OWNER'S MANUAL 2016

READY TO RACE
»www.ktm.com

450 SX-F Factory Edition

Art. no. 3213345en



KTM

DEAR KTM CUSTOMER

Congratulations on your decision to purchase a KTM motorcycle. You are now the owner of a state-of-the-art sports motorcycle that will give you enormous pleasure if you service and maintain it properly.

We hope you enjoy your new vehicle!

Enter the serial numbers of your vehicle below.

Chassis number (☛ p. 10)	Dealer's stamp
Engine number (☛ p. 10)	

The Owner's Manual contained the latest information for this model series at the time of going to print. Minor differences due to developments in design cannot be ruled out completely.

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KTM Sportmotorcycle GmbH
5230 Mattighofen, Austria

This document is valid for the following models:
450 SX-F Factory Edition US (F8475P1)

3213345en

11/2015

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1 MEANS OF REPRESENTATION

1.1 Symbols used

The meaning of specific symbols is described below.

✓	Indicates an expected reaction (e.g. of a work step or a function).
✗	Indicates an unexpected reaction (e.g. of a work step or a function).
	All work marked with this symbol requires specialist knowledge and technical understanding. In the interest of your own safety, have these jobs performed by an authorized KTM workshop. There, your motorcycle will be optimally cared for by specially trained experts using the specialist tools required.
	Indicates a page reference (more information is provided on the specified page).
	Indicates information with more details or tips.
»	Indicates the result of a testing step.

1.2 Formats used

The typographical formats used in this document are explained below.

Specific name	Identifies a proprietary name.
Name®	Identifies a protected name.
Brand™	Identifies 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.

2 SAFETY ADVICE

2.1 Use definition - intended use

KTM sport motorcycles are designed and built to withstand the normal stresses and strains of competitive use. The motorcycles comply with currently valid regulations and categories of the top international motorsport organizations.

Info
The motorcycle may only be used in closed off areas remote from public road traffic.

2.2 Safety advice

A number of safety instructions need to be followed to operate the vehicle safely. Therefore, read this manual carefully. The safety instructions are highlighted in the text and are referred to at the relevant passages.

Info
The vehicle has various information and warning labels at prominent locations. Do not remove information/warning labels. If they are missing, you or others may not recognize dangers and may therefore be injured.

2.3 Degrees of risk and symbols

Danger
Indicates a danger that will immediately and invariably lead to fatal or serious permanent injury if the appropriate measures are not taken.

Warning
Indicates a danger that is likely to lead to fatal or serious injury if the appropriate measures are not taken.

Caution
Indicates a danger that may lead to minor injuries if the appropriate measures are not taken.

Note
Indicates a danger that will lead to considerable machine and material damage if the appropriate measures are not taken.

Warning
Indicates a danger that will lead to environmental damage if the appropriate measures are not taken.

2.4 Tampering warning

Tampering with the noise control system is prohibited. Federal law prohibits the following acts or the causing thereof:

1 The removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use, or
2 the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering are the acts listed below:

1 Removal or puncturing of the main silencer, baffles, header pipes or any other components which conduct exhaust gases.
2 Removal or puncturing of parts of the intake system.
3 Lack of proper maintenance.
4 Replacing moving part of the vehicle, or parts of the exhaust or intake system, with parts other than those specified by the manufacturer.

2.5 Safe operation

Danger
Danger of accidents Danger arising from the rider's judgement being impaired.

– Do not operate the vehicle while under the influence of alcohol, drugs and certain medications or physically or mentally impaired.

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

– When running the engine, always make sure there is sufficient ventilation, and do not start or run the engine in an enclosed space without an effective exhaust extraction system.

Warning

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

– Do not touch hot components such as exhaust system, radiator, engine, shock absorber, and the brake system. Allow these components to cool down before starting work on them.

Only operate the vehicle when it is in perfect technical condition, in accordance with its intended use, and in a safe and environmentally compatible manner.
The vehicle should 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.

2.6 Protective clothing

Warning

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

– Wear protective clothing (helmet, boots, gloves, pants and jacket with protectors) every time you ride the vehicle. Always wear protective clothing that is in good condition and meets the legal requirements.

In the interest of your own safety, KTM recommends that you only operate the vehicle while wearing protective clothing.

2.7 Work rules

Special tools are necessary for certain tasks. The tools are not contained in the vehicle but can be ordered under the number in parentheses. E.g.: bearing puller (15112017000)
During assembly, non-reusable parts (e.g. self-locking screws and nuts, seals and seal rings, O-rings, pins, lock washers) must be replaced by new parts.
In some instances, a thread locker (e.g. **Loctite®**) is required. The manufacturer instructions for use must be followed.
After disassembly, clean the parts that are to be reused and check them for damage and wear. Change damaged or worn parts.
After you complete the repair or service work, check the operating safety of the vehicle.

2.8 Environment

If you use your motorcycle responsibly, you can ensure that problems and conflicts do not occur. To protect the future of the motorcycle sport, make sure that you use your motorcycle legally, display environmental consciousness, and respect the rights of others.
When disposing of used oil, other operating and auxiliary fluids, and used components, comply with the laws and regulations of the respective country.
Because motorcycles are not subject to the EU regulations governing the disposal of used vehicles, there are no legal regulations that pertain to the disposal of an end-of-life motorcycle. Your authorized KTM dealer will be glad to advise you.

2.9 Owner's Manual

It is important that you read this Owner's Manual carefully and completely before making your first trip. The Owner's Manual contains useful information and many tips on how to operate, handle, and maintain your motorcycle. Only then will you find out how to customize the vehicle ideally for your own use and how you can protect yourself from injury.
Keep the Owner's Manual in an accessible place to enable you to refer to it as needed.
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 and should be handed over to the new owner if the vehicle is sold.

3 IMPORTANT NOTES

3.1 Manufacturer and implied warranty

The work specified in the service schedule may only be performed in an authorized KTM workshop and must be recorded in both the Service & Warranty Booklet and in **KTM Dealer.net**, otherwise any warranty coverage will become void. Damage or secondary damage caused by tampering with and/or conversions on the vehicle are not covered by the warranty.
Additional information on the manufacturer or implied warranty and the procedures involved can be found in the Service & Warranty Booklet.

3.2 Operating and auxiliary substances



Warning

Environmental hazard Improper handling of fuel is a danger to the environment.

– Do not allow fuel to get into the ground water, the ground, or the sewage system.

Use operating and auxiliary substances (such as fuel and lubricants) as specified in the Owner's Manual.

3.3 Spare parts, accessories

For your own safety, 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 current **KTM PowerParts** for your vehicle can be found on the KTM website.
International KTM Website: http://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. Incorrect adjustment and tuning of the engine and chassis can lead to damage and breakage of components.
Use of the vehicle under difficult conditions, such as on sand or on wet and muddy surfaces, can lead to considerably more rapid wear of components such as the drive train, brake system, or suspension components. For this reason, it may be necessary to inspect or replace parts before the next scheduled service.
It is imperative that you adhere to the stipulated run-in times and service intervals. If you observe these exactly, you will ensure a much longer service life for your motorcycle.

3.5 Figures

The figures contained in the manual may depict special equipment.
In the interest of clarity, some components may be shown disassembled or may not be shown at all. It is not always necessary to disassemble the component to perform the activity in question. Please follow the instructions in the text.

3.6 Customer service

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

A list of authorized KTM dealers can be found on the KTM website.
International KTM Website: http://www.ktm.com

4 VIEW OF VEHICLE

4.1 View of vehicle, front left (example)



1	Kill switch (☛ p. 11)
2	Clutch lever (☛ p. 11)
3	Filler cap
4	Air filter box cover
5	Shift lever (☛ p. 14)
6	Cold start button (☛ p. 14)
7	Chain guide

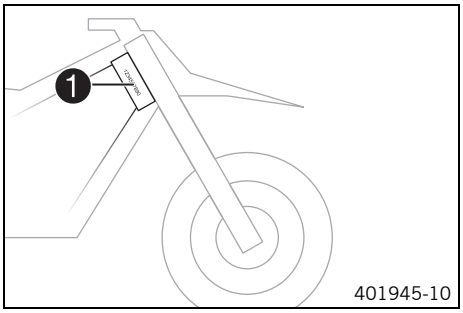
4.2 View of vehicle, rear right (example)



1	**Map-Select** switch for vehicle operation (☛ p. 12)
2	Electric starter button (☛ p. 11)
3	Hand brake lever (☛ p. 11)
4	Fork compression adjustment
5	Level viewer for brake fluid, rear
6	Shock absorber compression adjustment
7	Foot brake lever (☛ p. 15)
8	Fork part number (☛ p. 10)
9	Fork rebound adjustment

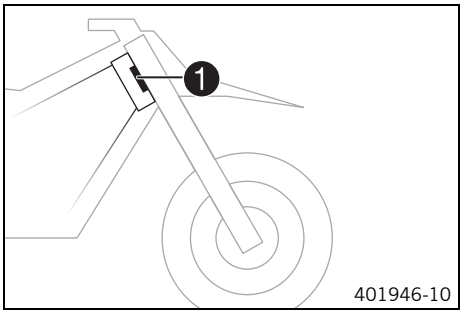
5 SERIAL NUMBERS

5.1 Chassis number



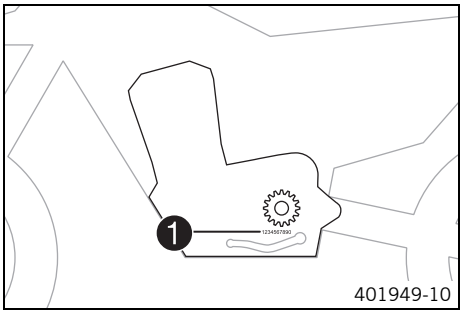
The chassis number ❶ is stamped on the right side of the steering head.

5.2 Type label



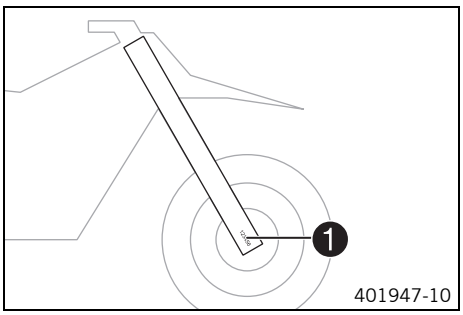
The type label ❶ is fixed to the front of the steering head.

5.3 Engine number



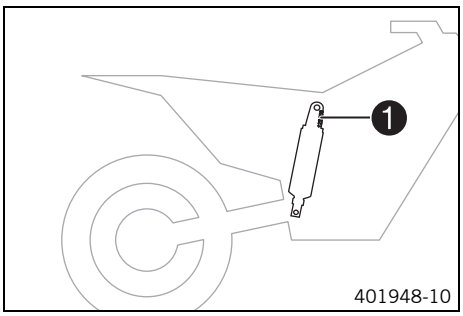
The engine number ❶ is stamped on the left side of the engine under the engine sprocket.

5.4 Fork part number



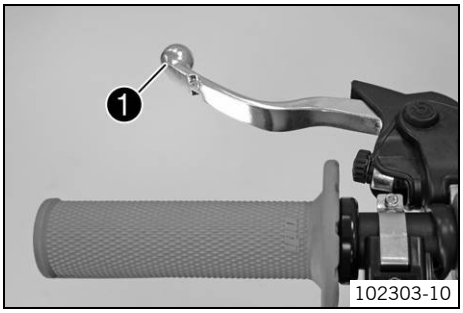
The fork part number ❶ is stamped on the inner side of the axle clamp.

5.5 Shock absorber article number



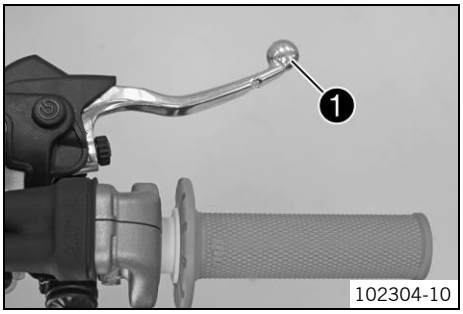
The shock absorber article number ❶ is stamped on the top of the shock absorber above the adjusting ring towards the engine side.

6.1 Clutch lever



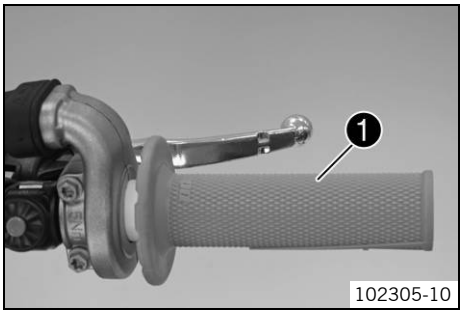
The clutch lever ❶ is fitted on the left side of the handlebar.
The clutch is hydraulically operated and self-adjusting.

6.2 Hand brake lever



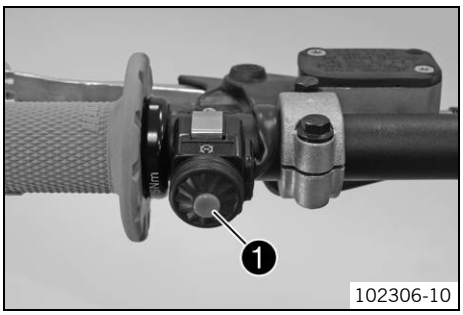
Hand brake lever ❶ is fitted on the right side of the handlebar.
The front brake is engaged using the hand brake lever.

6.3 Throttle grip



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

6.4 Kill switch

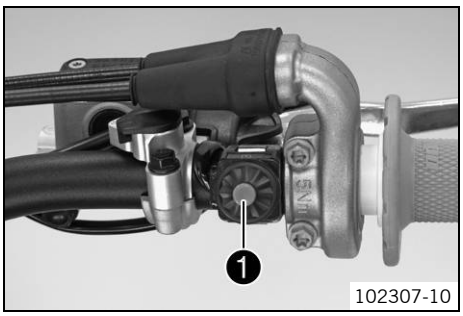


Kill switch ❶ is fitted on the left side of the handlebar.

Possible states

- Kill switch ⊠ in basic position – In this position, the ignition circuit is closed and the engine can be started.
- Kill switch ⊠ pressed – In this position, the ignition circuit is interrupted, a running engine stops, and a non-running engine will not start.

6.5 Electric starter button

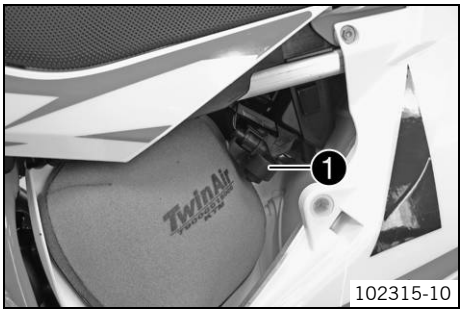


Electric starter button ❶ is fitted on the right side of the handlebar.

Possible states

- Electric starter button ⓚ in basic position
- Electric starter button ⓚ pressed – In this position, the electric starter is actuated.

6.6 Map-Select switch for the basic setting



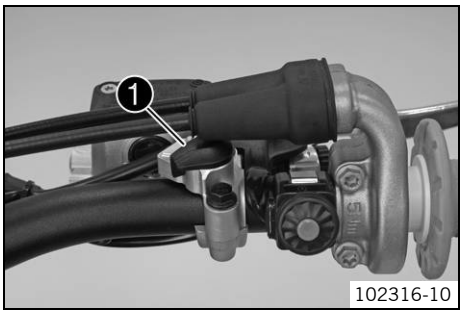
The **Map-Select** switch for the basic setting ❶ is fitted under the air filter box cover.

Possible states

1	SOFT – The mapping with reduced peak performance for better rideability is activated. The **Launch Control** can be activated.
2	ADVANCED – The mapping for performance with a very direct response is activated. The **Launch Control** can be activated.
3 - **9**, **0**	STANDARD – The mapping for performance with a balanced response is activated. The **Launch Control** cannot be activated.

The **Map-Select** switch for the basic setting is used to preselect the engine characteristics.

6.7 Map-Select switch for vehicle operation



The **Map-Select** switch for vehicle operation ❶ is fitted on the right side of the handlebar.

Possible states

I	STANDARD – STANDARD mapping is always activated in this setting.
II	SOFT or ADVANCED – The mapping that is set on the **Map-Select** switch for the basic setting is activated in this setting.

The **Map-Select** switch for vehicle operation is used to change the engine characteristics on the handlebar. This change is activated when the engine is idling or after the motorcycle is restarted.
In addition, the **Map-Select** switch controls the **Launch Control** (☛ p. 12).

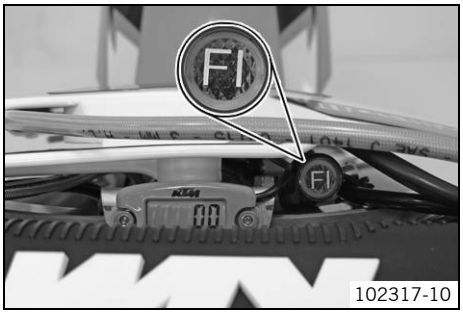
6.8 Launch control

The **Launch Control** assists the rider in optimally starting the motorcycle at the beginning of a race. The maximum speed of the engine with the throttle valve fully opened (full throttle) is reduced. After the start, it is gradually increased up to the maximum engine speed. Throughout this procedure, the rider opens the throttle fully and the best possible acceleration is achieved.
The clutch must be activated exactly as it would be without an active **Launch Control**.

The Launch Control is deactivated in the following cases (FI warning lamp (MIL) no longer flashes):
– After full throttle, the throttle valve was closed by more than 1/3 of the way.
– There is no start within 3 minutes.

Info
Several seconds after the vehicle starts, **Launch Control** is deactivated automatically.

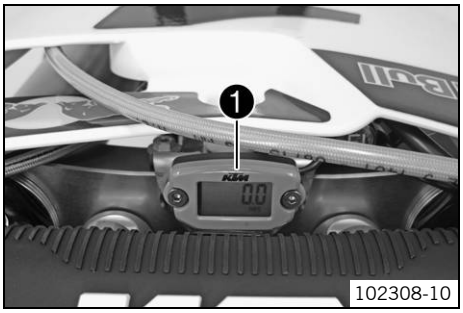
6.9 Overview of indicator lamps



Possible states

FI	**FI** warning lamp (**MIL**) lights up/flashes orange – The OBD has detected an emission- or safety-critical fault.
FI	**FI** warning lamp (**MIL**) flashes fast in orange – The **Launch Control** (☛ p. 12) is activated.

6.10 Service hour counter



The run hour counter ❶ is fitted in front of the handlebar.
It shows the total number of service hours of the engine.
The service hour counter begins counting when the engine is started and stops when the engine is switched off.

Info
The value indicated by the service hour counter cannot be cleared or adjusted.

6.11 Opening the filler cap

Danger
Fire hazard Fuel is highly flammable.

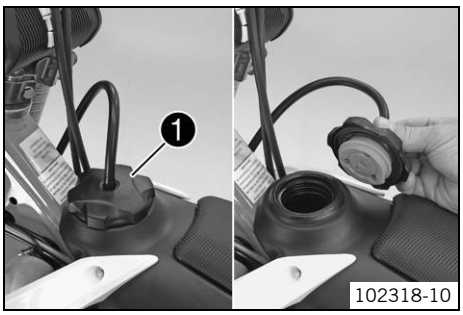
- Never refuel the vehicle near open flames or burning cigarettes, and always switch off the engine first. Be careful that no fuel is spilt, especially on hot vehicle components. Clean up spilt fuel immediately.
- The fuel in the fuel tank expands when warm and may emerge if overfilled. Follow the instructions on refueling.

Warning
Danger of poisoning Fuel is poisonous and a health hazard.

- Fuel must not come into contact with the skin, eyes, or clothing. Do not breathe in the fuel vapors. If contact occurs with the eyes, rinse with water immediately and contact a physician. Immediately clean contaminated areas on the skin with soap and water. If fuel is swallowed, contact a physician immediately. Change clothing that has been contaminated with fuel. Store fuel properly in a suitable canister and keep away from children.

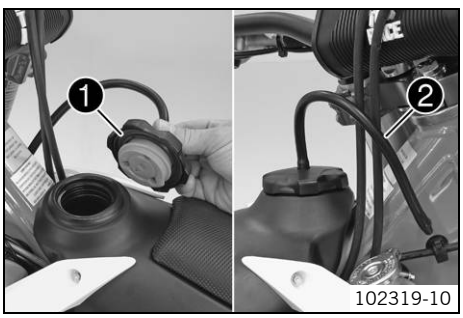
Warning
Environmental hazard Improper handling of fuel is a danger to the environment.

- Do not allow fuel to get into the ground water, the ground, or the sewage system.



- Turn filler cap ❶ counterclockwise and lift it off.

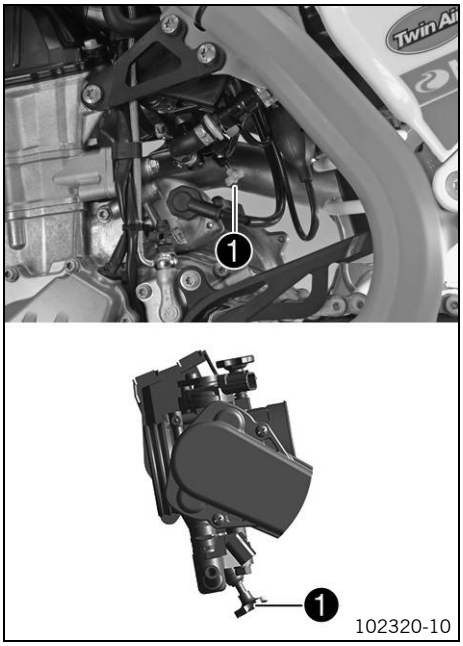
6.12 Closing the filler cap



- Mount the filler cap ❶ and turn it clockwise until the tank is firmly closed.

Info
Run the fuel tank breather hose ❷ without kinks.

6.13 Cold start button

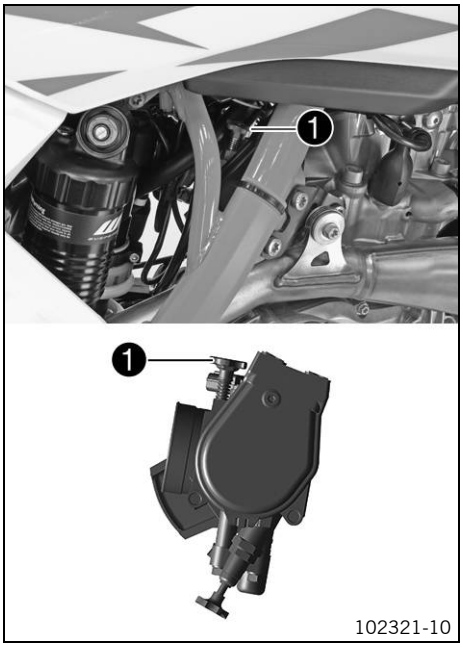


The cold start button ❶ (yellow) is fitted on the bottom of the throttle valve body.
The injection system extends the injection time if the engine is cold and the outside temperature is low. To help the engine burn the increased amount of fuel, it must be supplied with additional oxygen by pushing the cold start button.
When the throttle grip is turned, the cold start button jumps back to the original position.

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

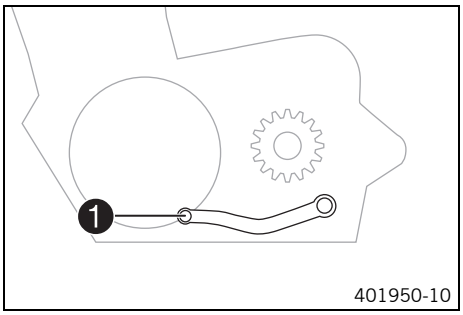
Possible states
- The cold start button is activated – The cold start button is pushed in all the way.
- The cold start button is deactivated – The cold start button is in its basic position.

6.14 Idle speed adjusting screw

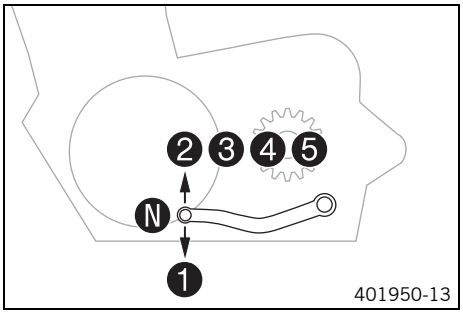


The idle setting of the throttle valve body has a big influence on the vehicle's starting behavior, on stable idling, and on vehicle response when the throttle is opened.
An engine with a correctly set idle speed is easier to start than an engine with the idle speed set incorrectly.
The idle speed is adjusted using idle speed adjusting screw ❶ (red).
Increase the idle speed by turning the idle speed adjusting screw clockwise.
Decrease the idle speed by turning the idle speed adjusting screw counterclockwise.

6.15 Shift lever

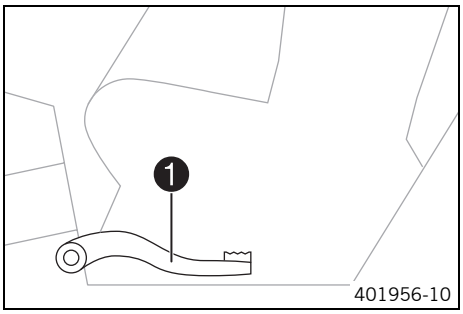


Shift lever ❶ is mounted on the left side of the engine.



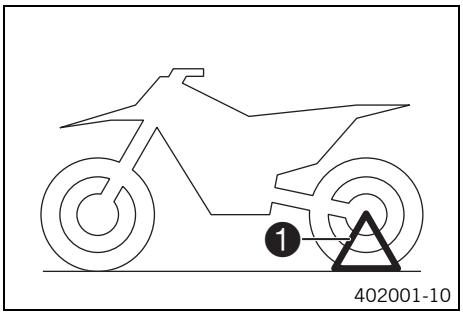
The gear positions can be seen in the photograph.
The neutral or idle position is between the first and second gears.

6.16 Foot brake lever



Foot brake lever ❶ is located in front of the right footrest.
The foot brake lever is used to activate the rear brake.

6.17 Plug-in stand



The holder for the plug-in stand ❶ is the left side of the wheel spindle.
The plug-in stand is used to park the motorcycle.

Info
Remove the plug-in stand before starting on a trip.

7 PREPARING FOR USE

7.1 Advice on first use

Danger
Danger of accidents Danger arising from the rider's judgement being impaired.

– Do not operate the vehicle while under the influence of alcohol, drugs and certain medications or physically or mentally impaired.

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

– Wear protective clothing (helmet, boots, gloves, pants and jacket with protectors) every time you ride the vehicle. Always wear protective clothing that is in good condition and meets the legal requirements.

Warning
Danger of crashing Poor vehicle handling due to different tire tread patterns on front and rear wheels.

– The front and rear wheels must be fitted with tires with similar tread patterns to prevent loss of control over the vehicle.

Warning
Danger of accidents Critical riding behavior due to inappropriate riding.

– Adapt your riding speed to the road conditions and your riding ability.

Warning
Danger of accidents Accident risk caused by presence of a passenger.

– Your vehicle is not designed to carry passengers. Do not ride with a passenger.

Warning
Danger of accidents Failure of brake system.

– If the foot brake lever is not released, the brake linings drag continuously. The rear brake may fail due to overheating. Take your foot off the foot brake lever when you are not braking.

Warning
Danger of accidents Unstable riding behavior.

– Do not exceed the maximum permissible weight and axle loads.

Warning
Risk of misappropriation Usage by unauthorized persons.

– Never leave the vehicle while the engine is running. Secure the vehicle against use by unauthorized persons.

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

– Make sure that the pre-delivery inspection work has been carried out by an authorized KTM workshop.
  ✓ You receive a delivery certificate and the service booklet at vehicle handover.
– Before your first trip, read the entire Owner's Manual carefully.
– Get to know the controls.
– Adjust the basic position of the clutch lever. (☛ p. 55)
– Adjust the basic position of the hand brake lever. (☛ p. 57)
– Adjust the basic position of the foot brake lever. 🔧 (☛ p. 61)
– Adjust the basic position of the shift lever. 🔧 (☛ p. 80)
– Get used to handling the motorcycle on a suitable piece of land before undertaking a more challenging trip.

Info
Your motorcycle is not authorized for riding on public roads.
Off-road, you should be accompanied by another person on another machine so that you can help each other.

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

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

Maximum permissible overall weight	335 kg (739 lb.)
Maximum permissible front axle load	145 kg (320 lb.)
Maximum permissible rear axle load	190 kg (419 lb.)

– Run in the engine. (☛ p. 17)

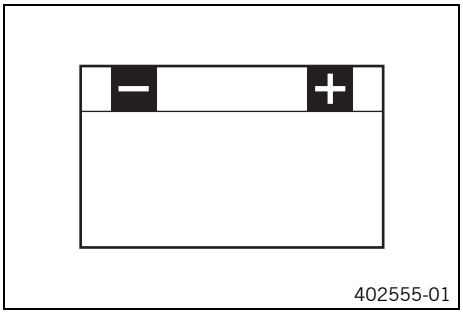
7.2 Running in the engine

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

Maximum engine speed	
During the first operating hour	7,000 rpm
Maximum engine performance	
During the first 3 operating hours	≤ 75 %

– Avoid fully opening the throttle!

7.3 Starting power of lithium-ion batteries at low temperatures



Lithium-ion batteries are far lighter than lead batteries, have a low self-discharge rate, and have more starting power at temperatures over 15 °C (60 °F). At low temperatures, however, the starting power of lithium-ion batteries drops to below that of lead batteries.
Multiple starting attempts may be needed. Press the electric starter button for 5 seconds, and wait 30 seconds between attempts. The pauses are necessary so that the created heat can distribute through the lithium-ion battery and the battery is not damaged.
If the charged lithium-ion battery does not or only weakly turns over the electric starter when temperatures are below 15 °C (60 °F), then the battery is not faulty, but needs to be warmed up internally to increase its starting power (current output).
The starting power increases as the battery warms up.

7.4 Preparing the vehicle for difficult riding conditions

Info
Use of the vehicle under difficult conditions, such as on sand or on wet and muddy surfaces, can lead to considerably more rapid wear of components such as the drive train, brake system, or suspension components. For this reason, it may be necessary to inspect or replace parts before the next scheduled service.

– Clean the air filter and air filter box. 🔧 (☛ p. 46)

Info
Check the air filter approx. every 30 minutes.

– Seal the air filter box. 🔧 (☛ p. 47)
– Secure the air filter box cover. 🔧 (☛ p. 47)
– Check the electrical connector for humidity and corrosion and to ensure it is firmly seated.
  » If humidity, corrosion, or damage is found:
    – Clean and dry the connector, or change it if necessary.

