OWNER'S MANUAL 2026

READY TO RACE

250 XC-W
300 EXC
300 EXC HARDENDURO
300 EXC SIX DAYS
300 XC-W
300 XC-W HARDENDURO

ITEM NO.: 3240239EN



KTM

Dear KTM customer,

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

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

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

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

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

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250 XC–W EU (F7303Z4)

250 XC–W US (F7375Z4)

300 EXC EU (F7403Z7)

300 EXC BR (F7440Z6)

300 EXC HARDENDURO EU (F7403Z3)

300 EXC SIX DAYS EU (F7403Z2)

300 EXC SIX DAYS BR (F7440Z2)

300 XC–W US (F7475Z3)

300 XC–W HARDENDURO US (F7475Z6)

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01/04/2026

Table of contents

1 Means of representation 9

1.1 Conventions 9
1.1.1 Icons 9
1.1.2 Formatting 9
1.1.3 Abbreviations 9

2 Safety 10

2.1 Safety instructions 10
2.2 Ban on tampering 10
2.3 Safe use 11
2.4 Protective clothing 11
2.5 Work rules 11
2.6 Environment 12
2.7 Owner's manual 12
2.8 Use definition – intended use 12
2.9 Improper use 13

3 Important notes 14

3.1 Manufacturer's warranty, implied warranty 14
3.2 Auxiliary material, operating material 14
3.3 Spare parts, accessories 14
3.4 Service 14
3.5 Figures 14
3.6 Customer service 14

4 View of the vehicle 15

4.1 View of vehicle, front left (example) 15
4.2 View of vehicle, rear right (example) 16

5 Serial number 17

5.1 Vehicle identification number 17
5.2 Type approval label **(All EXC models, including special edition models)** 17
5.3 Frame label **(All XC-W models)** 17
5.4 Key number **(All EXC-EU models)** 17
5.5 Engine number 18
5.6 Fork part number 18
5.7 Shock absorber part number 18

6 Controls 19

6.1 Clutch lever 19
6.2 Handbrake lever 19
6.3 Throttle grip 19
6.4 Horn button **(All EXC models, including special edition models)** 19
6.5 Light switch **(All models except US)** 20
6.6 Light switch **(All US models)** 20
6.7 Turn signal switch **(All EXC models, including special edition models)** 20
6.8 Electric starter 20
6.9 Kill switch 21
6.10 Combination switch **(All special models)** 21
6.11 Overview of indicator lights **(All EXC models, including special edition models)** 21
6.12 Overview of indicator lights **(All XC-W models)** 22
6.13 Opening the fuel tank cap 22
6.14 Closing the fuel tank cap 23
6.15 Opening 2-stroke oil tank cap 23
6.16 Closing 2-stroke oil tank cap 24
6.17 Passenger strap **(All HARDENDURO models)** 24
6.18 Cold start button 24
6.19 Idle speed adjustment screw 25
6.20 Gear shift lever 25
6.21 Brake pedal 26
6.22 Side stand 26
6.23 Steering lock **(All EXC-EU models)** 26
6.24 Locking the steering **(All EXC-EU models)** 27
6.25 Unlocking the steering **(All EXC-EU models)** 27

7 Dashboard 28

7.1 Combination instrument overview 28
7.2 activation and testing 28
7.2.1 Activating combination instrument 28
7.2.2 Display test 28
7.2.3 **WS** (wheel size) 29
7.3 Setting kilometers or miles 29
7.4 Adjusting combination instrument function 30
7.5 Setting the clock 30
7.6 Viewing the lap time 31
7.7 Display mode **SPEED** (speed) 31
7.8 Display mode **SPEED/H** (operating hours) 31
7.9 Setup menu 32
7.10 Adjusting the unit of measurement 33
7.11 Display mode **SPEED/CLK** (time) 33
7.12 Setting the clock 34
7.13 Display mode **SPEED/LAP** (lap time) 34
7.14 Viewing the lap time 35
7.15 Display mode **SPEED/ODO** (odometer) 35
7.16 Display mode **SPEED/TR1** (trip master 1) 36

7.17 Display mode **SPEED/TR2** (trip master 2) 36
7.18 Adjusting **TR2** (trip master 2) 37
7.19 Display mode **SPEED/A1** (average speed 1) 38
7.20 Display mode **SPEED/A2** (average speed 2) 38
7.21 Display mode **SPEED/S1** (stop watch 1) 39
7.22 Display mode **SPEED/S2** (stop watch 2) 39
7.23 Table of functions 40
7.24 Table of conditions and menu activation 41

8 Preparing for use 42

8.1 Notes on preparing for first use 42
8.2 Running in the engine 43
8.3 Starting performance of lithium-ion batteries at low temperatures 44
8.4 Preparing the vehicle for difficult operating conditions 44
8.5 Preparing the vehicle for rides on dry sand 45
8.6 Preparing the vehicle for rides on wet sand 45
8.7 Preparing for rides on wet and muddy surfaces 46
8.8 Preparing vehicle for rides at high temperature or slow speed 46
8.9 Preparing the vehicle for low temperatures or snow 47

9 Riding instructions 48

9.1 Checks and maintenance measures when preparing for use 48
9.2 Starting the vehicle 48
9.3 Starting off 49
9.4 Shifting, riding 49
9.5 Braking 50
9.6 Stop, park 51
9.7 Transportation 51
9.8 Refueling 52
9.9 Adding 2-stroke oil 53

10 Service schedule 54

10.1 Service schedule 54

11 Tuning the chassis 57

11.1 Checking the basic chassis setting with the rider's weight 57
11.2 Compression damping of the shock absorber 57
11.3 Adjusting the low-speed compression damping of the shock absorber 57
11.4 Adjusting the high-speed compression damping of the shock absorber 58
11.5 Adjusting the rebound damping of the shock absorber 59
11.6 Measuring the dimension of the unloaded rear wheel 59
11.7 Checking the static sag of the shock absorber 60
11.8 Checking the rider sag of the shock absorber 60
11.9 Adjusting the preload for the shock absorber 61
11.10 Adjusting the rider sag 62
11.11 Checking the basic setting of the fork 63
11.12 Adjusting the compression damping of the fork 63
11.13 Adjusting the spring preload of the fork **(All HARDENDURO models)** 64
11.14 Adjusting the rebound damping of the fork 65
11.15 Handlebar position 65
11.16 Adjusting the handlebar position 66

12 Service work on the chassis 68

12.1 Raising the motorcycle with a lift stand 68
12.2 Removing the motorcycle from the lift stand 68
12.3 Bleeding the fork legs 68
12.4 Cleaning the dust boots of the fork legs 69
12.5 Removing the fork protector 70
12.6 Installing the fork protector 70
12.7 Removing the fork legs 71
12.8 Installing the fork legs 71
12.9 Removing the lower triple clamp 72
12.10 Installing the lower triple clamp 73
12.11 Checking the steering head bearing play 76
12.12 Adjusting the steering head bearing play 77
12.13 Lubricating the steering head bearing 78
12.14 Removing the front top fender 78
12.15 Installing the front top fender 78
12.16 Removing the shock absorber 79

Table of contents

12.17 Installing the shock absorber 80
12.18 Removing the seat 81
12.19 Mounting the seat 82
12.20 Removing the frame protector 82
12.21 Installing the frame protector 83
12.22 Removing air filter box cover 83
12.23 Installing air filter box cover 83
12.24 Removing the air filter 84
12.25 Installing the air filter 84
12.26 Cleaning the air filter and air filter box 85
12.27 Preparing the air filter box cover for securing 86
12.28 Removing the muffler 86
12.29 Installing muffler 86
12.30 Changing the damping material on the main silencer 87
12.31 Removing the fuel tank 87
12.32 Installing the fuel tank 89
12.33 Checking the chain for contaminant 91
12.34 Cleaning the chain 91
12.35 Checking the chain tension 92
12.36 Adjusting the chain tension 93
12.37 Checking the chain, rear sprocket, front sprocket, and chain guide 94
12.38 Checking the frame 97
12.39 Checking the swingarm 97
12.40 Checking the throttle cable routing 97
12.41 Checking the hand grip 98
12.42 Adjusting the basic position of the clutch lever 99
12.43 Checking/correcting the fluid level of hydraulic clutch 99
12.44 Changing the hydraulic clutch fluid 100
12.45 Removing the skid plate **(All except EXC-EU and EXC-BR standard models)** 101
12.46 Installing the skid plate **(All except EXC-EU and EXC-BR standard models)** 101

13 Brake system 102

13.1 Checking the free travel on the hand brake lever 102
13.2 Adjusting the free travel of the handbrake lever 102
13.3 Checking the brake discs 102
13.4 Checking the brake fluid level for the front brake 103
13.5 Adding brake fluid for the front brake 104
13.6 Checking that the brake pads of the front brake are secured 105
13.7 Changing the brake pads of the front brake 106
13.8 Checking the free travel of the brake pedal 107
13.9 Adjusting the basic position of the brake pedal 108
13.10 Checking the brake fluid level for the rear brake 109
13.11 Adding brake fluid for the rear brake 109
13.12 Checking that the brake pads of the rear brake are secured 110
13.13 Changing the rear brake pads 111

14 Wheels, tires 114

14.1 Removing the front wheel 114
14.2 Installing the front wheel 115
14.3 Removing the rear wheel 116
14.4 Installing the rear wheel 117
14.5 Checking the tire condition 118
14.6 Checking the tire pressure 119
14.7 Checking the spoke tension 120

15 Electrics 121

15.1 Removing the 12 V battery 121
15.2 Installing the 12 V battery 122
15.3 Charging the 12 V battery 123
15.4 Changing the main fuse 126
15.5 Removing the headlight mask with the headlight 126
15.6 Installing the headlight mask with the headlight 127
15.7 Changing the headlight bulb 128
15.8 Changing the turn signal bulb **(All EXC models, including special edition models)** 129
15.9 Checking the headlight setting 130
15.10 Adjusting the headlight range 130
15.11 combination instrument battery, changing 130
15.12 Diagnostic connector 131
15.13 OCU 132

16 Cooling system 133

16.1 Cooling system 133
16.2 Checking the frost protection and coolant level 133
16.3 Checking the coolant level 134

16.4 Draining the coolant 🔧 135
16.5 Refilling the coolant 🔧 135
16.6 Changing the coolant 🔧 137

17 Tuning the engine 139

17.1 Checking the play in the throttle cable 139
17.2 Adjusting the throttle cable play 🔧 139
17.3 Adjusting the characteristic map of the throttle response 🔧 140
17.4 Adjusting the idle speed 🔧 142
17.5 Programming ambient air pressure 142
17.6 Checking the basic position of the gear shift lever 143
17.7 Adjusting the basic position of the gear shift lever 🔧 143

18 Exhaust control 145

18.1 Programming the end positions of the exhaust control 🔧 145

19 Service work on the engine 147

19.1 Changing the fuel screen 🔧 147
19.2 Checking 2-stroke oil level 148
19.3 Priming oil pump 🔧 149
19.4 Cleaning the oil screen in the oil tank 🔧 151
19.5 Checking the gear oil level 154
19.6 Changing the gear oil 🔧 154
19.7 Adding gear oil 🔧 155

20 Cleaning, care 157

20.1 Cleaning the motorcycle 157
20.2 Checks and maintenance steps for winter operation 158

21 Storage 160

21.1 Storage 160
21.2 Preparing for use after storage 161

22 Troubleshooting 162

22.1 troubleshooting 162

23 Flash code 165

23.1 Engine control trouble code 165

24 Technical specifications 169

24.1 Engine 169
24.1.1 Technical data - engine 169
24.1.2 Capacities - engine 170
24.2 Chassis 170
24.2.1 Technical data - chassis 170
24.2.2 Technical data - tires 171
24.2.3 Capacities - vehicle 172
24.3 Electrics 172
24.3.1 Battery 172
24.3.2 Fuses 172
24.3.3 Lamps 172
24.4 Fork 173
24.4.1 Technical data - fork **(All except HARDENDURO models)** 173
24.4.2 Capacities - fork **(All except HARDENDURO models)** 173
24.4.3 Technical data - fork **(All HARDENDURO models)** 173
24.4.4 Capacities - fork **(All HARDENDURO models)** 174
24.5 Shock absorber 174
24.5.1 Technical data - shock absorber 174
24.5.2 Capacities - shock absorber 175
24.6 Tightening torque 175
24.6.1 engine tightening torques 175
24.6.2 Chassis tightening torques 177

Notes 183

A Technical terms 183

B Fuels 184

C Operating material 185

D Electrics 188

E Cleaning agents 190

F Icons 191

F.1 Symbol colors 191
F.1.1 Red symbols 191
F.1.2 Yellow and orange symbols 191
F.1.3 Green and blue symbols 191

Index 192

Table of contents

1.1 Conventions

1.1.1 Icons

✓ Indicates a desired result (e.g. of a work step or a function).

✗ Indicates an undesired result (e.g. of a work step or a function).


All work marked with this symbol requires specialist knowledge and technical understanding. Ensure that this work is carried out or supervised by trained personnel from an authorized contractual partner, and that any special tools required are used.


Indicates a page reference.


Indicates information with more details.


Indicates a tip, e.g. to simplify work.

» Indicates the result from a test step.

◀ Indicates the end of an activity, including any rework.

1.1.2 Formatting

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

1.1.3 Abbreviations

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

2.1 Safety instructions

Function of the safety instruction

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

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

Safety instruction layout

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



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



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



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



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



NOTE
Indicates a situation that can lead to environmental damage.

2.2 Ban on tampering

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

Tampering that is prohibited

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

Examples of prohibited tampering

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

2.3 Safe use

DANGER

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

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

DANGER

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

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

WARNING

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

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

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

The vehicle must only be used by trained persons. An appropriate driver's license is needed to drive the vehicle on public roads.

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

Adhere to the information and warning labels on the vehicle.

2.4 Protective clothing

WARNING

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

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

2.5 Work rules

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

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

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

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

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

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

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

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

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

2.6 Environment

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

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

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

2.7 Owner's manual

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

Tip

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

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

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

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

The owner's manual is also available for download from your authorized contractual partner and on the KTM website.

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

A printed copy can be ordered from the following address.

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

2.8 Use definition – intended use

(All EXC models, including special edition models)

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

Note

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

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

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

(All XC-W models)

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

Note

This vehicle is not approved for use on public roads.

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

2.9 Improper use

The vehicle may only be used as intended.

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

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

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

3 Important notes

3.1 Manufacturer's warranty, implied warranty

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

3.2 Auxiliary material, operating material

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

3.3 Spare parts, accessories

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

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

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

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

3.4 Service

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

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

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

The relevant mileage or time interval is whichever occurs first.

3.5 Figures

Some of the figures in this document contain optional extras.

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

3.6 Customer service

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

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

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

4.1 View of vehicle, front left (example)



L05179-10

1. Handbrake lever (p. 19)
2. Throttle grip (p. 19)
3. Fork compression adjustment
4. **(All EXC models, including special edition models)**

   Horn button (p. 19)
4. **(All EXC models, including special edition models)**

   Turn signal switch (p. 20)
4. **(All models except US)**

   Light switch (p. 20)
5. Clutch lever (p. 19)
6. Air filter box cover
7. Side stand (p. 26)
8. Engine number (p. 18)
9. Gear shift lever (p. 25)

4.2 View of vehicle, rear right (example)

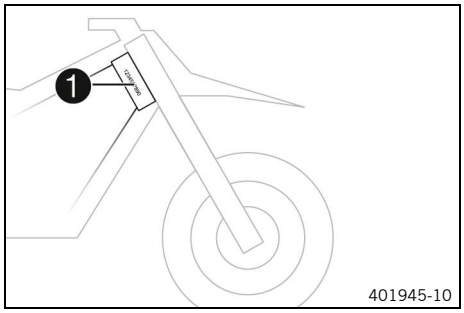


L05180-10

1. Idle speed adjustment screw (p. 25)
2. Fuel tank cap
3. Kill switch (p. 21)
4. Vehicle identification number (p. 17)
4. **(All EXC models, including special edition models)**

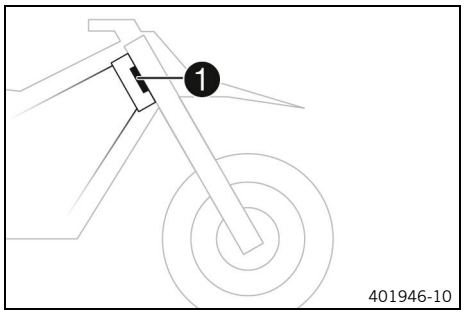
   Type approval label (p. 17)
5. Fork rebound adjustment
6. Shock absorber compression adjustment
7. Brake pedal (p. 26)
8. Cold start button (p. 24)
9. Shock absorber rebound adjustment

5.1 Vehicle identification number



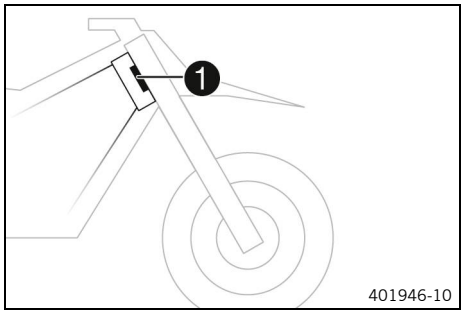
The vehicle identification number ❶ is stamped on the right-hand side of the steering head.

5.2 Type approval label (All EXC models, including special edition models)



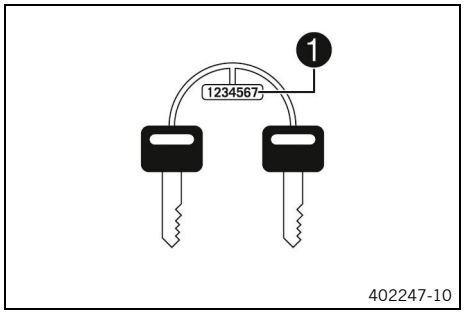
The type label ❶ is located on the front steering head.

5.3 Frame label (All XC-W models)



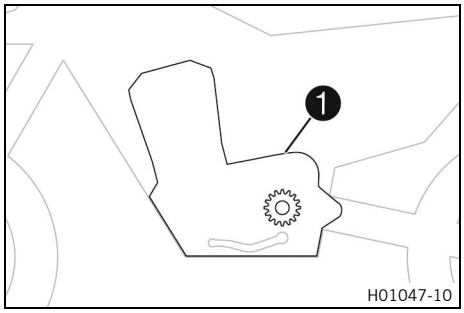
Frame label ❶ is attached to the front of the steering head.

5.4 Key number (All EXC-EU models)



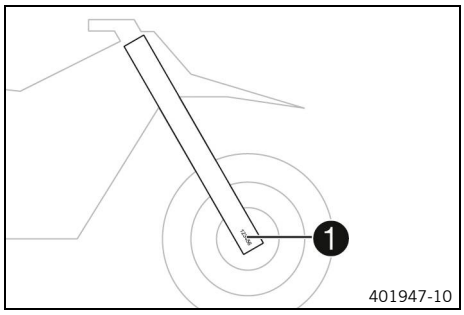
The key number ❶ for the steering lock is stamped onto the key connector.

5.5 Engine number



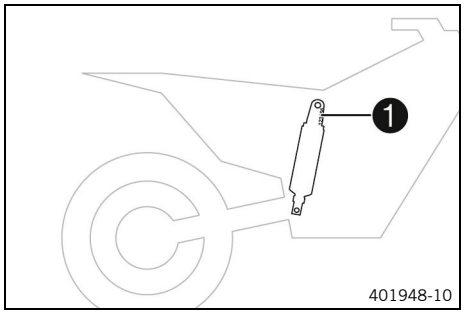
The engine number ❶ is stamped on the left side of the engine above the front sprocket.

5.6 Fork part number



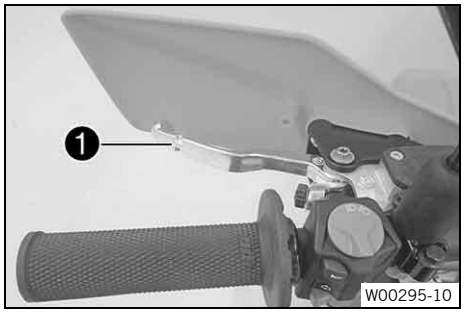
Fork part number ❶ is stamped on the inside of the fork shoe.

