OWNER'S MANUAL 2026

READY TO RACE

50 SX

ITEM NO.: 3240227EN

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 that will continue to give you and your child pleasure for a long time if you maintain it properly.

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.

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

2.1 Safety instructions

Function of the safety instruction

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

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

Safety instruction layout

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

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

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

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

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

NOTE
Indicates a situation that can lead to environmental damage.

2.2 Ban on tampering

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

Tampering that is prohibited

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

Examples of prohibited tampering

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

2.3 Safe use

DANGER

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

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

DANGER

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

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

WARNING

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

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

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

The vehicle must only be used by trained persons.

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

Adhere to the information and warning labels 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 (68.0 °F)
Ambient air pressure	1,013 mbar (14.69 psi)
Relative air humidity	60 ±5 %

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

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

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

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

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

2.6 Environment

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

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

As motorcycles are not subject to the EU regulations governing the disposal of end-of-life vehicles, there are no legal regulations that pertain to the disposal of an end-of-life motorcycle. 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 their 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 printed copy can also be ordered from your authorized KTM dealer.

International KTM Website: https://www.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 be carried out in an authorized KTM workshop only and confirmed in the electronic proof of service. If this is not carried out, warranty claims will not be recognized. 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 the safety of your child, only use spare parts and accessory products that are approved and/or recommended by KTM and have them installed by 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. Your authorized KTM dealer will be glad to advise you.

The latest news **KTM PowerParts** on your vehicle can be found on the KTM website.

International KTM Website: https://www.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

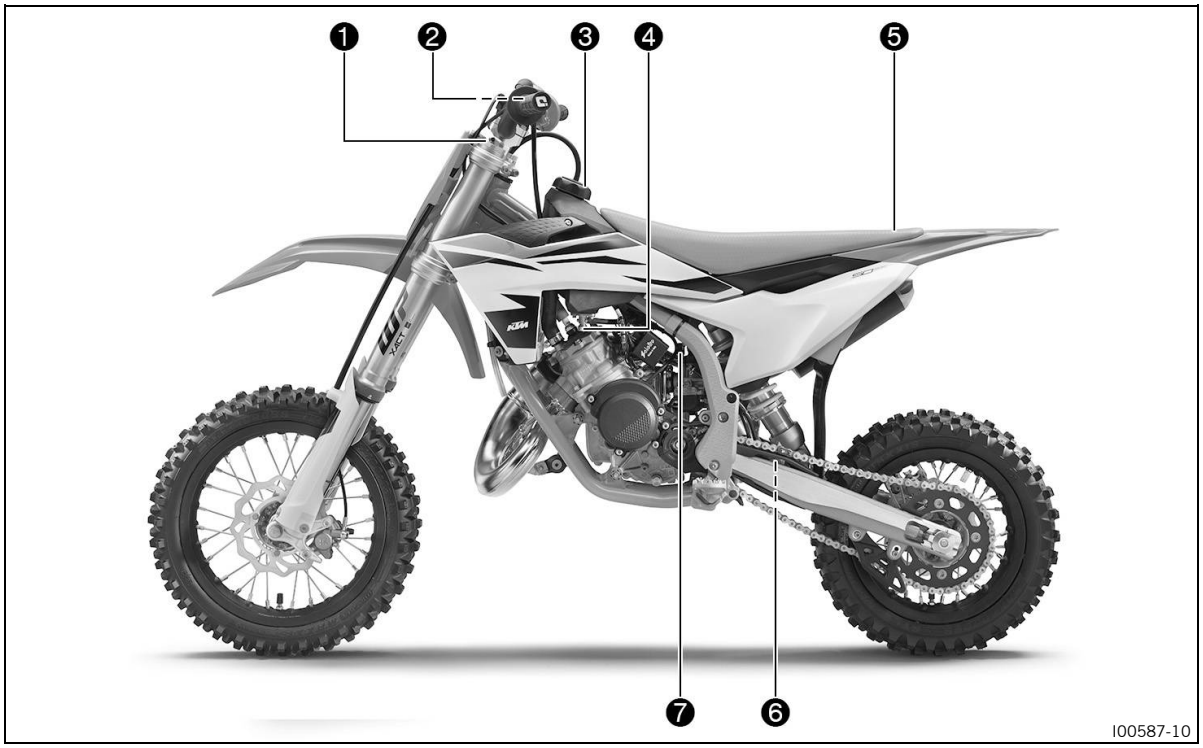
Authorized KTM dealers will be happy to answer questions about the vehicle and KTM.

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

International KTM Website: https://www.ktm.com

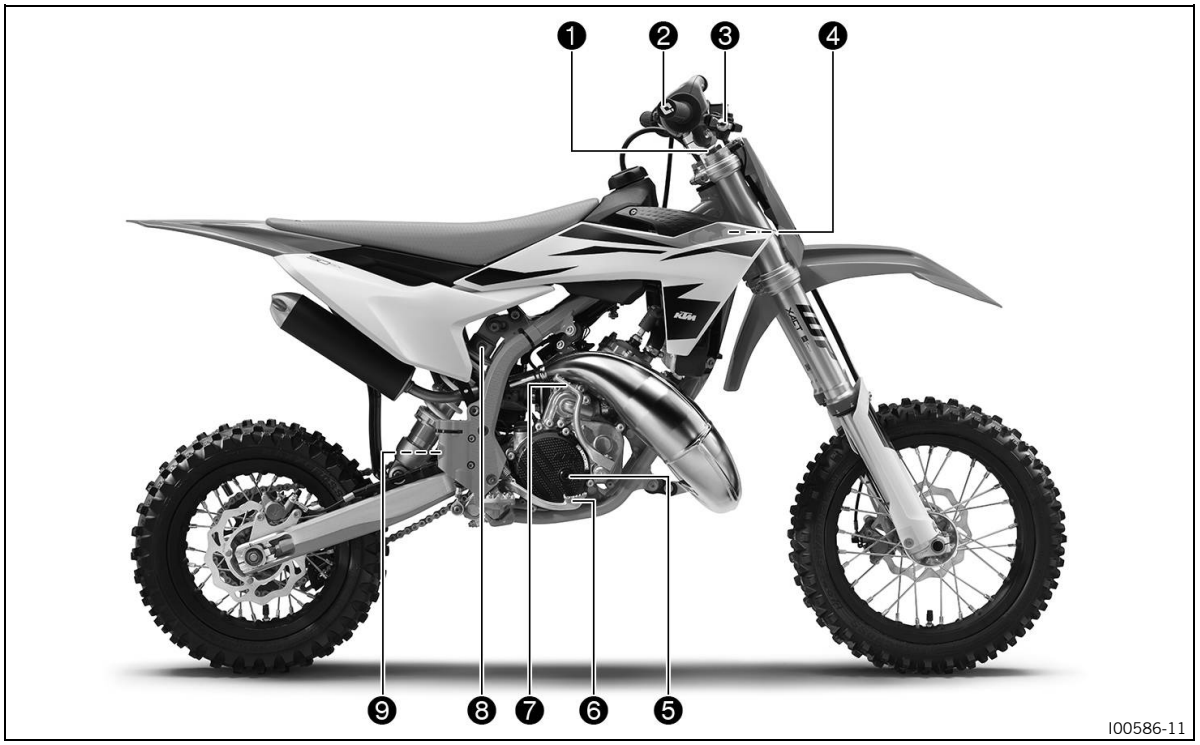
4 View of the vehicle

4.1 View of vehicle, left side (example)



1. Valve for fork airpump
2. Kill button (p. 16)
3. Fuel tank cap
4. Fuel petcock (p. 17)
5. Quick release of seat
6. Shock absorber compression adjustment
7. Choke

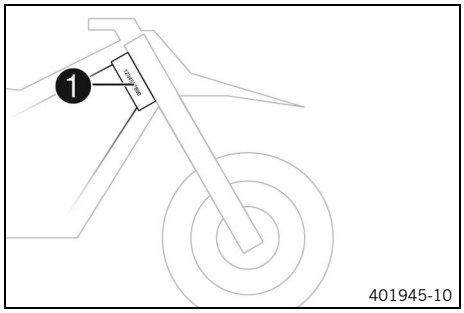
4.2 View of vehicle, right side (example)



1. Fork rebound adjustment
2. Throttle grip (p. 16)
3. Hand brake lever (p. 16)
4. Vehicle identification number (p. 14)
5. Clutch adjuster
6. Brake pedal (p. 18)
7. Kickstarter lever (p. 18)
8. Shock absorber rebound adjustment
9. Level viewer for brake fluid, rear

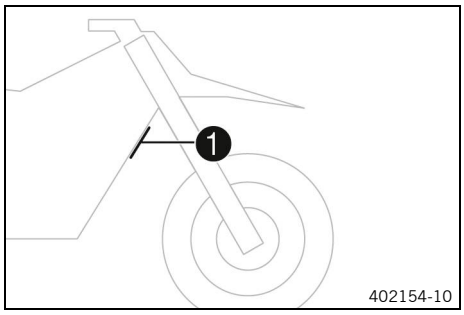
5 Serial number

5.1 Vehicle identification number



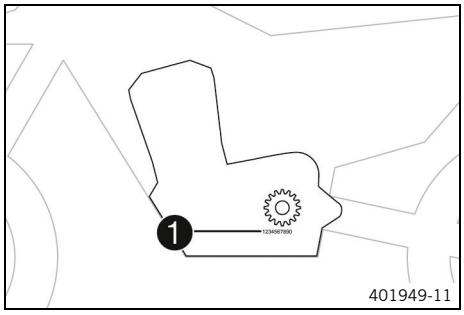
The vehicle identification number ❶ is stamped on the right-hand side of the steering head.

5.2 Frame label



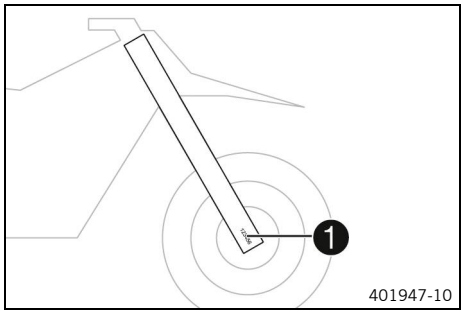
Frame label ❶ is located on the front frame tube.

5.3 Engine number



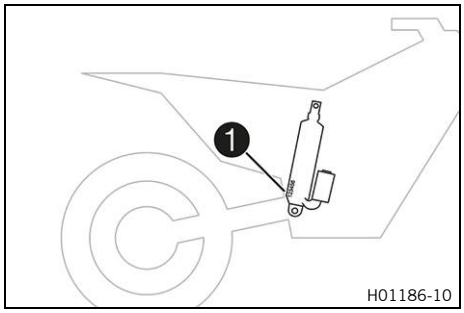
The engine number ❶ is located on the left side of the engine under the engine sprocket.

5.4 Fork part number



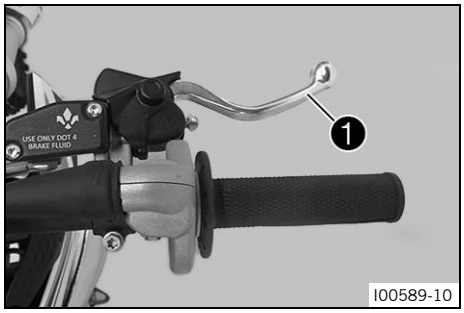
Fork part number ❶ is stamped on the inside of the fork shoe.

5.5 Shock absorber part number



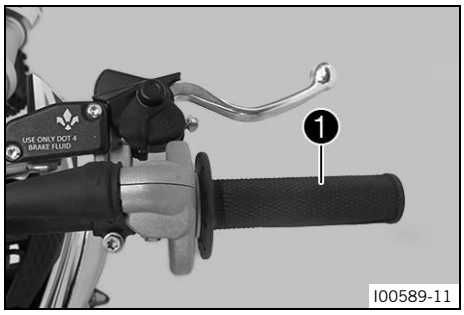
The shock absorber part number ❶ is stamped on the bottom of the shock absorber toward the right-hand side.

6.1 Hand brake lever



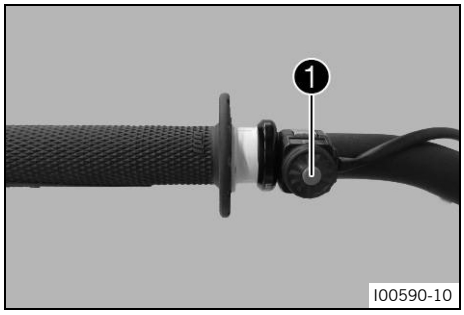
The front brake is engaged using the hand brake lever.
Hand brake lever ❶ is fitted on the right side of the handlebar.

6.2 Throttle grip



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

6.3 Kill button



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

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

6.4 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

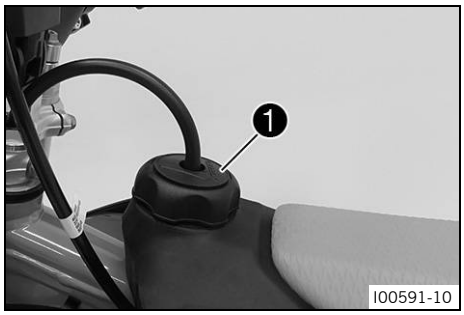
Danger of poisoning Fuel is harmful to health.

- 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

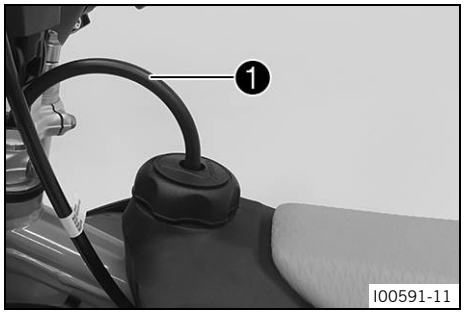
Environmental hazard Improper handling of fuel is dangerous to the environment.

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



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

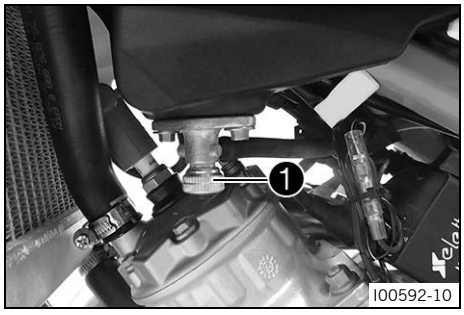
6.5 Closing the fuel tank cap



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

Route hose of fuel tank vent ❶ without kinks.

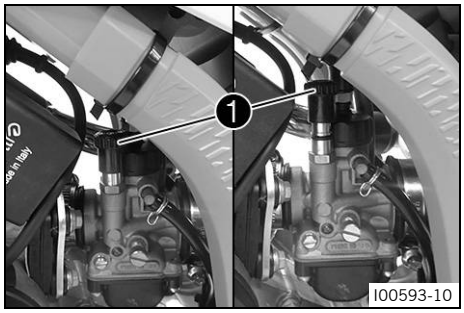
6.6 Fuel petcock



Fuel petcock ❶ is on the left of the fuel tank.

Condition	Meaning
Fuel petcock is closed	The knurled screw is turned all the way clockwise. Fuel cannot flow out of the fuel tank.
Fuel petcock is open	The knurled screw is turned all the way counterclockwise. Fuel can flow out of the fuel tank.

6.7 Choke



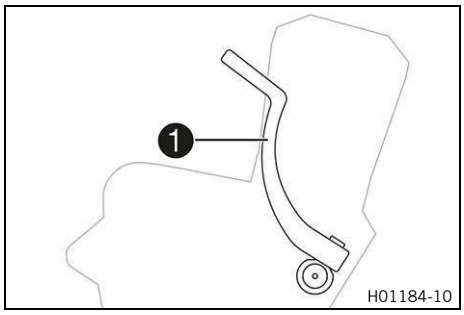
Activating the choke function frees a drill hole in the carburetor through which the engine can draw extra fuel. This results in a richer fuel-air mixture, which is needed for a cold start.

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

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

Condition	Meaning
The choke lever is pulled out to the stop.	Choke function activated
The choke lever is pushed in to the stop.	Choke function deactivated

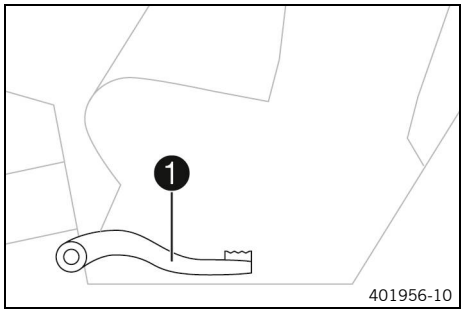
6.8 Kickstarter lever



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

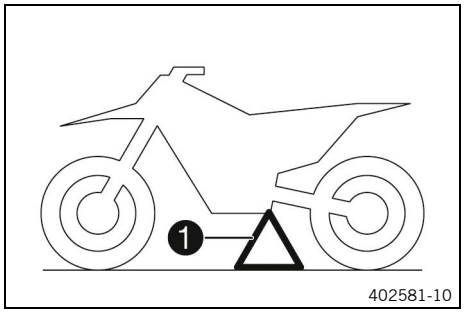
Note
Before riding, swing the kick starter lever inwards towards the engine.

6.9 Brake pedal



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

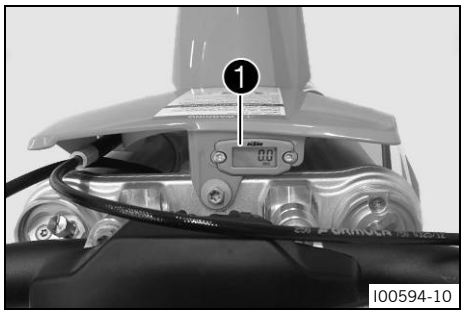
6.10 Plug-in stand



The fixture for plug-in stand ❶ is located on the frame on the left side of the vehicle.
The plug-in stand is used to park the motorcycle.

Note
Remove the plug-in stand before riding.

6.11 Hourmeter



Hourmeter ❶ is attached to the top of number plate.
It shows the total number of service hours of the engine.
The hourmeter begins counting when the engine is started and stops when the engine is switched off.

Note
The value indicated by the hourmeter cannot be cleared or adjusted.

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 the motorcycle, remember that others may be disturbed by excessive noise.

– Ensure that the pre–delivery inspection has been carried out by an authorized KTM workshop.
  ✓ The delivery certificate is transferred upon vehicle handover.
– Carefully read through the entire owner's manual together with the child before their first ride.

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

– Familiarize the child with the controls.
– Adjust the basic position of the hand brake lever. (p. 75)
– Adjust the basic position of the brake pedal. (p. 82)
– Before using the vehicle for the first time, ensure that the basic settings of the chassis are suitable for the child's weight.

Note
For information about different throttle variants, contact an authorized KTM workshop.

– Allow the child to become accustomed to the handling of the motorcycle on suitable terrain, preferably on a large, open field.

Note
Let the child get used to the brake system by just pushing them on the vehicle at first. Do not start the motor until the child is able to apply the necessary front brake pressure.
Initially, let the child ride to another person who can help them stop and turn.

– Set up obstacles for the child to drive around in order to get used to the handling of the vehicle.
– Instruct the child to try to ride as slowly as possible and in a standing position to get a better feeling for the motorcycle.
– Do not let the child ride on terrain that exceeds their capabilities and experience.
– Instruct the child to 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 permissible rider's weight	45 kg (99.2 lb)
Maximum rider height	< 130 cm (< 51.2 in)

– Check the spoke tension. (p. 94)

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

– Run in the engine. (p. 22)

7.2 Running in the engine

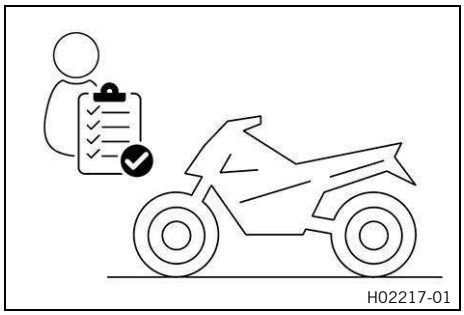
– During the running-in time, do not exceed the specified engine power.

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

Avoid fully opening the throttle.

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.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- Check the gear oil level. (p. 107)
- Check the brake fluid level for the front brake. (p. 76)
- Check the brake fluid level for the rear brake. (p. 83)
- Check that the brake pads of the front brake are secured. (p. 78)
- 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. 96)
- Check the chain for dirt. (p. 67)
- Check the chain, rear sprocket, engine sprocket, and chain guide. (p. 70)
- Check the chain tension. (p. 68)
- Check the tire condition. (p. 92)
- Check the tire pressure. (p. 93)
- Check the spoke tension. (p. 94)

  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. 46)
- 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.

Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)

Operating procedure

– Empty the carburetor float chamber.
– Turn the knurled screw on the fuel petcock all the way counterclockwise.
  ✓ Fuel can flow from the fuel tank to the carburetor.
– Pull the choke knob up as far as it will go and turn it a maximum of a quarter turn.
– Forcefully step on the kick-starter lever, pushing it all the way forward.

Do not open the throttle.
If the motorcycle does not start after pressing the kick-start lever 5 times, apply the front brake and lift the rear wheel of the motorcycle for 3 seconds.

Reworking

– Remove the motorcycle from the lift stand. (p. 45)

8.3 Starting off

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

– Open the throttle carefully.

8.4 Riding

Note
If unusual noises occur while riding, stop immediately, switch off the engine and contact an authorized KTM workshop.

– 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.
– Only open the throttle as much as the engine can handle. Abruptly opening the throttle increases fuel consumption.
– Switch off the engine if you are likely to be running at idle speed or stationary for a long time.

≥ 2 min

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 mostly the rear brake if possible.
– Try to complete the braking procedure before riding into a curve.

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.

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.

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.

– Brake the motorcycle.
– Press kill button ⊠ when the engine is at idle speed until the engine stops.
– Turn the knurled screw on the fuel petcock 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.

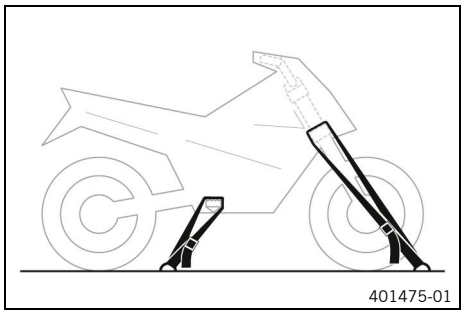
The components for parking the vehicle are designed only for the weight of the vehicle.

– 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

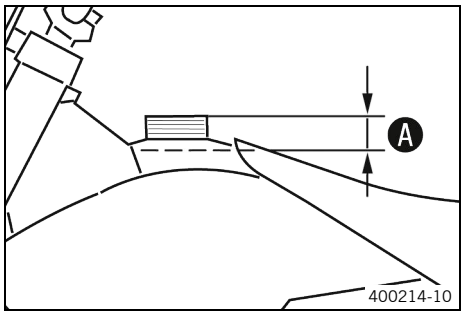
Danger of poisoning Fuel is harmful to health.

– 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. 16)
– Fill the fuel tank with fuel no higher than Ⓐ.

Level Ⓐ	35 mm (1.38 in)

Fuel tank capacity, approx.	
Super unleaded (95 octane) mixed with 2-stroke engine oil (1:60) (p. 136)	2.3 l (0.61 liq. gal_{US})

– 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 dealers for the electronic proof of service. Your authorized dealer will be happy to advise you.

	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. 78)	○	●	●	●	●
Check that the brake pads of the rear brake are secured. (p. 85)	○	●	●	●	●
Check the brake discs. (p. 75)	○	●	●	●	●
Check the brake lines for damage and tightness.	○	●	●	●	●
Check the brake fluid level for the front brake. (p. 76)	○	●	●		
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 play of the handbrake lever. (p. 75)	○	●	●	●	●
Check the free travel of the brake pedal. (p. 81)	○	●	●	●	●
Check the idle speed.	○	●	●	●	●
Change the gear oil. (p. 107)	○	●	●	●	●
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. 73)		●	●	●	
Check the swingarm. (p. 73)		●	●	●	
Check the swingarm bearing for play.		●	●	●	
Check the heim joint on the shock absorber for play.		●	●	●	
Check the tire condition. (p. 92)	○	●	●	●	●
Check the tire pressure. (p. 93)	○	●	●	●	●
Check the wheel bearing for play.		●	●	●	
Check the hubs.		●	●	●	
Check the rim run-out.	○	●	●	●	
Check the spoke tension. (p. 94)	○	●	●	●	
Check the chain, rear sprocket, engine sprocket, and chain guide. (p. 70)	○	●	●	●	
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 and spark plug connector.		●	●	●	

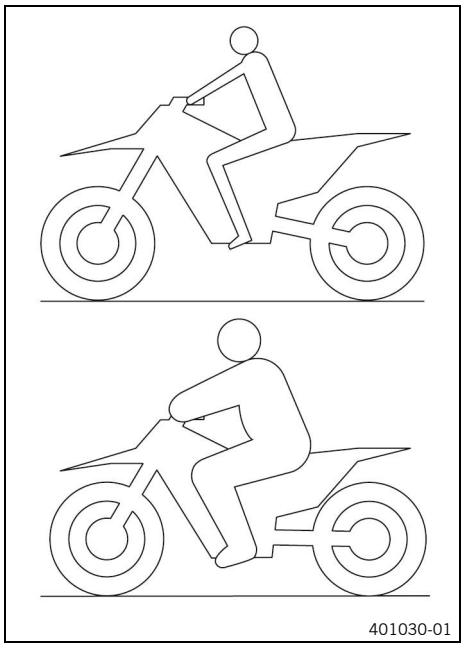
	After one operating hour	Every 15 operating hours	Every 45 operating hours	Every 90 operating hours	Every 24 months
Clean the air filter and air filter box. (p. 64)	○	•	•	•	•
Change the damping material on the main silencer. (p. 65)			•	•	
Carry out fork service.			•	•	
Service the shock absorber.			•	•	
Check all screws, nuts, and hose clamps for a tight fit.	○	•	•	•	•
Check the clutch setting. (p. 102)		•	•	•	
Check the frost protection and coolant level. (p. 95)	○	•	•	•	
Changing the coolant (p. 98)					•
Check the steering head bearing play. (p. 52)	○	•			
Lubricate the steering head bearing. (p. 54)			•	•	•
Check/adjust the carburetor components.			•	•	•
Check the cylinder and piston.		•	•	•	
Perform minor engine service. (Check the clutch. Check the inlet membrane. Change the piston.)			•	•	
Perform major engine service including removing and installing the engine. (Change the connecting rod, big (bottom) end bearing and crankshaft pin. Check the transmission. Change the crankshaft bearing. 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's weight	25 kg ... 35 kg (55.1 lb ... 77.2 lb)

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

10.2 Air suspension XACT 5235

Air suspension **WP XACT 5235** is used in the 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.

The damping can be adjusted.

The rebound adjustment is located at the upper 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

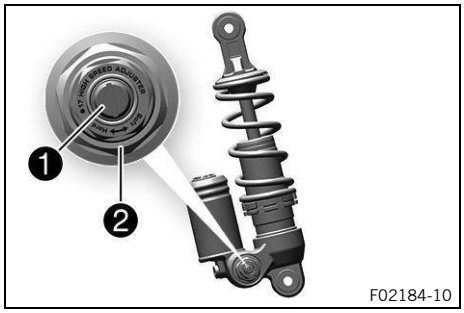
Risk of injury Parts of the shock absorber will move erratically if the shock absorber is detached incorrectly.

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.

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

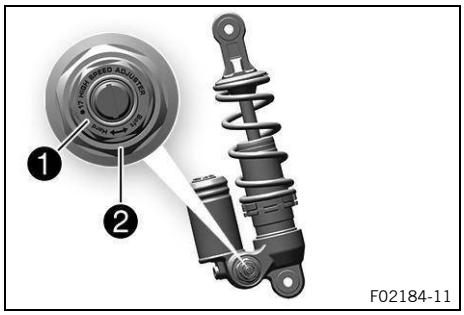
CAUTION

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.



