the value
– Press **«Left button»** for 2–3 seconds.	Closes the Setup menu
– Wait 10–12 seconds.	Closes the Setup menu

7.17 Adjusting the wheel circumference

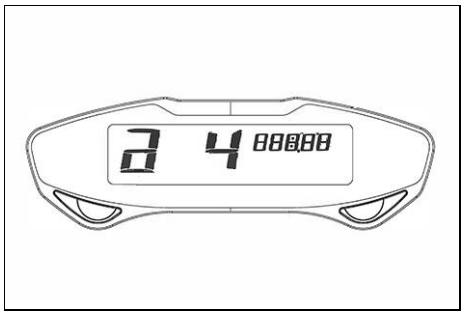


Condition: Motorcycle is stationary

– Press both buttons for 2–3 seconds.
– **«Right button»** Briefly and repeatedly press until indicator **Speed** appears in the display.

– **«Right button»** Press briefly.	Changes to the next value
– **«Right button»** Press for 2–3 seconds.	No function
– Press **«Left button»** briefly.	Increases the value
– Press **«Left button»** for 2–3 seconds.	Closes the Setup menu
– Wait 10–12 seconds.	Closes the Setup menu

7.18 Adjusting the unit of measurement



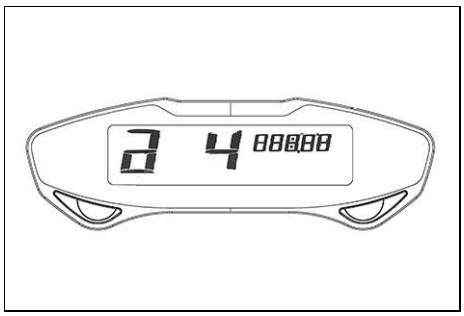
Condition: Motorcycle is stationary

– Press both buttons for 2–3 seconds.
– **«Right button»** Briefly and repeatedly press until indicator **Unit** appears in the display.

In the measurement unit menu, you can change the unit of measurement.

Note
If no button is pressed for 5 seconds, the settings are automatically saved.

– **«Right button»** Press briefly.	Changes to the next value
– **«Right button»** Press for 2–3 seconds.	No function
– Press **«Left button»** briefly.	Increases the value



– Press **«Left button»** for 2–3 seconds.	Closes the Setup menu
– Wait 10–12 seconds.	Closes the Setup menu

7.19 Table of functions

Display	**«Right button» Press for 2–3 seconds.**	**«Right button» Press briefly.**	**Press «Left button» for 2–3 seconds.**	**Press «Left button» briefly.**	**Wait 10–12 seconds.**
Adjusting the unit of measurement	No function	Changes to the next value	Closes the Setup menu	Increases the value	Closes the Setup menu
Adjusting the wheel circumference	No function	Changes to the next value	Closes the Setup menu	Increases the value	Closes the Setup menu
Adjusting the light	No function	Changes to the next value	Closes the Setup menu	Increases the value	Closes the Setup menu
Setting the clock	No function	Changes to the next value	Closes the Setup menu	Increases the value	Closes the Setup menu
Setup menu	Closes the Setup menu	Introduction to the selection process	No function	Changes to the next display	Closes the Setup menu
Display mode Trip Time 2	**HOURS B** is set to 0.0.	Next display mode	No function	No function	
Display mode Trip Time 1	**HOURS A** is set to 0.0.	Next display mode	No function	Switches between **AVG** and the speedometer	
The display mode Accumulated Ride Time	No function	Next display mode	No function	Switches between **AVG** and the speedometer	
Display mode **Trip B** (tripmaster B)	**Trip B** is set to 0.0.	Next display mode	No function	Switches between **AVG** and the speedometer	
Display mode **Trip A** (tripmaster A)	**Trip A** is set to 0.0.	Next display mode	No function	Switches between **AVG** and the speedometer	
Display mode **ODO** (odometer)	No function	Next display mode	No function	Switches between **AVG** and the speedometer	
Display mode average speed and maximum speed	No function	Next display mode	No function	Switches between **AVG** and the speedometer	

7.20 Table of conditions and menu activation

Display	Motorcycle is stationary	Menu can be activated
Adjusting the unit of measurement	●	
Adjusting the wheel circumference	●	
Adjusting the light	●	
Setting the clock	●	
Setup menu	●	
Display mode Trip Time 2		●
Display mode Trip Time 1		●
The display mode Accumulated Ride Time		●
Display mode **Trip B** (tripmaster B)		●
Display mode **Trip A** (tripmaster A)		●
Display mode **ODO** (odometer)		
Display mode average speed and maximum speed		●
Speed display		

8 Preparing for use

8.1 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 contractual partner.
  ✓ 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. 93)
– Adjust the basic position of the hand brake lever. (p. 96)
– Adjust the basic position of the brake pedal. (p. 101)
– Adjust the basic position of the gear shift lever. (p. 134)
– Get used to the handling characteristics of the motorcycle on suitable terrain before undertaking a more challenging ride.

Note
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 trips that exceed your personal ability and experience.
– Hold the handlebar firmly with both hands and keep your feet on the footpegs when riding.
– If luggage is carried, ensure it is fixed firmly as close as possible to the center of the vehicle and ensure even weight distribution between the front and rear wheels.

Note
Motorcycles react sensitively to any changes of weight distribution.

– The maximum permissible overall weight and the maximum permissible axle loads must not be exceeded.

Maximum permissible total weight	335 kg (738.5 lb)
Maximum permissible front axle load	145 kg (319.7 lb)
Maximum permissible rear axle load	190 kg (418.9 lb)

– Check the spoke tension. (p. 112)

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

– Run in the engine. (p. 39)

8.2 Running in the engine

– During the running-in phase, do not exceed the specified engine performance.

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

Avoid fully opening the throttle.

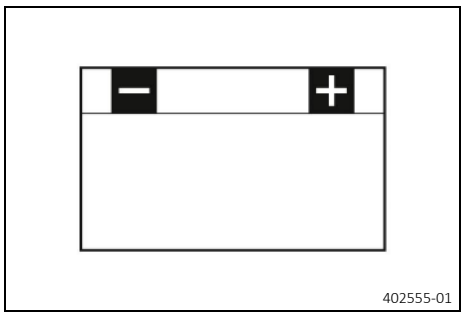
– Check the idle speed regularly.

Idle speed	1,400 rpm … 1,500 rpm (23.33 Hz … 25.00 Hz)

Note
The idle speed may change during the run-in time.

» If the idle speed changes:
  – Adjust the idle speed. (p. 132)

8.3 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 distribute through the lithium-ion battery and the 12 V battery is not damaged.

At temperatures below 6 °C (45 °F), the charged lithium ion battery is not defective if it does not manage to start the starter motor or it only just manages – instead this means that the battery must be warmed internally to increase the starting power (current output).

The starting power increases as the battery warms up.

8.4 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 drive train, brake system, or suspension components. For this reason, it may be necessary to inspect or replace parts before the next scheduled service interval.

– Clean the air filter and air filter box. (p. 78)

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 connector, or change it if necessary.
– Rides on dry sand. (p. 40)
– Rides on wet sand. (p. 41)
– Rides on wet and muddy surfaces. (p. 42)
– Riding at high temperatures or slow speed. (p. 42)
– Riding at low temperatures and in snow. (p. 42)

8.5 Preparing the vehicle for rides on dry sand



– Mount the air filter dust protection.

Read the accompanying mounting instructions.

Air filter dust protection cover (79006920000)



M01105-01

– Mount the air filter sand protection.

Read the accompanying mounting instructions.

Air filter sand protection (79006922000)


600868-01

– Clean the chain.

Chain cleaner (p. 179)

– Mount the steel sprocket.
– Grease the chain.

Universal oil spray (p. 174)

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

Change the piston every 10 operating hours.

8.6 Preparing the vehicle for rides on wet sand



M01106-01

– Mount the air filter water protection.

Read the accompanying mounting instructions.

Air filter water protection (79006921000)


600868-01

– Clean the chain.

Chain cleaner (p. 179)

– Mount the steel sprocket.
– Grease the chain.

Universal oil spray (p. 174)

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

Change the piston every 10 operating hours.

8.7 Preparing for rides on wet and muddy surfaces



M01106-01

– Mount the air filter water protection.

Read the accompanying mounting instructions.
Air filter water protection (79006921000)


600868-01

– Mount the steel sprocket.
– Clean the motorcycle. (p. 147)
– Straighten the bent radiator fins carefully.

8.8 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.

Chain cleaner (p. 179)

– Clean the radiator fins.
– Straighten the bent radiator fins carefully.
– Check the coolant level. (p. 125)

8.9 Preparing the vehicle for low temperatures or snow



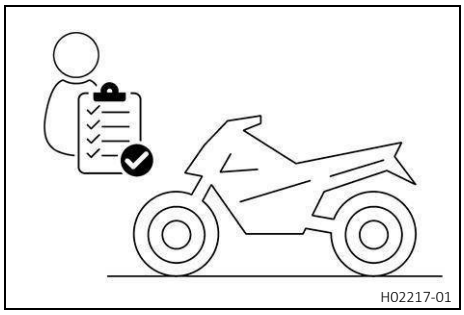
M01106-01

– Mount the air filter water protection.

Read the accompanying mounting instructions.
Air filter water protection (79006921000)

9.1 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

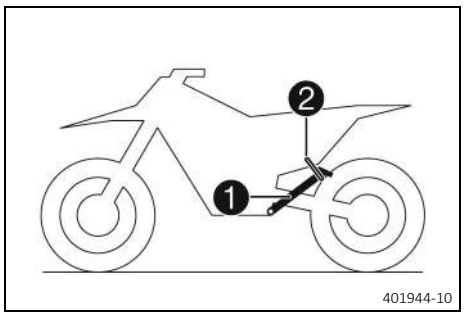
- Check the gear oil level. (p. 144)
- Check the electrical system.
- Check the brake fluid level for the front brake. (p. 97)
- Check the brake fluid level for the rear brake. (p. 102)
- Check that the brake pads of the front brake are secured. (p. 99)
- Check that the brake pads of the rear brake are secured. (p. 104)
- Check that the brake system is functioning properly.
- Check the coolant level. (p. 125)
- Check the chain for contaminant. (p. 86)
- Check the chain, rear sprocket, engine sprocket, and chain guide. (p. 89)
- Check the chain tension. (p. 87)
- Check the tire condition. (p. 110)
- Check the tire pressure. (p. 111)
- Check the spoke tension. (p. 112)

  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. 62)
- Bleed the fork legs. (p. 61)
- 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.
- Check 2-stroke oil level. (p. 138)

9.2 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.

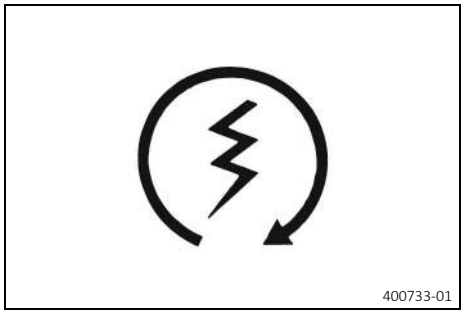


– Take the motorcycle off side stand ❶ and secure the side stand with rubber band ❷.
– Shift the transmission into the neutral position.

Condition: Ambient temperature: < 10 °C (< 50.0 °F)

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

If the engine is warm, the cold start button must be deactivated.



– Press the electric starter.

Press the electric starter for a maximum of 5 seconds.
Wait for 30 seconds before a further attempt at starting.

Note
Do not open the throttle.
At temperatures below 15 °C (60 °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.

9.3 Starting off

Note
Switch on the light before riding so that you are easily visible to other road users.
When you are riding, the side stand must be folded up and secured with the rubber band.

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

9.4 Shifting, riding

WARNING
Engine failure The engine will not be lubricated unless there is 2-stroke oil in the oil tank.
If the oil level warning light lights up, the 2-stroke oil is sufficient for the remaining tank of fuel.
– As soon as the oil level warning light lights up, ride for no longer than until the remaining fuel in the tank is depleted.
– At the next opportunity add 2-stroke oil before you refuel.
– Time the oil pump if the 2-stroke oil hose has been removed or the 2-stroke oil tank has been fully depleted in error.

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

– Shift into a higher gear when conditions allow (incline, road 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 the cold start function was activated, deactivate the cold start button after the engine has warmed up.
– 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.

≥ 2 min

– Avoid frequent and lengthy slipping of the clutch. 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.

9.5 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 the rear brake.
– Always finish braking before you go into a bend. Shift into a lower gear that suits the speed.
– Use the brake action of the engine on long downhill stretches. To do so, shift back one or two gears, but do not overrev the engine. This means that significantly less braking is required and means the brake system does not overheat.

9.6 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.

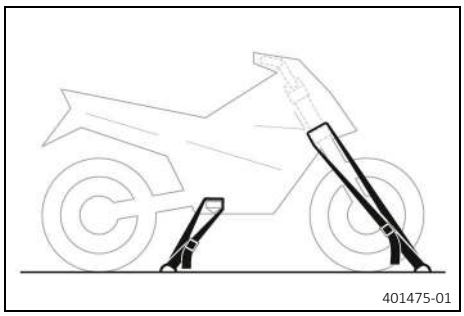
NOTE
Material damage The vehicle may be damaged if parked incorrectly.
Damage can occur if the vehicle rolls away or falls over.
The components for parking the vehicle are designed only for the weight of the vehicle.
– Park the vehicle on a firm and level surface.
– Make sure that nobody sits on the vehicle when it is parked on a stand.

– Brake the motorcycle.
– Shift the transmission into the neutral position.
– Press kill switch ⊗ when the engine is at idle speed until the engine stops.
– Park the motorcycle on firm ground.

9.7 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.
– Use tension belts or other suitable devices to secure the motorcycle against falling over or rolling away.

9.8 Refueling

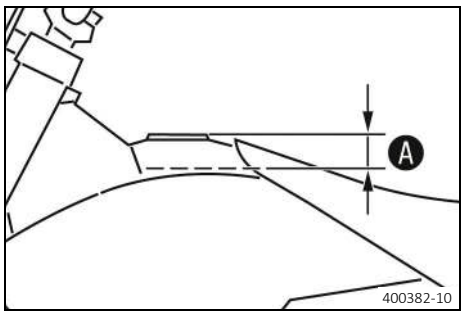
DANGER
Fire hazard Fuel is highly flammable.
The fuel in the fuel tank expands when warm and can escape if overfilled.
– Do not refuel the vehicle in the vicinity of open flames, glowing, or smoldering objects.
– Make sure that nobody smokes in the vicinity of the vehicle during the refueling process.
– 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
Material damage Inadequate fuel quality can lead to losses in performance and consequential damage.
– Refuel only with clean fuel that meets the specified standards.

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.

– Open the fuel tank cap. (p. 21)



– Fill the fuel tank with fuel no higher than Ⓐ.

Level Ⓐ	35 mm (1.38 in)
Do not refuel using pre-mixed fuel.	

Total fuel tank capacity, approx.	
Super unleaded (ROZ 95) (p. 176)	9 l (2.4 liq. gal_{US})

– Close the fuel tank cap. (p. 22)

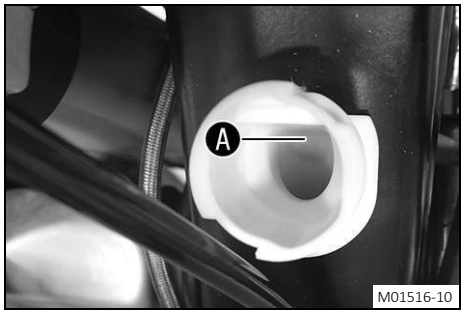
9.9 Adding 2-stroke oil

WARNING

Engine failure The engine will not be lubricated unless there is 2-stroke oil in the oil tank.

If the oil level warning light lights up, the 2-stroke oil is sufficient for the remaining tank of fuel.

- As soon as the oil level warning light lights up, ride for no longer than until the remaining fuel in the tank is depleted.
- At the next opportunity add 2-stroke oil before you refuel.
- Time the oil pump if the 2-stroke oil hose has been removed or the 2-stroke oil tank has been fully depleted in error.



- Open 2-stroke oil tank cap. (p. 22)
- Fill the 2-stroke oil tank up to the lower edge A of the filler neck.

Only use 2-stroke oil which is appropriate for separate lubrication.	
2-stroke oil tank content approx.	
2-stroke engine oil (p. 174) fully synthetic	0.8 l (0.21 liq. gal_{US})

- Close 2-stroke oil tank cap. (p. 22)

10.1 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.

Individual service intervals and scopes may change in the course of technical developments. The most up-to-date service schedule is available for authorized contractual partners for the electronic proof of service. Your authorized contractual partner 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. 99)		●	●	●	●
Check that the brake pads of the rear brake are secured. (p. 104)		●	●	●	●
Check the brake discs. (p. 96)		●	●	●	●
Check the brake lines for damage and tightness.		●	●	●	●
Check the brake fluid level for the front brake. (p. 97)		●	●		
Change the brake fluid for the front brake.				●	●
Check the brake fluid level for the rear brake. (p. 102)		●	●		
Change the brake fluid for the rear brake.				●	●
Check/correct the fluid level of the hydraulic clutch. (p. 93)			●		
Change the hydraulic clutch fluid. (p. 94)				●	●
Check the free travel on the hand brake lever. (p. 96)	○	●	●	●	●
Check the free travel of the brake pedal. (p. 101)		●	●	●	●
Check the idle speed.	○	●	●	●	●
Change the gear oil. (p. 144)	○		●	●	●
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. 91)		●	●	●	
Check the swingarm. (p. 91)		●	●	●	
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. 110)		●	●	●	●
Check the tire pressure. (p. 111)		●	●	●	●
Check the wheel bearing for play.		●	●	●	

	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 hubs.		●	●	●	
Check the rim run-out.	○	●	●	●	
Check the spoke tension. (p. 112)	○	●	●	●	
Check the chain, rear sprocket, engine sprocket, and chain guide. (p. 89)	○	●	●	●	
Check the chain tension. (p. 87)	○	●	●	●	●
Grease all moving parts (e.g. side stand, hand lever, chain, etc.) and check for smooth operation.	○	●	●	●	●
Check the basic throttle valve position sensor setting.		○	●	●	●
Change the spark plug and spark plug connector.			●	●	
Change the fuel filter.				●	●
Check the clutch.			●	●	
Clean the air filter and air filter box. (p. 78)		●	●	●	●
Change the damping material on the main silencer. (p. 81)				●	
Carry out fork service.			●	●	
Service the shock absorber.			●	●	
Check all screws, nuts, and hose clamps for a tight fit.	○	●	●	●	●
Change the fuel screen. (p. 137)	○	●	●	●	●
Check the fuel pressure.	○	●	●	●	●
Check the frost protection and coolant level. (p. 124)			●	●	
Check the coolant level. (p. 125)	○	●			
Change the coolant. (p. 127)					●
(EU model) Check that the radiator fan is functioning properly.	○	●	●	●	
Check the headlight setting. (p. 121)	○	●	●	●	
Check the steering head bearing play. (p. 68)	○	●			
Lubricate the steering head bearing. (p. 70)			●	●	●
Check the reed valve housing, diaphragm, and intake manifold.			●	●	
Check the starter drive.			●	●	●
Change the oil pump; clean the oil screen.				●	
Clean the oil screen in the oil tank. (p. 141)				●	
Perform minor engine service. (Change the piston. Check the cylinder head. Change the O-rings, header and the cylinder head. Check the cylinder and Z-dimension. Check the exhaust control for function and smooth operation. Check the pressure sensor flange for cracks and damage. Remove combustion residues from the exhaust port.)			●	●	

	Every 24 months	Every 90 operating hours	Every 45 operating hours	After 15 operating hours / Every 15 operating hours	After one operating hour
Perform major engine service including removing and installing the engine. (Change the connecting rod, big (bottom) end bearing and crankshaft pin. Check the transmission and shift mechanism. Replace all engine bearings, radial shaft seals and gaskets.)				●	
Final check: check the operating safety of the vehicle and take for a test ride.	○	●	●	●	●
Read out the fault memory after the test ride using the diagnostics tool.	○	●	●	●	●
Enter the electronic proof of service in the contractual partner portal.	○	●	●	●	●

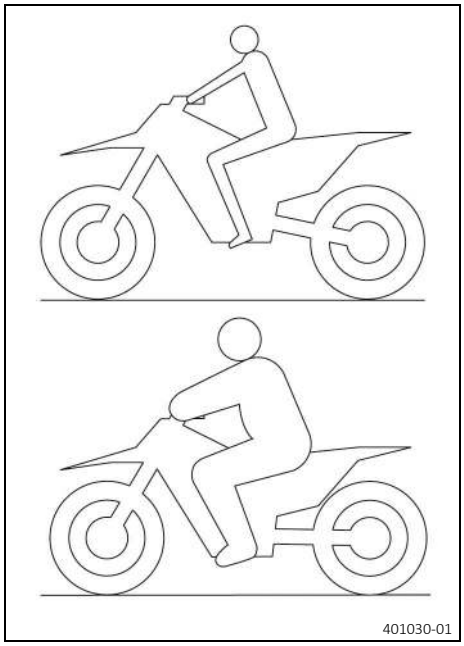
○ One-time interval

● Periodic interval

11 Tuning the chassis

11.1 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 (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.

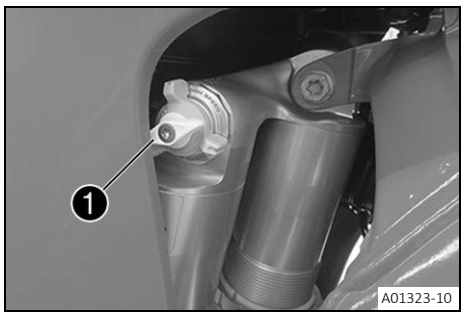
11.2 Compression damping of the shock absorber

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.

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

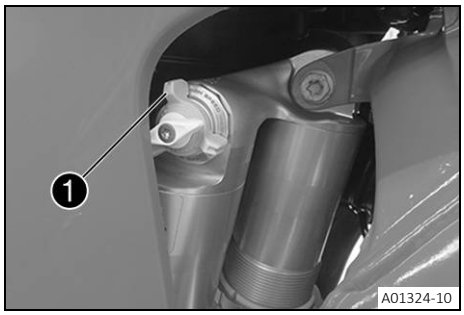
Low-speed compression damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks

Note
Turning clockwise increases damping; turning anticlockwise reduces damping.

11.4 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.



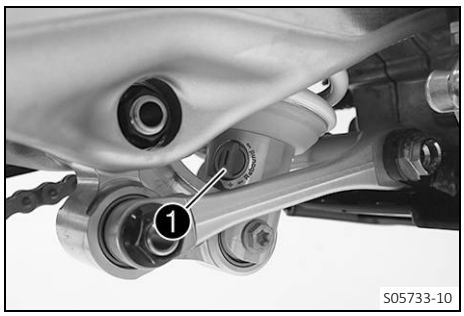
– Turn adjuster ❶ clockwise all the way to the stop.
– Turn counterclockwise by the number of turns corresponding to the shock absorber type.

High-speed compression damping	
Comfort	2.5 turns (900°)
Standard	2 turns (720°)
Sport	1.5 turns (540°)

Note
Turning clockwise increases damping; turning anticlockwise reduces damping.

11.5 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	18 clicks
Standard	15 clicks
Sport	12 clicks

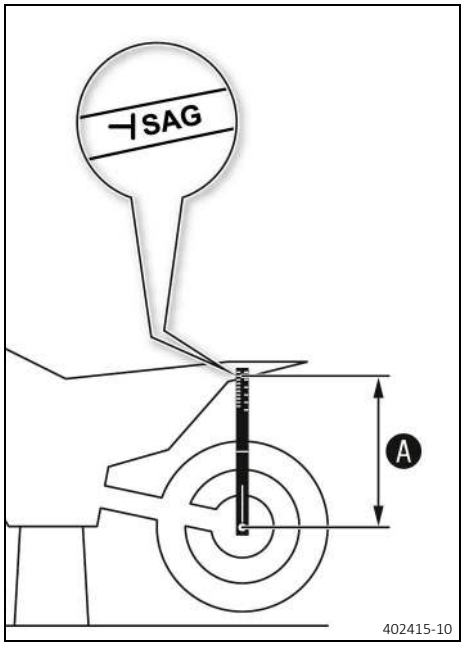
Note
Turning clockwise increases damping; turning anticlockwise reduces damping on rebound.

11.6 Measuring the dimension of the unloaded rear wheel

Preparatory work

– Raise the motorcycle with a lift stand. (p. 61)

Main work



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

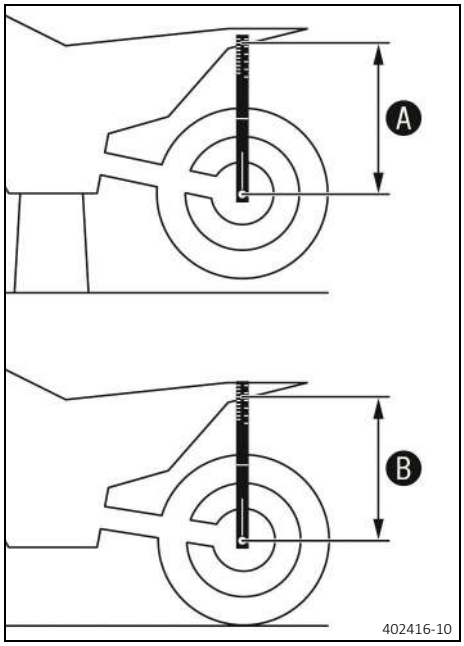
Sag scale (00029090200)
Pin, sag scale (00029990010)

– Note the value as dimension Ⓐ.

Reworking

– Remove the motorcycle from the lift stand. (p. 61)

11.7 Checking the static sag of the shock absorber



– Determine rear wheel dimension Ⓐ. (p. 54)
– Hold the motorcycle upright with aid of an assistant.
– Measure the distance again between the rear axle and marking **SAG** on the rear fender using the sag scale.
– Note the value as dimension Ⓑ.

Note

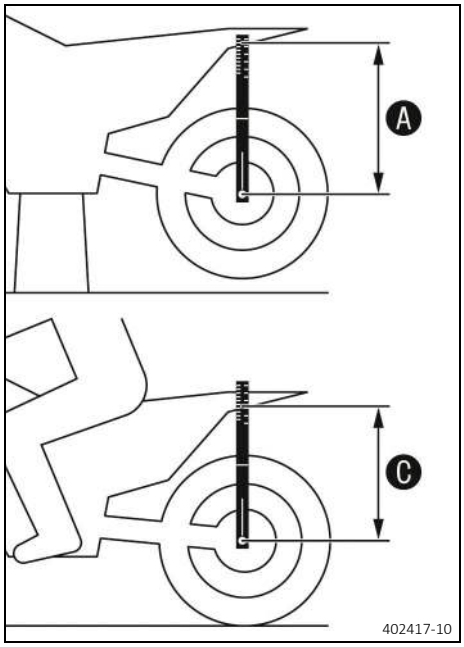
The static sag is the difference between measurements Ⓐ and Ⓑ.

– Check the static sag.

Static sag	40 mm (1.57 in)

» If the static sag is more or less than the specified value:
– Adjust the preload for the shock absorber. (p. 56)

11.8 Checking the rider sag of the shock absorber



– Determine rear wheel dimension Ⓐ. (p. 54)
– With another person holding the motorcycle, sit on the saddle with full protective clothing in a normal sitting position (feet on footrests) and bounce up and down a few times.
✓ The rear wheel suspension levels out.
– Another person again measures the distance between the rear axle and marking **SAG** on the rear fender using the sag gage.
– Note the value as dimension Ⓒ.

Note

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

– Check the rider sag.