5.7 Shock absorber part number



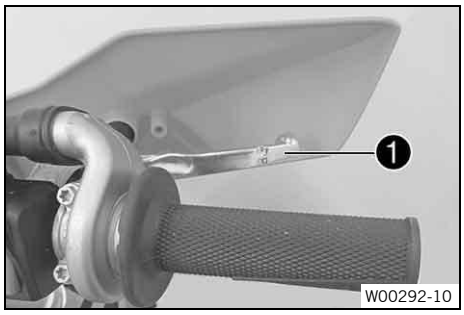
Shock absorber part number ❶ is stamped on the top right of the shock absorber.

6.1 Clutch lever



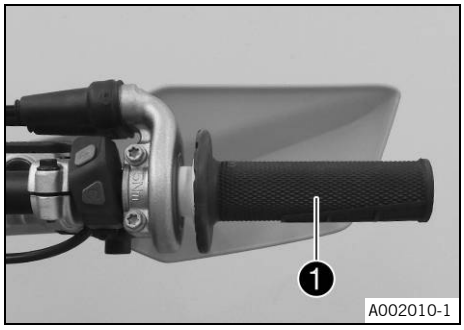
Clutch lever ❶ is fitted on the left side of the handlebar.
The clutch is activated hydraulically and adjusts itself automatically.

6.2 Handbrake lever



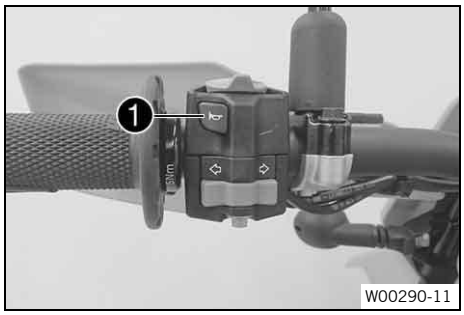
Hand brake lever ❶ is fitted on the right side of the handlebar.
The front brake is engaged using the hand brake lever.

6.3 Throttle grip



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

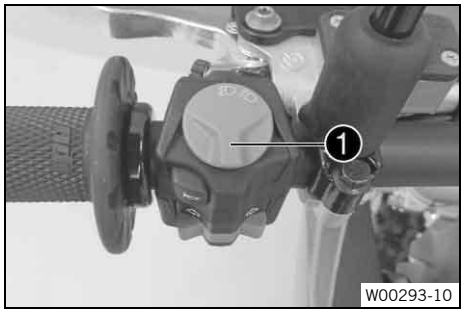
6.4 Horn button (All EXC models, including special edition models)



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

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

6.5 Light switch (All models except US)



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

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

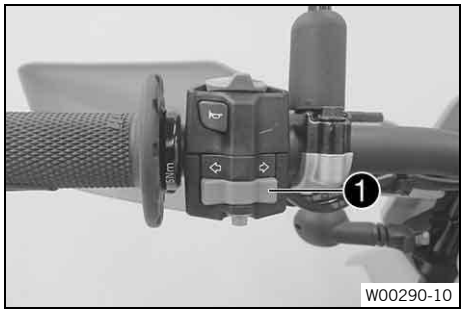
6.6 Light switch (All US models)



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

Condition	Meaning
Light switch is pulled out to the stop.	In this position, the light is switched off.
Light switch is pressed in up to the stop.	In this position, the low beam and tail light are switched on.

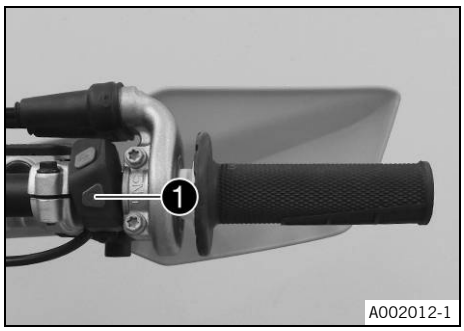
6.7 Turn signal switch (All EXC models, including special edition models)



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

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

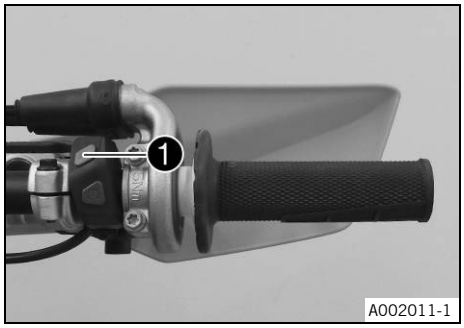
6.8 Electric starter



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

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

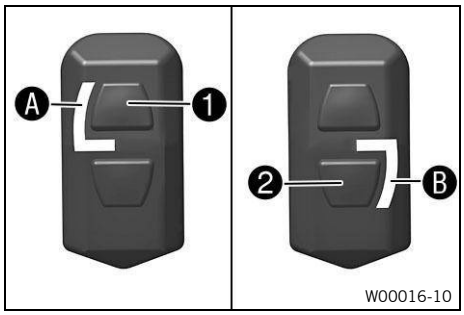
6.9 Kill switch



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

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

6.10 Combination switch (All special models)



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

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

Condition	Meaning
STANDARD ❶	STANDARD mapping is activated when indicator light Ⓐ lights up.
ADVANCED ❷	ADVANCED mapping is activated when the indicator light Ⓑ illuminates.

Note

If no combination switch is installed, the last selected mapping is activated.

If a combination switch has never been mounted, the **STANDARD** mapping is activated.

6.11 Overview of indicator lights (All EXC models, including special edition models)



Condition		Meaning
≡D	The high beam indicator lamp lights up blue	The high beam is switched on.
	Malfunction indicator lamp lights up/flashes yellow	The **OBD** has detected a malfunction in the vehicle electronics. Come safely to a halt, and contact an authorized dealer.

Condition		Meaning
	The fuel level warning lamp lights up yellow	The fuel level has reached the reserve mark.
	Turn signal indicator lamp flashes green	The turn signal is switched on.
	The oil level warning lamp lights up red	Oil level has reached the **MIN**marking. Ride for no more than until the remaining fuel in the tank is depleted and at the next opportunity refuel with 2-stroke oil.

6.12 Overview of indicator lights (All XC-W models)



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

6.13 Opening the fuel tank cap

DANGER

Fire hazard Fuel is highly flammable.

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

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

WARNING

Danger of poisoning Fuel is harmful to health.

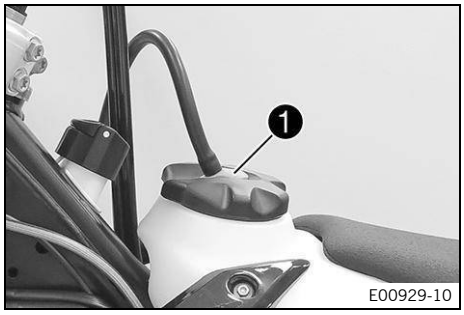
– Do not allow fuel to come into contact with skin, eyes, or clothing.
– Consult a doctor immediately if fuel has been ingested.
– Do not inhale fuel vapors.
– Rinse the affected area immediately with plenty of water in the event of contact with skin.

– Rinse eyes thoroughly with water and consult a doctor immediately if fuel comes into contact with eyes.
– If fuel spills on to your clothing, change the clothing.
– Store fuel properly in a suitable container and keep out of the reach of children.

NOTE

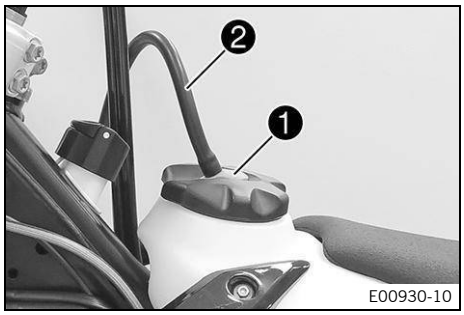
Environmental hazard Improper handling of fuel is dangerous to the environment.

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



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

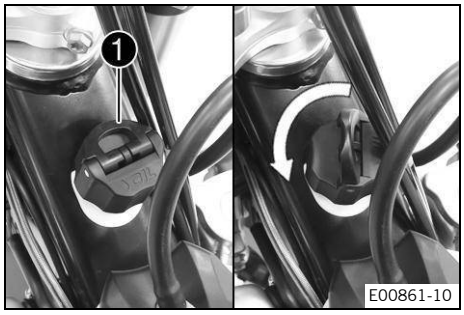
6.14 Closing the fuel tank cap



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

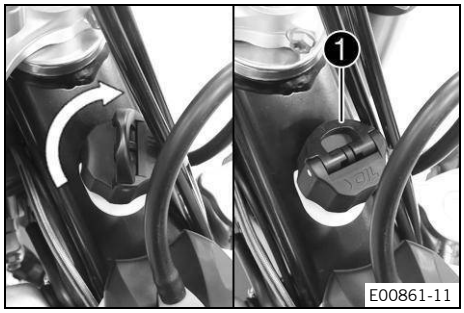
Route hose of fuel tank vent ❷ without kinks.

6.15 Opening 2-stroke oil tank cap



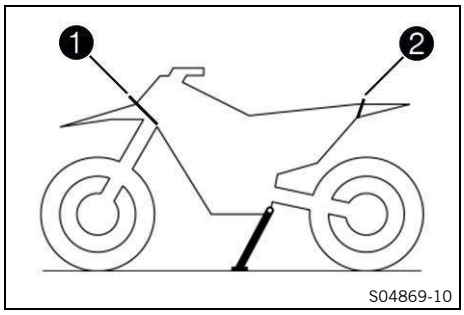
– Fold loop ❶ upward.
– Turn the 2-stroke oil tank cap counterclockwise and pull it up.

6.16 Closing 2-stroke oil tank cap



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

6.17 Passenger strap (All HARDENDURO models)



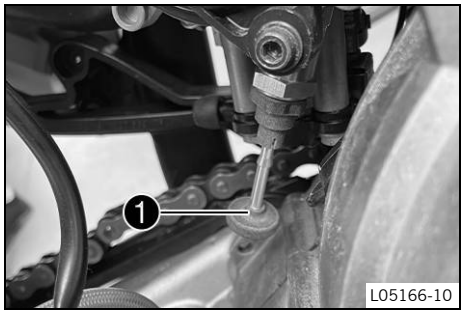
The supporting straps ❶ and ❷ are located at the front and rear of the vehicle.
The vehicle can be recovered from difficult terrain using the supporting straps.

6.18 Cold start button

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

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

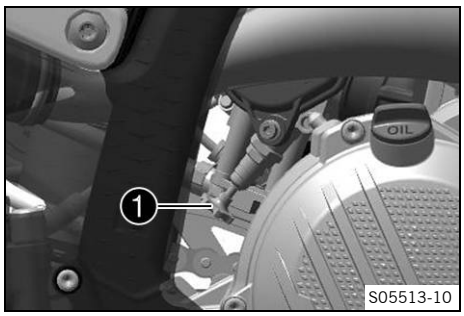
(All EXC-EU models)



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

Condition	Meaning
Cold start button is pressed in as far as it will go	Cold start button activated
Cold start button is in the basic position	Cold start button deactivated

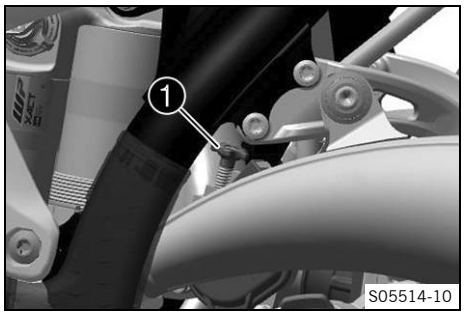
(All except EXC-EU)



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

Condition	Meaning
Cold start button is pressed in as far as it will go	Cold start button activated
Cold start button is in the basic position	Cold start button deactivated

6.19 Idle speed adjustment screw



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

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

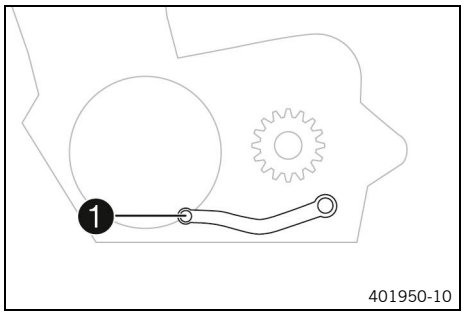
The idle speed is adjusted using idle speed adjustment screw ❶.

Note

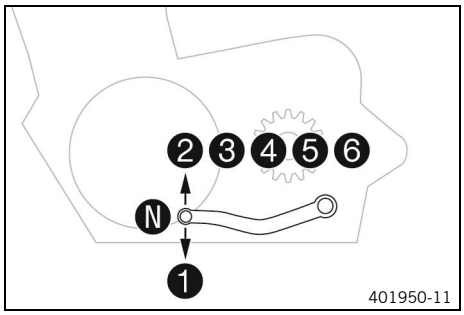
If the idle speed is high, the engine is slow to run, the engine brake is low and the throttle response is aggressive, the adjusting screw must be turned counterclockwise.

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

6.20 Gear shift lever



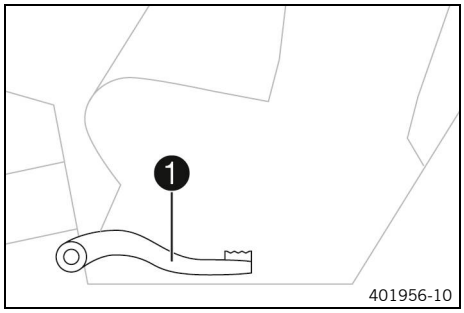
Gear shift lever ❶ is mounted on the left of the engine.



The gear positions can be seen in the figure.

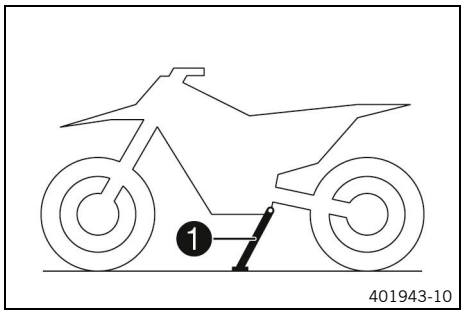
The neutral or idle position is between the first and second gears.

6.21 Brake pedal

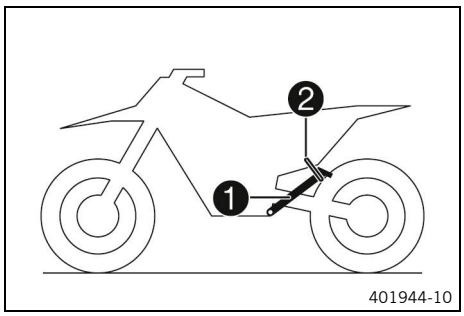


Brake pedal ❶ is located in front of the right footpeg.
The rear brake is operated with the brake pedal.

6.22 Side stand

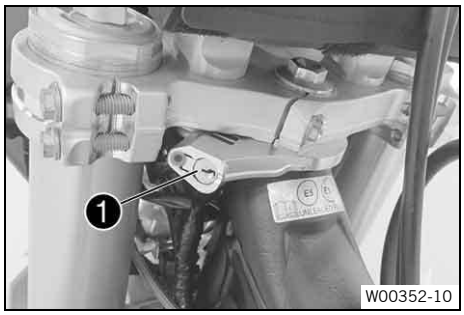


The side stand ❶ is located on the left of the vehicle.
The side stand is used for parking the motorcycle.



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

6.23 Steering lock (All EXC-EU models)



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

6.24 Locking the steering (All EXC-EU models)

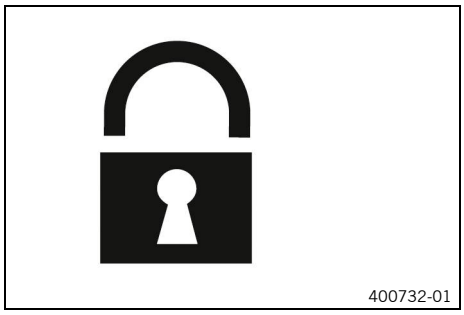
NOTE

Material damage The vehicle may be damaged if parked incorrectly.

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

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

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



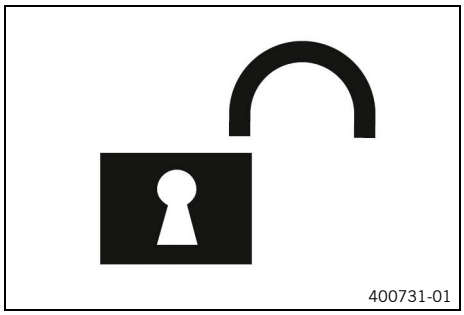
– Park the vehicle.
– Turn handlebar as far as possible to the right.
– Insert the key for the steering lock into the steering lock, turn it to the left, press it in, and turn it to the right. Pull out the key for the steering lock.

✓ Steering is no longer possible.

Note

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

6.25 Unlocking the steering (All EXC-EU models)

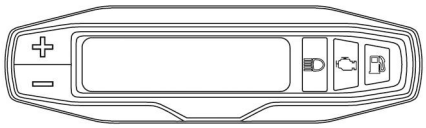


– Insert the key for the steering lock into the steering lock, turn it to the left, pull it out, and turn it to the right. Pull out the key for the steering lock.

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

✓ The handlebar can now be moved again.

7.1 Combination instrument overview



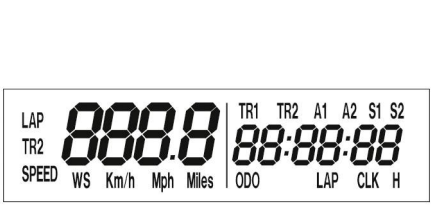
V00799-01

- **Button** + is used to select menus and make settings.
- **Button** — is used to select menus and make settings.

Note
In the condition at delivery, only the **SPEED/H** and **SPEED/ODO** display modes are activated.

7.2 activation and testing

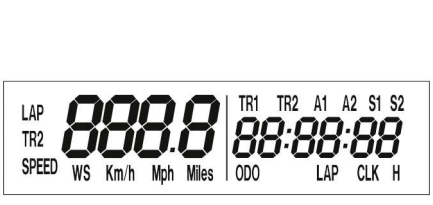
7.2.1 Activating combination instrument



400313-01

The combination instrument is activated when one of the buttons is pressed or an impulse comes from the wheel speed sensor.

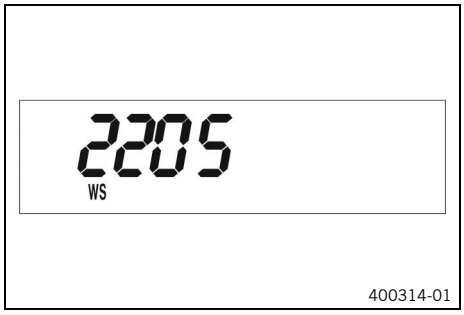
7.2.2 Display test



400313-01

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

7.2.3 WS (wheel size)



After the display function check, the wheel circumference **WS** is displayed briefly.

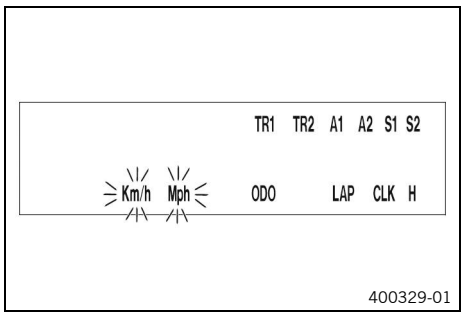
Note
The number 2205 equals the circumference of the 21" front wheel with standard tires.

The indicator then changes to the last selected mode.

7.3 Setting kilometers or miles

Note
If you change the unit, the value **ODO** is retained and converted accordingly.
The values **TR1**, **TR2**, **A1**, **A2** and **S1** are cleared when the unit of measure is changed.

Condition: Motorcycle is stationary



– Briefly and repeatedly press button + until indicator **H** appears in the bottom right of the display.
– Press button + for 2–3 seconds.
  ✓ The Setup menu is displayed and the active functions are shown.
– Press button + briefly until indicator **Km/h** / **Mph** flashes.

– Select one of the following alternatives.

Adjusting the Km/h

– Press button +.

Adjusting the Mph

– Press button —.

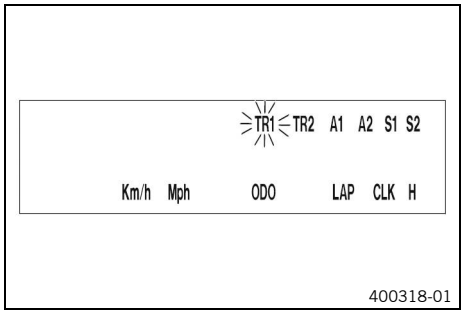
– Wait 3 - 5 seconds.
  ✓ The settings are stored.

