OWNER'S MANUAL 2025

READY TO RACE

85 SX

ITEM NO.: 3240038EN

KTM

Dear KTM customer,

Congratulations on your decision to purchase a KTM 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 your child has many safe and enjoyable rides!

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

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

The Owner's Manual contained the latest information for this model series at the time of publication. However, minor differences due to further developments in design cannot be ruled out completely.

All specifications are non-binding. KTM Sportmotorcycle 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. KTM 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 delivery.

ISO 9001

KTM applies quality assurance processes that lead to the highest possible product quality as defined in the ISO 9001 international quality management standard.

12 100 6061

REG.NO. 12 100 6061

Issuing institution:
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This document is valid for the following models:

85 SX 19/16 (F6001Y9)

85 SX 19/16 CN (F6087Y9)

85 SX 17/14 (F6001Y8)

3240038en

17/10/2024

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

2.1 Safety instructions

Function of the safety instruction

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

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

Safety instruction layout

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

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

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

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

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

NOTE
Indicates a situation that can lead to environmental damage.

2.2 Ban on tampering

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

Tampering that is prohibited

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

Examples of prohibited tampering

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

2.3 Safe use

DANGER

Danger of accidents A rider who is not fit to ride poses a danger to themself and to others.

– Do not operate the vehicle if you are not fit to ride due to alcohol, drugs, or medication.
– Do not operate the vehicle if you are physically or mentally incapable of doing so.

DANGER

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

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

WARNING

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

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

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

The vehicle must only be used by trained persons.

Have malfunctions that impair safety promptly eliminated by an authorized KTM workshop.

Observe the information and warning stickers on the vehicle.

2.4 Protective clothing

WARNING

Risk of injury Missing or poor protective clothing presents an increased safety risk.

– Ensure your child wears appropriate protective clothing such as helmet, boots, gloves as well as trousers and a jacket with protectors on all rides.
– Alway use protective clothing for your child that is in good condition and meets the legal requirements.
– When you ride a motorcycle, set an example for your child and wear 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
Ambient air pressure	1,013 mbar
Relative air humidity	60 ±5 %

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

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

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

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

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

2.6 Environment

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

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

As motorcycles are not subject to the EU regulations governing the disposal of end-of-life vehicles, there are no legal regulations that pertain to the disposal of an end-of-life motorcycle. More information is available from authorized KTM dealers.

2.7 Owner's manual

It is important that you read this Owner's Manual carefully and completely before your child makes thier first trip. The Owner's Manual contains useful information and many tips for you and your child on how to operate, handle, and service your motorcycle. This is the only way for you to find out how to ideally tune the vehicle and how to protect your child from injury.

Tip

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

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

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

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

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

International KTM Website: KTM.COM

2.8 Use definition – intended use

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

Note

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

2.9 Improper use

The vehicle may only be used as intended.

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

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

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

3.1 Manufacturer's warranty, implied warranty

The work prescribed in the service schedule must only be carried out and then confirmed by an authorized KTM workshop, otherwise all warranty claims will be invalidated. 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 KTM may be used. Installation must be carried out in an authorized KTM workshop. KTM 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 KTM dealers will be happy to help.

The current **KTM PowerParts** are listed for each vehicle on the KTM website.

International KTM Website: KTM.COM

3.4 Service

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

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

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

The relevant mileage or time interval is whichever occurs first.

3.5 Figures

Some of the figures in this document contain optional extras.

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

3.6 Customer service

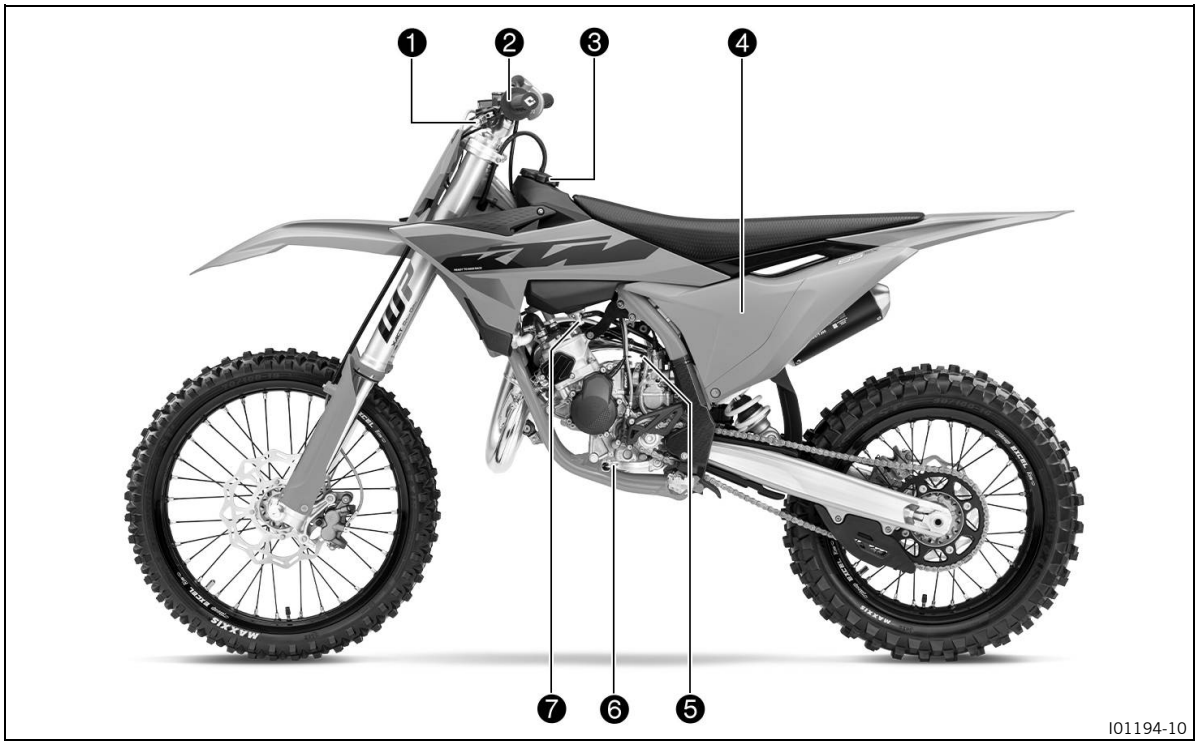
Authorized KTM dealers will be happy to answer questions about the vehicle and KTM.

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

International KTM Website: KTM.COM

4 View of the vehicle

4.1 View of vehicle, left side (example)



1. Clutch lever (p. 16)
2. Kill switch (p. 16)
3. Fuel tank cap
4. Air filter box cover
5. Choke (p. 18)
6. Gear shift lever (p. 18)
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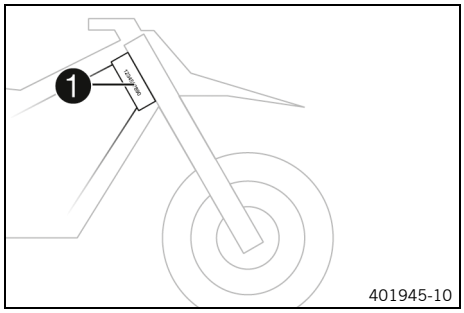
4.2 View of vehicle, right side (example)

1. Throttle grip (p. 16)
2. Handbrake lever (p. 16)
3. Fork part number (p. 14)
4. Kickstarter lever (p. 19)
5. Brake pedal (p. 19)
6. Level viewer for brake fluid, rear

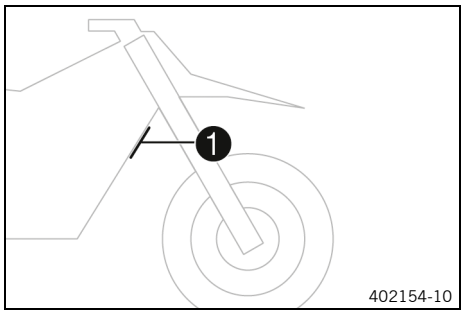
5 Serial number

5.1 Vehicle identification number



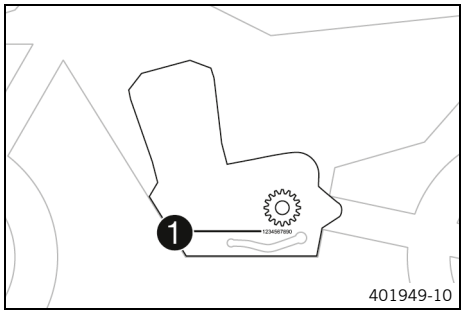
The vehicle identification number ❶ is stamped on the right-hand side of the steering head.

5.2 Frame label



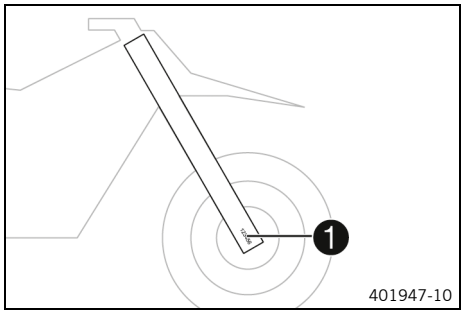
Frame label ❶ is located on the front frame tube.

5.3 Engine number



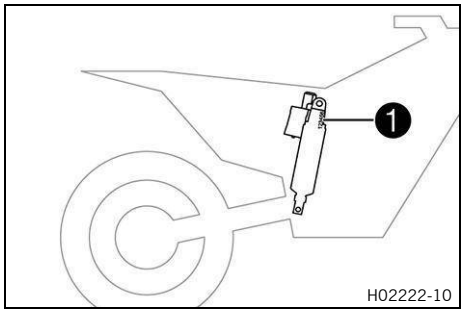
The engine number ❶ is located on the left side of the engine under the engine sprocket.

5.4 Fork part number



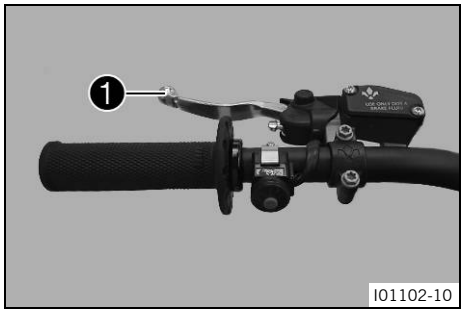
The fork article number ❶ is stamped on the outside of the axle clamp.

5.5 Shock absorber part number



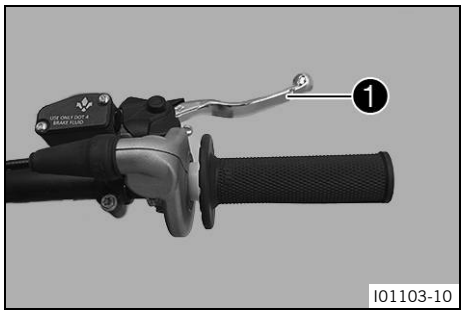
The shock absorber article number ❶ is stamped on the bottom of the shock absorber toward the right-hand side.

6.1 Clutch lever



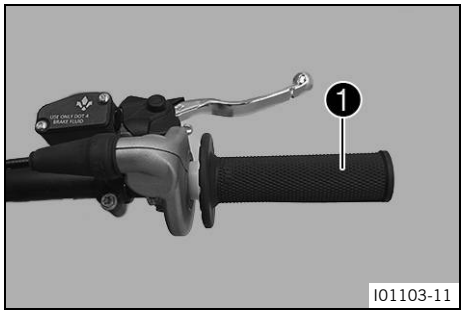
Clutch lever ❶ is fitted on the left side of the handlebar.
The clutch is activated hydraulically and adjusts itself automatically.

6.2 Handbrake lever



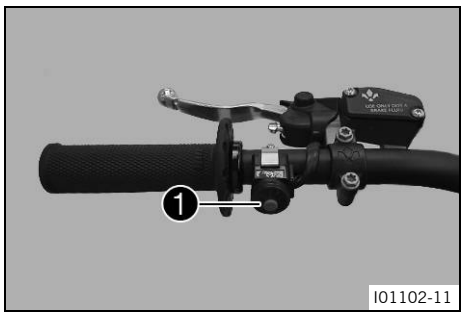
Hand brake lever ❶ is fitted on the right side of the handlebar.
The front brake is engaged using the hand brake lever.

6.3 Throttle grip



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

6.4 Kill switch



The stop button ❶ is fitted on the left side of the handlebar.

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

6.5 Opening the fuel tank cap

DANGER

Fire hazard Fuel is highly flammable.

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

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

WARNING

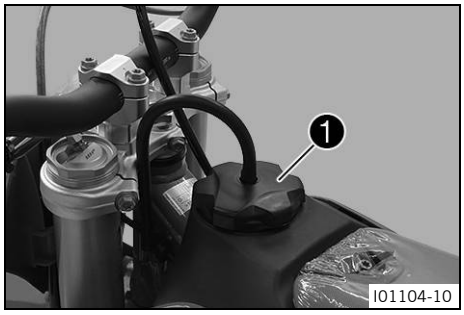
Danger of poisoning Fuel is harmful to health.

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

NOTE

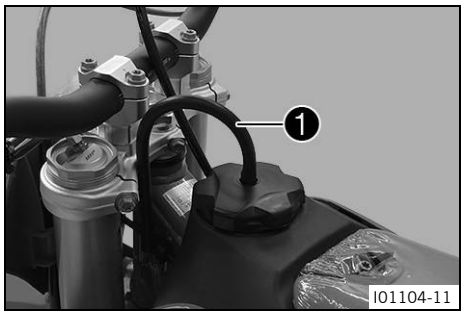
Environmental hazard Improper handling of fuel is dangerous to the environment.

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



– Turn fuel tank cap ❶ counterclockwise and lift it off.

6.6 Closing the fuel tank cap

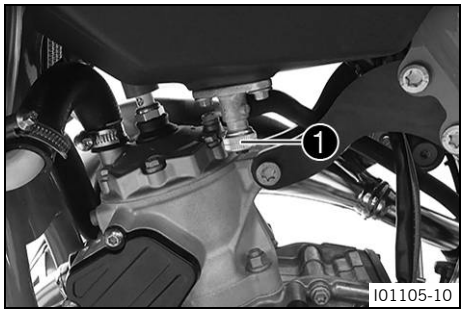


– Mount the fuel tank cap and turn it clockwise until the fuel tank is tightly closed.

Note

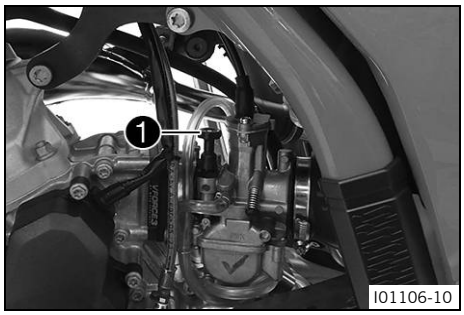
Route hose of fuel tank vent ❶ without kinks.

6.7 Fuel tap



Using the tap handle ❶ on the fuel tap, you can open or close the fuel supply to the carburetor.
The fuel tap is on the left side of the fuel tank.

6.8 Choke

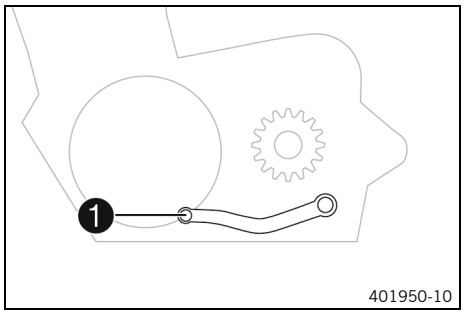


Activating the choke function frees a drill hole in the carburetor through which the engine can draw extra fuel. This results in a richer fuel-air mixture, which is needed for a cold start.

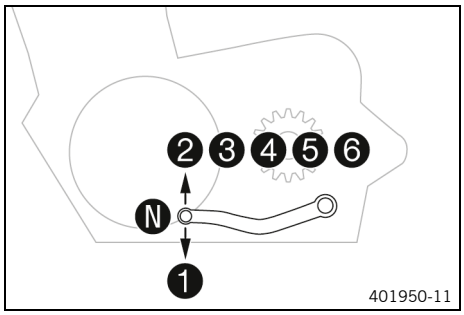
Note
If the engine is warm, the choke function must be deactivated.

Choke ❶ is fitted on the left side of the carburetor.

6.9 Gear shift lever

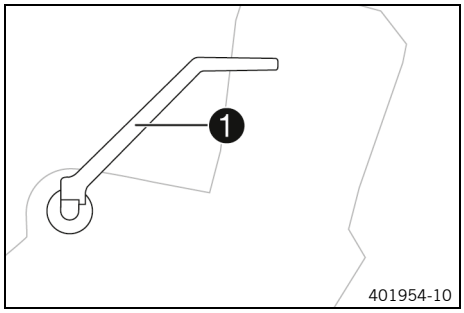


Gear shift lever ❶ is mounted on the left of the engine.



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

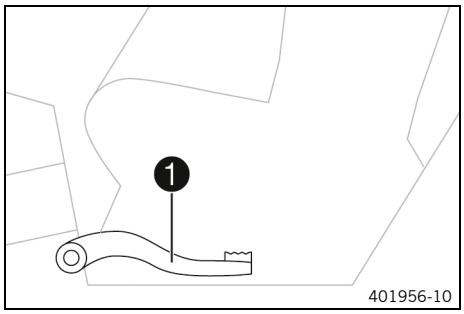
6.10 Kickstarter lever



Kick starter lever ❶ is fitted on the right side of the engine.
The kick starter lever can be swiveled.

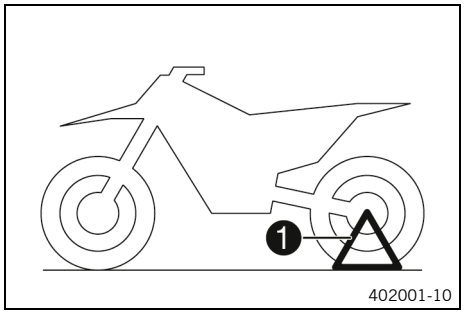
Note
Before riding, swing the kick starter lever inwards towards the engine.

6.11 Brake pedal



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

6.12 Plug-in stand



The plug-in stand is used to park the motorcycle.

Note
Remove the plug-in stand before riding.

The support for the plug-in stand ❶ is on the left side of the wheel spindle.

7 Preparing for use

7.1 Notes on preparing for first use.

WARNING

Danger of accidents A lack of physical and mental readiness on the part of the child poses a major risk.

Children often underestimate or fail to recognize dangerous situations.

– Your child must already be able to ride a bicycle.
– Your child must be able to put the vehicle upright independently after a fall.
– Your child must understand that regulations and instructions from you or from other guardians must be followed.
– Make it clear to your child that they should not, under any circumstances, operate the vehicle without supervision.
– Make it clear to your child that he or she may only drive at speeds corresponding to the child's riding abilities and the road conditions.
– Do not ask too much of your child.
– Do not consider participation in competitive activities until your child's stamina, riding techniques and motivation are at the necessary levels.
– Only let your child ride on the vehicle if they are physically and mentally ready.

WARNING

Risk of injury Missing or poor protective clothing presents an increased safety risk.

– Ensure your child wears appropriate protective clothing such as helmet, boots, gloves as well as trousers and a jacket with protectors on all rides.
– Alway use protective clothing for your child that is in good condition and meets the legal requirements.
– When you ride a motorcycle, set an example for your child and wear suitable protective clothing.

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

Danger of accidents Not adapting the riding style constitutes a major risk.

– Ensure that your child adapts the riding speed to the road conditions and to his or her riding abilities.

WARNING

Danger of accidents The vehicle is not designed to carry passengers.

– Make it clear to your child that he or she must not carry 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.

– Ensure that your child raises his or her foot from the foot brake lever if he or she does not want to brake.

WARNING

Danger of accidents The suspension components will become damaged or destroyed if overloaded.

– Make sure the maximum permissible weight of the rider is not exceeded.

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
When using your motorcycle, remember that others may feel disturbed by excessive noise.

– Make sure that the pre-sales inspection work has been carried out by an authorized KTM workshop.
  ✓ You will receive the delivery certificate at vehicle handover.
– Carefully read the entire Owner's Manual together with your child before going for the first ride.

Note
Pay particular attention to the safety instructions and risks of injury.
Explain to your child the techniques of riding and falling, e.g. how shifting weight can influence handling characteristics.

– Familiarize your child with the controls.
– Adjust the basic position of the clutch lever. (p. 73)
– Adjust the free travel of the handbrake lever. (p. 77)
– Adjust the basic position of the brake pedal. (p. 83)
– Before using the vehicle for the first time, ensure that the basic settings of the chassis are suitable for the weight of your child.
– Allow your child to become accustomed to the handling of the motorcycle on suitable terrain, preferably on a large, open meadow.

Note
To give your child a feeling for the brake system, you should push your child at first. Do not start the engine until your child is able to apply the necessary front brake pressure.
Initially, let your child ride to another person who can help your child stop and turn.

– Erect obstacles for your child to navigate around to accustom your child to handling the vehicle.
– Your child should also try to ride as slowly as possible and in a standing position to get a better feeling for the motorcycle.
– Do not let your child ride on terrain that exceed your child's capabilities and experience.
– Your child should hold the handlebar firmly with both hands and keep their feet on the footrests when riding.
– Make sure the maximum permissible weight of the rider is not exceeded.

Maximum rider weight	75 kg

– Check the spoke tension. (p. 92)

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

– Run in the engine. (p. 21)

7.2 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 %

Note
The use of a service hour counter is recommended in order to be able to check the mileage at any time.
During the first ten operating hours, refuel with a mixing ratio of 1:30.

– Avoid fully opening the throttle.

7.3 Preparing the vehicle for difficult operating conditions

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

– Clean the air filter and air filter box. (p. 60)

Note
Check the air filter approx. every 30 minutes.

– Check the electrical socket connector for humidity and corrosion and to ensure it is firmly seated.
  » If moisture, corrosion, or damage is found:
    – Clean and dry the socket connector, or change it if necessary.
– Riding on dry sand. (p. 22)
– Riding on wet sand. (p. 23)
– Rides on wet and muddy surfaces. (p. 23)
– Riding at high temperatures or slow speed. (p. 24)
– Riding at low temperatures and in snow. (p. 25)

7.4 Preparing the vehicle for rides on dry sand

M01104-01

– Make sure that no radiator covers (p. 94) are installed.
– Mount the air filter dust protection.

Air filter dust protection cover (47206920000)

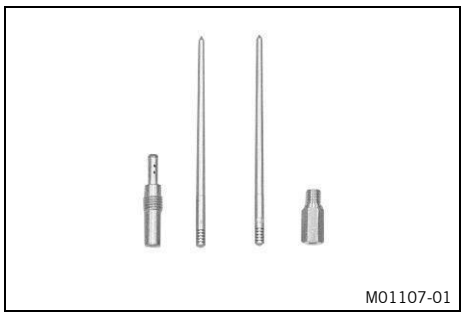
Note
Read the accompanying mounting instructions.

M01105-01

– Mount the air filter sand protection.

Air filter sand protection (79006922000)

Note
Read the accompanying mounting instructions.


M01107-01

– Adjust the carburetor jetting and setting.

Note
Your authorized KTM workshop can recommend the right carburetor tuning.

– Clean the chain.

Chain cleaner (p. 136)

– Grease the chain.

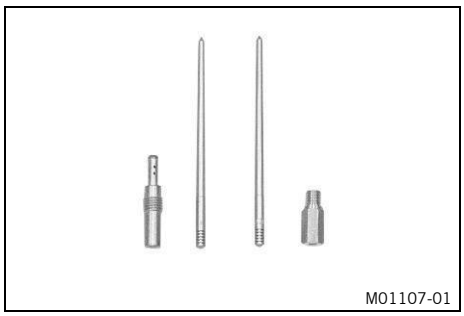
Universal oil spray (p. 134)

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

Condition: Regular use in sand

– Change the piston every 10 operating hours.

7.5 Preparing the vehicle for rides on wet sand


M01107-01

– Make sure that no radiator covers (p. 94) are installed.
– Adjust the carburetor jetting and setting.

Note
Your authorized KTM workshop can recommend the right carburetor tuning.

– Clean the chain.

Chain cleaner (p. 136)

– Grease the chain.

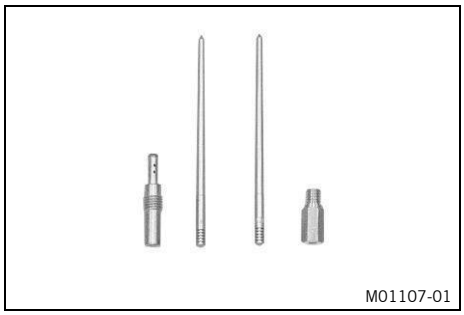
Universal oil spray (p. 134)

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

Condition: Regular use in sand

– Change the piston every 10 operating hours.

7.6 Preparing for rides on wet and muddy surfaces


M01107-01

– Make sure that no radiator covers (p. 94) are installed.
– Adjust the carburetor jetting and setting.

Note
Your authorized KTM workshop can recommend the right carburetor tuning.

– Clean the motorcycle. (p. 114)
– Straighten the bent radiator fins carefully.

7.7 Preparing vehicle for rides at high temperature or slow speed


600868-01

– Make sure that no radiator covers (p. 94) are installed.
– Adjust the secondary transmission to the road conditions.

Note
The engine oil heats up quickly when the clutch is operated frequently due to an excessively high secondary ratio.

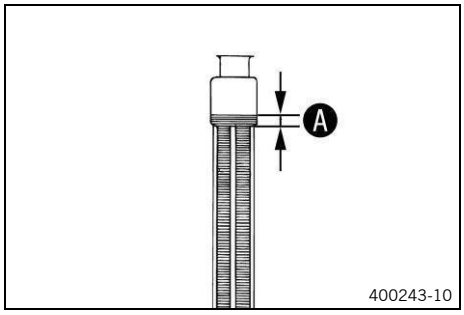
– Clean the radiator fins.
– Straighten the bent radiator fins carefully.

Condition: The engine is cold.

Checking the coolant level

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.

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.



400243-10

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

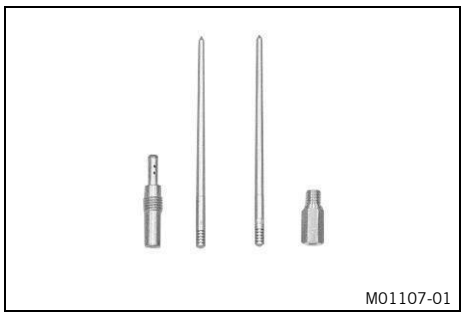
Coolant level Ⓐ above the radiator fins	10 mm

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

coolant	
Coolant (p. 135) Antifreeze protection to at least: −25 °C	0.8 l

– Mount the radiator cap.

7.8 Preparing the vehicle for low temperatures or snow


M01107-01

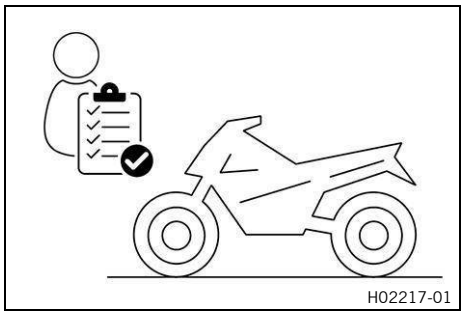
– Adjust the carburetor jetting and setting.

Note
Your authorized KTM workshop can recommend the right carburetor tuning.

– Depending on the temperature, use a radiator cover with a cut-out or a full radiator cover.

8.1 Checks and maintenance measures when preparing for use

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


H02217-01

- Check the gear oil level. (p. 111)
- Check the brake fluid level for the front brake. (p. 78)
- Check the brake fluid level for the rear brake. (p. 83)
- Check that the brake pads of the front brake are secured. (p. 80)
- Check that the brake pads of the rear brake are secured. (p. 85)
- Check that the brake system is functioning properly.
- Check the coolant level. (p. 24)
- Check the chain for dirt. (p. 67)
- Check the chain, rear sprocket, engine sprocket, and chain guide. (p. 69)
- Check the chain tension. (p. 68)
- Check the tire condition. (p. 91)
- Check the tire pressure. (p. 92)
- Check the spoke tension. (p. 92)

Note
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. 45)
- Bleed the fork legs. (p. 45)
- Check the air filter.
- Check the settings of all controls and ensure that they can be operated smoothly.
- Check all screws, nuts, and hose clamps regularly for tightness.
- Check the fuel level.

8.2 Starting the vehicle

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

NOTE
Engine failure Running a cold engine at high engine speeds negatively impacts the service life of the engine.
– Make sure your child always warms up the engine at low speed.

Note
If the motorcycle is unwilling to start, the cause can be old fuel in the float chamber. The flammable elements of the fuel evaporate after a long time of standing.
If the float chamber is filled with fresh fuel, the engine starts immediately.

– Empty the carburetor float chamber. (p. 107)
– Turn the knurled screw on the fuel tap all the way counterclockwise.
  ✓ Fuel can flow from the fuel tank to the carburetor.
– Remove the motorcycle from the stand.
– Shift the transmission into the neutral position.
– Pull the choke lever out as far as possible.
– Press the kick starter lever robustly through its full range.

Note
Do not open the throttle.

8.3 Starting off

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

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

8.4 Shifting, riding

WARNING
Danger of accidents If you downshift at high engine speed, the rear wheel blocks and the engine races.
– Make it clear to your child that he or she must not change into a low gear at high engine speed.

Note
If you hear unusual noises while riding, stop immediately, switch off the engine, and contact an authorized KTM workshop.
First gear is used for starting off or for steep inclines.

– When conditions allow (incline, road situation, etc.), your child can shift into a higher gear. 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 choke function has been activated, deactivate it 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.
– Your child should always open the throttle only 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.
– Your child should switch off the engine if prolonged operation at idle speed or while stationary is imminent.

≥ 2 min

– Your child should avoid frequent and extended slipping of the clutch. This causes the engine oil, engine and cooling system to heat up.

– Insist that your child ride with a low speed instead of with a high speed and a slipping clutch.

8.5 Braking

WARNING
Danger of accidents Braking with excessive force locks the wheels.
– Explain to your child that he or she must adapt the braking to the traffic situation and the road conditions.

WARNING
Danger of accidents A spongy pressure point on the front or rear brake reduces the brake action.
– Make sure that your child does not ride the vehicle if the brake system has a spongy pressure point.

WARNING
Danger of accidents Moisture and dirt impair the brake system.
– Explain to your child that he or she must brake carefully several times to dry out and remove dirt from the brake linings and the brake discs.

– On sandy, wet, or slippery surfaces, use the rear brake.
– Always finish braking before you go into a bend. Your child should change down to a lower gear appropriate to the road speed.
– Insist that your child take advantage of the braking action of the engine when riding on long downhills. To do so, shift back one or two gears, but do not overrev the engine. Your child will need to apply the brakes far less often and the brake system will not overheat.

8.6 Stop, park

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
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.

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.

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.

– Brake the motorcycle.
– Shift the transmission into the neutral position.

– Press and hold the stop button while the engine is idling until the engine stops.
– Turn the knurled screw on the fuel tap all the way clockwise.
– Park the motorcycle on firm ground.

8.7 Transportation

NOTE

Material damage The vehicle may be damaged if parked incorrectly.

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

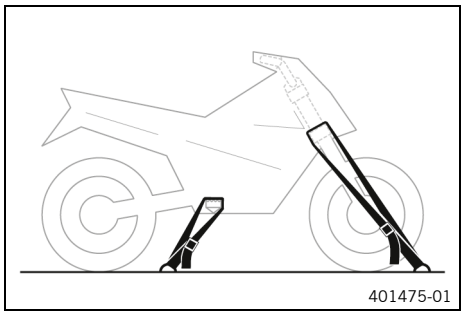
The components for parking the vehicle are designed only for the weight of the vehicle.

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

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.



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

8.8 Refueling

DANGER

Fire hazard Fuel is highly flammable.

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

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

WARNING

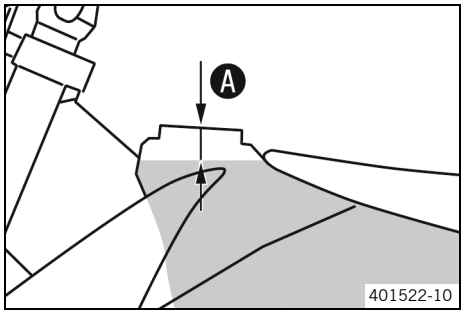
Danger of poisoning Fuel is harmful to health.

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

NOTE

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

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



– Switch off the engine.
– Open the fuel tank cap. (p. 17)
– Fill the fuel tank with fuel no higher than A.

Level A	35 mm

Fuel tank capacity, approx.	
Super unleaded (98 octane) mixed with 2-stroke engine oil (p. 133) Mixture ratio: 1:40	5.4 l

– Close the fuel tank cap. (p. 17)

9.1 Service schedule

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

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

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

The use of a service hour counter is recommended in order to be able to check the mileage at any time.