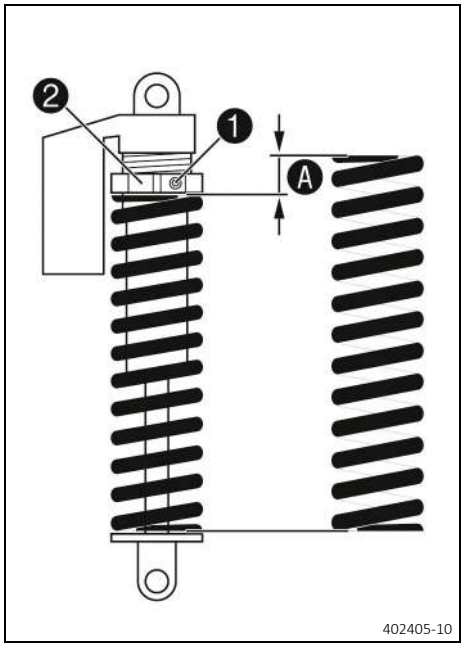
Rider sag	110 mm (4.33 in)

» If the rider sag differs from the specified measurement:
– Adjust the rider sag. (p. 57)

11.9 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. 61)
– Remove the frame protector. (p. 75)
– Remove the shock absorber. (p. 71)
– 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	7 mm (0.28 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 (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. 73)
– Check the free travel of the brake pedal. (p. 101)

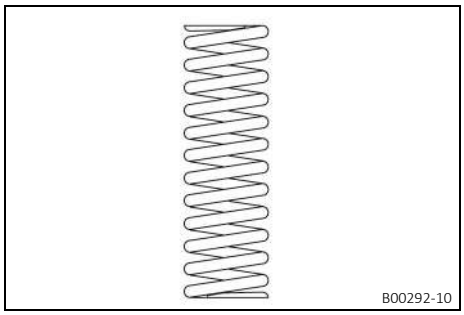
– Install the frame protector. (p. 76)
– Remove the motorcycle from the lift stand. (p. 61)

11.10 Adjusting the rider sag

Preparatory work

– Raise the motorcycle with a lift stand. (p. 61)
– Remove the frame protector. (p. 75)
– Remove the shock absorber. (p. 71)
– 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)	42 N/mm (239.8 lb_f/in)
Weight of rider: 75 kg … 85 kg (165.3 lb … 187.4 lb)	45 N/mm (257.0 lb_f/in)
Weight of rider: 85 kg … 95 kg (187.4 lb … 209.4 lb)	48 N/mm (274.1 lb_f/in)

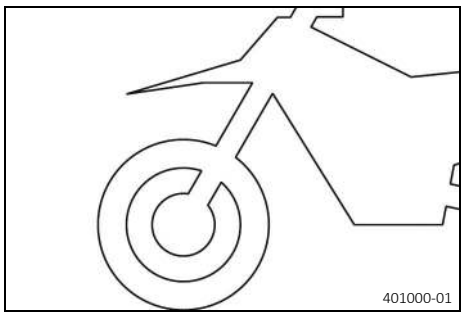
Note
The spring rate is shown on the outside of the spring.

Reworking

– Install the shock absorber. (p. 73)
– Check the free travel of the brake pedal. (p. 101)
– Install the frame protector. (p. 76)
– Remove the motorcycle from the lift stand. (p. 61)
– Check the static sag of the shock absorber. (p. 55)
– Check the rider sag of the shock absorber. (p. 55)
– Adjust the rebound damping of the shock absorber. (p. 53)

11.11 Checking the basic setting of the fork

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



- As with the shock absorber, smaller differences in the rider's weight can be compensated by the spring preload.
- However, if the fork frequently bottoms out (hard end stop on compression), harder springs must be fitted 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.

11.12 Adjusting the compression damping of the fork

Note
The hydraulic compression damping determines the fork suspension behavior.



- Turn white adjuster ❶ clockwise as far as it will go.

Note
The adjuster ❶ **COMP** is located at the upper end of the left fork leg.

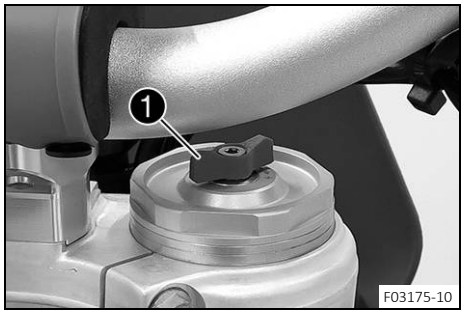
- Turn counterclockwise by the number of clicks corresponding to the fork type.

Compression damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks

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

11.13 Adjusting the rebound damping of the fork

Note
The hydraulic rebound damping determines the fork suspension behavior.



- Turn red adjuster ❶ clockwise as far as it will go.

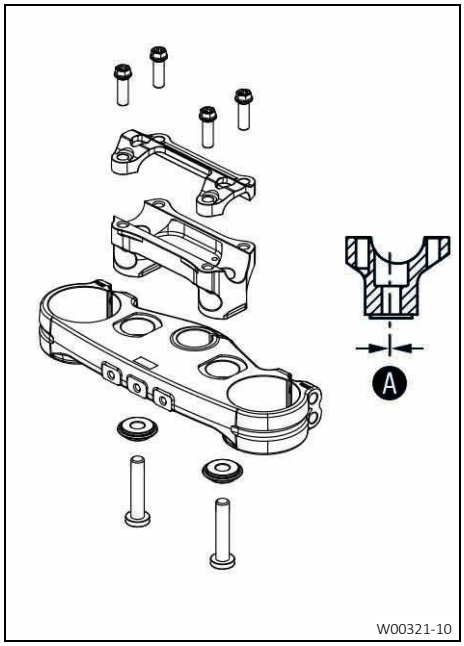
Note
Adjusters ❶ **REB** are located at the upper end of the right fork leg.

- Turn counterclockwise by the number of clicks corresponding to the fork type.

Rebound damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks

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

11.14 Handlebar position



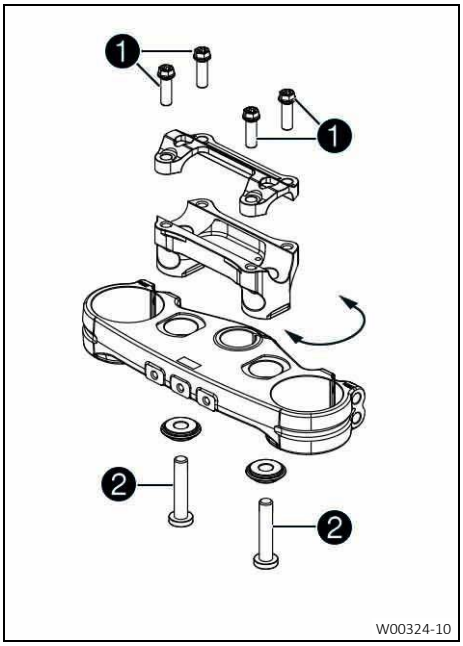
The holes on the handlebar support are placed at a distance of Ⓐ from the center.

Hole distance Ⓐ	3.5 mm (0.138 in)

The handlebar mount can be mounted in two different positions.

11.15 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.



– Remove screws 1. Take off the handlebar clamp. 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 2. Take off the handlebar mount.
– Place the handlebar mount in the required position. Mount and tighten screws 2.

Screw, handlebar mount	
M10	40 Nm (29.5 ft·lb$_f$) **Loctite® 243**

Position the handlebar support so that it is even.

– Position the handlebar.

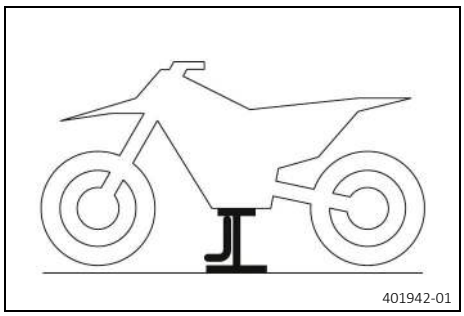
Make sure the cables and wiring are positioned correctly.

– Position the handlebar clamp. Mount screws 1 and tighten evenly.

Handlebar clamp screw	
M8	20 Nm (14.8 ft·lb$_f$)

Make sure the installed gap widths are even.

12.1 Raising the motorcycle with a lift stand


401942-01

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 (78129955100)

✓ Neither wheel is in contact with the ground.

– Secure the motorcycle against falling over.

12.2 Removing the motorcycle from the lift stand

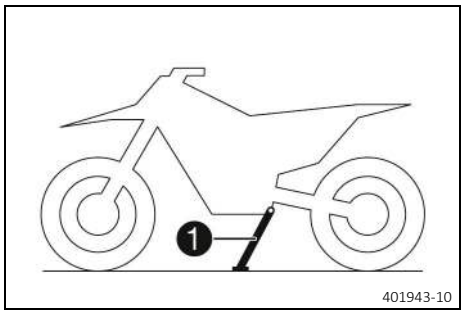
NOTE

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.



401943-10

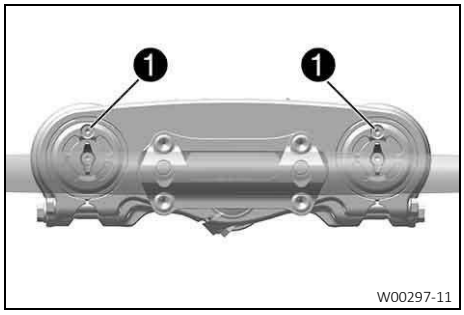
– Remove the motorcycle from the lift stand.
– Remove the lift stand.
– To park the motorcycle, press side stand ❶ to the ground with your foot and lean the motorcycle on it.

When you are riding, the side stand must be folded up and secured with the rubber band.

12.3 Bleeding the fork legs

Preparatory work

– Raise the motorcycle with a lift stand. (p. 61)



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. 61)

12.4 Cleaning the dust boots of the fork legs

Preparatory work

– Raise the motorcycle with a lift stand. (p. 61)
– Remove the fork protector. (p. 63)



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.

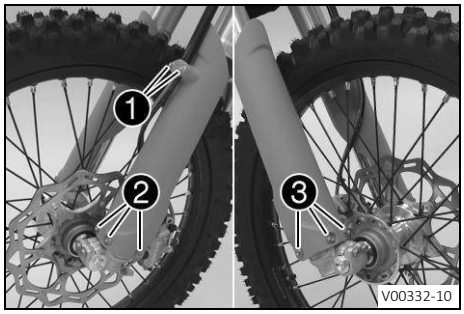
Universal oil spray (p. 174)

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

Reworking

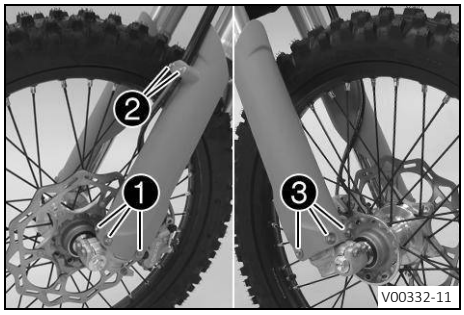
– Install the fork protector. (p. 63)
– Remove the motorcycle from the lift stand. (p. 61)

12.5 Removing the fork protector



– Remove screw ❶ and take off the clamp.
– Remove screws ❷ and take off the left fork protector.
– Remove screws ❸ and take off the right fork protector.

12.6 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, the wiring harness, and the clamp. Mount and tighten screws ❷.

Remaining screws on chassis	
EJOT PT® – K60×25 – Z	2 Nm (1.5 ft·lb$_f$)

– Position the fork protector on the right fork leg. Mount and tighten screws ❸.

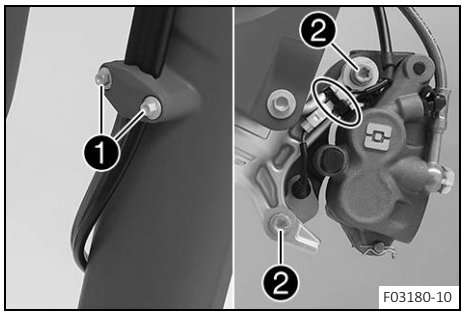
Remaining screws on chassis	
M6	10 Nm (7.4 ft·lb$_f$)

12.7 Removing the fork legs

Preparatory work

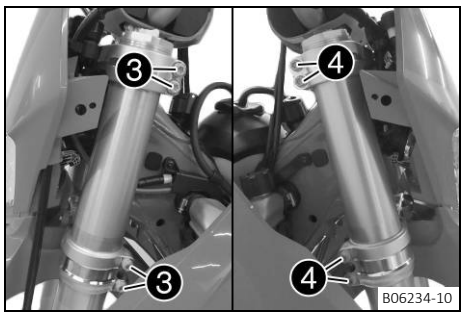
– Raise the motorcycle with a lift stand. (p. 61)
– Remove the front wheel. (p. 107)

Main work



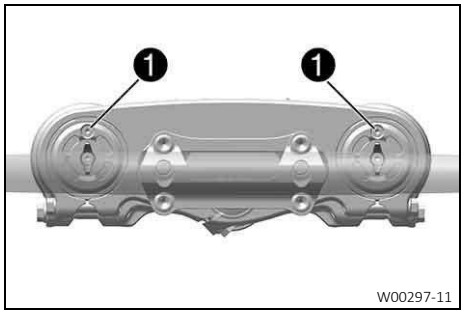
– Remove screw ❶ and take off the clamp.
– Remove the cable tie.
– Remove screws ❷ and take off the brake caliper.
– Allow the brake caliper and the brake line to hang loosely to the side.

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.

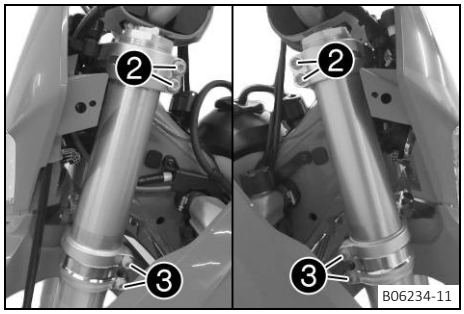
12.8 Installing the fork legs



Main work

– Position the fork legs.
  ✓ Bleeder screws ❶ are positioned toward the front.

Note
The rebound damping is located on the bottom of fork leg **REB** (red adjuster). The compression damping is located at the top of fork leg **COMP** (white adjuster).
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.

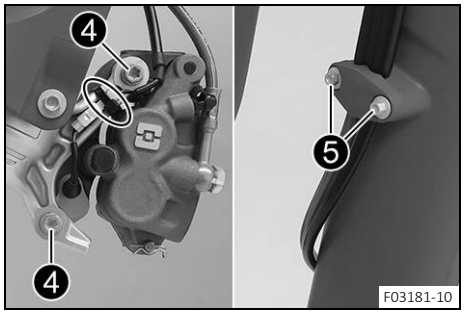


– Tighten screws ❷.

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

– Tighten screws ❸.

Screw, bottom triple clamp	
M8	15 Nm (11.1 ft·lb$_f$)



– Position the brake caliper, and mount and tighten screws ❹.

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

– Mount the cable tie.
– Position the brake line, the wiring harness, and the clamp. Mount and tighten screws ❺.

Remaining screws on chassis	
EJOT PT® – K60×25 – Z	2 Nm (1.5 ft·lb$_f$)

Reworking

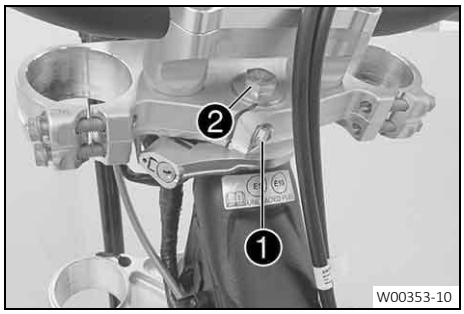
– Install the front wheel. (p. 108)

12.9 Removing the lower triple clamp

Preparatory work

- Remove air filter box cover. (p. 76)
- Remove the seat. (p. 74)
- Remove the fuel tank. (p. 82)
- Raise the motorcycle with a lift stand. (p. 61)
- Remove the front wheel. (p. 107)
- Remove the fork legs. (p. 63)
- Remove the headlight mask with the headlight. (p. 118)
- Remove the front top fender. (p. 70)
- Remove the handlebar pad.

Main work



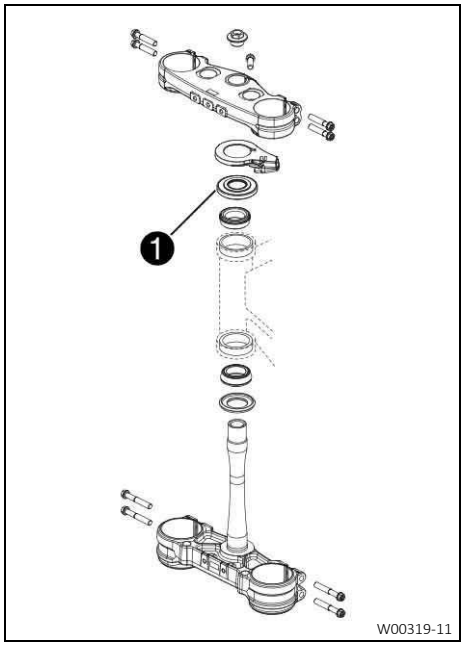
- Loosen screw 1.
- Remove screw 2.
- Take off the upper triple clamp with the handlebar and hang them to the side.

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



- Remove protective ring 3.
- Take off the lower triple clamp with the steering stem.
- Remove the upper steering head bearing.

12.10 Installing the lower triple clamp



Main work

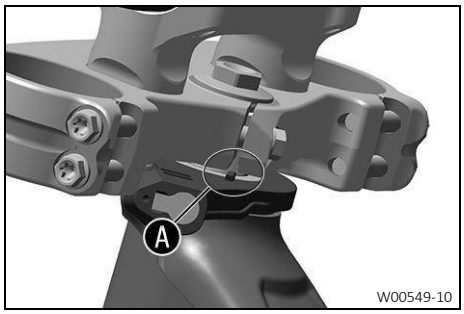
– Clean the bearing and sealing elements, check for damage, and grease.

High viscosity grease (p. 175)

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

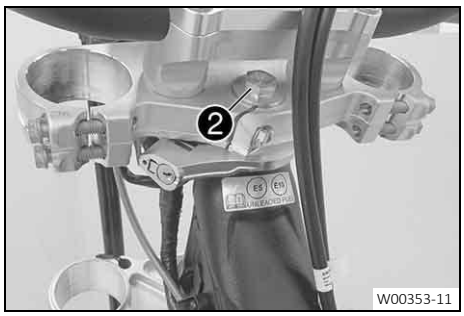
– Push on protective ring 1.

(EU model)



– Make sure the steering lock in area A is positioned correctly.

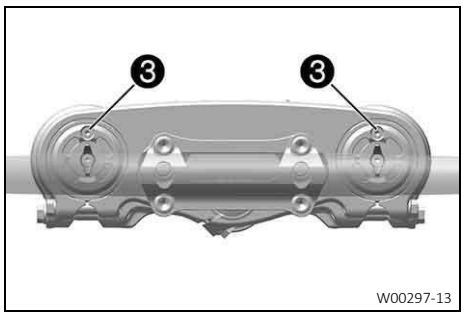
  ✓ The catch on the steering lock engages in the notch on the triple clamp.



– Position the upper triple clamp and handlebar.

– Mount screw 2, but do not tighten yet.

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



– Position the fork legs.

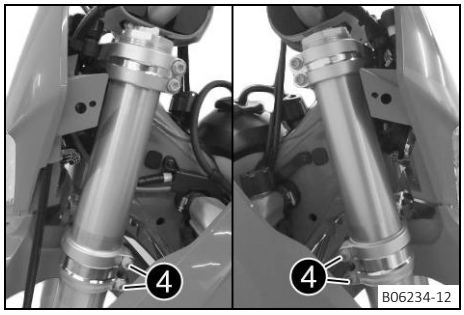
✓ Bleeder screws ❸ are positioned toward the front.

Note

The rebound damping is located in right fork leg **REB** (red adjuster).

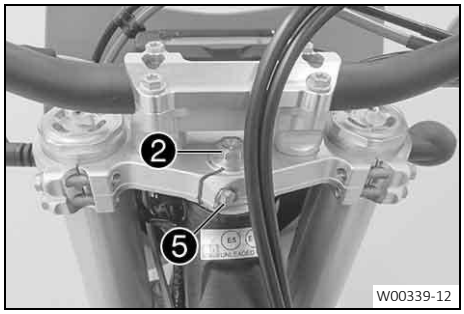
The compression damping is located in left fork leg **COMP** (white adjuster).

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.



– Tighten screws ❹.

Screw, bottom triple clamp	
M8	15 Nm (11.1 ft·lb$_f$)

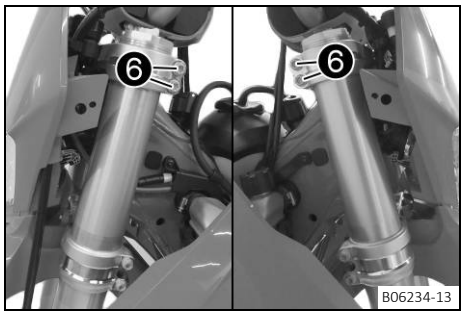


– Tighten screw ❷.

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

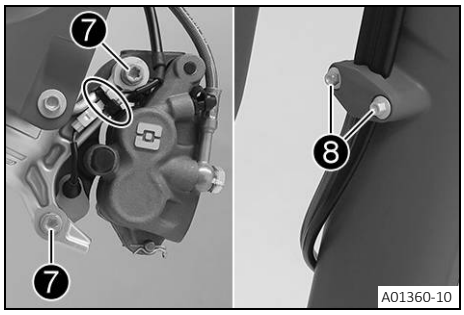
– Tighten screw ❺.

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



– Tighten screws ❻.

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



– Position the brake caliper, and mount and tighten screws ❼.

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

– Mount cable ties.
– Position the brake line, the wiring harness, and the clamp. Mount and tighten screws ❽.

Remaining screws on chassis	
EJOT PT® – K60×25 – Z	2 Nm (1.5 ft·lb$_f$)

Reworking

– Mount the handlebar pad.
– Install the front top fender. (p. 70)
– Install the front wheel. (p. 108)
– Install the headlight mask with the headlight. (p. 118)
– Install the fuel tank. (p. 84)
– Mount the seat. (p. 75)
– Install the air filter box cover. (p. 77)
– Check the wiring harness, cables, and brake and clutch lines for freedom of movement and correct routing.
– Check the steering head bearing play. (p. 68)
– Remove the motorcycle from the lift stand. (p. 61)
– Check the headlight setting. (p. 121)

12.11 Checking the steering head bearing play

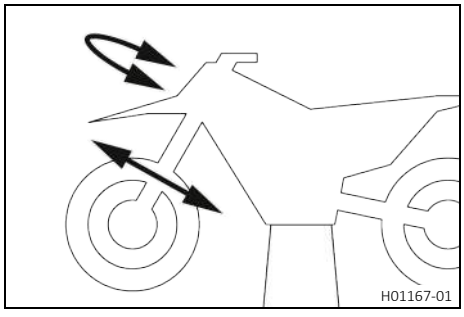
WARNING
Danger of accidents Incorrect steering head bearing play can impair the handling characteristic and damage components.
– Correct incorrect steering head bearing play immediately.

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. 61)

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. 69)
– 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. 69)
– Check the steering head bearing and adjust if necessary.

– Check the steering stop bolts for correct adjustment and locking.

Reworking

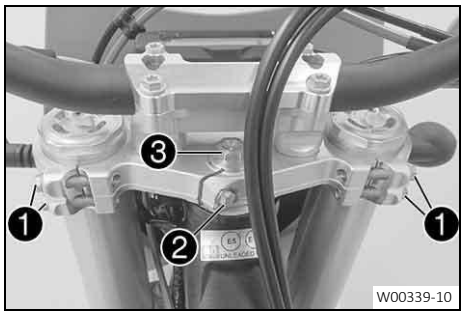
– Remove the motorcycle from the lift stand. (p. 61)

12.12 Adjusting the steering head bearing play

Preparatory work

– Raise the motorcycle with a lift stand. (p. 61)

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$_f$)

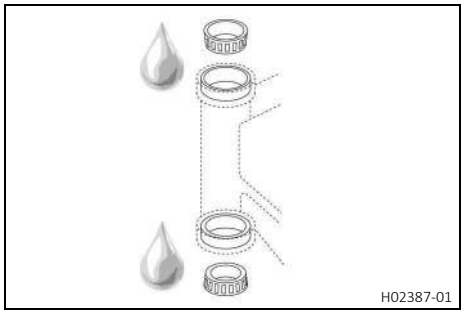
– Mount and tighten screw 2.

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

Reworking

– Check the steering head bearing play. (p. 68)
– Remove the motorcycle from the lift stand. (p. 61)

12.13 Lubricating the steering head bearing



– Remove the lower triple clamp. (p. 65)
– Install the lower triple clamp. (p. 66)

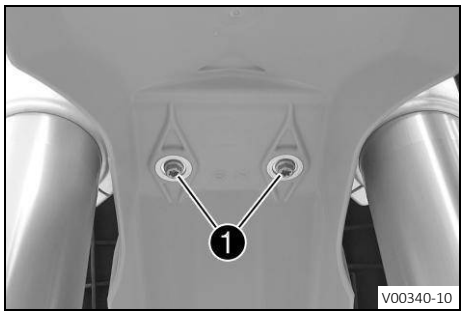
Note
The steering head bearing is cleaned and lubricated in the course of removal and installation of the lower triple clamp.

12.14 Removing the front top fender

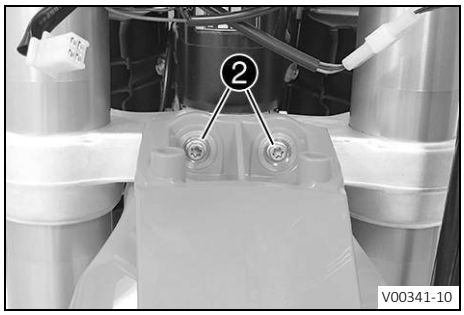
Preparatory work

– Remove the headlight mask with the headlight. (p. 118)

Main work



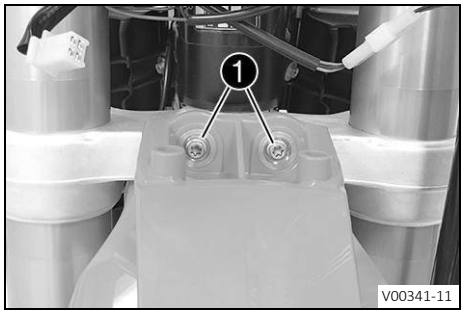
– Remove ❶ screws.



– Remove ❷ screws.
– Remove the front fender.

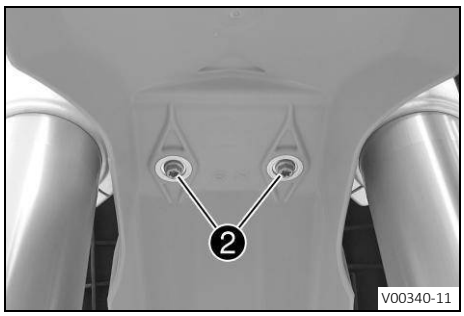
12.15 Installing the front top fender

Main work



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

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



– Mount and tighten screws ❷.

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

Reworking

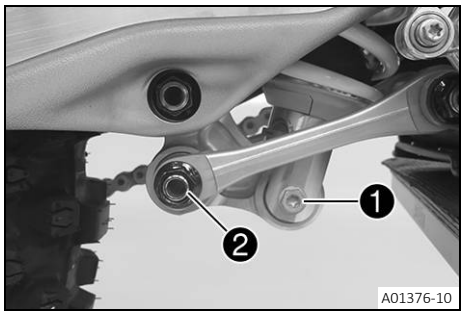
– Install the headlight mask with the headlight. 📖 (p. 118)
– Check the headlight setting. 📖 (p. 121)

12.16 Removing the shock absorber

Preparatory work

– Raise the motorcycle with a lift stand. 📖 (p. 61)
– Remove the frame protector. 📖 (p. 75)

Main work

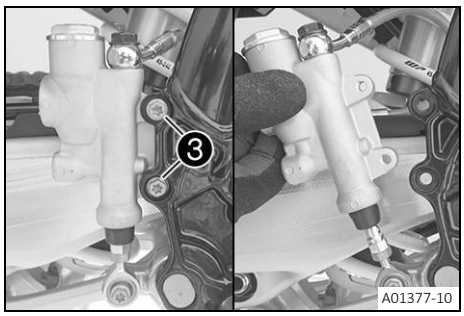


– Remove screw ❶.
– Remove screw connection ❷.

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



– Disconnect the plug-in connector of the brake light switch.



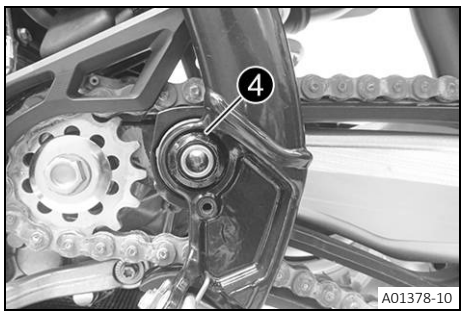
– Remove screws ❸.
– Pull off rear brake cylinder from the push rod.