Note
If no button is pressed for 10–12 seconds, or if an impulse comes from the wheel speed sensor, the settings are automatically saved and the setup menu is closed.

7.4 Adjusting combination instrument function

Note
When the vehicle is delivered, only the **SPEED/H** and **SPEED/ODO** display modes are activated.

Condition: Motorcycle is stationary



400318-01

– Briefly and repeatedly press button + until indicator **H** appears in the bottom right of the display.
– Press button + for 2–3 seconds.
✓ The Setup menu is displayed and the active functions are shown.

Note
If no button is pressed for 10–12 seconds, the settings are automatically saved.
If no button is pressed for 20 seconds, or if an impulse comes from the wheel speed sensor, the settings are automatically saved and the setup menu is closed.

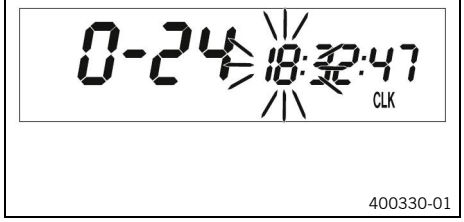
– Press button + briefly until the desired function flashes.
✓ The selected function flashes.
– Select one of the following alternatives.

Activating the function
– Press button +.
✓ The symbol continues to appear in the display and the indicator switches to the next function.

Deactivating a function
– Press button —.
✓ The symbol disappears in the display and the indicator switches to the next function.

7.5 Setting the clock

Condition: Motorcycle is stationary



400330-01

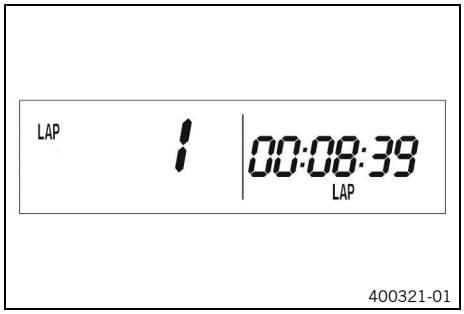
– Briefly and repeatedly press button + until indicator **CLK** appears in the bottom right of the display.
– Press button + for 2–3 seconds.
✓ The hour display flashes.
– Adjust the hour display with **button** + or **button** —.
– Wait 3 - 5 seconds.
✓ The next segment of the display flashes and can be set.
– You can set the following segments in the same way as the hours by pressing **button** + and **button** —.

Note
The seconds can only be set to zero.
If no button is pressed for 15–20 seconds, or if an impulse comes from the wheel speed sensor, the settings are automatically saved and the setup menu is closed.

7.6 Viewing the lap time

Note
This function can only be opened if lap times have actually been timed.

Condition: Motorcycle is stationary



– Briefly and repeatedly press button + until indicator **LAP** appears in the bottom right of the display.
– Press button + briefly.
  ✓ **LAP 1** appears on the left side of the display.
– The laps 1–10 can be viewed with **button** —.
– Press and hold **button** + for 3–5 seconds.
  ✓ The lap times are deleted.
– Press button + briefly.
  ✓ Next display mode

Note
When an impulse is received from the wheel speed sensor, the left side of the display changes back to the **SPEED** mode.

7.7 Display mode SPEED (speed)



– Briefly and repeatedly press button + until indicator **SPEED** appears in the left of the display.

The current speed is displayed in the **SPEED** display mode.
The current speed can be displayed in **Km/h** or **Mph**.

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

7.8 Display mode SPEED/H (operating hours)



Condition: Motorcycle is stationary

– Briefly and repeatedly press button + until indicator **H** appears in the bottom right of the display.

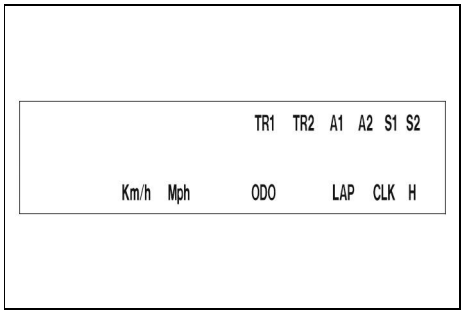
In display mode **H**, the operating hours of the engine are displayed.
The operating hour counter stores the total traveling time.

Note
The operating hour counter is necessary for ensuring that service work is carried out at the right intervals.
If the combination instrument is in **H** display mode when starting off, it automatically changes to the **ODO** display mode.
The **H** display mode is suppressed during the journey.



– Press button + for 2–3 seconds.	The display changes to the setup menu for the combination instrument functions.
– Press button + briefly.	Next display mode
– Press button — for 2–3 seconds.	No function
– Press button — briefly.	No function

7.9 Setup menu



Condition: Motorcycle is stationary

– Briefly and repeatedly press button + until indicator **H** appears in the bottom right of the display.
– Press button + for 2–3 seconds.

The Setup menu displays the active functions.

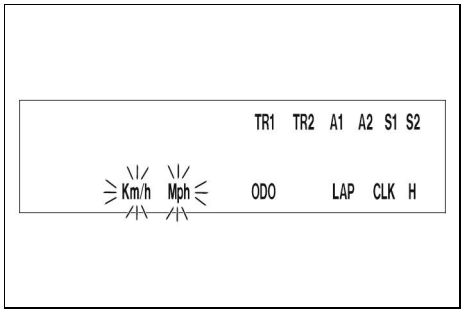
Note

Repeatedly press the **button** + briefly until the desired function is reached.

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

– Press button + briefly.	Activates the flashing display and changes to the next display
– Press button + for 2–3 seconds.	No function
– Press button — briefly.	Deactivates the flashing display and changes to the next display
– Press button — for 2–3 seconds.	No function
– Wait 3 - 5 seconds.	Changes to the next display without changes
– Wait 10–12 seconds.	Setup menu starts, stores the settings, and changes to **H** or **ODO**.

7.10 Adjusting the unit of measurement



Condition: Motorcycle is stationary

– Press button + for 2–3 seconds.
– Briefly and repeatedly press button + until indicator **H** appears in the bottom right of the display.
– Press button + briefly until indicator **Km/h** / **Mph** flashes.

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

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

– Press button + briefly.	Starts selection, activates **Km/h** display
– Press button + for 2–3 seconds.	No function
– Press button — briefly.	Activates **Mph** display
– Press button — for 2–3 seconds.	No function
– Wait 3 - 5 seconds.	Changes to the next display, changes from selection to the Setup menu
– Wait 10–12 seconds.	Stores and closes the Setup menu

7.11 Display mode SPEED/CLK (time)



– Briefly and repeatedly press button + until indicator **CLK** appears in the bottom right of the display.

The time is shown in display mode **CLK**.

– Press button + for 2–3 seconds.	The display changes to the Setup menu of the clock.
– Press button + briefly.	Next display mode
– Press button — for 2–3 seconds.	No function



– Press button — briefly.	No function

7.12 Setting the clock



Condition: Motorcycle is stationary

– Briefly and repeatedly press button + until indicator **CLK** appears in the bottom right of the display.
– Press button + for 2–3 seconds.

– Press button + for 2–3 seconds.	Increases the value
– Press button + briefly.	Increases the value
– Press button — for 2–3 seconds.	Reduces the value
– Press button — briefly.	Reduces the value
– Wait 3 - 5 seconds.	Changes to the next value
– Wait 10–12 seconds.	Exit the Setup menu

7.13 Display mode SPEED/LAP (lap time)



– Briefly and repeatedly press button + until indicator **LAP** appears in the bottom right of the display.

In the **LAP** display mode, up to 10 lap times can be timed with the stop watch.

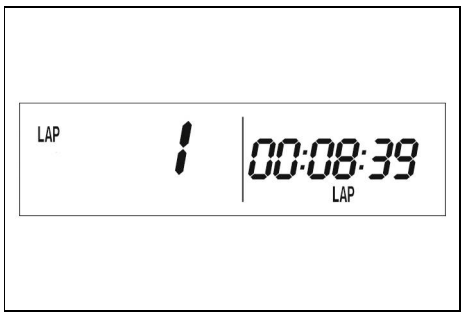
Note

If the lap time continues running after the **button**— is pressed, 9 memory locations are filled.

Lap 10 must be timed with the **button**+.

– Press button + for 2–3 seconds.	Stop watch and lap time are reset.
– Press button + briefly.	Next display mode
– Press button — for 2–3 seconds.	Stops the stop watch
– Press button — briefly.	Starts the stop watch or stops the current lap time measurement, stores it and the stop watch starts the next lap.

7.14 Viewing the lap time



Condition: Motorcycle is stationary

– Briefly and repeatedly press button + until indicator **LAP** appears in the bottom right of the display.
– Press button + briefly.

– Press button + for 2–3 seconds.	Stop watch and lap time are reset.
– Press button + briefly.	Select a lap from 1–10
– Press button — for 2–3 seconds.	No function
– Press button — briefly.	View next lap time

7.15 Display mode SPEED/ODO (odometer)



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

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

– Press button + for 2–3 seconds.	No function
– Press button + briefly.	Next display mode
– Press button — for 2–3 seconds.	No function



– Press button — briefly.	No function

7.16 Display mode SPEED/TR1 (trip master 1)



– Briefly and repeatedly press button + until indicator **TR1** appears in the top right of the display.

TR1 (trip master 1) runs constantly and counts up to 999.9.

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

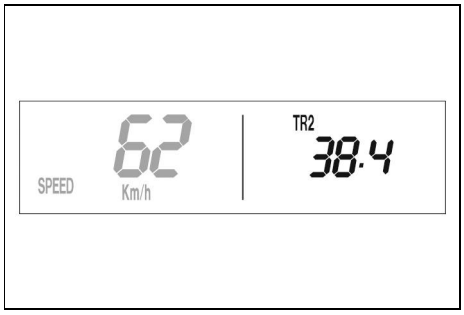
TR1 is coupled with **A1** (average speed 1) and **S1** (stop watch 1).

Note

If 999.9 is exceeded, the values of **TR1**, **A1** and **S1** are automatically reset to 0.0.

– Press button + for 2–3 seconds.	Displays of **TR1**, **A1** and **S1** are reset to 0.0.
– Press button + briefly.	Next display mode
– Press button — for 2–3 seconds.	No function
– Press button — briefly.	No function

7.17 Display mode SPEED/TR2 (trip master 2)



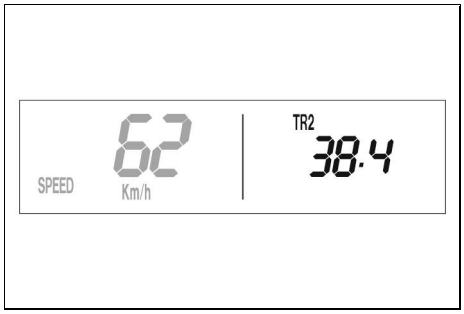
– Briefly and repeatedly press button + until indicator **TR2** appears in the top right of the display.

It **TR2** (trip master 2) runs constantly and counts up to 999.9.

– Press button + for 2–3 seconds.	Clears values **TR2** and **A2**
– Press button + briefly.	Next display mode

– Press button — for 2–3 seconds.	Reduces value **TR2**
– Press button — briefly.	Reduces value **TR2**

7.18 Adjusting TR2 (trip master 2)



Condition: Motorcycle is stationary

– Briefly and repeatedly press button + until indicator **TR2** appears in the top right of the display.
– Press the **button** — for 2–3 seconds until **TR2** flashes.

The displayed value can be set manually with the **button**+ and **button**—. This is a very practical function when riding using the road book.

Note
The value of **TR2** can also be corrected manually during the journey with **button**+ and **button**—.
If 999.9 is exceeded, the value of **TR2** is automatically reset to 0.0.

– Press button + for 2–3 seconds.	Increases value **TR2**
– Press button + briefly.	Increases value **TR2**
– Press button — for 2–3 seconds.	Reduces value **TR2**
– Press button — briefly.	Reduces value **TR2**
– Wait 10–12 seconds.	Stores and closes the Setup menu

7.19 Display mode SPEED/A1 (average speed 1)



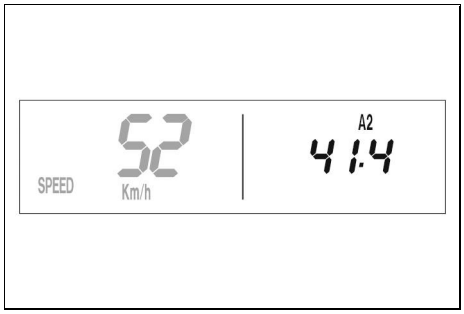
– Briefly and repeatedly press button + until indicator **A1** appears in the top right of the display.

A1 (average speed 1) shows the average speed calculated using **TR1** (trip master 1) and **S1** (stop watch 1).

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

– Press button + for 2–3 seconds.	Displays of **TR1**, **A1** and **S1** are reset to 0.0.
– Press button + briefly.	Next display mode
– Press button — for 2–3 seconds.	No function
– Press button — briefly.	No function

7.20 Display mode SPEED/A2 (average speed 2)



– Briefly and repeatedly press button + until indicator **A2** appears in the top right of the display.

A2 (average speed 2) shows the average speed on the basis of the current speed if the stop watch **S2** (stop watch 2) is running.

Note

The displayed value can differ from the actual average speed if **S2** was not stopped after the ride.

– Press button + briefly.	Next display mode
– Press button + for 2–3 seconds.	No function
– Press button — for 2–3 seconds.	No function
– Press button — briefly.	No function

7.21 Display mode SPEED/S1 (stop watch 1)



– Briefly and repeatedly press button + until indicator **S1** appears in the top right of the display.

S1 (Stop watch 1) shows the riding time based on **TR1** and continues running as soon as an impulse arrives from the wheel speed sensor.

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

– Press button + for 2–3 seconds.	Displays of **TR1**, **A1** and **S1** are reset to 0.0.
– Press button + briefly.	Next display mode
– Press button — for 2–3 seconds.	No function
– Press button — briefly.	No function

7.22 Display mode SPEED/S2 (stop watch 2)



– Briefly and repeatedly press button + until indicator **S2** appears in the top right of the display.

S2 (Stop watch 2) is a manual stop watch.

If **S2** is running in the background, indicator **S2** in the display flashes.

– Press button + for 2–3 seconds.	The displays of **S2** and **A2** are set to 0,0.
– Press button + briefly.	Next display mode
– Press button — for 2–3 seconds.	No function
– Press button — briefly.	Starts or stops **S2**

7.23 Table of functions

Display	Press button + for 2–3 seconds.	Press button + briefly.	Press button — for 2–3 seconds.	Press button — briefly.	Wait 3 - 5 seconds.	Wait 10–12 seconds.
Display mode **SPEED/S2** (stop watch 2)	The displays of **S2** and **A2** are set to 0,0.	Next display mode	No function	Starts or stops **S2**		
Display mode **SPEED/S1** (stop watch 1)	Displays of **TR1**, **A1** and **S1** are reset to 0.0.	Next display mode	No function	No function		
Display mode **SPEED/A2** (average speed 2)	No function	Next display mode	No function	No function		
Display mode **SPEED/A1** (average speed 1)	Displays of **TR1**, **A1** and **S1** are reset to 0.0.	Next display mode	No function	No function		
Adjusting **TR2** (trip master 2)	Increases value **TR2**	Increases value **TR2**	Reduces value **TR2**	Reduces value **TR2**		Stores and closes the Setup menu
Display mode **SPEED/TR2** (trip master 2)	Clears values **TR2** and **A2**	Next display mode	Reduces value **TR2**	Reduces value **TR2**		
Display mode **SPEED/TR1** (trip master 1)	Displays of **TR1**, **A1** and **S1** are reset to 0.0.	Next display mode	No function	No function		
Display mode **SPEED/ODO** (odometer)	No function	Next display mode	No function	No function		
Viewing the lap time	Stop watch and lap time are reset.	Select a lap from 1–10	No function	View next lap time		
Display mode **SPEED/LAP** (lap time)	Stop watch and lap time are reset.	Next display mode	Stops the stop watch	Starts the stop watch or stops the current lap time measurement, stores it and the stop watch starts the next lap.		
Setting the clock	Increases the value	Increases the value	Reduces the value	Reduces the value	Changes to the next value	Exit the Setup menu
Display mode **SPEED/CLK** (time)	The display changes to the Setup menu of the clock.	Next display mode	No function	No function		

Display	Press button + for 2–3 seconds.	Press button + briefly.	Press button — for 2–3 seconds.	Press button — briefly.	Wait 3 - 5 seconds.	Wait 10–12 seconds.
Adjusting the unit of measurement	No function	Starts selection, activates **Km/h** display	No function	Activates **Mph** display	Changes to the next display, changes from selection to the Setup menu	Stores and closes the Setup menu
Setup menu	No function	Activates the flashing display and changes to the next display	No function	Deactivates the flashing display and changes to the next display	Changes to the next display without changes	Setup menu starts, stores the settings, and changes to **H** or **ODO**.
Display mode **SPEED/H** (operating hours)	The display changes to the setup menu for the combination instrument functions.	Next display mode	No function	No function		

7.24 Table of conditions and menu activation

Display	Motorcycle is stationary	Menu can be activated
Display mode **SPEED/S2** (stop watch 2)		•
Display mode **SPEED/S1** (stop watch 1)		•
Display mode **SPEED/A2** (average speed 2)		•
Display mode **SPEED/A1** (average speed 1)		•
Adjusting **TR2** (trip master 2)	•	
Display mode **SPEED/TR2** (trip master 2)		•
Display mode **SPEED/TR1** (trip master 1)		•
Display mode **SPEED/ODO** (odometer)		
Viewing the lap time	•	
Display mode **SPEED/LAP** (lap time)		•
Setting the clock	•	
Display mode **SPEED/CLK** (time)		
Adjusting the unit of measurement	•	
Setup menu	•	
Display mode **SPEED/H** (operating hours)	•	
Display mode **SPEED** (speed)		

8 Preparing for use

8.1 Notes on preparing for first use

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

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

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

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

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

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

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

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

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

– Ensure that the pre–delivery inspection has been carried out by an authorized contractual partner.
  ✓ The delivery certificate is transferred upon vehicle handover.
– Read the entire owner's manual before riding for the first time.
– Get to know the controls.
– Adjust the basic position of the clutch lever. (p. 99)
– Adjust the free travel of the handbrake lever. (p. 102)
– Adjust the basic position of the brake pedal. (p. 108)
– Adjust the basic position of the gear shift lever. (p. 143)

– Get used to the handling characteristics of the motorcycle on suitable terrain before undertaking a more challenging ride.

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

– Also, ride as slowly as possible and in a standing position to get a better feel for the motorcycle.
– Do not make any off-road trips that exceed your ability and experience.
– Hold the handlebar firmly with both hands and keep your feet on the footpegs when riding.
– If luggage is carried, ensure it is fixed firmly as close as possible to the center of the vehicle and ensure even weight distribution between the front and rear wheels.

Note
Motorcycles react sensitively to any changes of weight distribution.

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

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

– Check the spoke tension. (p. 120)

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

– Run in the engine. (p. 43)

8.2 Running in the engine

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

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

Avoid fully opening the throttle.

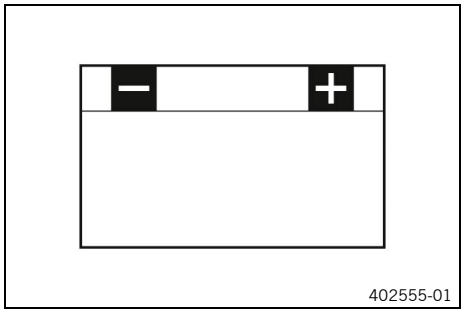
– Check the idle speed regularly.

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

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

» If the idle speed changes:
  – Adjust the idle speed. (p. 142)

8.3 Starting performance of lithium-ion batteries at low temperatures



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

Several attempts to start may be required. Press the start button for 5 seconds, and wait 30 seconds between attempts. The pauses are necessary so that the heat created can distribute through the lithium-ion battery and the 12-V battery is not damaged.

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

The starting power increases as the battery warms up.

8.4 Preparing the vehicle for difficult operating conditions

Note

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

– Clean the air filter and air filter box. (p. 85)

Check the air filter approx. every 30 minutes.

– Check the electrical socket connector for humidity and corrosion and to ensure it is firmly seated.
  » If moisture, corrosion, or damage is found:
    – Clean and dry the connector, or change it if necessary.
– Rides on dry sand. (p. 45)
– Rides on wet sand. (p. 45)
– Rides on wet and muddy surfaces. (p. 46)
– Riding at high temperatures or slow speed. (p. 46)
– Riding at low temperatures and in snow. (p. 47)

8.5 Preparing the vehicle for rides on dry sand



M01104-01

– Mount the air filter dust protection.