Difficult riding conditions are:
– Rides on dry sand. (☛ p. 18)
– Rides on wet sand. (☛ p. 18)
– Rides on wet and muddy surfaces. (☛ p. 19)
– Rides at high temperature and slow speed. (☛ p. 19)
– Rides at low temperatures or in snow. (☛ p. 19)

7.5 Preparing for rides on dry sand



102136-01

– Fit a dust cover on the air filter.

Dust protection device for air filter (79006920000)

Info
See the **KTM PowerParts** fitting instructions.

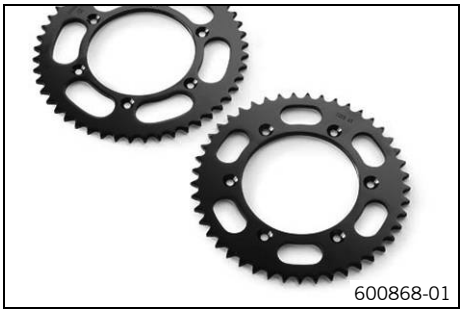


102138-01

– Fit a sand cover on the air filter.

Sand protection device for air filter (79006922000)

Info
See the **KTM PowerParts** fitting instructions.


600868-01

– Clean the chain.

Chain cleaner (☛ p. 97)

– Fit the steel sprocket.

Tip
Do not grease the chain.

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

7.6 Preparing for rides on wet sand



102137-01

– Fit a rain cover on the air filter.

Waterproofing device for air filter (79006921000)

Info
See the **KTM PowerParts** fitting instructions.


600868-01

– Clean the chain.

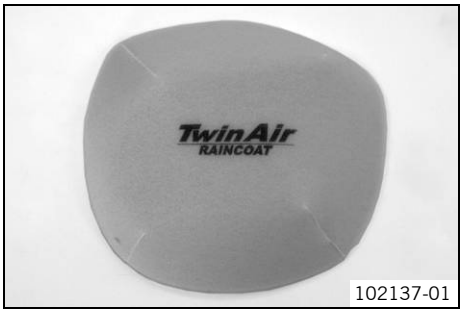
Chain cleaner (☛ p. 97)

– Fit the steel sprocket.

Tip
Do not grease the chain.

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

7.7 Preparing for rides on wet and muddy surfaces

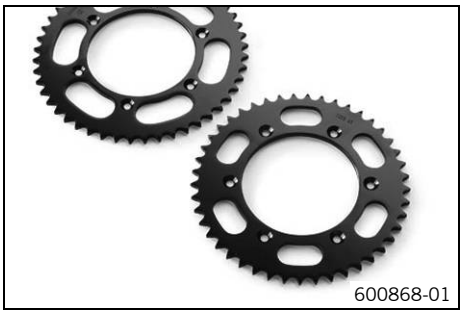


102137-01

– Fit a waterproofing device on the air filter.

Waterproofing device for air filter (79006921000)

Info
See the **KTM PowerParts** fitting instructions.


600868-01

– Fit the steel sprocket.
– Clean the motorcycle. (☛ p. 85)
– Straighten bent radiator fins carefully.

7.8 Preparing for rides at high temperature and slow speed


600868-01

– Adjust the secondary drive to the road conditions.

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

– Clean the chain.

Chain cleaner (☛ p. 97)

– Clean radiator fins.
– Straighten bent radiator fins carefully.
– Check the coolant level. (☛ p. 74)

7.9 Preparing for rides at low temperatures or in snow



102137-01

– Fit a waterproofing device on the air filter.

Waterproofing device for air filter (79006921000)

Info
See the **KTM PowerParts** fitting instructions.

8.1 Checks and maintenance work when preparing for use

Info
Before riding the vehicle, always check its condition and operating safety.
The vehicle must be in perfect technical condition when used.

- Check the engine oil level. (☛ p. 81)
- Check the brake fluid level of the front brake. (☛ p. 58)
- Check the rear brake fluid level. (☛ p. 62)
- Check the front brake linings. (☛ p. 59)
- Check the rear brake linings. (☛ p. 63)
- Check that the brake system is functioning properly.
- Check the coolant level. (☛ p. 74)
- Check for chain dirt accumulation. (☛ p. 50)
- Check the chain, rear sprocket, engine sprocket, and chain guide. (☛ p. 52)
- Check the chain tension. (☛ p. 51)
- Check the tire condition. (☛ p. 69)
- Check the tire air pressure. (☛ p. 69)
- Check the spoke tension. (☛ p. 69)
- Clean the dust boots of the fork legs. (☛ p. 35)
- Bleed the fork legs. (☛ p. 34)
- 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 supply.

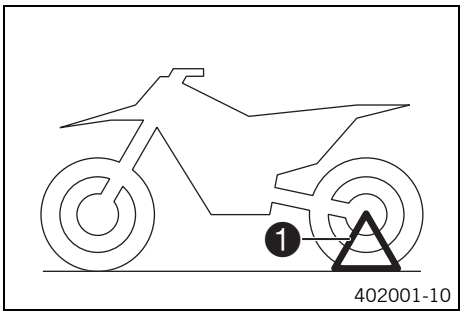
8.2 Starting

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

- When running the engine, always make sure there is sufficient ventilation, and do not start or run the engine in an enclosed space without an effective exhaust extraction system.

Note
Engine failure High engine speeds in cold engines have a negative effect on the service life of the engine.

- Always warm up the engine at low engine speeds.

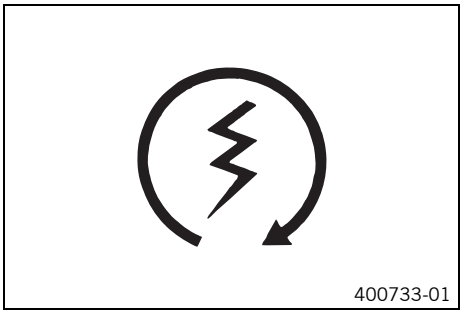


402001-10

- Remove plug-in stand ❶.
- Shift the transmission to idle.

Condition
Ambient temperature: < 20 °C (< 68 °F)

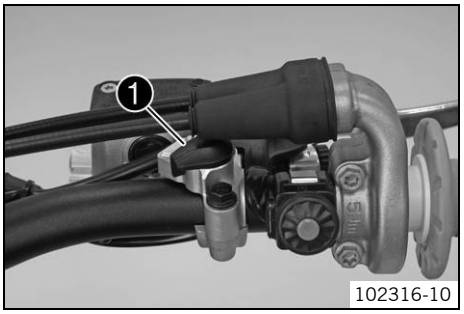
- Push the cold start button in all the way.


400733-01

- Press the electric starter button Ⓢ.

Info
Press the electric starter button for a maximum of 5 seconds. Wait for 30 seconds before a further attempt at starting.
At temperatures below 15 °C (60 °F), several attempts at starting may be necessary to warm-up the lithium-ion battery and thereby increase the starting power.
When starting **FI** warning lamp lights up briefly as a function check.

8.3 Activating Launch Control



Condition
Map-Select switch for the basic setting is at position **1** or **2**.
The motorcycle is stationary.
The engine is running at idle speed.
Transmission in idle.

– Using the **Map-Select** switch ❶ for the ride mode, briefly change the setting (from **I** to **II** or vice-versa).

Guideline

Maximum duration of the shifting procedure	5 s

✓ **FI** warning lamp flashes orange rapidly.

Info
The **Launch Control** can only be activated if the **Map-Select** switch for the basic setting (under the air filter box cover) is in position **1** (SOFT) or **2** (ADVANCED).
The **Launch Control** stays active for 3 minutes, and the start should occur within this period. If no start is detected, it is deactivated after 3 minutes; the **FI** warning lamp stops flashing.
For the **Launch Control** to function, the throttle must be fully opened at the start. If the throttle valve is closed by more than 1/3 of the way following full throttle, **Launch Control** is deactivated (**FI** warning lamp no longer flashes).
Several seconds after the vehicle starts, **Launch Control** is deactivated automatically.
To reactivate **Launch Control**, the engine must first be switched off for at least 10 seconds for safety reasons. This must occur regardless of whether the engine was started or not.

8.4 Starting off

– Pull the clutch lever, engage 1st gear, release the clutch lever slowly and simultaneously open the throttle carefully.

8.5 Shifting, riding

Warning
Danger of accidents If you change down at high engine speed, the rear wheel can lock up.

– Do not change into a low gear at high engine speed. The engine races and the rear wheel can lock up.

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

– When conditions allow (incline, road situation, etc.), you can shift into a higher gear. To do so, release the throttle while simultaneously pulling the clutch lever, shift into the next gear, release the clutch and open the throttle.
– When you push the cold start button while starting, open the throttle and release the throttle grip or turn the throttle grip forward.
✓ The cold start button goes to the basic position.
– When you reach maximum speed after fully opening the throttle, turn back the throttle to about ¾ of its range. This barely reduces vehicle speed but lowers fuel consumption considerably.
– Always open the throttle only as much as the engine can handle – abrupt throttle opening increases fuel consumption.
– To shift down, brake and close the throttle at the same time.
– Pull the clutch lever and shift into a lower gear, release the clutch lever slowly and open the throttle or shift again.
– Switch off the engine if you expect to be standing for a long time.

Guideline

≥ 1 min

– Avoid frequent and longer slipping of the clutch. This heats the engine oil, the engine and the cooling system.

– Ride with a lower engine speed instead of with a high engine speed and a slipping clutch.

8.6 Applying the brakes

Warning
Danger of accidents If you brake too hard, the wheels can lock.

– Adapt your braking to the traffic situation and the road conditions.

Warning
Danger of accidents Reduced braking efficiency caused by spongy pressure point of front or rear brake.

– Check the brake system and do not continue riding. (Your authorized KTM workshop will be glad to help.)

Warning
Danger of accidents Reduced braking efficiency due to a wet or dirty brake system.

– Clean or dry a dirty or wet brake system by riding and braking gently.

– On sandy, wet or slippery surfaces, use the rear brake.
– Braking should always be completed before you go into a bend. Change down to a lower gear appropriate to your road speed.
– On long downhill stretches, use the braking effect of the engine. Change down one or two gears, but do not overstress the engine. In this way, you have to apply the brakes far less frequently and the brake system does not overheat.

8.7 Stopping, parking

Warning
Risk of misappropriation Usage by unauthorized persons.

– Never leave the vehicle while the engine is running. Secure the vehicle against use by unauthorized persons.

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

– Do not touch hot components such as exhaust system, radiator, engine, shock absorber, and the brake system. Allow these components to cool down before starting work on them.

Note
Danger of damage The parked vehicle may roll away or fall over.

– Always place the vehicle on a firm and even surface.

Note
Fire hazard Some vehicle components become very hot when the vehicle is operated.

– Do not park the vehicle near flammable or explosive substances. Do not place objects on the vehicle while it is still warm from being run. Always let the vehicle cool first.

– Brake the motorcycle.
– Shift the transmission to idle.
– Press and hold the kill switch ⊠ while the engine is idling until the engine stops.
– Park the motorcycle on firm ground.

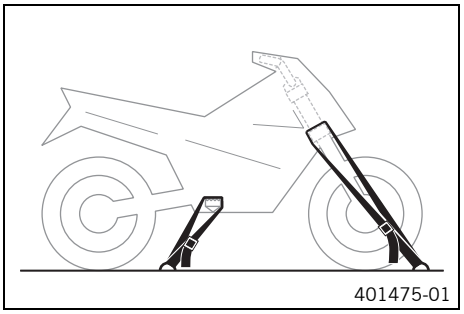
8.8 Transport

Note
Danger of damage The parked vehicle may roll away or fall over.

– Always place the vehicle on a firm and even surface.

Note
Fire hazard Some vehicle components become very hot when the vehicle is operated.

– Do not park the vehicle near flammable or explosive substances. Do not place objects on the vehicle while it is still warm from being run. Always let the vehicle cool first.



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

8.9 Refueling

Danger
Fire hazard Fuel is highly flammable.

– Never refuel the vehicle near open flames or burning cigarettes, and always switch off the engine first. Be careful that no fuel is spilt, especially on hot vehicle components. Clean up spilt fuel immediately.
– The fuel in the fuel tank expands when warm and may emerge if overfilled. Follow the instructions on refueling.

Warning
Danger of poisoning Fuel is poisonous and a health hazard.

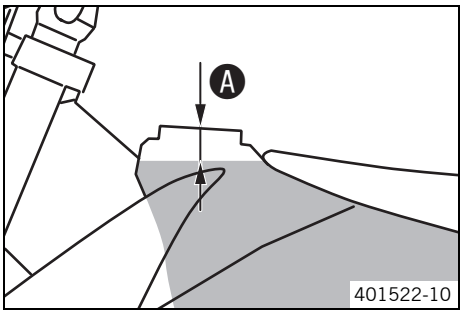
– Fuel must not come into contact with the skin, eyes, or clothing. Do not breathe in the fuel vapors. If contact occurs with the eyes, rinse with water immediately and contact a physician. Immediately clean contaminated areas on the skin with soap and water. If fuel is swallowed, contact a physician immediately. Change clothing that is contaminated with fuel.

Note
Material damage Premature clogging of the fuel filter.

– In some countries and regions, the available fuel quality and cleanliness may not be sufficient. This will result in problems with the fuel system. (Your authorized KTM workshop will be glad to help.)
– Only refuel with clean fuel that meets the specified standards.

Warning
Environmental hazard Improper handling of fuel is a danger to the environment.

– Do not allow fuel to get into the ground water, the ground, or the sewage system.



– Switch off the engine.
– Open the filler cap. (☛ p. 13)
– Fill the fuel tank with fuel up to measurement Ⓐ.

Guideline

Measurement of Ⓐ		35 mm (1.38 in)
Total fuel tank capacity, approx.	7.5 l (1.98 US gal)	Super unleaded (ROZ 95/RON 95/PON 91) (☛ p. 96)

– Close the filler cap. (☛ p. 13)

9 SERVICE SCHEDULE

9.1 Additional information

Any further work that results from the required work or from the recommended work must be ordered separately and can be invoiced separately.

9.2 Required work

	Once after 1 operating hour	Every 10 operating hours/after every race	Every 20 operating hours	Every 30 operating hours
Read out the fault memory using the KTM diagnostics tool. 🔧	○	●	●	●
Check and charge the battery. 🔧		●	●	●
Check the front brake linings. (☛ p. 59)		●	●	●
Check the rear brake linings. (☛ p. 63)		●	●	●
Check the brake discs. (☛ p. 57)		●	●	●
Check the brake lines for damage and leakage.		●	●	●
Check the rear brake fluid level. (☛ p. 62)		●	●	●
Check the free travel of the foot brake lever. (☛ p. 61)		●	●	●
Check the frame and swingarm. 🔧		●	●	●
Check the swingarm bearing for play.			●	
Check the heim joints at the top of the shock absorber. 🔧		●	●	●
Check the shock absorber linkage. 🔧		●	●	●
Check the tire condition. (☛ p. 69)	○	●	●	●
Check the tire air pressure. (☛ p. 69)	○	●	●	●
Check the wheel bearing for play.		●	●	●
Check the wheel hubs. 🔧		●	●	●
Check the rim run-out. 🔧	○	●	●	●
Check the spoke tension. (☛ p. 69)	○	●	●	●
Check the chain, rear sprocket, engine sprocket, and chain guide. (☛ p. 52)		●	●	●
Check the chain tension. (☛ p. 51)	○	●	●	●
Grease all moving parts (e.g., hand lever, chain, ...) and check for smooth operation. 🔧		●	●	●
Check/correct the fluid level of the hydraulic clutch. (☛ p. 55)		●	●	●
Check the brake fluid level of the front brake. (☛ p. 58)		●	●	●
Check the free travel of the hand brake lever. (☛ p. 57)		●	●	●
Check the steering head bearing play. (☛ p. 39)	○	●	●	●
Check the valve clearance. 🔧	○			●
Check the clutch. 🔧		●	●	●
Change the engine oil and oil filter and clean the oil screens. 🔧 (☛ p. 82)	○	●	●	●
Check all hoses (e.g. fuel, cooling, bleeder, drainage, etc.) and sleeves for cracking, leaks, and incorrect routing. 🔧	○	●	●	●
Check the antifreeze and coolant level. (☛ p. 74)	○	●	●	●
Check the cables for damage and routing without sharp bends. 🔧		●	●	●
Check that the throttle cables are undamaged, routed without sharp bends, and set correctly.	○	●	●	●
Clean the air filter and air filter box. 🔧 (☛ p. 46)		●	●	●
Change the glass fiber yarn filling of the main silencer. 🔧			●	
Check the screws and nuts for tightness. 🔧	○	●	●	●
Change the fuel screen. 🔧 (☛ p. 81)	○	●	●	●
Check the fuel pressure. 🔧		●	●	●
Check idle.	○	●	●	●
Final check: Check the vehicle for safe operation and take a test ride.	○	●	●	●
Read out the fault memory using the KTM diagnostics tool after a test ride. 🔧	○	●	●	●
Make the service entry in the **KTM Dealer.net** and in the Service and Warranty Booklet. 🔧	○	●	●	●

○ One-time interval
• Periodic interval

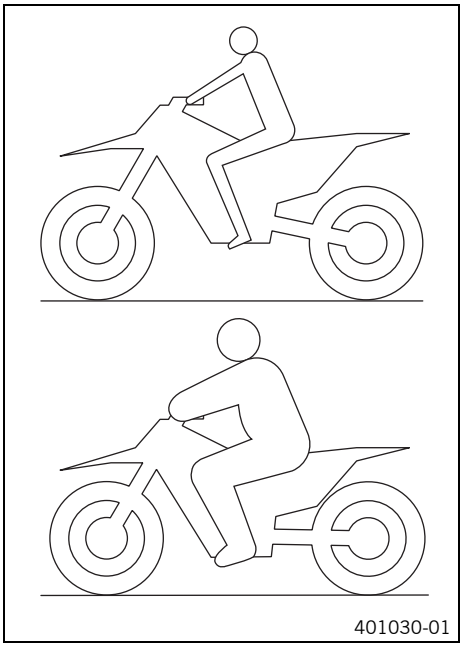
9.3 Recommended work

	Once after 10 operating hours	Once after 20 operating hours	Every 40 operating hours	Every 50 operating hours	Every 100 operating hours	Annually
Change the front brake fluid. 🔧						•
Change the rear brake fluid. 🔧						•
Change the hydraulic clutch fluid. 🔧 (☛ p. 55)						•
Grease the steering head bearing. 🔧 (☛ p. 40)						•
Service the fork. 🔧	○		•			
Service the shock absorber. 🔧		○	•			
Change the fuel filter. 🔧					•	
Perform minor engine service, engine has been installed. (Change spark plug and spark plug connector. Change piston, check and measure cylinder; check cylinder head. Check the camshaft, rocker arm and rocker arm shafts. Check timing assembly.) 🔧				•	•	
Perform major engine service including removing and installing engine. (Change valves, valve springs, valve spring seats and valve spring retainers. Change the connecting rod, conrod bearing, and crank pin. Check the transmission and shift mechanism. Check the oil pressure regulator valve. Change the suction pump. Check the force pump and lubrication system. Change timing chain. Change all engine bearings. Change the shaft seal rings and bearing seals of the main bearing.) 🔧					•	

○ One-time interval
• Periodic interval

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

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



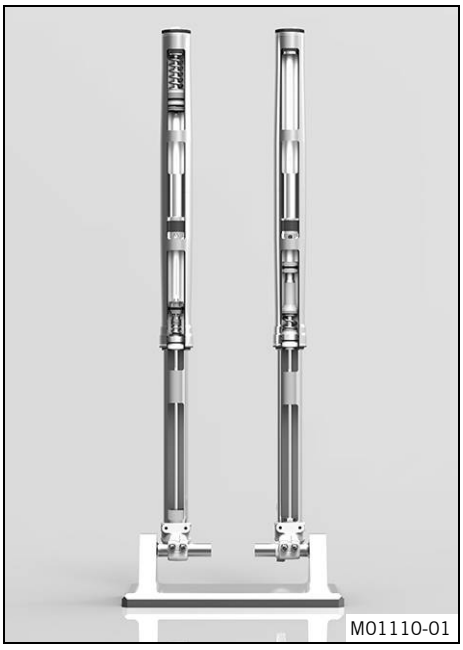
– For optimal motorcycle riding characteristics and to avoid damage to forks, shock absorbers, swingarm and frame, the basic settings of the suspension components must match the rider's weight.
– As delivered, KTM offroad motorcycles are adjusted for an average rider's weight (with full protective clothing).

Guideline

Standard rider weight	75... 85 kg (165... 187 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 by adjusting the spring preload, but in the case of large weight differences, the springs must be replaced.

10.2 Air suspension AER 48



Air suspension **WP Performance Systems AER 48** is used in the fork.
In this system, 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.

Info
If the fork is frequently overloaded, then the air pressure in the fork must be increased to avoid damage to the fork and frame.

The air pressure in the fork can be quickly adjusted for the rider's weight, surface conditions and the rider's preference using a fork pump. The fork does not have to be detached. 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 reduces.
As with a conventional fork, the damping can be adjusted in rebound and compression stages.
The rebound adjuster is located at the lower end of the right fork leg.
The compression adjuster 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 setting, for example, has an effect on the landing after a jump: the rear wheel suspension compresses quickly.
The low-speed setting, for example, has an effect when riding over long ground swells: the rear wheel suspension compresses slowly.
These two ranges can be adjusted separately, although the transition between high-speed and low-speed is gradual. Thus, 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

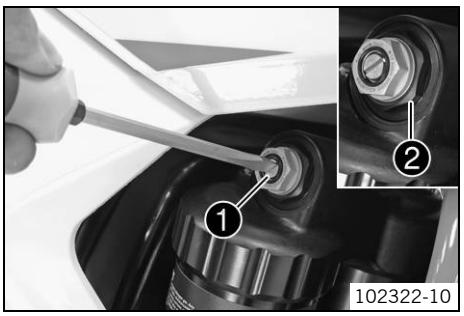
Caution

Danger of accidents Disassembly of pressurized parts can lead to injury.

– The shock absorber is filled with high density nitrogen. Adhere to the description provided. (Your authorized KTM workshop will be glad to help.)

Info

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



– Turn adjusting screw ❶ clockwise with a screwdriver up to the last perceptible click.

Info

Do not loosen fitting ❷!

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

Guideline

Compression damping, low-speed	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks

Info

Turn clockwise to increase damping; turn counterclockwise to reduce damping.

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

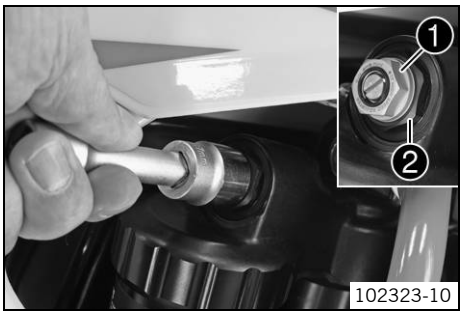
Caution

Danger of accidents Disassembly of pressurized parts can lead to injury.

– The shock absorber is filled with high density nitrogen. Adhere to the description provided. (Your authorized KTM workshop will be glad to help.)

Info

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



– Turn adjusting screw ❶ all the way clockwise with a socket wrench.

Info

Do not loosen fitting ❷!

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

Guideline

Compression damping, high-speed	
Comfort	2.5 turns
Standard	2 turns
Sport	1.5 turns

Info

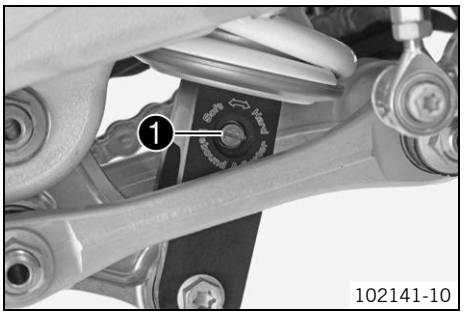
Turn clockwise to increase damping; turn counterclockwise to reduce damping.

10.6 Adjusting the rebound damping of the shock absorber

Caution

Danger of accidents Disassembly of pressurized parts can lead to injury.

– The shock absorber is filled with high density nitrogen. Adhere to the description provided. (Your authorized KTM workshop will be glad to help.)



– Turn adjusting screw 1 clockwise up to the last perceptible click.
– Turn counterclockwise by the number of clicks corresponding to the shock absorber type.

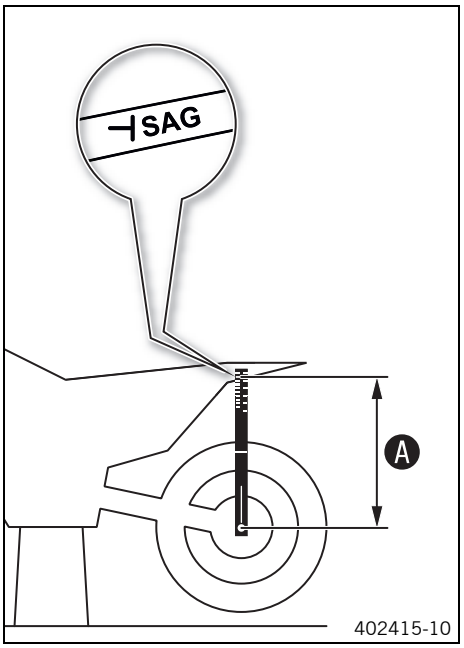
Guideline

Rebound damping	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks

Info

Turn clockwise to increase damping; turn counterclockwise to reduce damping.

10.7 Measuring rear wheel sag unloaded



Preparatory work

– Raise the motorcycle with a lift stand. (☛ p. 34)

Main work

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

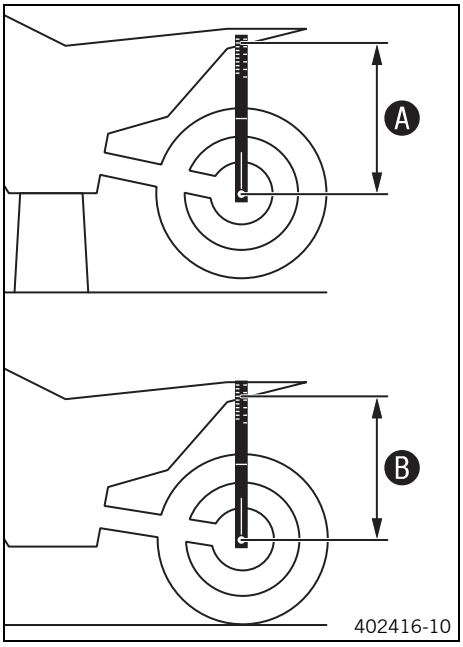
Sag gauge (00029090000)
Pin for sag gauge (00029990010)

– Note down the value as dimension A.

Finishing work

– Remove the motorcycle from the lift stand. (☛ p. 34)

10.8 Checking the static sag of the shock absorber



– Measure distance Ⓐ of rear wheel unloaded. (☛ p. 28)
– Hold the motorcycle upright with the aid of an assistant.
– Again measure the distance between the rear axle and marking **SAG** on the rear fender using the sag gauge.
– Note down the value as dimension Ⓑ.

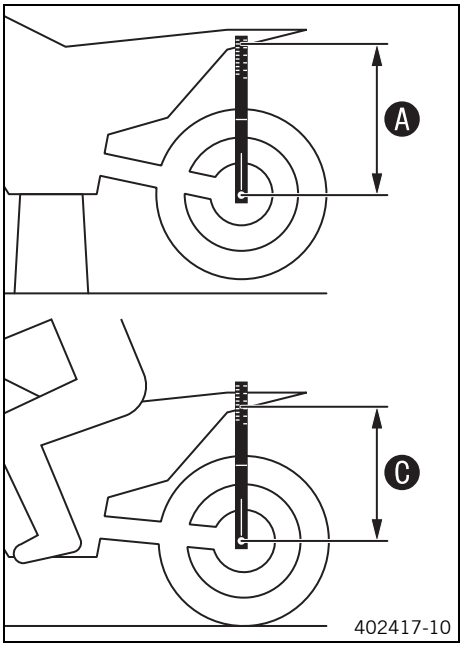
Info
The static sag is the difference between measurements Ⓐ and Ⓑ.

– Check the static sag.

Static sag	38 mm (1.5 in)

» If the static sag is less or more than the specified value:
– Adjust the spring preload of the shock absorber. 🔧 (☛ p. 29)

10.9 Checking the riding sag of the shock absorber



– Measure distance Ⓐ of rear wheel unloaded. (☛ p. 28)
– With another person holding the motorcycle, the rider, wearing full protective clothing, sits on the seat in a normal sitting position (feet on footrests) and bounces up and down a few times.
✓ The rear wheel suspension levels out.
– Another person again measures the distance between the rear axle and marking **SAG** on the rear fender using the sag gauge.
– Note down the value as dimension Ⓒ.

Info
The riding sag is the difference between measurements Ⓐ and Ⓒ.

– Check the riding sag.

Riding sag	110±5 mm (4.33±0.2 in)

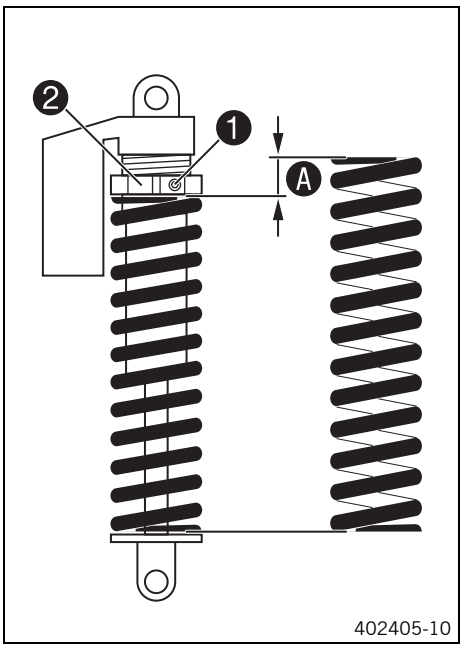
» If the riding sag differs from the specified measurement:
– Adjust the riding sag. 🔧 (☛ p. 30)

10.10 Adjusting the spring preload of the shock absorber 🔧

Caution
Danger of accidents Disassembly of pressurized parts can lead to injury.
– The shock absorber is filled with high density nitrogen. Adhere to the description provided. (Your authorized KTM workshop will be glad to help.)

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

Preparatory work
– Raise the motorcycle with a lift stand. (☛ p. 34)
– Remove the shock absorber. 🔧 (☛ p. 41)



– After removing the shock absorber, clean it thoroughly.

Main work

– Loosen screw 1.

– Turn adjusting ring 2 until the spring is no longer under tension.

Hook wrench (T106S)

– Measure the overall spring length while the spring is not under tension.

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

Guideline

Spring preload	5 mm (0.2 in)

Info

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

– Tighten screw 1.