– Push the splash protector to the side.
– Using an open end wrench, turn adjusting screw ❶ clockwise all the way.

Do not loosen fitting ❷!

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

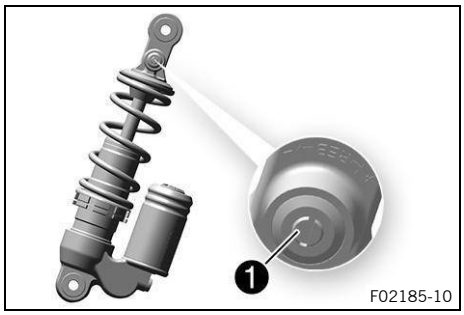
High-speed compression damping	
Comfort	2.5 turns (900°)
Standard	2 turns (720°)
Sport	1.5 turns (540°)

Note
Turning clockwise increases damping; turning anticlockwise reduces damping.

– Position the splash protection.

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.

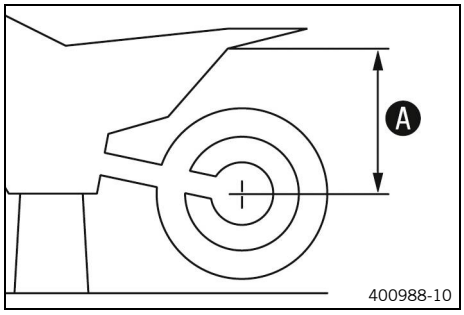


– Turn adjusting screw ❶ clockwise up to the last perceptible click.
– Turn counterclockwise by the number of clicks corresponding to the shock absorber type.

Rebound damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks

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

10.7 Measuring the dimension of the unloaded rear wheel



Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)

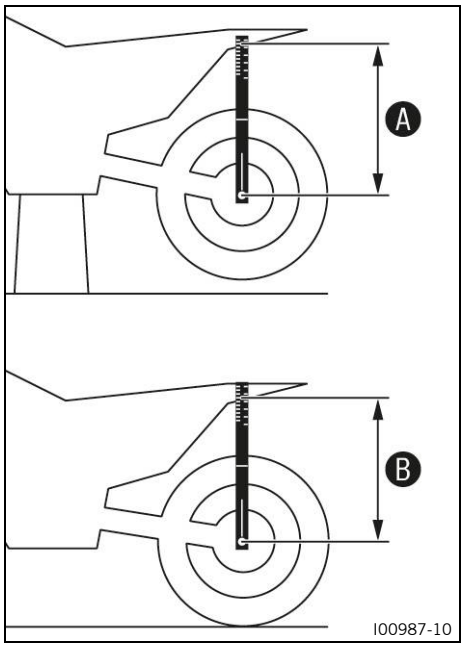
Control process

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

Reworking

– Remove the motorcycle from the lift stand. (p. 45)

10.8 Checking the static sag of the shock absorber



– Measure dimension A of rear wheel unloaded. (p. 33)
– 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.

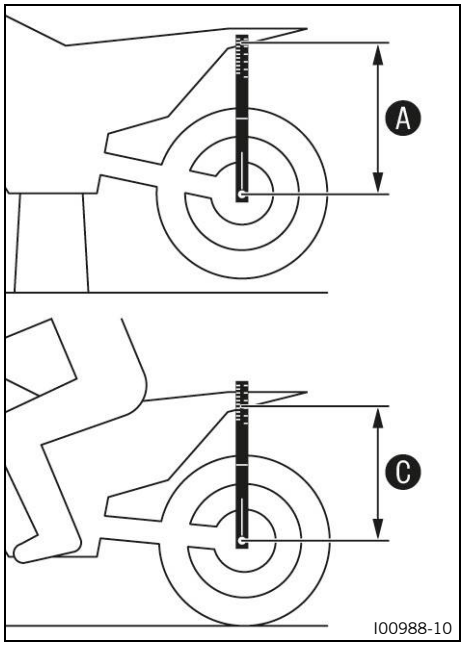
Note
The static sag is the difference between measurements A and B.

– Check the static sag.

Static sag	30 mm (1.18 in)

» If the static sag is more or less than the specified value:
– Adjust the preload for the shock absorber. (p. 34)

10.9 Checking the rider sag of the shock absorber



– Determine rear wheel dimension A. (p. 33)
– With another person holding the motorcycle, sit on the saddle with full protective clothing in a normal sitting position (feet on footrests) and bounce up and down a few times.
  ✓ The rear wheel suspension levels out.
– With the help of another person, measure the distance between the rear axle and the fixed point again.
– Note the value as dimension C.

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

– Check the rider sag.

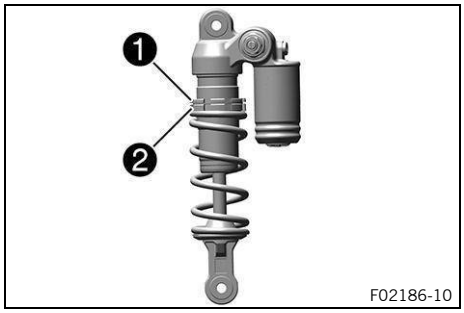
Rider sag	80 mm (3.15 in)

» If the rider sag differs from the specified measurement:
  – Adjust the rider sag. (p. 35)

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. 45)
– Remove the shock absorber. (p. 61)
– 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 retaining ring 1.
– Turn adjusting ring 2 until the spring is no longer under tension.

Hook wrench (T304)
Hook wrench (T1533)

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.
– Tighten the spring to the specified measurement by turning adjusting ring 2.

Preload	5 mm (0.20 in)

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 rider sag, it may be necessary to increase or decrease the spring preload.

– Tighten retaining ring ❶.

Reworking

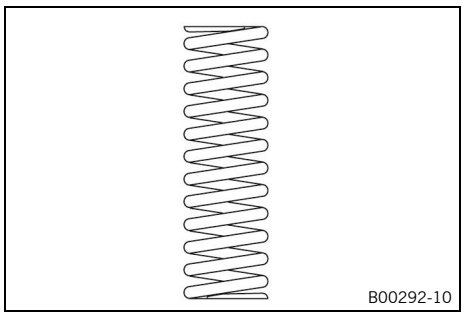
– Install the shock absorber. 🔧 📖 (p. 61)
– Remove the motorcycle from the lift stand. 📖 (p. 45)

10.11 Adjusting the rider sag 🔧

Preparatory work

– Raise the motorcycle with a lift stand. 📖 (p. 45)
– Remove the shock absorber. 🔧 📖 (p. 61)
– After removing the shock absorber, clean it thoroughly.

Adjustment procedure



– Select and mount a suitable spring.

Spring rate	
Weight of rider: 15 kg ... 25 kg (33.1 lb ... 55.1 lb)	25 N/mm (142.8 lb_f/in)
Weight of rider (standard): 25 kg ... 35 kg (55.1 lb ... 77.2 lb)	30 N/mm (171.3 lb_f/in)
Weight of rider: 35 kg ... 45 kg (77.2 lb ... 99.2 lb)	35 N/mm (199.9 lb_f/in)

Note

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

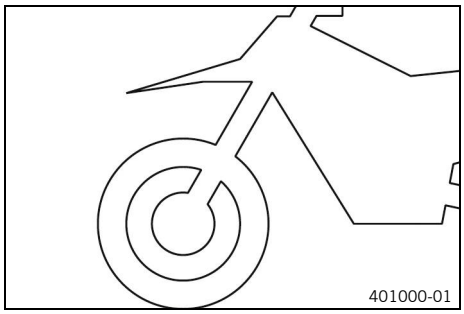
Smaller weight differences can be compensated by changing the spring preload.

Reworking

– Install the shock absorber. 🔧 📖 (p. 61)
– Remove the motorcycle from the lift stand. 📖 (p. 45)
– Check the static sag of the shock absorber. 📖 (p. 33)
– Check the rider sag of the shock absorber. 📖 (p. 34)
– Adjust the rebound damping of the shock absorber. 📖 (p. 32)

10.12 Checking the basic setting of the fork

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



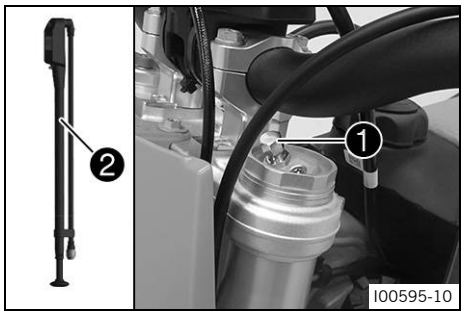
- Smaller differences in the rider's weight can be compensated for by the fork air pressure.
- However, if the fork frequently bottoms out (hard end stop on compression), the fork air pressure must be increased, within the specified values, to avoid damage to the fork and frame.

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. 45)



Adjustment 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.

Read the accompanying instructions.

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

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

– Adjust the air pressure as specified.

Do not set the air pressure outside the specified range.

Air pressure	
Standard	3.5 bar (50.8 psi)

Gradual change of the air pressure in steps by	0.2 bar (2.9 psi)
Minimum air pressure	0.5 bar (7.3 psi)
Maximum air pressure	5 bar (73 psi)

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

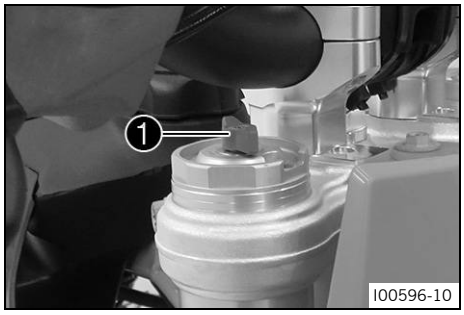
Only mount the protection cap by hand.

Reworking

– Remove the motorcycle from the lift stand. (p. 45)

10.14 Adjusting the rebound damping of the fork

Note
The hydraulic rebound damping determines the fork suspension behavior.



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

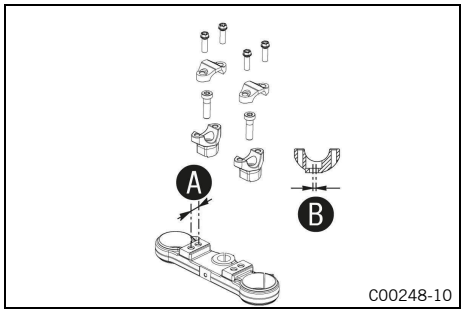
Note
Adjusters ❶ are located at the top end of the fork legs.

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

Rebound damping	
Standard	15 clicks

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

10.15 Handlebar position



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

Hole distance Ⓐ	16 mm (0.63 in)

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

Hole distance Ⓑ	3.5 mm (0.138 in)

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.

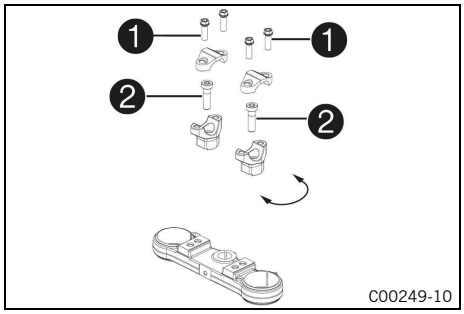
10.16 Adjusting the handlebar position

WARNING

Danger of accidents A repaired handlebar poses a safety risk.

If the handlebar is bent or straightened, the material becomes fatigued. The handlebar may break as a result.

– Change the handlebar if the handlebar is damaged or bent.



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

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

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

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

– Position the handlebar.

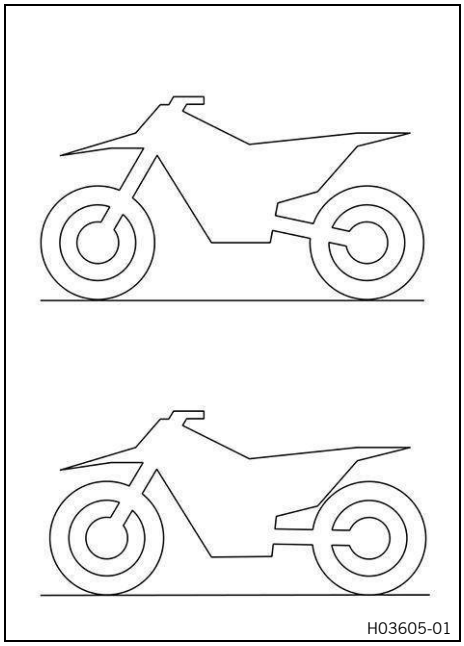
Make sure the cables and wiring are positioned correctly.

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

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

Make sure the installed gap widths are even.

11.1 Seat height adjustment options



This vehicle offers several options for adjusting the seat height to the rider's height.

The seat height can be changed with the mounting position of the fork, shock absorber, and frame.

Note

When adjusting the seat height on the fork and shock absorber, make sure that the vehicle is as straight as possible after completing the work.

If the seat height on the shock absorber is set low, the fork should be pushed through further and vice versa.

11.2 Adjusting the seat height on the shock absorber

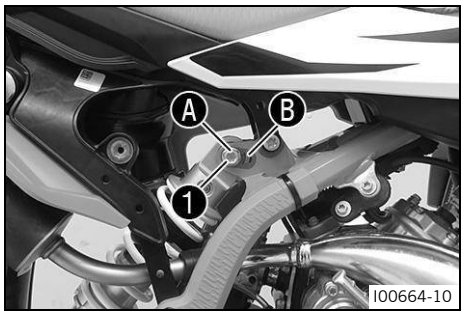
WARNING

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.

Preparatory work

- Raise the motorcycle with a lift stand. (p. 45)



Adjustment procedure

- Hold the rear wheel with the swingarm and remove screw ❶.
- Position the shock absorber according to the required seat height.

High seating position	Ⓐ
Low seating position	Ⓑ

- Mount and tighten screw ❶.

Top shock absorber screw	
M10	45 Nm (33.2 ft·lb$_f$) **Loctite® 243**

Reworking

– Remove the motorcycle from the lift stand. (p. 45)

11.3 Adjusting the seat height on the fork

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.

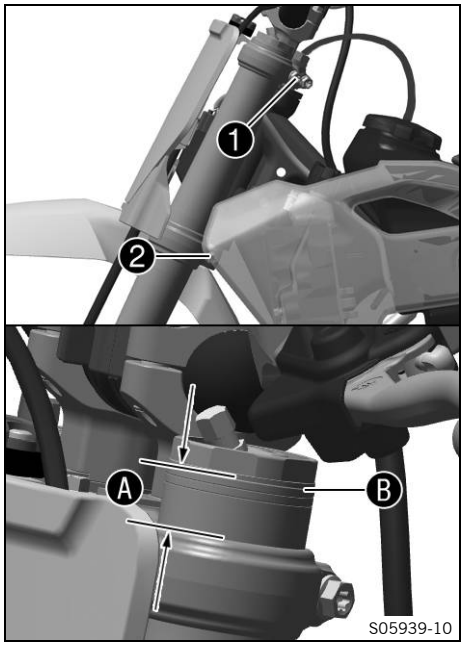
Note

The seat height can be infinitely adjusted by pushing the fork legs through.

If the seat height is adjusted on the fork, the seat height should also be adjusted on the shock absorber.

Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)
– Remove the front wheel. (p. 89)



Adjustment procedure

– Loosen screw ❶.
– Loosen screw ❷.
– Position the fork leg according to the required seat height.

Position the fork leg only within the described range.

Condition

\+ Seating position as low as possible, fork fully inserted

Maximum distance Ⓐ between lower edge of screw cap and upper edge of triple clamp	18 mm (0.71 in)

Condition

\+ Seating position as high as possible, fork pulled out completely

Bottom edge of screw cap Ⓑ closes flush with the upper edge of the triple clamp

– Tighten screw ❷.

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

– Tighten screw ❶.

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

– Repeat the procedure on the other fork leg.

Position both fork legs equally.

Reworking

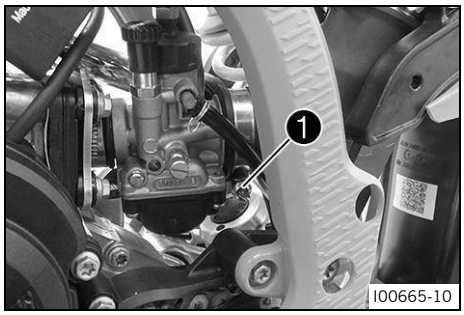
– Install the front wheel. (p. 89)

11.4 Adjusting the seat height on the frame

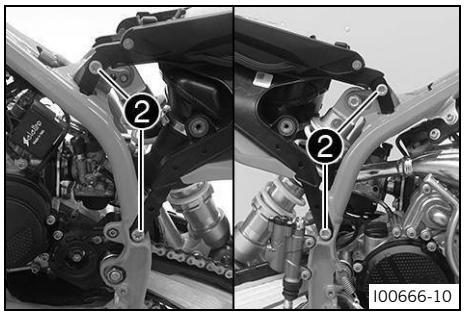
Preparatory work

– Remove the seat. (p. 62)
– Turn the knurled screw on the fuel petcock all the way clockwise.
– Remove the fuel tank. (p. 54)
– Remove the right side fairing. (p. 59)
– Remove the muffler. (p. 65)

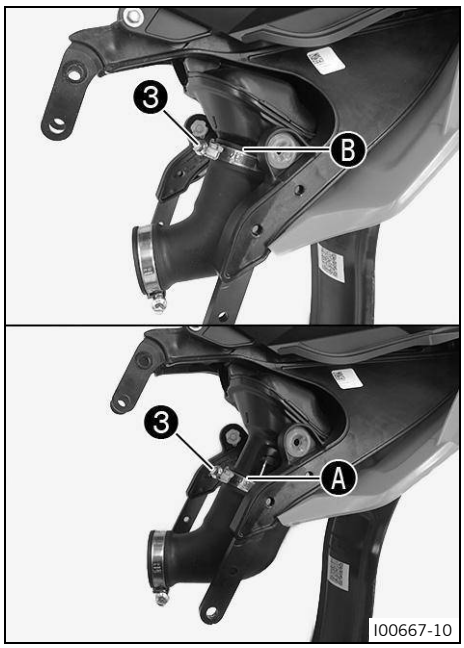
Adjustment procedure



– Loosen hose clip 1.



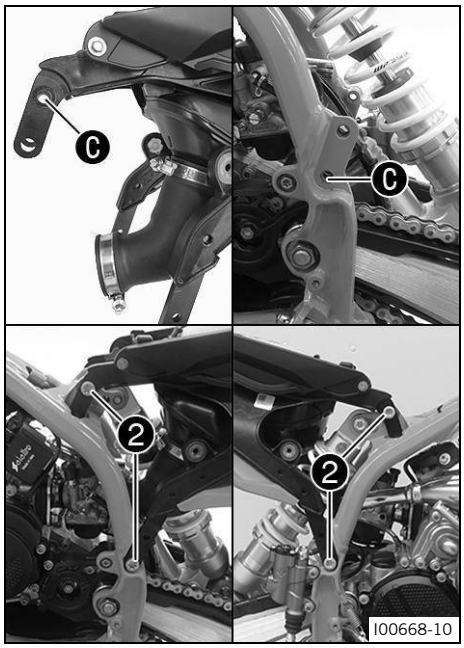
– Remove screws 2 on the right and left side.
– Remove the subframe and air filter box.



– Loosen hose clip ❸ and slide the intake snorkel to the desired position.

High seating position	Position Ⓐ
Low seating position	Position Ⓑ

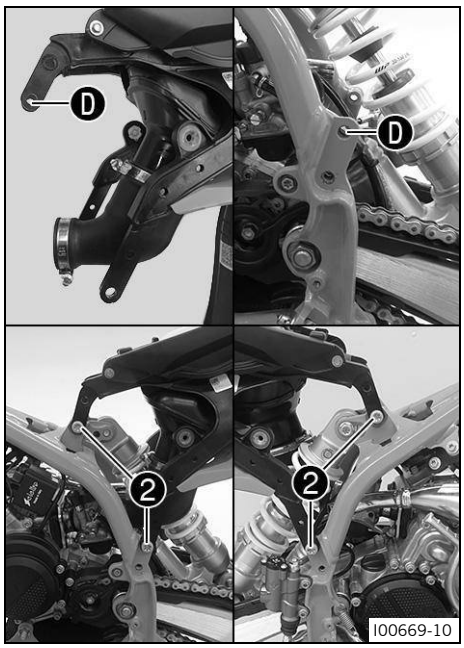
Condition: Low seating position



– Position subframe in position Ⓒ with screws ❷ on the right and left side and tighten.

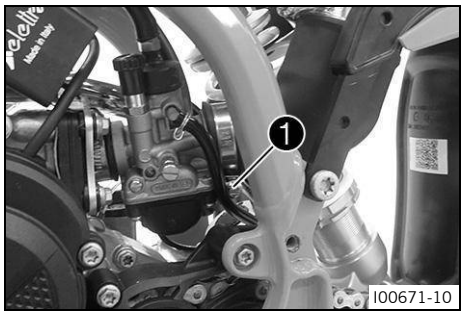
Screw, tail assembly	
M8	30 Nm (22.1 ft·lb$_f$) **Loctite® 243**

Condition: High seating position



– Position the subframe in position Ⓓ with screws ❷ on the right and left side and tighten.

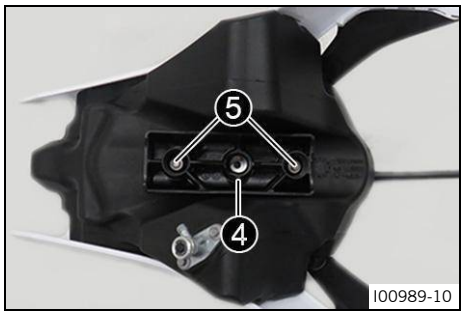
Screw, tail assembly	
M8	30 Nm (22.1 ft·lb$_f$) **Loctite® 243**



– Position the intake flange on the carburetor and tighten hose clip ❶.

Hose clamp, carburetor	
	2.8 Nm (2.07 ft·lb$_f$)

Condition: Low seating position



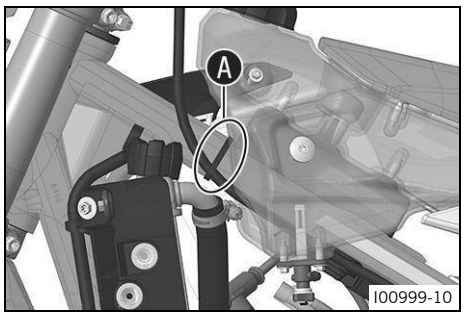
– Make sure that tank extension ❹ is removed.

Condition: High seating position

– Make sure that tank extension ❹ is mounted on the tank using screws ❺ provided.

Screw, tank extension	
EJOT PT®	2 Nm (1.5 ft·lb$_f$)

– Install the fuel tank. (p. 55)



– Secure the throttle cable wire to the top tube in area A using a cable tie.

Reworking

– Install the muffler. (p. 65)
– Install the right side cover. (p. 60)
– Install the fuel tank. (p. 55)
– Mount the seat. (p. 62)

12.1 Raising the motorcycle with a lift stand

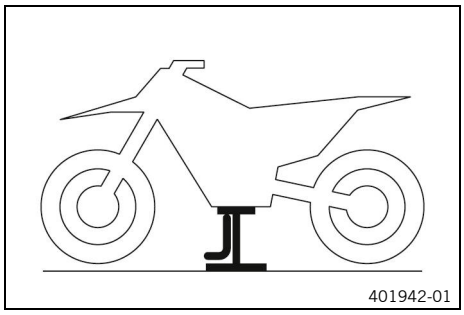
NOTE

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.

Lift stand (78929955100)

✓ Neither wheel is in contact with the ground.

– Secure the motorcycle against falling over.

12.2 Removing the motorcycle from the lift stand

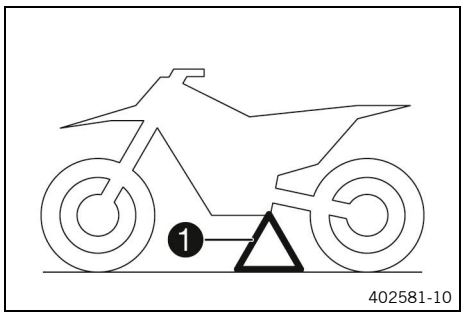
NOTE

Material damage The vehicle may be damaged if parked incorrectly.

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

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

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



402581-10

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

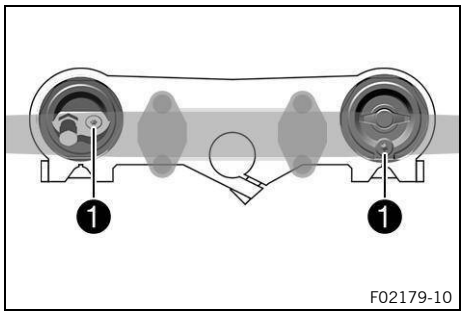
Note

Remove the plug-in stand before riding.

12.3 Bleeding the fork legs

Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)



Operating procedure

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

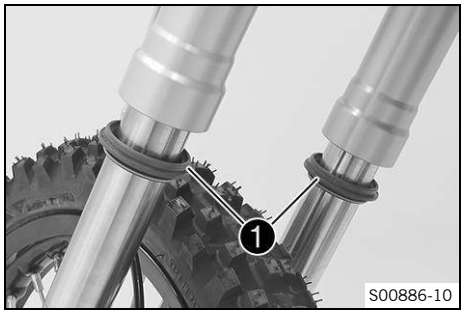
Reworking

– Remove the motorcycle from the lift stand. (p. 45)

12.4 Cleaning the dust boots of the fork legs

Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)
– Remove the fork protector. (p. 47)



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 sealing rings behind can start to leak.

WARNING

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

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

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

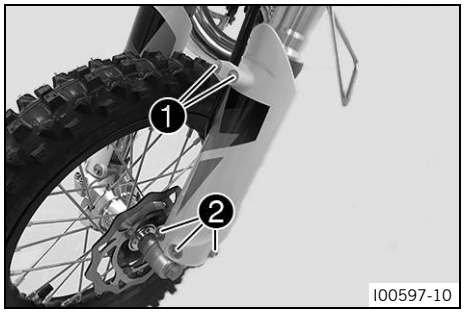
Universal oil spray (p. 136)

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

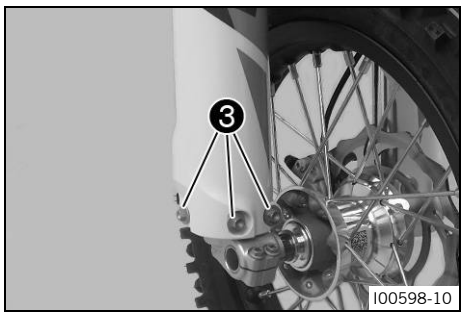
Reworking

– Install the fork protector. (p. 47)
– Remove the motorcycle from the lift stand. (p. 45)

12.5 Removing the fork protector

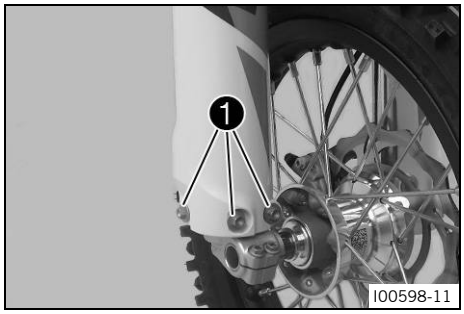


– Remove screw ❶ and take off the clamp.
– Remove screws ❷ on the left fork leg. Take off the fork protector.



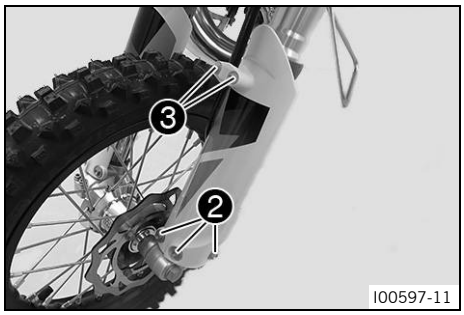
– Remove screws ❸ on the right fork leg. Take off the fork protector.