Read the accompanying mounting instructions.

Air filter dust protection cover (79006920000)



M01105-01

– Mount the air filter sand protection.

Read the accompanying mounting instructions.

Air filter sand protection (79006922000)


600868-01

– Clean the chain.

Chain cleaner (p. 190)

– Mount the steel sprocket.
– Grease the chain.

Universal oil spray (p. 185)

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

Change the piston every 10 operating hours.

8.6 Preparing the vehicle for rides on wet sand



M01106-01

– Mount the air filter water protection.

Read the accompanying mounting instructions.

Air filter water protection (79006921000)


600868-01

– Clean the chain.

Chain cleaner (p. 190)

– Mount the steel sprocket.
– Grease the chain.

Universal oil spray (p. 185)

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

Change the piston every 10 operating hours.

8.7 Preparing for rides on wet and muddy surfaces

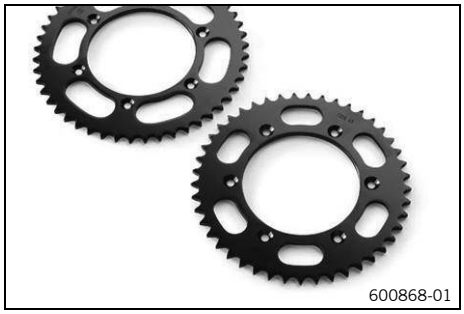


M01106-01

– Mount the air filter water protection.

Read the accompanying mounting instructions.

Air filter water protection (79006921000)


600868-01

– Mount the steel sprocket.
– Clean the motorcycle. (p. 157)
– Straighten the bent radiator fins carefully.

8.8 Preparing vehicle for rides at high temperature or slow speed


600868-01

– Adjust the secondary transmission to the road conditions.

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

– Clean the chain.

Chain cleaner (p. 190)

– Clean the radiator fins.
– Straighten the bent radiator fins carefully.
– Check the coolant level. (p. 134)

8.9 Preparing the vehicle for low temperatures or snow



M01106-01

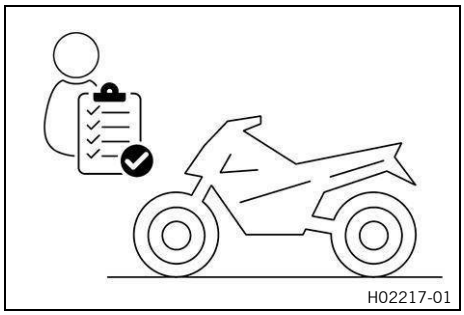
– Mount the air filter water protection.

Read the accompanying mounting instructions.

Air filter water protection (79006921000)

9.1 Checks and maintenance measures when preparing for use

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


H02217-01

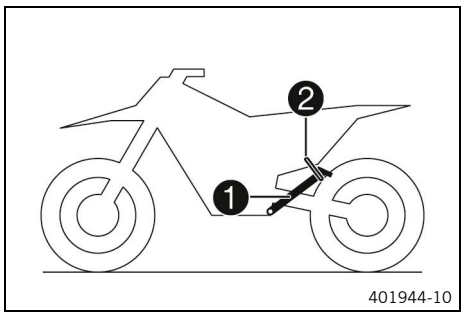
- Check the gear oil level. (p. 154)
- Check the electrical system.
- Check the brake fluid level for the front brake. (p. 103)
- Check the brake fluid level for the rear brake. (p. 109)
- Check that the brake pads of the front brake are secured. (p. 105)
- Check that the brake pads of the rear brake are secured. (p. 110)
- Check that the brake system is functioning properly.
- Check the coolant level. (p. 134)
- Check the chain for contaminant. (p. 91)
- Check the chain, rear sprocket, engine sprocket, and chain guide. (p. 94)
- Check the chain tension. (p. 92)
- Check the tire condition. (p. 118)
- Check the tire pressure. (p. 119)
- Check the spoke tension. (p. 120)

  The spoke tension must be checked regularly as incorrect spoke tension will severely impair riding safety.
- Clean the dust boots of the fork legs. (p. 69)
- Bleed the fork legs. (p. 68)
- Check the air filter.
- Check the settings of all controls and ensure that they can be operated smoothly.
- Check all screws, nuts, and hose clamps regularly for tightness.
- Check the fuel level.
- Check 2-stroke oil level. (p. 148)

9.2 Starting the vehicle

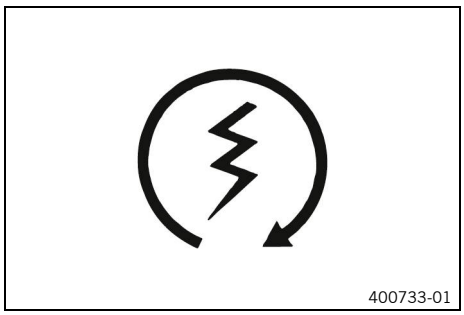
DANGER
Danger of poisoning Exhaust gases are toxic and inhaling them may result in unconsciousness and death.
- Always ensure that there is sufficient ventilation when running the engine.
- Use suitable exhaust extraction when starting or running the engine in an enclosed space.

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



– Take the motorcycle off side stand ❶ and secure the side stand with rubber band ❷.
– Shift the transmission into the neutral position.
– Press in cold start button all the way to the stop and start the engine.
– Deactivate the cold start button after approx. 10 seconds at high idle speed.

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



– Press the electric starter.

Note

Do not open the throttle.

Press the electric starter 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.

The malfunction indicator light lights up during the starting process.

9.3 Starting off

Note

Switch on the light before riding so that you are easily visible to other road users.

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

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

9.4 Shifting, riding

WARNING

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

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

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

WARNING

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

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

Note

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

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

- Shift into a higher gear when conditions allow (incline, riding situation, etc.). To do so, release the throttle while simultaneously pulling the clutch lever, shift into the next gear, release the clutch lever and open the throttle.
- If the cold start function was activated, deactivate the cold start button after the engine has warmed up.
- After reaching maximum speed by fully opening the throttle twist grip, turn the throttle back so that it is ¾ open. This will reduce the speed slightly, but the fuel consumption will be considerably lower.
- Only open the throttle as much as the engine can handle. Abruptly opening the throttle increases fuel consumption.
- To shift down, brake and close the throttle at the same time.
- Pull the clutch lever and shift into a lower gear, release the clutch lever slowly, and either open the throttle or shift again.
- Switch off the engine if you are likely to be running at idle speed or stationary for a long time.

≥ 2 min

- Avoid frequent and lengthy slipping of the clutch. This causes the gear oil, engine, and cooling system to heat up.
- Ride at a low engine speed instead of at a high engine speed when riding the clutch.

9.5 Braking

WARNING

Danger of accidents A spongy pressure point on the front or rear brake reduces the brake action.

- Do not drive the vehicle if the brake system has a spongy pressure point.

WARNING

Danger of accidents Braking with excessive force locks the wheels.

- Adapt your braking to the riding situation and the road conditions.

WARNING

Danger of accidents Moisture and dirt impair the brake system.

- Brake carefully several times to dry out and remove dirt from the brake pads and the brake discs.

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

9.6 Stop, park

WARNING

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

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

WARNING

Risk of injury People who act without authorization endanger themselves and others.

– Never leave the vehicle unattended while the engine is running.
– Secure the vehicle against unauthorized access.

NOTE

Fire hazard Hot vehicle components pose a fire hazard and explosion risk.

– Do not park the vehicle near materials which are highly flammable or explosive.
– Allow the vehicle to cool down before covering it.

NOTE

Material damage The vehicle may be damaged if parked incorrectly.

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

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

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

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

9.7 Transportation

NOTE

Fire hazard Hot vehicle components pose a fire hazard and explosion risk.

– Do not park the vehicle near materials which are highly flammable or explosive.
– Allow the vehicle to cool down before covering it.

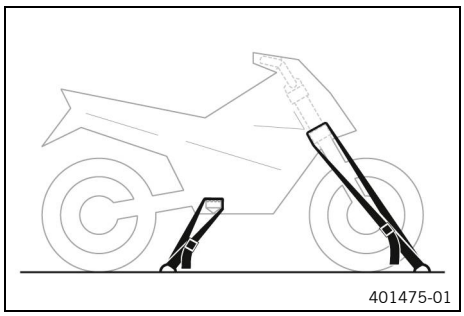
NOTE

Material damage The vehicle may be damaged if parked incorrectly.

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

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

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



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

9.8 Refueling

DANGER

Fire hazard Fuel is highly flammable.

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

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

WARNING

Danger of poisoning Fuel is harmful to health.

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

NOTE

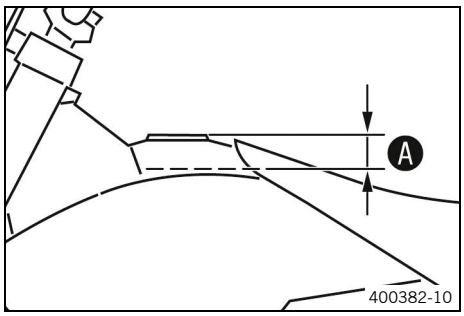
Material damage Inadequate fuel quality can lead to losses in performance and consequential damage.

– Refuel only with clean fuel that meets the specified standards.

NOTE

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

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



– Open the fuel tank cap. (p. 22)
– Fill the fuel tank with fuel no higher than A.

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

Total fuel tank capacity, approx.	
Super unleaded (ROZ 95) (p. 184)	9 l (2.4 liq. gal_{US})

– Close the fuel tank cap. (p. 23)

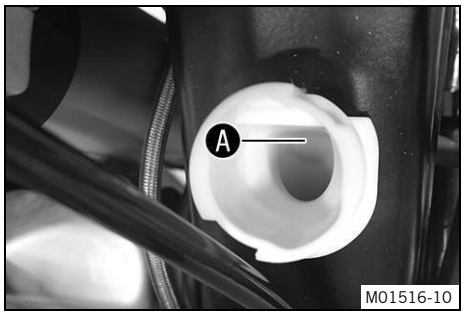
9.9 Adding 2-stroke oil

WARNING

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

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

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



– Open 2-stroke oil tank cap. (p. 23)
– Fill the 2-stroke oil tank up to the lower edge Ⓐ of the filler neck.

Only use 2-stroke oil which is appropriate for separate lubrication.

2-stroke oil tank content approx.	
2-stroke engine oil (p. 185) fully synthetic	0.8 l (0.21 liq. gal_{US})

– Close 2-stroke oil tank cap. (p. 24)

10.1 Service schedule

Any further work that results from the service work must be ordered separately and invoiced separately.
Different service intervals may apply in your country, depending on the local operating conditions.
Individual service intervals and scopes may change in the course of technical developments. The most up-to-date service schedule is available for authorized contractual partners for the electronic proof of service. Your authorized contractual partner will be happy to advise you.

	After one operating hour	After 15 operating hours / Every 15 operating hours	Every 45 operating hours	Every 90 operating hours	Every 24 months
Read out the fault memory using the diagnostics tool.	○	●	●	●	●
Check that the electrical equipment is functioning properly.	○	●	●	●	
Check and charge the 12 V battery.	○	●	●	●	●
Check that the brake pads of the front brake are secured. (p. 105)		●	●	●	●
Check that the brake pads of the rear brake are secured. (p. 110)		●	●	●	●
Check the brake discs. (p. 102)		●	●	●	●
Check the brake lines for damage and tightness.		●	●	●	●
Check the brake fluid level for the front brake. (p. 103)		●	●		
Change the brake fluid for the front brake.				●	●
Check the brake fluid level for the rear brake. (p. 109)		●	●		
Change the brake fluid for the rear brake.				●	●
Check/correct the fluid level of the hydraulic clutch. (p. 99)			●		
Change the hydraulic clutch fluid. (p. 100)				●	●
Check the free travel on the hand brake lever. (p. 102)	○	●	●	●	●
Check the free travel of the brake pedal. (p. 107)		●	●	●	●
Check the idle speed.	○	●	●	●	●
Change the gear oil. (p. 154)	○		●	●	●
Check all hoses (e.g. fuel, cooling, bleeder, drainage, etc.) and boots for cracking, leaks, and correct routing.	○	●	●	●	●
Check the cables for damage and that there are no kinks in the routing.		●	●	●	●
Check that the clutch cables are undamaged, routed without kinks, and set correctly.		●	●	●	●
Check the frame. (p. 97)		●	●	●	
Check the swingarm. (p. 97)		●	●	●	
Check the swingarm bearing for play.			●	●	
Check the heim joint on the shock absorber for play.			●	●	
Check the tire condition. (p. 118)		●	●	●	●
Check the tire pressure. (p. 119)		●	●	●	●
Check the wheel bearing for play.		●	●	●	
Check the hubs.		●	●	●	
Check the rim run-out.	○	●	●	●	

	After one operating hour	After 15 operating hours / Every 15 operating hours	Every 45 operating hours	Every 90 operating hours	Every 24 months
Check the spoke tension. (p. 120)	○	●	●	●	
Check the chain, rear sprocket, engine sprocket, and chain guide. (p. 94)	○	●	●	●	
Check the chain tension. (p. 92)	○	●	●	●	●
Grease all moving parts (e.g. side stand, hand lever, chain, etc.) and check for smooth operation.	○	●	●	●	●
Check the basic throttle valve position sensor setting.		○	●	●	●
Change the spark plug and spark plug connector.			●	●	
Change the fuel filter.				●	●
Check the clutch.			●	●	
Clean the air filter and air filter box. (p. 85)		●	●	●	●
Change the damping material on the main silencer. (p. 87)				●	
Carry out fork service. **(All except HARDENDURO models)**			●	●	
Carry out fork service. **(All HARDENDURO models)**			●	●	
Service the shock absorber.			●	●	
Check all screws, nuts, and hose clamps for a tight fit.	○	●	●	●	●
Change the fuel screen. (p. 147)	○	●	●	●	●
Check the fuel pressure.	○	●	●	●	●
Check the frost protection and coolant level. (p. 133)			●	●	
Check the coolant level. (p. 134)	○	●			
Change the coolant. (p. 137)					●
(All EXC and XC-W HARDENDURO models) Check that the radiator fan is functioning properly.	○	●	●	●	
Check the headlight setting. (p. 130)	○	●	●	●	
Check the steering head bearing play. (p. 76)	○	●			
Lubricate the steering head bearing. (p. 78)			●	●	●
Check the reed valve housing, diaphragm, and intake manifold.			●	●	
Check the starter drive.			●	●	●
Change the oil pump; clean the oil screen.				●	
Clean the oil screen in the oil tank. (p. 151)				●	
Perform minor engine service. (Change the piston. Check the cylinder head. Change the O-rings of the manifold and the cylinder head. Check the cylinder and Z-dimension. Check the exhaust control for function and smooth operation. Check the pressure sensor flange for cracks and damage. Remove combustion residues from the exhaust port.)			●	●	
Perform major engine service including removing and installing the engine. (Change the connecting rod, big (bottom) end bearing and crankshaft pin. Check the transmission and shift mechanism. Replace all engine bearings, radial shaft seals and gaskets.)				●	
Final check: check the operating safety of the vehicle and take for a test ride.	○	●	●	●	●

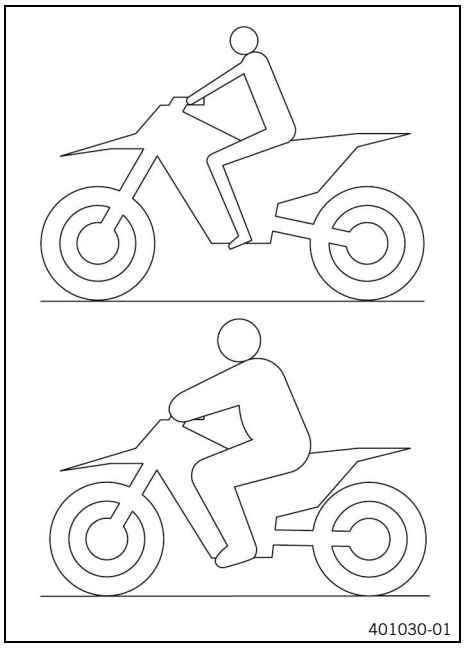
	Every 24 months	Every 90 operating hours	Every 45 operating hours	After 15 operating hours / Every 15 operating hours	After one operating hour
Read out the fault memory after the test ride using the diagnostics tool.	○	•	•	•	•
Enter the electronic proof of service in the contractual partner portal.	○	•	•	•	•

○ One-time interval

• Periodic interval

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

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



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

Standard rider's weight	75 kg ... 85 kg (165.3 lb ... 187.4 lb)

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

11.2 Compression damping of the shock absorber

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

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

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

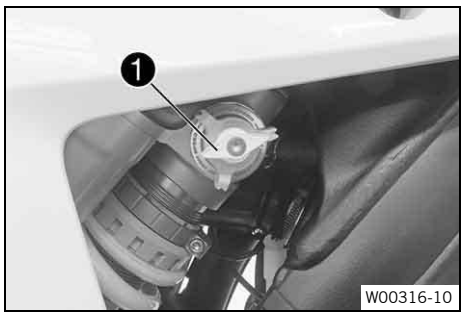
The low-speed compression has an effect, for example, when riding over long bumps: the rear wheel suspension compresses slowly.

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

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

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

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



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

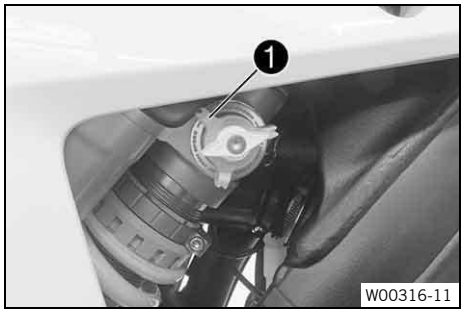
Low-speed compression damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks

Note
Turning clockwise increases damping; turning anticlockwise reduces damping.

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

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

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



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

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

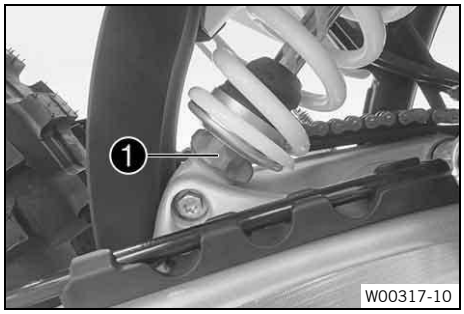
Note
Turning clockwise increases damping; turning anticlockwise reduces damping.

11.5 Adjusting the rebound damping of the shock absorber

CAUTION

Risk of injury Parts of the shock absorber will move erratically if the shock absorber is detached incorrectly. The shock absorber is filled with highly compressed nitrogen.

– Please follow the description provided.



– Turn adjuster ❶ clockwise until the last noticeable click.
– Turn counterclockwise by the number of clicks corresponding to the shock absorber type.

Rebound damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks

Note

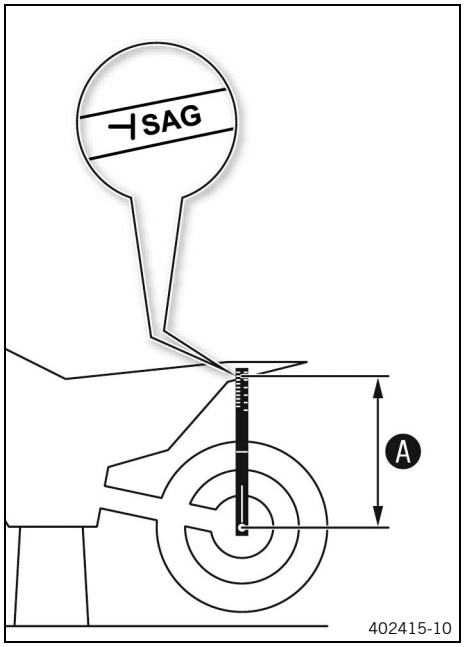
Turning clockwise increases damping; turning anticlockwise reduces damping on rebound.