	After one operating hour	Every 15 operating hours	Every 45 operating hours	Every 90 operating hours	Every 24 months
Check that the brake pads of the front brake are secured. (p. 80)	○	●	●	●	●
Check that the brake pads of the rear brake are secured. (p. 85)	○	●	●	●	●
Check the brake discs. (p. 77)	○	●	●	●	●
Check the brake lines for damage and tightness.	○	●	●	●	●
Check the brake fluid level for the front brake. (p. 78)	○	●	●		
Change the brake fluid for the front brake.				●	●
Check the brake fluid level for the rear brake. (p. 83)	○	●	●		
Change the brake fluid for the rear brake.				●	●
Check the fluid level of the hydraulic clutch. (p. 74)			●		
Change the hydraulic clutch fluid. (p. 75)				●	●
Replace the sealing cup of the brake cylinder.			●	●	
Check the free travel on the hand brake lever. (p. 77)	○	●	●	●	●
Check the free travel of the brake pedal. (p. 82)	○	●	●	●	●
Check the idle speed.	○	●	●	●	●
Change the gear oil. (p. 111)	○	●	●	●	●
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. 72)		●	●	●	
Check the swingarm. (p. 72)		●	●	●	
Check the swingarm bearing for play.			●	●	
Check the heim joint on the shock absorber for play.			●	●	
Check the tire condition. (p. 91)		●	●	●	●
Check the tire pressure. (p. 92)	○	●	●	●	●
Check the wheel bearing for play.		●	●	●	
Check the hubs.		●	●	●	
Check the rim run-out.	○	●	●	●	
Check the spoke tension. (p. 92)	○	●	●	●	
Check the chain, rear sprocket, engine sprocket, and chain guide. (p. 69)	○	●	●	●	

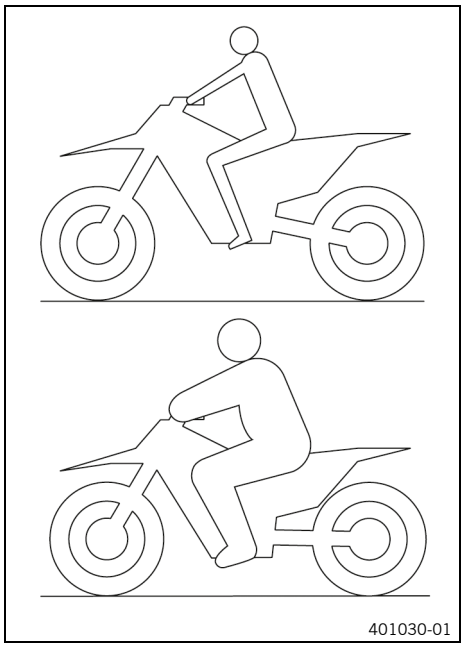
	After one operating hour	Every 15 operating hours	Every 45 operating hours	Every 90 operating hours	Every 24 months
Check the chain tension. (p. 68)	○	●	●	●	
Grease all moving parts (e.g., hand lever, chain, etc.) and check for smooth operation.	○	●	●	●	●
Change the spark plug.		●	●	●	
Clean the air filter and air filter box. (p. 60)		●	●	●	●
Change the glass fiber filling of the muffler. (p. 62)			●	●	
Carry out fork service.			●	●	
Service the shock absorber.			●	●	
Check all screws, nuts, and hose clamps for a tight fit.	○	●	●	●	●
Check the frost protection and coolant level. (p. 96)			●	●	
Check the coolant level. (p. 24)	○	●			
Change the coolant. (p. 100)					●
Check the steering head bearing play. (p. 52)	○	●			
Lubricate the steering head bearing. (p. 53)			●	●	●
Check/adjust the carburetor components.			●	●	●
Perform minor engine service. (Check the inlet membrane. Check the clutch. Change the piston and check the cylinder and Z dimension. Check the exhaust control for functioning and smooth operation.)		●	●	●	
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. Change the intake flange. Change all engine bearings.)			●	●	
Final check: check the operating safety of the vehicle and take for a test ride.	○	●	●	●	●
Enter electronic proof of service	○	●	●	●	●

○ One-time interval

● Periodic interval

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

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



- For optimal motorcycle riding characteristics and to avoid damage to forks, shock absorbers, swingarm, and frame, the basic settings of the suspension components must match the rider's weight.
- This vehicle is delivered pre-set for a standard rider's weight (with full protective clothing).

Standard rider weight	40 kg ... 50 kg

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

10.2 XACT 5543 air suspension

Air suspension is used in the **WP Suspension XACT 5543** fork.
In this system, the suspension is located in the left fork leg and damping in the right fork leg.
As fork springs are no longer required, a significant weight advantage is achieved when compared to conventional forks. The response on slightly uneven surfaces is significantly improved.

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

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

The air pressure in the fork can be quickly adjusted to the rider's weight, surface conditions, and the rider's preference using a fork air pump. The fork does not have to be dismantled. The time-consuming mounting of harder or softer fork springs is not required.
If the air chamber loses air due to a damaged seal, the fork will still not sag. In this case the air is retained in the fork. The suspension travel is maintained as far as possible. The damping becomes harder, and the riding comfort is reduced.

As with a conventional fork, the damping can be adjusted in rebound and compression stages.
The rebound adjustment is located at the upper end of the right fork leg.
The compression adjuster is located at the lower end of the right fork leg.

10.3 Compression damping of the shock absorber

The compression damping of the shock absorber is divided into two ranges: high-speed and low-speed.

High-speed and low-speed refer to the compression speed of the rear wheel suspension and not to the vehicle speed.

The high-speed compression has an effect, for example, when landing after a jump: the rear wheel suspension compresses quickly.

The low-speed compression has an effect, for example, when riding over long bumps: the rear wheel suspension compresses slowly.

These two ranges can be adjusted separately, although the transition between high-speed and low-speed is floating. As a result, changes in the high-speed range affect the compression damping in the low-speed range and vice versa.

10.4 Adjusting the low-speed compression damping of the shock absorber

CAUTION

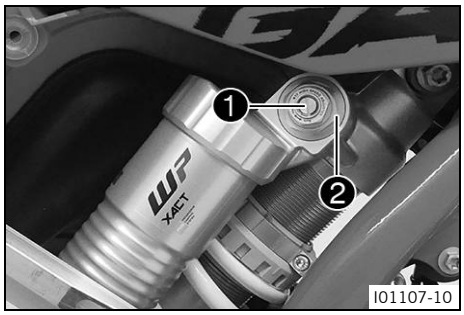
Risk of injury Parts of the shock absorber will move erratically if the shock absorber is detached incorrectly.

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 adjusting screw ❶ clockwise with a screwdriver as far as the last perceptible click.

Note

Do not loosen fitting ❷!

– 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.

10.5 Adjusting the high-speed compression damping of the shock absorber

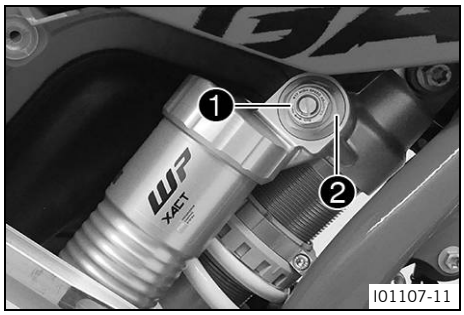
CAUTION

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 adjusting screw ❶ clockwise all the way.

Note
Do not loosen fitting ❷!

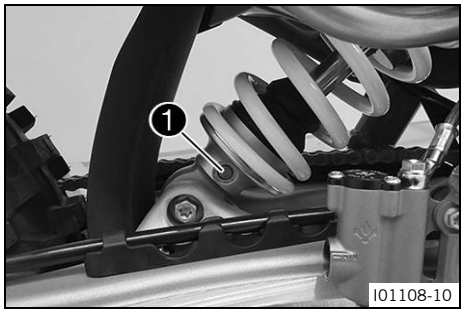
– Turn counterclockwise by the number of turns corresponding to the shock absorber type.

High-speed compression damping	
Comfort	2 turns
Standard	1.5 turns
Sport	1 turn

Note
Turning clockwise increases damping; turning anti-clockwise reduces damping.

10.6 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.

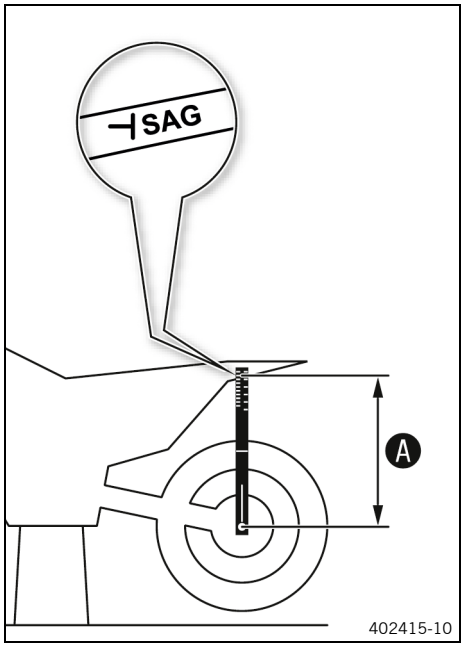


– Turn adjusting screw ❶ clockwise up to the last perceptible click.
– Turn counterclockwise by the number of clicks corresponding to the shock absorber type.

Rebound damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks

Note
Turning clockwise increases damping; turning anti-clockwise reduces damping on rebound.

10.7 Measuring the dimension of the unloaded rear wheel



Preparatory work

– Raise the motorcycle with a lift stand. (p. 44)

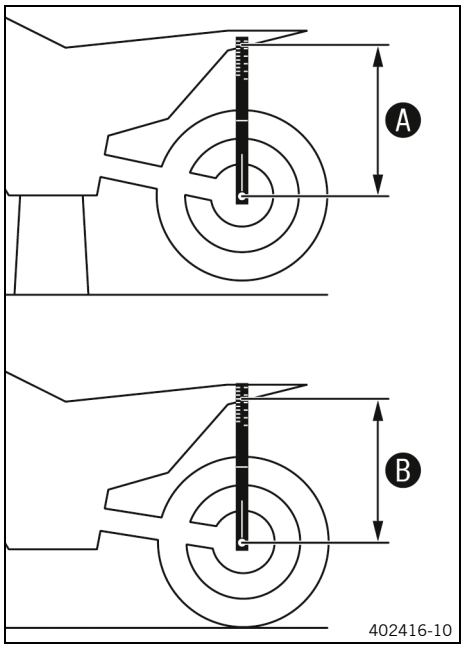
Control process

– Measure the vertical distance between the rear axle and a fixed point, such as a marking on the side cover.
– Note the value as dimension A.

Reworking

– Remove the motorcycle from the lift stand. (p. 44)

10.8 Checking the static sag of the shock absorber



– Measure dimension of rear wheel unloaded. (p. 36)
– Hold the motorcycle upright with aid of an assistant.
– Measure the distance between rear axle and fixed point again.
– Note the value as dimension B.

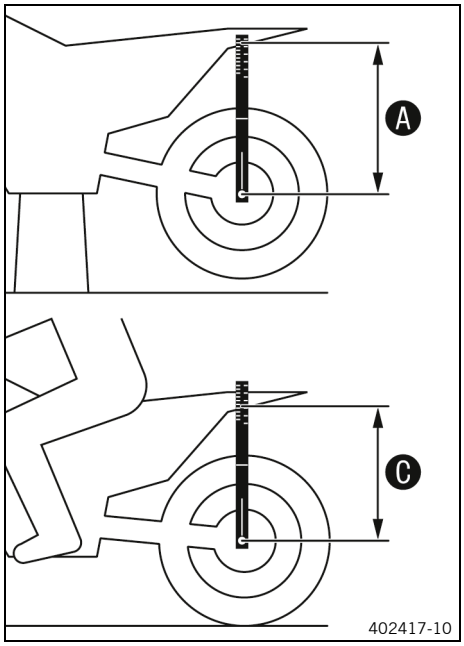
Note
The static sag is the difference between measurements A and B.

– Check the static sag.

Static sag	30 mm

» If the static sag is more or less than the specified value:
– Adjust the preload for the shock absorber. (p. 37)

10.9 Checking the rider sag of the shock absorber



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

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

– Check the rider sag.

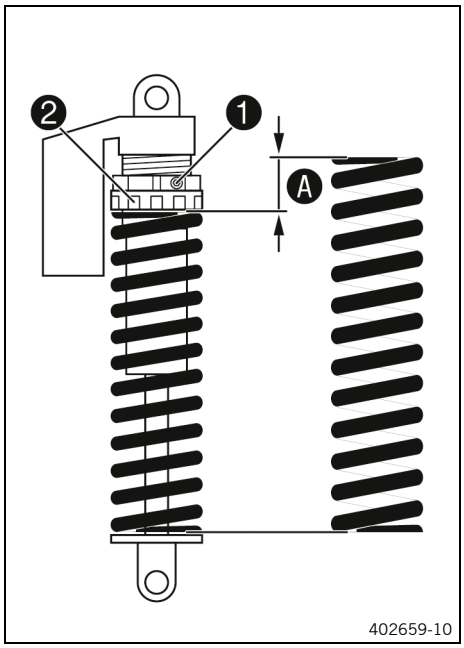
Riding sag	100 mm

» If the rider sag differs from the specified measurement:
  – Adjust the rider sag. (p. 38)

10.10 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.

Preparatory work
– Raise the motorcycle with a lift stand. (p. 44)
– Remove the shock absorber. (p. 55)
– After removing the shock absorber, clean it thoroughly.



Adjustment procedure

– Measure the full spring length while it is under tension and note down the value.
– Loosen screw ❶.
– Turn adjusting ring ❷ 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 ❷ to the specified degree Ⓐ.

Preload	10 mm

Note
The spring preload is the difference between the relaxed spring length and the tensioned spring length. Depending on the static sag and/or the riding sag, it may be necessary to increase or decrease the spring preload.

– Tighten screw ❶.

Screw, shock absorber adjusting ring	
M5	5 Nm

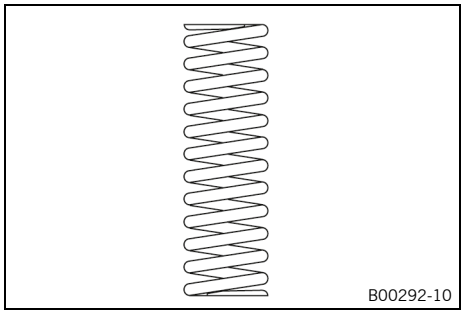
Reworking

– Install the shock absorber. (p. 56)
– Remove the motorcycle from the lift stand. (p. 44)

10.11 Adjusting the rider sag

Preparatory work

– Raise the motorcycle with a lift stand. (p. 44)
– Remove the shock absorber. (p. 55)
– After removing the shock absorber, clean it thoroughly.



Adjustment procedure

– Select and mount a suitable spring.

Spring rate	
Weight of rider: < 40 kg	40 N/mm
Weight of rider: 40 kg ... 50 kg	45 N/mm
Weight of rider: > 50 kg	50 N/mm

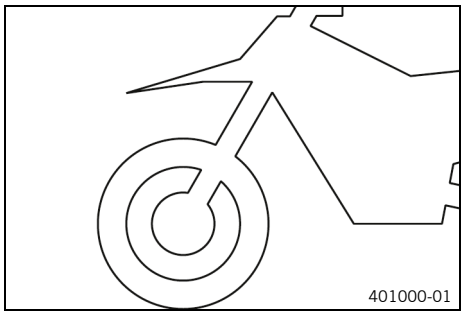
Note
The spring rate is shown on the outside of the spring.
Smaller weight differences can be compensated by changing the spring preload.

Reworking

– Install the shock absorber. (p. 56)
– Remove the motorcycle from the lift stand. (p. 44)
– Check the static sag of the shock absorber. (p. 36)
– Check the rider sag of the shock absorber. (p. 37)
– Adjust the rebound damping of the shock absorber. (p. 35)

10.12 Checking the basic setting of the fork

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

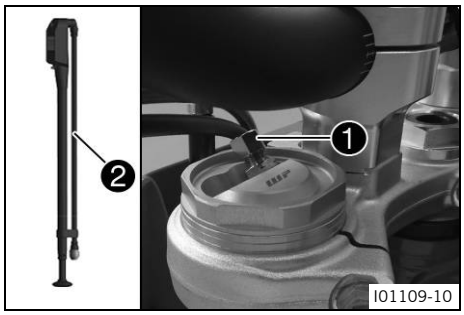


– Smaller differences in the rider's weight can be compensated for by the fork air pressure.
– However, if the fork frequently bottoms out (hard end stop on compression), the fork air pressure must be increased, within the specified values, to avoid damage to the fork and frame.

10.13 Adjusting the fork air pressure

WARNING
Danger of accidents Modifications to the suspension settings that are not properly coordinated can impair the handling and overload components.
– Only make adjustments within the recommended range.
– Make sure your child rides slowly to start with after making adjustments in order that he or she can assess the new handling characteristic.

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



Preparatory work

– Raise the motorcycle with a lift stand. (p. 44)

Filling procedure

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

Fork air pump (79412966100)

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

– Connect the fork air pump to the left fork leg.
✓ The fork airpump switches on automatically.
✓ A little air escapes from the fork leg when connecting.

Note
This is due to the volume of the hose and is not due to a defect in the fork air pump or the fork.
Read the accompanying **KTM Technical Accessories** instructions.

– Adjust the air pressure as specified.

Air pressure	4.8 bar
Gradual change of the air pressure in steps by	0.2 bar
Minimum air pressure	4 bar
Maximum air pressure	8 bar

Note
Never adjust the air pressure to a value outside the stated range.

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

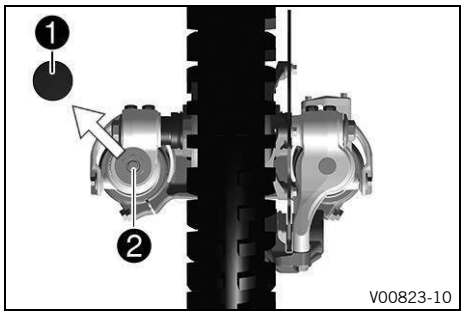
Note
Only mount the protection cap by hand.

Reworking

– Remove the motorcycle from the lift stand. (p. 44)

10.14 Adjusting the compression damping of the fork

Note
The hydraulic compression damping determines the fork suspension behavior.



– Remove protection cap 1.
– Turn adjusting screw 2 clockwise all the way.

Note
The adjusting screw 2 is located at the lower end of the right fork leg.

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

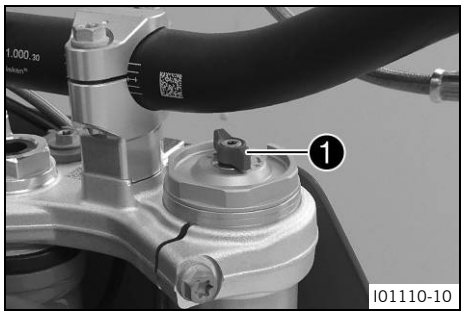
Compression damping	
Comfort	17 clicks
Standard	12 clicks
Sport	7 clicks

Note
Turning clockwise increases damping; turning counter-clockwise reduces damping during compression.

– Mount protection cap 1.

10.15 Adjusting the rebound damping of the fork

Note
The hydraulic rebound damping determines the fork suspension behavior.



– Turn red adjusting screw 1 clockwise as far as it will go.

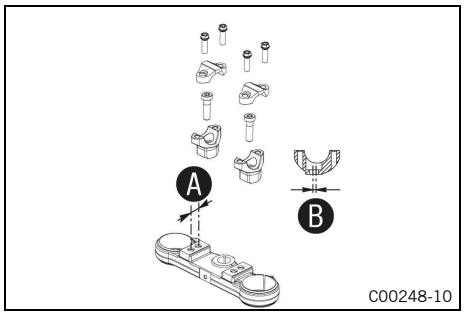
Note
Adjusting screw 1 is located at the upper end of the right fork leg.
The rebound damping is located in the right fork leg **REB** (red adjusting screw).

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

Rebound damping	
Comfort	17 clicks
Standard	12 clicks
Sport	7 clicks

Note
Turning clockwise increases damping; turning anti-clockwise reduces damping on rebound.

10.16 Handlebar position



On the upper triple clamp, there are 2 holes at a distance of Ⓐ to each other.

Hole distance A	15 mm

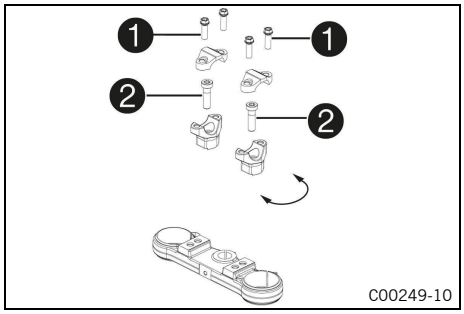
The holes on the handlebar supports are placed at a distance of Ⓑ from the center.

Hole distance B	3.5 mm

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

10.17 Adjusting the handlebar position

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



– Remove ❶ screws. Take off the handlebar clamps. Remove the handlebar and lay it to one side.

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

– Remove ❷ screws. Take off the handlebar support.
– Place the handlebar mount in the required position. Mount and tighten screws ❷.

Screw, handlebar mount	
M10	40 Nm **Loctite® 243**

– Position the handlebar.

Note
Make sure the cables and wiring are positioned correctly.

– Position the handlebar clamps. Mount screws ❶ and tighten evenly.

Handlebar clamp screw	
M8	20 Nm

Note
Make sure the installed gap widths are even.

11.1 Raising the motorcycle with a lift stand

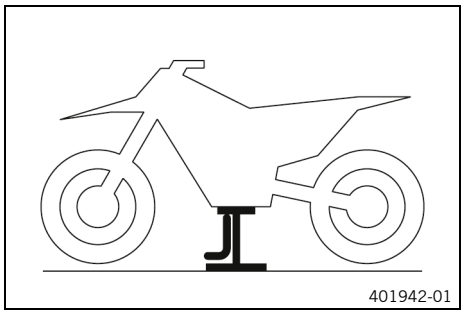
NOTE

Material damage The vehicle may be damaged if parked incorrectly.

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

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

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


401942-01

– Raise the motorcycle at the frame underneath the engine.
  ✓ Neither wheel is in contact with the ground.
– Secure the motorcycle against falling over.

11.2 Removing the motorcycle from the lift stand

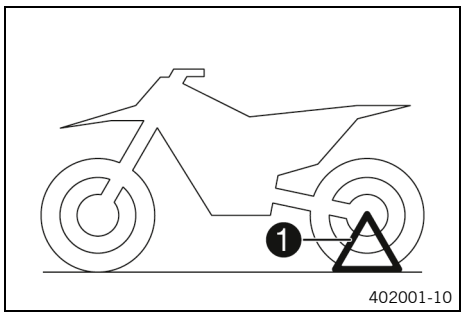
NOTE

Material damage The vehicle may be damaged if parked incorrectly.

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

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

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



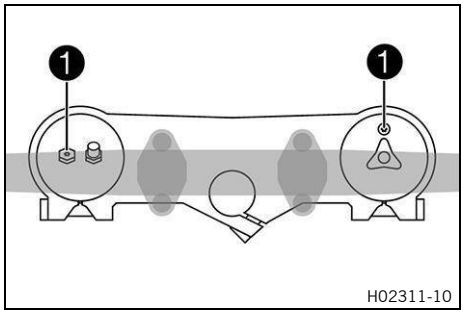
402001-10

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

Note

Remove the plug-in stand before riding.

11.3 Bleeding the fork legs



Preparatory work

– Raise the motorcycle with a lift stand. (p. 44)

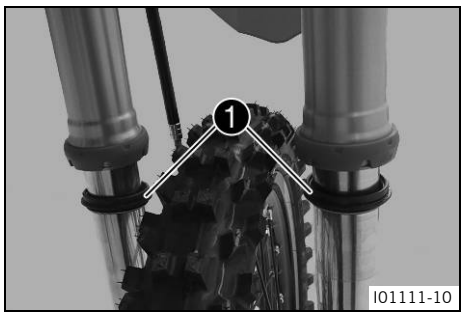
Operating procedure

– 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. 44)

11.4 Cleaning the dust boots of the fork legs



Preparatory work

– Raise the motorcycle with a lift stand. (p. 44)
– Remove the fork protector. (p. 48)

Cleaning process

– 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 or grease on the brake discs reduces the braking action.
– Always keep the brake discs free of oil and grease.
– 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. 134)

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

Reworking

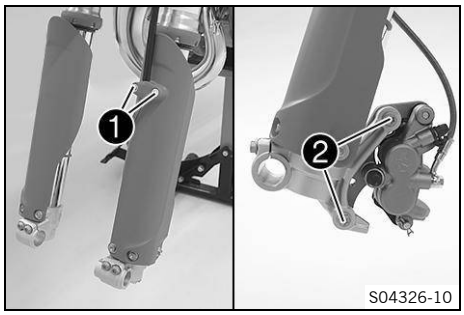
– Install the fork protector. (p. 48)
– Remove the motorcycle from the lift stand. (p. 44)

11.5 Removing the fork legs

Preparatory work

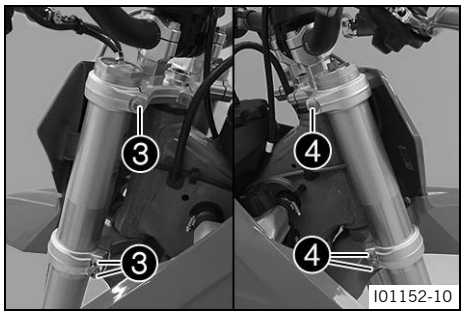
– Raise the motorcycle with a lift stand. (p. 44)
– Remove the front wheel. (p. 88)

Removal process



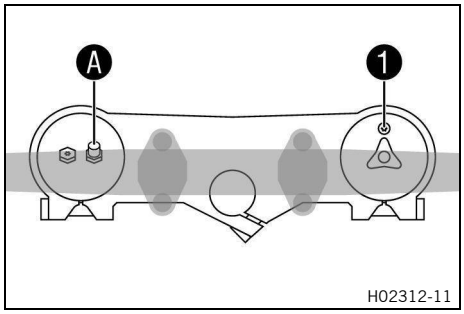
– Remove screw ❶ and take off the clamp.
– Remove ❷ screws.
– Allow the brake caliper and the brake line to hang loosely to the side.

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



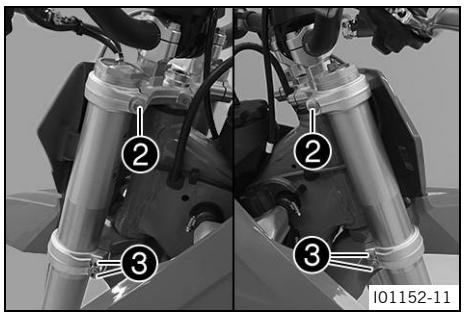
– Loosen screws ❸. Remove the left fork leg.
– Loosen screws ❹. Remove the right fork leg.

11.6 Installing the fork legs



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

Note
The second milled groove (from the top) must be flush with the upper edge of the upper triple clamp.
The air suspension is located in the left fork leg. The pressure and rebound damping is located in the right fork leg.

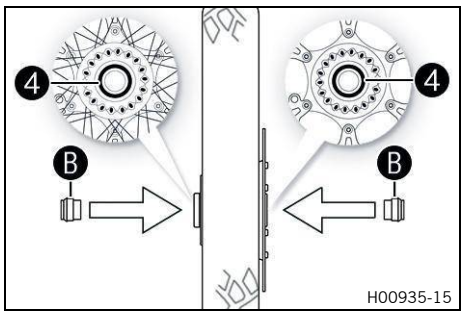


– Tighten screws ❷.

Screw, top triple clamp	
M8	20 Nm

– Tighten screws ❸.

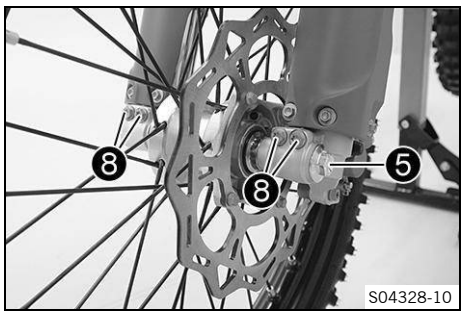
Screw, bottom triple clamp	
M8	15 Nm



– 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 ❹ and contact surfaces Ⓑ on the spacers.

Long-life grease (p. 134)

– Insert spacers.

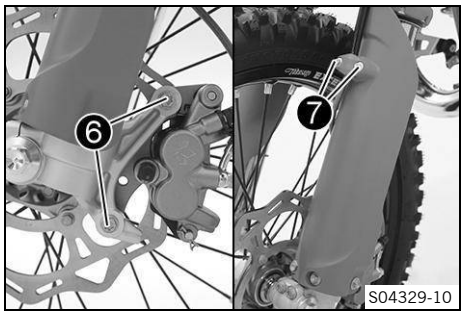


– Clean and lightly grease the wheel spindle.

Long-life grease (p. 134)

– Position the front wheel.
– Insert the wheel spindle.
– Mount and tighten screw ❺.

Screw, wheel spindle, front	
M20×1.5	35 Nm



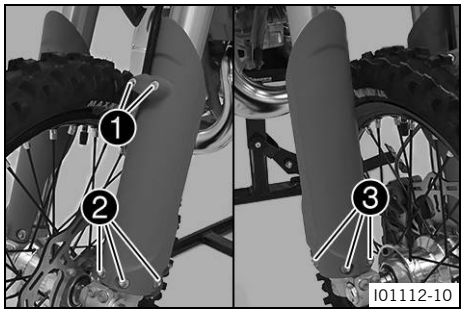
– Position the brake caliper.
– Mount and tighten screws ❻.

Screw, front brake caliper	
M8	25 Nm **Loctite® 243**

– Position the brake line and the clamp. Mount and tighten screws ❼.
– Remove the motorcycle from the lift stand. (p. 44)
– Operate the front brake and compress the fork a few times firmly.
  ✓ The fork legs straighten.
– Tighten screws ❽.

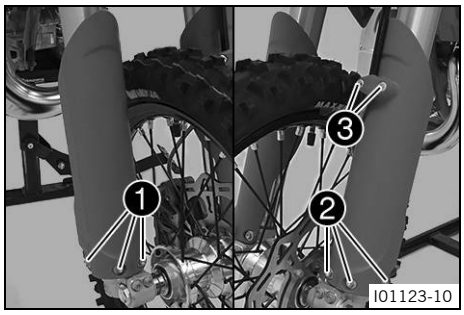
Screw, fork shoe	
M8	15 Nm

11.7 Removing the fork protector



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

11.8 Installing the fork protector



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

Remaining screws on chassis	
M6	10 Nm

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

Remaining screws on chassis	
M6	10 Nm

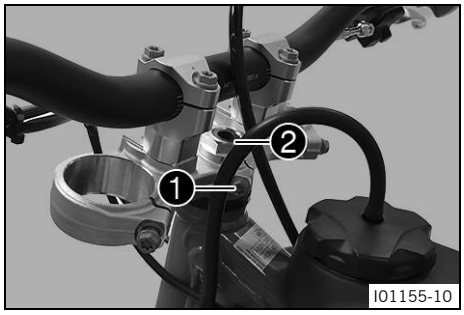
– Position the brake line and the clamp. Mount and tighten screws ❸.

11.9 Removing the lower triple clamp

Preparatory work

– Raise the motorcycle with a lift stand. (p. 44)
– Remove the front wheel. (p. 88)
– Remove the fork legs. (p. 46)
– Remove the number plate. (p. 53)
– Remove the front top fender. (p. 54)
– Remove the handlebar pad.

Removal process

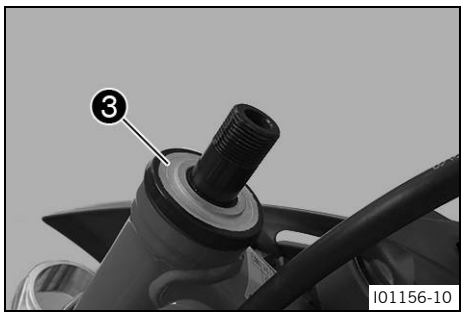


– Loosen screw ❶. Remove nut ❷, pull off the upper triple clamp with the handlebar in an upward direction, and hang it to the side.

Note

Protect the components against damage by covering them.