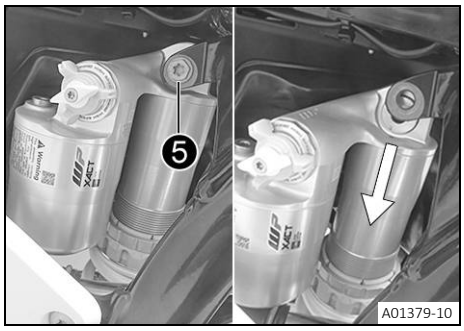
– Remove the connecting link on the chain.

Protect the components against damage by covering them.

– Take off the chain.

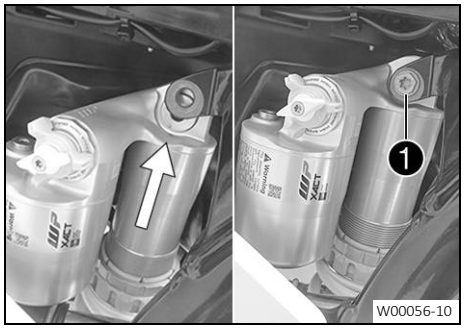


– Remove nut ❹ and pull out the swingarm pivot.
– Push the swingarm back and secure it against falling over.



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

12.17 Installing the shock absorber

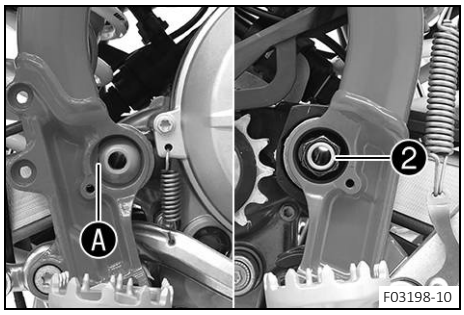


Main work

– Carefully position the shock absorber into the vehicle from the bottom.

– Mount and tighten screw ❶.

Top shock absorber screw	
M10	60 Nm (44.3 ft·lb$_f$) **Loctite® 2701**

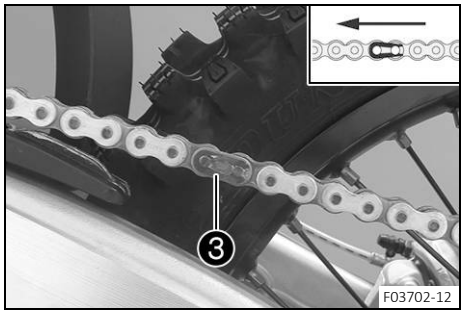


– Position the swingarm and fit the swingarm pivot.

Pay attention to flat area Ⓐ.

– Mount and tighten nut ❷.

Nut, swingarm pivot	
M16×1.5	100 Nm (73.8 ft·lb$_f$)



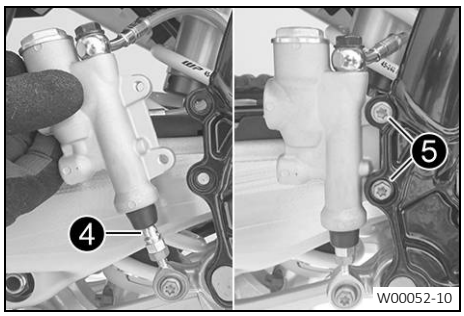
– Mount the chain.

– Connect the chain with connecting link ❸.

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

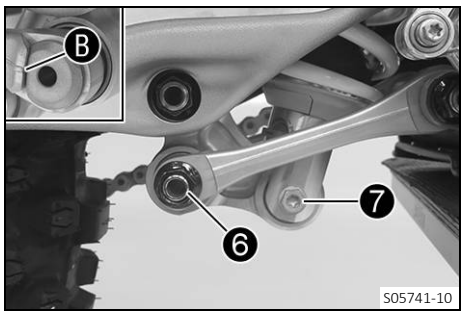


– Join plug-in connector of the brake light switch.



– Position the rear brake cylinder.
  ✓ Push rod ❹ engages in the rear brake cylinder.
  ✓ The dust boot is correctly positioned.
– Mount and tighten screws ❺.

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



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

Bottom shock absorber screw	
M10	60 Nm (44.3 ft·lb$_f$) **Loctite® 2701**

Pay attention to flat area Ⓑ.

– Mount and tighten screw ❼.

Bottom shock absorber screw	
M10	60 Nm (44.3 ft·lb$_f$) **Loctite® 2701**

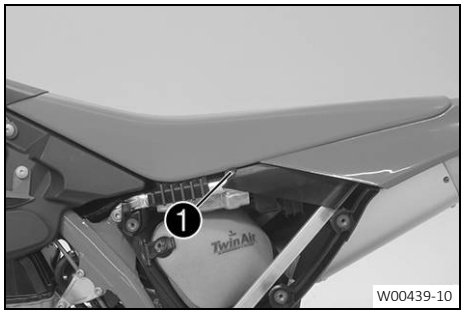
Tip
Raise the swingarm slightly to be able to mount the screw more easily.

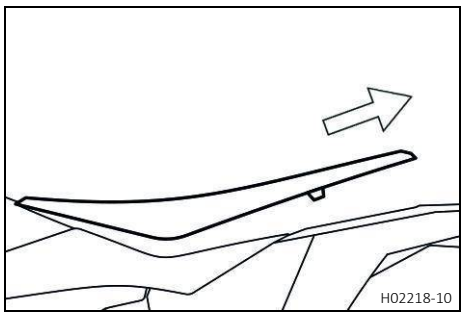
Reworking
– Check the free travel of the brake pedal. (p. 101)
– Install the frame protector. (p. 76)
– Remove the motorcycle from the lift stand. (p. 61)

12.18 Removing the seat

Preparatory work
– Remove air filter box cover. (p. 76)

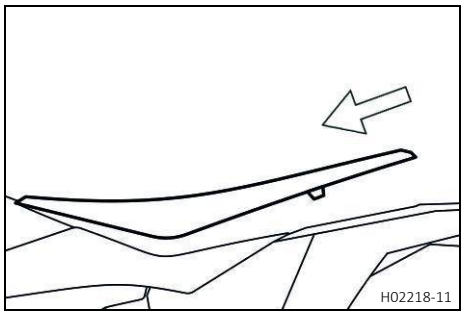
Main work
– Remove screw ❶ with the wedge lock washers.





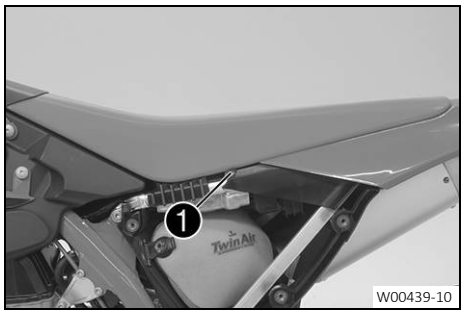
– Raise seat, pull it toward the fuel tank and take it off.

12.19 Mounting the seat



Main work

– Hook the seat at the front onto the two collar bushings of the fuel tank, lower it at the rear and push it backward.
– Make sure the seat is latched in place correctly.



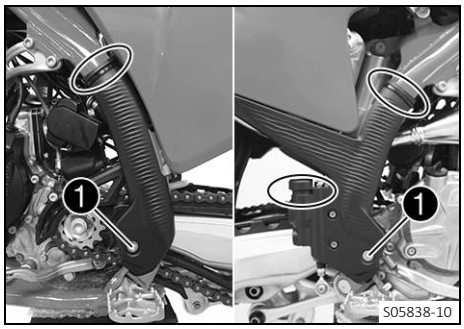
– Mount and tighten screw ❶ with the wedge lock washers.

Screw, seat installation	
M6	8 Nm (5.9 ft·lb$_f$)

Reworking

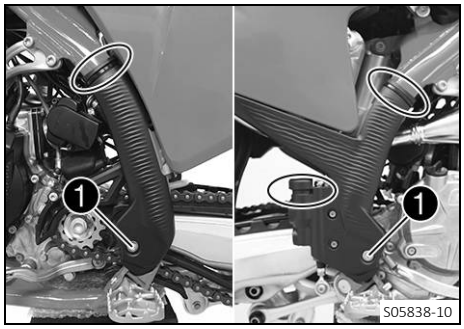
– Install the air filter box cover. (p. 77)

12.20 Removing the frame protector



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

12.21 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 (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.

12.22 Removing air filter box cover

Condition: Air filter box cover secured

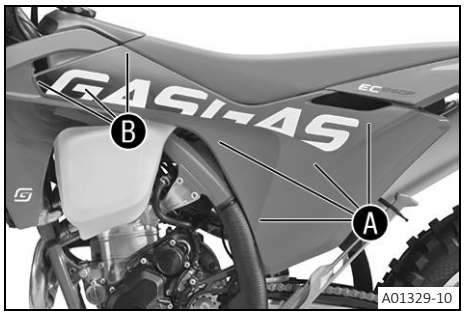


– Remove screw 1.



– Detach air filter box cover in areas A and slide it in areas B to the rear.
– Take off the air filter box cover.

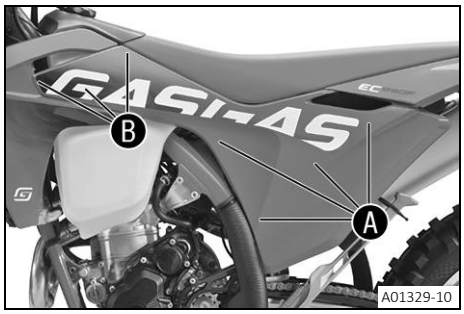
Condition: Air filter box cover not secured



– Detach air filter box cover in areas A and slide it in areas B to the rear.
– Take off the air filter box cover.

12.23 Installing air filter box cover

Condition: Air filter box cover secured



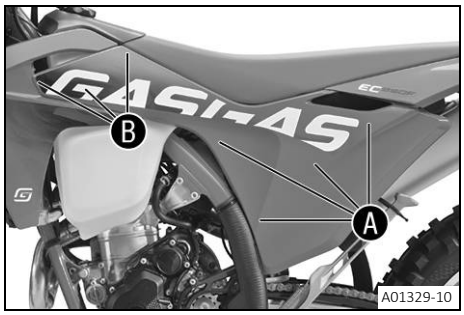
– Attach the air filter box cover in areas Ⓑ and clip in areas Ⓐ.



– Mount and tighten screw ❶.

Screw, air filter box cover	
EJOT PT® – K60×20 – Z	3 Nm (2.2 ft·lb$_f$)

Condition: Air filter box cover not secured



– Attach the air filter box cover in areas Ⓑ and clip in areas Ⓐ.

12.24 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

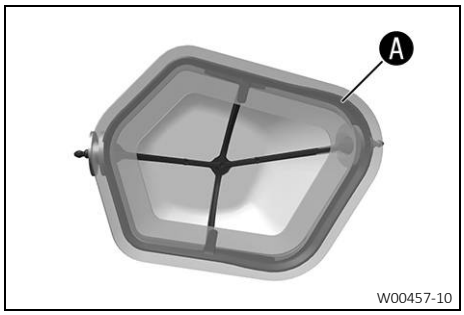
– Remove air filter box cover. (p. 76)



Main work

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

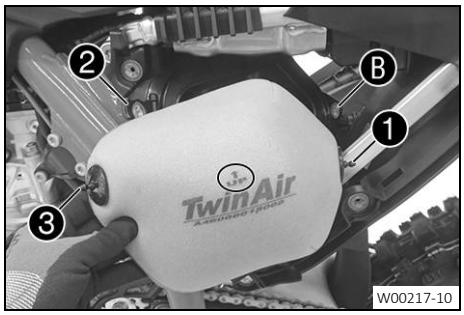
12.25 Installing the air filter



Main work

– Mount the clean air filter on the air filter support.
– Grease the air filter in area Ⓐ.

Long-life grease (p. 174)



– Insert air filter and position retaining pin ❶ in bushing Ⓑ.
  ✓ The air filter is correctly positioned.
– Attach tab ❸.
  ✓ Retaining pin ❷ is secured with retaining tab ❸.

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

Reworking

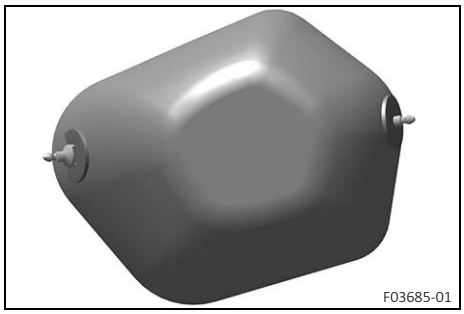
– Install the air filter box cover. (p. 77)

12.26 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. 76)
– Remove the air filter. (p. 77)



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. 179)

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

Oil for foam air filter (p. 175)

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

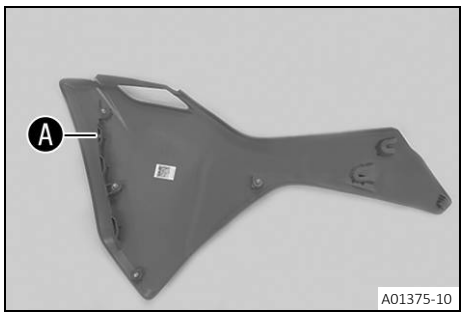
Reworking

– Install the air filter. (p. 78)
– Install the air filter box cover. (p. 77)

12.27 Preparing the air filter box cover for securing

Preparatory work

– Remove air filter box cover. (p. 76)



Main work

– Drill a hole at marking A.

Diameter	6 mm (0.24 in)

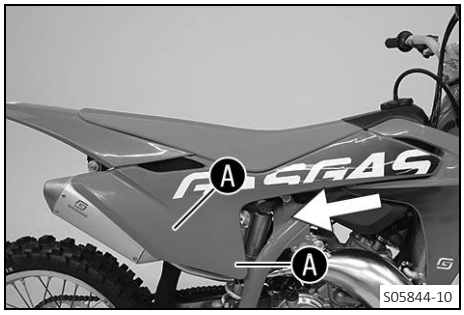
Reworking

– Install the air filter box cover. (p. 77)

12.28 Removing the right side panel

Preparatory work

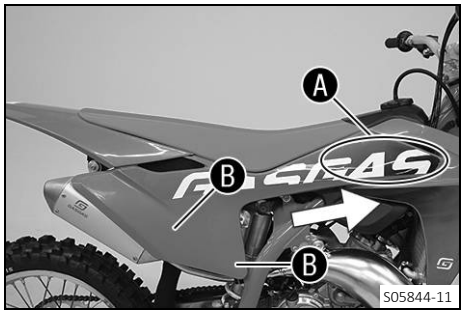
– Remove the frame protector. (p. 75)



Main work

– Detach right side panel ❶ in areas Ⓐ and slide to the rear in area Ⓑ.
– Take the right side panel off.

12.29 Installing the right side panel



Main work

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

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

Reworking

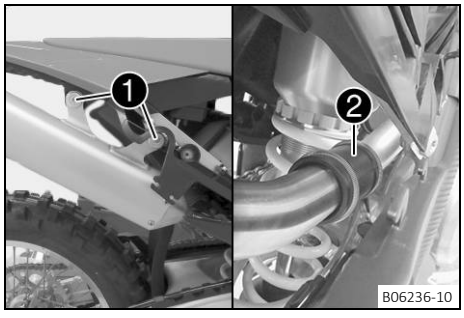
– Install the frame protector. (p. 76)

12.30 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. 75)
– Remove the right side panel. (p. 79)



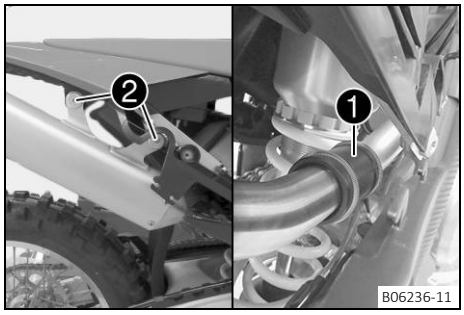
Main work

– Remove screws ❶.

Spring hook (50305017000C1)

– Pull off the main silencer with exhaust sleeve ❷ and the spring ring from the manifold.

12.31 Installing muffler



Main work

– Mount the silencer with exhaust sleeve ❶ and the spring rings.
– Mount and tighten screws ❷.

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

Reworking

– Install the right side panel. (p. 80)
– Install the frame protector. (p. 76)

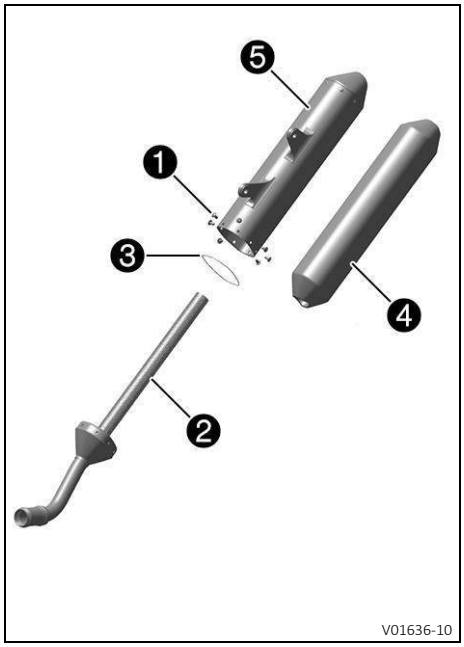
12.32 Changing the damping material on the main silencer

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 damping material fibers disappear, and the main silencer “burns out”.
Not only does this make the noise level higher, but the performance characteristics also change.

Preparatory work

– Remove the frame protector. (p. 75)
– Remove the right side panel. (p. 79)
– Remove the muffler. (p. 80)



Main work

- Remove screws ❶. Pull out inner tube ❷ with O-ring ❸.
- Pull damping material ❹ off the inner tube.
- Clean the parts that need to be reinstalled and check for damage.
- Mount new damping material ❹ on the inner tube.
- Slide outer tube ❺ over the inner tube with the new damping material and the O-ring.
- Mount and tighten all screws ❶.

Screws on muffler	
M5	7 Nm (5.2 ft·lb$_f$)

Reworking

- Install the muffler. (p. 81)
- Install the right side panel. (p. 80)
- Install the frame protector. (p. 76)

12.33 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.

NOTE

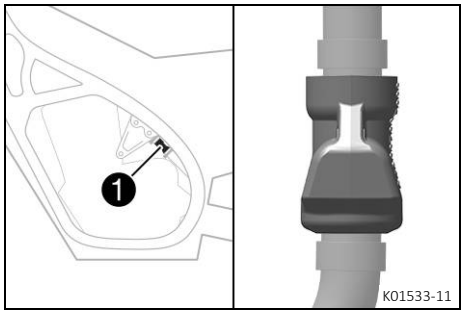
Environmental hazard Improper handling of fuel is dangerous to the environment.

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

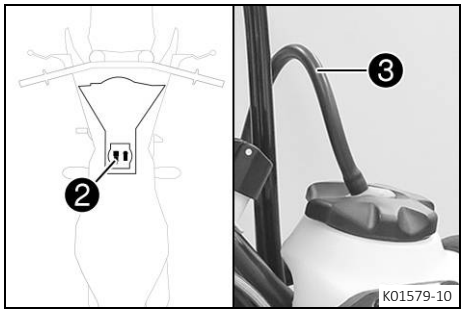
Preparatory work

– Remove air filter box cover. (p. 76)
– Remove the seat. (p. 74)

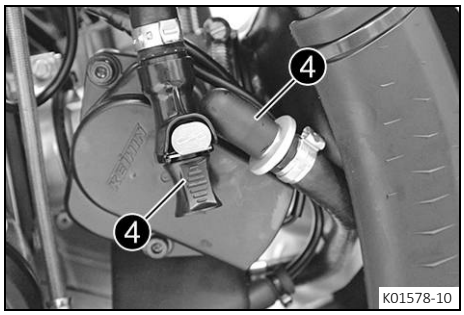
Main work



– Remove protection cap ❶ of the fuel line.



– Unplug socket connector ❷ of the fuel pump.
– Remove hose ❸ from the fuel tank breather.



– Clean the quick release coupling thoroughly with compressed air.

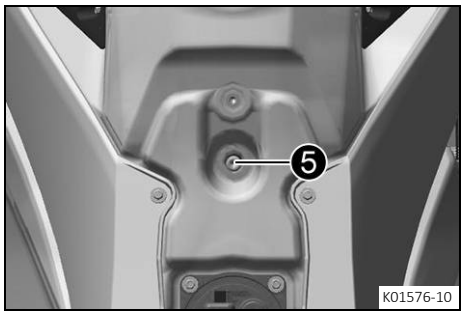
Dirt must not enter into the fuel line. Dirt in the fuel line clogs the injector!

– Disconnect the quick-lock coupling.

Note
Remaining fuel may flow out of the fuel hose.

– Mount wash cap set ❹.

Wash cap set (81212016100)



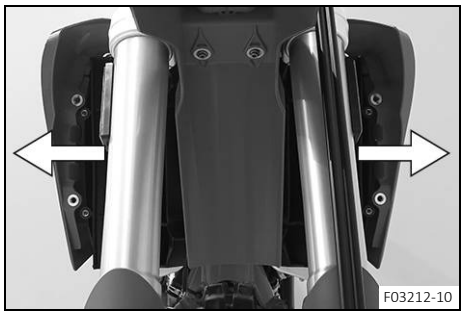
– Remove screw ❺ with the rubber bushing.



– Remove screws 6.

(EU model)

– Hang the horn and horn bracket to one side.



– Pull both spoilers off laterally from the radiator bracket and lift off the fuel tank.

12.34 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.

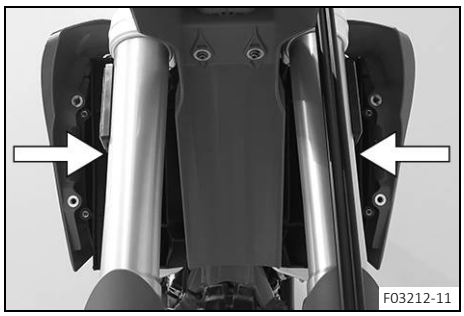
NOTE

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.

Main work

– Check the throttle cable routing. (p. 91)



– Position the fuel tank and fit the two spoilers to the sides in front of the radiator bracket.
– Make sure that no wires or cables are trapped or damaged.

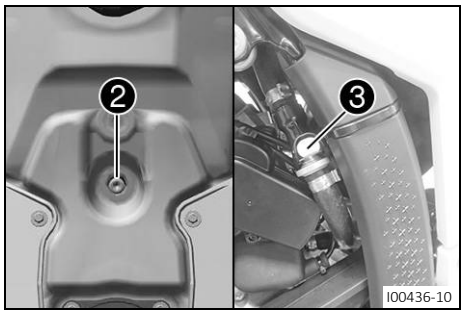
(EU model)

– Position the horn with the horn bracket.



– Mount and tighten screws ❶.

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



– Mount and tighten screw ❷ with the rubber bushing.

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

– Remove the wash cap set.
– Clean the quick release coupling thoroughly with compressed air.

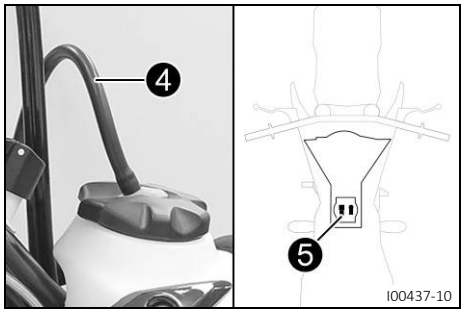
Dirt must not enter into the fuel line. Dirt in the fuel line clogs the injector!

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

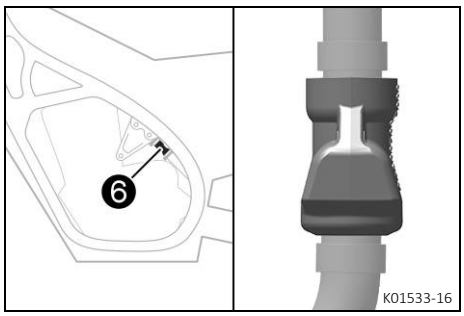
Silicone spray (p. 175)

– Join quick release coupling ❸.

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



– Attach fuel tank breather hose ❹.
– Plug in fuel pump socket connector ❺.

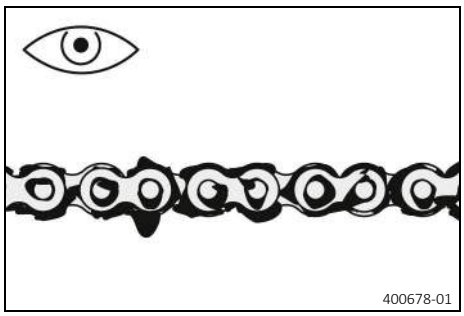


– Mount protection cap 6 of the fuel line.

Reworking

– Mount the seat. (p. 75)
– Install the air filter box cover. (p. 77)

12.35 Checking the chain for contaminant



– Check the chain for coarse dirt accumulation.
  » If the chain is very dirty:
    – Clean the chain. (p. 86)

12.36 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.

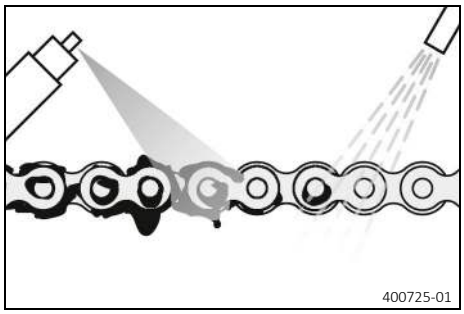
WARNING
Danger of accidents Lubricants on the tires reduces the road grip.
– Remove lubricants from the tires using a suitable cleaning agent.

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. 61)



Main work

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

Chain cleaner (p. 179)

– After drying, apply chain spray.

Off-road chain spray (p. 174)

Reworking

– Remove the motorcycle from the lift stand. (p. 61)

12.37 Checking the chain tension

WARNING

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

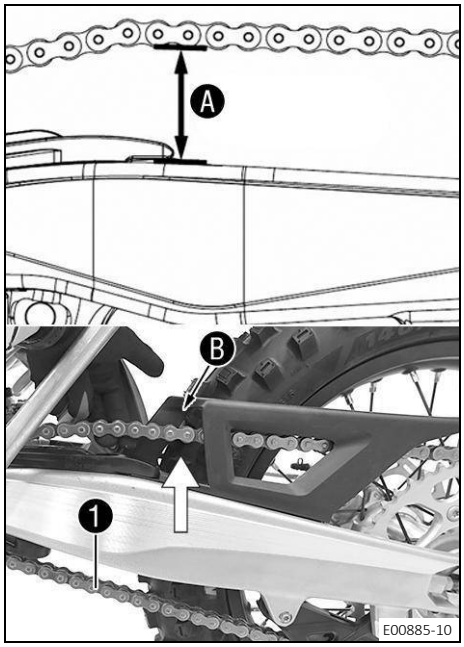
If the chain is tension is too high, the chain, front sprocket, rear sprocket, transmission, and rear wheel bearings wear more quickly. Some components may break if overloaded.

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. 61)



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.	
When the chain guard is mounted, it must be possible to pull up the chain at least to the point where it makes contact with chain guard B.	
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. 88)

Reworking

– Remove the motorcycle from the lift stand. (p. 61)

12.38 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.

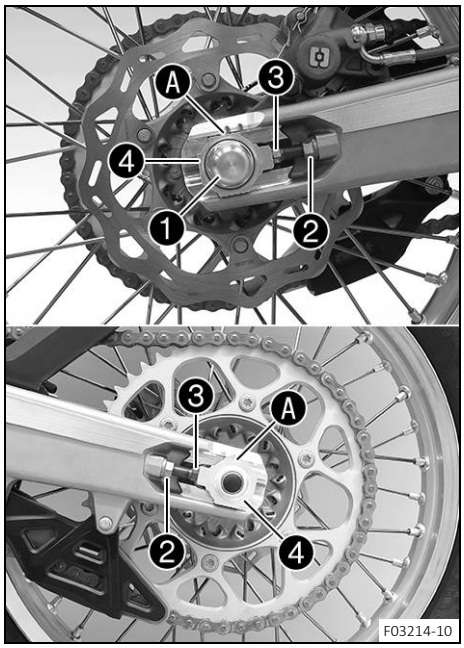
If the chain is too loose, the chain may fall off the front sprocket or the rear sprocket. This can damage the rear wheel or the engine.