11.6 Measuring the dimension of the unloaded rear wheel

Preparatory work

– Raise the motorcycle with a lift stand. (p. 68)

Main work



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

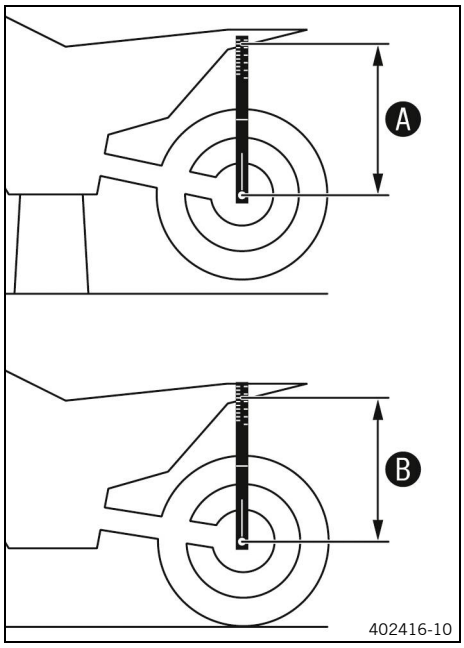
Sag scale (00029090100)
Pin, sag scale (00029990010)

– Note the value as dimension Ⓐ.

Reworking

– Remove the motorcycle from the lift stand. (p. 68)

11.7 Checking the static sag of the shock absorber



– Determine rear wheel dimension A. (p. 59)
– Hold the motorcycle upright with aid of an assistant.
– Measure the distance again between the rear axle and marking **SAG** on the rear fender using the sag scale.
– Note the value as dimension B.

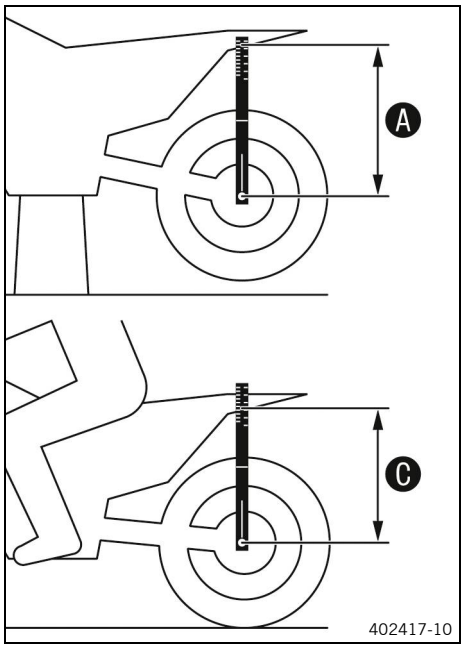
Note
The static sag is the difference between measurements A and B.

– Check the static sag.

Static sag	38 mm (1.50 in)

» If the static sag is more or less than the specified value:
– Adjust the preload for the shock absorber. (p. 61)

11.8 Checking the rider sag of the shock absorber



– Determine rear wheel dimension A. (p. 59)
– With another person holding the motorcycle, sit on the saddle with full protective clothing in a normal sitting position (feet on footrests) and bounce up and down a few times.
✓ The rear wheel suspension levels out.
– With the help of another person, remeasure the distance between the rear axle and marking **SAG** on the rear fender using the sag scale.
– Note the value as dimension C.

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

– Check the rider sag.

Rider sag	110 mm (4.33 in)

» If the rider sag differs from the specified measurement:
– Adjust the rider sag. (p. 62)

11.9 Adjusting the preload for the shock absorber

CAUTION

Risk of injury Parts of the shock absorber will move erratically if the shock absorber is detached incorrectly. The shock absorber is filled with highly compressed nitrogen.

– Please follow the description provided.

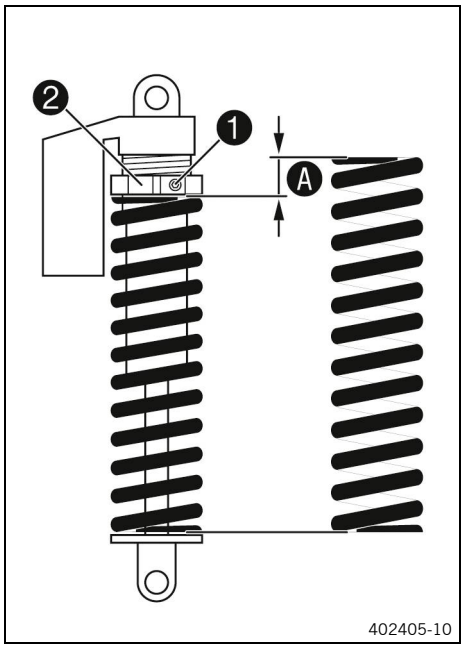
Note

Note the current adjustment before changing the spring preload - e.g. measure the spring length.

Preparatory work

– Raise the motorcycle with a lift stand. (p. 68)
– Remove the seat. (p. 81)
– Remove the frame protector. (p. 82)
– Remove the muffler. (p. 86)
– Remove the shock absorber. (p. 79)
– After removing the shock absorber, clean it thoroughly.

Main work



– Loosen screw ❶.
– Turn adjusting ring ❷ until the spring is no longer under tension.

Hook wrench (90129051000)

Note

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

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

Preload	7 mm (0.28 in)

Note

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

– Tighten screw ❶.

Screw, shock absorber adjusting ring	
M5	5 Nm (3.7 ft·lb$_f$)

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

Reworking

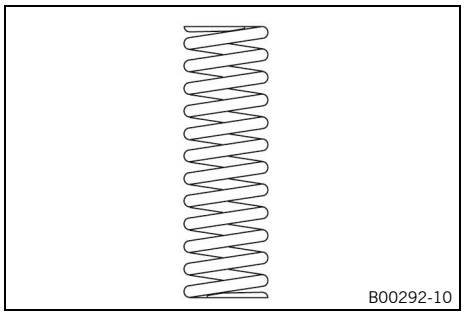
- Install the shock absorber. (p. 80)
- Install the muffler. (p. 86)
- Install the frame protector. (p. 83)
- Mount the seat. (p. 82)
- Remove the motorcycle from the lift stand. (p. 68)

11.10 Adjusting the rider sag

Preparatory work

- Raise the motorcycle with a lift stand. (p. 68)
- Remove the seat. (p. 81)
- Remove the frame protector. (p. 82)
- Remove the muffler. (p. 86)
- Remove the shock absorber. (p. 79)
- After removing the shock absorber, clean it thoroughly.

Main work



- Select and mount a suitable spring.

Spring rate	
Weight of rider: 65 kg ... 75 kg (143.3 lb ... 165.3 lb)	66 N/mm (376.9 lb_f/in)
Weight of rider: 75 kg ... 85 kg (165.3 lb ... 187.4 lb)	69 N/mm (394.0 lb_f/in)
Weight of rider: 85 kg ... 95 kg (187.4 lb ... 209.4 lb)	72 N/mm (411.1 lb_f/in)

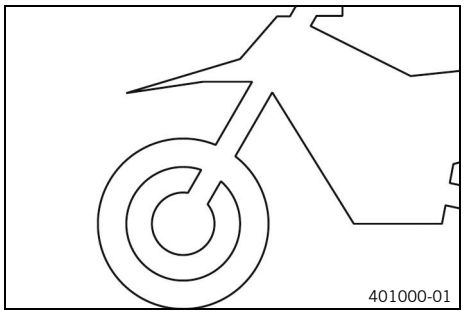
Note
The spring rate is shown on the outside of the spring.

Reworking

- Install the shock absorber. (p. 80)
- Install the muffler. (p. 86)
- Install the frame protector. (p. 83)
- Mount the seat. (p. 82)
- Remove the motorcycle from the lift stand. (p. 68)
- Check the static sag of the shock absorber. (p. 60)
- Check the rider sag of the shock absorber. (p. 60)
- Adjust the rebound damping of the shock absorber. (p. 59)

11.11 Checking the basic setting of the fork

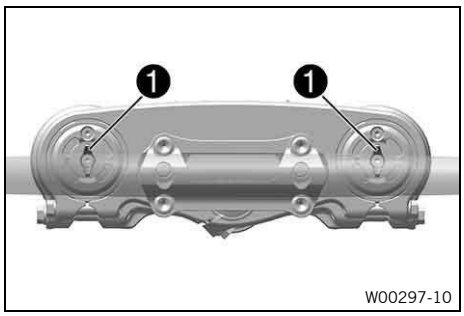
Note
For various reasons, no exact rider sag can be determined for the fork.


401000-01

- As with the shock absorber, smaller differences in the rider's weight can be compensated by the spring preload.
- However, if the fork frequently bottoms out (hard end stop on compression), harder springs must be fitted to avoid damage to the fork and frame.
- If the fork feels unusually hard after extended periods of operation, the fork legs need to be bled.

11.12 Adjusting the compression damping of the fork

Note
The hydraulic compression damping determines the fork suspension behavior.



W00297-10

(All except HARDENDURO models)

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

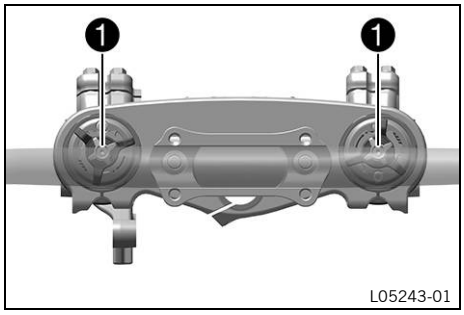
Note
Adjusters ❶ **COMP** are located at the top end of the fork legs.

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

Compression damping	
Comfort	17 clicks
Standard	15 clicks
Sport	7 clicks

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

(All HARDENDURO models)



L05243-01

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

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

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

Compression damping	
Comfort	17 clicks
Standard	15 clicks
Sport	7 clicks

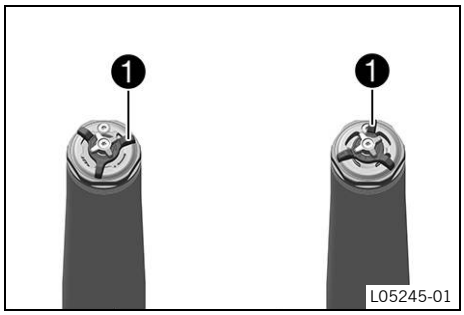
Note
Turning clockwise increases damping; turning counterclockwise reduces damping during compression.

11.13 Adjusting the spring preload of the fork (All HARDENDURO models)

Preparatory work

– Raise the motorcycle with a lift stand. (p. 68)

Main work



– Turn preload adjuster ❶ all the way counterclockwise.

Make the adjustment by hand only. Do not use a tool.

Note
Make the same adjustment on both fork legs.

– Turn the preload adjuster clockwise.

Spring preload – preload adjuster	0 turns (0°)

✓ The preload adjuster engages noticeably with each turn.

Note
The default setting is 0 revolutions. Adjust the spring preload individually as required.

Only adjust the spring preload in full turns, otherwise the preload will not engage.

Turn clockwise to increase the spring preload; turn counterclockwise to reduce the spring preload.

Adjusting the spring preload has no influence on the absorption setting of the rebound.

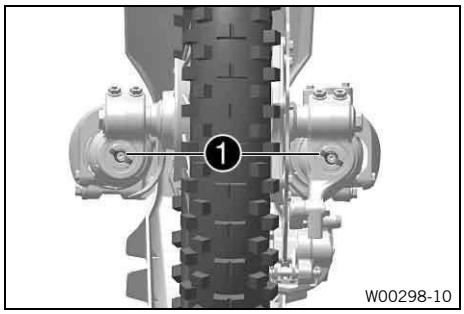
Basically, however, you should set the rebound damping higher with a higher spring preload.

Reworking

– Remove the motorcycle from the lift stand. (p. 68)

11.14 Adjusting the rebound damping of the fork

Note
The hydraulic rebound damping determines the fork suspension behavior.



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

Note
Adjusters ❶ **REB** are located at the bottom end of the fork legs.

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

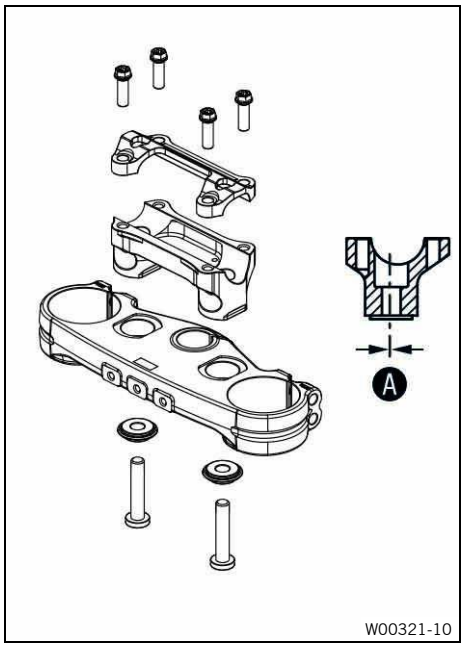
Rebound damping **(All except HARDENDURO models)**	
Comfort	19 clicks
Standard	17 clicks
Sport	9 clicks

Rebound damping **(All HARDENDURO models)**	
Comfort	19 clicks
Standard	17 clicks
Sport	9 clicks

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

11.15 Handlebar position

(All standard models)

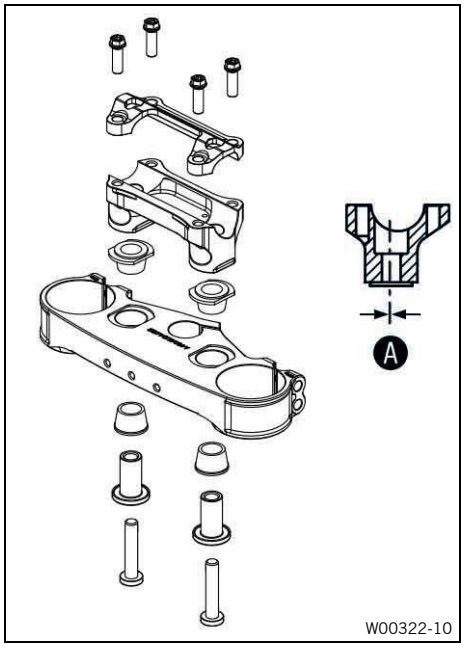


The holes on the handlebar support are placed at a distance of Ⓐ from the center.

Hole distance Ⓐ	3.5 mm (0.138 in)

The handlebar mount can be mounted in two different positions.

(All special models)



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

Hole distance Ⓐ	3.5 mm (0.138 in)

The handlebar mount can be mounted in two different positions.

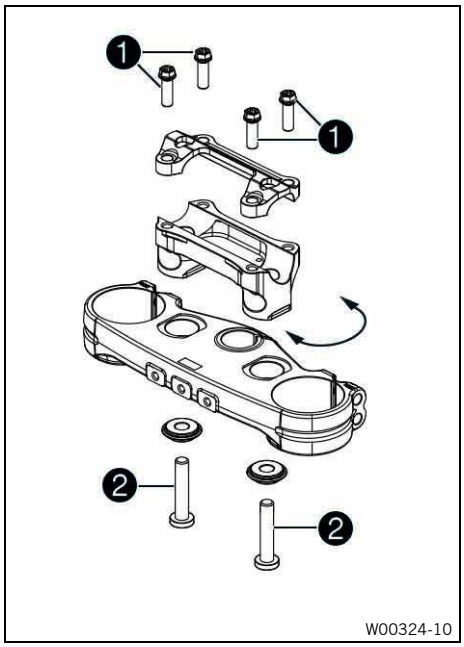
11.16 Adjusting the handlebar position

WARNING

Danger of accidents A repaired handlebar poses a safety risk.

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

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



(All standard models)

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

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

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

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

Position the handlebar support so that it is even.

– Position the handlebar.

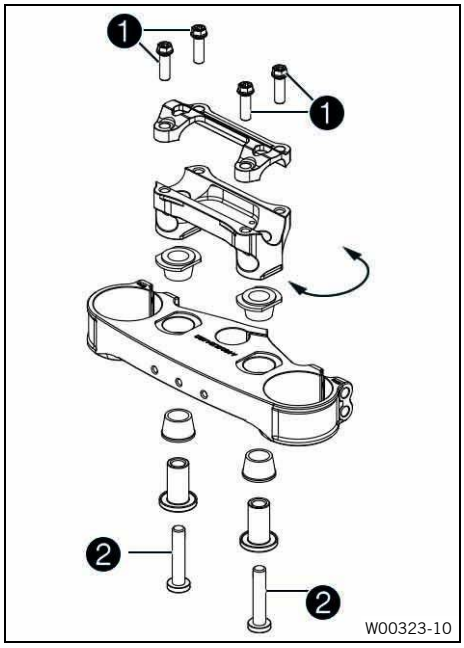
Make sure the cables and wiring are positioned correctly.

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

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

Make sure the installed gap widths are even.

(All special models)



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

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

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

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

Position the handlebar support so that it is even.

– Position the handlebar.

Make sure the cables and wiring are positioned correctly.

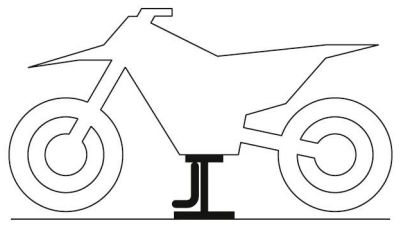
– Position the handlebar clamp.
– Mount screws ❶ and tighten evenly.

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

Make sure the installed gap widths are even.

◀

12.1 Raising the motorcycle with a lift stand


401942-01

NOTE

Material damage The vehicle may be damaged if parked incorrectly.

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

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

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

– Raise the motorcycle at the frame underneath the engine.

Lift stand (78129955100)

✓ Neither wheel is in contact with the ground.

– Secure the motorcycle against falling over.

12.2 Removing the motorcycle from the lift stand

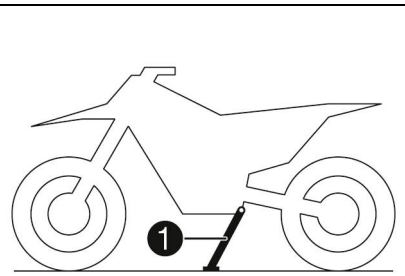
NOTE

Material damage The vehicle may be damaged if parked incorrectly.

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

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

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



401943-10

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

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

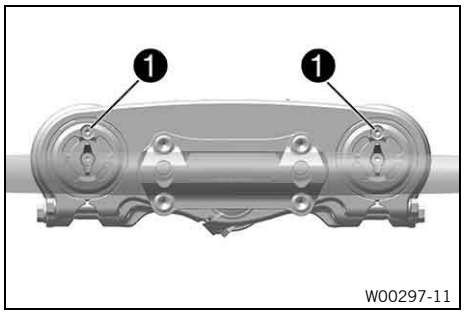
12.3 Bleeding the fork legs

Preparatory work

– Raise the motorcycle with a lift stand. (p. 68)

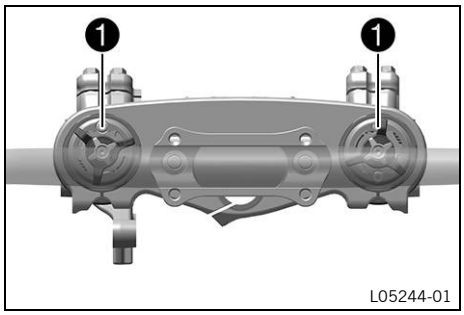
Main work

(All except HARDENDURO models)



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

(All HARDENDURO models)



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

Reworking

– Remove the motorcycle from the lift stand. (p. 68)

12.4 Cleaning the dust boots of the fork legs

Preparatory work

– Raise the motorcycle with a lift stand. (p. 68)
– Remove the fork protector. (p. 70)

Main work



– Push dust boot 1 downward on both fork legs.

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

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

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

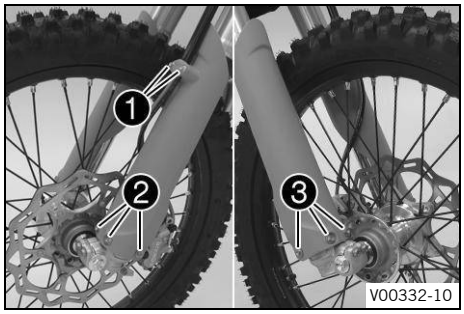
Universal oil spray (p. 185)

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

Reworking

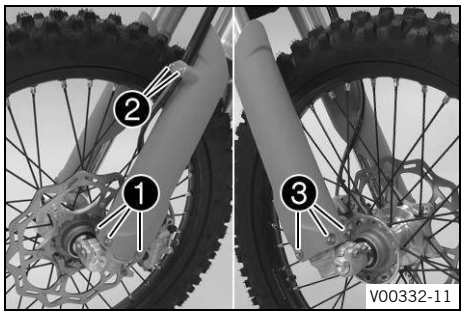
– Install the fork protector. (p. 70)
– Remove the motorcycle from the lift stand. (p. 68)

12.5 Removing the fork protector



– Remove screw 1 and take off the clamp.
– Remove screws 2 and take off the left fork protector.
– Remove screws 3 and take off the right fork protector.