12.6 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 (7.4 ft·lb$_f$)



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

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

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

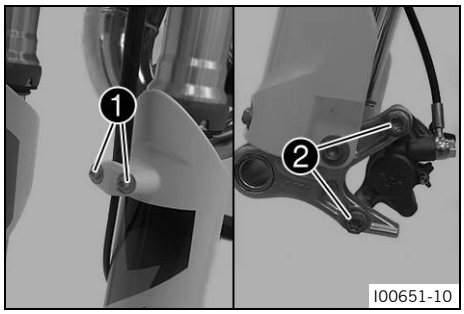
Screw, brake hose bracket	
EJOT PT® – MK60×20	2 Nm (1.5 ft·lb$_f$)

12.7 Removing the fork legs

Preparatory work

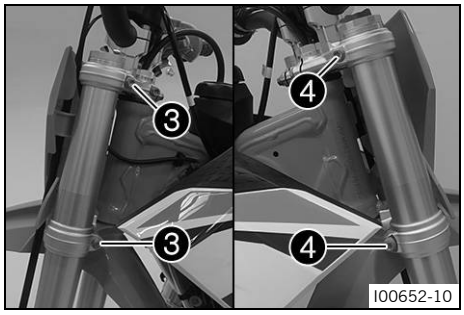
– Raise the motorcycle with a lift stand. (p. 45)
– Remove the front wheel. (p. 89)

Removal process



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

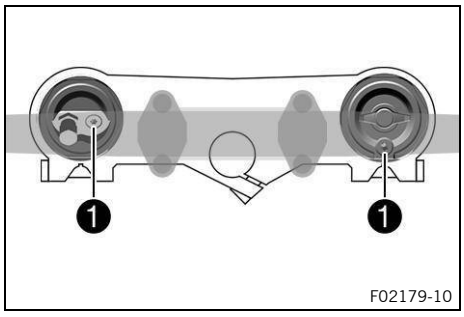
Do not kink the brake line.



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

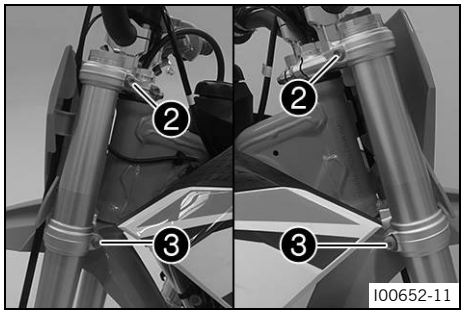
12.8 Installing the fork legs

Installation procedure



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

Note
The second milled groove in the fork leg must be flush with the upper edge of the upper triple clamp.

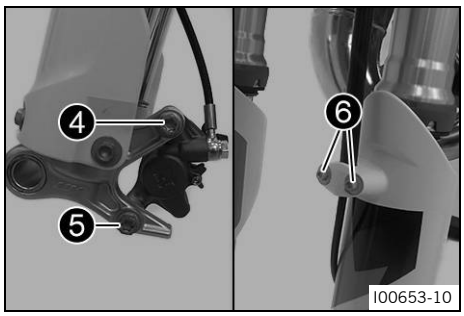


– Tighten screws ❷.

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

– Tighten screws ❸.

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



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

Screw, front brake caliper	
M8×35	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**

– Mount and tighten screw ❺.

Screw, front brake caliper	
M8×35	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**

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

Screw, brake hose bracket	
EJOT PT® – MK60×20	2 Nm (1.5 ft·lb$_f$)

Reworking

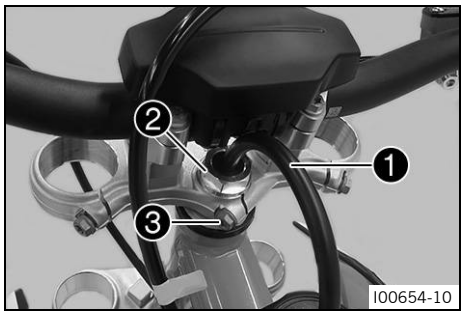
– Install the front wheel. (p. 89)

12.9 Removing the lower triple clamp

Preparatory work

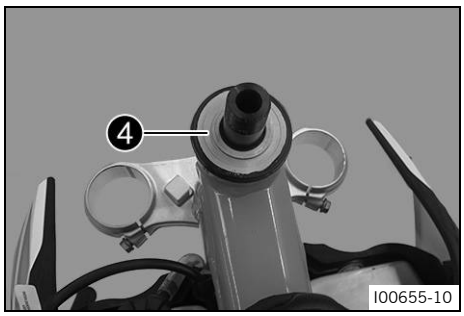
– Raise the motorcycle with a lift stand. (p. 45)
– Remove the front wheel. (p. 89)
– Remove the fork legs. (p. 48)
– Remove the number plate. (p. 57)
– Remove the front top fender. (p. 58)

Removal process



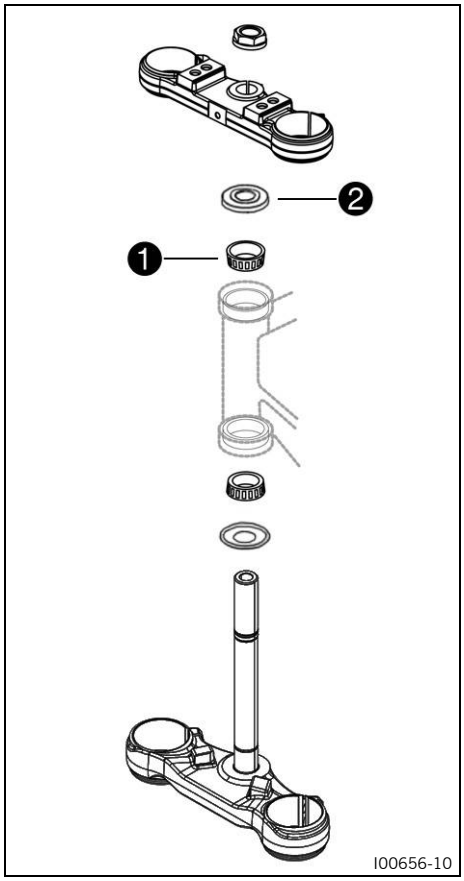
– Pull fuel tank vent ❶ out of the steering stem.
– Remove screw ❷.
– Release screw ❸, take off the upper triple clamp with the handlebar and set aside.

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



– Remove protective ring ❹.
– Remove the steering stem from the lower triple clamp.
– Remove the upper steering head bearing.

12.10 Installing the lower triple clamp

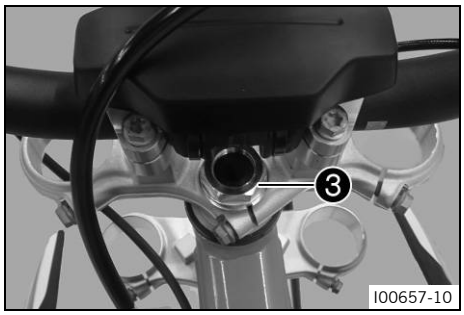


Installation procedure

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

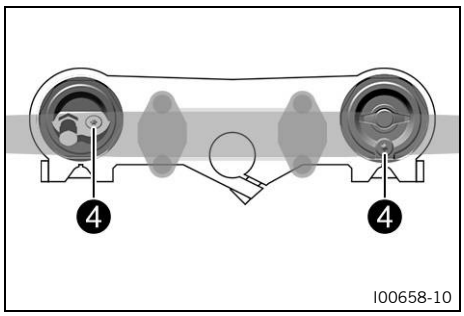
High viscosity grease (p. 137)

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



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

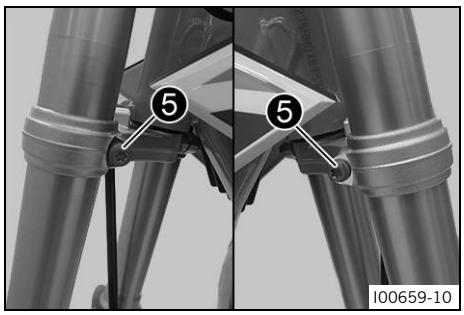
Screw, steering head	
M16×1.5	10 Nm (7.4 ft·lb$_f$)



– Position the fork legs.

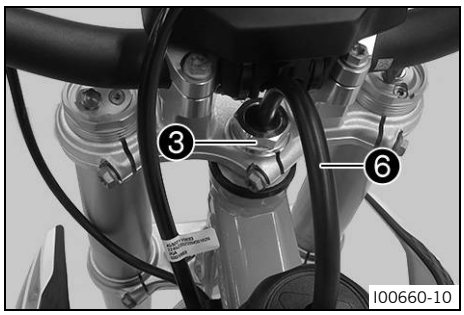
✓ Bleeder screws ❹ are positioned toward the rear.

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



– Tighten screws ❺.

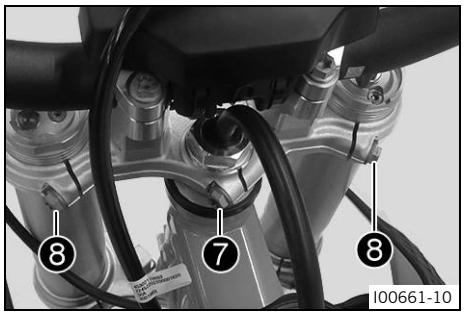
Screw, bottom triple clamp	
M8	15 Nm (11.1 ft·lb$_f$)



– Tighten screw ❸.

Screw, steering head	
M16×1.5	10 Nm (7.4 ft·lb$_f$)

– Position the fuel tank vent ❻ in the steering stem.



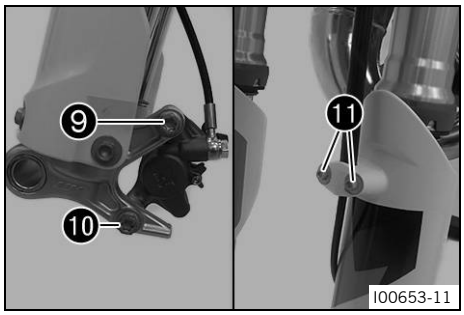
– Tighten screw ❼.

Screw, steering stem	
M8	20 Nm (14.8 ft·lb$_f$)

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

– Tighten screws ❽.

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



– Position the brake caliper, mount screw ❾, and tighten.

Screw, front brake caliper	
M8×35	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**

– Mount and tighten screw ❿.

Screw, front brake caliper	
M8×35	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**

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

Screw, brake hose bracket	
EJOT PT® – MK60×20	2 Nm (1.5 ft·lb$_f$)

Reworking

– Install the front top fender. (p. 58)
– Mount the number plate. (p. 57)
– Check the wiring harness, cables, and brake and clutch lines for freedom of movement and correct routing.
– Install the front wheel. (p. 89)
– Check the steering head bearing play. (p. 52)
– Remove the motorcycle from the lift stand. (p. 45)

12.11 Checking the steering head bearing play

WARNING

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

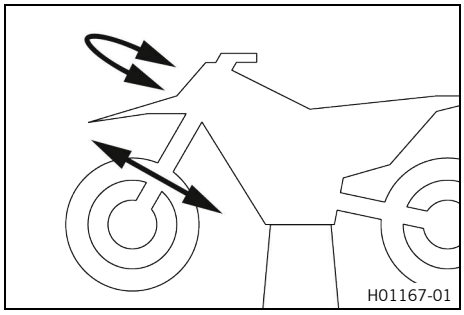
– Correct incorrect steering head bearing play immediately.

Note

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

Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)



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. 53)

– 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. 53)
  – Check the steering head bearing and replace if required.

Reworking

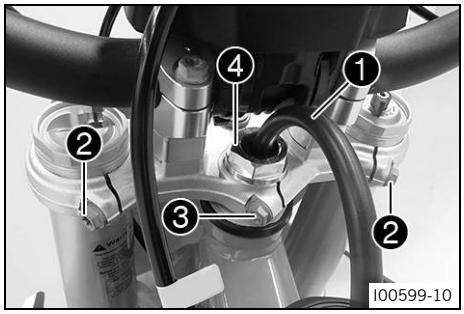
– Remove the motorcycle from the lift stand. (p. 45)

12.12 Adjusting the steering head bearing play

Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)

Adjustment procedure



– Pull fuel tank vent ❶ out of the steering stem.
– Loosen screws ❷.
– Loosen screw ❸.
– Loosen and retighten nut ❹.

Screw, steering head	
M16×1.5	10 Nm (7.4 ft·lb$_f$)

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

Screw, steering stem	
M8	20 Nm (14.8 ft·lb$_f$)

– Tighten screws ❷.

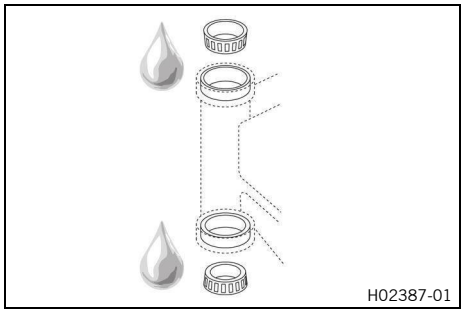
Screw, top triple clamp	
M8	20 Nm (14.8 ft·lb$_f$)

– Position fuel tank vent ❶ in the steering stem.

Reworking

– Check the steering head bearing play. (p. 52)
– Remove the motorcycle from the lift stand. (p. 45)

12.13 Lubricating the steering head bearing



– Remove the lower triple clamp. (p. 49)
– Install the lower triple clamp. (p. 50)

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

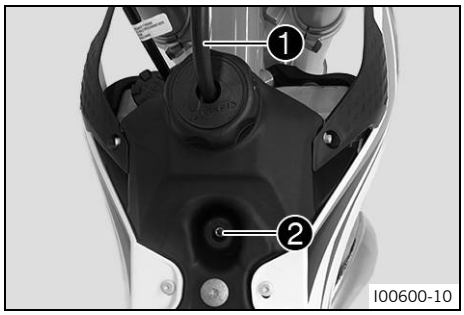
12.14 Removing the fuel tank

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.

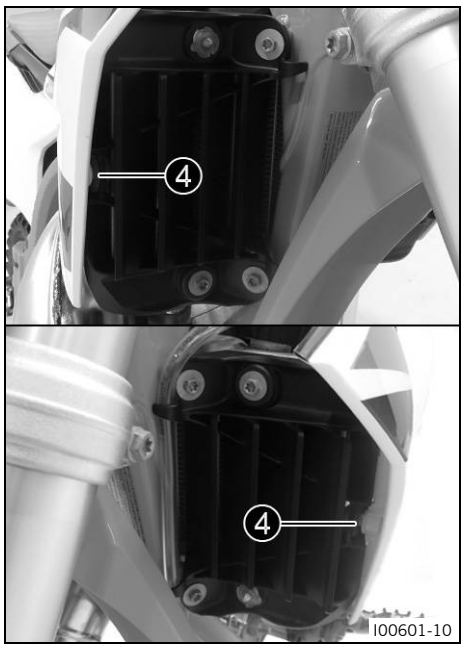
Preparatory work
– Remove the seat. (p. 62)
– Turn the knurled screw on the fuel petcock all the way clockwise.

Removal process
– Pull fuel tank vent ❶ out of the steering stem.
– Remove screw ❷.



– Pull off fuel hose ❸.

Note
Remaining fuel may flow out of the fuel hose.

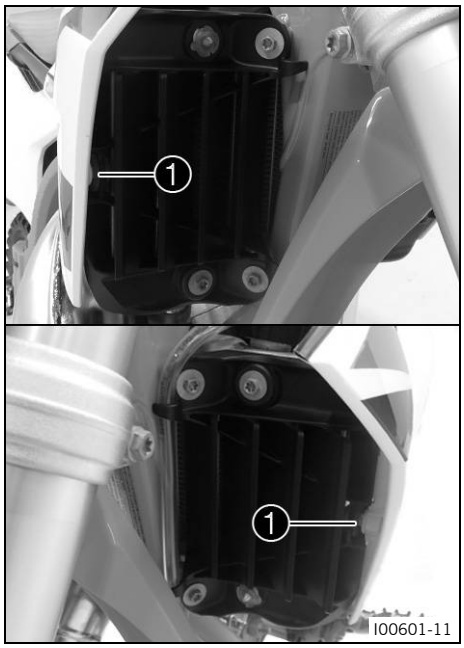


– Pull the fuel tank guard out of rubber bushing ❹.
– Raise the fuel tank.
– Take off the fuel tank.

12.15 Installing the fuel tank

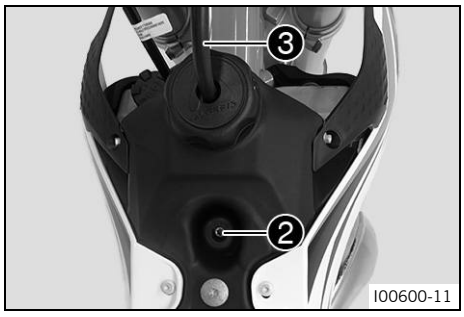
DANGER
Fire hazard Fuel is highly flammable.
The fuel in the fuel tank expands when warm and can escape if overfilled.
– Do not refuel the vehicle in the vicinity of open flames, glowing, or smoldering objects.
– Make sure that nobody smokes in the vicinity of the vehicle during the refueling process.
– 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

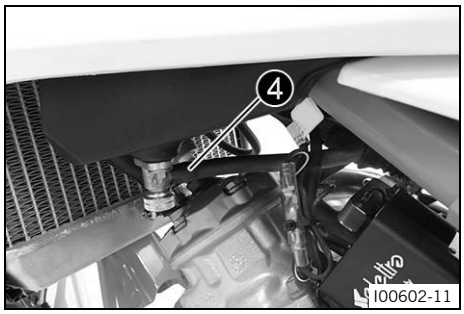
– Position the fuel tank.
– Make sure that no wires or cables are trapped or damaged.
– Press fuel tank guard into rubber bushing ❶.
– Check the throttle cable routing. (p. 73)



– Mount and tighten screw ❷.

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

– Position fuel tank vent ❸ in the steering stem.

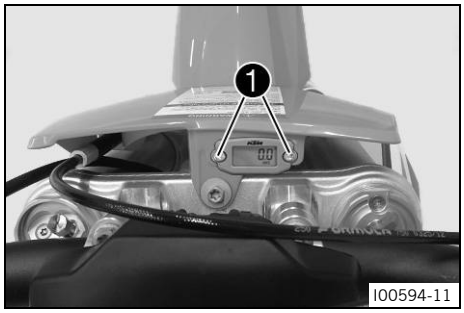


– Mount fuel hose ❹.
– Turn the knurled screw on the fuel petcock all the way counterclockwise.

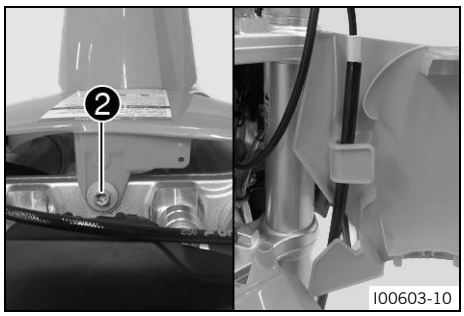
Reworking

– Mount the seat. (p. 62)

12.16 Removing the number plate

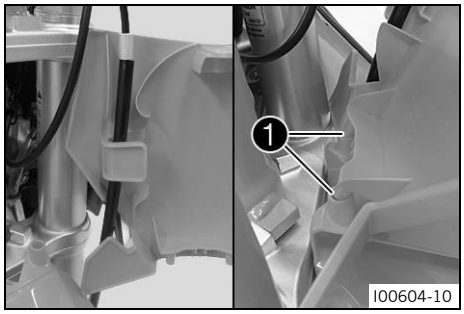


– Remove screws ❶.
– Hang the hourmeter to the side.

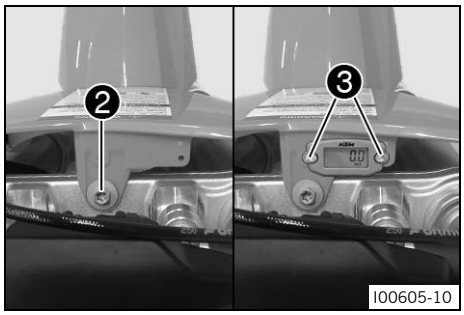


– Remove screw ❷.
– Unhook the number plate from the brake line and remove it.

12.17 Mounting the number plate



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



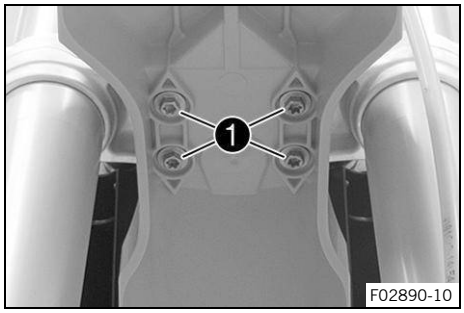
– Mount and tighten screw ❷.

Screw, number plate	
M6	4 Nm (3.0 ft·lb$_f$)

– Mount the hourmeter and tighten with screws ❸.

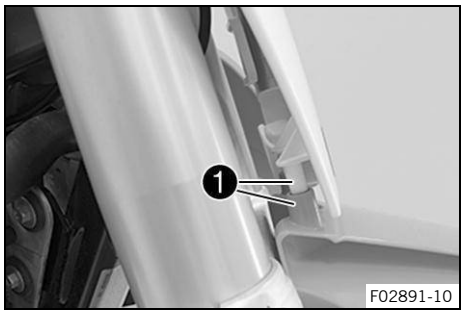
Remaining screws on chassis	
M6	10 Nm (7.4 ft·lb$_f$)

12.18 Removing the front top fender

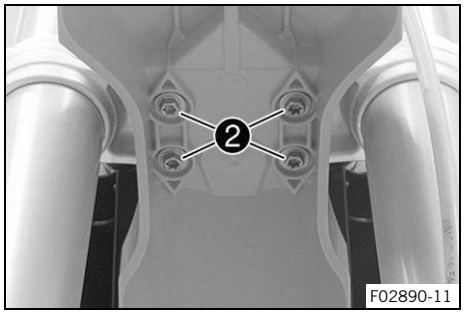


– Remove screws ❶. Remove the front fender.

12.19 Installing the front top fender



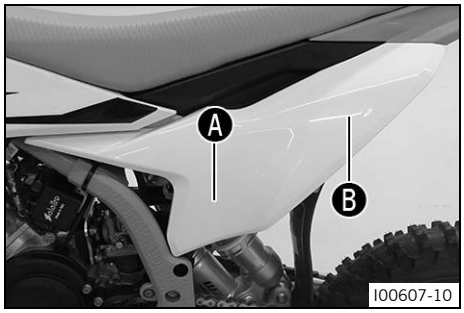
– Position the fender with drill holes ❶ in the holding lugs on the number plate.



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

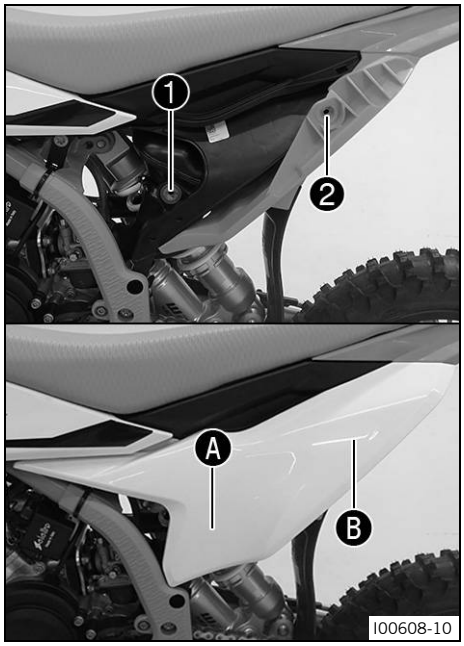
Screw, fender	
M6	6 Nm (4.4 ft·lb$_f$)

12.20 Removing the left side cover



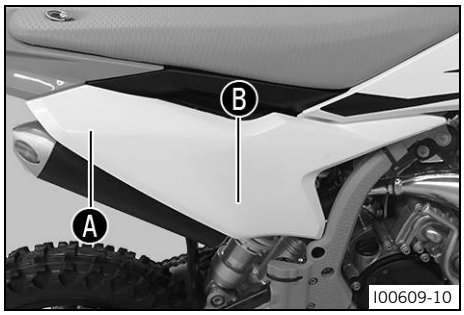
– Remove left side fairing from the rubber bushings in areas Ⓐ and Ⓑ.
– Take off the left side fairing.

12.21 Installing the left side fairing



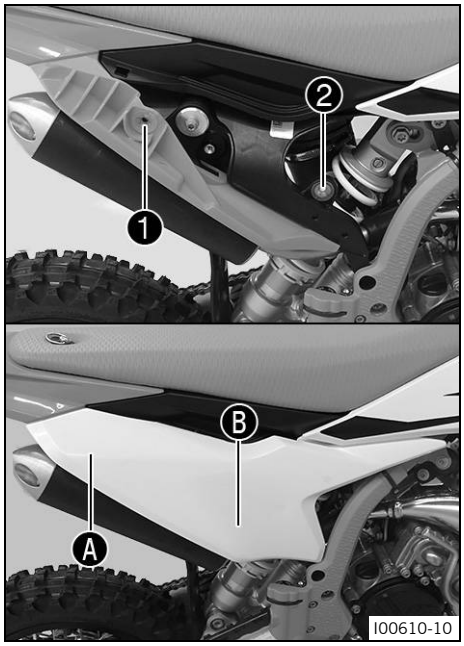
– Press the left side fairing in area Ⓐ into rubber bushing ❶ and press into rubber bushing Ⓑ in area ❷.

12.22 Removing the right side fairing



– Remove the side fairing from the rubber bushings in areas Ⓐ and Ⓑ.
– Remove the right side fairing.

12.23 Installing the right side cover

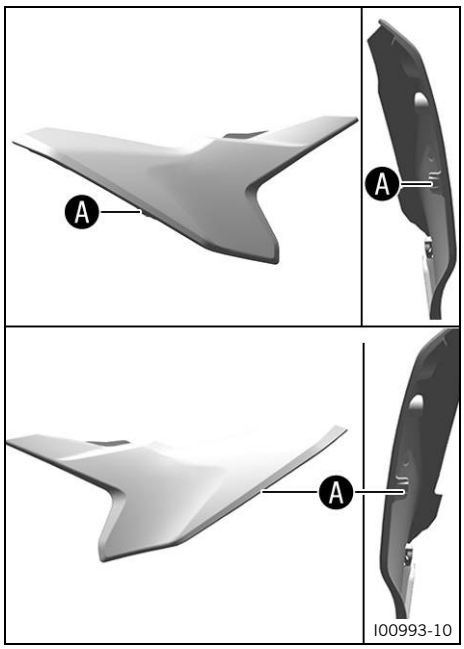


– Press the right side fairing in area Ⓐ into rubber bushing ❶ and press into rubber bushing Ⓑ in area ❷.

12.24 Preparing the side fairing for securing

Preparatory work

– Remove the left side cover. (p. 58)
– Remove the right side fairing. (p. 59)



Installation procedure

– Drill a hole at markings in area Ⓐ.

Diameter	5.5 mm (0.217 in)

Reworking

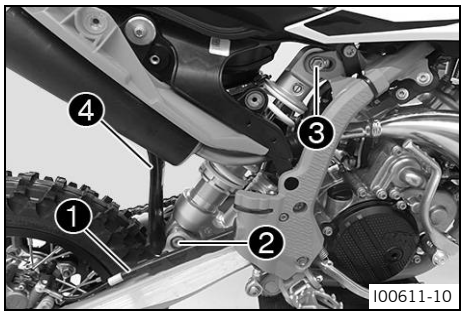
– Install the left side fairing (p. 59)
– Install the right side cover. (p. 60)

12.25 Removing the shock absorber

Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)

Removal process



– Pull brake line ❶ out of the bracket.
– Remove screw ❷ and lower the swingarm carefully.
– Remove screw ❸, push splash protection ❹ to the side, and remove the shock absorber.