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

Preparatory work

– Raise the motorcycle with a lift stand. (p. 61)
– Check the chain tension. (p. 87)

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 (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 hand-tight.
– 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 (59.0 ft·lb$_f$)

Note

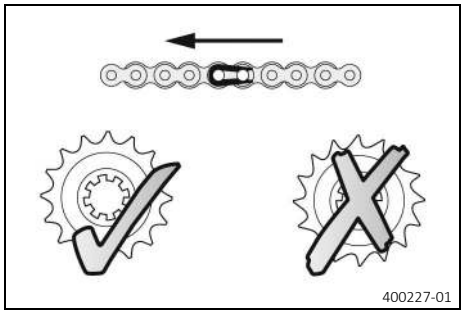
The wide adjustment range of the chain adjusters enables different secondary ratios with the same chain length.

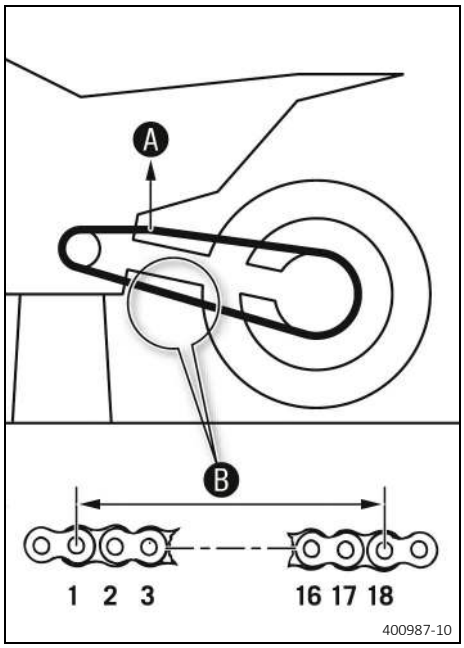
Chain tension adjusters ❹ can be turned by 180°.

Reworking

– Remove the motorcycle from the lift stand. (p. 61)

12.39 Checking the chain, rear sprocket, front sprocket, and chain guide





Preparatory work

– Raise the motorcycle with a lift stand. (p. 61)

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.

Always replace the front sprocket, rear sprocket, and chain together.

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

Weight, chain wear measurement	10 kg … 15 kg (22.0 lb … 33.1 lb)

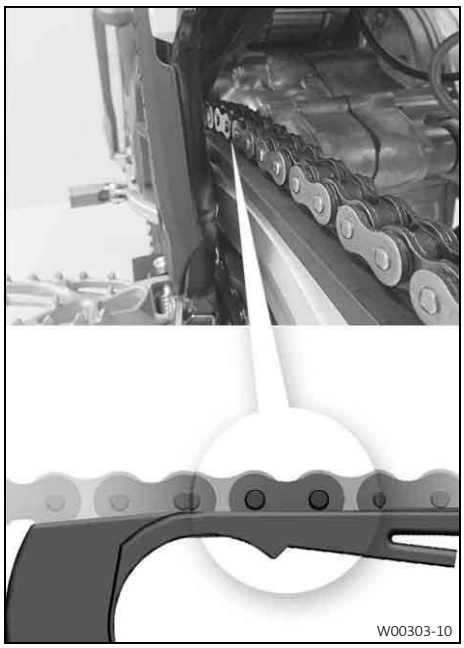
– Measure distance Ⓑ of chain rollers in the lower chain section.

Maximum distance Ⓑ of chain rollers at the longest chain section	272 mm (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.

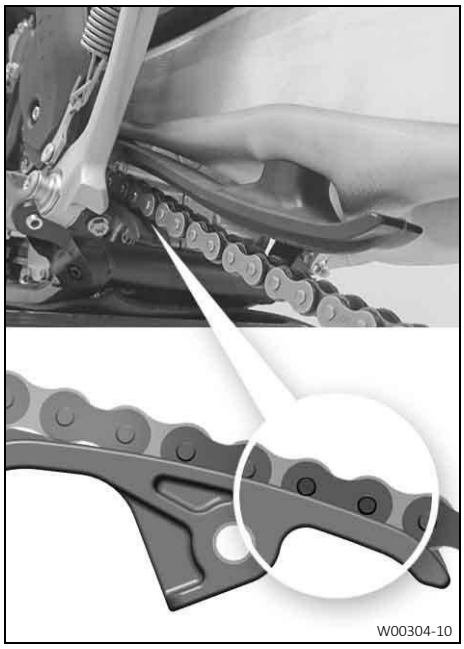
When installing a new chain, also replace the rear sprocket and front sprocket.

Note
New chains wear out faster on old, worn sprockets.



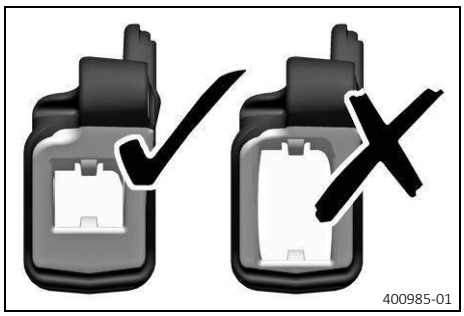
– Check the chain slider at the top for wear.
  » If the lower edge of the chain pins is in line with, or below, the chain slider:
    – Change the chain slider.
– Check that the chain slider is firmly seated.
  » If the chain slider is loose:
    – Tighten the screws of the chain slider.

Screw, chain slider guard	
M6	6 Nm (4.4 ft·lb$_f$) **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.

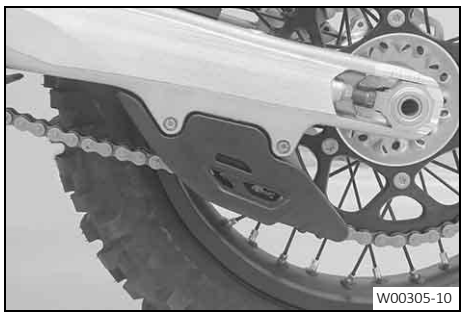
Screw, chain slider	
M8	15 Nm (11.1 ft·lb$_f$)



– Check the chain guide for wear.

Note
Wear can be seen on the front of the chain guide.

  » If the light part of the chain guide is worn:
    – Change the chain guide.



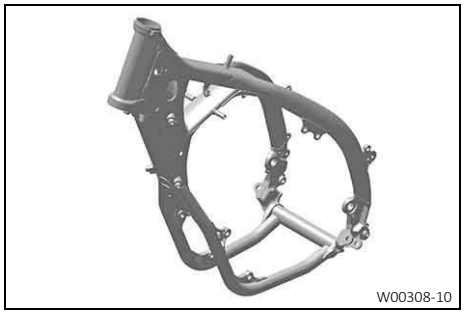
– Check that the chain guide is firmly seated.
  » If the chain guide is loose:
    – Tighten the screws on the chain guide.

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

Reworking

– Remove the motorcycle from the lift stand. (p. 61)

12.40 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.

12.41 Checking the swingarm



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

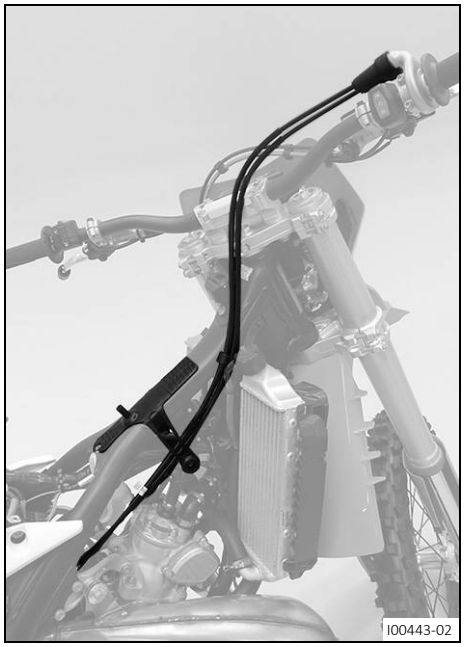
Repairs on the swingarm are not permitted.

12.42 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 air filter box cover. (p. 76)
– Remove the seat. (p. 74)
– Remove the fuel tank. (p. 82)



Main work

– Check the throttle cable routing.

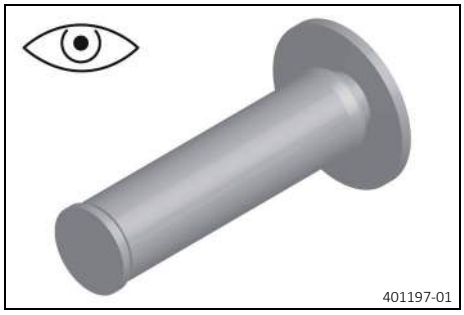
Both throttle cables must be routed, side by side, on the back of the handlebars, above the fuel tank roller on the right of the frame to the throttle valve body. Both throttle cables must be secured behind the rubber strap of the fuel tank support.

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

Reworking

– Install the fuel tank. (p. 84)
– Mount the seat. (p. 75)
– Install the air filter box cover. (p. 77)

12.43 Checking the hand grip



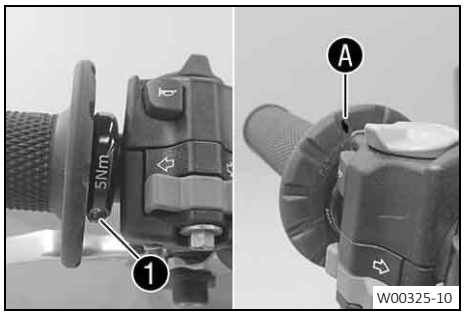
– Check the hand grips on the handlebar for damage, wear, and that they are firmly seated.

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.

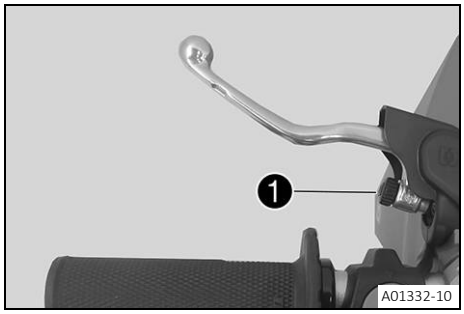


– Check that screw 1 is firmly seated.

Screw, fixed grip	
M4	5 Nm (3.7 ft·lb$_f$) **Loctite® 243**

Diamond A must be positioned visibly as shown in the figure.

12.44 Adjusting the basic position of the clutch lever



– Adjust the basic position of the clutch 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

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

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

The range of adjustment is limited.

12.45 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

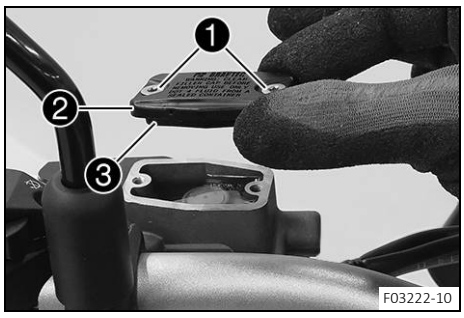
Environmental hazard Hazardous substances cause environmental damage.

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

Note

The 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 ❶ screws.
– Take off cover ❷ with diaphragm ❸.
– Check the fluid level.

Fluid level below reservoir rim	4 mm (0.16 in)

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

Brake fluid DOT 5.1 (p. 175)

– Position the cover with diaphragm.

– Mount and tighten the screws.

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

12.46 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.

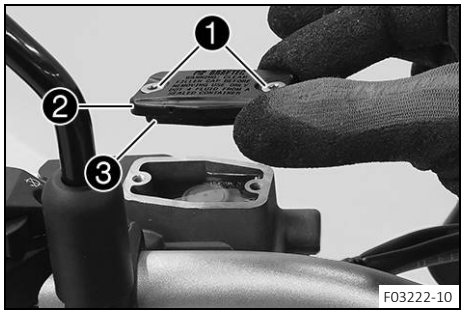
NOTE

Environmental hazard Hazardous substances cause environmental damage.

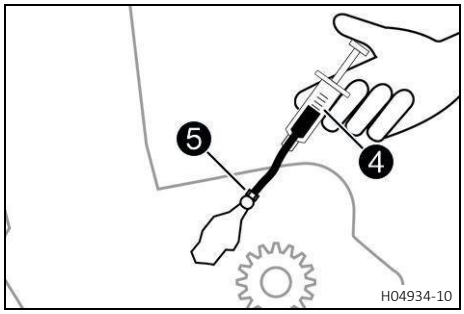
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

Note

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



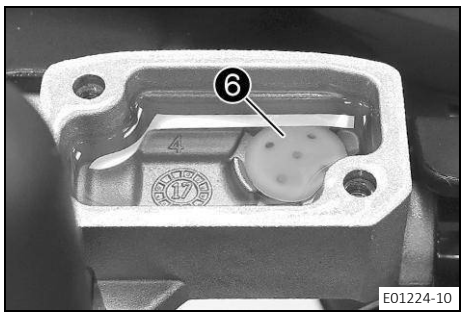
– Move the hydraulic clutch fluid reservoir mounted on the handlebar into a horizontal position.
– Remove ❶ screws.
– Take off cover ❷ with diaphragm ❸.



– Fill bleeding syringe ❹ with the appropriate hydraulic fluid.

Syringe (50329050000)
Brake fluid DOT 5.1 (p. 175)

– On the clutch slave cylinder, remove bleeder protection cap, release the bleeder screw ❺ and mount bleeding syringe ❹.



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

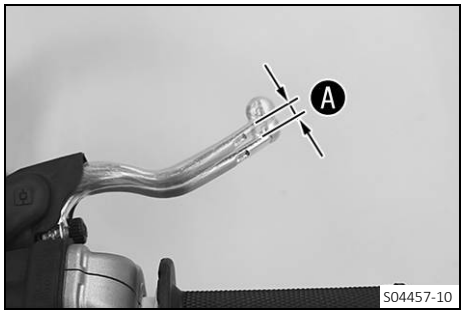
Fluid level below reservoir rim	4 mm (0.16 in)

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

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

13.1 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.

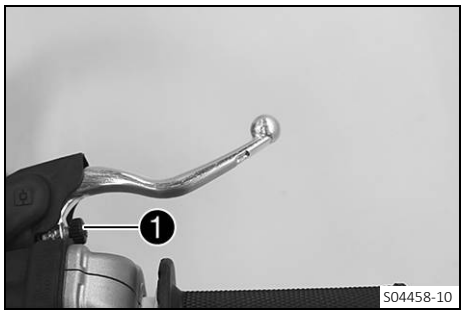


– Push the hand brake lever to the handlebar and check free travel Ⓐ.

Free travel of hand brake lever	≥ 3 mm (≥ 0.12 in)

» If the free travel does not meet the specifications:
– Adjust the basic position of the hand brake lever. (p. 96)

13.2 Adjusting the basic position of the hand brake lever



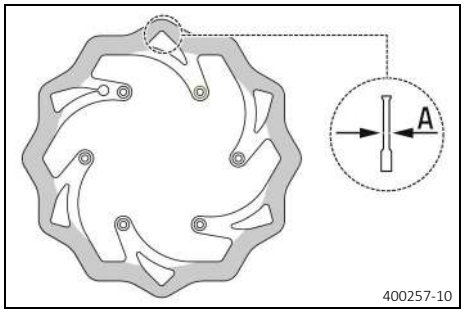
– Check the free travel on the hand brake lever. (p. 96)
– Adjust the basic position of the hand brake lever to your hand size by turning adjusting screw ❶.

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.

13.3 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 Ⓐ.

Brake discs 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.

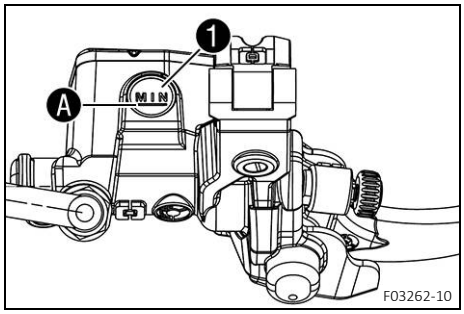
» If the brake disc thickness is less than the specified value:
– Change the brake discs of the front brake.
– Change the brake discs on the rear brake.

– 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.

13.4 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.



– 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 dropped below marking A in the level viewer:
– Add brake fluid for the front brake. (p. 97)

13.5 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.

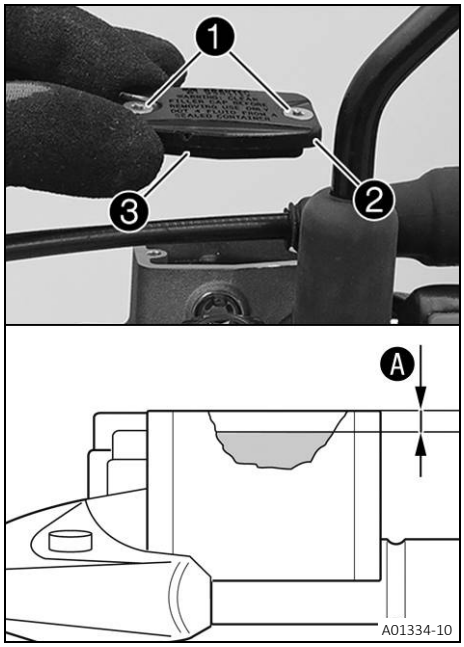
NOTE

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. 99)

Main work

- Move the brake reservoir mounted on the handlebar to a horizontal position.
- Remove ❶ screws.
- Take off cover ❷ with diaphragm ❸.
- Add brake fluid up to level Ⓐ.

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

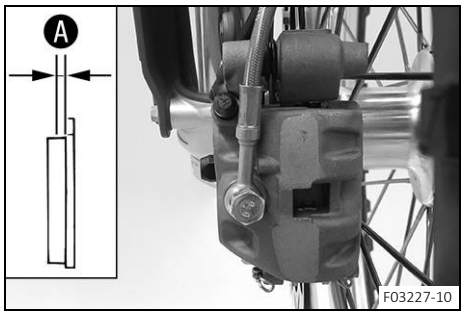
Brake fluid DOT 5.1 (p. 175)

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

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

13.6 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. 99)
– Check the brake pads for damage and cracking.
» If there is damage or cracking:
– Change the front brake pads. (p. 99)
– Check that the brake pads are secured.
» If the brake pads are not secured correctly:
– Secure brake pads, replace with new parts if necessary.

13.7 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.

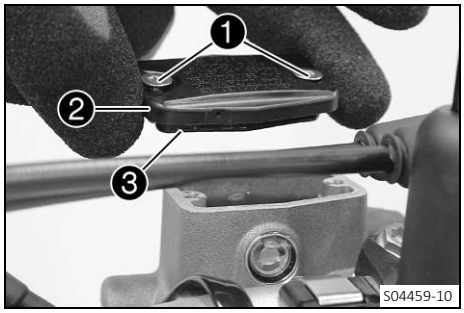
NOTE

Environmental hazard Hazardous substances cause environmental damage.

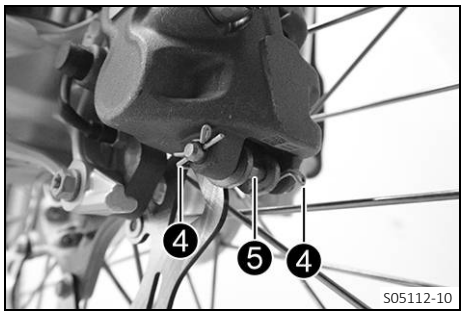
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

Note

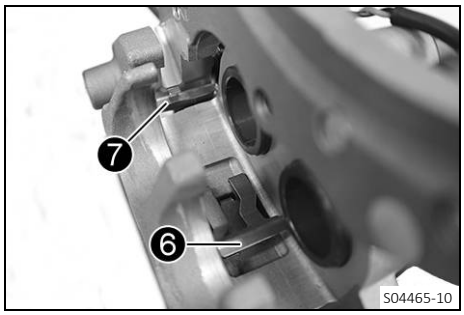
Avoid contact between brake fluid and painted parts. Brake fluid corrodes paint.



– Move the brake reservoir mounted on the handlebar to a horizontal position.
– Remove screws ❶.
– Take off cover ❷ with membrane ❸.
– Manually press the brake caliper toward the brake disc to push back the brake pistons. Ensure that brake fluid does not flow out of the brake fluid reservoir, extract some if necessary.



– Remove cotter pins ❹, pull out pin ❺, and remove the brake linings.
– Clean brake caliper and brake caliper support.



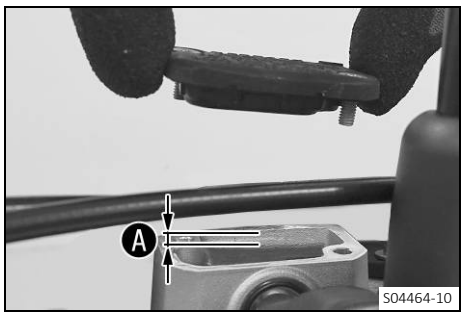
– Check that spring steel clip ❻ in the brake caliper and brake pad guide plate ❼ in the brake caliper support are properly seated.



– Insert new brake pads, insert the bolt, and mount the cotter pins.

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.



– Correct the brake fluid level to level Ⓐ.

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

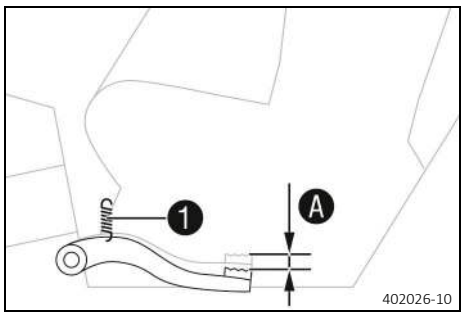
Brake fluid DOT 5.1 (p. 175)

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

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

13.8 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 Ⓐ.

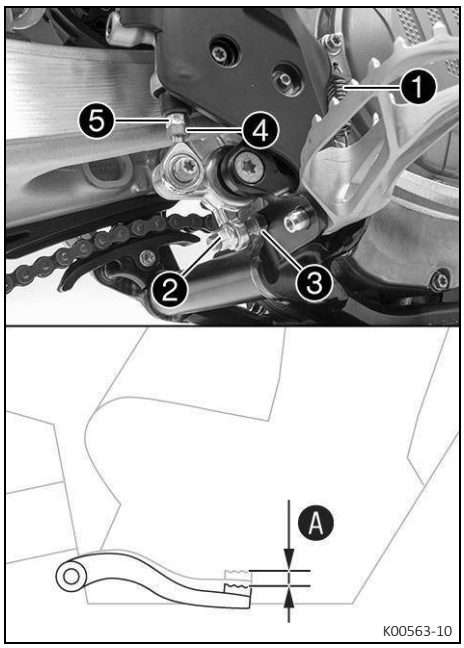
Free travel of brake pedal	3 mm … 5 mm (0.12 in … 0.20 in)

» If the free travel does not meet the specifications:
– Adjust the basic position of the brake pedal. (p. 101)

– Attach spring ❶.

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

Note
The range of adjustment is limited.

– Turn push rod ❺ 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 (0.12 in … 0.20 in)

– Hold screw ❸ and tighten nut ❷.

Brake pedal stop nut	
M8	20 Nm (14.8 ft·lb$_f$)

– Hold push rod ❺ and tighten nut ❹.

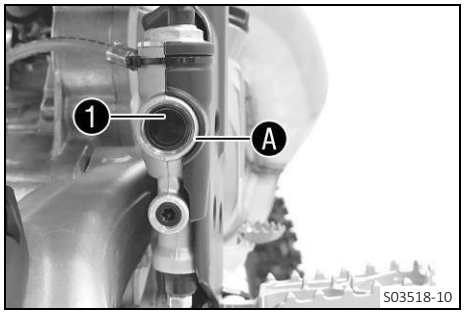
Remaining nuts on chassis	
M6	10 Nm (7.4 ft·lb$_f$)

– Attach spring ❶.

13.10 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.



– Stand the vehicle upright.
– Check the brake fluid level in sight glass ❶.
» If the fluid has dropped below marking Ⓐ in the level viewer:
– Add brake fluid for the rear brake. (p. 103)

13.11 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.

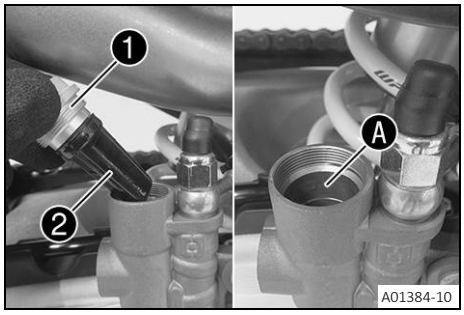
WARNING
Danger of accidents An insufficient brake fluid level will cause the brake system to fail.
If the brake fluid level drops below the specified marking or the specified value, the brake system has a leak or the brake pads are worn down.
– Have the brake system checked and make sure that the problem 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
– Check that the brake pads of the rear brake are secured. (p. 104)
– Remove the frame protector. (p. 75)

Main work


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

Brake fluid DOT 5.1 (p. 175)

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

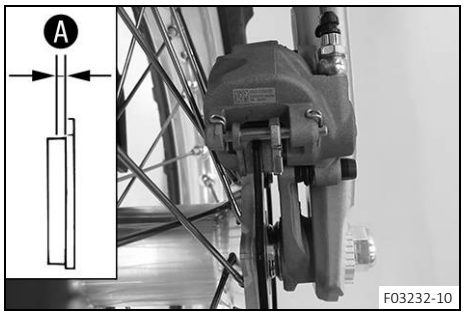
Immediately clean up any brake fluid that has overflowed or spilled using water.

Reworking

– Install the frame protector. (p. 76)

13.12 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. 104)

– Check the brake pads for damage and cracking.
» If there is damage or cracking:
– Change the rear brake pads. (p. 104)

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

13.13 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.

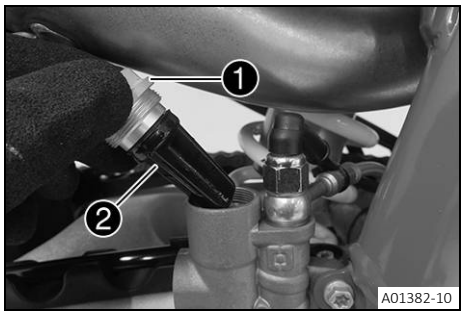
Note

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

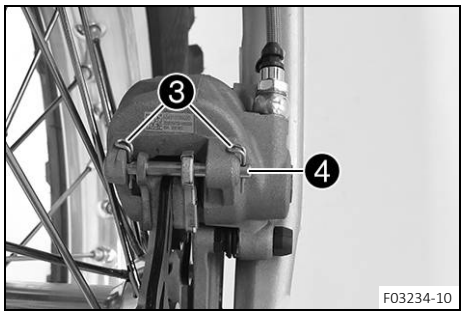
Preparatory work

– Remove the frame protector. (p. 75)

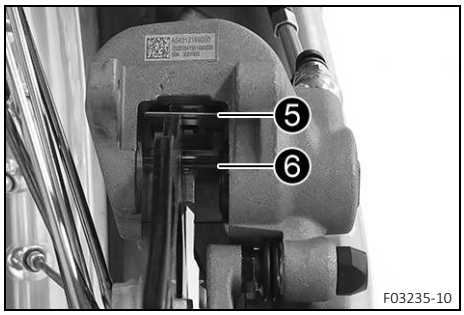
Main work



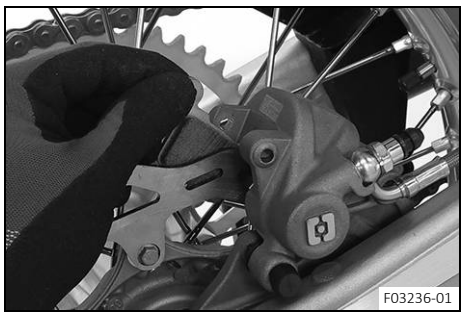
– Stand the vehicle upright.
– Cover the painted parts.
– Remove screw cap ❶ with diaphragm ❷ and the O-ring.
– Press the brake piston back to its basic position and make sure that no brake fluid overflows from the brake reservoir, extract some brake fluid if necessary.