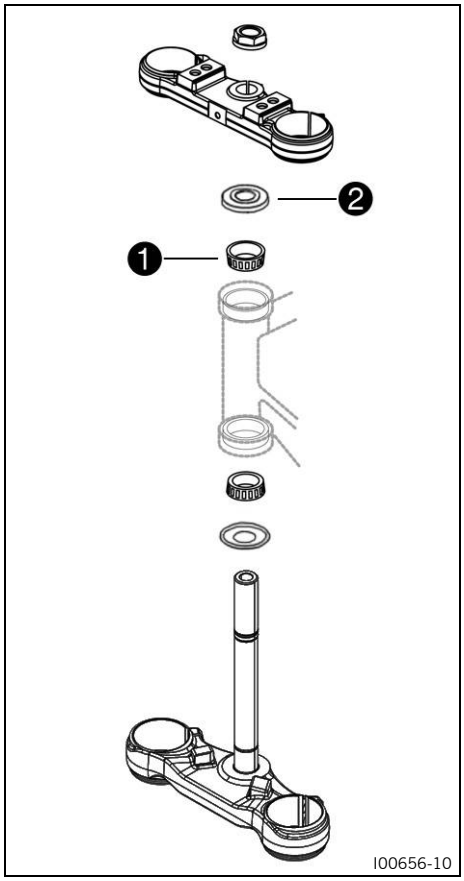
Do not kink the cables or lines.



– Remove protective ring ❸.
– Take off the lower triple clamp with the steering stem in a downward direction.
– Remove the upper steering head bearing.

11.10 Installing the lower triple clamp

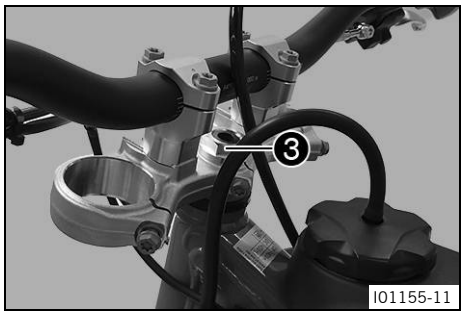
Installation procedure



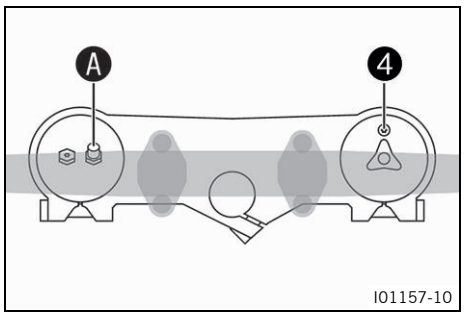
– Clean the bearing and sealing elements, check for damage, and grease.

High viscosity grease (p. 134)

– Insert the lower triple clamp with the steering stem. Mount upper steering head bearing ❶.
– Position protective ring ❷.



– Position the upper triple clamp and handlebar.
– Mount nut ❸ but do not tighten yet.



– Position the fork legs.

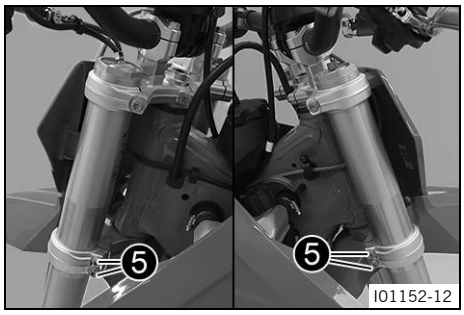
✓ Bleed screw ❹ of the right fork leg is positioned to the front.

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

Note

The second milled groove (from the top) must be flush with the upper edge of the upper triple clamp.

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



– Tighten screws ❺.

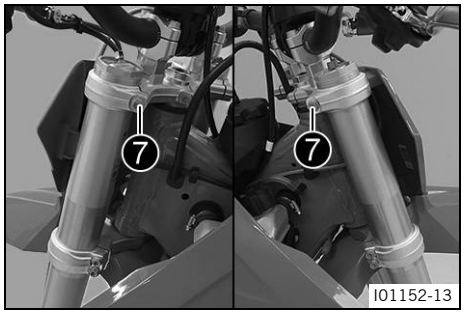
Screw, bottom triple clamp	
M8	15 Nm

– Tighten nut ❸.

Nut, steering stem	
M20×1.5	10 Nm

– Tighten screw ❻.

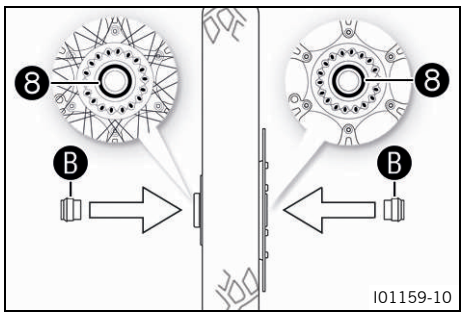
Steering stem clamp screw	
M8	20 Nm **Loctite® 243**



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

– Tighten screws ❼.

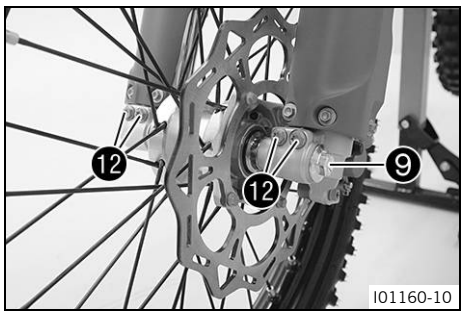
Screw, top triple clamp	
M8	20 Nm



– 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 8 and contact surfaces B on the spacers.

Long-life grease (p. 134)

– Insert spacers.

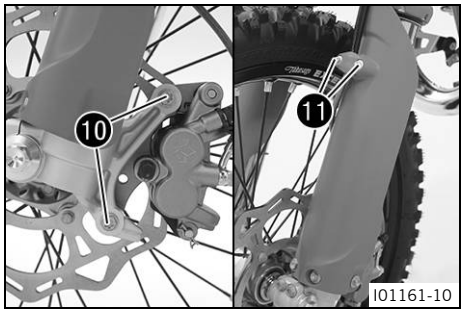


– Clean and lightly grease the wheel spindle.

Long-life grease (p. 134)

– Position the front wheel.
– Insert the wheel spindle.
– Mount and tighten screw 9.

Screw, wheel spindle, front	
M20×1.5	35 Nm



– Position the brake caliper.
– Mount and tighten screws 10.

Screw, front brake caliper	
M8	25 Nm **Loctite® 243**

– Position the brake line and the clamp. Mount and tighten screws 11.
– Remove the motorcycle from the lift stand. (p. 44)
– Operate the front brake and compress the fork a few times firmly.
  ✓ The fork legs straighten.
– Tighten screws 12.

Screw, fork shoe	
M8	15 Nm

Reworking

– Install the front top fender. (p. 54)
– Mount the number plate. (p. 54)
– Check the wiring harness, cables, and brake and clutch lines for freedom of movement and correct routing.
– Check the steering head bearing play. (p. 52)
– Remove the motorcycle from the lift stand. (p. 44)
– Position the handlebar cushion and secure with a cable tie.

11.11 Checking the steering head bearing play

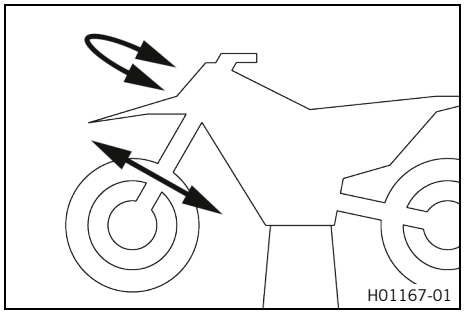
WARNING

Danger of accidents Incorrect steering head bearing play can impair the handling characteristic and damage components.

– Correct incorrect steering head bearing play immediately.

Note

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



Preparatory work

– Raise the motorcycle with a lift stand. (p. 44)

Control process

– 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. 52)

– 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. 52)

– Check the steering head bearing and replace if required.

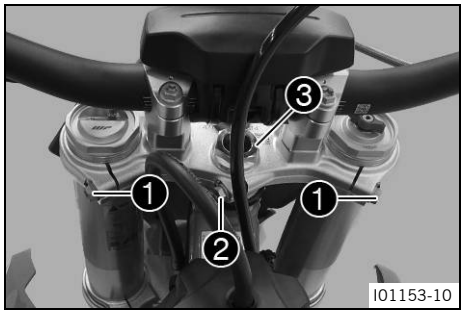
Reworking

– Remove the motorcycle from the lift stand. (p. 44)

11.12 Adjusting the steering head bearing play

Preparatory work

– Raise the motorcycle with a lift stand. (p. 44)



Adjustment procedure

– Loosen screws ❶.
– Loosen screw ❷.
– Loosen and retighten nut ❸.

Nut, steering stem	
M20×1.5	10 Nm

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

Steering stem clamp screw	
M8	20 Nm **Loctite® 243**

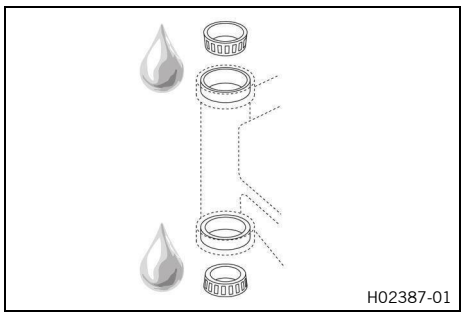
– Tighten screws ❶.

Screw, top triple clamp	
M8	20 Nm

Reworking

– Check the steering head bearing play. (p. 52)
– Remove the motorcycle from the lift stand. (p. 44)

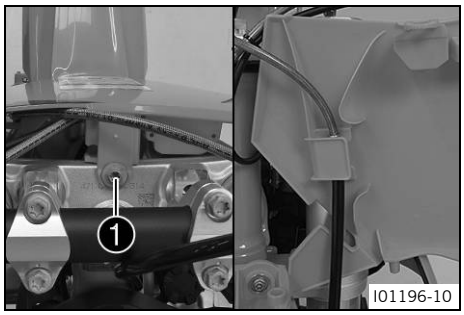
11.13 Lubricating the steering head bearing



– Remove the lower triple clamp. (p. 48)
– Install the lower triple clamp. (p. 49)

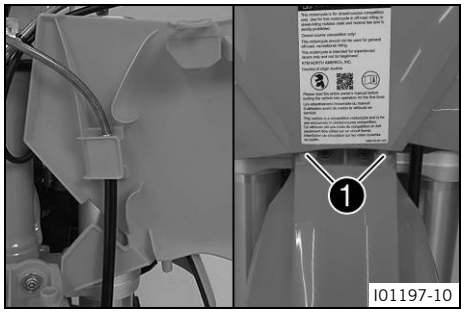
Note
The steering head bearing is cleaned and lubricated in the course of removal and installation of the lower triple clamp.

11.14 Removing the number plate

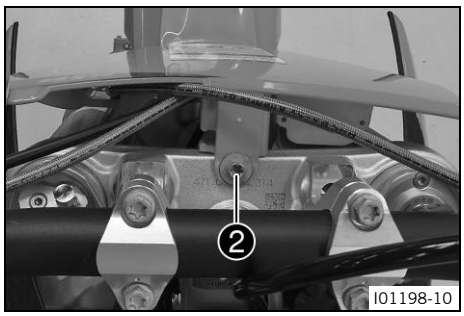


– Remove screw ❶.
– Unhook the number plate from the brake line and remove it.

11.15 Mounting the number plate



– Attach the start number plate to the brake line.
– Position the number plate.
  ✓ Holding lugs ❶ engage in the fender.



– Mount and tighten screw ❷.

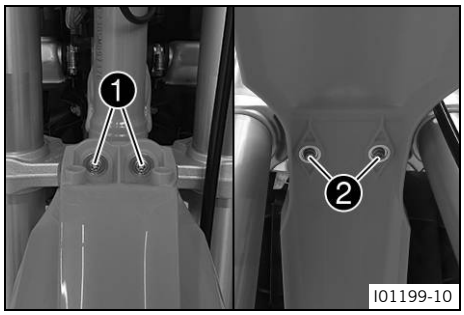
Start number plate screw	
M6	4 Nm

11.16 Removing the front top fender

Preparatory work

– Remove the number plate. (p. 53)

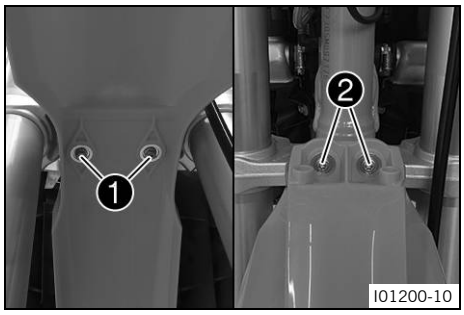
Removal process



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

11.17 Installing the front top fender

Installation procedure



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

Screw, front fender	
M6	12 Nm

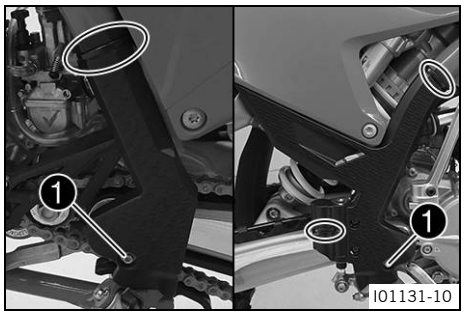
– Mount and tighten screws ❷.

Screw, front fender	
M6	12 Nm

Reworking

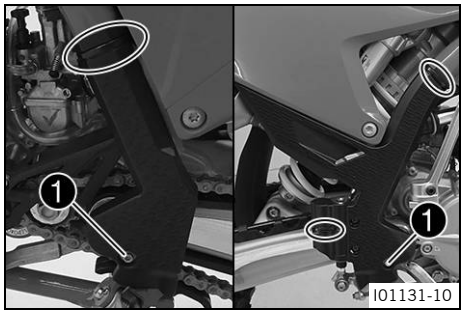
– Mount the number plate. (p. 54)

11.18 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.

11.19 Installing the frame protector



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

Screw, frame protector	
M5	3 Nm

– Secure the frame protector with cable ties.

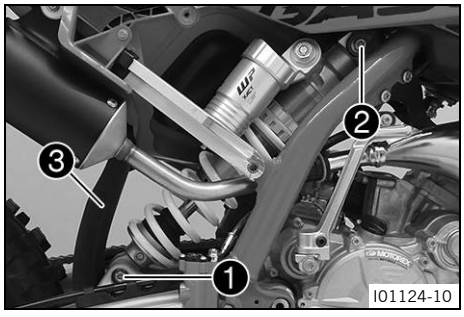
Note
Turn the head of the cable tie so far back that it does not touch any other components.

11.20 Removing the shock absorber

Preparatory work

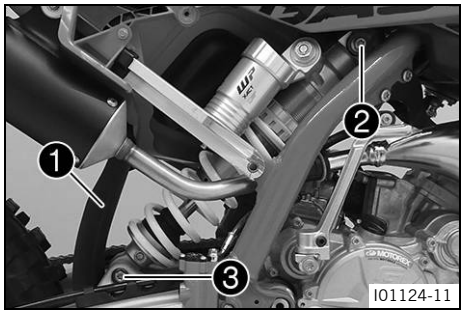
– Raise the motorcycle with a lift stand. (p. 44)

Removal process



– Detach the brake line from the brake line guide.
– Remove screw ❶ and lower the rear wheel with the link fork as far as possible without blocking the rear wheel. Secure the rear wheel in this position.
– Remove screw ❷, push splash protector ❸ to the side, and remove the shock absorber.

11.21 Installing the shock absorber



Installation procedure

– Push splash protector ❶ to the side and position the shock absorber. Mount and tighten screw ❷.

Top shock absorber screw	
M12	60 Nm **Loctite® 2701**

– Mount and tighten screw ❸.

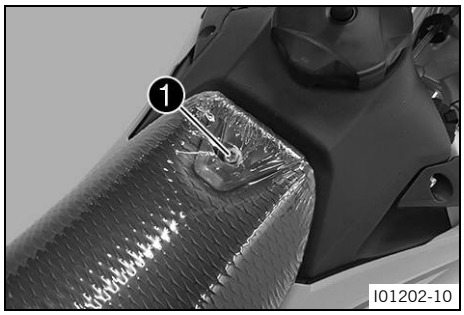
Bottom shock absorber screw	
M12	60 Nm **Loctite® 2701**

– Attach brake line.

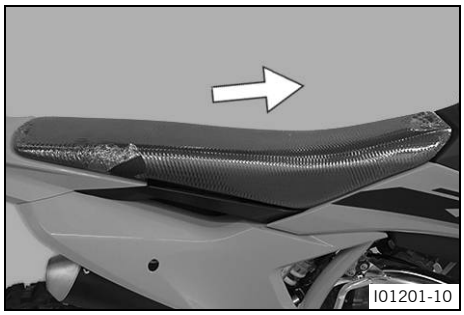
Reworking

– Remove the motorcycle from the lift stand. (p. 44)

11.22 Removing the seat

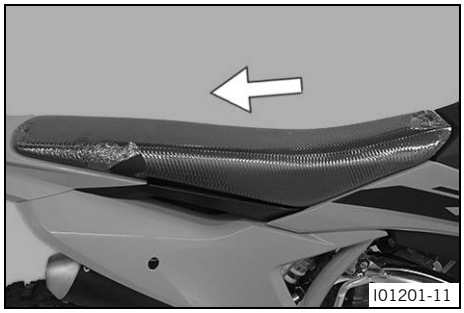


– Remove screw ❶.

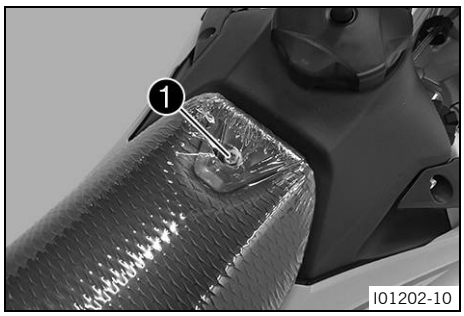


– Remove the seat forward and upward.

11.23 Mounting the seat



– Attach the seat to the collar bushings at the front and simultaneously push it back.
– Make sure the seat is latched in place correctly.



– Mount and tighten screw ❶ of the seat fixing.

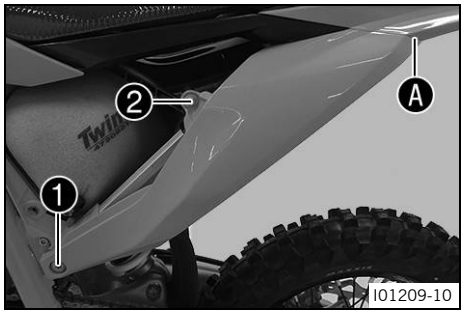
Screw, seat installation	
M6	8 Nm

11.24 Securing the side panel

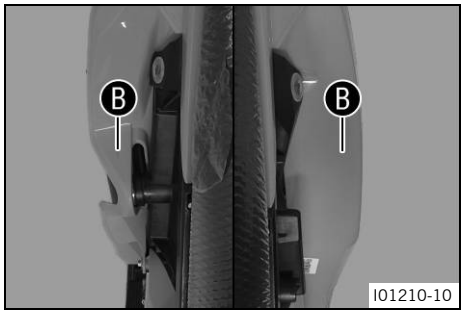
Preparatory work

– Remove air filter box cover. (p. 59)
– Remove the frame protector. (p. 55)
– Remove the right side panel. (p. 58)

Installation procedure

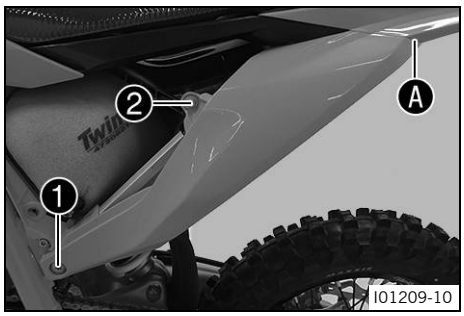


– Remove screw ❶.
– Remove screw ❷.
– Unhook left side panel in area Ⓐ.



– Drill a hole at marking Ⓑ.

Diameter	6.5 mm



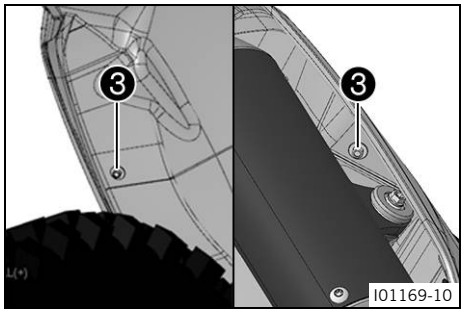
– Attach the side cover in area A.
– Mount and tighten screw 2.

Screw, rear mounting	
M6	6 Nm

– Mount and tighten screw 1.

Screw, subframe, bottom	
M8	30 Nm **Loctite® 2701**

– Install the right side panel. (p. 59)



– Mount and tighten screw 3.

Remaining screws on chassis	
EJOT PT® – K60×20	2 Nm

Reworking

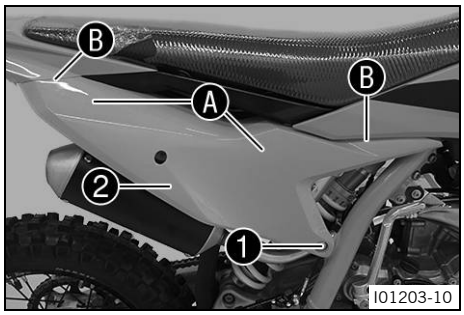
– Install the air filter box cover. (p. 59)
– Install the frame protector. (p. 55)

11.25 Removing the right side panel

Preparatory work

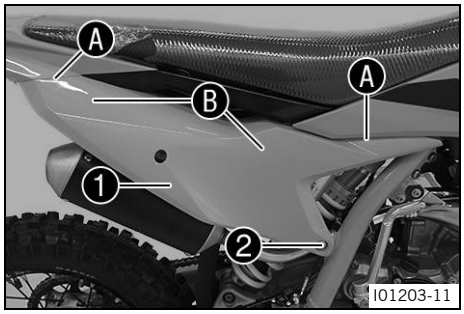
– Remove the frame protector. (p. 55)

Removal process



– Remove screw 1.
– Unhook right side panel 2 in area A and area B.
– Take the right side panel off.

11.26 Installing the right side panel



Installation procedure

– Position right side panel ❶.
– Attach the side cover in area Ⓐ.
– Press the side panel in area Ⓑ into the rubber bushings.

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

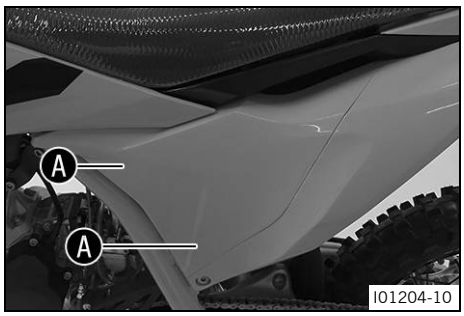
– Mount and tighten screw ❷.

Screw, subframe, bottom	
M8	30 Nm **Loctite® 2701**

Reworking

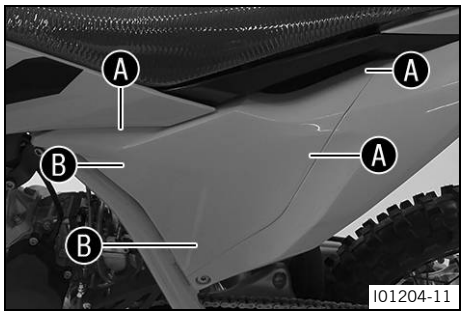
– Install the frame protector. (p. 55)

11.27 Removing air filter box cover



– Pull off the air filter box cover laterally in areas Ⓐ and take it off toward the front.

11.28 Installing air filter box cover



– Attach the air filter box cover in areas Ⓐ and snap it into place in areas Ⓑ.

11.29 Removing the air filter

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

Engine failure Unfiltered intake air has a negative effect on the service life of the engine.

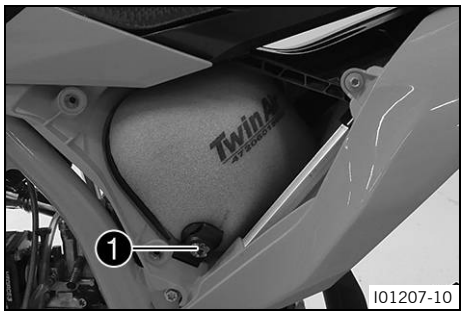
Dust and dirt will enter the engine without an air filter.

– Only operate the vehicle if it is equipped with an air filter.

Preparatory work

– Remove air filter box cover. (p. 59)

Removal process



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

11.30 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.

Note

Do not clean the air filter with fuel or petroleum as these substances will damage the foam rubber.

Preparatory work

– Remove air filter box cover. (p. 59)
– Remove the air filter. (p. 60)

Cleaning process

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

Air filter cleaning agent (p. 136)

Note
Only press the air filter to dry it, never wring it out.

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

Oil for foam air filter (p. 135)

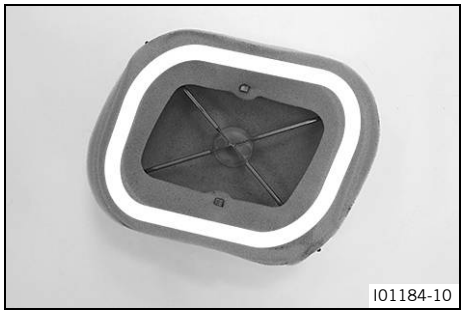
– Clean the air filter box.
– Check intake flange for damage and looseness.

Reworking

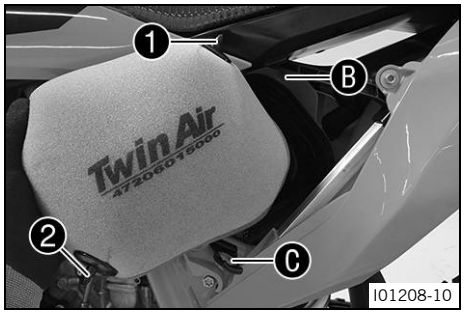
– Install the air filter. (p. 61)
– Install the air filter box cover. (p. 59)

11.31 Installing the air filter

Installation procedure



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



– Insert the air filter and position top retaining pin ❶ in bushing Ⓑ.
  ✓ The air filter is correctly positioned.
– Secure the bottom retaining pin ❷ with holding tab Ⓒ.

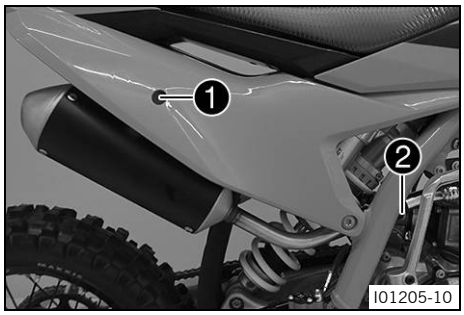
Note
If the air filter is not mounted correctly, dust and dirt may enter the engine and result in damage.

Reworking

– Install the air filter box cover. (p. 59)

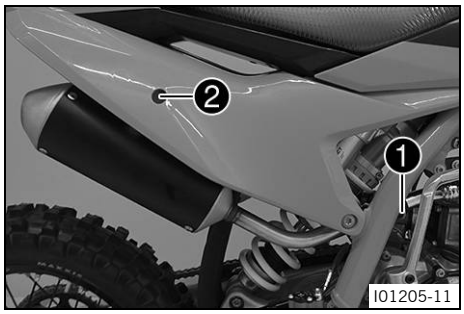
11.32 Removing the muffler

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



– Remove screw 1.
– Pull off the main silencer from the manifold at exhaust sleeve 2.

11.33 Installing muffler



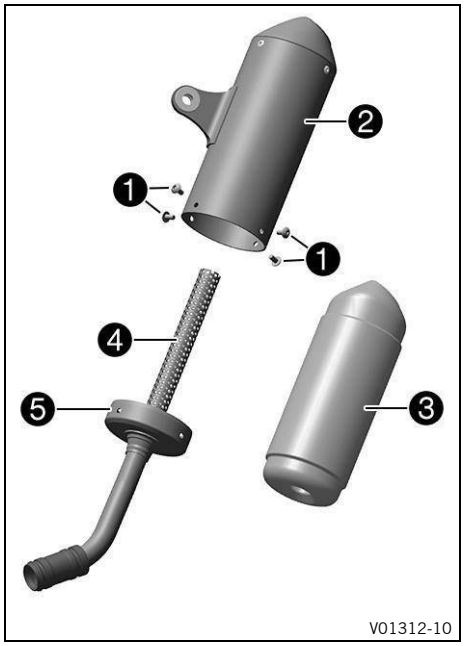
– Mount the main silencer with exhaust sleeve 1.
– Mount and tighten screw 2.

Remaining screws on chassis	
M6	10 Nm

11.34 Changing the glass fiber filling of 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.

Note
Over time, the fibers of the rock wool dissipate 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 muffler. (p. 62)

Replacement process

– Remove ❶ screws.
– Take off outer tube ❷.
– Remove glass fiber filling ❸ from inner tube ❹.
– Clean the parts that need to be reinstalled and check for damage.
– Put new glass fiber filling into the inner tube.

Note
Mount the glass fiber filling so that the thermal protection foil is positioned on the right in the direction of travel.

– Slide the outer tube over the inner tube with the new glass fiber filling.

Note
Seal the connecting cap ❺ to the outer tube with silicone.

– Mount and tighten the screws.

Screw, main silencer	
M5	7 Nm

Reworking

– Install the muffler. (p. 62)

11.35 Removing the fuel tank

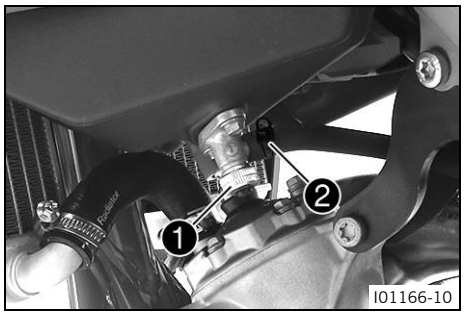
DANGER
Fire hazard Fuel is highly flammable.
The fuel in the fuel tank expands when warm and can escape if overfilled.
– Do not refuel the vehicle in the vicinity of open flames, glowing, or smoldering objects.
– Make sure that nobody smokes in the vicinity of the vehicle during the refueling process.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

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

Preparatory work

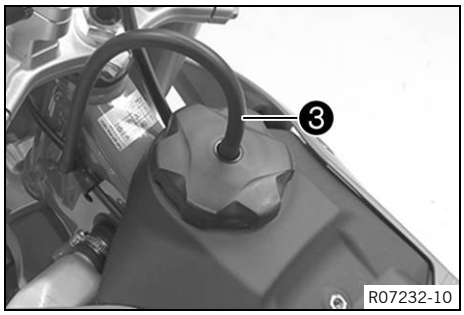
– Remove the seat. (p. 56)

Removal process

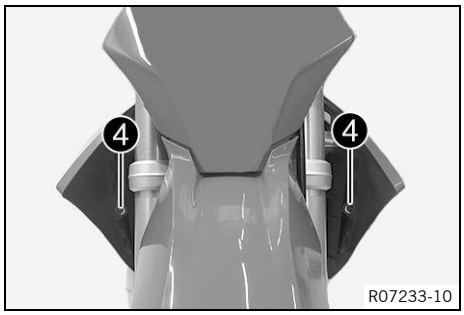


– Close fuel petcock ❶.
– Pull off the fuel hose with clamp ❷.

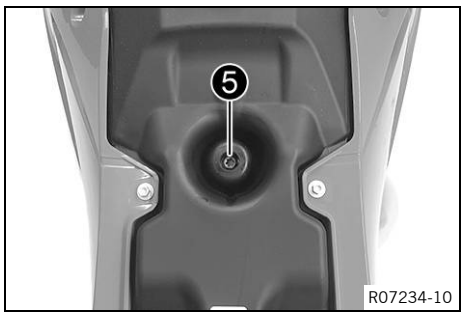
Note
Remaining fuel may flow out of the fuel hose.



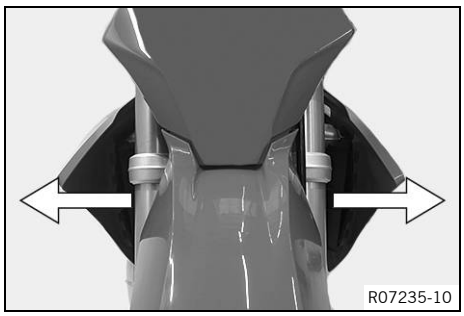
– Remove the hose from fuel tank vent ❸.



– Remove ❹ screws.



– Remove screw ❺ with the rubber bushing.



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

11.36 Installing the fuel tank

DANGER

Fire hazard Fuel is highly flammable.

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

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

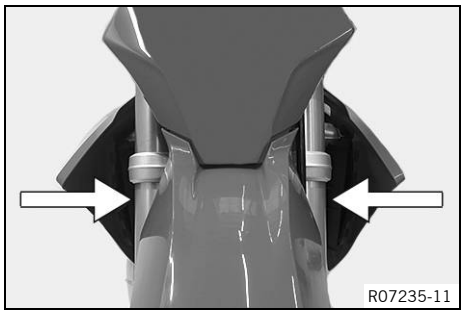
WARNING

Danger of poisoning Fuel is harmful to health.