Guideline

Screw, shock absorber adjusting ring	M5	5 Nm (3.7 lbf ft)

Finishing work

– Install the shock absorber. (☛ p. 43)

– Check the free travel of the foot brake lever. (☛ p. 61)

– Remove the motorcycle from the lift stand. (☛ p. 34)

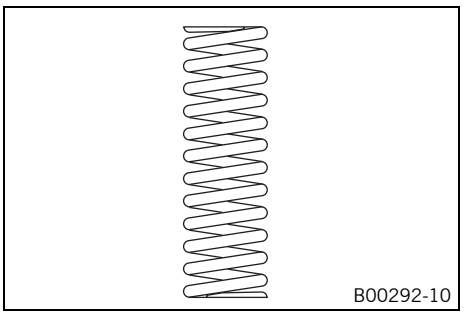
10.11 Adjusting the riding sag

Preparatory work

– Raise the motorcycle with a lift stand. (☛ p. 34)

– Remove the shock absorber. (☛ p. 41)

– After removing the shock absorber, clean it thoroughly.



Main work

– Choose and mount a suitable spring.

Guideline

Spring rate	
Weight of rider: 65… 75 kg (143… 165 lb.)	45 N/mm (257 lb/in)
Weight of rider: 75… 85 kg (165… 187 lb.)	48 N/mm (274 lb/in)
Weight of rider: 85… 95 kg (187… 209 lb.)	51 N/mm (291 lb/in)

Info

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

Finishing work

– Install the shock absorber. (☛ p. 43)

– Check the free travel of the foot brake lever. (☛ p. 61)

– Check the static sag of the shock absorber. (☛ p. 29)

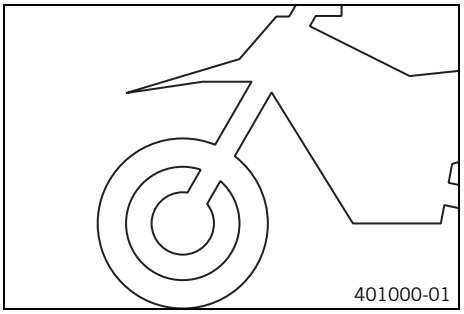
– Check the riding sag of the shock absorber. (☛ p. 29)

– Adjust the rebound damping of the shock absorber. (☛ p. 28)

– Remove the motorcycle from the lift stand. (☛ p. 34)

10.12 Checking the basic setting of the fork

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



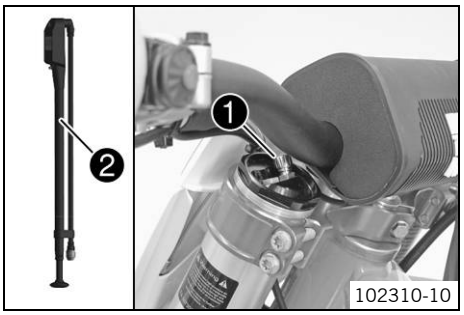
- Smaller differences in the rider's weight can be compensated for by the fork air pressure.
- However, if the fork frequently bottoms out (hard end stop on compression), the fork air pressure must be increased, within the specified values, to avoid damage to the fork and frame.
- If the fork feels unusually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

10.13 Adjusting the fork air pressure

Warning
Danger of accident Modifications to the suspension setting may seriously alter the handling characteristic.
Extreme modifications to the suspension setting may cause a serious deterioration in the handling characteristic 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 characteristic.

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



Preparatory work
- Raise the motorcycle with a lift stand. (p. 34)

Main work
- Remove protection cap 1.
- Push fork pump 2 together fully.

Fork pump (79412966000)

Info
The fork pump is included as part of the motorcycle's separate enclosure.

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

Info
This is due to the volume of the hose and not due to a defect in the fork pump or the fork.
Read the accompanying **KTM PowerParts** instructions.

- Adjust the air pressure as specified.

Guideline

Air pressure	10.8 bar (157 psi)
Gradual changing of the air pressure in steps of	0.2 bar (3 psi)
Minimum air pressure	7 bar (102 psi)
Maximum air pressure	15 bar (218 psi)

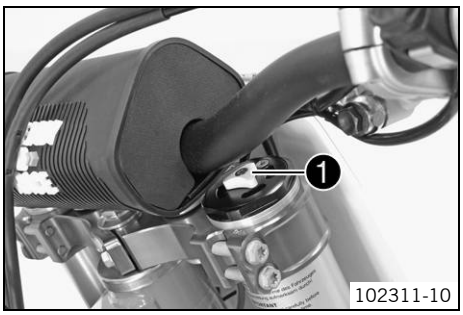
Info
Never set the air pressure to a value outside the stated range.

– Disconnect the fork 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 pump indicator switches off automatically after 80 seconds.
– Mount the protection cap.

Finishing work
– Remove the motorcycle from the lift stand. (☛ p. 34)

10.14 Adjusting the compression damping of the fork

Info
The hydraulic compression damping determines the fork suspension behavior.



– Turn adjusting screw ❶ clockwise all the way.

Info
Adjusting screw ❶ is located at the upper end of the right fork leg.

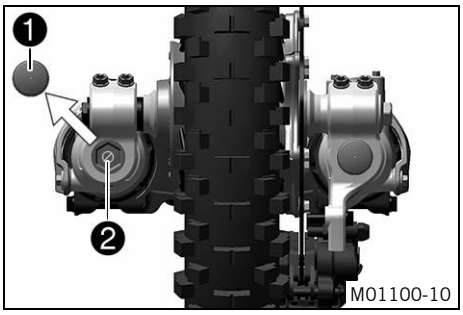
– Turn counterclockwise by the number of clicks corresponding to the fork type.
Guideline

Compression damping	
Comfort	20 clicks
Standard	17 clicks
Sport	12 clicks

Info
Turn clockwise to increase damping; turn counterclockwise to reduce damping.

10.15 Adjusting the rebound damping of the fork

Info
The hydraulic rebound damping determines the fork suspension behavior.



– Remove protection cap ❶.
– Turn adjusting screw ❷ clockwise all the way.

Info
The adjusting screw ❷ is located at the lower end of the right fork leg.

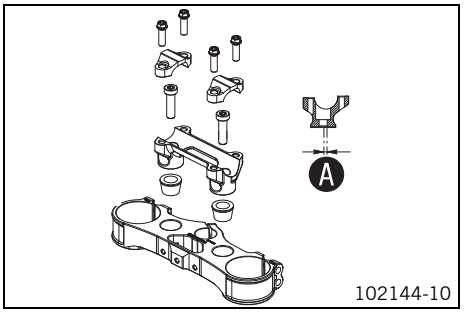
– Turn counterclockwise by the number of clicks corresponding to the fork type.
Guideline

Rebound damping	
Comfort	20 clicks
Standard	17 clicks
Sport	12 clicks

Info
Turn clockwise to increase damping; turn counterclockwise to reduce damping.

– Mount protection cap ❶.

10.16 Handlebar position

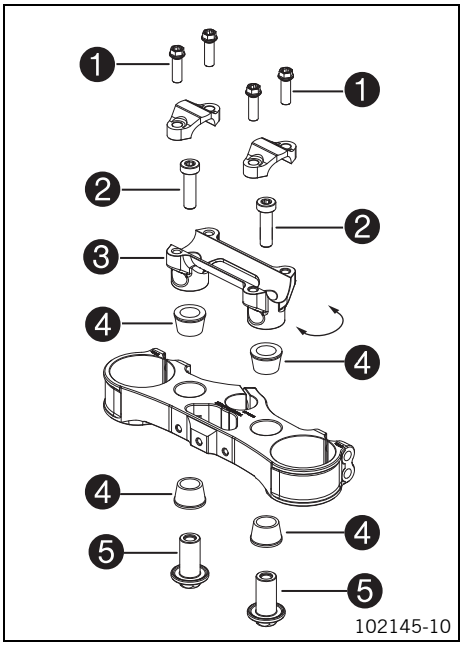


The holes on the handlebar support are placed at a distance of Ⓐ from the center.

Hole distance A	3.5 mm (0.138 in)

The handlebar can be mounted in two different positions. In this way, the handlebar can be mounted in the position that is most comfortable for the rider.

10.17 Adjusting the handlebar position



Preparatory work

– Remove the handlebar cushion.

Main work

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

Info
Cover the components to protect them against damage.
Do not kink the cables and lines.

– Remove screws ❷. Remove handlebar support ❸.
– Position rubber bushings ❹ and push through nuts ❺ from below.
– Place the handlebar support in the required position. Mount and tighten screws ❷.

Guideline

Screw, handlebar support	M10	40 Nm (29.5 lbf ft)	**Loctite® 243™**

– Position the handlebar.

Info
Make sure the cables and wiring are positioned correctly.

– Position the handlebar clamps. Mount screws ❶. Screw the handlebar clamps so that both parts touch at the front and tighten all of the screws.

Guideline

Screw, handlebar clamp	M8	20 Nm (14.8 lbf ft)

Finishing work

– Mount the handlebar cushion.

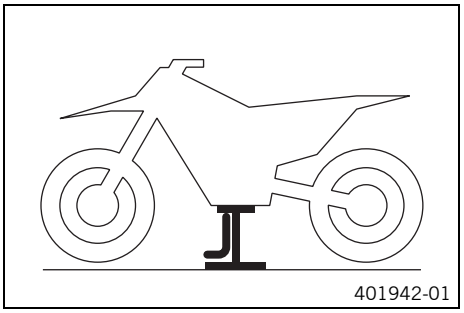
11 SERVICE WORK ON THE CHASSIS

11.1 Raising the motorcycle with a lift stand

Note

Danger of damage The parked vehicle may roll away or fall over.

– Always place the vehicle on a firm and even surface.


401942-01

– Raise the motorcycle at the frame underneath the engine.

Lift stand (78129955100)

✓ Neither wheel is in contact with the ground.

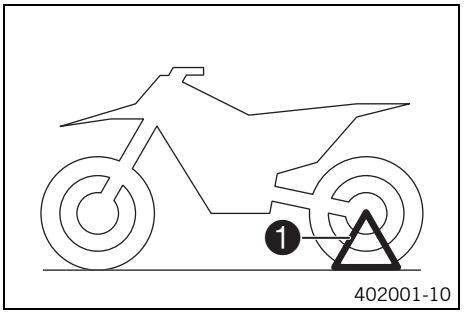
– Secure the motorcycle against falling over.

11.2 Removing the motorcycle from the lift stand

Note

Danger of damage The parked vehicle may roll away or fall over.

– Always place the vehicle on a firm and even surface.

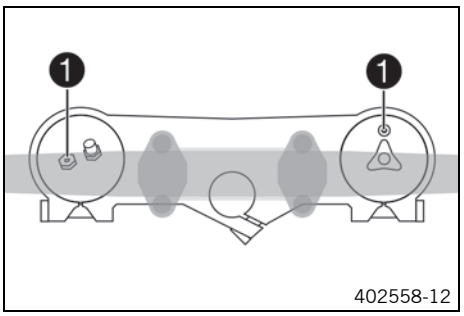


402001-10

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

Info
Remove the plug-in stand before riding.

11.3 Bleeding the fork legs



402558-12

Preparatory work

– Raise the motorcycle with a lift stand. (☛ p. 34)

Main work

– Release bleeder screws ❶.

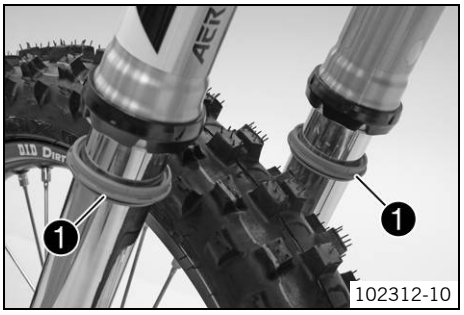
✓ Any excess pressure escapes from the interior of the fork.

– Tighten the bleeder screws.

Finishing work

– Remove the motorcycle from the lift stand. (☛ p. 34)

11.4 Cleaning the dust boots of the fork legs



Preparatory work

– Raise the motorcycle with a lift stand. (☛ p. 34)
– Remove the fork protector. (☛ p. 35)

Main work

– Push dust boots ❶ of both fork legs downward.

Info

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

Warning

Danger of accidents Reduced braking efficiency due to oil or grease on the brake discs.

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

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

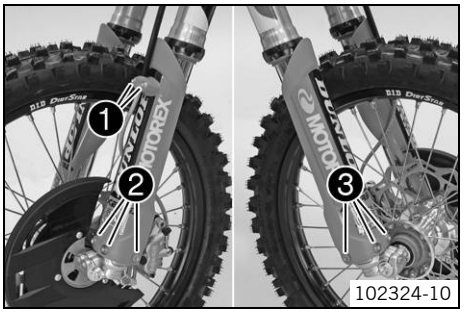
Universal oil spray (☛ p. 97)

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

Finishing work

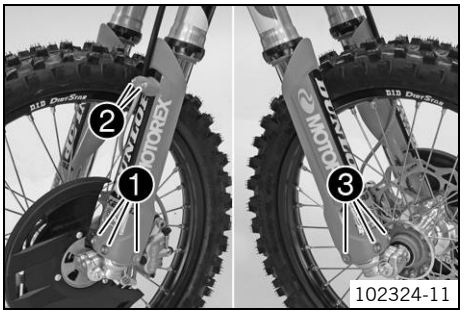
– Install the fork protector. (☛ p. 35)
– Remove the motorcycle from the lift stand. (☛ p. 34)

11.5 Removing the fork protector



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

11.6 Installing the fork protector



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

Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)

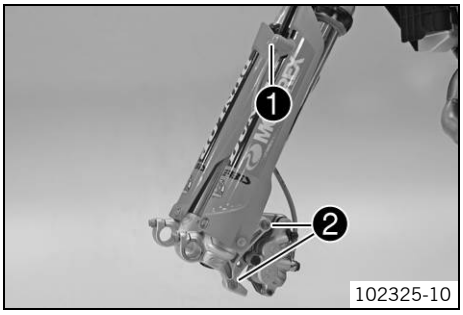
– Position the brake line and clamp. Mount and tighten screws ❷.
– Position the fork protector on the right fork leg. Mount and tighten screws ❸.

Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)

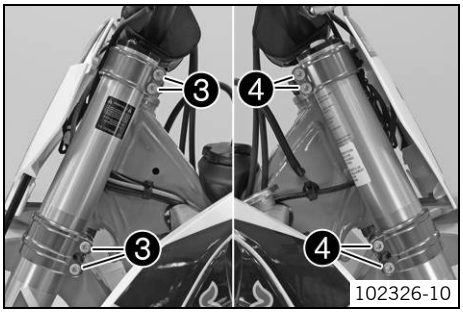
11.7 Removing the fork legs

Preparatory work
- Raise the motorcycle with a lift stand. (p. 34)
- Remove the front wheel. (p. 66)



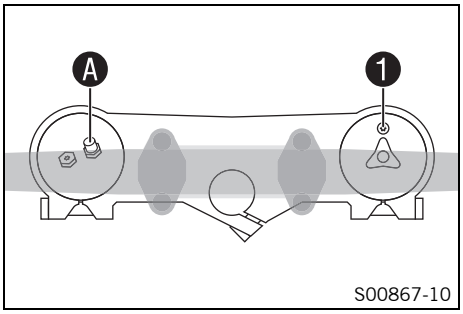
Main work
- Remove screws 1 and take off the clamp.
- Remove screws 2 and take off the brake caliper.
- Allow the brake caliper and brake line to hang tension-free to the side.

Info
Do not pull the hand brake lever if the front wheel has been removed.



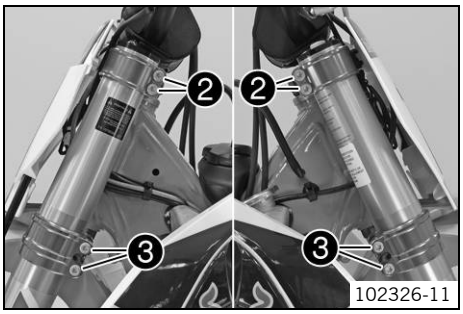
- Loosen screws 3. Take out the left fork leg.
- Unscrew screws 4. Take out the right fork leg.

11.8 Installing the fork legs



Main work
- Position the fork legs.
  - ✓ Bleeder screw 1 of the right fork leg is positioned to the front.
  - ✓ Left fork leg valve A is offset by approx. 20° to the front.

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



- Tighten screws 2.

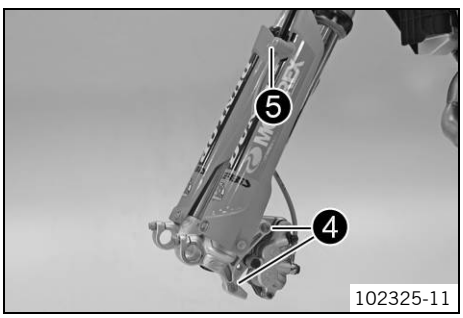
  Guideline

Screw, top triple clamp	M8	17 Nm (12.5 lbf ft)

- Tighten screws 3.

  Guideline

Screw, bottom triple clamp	M8	12 Nm (8.9 lbf ft)



- Position the brake caliper. Mount and tighten screws 4.

  Guideline

Screw, front brake caliper	M8	25 Nm (18.4 lbf ft)	**Loctite® 243™**

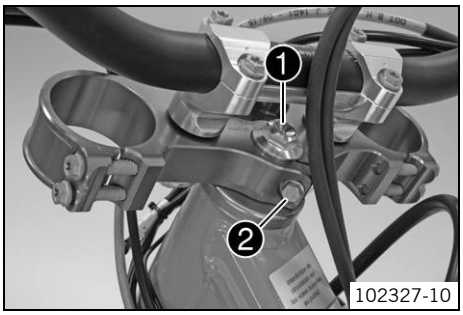
- Position the brake line and clamp. Mount and tighten screws 5.

Finishing work
- Install the front wheel. (p. 66)

11.9 Removing the lower triple clamp

Preparatory work

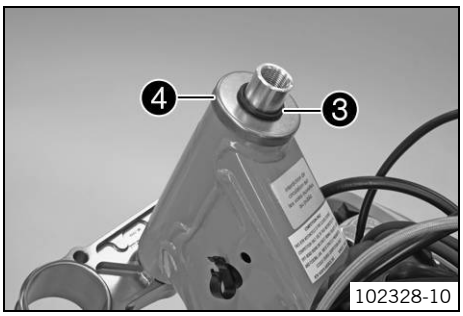
- Raise the motorcycle with a lift stand. (☛ p. 34)
- Remove the front wheel. (☛ p. 66)
- Remove the fork legs. (☛ p. 36)
- Remove the start number plate. (☛ p. 40)
- Remove the front fender. (☛ p. 40)
- Remove the handlebar cushion.



Main work

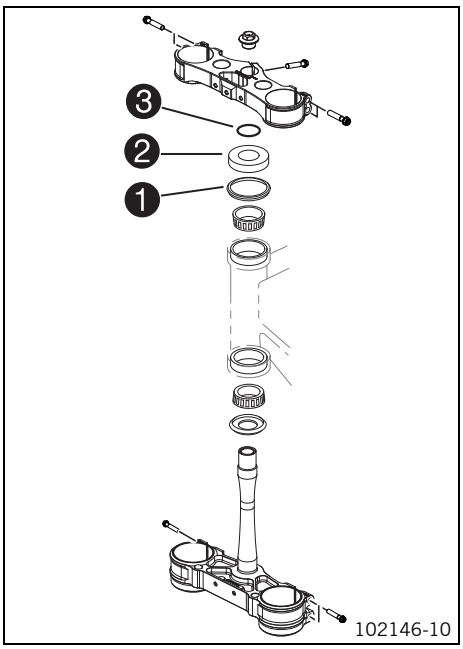
- Open the cable holders on the left and right and detach the wiring harness and clutch line.
- Remove screw ❶.
- Remove screw ❷.
- Remove the upper triple clamp with the handlebar and set aside.

Info
Cover the components to protect them against damage.
Do not kink the cables and lines.



- Remove O-ring ❸. Remove protective ring ❹.
- Remove the lower triple clamp with the steering stem.
- Take out the upper steering head bearing.

11.10 Installing the lower triple clamp

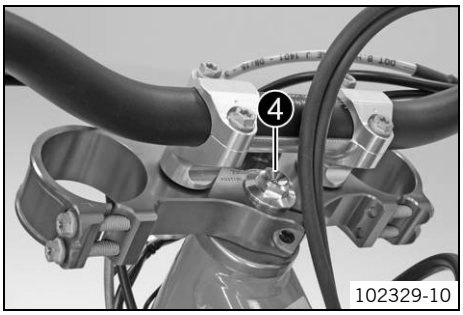


Main work

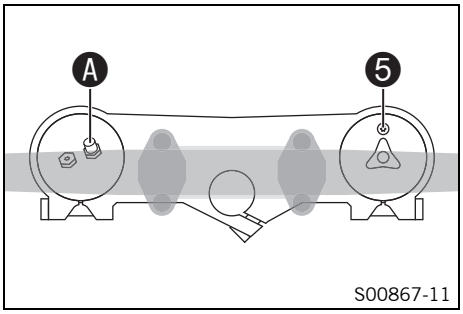
- Clean the bearing and sealing elements, check for damage, and grease.

High viscosity grease (☛ p. 97)

- Insert the lower triple clamp with the steering stem. Mount the upper steering head bearing.
- Check whether upper steering head seal ❶ is correctly positioned.
- Slide on protective ring ❷ and O-ring ❸.

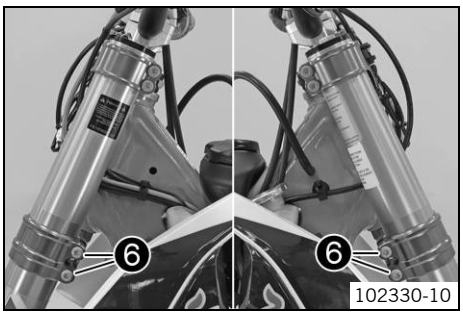


- Position the upper triple clamp with the handlebar.
- Mount screw ❹ but do not tighten yet.



– Position the fork legs.
  ✓ Bleeder screw ❺ of the right fork leg is positioned to the front.
  ✓ Left fork leg valve Ⓐ is offset by approx. 20° to the front.

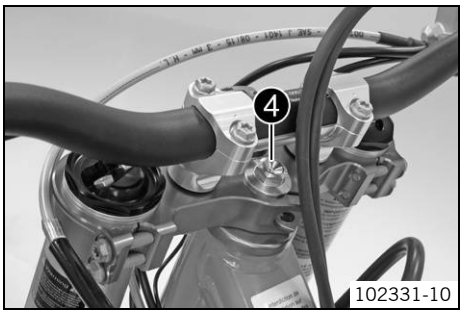
Info
Grooves are milled into the side of the upper end of the fork legs. The second milled groove (from the top) must be flush with the top edge of the upper triple clamp.



– Secure the wiring harness and clutch line with cable holders on the left and right.
– Tighten screws ❻.

Guideline

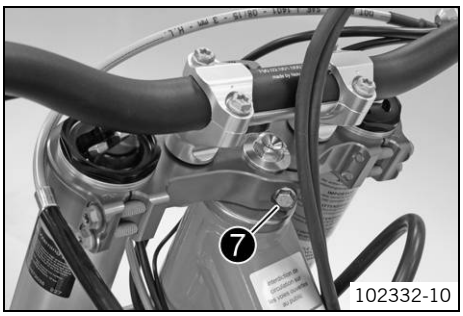
Screw, bottom triple clamp	M8	12 Nm (8.9 lbf ft)



– Tighten screw ❹.

Guideline

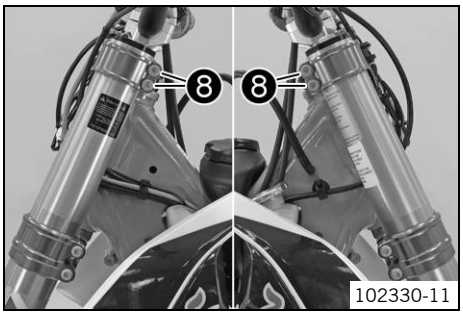
Screw, top steering head	M20x1.5	12 Nm (8.9 lbf ft)



– Mount and tighten screw ❼.

Guideline

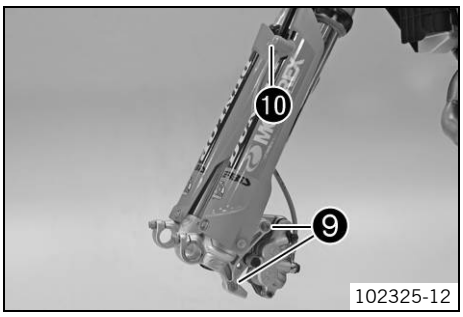
Screw, top steering stem	M8	20 Nm (14.8 lbf ft)	**Loctite® 243™**



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

Guideline

Screw, top triple clamp	M8	17 Nm (12.5 lbf ft)



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

Guideline

Screw, front brake caliper	M8	25 Nm (18.4 lbf ft)	**Loctite® 243™**

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

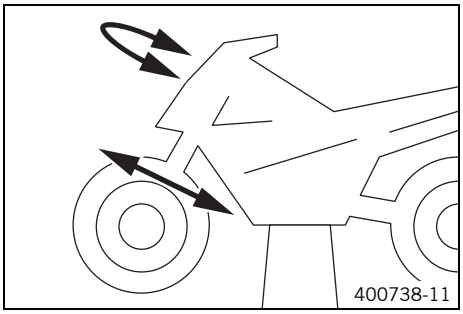
Finishing work
– Install the front fender. (☛ p. 41)

– Mount the handlebar cushion.
– Install the start number plate. (☛ p. 40)
– Install the front wheel. 🔧 (☛ p. 66)
– Check that the wiring harness, throttle cables, and brake and clutch lines can move freely and are routed correctly.
– Check the steering head bearing play. (☛ p. 39)
– Remove the motorcycle from the lift stand. (☛ p. 34)

11.11 Checking the steering head bearing play

Warning
Danger of accidents Unstable vehicle handling from incorrect steering head bearing play.
– Adjust the steering head bearing play without delay. (Your authorized KTM workshop will be glad to help.)

Info
If the bike is ridden with play in the steering head bearing, the bearing and the bearing seats in the frame can become damaged over time.



Preparatory work
– Raise the motorcycle with a lift stand. (☛ p. 34)

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

No play should be noticeable in the steering head bearing.

» If there is noticeable play present:
– Adjust the steering head bearing play. 🔧 (☛ p. 39)

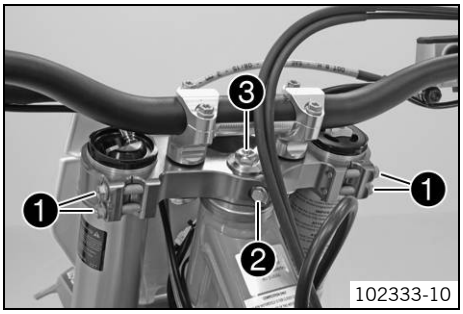
– Move the handlebar to and fro over the entire steering range.

The handlebar must be able to move easily over the entire steering range. No resting locations should be noticeable.

» If click positions are noticeable:
– Adjust the steering head bearing play. 🔧 (☛ p. 39)
– Check the steering head bearing and change if necessary.

Finishing work
– Remove the motorcycle from the lift stand. (☛ p. 34)

11.12 Adjusting the steering head bearing play 🔧



Preparatory work
– Raise the motorcycle with a lift stand. (☛ p. 34)
– Remove the handlebar cushion.

Main work
– Loosen screws ❶. Remove screw ❷.
– Loosen and retighten screw ❸.
Guideline

Screw, top steering head	M20x1.5	12 Nm (8.9 lbf ft)

– Using a plastic hammer, tap lightly on the upper triple clamp to avoid strains.
– Mount and tighten screw ❷.
Guideline

Screw, top steering stem	M8	20 Nm (14.8 lbf ft)	**Loctite® 243™**

– Tighten screws ❶.
Guideline

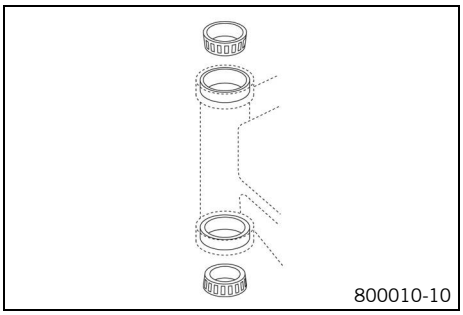
Screw, top triple clamp	M8	17 Nm (12.5 lbf ft)

– Check the steering head bearing play. (☛ p. 39)

Finishing work

– Mount the handlebar cushion.
– Remove the motorcycle from the lift stand. (☛ p. 34)

11.13 Greasing the steering head bearing



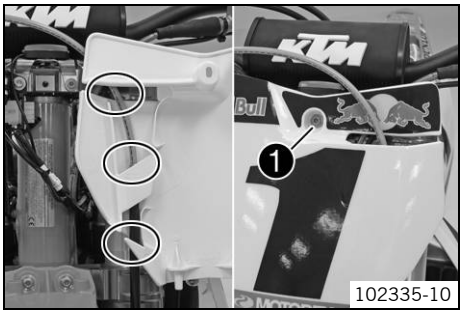
– Remove the lower triple clamp. (☛ p. 37)
– Install the lower triple clamp. (☛ p. 37)

11.14 Removing the start number plate



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

11.15 Installing the start number plate



– Attach the start number plate to the brake line.
– Position the start number plate. Mount and tighten screw ❶.

Guideline

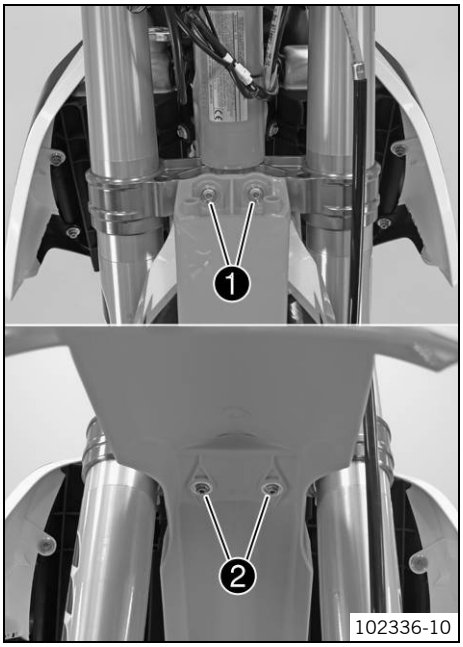
Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)

✓ The holding lugs engage in the fender.