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



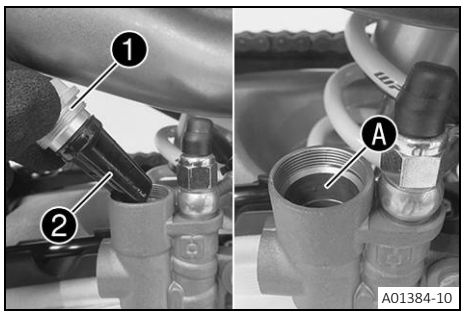
– Check that spring steel clip ❺ in the brake caliper and brake pad guide plate ❻ in the brake caliper support are properly seated.



– Insert new brake pads, insert the bolt, and mount the cotter pins.

Always replace brake pads in sets.

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



– Correct brake fluid level to marking Ⓐ.

Brake fluid DOT 5.1 (p. 175)

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

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

Reworking

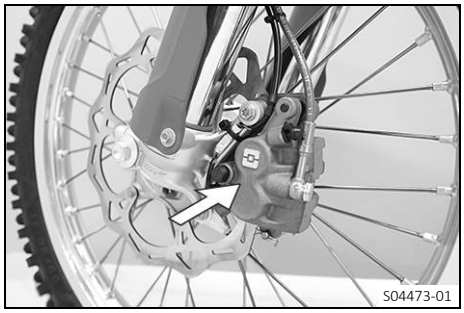
– Install the frame protector. (p. 76)

14.1 Removing the front wheel

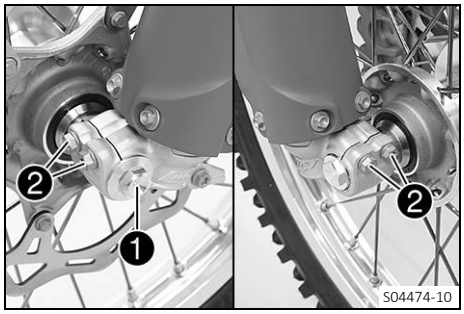
Preparatory work

– Raise the motorcycle with a lift stand. (p. 61)

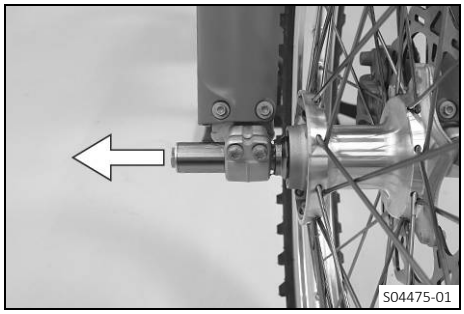
Main work



– 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.



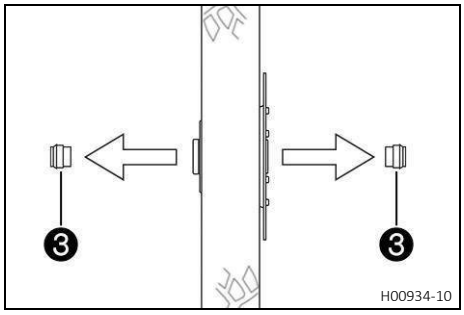
WARNING

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.



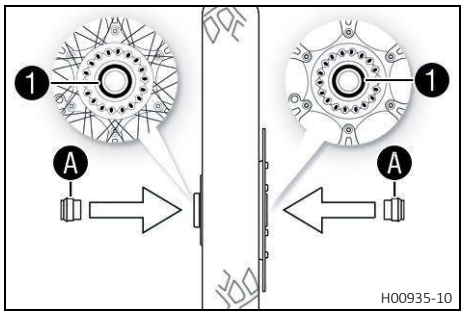
– Remove spacers 3.

14.2 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.



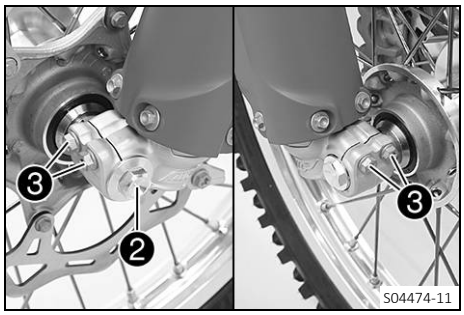
– Check the wheel bearing for damage and wear.
  » If the wheel bearing is damaged or worn:
    – Change the front wheel bearing.
– Clean and grease radial shaft seal 1 and contact surfaces A on the spacers.

Long-life grease (p. 174)

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

Long-life grease (p. 174)

– Jack up the front wheel into the fork, position it, 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$_f$)

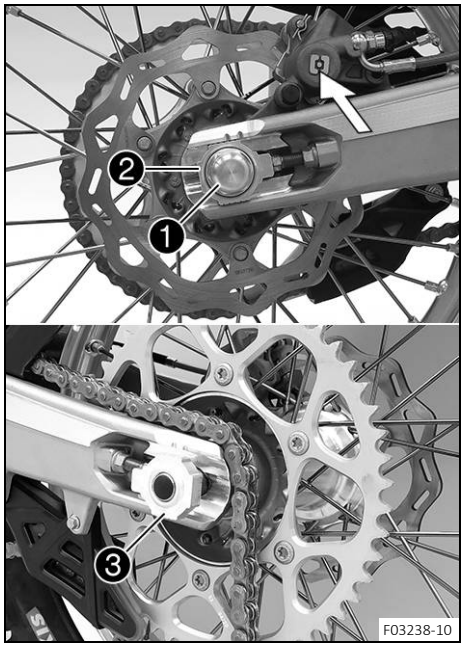
– Operate the hand brake lever several times until the brake pads are in contact with the brake disc.
– Remove the motorcycle from the lift stand. (p. 61)
– Operate the front brake and compress the fork a few times firmly.
  ✓ The fork legs straighten.
– Tighten screws 3.

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

14.3 Removing the rear wheel

Preparatory work

– Raise the motorcycle with a lift stand. (p. 61)



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.

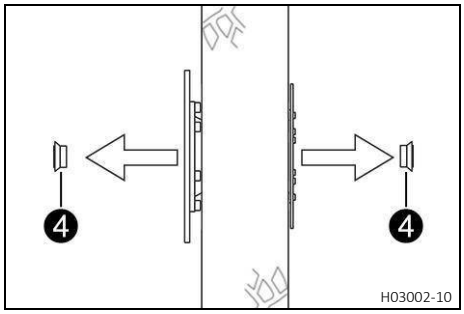
WARNING

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.



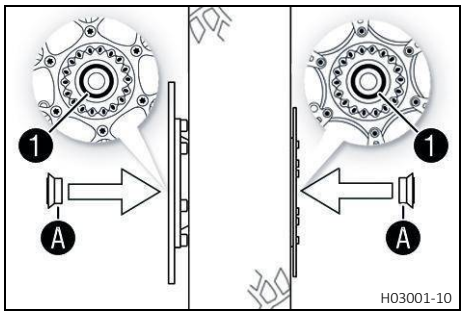
- Remove spacers ❹.

14.4 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.



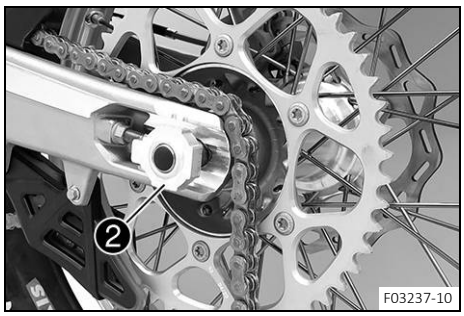
Main work

- 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.

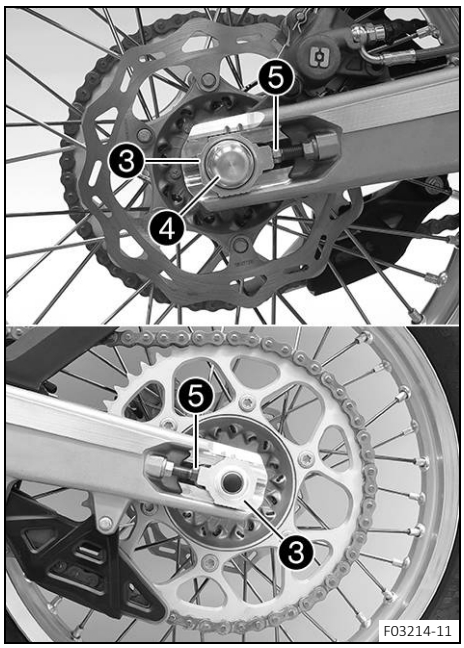
Long-life grease (p. 174)

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

Long-life grease (p. 174)



– 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. 87)
– Tighten nut ❹.

Nut, wheel spindle, rear	
M22×1.5	80 Nm (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°.

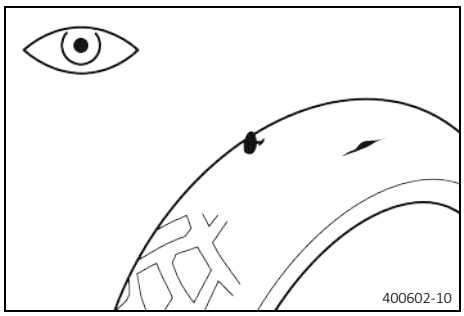
– Actuate the brake disc repeatedly until the brake pads are in contact with the brake disc and a pressure point is achieved.

Reworking

– Remove the motorcycle from the lift stand. (p. 61)

14.5 Checking the tire condition

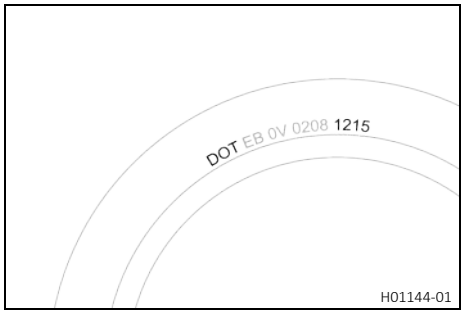
Note
Only fit tires approved and/or recommended by GASGAS.
Other tires could have a negative effect on handling characteristics.
The type, condition, and pressure of the tires all have a major impact on the handling of the motorcycle.
Worn tires have a negative effect on handling characteristics, especially 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 tread depth.

Adhere to country-specific and legally required minimum tread depth.	
Minimum tread depth	≥ 2 mm (≥ 0.08 in)

  » If the tread depth is less than the minimum tread depth:
    – Change the tires.



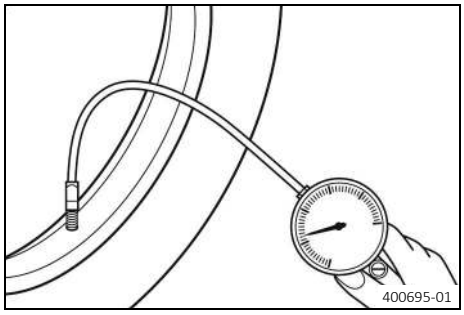
– Check the tire age.

Note
The tire date of manufacture is usually contained in 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.

14.6 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.

Street tire pressure	
front	2.0 bar (29.0 psi)
rear	2.0 bar (29.0 psi)

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 the tire air pressure.
– Mount the protection cap.

14.7 Checking the spoke tension

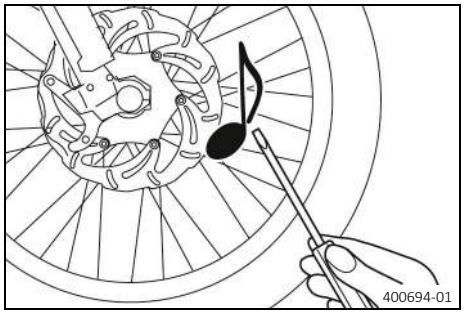
WARNING

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 spokes of the same length and diameter vibrate with a different tone, this is an indication that the spoke tensions differ.

» If the spoke tension differs:

– Correct the spoke tension.

– Check the spoke torque.

Spoke nipple, front wheel	
M4,5	6 Nm (4.4 ft·lb$_f$)
Spoke nipple, rear wheel	
M4,5	6 Nm (4.4 ft·lb$_f$)

Torque wrench kit (58429094000)

15.1 Removing 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 (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

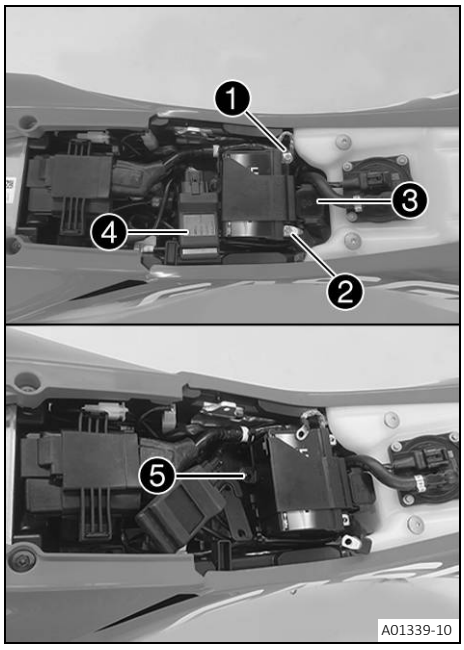
Environmental hazard Hazardous substances cause environmental damage.

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

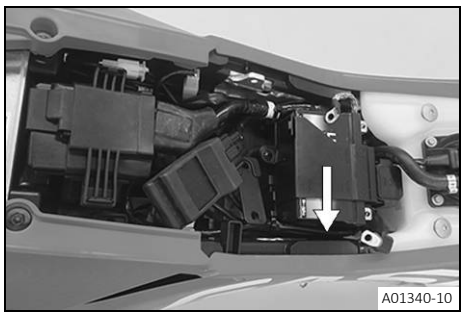
Preparatory work

- Remove air filter box cover. (p. 76)
- Remove the seat. (p. 74)

Main work

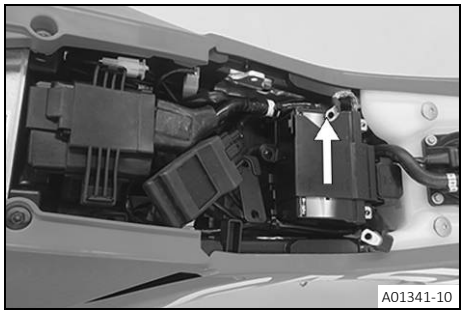


- Disconnect negative cable ❶ from the 12 V battery.
- Pull back positive terminal cover and disconnect positive cable ❷ from the 12 V battery.
- Pull off starter relay ❸ and OCU ❹ and hang to the side.
- Remove screw ❺.



– Push battery holding bracket to the side and detach.
– Lift the 12 V battery up and out.

15.2 Installing the 12 V battery

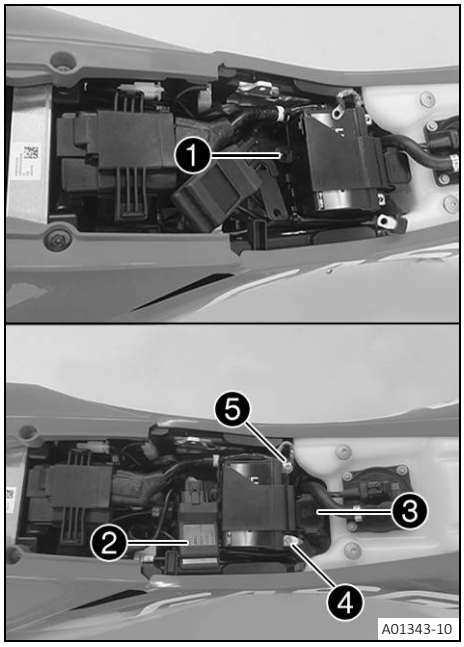


Main work

– Insert the 12 V battery into the battery compartment with the terminals facing upward and secure with the holding bracket.

Ensure that the cable is routed correctly.

12-V battery (HJTZ5S-FP-C) (p. 177)



– Screw battery holding bracket screw ❶ tight.

Screw, battery holding bracket	
M6	6 Nm (4.4 ft·lb$_f$)

– Attach OCU ❷ and starter relay ❸ to the holding bracket.
– Connect positive cable ❹ to the 12-V battery and install the positive terminal cover.

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$_f$)

Reworking

– Mount the seat. (p. 75)
– Install the air filter box cover. (p. 77)

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 (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. 76)
- Remove the seat. (p. 74)
- Remove the 12 V battery. (p. 113)

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
  – Charge the 12 V battery.

Read the accompanying instructions.	
Maximum charging voltage	14.4 V
Minimum charging voltage	3.0 A
Maximum charging time	12 h
The charging current, charging voltage, and charging time must not be exceeded.	
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.	
Ideal charging and storage temperature of the lithium-ion battery	10 °C … 20 °C (50.0 °F … 68.0 °F)

Battery charger (79629974000)
(US) battery charger (79629974500)

Note

This battery charger tests whether the 12 V battery retains its voltage. It is also impossible to overcharge the 12 V battery with this battery charger. The charging time may be longer at low temperatures.

This battery charger is only suitable for lithium iron phosphate batteries.

– Switch off the charger after charging and disconnect from the 12 V battery.

Reworking

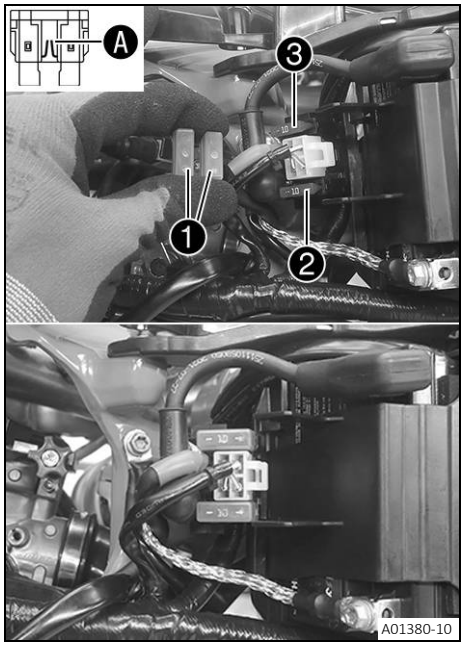
– Install the 12 V battery. (p. 114)
– Mount the seat. (p. 75)
– Install the air filter box cover. (p. 77)

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.

Preparatory work
– Remove air filter box cover. (p. 76)
– Remove the seat. (p. 74)
– Remove the fuel tank. (p. 82)



Main work
– Pull the starter relay off the holder and hang to the side.
– Remove protection caps ❶.
– Remove faulty main fuse ❷.

Note
A faulty fuse has a burned-out fuse wire Ⓐ.
A spare fuse ❸ is located in the starter relay.

– Insert the main fuse.

Fuse (58011109120) (p. 178)

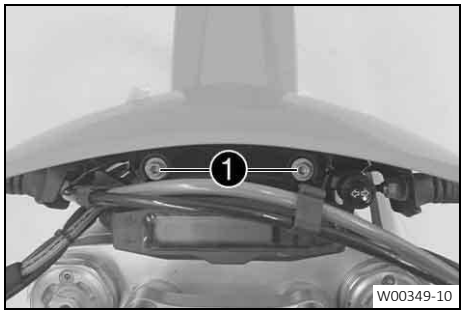
– Check that the electrical equipment is functioning properly.

Tip
Insert a new spare fuse so that it is available if needed.

– Mount the protection caps.
– Mount the starter relay onto the holder and route the cable.

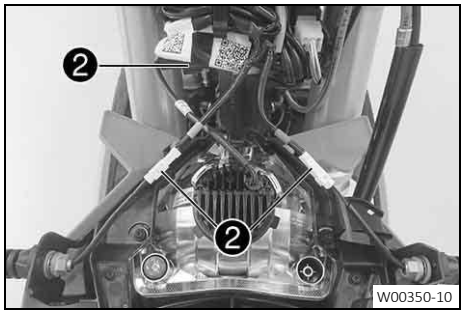
Reworking
– Install the fuel tank. (p. 84)
– Mount the seat. (p. 75)
– Install the air filter box cover. (p. 77)

15.5 Removing the headlight mask with the headlight



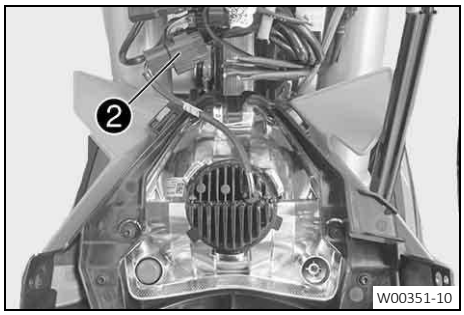
– Release screws ❶.
– Slide the headlight mask up and swing it forward.
– Disconnect the brake line at the headlight mask.

(EU model)



– Detach plug-in connectors ❷ and take off the headlight mask with the headlight.

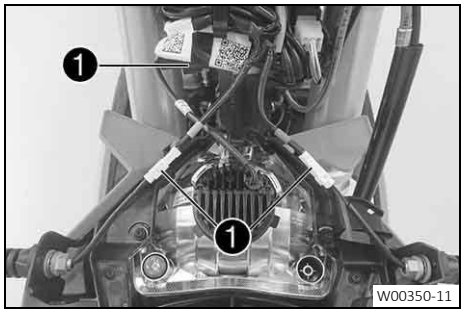
(US model)



– Disconnect plug-in connector ❷ and take off the headlight mask together with the headlight.

15.6 Installing the headlight mask with the headlight

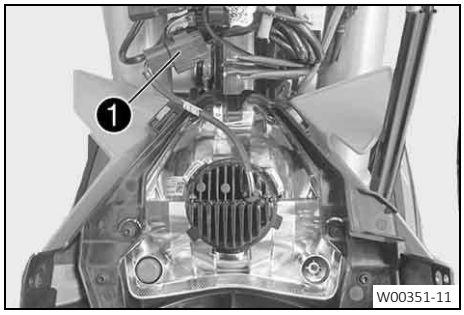
Main work
(EU model)

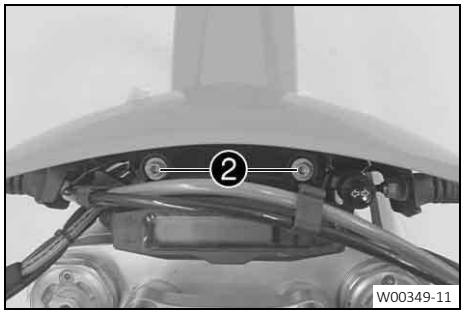


– Join plug-in connectors ❶.

(US model)

– Join plug-in connector ❶.





– Position the brake line in the brake line guide.
– Position the headlight mask.
  ✓ The holding lugs engage in the fender.
– Tighten screws ❷.

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

Reworking

– Check the headlight setting. (p. 121)

15.7 Changing the headlight bulb

NOTE

Impairments to reflectors and lamps Grease on the reflector reduces the emitted light.
Grease on the bulb will evaporate due to the heat and be deposited on the reflector.
Grease residue on the bulb reduces heat dissipation and increases the heat of the bulb, thus reducing its service life.

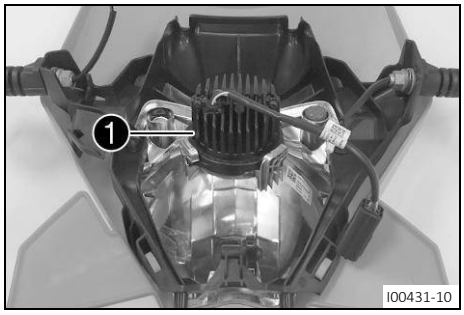
– Clean and degrease the bulbs before mounting.
– Do not touch the bulbs with your bare hands.

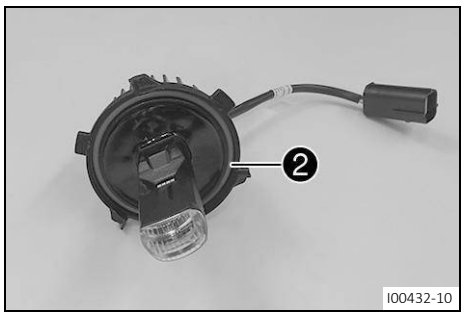
Preparatory work

– Remove the headlight mask with the headlight. (p. 118)

Main work

– Turn LED unit ❶ counterclockwise all the way and take it out of the reflector.





– Insert the LED unit into the reflector and turn it clockwise all the way.

Ensure that O-ring ❷ is seated properly.

Low beam (LED) 📖 (p. 177)

Reworking

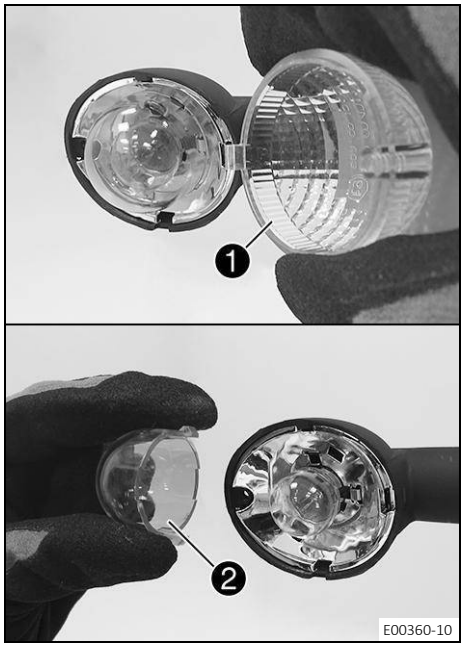
– Install the headlight mask with the headlight. 📖 (p. 118)
– Check the headlight setting. 📖 (p. 121)

15.8 Changing the turn signal bulb (EU model)

NOTE

Impairments to reflectors and lamps Grease on the reflector reduces the emitted light.
Grease on the bulb will evaporate due to the heat and be deposited on the reflector.
Grease residue on the bulb reduces heat dissipation and increases the heat of the bulb, thus reducing its service life.

– Clean and degrease the bulbs before mounting.
– Do not touch the bulbs with your bare hands.



Main work

– Remove the screw on the rear of the turn signal housing.
– Carefully remove turn signal glass ❶.
– Lightly squeeze orange cap ❷ in the area of the holding lugs and take it off.
– Press the turn signal bulb lightly into the socket, turn it counter-clockwise by about 30°, and pull it out of the socket.
– Press the new turn signal bulb carefully into the socket and turn it clockwise until it stops.

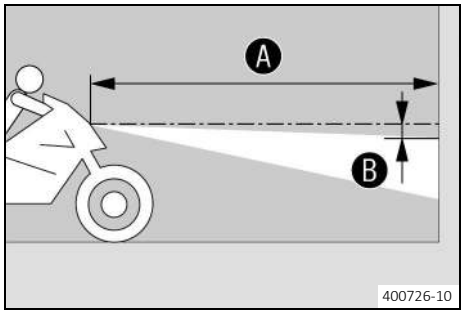
Turn signal (R10W / Sockel BA15s) 📖 (p. 177)

– Mount the orange cap.
– Position the turn signal glass.
– Insert the screw and first turn counterclockwise until it engages in the thread with a small jerk.
– Tighten the screw lightly.

Reworking

– Check that the turn signal system is functioning properly.

15.9 Checking the headlight setting



– Park the vehicle on a horizontal surface in front of a light-colored wall and make a mark at the height of the center of the low beam headlight.
– Make another mark at a distance Ⓑ under the first marking.

Distance Ⓑ	5 cm (2.0 in)

– Position the vehicle vertically at a distance Ⓐ away from the wall.

Distance Ⓐ	5 m (16 ft – 5 in)

– The rider now sits down on the motorcycle.
– Switch on the low beam.
– Check the headlight setting.

The boundary between light and dark must be exactly on the lower mark for a motorcycle with rider.

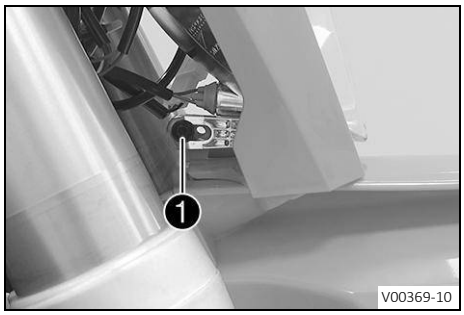
» If the boundary between light and dark does not meet specifications:
– Adjust headlight range. (p. 121)

15.10 Adjusting the headlight range

Preparatory work

– Check the headlight setting. (p. 121)

Main work



– Loosen screw ❶.
– Adjust the headlight range by pivoting the headlight.

The boundary between light and dark must be exactly on the lower mark for a motorcycle with rider (instructions on how to apply the mark: Checking the headlight setting).