12.6 Installing the fork protector



– Position the fork protector on the left fork leg.
– Mount and tighten screws 1.

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

– Position the brake line, the wiring harness, and the clamp.
– Mount and tighten screws 2.

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

– Position the fork protector on the right fork leg.
– Mount and tighten screws 3.

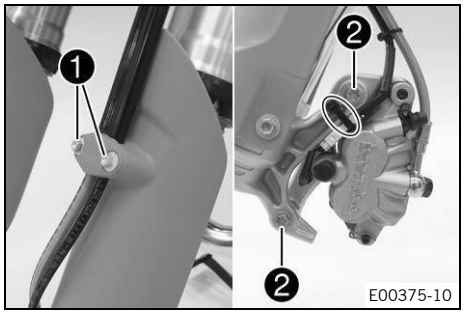
Remaining screws on chassis	
M6	10 Nm (7.4 ft·lb$_f$)

12.7 Removing the fork legs

Preparatory work

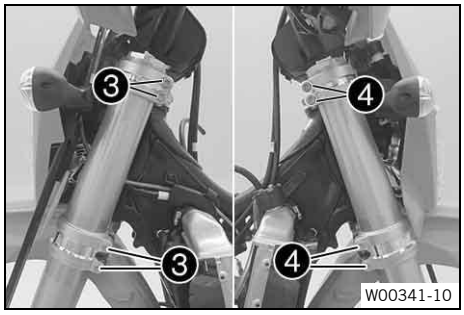
– Raise the motorcycle with a lift stand. (p. 68)
– Remove the front wheel. (p. 114)

Main work



– Remove screw 1 and take off the clamp.
– Remove the cable tie.
– Remove screws 2 and take off the brake caliper.
– Allow the brake caliper and the brake line to hang loosely to the side.

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

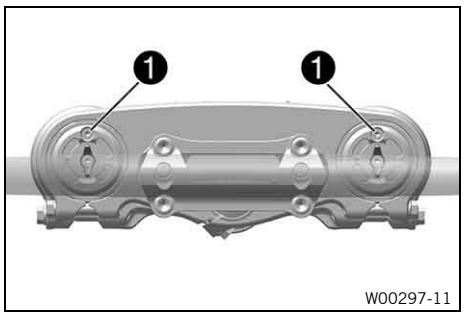


– Loosen screws 3.
– Remove the left fork leg.
– Loosen screws 4.
– Remove the right fork leg.

12.8 Installing the fork legs

Main work

(All except HARDENDURO models)



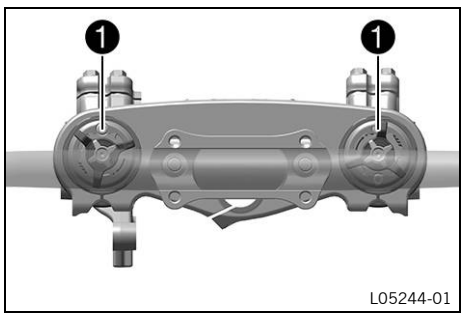
– Position the fork legs.
  ✓ Bleeder screws 1 are positioned toward the front.

Note

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

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

(All HARDENDURO models)

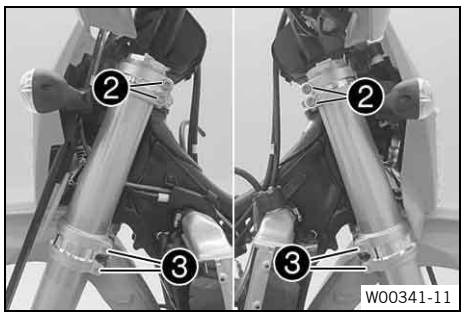


– Position the fork legs.
  ✓ Bleeder screws 1 are positioned toward the front.

Note

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

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

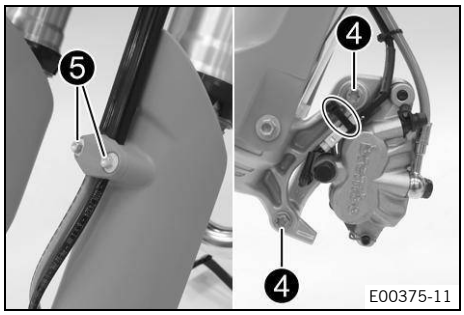


– Tighten screws ❷.

Screw, top triple clamp	
(All standard models) M8	20 Nm (14.8 ft·lb$_f$)
Screw, top triple clamp	
(All special models) M8	17 Nm (12.5 ft·lb$_f$)

– Tighten screws ❸.

Screw, bottom triple clamp	
(All standard models) M8	15 Nm (11.1 ft·lb$_f$)
Screw, bottom triple clamp	
(All special models) M8	12 Nm (8.9 ft·lb$_f$)



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

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

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

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

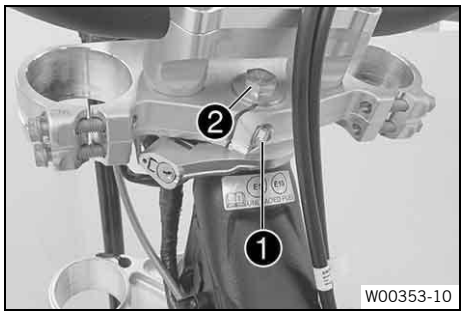
Reworking

– Install the front wheel. (p. 115)

12.9 Removing the lower triple clamp

Preparatory work

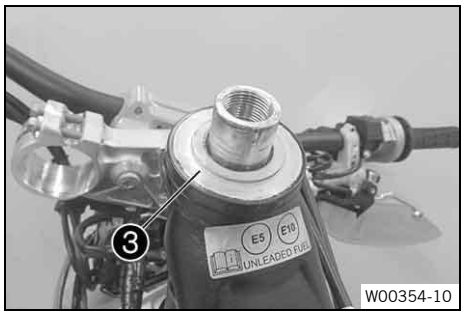
– Raise the motorcycle with a lift stand. (p. 68)
– Remove the front wheel. (p. 114)
– Remove the fork legs. (p. 71)
– Remove the headlight mask with the headlight. (p. 126)
– Remove the front top fender. (p. 78)
– Remove the seat. (p. 81)
– Remove the fuel tank. (p. 87)
– Remove the handlebar pad.



Main work

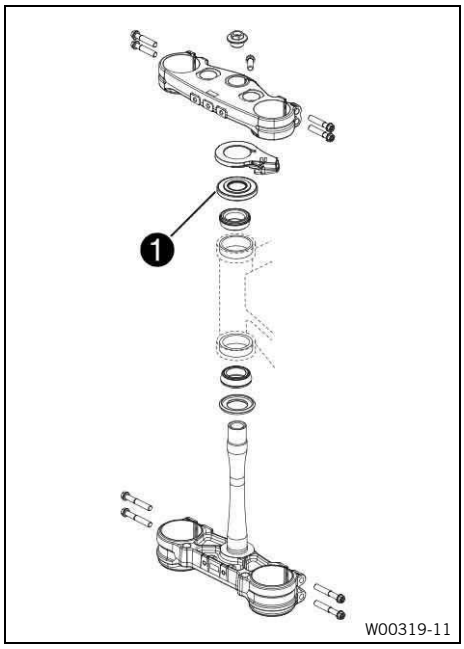
– Loosen screw ❶.
– Remove screw ❷.
– Take off the upper triple clamp with the handlebar and hang them to the side.

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



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

12.10 Installing the lower triple clamp

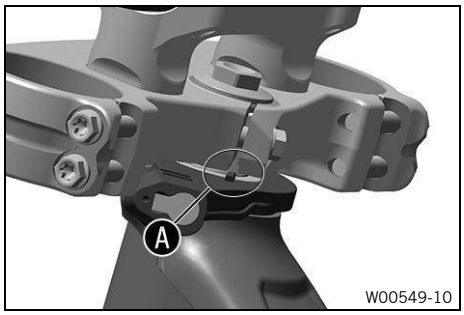


Main work

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

High viscosity grease (p. 186)

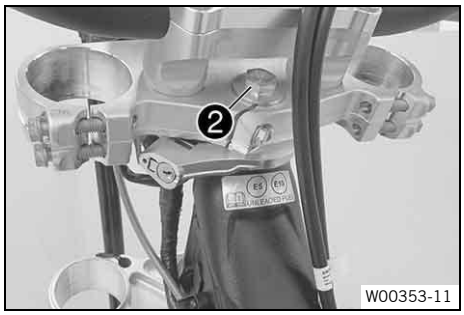
– Insert the lower triple clamp with the steering stem.
– Mount the upper steering head bearing.
– Push on protective ring ❶.



(All EXC-EU models)

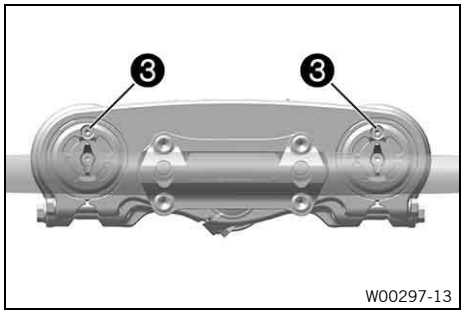
– Make sure the steering lock in area Ⓐ is positioned correctly.

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



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

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



(All except HARDENDURO models)

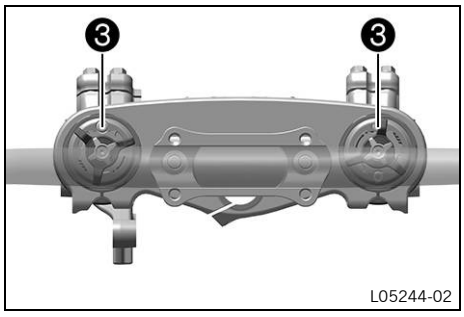
– Position the fork legs.

✓ Bleeder screws ❸ are positioned toward the front.

Note

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

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



(All HARDENDURO models)

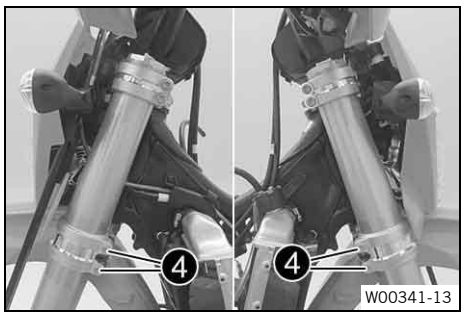
– Position the fork legs.

✓ Bleeder screws ❸ are positioned toward the front.

Note

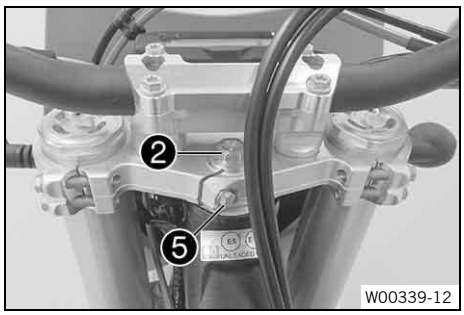
Grooves are milled into the side of the upper end of the fork legs. The second milled groove (from the top) must be flush with the upper edge of the upper triple clamp.

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



– Tighten screws ❹.

Screw, bottom triple clamp	
(All standard models) M8	15 Nm (11.1 ft·lb$_f$)
Screw, bottom triple clamp	
(All special models) M8	12 Nm (8.9 ft·lb$_f$)

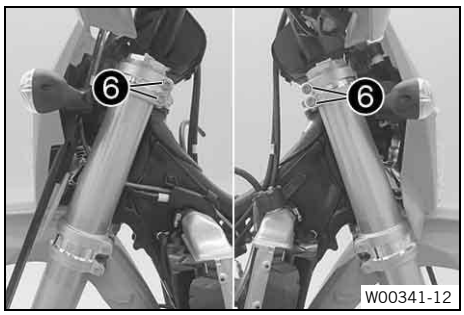


– Tighten screw ❷.

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

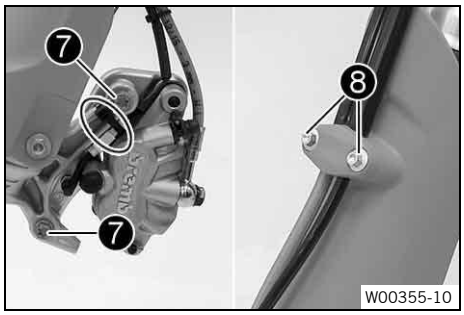
– Remove screw ❺.
– Mount and tighten screw ❺.

Screw, upper steering stem	
(All standard models) M8	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**
Screw, upper steering stem	
(All special models) M8	17 Nm (12.5 ft·lb$_f$) **Loctite® 243**



– Tighten screws ❻.

Screw, top triple clamp	
(All standard models) M8	20 Nm (14.8 ft·lb$_f$)
Screw, top triple clamp	
(All special models) M8	17 Nm (12.5 ft·lb$_f$)



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

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

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

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

Reworking

- Mount the handlebar pad.
- Install the front top fender. (p. 78)
- Install the front wheel. (p. 115)
- Install the headlight mask with the headlight. (p. 127)
- Check the wiring harness, cables, and brake and clutch lines for freedom of movement and correct routing.
- Check the steering head bearing play. (p. 76)
- Remove the motorcycle from the lift stand. (p. 68)
- Install the fuel tank. (p. 89)
- Mount the seat. (p. 82)
- Check the headlight setting. (p. 130)

12.11 Checking the steering head bearing play

WARNING

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

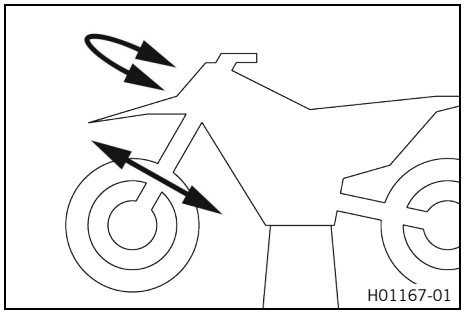
- Correct incorrect steering head bearing play immediately.

Note

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

Preparatory work

- Raise the motorcycle with a lift stand. (p. 68)



Main work

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

  Play should not be detectable on the steering head bearing.

  » If there is detectable play:
  - Adjust the steering head bearing play. (p. 77)
- Move the handlebar back and forth over the entire steering range.

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

  » If detent positions are detected:
  - Adjust the steering head bearing play. (p. 77)
  - Check the steering head bearing and adjust if necessary.
- Check the steering stop bolts for correct adjustment and locking.

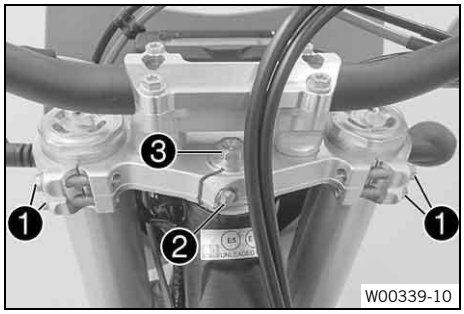
Reworking

– Remove the motorcycle from the lift stand. (p. 68)

12.12 Adjusting the steering head bearing play

Preparatory work

– Raise the motorcycle with a lift stand. (p. 68)



Main work

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

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

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

Screw, top triple clamp	
(All standard models) M8	20 Nm (14.8 ft·lb$_f$)
Screw, top triple clamp	
(All special models) M8	17 Nm (12.5 ft·lb$_f$)

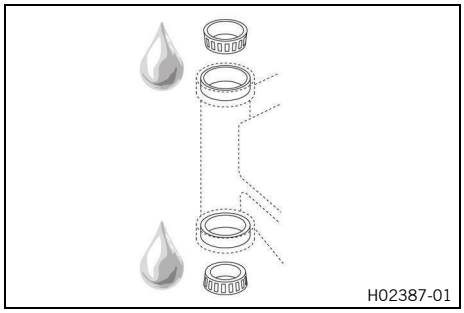
– Mount and tighten screw ❷.

Screw, upper steering stem	
(All standard models) M8	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**
Screw, upper steering stem	
(All special models) M8	17 Nm (12.5 ft·lb$_f$) **Loctite® 243**

Reworking

– Check the steering head bearing play. (p. 76)
– Remove the motorcycle from the lift stand. (p. 68)

12.13 Lubricating the steering head bearing



– Remove the lower triple clamp. (p. 72)
– Install the lower triple clamp. (p. 73)

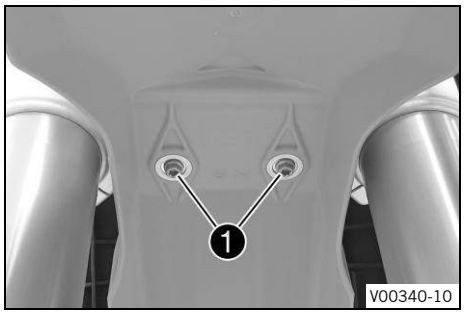
Note
The steering head bearing is cleaned and lubricated in the course of removal and installation of the lower triple clamp.

12.14 Removing the front top fender

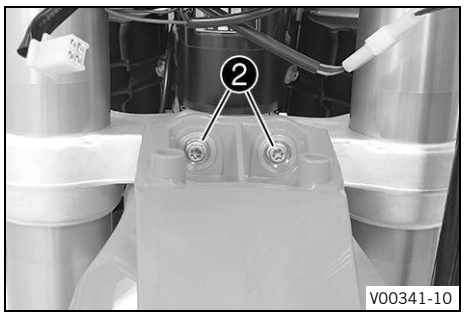
Preparatory work

– Remove the headlight mask with the headlight. (p. 126)

Main work



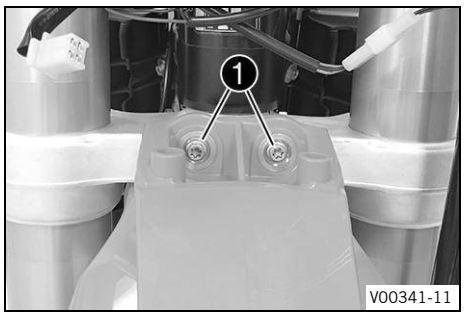
– Remove ❶ screws.



– Remove ❷ screws.
– Remove the front fender.

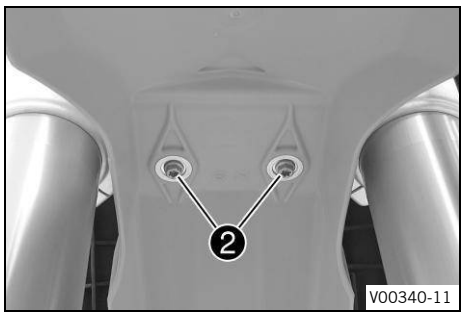
12.15 Installing the front top fender

Main work



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

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



– Mount and tighten screws ❷.

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

Reworking

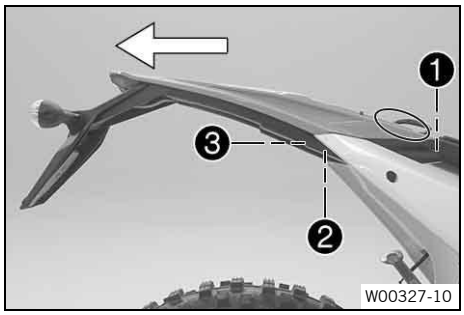
– Install the headlight mask with the headlight. 📖 (p. 127)
– Check the headlight setting. 📖 (p. 130)

12.16 Removing the shock absorber

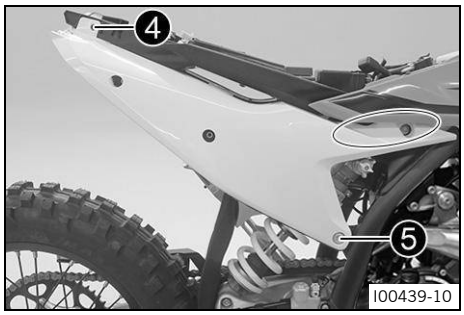
Preparatory work

– Raise the motorcycle with a lift stand. 📖 (p. 68)
– Remove the seat. 📖 (p. 81)
– Remove the frame protector. 📖 (p. 82)
– Remove the muffler. 📖 (p. 86)

Main work

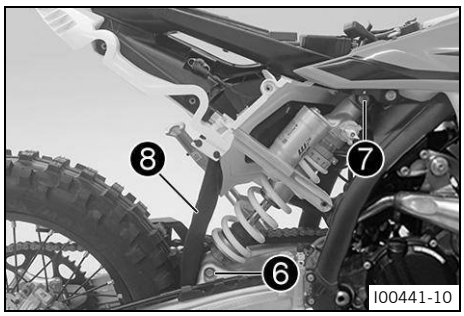


– Remove screws ❶.
– Disconnect the tail light and turn signal plug-in connections.
– Remove screws ❷ and screws ❸.
– Take off the license plate holder with tail light toward the rear.