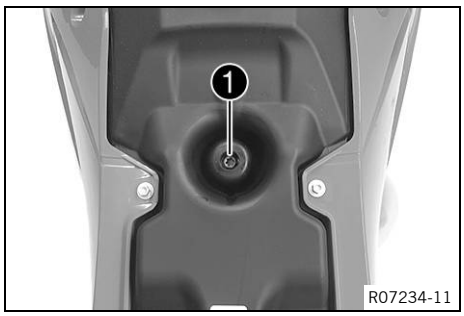
– Do not allow fuel to come into contact with skin, eyes, or clothing.
– Consult a doctor immediately if fuel has been ingested.
– Do not inhale fuel vapors.
– Rinse the affected area immediately with plenty of water in the event of contact with skin.
– Rinse eyes thoroughly with water and consult a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

Installation procedure

– Check the throttle cable routing. (p. 72)

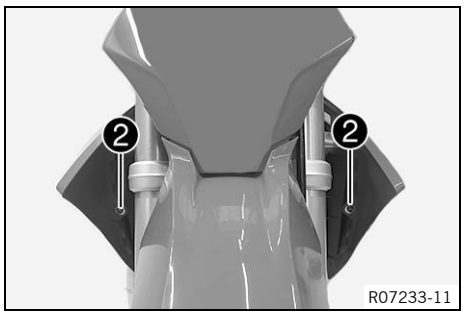


– Position the fuel tank and fit the two spoilers to the sides of the radiator mount.
– Make sure that no wires or cables are trapped or damaged.



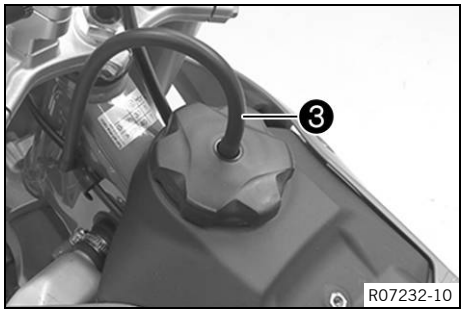
– Mount and tighten screw ❶ with the rubber bushing.

Remaining screws on chassis	
M6	10 Nm

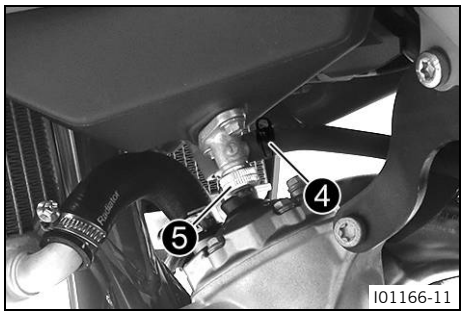


– Mount and tighten screws ❷.

Remaining screws on chassis	
M6	10 Nm



– Mount fuel tank vent ❸.

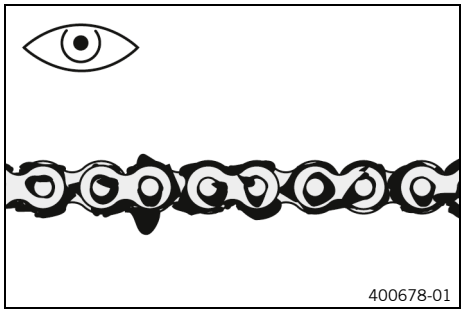


– Mount the fuel hose with clamp ❹.
– Open fuel petcock ❺.

Reworking

– Mount the seat. (p. 57)

11.37 Checking the chain for dirt



– Check the chain for coarse dirt accumulation.
  » If the chain is very dirty:
    – Clean the chain. (p. 67)

11.38 Cleaning the chain

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

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

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.

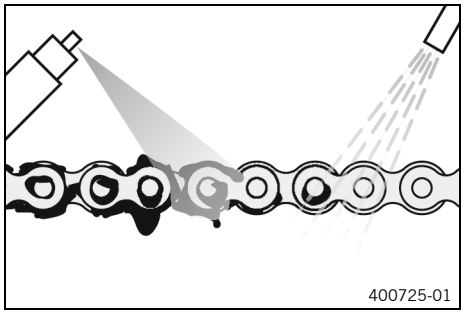
Preparatory work
– Raise the motorcycle with a lift stand. (p. 44)

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

Chain cleaner (p. 136)

– After drying, apply chain spray.

Off-road chain spray (p. 134)



Reworking

– Remove the motorcycle from the lift stand. (p. 44)

11.39 Checking the chain tension

WARNING

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

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

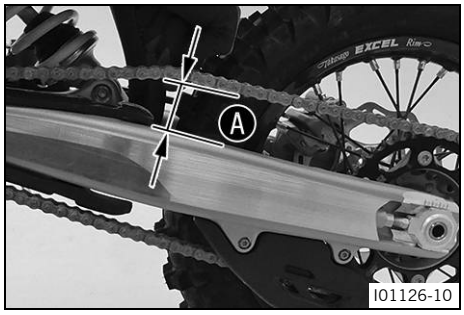
If the chain is too loose, the chain may fall off the front sprocket or the rear sprocket. This can damage the rear wheel or the engine.

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

Preparatory work

– Raise the motorcycle with a lift stand. (p. 44)

Control process



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

Chain tension	43 mm … 46 mm

Note

Lower chain section ❶ must be taut.

Chain wear is not always even, so repeat this measurement at different positions on the chain.

» If the chain tension does not meet the specification:
– Adjust the chain tension. (p. 68)

Reworking

– Remove the motorcycle from the lift stand. (p. 44)

11.40 Adjusting the chain tension

WARNING

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

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

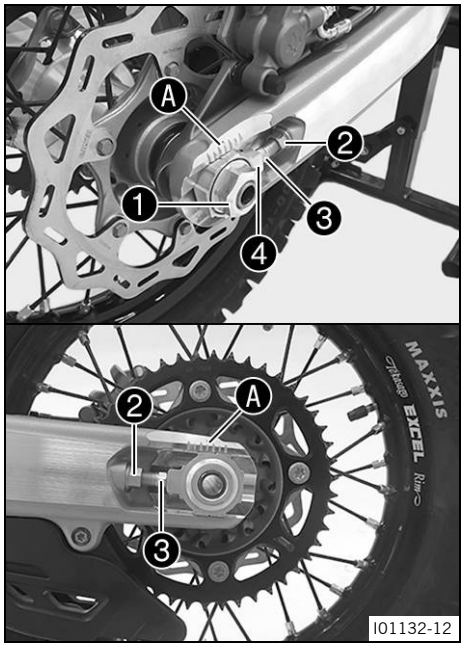
If the chain is too loose, the chain may fall off the front sprocket or the rear sprocket. This can damage the rear wheel or the engine.

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

Preparatory work

– Raise the motorcycle with a lift stand. (p. 44)
– Check the chain tension. (p. 68)

Adjustment procedure



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

Chain tension	43 mm … 46 mm
Turn adjusting screws ❸ on the left and right so that the markings on the left and right chain tension adjusters are in the same position relative to reference marks Ⓐ. The rear wheel is then correctly aligned.	

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

Nut, wheel spindle, rear	
M20×1.5	80 Nm

Note
The large range of adjustment of the chain tension adjuster (32 mm) means that different secondary ratios can be used with the same chain length.
Chain tension adjusters ❹ can be turned by 180°.

Reworking

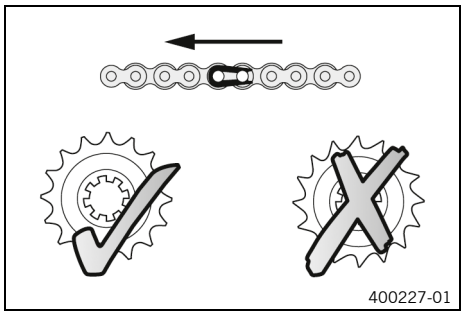
– Remove the motorcycle from the lift stand. (p. 44)

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

Preparatory work

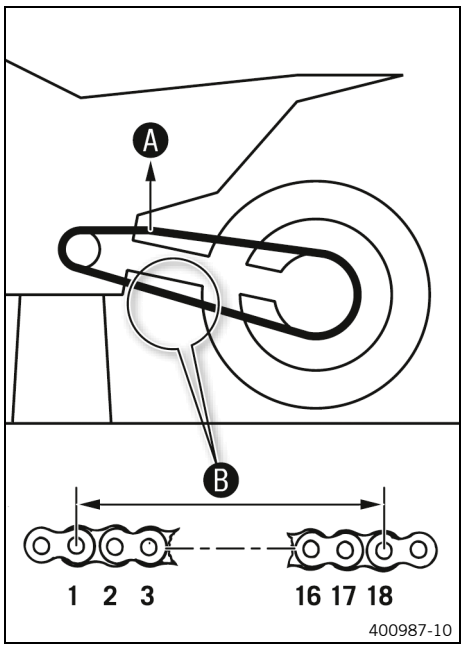
– Raise the motorcycle with a lift stand. (p. 44)

Control process



– 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.

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



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

Weight, chain wear measurement	10 kg ... 15 kg

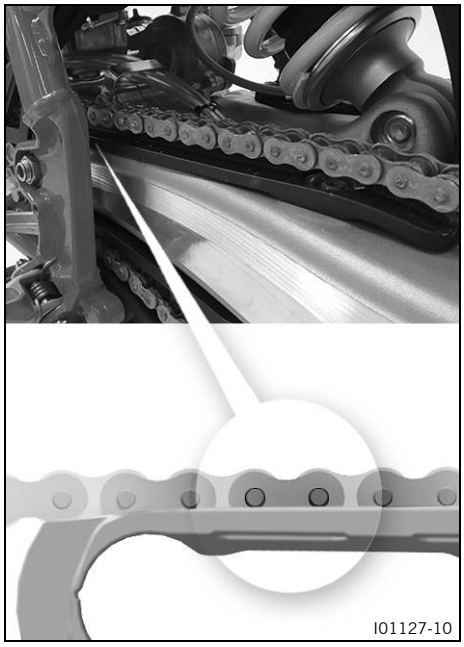
– Measure distance Ⓑ of chain rollers in the lower chain section.

Maximum distance Ⓑ of chain rollers at the longest chain section	219 mm

Note
Chain wear is not always even, so repeat this measurement at different positions on the chain.

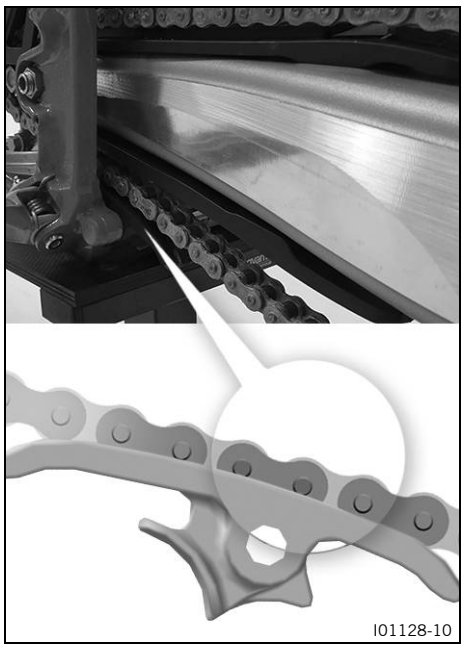
» If distance Ⓑ is greater than the specified measurement:
– Change the drivetrain kit.

Note
When you replace the chain, you should also replace the rear sprocket and front sprocket.
New chains wear out faster on old, worn front or rear sprockets.



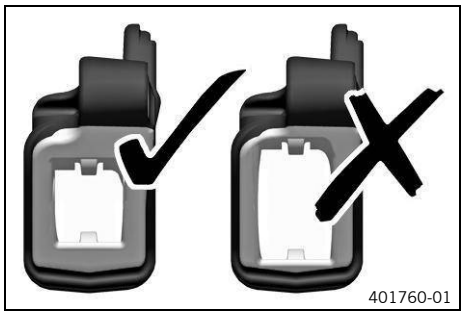
– Check the chain slider at the top for wear.
» If the lower edge of the chain pins is in line with, or below, the chain slider:
– Change the chain slider.
– Check that the chain slider is firmly seated.
» If the chain slider is loose:
– Tighten the screws of the chain slider.

Remaining screws on chassis	
M6	10 Nm



– 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.

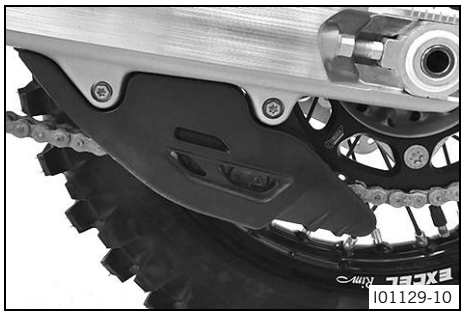
Screw, chain slider	
M8	15 Nm



– 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

Reworking

– Remove the motorcycle from the lift stand. (p. 44)

11.42 Checking the frame


R07204-10

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

Repairs on the frame are not permitted.

11.43 Checking the swingarm


R07205-10

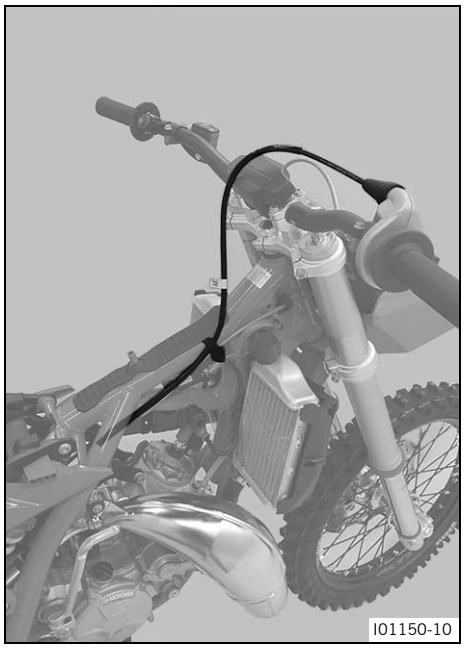
– Check the swingarm for damage, cracks, and deformation.
  » If the swingarm shows signs of damage, cracks, or deformation:
  – Change the swingarm.

Note
Always replace a damaged link fork. Repairing the link fork is not authorized by KTM.

11.44 Checking the throttle cable routing

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

Preparatory work
– Remove the seat. (p. 56)
– Remove the fuel tank. (p. 63)



Control process

– Check the throttle cable routing.

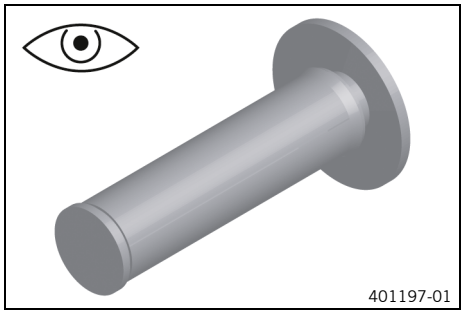
The throttle cable must be routed along the back of the handlebar, to the right of the frame, above the fuel tank roller, and to the carburetor.

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

Reworking

– Install the fuel tank. (p. 65)
– Mount the seat. (p. 57)

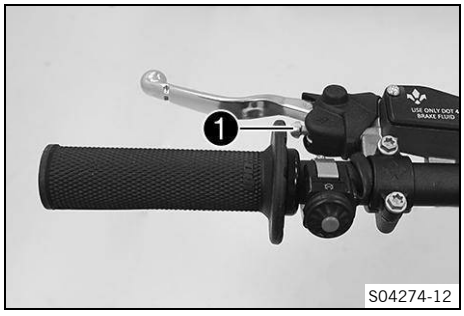
11.45 Checking the hand grip



– Check the hand grips on the handlebar for damage, wear, and that they are firmly seated.
» If a rubber grip is damaged, worn, or loose:
– Change and secure the rubber grip.

Rubber grip adhesive (00062030051)

11.46 Adjusting the basic position of the clutch lever



– Adjust the basic position of the clutch lever to the size of the rider's hand using adjusting screw 1.

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.

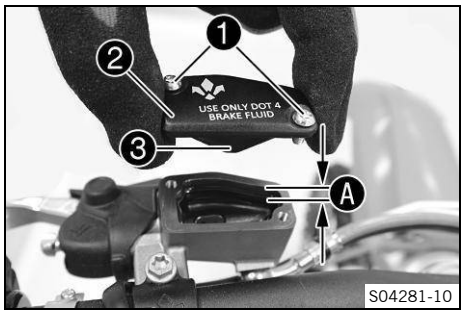
The range of adjustment is limited.

Turn the adjusting screw by hand only, and do not apply any force.

Do not make any adjustments while riding.

11.47 Checking the fluid level of the hydraulic clutch

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



– 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.

Level Ⓐ (fluid level below container rim)	4 mm

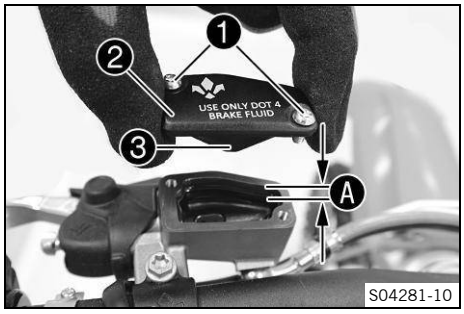
» If the fluid level does not meet the specifications:
– Correct the fluid level of the hydraulic clutch.
(p. 74)
– Position the cover with diaphragm. Mount and tighten the screws.

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

11.48 Correcting the fluid level of the hydraulic clutch

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

Note
The fluid level rises with increasing wear of the friction plates.
Avoid contact between brake fluid and painted parts. Brake fluid corrodes paint.



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

Level Ⓐ (fluid level below container rim)	4 mm

Brake fluid DOT 4 / DOT 5.1 (p. 135)

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

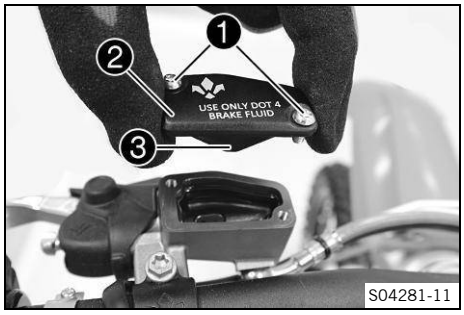
Note
Immediately clean up any brake fluid that has overflowed or spilled with water.

11.49 Changing the hydraulic clutch fluid

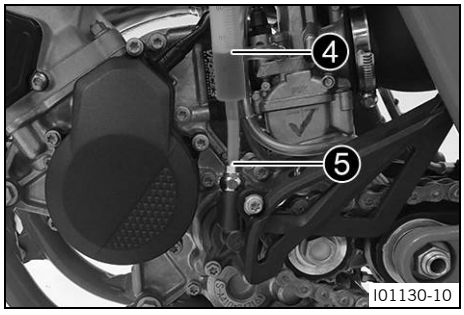
WARNING
Health hazard Brake fluid is a harmful substance.
- Keep brake fluid out of the reach of children.
- Wear suitable protective clothing and safety glasses.
- Do not allow brake fluid to come into contact with the skin, the eyes, or clothing.
- Consult a doctor immediately if brake fluid has been 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.



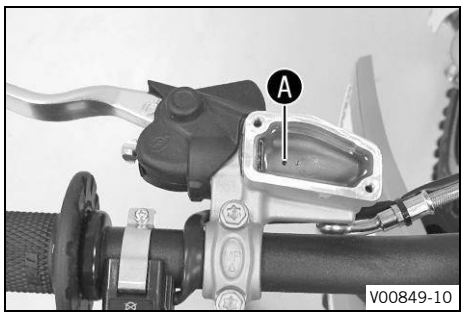
- Move the hydraulic clutch fluid reservoir mounted on the handlebar into a horizontal position.
- Remove ❶ screws.
- Take off cover ❷ with diaphragm ❸.



- Fill bleeding syringe ❹ with the appropriate hydraulic fluid.

Syringe (50329050000)
Brake fluid DOT 4 / DOT 5.1 (p. 135)

- On the clutch slave cylinder, remove bleeder screw ❺ and mount bleeding syringe ❹.



– Inject the liquid into the system until it escapes from opening Ⓐ of the master cylinder without bubbles.
– Occasionally extract the fluid from the master cylinder reservoir to prevent overflowing.
– Remove the bleeding syringe. Mount and tighten the bleeder screw.
– Correct the fluid level of the hydraulic clutch.

Fluid level below reservoir rim	4 mm

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

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

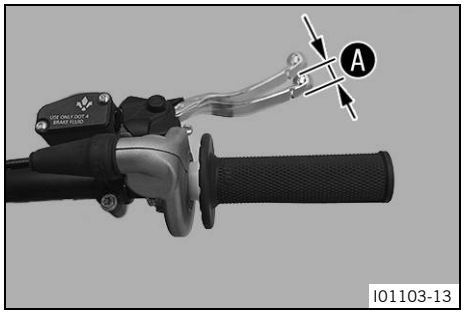
12.1 Checking the free travel on the hand brake lever

WARNING

Danger of accidents The brake system fails in the event of overheating.

If there is no free travel on the brake lever, pressure builds up in the brake system.

– Set the free travel on the brake lever as specified.



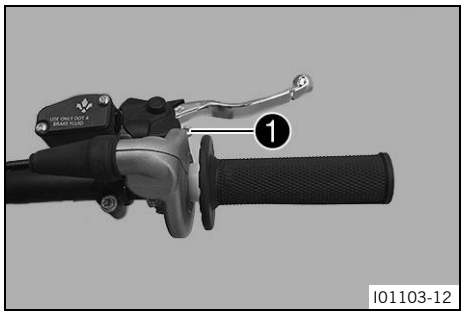
– Push the hand brake lever forward and check free travel Ⓐ.

Free travel of hand brake lever	≥ 3 mm

» If the free travel does not meet the specifications:

– Adjust the free travel of the handbrake lever. (p. 77)

12.2 Adjusting the free travel of the handbrake lever



– Check the free travel on the hand brake lever. (p. 77)

– Adjust the free travel of the hand brake lever with adjusting screw ❶.

Note

Turn the adjusting screw clockwise to reduce free travel. The pressure point moves away from the handlebar.

Turn the adjusting screw counterclockwise to increase free travel. The pressure point moves towards the handlebar.

The range of adjustment is limited.

Turn the adjusting screw by hand only, and do not apply any force.

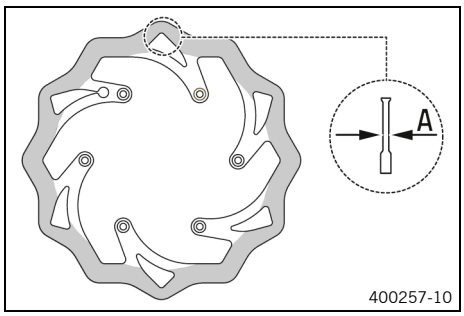
Do not make any adjustments while riding.

12.3 Checking the brake discs

WARNING

Danger of accidents Worn-out brake discs reduce the braking action.

– Make sure that worn-out brake discs are replaced immediately.



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

Brake disc wear limit	
front	3.5 mm
rear	3.5 mm

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

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

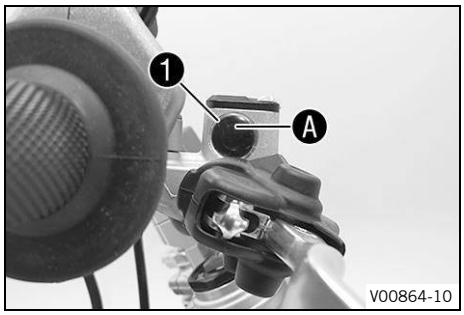
– Check the front and rear brake discs for damage, cracks, and deformation.

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

12.4 Checking the brake fluid level for the front brake

WARNING
Danger of accidents 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
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.



– Move the brake reservoir mounted on the handlebar to a horizontal position.
– Check the brake fluid level in sight glass ❶.

» If the brake fluid level has fallen below marking Ⓐ:
  – Add brake fluid for the front brake. (p. 79)

12.5 Adding brake fluid for the front brake

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.

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.

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.

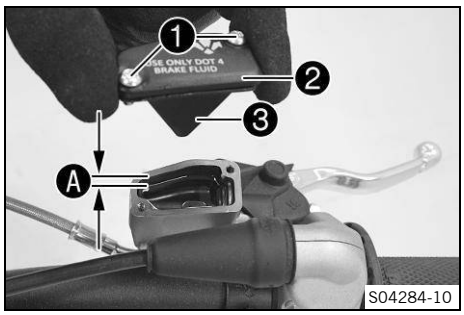
Note

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. 80)

Filling procedure



– 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

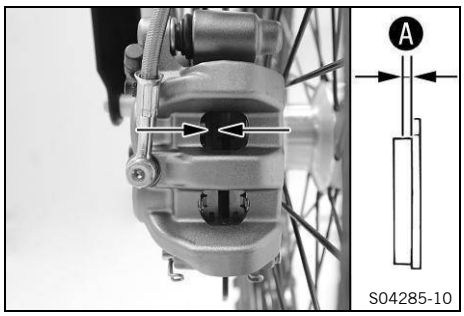
Brake fluid DOT 4 / DOT 5.1 (p. 135)

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

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

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

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



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

Minimum pad thickness A	≥ 1 mm

» If it is less than the minimum thickness:
– Change the front brake pads. (p. 80)
– Check the brake linings for damage and cracking.
» If there is damage or cracking:
– Change the front brake pads. (p. 80)
– Check that the brake pads are secured.
» If the brake pads are not secured correctly:
– Secure brake pads, replace with new parts if necessary.

12.7 Changing the brake pads of the front brake

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

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.

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 or grease on the brake discs reduces the braking action.

– Always keep the brake discs free of oil and grease.
– Clean the brake discs with brake cleaner when necessary.

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.

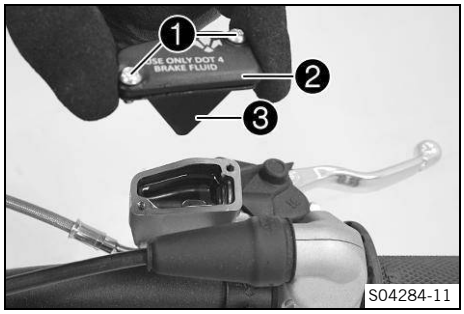
NOTE

Environmental hazard Hazardous substances cause environmental damage.

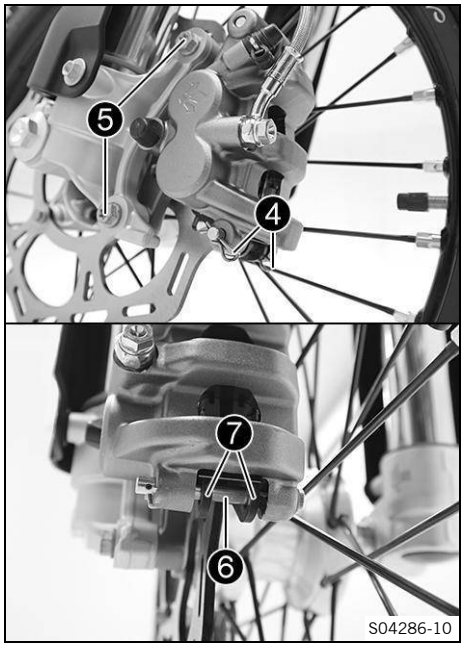
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

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 ❶ screws.
– Take off cover ❷ with diaphragm ❸.



– Remove cotter pin ❹.
– Remove ❺ screws.
– Press the brake pads back by slightly tilting the brake caliper laterally on the brake disc. Carefully pull the brake caliper backward from the brake disc.
– 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 pin ❻.
– Remove brake linings ❼ and the retainer spring.
– Clean the brake caliper.
– Position the retainer spring.
– Put the new brake lining in position.

Note

Always replace brake pads in sets.

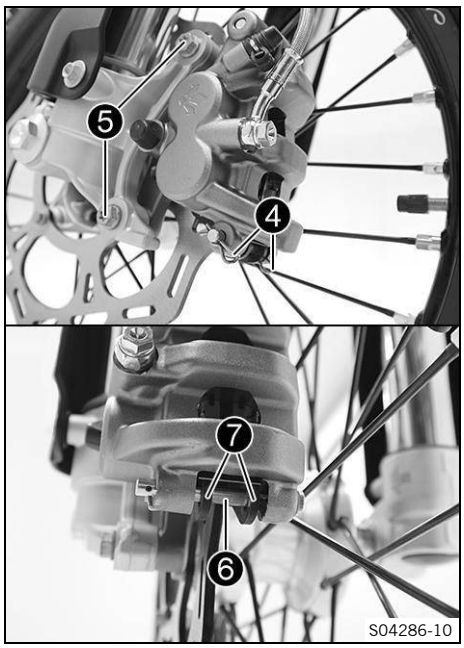
– Mount pin ❻.

Note

To make it easier to mount the stud, push the brake pads upward against the retaining spring.

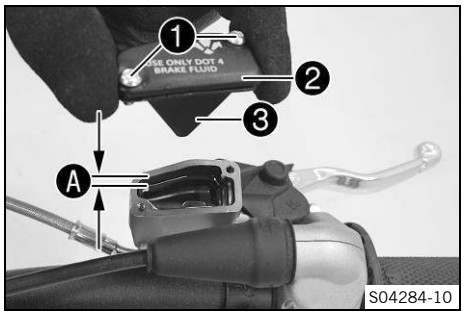
Make sure the brake pads and retaining spring are properly seated.

– Mount cotter pins ❹.



– Position the brake caliper.
– Mount and tighten screws 5.

Screw, front brake caliper	
M8	25 Nm **Loctite® 243**



– Correct the brake fluid up to level A.

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

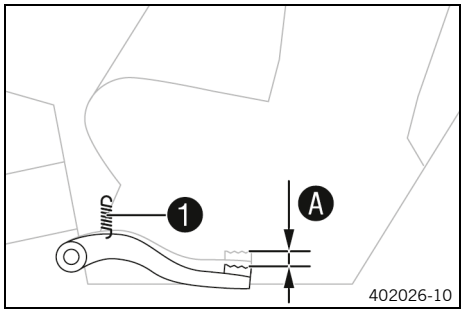
Brake fluid DOT 4 / DOT 5.1 (p. 135)

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

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

12.8 Checking the free travel of the brake pedal

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



– Detach spring 1.
– Move the brake pedal back and forth between the end stop and the brake pedal cylinder piston actuation and check free travel A.

Free travel of brake pedal	3 mm … 5 mm

» If the free travel does not meet the specifications:
– Adjust the basic position of the brake pedal. (p. 83)

– Attach spring 1.

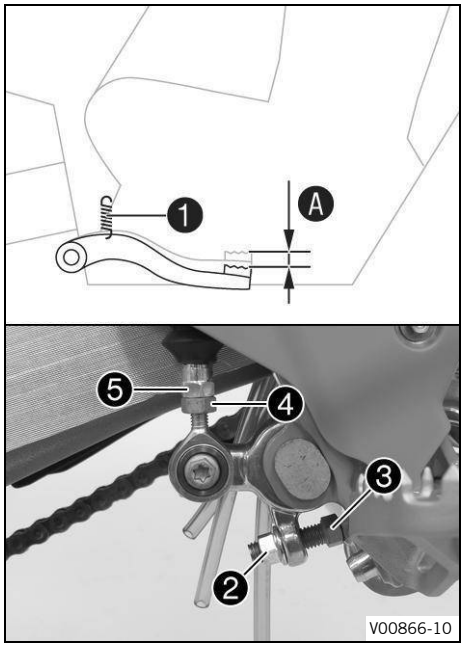
12.9 Adjusting the basic position of the brake pedal

WARNING

Danger of accidents The brake system fails in the event of overheating.

If there is no free travel on the brake lever, pressure builds up in the brake system.

– Set the free travel on the brake lever as specified.



– Detach spring ❶.
– Loosen nut 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

Note

The screw must be screwed in by at least four turns in the push pin.

– Hold screw ❸ and tighten nut ❷.

Brake lever stop nut	
M8	20 Nm

– Hold push rod ❺ and tighten nut ❹.

Remaining nuts on chassis	
M6	10 Nm

– Attach spring ❶.

12.10 Checking the brake fluid level for the rear brake

WARNING

Danger of accidents An insufficient brake fluid level will cause the brake system to fail.

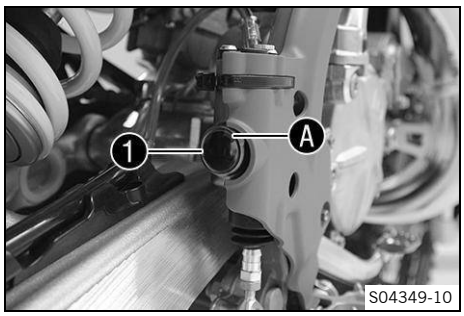
If the brake fluid level drops below the specified marking or the specified value, the brake system has a leak or the brake pads are worn down.

– Have the brake system checked and make sure that the problem has been eliminated before the vehicle is used again.

WARNING

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.