Note
A change in weight may require a correction of the headlight range.

– Tighten screw ❶.

Reworking

– Check the headlight setting. (p. 121)

15.11 Combination instrument battery, changing

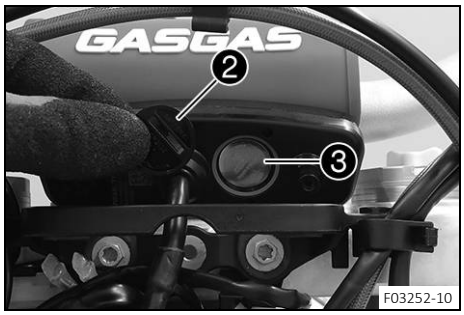
Preparatory work

– Remove the headlight mask with the headlight. (p. 118)

Main work



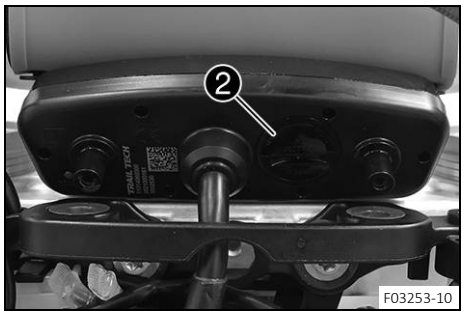
– Remove screws ❶.
– Pull the combination instrument upward out of the holder.



– Using a coin, turn protection cap ❷ all the way counterclockwise and take it off.
– Remove combination instrument battery ❸.
– Insert the combination instrument battery with the label facing outward.

Button cell (CR 2032) (p. 177)

– Check the O-ring of the protection cap for correct seating.

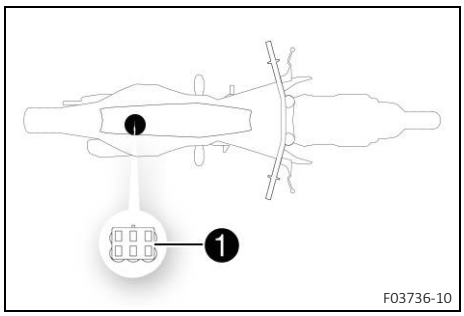


– Position protection cap ❷ and turn all the way clockwise using a coin.
– Press any button on the combination instrument.
  ✓ The combination instrument is activated.
– Position the combination instrument in the holder.
– Mount and tighten the screws with washers.

Reworking

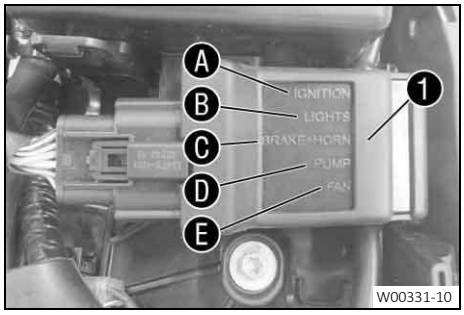
– Install the headlight mask with the headlight. (p. 118)
– Check the headlight setting. (p. 121)
– Setup menu (p. 33)
– Adjusting the unit of measurement (p. 35)
– Setting the clock (p. 33)

15.12 Diagnostic connector



Diagnostics connector ❶ is located under the seat.

15.13 OCU



OCU ❶ is located under the seat.

The OCU replaces the electronic fuses and relays.

All outputs are switched independently of the signals of the voltage regulator and ECU.

The outputs are deactivated individually in the event of overcurrent.

This enables easy error detection because the status of each output is indicated via LED lights.

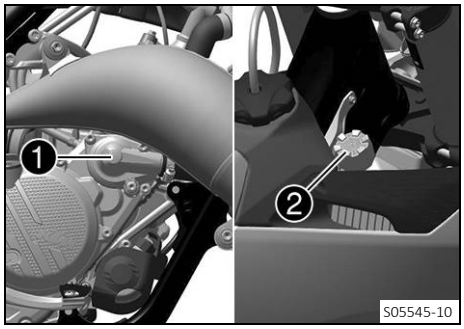
The OCU monitors the electronics system completely independently.

As soon as an indicated error is rectified, the status light of the OCU changes from red to green.

Overview

A	Ignition
B	Light
C	Brake light + horn
D	Fuel pump
E	Radiator fan (if installed)

16.1 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.
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.

(EU model)

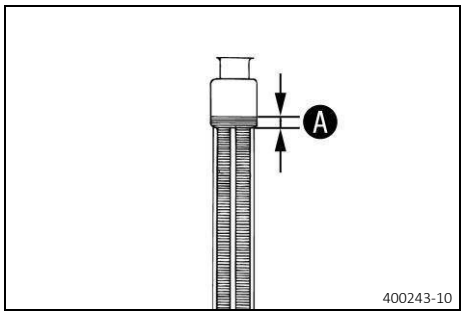
Additional cooling is provided by the radiator fan, which is activated at high temperature.

16.2 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 (−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 ❹ above the radiator fins	10 mm (0.39 in)

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

coolant	
Coolant (p. 175) Antifreeze protection to at least: −25 °C (−13.0 °F)	0.95 l (0.251 liq. gal_{US})

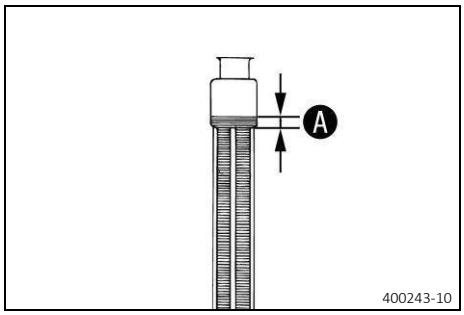
– Mount the radiator cap.

16.3 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 (0.39 in)

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

coolant	
Coolant (p. 175) Antifreeze protection to at least: −25 °C (−13.0 °F)	0.95 l (0.251 liq. gal_{US})

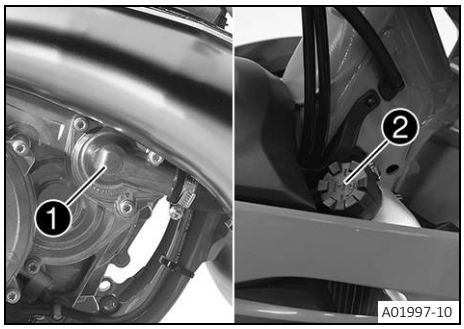
– Mount the radiator cap.

16.4 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

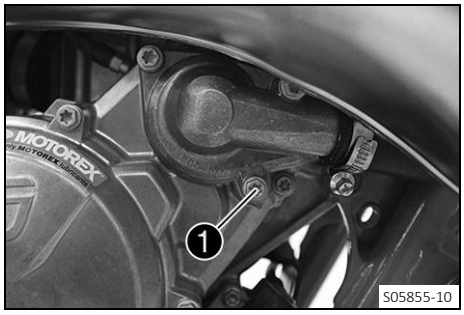


- Stand the motorcycle upright.
- Place an appropriate container under the water pump cover.
- Remove screw 1.
- Take off radiator cap 2.
- Completely drain the coolant.
- Mount screw 1 with the new sealing ring and tighten.

Screw, water pump cover	
M6	10 Nm (7.4 ft·lb$_f$)

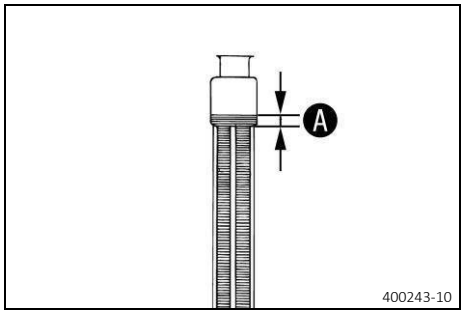
16.5 Refilling the coolant

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 (0.39 in)

coolant	
Coolant (p. 175) Antifreeze protection to at least: −25 °C (−13.0 °F)	0.95 l (0.251 liq. gal_{US})

Reworking

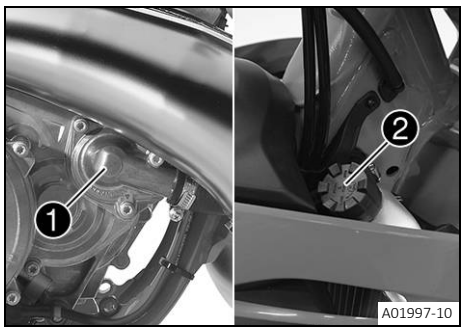
– Go for a short test ride.
– Check the coolant level. (p. 125)

16.6 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.

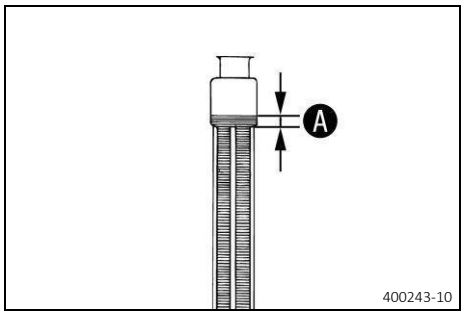
WARNING
Danger of scalding The coolant heats up and is under high pressure when the vehicle is operated.
– Do not open the radiator, the radiator hoses, or other cooling system components if the engine or the cooling system are at operating temperature.
– Allow the cooling system and the engine to cool 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



– 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.

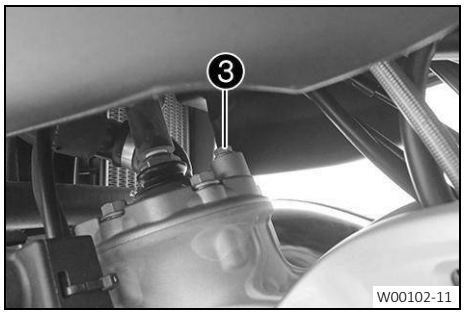
Screw, water pump cover	
M6	10 Nm (7.4 ft·lb$_f$)



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

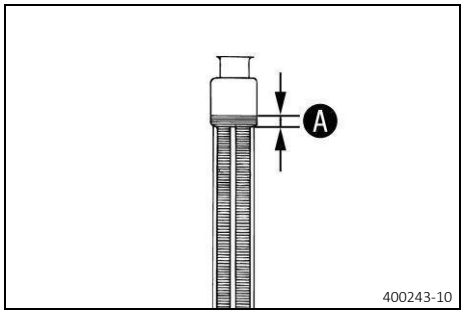
10 mm (0.39 in)

coolant	
Coolant 📖 (p. 175) Antifreeze protection to at least: −25 °C (−13.0 °F)	0.95 l (0.251 liq. gal$_{US}$)



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

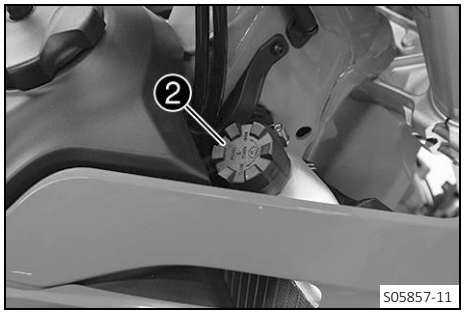
Cylinder head bleed screw	
M6	8 Nm (5.9 ft·lb$_f$)



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

10 mm (0.39 in)

coolant	
Coolant 📖 (p. 175) Antifreeze protection to at least: −25 °C (−13.0 °F)	0.95 l (0.251 liq. gal$_{US}$)



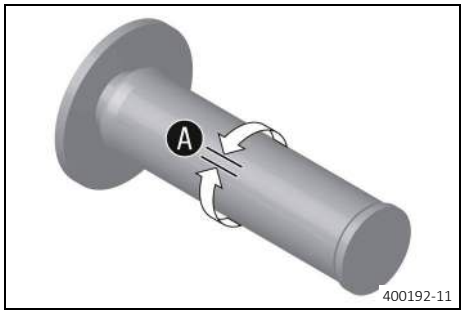
– Mount radiator cap ❷.

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.
– Check the coolant level. (p. 125)

17.1 Checking the play in the throttle cable



– Check the throttle grip for smooth operation.
– Turn handlebar as far as possible to the right. Turn the throttle twist grip back and forth slightly and determine the play in throttle cable Ⓐ.

Throttle cable play	3 mm … 5 mm (0.12 in … 0.20 in)

» If the throttle cable play does not meet the specified value:
– Adjust the throttle cable play. (p. 130)

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.

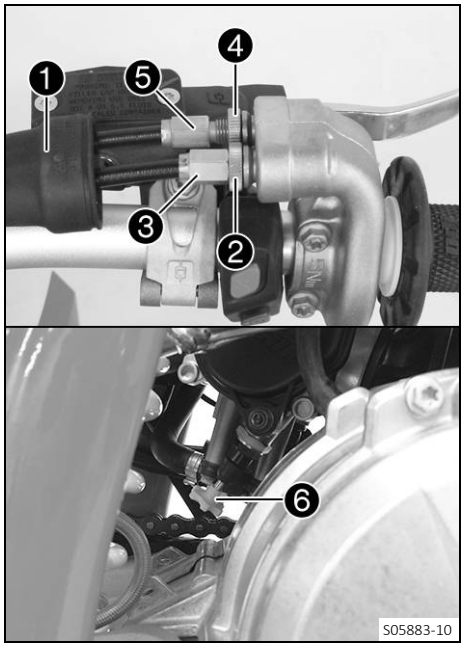
The idle speed must not change.

» If the idle speed changes:
– Adjust the throttle cable play. (p. 130)

17.2 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 air filter box cover. (p. 76)
– Remove the seat. (p. 74)
– Remove the fuel tank. (p. 82)
– Check the throttle cable routing. (p. 91)



Main work

- Move the handlebar to the straight-ahead position.
- Push back sleeve ❶.
- Loosen nut ❷.
- Turn adjusting screw ❸ in as far as possible.
- Loosen nut ❹.
- Push cold start button ❻ all the way to the stop.
- Turn adjusting screw ❺ so that the cold start button moves to the basic position when the throttle grip is turned to the front.
- Tighten nut ❹.
- Turn adjusting screw ❸ so that there is play in the throttle cable at the throttle grip.

Throttle cable play	3 mm … 5 mm (0.12 in … 0.20 in)

- Tighten nut ❷.
- Slide on sleeve ❶.
- Check the throttle for smooth operation.

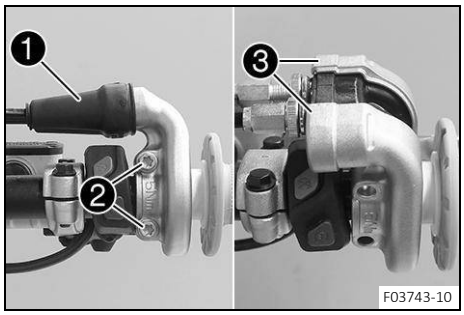
Reworking

- Install the fuel tank. (p. 84)
- Mount the seat. (p. 75)
- Install the air filter box cover. (p. 77)
- Check the play in the throttle cable. (p. 130)

17.3 Adjusting the characteristic map of the throttle response

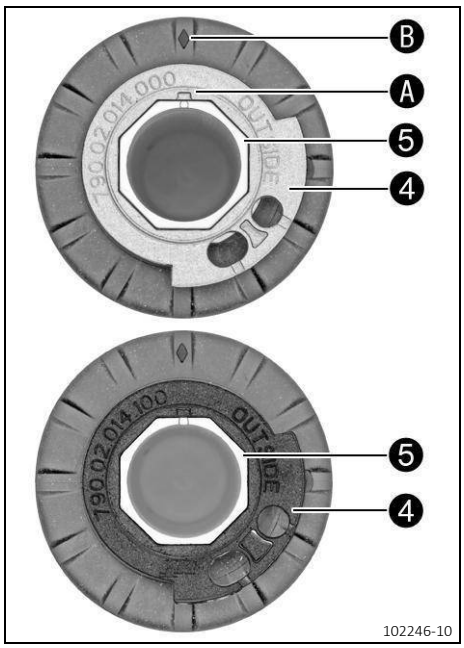
Note

On the throttle grip, the characteristic map of the throttle response is changed by changing the guide plate.
A guide plate with a different characteristic map is supplied.



Main work

- Push back boot ❶.
- Remove screws ❷ and half-shells ❸.
- Detach the throttle cables and take off the grip tube.

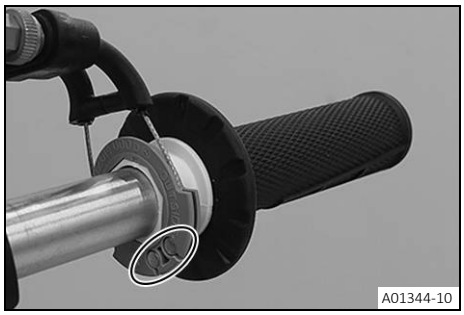


– Remove guide plate ❹ from handle tube ❺.
– Position the required guide plate on the grip tube.

The label **OUTSIDE** must be visible. Marking Ⓐ must be positioned at marking Ⓑ.

Work material (Alternative 1 / 2)
Gray guide plate (79002014000)
Work material (Alternative 2 / 2)
Black guide plate (79002014100)

Note
The gray guide plate opens the throttle valve more slowly.
The black guide plate opens the throttle valve more quickly.
The gray guide plate is mounted upon delivery.



– Clean the outside of the handlebar and the inside of the grip tube. Mount the grip tube on the handlebar.
– Attach the throttle cables to the guide plate and route correctly.
– Position half-shells ❸, mount and tighten screws ❷.

Screw, throttle twist grip	
M6	5 Nm (3.7 ft·lb$_f$)

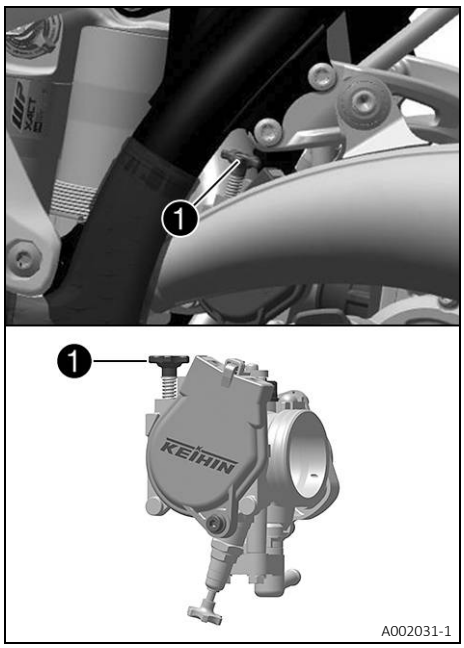
– Slide on sleeve ❶ and check the throttle grip for ease of movement.

Reworking

– Check the play in the throttle cable. (p. 130)

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.
– Check whether the cold start button has returned to its 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.

Make the adjustment in small steps.	
Idle speed	1,400 rpm … 1,500 rpm (23.33 Hz … 25.00 Hz)

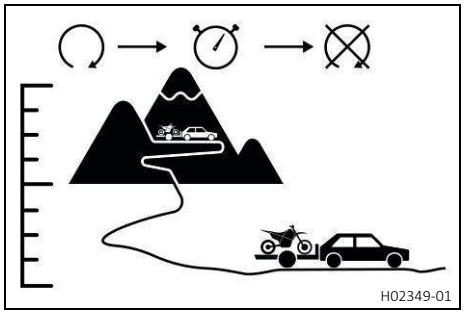
Service hour counter with revolution counter (A54012920100)

Note
Turning clockwise increases the idle speed.
Turning counterclockwise lowers the idle speed.
An incorrect idle speed can have a negative impact on overall engine running.

17.5 Programming ambient air pressure

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
If the vehicle is ridden with the engine running at various heights above sea level, the ambient pressure is programmed on an ongoing basis.
If the vehicle is transported over great height differences, the ambient pressure must be reprogrammed.



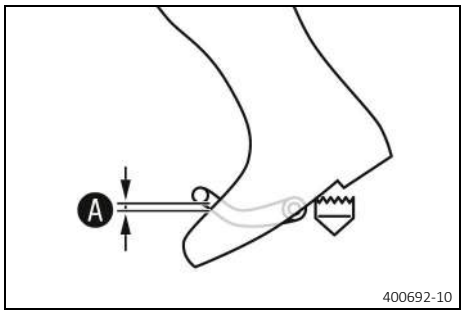
– Start the vehicle at the new height above sea level and switch off the engine again.

Wait for at least five seconds.

– Start the vehicle again and check the response of the vehicle.
  » If the response has not improved:
    – Repeat the procedure.

17.6 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.

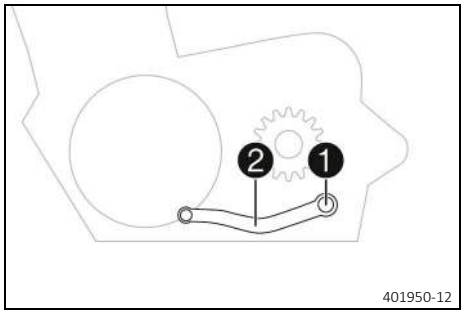


– Sit on the vehicle in the riding position and measure the distance A between the upper edge of your boot and the shift lever.

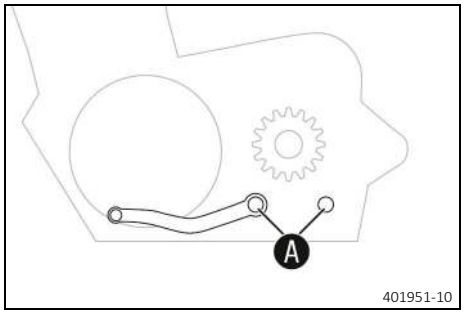
Distance between the gear shift lever and upper edge of boot	10 mm … 20 mm (0.39 in … 0.79 in)

» If the distance does not meet the specifications:
– Adjust the basic position of the gear shift lever. (p. 134)

17.7 Adjusting the basic position of the gear shift lever



– Remove screw 1 with the washers and take off shift lever 2.



– Clean gear teeth A of the 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 1 with washers.

Screw, shift lever	
M6	14 Nm (10.3 ft·lb$_f$) **Loctite® 243**

18.1 Programming the end positions of the exhaust control

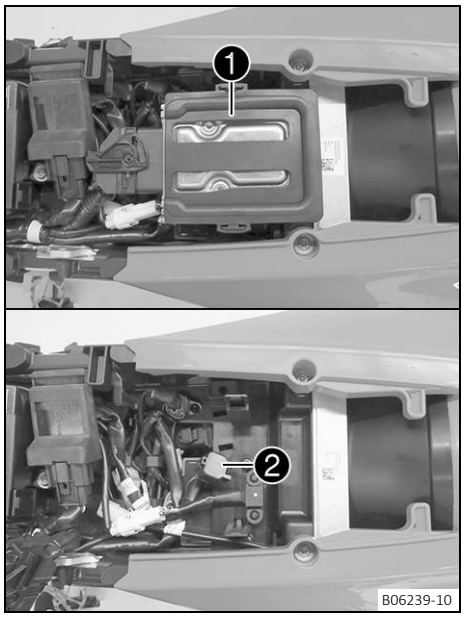
Note
If work has been carried out on the exhaust control, the end positions must be reprogrammed.

Condition: Engine is off

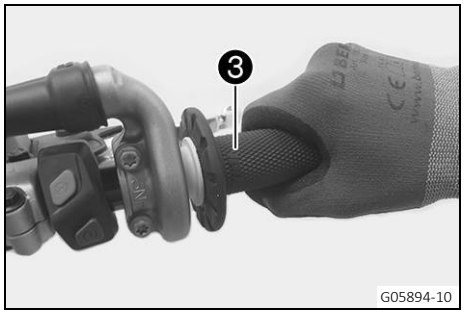
Preparatory work

– Remove air filter box cover. (p. 76)
– Remove the seat. (p. 74)

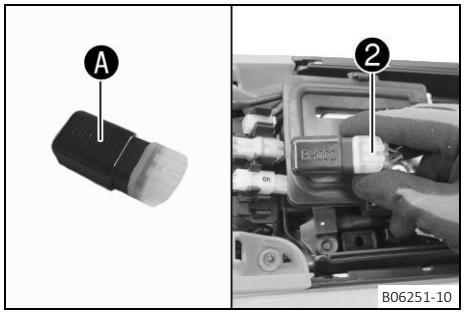
Main work



– 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.

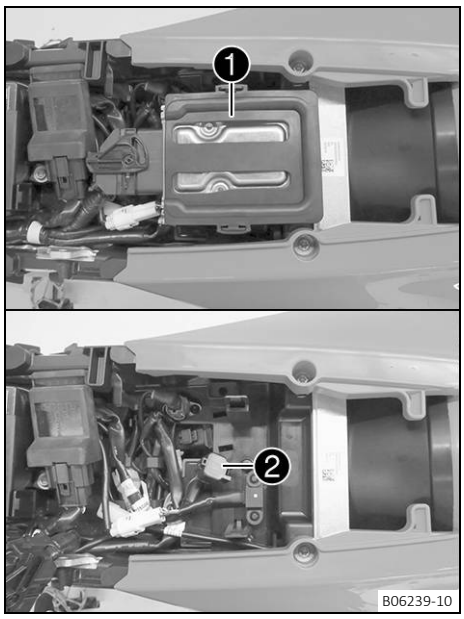


– Plug wake-up connector Ⓐ into diagnostics connector ❷.

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.



– Mount diagnostics connector ❷ on the holder.
– Attach the engine control unit ❶ to the holder.

Reworking

– Mount the seat. (p. 75)
– Install the air filter box cover. (p. 77)

19.1 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

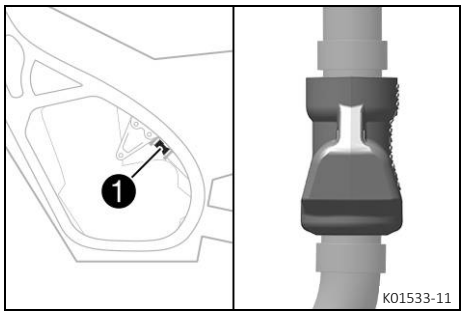
Danger of poisoning Fuel is harmful to health.

– 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.

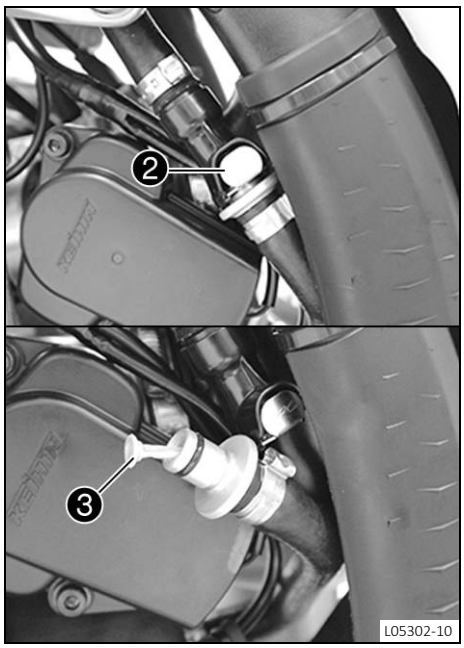
NOTE

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 protection cap ❶ of the fuel line.



– Clean quick-lock coupling ❷ thoroughly with compressed air.

Dust must not enter 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.

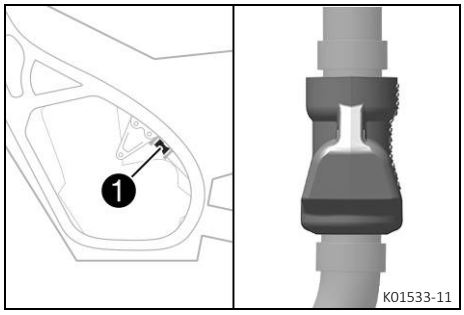
– Pull fuel screen ❸ out of the connecting piece.
– Slide the new fuel screen all the way into the connecting piece.
– Spray silicone spray onto a lint-free cleaning cloth and lightly lubricate the O-ring of the quick-lock coupling.

Silicone spray (p. 175)

– 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.

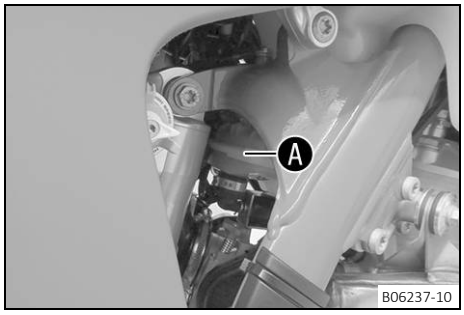


– Mount protection cap ❶ of the fuel line.