11.16 Removing the front fender

Preparatory work

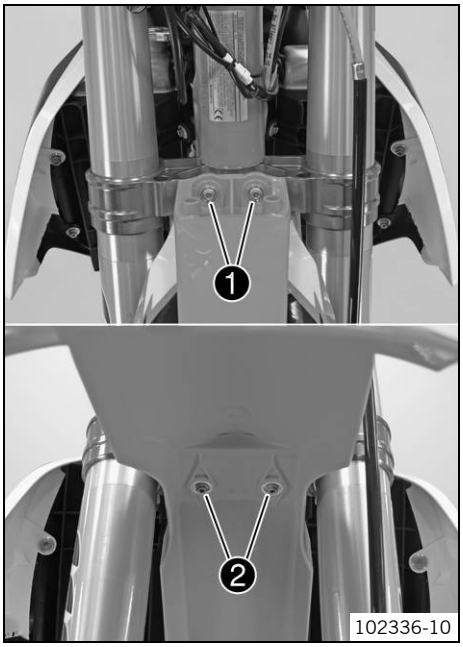
– Remove the start number plate. (☛ p. 40)



Main work

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

11.17 Installing the front fender



Main work

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

Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)

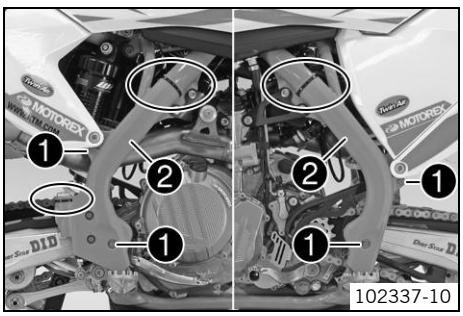
Finishing work

– Install the start number plate. (☛ p. 40)

11.18 Removing the shock absorber

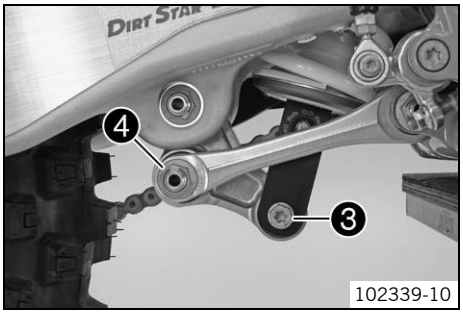
Preparatory work

– Raise the motorcycle with a lift stand. (☛ p. 34)



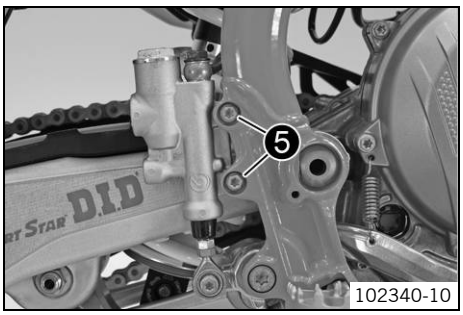
Main work

– Remove the cable ties.
– Remove screws ❶ with the washers.
– Take off frame protector ❷ on both sides.

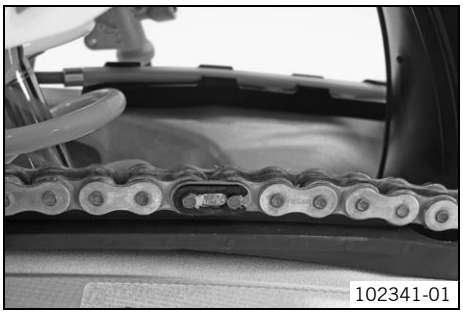


– Remove screw ❸ and fitting ❹.

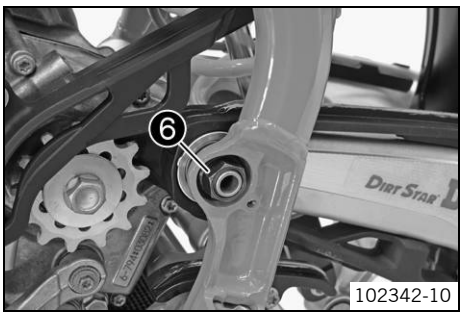
Info
Raise the wheel slightly to make it easier to remove the screw.



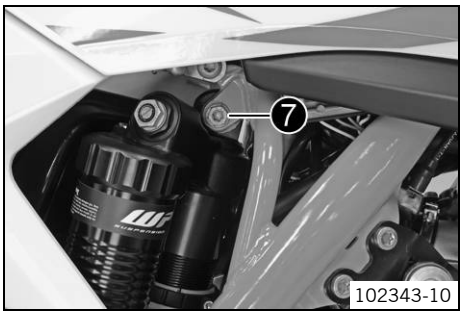
– Remove screws ❺.



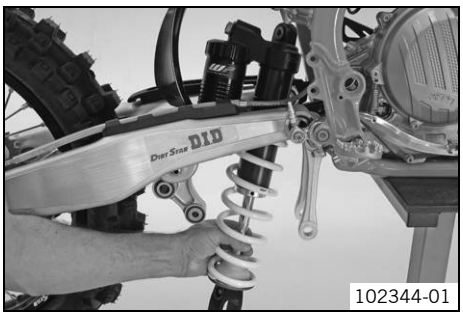
– Remove the connecting link of the chain.
– Take off the chain.



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

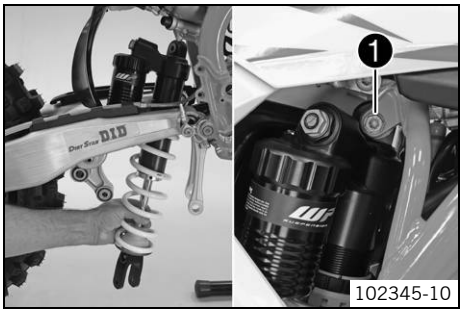


– Remove screw ❼.



– Carefully take the shock absorber out of the vehicle toward the bottom.

11.19 Installing the shock absorber



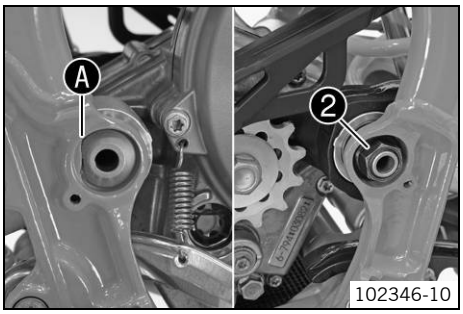
Main work

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

– Mount and tighten screw ❶.

Guideline

Screw, top shock absorber	M10	60 Nm (44.3 lbf ft)	**Loctite® 2701™**



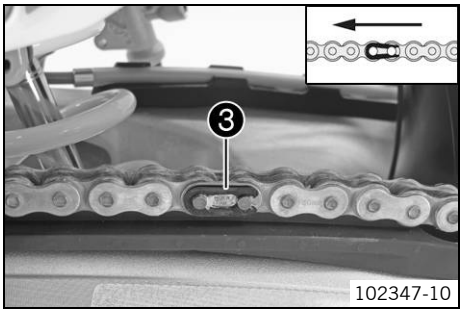
– Position the swingarm and mount the swingarm pivot.

Info
Pay attention to flat area Ⓐ.

– Mount and tighten nut ❷.

Guideline

Nut, swingarm pivot	M16x1.5	100 Nm (73.8 lbf ft)

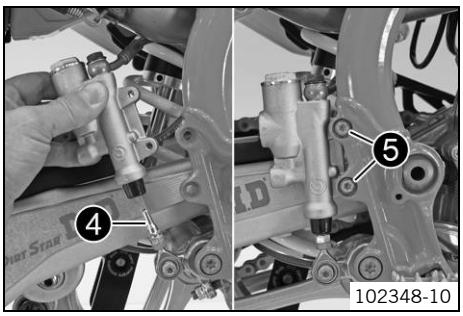


– Mount the chain.

– Connect the chain with connecting link ❸.

Guideline

The closed side of the chain joint lock must face in the direction of travel.



– Position the foot brake cylinder.

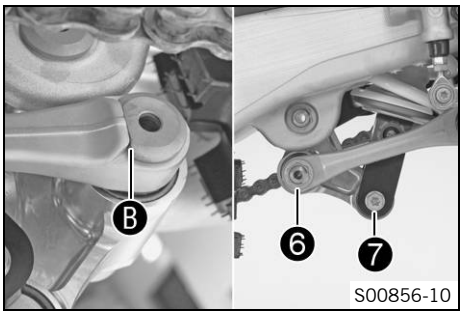
✓ Push rod ❹ engages in the foot brake cylinder.

Info
Ensure that the dust boot is correctly seated.

– Mount and tighten screws ❺.

Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)



– Position the angle lever and linkage lever.

– Mount and tighten fitting ❻.

Guideline

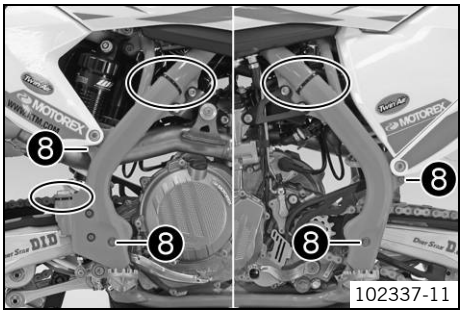
Nut, linkage lever to angle lever	M14x1.5	80 Nm (59 lbf ft)

Info
Pay attention to flat area Ⓑ.

– Mount and tighten screw ❼.

Guideline

Screw, bottom shock absorber	M10	60 Nm (44.3 lbf ft)	**Loctite® 2701™**



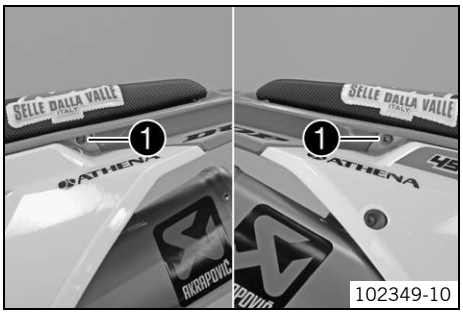
– Position the frame protector on the left and right.
– Mount and tighten screws ❽ with the washers.
Guideline

Screw, frame protector	M5	3 Nm (2.2 lbf ft)

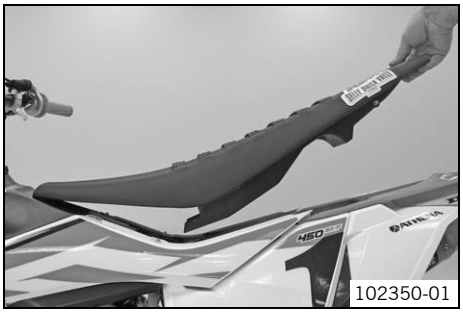
– Mount the new cable ties.

Finishing work
– Check the free travel of the foot brake lever. (☛ p. 61)
– Remove the motorcycle from the lift stand. (☛ p. 34)

11.20 Removing the seat

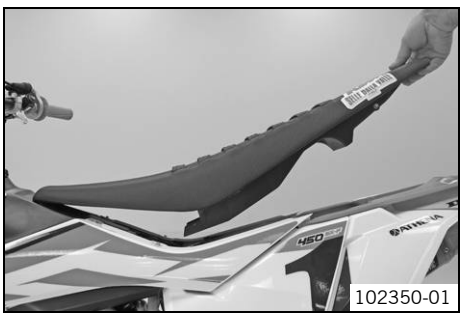


– Remove screws ❶.

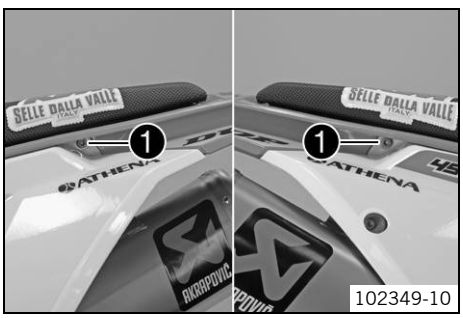


– Raise the rear of the seat, push the seat back, and lift it off.

11.21 Mounting the seat



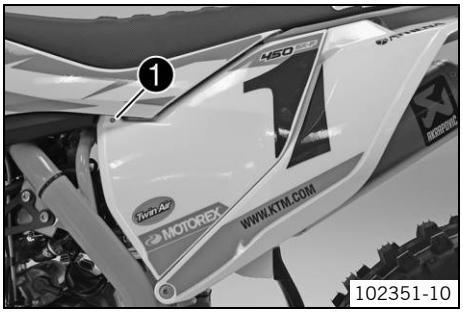
– Hook in the front of the seat at the collar bushing of the fuel tank, lower it at the rear and simultaneously push it forward.
✓ The seat is correctly engaged.



– Mount and tighten the seat fixing screws ❶.
Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)

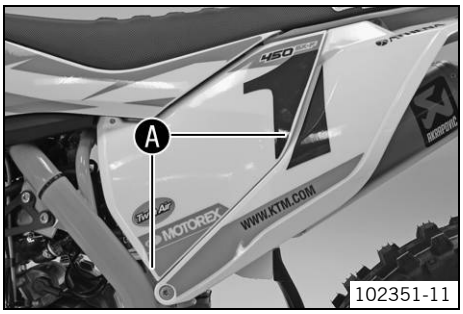
11.22 Removing the air filter box cover



Condition

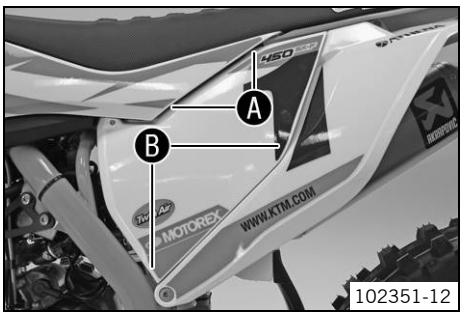
The air filter box cover is secured.

– Remove screw ❶.

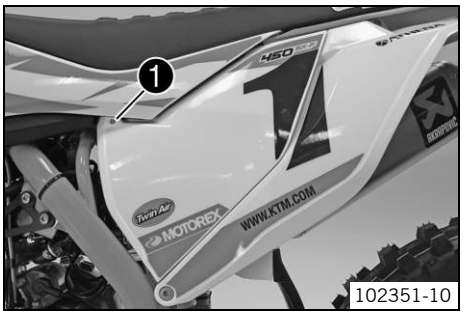


– Pull off the air filter box cover in area Ⓐ sideways and remove it toward the front.

11.23 Installing the air filter box cover



– Insert the air filter box cover in area Ⓐ and clip it into area Ⓑ.



Condition

The air filter box cover is secured.

– Mount and tighten screw ❶.

Guideline

Screw, air filter box cover	**EJOT PT®** K60x20-Z	3 Nm (2.2 lbf ft)

11.24 Removing the air filter

Note

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

– Never operate the vehicle without an air filter as dust and dirt will enter the engine and lead to increased wear.

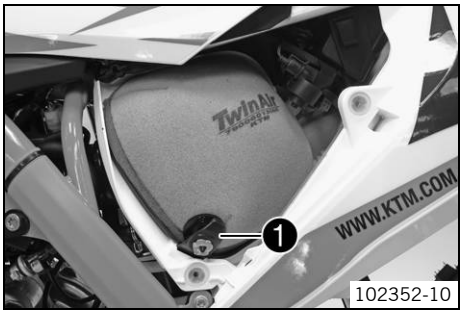
Warning

Environmental hazard Hazardous substances cause environmental damage.

– Oil, grease, filters, fuel, cleaners, brake fluid, etc., should be disposed of as stipulated in applicable regulations.

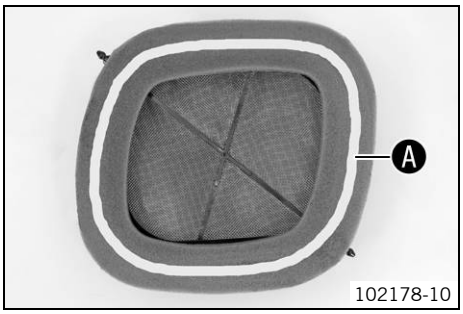
Preparatory work

– Remove the air filter box cover. (☛ p. 45)



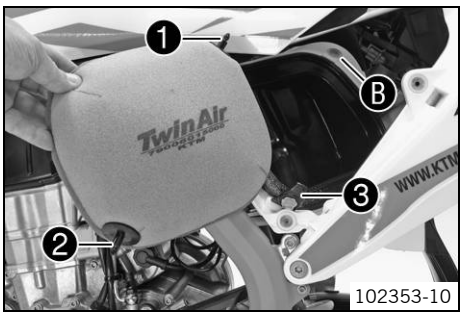
Main work
- Detach ❶ retaining tab. Remove air filter with air filter support.
- Take off air filter from air filter support.

11.25 Installing the air filter



Main work
- Mount the clean air filter on the air filter support.
- Grease the air filter in area Ⓐ.

Long-life grease (☛ p. 97)



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

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

Finishing work
- Install the air filter box cover. (☛ p. 45)

11.26 Cleaning the air filter and air filter box

Warning
Environmental hazard Hazardous substances cause environmental damage.
- Oil, grease, filters, fuel, cleaners, brake fluid, etc., should be disposed of as stipulated in applicable regulations.

Info
Do not clean the air filter with fuel or petroleum since these substances attack the foam.

Preparatory work
- Remove the air filter box cover. (☛ p. 45)
- Remove the air filter. (☛ p. 45)



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

Air filter cleaner (☛ p. 97)

Info
Only press the air filter to dry it, never wring it out.
- Oil the dry air filter with a high quality filter oil.

Oil for foam air filter (☛ p. 97)

- Clean the air filter box.

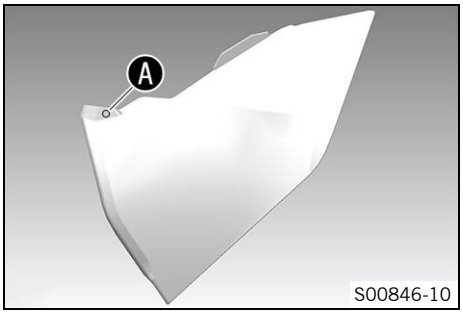
– Clean the intake flange and check it for damage and tightness.

Finishing work

– Install the air filter. (☛ p. 46)

– Install the air filter box cover. (☛ p. 45)

11.27 Securing the air filter box cover



Preparatory work

– Remove the air filter box cover. (☛ p. 45)

Main work

– Drill a hole at marking A.

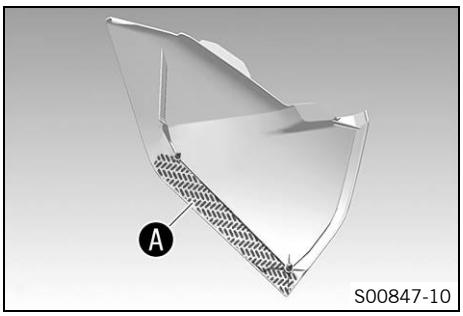
Guideline

Diameter	6 mm (0.24 in)

Finishing work

– Install the air filter box cover. (☛ p. 45)

11.28 Sealing the air filter box



Preparatory work

– Remove the air filter box cover. (☛ p. 45)

Main work

– Seal the air filter box in marked area A.

Finishing work

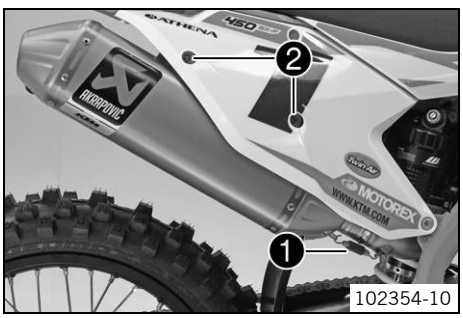
– Install the air filter box cover. (☛ p. 45)

11.29 Removing the main silencer

Warning

Danger of burns The exhaust system gets very hot when the vehicle is driven.

– Allow the exhaust system to cool down. Do not touch hot components.

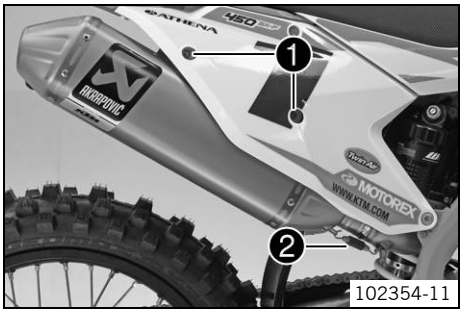


– Disconnect spring 1.

Spring hook (50305017000)

– Remove screws 2 and take off the main silencer.

11.30 Installing the main silencer



– Position the main silencer.
– Mount screws ❶ but do not tighten yet.
– Reconnect spring ❷.

Spring hook (50305017000)

– Tighten screws ❶.

Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)

11.31 Removing the fuel tank

Danger

Fire hazard Fuel is highly flammable.

– Never refuel the vehicle near open flames or burning cigarettes, and always switch off the engine first. Be careful that no fuel is spilt, especially on hot vehicle components. Clean up spilt fuel immediately.
– The fuel in the fuel tank expands when warm and may emerge if overfilled. Follow the instructions on refueling.

Warning

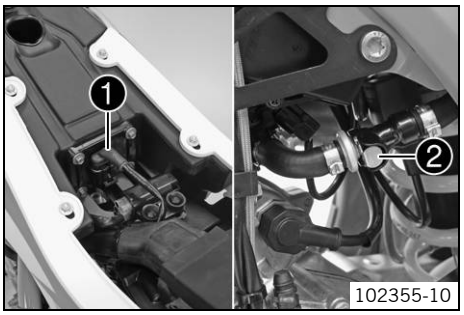
Danger of poisoning Fuel is poisonous and a health hazard.

– Fuel must not come into contact with the skin, eyes, or clothing. Do not breathe in the fuel vapors. If contact occurs with the eyes, rinse with water immediately and contact a physician. Immediately clean contaminated areas on the skin with soap and water. If fuel is swallowed, contact a physician immediately. Change clothing that has been contaminated with fuel. Store fuel properly in a suitable canister and keep away from children.

Preparatory work

– Remove the seat. (☛ p. 44)

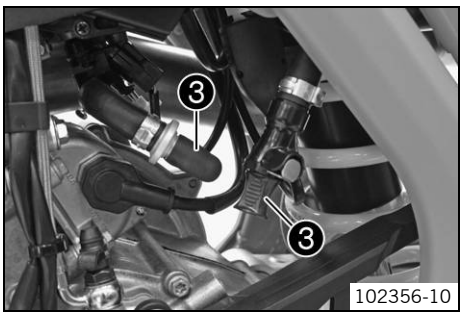
Main work



– Unplug connector ❶ of the fuel pump.
– Clean plug-in connection ❷ of the fuel line thoroughly with compressed air.

Info

Under no circumstances should dirt enter into the fuel line. Dirt in the fuel line clogs the injection valve!



– Disconnect the plug-in connection of the fuel line.

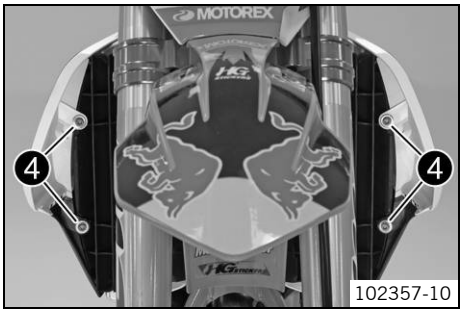
Info

Remaining fuel may flow out of the fuel hose.

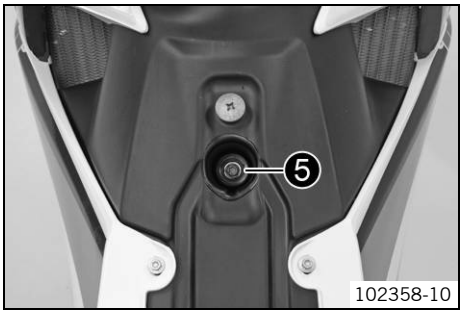
– Mount wash cap set ❸.

Wash cap set (81212016100)

– Pull the fuel tank breather hose off the tank lid.



– Remove screws ❹ with the collar bushings.



– Remove screw ❺ with the rubber bushing.



– Pull both spoilers off of the sides of the radiator bracket and lift off the fuel tank.

11.32 Installing the fuel tank

Danger

Fire hazard Fuel is highly flammable.

– Never refuel the vehicle near open flames or burning cigarettes, and always switch off the engine first. Be careful that no fuel is spilt, especially on hot vehicle components. Clean up spilt fuel immediately.
– The fuel in the fuel tank expands when warm and may emerge if overfilled. Follow the instructions on refueling.

Warning

Danger of poisoning Fuel is poisonous and a health hazard.

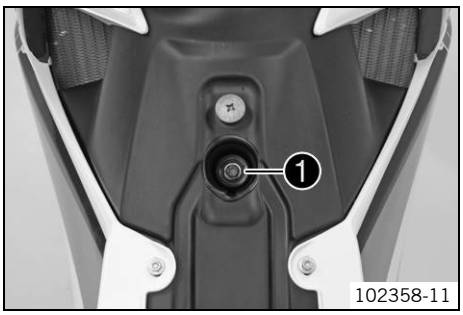
– Fuel must not come into contact with the skin, eyes, or clothing. Do not breathe in the fuel vapors. If contact occurs with the eyes, rinse with water immediately and contact a physician. Immediately clean contaminated areas on the skin with soap and water. If fuel is swallowed, contact a physician immediately. Change clothing that is contaminated with fuel.

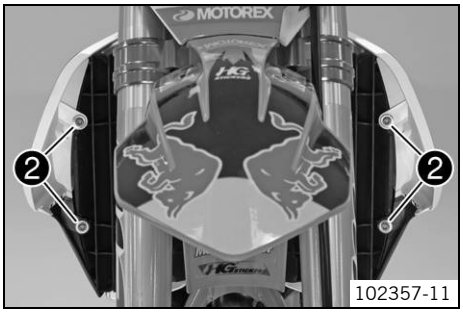
Main work

– Check the throttle cable routing. (☛ p. 54)
– Position the fuel tank and fit the two spoilers to the sides of the radiator bracket.
– Make sure that no cables or throttle cables are trapped or damaged.
– Attach the hose to the fuel tank breather on the tank lid.
– Mount and tighten screw ❶ with the rubber bushing.

Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)

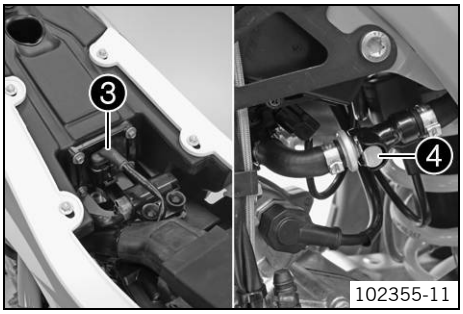




– Mount and tighten screws ❷ with the collar bushings.

Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)



– Plug in connector ❸ for the fuel pump.
– Remove the wash cap set. Thoroughly clean the plug-in connection of the fuel line using compressed air.

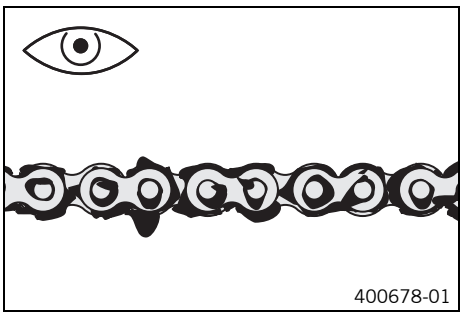
Info
Under no circumstances should dirt enter into the fuel line. Dirt in the fuel line clogs the injection valve!

– Lubricate the O-ring and connect plug-in connection ❹ for the fuel line.

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

Finishing work
– Mount the seat. (☛ p. 44)

11.33 Checking for chain dirt accumulation



– Check the chain for coarse dirt accumulation.
  » If the chain is very dirty:
    – Clean the chain. (☛ p. 50)

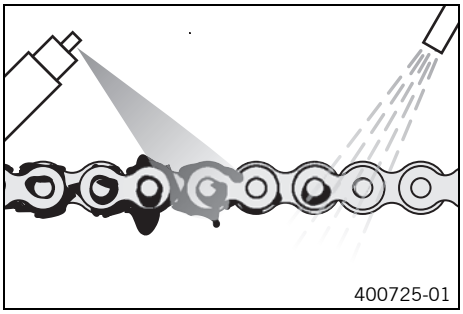
11.34 Cleaning the chain

Warning
Danger of accidents Oil or grease on the tires reduces their grip.
– Remove oil and grease with a suitable cleaning material.

Warning
Danger of accidents Reduced braking efficiency due to oil or grease on the brake discs.
– Always keep the brake discs free of oil and grease, and clean them with brake cleaner when necessary.

Warning
Environmental hazard Hazardous substances cause environmental damage.
– Oil, grease, filters, fuel, cleaners, brake fluid, etc., should be disposed of as stipulated in applicable regulations.

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



Preparatory work
– Raise the motorcycle with a lift stand. (☛ p. 34)

Main work
– Clean the chain regularly and then treat with chain spray.

Chain cleaner (☛ p. 97)
Off-road chain spray (☛ p. 97)

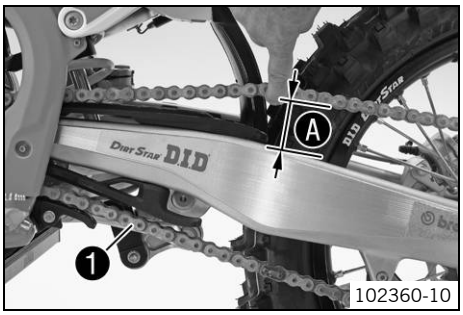
Finishing work
– Remove the motorcycle from the lift stand. (☛ p. 34)

11.35 Checking the chain tension

Warning

Danger of accidents Danger caused by incorrect chain tension.

– If the chain is too taut, the components of the secondary power transmission (chain, engine sprocket, rear sprocket, bearings in the transmission and in the rear wheel) will be under additional load. In addition to premature wear, this can cause the chain or the countershaft of the transmission to break in extreme cases. If the chain is too loose, however, it may fall off the engine sprocket or rear sprocket and block the rear wheel or damage the engine. Ensure that the chain tension is correct and adjust it if necessary.



Preparatory work

– Raise the motorcycle with a lift stand. (☛ p. 34)

Main work

– Pull the chain at the end of the chain sliding component upwards to measure chain tension Ⓐ.

Info

The lower chain section ❶ must be taut.
Chain wear is not always even, so you should repeat this measurement at different chain positions.

Chain tension	55... 58 mm (2.17... 2.28 in)

» If the chain tension does not meet specifications:

– Adjust the chain tension. (☛ p. 51)

Finishing work

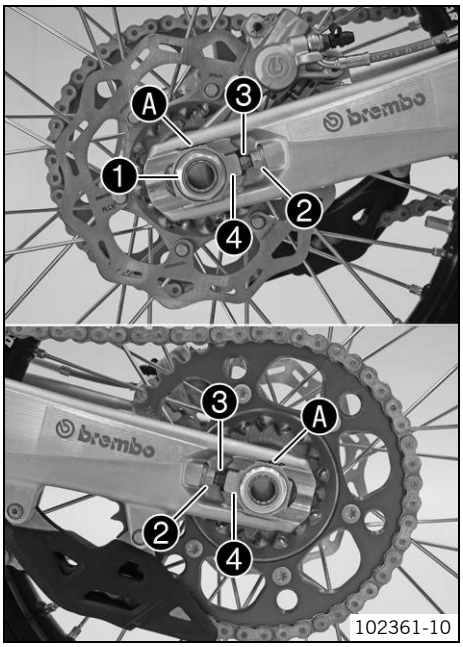
– Remove the motorcycle from the lift stand. (☛ p. 34)

11.36 Adjusting the chain tension

Warning

Danger of accidents Danger caused by incorrect chain tension.