– Stand the vehicle upright.
– Check the brake fluid level in sight glass 1.

Tip
Move the frame protector slightly to the side to make it easier to see the marking.

» If the brake fluid level has fallen below marking A:
  – Add brake fluid for the rear brake. (p. 84)

12.11 Adding brake fluid for the rear brake

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.

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.

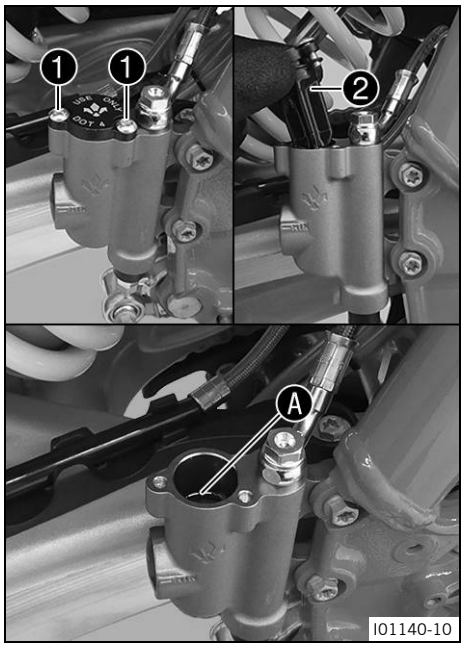
NOTE
Environmental hazard Hazardous substances cause environmental damage.
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

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. 85)

Filling procedure



– Stand the vehicle upright.
– Remove ❶ screws.
– Take off the cover with the washer and membrane ❷.
– Add brake fluid to mark Ⓐ.

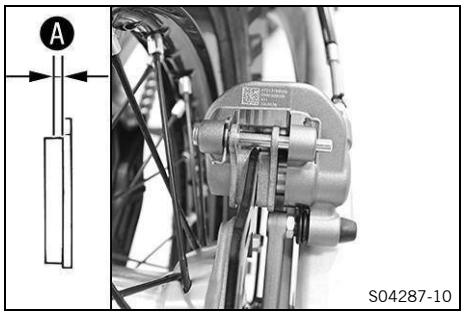
Brake fluid DOT 4 / DOT 5.1 (p. 135)

– Mount the cover with the washer and membrane.
– Mount and tighten the screws.

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

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

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



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

Minimum pad thickness Ⓐ	≥ 1 mm

» If it is less than the minimum thickness:
– Change the rear brake pads. (p. 86)

– Check the brake linings for damage and cracking.
» If there is damage or cracking:
– Change the rear brake pads. (p. 86)

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

12.13 Changing the rear brake pads

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

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.

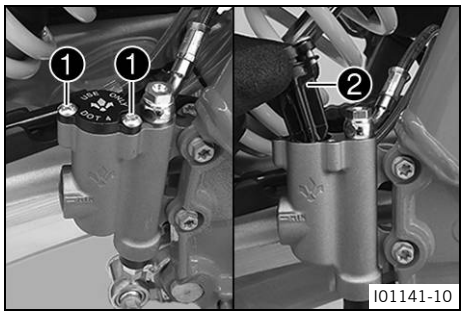
WARNING
Danger of accidents Brake fluid which is too old or of the wrong type impairs the function of the brake system.
– Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule.
– Make sure that only clean, approved brake fluid from a tightly sealed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

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

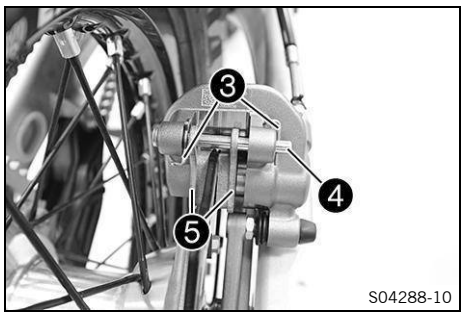
WARNING
Danger of accidents Brake pads which have not been approved alter the braking action.
– Only use brake pads approved and recommended by the vehicle manufacturer.

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.

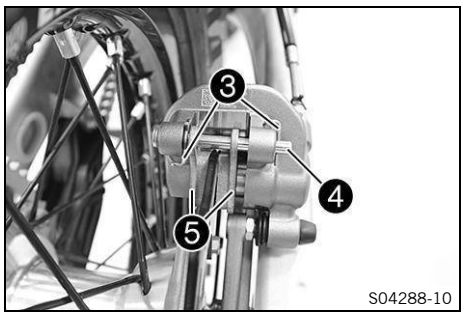


– Stand the vehicle upright.
– Remove ❶ screws.
– Take off the cover with the washer and membrane ❷.
– Press the brake piston back to its basic position and make sure that no brake fluid overflows from the brake reservoir, extract some brake fluid if necessary.



– Remove cotter pin ❸.
– Press the brake pads back by slightly tilting the brake caliper laterally on the brake disc.
– Remove pin ❹.
– Remove brake linings ❺ and the retainer spring.
– Clean the brake caliper.
– Position the retainer spring.
– Put the new brake lining in position.

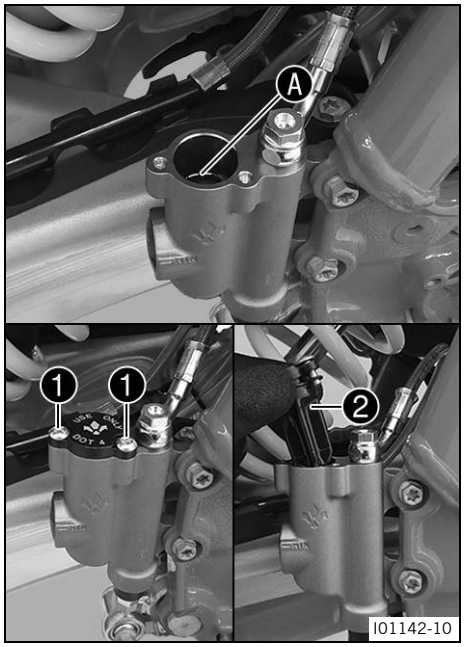
Note
Always replace brake pads in sets.



– Mount pin ❹.

Note
To make it easier to mount the pin, push the brake linings upwards against the retainer spring.
Make sure the brake pads and retaining spring are properly seated.

– Mount cotter pins ❸.
– Check the brake discs. (p. 77)
– Actuate the brake disc repeatedly until the brake pads are in contact with the brake disc and a pressure point is achieved.



– Correct the brake fluid level to mark Ⓐ.

Brake fluid DOT 4 / DOT 5.1 (p. 135)

– Mount the cover with the washer and membrane ❷.
– Mount and tighten screws ❶.

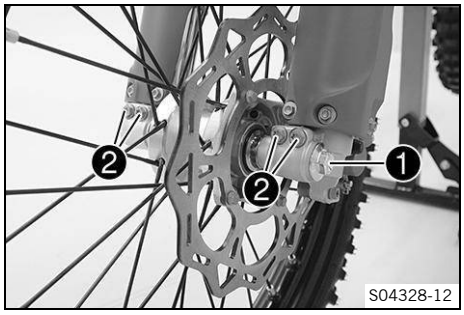
Note
Immediately clean up any brake fluid that has overflowed or spilled with water.

13.1 Removing the front wheel

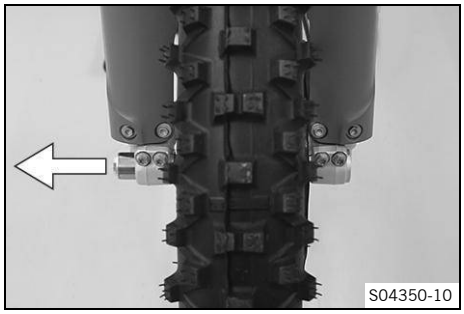
Preparatory work

– Raise the motorcycle with a lift stand. (p. 44)

Removal process



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



WARNING

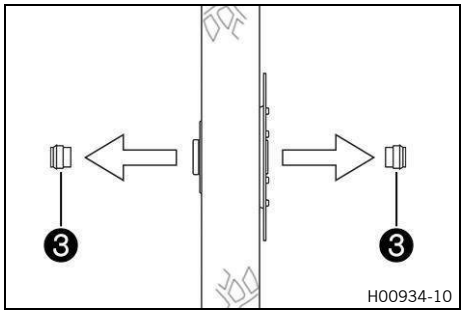
Danger of accidents Damaged brake discs reduce the braking action.

– 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.

Note

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



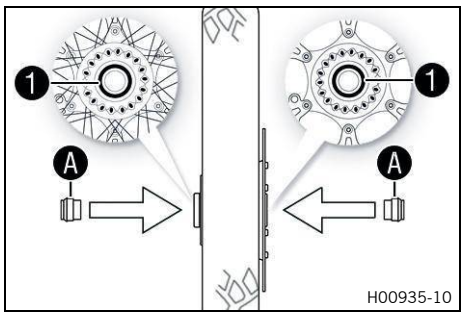
– Remove spacers ❸.

13.2 Installing the front wheel

WARNING

Danger of accidents Oil or grease on the brake discs reduces the braking action.

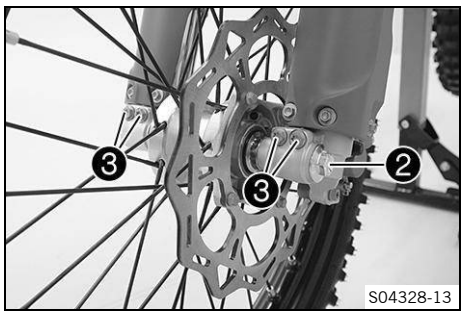
– Always keep the brake discs free of oil and grease.
– Clean the brake discs with brake cleaner when necessary.



– 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 ❶ and contact surfaces Ⓐ on the spacers.

Long-life grease (p. 134)

– Insert spacers.



– Clean and lightly grease the wheel spindle.

Long-life grease (p. 134)

– Position the front wheel.
  ✓ The brake pads are positioned correctly.
– Insert the wheel spindle.
– Mount and tighten screw ❷.

Screw, wheel spindle, front	
M20×1.5	35 Nm

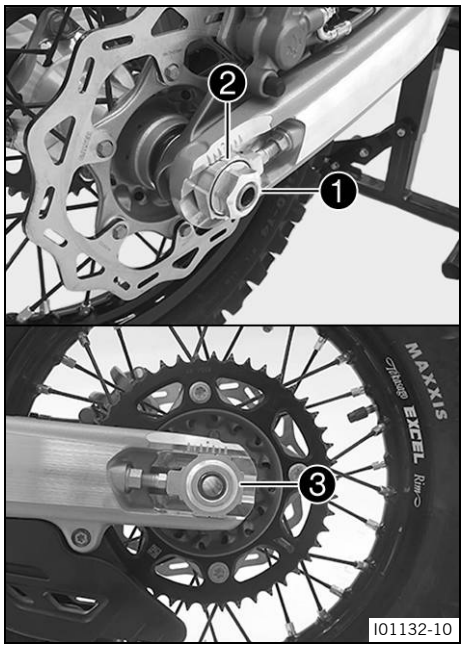
– Operate the hand brake lever several times until the brake pads are in contact with the brake disc.
– Remove the motorcycle from the lift stand. (p. 44)
– Operate the front brake and compress the fork a few times firmly.
  ✓ The fork legs straighten.
– Tighten screws ❸.

Screw, fork shoe	
M8	15 Nm

13.3 Removing the rear wheel

Preparatory work

– Raise the motorcycle with a lift stand. (p. 44)



Removal process

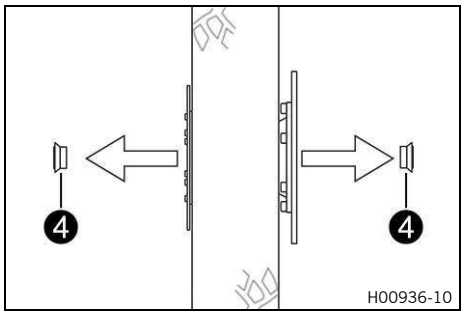
– Remove nut ❶.
– Remove chain tension adjuster ❷. Pull out wheel spindle ❸ far enough to allow the rear wheel to be pushed forward.
– Push the rear wheel forward as far as possible. Remove the chain from the rear sprocket.

Note
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.

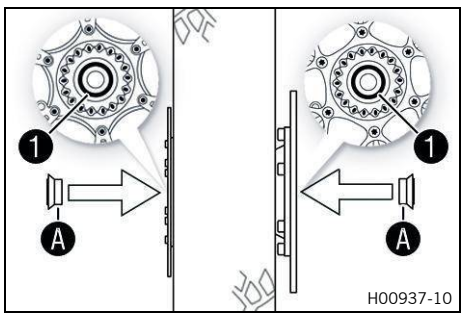
Note
Do not actuate the brake pedal when the rear wheel is removed.



– Remove spacers ❹.

13.4 Installing the rear wheel

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

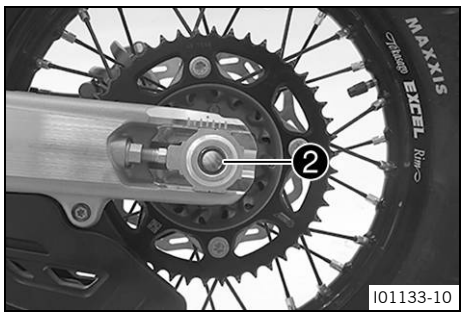


Installation procedure

– 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. 134)

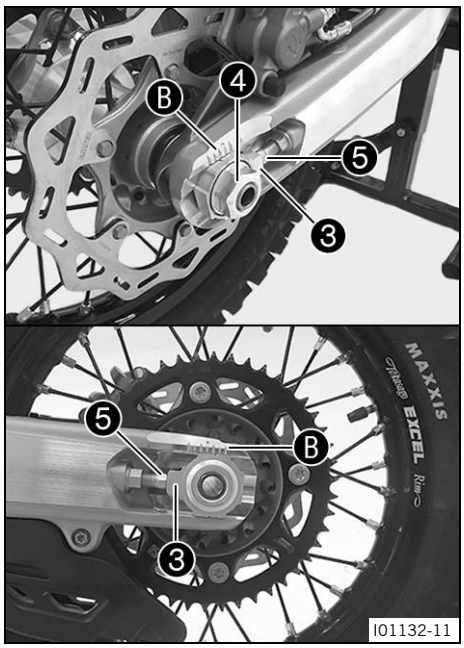
– Insert spacers.



– Clean and lightly grease the wheel spindle.

Long-life grease (p. 134)

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



– 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.
– Make sure that the markings on the left and right chain adjusters ❸ are in the same position relative to reference marks Ⓑ. The rear wheel is then correctly aligned.

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°.

– Check the chain tension. (p. 68)
– Tighten nut ❹.

Nut, wheel spindle, rear	
M20×1.5	80 Nm

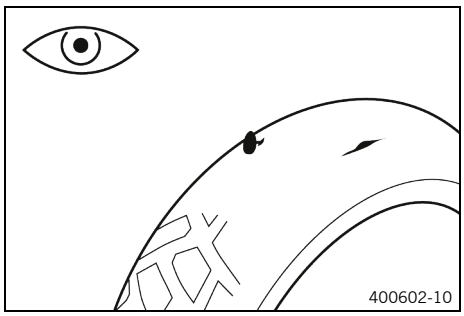
– Actuate the brake disc repeatedly until the brake pads are in contact with the brake disc and a pressure point is achieved.

Reworking

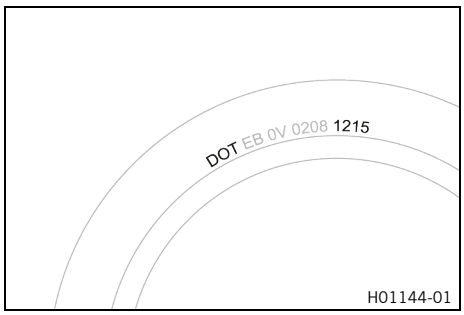
– Remove the motorcycle from the lift stand. (p. 44)

13.5 Checking the tire condition

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



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



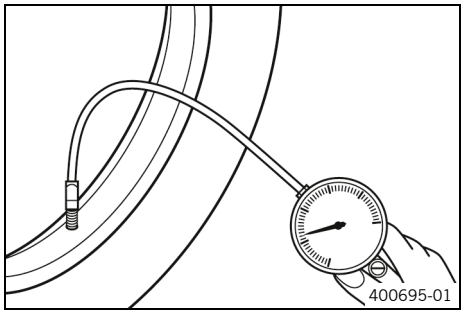
– Check the tire age.

Note
The tire date of manufacture is usually 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.
KTM recommends that the tires be changed after 5 years at the latest, regardless of the actual state of wear.

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

13.6 Checking the tire pressure

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



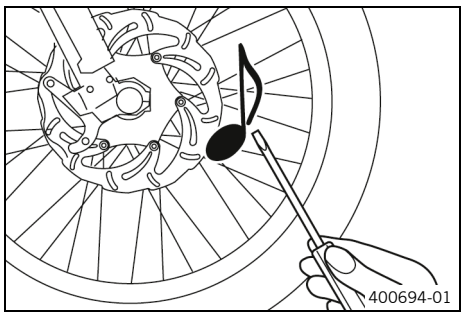
– Remove the protection cap.
– Check the tire pressure when the tires are cold.

Off-road tire pressure	
front	1.0 bar
rear	1.0 bar

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

13.7 Checking the spoke tension

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



– Briefly tap each spoke with a screwdriver.

You should hear a high-pitched sound.

Note

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

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

» If the spoke tension differs:

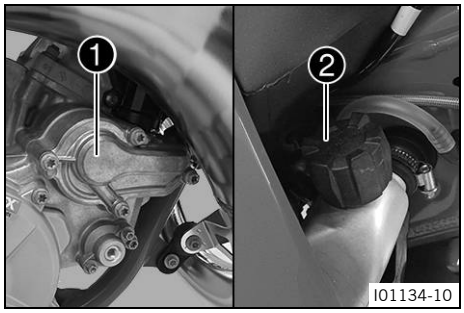
– Correct the spoke tension.

– Check the spoke torque.

Spoke nipple	
M4,5	5 Nm

Torque wrench kit (58429094000)

14.1 Cooling system

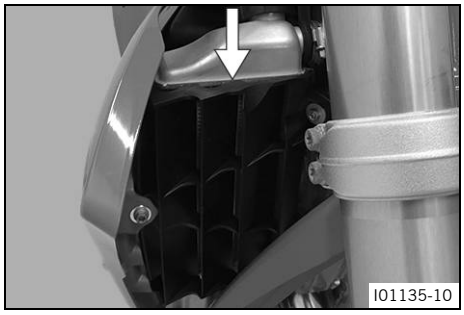


Water pump ❶ in the engine circulates the coolant.
The pressure resulting from the warming of the cooling system is regulated by a valve in radiator cap ❷. This ensures that operating the vehicle at the specified coolant temperature will not result in a risk of malfunctions.

120 °C

The coolant is cooled by the air stream.
The lower the vehicle speed, the lower the cooling effect. Dirty cooling fins also reduce the cooling effect.

14.2 Radiator cover

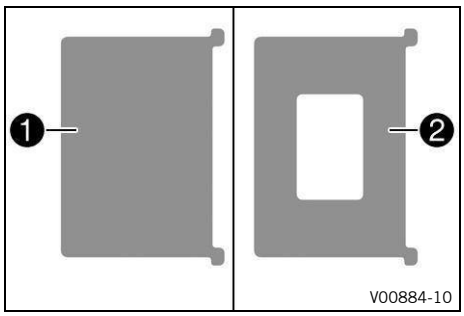


The radiator covers are mounted in front of the radiator between the radiator shield and radiator.

Note
Do not use radiator covers in difficult operating conditions.

The radiator cover keeps the coolant temperature in the correct range.

Optimal coolant temperature	60 °C ... 70 °C

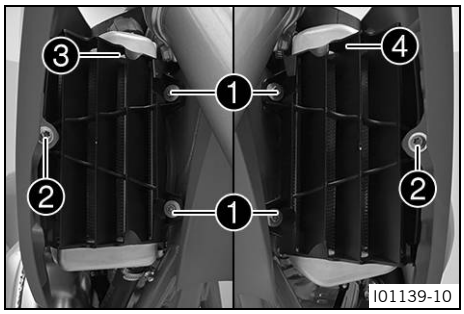


The radiator covers are installed in front of the radiator, depending on the ambient temperature.

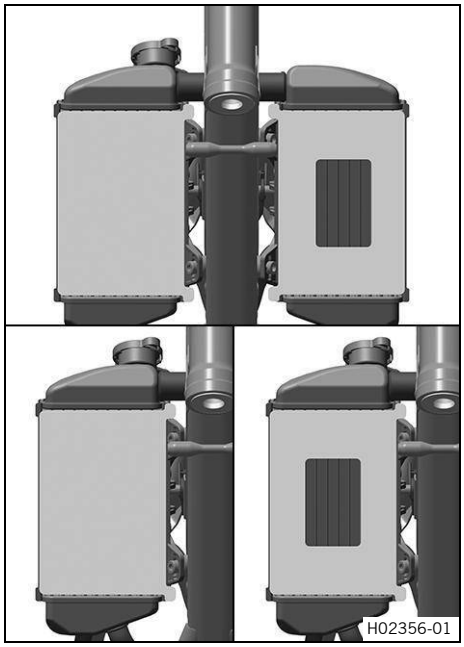
Full radiator cover right side ❶ and half radiator cover left side ❷	< 0 °C
Full radiator cover right side ❶	0 °C ... 10 °C
Half radiator cover right side ❷	10 °C ... 20 °C
No radiator cover	> 20 °C

14.3 Installing the radiator cover

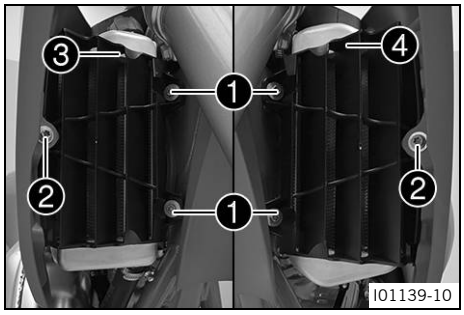
Note
Only remove left radiator shield if both radiator covers are mounted.



– Remove ❶ screws.
– Remove ❷ screws.
– Remove right radiator shield ❸.
– Remove left radiator shield ❹.



– Position the corresponding radiator cover (p. 94).
✓ The holding lugs point toward the frame.



– Position left radiator shield ❹.
– Position right radiator shield ❸.
– Mount and tighten screws ❷.

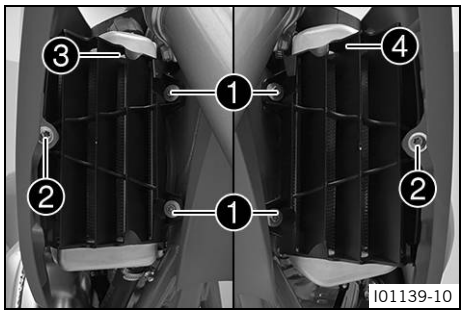
Screw, fuel tank spoiler on radiator	
M6	6 Nm

– Mount and tighten screws ❶.

Remaining screws on chassis	
M6	10 Nm

14.4 Removing the radiator cover

Note
Only remove left radiator shield if both radiator covers are mounted.



- Remove ❶ screws.
- Remove right radiator shield ❷.
- Remove ❸ screws.
- Remove left radiator shield ❹.
- Remove corresponding radiator cover.
- Position right radiator shield ❷.
- Mount and tighten screws ❶.

Screw, fuel tank spoiler on radiator	
M6	6 Nm

- Position left radiator shield ❹.
- Mount and tighten screws ❸.

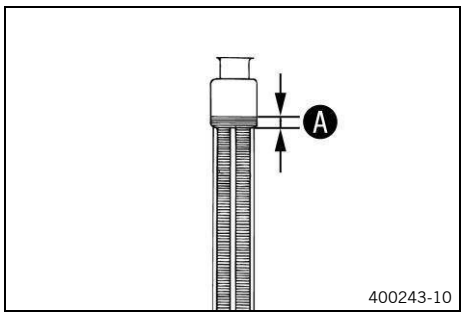
Screw, fuel tank spoiler on radiator	
M6	6 Nm

14.5 Checking the frost protection and coolant level

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.

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.

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

» If the frost protection in the coolant does not match the specified value:
– Correct the frost protection in the coolant.

– Check the coolant level in the radiator.

Coolant level Ⓐ above the radiator fins	10 mm

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

coolant	
Coolant (p. 135) Antifreeze protection to at least: −25 °C	0.8 l

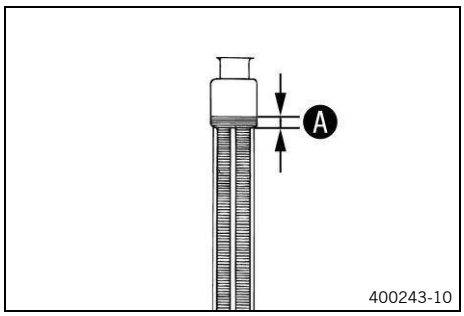
– Mount the radiator cap.

14.6 Checking the coolant level

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.

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.

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 Ⓐ above the radiator fins	10 mm

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

coolant	
Coolant (p. 135) Antifreeze protection to at least: −25 °C	0.8 l

– Mount the radiator cap.

14.7 Draining the coolant

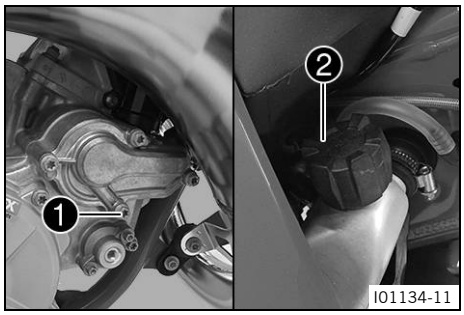
WARNING

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.

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.

Condition: The engine is cold.



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

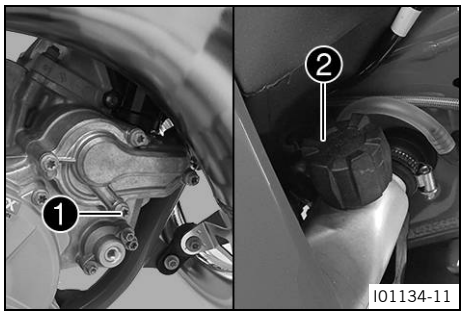
Coolant drain plug	
M6	8 Nm

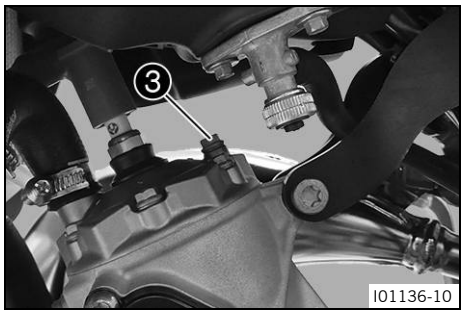
14.8 Refilling the coolant

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.





Filling procedure

- Make sure that screw ❶ is tightened.
- Stand the motorcycle upright.
- Take off radiator cap ❷.
- Completely fill the radiator with coolant.

coolant	
Coolant 📖 (p. 135) Antifreeze protection to at least: −25 °C	0.8 l

- Loosen screw ❸ until coolant escapes without bubbles.
- Mount and tighten screw ❸.

Screw, radiator bleeding	
M6	8 Nm

- Completely fill the radiator with coolant.

coolant	
Coolant 📖 (p. 135) Antifreeze protection to at least: −25 °C	0.8 l

- 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 coolant level. 📖 (p. 97)

Reworking

– Check the transmission and cooling system for leaks.

14.9 Changing the coolant

WARNING

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

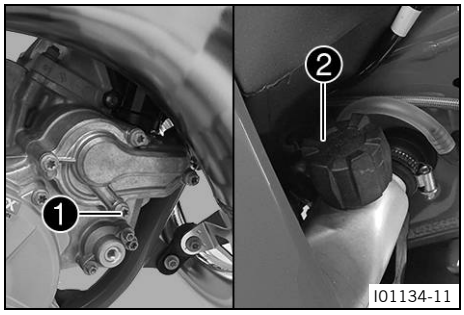
– Do not open the radiator, the radiator hoses, or other cooling system components if the engine or the cooling system are at operating temperature.
– Allow the cooling system and the engine to cool down before you open the radiator, the radiator hoses, or other components of the cooling system.
– In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

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.

Condition: The engine is cold.



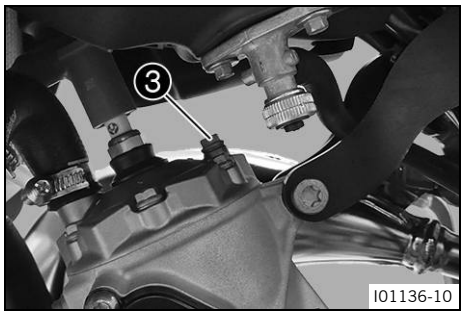
Replacement process

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

Coolant drain plug	
M6	8 Nm

– Completely fill the radiator with coolant.

coolant	
Coolant (p. 135) Antifreeze protection to at least: −25 °C	0.8 l



– Loosen screw ❸ until coolant escapes without bubbles.
– Mount and tighten screw ❸.

Screw, radiator bleeding	
M6	8 Nm

– Mount radiator cap ❷.

DANGER

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

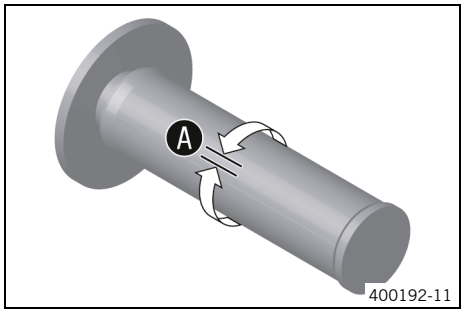
– Always ensure that there is sufficient ventilation when running the engine.
– Use suitable exhaust extraction when starting or running the engine in an enclosed space.

– Allow the engine to warm up and cool down again.
– Check the coolant level. (p. 97)

Reworking

– Check the transmission and cooling system for leaks.

15.1 Checking the play in the throttle cable



– Check the throttle grip for smooth operation.
– Move the handlebar to the straight-ahead position. Turn the throttle twist grip back and forth slightly and determine the play in throttle cable Ⓐ.

Throttle cable play	2 mm … 3 mm

» If the throttle cable play does not meet the specified value:
– Adjust the throttle cable play. (p. 102)

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.

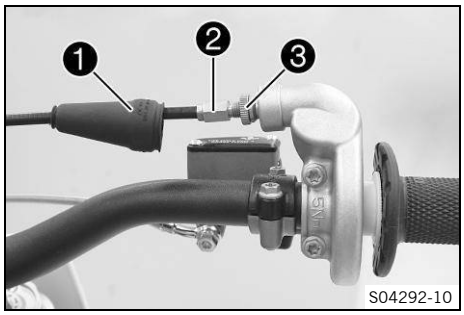
The idle speed must not change.

» If the idle speed changes:
– Adjust the throttle cable play. (p. 102)

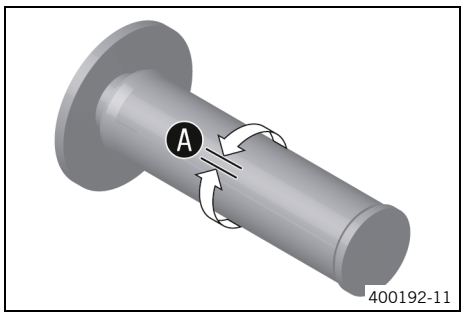
15.2 Adjusting the throttle cable play

Preparatory work
– Remove the seat. (p. 56)
– Remove the fuel tank. (p. 63)
– Check the throttle cable routing. (p. 72)

Adjustment procedure



– Move the handlebar to the straight-ahead position.
– Push back boot ❶.
– Ensure that the throttle cable sleeve is pushed all the way into barrel adjuster ❷.
– Loosen nut ❸.



– Turn barrel adjuster ❷ so that there is play Ⓐ in the throttle cable at the throttle grip.