19.2 Checking 2-stroke oil level

WARNING
Engine failure The engine will not be lubricated unless there is 2-stroke oil in the oil tank.
If the oil level warning light lights up, the 2-stroke oil is sufficient for the remaining tank of fuel.
– As soon as the oil level warning light lights up, ride for no longer than until the remaining fuel in the tank is depleted.
– At the next opportunity add 2-stroke oil before you refuel.
– Time the oil pump if the 2-stroke oil hose has been removed or the 2-stroke oil tank has been fully depleted in error.

Preparatory work
– Stand the motorcycle upright on a level surface.



Main work

– Check the 2-stroke oil level in the oil tank.

For a full tank of fuel, the 2-stroke oil tank must be filled up to at least the upper abutting edge Ⓐ.

✓ The 2-stroke oil tank must be completely filled if possible.

» If the 2-stroke oil level is too low:

– Add 2-stroke oil. (p. 48)

19.3 Priming oil pump

WARNING

Engine failure The engine will not be lubricated unless there is 2-stroke oil in the oil tank.

If the oil level warning light lights up, the 2-stroke oil is sufficient for the remaining tank of fuel.

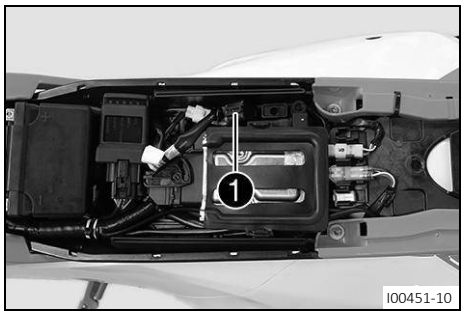
– As soon as the oil level warning light lights up, ride for no longer than until the remaining fuel in the tank is depleted.
– At the next opportunity add 2-stroke oil before you refuel.
– Time the oil pump if the 2-stroke oil hose has been removed or the 2-stroke oil tank has been fully depleted in error.

Condition: Engine is off

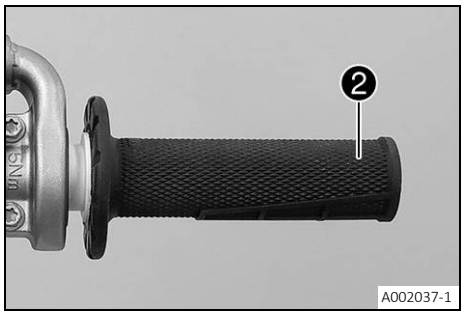
Preparatory work

– Remove air filter box cover. (p. 76)
– Remove the seat. (p. 74)
– Stand the motorcycle upright on a level surface.
– Check 2-stroke oil level. (p. 138)

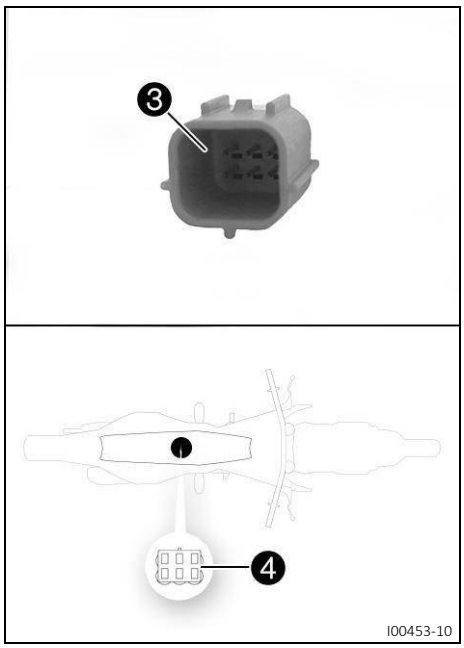
Main work



– Pull diagnostics connector ❶ off the holder.



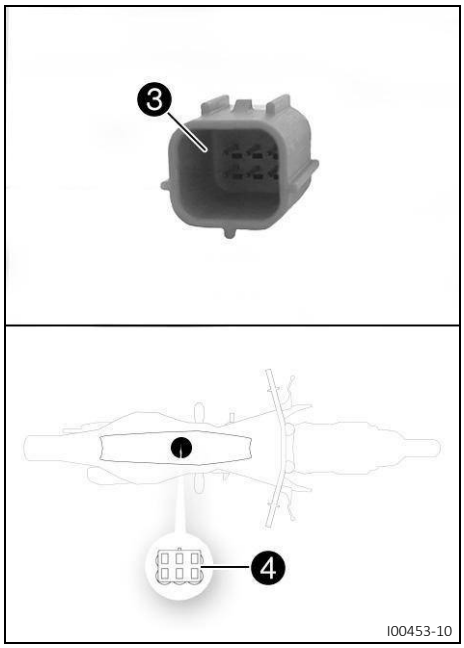
– Put throttle grip ❷ into full throttle position and secure.



– Plug in wake-up connector ❸ for priming the oil pump to the diagnostics connector ❹.
  ✓ The combination instrument lighting is activated.

Note
The connector is included as part of the motorcycle's separate enclosure.

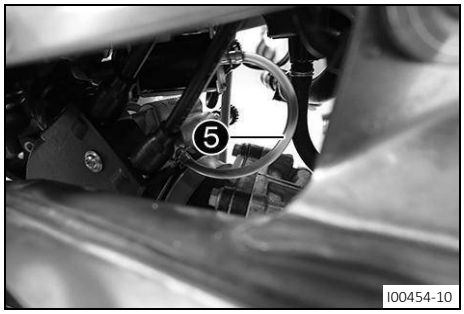
– Wait for at least five seconds.



– Release the fixing from the throttle grip.
  ✓ The oil pump is timed.

Note
The oil pump is actuated at various speeds.
The procedure is clearly audible.

– Wait until you can no longer hear the oil pump operating.
– Disconnect the wake-up connector from the diagnostics connector.



– Check whether air bubbles are visible in the hose ❺.
  » If air bubbles are visible:
    – Repeat the entire procedure until air bubbles are no longer visible.
– Mount the diagnostics connector on the holder.

Reworking

– Mount the seat. (p. 75)
– Install the air filter box cover. (p. 77)

19.4 Cleaning the oil screen in the oil tank

NOTE

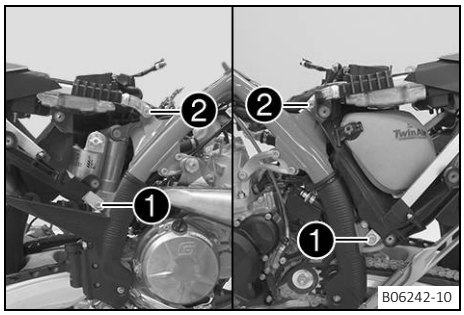
Environmental hazard Hazardous substances cause environmental damage.

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

Preparatory work

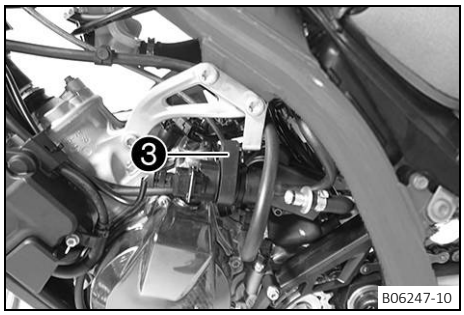
– Raise the motorcycle with a lift stand. (p. 61)
– Remove the frame protector. (p. 75)
– Remove the right side panel. (p. 79)
– Remove the muffler. (p. 80)
– Remove air filter box cover. (p. 76)
– Remove the seat. (p. 74)
– Remove the fuel tank. (p. 82)

Main work

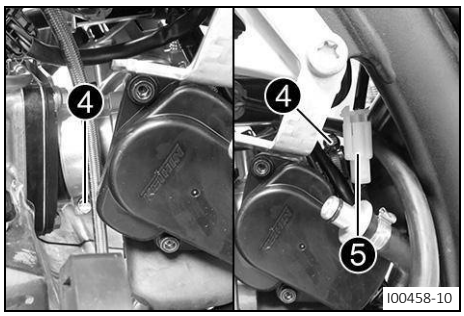


– Remove screws ❶.
– Loosen screws ❷.

(EU model)



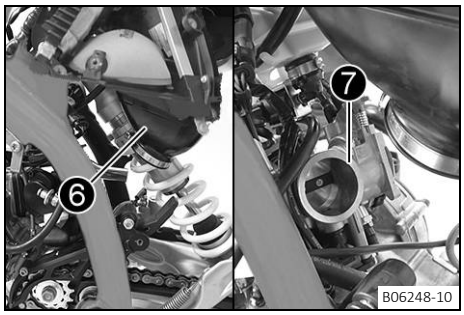
– Remove fuel vapor valve ❸ from the bracket and hang it to the side.



– Loosen clamps ❹ of the throttle valve body.

(EU model)

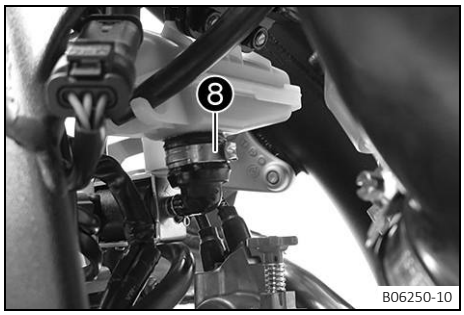
– Disconnect plug-in connector ❺ of the rear brake light switch.



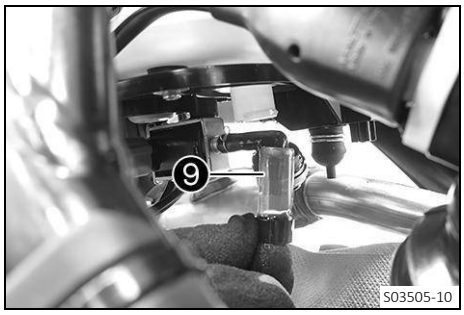
– Lift the subframe slightly and secure it.

Pay attention to intake flange ❻.

– Pull throttle valve body ❼ towards the rear, out of the intake flange, and hang it to the side.



– Open hose clamp ❽ using a screwdriver.
– Pull off the angle piece and collect the 2-stroke oil in a suitable container.

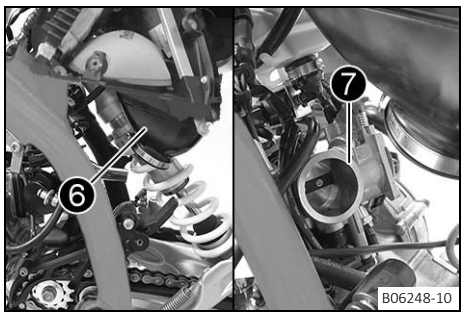


– Remove oil screen ❾ and clean it.
– Check the oil screen for damage.
  » If the oil screen is damaged:
    – Change the oil screen.



– Insert the oil screen and mount the angle piece with a new hose clamp.

Hose clamp pliers (60029057000)

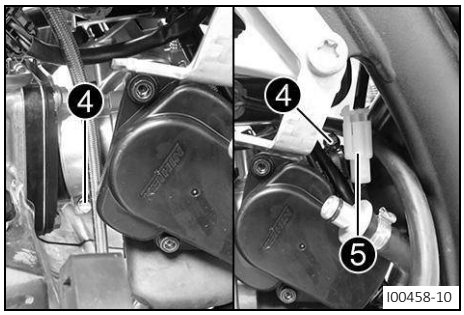


– Mount throttle valve body ❼.
– Remove the locking piece and position the subframe.

Pay attention to intake flange ❻.

(EU model)

– Join plug-in connector ❺ of the rear brake light switch.

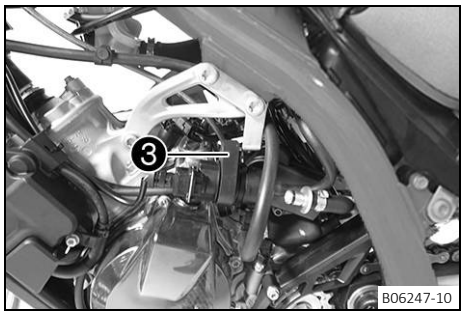


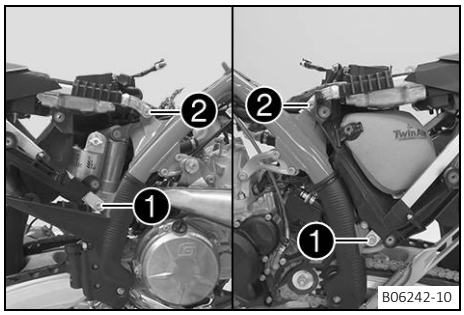
– Position and tighten clamps ❹ of the throttle valve body.

Screw, intake manifold / diaphragm housing	
M6	6 Nm (4.4 ft·lb$_f$)

(EU model)

– Mount fuel vapor valve ❸.





– Mount and tighten screws ❶.

Screw, subframe, bottom	
M8	35 Nm (25.8 ft·lb$_f$) **Loctite® 243**

– Remove screws ❷.
– Mount and tighten screws ❷.

Screw, subframe, top	
M8	40 Nm (29.5 ft·lb$_f$) **Loctite® 2701**

Reworking

– Install the fuel tank. (p. 84)
– Add 2-stroke oil. (p. 48)
– Pre-fill the oil pump.
– Mount the seat. (p. 75)

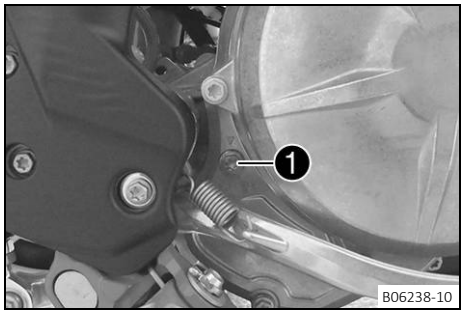
– Install the air filter box cover. (p. 77)
– Install the muffler. (p. 81)
– Install the right side panel. (p. 80)
– Install the frame protector. (p. 76)
– Remove the motorcycle from the lift stand. (p. 61)

19.5 Checking the gear oil level

Note
The gear oil level must be checked when the engine is cold.

Preparatory work
– Stand the motorcycle upright on a level surface.

Main work



– Remove gear oil level monitoring screw 1.
– 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. 145)
– Mount and tighten the gear oil level check screw.

Screw, gear oil level check	
M6	8 Nm (5.9 ft·lb$_f$)

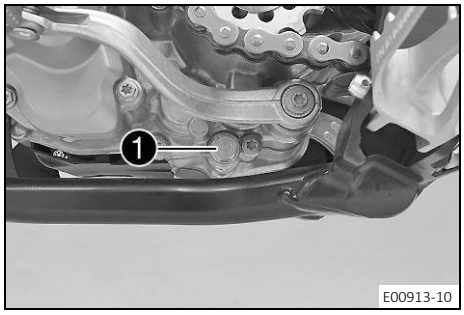
19.6 Changing the gear oil

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: Engine is at operating temperature

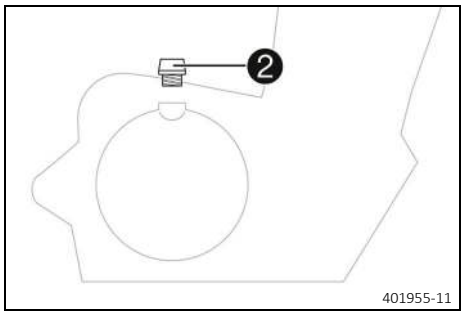
Preparatory work
– Park the motorcycle on a level surface.



Main work

– Position an appropriate container under the engine.
– Remove gear oil drain plug ❶ with magnet.
– Let the gear oil drain fully.
– Thoroughly clean the gear oil drain plug with a magnet.
– Clean the sealing area on the engine.
– Mount and tighten gear oil drain plug ❶ with the magnet and a new seal ring.

Transmission drain plug with magnet	
M12×1.5	20 Nm (14.8 ft·lb$_f$)



– Remove filler plug ❷ with the O-ring, and fill up with gear oil.

gear oil	
Engine oil (15W/50) (p. 174) Partially synthetic	0.80 l (0.211 liq. gal$_{US}$)

– Mount and tighten the oil plug together with the 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. 144)

19.7 Adding gear oil

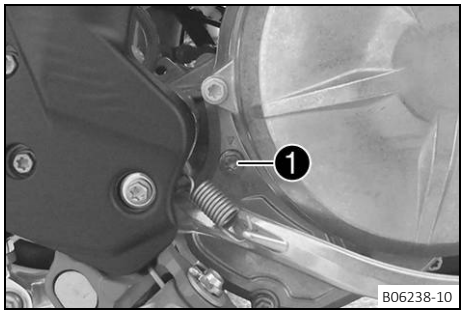
Note

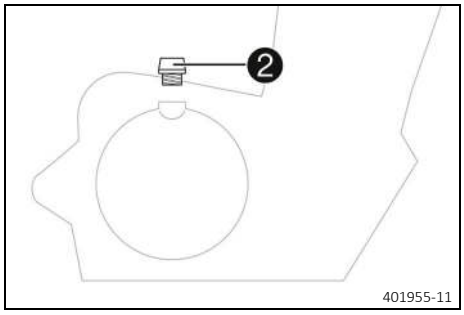
Too little gear oil or poor-quality oil results in premature wear to the transmission.

Condition: The engine is cold

Preparatory work

– Park the motorcycle on a level surface.





Main work

– Detach the brake pedal spring.
– Remove gear oil level monitoring screw ❶.

– Remove filler plug ❷ with the O-ring.
– Add gear oil until it emerges from the bore of the gear oil level check screw.

Engine oil (15W/50) (p. 174) Partially synthetic

– Mount and tighten the gear oil level check screw.

Screw, gear oil level check	
M6	8 Nm (5.9 ft·lb$_f$)

– Mount and tighten filler plug ❷ with the O-ring.
– Attach the brake pedal spring.

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. 144)

20.1 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 (23.6 in)

NOTE

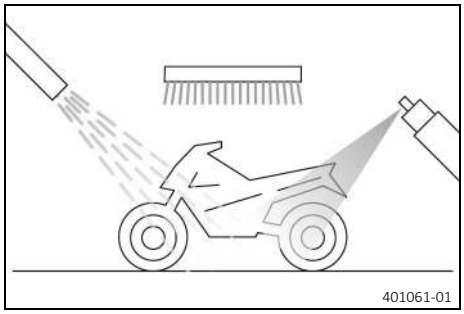
Environmental hazard Hazardous substances cause environmental damage.

– 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. 179)

Note

Use warm water containing standard motorcycle cleaner and a soft sponge.

– Clean the motorcycle thoroughly with a soft water jet, then allow to dry.
– 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. 86)

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. 179)

– 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. 179)

(EU model)

– Oil the steering lock.

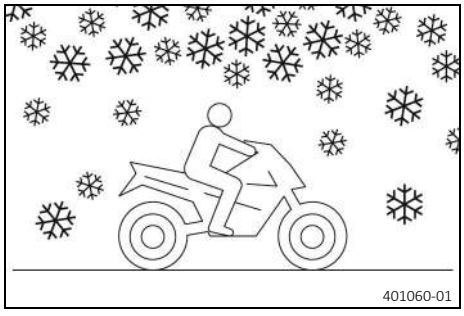
Universal oil spray (p. 174)

20.2 Checks and maintenance steps for winter operation

WARNING
Danger of accidents Salt on the roads impairs the brake system.
– Brake carefully several times to remove salt from the brake linings and the brake discs.

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.

Note
If you use the motorcycle in winter, salt can be expected on the roads. You should therefore take precautions against aggressive road salt.


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– Clean the motorcycle. (p. 147)
– Clean brake system.

After every trip on salted roads, thoroughly wash the brake calipers and brake pads with cold water and dry carefully. This should be done after the parts are cooled down and while they are installed.

After riding on salted roads, thoroughly clean the vehicle with cold water and dry it well.

Note
Warm water enhances the corrosive effects of salt.

– Treat the engine, swingarm, and all other bare or zinc-plated parts (except the brake discs) with a wax-based anticorrosive.

Corrosion inhibitor must not come into contact with the brake discs. This would severely lower the braking effect.

– Clean the chain. (p. 86)

21.1 Storage

WARNING

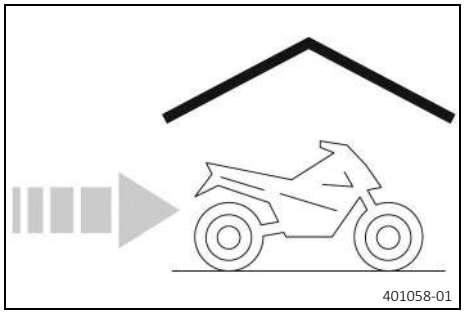
Danger of poisoning Fuel is harmful to health.

- 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 the vehicle will not be ridden for an extended period, additional steps are recommended:

Before storing the vehicle, 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). This allows you to avoid long waiting periods when the next season starts.


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- Clean the motorcycle. (p. 147)
- Change the gear oil. (p. 144)
- Check the frost protection and coolant level. (p. 124)
- When refueling for the last time before taking the motorcycle out of service, add fuel additive.

Fuel additive (p. 176)

- Refuel. (p. 47)

Tip

Fill the fuel tank completely as specified, using fuel with the lowest possible ethanol content.

- Add 2-stroke oil. (p. 48)
- Check the tire pressure. (p. 111)
- Remove the 12 V battery. (p. 113)
- Charge the 12 V battery. (p. 115)

Ideal charging and storage temperature of the lithium-ion battery	10 °C … 20 °C (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.

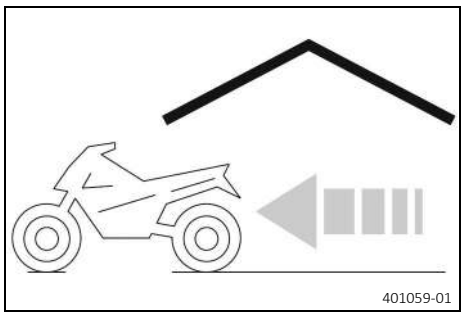
- Raise the motorcycle with a lift stand. (p. 61)

Cover the vehicle with a tarpaulin or similar cover that is permeable to air.
Do not use non-porous materials because they prevent humidity from escaping and thus cause corrosion.

Note

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.

21.2 Preparing for use after storage



- Remove the motorcycle from the lift stand. (p. 61)
- Install the 12 V battery. (p. 114)
- Perform checks and maintenance measures when preparing for use. (p. 43)
- Take a test ride.

22.1 troubleshooting

Cause	Finding	Remedy
The engine does not turn over (starter motor)	Operating error 12 V battery discharged Main fuse blown Starter relay defective Starter motor defective	– Carry out the starting procedure. (p. 43) – Charge the 12 V battery. (p. 115) – Check the charging voltage. – Check the open-circuit current. – Check the stator winding of the alternator. – Change the main fuse. (p. 117) – Check the starter relay. – Check the starter motor.
The engine turns but does not start	Operating error Quick-lock coupling not joined Idle speed is not set correctly Fuel supply interrupted Spark plug sooty or wet Plug gap of spark plug too wide Faulty ignition Short-circuit cable in wiring harness frayed, stop button or emergency OFF switch faulty Connector or ignition coil loose or oxidized Malfunction in the electronic fuel injection	– Carry out the starting procedure. (p. 43) – Join quick-lock couplings. – Adjust the idle speed. (p. 132) – Check the fuel tank vent. – Clean and dry the spark plug and spark plug connector, or change if necessary. – Adjust plug gap. Plug gap of spark plug: 0.6 mm (0.024 in) – Ignition coil - check the primary winding. – Check the spark plug connector. – Check the stator winding of the alternator. – Check wiring harness (visual check). – Check the electrical system. – Clean the connector and treat with contact spray. – Check wiring for damage and electrical plug-in connectors for corrosion and damage. – Read out the fault memory using the diagnostics tool.
The engine has no idle speed	Faulty spark plug Faulty ignition Idle speed is not set correctly	– Change the spark plug. – Ignition coil - check the primary winding. – Check the spark plug connector. – Check the stator winding of the alternator. – Adjust the idle speed. (p. 132)
Engine does not speed up	Malfunction in the electronic fuel injection Faulty ignition Ambient pressure is incorrectly stored	– Check wiring for damage and electrical plug-in connectors for corrosion and damage. – Read out the fault memory using the diagnostics tool.

Cause	Finding	Remedy
		– Ignition coil - check the primary winding. – Check the spark plug connector. – Check the stator winding of the alternator. – Program ambient air pressure. (p. 133)
Engine has too little power	Air filter is very dirty Fuel filter is very dirty Fuel screen is very dirty Malfunction in the electronic fuel injection Fuel supply interrupted Exhaust system leaks, deformed or too little damping material in the silencer Faulty ignition Damaged membrane or reed valve housing Ambient pressure is incorrectly stored	– Clean the air filter and air filter box. (p. 78) – Change the fuel filter. – Change the fuel screen. (p. 137) – Check wiring for damage and electrical plug-in connectors for corrosion and damage. – Read out the fault memory using the diagnostics tool. – Check the fuel tank vent. – Check exhaust system for damage. – Change the damping material on the main silencer. (p. 81) – Ignition coil - check the primary winding. – Check the spark plug connector. – Check the stator winding of the alternator. – Check the membrane and reed valve housing. – Program ambient air pressure. (p. 133)
The engine dies during the trip	Lack of fuel The engine takes in false air Connector or ignition coil loose or oxidized Ambient pressure is incorrectly stored	– Refuel. (p. 47) – Check that the intake manifold is firmly seated. – Clean the connector and treat with contact spray. – Program ambient air pressure. (p. 133)
Engine overheats	Too little coolant in cooling system Too little air stream Radiator fins very dirty Foam formation in the cooling system Damaged cylinder head or cylinder head gasket Bent radiator hose Thermostat defective Defect in the radiator fan system, OCU LED **E** lights up.	– Check the transmission and cooling system for leaks. – Check the coolant level. (p. 125) – Switch off the engine when standing. – Clean the radiator fins. – Drain the coolant. (p. 126) – Refill the coolant. (p. 126) – Check the cylinder head and cylinder head gasket. – Change the radiator hose. – Check the thermostat.

Cause	Finding	Remedy
		Opening temperature: 70 °C (158.0 °F) – Check the radiator fan. – Check the electrical system.
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. 144)
Water in the gear oil	Damaged radial shaft seal ring or water pump	– Check the radial shaft seal ring and the water pump.
Malfunction indicator lamp lights up or flashes	Malfunction in the electronic fuel injection	– Check wiring for damage and electrical plug-in connectors for corrosion and damage. – Read out the fault memory using the diagnostics tool.
12 V battery discharged	The 12-V battery is not being charged by the alternator unwanted electrical load	– Check the charging voltage. – Check the stator winding of the alternator. – Check the open-circuit current.
Values in combination instrument deleted (time, stop watch, lap times)	The combination instrument battery is empty	– Change combination instrument battery. (p. 122)

Note
The blink codes are only displayed by the derestricted version of the vehicle.