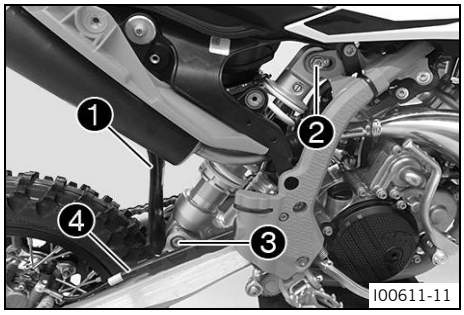
12.26 Installing the shock absorber

WARNING

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

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

Installation procedure



– Push splash protecion ❶ to the side.
– Position the shock absorber with screw ❷, depending on the desired seating height.
– Raise the swingarm, mount and tighten the shock absorber with screw ❸.

Bottom shock absorber screw	
M10	45 Nm (33.2 ft·lb$_f$) **Loctite® 243**

– Tighten screw ❷.

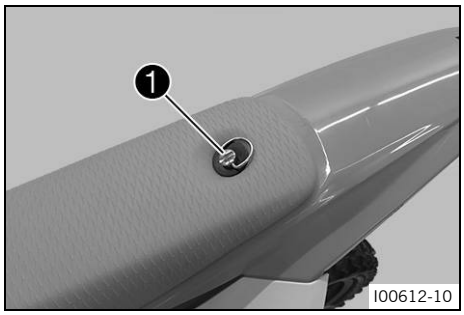
Top shock absorber screw	
M10	45 Nm (33.2 ft·lb$_f$) **Loctite® 243**

– Attach brake line ❹ to the holder.

Reworking

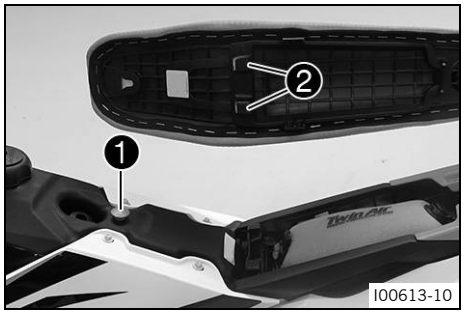
– Remove the motorcycle from the lift stand. (p. 45)

12.27 Removing the seat

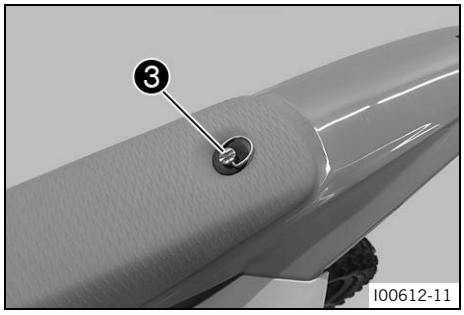


– Open quick release ❶ and raise the rear of the seat.
– Pull back the seat and remove it.

12.28 Mounting the seat

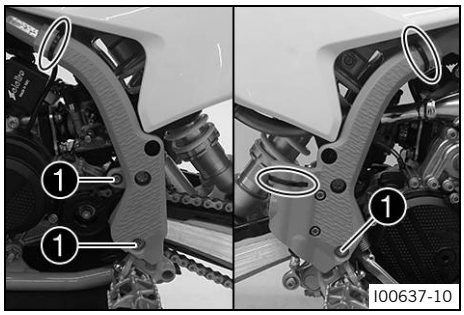


– Hook seat onto screw ❶ and lower the seat at the rear and push it forward.
  ✓ Holding lugs ❷ engage in the fuel tank.



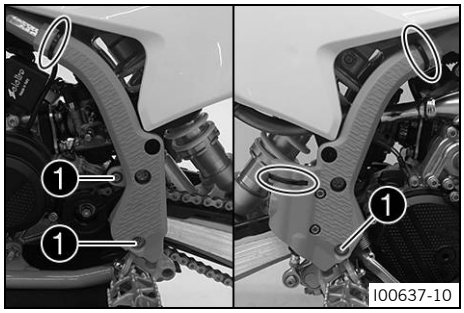
– Close quick release ❸.

12.29 Removing the frame protector



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

12.30 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.

Remaining screws on chassis	
M5	5 Nm (3.7 ft·lb$_f$)

– Secure the frame protector with cable ties.

12.31 Removing the air filter

NOTE

Engine failure Unfiltered intake air has a negative effect on the service life of the engine.
Dust and dirt can enter the engine if there is no air filter or if the air filter is mounted incorrectly.
– Only operate the vehicle if an air filter is correctly fitted.

NOTE

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

Preparatory work

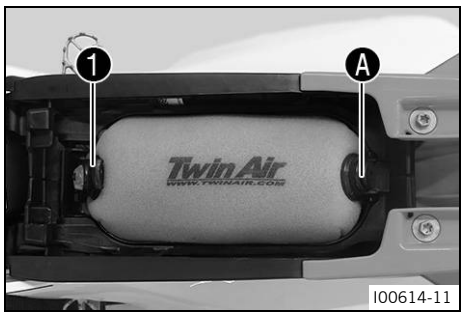
– Remove the seat. (p. 62)

Removal process

– Detach tab ❶. Remove the air filter to the front.

12.32 Installing the air filter

Installation procedure



– Insert a clean air filter in area Ⓐ.
– Secure air filter with tab ❶.

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

Reworking

– Mount the seat. (p. 62)

12.33 Cleaning the air filter and air filter box

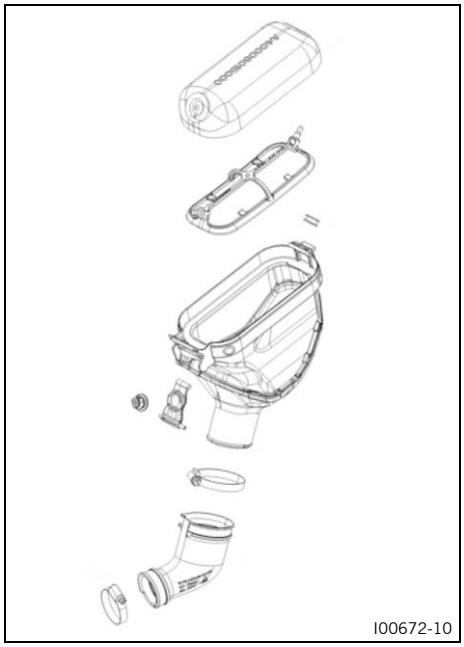
NOTE

Environmental hazard Hazardous substances cause environmental damage.

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

Preparatory work

– Remove the seat. (p. 62)
– Remove the air filter. (p. 63)


I00672-10

Cleaning process

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

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

Air filter cleaning agent (p. 139)

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

Oil for foam air filter (p. 137)

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

Reworking

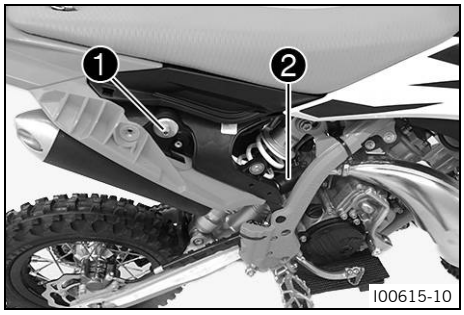
– Install the air filter. (p. 63)
– Mount the seat. (p. 62)

12.34 Removing the muffler

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

Preparatory work
– Remove the right side fairing. (p. 59)

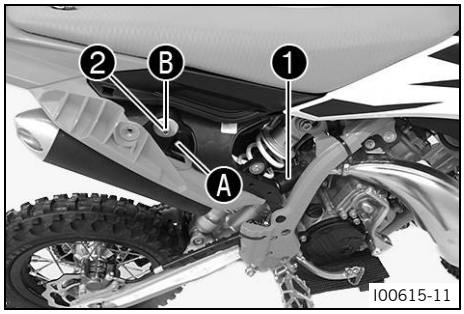
Removal process



– Remove screw ❶.
– Pull off the muffler from the expansion chamber at sleeve ❷.

12.35 Installing muffler

Installation procedure



– Position the main silencer.
– Mount the main silencer with sleeve ❶.

High seating position	Ⓐ
Low seating position	Ⓑ

– Mount and tighten screw ❷.

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

Reworking
– Install the right side cover. (p. 60)

12.36 Changing the damping material on the main silencer

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

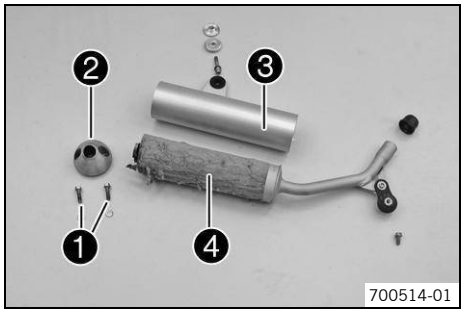
Note
Over time, the damping material fibers disappear, and the main silencer “burns out”.
Not only does this make the noise level higher, but the performance characteristics also change.

Preparatory work

– Remove the right side fairing. (p. 59)
– Remove the muffler. (p. 65)

Replacement process

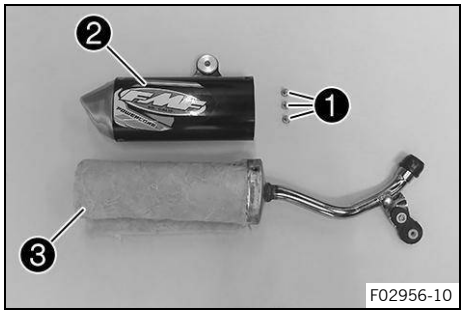
(50 SX)



– Remove screws with toothed washers ❶ from the silencer cap ❷.
– Remove end cap and outer tube ❸.
– Remove damping material ❹ from the inner tube.
– Clean the parts that need to be reinstalled and check for damage.
– Fit new damping material on the inner tube.
– Slide outer tube over the damping material.
– Insert the silencer cap into the outer tube.
– Mount and tighten the screws with the toothed washers.

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

(50 SX FACTORY EDITION)



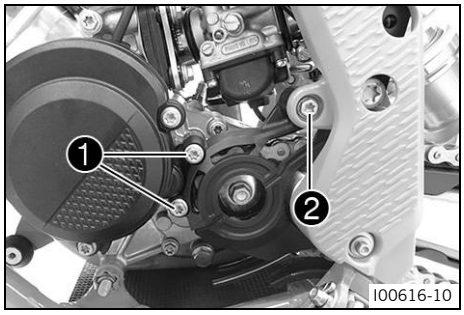
– Remove screws ❶ of the outer tube.
– Take off outer tube ❷ and the silencer cap.
– Remove damping material ❸ from the inner tube.
– Clean the parts that need to be reinstalled and check for damage.
– Fit new damping material on the inner tube.
– Slide outer tube ❷ and the silencer cap over the damping material.
– Mount and tighten the screws.

Screws on muffler	
M6	9 Nm (6.6 ft·lb$_f$) **Loctite® 243**

Reworking

– Install the muffler. (p. 65)
– Install the right side cover. (p. 60)

12.37 Removing the front sprocket cover



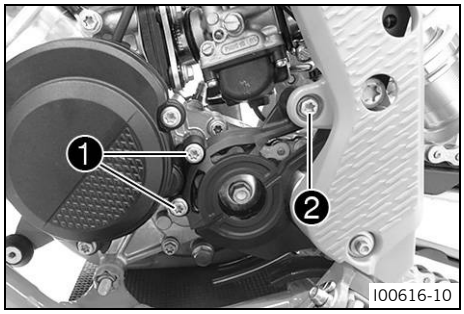
Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)

Removal process

– Remove screws 1.
– Remove screw 2.
– Correct the front sprocket cover.

12.38 Installing the engine sprocket cover



Installation procedure

– Position the front sprocket cover. Mount screws 1, but do not tighten yet.
– Mount and tighten screw 2.

Screw, front sprocket cover	
M6	8 Nm (5.9 ft·lb$_f$)

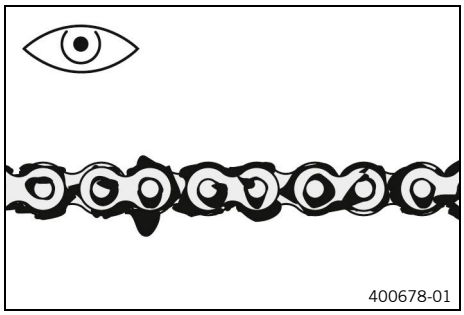
– Tighten screws 1.

Screw, front sprocket cover	
M6	8 Nm (5.9 ft·lb$_f$)

Reworking

– Remove the motorcycle from the lift stand. (p. 45)

12.39 Checking the chain for dirt



– Check the chain for coarse dirt accumulation.
  » If the chain is very dirty:
    – Clean the chain. (p. 68)

12.40 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, grease or wax on the brake discs reduces the brake action.

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

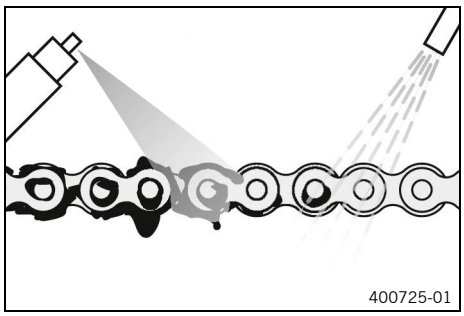
NOTE

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. 45)

Cleaning process

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

  Chain cleaner (p. 139)

– After drying, apply chain spray.

  Off-road chain spray (p. 136)

Reworking

– Remove the motorcycle from the lift stand. (p. 45)

12.41 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.

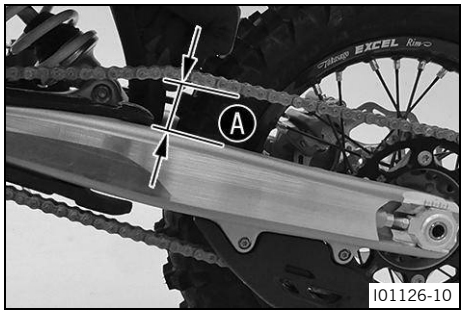
If the chain is too loose, the chain may fall off the front sprocket or the rear sprocket. This can damage the rear wheel or the engine.

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

Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)

Control process



– Press the chain upward at the end of the chain slider and determine chain tension Ⓐ.

Chain tension	35 mm ... 38 mm (1.38 in ... 1.50 in)
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. 69)

Reworking

– Remove the motorcycle from the lift stand. (p. 45)

12.42 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.

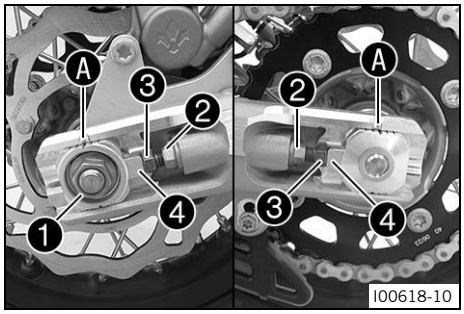
If the chain is too loose, the chain may fall off the front sprocket or the rear sprocket. This can damage the rear wheel or the engine.

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

Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)
– 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	35 mm ... 38 mm (1.38 in ... 1.50 in)
In order for the rear wheel to be correctly aligned, the markings on the left and right chain adjusters must be in the same position relative to reference markings Ⓐ.	

– Tighten nuts ❷.

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

Nut, wheel spindle, rear	
M12×1	70 Nm (51.6 ft·lb$_f$)

Reworking

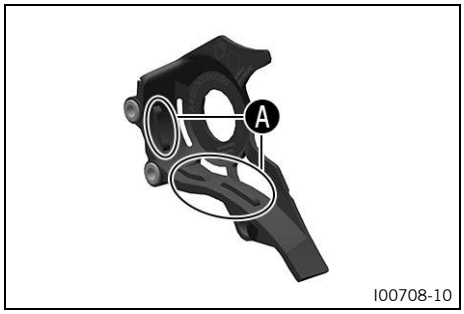
– Remove the motorcycle from the lift stand. (p. 45)

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

Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)
– Remove the front sprocket cover. (p. 67)

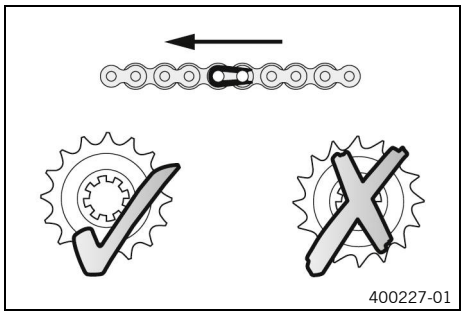
Control process



I00708-10

– Check the front sprocket cover for wear.
  » If the front sprocket cover is worn through in the marked area Ⓐ:
    – Change the front sprocket cover.
– Check the engine sprocket cover for tightness.
  » If the engine sprocket cover is loose:
    – Tighten the engine sprocket cover.

Screw, front sprocket cover	
M6	8 Nm (5.9 ft·lb$_f$)


400227-01

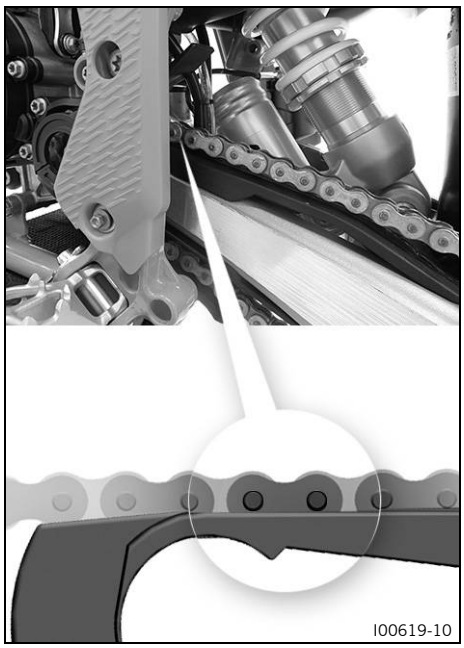
– Check the rear sprocket and the front sprocket for wear.
  » If the rear sprocket or engine sprocket is worn:
    – Change the drivetrain kit.

The front sprocket, rear sprocket, and chain should always be replaced together.
When fitting the chain joint, always make sure that the closed side of the joint faces forward (direction of travel).

– Check the chain for wear.
  » If the chain is worn:
    – Change the drivetrain kit.

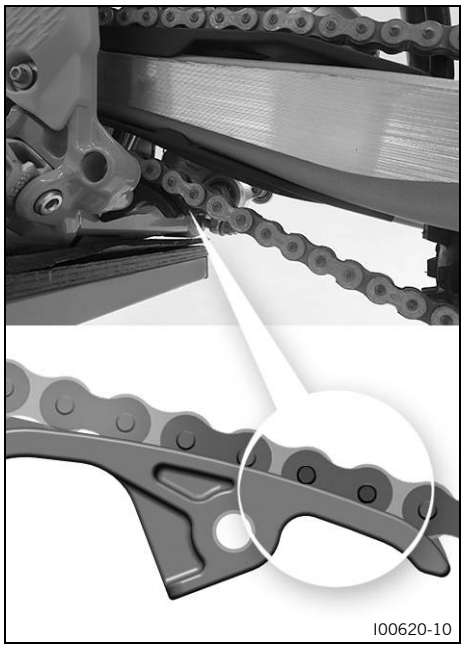
When you replace the chain, you should also replace the rear sprocket and front sprocket.

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



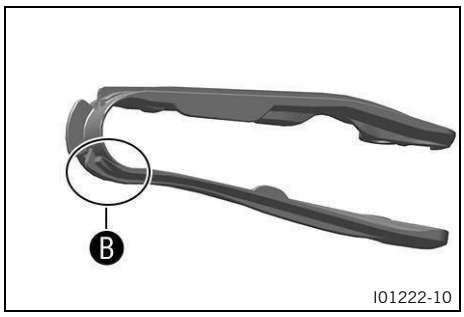
– Check the chain slider at the top for wear.
  » If the ridge is worn down to the level of the main corpus:
    – Change the chain slider.
– Check that the chain slider is firmly seated.
  » If the chain slider is loose:
    – Tighten the screw of the chain sliding guard.

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

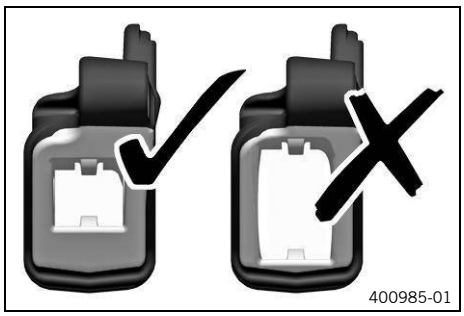


– Check the chain slider for wear.
  » If the lower edge of the chain pins is in line with or below the chain slider:
    – Change the chain slider.
– Check that the chain slider is firmly seated.
  » If the chain slider is loose:
    – Tighten the chain sliding piece.

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



– Check the chain slider for wear.
  » If the chain slider is worn through in the marked area B:
    – Change the chain slider.



– Check the chain guide for wear.

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

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

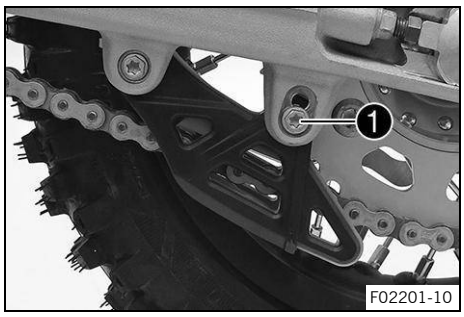
– Check that the chain guide is firmly seated.
» If the chain guide is loose:
– Tighten the screws on the chain guide.

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

Reworking
– Install the engine sprocket cover. (p. 67)
– Remove the motorcycle from the lift stand. (p. 45)

12.44 Adjusting the chain guide

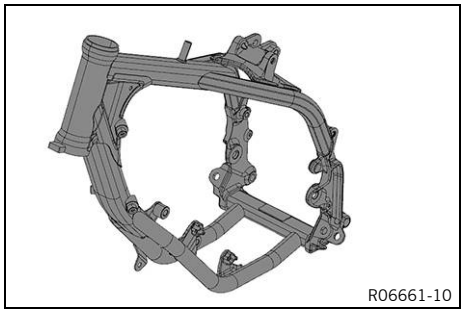
Note
The size of the chain wheel varies with the number of teeth. The chain guide can be adjusted for a smaller rear sprocket.



– Remove screw 1.
– Position the chain guide.
– Mount and tighten screw 1.

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

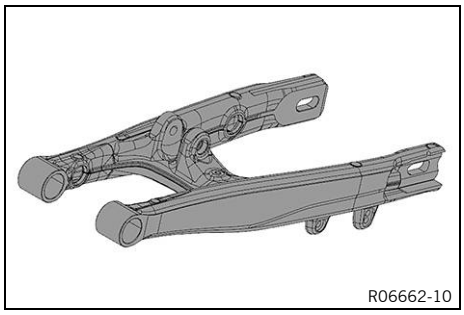
12.45 Checking the frame


R06661-10

– 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.

12.46 Checking the swingarm


R06662-10

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

Repairs on the swingarm are not permitted.

12.47 Checking the throttle cable routing

WARNING

Danger of accidents The throttle cable can become kinked, jammed, or blocked if it has been routed incorrectly.

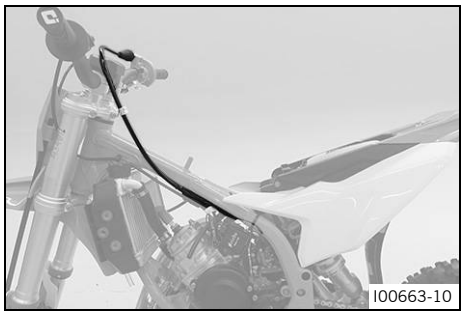
If the throttle cable is kinked, jammed or blocked, the speed can no longer be controlled.

– Make sure that the throttle cable routing and the play in the throttle cable complies with the specification.

Preparatory work

– Remove the seat. (p. 62)
– Turn the knurled screw on the fuel petcock all the way clockwise.
– Remove the fuel tank. (p. 54)

Control process


I00663-10

– Check the throttle cable routing.

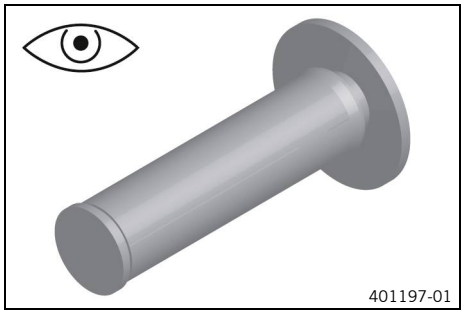
The throttle cable must be routed to the carburetor at the rear of the handlebar, above the fuel tank bracket. It must not be hooked into the handlebar cushion.

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

Reworking

– Install the fuel tank. (p. 55)
– Mount the seat. (p. 62)

12.48 Checking the hand grip


401197-01

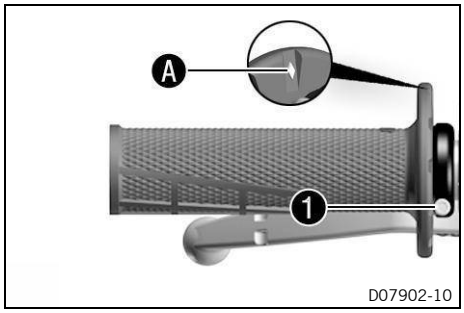
– Check the hand grips on the handlebar for damage, wear, and that they are firmly seated.

Note

The hand grips are vulcanized onto a sleeve on the left and onto the grip tube of the throttle grip on the right. The left sleeve is clamped onto the handlebar.

The hand grip can only be replaced with the sleeve or the gas pipe.

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



D07902-10

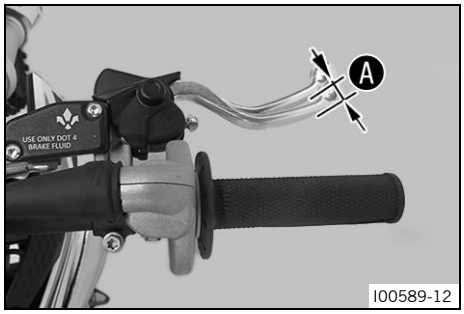
– Check that screw 1 is firmly seated.

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

Diamond A must be located at the top.

13.1 Checking play of 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.

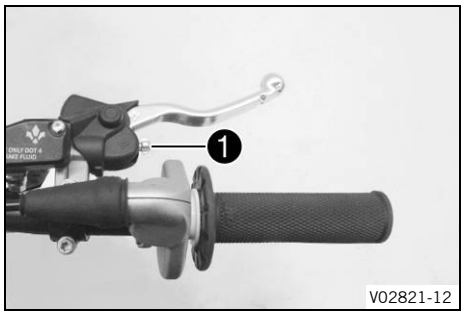


– Push the handbrake lever forwards and check play Ⓐ.

Play of hand brake lever	3 mm ... 5 mm (0.12 in ... 0.20 in)

» If the play does not meet specifications:
– Adjust the play of the hand brake lever.

13.2 Adjusting the basic position of the hand brake lever



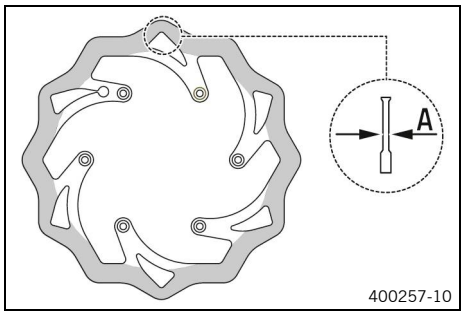
– Adjust the basic position of the hand brake lever using adjusting screw ❶.