Throttle cable play	2 mm ... 3 mm

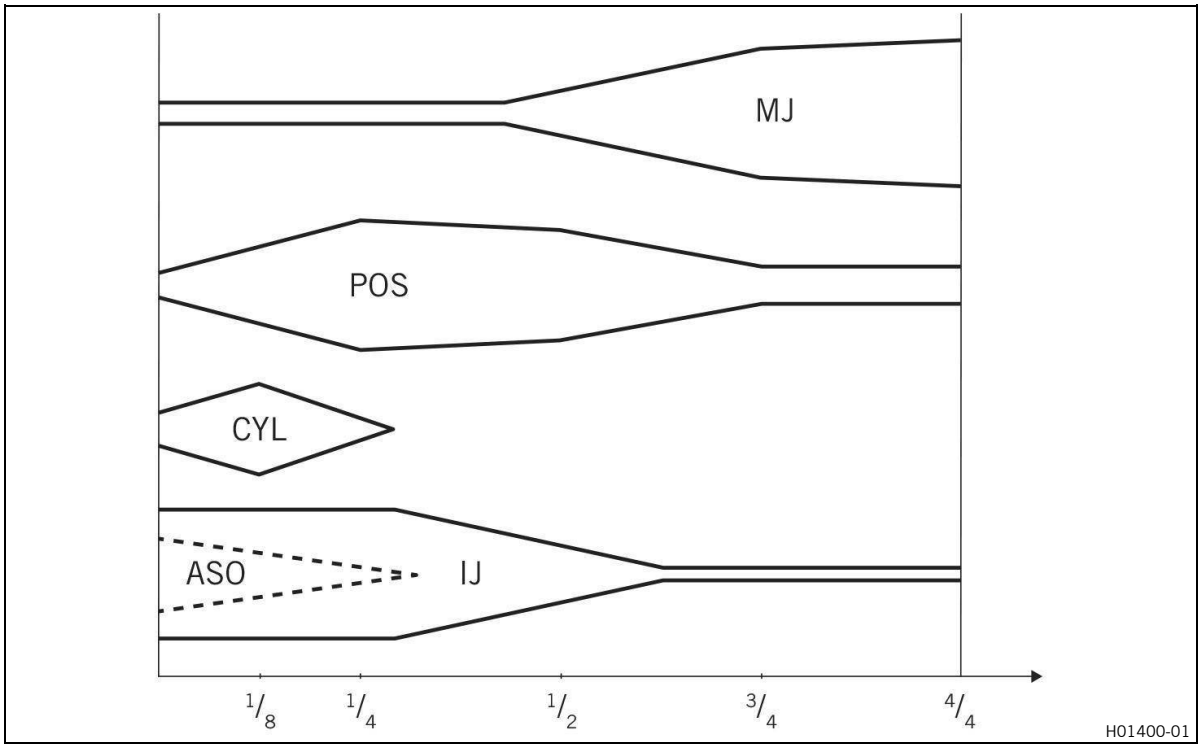
– Tighten nut ❸.
– Slide on boot ❶.

Reworking

– Install the fuel tank. (p. 65)
– Mount the seat. (p. 57)
– Check the play in the throttle cable. (p. 102)

15.3 Carburetor tuning

15.3.1 Effects of carburetor tuning



The different carburetor components must be tuned both to one another and for the use intended.

15.3.2 Main jet MJ

The main jet MJ has the greatest influence with the throttle slide open (full throttle).

If the insulator of a new spark plug is very light or white after a brief ride at full throttle, or if the engine knocks, a larger main jet needs to be used. If the insulator is dark brown or sooty, a smaller main jet needs to be used.

15.3.3 Needle position POS

The needle position has the greatest influence in the mid throttle slide range.

If the engine stutters when accelerating with a partially open throttle slide, the jet needle must be lowered. If the engine knocks when accelerating at the full power rpm range, the jet needle must be raised.

15.3.4 Cylindrical part of the needle CYL

The cylindrical part of the needle has the greatest influence when the throttle slide is almost closed.

15.3.5 Idle jet IJ

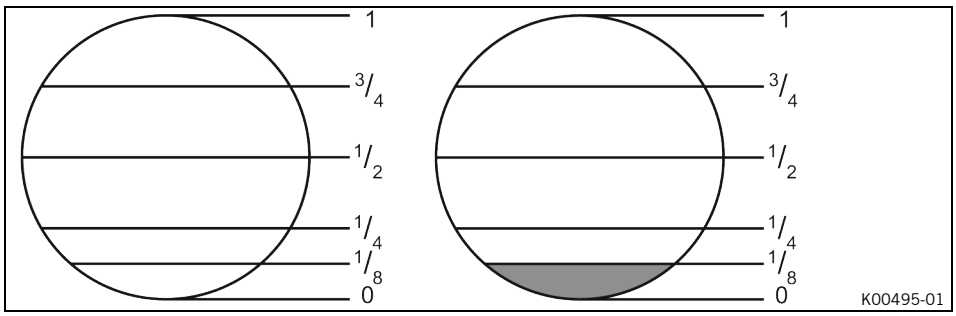
The idling jet has the greatest influence in the low to mid throttle slide range.

If the engine stutters at idle speed or when accelerating with a partially open throttle slide, a smaller idling jet must be used. If the engine knocks in this power range, then a larger idling jet must be used.

15.3.6 Idle air adjustment screw open ASO

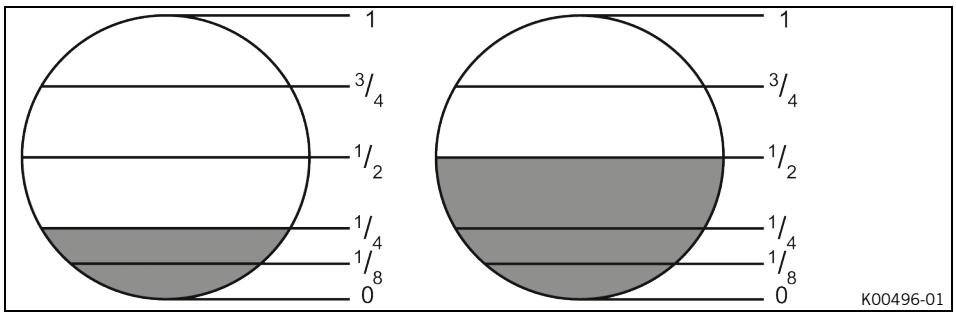
The idle air adjusting screw has the greatest influence at idle speed.

15.3.7 Influence of throttle slide adjustment



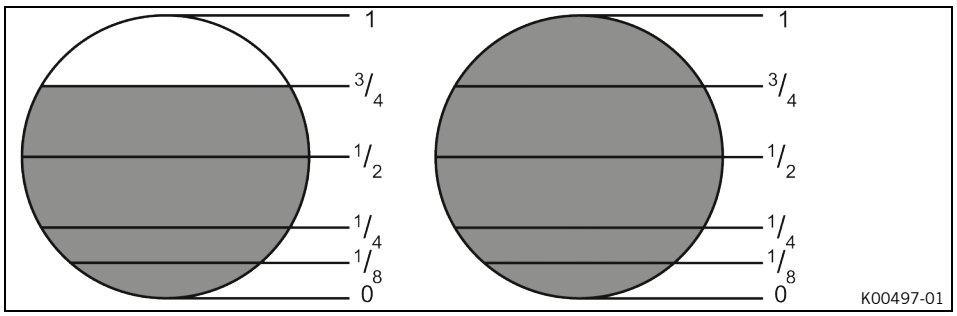
The idling jet has the greatest influence when the throttle slide is closed. The first cylindrical part of the needle and the clip position have only minimal influence.

When the throttle slide is 1/8 open, the first cylindrical part of the needle, the idling jet and the clip position have the greatest influence.



When the throttle slide is 1/4 open, the idling jet and the clip position have the greatest influence. The influence of the first cylindrical part of the needle is less.

When the throttle slide is 1/2 open, the position of the needle has the greatest influence. The influence of the main jet and the idling jet is only minimal.



When the throttle slide is 3/4 open, the influence of the main jet is greatest. The clip position and the idling jet have only minimal influence.

When the throttle slide is fully open, the influence of the main jet is greatest. The clip position and the idling jet have only minimal influence.

15.3.8 Needle overview

The jet needles available are shown in the following table.

	1	2	3
A	NRJ A	NRK A	2.405 mm
B	NRJ B	NRK B	2.415 mm
C	NRJ C	NRK C	2.425 mm
D	NRJ D	NRK D	2.435 mm
E	NRJ E	NRK E	2.445 mm

402797-01

Column **2** corresponds to a needle in standard position.

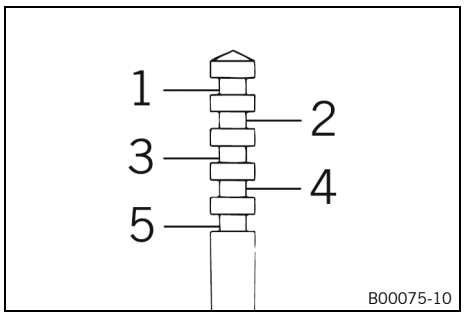
Column **1** corresponds to a needle which is half a clip leaner.

Column **3** specifies the diameter of the first cylindrical part of the needle. The smaller the diameter of the first cylindrical part of the needle, the richer the mixture. The larger the diameter of the first cylindrical part of the needle, the leaner the mixture. The first cylindrical part of the needle has the greatest influence in the lowest load range.

Note

The top right jet needle **A2** corresponds to the richest setting of the carburetor, and the bottom left jet needle **E1** corresponds to the leanest. The optimal carburetor tuning is shown under the respective model.

15.3.9 Clip position

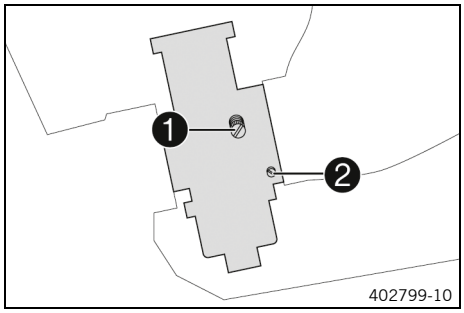


1 ... 5	Clip position from above

The five possible clip positions are shown here.

The carburetor tuning depends on the defined ambient and operating conditions.

15.4 Carburetor – idle setting



The idle setting of the carburetor has a big influence on the starting behavior, stable idle speed, and the response to throttle opening. This means that an engine with a correctly set idle speed will be easier to start than one with an incorrectly set idle speed.

Note
The carburetor and its components are subject to increased wear caused by engine vibration. Wear can result in malfunctioning.

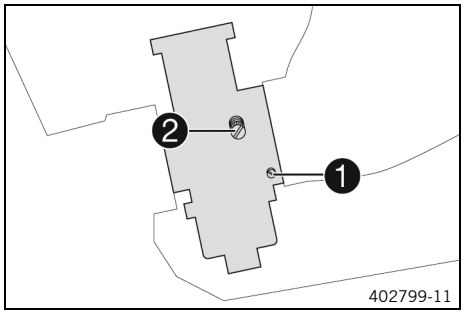
The factory setting for the carburetor is set for the following values.

Height above sea level	301 m ... 750 m
Ambient temperature	16 °C ... 24 °C

capacities	
Fuel tank capacity, approx.	
Super unleaded (98 octane) mixed with 2-stroke engine oil (p. 133) Mixture ratio: 1:40	5.4 l

The idle speed is adjusted with adjusting screw ❶.
The idle mixture is adjusted using idle air adjusting screw ❷.

15.5 Carburetor – adjusting the idle speed



– Screw in idle air adjusting screw ❶ all the way and turn it to the specified basic setting.

Idle air adjusting screw	
open	2 turns

– Run the engine until warm.

Warming-up phase	≥ 5 min

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 with adjusting screw ❷.
  • Choke function deactivated – The choke lever is pushed in to the stop.

idle speed	1,500 rpm ... 2,000 rpm

– Turn idle air adjusting screw ❶ slowly in a clockwise direction until the idle speed begins to fall.
– Note the position and turn the idle air adjusting screw slowly counterclockwise until the idle speed again begins to fall.

– Adjust to the point between these two positions with the highest idle speed.

Note

If there is a big engine speed rise, reduce the idle speed to a normal level and repeat the above steps.

If the procedure described here does not lead to satisfactory results, the cause may be a wrongly dimensioned idling jet.

If you can turn the idle air adjusting screw to the end without any change of engine speed, mount a smaller idling jet.

After changing the idling jet, start from the beginning with the adjusting steps.

Following extreme air temperature or altitude changes, adjust the idle speed again.

15.6 Emptying the carburetor float chamber

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

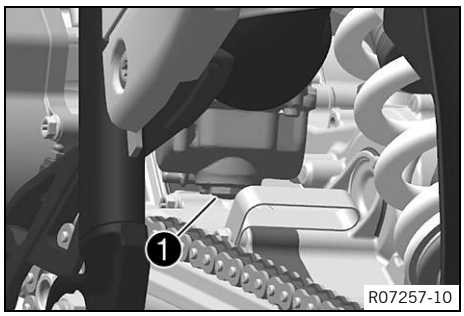
Environmental hazard Improper handling of fuel is dangerous to the environment.

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

Note

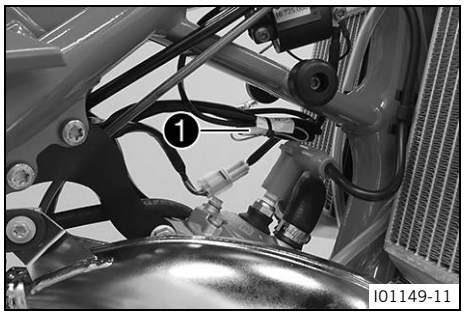
Carry out this work with a cold engine.

Water in the float chamber results in malfunctioning.



– Place a cloth under the carburetor to capture the draining fuel.
– Remove screw plug 1.
– Fully drain the fuel.
– Mount and tighten screw plug 1.

15.7 Plug-in connector of ignition timing map adjustment



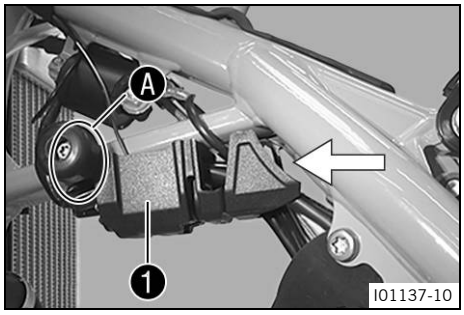
Plug-in connector 1 of the ignition timing map adjustment is located under the fuel tank in the cable compartment.

15.8 Changing the ignition timing map

Preparatory work

– Remove the seat. (p. 56)
– Remove the fuel tank. (p. 63)

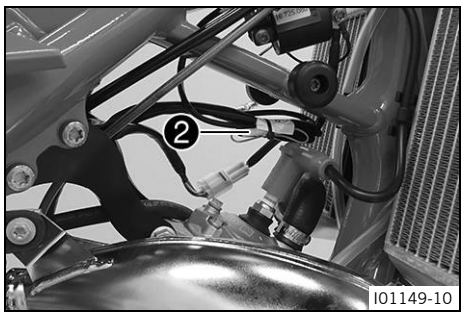
Adjustment procedure



– Push holding lug forward, swing cable compartment 1 downward and detach it in area A.

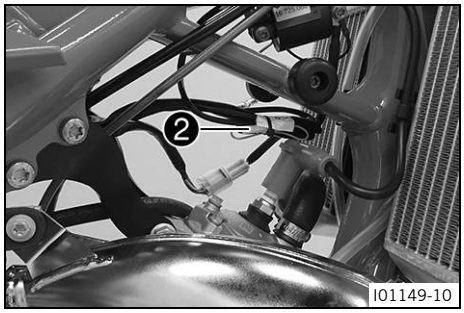
– Select one of the following alternatives.

Switching the ignition timing map from Performance to Soft

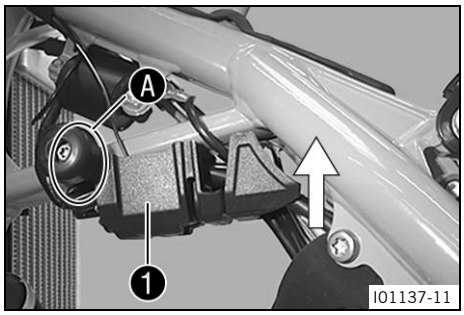


– Disconnect plug-in connector 2 of the ignition timing map adjustment.
  ✓ Soft: Better rideability

Switching the ignition timing map from Soft to Performance



– Join plug-in connector ❷ of the ignition timing map adjustment.
  ✓ Performance: Higher performance



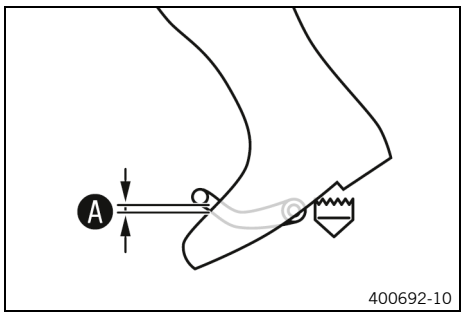
– Route the cable without tension.
– Attach cable compartment ❶ into area Ⓐ and swivel it upward.
  ✓ The holding lug engages audibly.

Reworking

– Install the fuel tank. (p. 65)
– Mount the seat. (p. 57)

15.9 Checking the basic position of the gear shift lever

Note
When driving, the gear shift lever must not touch the rider's boot when in the basic position.
When the gear shift lever keeps touching the boot, the transmission will be subject to an excessive load.

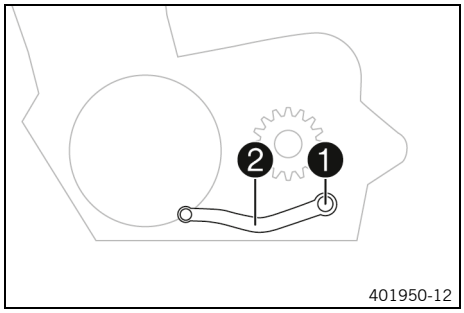


– Sit on the vehicle in the riding position and measure the distance Ⓐ between the upper edge of your boot and the shift lever.

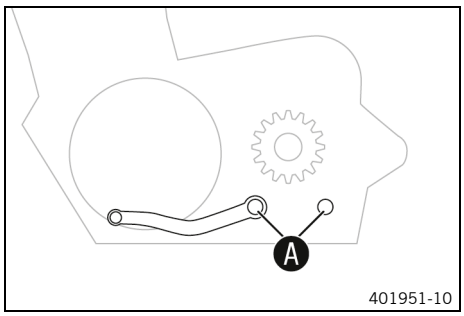
Distance between the gear shift lever and upper edge of boot	10 mm ... 20 mm

» If the distance does not meet the specifications:
  – Adjust the basic position of the gear shift lever. (p. 110)

15.10 Adjusting the basic position of the gear shift lever



– Remove screws ❶ with the washers and remove gear shift lever ❷.



– Clean toothing Ⓐ of the gear shift lever and shift shaft.
– Mount the gear shift lever on the shift shaft in the desired position and engage the toothing.

Note

The range of adjustment is limited.

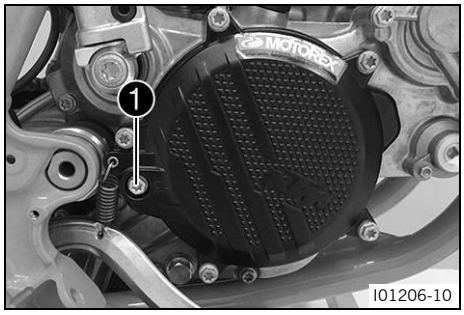
The gear shift lever must not come into contact with any other vehicle components during the shift procedure.

– Mount and tighten screw ❶ with the washers.

Screw, shift lever	
M6	14 Nm **Loctite® 243**

16.1 Checking the gear oil level

Condition: The engine is cold.



Preparatory work

– Stand the motorcycle upright on a level surface.

Control process

– Remove screw 1 with the seal ring.
– Check the gear oil level.

Gear oil must not run out of the hole.
The gear oil level is at the lower edge of the hole.

» If the gear oil level is below the hole:
  – Add gear oil. (p. 112)
» If gear oil runs out:
  – Correct the gear oil level.

– Mount and tighten screw 1 with the seal ring.

Screw, gear oil level check	
M6	8 Nm

16.2 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.

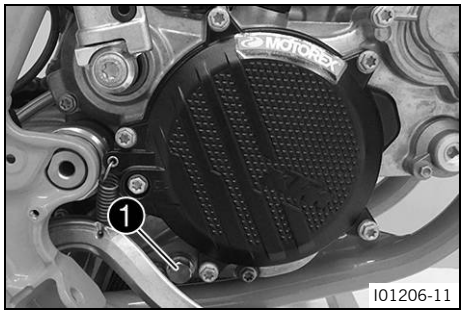
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

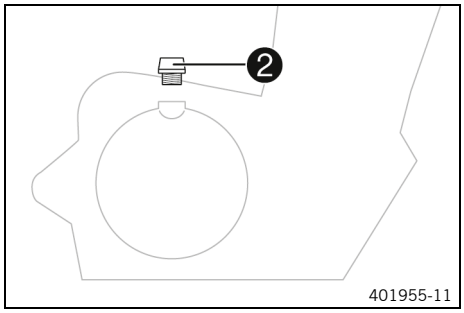
Note

Drain the gear oil while the engine is at operating temperature.

Preparatory work

– Stand the motorcycle upright on a level surface.
– Position an appropriate container under the engine.





Replacement process

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

Oil drain plug with magnet	
M12×1.5	20 Nm

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

gear oil	
Engine oil (15W/50) (p. 134) Partially synthetic	0.50 l

– Mount and tighten oil plug ❷ with O-ring.

DANGER

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

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

– Start the engine and check it for leaks.

Reworking

– Check the gear oil level. (p. 111)

16.3 Adding gear oil

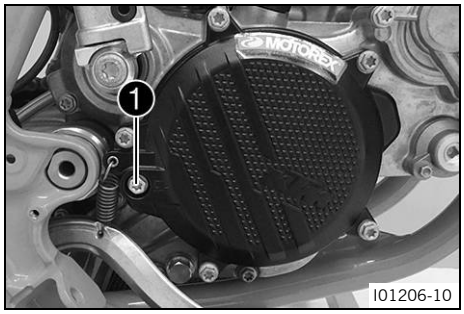
Note

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

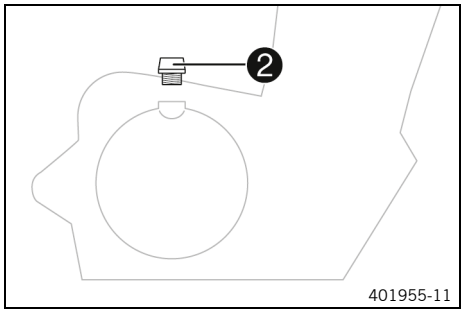
Preparatory work

– Stand the motorcycle upright on a level surface.

Filling procedure



– Remove screw ❶ with the seal ring.



– Remove oil plug ❷ with O-ring.
– Add gear oil up to the bottom edge of the hole of the gear oil level plug.

Engine oil (15W/50) 📖 (p. 134) Partially synthetic

– Mount and tighten screw ❶ with the seal ring.

Screw, gear oil level check	
M6	8 Nm

– Mount and tighten oil plug ❷ with O-ring.

DANGER

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

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

– Start the engine and check it for leaks.

Reworking

– Check the gear oil level. 📖 (p. 111)

◆

17.1 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

NOTE

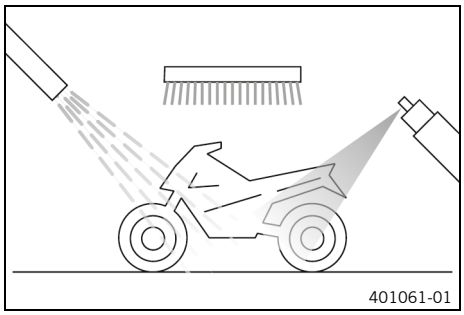
Environmental hazard Hazardous substances cause environmental damage.

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

Note

To maintain the value and appearance of the motorcycle over a long period, clean it regularly.

Avoid direct sunshine when cleaning the motorcycle.



– Seal the exhaust system to prevent water from entering into it.
– Remove loose dirt first with a soft jet of water.
– Spray the heavily soiled parts with a standard commercial motorcycle cleaner and clean using a brush.

Environmentally neutral universal cleaning agent (p. 136)

Note

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

Never apply motorcycle cleaner to a dry vehicle; always rinse the vehicle with water first.

– After rinsing the motorcycle with a gentle spray of water, allow it to dry thoroughly.
– Remove the cover from the exhaust system.
– Empty the carburetor float chamber. (p. 107)

WARNING

Danger of accidents Moisture and dirt impair the brake system.

– Explain to your child that he or she must brake carefully several times to dry out and remove dirt from the brake linings and the brake discs.

– After cleaning, let your child ride the vehicle a short distance until the engine warms up and the brakes have dried due to careful application of the brakes.

Note

The heat produced causes water to evaporate at inaccessible locations in the engine and on the brake system.

– Push back the protection caps on the handlebar controls to allow water to evaporate.
– After the motorcycle has cooled off, lubricate all moving parts and pivot points.
– Clean the chain. (p. 67)
– Treat bare metal (except for brake discs and the exhaust system) with an anticorrosive.

Preserving materials (p. 136)

– 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. 136)

18.1 Storage

WARNING

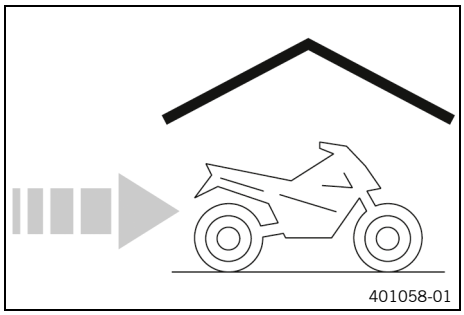
Danger of poisoning Fuel is harmful to health.

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

Note

If you plan to garage the motorcycle for a longer period, perform the following steps or have them performed.

Before storing the motorcycle, check all parts for function and wear. If service, repairs, or replacements are necessary, you should do this during the storage period (workshops less busy). In this way, you can avoid long workshop waiting times at the start of the new season.



- When refueling for the last time before taking the motorcycle out of service, add fuel additive.

  Fuel additive (p. 133)

- Refuel. (p. 29)

Tip

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

- Clean the motorcycle. (p. 114)
- Change the gear oil. (p. 111)
- Check the frost protection and coolant level. (p. 96)
- Check the tire pressure. (p. 92)
- Empty the carburetor float chamber. (p. 107)
- Store the vehicle in a dry location that is not subject to large fluctuations in temperature.

Note

KTM recommends putting the motorcycle on a stand or lift.

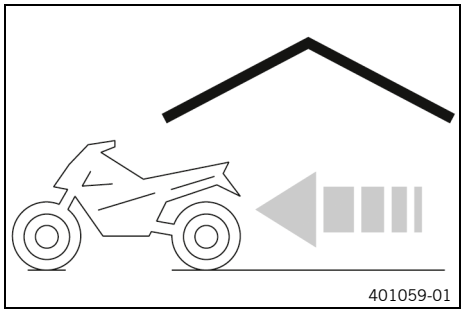
- Raise the motorcycle with a lift stand. (p. 44)
- Cover the motorcycle with a tarp or cover that is permeable to air.

Note

Do not use non-porous materials since they prevent humidity from escaping, and, as a result, contribute to corrosion.

Avoid running the engine of a motorcycle in storage for a short time only. Because the engine will not warm up sufficiently, the water vapor produced during combustion will condense, causing engine parts and the exhaust system to rust.

18.2 Preparing for use after storage



– Remove the motorcycle from the lift stand. (p. 44)
– Perform checks and maintenance measures when preparing for use. (p. 26)
– Take a test ride.

19.1 Troubleshooting

Cause	Finding	Remedy
The engine turns but does not start	Operating error The motorcycle has been in disuse for an extended period and old fuel is in the float chamber Fuel supply interrupted Spark plug sooty or wet Plug gap of spark plug too wide Cable connection of the ignition coil loose or oxidized Fault in ignition system Short-circuit cable in wiring harness frayed, kill switch faulty Water in carburetor or jets blocked	– Carry out the starting procedure. (p. 26) – Empty the carburetor float chamber. (p. 107) – Check the fuel tank vent. – Clean the fuel tap. – Check/adjust the carburetor components. – Clean and dry the spark plug and spark plug connector, or change if necessary. – Adjust plug gap. Plug gap of spark plug: 0.70 mm – Check the cable connection of the ignition coil. – Check the ignition system. – Adjust the ignition system. – Check the kill switch. – Check/adjust the carburetor components.
The engine has no idle speed	Idling jet blocked Adjusting screws on the carburetor are in turned to the wrong position Faulty spark plug Faulty ignition	– Check/adjust the carburetor components. – Carburetor – adjust the idle speed. (p. 106) – Change the spark plug. – Check the ignition coil. – Check the spark plug connector.
Engine does not speed up	The carburetor is flowing over because the float needle is dirty or worn Loose carburetor jets Fault in ignition system	– Check/adjust the carburetor components. – Check/adjust the carburetor components. – Check the ignition system. – Adjust the ignition system.
Engine has too little power	Fuel supply interrupted Air filter is very dirty Exhaust system leaks, deformed or too little glass fiber filling in the silencer Fault in ignition system Damaged membrane or reed valve housing	– Check the fuel tank vent. – Clean the fuel tap. – Check/adjust the carburetor components. – Clean the air filter and air filter box. (p. 60) – Check exhaust system for damage. – Change the glass fiber filling of the muffler. (p. 62) – Check the ignition system. – Adjust the ignition system. – Check the membrane and reed valve housing.

Cause	Finding	Remedy
The engine stutters or there is backfiring through the carburetor	Lack of fuel The engine takes in false air Connector or ignition coil loose or oxidized	– Turn the knurled screw on the fuel tap all the way counterclockwise. – Refuel. (p. 29) – Check the intake flange and carburetor for firm seating. – Clean the connector and treat with contact spray.
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 Incorrect ignition point due to loose stator	– Check the transmission and cooling system for leaks. – Check the coolant level. (p. 97) – Switch off the engine when standing. – Clean the radiator fins. – Drain the coolant. (p. 98) – Refill the coolant. (p. 99) – Check the cylinder head and cylinder head gasket. – Change the radiator hose. – Adjust the ignition 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. 111)
Water in the gear oil	Damaged radial shaft seal ring or water pump	– Check the radial shaft seal ring and the water pump.

20 Technical specifications

20.1 Engine

20.1.1 Technical data - engine

Design	Single-cylinder 2-stroke engine, liquid-cooled, with diaphragm intake and exhaust control
Displacement	84.93 cm³
Stroke	48.95 mm
Bore	47 mm
idle speed	1,500 rpm ... 2,000 rpm
Exhaust control - beginning of adjustment	7,200 rpm
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	1 rectangular ring
Engine lubrication	Mixture lubrication
X-dimension (upper edge of piston to upper edge of cylinder)	2.10 mm ... 2.20 mm
Z-dimension (height of control flap)	33.2 mm
Primary transmission	20:64 straight cut spur gear drive
Clutch	Multi-disc wet clutch / hydraulically activated
Transmission	6 speed transmission, claw shift
Gear ratios	
1st gear	11:29
2nd Gear	2:28 PM
3rd Gear	16:26
4th Gear	19:26
5th Gear	21:25
6th Gear	20:21
Ignition system	Electronic ignition
Spark plug	BRISK AR10C
Plug gap of spark plug	0.70 mm
Cooling	Liquid cooling
Starting aid	Kickstarter lever

20.1.2 Capacities - engine

gear oil	
Engine oil (15W/50) (p. 134) Partially synthetic	0.50 l
coolant	
Coolant (p. 135) Antifreeze protection to at least: −25 °C	0.8 l

20.2 Carburetor

20.2.1 Carburetor

Carburetor type	KEIHIN PWK 28

20.2.2 Technical data - carburetor

Needle position	3rd position from top
Idle air adjusting screw	
open	2 turns

20.2.3 Carburetor

Main jet	140 (142, 145)
Jet needle	NRKC (NRJC)
Idling jet	55 (52, 58)
Throttle slide	3,5
Choke nozzle	62

20.2.4 Carburetor tuning (standard mode)

KEIHIN PWK 28 (p. 121)

ASL	Sea level
TEMP	Temperature
ASO	Idle air adjusting screw open
IJ	Idling jet
NDL	Needle
POS	Needle position from top
MJ	Main jet

Note
Do not use on sandy terrain.

KEIHIN PWK 28

ASL	TEMP	–20 °C … –7 °C	–6 °C … 5 °C	6 °C … 15 °C	16 °C … 24 °C	25 °C … 36 °C	37 °C … 49 °C
2,301 m … 3,000 m	ASO IJ NDL POS MJ	2 55 NRK C 3 140	2 55 NRJ C 3 140	2 55 NRK C 2 138	2 52 NRK C 2 138	2 52 NRJ C 2 138	•/•
1,501 m … 2,300 m	ASO IJ NDL POS MJ	2 55 NRK C 3 142	2 55 NRK C 3 140	2 55 NRJ C 3 140	2 55 NRK C 2 138	2 52 NRK C 2 138	2 52 NRJ C 2 138

ASL	TEMP	–20 °C … –7 °C	–6 °C … 5 °C	6 °C … 15 °C	16 °C … 24 °C	25 °C … 36 °C	37 °C … 49 °C
751 m … 1,500 m	ASO IJ NDL POS MJ	1.5 55 NRK C 3 145	2 55 NRK C 3 142	2 55 NRK C 3 140	2 55 NRJ C 3 140	2 55 NRK C 2 138	2 52 NRK C 2 138
301 m … 750 m	ASO IJ NDL POS MJ	1.5 58 NRK C 3 148	1.5 55 NRK C 3 145	2 55 NRK C 3 142	**2** **55** **NRK C** **3** **140**	2 55 NRJ C 3 140	2 55 NRK C 2 138
0 m … 300 m	ASO IJ NDL POS MJ	2 58 NRJ C 4 148	1.5 58 NRK C 3 148	1.5 55 NRK C 3 145	2 55 NRK C 3 142	2 55 NRK C 3 140	2 55 NRJ C 3 140

20.2.5 Carburetor tuning (lean)

KEIHIN PWK 28 (p. 122)

ASL	Sea level
TEMP	Temperature
ASO	Idle air adjusting screw open
IJ	Idling jet
NDL	Needle
POS	Needle position from top
MJ	Main jet

Note
Do not use on sandy terrain.