– If the chain is too taut, the components of the secondary power transmission (chain, engine sprocket, rear sprocket, bearings in the transmission and in the rear wheel) will be under additional load. In addition to premature wear, this can cause the chain or the countershaft of the transmission to break in extreme cases. If the chain is too loose, however, it may fall off the engine sprocket or rear sprocket and block the rear wheel or damage the engine. Ensure that the chain tension is correct and adjust it if necessary.



Preparatory work

– Raise the motorcycle with a lift stand. (☛ p. 34)
– Check the chain tension. (☛ p. 51)

Main work

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

Guideline

Chain tension	55... 58 mm (2.17... 2.28 in)
Turn adjusting screws ❸ on the left and right so that the markings on the left and right chain adjusters are in the same position relative to reference marks Ⓐ. The rear wheel is then correctly aligned.	

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

Guideline

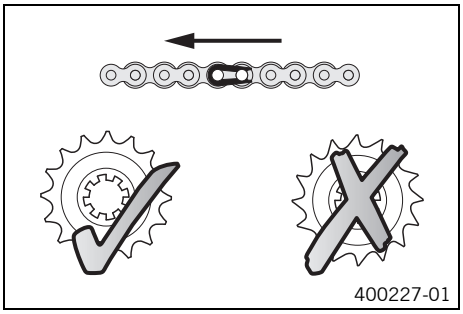
Nut, rear wheel spindle	M25x1.5	80 Nm (59 lbf ft)

Info
The wide adjustment range of the chain adjusters (32 mm (1.18 in)) enables different secondary ratios with the same chain length.
Chain adjusters ❹ can be turned by 180°.

Finishing work
– Remove the motorcycle from the lift stand. (☛ p. 34)

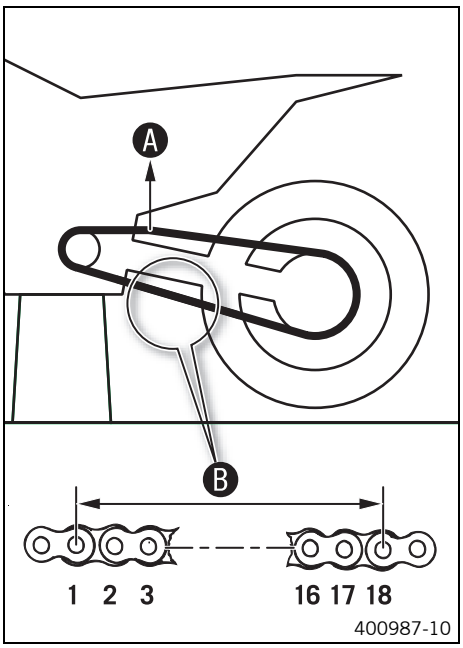
11.37 Checking the chain, rear sprocket, engine sprocket, and chain guide

Preparatory work
– Raise the motorcycle with a lift stand. (☛ p. 34)


400227-01

Main work
– Shift the transmission to idle.
– Check the rear sprocket and engine sprocket for wear.
» If the rear sprocket and engine sprocket are worn:
– Change the drivetrain kit.

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



400987-10

– Pull at the top part of the chain with the specified weight Ⓐ.
Guideline

Weight, chain wear measurement	10... 15 kg (22... 33 lb.)

– Measure the distance Ⓑ of 18 chain links in the lower chain section.

Info
Chain wear is not always even, so you should repeat this measurement at different chain positions.

Maximum distance Ⓑ at the longest chain section	272 mm (10.71 in)

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

Info
When the chain is replaced, the rear sprocket and engine sprocket should also be changed.
New chains wear out faster on old, worn sprockets.



102362-10

– Check the chain sliding guard for wear.
» If the lower edge of the chain pin is at the level of or below the chain sliding guard:
– Change the chain sliding guard.
– Check that the chain sliding guard is firmly seated.
» If the chain sliding guard is loose:
– Tighten the screws on the chain sliding guard.
Guideline

Screw, chain sliding guard	M6	6 Nm (4.4 lbf ft)	**Loctite® 243™**

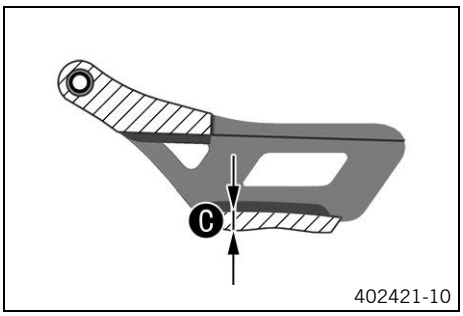


102363-10

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

    Guideline

Screw, chain sliding piece	M8	15 Nm (11.1 lbf ft)

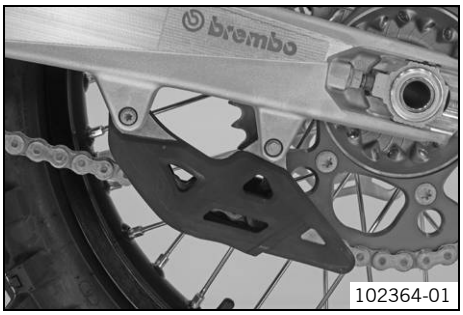


402421-10

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

Minimum thickness C of the chain guide	6 mm (0.24 in)

  » If the measured value is less than the specification:
    – Change the chain guide.



102364-01

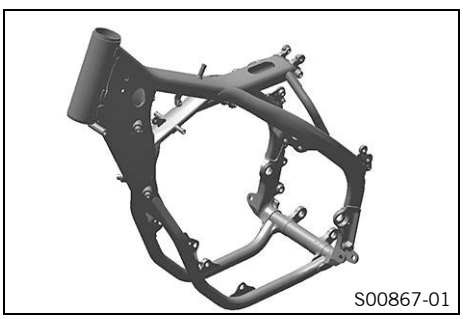
– Check that the chain guide is firmly seated.
  » If the chain guide is loose:
    – Tighten the screws on the chain guide.

    Guideline

Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)

Finishing work
– Remove the motorcycle from the lift stand. (☛ p. 34)

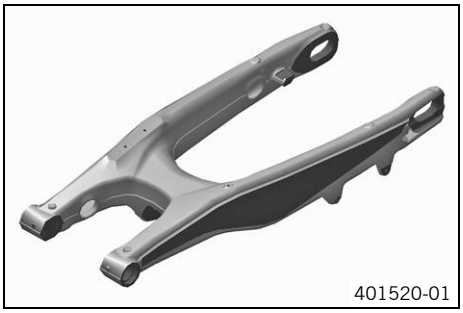
11.38 Checking the frame


S00867-01

– Check the frame for cracking and deformation.
  » If the frame exhibits cracking or deformation due to a mechanical impact:
    – Change the frame.

Info
A frame that has been damaged due to a mechanical impact must always be changed. Repair of the frame is not authorized by KTM.

11.39 Checking the swingarm

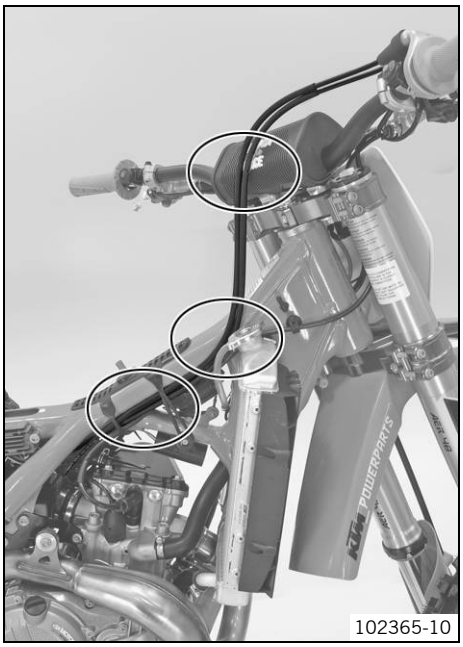

401520-01

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

Info
A damaged swingarm must always be changed. Repair of the swingarm is not authorized by KTM.

11.40 Checking the throttle cable routing

Preparatory work
– Remove the seat. (☛ p. 44)
– Remove the fuel tank. (☛ p. 48)


102365-10

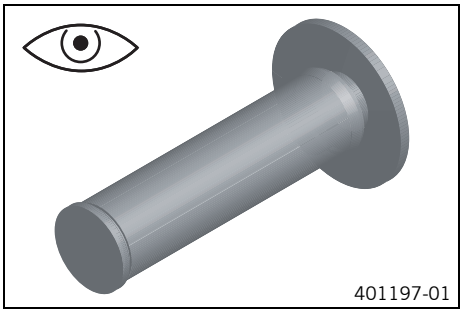
Main work
– Check the throttle cable routing.

Both throttle cables must be routed to the throttle valve body side by side behind the handlebars and above the fuel tank bracket.

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

Finishing work
– Install the fuel tank. (☛ p. 49)
– Mount the seat. (☛ p. 44)

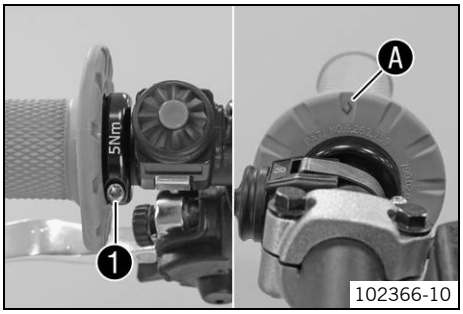
11.41 Checking the rubber grip


401197-01

– Check the rubber grips on the handlebar for damage and wear and to ensure they are firmly seated.

Info
The rubber grips are vulcanized onto a sleeve on the left and onto the handle tube of the throttle grip on the right. The left sleeve is clamped onto the handlebar.
The rubber grip can only be replaced with the sleeve or the throttle tube.

  » If a rubber grip is damaged or worn:
    – Change the rubber grip.



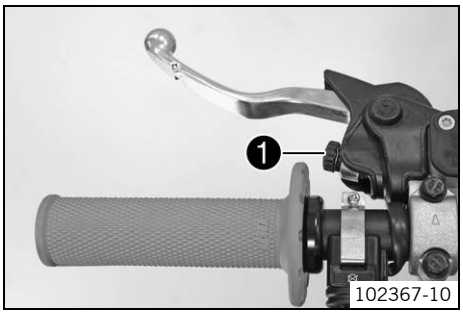
– Check that screw ❶ is firmly seated.

Guideline

Screw, handle bar fixed grip, left	M4	5 Nm (3.7 lbf ft)	**Loctite® 243™**

– The diamond Ⓐ must be located at the top.

11.42 Adjusting the basic position of the clutch lever



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

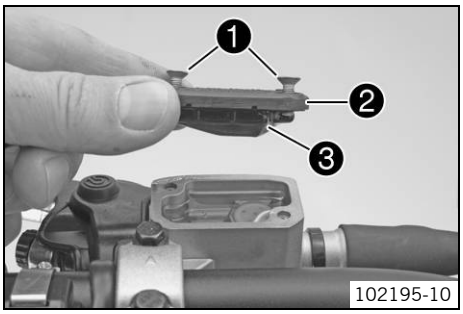
Info

Turn the adjusting screw counterclockwise to decrease the distance between the clutch lever and the handlebar.
Turn the adjusting screw clockwise to increase the distance between the clutch lever and the handlebar.
The range of adjustment is limited.
Turn the adjusting screw by hand only, and do not apply any force.
Do not make any adjustments while riding!

11.43 Checking/correcting the fluid level of the hydraulic clutch

Info

The fluid level rises with increased wear of the clutch lining discs.



– Move the clutch fluid reservoir mounted on the handlebar to a horizontal position.
– Remove screws ❶.
– Remove cover ❷ with membrane ❸.
– Check the fluid level.

Fluid level below container rim	4 mm (0.16 in)

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

Brake fluid DOT 4 / DOT 5.1 (☛ p. 95)

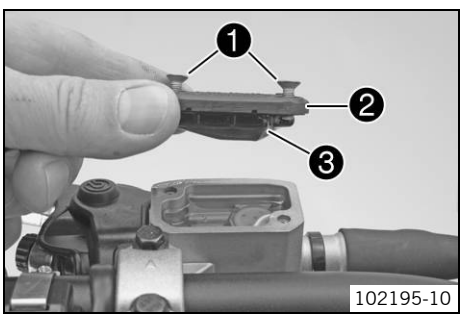
– Position the cover with the membrane. Mount and tighten the screws.

11.44 Changing the hydraulic clutch fluid

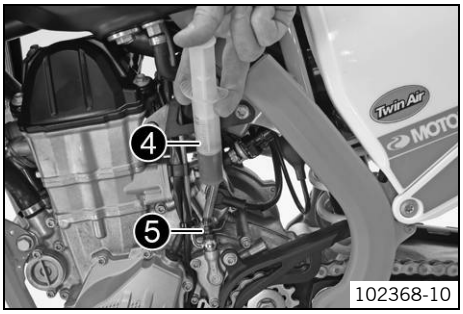
Warning

Environmental hazard Hazardous substances cause environmental damage.

– Oil, grease, filters, fuel, cleaners, brake fluid, etc., should be disposed of as stipulated in applicable regulations.



– Move the clutch fluid reservoir mounted on the handlebar to a horizontal position.
– Remove screws ❶.
– Remove cover ❷ with membrane ❸.

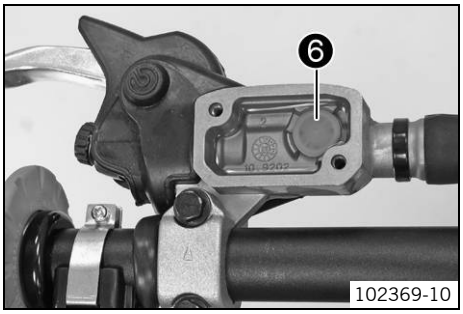


– Fill bleeding syringe ❹ with the appropriate hydraulic fluid.

Bleed syringe (50329050000)
Brake fluid DOT 4 / DOT 5.1 (☛ p. 95)

– Remove bleeder screw ❺.
– Mount the bleeding syringe ❹ on the clutch slave cylinder.

Info
Clean up overflowed or spilled brake fluid immediately with water!
Avoid contact between brake fluid and painted parts. Brake fluid attacks paint!
Use only clean brake fluid from a sealed container!



– Inject the liquid into the system until it escapes from drill hole ❻ of the master cylinder without bubbles.
– Drain fluid occasionally from the master cylinder reservoir, to prevent overflow.
– Remove the bleeding syringe. Mount and tighten screws bleeder screw.
– Correct the fluid level of the hydraulic clutch.
Guideline

Fluid level below container rim	4 mm (0.16 in)

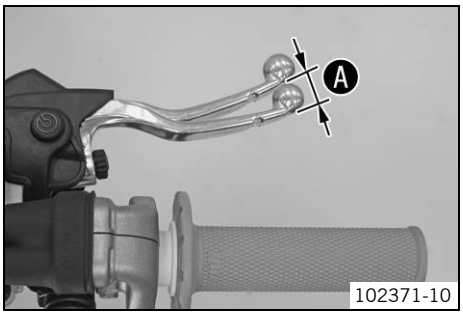
– Position the cover with the membrane. Mount and tighten the screws.

12.1 Checking the free travel of the hand brake lever

Warning

Danger of accidents Brake system failure.

– If there is no free travel on the hand brake lever, pressure builds up on the front brake circuit. The front brake can fail due to overheating. Adjust the free travel on hand brake lever according to specifications.



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

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

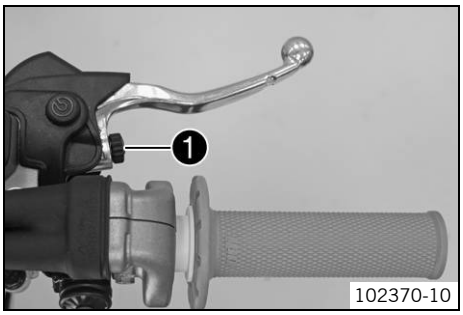
» If the free travel does not meet specifications:

– Adjust the basic position of the hand brake lever. (☛ p. 57)

12.2 Adjusting the basic position of the hand brake lever

Preparatory work

– Check the free travel of the hand brake lever. (☛ p. 57)



Main work

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

Info

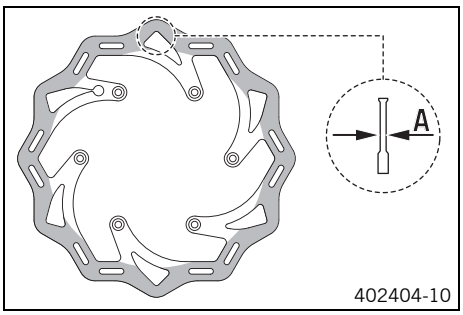
Turn the adjusting screw clockwise to increase the distance between the hand brake lever and the handlebar.
Turn the adjusting screw counterclockwise to decrease the distance between the hand brake lever and the handlebar.
The range of adjustment is limited.
Turn the adjusting screw by hand only, and do not apply any force.
Do not make any adjustments while riding!

12.3 Checking the brake discs

Warning

Danger of accidents Reduced braking efficiency due to worn brake disc(s).

– Change the worn brake disc(s) without delay. (Your authorized KTM workshop will be glad to help.)



– Check the thickness of the front and rear brake discs at several places on the disk to see if it conforms to measurement A.

Info

Wear reduces the thickness of the brake disc around the area used by the brake linings.

Brake discs - wear limit	
Front	2.5 mm (0.098 in)
Rear	3.5 mm (0.138 in)

» If the brake disc thickness is less than the specified value:

– Change the brake disc.

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

» If the brake disc shows signs of damage, cracking or deformation:

– Change the brake disc.

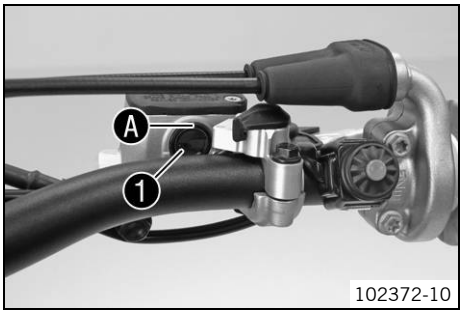
12.4 Checking the brake fluid level of the front brake

Warning
Danger of accidents Brake system failure.

– If the brake fluid level drops below the specified marking or the specified value, this is an indication that the brake system is leaking or that the brake linings are completely worn down. Check the brake system and do not continue riding. (Your authorized KTM workshop will be glad to help.)

Warning
Danger of accidents Reduced braking efficiency due to old brake fluid.

– Change the brake fluid of the front and rear brake according to the service schedule. (Your authorized KTM workshop will be glad to help.)



Preparatory work
– Check the front brake linings. (☛ p. 59)

Main work
– Move the brake fluid reservoir mounted on the handlebar to a horizontal position.
– Check the brake fluid level in level viewer ❶.
  » If the brake fluid level has dropped below marking Ⓐ:
    – Add front brake fluid. 🔧 (☛ p. 58)

12.5 Adding front brake fluid 🔧

Warning
Danger of accidents Brake system failure.

– If the brake fluid level drops below the specified marking or the specified value, this is an indication that the brake system is leaking or that the brake linings are completely worn down. Check the brake system and do not continue riding. (Your authorized KTM workshop will be glad to help.)

Warning
Skin irritation Brake fluid can cause skin irritation on contact.

– Avoid contact with skin and eyes, and keep out of the reach of children.
– Wear suitable protective clothing and goggles.
– If brake fluid comes into contact with the eyes, flush the eyes thoroughly with water and consult a physician immediately.

Warning
Danger of accidents Reduced braking efficiency due to old brake fluid.

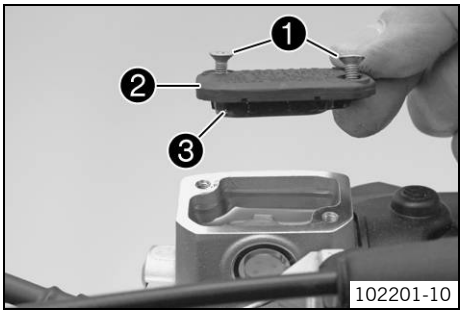
– Change the brake fluid of the front and rear brake according to the service schedule. (Your authorized KTM workshop will be glad to help.)

Warning
Environmental hazard Hazardous substances cause environmental damage.

– Oil, grease, filters, fuel, cleaners, brake fluid, etc., should be disposed of as stipulated in applicable regulations.

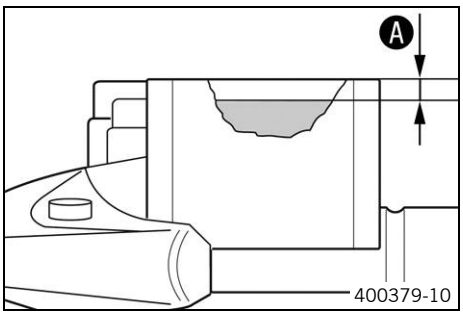
Info
Never use DOT 5 brake fluid. It is silicone-based and purple in color. Oil seals and brake lines are not designed for DOT 5 brake fluid.
Avoid contact between brake fluid and painted parts. Brake fluid attacks paint!
Use only clean brake fluid from a sealed container.

Preparatory work
– Check the front brake linings. (☛ p. 59)



Main work

– Move the brake fluid reservoir mounted on the handlebar to a horizontal position.
– Remove screws 1.
– Remove cover 2 with membrane 3.

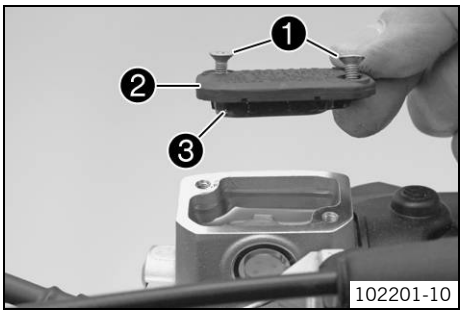


– Add brake fluid to level A.

Guideline

Level A (brake fluid level below container rim)	5 mm (0.2 in)

Brake fluid DOT 4 / DOT 5.1 (☛ p. 95)



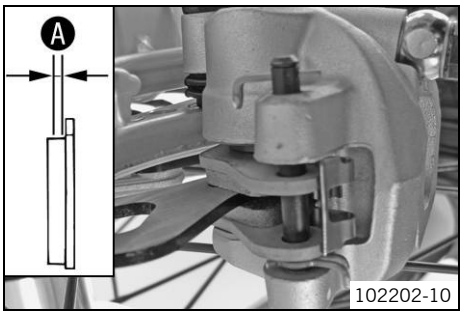
– Position cover 2 with membrane 3. Mount and tighten screws 1.

Info
Clean up overflowed or spilled brake fluid immediately with water.

12.6 Checking the front brake linings

Warning
Danger of accidents Reduced braking efficiency caused by worn brake linings.

– Change worn brake linings immediately. (Your authorized KTM workshop will be glad to help.)



– Check the brake linings for minimum thickness A.

Minimum thickness A	≥ 1 mm (≥ 0.04 in)

» If the minimum thickness is less than specified:
– Change the front brake linings. 🔧 (☛ p. 59)

– Check the brake linings for damage and cracking.
» If damage or cracking is visible:
– Change the front brake linings. 🔧 (☛ p. 59)

12.7 Changing the front brake linings 🔧

Warning
Danger of accident Brake system failure.

– Maintenance work and repairs must be carried out professionally. (Your authorized KTM workshop will be glad to help.)

Warning
Skin irritation Brake fluid can cause skin irritation on contact.

– Avoid contact with skin and eyes, and keep out of the reach of children.
– Wear suitable protective clothing and goggles.
– If brake fluid comes into contact with the eyes, flush the eyes thoroughly with water and consult a physician immediately.

Warning

Danger of accidents Reduced braking efficiency due to old brake fluid.

– Change the brake fluid of the front and rear brake according to the service schedule. (Your authorized KTM workshop will be glad to help.)

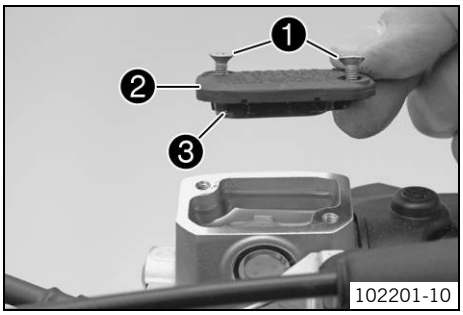
Warning

Environmental hazard Hazardous substances cause environmental damage.

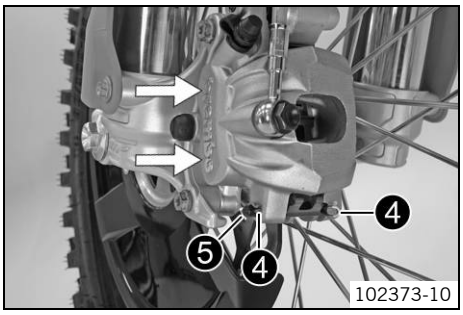
– Oil, grease, filters, fuel, cleaners, brake fluid, etc., should be disposed of as stipulated in applicable regulations.

Info

Never use DOT 5 brake fluid! It is silicone-based and purple in color. Oil seals and brake lines are not designed for DOT 5 brake fluid.
Avoid contact between brake fluid and painted parts. Brake fluid attacks paint!
Use only clean brake fluid from a sealed container.



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

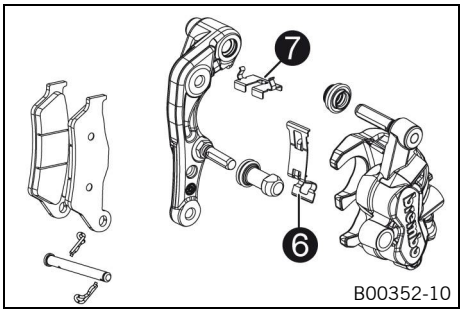


– Manually press the brake caliper to the brake disc to push back the brake pistons. Ensure that brake fluid does not flow out of the brake fluid reservoir, extracting it by suction if it does.

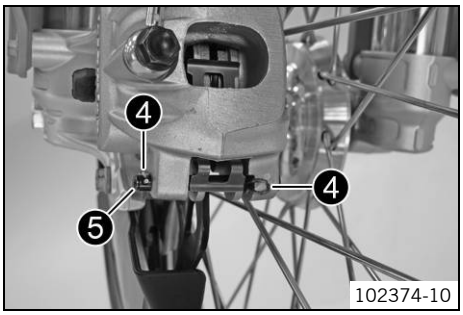
Info

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

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



– Check that leaf spring ❻ in the brake caliper and sliding plate ❼ in the brake caliper support are seated correctly.

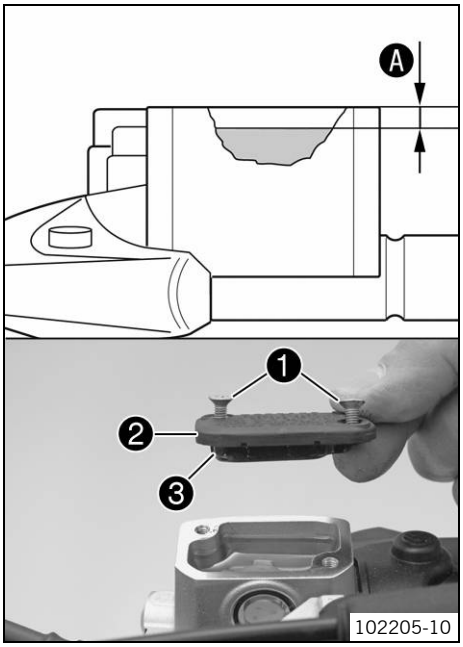


– Insert the new brake linings, insert pin ❺, and mount cotter pins ❹.

Info

Always change the brake linings in pairs.

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



– Add brake fluid to level Ⓐ.

Guideline

Dimension Ⓐ (brake fluid level below top edge of container)	5 mm (0.2 in)

Brake fluid DOT 4 / DOT 5.1 (☛ p. 95)

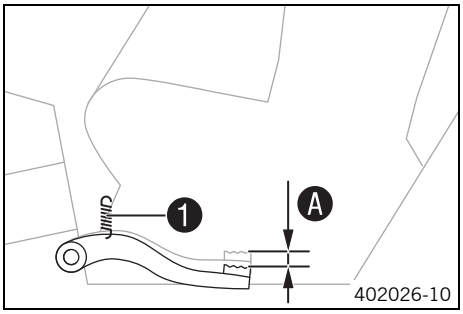
– Position cover ❷ with membrane ❸.
– Mount and tighten screws ❶.

Info
Clean up overflowed or spilt brake fluid immediately with water.

12.8 Checking the free travel of foot brake lever

Warning
Danger of accidents Brake system failure.

– If there is no free travel on the foot brake lever, pressure builds up on the rear brake circuit. The rear brake can fail due to overheating. Adjust the free travel on foot brake lever according to specifications.



– Disconnect spring ❶.
– Move the foot brake lever back and forth between the end stop and the contact to the foot brake cylinder piston and check free travel Ⓐ.

Guideline

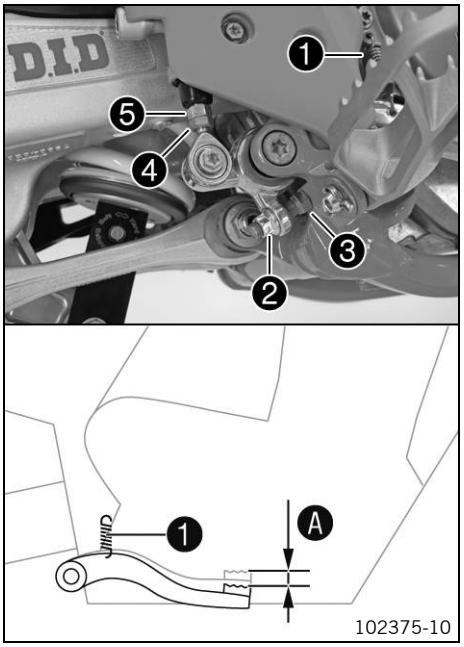
Free travel at foot brake lever	3... 5 mm (0.12... 0.2 in)

» If the free travel does not meet specifications:
  – Adjust the basic position of the foot brake lever. 🔧 (☛ p. 61)
– Reconnect spring ❶.

12.9 Adjusting the basic position of the foot brake lever 🔧

Warning
Danger of accidents Brake system failure.

– If there is no free travel on the foot brake lever, pressure builds up on the rear brake circuit. The rear brake can fail due to overheating. Adjust the free travel on foot brake lever according to specifications.



– Disconnect spring ❶.
– Loosen nut ❹ and, with push rod ❺, turn it back until you have maximum free travel.
– To adjust the basic position of the foot brake lever individually, loosen nut ❷ and turn screw ❸ accordingly.

Info
The range of adjustment is limited.