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

Note
When the adjusting screw is turned clockwise, the clutch lever moves away from the handlebar.
When the adjusting screw is turned counterclockwise, the clutch lever moves closer to the handlebar.
The range of adjustment is limited.

13.3 Checking the brake discs

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



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

Brake disc wear limit	
front	2.2 mm (0.087 in)
rear	2.2 mm (0.087 in)

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

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

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

13.4 Checking the brake fluid level for the front brake

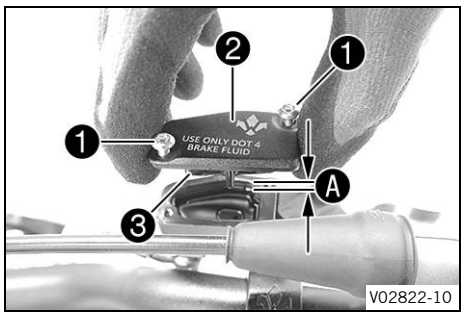
WARNING
Danger of accidents An insufficient brake fluid level will cause the brake system to fail.
If the brake fluid level drops below the specified marking or the specified value, the brake system has a leak or the brake pads are worn down.
– Have the brake system checked and make sure that the problem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



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

Level Ⓐ (fluid level below container rim)	4 mm (0.16 in)

» If the brake fluid level does not meet specifications:
– Add brake fluid for the front brake. (p. 77)

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

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

13.5 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.

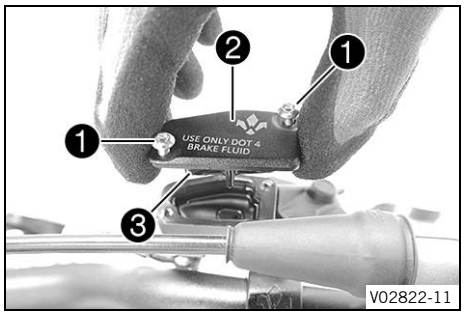
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

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

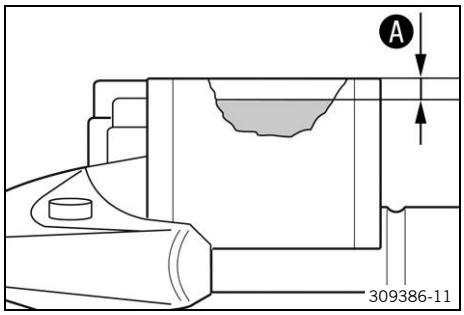
Preparatory work

– Check that the brake pads of the front brake are secured. (p. 78)

Filling procedure



– Move the brake reservoir mounted on the handlebar to a horizontal position.
– Remove screws ❶.
– Take off cover ❷ with diaphragm ❸.



– Add brake fluid to level Ⓐ.

Level Ⓐ (brake fluid level below reservoir rim)	4 mm (0.16 in)

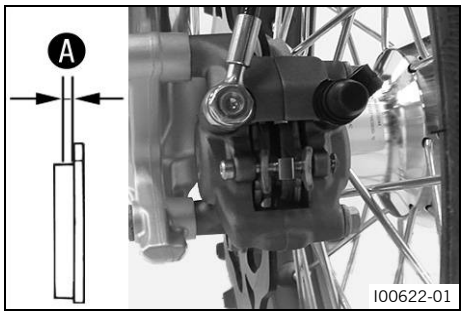
Brake fluid DOT 4 / DOT 5.1 (p. 137)

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

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

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

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



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

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

» If it is less than the minimum thickness:
– Change the front brake pads. (p. 79)

– Check the brake pads for damage and cracking.
» If there is damage or cracking:
– Change the front brake pads. (p. 79)

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

13.7 Changing the brake pads of the front brake

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

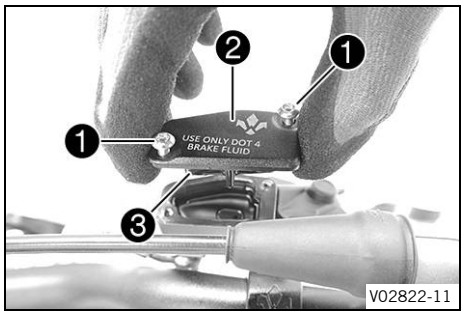
WARNING
Health hazard Brake fluid is a harmful substance.
– Keep brake fluid out of the reach of children.
– Wear suitable protective clothing and safety glasses.
– Do not allow brake fluid to come into contact with the skin, the eyes, or clothing.
– Consult a doctor immediately if brake fluid has been 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 Brake pads which have not been approved alter the braking action.
– Only use brake pads approved and recommended by the vehicle manufacturer.

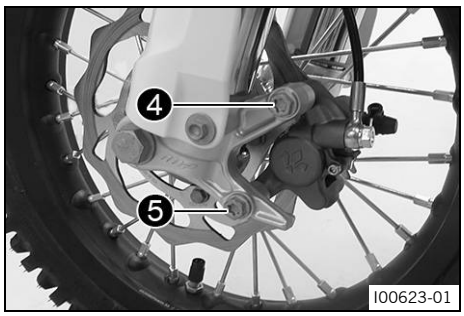
NOTE
Environmental hazard Hazardous substances cause environmental damage.
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

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

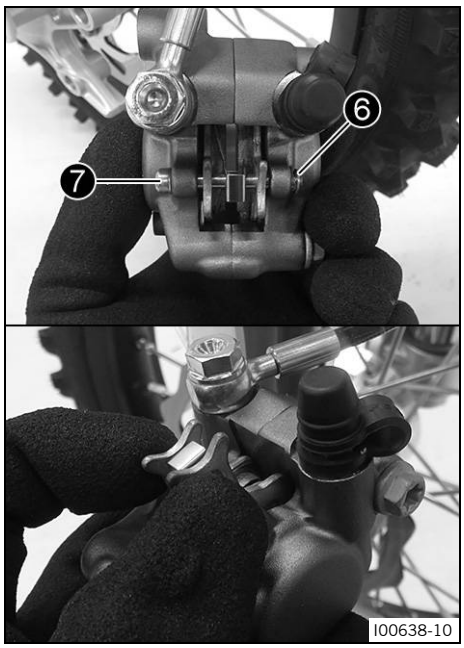


Preparatory work
– Raise the motorcycle with a lift stand. (p. 45)

Replacement process
– Move the brake reservoir mounted on the handlebar to a horizontal position.
– Remove screws ❶.
– Take off cover ❷ with diaphragm ❸.



– Remove screw ❹ and screw ❺.
– 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 lock ring ❻.
– Remove screw ❼.
– Remove the brake pads.
– Clean brake caliper and brake caliper support.

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.

– Put the new brake lining in position.

Always replace brake pads in sets.
Ensure that the brake pads are correctly positioned in the retaining spring.

– Mount and tighten screw ❼.

Screw, brake pads	
M5	5 Nm (3.7 ft·lb$_f$)

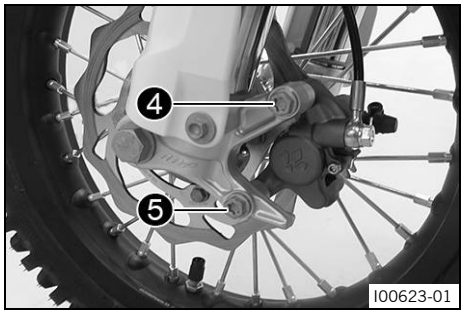
– Mount lock ring ❻.

WARNING

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

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

– Check the brake discs. (p. 75)



– Position the brake caliper.
– Mount screw ❹, but do not tighten yet.

Screw, front brake caliper	
M8×35	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**

– Mount screw ❺, but do not tighten yet.

Screw, front brake caliper	
M8×35	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**

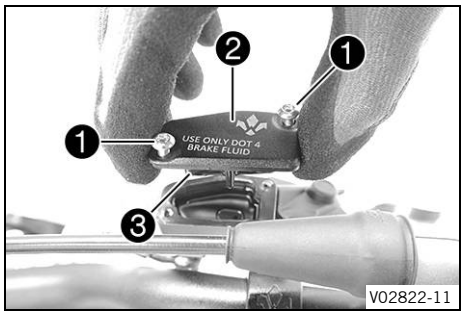
– Operate the hand brake lever repeatedly until the brake pads are in contact with the brake disc and a pressure point is reached.
– Secure the hand brake lever in the activated position.
  ✓ The brake caliper straightens.
– Tighten screw ❹.

Screw, front brake caliper	
M8×35	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**

– Tighten screw ❺.

Screw, front brake caliper	
M8×35	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**

– Remove the locking piece of the hand brake lever.



– Correct the brake fluid level.

Brake fluid level below reservoir rim	5 mm (0.20 in)

Brake fluid DOT 4 / DOT 5.1 (p. 137)

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

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

Reworking

– Remove the motorcycle from the lift stand. (p. 45)

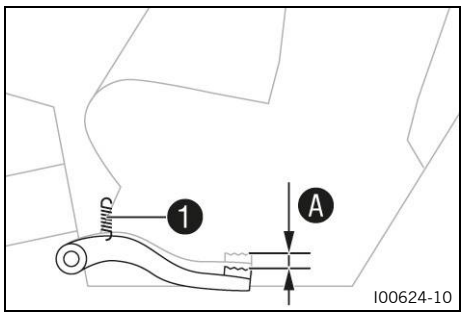
13.8 Checking the free travel of the brake pedal

WARNING

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

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

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



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

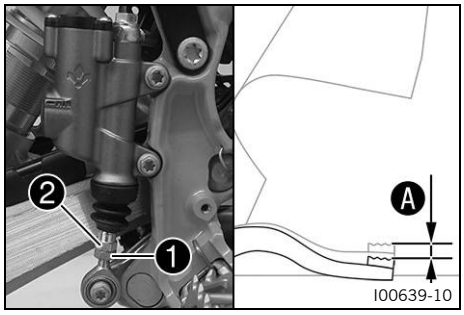
Free travel of brake pedal	3 mm ... 5 mm (0.12 in ... 0.20 in)

» If the free travel does not meet the specifications:
– Adjust the free travel of the brake pedal.
(p. 82)

– Attach spring ❶.

13.9 Adjusting 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 the brake pedal spring.
– Loosen nut ❶.
– Turn push rod ❷ accordingly until you have free travel Ⓐ.

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

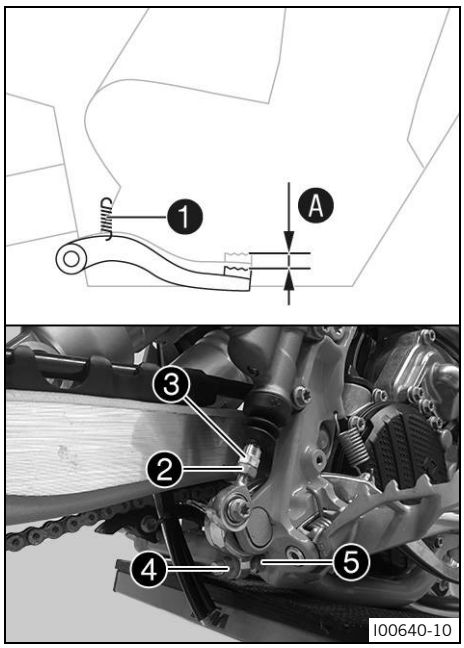
– Hold push rod ❷ and tighten nut ❶.

Nut, push rod, brake pedal	
M6	6 Nm (4.4 ft·lb$_f$)

– Attach the brake pedal spring.
– Check whether the basic position of the brake pedal is suitable for the rider.
» When the basic position of the brake pedal needs to be adjusted:
– Adjust the basic position of the brake pedal.
(p. 82)

13.10 Adjusting the basic position of the brake pedal

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



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

Note
The range of adjustment is limited.

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

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

– Hold screw ❺ and tighten nut ❹.

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

– Hold push rod ❸ and tighten nut ❷.

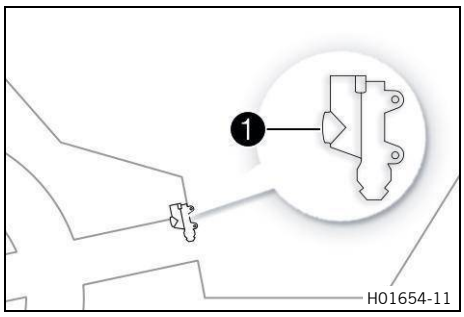
Remaining nuts on chassis	
M6	10 Nm (7.4 ft·lb$_f$)

– Attach spring ❶.

13.11 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 ❶.
  » If an air bubble is visible in viewer ❶:
    – Add brake fluid for the rear brake. (p. 84)

13.12 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.

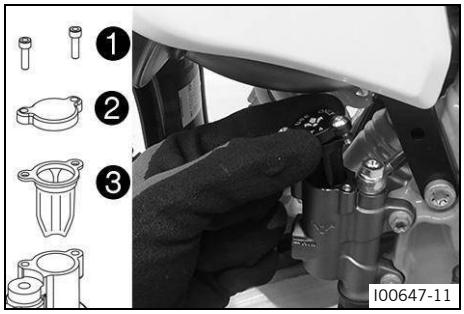
Note

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

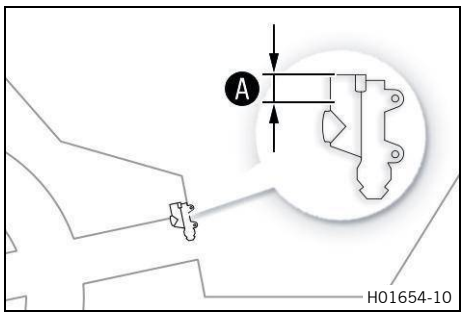
Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)
– Check that the brake pads of the rear brake are secured. (p. 85)

Filling procedure



– Remove screws ❶.
– Take off cover ❷ with membrane ❸.



– Add brake fluid to level Ⓐ.

Level Ⓐ (brake fluid level below reservoir rim)	10 mm (0.39 in)

Brake fluid DOT 4 / DOT 5.1 (p. 137)

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

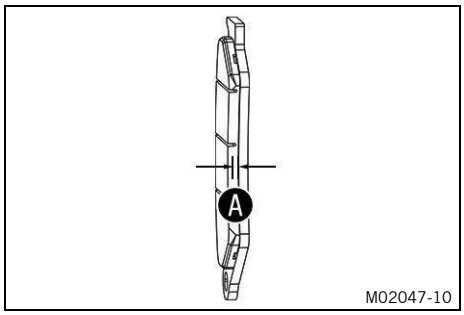
Immediately clean up any brake fluid that has overflowed or spilled with water.

Reworking

– Remove the motorcycle from the lift stand. (p. 45)

13.13 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 the brake linings for minimum thickness Ⓐ.

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

» If the minimum thickness is less than specified:
– Change the rear brake pads. (p. 85)
– Check the brake pads for damage and cracking.
» If damage or wear is encountered:
– Change the rear brake pads. (p. 85)
– Check that the brake pads are secured.
» If the brake pads are not secured correctly:
– Secure brake pads, replace with new parts if necessary.

13.14 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, grease or wax on the brake discs reduces the brake action.

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

WARNING

Danger of accidents 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.

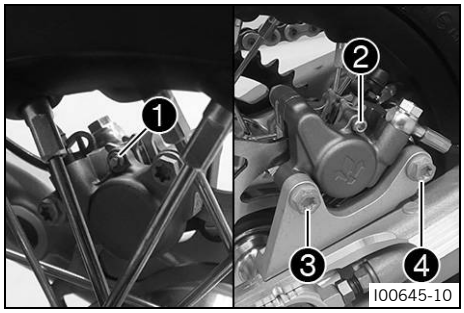
Note

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

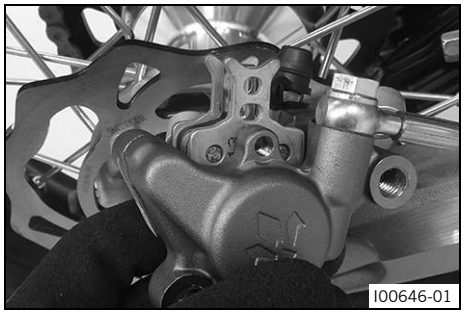
Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)

Replacement process



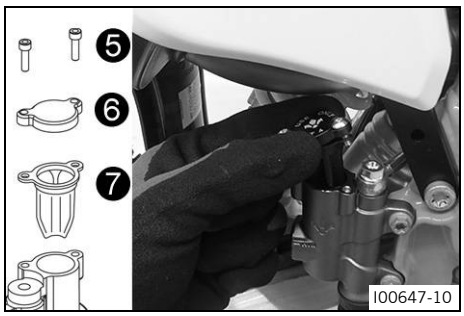
– Remove lock ring ❶.
– Remove screw ❷.
– Remove screw ❸ and screw ❹.



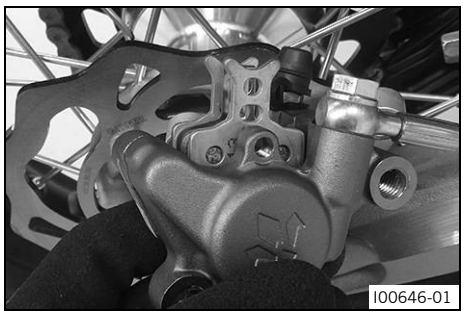
– Take off the brake caliper.

Do not kink or damage the brake line.

– Remove the brake pads.
– Clean brake caliper and brake caliper support.
– Allow the brake caliper and the brake line to hang loosely to the side.
– Check the brake discs. (p. 75)



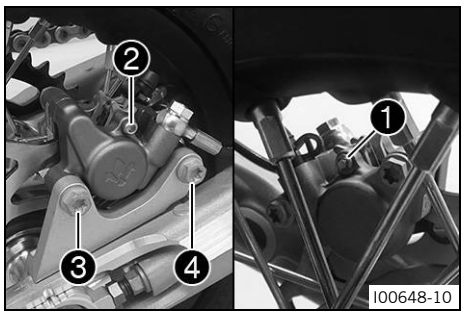
– Remove screws 5.
– Take off cover 6 with membrane 7.
– Press the brake piston back to its basic position and make sure that no brake fluid overflows from the brake reservoir, extract some brake fluid if necessary.



– Put the new brake pads in position.

Always replace brake pads in sets.
Ensure that the brake pads are correctly positioned in the retaining spring.

– Position the brake caliper on the brake disc.
✓ The brake pads are positioned correctly.



– Mount and tighten screw 3.

Screw, rear brake caliper	
M8	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**

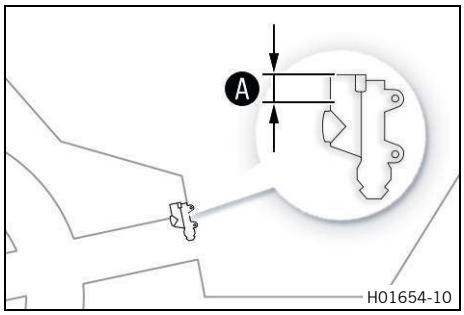
– Mount and tighten screw 4.

Screw, rear brake caliper	
M8	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**

– Mount screw 2.

Screw, brake pads	
M5	5 Nm (3.7 ft·lb$_f$)

– Mount lock ring 1.



– Actuate the brake pedal repeatedly until the brake pads are in contact with the brake disc and a pressure point is achieved.
– Add brake fluid to level A.

Level A (brake fluid level below reservoir rim)	10 mm (0.39 in)

Brake fluid DOT 4 / DOT 5.1 (p. 137)

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

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

Reworking

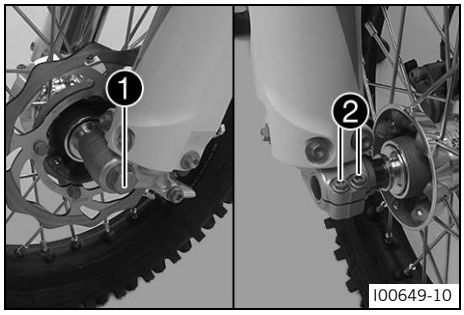
– Remove the motorcycle from the lift stand. (p. 45)

14.1 Removing the front wheel

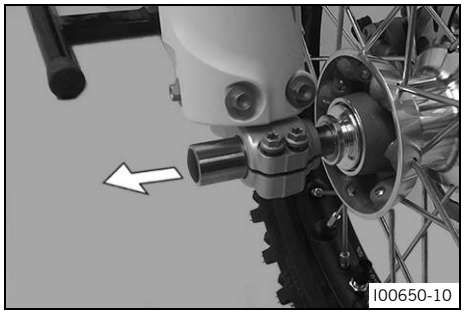
Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)

Removal process



– Remove screw ❶.
– Loosen screws ❷.



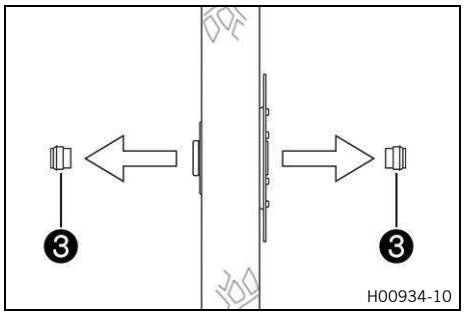
WARNING

Danger of accidents Damaged brake discs reduce the braking action.

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

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

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



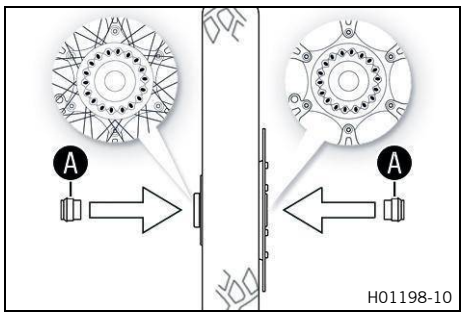
– Remove spacers ❸.

14.2 Installing the front wheel

WARNING

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

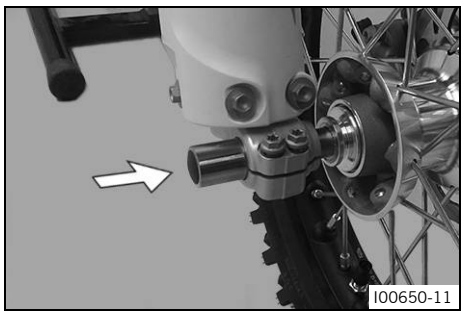
– Always keep the brake discs free of oil, fat and wax.
– Clean the brake discs with brake cleaner when necessary.



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

Long-life grease (p. 136)

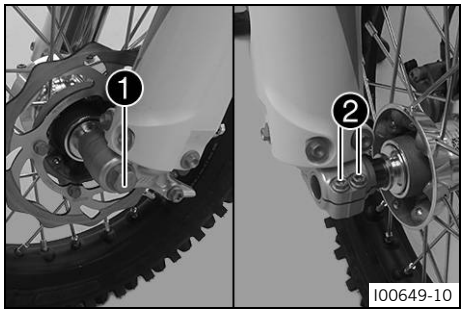
– Insert spacers.



– Clean and lightly grease the wheel spindle.

Long-life grease (p. 136)

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



– Mount and tighten screw ❶.

Screw, wheel spindle, front	
M10	40 Nm (29.5 ft·lb$_f$) **Loctite® 243**

– 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. 45)
– Operate the front brake and compress the fork a few times firmly.
  ✓ The fork legs straighten.
– Tighten screws ❷.

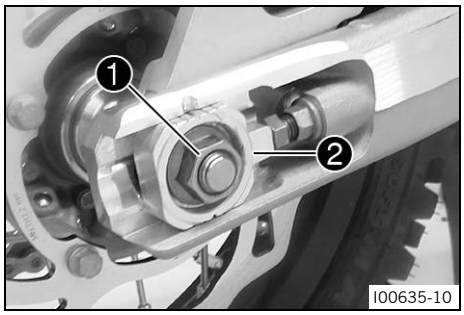
Screw, fork shoe	
M6	10 Nm (7.4 ft·lb$_f$)

14.3 Removing the rear wheel

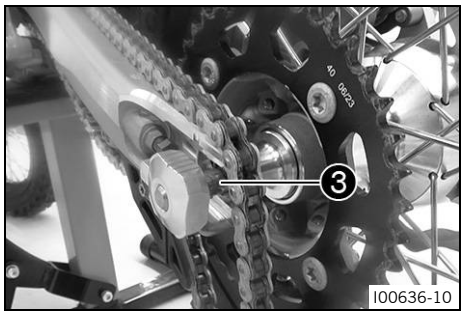
Preparatory work

– Raise the motorcycle with a lift stand. (p. 45)

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.

Protect the components against damage by covering them.

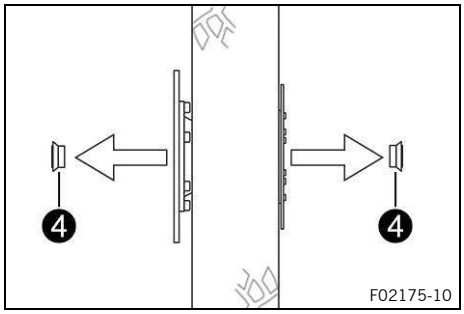
WARNING

Danger of accidents Damaged brake discs reduce the braking action.

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

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

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



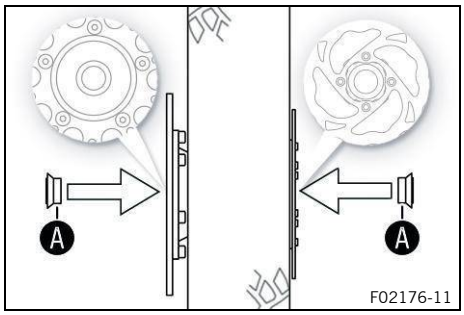
– Remove spacers ❹.

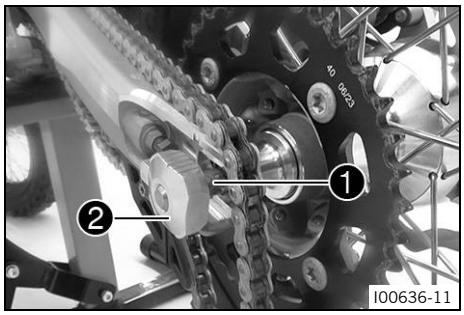
14.4 Installing the rear wheel

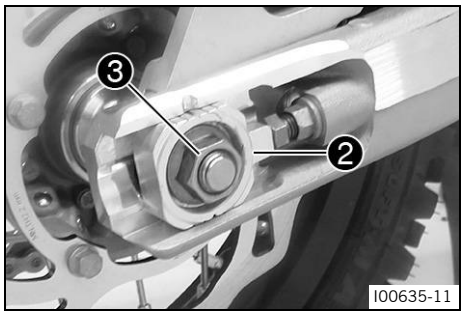
WARNING

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

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







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 the contact surfaces A of the spacers.

Long-life grease (p. 136)

– Insert the spacers.

Insert the wide spacer on the left in the direction of travel.

– Clean and grease wheel spindle 1.

Long-life grease (p. 136)

– Position the rear wheel and insert the wheel spindle.
  ✓ The brake pads are positioned correctly.
– Attach the chain.
– Position chain tension adjuster 2 on both sides and push the wheel spindle in all the way.
– Mount nut 3 but do not tighten yet.
– Make sure that the chain tension adjusters are fitted correctly on the adjusting screws.
– Check the chain tension. (p. 68)
– Tighten nut 3.