– Remove screw ❹.
– Remove screw ❺.
– Carefully take off the right side cover to the side.

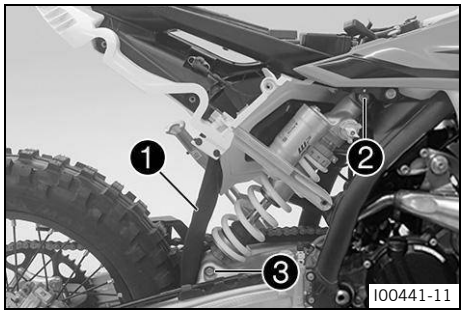
Note
The right side cover also engages behind the spoiler.



– Remove screw ❻ and lower the rear wheel with the link fork as far as possible without blocking the rear wheel.
– Secure the rear wheel in this position.
– Remove screw ❼.
– Push splash protector ❽ to the side and remove the shock absorber.

12.17 Installing the shock absorber

Main work



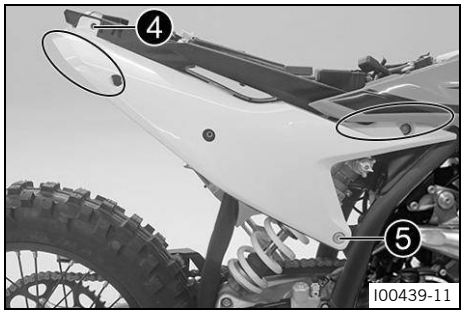
– Push splash protector ❶ to the side and position the shock absorber.
– Mount and tighten screw ❷.

Top shock absorber screw	
M12	80 Nm (59.0 ft·lb$_f$) **Loctite® 2701**

– Mount and tighten screw ❸.

Bottom shock absorber screw	
M12	80 Nm (59.0 ft·lb$_f$) **Loctite® 2701**

Note
The heim joint for the shock absorber on the link fork is Teflon coated. It must not be lubricated with grease, nor with any other lubricants. Lubricants dissolve the Teflon coating, thereby drastically reducing the service life.

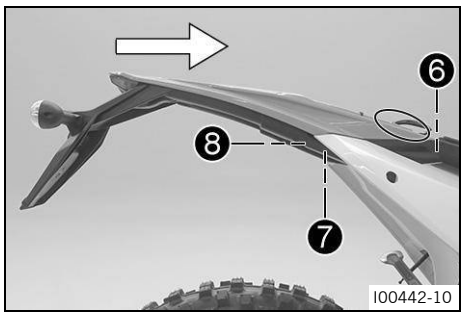


– Position the right side fairing on the tail section.
– Position the right side fairing correctly behind the spoiler.

Ensure that it is correctly seated on the tail section.

– Mount screw ❹ and screw in hand-tight.
– Mount and tighten screw ❺.

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



– Slide the license plate holder with tail light carefully onto the tail section.

Pay attention to cable routing.

– Mount and tighten screws 6.

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

– Plug the tail light and turn signals together and stow away.
– Mount and tighten screws 7.

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

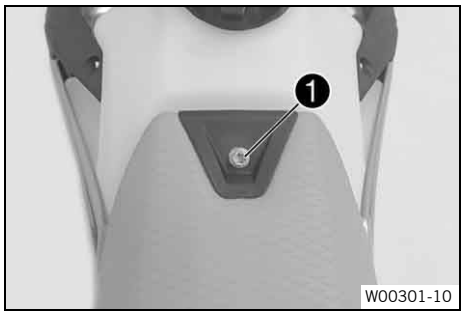
– Mount and tighten screws 8.

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

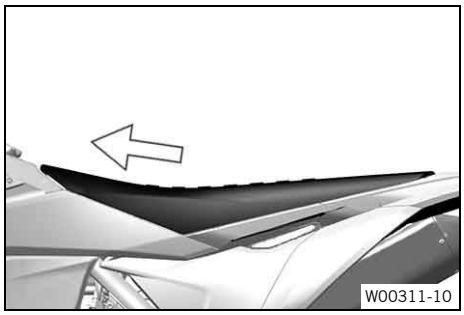
Reworking

– Install the muffler. (p. 86)
– Install the frame protector. (p. 83)
– Mount the seat. (p. 82)
– Remove the motorcycle from the lift stand. (p. 68)

12.18 Removing the seat

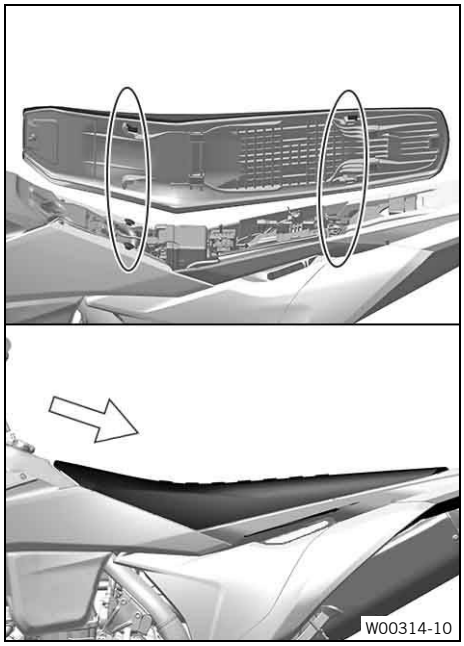


– Remove screw 1.

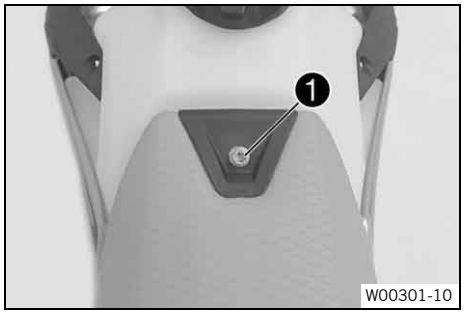


– Raise seat, pull it toward the fuel tank and take it off.

12.19 Mounting the seat



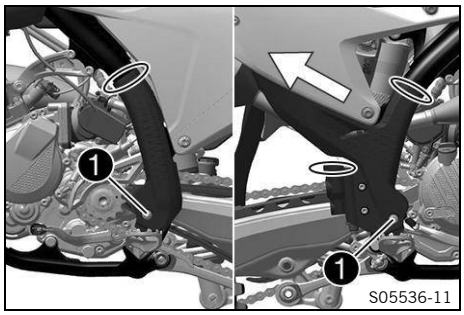
– Hook the front of the seat onto the two collar bushings of the fuel tank, lower it at the rear and push it back.
  ✓ The holding lugs engage in the recesses at the back.
– Make sure the seat is latched in place correctly.



– Mount and tighten screw 1.

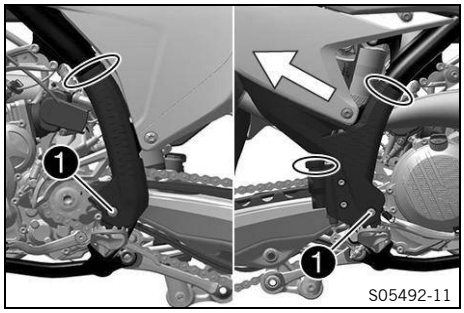
Screw, seat installation	
M6	8 Nm (5.9 ft·lb$_f$)

12.20 Removing the frame protector



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

12.21 Installing the frame protector



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

Screw, frame protector	
M5	3 Nm (2.2 ft·lb$_f$)

– Secure the frame protector with cable ties.

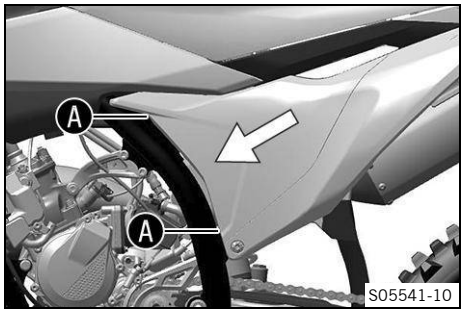
Turn the head of the cable tie so far back that it does not touch any other components.

12.22 Removing air filter box cover

Condition: Air filter box cover secured

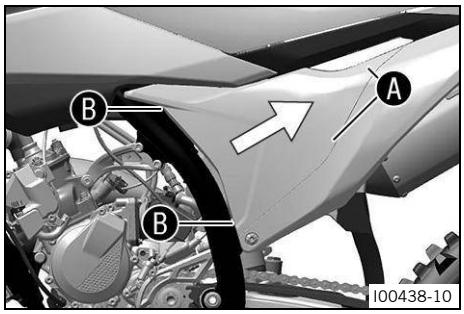


– Remove screw ❶.



– Pull off the air filter box cover in areas Ⓐ and push it sideways and forward.
– Take off the air filter box cover.

12.23 Installing air filter box cover



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

Condition: Air filter box cover secured



– Mount and tighten screw 1.

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

12.24 Removing the air filter

NOTE

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

Dust and dirt can enter the engine if there is no air filter or if the air filter is mounted incorrectly.

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

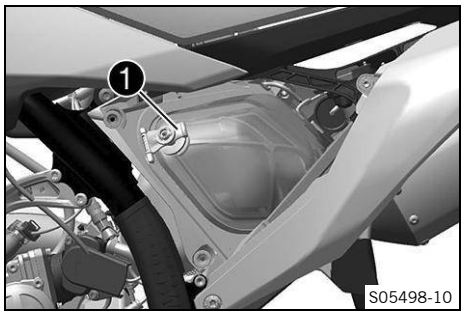
NOTE

Environmental hazard Hazardous substances cause environmental damage.

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

Preparatory work

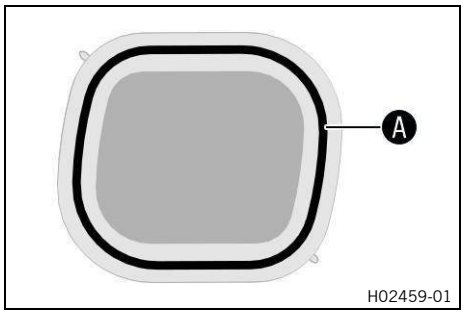
– Remove air filter box cover. (p. 83)



Main work

– Detach tab 1.
– Remove air filter with air filter support.
– Remove the air filter with the air filter support.

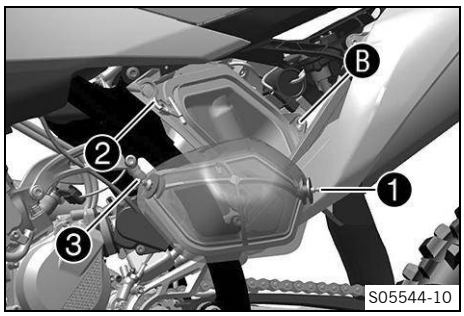
12.25 Installing the air filter



Main work

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

Long-life grease (p. 185)



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

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

Reworking

– Install the air filter box cover. (p. 83)

12.26 Cleaning the air filter and air filter box

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

Preparatory work

– Remove air filter box cover. (p. 83)
– Remove the air filter. (p. 84)

Main work



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

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

Air filter cleaning agent (p. 190)

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

Oil for foam air filter (p. 186)

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

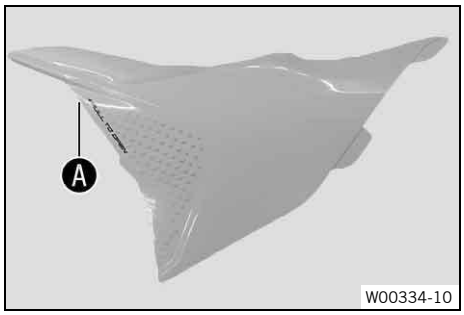
Reworking

– Install the air filter. (p. 84)
– Install the air filter box cover. (p. 83)

12.27 Preparing the air filter box cover for securing

Preparatory work

– Remove air filter box cover. (p. 83)



Main work

– Drill a hole at marking A.

Diameter	6 mm (0.24 in)

Reworking

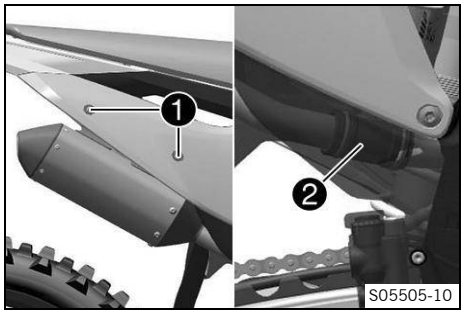
– Install the air filter box cover. (p. 83)

12.28 Removing the muffler

WARNING

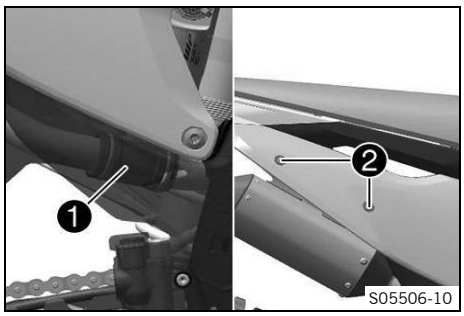
Danger of burns The exhaust system gets hot when the vehicle is driven.

– Allow the exhaust system to cool down before performing any work on the vehicle.



– Remove screws 1.
– Pull off the silencer with exhaust sleeve 2 and the spring rings from the header.

12.29 Installing muffler



– Mount the silencer with exhaust sleeve 1 and the spring rings.
– Mount and tighten screws 2.

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

12.30 Changing the damping material on the main silencer

WARNING

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

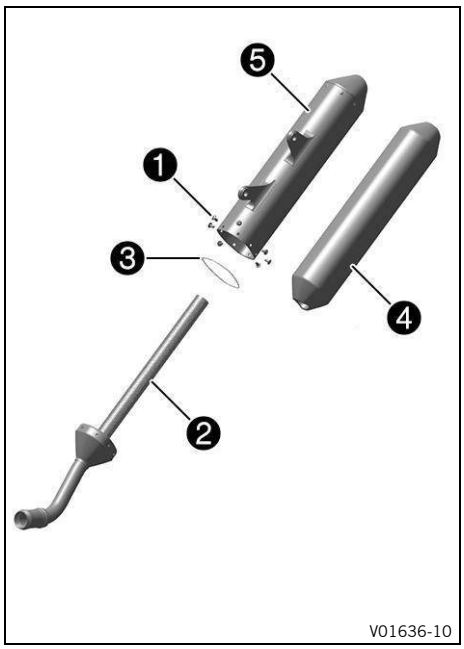
– Allow the exhaust system to cool down before performing any work on the vehicle.

Note

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

Preparatory work

– Remove the muffler. (p. 86)



Main work

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

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

Reworking

– Install the muffler. (p. 86)

12.31 Removing the fuel tank

DANGER

Fire hazard Fuel is highly flammable.

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

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

WARNING

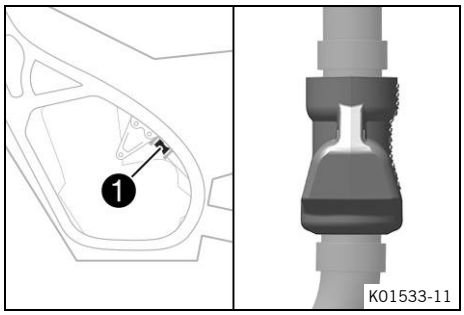
Danger of poisoning Fuel is harmful to health.

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

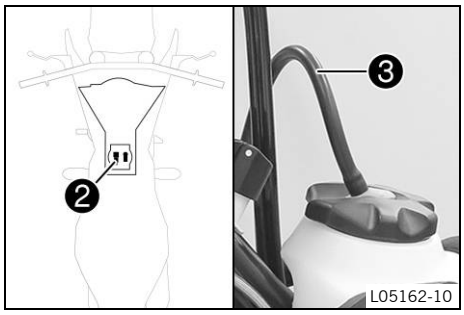
Preparatory work

- Remove the seat. (p. 81)

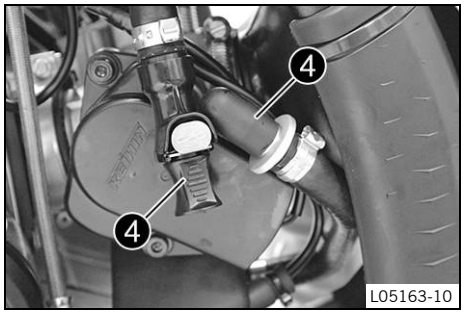
Main work



- Remove protection cap ❶ of the fuel line.



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



- Clean the quick release coupling thoroughly with compressed air.

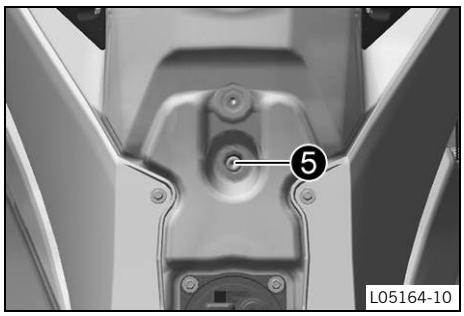
  No dirt should enter into the fuel line. Dirt in the fuel line clogs the injector!

- Disconnect the quick-lock coupling.

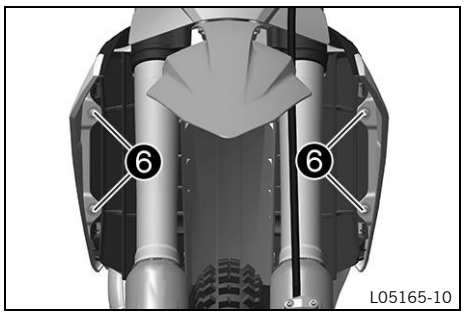
  Note
  Remaining fuel may flow out of the fuel hose.

- Mount wash cap set ❹.

  Wash cap set (81212016100)



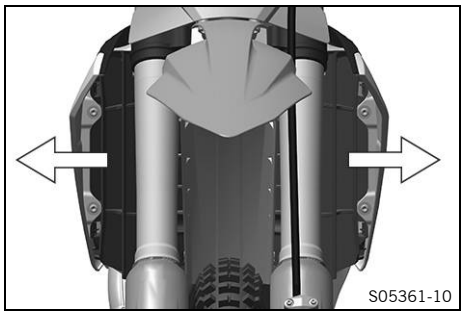
– Remove screw ❺ with the rubber bushing.



– Remove screws ❻ with collar bushings.

(All models except US)

– Hang the horn and horn bracket to one side.



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

12.32 Installing the fuel tank

DANGER

Fire hazard Fuel is highly flammable.

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

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

WARNING

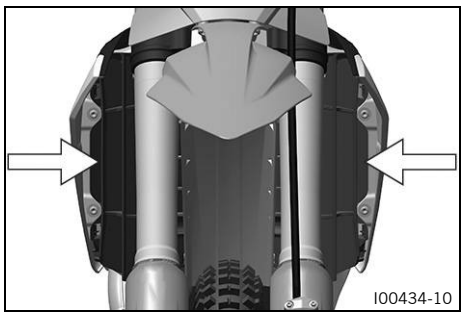
Danger of poisoning Fuel is harmful to health.

– Do not allow fuel to come into contact with skin, eyes, or clothing.
– Consult a doctor immediately if fuel has been ingested.
– Do not inhale fuel vapors.
– Rinse the affected area immediately with plenty of water in the event of contact with skin.

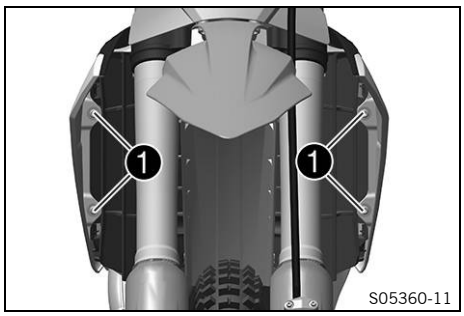
– Rinse eyes thoroughly with water and consult a doctor immediately if fuel comes into contact with eyes.
– If fuel spills on to your clothing, change the clothing.
– Store fuel properly in a suitable container and keep out of the reach of children.

Main work

– Check the throttle cable routing. (p. 97)



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

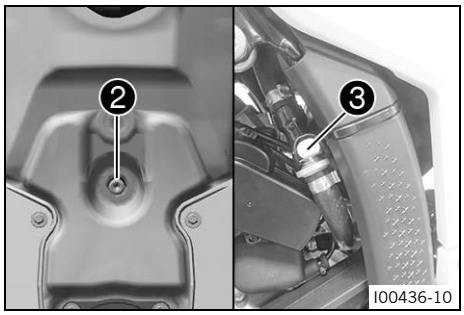


– Mount and tighten screws ❶ with the collar bushings.