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

Guideline

Free travel at foot brake lever	3... 5 mm (0.12... 0.2 in)

– Hold screw ❸ and tighten nut ❷.

Guideline

Nut, foot brake lever stop	M8	20 Nm (14.8 lbf ft)

– Hold push rod ❺ and tighten nut ❹.

Guideline

Remaining nuts, chassis	M6	10 Nm (7.4 lbf ft)

– Reconnect spring ❶.

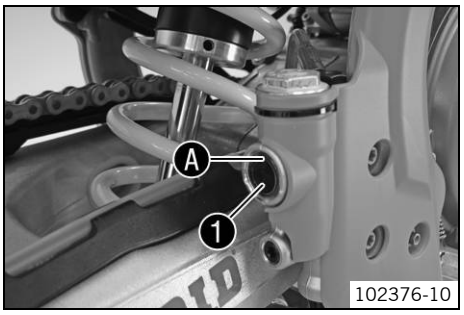
12.10 Checking the rear brake fluid level

Warning
Danger of accidents Brake system failure.

– If the brake fluid level drops below the specified marking or the specified value, this is an indication that the brake system is leaking or that the brake linings are completely worn down. Check the brake system and do not continue riding. (Your authorized KTM workshop will be glad to help.)

Warning
Danger of accidents Reduced braking efficiency due to old brake fluid.

– Change the brake fluid of the front and rear brake according to the service schedule. (Your authorized KTM workshop will be glad to help.)



Preparatory work
– Check the rear brake linings. (☛ p. 63)

Main work
– Stand the vehicle upright.
– Check the brake fluid level in the viewer ❶.
  » If the brake fluid level drops below marking Ⓐ:
    – Add rear brake fluid. 🔧 (☛ p. 62)

12.11 Adding rear brake fluid 🔧

Warning
Danger of accidents Brake system failure.

– If the brake fluid level drops below the specified marking or the specified value, this is an indication that the brake system is leaking or that the brake linings are completely worn down. Check the brake system and do not continue riding. (Your authorized KTM workshop will be glad to help.)

Warning
Skin irritation Brake fluid can cause skin irritation on contact.

– Avoid contact with skin and eyes, and keep out of the reach of children.
– Wear suitable protective clothing and goggles.
– If brake fluid comes into contact with the eyes, flush the eyes thoroughly with water and consult a physician immediately.

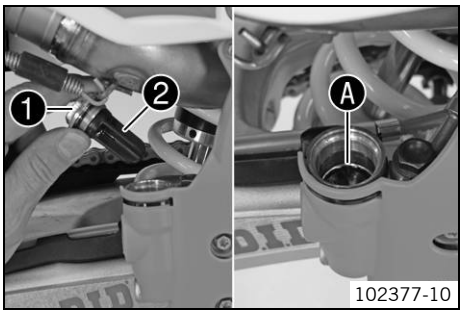
Warning
Danger of accidents Reduced braking efficiency due to old brake fluid.

– Change the brake fluid of the front and rear brake according to the service schedule. (Your authorized KTM workshop will be glad to help.)

Warning
Environmental hazard Hazardous substances cause environmental damage.

– Oil, grease, filters, fuel, cleaners, brake fluid, etc., should be disposed of as stipulated in applicable regulations.

Info
Never use DOT 5 brake fluid! It is silicone-based and purple in color. Oil seals and brake lines are not designed for DOT 5 brake fluid.
Avoid contact between brake fluid and painted parts. Brake fluid attacks paint!
Use only clean brake fluid from a sealed container.



Preparatory work
– Check the rear brake linings. (☛ p. 63)

Main work
– Stand the vehicle upright.
– Remove screw cap ❶ with membrane ❷ and the O-ring.
– Add brake fluid to level Ⓐ.

Brake fluid DOT 4 / DOT 5.1 (☛ p. 95)

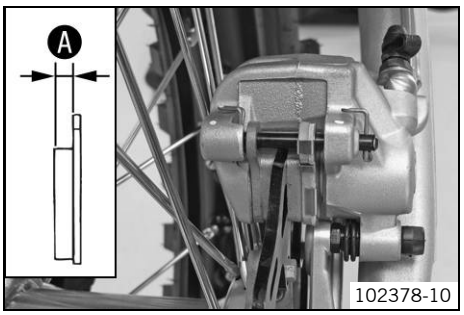
– Mount and tighten the screw cap with the membrane and O-ring.

Info
Clean up overflowed or spilt brake fluid immediately with water.

12.12 Checking the rear brake linings

Warning
Danger of accidents Reduced braking efficiency caused by worn brake linings.

– Change worn brake linings immediately. (Your authorized KTM workshop will be glad to help.)



– Check the brake linings for minimum thickness Ⓐ.

Minimum thickness Ⓐ	≥ 1 mm (≥ 0.04 in)

» If the minimum thickness is less than specified:
– Change the rear brake linings. 🔧 (☛ p. 64)

– Check the brake linings for damage and cracking.
» If damage or cracking is visible:
– Change the rear brake linings. 🔧 (☛ p. 64)

12.13 Changing the rear brake linings

Warning
Danger of accident Brake system failure.

– Maintenance work and repairs must be carried out professionally. (Your authorized KTM workshop will be glad to help.)

Warning
Skin irritation Brake fluid can cause skin irritation on contact.

– Avoid contact with skin and eyes, and keep out of the reach of children.
– Wear suitable protective clothing and goggles.
– If brake fluid comes into contact with the eyes, flush the eyes thoroughly with water and consult a physician immediately.

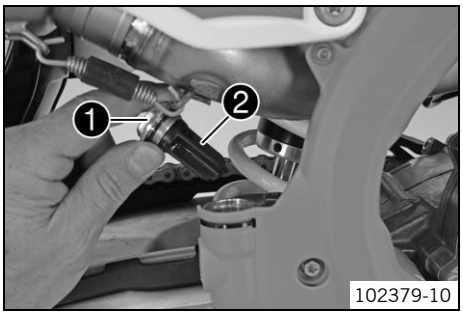
Warning
Danger of accidents Reduced braking efficiency due to old brake fluid.

– Change the brake fluid of the front and rear brake according to the service schedule. (Your authorized KTM workshop will be glad to help.)

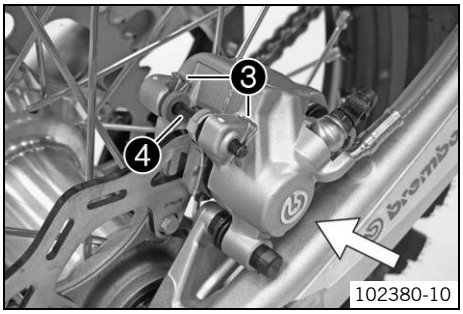
Warning
Environmental hazard Hazardous substances cause environmental damage.

– Oil, grease, filters, fuel, cleaners, brake fluid, etc., should be disposed of as stipulated in applicable regulations.

Info
Never use DOT 5 brake fluid! It is silicone-based and purple in color. Oil seals and brake lines are not designed for DOT 5 brake fluid.
Avoid contact between brake fluid and painted parts. Brake fluid attacks paint!
Use only clean brake fluid from a sealed container.



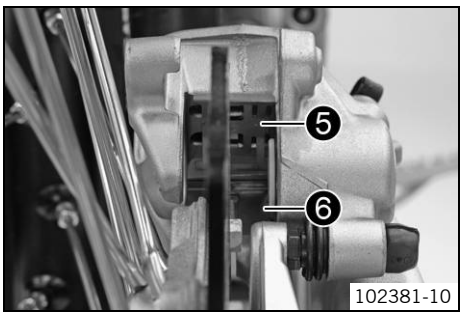
– Stand the vehicle upright.
– Remove screw cap ❶ with membrane ❷ and the O-ring.



– Manually press the brake caliper to the brake disc to push back the brake piston. Ensure that brake fluid does not flow out of the brake fluid reservoir, extracting it by suction if it does.

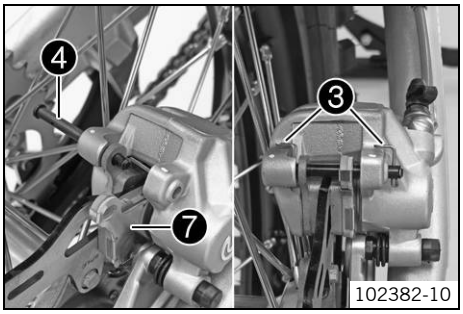
Info
Make sure when pushing back the brake piston that you do not press the brake caliper against the spokes.

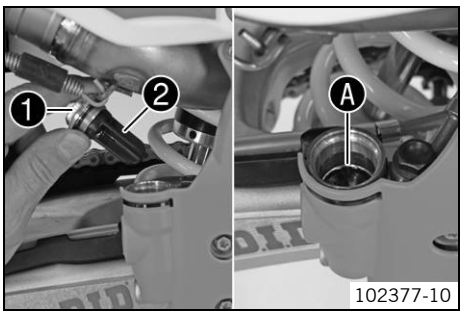
– Remove cotter pins ❸, pull out pin ❹, and remove the brake linings.
– Clean the brake caliper and brake caliper support.



– Check that leaf spring ❺ in the brake caliper and sliding plate ❻ in the brake caliper support are seated correctly.

Info
The arrow on the leaf spring points in the rotation direction of the brake disc.





– Insert the new brake linings, insert pin ❹, and mount cotter pins ❸.

Info
Always change the brake linings in pairs.
Make sure that the decoupling plate ❼ is mounted on the piston side of the brake lining.

– Operate the foot brake lever repeatedly until the brake linings are in contact with the brake disc and there is a pressure point.

– Add brake fluid to level Ⓐ.

Brake fluid DOT 4 / DOT 5.1 (☛ p. 95)

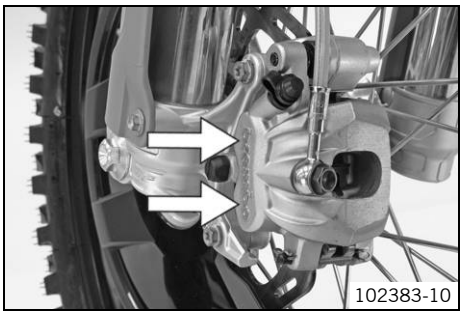
– Mount and tighten screw cap ❶ with membrane ❷ and the O-ring.

Info
Clean up overflowed or spilt brake fluid immediately with water.

13.1 Removing the front wheel

Preparatory work

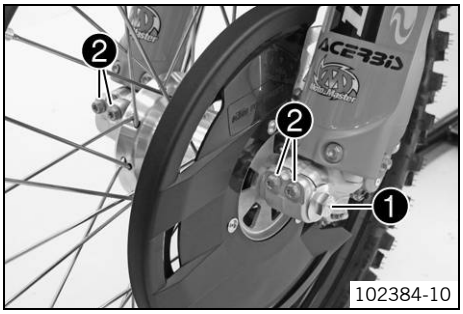
– Raise the motorcycle with a lift stand. (☛ p. 34)



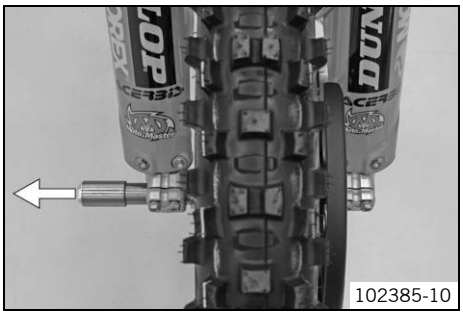
Main work

– Press the brake caliper onto the brake disc by hand in order to push back the brake pistons.

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

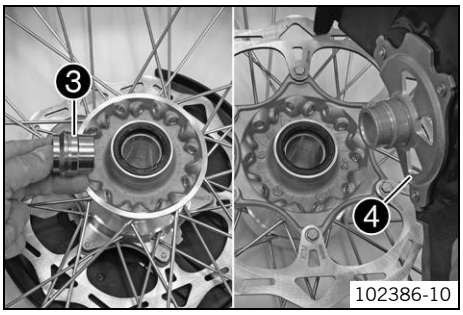


– Loosen screw ❶ by several rotations.
– Loosen screws ❷.
– Press on screw ❶ to push the wheel spindle out of the axle clamp.
– Remove screw ❶.



– Holding the front wheel, withdraw the wheel spindle. Take the front wheel out of the fork.

Info
Do not pull the hand brake lever when the front wheel is removed.
Always lay the wheel down in such a way that the brake disc is not damaged.

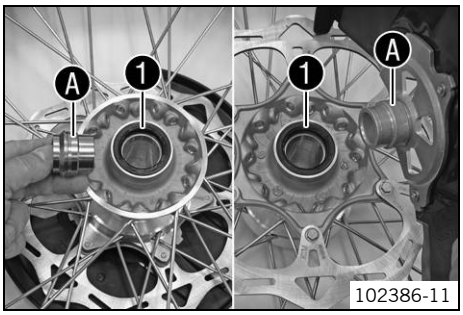


– Remove spacer ❸ and brake disc guard ❹.

13.2 Installing the front wheel

Warning
Danger of accidents Reduced braking efficiency due to oil or grease on the brake discs.

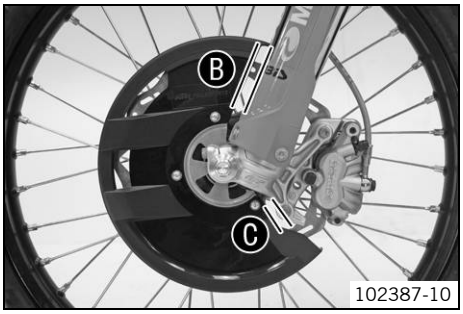
– Always keep the brake discs free of oil and grease, and clean them with brake cleaner when necessary.



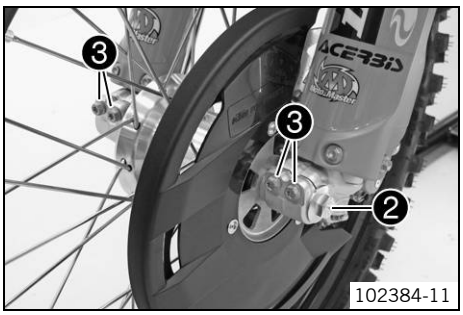
– Check the wheel bearing for damage and wear.
  » If the wheel bearing is damaged or worn:
    – Change the front wheel bearing.
– Clean and grease shaft seal rings ❶ and contact surface Ⓐ of the spacers.

Long-life grease (☛ p. 97)

– Insert the spacer and brake disc guard.
– Position the front wheel and insert the wheel spindle.
  ✓ The brake linings are correctly positioned.



– Align the brake disc guard so that gaps Ⓑ and Ⓒ are the same size.



– Mount and tighten screw ❷.

Guideline

Screw, front wheel spindle	M20x1.5	35 Nm (25.8 lbf ft)

– Operate the hand brake lever several times until the brake linings are seated correctly against the brake disc.
– Remove the motorcycle from the lift stand. (☛ p. 34)
– Operate the front brake and compress the fork a few times firmly.
  ✓ The fork legs straighten.
– Tighten screws ❸.

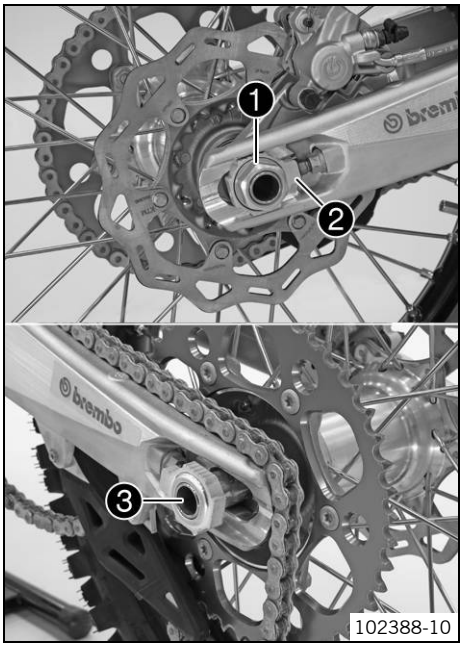
Guideline

Screw, fork stub	M8	15 Nm (11.1 lbf ft)

13.3 Removing the rear wheel

Preparatory work

– Raise the motorcycle with a lift stand. (☛ p. 34)



Main work

– Press the brake caliper onto the brake disc by hand in order to push back the brake piston.

Info
Make sure when pushing back the brake piston that you do not press the brake caliper against the spokes.

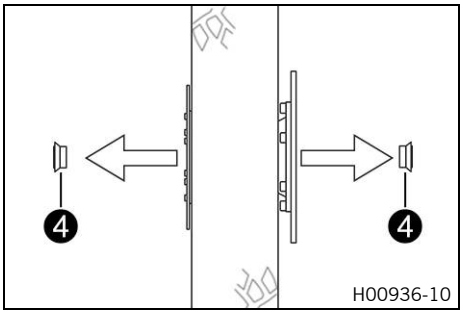
– Remove nut ❶.
– Remove chain adjuster ❷. Withdraw wheel spindle ❸ only enough to allow the rear wheel to be pushed forward.
– Push the rear wheel forward as far as possible. Remove the chain from the rear sprocket.

Info
Cover the components to protect them against damage.

Warning
Danger of accidents Reduced braking efficiency due to damaged brake disc.
  – Always lay the wheel down in such a way that the brake disc is not damaged.

– Holding the rear wheel, withdraw the wheel spindle. Take the rear wheel out of the swingarm.

Info
Do not operate the foot brake lever when the rear wheel is removed.



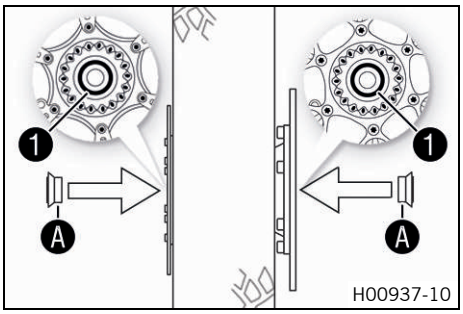
– Remove spacers ❹.

13.4 Installing the rear wheel

Warning

Danger of accidents Reduced braking efficiency due to oil or grease on the brake discs.

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

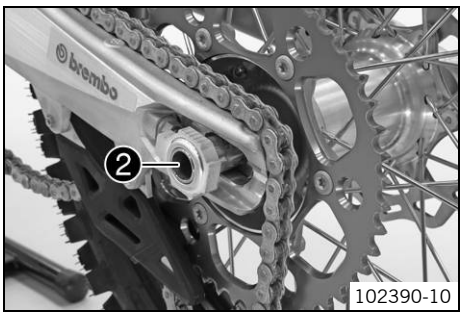


Main work

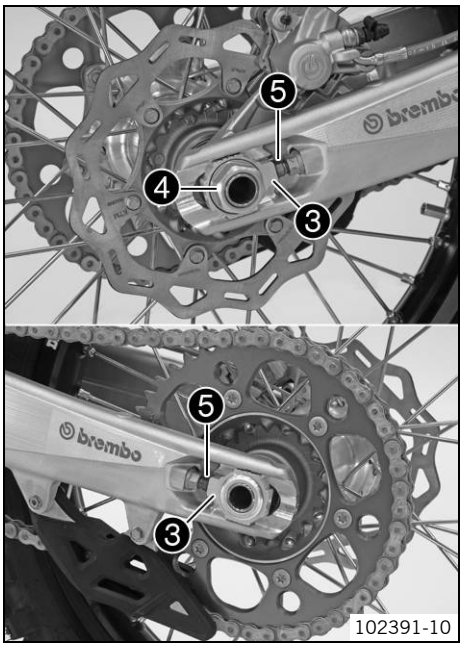
– Check the wheel bearing for damage and wear.
  » If the wheel bearing is damaged or worn:
    – Change the rear wheel bearing.
– Clean and grease shaft seal rings ❶ and contact surface Ⓐ of the spacers.

Long-life grease (☛ p. 97)

– Insert the spacers.



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



– Position chain adjuster ❸. Mount nut ❹, but do not tighten it yet.
– Make sure that chain adjusters ❸ are fitted correctly on adjusting screws ❺.
– Check the chain tension. (☛ p. 51)
– Tighten nut ❹.

Guideline

Nut, rear wheel spindle	M25x1.5	80 Nm (59 lbf ft)

Info

The wide adjustment range of the chain adjusters (32 mm (1.26 in)) enables different secondary ratios with the same chain length.
Chain adjusters ❸ can be turned by 180°.

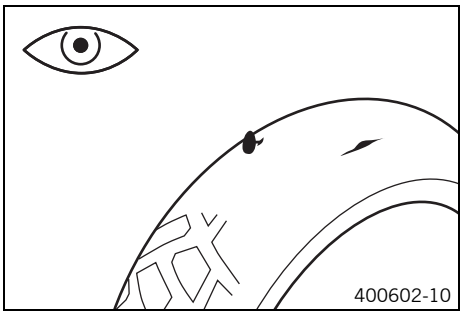
– Operate the foot brake lever repeatedly until the brake linings are in contact with the brake disc and there is a pressure point.

Finishing work

– Remove the motorcycle from the lift stand. (☛ p. 34)

13.5 Checking the tire condition

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



– Check the front and rear tires for cuts, run-in objects and other damage.
  » If the tire exhibits cuts, run-in objects or other damage:
    – Change the tire.
– Check the depth of the tread.

Info
Note local national regulations concerning the minimum tread depth.

Minimum tread depth	≥ 2 mm (≥ 0.08 in)

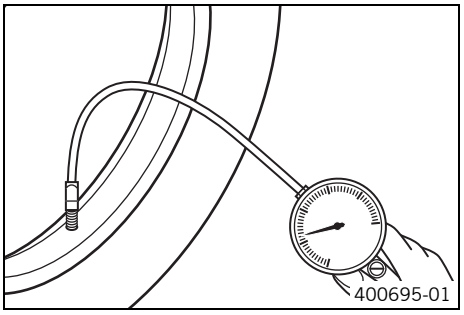
  » If the tread depth is less than the minimum permissible depth:
    – Change the tire.
– Check the tire age.

Info
The tire's date of manufacture is usually part of the tire markings and is indicated by the last four digits of the **DOT** marking. 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 tire is older than five years:
    – Change the tire.

13.6 Checking the tire air pressure

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



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

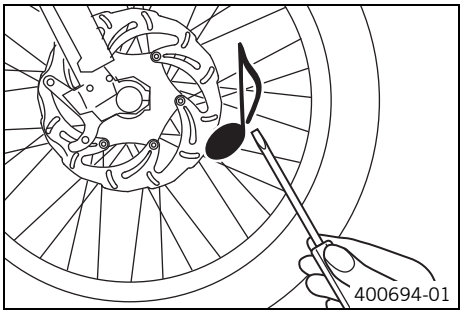
Tire air pressure off road	
Front	1.0 bar (15 psi)
Rear	1.0 bar (15 psi)

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

13.7 Checking the spoke tension

Warning
Danger of accidents Instable handling due to incorrect spoke tension.
– Ensure that the spoke tension is correct. (Your authorized KTM workshop will be glad to help.)

Info
A loose spoke causes wheel imbalance and rapidly leads to more loose spokes.
If the spokes are too tight, they can break due to local overload.
Check the spoke tension regularly, especially on a new motorcycle.



– Briefly strike each spoke with the tip of a screwdriver.

Info
The tone frequency depends on the length of the spoke and the spoke diameter.
If you hear different tone frequencies from different spokes of equal length and diameter, this is an indication of different spoke tensions.

You should hear a high note.

» If the spoke tension varies:
  – Correct the spoke tension.

– Check the spoke torque.

Guideline

Spoke nipple, front wheel	M4.5	6 Nm (4.4 lbf ft)
Spoke nipple, rear wheel	M4.5	6 Nm (4.4 lbf ft)

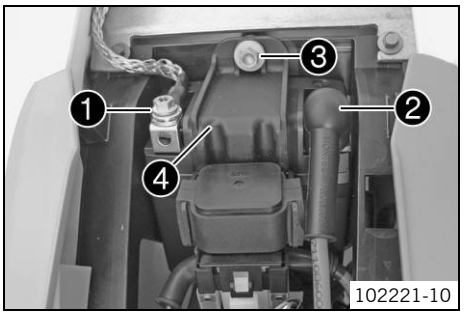
Torque wrench with various accessories in set (58429094000)

14.1 Removing the battery

Warning
Risk of injury Batteries contain harmful substances.

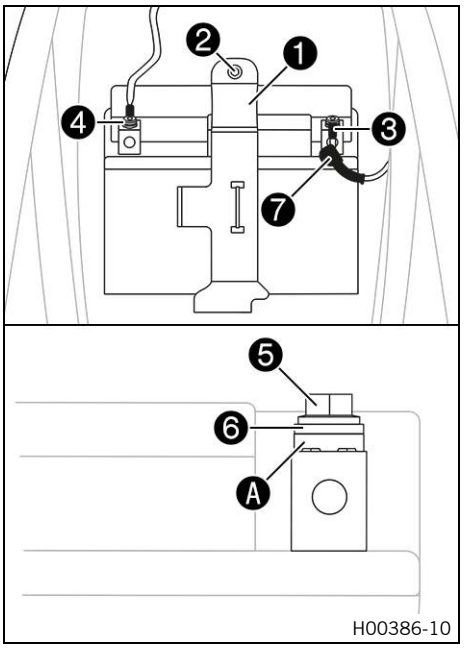
- Keep batteries out of the reach of children.
- Keep sparks and open flames away from the battery.
- Only charge in well-ventilated rooms.
- Maintain the minimum clearance to inflammable materials while charging.
  Minimum clearance 1 m (3 ft)
- Over-discharged batteries with a charge of less than 9 V are not permitted to be charged. They must be disposed of.

Preparatory work
- Switch off all power consumers and switch off the engine.
- Remove the seat. (☛ p. 44)



Main work
- Disconnect negative cable ❶ from the battery.
- Pull back positive terminal cover ❷ and disconnect the positive cable from the battery.
- Remove screw ❸.
- Pull holding bracket ❹ forward and remove battery toward the top.

14.2 Installing the battery



Main work
- Insert the battery into the battery compartment with the terminals facing forward and secure with the holding bracket ❶.

Battery (C22S) (☛ p. 92)

- Mount and tighten screw ❷.
  Guideline

Remaining nuts, chassis	M6	10 Nm (7.4 lbf ft)

- Connect positive cable ❸ and negative cable ❹ with the battery.
  Guideline

Screw, battery terminal	M5	2.5 Nm (1.84 lbf ft)

Contact disks Ⓐ must be mounted under screws ❺ and cable sockets ❻ with the claws toward the battery terminal.

- Slide positive terminal cover ❼ over the positive terminal.

Finishing work
- Mount the seat. (☛ p. 44)

14.3 Recharging the battery

Warning
Risk of injury Batteries contain harmful substances.

- Keep batteries out of the reach of children.
- Keep sparks and open flames away from the battery.
- Only charge in well-ventilated rooms.
- Maintain the minimum clearance to inflammable materials while charging.
  Minimum clearance 1 m (3 ft)
- Over-discharged batteries with a charge of less than 9 V are not permitted to be charged. They must be disposed of.

Warning
Environmental hazard The battery contains elements that are harmful to the environment.

- Do not dispose of batteries with the household waste. Dispose of a defective battery in an environmentally friendly manner. Give the battery to your authorized KTM dealer or dispose of it at a collection point for used batteries.

Warning
Environmental hazard Hazardous substances cause environmental damage.

- Oil, grease, filters, fuel, cleaners, brake fluid, etc., should be disposed of as stipulated in applicable regulations.

Info
Even when there is no load on the battery, it discharges steadily.
The charging level and the method of charging are very important for the service life of the battery.
Rapid recharging with a high charging current shortens the service life of the battery.
If the charging current, charging voltage, or charging time are exceeded, the battery will be destroyed.
If the battery is depleted by repeated starting, the battery must be charged immediately.
If the battery is left in a discharged state for an extended period, it will become over-discharged and sulfated, destroying the battery.
The battery is maintenance-free.



Preparatory work
- Switch off all power consumers and switch off the engine.
- Remove the seat. (p. 44)
- Remove the battery. (p. 71)

Main work
- Check the battery voltage.
  - » Battery voltage: < 9 V
    - Do not charge the battery.
    - Replace the battery and dispose of the old battery properly.
  - » If the specifications have been met:
    Battery voltage: ≥ 9 V
    - Recharge the battery.
      Guideline

The charging current, charging voltage, and charging time must not be exceeded.	
Maximum charging voltage	14.4 V
Maximum charging current	3.0 A
Charge the battery regularly when the motorcycle is not in use	6 months

Info
Never remove cover 1.

- Connect the battery charger to the battery. Switch on the battery charger.

Battery charger (58429074000)

You can also use the battery charger to test the open-circuit voltage and start potential of the battery, and to test the alternator. With this device, you cannot overcharge the battery. The charging time may be longer at low temperatures.

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

Finishing work

– Install the battery. (☛ p. 71)
– Mount the seat. (☛ p. 44)

14.4 Changing the main fuse

Warning

Fire hazard The electrical system can be overloaded if the wrong fuses are used.

– Use only fuses with the prescribed amperage. Never bypass or repair fuses.

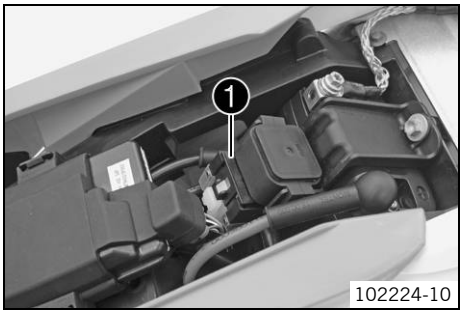
Info

The main fuse protects all power consumers of the vehicle. It is located in the starter relay housing under the seat.

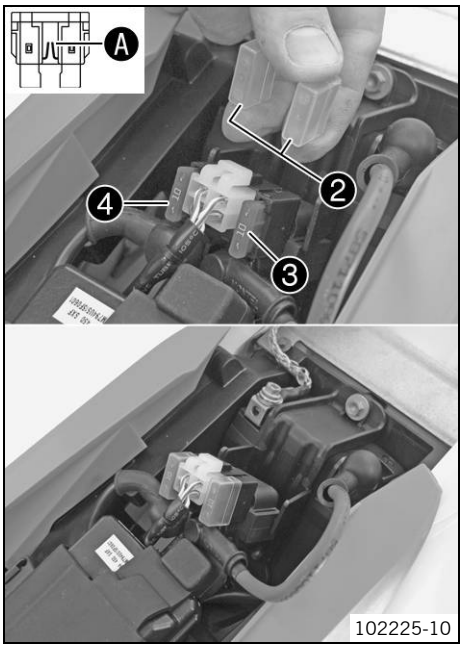
Preparatory work

– Switch off all power consumers and switch off the engine.
– Remove the seat. (☛ p. 44)

Main work



– Pull starter relay ❶ from the holder.