Nut, wheel spindle, rear	
M12×1	70 Nm (51.6 ft·lb$_f$)

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

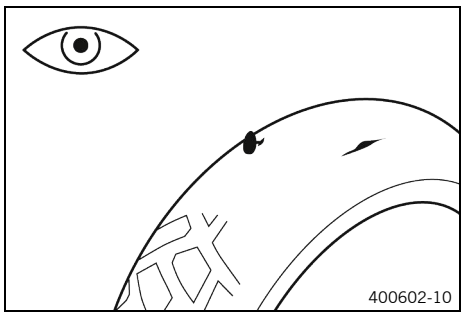
Reworking

– Remove the motorcycle from the lift stand. (p. 45)

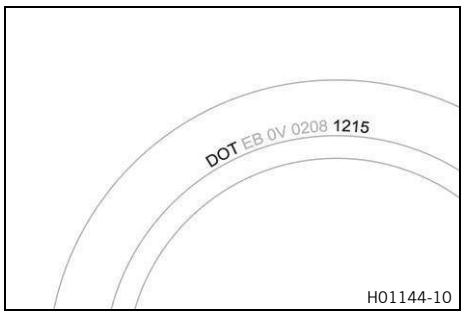
14.5 Checking the tire condition

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.



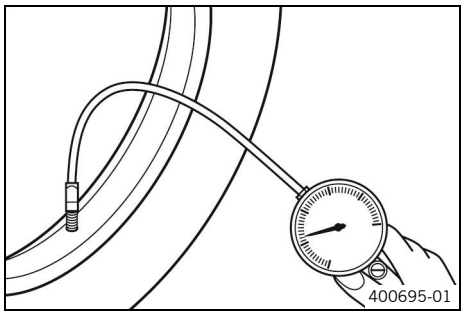
– Check the tire age.

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.

14.6 Checking the tire pressure

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



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

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

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

14.7 Checking the spoke tension

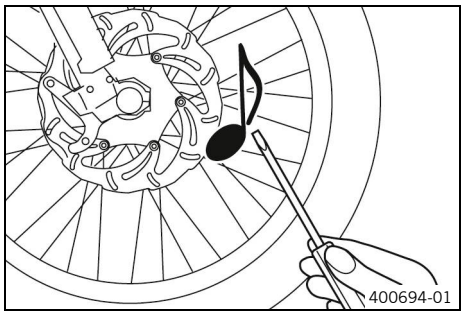
WARNING

Danger of accidents Incorrectly tensioned spokes impair the handling characteristic and can result in secondary damage.

If the spokes are too tight, they can break due to being overloaded.

Loose spokes can cause lateral or radial run-out in the wheel and other spokes will loosen as a result.

– Check the spoke tension regularly, especially on a new vehicle.



– Briefly tap each spoke with a screwdriver.

You should hear a high-pitched sound.

Note

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

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

» If the spoke tension differs:

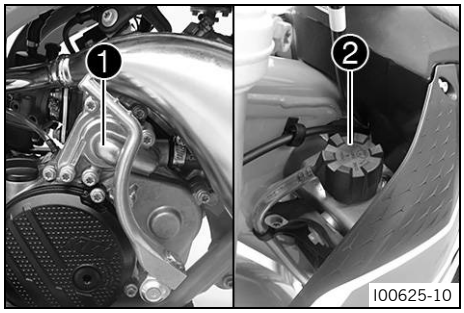
– Correct the spoke tension.

– Check the spoke torque.

Spoke nipple	
M3,5	3 Nm (2.2 ft·lb$_f$)

Torque wrench kit (58429094000)

15.1 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 (248.0 °F)

The coolant is cooled by the air stream.

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

15.2 Checking the frost protection and coolant level

WARNING

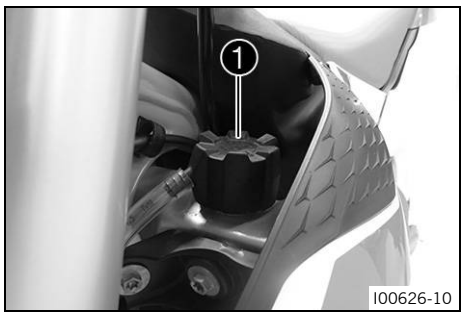
Danger of scalding The coolant heats up and is under high pressure when the vehicle is operated.

- 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.

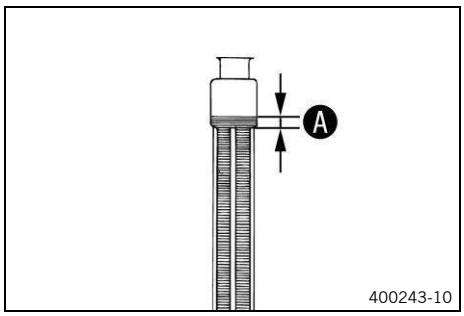
- Keep coolant out of the reach of children.
- Do not allow coolant to come into contact with skin, eyes, or clothing.
- Consult a doctor immediately if coolant has been ingested.
- Rinse the affected area immediately with plenty of water in the event of contact with skin.
- Rinse eyes thoroughly with 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.



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

−45 °C ... −25 °C (−49.0 °F ... −13.0 °F)

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



– Check the coolant level in the radiator.

Coolant level Ⓐ above the radiator fins	10 mm (0.39 in)

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

Coolant	
Coolant 📖 (p. 137) Antifreeze protection to at least: −25 °C (−13.0 °F)	0.7 l (0.18 liq. gal_{US})

– Mount the radiator cap.

15.3 Checking the coolant level

WARNING

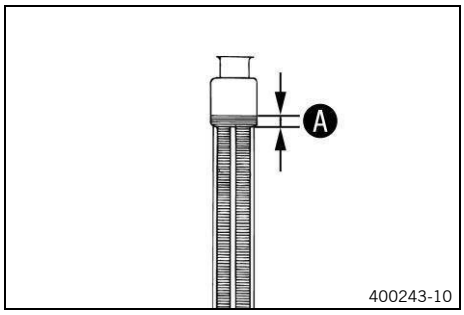
Danger of scalding The coolant heats up and is under high pressure when the vehicle is operated.

– 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.



– 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 (0.39 in)

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

Coolant	
Coolant 📖 (p. 137) Antifreeze protection to at least: −25 °C (−13.0 °F)	0.7 l (0.18 liq. gal_{US})

– Mount the radiator cap.

15.4 Draining the coolant

WARNING

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

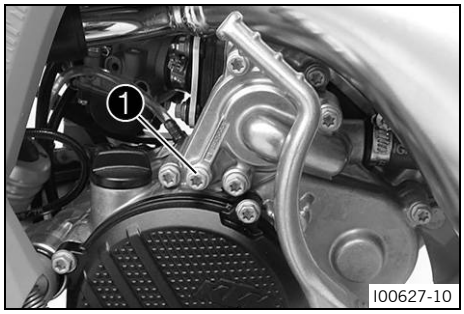
- Do not open the radiator, the radiator hoses, or other cooling system components if the engine or the cooling system are at operating temperature.
- Allow the cooling system and the engine to cool down before you open the radiator, the radiator hoses, or other components of the cooling system.
- In 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 the radiator cap.
- Completely drain the coolant.
- Mount screw ❶ with the new sealing ring and tighten.

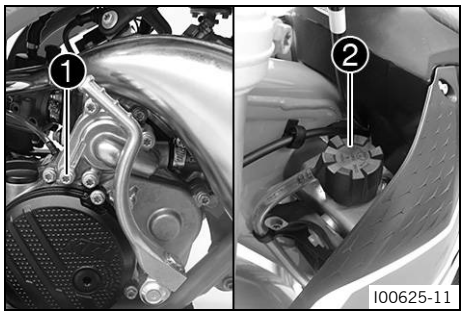
Drain plug, water pump cover	
M6	8 Nm (5.9 ft·lb$_f$)

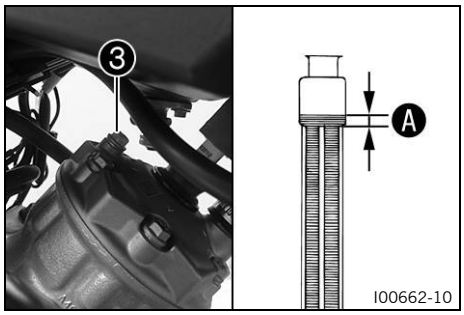
15.5 Refilling the coolant

WARNING

Health hazard Coolant is harmful to health.

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





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. 137) Antifreeze protection to at least: −25 °C (−13.0 °F)	0.7 l (0.18 liq. gal_{US})

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

Bleed screw for coolant	
M6	8 Nm (5.9 ft·lb_f)

– Add coolant to level Ⓐ.

Distance Ⓐ above the radiator fins	10 mm (0.39 in)

Coolant	
Coolant 📖 (p. 137) Antifreeze protection to at least: −25 °C (−13.0 °F)	0.7 l (0.18 liq. gal_{US})

– Mount radiator cap ❷.

Reworking

– Go for a short test ride.
– Check the transmission and cooling system for leaks.
– Check the coolant level. 📖 (p. 96)

15.6 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.

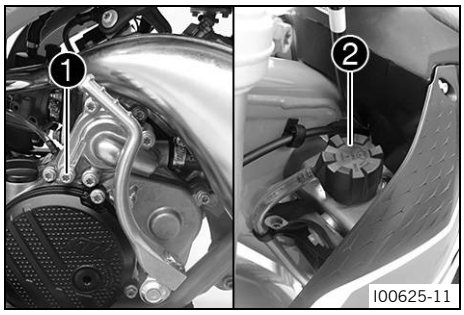
– Keep coolant out of the reach of children.
– Do not allow coolant to come into contact with skin, eyes, or clothing.
– Consult a doctor immediately if coolant has been ingested.
– Rinse the affected area immediately with plenty of water in the event of contact with skin.
– Rinse eyes thoroughly with 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

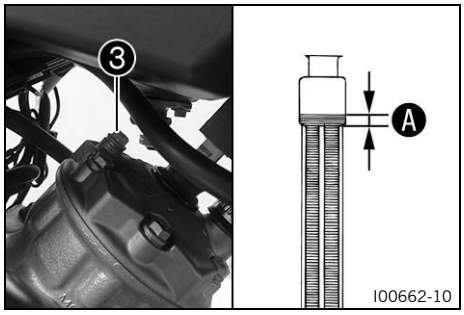
Replacement process

– 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.

Drain plug, water pump cover	
M6	8 Nm (5.9 ft·lb$_f$)



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

Bleed screw for coolant	
M6	8 Nm (5.9 ft·lb$_f$)

– Add coolant to level Ⓐ.

Distance Ⓐ above the radiator fins	10 mm (0.39 in)

Coolant	
Coolant 📖 (p. 137) Antifreeze protection to at least: −25 °C (−13.0 °F)	0.7 l (0.18 liq. gal$_{US}$)

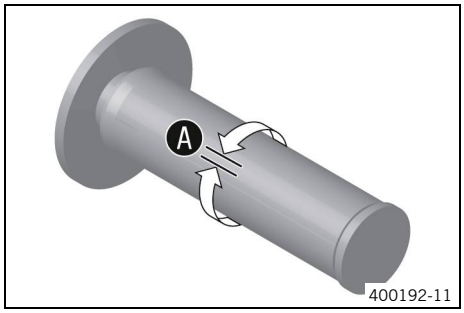
– Mount radiator cap ❷.

Reworking

– Go for a short test ride.
– Check the transmission and cooling system for leaks.
– Check the coolant level. 📖 (p. 96)

◀

16.1 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	3 mm ... 5 mm (0.12 in ... 0.20 in)

» If the throttle cable play does not meet the specified value:
– Adjust the throttle cable play. (p. 100)

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.

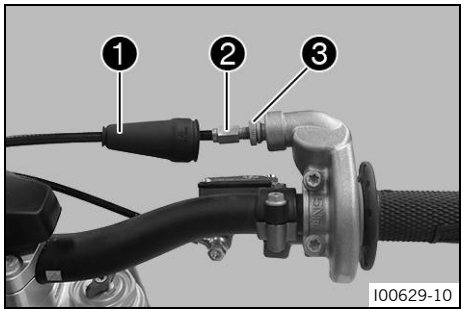
» If the idle speed changes:
– Adjust the throttle cable play. (p. 100)

16.2 Adjusting the throttle cable play

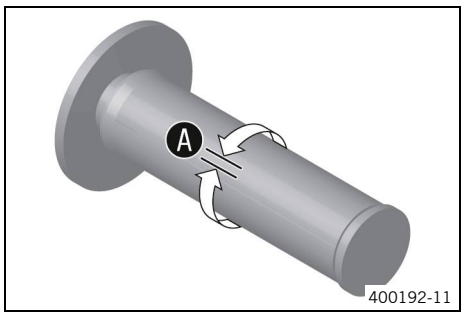
Preparatory work

– Remove the seat. (p. 62)
– Turn the knurled screw on the fuel petcock all the way clockwise.
– Remove the fuel tank. (p. 54)
– Check the throttle cable routing. (p. 73)

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 adjusting screw ❷.
– Loosen nut ❸.



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

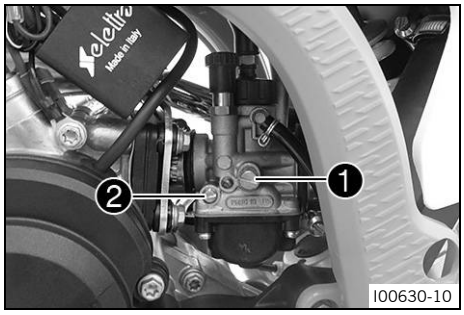
Throttle cable play	3 mm ... 5 mm (0.12 in ... 0.20 in)

– Tighten nut ❸.
– Slide on boot ❶.

Reworking

– Install the fuel tank. (p. 55)
– Mount the seat. (p. 62)
– Check the play in the throttle cable. (p. 100)

16.3 Carburetor – idle setting

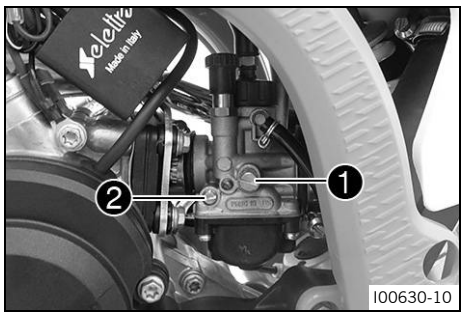


The idle setting of the carburetor has a big influence on the starting behavior, stable idle speed, and throttle responsiveness. This means that an engine with a correctly set idle speed will be easier to start than one with an incorrectly set idle speed.

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

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

16.4 Carburetor – adjusting the idle speed



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

Idle air adjusting screw	
open	3 turns (1,080°)

– Run the engine until warm.

Warming-up phase	≥ 5 min

– Connect the special tool.

Service hour counter with revolution counter (A54012920100)

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 using idle speed adjustment screw ❶.
  • The choke lever is pushed in to the stop.

Idle speed	1,700 rpm … 2,000 rpm (28.33 Hz … 33.33 Hz)

– Turn idle air adjusting screw ❷ 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.

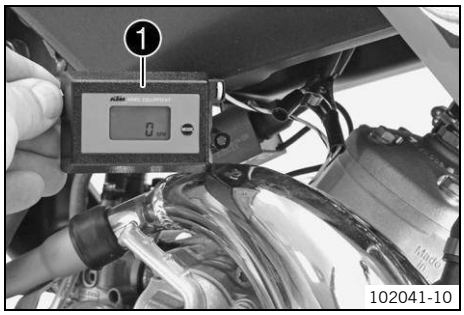
If the procedure described here does not lead to satisfactory results, the cause may be a wrongly dimensioned idle jet.

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.

16.5 Checking the clutch setting



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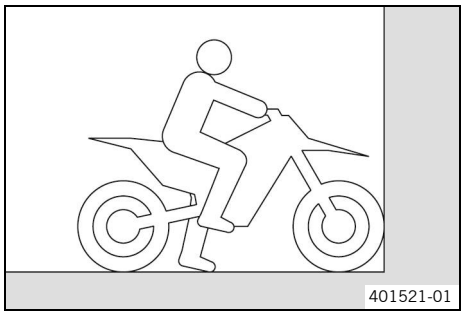
– Connect special tool ❶.

Service hour counter with revolution counter (A54012920100)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– Support the vehicle with the front wheel against a fixed object.

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 motorcycle.

– Only ride full throttle to the point where the maximum engine speed is reached.

Operation at full throttle	≤ 3 s

– Read the speed.

Slip speed	9,800 rpm … 10,400 rpm (163.33 Hz … 173.33 Hz)

» If the specified value is not reached:
– Adjust the clutch. (p. 103)

16.6 Clutch cover, removing

NOTE

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

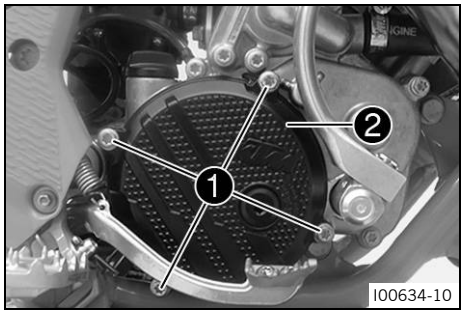
– Do not allow fuel to enter the groundwater, the soil, or the sewage system.

Note

Fuel can emerge via the carburetor.

Capture emerging fuel using a suitable container.

– Turn the knurled screw on the fuel petcock all the way clockwise.
– Lay the vehicle down on its left side.



– Remove screws ❶.
– Remove clutch cover ❷ with the sealing ring.

16.7 Adjusting the clutch

Preparatory work

Condition: Clutch cover remains fitted

– Raise the motorcycle with a lift stand. (p. 45)

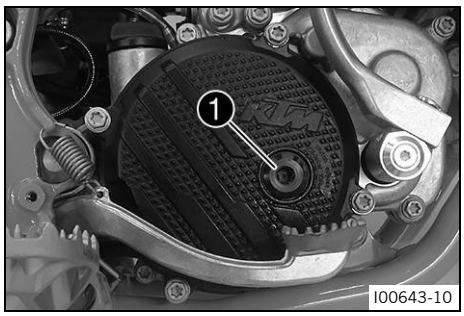
Condition: Clutch cover is removed

– Remove the clutch cover. (p. 103)

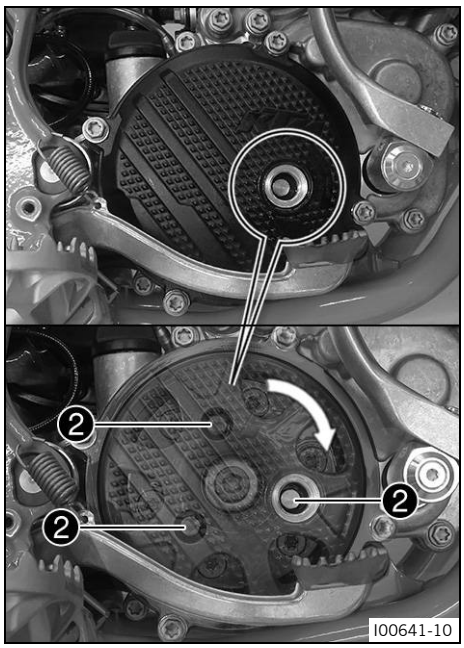
Adjustment procedure

– Select one of the following alternatives.

Condition: Clutch cover remains fitted



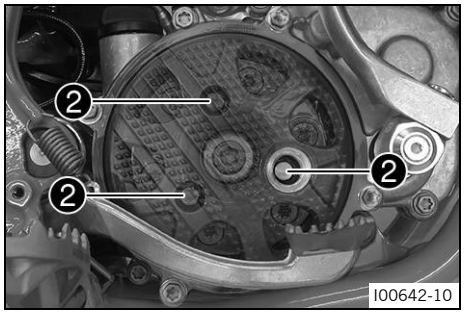
– Remove plug ❶ and the sealing ring.



– Turn the outer clutch hub until adjusting screws ❷ become accessible.

Note
The outer clutch hub is turned with the kick starter lever.
Adjusting screws ❷ are turned with the rear wheel.

There is no reference point



– Turn adjusting screws ❷ counterclockwise to the last detectable click.
– Turn adjusting screws ❷ clockwise by 8 clicks to the basic setting.

Basic setting of slip speed	9,800 rpm … 10,400 rpm (163.33 Hz … 173.33 Hz)
The springs may not be pretensioned by more than 14 clicks from the stop using the adjusting screws.	

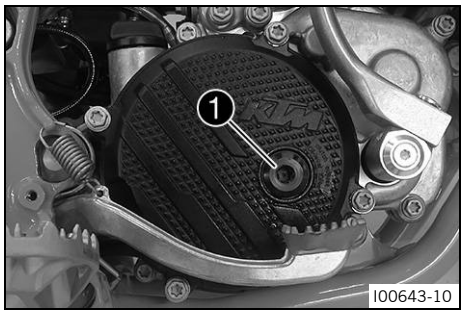
Note
If 15 clicks or more are preloaded, the clutch can become tense and can no longer be reset. The clutch must be dismantled.

Slip speed is too low

– Turn adjusting screws ❷ clockwise.

1 click increases the slip speed by	200 rpm ... 300 rpm (3.33 Hz ... 5.00 Hz)
The springs may not be pretensioned by more than 14 clicks from the stop using the adjusting screws.	

Slip speed is too high



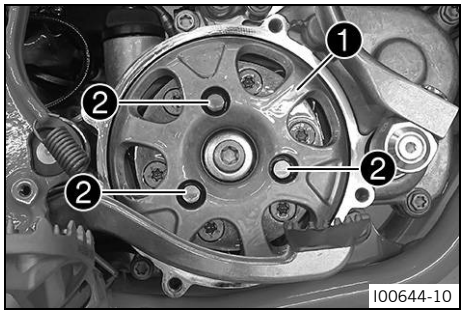
– Turn adjusting screws ❷ counterclockwise.

1 click decreases the slip speed by	200 rpm ... 300 rpm (3.33 Hz ... 5.00 Hz)

– Mount and tighten plug ❶ with a new sealing ring.

Screw, gear oil level check	
M14×1.25	10 Nm (7.4 ft·lb$_f$)

Condition: Clutch cover is removed



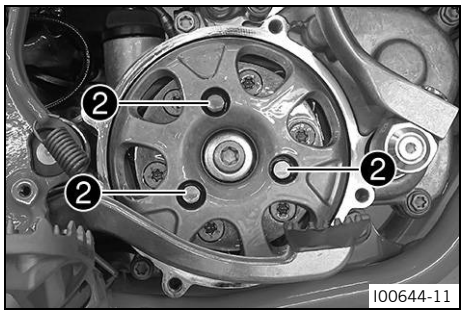
– Turn outer clutch hub ❶ until adjusting screws ❷ become accessible.

Note

Outer clutch hub ❶ is turned with the kick-starter lever.

Adjusting screws ❷ are turned with the rear wheel.

There is no reference point



– Turn adjusting screws ❷ counterclockwise to the last detectable click.

– Turn adjusting screws ❷ clockwise by 8 clicks to the basic setting.

Basic setting of slip speed	9,800 rpm ... 10,400 rpm (163.33 Hz ... 173.33 Hz)
The springs may not be pretensioned by more than 14 clicks from the stop using the adjusting screws.	

Note

If 15 clicks or more are preloaded, the clutch can become tense and can no longer be reset. The clutch must be dismantled.

Slip speed is too low

– Turn adjusting screws ❷ clockwise.

1 click increases the slip speed by	200 rpm ... 300 rpm (3.33 Hz ... 5.00 Hz)
The springs may not be pretensioned by more than 14 clicks from the stop using the adjusting screws.	

Slip speed is too high

– Turn adjusting screws ❷ counterclockwise.

1 click decreases the slip speed by	200 rpm ... 300 rpm (3.33 Hz ... 5.00 Hz)

Reworking

Condition: Clutch cover remains fitted

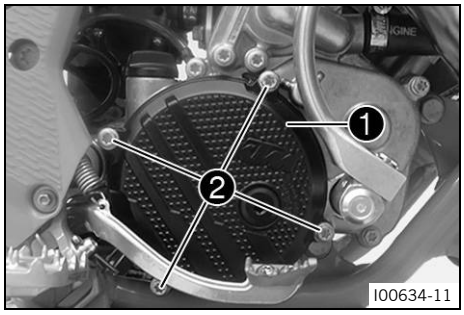
– Remove the motorcycle from the lift stand. (p. 45)

Condition: Clutch cover is removed

– Install the clutch cover. (p. 106)
– Check the gear oil level. (p. 107)

– Check the clutch setting. (p. 102)

16.8 Clutch cover, installing



Installation procedure

– Position clutch cover ❶ with the sealing ring.
– Mount and tighten screws ❷.

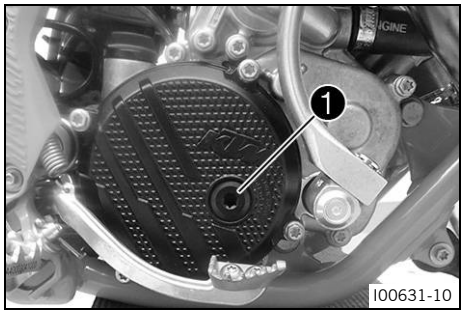
Screw, outer clutch cover	
M6	10 Nm (7.4 ft·lb$_f$)

Reworking

– Check the gear oil level. (p. 107)

17.1 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 sealing 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. 108)
» If gear oil runs out:
  – Correct the gear oil level.
– Mount and tighten screw 1 with the sealing ring.

Screw, gear oil level check	
M14×1.25	10 Nm (7.4 ft·lb$_f$)

17.2 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.

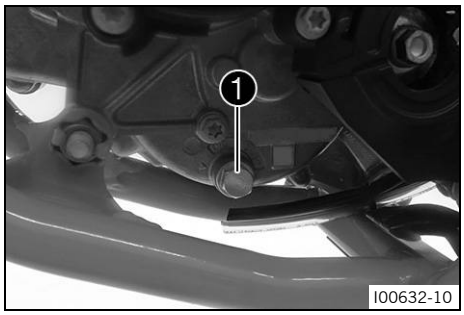
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

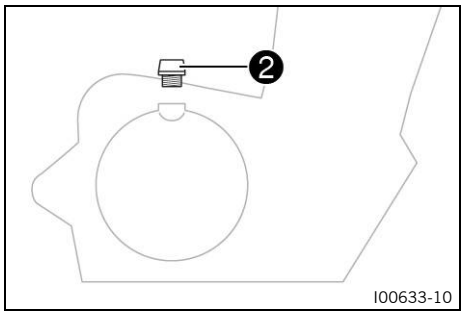
Note

Drain gear oil with engine at operating temperature.

Preparatory work

– Stand the motorcycle on the plug-in stand on a horizontal surface.





Replacement process

– Position an appropriate container under the engine.
– 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 the oil drain plug with the magnet and new sealing ring.

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

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

gear oil	
Gear oil 📖 (p. 136)	0.20 l (0.053 liq. gal$_{US}$)

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

– 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. 107)

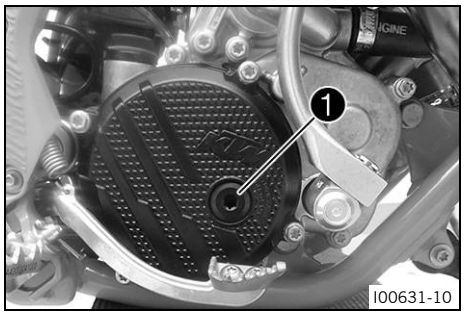
17.3 Adding gear oil

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

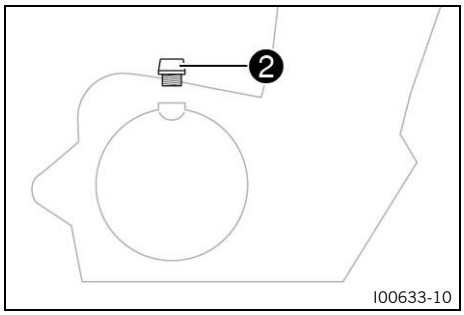
Preparatory work

– Stand the motorcycle upright on a level surface.

Filling procedure



– Remove gear oil level check screw ❶.



– Remove filler plug ❷ with the O-ring.
– Add gear oil until it flows out of the hole of the gear oil level plug.

Gear oil (p. 136)

– Mount and tighten gear oil level check screw ❶.

Screw, gear oil level check	
M14×1.25	10 Nm (7.4 ft·lb$_f$)

– 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.