23.1 Engine control trouble code

Blink code for malfunction indicator light	 02: Malfunction indicator light flashes 2x short
Error level condition	Crankshaft position sensor - synchronization faulty Time: ≥ 1 s Crankshaft position sensor - too many impulses Time: ≥ 0.1 s Crankshaft speed sensor – signal implausible

Blink code for malfunction indicator light	 06: Malfunction indicator light flashes 6x short
Error level condition	Throttle valve position sensor circuit A – input signal too low Voltage: ≤ 0.2 V Time: ≥ 0.08 s Throttle valve position sensor circuit A – input signal too high Voltage: ≥ 4.7 V Time: ≥ 0.08 s

Blink code for malfunction indicator light	 09: Malfunction indicator light flashes 9x short
Error level condition	Crankcase pressure sensor - short circuit to ground Voltage: ≤ 0.4 V Time: ≥ 0.1 s Crankcase pressure sensor - open/short circuit to plus Voltage: ≥ 4.6 V Time: ≥ 0.1 s Ambient air pressure sensor - short circuit to ground Ambient air pressure sensor voltage: ≤ 0.4 V Time: ≥ 1 s Ambient air pressure sensor – open/short circuit to plus Ambient air pressure sensor voltage: ≥ 4.6 V Time: ≥ 0.1 s

Blink code for malfunction indicator light	 12: Malfunction indicator light flashes 1x long, 2x short
Error level condition	Coolant temperature sensor – input signal too low Voltage: ≤ 0.1 V Time: ≥ 3 s Coolant temperature sensor – input signal too high Voltage: ≥ 4.8 V Time: ≥ 3 s

Blink code for malfunction indicator light	 13: Malfunction indicator light flashes 1x long, 3x short
Error level condition	Intake air temperature sensor – input signal too low Voltage: ≤ 0.2 V Time: ≥ 3 s Intake air temperature sensor – input signal too high Voltage: ≥ 4.8 V Time: ≥ 3 s

Blink code for malfunction indicator light	 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	 15: Failure indicator light flashes 1x long, 5x short
Error level condition	Tilt sensor – input signal too low Signal voltage: ≤ 0.2 V Signal voltage: 3.7 V … 4.6 V Tilt sensor – input signal too high Voltage: ≥ 4.8 V

Blink code for malfunction indicator light	 17: Malfunction indicator light flashes 1x long, 7x short
Error level condition	Lambda sensor - input signal too low Time: ≥ 0.1 s Voltage: ≤ 0.05 V Lambda sensor – input signal too high Time: ≥ 0.1 s Voltage: ≥ 4 V

Blink code for malfunction indicator light	 21: Malfunction indicator light flashes 2x long, 1x short
Error level condition	Battery voltage - input voltage too low Engine control unit power supply: ≤ 9.9 V Time: ≥ 1 s Battery voltage – input voltage too high Engine control unit power supply: ≥ 16.10 V Time: ≥ 1 s

Blink code for malfunction indicator light	 33: Malfunction indicator lamp flashes 3x long, 3x short
Error level condition	Injector 1, cylinder 1 - input signal too low Time: ≥ 1 s

	Injector 1, cylinder 1 - input signal too high Time: ≥ 1 s

Blink code for malfunction indicator light	 34: Malfunction indicator lamp flashes 3x long, 4x short
Error level condition	Injector 2, cylinder 1 - input signal too low Time: ≥ 1 s Injector 2, cylinder 1 - input signal too high Time: ≥ 1 s

Blink code for malfunction indicator light	 37: Malfunction indicator light flashes 3x long, 7x short
Error level condition	Ignition coil - failure in circuit Time: ≥ 2.0 s

Blink code for malfunction indicator light	 41: Malfunction indicator light flashes 4x long, 1x short
Error level condition	Fuel pump - interruption/short circuit to ground The engine is switched off: ≥ 0.4 s Fuel pump - short circuit to plus The engine is switched off: ≥ 0.4 s

Blink code for malfunction indicator light	 42: Malfunction indicator light flashes 4x long, 2x short
Error level condition	Oil pump - input signal too low Time: ≥ 1 s Oil pump - input signal too high Oil level sensor – short circuit to ground Oil level sensor – short circuit to plus Oil lamp – malfunction in the circuit Oil lamp – short circuit to ground Oil lamp – short circuit to plus

Blink code for malfunction indicator light	 45: Malfunction indicator light flashes 4x long, 5x short
Error level condition	Oxygen sensor heater - short circuit to ground Time: ≥ 1 s Oxygen sensor heater - short circuit to plus Time: ≥ 1 s

Blink code for malfunction indicator light	 50: Malfunction indicator light flashes 5x long
Error level condition	Exhaust control actuator – no signal Exhaust control actuator – temperature too high

	Exhaust control actuator – incorrect setting Exhaust control actuator – setpoint value signal faulty Exhaust control actuator – input signal too low Exhaust control actuator – input signal too high Exhaust control actuator – mechanical error in the lower position Exhaust control actuator – mechanical error in the upper position Exhaust control actuator – mechanical error

Blink code for malfunction indicator light	 52: Malfunction indicator light flashes 5x long, 2x short
Error level condition	Fuel vapor valve – circuit fault Fuel vapor valve – voltage too low Fuel vapor valve – voltage too high

Blink code for malfunction indicator light	 53: Malfunction indicator light flashes 5x long, 3x short
Error level condition	Sensor voltage 1 – open circuit/short circuit to ground Sensor voltage 1 – short circuit to plus

Blink code for malfunction indicator light	 54: Malfunction indicator light flashes 5x long, 4x short
Error level condition	Sensor voltage 2 – open circuit/short circuit to ground Sensor voltage 2 – short circuit to plus

24.1 Engine

24.1.1 Technical data - engine

Design	Single-cylinder 2-stroke engine, liquid-cooled, with diaphragm intake and exhaust control
Displacement	293.15 cm³ (17.8891 in³)
Stroke	72 mm (2.83 in)
Bore	72 mm (2.83 in)
idle speed	1,500 rpm … 1,700 rpm (25.00 Hz … 28.33 Hz)
Crankshaft bearing	1 grooved ball bearing, 1 roller bearing
Big (bottom) end bearing	Needle bearing
Wrist pin bearing	Needle bearing
Piston	Cast aluminum
Piston rings	2 rectangular rings
X-dimension (upper edge of piston to upper edge of cylinder)	0 mm … 0.10 mm (0 in … 0.0039 in)
Z-dimension (height of control flap)	50.2 mm … 50.5 mm (1.976 in … 1.988 in)
Primary transmission	26:72
Clutch	Multi-disc wet clutch / hydraulically activated
Transmission	6 speed transmission, claw shift
Gear ratios	
1st gear	13:33
2nd Gear	16:30
3rd Gear	18:26
4th Gear	22:26
5th Gear	23:23
6th Gear	26:22
Ignition system	Contactless controlled fully electronic ignition with digital ignition adjustment
Spark plug	NGK BR 7 ES
Plug gap of spark plug	0.6 mm (0.024 in)
Starting aid	Electric starter

24.1.2 Capacities - engine

gear oil	
Engine oil (15W/50) (p. 174) Partially synthetic	0.80 l (0.211 liq. gal_{US})
coolant	
Coolant (p. 175) Antifreeze protection to at least: −25 °C (−13.0 °F)	0.95 l (0.251 liq. gal_{US})

24.2 Chassis

24.2.1 Technical data - chassis

Frame	Central tube frame made of chrome molybdenum steel tubing
Suspension travel:	
front	291.2 mm (11.465 in)
rear	300 mm (11.81 in)
Triple clamp offset	22 mm (0.87 in)
Brake system	Disc brakes, floating brake calipers
Brake discs - diameter	
front	260 mm (10.24 in)
rear	220 mm (8.66 in)
Brake discs wear limit	
front	2.5 mm (0.098 in)
rear	3.5 mm (0.138 in)
Final drive **(EU model)**	14:42 (13:42)
Final drive **(US model)**	14:50
Chain	520
Rear sprocket **(EU model)**	42 teeth
Rear sprocket **(US model)**	45 teeth
Steering head angle	63.9° (1.115 rad)
Wheelbase	1,489 mm (58.62 in)
Seat Height unloaded	957 mm (37.68 in)
Ground clearance unloaded	355 mm (13.98 in)
Weight without fuel approx.	107.6 kg (237.22 lb)
Maximum permissible front axle load	145 kg (319.7 lb)
Maximum permissible rear axle load	190 kg (418.9 lb)
Maximum permissible total weight	335 kg (738.5 lb)

24.2.2 Technical data - tires

Street tire pressure	
front	2.0 bar (29.0 psi)
rear	2.0 bar (29.0 psi)
Off-road tire pressure	
front	1.0 bar (14.5 psi)
rear	1.0 bar (14.5 psi)

Validity	Tire front	Rear tire
(EU model)	**90/90 - 21 M/C 54R M+S TT** MAXXIS Maxx Enduro	**140/80 - 18 M/C 70R M+S TT** MAXXIS Maxx Enduro
(US model)	**80/100 - 21 M/C 51M M+S TT** Dunlop GEOMAX AT82F	**110/100 - 18 M/C 64M M+S TT** Dunlop GEOMAX AT82

The tires specified represent one of the possible series production tires. For alternative manufacturers, if any, contact an authorized manufacturer or qualified tire dealership. If local road approval regulations apply, these and the respective technical specifications must be observed.

24.2.3 Capacities - vehicle

Total fuel tank capacity, approx.	
Super unleaded (ROZ 95) (p. 176)	9 l (2.4 liq. gal_{US})
Fuel reserve, approx.	
Super unleaded (ROZ 95) (p. 176)	1.5 l (0.40 liq. gal_{US})
2-stroke oil tank content approx.	
2-stroke engine oil (p. 174) fully synthetic	0.8 l (0.21 liq. gal_{US})

24.3 Electrics

24.3.1 Battery

12-V battery	HJTZ5S-FP-C	Lithium-ion battery Battery voltage: 12 V Nominal capacity: 2.0 Ah Maintenance-free
Button cell	CR 2032	3 V

24.3.2 Fuses

Fuse	58011109120	20 A

24.3.3 Lamps

Low beam/high beam	LED	
Parking light	LED	
Indicator lamps	W2,3W / Sockel W2x4,6d	12 V 2.3 W (0.0031 hp)
(EU model) Turn signal	R10W / Sockel BA15s	12 V 10 W (0.013 hp)
Brake/tail light	LED	

24.4 Fork

24.4.1 Technical data - fork

Fork part number	A590C163Z401000

Fork	**WP XPLOR**
Compression damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks
Rebound damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks
Spring length with preload spacer(s)	474 mm (18.66 in)
Spring rate	
Weight of rider: 65 kg … 75 kg (143.3 lb … 165.3 lb)	4.4 N/mm (25.12 lb_f/in)
Weight of rider: 75 kg … 85 kg (165.3 lb … 187.4 lb)	4.6 N/mm (26.27 lb_f/in)
Weight of rider: 85 kg … 95 kg (187.4 lb … 209.4 lb)	4.8 N/mm (27.41 lb_f/in)
Fork length	940 mm (37.01 in)

24.4.2 Capacities - fork

Fork oil per fork leg	
Fork oil (48601166S1) (SAE 4) (p. 174)	635 ±10 ml (21.47 ±0.34 fl. oz_{US})

24.5 Shock absorber

24.5.1 Technical data - shock absorber

Shock absorber part number	A390C463Z408000

Shock absorber	**WP XACT LDS**
Low-speed compression damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks
High-speed compression damping	
Comfort	2.5 turns (900°)
Standard	2 turns (720°)
Sport	1.5 turns (540°)
Rebound damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks
Preload	7 mm (0.28 in)
Spring rate	
Weight of rider: 65 kg ... 75 kg (143.3 lb ... 165.3 lb)	42 N/mm (239.8 lb_f/in)
Weight of rider: 75 kg ... 85 kg (165.3 lb ... 187.4 lb)	45 N/mm (257.0 lb_f/in)
Weight of rider: 85 kg ... 95 kg (187.4 lb ... 209.4 lb)	48 N/mm (274.1 lb_f/in)
Spring length	240 mm (9.45 in)
Gas assisted	10 bar (145 psi)
Static sag	40 mm (1.57 in)
Rider sag	110 mm (4.33 in)
Installation position	456.3 mm (17.965 in)

24.5.2 Capacities - shock absorber

Oil capacity, shock absorber	
Shock absorber oil (50180751S1) (SAE 2.5) (p. 175)	Fill to the maximum mark

24.6 Tightening torque

24.6.1 Engine tightening torques

Detent arm screw M5	6 Nm (4.4 ft·lb$_f$) **Loctite® 243**
Actuator screw M5	5 Nm (3.7 ft·lb$_f$) **Loctite® 243**
Actuator cover screw M5	5 Nm (3.7 ft·lb$_f$) **Loctite® 243**
Exhaust control flap screw M5	8 Nm (5.9 ft·lb$_f$) **Loctite® 243**
Screw, bearing retainer M5	6 Nm (4.4 ft·lb$_f$) **Loctite® 243**
Screw, retaining bracket of exhaust control M5	6 Nm (4.4 ft·lb$_f$) **Loctite® 2701**
Control unit cover screw M5	6 Nm (4.4 ft·lb$_f$)
Screw, clutch spring retainer M5	6 Nm (4.4 ft·lb$_f$)
Screw, crankshaft position sensor M5	6 Nm (4.4 ft·lb$_f$) **Loctite® 243**
Screw, main shaft of exhaust control M5	8 Nm (5.9 ft·lb$_f$) **Loctite® 243**
Nut, axle for control flap M5	5 Nm (3.7 ft·lb$_f$)
Stator screw M5	6 Nm (4.4 ft·lb$_f$) **Loctite® 2701**
(EU model) Exhaust port adapter screw cap M5	6 Nm (4.4 ft·lb$_f$) **Loctite® 243**
(EU model) Injector holder screw cap M5	6 Nm (4.4 ft·lb$_f$) **Loctite® 243**
Screw, intake manifold / diaphragm housing M6	6 Nm (4.4 ft·lb$_f$)
Screw, gear oil level check M6	8 Nm (5.9 ft·lb$_f$)
Shift star screw M6	10 Nm (7.4 ft·lb$_f$) **Loctite® 243**

Screw, shift lever M6	14 Nm (10.3 ft·lb$_f$) **Loctite® 243**
Screw, water pump cover M6	10 Nm (7.4 ft·lb$_f$)
Screw, ignition cover M6	8 Nm (5.9 ft·lb$_f$)
Cap nut, water pump impeller M6	5 Nm (3.7 ft·lb$_f$) **Loctite® 243**
Screw, outer clutch cover M6	8 Nm (5.9 ft·lb$_f$)
Screw, inner clutch cover M6	10 Nm (7.4 ft·lb$_f$)
Screw, starter motor M6	10 Nm (7.4 ft·lb$_f$)
Screw, starter motor cover M6	8 Nm (5.9 ft·lb$_f$)
Screw, engine case M6	10 Nm (7.4 ft·lb$_f$)
Screw, intermediate flange M6	10 Nm (7.4 ft·lb$_f$)
Cylinder head bleed screw M6	8 Nm (5.9 ft·lb$_f$)
(EU model) Stud, exhaust flange M6	6 Nm (4.4 ft·lb$_f$)
Screw, balancer shaft M8	30 Nm (22.1 ft·lb$_f$) **Loctite® 243**
Screw, cylinder head M8	27 Nm (19.9 ft·lb$_f$)
Nut, cylinder base M10	35 Nm (25.8 ft·lb$_f$)
Screw, drive chain front sprocket M10	60 Nm (44.3 ft·lb$_f$) **Loctite® 2701**
Stud, cylinder base M10	12 Nm (8.9 ft·lb$_f$)
Nut, crankshaft M12LH×1	60 Nm (44.3 ft·lb$_f$)
Transmission drain plug with magnet M12×1.5	20 Nm (14.8 ft·lb$_f$)
Spark plug M14×1.25	25 Nm (18.4 ft·lb$_f$)
Nut, inner clutch hub M18×1.5	100 Nm (73.8 ft·lb$_f$) **Loctite® 243**

Nut, primary gear M18LH×1.5	150 Nm (110.6 ft·lb$_f$) **Loctite® 243**
Screw, reed valve support plate **EJOT DELTA PT® –** 30×12	1 Nm (0.7 ft·lb$_f$)
Screw, outer membrane sheets **EJOT DELTA PT® –** 30×6	1 Nm (0.7 ft·lb$_f$)
Screw, inner membrane sheets **EJOT DELTA PT® –** 35×25	1 Nm (0.7 ft·lb$_f$)
Screw, pressure sensor **EJOT PT® –** K60×20 – AL	2.5 Nm (1.84 ft·lb$_f$)

24.6.2 Chassis tightening torques

Screw, radiator hoses clip	2.4 Nm (1.77 ft·lb$_f$)
Screw, hose clip, inlet sleeve	2.8 Nm (2.07 ft·lb$_f$)
Mushroom head screw for spoiler and seat	2.5 Nm (1.84 ft·lb$_f$)
Screw, cold-start enrichment	2.4 Nm (1.77 ft·lb$_f$)
Screw, fixed grip M4	5 Nm (3.7 ft·lb$_f$) **Loctite® 243**
Air boot screw connection to throttle body M4	5 Nm (3.7 ft·lb$_f$)
Screw, throttle body cover M5	2.6 Nm (1.92 ft·lb$_f$)
Remaining nuts on chassis M5	5 Nm (3.7 ft·lb$_f$)
Remaining screws on chassis M5	5 Nm (3.7 ft·lb$_f$)
Screw, shock absorber adjusting ring M5	5 Nm (3.7 ft·lb$_f$)
(EU model) Screw, light switch M5	1 Nm (0.7 ft·lb$_f$)
(EU model) Screw, turn signal switch M5	1 Nm (0.7 ft·lb$_f$)
Screw, frame protector M5	3 Nm (2.2 ft·lb$_f$)
Screw, battery terminal M5	2.5 Nm (1.84 ft·lb$_f$)
Screw, oil tank on frame M6	6 Nm (4.4 ft·lb$_f$)
Screw, oil pump M6	6 Nm (4.4 ft·lb$_f$)

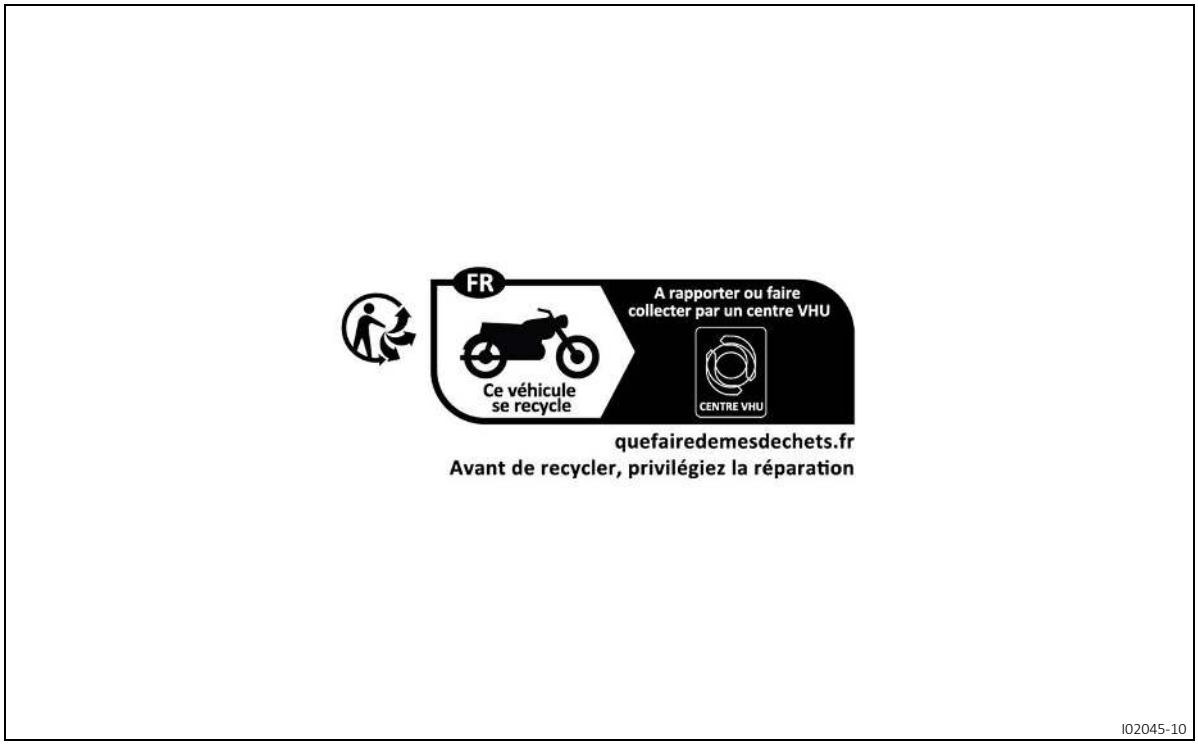
Screw, fuel tank spoiler on radiator M6	6 Nm (4.4 ft·lb$_f$)
Nut, throttle cable wire on throttle valve body M6	3 Nm (2.2 ft·lb$_f$)
Screw, throttle twist grip M6	5 Nm (3.7 ft·lb$_f$)
Nut, cable on starter motor M6	4 Nm (3.0 ft·lb$_f$)
Remaining nuts on chassis M6	10 Nm (7.4 ft·lb$_f$)
Remaining screws on chassis M6	10 Nm (7.4 ft·lb$_f$)
Screw, rear brake disc M6	14 Nm (10.3 ft·lb$_f$) **Loctite® 243**
Screw, front brake disc M6	14 Nm (10.3 ft·lb$_f$) **Loctite® 243**
Screw, ball joint of push rod on rear brake cylinder M6	10 Nm (7.4 ft·lb$_f$) **Loctite® 243**
Screw, chain slider guard M6	6 Nm (4.4 ft·lb$_f$) **Loctite® 243**
Screw, battery holding bracket M6	6 Nm (4.4 ft·lb$_f$)
Screw, cable on starter relay M6	6 Nm (4.4 ft·lb$_f$)
Screw, brake line guide for link fork M6	4.5 Nm (3.32 ft·lb$_f$) **Loctite® 243**
Screw, chain guide M6	10 Nm (7.4 ft·lb$_f$) **Loctite® 243**
Screw, brake lever M6	5 Nm (3.7 ft·lb$_f$)
Screw, clutch lever M6	5 Nm (3.7 ft·lb$_f$)
Screw, seat installation M6	8 Nm (5.9 ft·lb$_f$)
Screw, ground wire in tail section M6	10 Nm (7.4 ft·lb$_f$)
Screw, fender to triple clamp M6	12 Nm (8.9 ft·lb$_f$)
Screw, connector board incl. combination instrument M6	5 Nm (3.7 ft·lb$_f$)
Screw, oil tank cap M6	6 Nm (4.4 ft·lb$_f$)

Screw, wheel speed sensor on axle clamp M8	4.5 Nm (3.32 ft·lb$_f$)
Nut, rear sprocket screw M8	35 Nm (25.8 ft·lb$_f$) **Loctite® 2701**
Nut, rim lock M8	12 Nm (8.9 ft·lb$_f$)
Remaining nuts on chassis M8	25 Nm (18.4 ft·lb$_f$)
Remaining screws on chassis M8	25 Nm (18.4 ft·lb$_f$)
Screw, front brake caliper M8	25 Nm (18.4 ft·lb$_f$) **Loctite® 243**
Screw, top triple clamp M8	20 Nm (14.8 ft·lb$_f$)
Screw, bottom triple clamp M8	15 Nm (11.1 ft·lb$_f$)
Screw, upper steering stem M8	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**
Screw, chain slider M8	15 Nm (11.1 ft·lb$_f$)
Screw, engine brace M8×20	25 Nm (18.4 ft·lb$_f$) **Loctite® 243**
Screw, subframe, bottom M8	35 Nm (25.8 ft·lb$_f$) **Loctite® 243**
Screw, subframe, top M8	40 Nm (29.5 ft·lb$_f$) **Loctite® 2701**
Screw, side stand attachment M8×26	33 Nm (24.3 ft·lb$_f$) **Loctite® 2701**
Screw, manifold M8	15 Nm (11.1 ft·lb$_f$)
Screw, front sprocket cover M8	15 Nm (11.1 ft·lb$_f$)
Handlebar clamp screw M8	20 Nm (14.8 ft·lb$_f$)
Screw, fork shoe M8	15 Nm (11.1 ft·lb$_f$)
Brake pedal stop nut M8	20 Nm (14.8 ft·lb$_f$)
Screw, brake caliper on brake caliper bracket M8	25 Nm (18.4 ft·lb$_f$) **Loctite® 243**

Engine bracket screw M10	60 Nm (44.3 ft·lb$_f$)
Remaining nuts on chassis M10	45 Nm (33.2 ft·lb$_f$)
Remaining screws on chassis M10	45 Nm (33.2 ft·lb$_f$)
Screw, handlebar mount M10	40 Nm (29.5 ft·lb$_f$) **Loctite® 243**
Top shock absorber screw M10	60 Nm (44.3 ft·lb$_f$) **Loctite® 2701**
Bottom shock absorber screw M10	60 Nm (44.3 ft·lb$_f$) **Loctite® 2701**
Bushing, foot brake lever M10	45 Nm (33.2 ft·lb$_f$)
Temperature sensor water to t-plate M10	10 Nm (7.4 ft·lb$_f$)
Screw, sprocket M10	60 Nm (44.3 ft·lb$_f$) **Loctite® 2701**
Screw connection, pull rod on frame M14	60 Nm (44.3 ft·lb$_f$)
Nut, swingarm pivot M16×1.5	100 Nm (73.8 ft·lb$_f$)
Screw, top steering head M20×1.5	12 Nm (8.9 ft·lb$_f$)
Screw, wheel spindle, front M20×1.5	35 Nm (25.8 ft·lb$_f$)
Nut, wheel spindle, rear M22×1.5	80 Nm (59.0 ft·lb$_f$)
T-junction incl. thermostat M24×1.5	7.5 Nm (5.53 ft·lb$_f$)
Screw-in nozzle, cooling system M24×1.5	7.5 Nm (5.53 ft·lb$_f$) **Loctite® 243**
Spoke nipple, front wheel M4,5	6 Nm (4.4 ft·lb$_f$)
Spoke nipple, rear wheel M4,5	6 Nm (4.4 ft·lb$_f$)
Screw, intake air temperature sensor **EJOT DELTA PT® –** K50×18	0.7 Nm (0.52 ft·lb$_f$)
Screw, oil fill level sensor **EJOT PT® –** 50×18	2.5 Nm (1.84 ft·lb$_f$)
Screw, start button/kill switch **EJOT PT® –** MK50×18	2 Nm (1.5 ft·lb$_f$)
Screw, fuel pump **EJOT PT® –** K60×30 – Z	2.5 Nm (1.84 ft·lb$_f$)

Remaining screws on chassis **EJOT PT®** – K60×25 – Z	2 Nm (1.5 ft·lb$_f$)
Screw, subframe with filter box **EJOT PT®** – K60×20 – AL	5 Nm (3.7 ft·lb$_f$)

25.1 Recycling



Further information is available at the following website.
Recycling information website: https://www.quefairedemesdechets.fr

25 Recycling

A Technical terms

OBD	On-board diagnosis	Vehicle system, which monitors the specified parameters of the vehicle electronics

B Operating material

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

2-stroke engine oil

Recommended supplier

MOTOREX®

- **CROSS POWER 2T**

Standards

→ JASO FD

Properties

- fully synthetic

High viscosity grease

Recommended supplier

SKF®

- **LGHB 2**

Silicone spray

Recommended supplier

MOTOREX®

- **SILICONE SPRAY**

Shock absorber oil

Order details

- 50180751S1

Standards

• SAE 2.5	→ SAE

Oil for foam air filter

Recommended supplier

MOTOREX®

- **RACING BIO AIR FILTER OIL**

Brake fluid DOT 5.1

Recommended supplier

MOTOREX®

- **BRAKE FLUID DOT 5.1**

Standards

→ DOT

Coolant

Recommended supplier

MOTOREX®

- **COOLANT M3.0**

Properties

• Antifreeze protection to at least	−25 °C (−13.0 °F)

C Fuels

Super unleaded

Standards

• ROZ 95	→ DIN EN 228

Fuel additive

Recommended supplier

MOTOREX®

- **FUEL STABILIZER**

D Electrics

Low beam/high beam (LED)

Product code

- LED

Low beam (LED)

Product code

- LED

Button cell (CR 2032)

Product code

- CR 2032

Properties

- 3 V

12-V battery (HJTZ5S-FP-C)

Product code

- HJTZ5S-FP-C

Properties

- Lithium-ion battery
- Battery voltage 12 V
- Nominal capacity 2.0 Ah
- Maintenance-free

Turn signal (R10W / Sockel BA15s)

Product code

- R10W / Sockel BA15s

Properties

- 12 V
- 10 W
  (0.013 hp)

Brake/tail light (LED)

Product code

- LED

Indicator lamps (W2,3W / Sockel W2x4,6d)

Product code

- W2,3W / Sockel W2x4,6d

Properties

- 12 V
- 2.3 W
  (0.0031 hp)

Parking light (LED)

Product code

- LED

Fuse (58011109120)

Product code

- 58011109120

Properties

- 20 A

E 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**

F Icons

F.1 Symbol colors

F.1.1 Red symbols

Red symbols indicate a fault status that requires immediate intervention.

	The oil level warning lamp lights up red

F.1.2 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.

	Malfunction indicator lamp lights up/flashes yellow
	The fuel level warning lamp lights up yellow

F.1.3 Green and blue symbols

Green and blue symbols convey information.

	Turn signal indicator lamp flashes green
	The high beam indicator lamp lights up blue

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