– Remove protection caps ❷.
– Remove the faulty main fuse ❸.

Info

A defective fuse can be identified by the burned-out fuse wire Ⓐ.
A spare fuse ❹ is located in the starter relay.

– Install a new main fuse.

Fuse (58011109110) (☛ p. 92)

– Check that the electrical equipment is functioning properly.

Tip

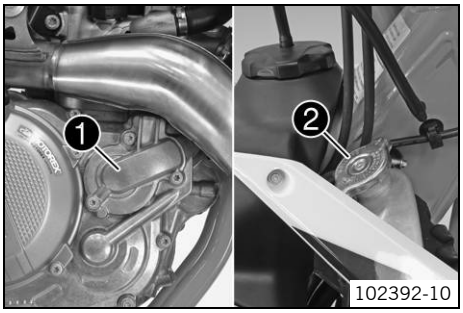
Insert the spare fuse so that it is available if needed.

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

Finishing work

– Mount the seat. (☛ p. 44)

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 °F)

Cooling is effected by the air stream.
The lower the speed, the less the cooling effect. Dirty cooling fins also reduce the cooling effect.

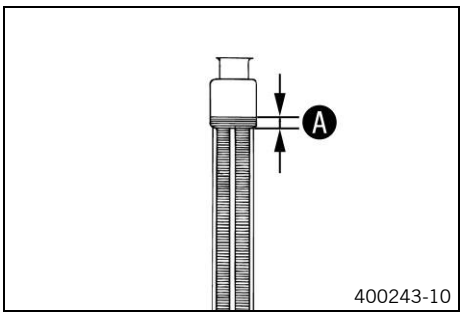
15.2 Checking the antifreeze and coolant level

Warning
Danger of scalding During motorcycle operation, the coolant gets very hot and is under pressure.

– Do not remove the radiator cap, radiator hoses or other cooling system components when the engine is hot. Allow the engine and cooling system to cool down. In case of scalding, rinse immediately with lukewarm water.

Warning
Danger of poisoning Coolant is poisonous and a health hazard.

– Coolant must not come into contact with the skin, eyes, or clothing. If contact occurs with the eyes, rinse with water immediately and contact a physician. Immediately clean contaminated areas on the skin with soap and water. If fuel is swallowed, contact a physician immediately. Change clothing that is contaminated with coolant. Keep coolant out of reach of children.



Condition
The engine is cold.

– Stand the motorcycle upright on a horizontal surface.
– Remove the radiator cap.
– Check the antifreeze in the coolant.

−25... −45 °C (−13... −49 °F)

» If the antifreeze in the coolant does not match the specified value:
– Correct the antifreeze 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 match the specified value:
– Correct the coolant level.

Coolant (☛ p. 95)

– Mount the radiator cap.

15.3 Checking the coolant level

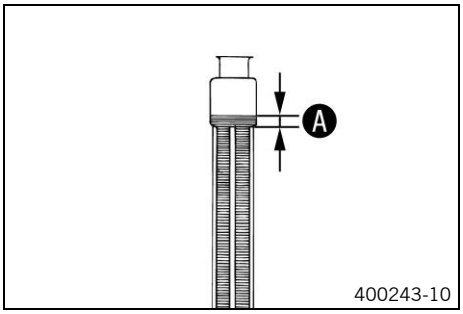
Warning
Danger of scalding During motorcycle operation, the coolant gets very hot and is under pressure.

– Do not remove the radiator cap, radiator hoses or other cooling system components when the engine is hot. Allow the engine and cooling system to cool down. In case of scalding, rinse immediately with lukewarm water.

Warning
Danger of poisoning Coolant is poisonous and a health hazard.

– Coolant must not come into contact with the skin, eyes, or clothing. If contact occurs with the eyes, rinse with water immediately and contact a physician. Immediately clean contaminated areas on the skin with soap and water. If fuel is swallowed, contact a physician immediately. Change clothing that is contaminated with coolant. Keep coolant out of reach of children.

Condition
The engine is cold.



– Stand the motorcycle upright on a horizontal surface.
– Remove 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 match the specified value:
– Correct the coolant level.

Coolant (☛ p. 95)

– Mount the radiator cap.

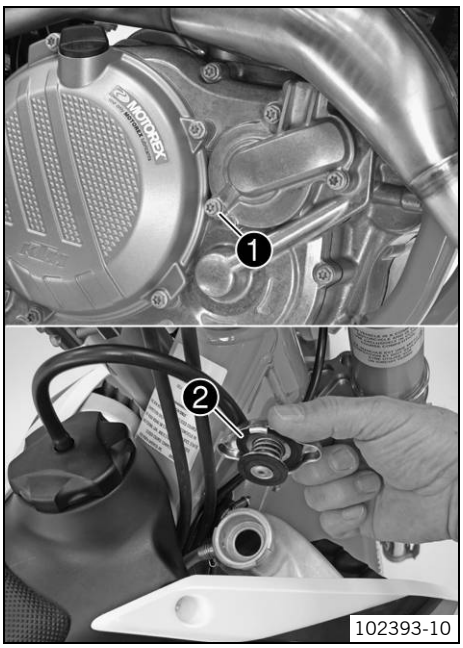
15.4 Draining the coolant

Warning
Danger of scalding During motorcycle operation, the coolant gets very hot and is under pressure.

– Do not remove the radiator cap, radiator hoses or other cooling system components when the engine is hot. Allow the engine and cooling system to cool down. In case of scalding, rinse immediately with lukewarm water.

Warning
Danger of poisoning Coolant is poisonous and a health hazard.

– Coolant must not come into contact with the skin, eyes, or clothing. If contact occurs with the eyes, rinse with water immediately and contact a physician. Immediately clean contaminated areas on the skin with soap and water. If fuel is swallowed, contact a physician immediately. Change clothing that is contaminated with coolant. Keep coolant out of reach of children.



Condition
The engine is cold.

– Position the motorcycle upright.
– Place a suitable container under the water pump cover.
– Remove screw ❶. Take off radiator cap ❷.
– Completely drain the coolant.
– Mount and tighten screw ❶ with a new seal ring.

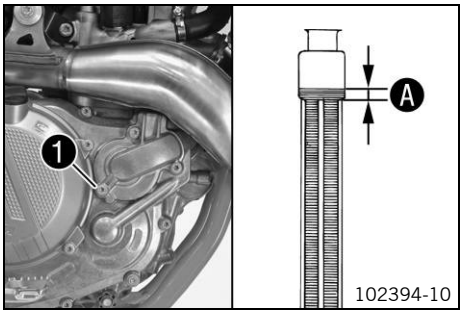
Guideline

Screw, water pump cover	M6	10 Nm (7.4 lbf ft)

15.5 Refilling coolant

Warning
Danger of poisoning Coolant is poisonous and a health hazard.

– Coolant must not come into contact with the skin, eyes, or clothing. If contact occurs with the eyes, rinse with water immediately and contact a physician. Immediately clean contaminated areas on the skin with soap and water. If fuel is swallowed, contact a physician immediately. Change clothing that is contaminated with coolant. Keep coolant out of reach of children.

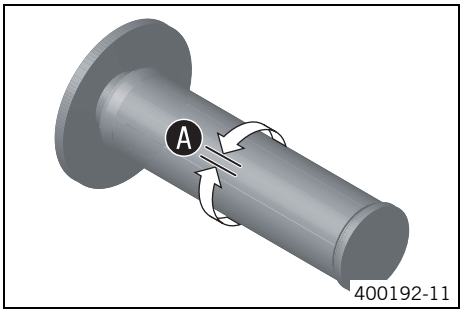


– Make sure that screw 1 is tightened.
– Position the motorcycle upright.
– Pour coolant in up to measurement A above the radiator fins.
  Guideline

Dimension A over the radiator fins		10 mm (0.39 in)
Coolant	1.20 l (1.27 qt.)	Coolant (☛ p. 95)

– Mount the radiator cap.
– Take a short test ride.
– Check the coolant level. (☛ p. 74)

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 grip back and forth slightly and determine the play in throttle cable Ⓐ.

Play in throttle cable	3... 5 mm (0.12... 0.2 in)

» If the throttle cable play does not meet specifications:
– Adjust the play in the throttle cable. 🔧 (☛ p. 77)

Danger

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

– When running the engine, always make sure there is sufficient ventilation, and do not start or run the engine in an enclosed space without an effective exhaust extraction system.

– Start the engine and let it run idle. Move the handlebar to and fro over the entire steering range.

The idle speed must not change.

» If the idle speed changes:
– Adjust the play in the throttle cable. 🔧 (☛ p. 77)

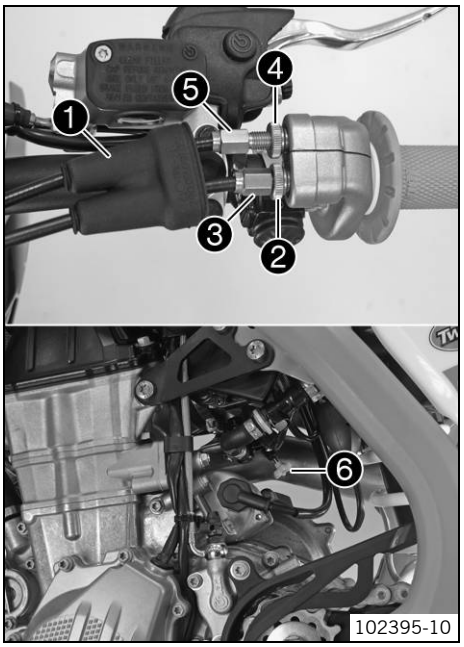
16.2 Adjusting the play in the throttle cable 🔧

Info

If the correct routing of the throttle cables has already been secured, the fuel tank does not need to be removed.

Preparatory work

– Remove the seat. (☛ p. 44)
– Remove the fuel tank. 🔧 (☛ p. 48)
– Check the throttle cable routing. (☛ p. 54)



Main work

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

Guideline

Play in throttle cable	3... 5 mm (0.12... 0.2 in)

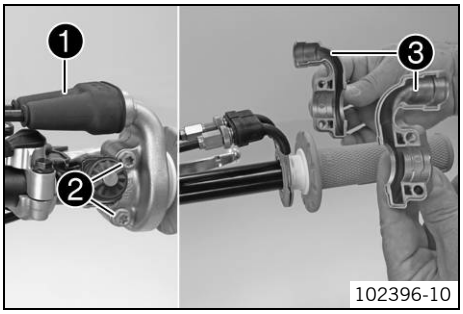
– Tighten nut ❷.
– Slide on sleeve ❶. Check the throttle grip for smooth operation.

Finishing work

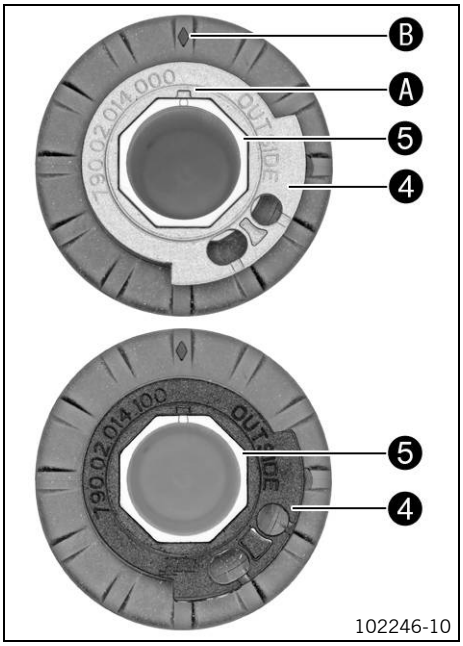
– Check the play in the throttle cable. (☛ p. 77)

16.3 Setting the characteristic map of the throttle response

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



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



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

  Guideline

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

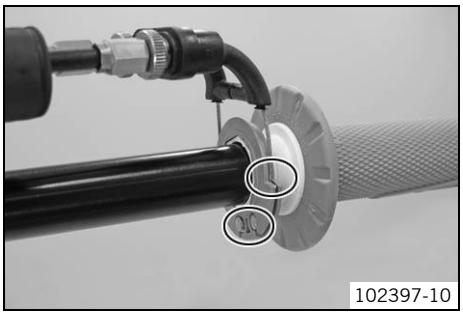
Alternative 1

Grey guide plate (79002014000)

Alternative 2

Black guide plate (79002014100)

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



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

  Guideline

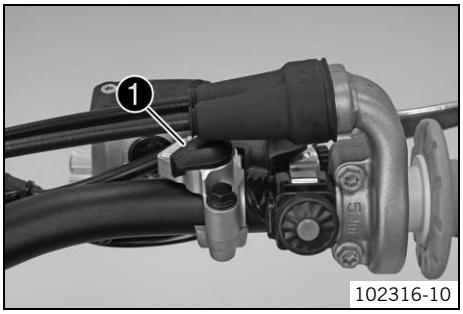
Screw, throttle grip	M6	5 Nm (3.7 lbf ft)

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

Finishing work
- Check the play in the throttle cable. (☛ p. 77)

16.4 Changing the mapping

Info
To be able to enable the desired engine characteristic via the **Map-Select** riding mode switch in position **II**, the desired mapping must first be selected at the **Map-Select** switch for the basic setting.



Switching the mapping from STANDARD to SOFT or ADVANCED

– Turn switch ❶ to position **II**.
  ✓ SOFT – soft response
  ✓ ADVANCED – direct response

Switching the mapping from STANDARD to SOFT or ADVANCED

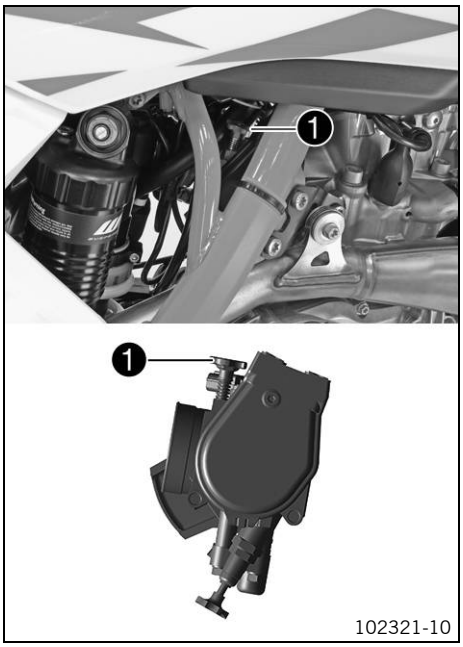
– Turn switch ❶ to position **I**.
  ✓ STANDARD – balanced response

16.5 Adjusting the idle speed

Warning

Danger of accidents The engine may go out spontaneously if the idle speed is set too low.

– Set the idle speed to the specified value.



– Run the engine until warm.
  ✓ The cold start button is deactivated.

Danger

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

– When running the engine, always make sure there is sufficient ventilation, and do not start or run the engine in an enclosed space without an effective exhaust extraction system.

– Set the idle speed by turning the idle speed adjusting screw ❶.

Guideline

Idle speed	2,250... 2,350 rpm

Tachometer (45129075000)

Info

Turning counterclockwise lowers the idle speed.
Turning clockwise raises the idle speed.

16.6 Teaching the throttle valve position

Info

If the control unit detects that the throttle valve position needs to be reprogrammed when idle, then the **MIL** briefly lights up 2 x per second.

Danger

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

– When running the engine, always make sure there is sufficient ventilation, and do not start or run the engine in an enclosed space without an effective exhaust extraction system.

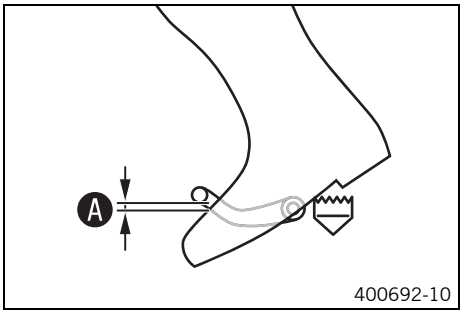
– Allow the vehicle to idle.
  ✓ Illumination of the **MIL** disappears as soon as teaching is complete.

Info

If the vehicle becomes too warm, then carry out a cooling ride at moderate speed. Do not then park the vehicle, but let it continue running at idle speed.

16.7 Checking the basic position of the shift lever

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

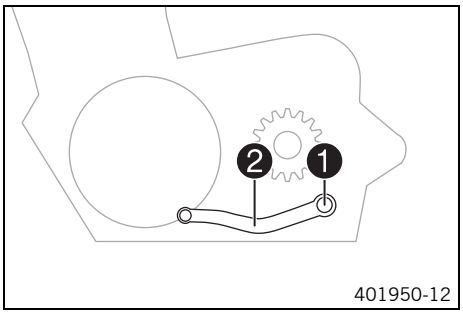


– Sit on the vehicle in the riding position and determine distance Ⓐ between the upper edge of your boot and the shift lever.

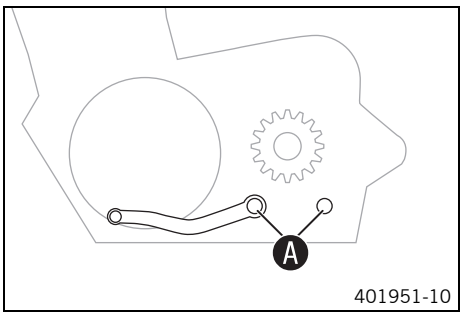
Distance between shift lever and upper edge of boot	10... 20 mm (0.39... 0.79 in)

» If the distance does not meet specifications:
– Adjust the basic position of the shift lever. 🔧 (☛ p. 80)

16.8 Adjusting the basic position of the shift lever 🔧



– Remove screw ❶ with washers and take off shift lever ❷.



– Clean gear teeth Ⓐ of the shift lever and shift shaft.
– Mount the shift lever on the shift shaft in the required position and engage the gearing.

Info
The range of adjustment is limited.
The shift lever must not come into contact with any other vehicle components during the shift procedure.

– Locate and tighten screw ❶ with washers.

Guideline

Screw, shift lever	M6	14 Nm (10.3 lbf ft)	**Loctite® 243™**

17.1 Changing the fuel screen

Danger

Fire hazard Fuel is highly flammable.

- Never refuel the vehicle near open flames or burning cigarettes, and always switch off the engine first. Be careful that no fuel is spilt, especially on hot vehicle components. Clean up spilt fuel immediately.
- The fuel in the fuel tank expands when warm and may emerge if overfilled. Follow the instructions on refueling.

Warning

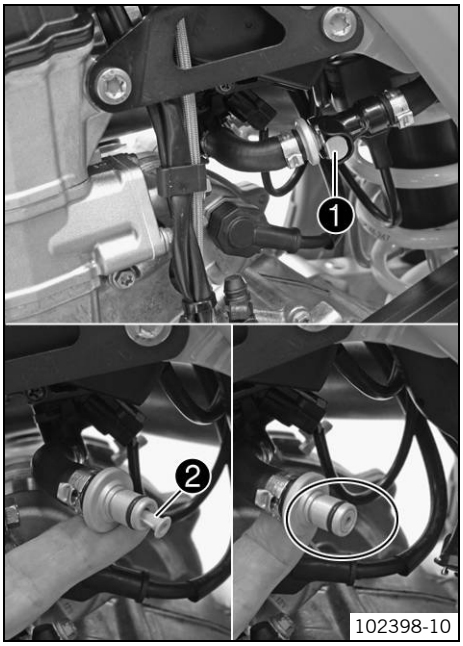
Danger of poisoning Fuel is poisonous and a health hazard.

- Fuel must not come into contact with the skin, eyes, or clothing. Do not breathe in the fuel vapors. If contact occurs with the eyes, rinse with water immediately and contact a physician. Immediately clean contaminated areas on the skin with soap and water. If fuel is swallowed, contact a physician immediately. Change clothing that is contaminated with fuel.

Warning

Environmental hazard Improper handling of fuel is a danger to the environment.

- Do not allow fuel to get into the ground water, the ground, or the sewage system.



- Clean plug-in connection ❶ of the fuel line thoroughly with compressed air.

Info

Under no circumstances should dirt enter into the fuel line. Dirt in the fuel line clogs the injection valve!

- Disconnect the plug-in connection of the fuel line.

Info

Remaining fuel may flow out of the fuel hose.

- Pull fuel screen ❷ out of the connecting piece.
- Insert the new fuel screen all the way into the connecting piece.
- Lubricate the O-ring and connect plug-in connection of the fuel line.

Danger

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

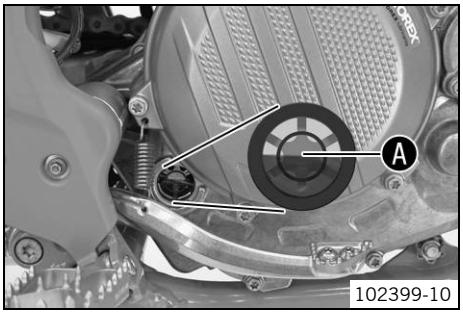
- When running the engine, always make sure there is sufficient ventilation, and do not start or run the engine in an enclosed space without an effective exhaust extraction system.

- Start the engine and check the response.

17.2 Checking the engine oil level

Info

The engine oil level can be checked when the engine is cold or warm.



Preparatory work

- Stand the motorcycle upright on a horizontal surface.

Condition

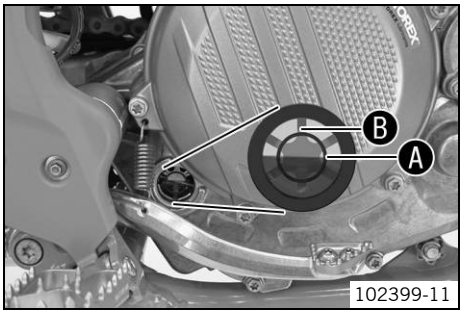
The engine is cold.

- Check the engine oil level.

The engine oil reaches the middle of level viewer Ⓐ.

» If the engine oil does not reach the middle of the level viewer:

- Add engine oil. (☛ p. 84)



Condition

The engine is at operating temperature.

– Check the engine oil level.

Info
After switching off the engine, wait one minute before checking the level.

The engine oil level is between the middle of the level viewer Ⓐ and the upper edge of the level viewer Ⓑ.

» If the engine oil does not reach the middle of level viewer Ⓐ:

– Add engine oil. (☛ p. 84)

17.3 Changing the engine oil and oil filter, cleaning the oil screens

Warning
Danger of scalding Engine oil and gear oil get very hot when the motorcycle is ridden.

– Wear appropriate protective clothing and safety gloves. In case of burns, rinse immediately with lukewarm water.

Warning
Environmental hazard Hazardous substances cause environmental damage.

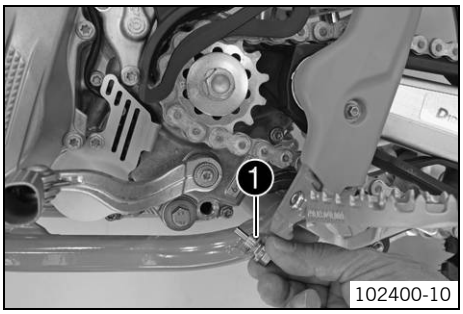
– Oil, grease, filters, fuel, cleaners, brake fluid, etc., should be disposed of as stipulated in applicable regulations.

Info
Drain the engine oil only when the engine is warm.

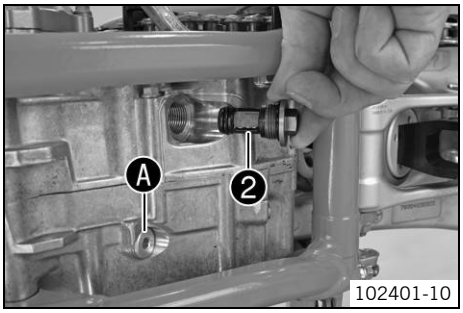
Preparatory work

– Park the motorcycle on a level surface.

Main work

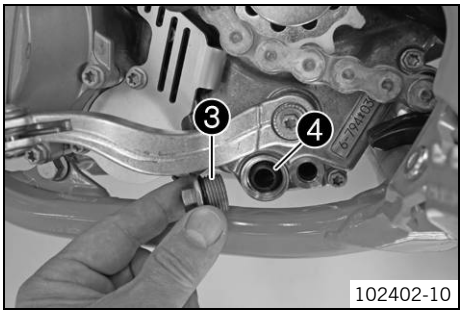


– Place a suitable container under the engine.
– Remove oil drain plug ❶ with the magnet and seal ring.

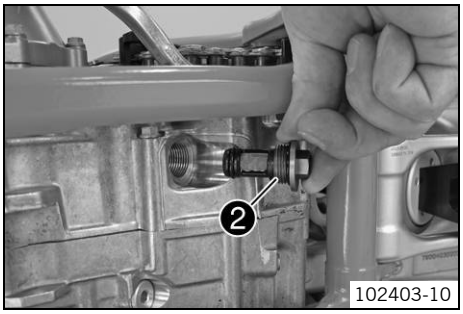


– Remove screw plug ❷ with the short oil screen and the O-rings.

Info
Do not remove screw Ⓐ.



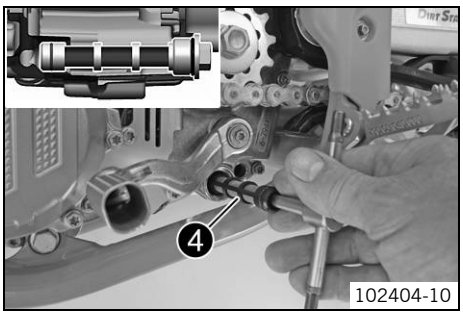
– Remove screw plug ❸ with the long oil screen ❹ and the O-rings.
– Completely drain the engine oil.
– Thoroughly clean the parts and sealing surfaces.



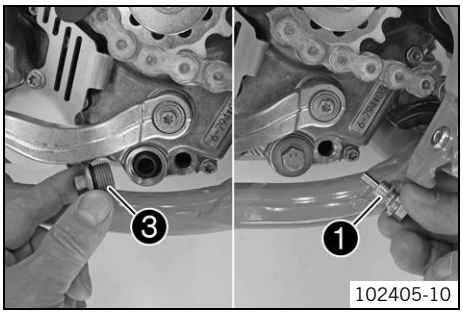
– Mount and tighten screw plug ❷ with the short oil screen and the O-rings.

Guideline

Screw plug, oil screen	M20x1.5	15 Nm (11.1 lbf ft)



– Position oil screen ❹ with the O-rings on a pin wrench.
– Position the pin wrench through the drilled hole of the screw plug in the opposite section of the engine case.
– Push the oil screen all the way into the engine case.



– Mount and tighten screw plug ❸ with the O-ring.

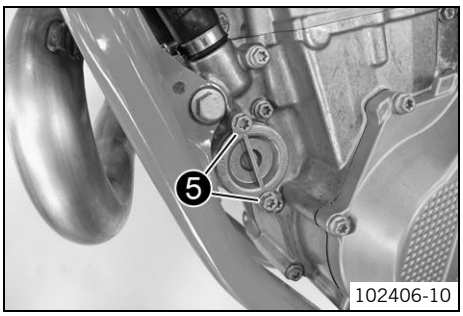
Guideline

Screw plug, oil screen	M20x1.5	15 Nm (11.1 lbf ft)

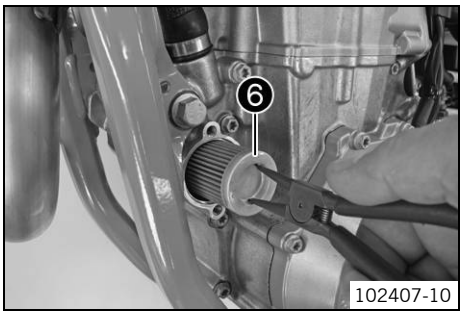
– Mount and tighten oil drain plug ❶ with the magnet and a new seal ring.

Guideline

Oil drain plug with magnet	M12x1.5	20 Nm (14.8 lbf ft)



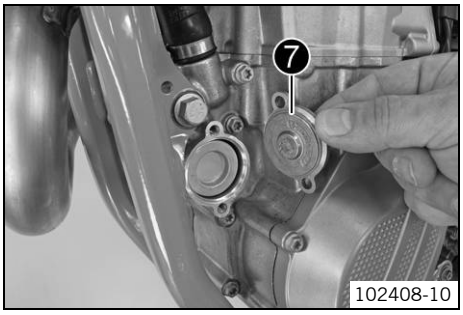
– Remove screws ❺. Remove the oil filter cover with the O-ring.



– Pull oil filter ❻ out of the oil filter housing.

Circlip pliers reverse (51012011000)

– Completely drain the engine oil.
– Thoroughly clean the parts and sealing area.

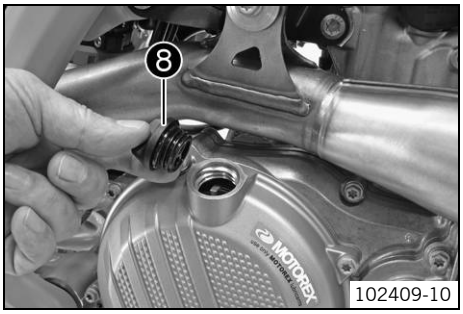


– Lay the motorcycle on its side and fill the oil filter housing to about ⅓ full with engine oil.
– Insert the oil filter into the oil filter housing.
– Lubricate the O-ring of the oil filter cover and mount it with the oil filter cover ❼.
– Mount and tighten the screws.

Guideline

Screw, oil filter cover	M6	10 Nm (7.4 lbf ft)

– Stand the motorcycle upright.



– Remove the oil filler plug ❽ with the O-ring from the clutch cover and fill up with engine oil.

Engine oil	1.20 l (1.27 qt.)	Engine oil (SAE 10W/50) (☛ p. 95)

Info
Too little engine oil or poor-quality engine oil results in premature wear to the engine.

– Install and tighten the oil filler plug with O-ring.

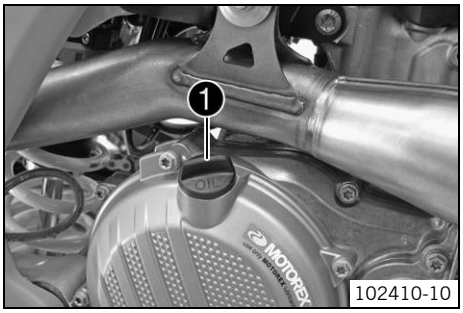
Danger
Danger of poisoning Exhaust gases are toxic and inhaling them may result in unconsciousness and/or death.
– When running the engine, always make sure there is sufficient ventilation, and do not start or run the engine in an enclosed space without an effective exhaust extraction system.

– Start the engine and check that it is oil-tight.

Finishing work
– Check the engine oil level. (☛ p. 81)

17.4 Adding engine oil

Info
Too little engine oil or poor-quality engine oil results in premature wear to the engine.



– Remove the oil filler plug ❶ with the O-ring from the clutch cover.
– Add the same engine oil that was used when the motor was changed.

Engine oil (SAE 10W/50) (☛ p. 95)

Info
For optimal performance of the engine oil, do not mix different types of engine oil.
If appropriate, change the engine oil.