18.1 Removing the carburetor

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

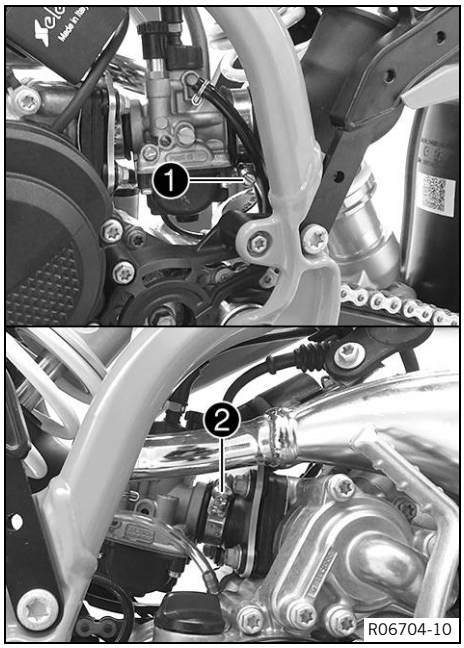
Danger of poisoning Fuel is harmful to health.

- 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.

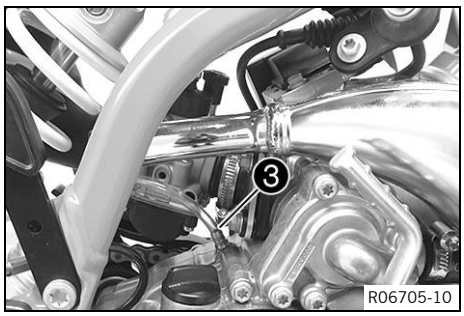
Preparatory work

- Raise the motorcycle with a lift stand. (p. 45)
- Remove the seat. (p. 62)
- Turn the knurled screw on the fuel petcock all the way clockwise.
- Remove the fuel tank. (p. 54)
- Remove the right side fairing. (p. 59)
- Remove the muffler. (p. 65)
- Remove the frame protector. (p. 62)
- Remove the left side cover. (p. 58)

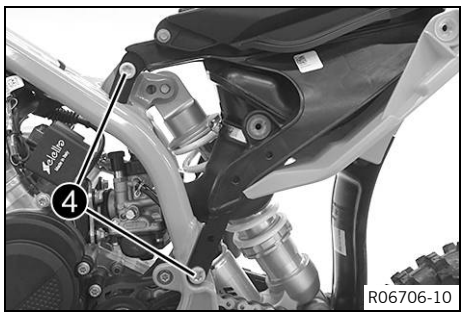
Removal process



– Loosen hose clips ❶ and ❷.

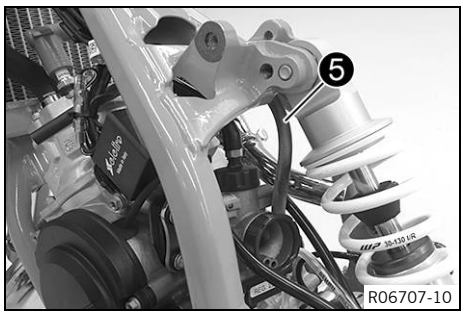


– Pull off vent hose ❸.

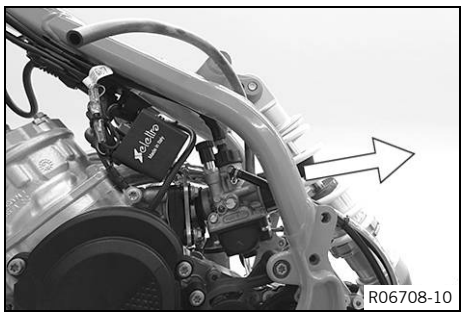


– Remove screws ❹.
– Repeat the operation on the opposite side.
– Remove the subframe with the fender.

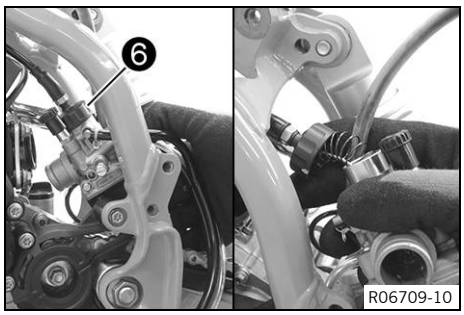
Watch out for the intake flange.



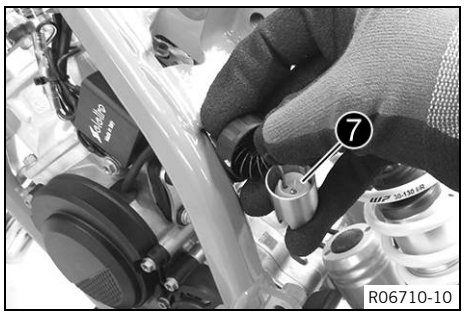
– Take fuel line ❺ out of the guide.



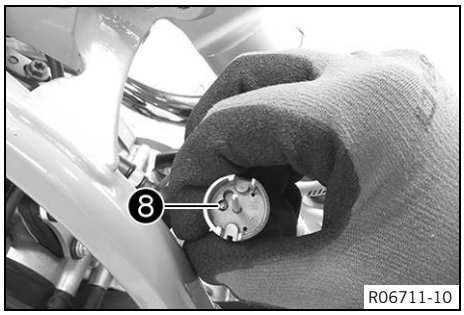
– Pull the carburetor back toward the rear.



– Open throttle slide cover ❻.
– Pull the throttle slide out of the carburetor.
– Drain the remaining fuel.



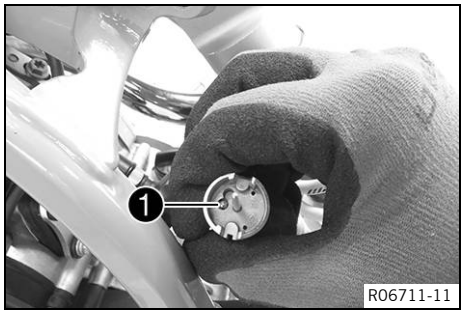
– Pull the throttle slide spring back.
– Push spring retainer ❼ back.



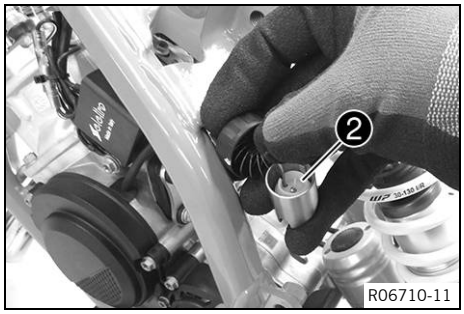
– Detach throttle cable wire ❽.
– Take off the throttle slide.

18.2 Installing the carburetor

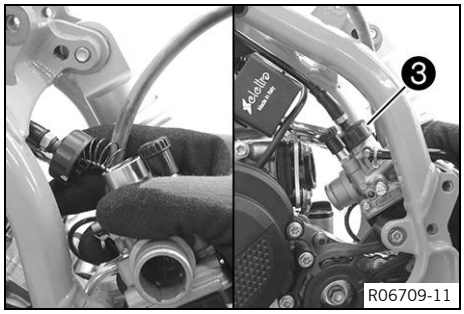
Installation procedure



– Attach throttle cable wire ❶.



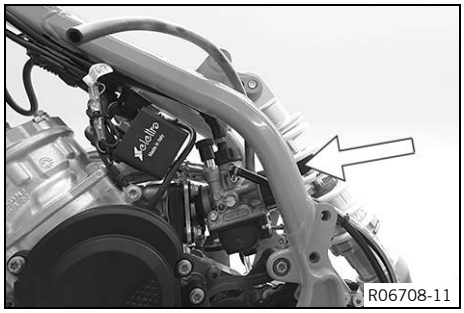
– Position spring retainer ❷ and the throttle slide spring.



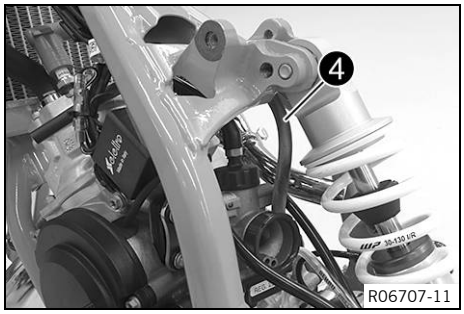
– Position the throttle slide and the throttle slide cover.
– Tighten throttle slide cover ❸ hand-tight.
– Measure the distance between the carburetor housing and the throttle slide cover.

Distance between the carburetor housing and the throttle slide cover	≤ 3 mm (≤ 0.12 in)

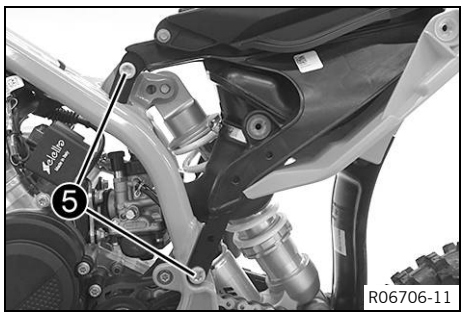
» If the specified value is not reached:
  – Screw on the throttle slide cover correctly.



– Mount the carburetor.



– Position fuel hose ❹ in the guide.



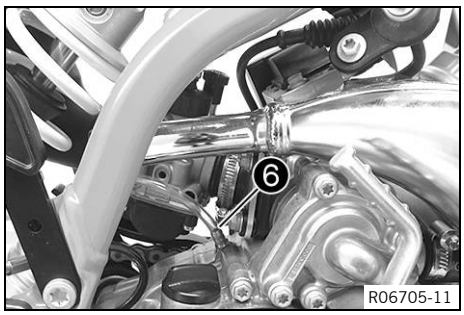
– Position the subframe.

Watch out for the intake flange.

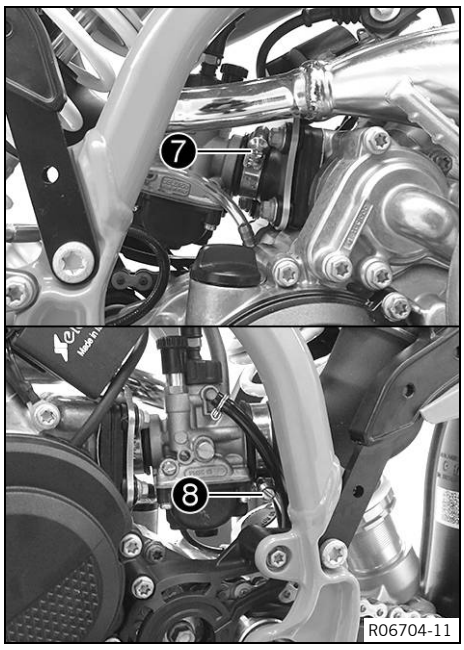
– Mount and tighten screws ❺.

Remaining screws on chassis	
M8	25 Nm (18.4 ft·lb$_f$)

– Repeat the operation on the opposite side.



– Mount vent hose ❻.



– Position and tighten hose clips ❼ and ❽.

Hose clamp, carburetor	
	2.8 Nm (2.07 ft·lb$_f$)

Reworking

– Check the play in the throttle cable. 📖 (p. 100)
– Install the muffler. 📖 (p. 65)
– Install the right side cover. 📖 (p. 60)
– Install the left side fairing 📖 (p. 59)
– Carburetor – adjust the idle speed. 🔧 📖 (p. 101)
– Install the frame protector. 📖 (p. 63)
– Install the fuel tank. 🔧 📖 (p. 55)

– Mount the seat. (p. 62)
– Remove the motorcycle from the lift stand. (p. 45)

19.1 Cleaning the motorcycle

NOTE

Material damage Components can be damaged or destroyed if a high-pressure cleaner is used incorrectly.

The high pressure forces water into the electrical components, socket connectors, clutch cables, and bearings, etc.

Too high a pressure can cause malfunctions and destroy components.

– Do not direct the water jet directly on to electrical components, socket connectors, clutch cables, or bearings.
– Maintain a minimum distance between the nozzle of the high-pressure cleaner and the component.

Minimum distance	60 cm (23.6 in)

NOTE

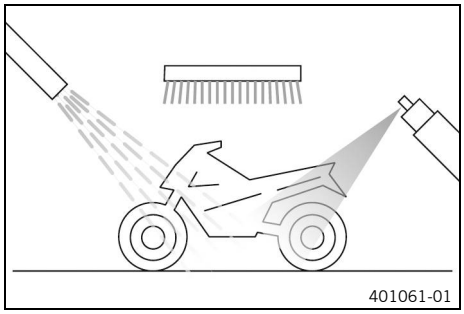
Environmental hazard Hazardous substances cause environmental damage.

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

Note

Clean the motorcycle regularly to maintain its value and appearance over a long period.

Avoid direct sunshine when cleaning the motorcycle.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– 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.

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

Environmentally neutral universal cleaning agent
(p. 139)

Note

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

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

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, ride the vehicle a short distance until the engine warms up and until the brake system has dried through 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. 68)
– Treat bare metal (except for brake discs and the exhaust system) with an anticorrosive.

Preserving materials (p. 139)

– 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. 139)

20.1 Storage

WARNING

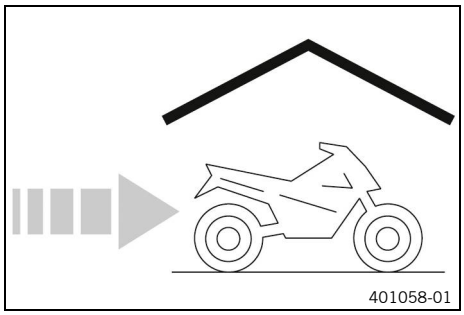
Danger of poisoning Fuel is harmful to health.

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

Note

If the vehicle will not be ridden for an extended period, additional steps are recommended.

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). This allows you to avoid long waiting periods when the next season starts.



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

  Fuel additive (p. 135)

- Refuel. (p. 26)

Tip

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

- Clean the motorcycle. (p. 116)
- Change the gear oil. (p. 107)
- Check the frost protection and coolant level. (p. 95)
- Empty the carburetor float chamber.
- Check the tire pressure. (p. 93)
- Store the vehicle in a dry location that is not subject to large fluctuations in temperature.

Note

KTM recommends jacking up the motorcycle.

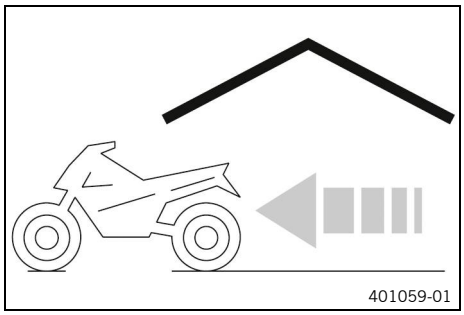
- Raise the motorcycle with a lift stand. (p. 45)

Cover the motorcycle with a tarp or cover that is permeable to air.
Do not use any non-porous materials, as moisture cannot escape and corrosion can occur.

Note

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

20.2 Preparing for use after storage



- Remove the motorcycle from the lift stand. (p. 45)
- Perform checks and maintenance measures when preparing for use. (p. 23)
- Take a test ride.

21.1 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 Fault in ignition system Short-circuit cable in wiring harness frayed, kill button faulty Connector or ignition coil loose or oxidized Water in carburetor or jets blocked	– Carry out the starting procedure. (p. 23) – Empty the carburetor float chamber. – Check the fuel tank vent. – Clean the fuel petcock. – 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 (0.0276 in) – Check the ignition system. – Check the kill button. – Clean the plug-in connection and treat it with contact spray. – Check/adjust the carburetor components.
The engine has no idle speed	Idle 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. 101) – 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.
Engine has too little power	Fuel supply interrupted Air filter is very dirty Exhaust system leaks, deformed or too little damping material in the silencer Faulty ignition Damaged membrane or reed valve housing Noticeable wear Clutch engagement speed too low or too high	– Check the fuel tank vent. – Clean the fuel petcock. – Check/adjust the carburetor components. – Clean the air filter and air filter box. (p. 64) – Check exhaust system for damage. – Change the damping material on the main silencer. (p. 65) – Check the ignition coil. – Check the spark plug connector. – Check the membrane and reed valve housing. – Overhaul the engine.

Cause	Finding	Remedy
		– Check the clutch setting. 🔧 📖 (p. 102)
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 petcock all the way counterclockwise. – Refuel. 📖 (p. 26) – Check the intake flange and carburetor for firm seating. – Clean the plug-in connection and treat it 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	– Check the transmission and cooling system for leaks. – Check the coolant level. 📖 (p. 96) – Switch off the engine when standing. – Clean the radiator fins. – Drain the coolant. 🔧 📖 (p. 97) – Refill the coolant. 🔧 📖 (p. 97) – Check the cylinder head or cylinder head gasket. – Change the radiator hose. 🔧
White smoke development (steam in the exhaust gas)	Damaged cylinder head or cylinder head gasket	– Check the cylinder head or cylinder head gasket.
Gear oil emerges from the vent hose	Too much gear oil added	– Check the gear oil level. 📖 (p. 107)
Water in the gear oil	Damaged radial shaft seal ring or water pump	– Check the radial shaft seal ring and the water pump.

22 Technical specifications

22.1 Engine

22.1.1 Technical data of the engine

Design	1-cylinder 2-stroke gasoline engine, water-cooled, with membrane inlet
Displacement	49.9 cm^3 (3.045 in^3)
Stroke	40.7 mm (1.602 in)
Bore	39.5 mm (1.555 in)
Idle speed	1,400 rpm ... 2,000 rpm (23.33 Hz ... 33.33 Hz)
Crankshaft bearing	2 grooved ball bearings
Big (bottom) end bearing	Needle bearing
Wrist pin bearing	Needle bearing
Piston	Cast aluminum
Piston rings	1 rectangular ring
Engine lubrication	Mixture lubrication
Primary transmission	33:61 straight cut spur gear wheel drive
Clutch	Multi-disc automatic clutch
Transmission	Rigid 1-stage reduction gear
Gear ratios	14:31
Ignition system	Selettra Digital
Spark plug	**BRISK AR10C**(Standard), **BRISK AR10IR** (recommended for competition use)
Plug gap of spark plug	0.70 mm (0.0276 in)
Cooling	Liquid cooling
Starting aid	Kick starter system

22.1.2 Capacities - engine

gear oil	
Gear oil (p. 136)	0.20 l (0.053 liq. gal_{US})
Coolant	
Coolant (p. 137) Antifreeze protection to at least: −25 °C (−13.0 °F)	0.7 l (0.18 liq. gal_{US})

22.2 Carburetor with carburetor tuning

22.2.1 Carburetor

Carburetor type	Dellorto PHBG 19BS
Main jet	88 (85, 90, 92)
Jet needle	W7
Idle jet	50
Needle jet	262AU
Throttle slide	40
Choke nozzle	65

Needle position	2nd position from top
Idle air adjusting screw	
open	3 turns (1,080°)

22.2.2 Carburetor tuning (Option: Low seating position)

M/FT ASL	Above sea level
TEMP	Temperature
ASO	Open (rotations) idle air adjusting screw
IJ	Idle jet
NDL	Jet needle
POS	Needle position from top
MJ	Main jet

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

Dellorto PHBG19 BS

ASL	TEMP	–20 °C … –7 °C (–4.0 °F … 19.4 °F)	–6 °C … 5 °C (21.2 °F … 41.0 °F)	6 °C … 15 °C (42.8 °F … 59.0 °F)	16 °C … 24 °C (60.8 °F … 75.2 °F)	25 °C … 36 °C (77.0 °F … 96.8 °F)	37 °C … 49 °C (98.6 °F … 120.2 °F)
2,301 m … 3,000 m (7,549 ft – 3 in … 9,842 ft – 6 in)	ASO	3	3	3	3	3	
	IJ	50	48	45	48	48	
	NDL	W7	W7	W7	W7	W7	•/•
	POS	2	2	2	1	1	
	MJ	82	82	82	85	85	
1,501 m … 2,300 m (4,924 ft – 6 in … 7,545 ft – 11 in)	ASO	3	3	3	3	3	3
	IJ	50	50	48	48	48	48
	NDL	W7	W7	W7	W7	W7	W7
	POS	2	2	2	2	2	2
	MJ	82	82	82	82	85	88
751 m … 1,500 m (2,463 ft – 11 in … 4,921 ft – 3 in)	ASO	3	3	3	3	3	3
	IJ	52	50	50	50	50	50
	NDL	W7	W7	W7	W7	W7	W7
	POS	2	2	2	2	2	2
	MJ	88	85	85	85	88	90

ASL	TEMP	–20 °C … –7 °C (–4.0 °F … 19.4 °F)	–6 °C … 5 °C (21.2 °F … 41.0 °F)	6 °C … 15 °C (42.8 °F … 59.0 °F)	16 °C … 24 °C (60.8 °F … 75.2 °F)	25 °C … 36 °C (77.0 °F … 96.8 °F)	37 °C … 49 °C (98.6 °F … 120.2 °F)
301 m … 750 m (987 ft – 6 in … 2,460 ft – 8 in)	ASO IJ NDL POS MJ	3 55 W7 2 88	3 52 W7 2 88	3 50 W7 2 88	**3** **50** **W7** **2** **88**	3 50 W7 2 90	3 50 W7 2 92
0 m … 300 m (0 ft … 984 ft – 3 in)	ASO IJ NDL POS MJ	3 55 W7 2 90	3 52 W7 2 90	3 50 W7 2 90	3 50 W7 2 90	3 50 W7 2 92	3 50 W7 2 95

22.2.3 Carburetor tuning (Option: High seating position)

M/FT ASL	Above sea level
TEMP	Temperature
ASO	Open (rotations) idle air adjusting screw
IJ	Idle jet
NDL	Jet needle
POS	Needle position from top
MJ	Main jet

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

Dellorto PHBG19 BS

ASL	TEMP	–20 °C … –7 °C (–4.0 °F … 19.4 °F)	–6 °C … 5 °C (21.2 °F … 41.0 °F)	6 °C … 15 °C (42.8 °F … 59.0 °F)	16 °C … 24 °C (60.8 °F … 75.2 °F)	25 °C … 36 °C (77.0 °F … 96.8 °F)	37 °C … 49 °C (98.6 °F … 120.2 °F)
2,301 m … 3,000 m (7,549 ft – 3 in … 9,842 ft – 6 in)	ASO IJ NDL POS MJ	3 50 W7 2 85	3 48 W7 2 85	3 45 W7 2 85	3 48 W7 1 88	3 48 W7 1 88	•/•
1,501 m … 2,300 m (4,924 ft – 6 in … 7,545 ft – 11 in)	ASO IJ NDL POS MJ	3 50 W7 2 85	3 50 W7 2 85	3 48 W7 2 85	3 48 W7 2 85	3 48 W7 2 88	3 48 W7 2 90
751 m … 1,500 m (2,463 ft – 11 in … 4,921 ft – 3 in)	ASO IJ NDL POS MJ	3 52 W7 2 90	3 50 W7 2 88	3 50 W7 2 88	3 50 W7 2 88	3 50 W7 2 90	3 50 W7 2 92

ASL	TEMP	–20 °C … –7 °C (–4.0 °F … 19.4 °F)	–6 °C … 5 °C (21.2 °F … 41.0 °F)	6 °C … 15 °C (42.8 °F … 59.0 °F)	16 °C … 24 °C (60.8 °F … 75.2 °F)	25 °C … 36 °C (77.0 °F … 96.8 °F)	37 °C … 49 °C (98.6 °F … 120.2 °F)
301 m … 750 m (987 ft – 6 in … 2,460 ft – 8 in)	ASO IJ NDL POS MJ	3 55 W7 2 90	3 52 W7 2 90	3 50 W7 2 90	**3** **50** **W7** **2** **90**	3 50 W7 2 92	3 50 W7 2 95
0 m … 300 m (0 ft … 984 ft – 3 in)	ASO IJ NDL POS MJ	3 55 W7 2 92	3 52 W7 2 92	3 50 W7 2 92	3 50 W7 2 92	3 50 W7 2 95	3 50 W7 2 98

22.3 Chassis

22.3.1 Technical data - chassis

Frame	Central-tube frame of chrome molybdenum steel tubing, powder-coated
Suspension travel:	
front	165 mm (6.50 in)
rear	190.5 mm (7.500 in)
Triple clamp offset	22 mm (0.87 in)
Brake system	
front	Disc brake with 2 piston brake caliper
rear	Disc brake with 2 piston brake caliper
Brake discs - diameter	
front	160 mm (6.30 in)
rear	160 mm (6.30 in)
Brake disc wear limit	
front	2.2 mm (0.087 in)
rear	2.2 mm (0.087 in)
Final drive	11:40
Chain	1/2 x 3/16”
Rear sprockets available	• 38 • 39 • 40 • 41 • 42

Steering head angle	66° (1.15 rad)
Wheelbase	1,023.5 mm ... 1,035.6 mm (40.295 in ... 40.772 in)
Seat Height unloaded	634 mm ... 683 mm (24.96 in ... 26.89 in)
Ground clearance unloaded	233 mm (9.17 in)
Weight without fuel approx.	43.5 kg (95.90 lb)
Maximum permissible rider's weight	45 kg (99.2 lb)

22.3.2 Technical data - tires

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

Validity	Tire front	Rear tire
(50 SX)	**60/100 - 12 36J TT** MAXXIS MAXXCROSS MX–ST+	**2.75 - 10 38J TT** MAXXIS MAXXCROSS MX–ST+
(50 SX FACTORY EDITION)	**60/100 - 12 36J TT** Dunlop GEOMAX MX53F	**70/100 - 10 41J TT** Dunlop GEOMAX MX53
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.		