KEIHIN PWK 28

ASL	TEMP	–20 °C … –7 °C	–6 °C … 5 °C	6 °C … 15 °C	16 °C … 24 °C	25 °C … 36 °C	37 °C … 49 °C
2,301 m … 3,000 m	ASO IJ NDL POS MJ	2 55 NRJ C 3 140	1.5 55 NRK C 2 140	2 52 NRK C 2 138	2 52 NRJ C 2 135	2 50 NRJ C 2 135	•/•
1,501 m … 2,300 m	ASO IJ NDL POS MJ	2 55 NRJ C 3 142	2 55 NRJ C 3 140	1.5 55 NRK C 2 140	2 52 NRK C 2 138	2 52 NRJ C 2 135	2 50 NRJ C 2 135

ASL	TEMP	–20 °C … –7 °C	–6 °C … 5 °C	6 °C … 15 °C	16 °C … 24 °C	25 °C … 36 °C	37 °C … 49 °C
751 m … 1,500 m	ASO IJ NDL POS MJ	1.5 55 NRJ C 3 145	2 55 NRJ C 3 142	2 55 NRJ C 3 140	1.5 55 NRK C 2 140	2 52 NRK C 2 138	2 52 NRJ C 2 135
301 m … 750 m	ASO IJ NDL POS MJ	2 58 NRJ C 3 148	1.5 55 NRJ C 3 145	2 55 NRJ C 3 142	2 55 NRJ C 3 140	1.5 55 NRK C 2 140	2 52 NRK C 2 138
0 m … 300 m	ASO IJ NDL POS MJ	2 58 NRK C 3 148	2 58 NRJ C 3 148	1.5 55 NRJ C 3 145	2 55 NRJ C 3 142	2 55 NRJ C 3 140	1.5 55 NRK C 2 140

20.2.6 Basic carburetor setting for sandy surfaces

Idle air adjusting screw	2 turns
Idling jet	55
Jet needle	NRJ C
Needle position	Fourth position from top
Main jet	148

Note
If the engine is not running smoothly, use a smaller main jet.

20.3 Chassis

20.3.1 Technical data - chassis

Frame	Central tube frame of chrome molybdenum steel tubing, powder-coated
Fork	**WP Suspension XACT 5543**
Shock absorber	**WP Suspension XACT 5746**
Suspension travel:	
front	278 mm
rear	289 mm
Triple clamp offset	14 mm
Brake system	
front	Disc brake with 2 piston brake caliper
rear	Disc brake with 1-piston brake caliper
Brake discs - diameter	
front	240 mm
rear	220 mm
Brake disc wear limit	
front	3.5 mm

rear	3.5 mm
Final drive	
(85 SX 17/14)	13:46
(85 SX 19/1685 SX 19/16 CN)	13:49
Chain	1/2 x 5/16”
Rear sprockets available	• 44 • 45 • 46 • 47 • 48 • 49 • 50 • 51
Steering head angle	63.5°
Wheelbase	1,282 ±10 mm
Seat Height unloaded	
(85 SX 17/14)	845 mm
(85 SX 19/1685 SX 19/16 CN)	871 mm
Ground clearance unloaded	
(85 SX 17/14)	308 mm
(85 SX 19/1685 SX 19/16 CN)	333 mm
Weight without fuel approx.	
(85 SX 17/14)	68 kg
(85 SX 19/1685 SX 19/16 CN)	69 kg
Maximum rider weight	75 kg

20.3.2 Technical data - tires

Off-road tire pressure	
front	1.0 bar
rear	1.0 bar

Validity	Tire front	Rear tire
(85 SX 17/14)	**70/100 - 17 M/C 40M TT** MAXXIS MAXXCROSS MX–ST+	**90/100 - 14 M/C 49M TT** MAXXIS MAXXCROSS MX–ST+
(85 SX 19/1685 SX 19/16 CN)	**70/100 - 19 M/C 42M TT** MAXXIS MAXXCROSS MX–ST+	**90/100 - 16 M/C 51M TT** MAXXIS MAXXCROSS MX–ST+
The tires specified represent one of the possible series production tires. For alternative manufacturers, if any, contact an authorized dealer or qualified tire dealership. If local road approval regulations apply, these and the respective technical specifications must be observed.		

20.3.3 Capacities - vehicle

Fuel tank capacity, approx.	
Super unleaded (98 octane) mixed with 2-stroke engine oil 📖 (p. 133) Mixture ratio: 1:40	5.4 l

20.4 Fork

20.4.1 Fork - technical data

Fork part number	A410C104Y206000

Fork	**WP Suspension XACT 5543**
Compression damping	
Comfort	17 clicks
Standard	12 clicks
Sport	7 clicks
Rebound damping	
Comfort	17 clicks
Standard	12 clicks
Sport	7 clicks
Air pressure	4.8 bar
Fork length	845 mm

20.4.2 Fork capacity

Oil capacity, right outer assembly	
Fork oil (48601166S1) (SAE 4) (p. 134)	363 ±10 ml
Oil capacity, left outer assembly	
Fork oil (48601166S1) (SAE 4) (p. 134)	100 ±20 ml
Grease capacity, left cartridge	
Special grease (00062010053) (p. 135)	5 g

20.5 Shock absorber

20.5.1 Technical data - shock absorber

Shock absorber part number	A410C404Y305000

Shock absorber	**WP Suspension XACT 5746**
High-speed compression damping	
Comfort	2 turns
Standard	1.5 turns
Sport	1 turn
Low-speed compression damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks
Rebound damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks
Preload	10 mm
Spring rate	

Weight of rider: < 40 kg	40 N/mm
Weight of rider: 40 kg ... 50 kg	45 N/mm
Weight of rider: > 50 kg	50 N/mm
Spring length	215 mm
Gas assisted	10 bar
Static sag	30 mm
Riding sag	100 mm
Installation position	391.2 mm

20.5.2 Shock absorber capacity

Shock absorber oil	

20.6 Tightening torque

20.6.1 engine tightening torques

Screw, guide piece M5×12	6 Nm **Loctite® 243**
Screw, power valve stop plate M5×12	6 Nm **Loctite® 243**
Detent arm screw M5	6 Nm **Loctite® 243**
Screw, exhaust control cover M5	4 Nm
Screw, exhaust control cap M5	4 Nm
Screw, adjusting lever M5×12	6 Nm **Loctite® 243**
Screw, crankshaft position sensor M5	6 Nm **Loctite® 243**
Screw, clutch spring retainer M5	6 Nm
Screw, exhaust control bearing support M5×25	6 Nm **Loctite® 243**
Exhaust control link rod guide screw M5×12	6 Nm **Loctite® 243**
Power valve control lever exhaust control screw M5×12	6 Nm **Loctite® 243**
Ignition system/pickup screw M5	6 Nm **Loctite® 243**
Screw, control lever M5×12	6 Nm **Loctite® 243**
Screw, ignition system/stator M5	6 Nm **Loctite® 243**
Screw, water pump impeller M5	6 Nm **Loctite® 243**
Coolant drain plug M6	8 Nm

Nut, adjusting screw, control flap, power valve M6	8 Nm
Screw, intake flange M6	6 Nm
Screw, kick starter lever stop plate M6	10 Nm **Loctite® 243**
Exhaust flange screw M6	10 Nm
Screw, gear oil level check M6	8 Nm
Screw, kick starter intermediate gear M6	10 Nm **Loctite® 243**
Screw, outer clutch cover M6×25	8 Nm
Screw, clutch slave cylinder M6	10 Nm
Screw, radiator bleeding M6	8 Nm
Shift drum bearing clamping plate screw M6	10 Nm **Loctite® 243**
Bearing clamping plate main shaft bearing screw M6	10 Nm **Loctite® 243**
Screw, inner clutch cover M6×25	10 Nm
Screw, engine case M6×45	10 Nm
Screw, shift lever M6	14 Nm **Loctite® 243**
Shift star screw M6	10 Nm **Loctite® 243**
Screw, water pump cover M6	10 Nm
Screw, ignition cover M6	8 Nm
Screw, cylinder head M6	10 Nm
Vacuum connection M6	2 Nm
Screw, kick starter lever M8	25 Nm **Loctite® 2701**
Screw, cylinder base M8	10 Nm
Nut, cylinder base M8	23 Nm
Spark plug M10×1	13 Nm
Front sprocket screw M10	60 Nm **Loctite® 2701**

Nut, rotor M12×1	50 Nm
Oil drain plug with magnet M12×1.5	20 Nm
Nut, primary gear wheel M14LH×1.25	60 Nm **Loctite® 243**
Nut, inner clutch hub M16×1.5	60 Nm **Loctite® 243**

20.6.2 Vehicle tightening torque

Screw, stop button M3	0.4 Nm
Screw, fixed grip M4	5 Nm
Screw, carburetor cover M4	2 Nm
Screw, main silencer M5	7 Nm
Screw, shock absorber adjusting ring M5	5 Nm
Remaining nuts on chassis M5	5 Nm
Remaining screws on chassis M5	5 Nm
Screw, seat installation M6	8 Nm
Remaining nuts on chassis M6	10 Nm
Remaining screws on chassis M6	10 Nm
Screw, rear brake disc M6	14 Nm
Screw, front brake disc M6	14 Nm **Loctite® 243**
Screw, brake cylinder M6	10 Nm **Loctite® 243**
Screw, throttle twist grip M6	5 Nm
Screw, ball joint of push rod on brake cylinder M6	10 Nm **Loctite® 243**
Screw, front fender M6	12 Nm
Start number plate screw M6	4 Nm
Nut, push rod, foot brake lever M6	6 Nm
Screw, front brake assembly on handlebar M6	5 Nm

Screw, clutch assembly on handlebar M6	5 Nm
Screw, fuel tank spoiler on radiator M6	6 Nm
Screw, ignition coil M6	6.4 Nm
Throttle cable wire on carburetor cover M6×0.75	1.3 Nm
Brake line guide screw on swingarm M6	4.5 Nm **Loctite® 243**
Screw, rear mounting M6	6 Nm
Steering stem clamp screw M8	20 Nm **Loctite® 243**
Nut, rim lock M8	12 Nm
Remaining nuts on chassis M8	25 Nm
Remaining screws on chassis M8	25 Nm
Screw, subframe, top M8	35 Nm **Loctite® 243**
Screw, front brake caliper M8	25 Nm **Loctite® 243**
Rear brake caliper screw M8	18 Nm **Loctite® 243**
Screw, top triple clamp M8	20 Nm
Screw, bottom triple clamp M8	15 Nm
Screw, fork shoe M8	15 Nm
Screw, rear sprocket M8	35 Nm **Loctite® 2701**
Screw, engine brace M8	25 Nm **Loctite® 243**
Handlebar clamp screw M8	20 Nm
Screw, foot brake lever stop M8	20 Nm
Screw, front sprocket cover M8	15 Nm
Screw, chain slider M8	15 Nm
Screw, subframe, bottom M8	30 Nm **Loctite® 2701**
Engine bracket screw M10	45 Nm

Remaining nuts on chassis M10	45 Nm
Remaining screws on chassis M10	45 Nm
Bushing, foot brake lever M10	45 Nm **Loctite® 243**
Screw, handlebar mount M10	40 Nm **Loctite® 243**
Top shock absorber screw M12	60 Nm **Loctite® 2701**
Bottom shock absorber screw M12	60 Nm **Loctite® 2701**
Nut, swingarm pivot M14×1.5	75 Nm
Nut, steering stem M20×1.5	10 Nm
Nut, wheel spindle, rear M20×1.5	80 Nm
Screw, wheel spindle, front M20×1.5	35 Nm
Spoke nipple M4,5	5 Nm
Remaining screws on chassis **EJOT PT®** – K60×20	2 Nm

21.1 Safety handbook

PARENTS, YOUNGSTERS & OFF-HIGHWAY MOTORCYCLES

THE MSF DIRTBIKE SCHOOL℠

The information contained in this publication is offered for the benefit of those who have an interest in riding off-highway motorcycles. The information has been compiled from publications, interviews and observations of individuals and organizations familiar with the use of off-highway motorcycles. Because there are many differences in product design, riding terrain and riding styles, there may be organizations and individuals who hold differing opinions. Consult your local motorcycle dealers or experienced off-highway motorcycle riders about appropriate riding locations in your area. Although the Motorcycle Safety Foundation will continue to publish responsible viewpoints on this subject, it must disclaim specific or general liability for the views expressed herein.

The Motorcycle Safety Foundation® (MSF) is a national not-for-profit organization promoting the safety of motorcyclists with programs in rider training, operator licensing and public information. The MSF is sponsored by BMW, BRP, Ducati, Harley-Davidson, Honda, Kawasaki, KTM, Piaggio, Polaris Motorcycles, Suzuki, Triumph and Yamaha.

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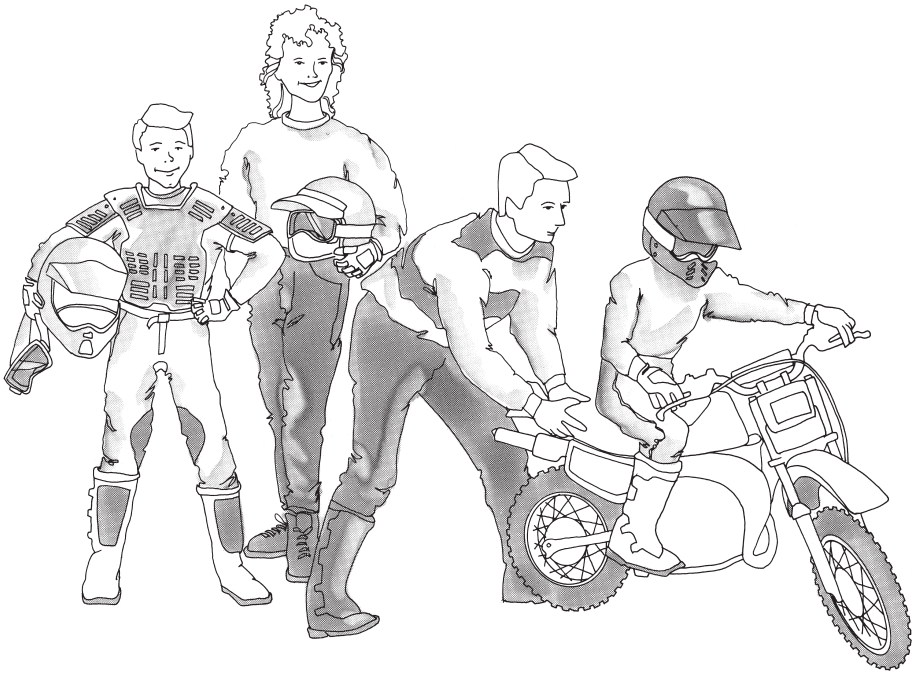
Parents...Be Cautious

Riding Off-Highway Motorcycles (OHMs) can be an enjoyable form of outdoor recreation when done properly. With preparation, practice, and parental supervision your youngster can safely develop and expand his or her riding skills. Remember, off-highway motorcycles are not toys.

This manual is designed to assist you in the important task of teaching your youngster the safe and responsible use of an off-highway motorcycle. We urge you to read this booklet thoroughly. Also read other information provided with the motorcycle. The owner's manual contains important warnings and features of the motorcycle.

Deciding if your youngster is ready to ride an off-highway motorcycle is an important decision. The MSF strongly urges you to carefully determine your youngster's readiness to ride. There is a Readiness Checklist in Part 4 of this booklet. **Do not permit youngsters to ride an off-highway motorcycle if you doubt that they will operate the motorcycle safely.**



CONTENTS

INTRODUCTION

Purpose of the Booklet

Parents, Youngsters and Off-Highway Motorcycles is designed to assist you in determining if your youngster is ready to ride off-highway motorcycles (OHMs). It also provides you and your youngster with important safety information and tips on learning to ride. This booklet is divided into four parts: Part 1: Determining Your Youngster's Readiness to Ride an Off-highway Motorcycle; Part 2: Pre-operating Procedures; Part 3: Operating Procedures; Part 4: Readiness Checklist. There is information about protective gear, mounting, control operation and starting the engine. Operating procedures include starting, shifting, stopping and turning.

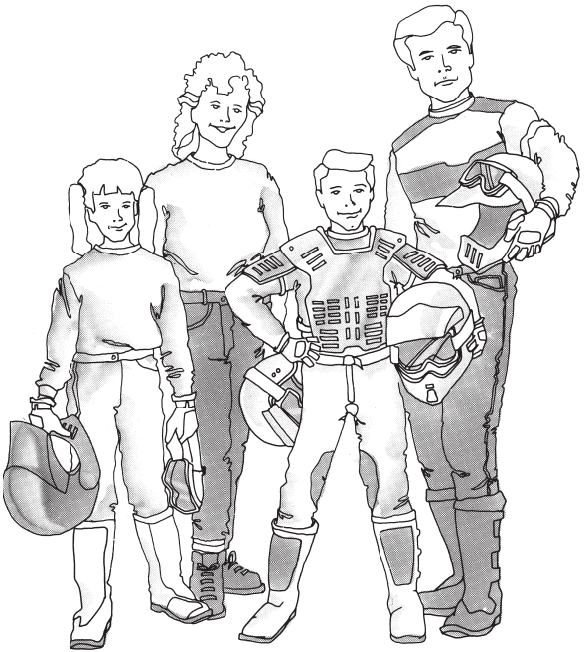
Important Note To Parents

Once your youngster is ready to learn to ride, YOU must be familiar with the motorcycle. You will be serving as teacher, coach, and safety supervisor for your youngster. You must know the controls, handling characteristics, maintenance requirements, and proper riding techniques. Read and understand the owner's manual and the labels provided with the vehicle. Review all instructions, requirements, and warnings with your youngster. Find out about state or local off-highway motorcycle requirements.

Other Sources Of Information

In addition to the information provided in *Parents, Youngsters and Off-Highway Motorcycles*, there are other sources for obtaining safety information. The owner's manual provides specific maintenance and operating procedures for your motorcycle. It also includes warnings and cautions, as well as operating tips. Motorcycle dealers may have other literature and safety information. Another booklet, *Tips and Practice Guide for the Off-Highway Motorcyclist*, gives detailed riding procedures.

The MSF *DirtBike School*SM offers training on how to ride off-highway motorcycles. The course is available to youth as young as six years of age, as well as to adults. Call toll-free 877.288.7093 to enroll or for more information. To find out more on the internet, visit dirtbikeschool.com.



PART 1 DETERMINING YOUR YOUNGSTER'S READINESS TO RIDE AN OFF-HIGHWAY MOTORCYCLE

The first important decision you will have to make concerning your youngster and off-highway motorcycles (OHMs) is whether your youngster is ready to ride. There are several factors that you must consider carefully.

There is no certain way to predict that your child is able to ride an OHM safely. However, the following information is a guide to help you determine your youngster's readiness to ride. Only parents can decide if their youngster has the qualities necessary to operate an off-highway motorcycle safely.

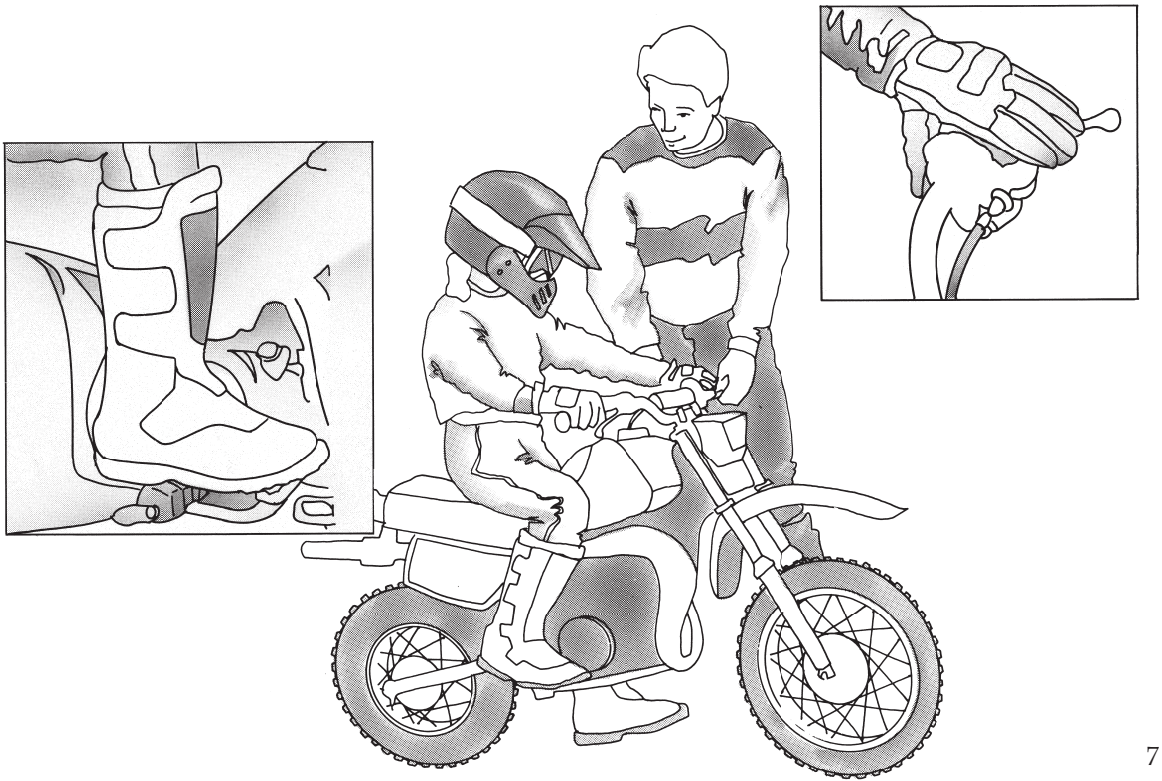
Readiness Guidelines

PHYSICAL DEVELOPMENT

Physical size and ability are important considerations. For example, a youngster must be big enough to hold the motorcycle up, get on, and comfortably sit on the seat with both feet touching the ground.

Also make sure your youngster can comfortably reach and work all the controls. For example, can they turn the handlebars all the way to the right and left? Can they easily use their feet to work the brake pedal and gearshift lever? Can they operate the throttle and brake levers while they hold onto the handgrips? If not, the youngster is not physically ready to ride this OHM. Refer to the owner's manual to check for possible adjustments in the position of some of the controls.

PART 1



Additional signs of physical readiness can be observed in your youngster's other play activities. In general, a youngster should be well-coordinated, having good balance and agility. This coordination can be demonstrated by the abilities to jump rope, skate, skateboard, ride a bicycle, etc. If a youngster cannot perform well in these types of activities, more physical development is needed.

SOCIAL/EMOTIONAL DEVELOPMENT

How a youngster behaves in a social setting can be a sign of social/emotional development. A youngster needs to know about and understand rules. Certain rules are necessary for the safe operation of any vehicle. Youngsters must be willing to follow rules. A good sign is a youngster who obeys rules set by parents. A youngster who does not follow rules is not ready for an OHM.

One indicator that a youngster is ready to ride an OHM is when they demonstrate a safety-conscious attitude and are aware of possible injury from reckless OHM operation. If the youngster has a habit of recklessness or is often involved in accidents while using bicycles or skateboards, the youngster is not ready to ride an OHM.

REASONING AND DECISION-MAKING ABILITY

Youngsters should have some knowledge about what may happen if something is done wrong. They must understand that unsafe actions can result in injury. An example of this is knowing the need to look in both directions before crossing a street when walking to school. The ability to make good decisions relates to a youngster's ability to reason. When presented with a problem, the youngster should be able to come up with a sensible answer. Ask your youngster to tell you what causes accidents and injuries. Your youngster needs to be able to tell

what causes accidents and how to avoid them. In general, a youngster should understand that he or she can get hurt as a result of making poor choices.

VISUAL PERCEPTIONS AND MOTOR DEVELOPMENT

This area involves how well a youngster sees and how vision is used with other physical movements. In other words, can a youngster see and react with the proper hand, foot, or body movement?

Several types of visual characteristics are important. The ability to see to the sides while looking straight ahead is called peripheral or side vision. You can determine a youngster's side vision by having him or her look straight ahead while you move objects to the side. The youngster should be able to see objects ninety degrees to the side while looking straight ahead. Rider awareness and safety improves with good side vision.

Being able to judge distance is another visual skill helpful when operating an OHM. Is your youngster able to tell how far one object is from another, or which of two objects is closer? OHM riding requires a person to judge distance and react properly.

Being good at playing video games, hitting a baseball, etc., is a good sign that a youngster's eye and hand movements are fairly well coordinated.

In summary, you must consider many things before you decide to put your youngster on an OHM. There is no exact formula to use in making this decision. The Readiness Checklist, Part 4, can assist you with some points to evaluate. If you are not able to check-off most of the statements, your youngster is probably not ready to ride an OHM.

PART 1

Steps For Safe And Responsible OHM Riding

Once you determine that OHM use is proper for your youngster, it is time to prepare yourself as a good OHM teacher and supervisor.

STEP ONE: Educate Yourself about OHM Safety and Proper Riding Techniques

You must learn as much as possible about off-highway motorcycles in general, and especially your youngster's motorcycle. You must be qualified to instruct and supervise your youngster. This means that you will need to understand the features of the motorcycle and proper riding techniques. The best source of information is the owner's manual supplied with the motorcycle. Read the owner's manual before you begin to instruct your youngster about OHM safety. Pay particular attention to the warning labels and stickers on the motorcycle.

STEP TWO: Teach Your Youngster Safe and Proper Riding Techniques

Teaching your youngster off-highway motorcycling is a step-by-step process. It begins with safety rules and moves to actual riding techniques. Since youngsters learn at different rates, it will be up to you to set the pace of your youngster's progress. At some point you may decide that he or she is not ready to ride an OHM.

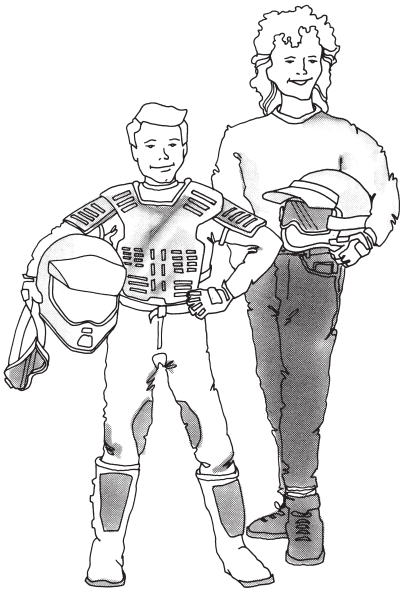
STEP THREE: Avoid Unsafe Situations Through Close Supervision

ALWAYS closely supervise your youngster's riding. This is true even if your youngster has learned and mastered the rules and skills of safe OHM riding. Youngsters can get tired easily and become careless. They do not always see everything that is important around them. Your close supervision and good judgment are important.

Protective Gear And Clothing

The nature of off-highway riding demands that your youngster wear proper protective gear. Motorcycle riders should ALWAYS wear a helmet, eye protection, gloves, long pants, a long-sleeved shirt or jacket, and over-the-ankle boots. Anything less is not adequate protection. NEVER let anyone ride an off-highway motorcycle without a Department of Transportation (DOT) compliant motorcycle helmet. Be sure the fit is correct. It should be snug but not tight. It must be properly fastened.

Protective gear is necessary in any weather, even when the temperature is warm. In cooler weather you should dress your youngster with additional layers of clothing. Some riders choose to wear a kidney belt and chest or back protector for additional protection. On the right is a drawing of well-equipped riders. Show this drawing to your youngster and point out what is important.



PART 2

Mounting/Dismounting

Have your youngster wear safety gear whenever getting on a motorcycle. This action will stress the importance of safety gear and help develop safe riding habits.

Mounting is typically from the left side. To mount from the left, point the handlebars straight. While squeezing the front brake lever, swing the right leg over the seat and place the right foot on the ground. Both feet should be in contact with the ground while sitting on the motorcycle. Dismounting reverses the procedure: the kickstand is placed fully down. With the left foot on the ground, the handlebars straight and the front brake lever squeezed, the right leg is swung over the seat and the foot touches the ground.

Correct riding posture helps your youngster operate the controls. Proper straight line riding posture includes:

- Head and eyes up, looking well ahead.
- Shoulders relaxed, back straight.
- Elbows bent, slightly out and away from the body.
- Hands on the handlebars.
- Knees in toward the tank.
- Feet on the footpegs, toes pointing straight ahead.

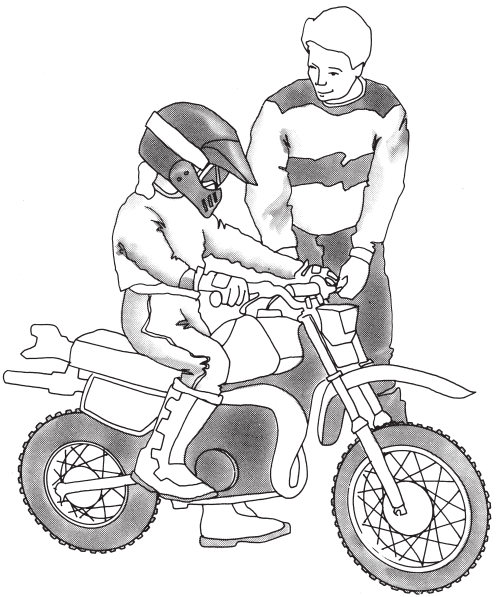
The hand and foot controls are important to riding safely. While riding, both hands should be kept on the handlebars and both feet on the footpegs of the motorcycle. Removing a hand or foot can reduce the ability to control the motorcycle.

An off-highway motorcycle rider will need to shift body weight in certain situations. This is especially true in maneuvers such as turning, negotiating hills, and riding on bumpy terrain. Your youngster should be able to operate the controls during these maneuvers. Now is a good time to make sure your youngster can reach the controls from different body positions. Have the youngster remount. Turn the handlebars full left

and full right. See that this can be done easily. Next have the youngster slide up and back on the seat. Mention that body movement is important. Body movement and shifting weight help to control the motorcycle.
(Go through these control exercises with the motorcycle's engine OFF.)

Mastering The Controls

Show your youngster how to use each control as you describe its action. Refer to the owner's manual to learn control location and function before instructing your youngster. Test yourself by operating the controls. Have your youngster dress in the proper protective gear and sit on the machine as you point out each control. It is important to have your youngster wear all the protective gear whenever sitting on an off-highway motorcycle.



PART 2

BRAKES

Most small off-highway motorcycles have a hand lever on the right handlebar which operates the front brake. Most also have a foot pedal on the right side to operate the rear brake. Refer to the owner's manual for correct brake location and operation.

Explain and demonstrate proper braking procedure. Be sure your youngster can apply the brake(s) properly while seated and without looking down. Smooth operation should be encouraged.

THROTTLE CONTROL

Explain to your youngster that twisting the throttle control back will make the motorcycle go faster. Closing the throttle control slows the motorcycle.

Youngsters need practice using the throttle control smoothly. They tend to use it like an on/off switch. With the engine off, have your youngster move the throttle to various positions. Practice turning the handlebars and using the throttle at the same time.

ENGINE STOP SWITCH

Explain to your youngster how to use the engine stop switch to turn off the engine. With the engine off, show how the stop switch works. Later, your youngster can practice using the stop switch when the engine is actually running.

CLUTCH/SHIFT LEVER

Some small OHMs do not have a clutch lever; some don't have a shift lever either. This section applies only to motorcycles with a shift lever. Those that do have a shift lever may have different shift patterns. Refer to your owner's manual for proper shifting instructions. It is important to learn how the shift lever works.

Explain that it is possible to shift the motorcycle with the shift lever in order to ride at different speeds.

Have your youngster practice shifting with the engine off. The shift lever, clutch lever (if equiped), and throttle control work together to move the motorcycle. When shifting to first gear from neutral the throttle is closed, the clutch lever is squeezed, and the front brake is applied before moving the shift lever into first gear. When starting out, the front brake is released. The throttle is gradually opened while the clutch is slowly released. If the clutch is released too quickly, or too much throttle is applied, the motorcycle may lunge forward causing loss of control. With the engine off, have your youngster practice upshifts, downshifts, and locating neutral.