– Install and tighten the oil filler plug with O-ring.

Danger
Danger of poisoning Exhaust gases are toxic and inhaling them may result in unconsciousness and/or death.
– When running the engine, always make sure there is sufficient ventilation, and do not start or run the engine in an enclosed space without an effective exhaust extraction system.

– Start the engine and check that it is oil-tight.

18.1 Cleaning the motorcycle

Note

Material damage Damage and destruction of components by high-pressure cleaning equipment.

– When cleaning the vehicle with a pressure cleaner, do not point the water jet directly onto electrical components, connectors, cables, bearings, etc. Maintain a minimum distance of 60 cm between the nozzle of the pressure cleaner and the component. Excessive pressure can cause malfunctions or destroy these parts.

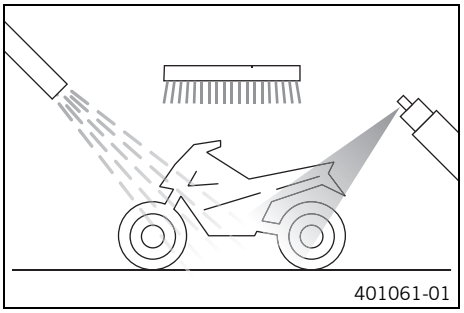
Warning

Environmental hazard Hazardous substances cause environmental damage.

– Oil, grease, filters, fuel, cleaners, brake fluid, etc., should be disposed of as stipulated in applicable regulations.

Info

If you clean the motorcycle regularly, its value and appearance will be maintained over a long period.
Avoid direct sunshine on the motorcycle during cleaning.


401061-01

– Close off the exhaust system to prevent water from entering.
– First remove coarse dirt particles with a gentle spray of water.
– Spray very dirty areas with a normal motorcycle cleaner and then clean with a paintbrush.

Motorcycle cleaner (☛ p. 97)

Info

Use warm water containing normal motorcycle cleaner and a soft sponge. Never apply motorcycle cleaner to the dry vehicle; always rinse with water first.

– After rinsing the motorcycle with a gentle spray of water, allow it to dry thoroughly.
– Remove the plug from the exhaust system.

Warning

Danger of accidents Reduced braking efficiency due to a wet or dirty brake system.

– Clean or dry a dirty or wet brake system by riding and braking gently.

– After cleaning, ride a short distance until the engine reaches operating temperature.

Info

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

– Push back the protection caps of the handlebar controls to allow any water that has penetrated to evaporate.
– After the motorcycle has cooled off, lubricate all moving parts and bearings.
– Clean the chain. (☛ p. 50)
– Treat bare metal parts (except for brake discs and the exhaust system) with a corrosion inhibitor.

Preserving materials for paints, metal and rubber (☛ p. 97)

– Treat all plastic parts and powder-coated parts with a mild cleaning and care agent.

Special cleaner for glossy and matte paint finishes, metal and plastic surfaces (☛ p. 97)

19.1 Storage

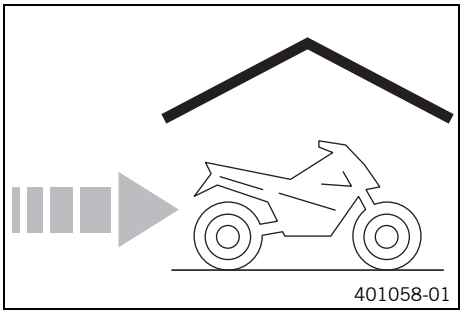
Warning

Danger of poisoning Fuel is poisonous and a health hazard.

– Fuel must not come into contact with the skin, eyes, or clothing. Do not breathe in the fuel vapors. If contact occurs with the eyes, rinse with water immediately and contact a physician. Immediately clean contaminated areas on the skin with soap and water. If fuel is swallowed, contact a physician immediately. Change clothing that has been contaminated with fuel. Store fuel properly in a suitable canister and keep away from children.

Info

If you want to garage the motorcycle for a longer period, take the following steps.
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 (less workshop overload). In this way, you can avoid long workshop waiting times at the start of the new season.


401058-01

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

Fuel additive (☛ p. 97)

– Refuel. (☛ p. 23)
– Clean the motorcycle. (☛ p. 85)
– Change the engine oil and oil filter and clean the oil screens. 🔧 (☛ p. 82)
– Check the antifreeze and coolant level. (☛ p. 74)
– Check the tire air pressure. (☛ p. 69)
– Remove the battery. 🔧 (☛ p. 71)
– Recharge the battery. 🔧 (☛ p. 72)

Guideline

Storage temperature of battery without direct sunlight	0… 35 °C (32… 95 °F)

– Store the vehicle in a dry location that is not subject to large fluctuations in temperature.

Info

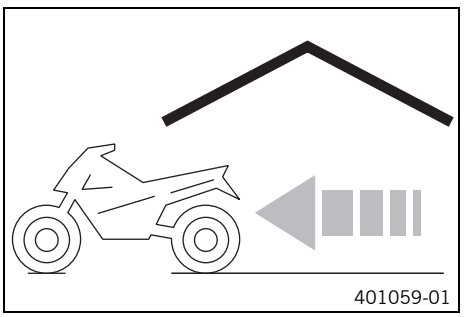
KTM recommends raising the motorcycle.

– Raise the motorcycle with a lift stand. (☛ p. 34)
– Cover the vehicle with a tarp or a cover that is permeable to air.

Info

Do not use non-porous materials since they prevent humidity from escaping, thus causing corrosion.
Avoid running the engine for a short time only. Since the engine cannot warm up properly, the water vapor produced during combustion condenses and causes valves and exhaust system to rust.

19.2 Preparing for use after storage


401059-01

– Install the battery. 🔧 (☛ p. 71)
– Remove the motorcycle from the lift stand. (☛ p. 34)
– Perform checks and maintenance work when preparing the vehicle for use. (☛ p. 20)
– Make a test ride.

Faults	Possible cause	Action
The engine does not turn when the starter button is pressed	Operating error	– Carry out the start procedure. (☛ p. 20)
	Battery is discharged	– Recharge the battery. 🔧 (☛ p. 72) – Check the charging voltage. 🔧 – Check the quiescent current. 🔧 – Check the stator winding of the alternator. 🔧
	Main fuse blown	– Change the main fuse. (☛ p. 73)
	Starter relay defective	– Check the starter relay. 🔧
	Starter motor defective	– Check the starter motor. 🔧
Engine turns but does not start	The plug-in connection of the fuel hose connection is not connected	– Connect the plug-in connection of the fuel line.
	Fuel screen in the fuel hose connection is clogged	– Change the fuel screen. 🔧 (☛ p. 81)
	Idle speed is not set correctly	– Adjust the idle speed. 🔧 (☛ p. 79)
	Spark plug oily or wet	– Clean and dry the spark plug, or change it if necessary.
	Electrode distance (plug gap) of spark plug too wide	– Adjust the plug gap. Guideline Spark plug electrode gap 0.8 mm (0.031 in)
	Short circuit cable in wiring harness frayed, kill switch defective	– Check the wiring harness. (visual check) – Check the electrical system.
	Defect in fuel injection system	– Read out the fault memory using the KTM diagnostics tool. 🔧
Engine does not speed up	Defect in fuel injection system	– Read out the fault memory using the KTM diagnostics tool. 🔧
Engine has too little power	Air filter is very dirty	– Clean the air filter and air filter box. 🔧 (☛ p. 46)
	Fuel filter is very dirty	– Change the fuel filter. 🔧
	Defect in fuel injection system	– Read out the fault memory using the KTM diagnostics tool. 🔧
	Exhaust system leaky, deformed or too little glass fiber yarn filling in main silencer	– Check exhaust system for damage. – Change the glass fiber yarn filling of the main silencer. 🔧
	Valve clearance too little	– Adjust the valve clearance. 🔧
Engine dies during the trip	Lack of fuel	– Refuel. (☛ p. 23)
Engine overheats	Too little coolant in cooling system	– Check the cooling system for leakage. – Check the coolant level. (☛ p. 74)
	Too little air stream	– Switch off the engine when standing.
	Radiator fins very dirty	– Clean radiator fins.
	Foam formation in cooling system	– Drain the coolant. 🔧 (☛ p. 75) – Refill the coolant. 🔧 (☛ p. 75)
	Bent radiator hose	– Change the radiator hose. 🔧
FI warning lamp (**MIL**) lights up/flashes	Defect in fuel injection system	– Stop the motorcycle and identify the faulty part using the blink code. – Check the cabling for damage and the electrical plug-in connections for corrosion and damage. – Read out the fault memory using the KTM diagnostics tool. 🔧
High oil consumption	Engine vent hose bent	– Route the vent hose without bends or change it if necessary.
	Engine oil level too high	– Check the engine oil level. (☛ p. 81)
	Engine oil too thin (low viscosity)	– Change the engine oil and oil filter and clean the oil screens. 🔧 (☛ p. 82)
	Piston or cylinder worn	– Measure the piston/cylinder mounting clearance.

Faults	Possible cause	Action
Battery is discharged	Battery is not charging	– Check the charging voltage. 🔧 – Check the stator winding of the alternator. 🔧
	Unwanted power consumer	– Check the quiescent current. 🔧

Blink code of FI warning lamp (MIL)	 02 **FI** warning lamp (**MIL**) flashes 2x short
Error level condition	Crankshaft position sensor - circuit fault

Blink code of FI warning lamp (MIL)	 06 **FI** warning lamp (**MIL**) flashes 6x short
Error level condition	Throttle position sensor circuit A - input signal too low
	Throttle position sensor circuit A - input signal too high

Blink code of FI warning lamp (MIL)	 09 **FI** warning lamp (**MIL**) flashes 9x short
Error level condition	Manifold absolute pressure sensor cylinder 1 - input signal too low
	Manifold absolute pressure sensor cylinder 1 - input signal too high

Blink code of FI warning lamp (MIL)	 12 **FI** warning lamp (**MIL**) flashes 1x long, 2x short
Error level condition	Engine coolant temperature sensor - input signal too low
	Engine coolant temperature sensor - input signal too high

Blink code of FI warning lamp (MIL)	 13 **FI** warning lamp (**MIL**) flashes 1x long, 3x short
Error level condition	Intake air temperature sensor - input signal to low
	Intake air temperature sensor - input signal too high

Blink code of FI warning lamp (MIL)	 15 **FI** warning lamp (**MIL**) flashes 1x long, 5x short
Error level condition	Rollover sensor (A/D type) - input signal too low
	Rollover sensor (A/D type) - input signal too high

Blink code of FI warning lamp (MIL)	 21 **FI** warning lamp (**MIL**) flashes 2x long, 1x short
Error level condition	Battery voltage input voltage too high

Blink code of FI warning lamp (MIL)	 22 **FI** warning lamp (**MIL**) flashes 2x long, 2x short
Error level condition	Gear position sensor input voltage too high
	Gear position sensor - input voltage too low

Blink code of FI warning lamp (MIL)	 33 **FI** warning lamp (**MIL**) flashes 3x long, 3x short
Error level condition	Injector cylinder 1 - circuit fault

Blink code of FI warning lamp (MIL)	 37 **FI** warning lamp (**MIL**) flashes 3x long, 7x short
Error level condition	Ignition coil 1, cylinder 1 - circuit fault

Blink code of FI warning lamp (MIL)	 41 **FI** warning lamp (**MIL**) flashes 4x long, 1x short
Error level condition	Fuel pump relay - short circuit to ground or open circuit
	Fuel pump relay - Input signal too low

22 TECHNICAL DATA

22.1 engine

Design	1-cylinder 4-stroke engine, water-cooled
Displacement	449.9 cm³ (27.455 cu in)
Stroke	63.4 mm (2.496 in)
Bore	95 mm (3.74 in)
Compression ratio	12.75:1
Idle speed	2,250... 2,350 rpm
Control	OHC, 4 valves controlled via rocker arm
Valve diameter, intake	40 mm (1.57 in)
Valve diameter, exhaust	33 mm (1.3 in)
Valve clearance	
Intake at: 20 °C (68 °F)	0.10... 0.15 mm (0.0039... 0.0059 in)
Exhaust at: 20 °C (68 °F)	0.12... 0.17 mm (0.0047... 0.0067 in)
Crankshaft bearing	2 cylinder roller bearing
Conrod bearing	Slide bearing
Piston pin bearing	Not a bearing bush - DLC-plated piston pins
Pistons	Forged light alloy
Piston rings	1 compression ring, 1 oil scraper ring
Engine lubrication	Pressure circulation lubrication with two Eaton pumps
Primary transmission	31:76
Clutch	Multidisc clutch in oil bath, hydraulically activated
Gearbox	5-gear, claw shifted
Transmission ratio	
First gear	16:32
Second gear	18:30
Third gear	20:28
Fourth gear	22:26
Fifth gear	24:24
Alternator	12 V, 75 W
Ignition	Contactless controlled fully electronic ignition with digital ignition adjustment
Spark plug	NGK LMAR9AI-8
Spark plug electrode gap	0.8 mm (0.031 in)
Cooling	Water cooling, permanent circulation of coolant by water pump
Starting aid	Electric starter

22.2 Engine tightening torques

Screw, oil jet for piston cooling	M4	2 Nm (1.5 lbf ft)	**Loctite® 243™**
Oil nozzle, piston cooling	M5	2 Nm (1.5 lbf ft)	**Loctite® 243™**
Oil nozzle, rocker arm lubrication	M5	2 Nm (1.5 lbf ft)	**Loctite® 243™**
Pulse generator screw and cable retainer	M5	6 Nm (4.4 lbf ft)	**Loctite® 243™**
Screw, bearing retainer	M5	6 Nm (4.4 lbf ft)	**Loctite® 243™**
Screw, clutch spring retainer	M5	6 Nm (4.4 lbf ft)	–
Screw, gear position sensor	M5	5 Nm (3.7 lbf ft)	**Loctite® 243™**
Screw, locking lever	M5	6 Nm (4.4 lbf ft)	**Loctite® 243™**
Screw, stator	M5	6 Nm (4.4 lbf ft)	**Loctite® 243™**
Screw, suction pump cover	M5	6 Nm (4.4 lbf ft)	**Loctite® 243™**
Nut, water-pump wheel	M6	8 Nm (5.9 lbf ft)	**Loctite® 243™**
Screw, alternator cover	M6	10 Nm (7.4 lbf ft)	–
Screw, bearing bolt, torque limiter	M6	10 Nm (7.4 lbf ft)	**Loctite® 243™**
Screw, camshaft support plate	M6	10 Nm (7.4 lbf ft)	**Loctite® 243™**

Screw, clutch cover	M6	10 Nm (7.4 lbf ft)	–
Screw, cylinder head	M6	10 Nm (7.4 lbf ft)	–
Screw, engine case	M6	10 Nm (7.4 lbf ft)	–
Screw, exhaust flange	M6	10 Nm (7.4 lbf ft)	**Loctite® 243™**
Screw, oil filter cover	M6	10 Nm (7.4 lbf ft)	–
Screw, pressure pump cover	M6	10 Nm (7.4 lbf ft)	**Loctite® 243™**
Screw, shift drum locating	M6	10 Nm (7.4 lbf ft)	**Loctite® 243™**
Screw, shift lever	M6	14 Nm (10.3 lbf ft)	**Loctite® 243™**
Screw, starter motor	M6	10 Nm (7.4 lbf ft)	–
Screw, timing chain guide rail	M6	10 Nm (7.4 lbf ft)	**Loctite® 243™**
Screw, timing chain securing guide	M6	10 Nm (7.4 lbf ft)	**Loctite® 243™**
Screw, timing chain tensioner	M6	10 Nm (7.4 lbf ft)	–
Screw, timing chain tensioning rail	M6	10 Nm (7.4 lbf ft)	**Loctite® 243™**
Screw, valve cover	M6	10 Nm (7.4 lbf ft)	–
Screw, water pump cover	M6	10 Nm (7.4 lbf ft)	–
Oil nozzle for conrod bearing lubrication	M6x0.75	4 Nm (3 lbf ft)	**Loctite® 243™**
Plug, oil channel	M7	9 Nm (6.6 lbf ft)	**Loctite® 243™**
Screw, rocker arm bearing	M7	15 Nm (11.1 lbf ft)	–
Plug, timing chain tensioner	M8	8 Nm (5.9 lbf ft)	–
Screw plug, crankshaft location	M8	10 Nm (7.4 lbf ft)	–
Plug, oil channel	M10	15 Nm (11.1 lbf ft)	**Loctite® 243™**
Screw, engine sprocket	M10	60 Nm (44.3 lbf ft)	**Loctite® 2701™**
Spark plug	M10x1	10... 12 Nm (7.4... 8.9 lbf ft)	–
Engine coolant temperature sensor	M10x1.25	12 Nm (8.9 lbf ft)	–
Screw plug, rocker arm shaft	M10x1.25	10 Nm (7.4 lbf ft)	–
Screw, cylinder head	M10x1.25	Step 1 10 Nm (7.4 lbf ft) Step 2 30 Nm (22.1 lbf ft) Step 3 50 Nm (36.9 lbf ft)	Lubricated with engine oil
Nut, rotor	M12x1	60 Nm (44.3 lbf ft)	Thread, oiled with engine oil/cone degreased
Oil drain plug with magnet	M12x1.5	20 Nm (14.8 lbf ft)	–
Plug, oil pressure regulator valve	M12x1.5	20 Nm (14.8 lbf ft)	–
Nut, inner clutch hub	M18x1.5	80 Nm (59 lbf ft)	–
Nut, primary gear	M20LHx1.5	100 Nm (73.8 lbf ft)	**Loctite® 243™**
Screw plug, oil screen	M20x1.5	15 Nm (11.1 lbf ft)	–

22.3 Capacities

22.3.1 Engine oil

Engine oil	1.20 l (1.27 qt.)	Engine oil (SAE 10W/50) (☛ p. 95)

22.3.2 Coolant

Coolant	1.20 l (1.27 qt.)	Coolant (☛ p. 95)

22.3.3 Fuel

Total fuel tank capacity, approx.	7.5 l (1.98 US gal)	Super unleaded (ROZ 95/RON 95/PON 91) (☛ p. 96)

22.4 Chassis

Frame	Central tube frame made of chrome molybdenum steel tubing
Fork	**WP Performance Systems** Upside down **AER 48**
Fork offset	22 mm (0.87 in)
Shock absorber	**WP Performance Systems** 5018 BAVP DCC
Brake system	Disc brakes, brake calipers on floating bearings
Brake discs - diameter	
Front	260 mm (10.24 in)
Rear	220 mm (8.66 in)
Brake discs - wear limit	
Front	2.5 mm (0.098 in)
Rear	3.5 mm (0.138 in)
Tire air pressure off road	
Front	1.0 bar (15 psi)
Rear	1.0 bar (15 psi)
Secondary ratio	13:48
Chain	5/8 x 1/4"
Rear sprockets available	38, 40, 42, 45, 48, 49, 50, 51, 52
Steering head angle	63.9°
Wheelbase	1,485±10 mm (58.46±0.39 in)
Ground clearance, unloaded	370 mm (14.57 in)
Seat height, unloaded	960 mm (37.8 in)
Weight without fuel, approx.	100.4 kg (221.3 lb.)
Maximum permissible front axle load	145 kg (320 lb.)
Maximum permissible rear axle load	190 kg (419 lb.)
Maximum permissible overall weight	335 kg (739 lb.)

22.5 Electrical system

Battery	C22S	Lithium-ion battery Battery voltage: 12 V Nominal capacity: 2.2 Ah maintenance-free
Fuse	58011109110	10 A

FI warning lamp	LED

22.6 Tires

Front tires	**Rear tires**
80/100 - 21 M/C 51M TT Dunlop GEOMAX MX 32 F	**120/80 - 19 62M TT** Dunlop GEOMAX MX 32
Additional information is available in the Service section under: http://www.ktm.com	

22.7 Fork

Fork part number	34.18.8P.09
Fork	**WP Performance Systems** Upside down **AER 48**
Compression damping	
Comfort	20 clicks
Standard	17 clicks
Sport	12 clicks
Rebound damping	
Comfort	20 clicks

Standard	17 clicks
Sport	12 clicks
Air pressure	10.8 bar (157 psi)
Fork length	950 mm (37.4 in)

Oil capacity external mechanism right	200^{+40}_{-20} ml ($6.76^{+1.35}_{-0.68}$ fl. oz.)	Fork oil (SAE 4) (48601166S1) (☛ p. 95)
Oil capacity external mechanism left	200^{+40}_{-20} ml ($6.76^{+1.35}_{-0.68}$ fl. oz.)	Fork oil (SAE 4) (48601166S1) (☛ p. 95)
Oil capacity, right cartridge	380 ml (12.85 fl. oz.)	Fork oil (SAE 4) (48601166S1) (☛ p. 95)
Grease capacity, left cartridge	11 ml (0.37 fl. oz.)	Multi-purpose grease (00062010051) (☛ p. 95)

22.8 Shock absorber

Shock absorber part number	18.18.7P.09
Shock absorber	**WP Performance Systems** 5018 BAVP DCC
Compression damping, low-speed	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Compression damping, high-speed	
Comfort	2.5 turns
Standard	2 turns
Sport	1.5 turns
Rebound damping	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Spring preload	5 mm (0.2 in)
Spring rate	
Weight of rider: 65... 75 kg (143... 165 lb.)	45 N/mm (257 lb/in)
Weight of rider: 75... 85 kg (165... 187 lb.)	48 N/mm (274 lb/in)
Weight of rider: 85... 95 kg (187... 209 lb.)	51 N/mm (291 lb/in)
Spring length	
Weight of rider: 65... 75 kg (143... 165 lb.)	247 mm (9.72 in)
Weight of rider: 75... 85 kg (165... 187 lb.)	247 mm (9.72 in)
Weight of rider: 85... 95 kg (187... 209 lb.)	252 mm (9.92 in)
Gas pressure	10 bar (145 psi)
Static sag	38 mm (1.5 in)
Riding sag	110±5 mm (4.33±0.2 in)
Fitted length	477 mm (18.78 in)

Shock absorber oil	Shock absorber fluid (SAE 2.5) (50180751S1) (☛ p. 95)

22.9 Chassis tightening torques

Screw air intake temperature sensor	**EJOT DELTA PT®** 45x12-Z	0.7 Nm (0.52 lbf ft)	–
Screw, air filter box cover	**EJOT PT®** K60x20-Z	3 Nm (2.2 lbf ft)	–
Screw, pressure regulator	**EJOT PT®** K60x25-Z	3 Nm (2.2 lbf ft)	–
Screw, handle bar fixed grip, left	M4	5 Nm (3.7 lbf ft)	**Loctite® 243™**
Spoke nipple, front wheel	M4.5	6 Nm (4.4 lbf ft)	–
Spoke nipple, rear wheel	M4.5	6 Nm (4.4 lbf ft)	–
Screw, battery terminal	M5	2.5 Nm (1.84 lbf ft)	–
Screw, shock absorber adjusting ring	M5	5 Nm (3.7 lbf ft)	–
Nut, cable on starter motor	M6	4 Nm (3 lbf ft)	–

Remaining nuts, chassis	M6	10 Nm (7.4 lbf ft)	–
Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)	–
Screw, ball joint of push rod on foot brake cylinder	M6	10 Nm (7.4 lbf ft)	**Loctite® 243™**
Screw, chain sliding guard	M6	6 Nm (4.4 lbf ft)	**Loctite® 243™**
Screw, front brake disc	M6	14 Nm (10.3 lbf ft)	**Loctite® 243™**
Screw, rear brake disc	M6	14 Nm (10.3 lbf ft)	**Loctite® 243™**
Screw, throttle grip	M6	5 Nm (3.7 lbf ft)	–
Fuel connection on fuel tank	M8	10 Nm (7.4 lbf ft)	–
Nut, foot brake lever stop	M8	20 Nm (14.8 lbf ft)	–
Nut, rear sprocket screw	M8	35 Nm (25.8 lbf ft)	**Loctite® 2701™**
Nut, rim lock	M8	12 Nm (8.9 lbf ft)	–
Remaining nuts, chassis	M8	25 Nm (18.4 lbf ft)	–
Remaining screws, chassis	M8	25 Nm (18.4 lbf ft)	–
Screw, bottom triple clamp	M8	12 Nm (8.9 lbf ft)	–
Screw, chain sliding piece	M8	15 Nm (11.1 lbf ft)	–
Screw, engine brace	M8	25 Nm (18.4 lbf ft)	**Loctite® 2701™**
Screw, fork stub	M8	15 Nm (11.1 lbf ft)	–
Screw, front brake caliper	M8	25 Nm (18.4 lbf ft)	**Loctite® 243™**
Screw, handlebar clamp	M8	20 Nm (14.8 lbf ft)	–
Screw, subframe	M8	35 Nm (25.8 lbf ft)	**Loctite® 2701™**
Screw, top steering stem	M8	20 Nm (14.8 lbf ft)	**Loctite® 243™**
Screw, top triple clamp	M8	17 Nm (12.5 lbf ft)	–
Engine carrying screw	M10	60 Nm (44.3 lbf ft)	–
Remaining nuts, chassis	M10	45 Nm (33.2 lbf ft)	–
Remaining screws, chassis	M10	45 Nm (33.2 lbf ft)	–
Screw, bottom shock absorber	M10	60 Nm (44.3 lbf ft)	**Loctite® 2701™**
Screw, handlebar support	M10	40 Nm (29.5 lbf ft)	**Loctite® 243™**
Screw, top shock absorber	M10	60 Nm (44.3 lbf ft)	**Loctite® 2701™**
Nut, fuel pump	M12	15 Nm (11.1 lbf ft)	–
Nut, seat fixing	M12x1	20 Nm (14.8 lbf ft)	–
Nut, frame to linkage lever	M14x1.5	80 Nm (59 lbf ft)	–
Nut, linkage lever on swingarm	M14x1.5	80 Nm (59 lbf ft)	–
Nut, linkage lever to angle lever	M14x1.5	80 Nm (59 lbf ft)	–
Nut, swingarm pivot	M16x1.5	100 Nm (73.8 lbf ft)	–
Screw, front wheel spindle	M20x1.5	35 Nm (25.8 lbf ft)	–
Screw, top steering head	M20x1.5	12 Nm (8.9 lbf ft)	–
Screw-in nozzles, cooling system	M20x1.5	12 Nm (8.9 lbf ft)	**Loctite® 243™**
Nut, rear wheel spindle	M25x1.5	80 Nm (59 lbf ft)	–

Brake fluid DOT 4 / DOT 5.1

Standard/classification
– DOT

Guideline
– Use only brake fluid that complies with the specified standard (see specifications on the container) and that exhibits the corresponding properties.

Recommended supplier
Castrol
– **RESPONSE BRAKE FLUID SUPER DOT 4**

Motorex®
– **Brake Fluid DOT 5.1**

Coolant

Guideline
– Only use high quality coolant with corrosion inhibitor for aluminum motors (even in countries with high temperatures). Using inferior antifreeze can result in corrosion and foaming.

Mixture ratio

Antifreeze protection: −25… −45 °C (−13… −49 °F)	anti-corrosion/antifreeze distilled water

Recommended supplier
Motorex®
– **COOLANT M3.0**

Engine oil (SAE 10W/50)

Standard/classification
– JASO T903 MA (☛ p. 98)
– SAE (☛ p. 98) (SAE 10W/50)

Guideline
– Use only engine oils that comply with the specified standards (see specifications on the container) and that possess the corresponding properties.

Synthetic engine oil

Recommended supplier
Motorex®
– **Cross Power 4T**

Fork oil (SAE 4) (48601166S1)

Standard/classification
– SAE (☛ p. 98) (SAE 4)

Guideline
– Use only oils that comply with the specified standards (see specifications on the container) and that exhibit the corresponding properties.

Multi-purpose grease (00062010051)

Recommended supplier
Klüber Lubrication®
– **CENTOPLEX 2 EP**

Shock absorber fluid (SAE 2.5) (50180751S1)

Standard/classification
– SAE (☛ p. 98) (SAE 2.5)

Guideline
– Use only oils that comply with the specified standards (see specifications on the container) and that exhibit the corresponding properties.

Super unleaded (ROZ 95/RON 95/PON 91)

Standard/classification

– DIN EN 228 (ROZ 95/RON 95/PON 91)

Guideline

– Only use unleaded super fuel that matches or is equivalent to the specified fuel grade.

– Fuel with an ethanol content of up to 10 % (E10 fuel) is safe to use.

Info

Do **not** use fuel containing methanol (e. g. M15, M85, M100) or more than 10 % ethanol (e. g. E15, E25, E85, E100).

24 AUXILIARY SUBSTANCES

Air filter cleaner

Recommended supplier
Motorex®
– **Racing Bio Dirt Remover**

Chain cleaner

Recommended supplier
Motorex®
– **Chain Clean**

Fuel additive

Recommended supplier
Motorex®
– **Fuel Stabilizer**

High viscosity grease

Recommended supplier
SKF®
– **LGHB 2**

Long-life grease

Recommended supplier
Motorex®
– **Bike Grease 2000**

Motorcycle cleaner

Recommended supplier
Motorex®
– **Moto Clean**

Off-road chain spray

Recommended supplier
Motorex®
– **Chainlube Offroad**

Oil for foam air filter

Recommended supplier
Motorex®
– **Racing Bio Liquid Power**

Preserving materials for paints, metal and rubber

Recommended supplier
Motorex®
– **Moto Protect**

Special cleaner for glossy and matte paint finishes, metal and plastic surfaces

Recommended supplier
Motorex®
– **Quick Cleaner**

Universal oil spray

Recommended supplier
Motorex®
– **Joker 440 Synthetic**

JASO T903 MA

Different technical development directions required a new specification for 4-stroke motorcycles – the JASO T903 MA Standard. Earlier, engine oils from the automobile industry were used for 4-stroke motorcycles because there was no separate motorcycle specification. Whereas long service intervals are demanded for automobile engines, high performance at high engine speeds are in the foreground for motorcycle engines. In most motorcycles, the gearbox and the clutch are lubricated with the same oil as the engine. The JASO MA Standard meets these special requirements.

SAE

The SAE viscosity classes were defined by the Society of Automotive Engineers and are used for classifying oils according to their viscosity. The viscosity describes only one property of oil and says nothing about quality.

MIL	Malfunction indicator lamp	Indicator lamp that supports vehicle diagnostics through flash codes
OBD	On-board diagnosis	Vehicle system that monitors emission- and safety-related values

27 LIST OF ABBREVIATIONS

Art. no.	Article number
ca.	circa
cf.	compare
e.g.	for example
etc.	et cetera
i.a.	inter alia
no.	number
poss.	possibly

28 LIST OF SYMBOLS

28.1 Yellow and orange symbols

Yellow and orange symbols indicate an error condition that requires prompt intervention. Active driving aids are also represented by yellow or orange symbols.

	**FI** warning lamp (**MIL**) lights up/flashes orange – The OBD has detected an emission- or safety-critical fault.

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