22.3.3 Capacities - vehicle

Fuel tank capacity, approx.	
Super unleaded (95 octane) mixed with 2-stroke engine oil (1:60) (p. 136)	2.3 l (0.61 liq. gal_{US})

22.4 Fork

22.4.1 Technical data - fork

Fork part number	A400C102Z106102

Fork	**WP XACT**
Rebound damping	
Standard	15 clicks
Air pressure	
Standard	3.5 bar (50.8 psi)

Fork length	685 mm (26.97 in)
Spring length with preload spacer(s)	325 mm (12.80 in)

22.4.2 Capacities - fork

Oil capacity, left outer assembly	
Fork oil (48601166S1) (SAE 4) 📖 (p. 136)	25 ±5 ml (0.85 ±0.17 fl. oz_{US})
Oil capacity, right outer assembly	
Fork oil (48601166S1) (SAE 4) 📖 (p. 136)	205 ±5 ml (6.93 ±0.17 fl. oz_{US})
Grease capacity, left cartridge	
Special grease (00062010053) 📖 (p. 137)	6 g (0.21 oz)

22.5 Shock absorber

22.5.1 Technical data - shock absorber

Shock absorber part number	A400C402X113000

Shock absorber	**WP XACT 5735**
Low-speed compression damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks
High-speed compression damping	
Comfort	2.5 turns (900°)
Standard	2 turns (720°)
Sport	1.5 turns (540°)
Rebound damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks
Preload	5 mm (0.20 in)
Spring rate	
Weight of rider: 15 kg ... 25 kg (33.1 lb ... 55.1 lb)	25 N/mm (142.8 lb_f/in)
Weight of rider (standard): 25 kg ... 35 kg (55.1 lb ... 77.2 lb)	30 N/mm (171.3 lb_f/in)
Weight of rider: 35 kg ... 45 kg (77.2 lb ... 99.2 lb)	35 N/mm (199.9 lb_f/in)

Spring length	130 mm (5.12 in)
Gas assisted	10 bar (145 psi)
Static sag	30 mm (1.18 in)
Rider sag	80 mm (3.15 in)
Installation position	275 mm (10.83 in)

22.5.2 Capacities - shock absorber

Shock absorber oil	
Shock absorber oil (50180751S1) (SAE 2.5) 📖 (p. 137)	Fill to the maximum mark

22.6 Tightening torque

22.6.1 Engine tightening torques

Screw, kick-starter lever	M5	6 Nm (4.4 ft·lb$_f$) **Loctite® 243**
Screw, bearing retainer	M5	5 Nm (3.7 ft·lb$_f$) **Loctite® 243**
Screw, stator bracket	M5	6 Nm (4.4 ft·lb$_f$) **Loctite® 243**
Nut, water pump impeller	M5	5 Nm (3.7 ft·lb$_f$) **Loctite® 243**
Screw, exhaust flange	M6	10 Nm (7.4 ft·lb$_f$) **Loctite® 243**
Screw, front sprocket	M6	10 Nm (7.4 ft·lb$_f$) **Loctite® 2701**
Bleed screw, coolant	M6	8 Nm (5.9 ft·lb$_f$)
Vacuum fitting (housing vent)	M6	4 Nm (3.0 ft·lb$_f$) **Loctite® 243**
Drain plug, water pump cover	M6	8 Nm (5.9 ft·lb$_f$)
Screw, intake flange	M6	5 Nm (3.7 ft·lb$_f$) **Loctite® 243**

Screw, fitting pin M6	10 Nm (7.4 ft·lb$_f$) **Loctite® 2701**
Screw, pressure plate M6	10 Nm (7.4 ft·lb$_f$) **Loctite® 243**
Screw, water pump cover M6	10 Nm (7.4 ft·lb$_f$)
Bleed screw, coolant M6	8 Nm (5.9 ft·lb$_f$)
Screw, ignition coil M6	8 Nm (5.9 ft·lb$_f$) **Loctite® 243**
Screw, ignition cover M6	6 Nm (4.4 ft·lb$_f$)
Screw, cylinder head M6×25	10 Nm (7.4 ft·lb$_f$)
Screw, ground wire M6	10 Nm (7.4 ft·lb$_f$)
Screw, outer clutch cover M6	10 Nm (7.4 ft·lb$_f$)
Screw, inner clutch cover M6	10 Nm (7.4 ft·lb$_f$)
Screw, engine case M6	10 Nm (7.4 ft·lb$_f$)
Screw, outer clutch hub M8	35 Nm (25.8 ft·lb$_f$) **Loctite® 243**
Screw, cylinder base M8×41	7 Nm (5.2 ft·lb$_f$)
Nuts, cylinder base M8	20 Nm (14.8 ft·lb$_f$)
Nut, primary gear M10×1.25	40 Nm (29.5 ft·lb$_f$) **Loctite® 243**
Nut, rotor M10×1.25	15 Nm (11.1 ft·lb$_f$) **Loctite® 243**
Spark plug M10×1	13 Nm (9.6 ft·lb$_f$)
Oil drain plug with magnet M12×1.5	20 Nm (14.8 ft·lb$_f$)
Screw, gear oil level check M14×1.25	10 Nm (7.4 ft·lb$_f$)

22.6.2 Chassis tightening torques

Hose clamp, carburetor	2.8 Nm (2.07 ft·lb$_f$)
Hose clamp for coolant circuit	2.4 Nm (1.77 ft·lb$_f$)
Throttle cable wire on the carburetor	1 Nm (0.7 ft·lb$_f$)
Screw, carburetor cover	Tightening to hand-tight
Hose clamp, carburetor	2.8 Nm (2.07 ft·lb$_f$)
Screw, kill button M3	0.4 Nm (0.30 ft·lb$_f$)
Screw, fixed grip M4	5 Nm (3.7 ft·lb$_f$) **Loctite® 243**
Screw, brake pads M5	5 Nm (3.7 ft·lb$_f$)
Remaining screws on chassis M5	5 Nm (3.7 ft·lb$_f$)
Remaining nuts on chassis M5	5 Nm (3.7 ft·lb$_f$)
Remaining nuts on chassis M6	10 Nm (7.4 ft·lb$_f$)
Remaining screws on chassis M6	10 Nm (7.4 ft·lb$_f$)
Screw, rear brake disc M6	14 Nm (10.3 ft·lb$_f$) **Loctite® 243**
Screw, front brake disc M6	14 Nm (10.3 ft·lb$_f$) **Loctite® 243**
Screw, fork shoe M6	10 Nm (7.4 ft·lb$_f$)
Screw, throttle twist grip M6	5 Nm (3.7 ft·lb$_f$)
Nut, push rod ball joint on the brake cylinder of the rear brake system M6	10 Nm (7.4 ft·lb$_f$)
Screw, number plate M6	4 Nm (3.0 ft·lb$_f$)
Screw, fender M6	6 Nm (4.4 ft·lb$_f$)
Screw, front sprocket cover M6	8 Nm (5.9 ft·lb$_f$)
Nut, push rod, brake pedal M6	6 Nm (4.4 ft·lb$_f$)
Screw, front brake assembly M6	5 Nm (3.7 ft·lb$_f$)

Screw, brake cylinder on the rear brake system M6	10 Nm (7.4 ft·lb$_f$) **Loctite® 243**
(50 SX FACTORY EDITION) Screws on muffler M6	9 Nm (6.6 ft·lb$_f$) **Loctite® 243**
Screw, rear mounting M6	6 Nm (4.4 ft·lb$_f$)
Screw, radiator protection on radiator M6	5 Nm (3.7 ft·lb$_f$)
Engine mounting bolt M8	25 Nm (18.4 ft·lb$_f$) **Loctite® 243**
Nut, rim lock M8	10 Nm (7.4 ft·lb$_f$)
Remaining nuts on chassis M8	25 Nm (18.4 ft·lb$_f$)
Remaining screws on chassis M8	25 Nm (18.4 ft·lb$_f$)
Screw, front brake caliper M8×35	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**
Screw, rear brake caliper M8	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**
Screw, top triple clamp M8	20 Nm (14.8 ft·lb$_f$)
Screw, bottom triple clamp M8	15 Nm (11.1 ft·lb$_f$)
Screw, chain slider M8	15 Nm (11.1 ft·lb$_f$)
Screw, rear sprocket M8	25 Nm (18.4 ft·lb$_f$) **Loctite® 243**
Handlebar clamp screw M8	20 Nm (14.8 ft·lb$_f$)
Screw, steering stem M8	20 Nm (14.8 ft·lb$_f$)
Bushing, brake pedal stop M8	20 Nm (14.8 ft·lb$_f$)
Screw, tail assembly M8	30 Nm (22.1 ft·lb$_f$) **Loctite® 243**
Remaining nuts on chassis M10	45 Nm (33.2 ft·lb$_f$)
Remaining screws on chassis M10	45 Nm (33.2 ft·lb$_f$)

Top shock absorber screw M10	45 Nm (33.2 ft·lb$_f$) **Loctite® 243**
Bottom shock absorber screw M10	45 Nm (33.2 ft·lb$_f$) **Loctite® 243**
Bushing, brake pedal M10	45 Nm (33.2 ft·lb$_f$)
Screw, handlebar mount M10	40 Nm (29.5 ft·lb$_f$) **Loctite® 243**
Screw, wheel spindle, front M10	40 Nm (29.5 ft·lb$_f$) **Loctite® 243**
Nut, swingarm pivot M12×1	40 Nm (29.5 ft·lb$_f$)
Nut, wheel spindle, rear M12×1	70 Nm (51.6 ft·lb$_f$)
Screw, steering head M16×1.5	10 Nm (7.4 ft·lb$_f$)
Spoke nipple M3,5	3 Nm (2.2 ft·lb$_f$)
Screw, seat post mount quick lock **EJOT PT®** – M3,5	0.75 Nm (0.553 ft·lb$_f$)
Screw, brake hose bracket **EJOT PT®** – MK60×20	2 Nm (1.5 ft·lb$_f$)
Remaining EJOT PT screws **EJOT PT®** – MK60×20	2 Nm (1.5 ft·lb$_f$)

23.1 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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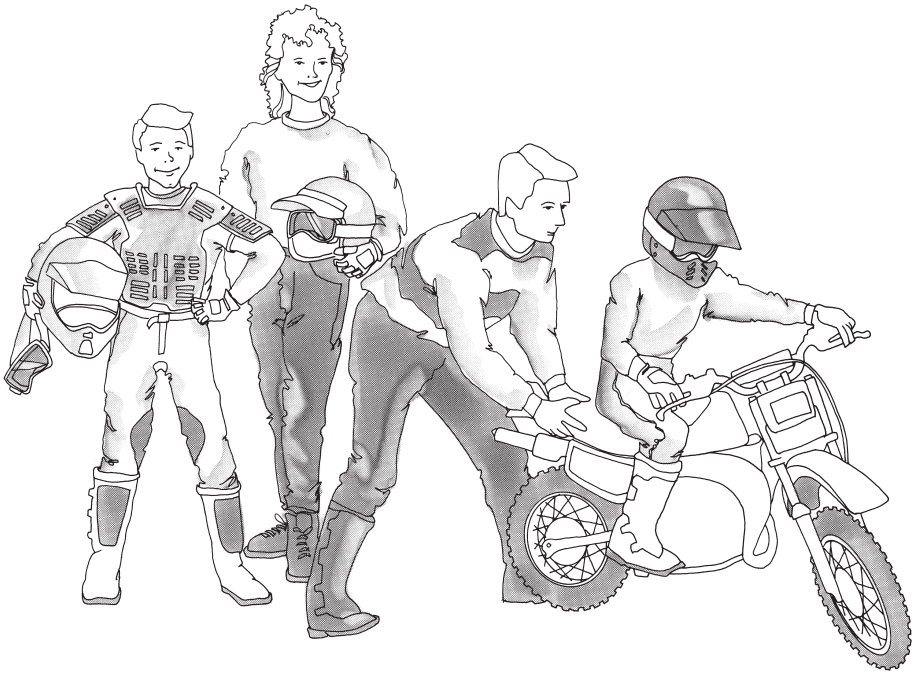
Parents...Be Cautious

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.

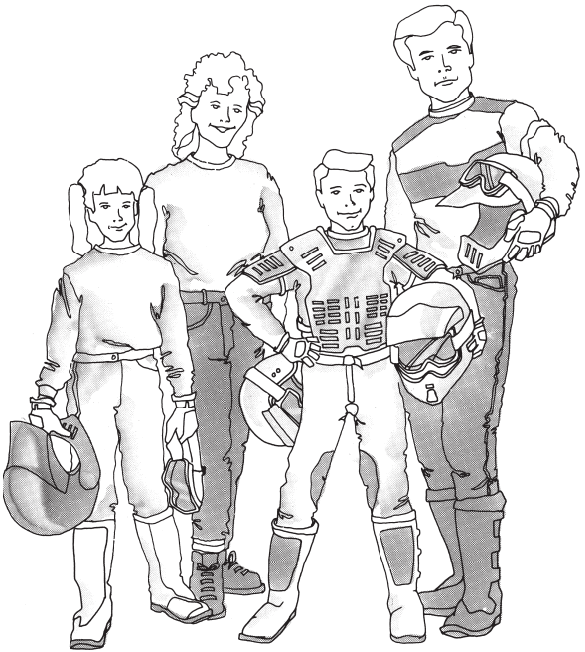
Important Note To Parents

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.

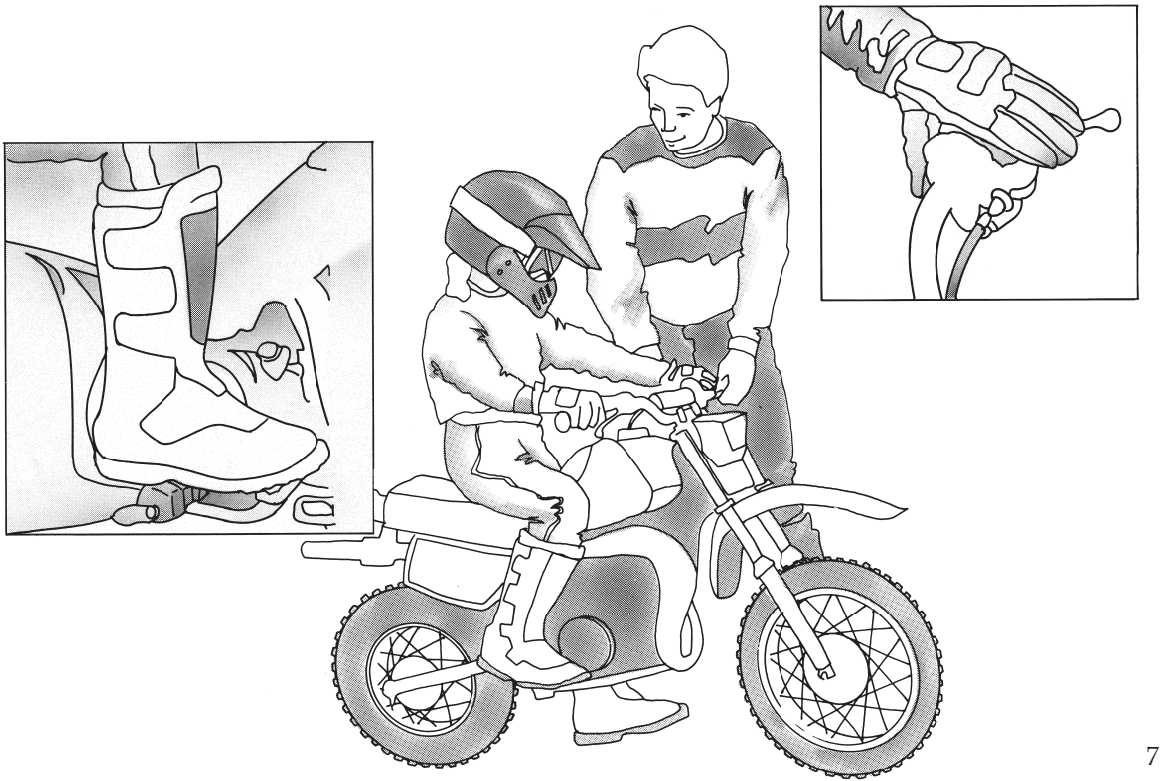
Readiness Guidelines

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.

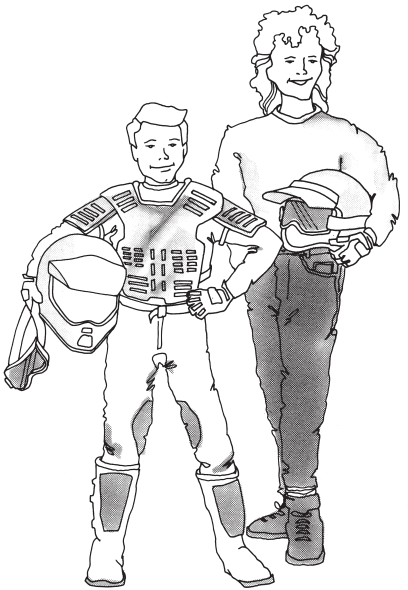
STEP THREE: Avoid Unsafe Situations Through Close Supervision

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.

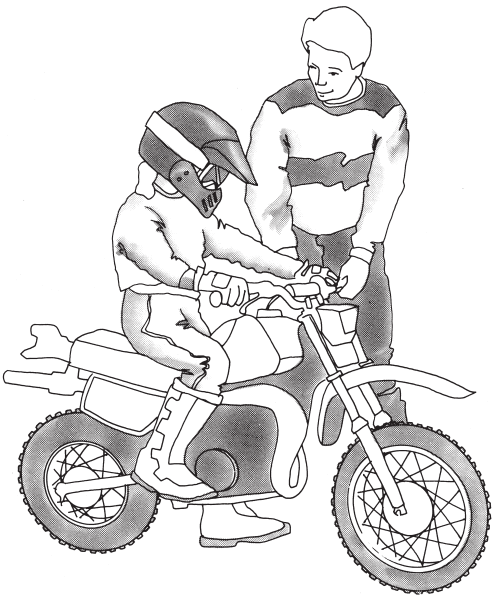
The hand and foot controls are important to riding safely. While riding, both hands should be kept on the handlebars and both feet on the footpegs of the motorcycle. Removing a hand or foot can reduce the ability to control the motorcycle.

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

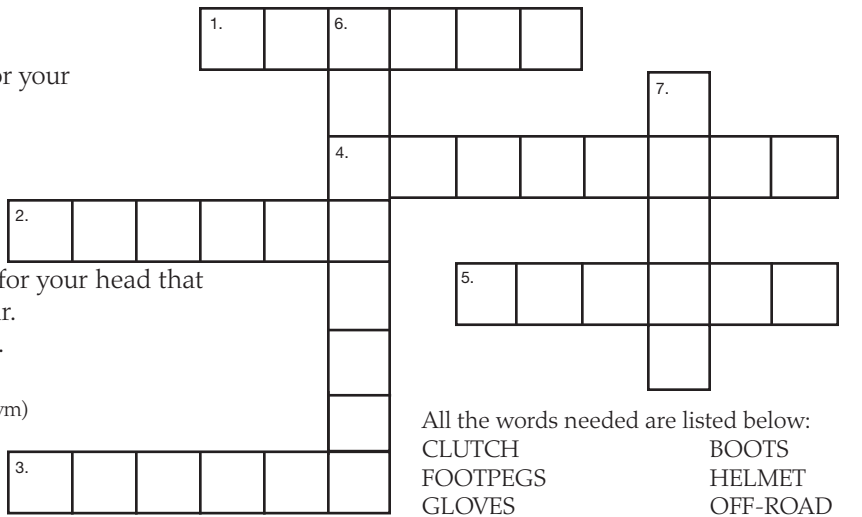
Here is a crossword puzzle for your youngster to complete.

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:

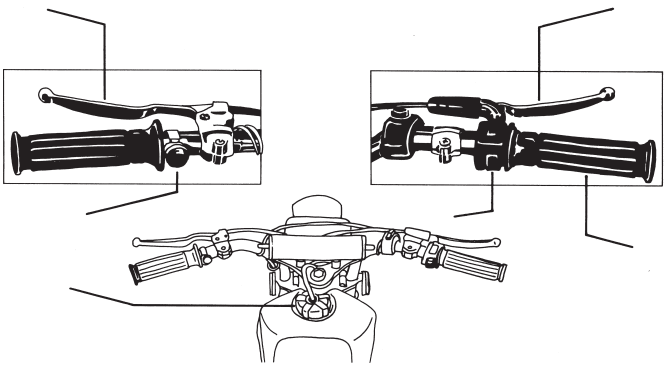
CLUTCH
FOOTPEGS
GLOVES
SAFETY
BOOTS
HELMET
OFF-ROAD

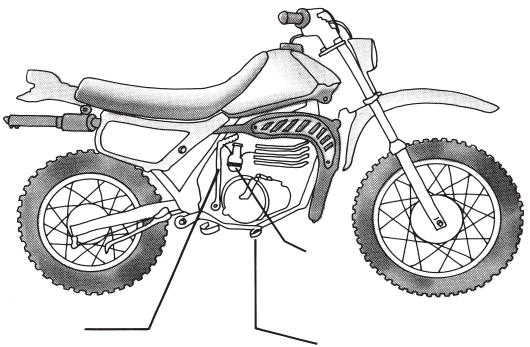
Answer Guide on Page 41

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.

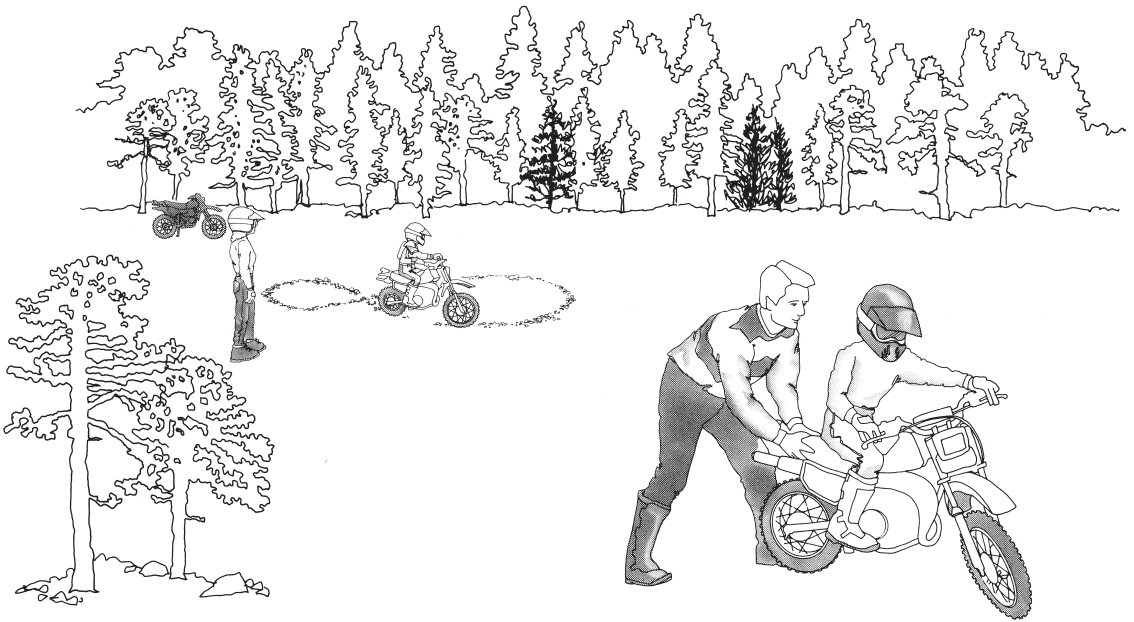
Your youngster's safety depends in part on the mechanical condition of the motorcycle. Be sure to inspect it thoroughly before each use. Starting and refueling of the vehicle should be done by responsible adults only. Follow a regular maintenance program. See the owner's manual for inspection details.

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

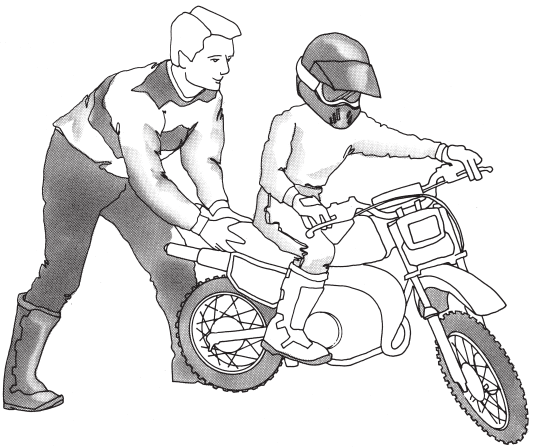
allow smooth shifting. Remind the youngster that the throttle should be closed when shifting gears. Practice this exercise several times until the skill is developed.

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:

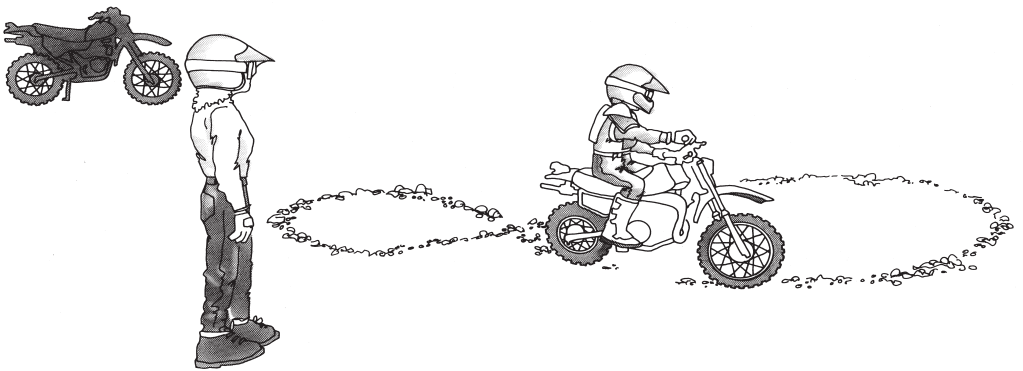
1. For a right turn, look to the right and lean the motorcycle to the right.
2. For a left turn, look to the left and lean the motorcycle to the left.

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.

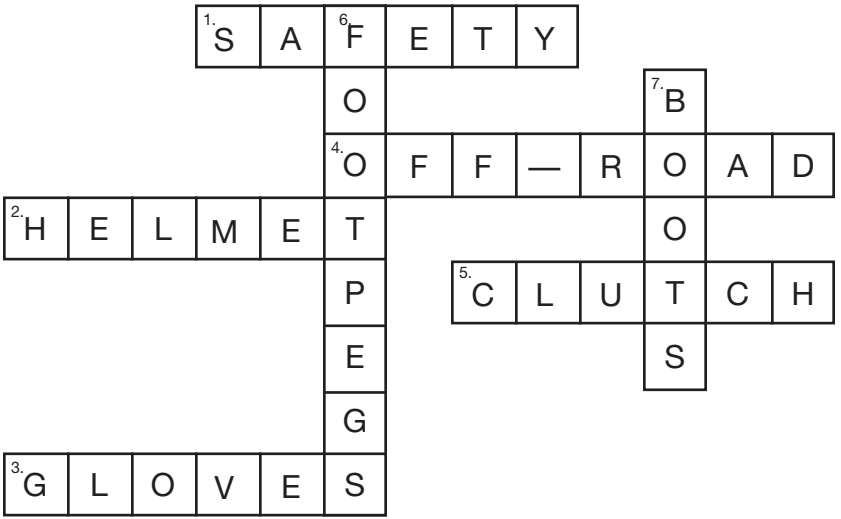
TAILPIPE - That part of the exhaust system which expels waste gases.

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.

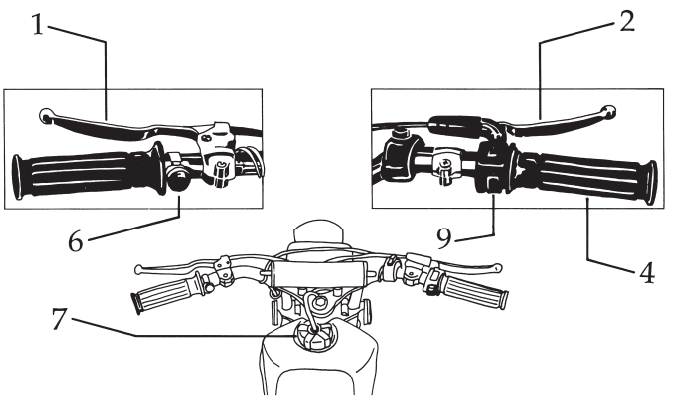
ANSWERS

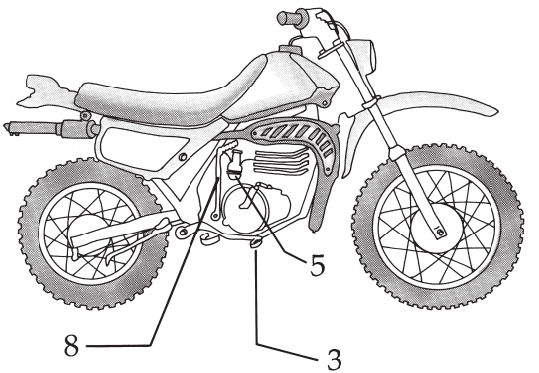


ANSWERS

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

Fuel additive

Recommended supplier
MOTOREX®
• FUEL STABILIZER

B Operating material

Off-road chain spray

Recommended supplier

MOTOREX®

- **CHAINLUBE OFF ROAD**

Fork oil

Order details

- 48601166S1

Standards

- SAE 4 → SAE

Gear oil

Recommended supplier

MOTOREX®

- **ATF DEXRON III**

Standards

→ Dexron III H

Universal oil spray

Recommended supplier

MOTOREX®

- **JOKER 440 SYNTHETIC**

Super unleaded (95 octane) mixed with 2-stroke engine oil

Standards

→ DIN EN 228

- 1:60 → JASO FD

Mixture ratio

1:60

- 2-stroke engine oil
- Super unleaded

Long-life grease

Recommended supplier

MOTOREX®

- **Bike Grease 2000**

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 (–13.0 °F)

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

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09/07/2025

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