SPEED LIMITERS

(supervisor control feature)

Some models come equipped with a removable exhaust restrictor, or another feature which reduces maximum speed. Refer to your owner's manual or talk to your dealer about this.

PART 2

Learning Activities

Here are some activities that your youngster can use to help learn about motorcycle parts and controls

CROSSWORD PUZZLE

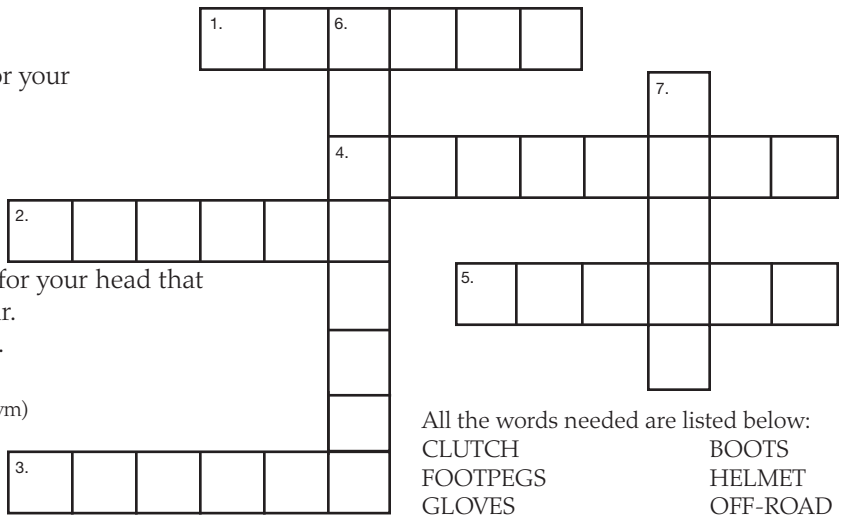
Here is a crossword puzzle for your youngster to complete.

Across

1. What this booklet is all about.
2. A piece of safety equipment for your head that you must never forget to wear.
3. Protective gear for the hands.
4. Where you should always ride your motorcycle. (a synonym)
5. Hand lever you use when shifting gears.

Down

6. The place on which you keep your feet when riding.
7. Protective gear for the feet and ankles.



All the words needed are listed below:

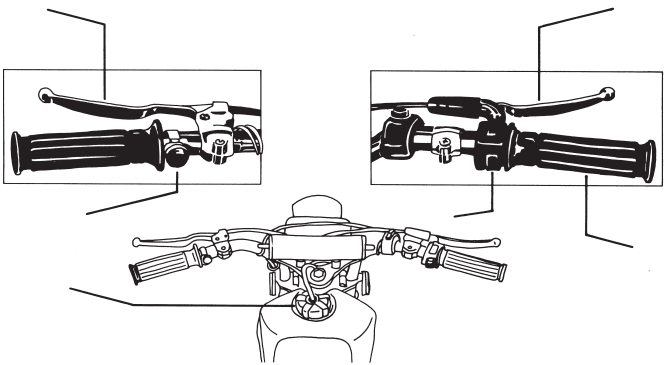
CLUTCH
FOOTPEGS
GLOVES
SAFETY
BOOTS
HELMET
OFF-ROAD

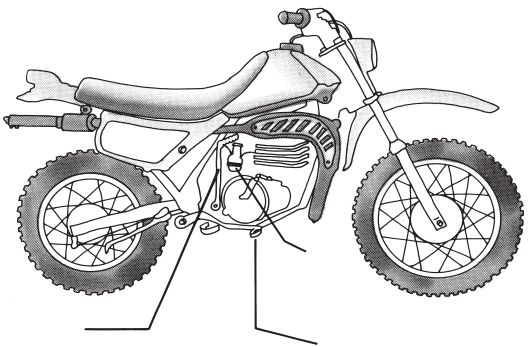
Answer Guide on Page 41

NAME THE MOTORCYCLE PARTS (Typical)

Have your youngster write the number of the motorcycle part or control on the correct line for the diagrams shown. *(Answer Guide on Page 42)*

1. Clutch lever
2. Hand brake lever
3. Foot brake lever or pedal
4. Throttle
5. Choke or enrichening device
6. Engine stop switch
7. Gas cap/tank vent
8. Starter (kick)
9. Electric starter (if equipped)





PART 2

LOCATING THE CONTROLS GAME

Now that you have shown your youngster the controls, it is your youngster's turn to show you. The engine remains OFF for this exercise and your youngster will be on the motorcycle. The youngster should be wearing the proper protective gear to develop this safety habit.

1. Have your youngster show you the location of the following:

   Brakes (lever and pedal)
   Throttle Control
   Engine Stop Switch
   Shift Lever (if equipped)
   Clutch (if equipped)

2. Have your youngster show you how the controls work. Be sure he or she understands the proper operation of each control. Skilled use of these controls should develop with practice. Under actual riding conditions the rider will have to watch ahead while operating the controls. Your youngster should be able to find the controls quickly without looking for them.

3. With your youngster looking ahead (pick out a point to look at), have him or her operate the controls. Repeat often while changing the order.

4. Ask your youngster to operate the controls as if actually riding. Look for smooth and precise operation.

PRE-RIDE CHECK

Before you continue:

1. Have you determined your youngster's readiness to ride an OHM? Do not let your youngster ride if you have any doubt. (Refer to the Readiness Checklist, Part 4)

2. Have you read the owner's manual and reviewed it with your youngster?

3. Does your youngster fit the motorcycle properly?

4. Have you inspected the vehicle and maintained it according to the owner's manual?

5. Is your youngster wearing the proper protective gear? Is the mounting procedure correct?

6. Has your youngster learned to locate the motorcycle controls without looking at them? Does he or she know how to operate them smoothly?

7. Does your youngster understand that he or she must always ride off-road?

8. Have you stressed to your youngster to keep his or her feet on the footpegs while riding?

If you have completely covered all these areas, you are ready to go on to Part 3.

PART 3 OPERATING PROCEDURES AND PRACTICE

Carefully observe your youngster's first use of the motorcycle. Observe his or her readiness to ride. Only permit your youngster to continue to ride if they have the size, strength, and attitude needed to ride safely.

Show your youngster the engine, exhaust pipe, and muffler. Tell him or her not to touch these parts because they are hot while the engine is running. Explain that they will remain hot after the engine is stopped. Also explain that hands and feet must be kept away from moving parts of the motorcycle.

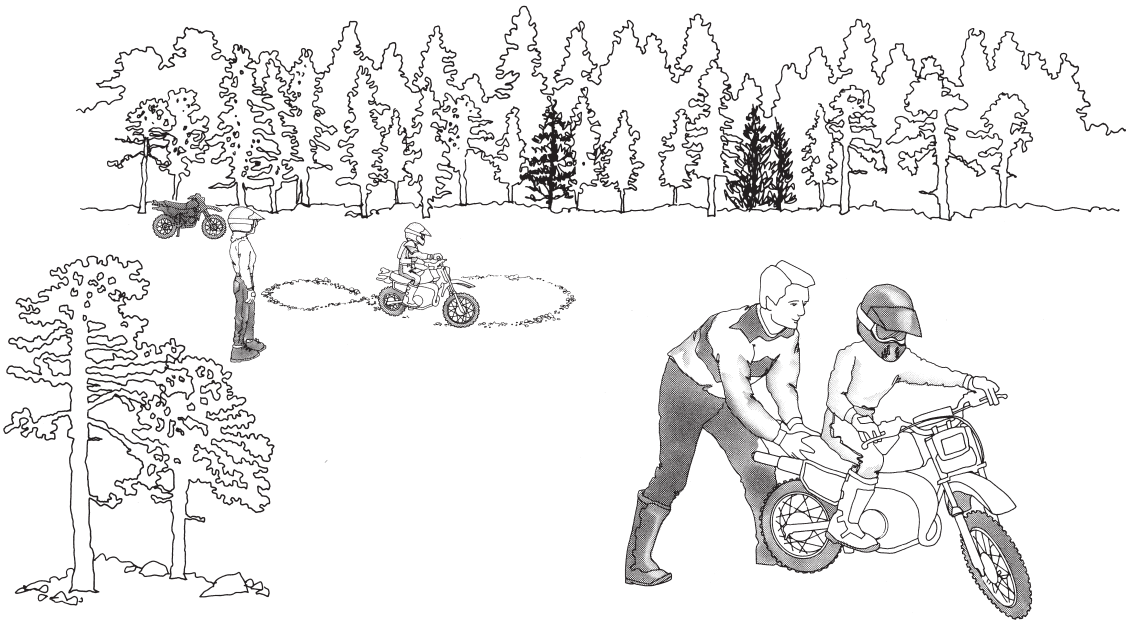
Your youngster's safety depends in part on the mechanical condition of the motorcycle. Be sure to inspect it thoroughly before each use. Starting and refueling of the vehicle should be done by responsible adults only. Follow a regular maintenance program. See the owner's manual for inspection details.

Even after young riders have learned the basic riding skills, direct supervision by an experienced adult is necessary AT ALL TIMES. Make sure that all off-highway motorcycle users under your supervision get proper riding instructions. Stress that an OHM is not a toy. Follow safety precautions strictly to provide a "safety first" approach to off-highway motorcycle riding. Teaching your youngster how to ride an OHM safely will increase the enjoyment of off-highway motorcycle riding.

Learning Area/Riding Area

The best place for learning is a level area 100' x 200' that is free from obstacles such as rocks, stumps, or holes. The learning area may have a loose or hard dirt surface. A grassy surface is also acceptable. It should not have two different surfaces. **Under no circumstances should the surface be concrete or asphalt.** Be sure there is room enough to maneuver, and that no other riders are close.

PART 3



PART 3

Getting Used To The Vehicle In Motion

GETTING THE FEEL OF THE BRAKES

Be sure your youngster is wearing all of the proper protective gear. With the engine still OFF, have your youngster mount the motorcycle. If you physically can, push the motorcycle slowly. Have your youngster brake to feel how much pressure is needed for a smooth stop. If your youngster's motorcycle has more than one brake, both should be applied with even pressure. Practice this several times until you are sure this skill is developed. Remind your youngster to keep his or her head up and look forward.

GETTING THE FEEL OF THE THROTTLE

With the engine OFF, have your youngster practice smooth throttle control. Your youngster will learn how much throttle it takes to start moving in a later exercise. Explain that opening the throttle will increase speed and that closing the throttle will decrease speed. Releasing the throttle and applying the brakes will slow the motorcycle. Ask your youngster to tell you how throttle control and braking affect the motorcycles speed.

GETTING THE FEEL OF THE CLUTCH

(if equipped)

With the engine OFF, have your youngster practice smooth clutch control. Have your youngster shift the motorcycle into first gear. While you push the motorcycle have the youngster slowly release the clutch lever. The point which the motorcycle stops moving indicates the clutch engagement point or "friction zone." The "friction zone" is the point at which engine power begins to be transmitted to the rear wheel. Explain that this is the point the motorcycle will start moving when the engine is running. Smooth operation will prevent stalling and

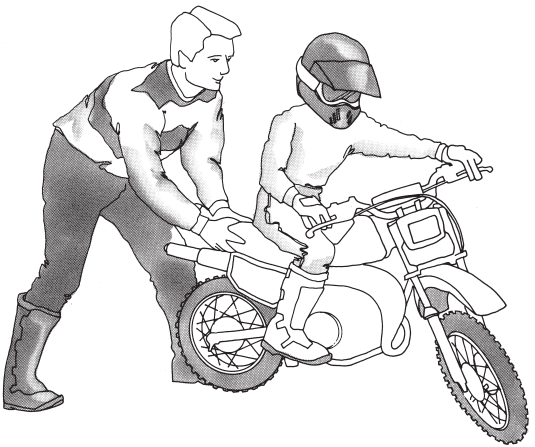
allow smooth shifting. Remind the youngster that the throttle should be closed when shifting gears. Practice this exercise several times until the skill is developed.

GETTING THE FEEL OF TURNING

With the vehicle stopped and the engine OFF, have your youngster practice the proper turning technique:

1. For a right turn, look to the right and lean the motorcycle to the right.
2. For a left turn, look to the left and lean the motorcycle to the left.

Repeat this exercise with the kickstand up as you push the motorcycle. Make sure he or she can turn the vehicle in both directions using this technique while you maintain balance of the motorcycle.



PART 3

BEING PREPARED FOR RIDING PRACTICE

Be sure to observe all the safety precautions covered in the Introduction and Parts 1 and 2. Double check that the riding area is free from hazards. Your youngster should wear all the proper protective gear, and the speed limiter (if equipped) should be installed and working correctly.

STARTING THE MOTORCYCLE

Always start the motorcycle for your youngster. To remember the proper starting technique use "FINE-C."

Double check for neutral. Start the engine. Have your youngster carefully mount. Let your youngster operate the engine stop switch and shut off the motor. Re-start the engine and repeat. Allow the engine to warm up until it runs smoothly with the choke off.

F	FUEL VALVE	Put to "on" position.
I	IGNITION	Ignition on.
N	NEUTRAL	Motorcycle in neutral (the motorcycle rolls with the clutch lever released).
E	ENGINE	Stop switch in run/on start position.
C	CHOKE	On (for cold engine only).

Start the motorcycle for your youngster

Let's Start Riding

Walk next to the motorcycle when your youngster first starts riding. You can also let the beginner ride back and forth between you and another adult. Help your youngster with the turns as he or she practices throttle control and braking.

STARTING OUT AND STOPPING

Before your youngster moves the motorcycle under power, take a few moments to practice smooth clutch control. After shifting to first gear, have your youngster rock the motorcycle a few inches back and forth by moving the clutch in and out of the"friction zone." The clutch is not fully released while doing this. It is important that clutch operation is smooth before riding in the practice area.

The next practice session is straight-line starts and stops. Keep the riding under control.

However, riding too slowly will make balance more difficult. Both brakes should be used together for smooth stops. The left foot should be placed on the ground first, keeping the right foot on the rear brake.

Be sure your youngster develops a good feel for the use of the throttle and controls. After the youngster has mastered starting and stopping at slower speeds, increase speeds by shifting.

TURNING

Remind your youngster of the two steps for turning:

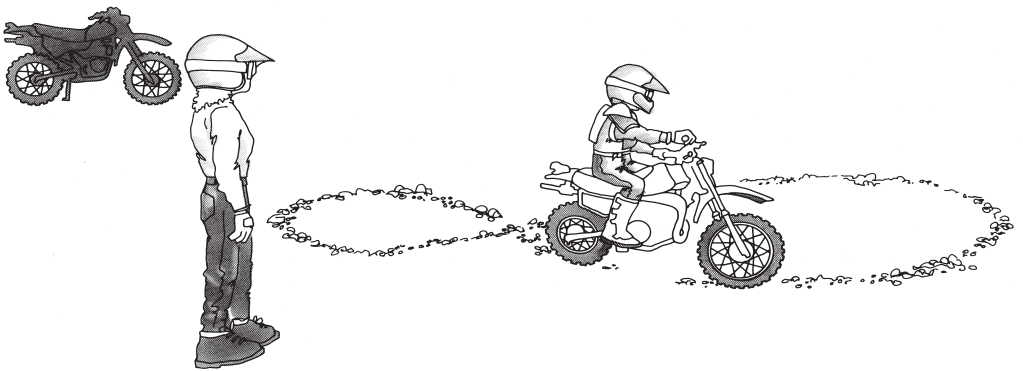
1. For a right turn, look to the right and lean the motorcycle to the right.
2. For a left turn, look to the left and lean the motorcycle to the left.

Have your youngster practice turning in both directions at slow speeds. Allow enough room to make a wide turn. After your youngster is skilled in making wide turns, try tighter turns.

Keep speed slow.

Your youngster should master these skills at low speeds before going faster. Next, practice some figure eights. This will help your youngster make left and right turns. Make sure your youngster keeps both feet on the footpegs and looks ahead in the turns.

Once these skills are mastered, refer to the Tips & Practice Guide for the Off-Highway Motorcyclist, for additional skills used in off-highway riding.



PART 4 READINESS CHECKLIST

This Readiness Checklist is provided to help you determine your youngster's readiness to learn to safely operate and control an OHM. There is a significant amount of judgment needed in determining a youngster's readiness to ride an OHM. The ultimate decision is the responsibility of the parent, guardian, or supervising adult. It is important that parents make informed decisions about whether or not their youngster becomes involved in off-highway motorcycle activity.

There are four developmental areas considered in the Readiness Checklist. These include: visual perception/motor development, physical development, social/emotional development, and reasoning and decision-making ability. Several questions are listed to help you determine if your youngster possesses the skills and capabilities to safely learn to operate an OHM.

The best way to utilize the Readiness Checklist is to read the particular ability, consider the answers to the questions for that ability, and check those abilities that you determine are present in your youngster. There are no suggestions as to how many abilities or the degree of ability that your youngster should possess. This Readiness Checklist may help you consider the appropriateness of OHM operation for your child. The ultimate decision for your youngster's involvement with off-highway motorcycles belongs to you, the parent.

PART 4

VISUAL PERCEPTION/MOTOR DEVELOPMENT

Ability	✓	**Points to Evaluate**
1. Youngster can see with sufficient clarity.	☐	Can youngster see letters and numbers at least as well as you?
	☐	Can youngster distinguish colors?
	☐	Has youngster demonstrated adequate vision in other activities (riding bicycles, running, sports, or other recreational activities)?
2. Youngster possesses ability to perceive depth or distance.	☐	When looking at two objects in the distance, can youngster tell which is farther or closer?
3. Youngster has adequate side vision/ peripheral vision.	☐	Can youngster see objects 90 degrees to each side while looking straight ahead?
4. Youngster can judge the speed of objects.	☐	Does the youngster judge the speed of objects (fast, medium, slow) that agree with your judgments? (For example, a car on the highway, a train moving past a crossing, a dog running, people walking.)

PART 4

Ability	✓	Points to Evaluate
5. Youngster can state the distances of objects in terms of feet, yard, miles.	☐	Can youngster tell how many feet or yards it is from the house to the road?
	☐	Can youngster tell how wide a hallway is, or the width of a room?
6. Youngster can follow movement of objects.	☐	Can youngster follow the path of such things as: a hit or thrown baseball, a moving car, objects in a video game?
7. Youngster can visualize distances as displayed by a picture or photograph.	☐	Can youngster estimate distance between objects in a family photograph?
	☐	Can youngster estimate distance between objects when looking at a landscape picture?
8. Youngster can follow a moving object while accomplishing hand manipulation.	☐	Can youngster dribble a basketball without looking at it?
	☐	Can youngster manipulate video game controls while following objects on a screen?
9. Youngster can describe cause-and-effect experiences.	☐	Can youngster describe a minor injury he or she received and correctly describe the causes?
	☐	Can youngster describe settings or situations that can produce injury if precautions are not taken?

Ability	✓	**Points to Evaluate**
	☐	Can youngster describe what may cause injury when doing such things as running, swimming, bicycling, riding in a car?
10. Youngster can concentrate on more than one element at a time in solving a puzzle or problem.	☐	Can youngster pick out or describe several items within a picture?
	☐	Can youngster assemble a puzzle without unusual problems or delays?
	☐	Can youngster describe what to do if a house fire should occur?
11. Youngster can maintain relative spans of attention when given a variety of stimuli.	☐	Can youngster complete school homework assignments without being easily distracted?
	☐	Can youngster assemble more difficult puzzles; for example, a nature scene or picture?

PART 4

PHYSICAL DEVELOPMENT

Ability	✓	**Points to Evaluate**
1. Youngster can sit comfortably on the motorcycle and reach the controls easily.	☐	Can youngster place his or her feet firmly on the footpegs?
	☐	Do the youngster's fingers reach comfortably around the handlebars and control levers? How about with the handlebars turned? How about in different seating positions?
	☐	Can youngster stand (with knees slightly bent) and have a few inches of space from the seat?
	☐	Can youngster easily reach the foot controls?
	☐	Can youngster dress with proper protective gear including putting on helmet and fastening the chin strap?
2. Youngster has sufficient strength and familiarity to operate the controls with ease.		While sitting on the vehicle, can youngster:
	☐	Squeeze the hand controls?
	☐	Operate the shift lever (if equipped)?
	☐	Operate the choke and fuel valve with ease?
	☐	Press the brake lever with sufficient pressure
	☐	Operate the controls without looking at them?

PART 4

Ability	✓	**Points to Evaluate**
3. Youngster is sufficiently coordinated.	☐	Can youngster walk a "balance beam" (2" x 4" x 8') flat on floor?
	☐	Can youngster ride a bicycle, rollerskate or skateboard safely?
	☐	Can youngster walk on tiptoes for 10 feet?
	☐	Can youngster jump rope?
	☐	Can youngster catch a ball with hands rather than with arms?
4. Youngster has sufficient endurance to maintain strength over a period of time.	☐	Can youngster play outdoor games without fatigue?
	☐	Can youngster participate in indoor games and sports without tiring before other youngsters?

PART 4

SOCIAL/EMOTIONAL DEVELOPMENT

Ability	✓	**Points to Evaluate**
1. Youngster can understand and follow rules.	☐	Does youngster follow rules established at home?
	☐	Do teachers say that the youngster follows rules?
	☐	Does youngster listen and respond to adult supervision?
	☐	Does youngster comprehend the importance and seriousness of having rules and regulations?
2. Youngster generally will obey parents and supervisors.	☐	Does youngster avoid challenging authority or rebelling when rules are imposed?
3. Youngster controls behavior according to expectations?	☐	Does youngster show evidence of self-control...doesn't get easily frustrated or upset?
	☐	Does youngster understand consequences associated with certain actions (like not wearing a safety belt in the car)?
	☐	Does youngster think about results before performing some action (like crossing the street, hitting or throwing a ball)?

Ability	✓	**Points to Evaluate**
4. Youngster understands other youngsters may be permitted to do what he/she may not be allowed to.	☐	Does youngster recognize unsafe actions of other youngsters?
	☐	Does youngster appreciate being safer than others?
	☐	Does youngster accept rules that are more stringent than what other youngsters have to follow?
5. Youngster can give reasons and/or solutions to problems seen in the environment.	☐	Can youngster explain how land (or grass) gets worn?
	☐	Can youngster explain how even small damage to land can take years to recover?
	☐	Can youngster distinguish between untouched land and used land?
6. Youngster can make decisions based on reality and not fantasy.	☐	Can youngster complete a task in a step-by-step fashion (assemble a toy, clean a room)?
	☐	Does youngster comprehend real injury as opposed to "cartoon" injury?
	☐	Does youngster respond with logical solutions when asked to solve a problem?

PART 4

REASONING AND DECISION-MAKING ABILITY

Ability	✓	**Points to Evaluate**
1. Youngster comprehends that interaction with others and things can result in injury.	☐	Can youngster describe how and why a person received physical injury or pain?
	☐	Does youngster notice impending accidents or potential injury-producing events, such as in sports activities or bicycle riding?
	☐	Can youngster explain why it takes distance to stop?
	☐	Can youngster explain how moving at even low speed can result in injury if stopped suddenly or by hitting something?
2. Youngster has a basic understanding of what being careful means.	☐	Does youngster know why rules are established?
	☐	Does youngster notice or recognize others being careful in action-oriented activities?
	☐	Does youngster notice professional athletes use protective gear as part of their sport?

Ability	✓	**Points to Evaluate**
3. Youngster understands that rules are made to reduce injury and provide long-term enjoyment.	☐	Can youngster explain the reason for rules at home or school?
	☐	Does youngster understand the value of prevention? Of wearing protective gear?
	☐	Can youngster recognize that not following rules can eliminate future fun and enjoyment?
4. Youngster has basic understanding of the physical limitations of stopping and turning.	☐	Can youngster explain what may happen if moving too fast while going around a curve on a bicycle? On a skateboard? On an off-highway motorcycle?

FINAL NOTE TO PARENTS

We hope this booklet has helped you and your youngster take a "safety first" approach to off-highway motorcycle riding. All off-highway motorcycle riders must use good judgment and be responsible. It is up to YOU to set a good example about motorcycle safety. You must help your youngster ride sensibly and safely at all times.

After your youngster has mastered the riding skills in this booklet and has matured to a higher level of skills, he or she may be ready to practice more advanced riding. The Motorcycle Safety Foundation's *Tips & Practice Guide for the Off-Highway Motorcyclist* booklet provides information about riding on hills, riding across slopes, and other more advanced skills. Youngsters should have a good understanding of riding skills before using unfamiliar areas. They should ride on flat areas, gentle hills, and gradual slopes. Be sure that your youngster rides slowly over unfamiliar terrain to locate and avoid bumps, holes, and other possible hazards. You should check the area first.

The Motorcycle Safety Foundation also recommends a video program, *The MSF DirtBike School: Learn to Ride Safely*. It demonstrates and discusses responsible riding practices.

It is also recommended that you and your youngster read the information in the owner's manual. To find out more about rider education and off-highway motorcycle safety programs offered, or to order the video or publications, contact the **Motorcycle Safety Foundation at 2 Jenner, Suite 150, Irvine CA 92618, 949.727.3227 or visit dirtbikeschool.com**

BRAKES - The parts of a motorcycle which allow the operator to slow down or stop the machine.

BRAKE LEVER - The hand brake located on the handlebar.

BRAKE PEDAL - The foot brake which is operated by the right foot.

CABLES - Heavy insulated wires. There are two kinds: mechanical and electrical. Brake cables are mechanical. The headlamp cable is electrical.

CARBURETOR - Device which provides the engine the proper mixture of fuel and air.

CHOKE - A device which enriches the mixture of gasoline and air supplied to the engine for cold engine starting.

CLUTCH LEVER - The hand lever used to disengage the clutch when changing gears.

DRIVE CHAIN - The chain which connects the engine to the rear axle to give a motorcycle motion.

ENGINE STOP SWITCH - Switch used to stop the engine without removing the hands from the handlebars.

EXHAUST - Leftover gases from the combustion process that come out of the tailpipe when the motorcycle engine is running. Exhaust contains deadly carbon monoxide gases.

EYE PROTECTION - Goggles or a shatter resistant shield worn over the eyes while riding to protect against dust, flying insects, or other debris. Such eye protection, when tinted, may be effective against bright sun or snow-glare conditions.

FINE-C - A pre-start routine. A way to remember the pre-start routine:
F - Fuel valve on
I - Ignition on
N - Neutral
E - Engine stop switch in run position
C - Choke

FOOTPEGS - Pivoting pegs on which a motorcycle operator should keep his/her feet while riding.

FUEL VALVE - A valve, usually hand operated, with an on, off and "reserve" position. Controls gasoline flow to the carburetor.

GLOSSARY

HANDLEBAR - The metal bar attached to the front end of the motorcycle that turns the front wheel for steering. Many of the controls for the motorcycle are located on the handlebar.

HELMET - The most important protective clothing to be worn when operating a motorcycle. It covers the head and helps protect against skull fracture or brain injury in an accident.

OFF-HIGHWAY or OFF-ROAD VEHICLE - Any vehicle, including off-highway motorcycles and ATVs, which is restricted by law from operating on public roads.

OHM - Off-Highway Motorcycle

PSI - Refers to air pressure in the tires and stands for "Pounds per Square Inch."

READING THE TERRAIN - Looking well ahead while riding, anticipating hazards.

SHIFT LEVER - On those motorcycles equipped with a shift lever, it allows the operator to change gears. The shift lever is operated by the left foot.

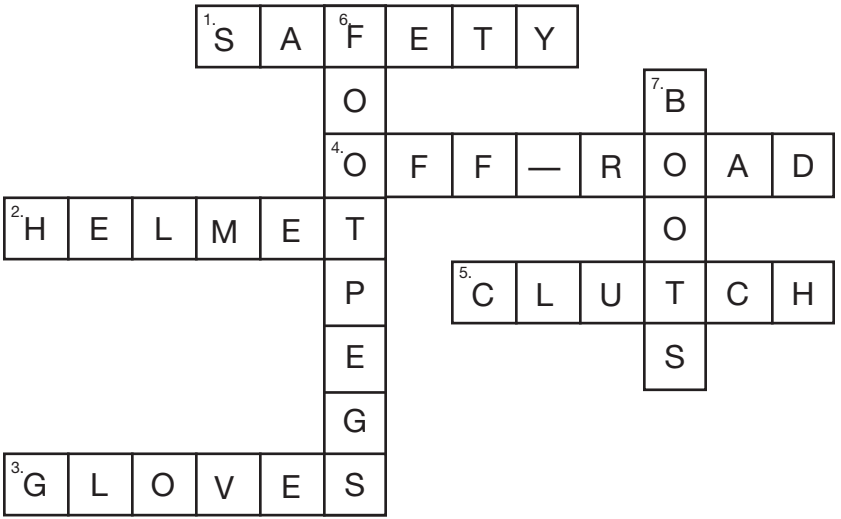
TAILPIPE - That part of the exhaust system which expels waste gases.

THROTTLE - The control operated by the right hand which controls the engine speed.

TRACTION - Tread friction between the ground and the tires.

TRANSMISSION - Mechanism used to transmit power from the engine to the wheels.

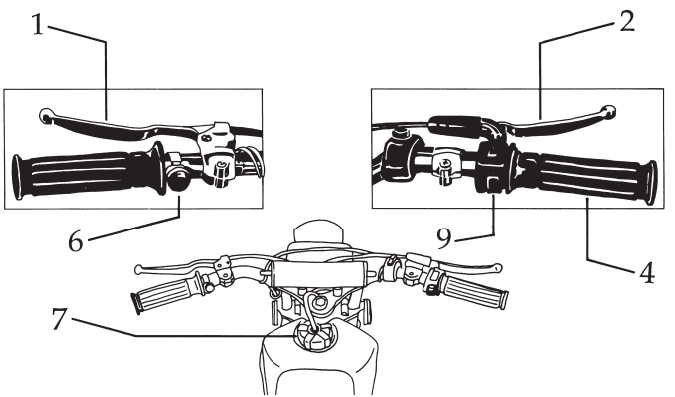
ANSWERS

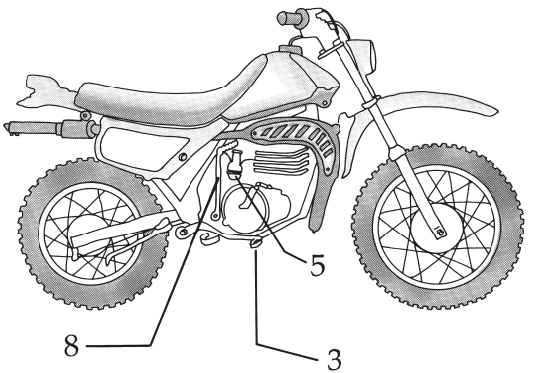


ANSWERS

NAME THE MOTORCYCLE PARTS (Typical)

1. Clutch lever
2. Hand brake lever
3. Foot brake lever or pedal
4. Throttle
5. Choke or enrichening device
6. Engine stop switch
7. Gas cap/tank vent
8. Starter (kick)
9. Electric starter (if equipped)





NOTES

NOTES

For the rider training location nearest you,
call: (877) 288-7093

dirtbikeschool.com

2 Jenner, Suite 150 • Irvine, CA 92618
(949) 727-3227 • msf-usa.org

PN MSPU3444NC00

A Fuels

Super unleaded (98 octane) mixed with 2-stroke engine oil

Standards

→ DIN EN 228
→ JASO FD

Properties

• Mixture ratio	1:40

Mixture ratio

• Super unleaded	10 l
• 2-stroke engine oil	250 ml

Fuel additive

Recommended supplier

MOTOREX®

- **FUEL STABILIZER**

B Operating supplies

Off-road chain spray

Recommended supplier

MOTOREX®

- **CHAINLUBE OFF ROAD**

Fork oil

Order details

- 48601166S1

Standards

- SAE 4 → SAE

Universal oil spray

Recommended supplier

MOTOREX®

- **JOKER 440 SYNTHETIC**

Long-life grease

Recommended supplier

MOTOREX®

- **2000**

Engine oil

Recommended supplier

MOTOREX®

- **TOP SPEED 4T**

Standards

→ JASO T903 MA2

- 15W/50 → SAE

Properties

- Partially synthetic

High viscosity grease

Recommended supplier

SKF®

- **LGHB 2**

Special grease

Order details

- 00062010053

Recommended supplier

Klüber Lubrication®

- **Klüberfood NH1 34–401**

Shock absorber oil

Order details

- 50180751S1

Standards

• SAE 2.5	→ SAE

Oil for foam air filter

Recommended supplier

MOTOREX®

- **RACING BIO AIR FILTER OIL**

Brake fluid DOT 4 / DOT 5.1

Recommended supplier

Castrol

- **REACT PERFORMANCE DOT 4**

MOTOREX®

- **BRAKE FLUID DOT 5.1**

Standards

→ DOT

Coolant

Recommended supplier

MOTOREX®

- **COOLANT M3.0**

Properties

• Antifreeze protection to at least	–25 °C

C 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

3240038en

17/10/2024

KTM Sportmotorcycle GmbH
5230 Mattighofen/Austria
KTM.COM