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

(All models except US)

– Position the horn with the horn bracket.



– Mount and tighten screw ❷ with the rubber bushing.

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

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

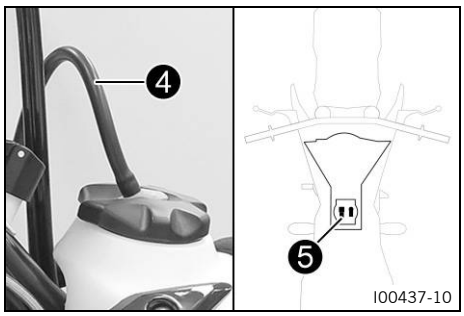
Dirt must not enter into the fuel line. Dirt in the fuel line clogs the injector!

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

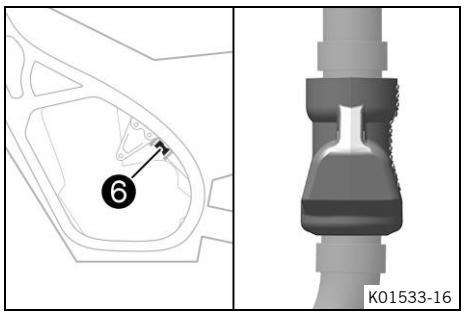
Silicone spray (p. 186)

– Join quick release coupling ❸.

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



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

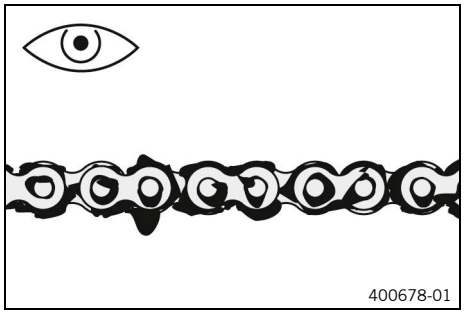


– Mount protection cap ❻ of the fuel line.

Reworking

– Mount the seat. (p. 82)

12.33 Checking the chain for contaminant



– Check the chain for coarse dirt accumulation.
  » If the chain is very dirty:
    – Clean the chain. (p. 91)

12.34 Cleaning the chain

WARNING

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

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

WARNING

Danger of accidents Lubricants on the tires reduces the road grip.

– Remove lubricants from the tires using a suitable cleaning agent.

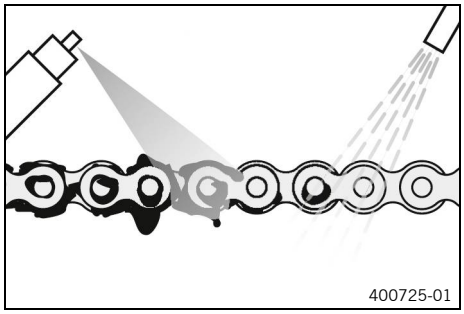
NOTE

Environmental hazard Hazardous substances cause environmental damage.

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

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

Preparatory work
– Raise the motorcycle with a lift stand. (p. 68)



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

Chain cleaner (p. 190)

– After drying, apply chain spray.

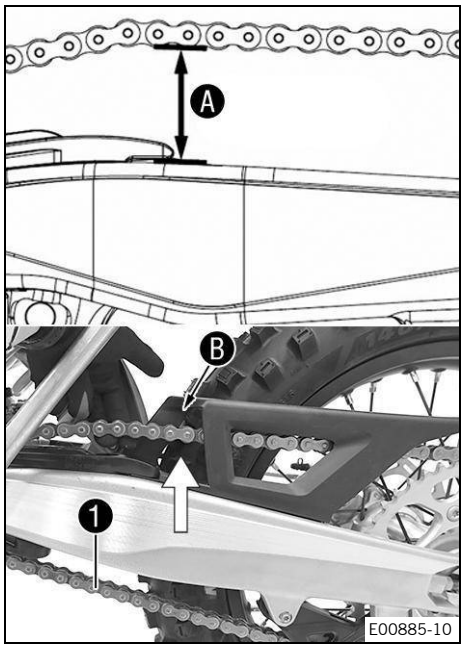
Off-road chain spray (p. 185)

Reworking
– Remove the motorcycle from the lift stand. (p. 68)

12.35 Checking the chain tension

WARNING
Danger of accidents Incorrect chain tension can damage components and result in an accident.
If the chain is tension is too high, the chain, front sprocket, rear sprocket, transmission, and rear wheel bearings wear more quickly. Some components may break if overloaded.
If the chain is too loose, the chain may fall off the front sprocket or the rear sprocket. This can damage the rear wheel or the engine.
– Check the chain tension regularly.
– Set the chain tension in accordance with the specification.

Preparatory work
– Raise the motorcycle with a lift stand. (p. 68)



Main work

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

Chain tension	58 mm ... 61 mm (2.28 in ... 2.40 in)
Lower chain section ❶ must be taut.	
When the chain guard is mounted, it must be possible to pull up the chain at least to the point where it makes contact with chain guard Ⓑ.	
Chain wear is not always even, so repeat this measurement at different positions on the chain.	

» If the chain tension does not meet the specification:
– Adjust the chain tension. (p. 93)

Reworking

– Remove the motorcycle from the lift stand. (p. 68)

12.36 Adjusting the chain tension

WARNING

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

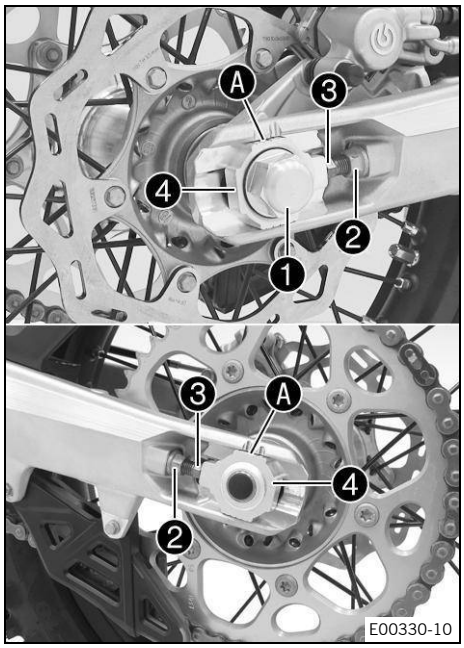
If the chain is tension is too high, the chain, front sprocket, rear sprocket, transmission, and rear wheel bearings wear more quickly. Some components may break if overloaded.

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

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

Preparatory work

– Raise the motorcycle with a lift stand. (p. 68)
– Check the chain tension. (p. 92)



Main work

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

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

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

Nut, wheel spindle, rear	
M22×1.5	80 Nm (59.0 ft·lb$_f$)

Note

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

Chain tension adjusters ❹ can be turned by 180°.

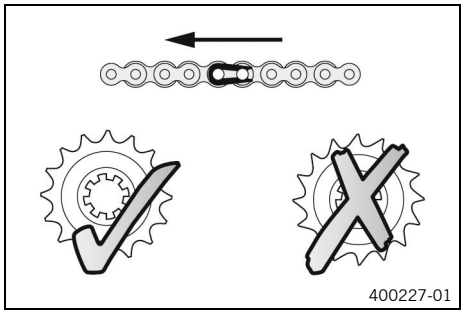
Reworking

– Remove the motorcycle from the lift stand. (p. 68)

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

Preparatory work

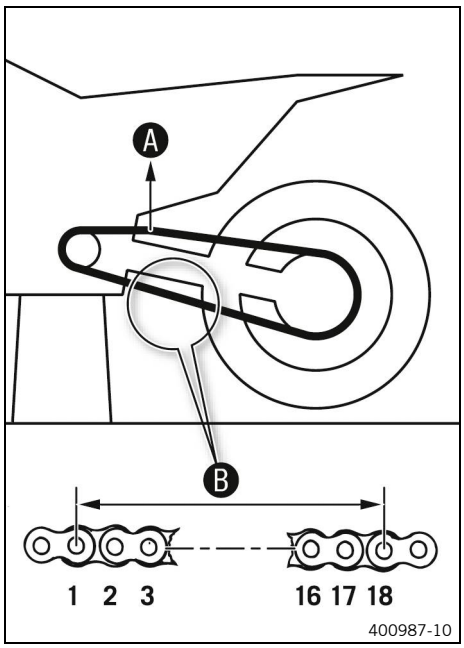
– Raise the motorcycle with a lift stand. (p. 68)



Main work

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

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



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

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

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

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

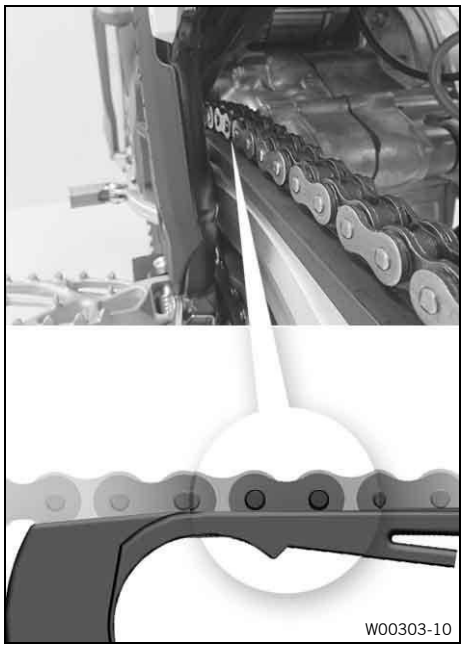
» If distance Ⓑ is greater than the specified measurement:

– Change the drivetrain kit.

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

Note

New chains wear out faster on old, worn sprockets.



– Check the chain slider at the top for wear.

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

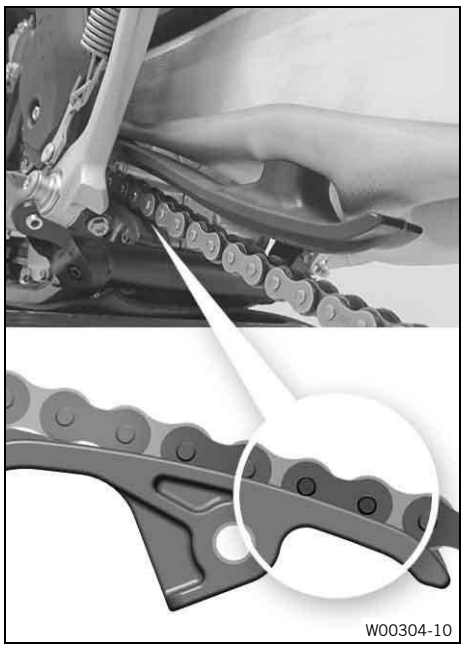
– Change the chain slider.

– Check that the chain slider is firmly seated.

» If the chain slider is loose:

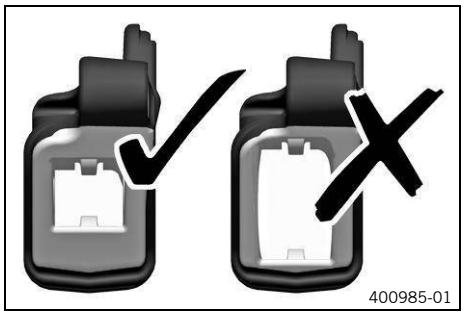
– Tighten the screws of the chain slider.

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



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

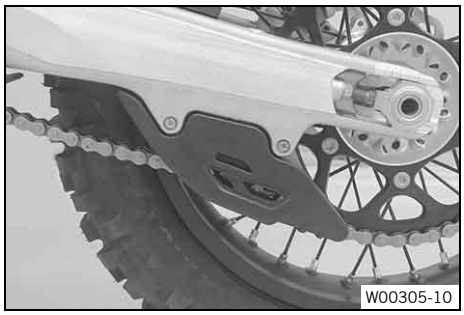
Screw, chain slider	
M8	15 Nm (11.1 ft·lb$_f$)



– Check the chain guide for wear.

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

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



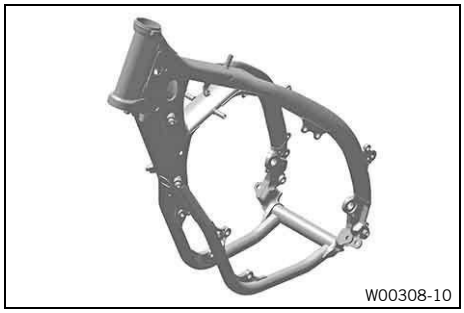
– Check that the chain guide is firmly seated.
  » If the chain guide is loose:
    – Tighten the screws on the chain guide.

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

Reworking

– Remove the motorcycle from the lift stand. (p. 68)

12.38 Checking the frame


W00308-10

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

Repairs on the frame are not permitted.

12.39 Checking the swingarm


W00309-10

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

Repairs on the swingarm are not permitted.

12.40 Checking the throttle cable routing

WARNING

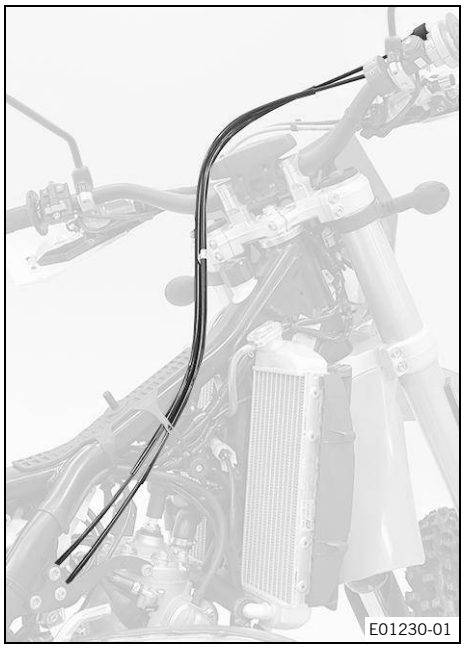
Danger of accidents The throttle cable can become kinked, jammed, or blocked if it has been routed incorrectly.

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

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

Preparatory work

– Remove the seat. (p. 81)
– Remove the fuel tank. (p. 87)



Main work

– Check the throttle cable routing.

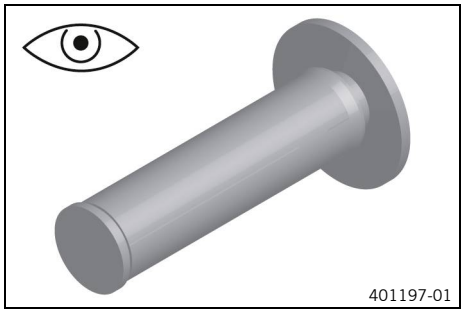
Both throttle cables must be routed, side by side, on the back of the handlebars, above the fuel tank roller on the right of the frame to the throttle valve body. Both throttle cables must be secured behind the rubber strap of the fuel tank support.

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

Reworking

– Install the fuel tank. (p. 89)
– Mount the seat. (p. 82)

12.41 Checking the hand grip



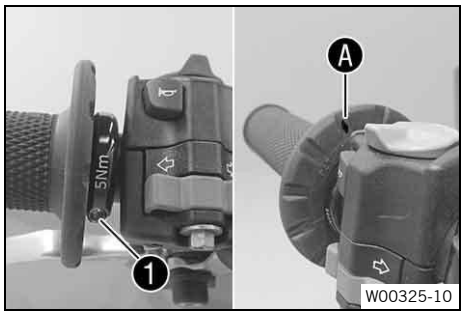
– Check the hand grips on the handlebar for damage, wear, and that they are firmly seated.

Note

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

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

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

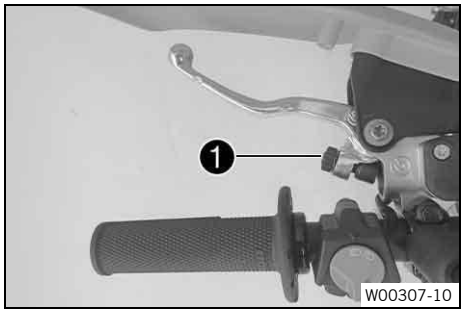


– Check that screw 1 is firmly seated.

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

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

12.42 Adjusting the basic position of the clutch lever



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

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

Note

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

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

The range of adjustment is limited.

12.43 Checking/correcting the fluid level of hydraulic clutch

WARNING

Health hazard Brake fluid is a harmful substance.

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

NOTE

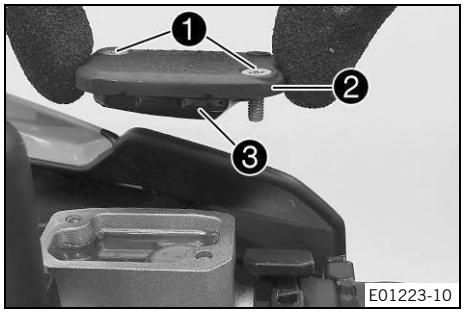
Environmental hazard Hazardous substances cause environmental damage.

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

Note

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

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



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

Fluid level below reservoir rim	4 mm (0.16 in)

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

Brake fluid DOT 5.1 (p. 186)

– Position the cover with diaphragm.

– Mount and tighten the screws.

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

12.44 Changing the hydraulic clutch fluid

WARNING

Health hazard Brake fluid is a harmful substance.

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

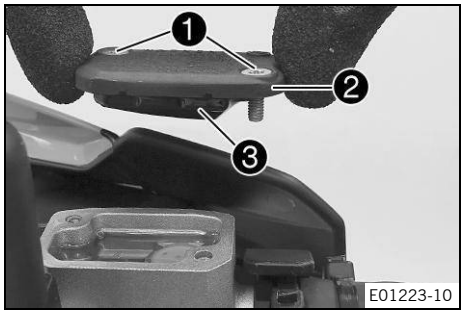
NOTE

Environmental hazard Hazardous substances cause environmental damage.

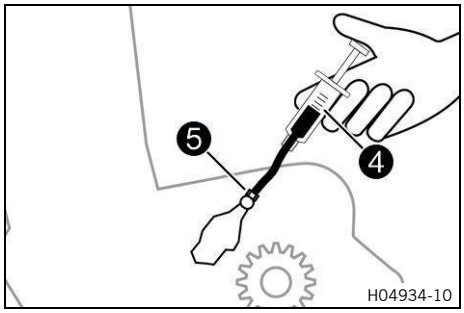
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

Note

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



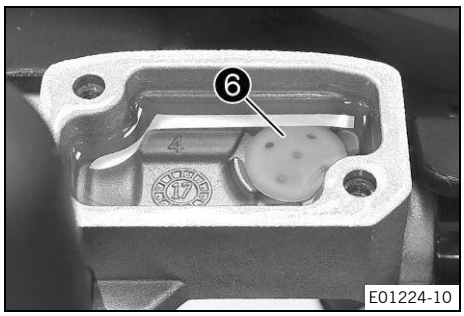
– Move the hydraulic clutch fluid reservoir mounted on the handlebar into a horizontal position.
– Remove ❶ screws.
– Take off cover ❷ with diaphragm ❸.



– Fill bleeding syringe ❹ with the appropriate hydraulic fluid.

Syringe (50329050000)
Brake fluid DOT 5.1 (p. 186)

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



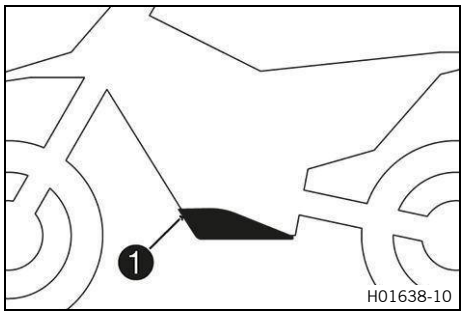
– Inject the liquid into the system until it escapes from bore ❻ of the master cylinder without bubbles.
– Occasionally extract the fluid from the master cylinder reservoir to prevent overflowing.
– Remove the bleeding syringe.
– Tighten the bleeder screw.
– Mount the protection cap.
– Correct the fluid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

Fluid level below reservoir rim	4 mm (0.16 in)

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

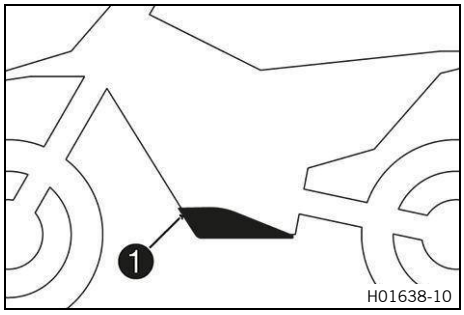
Immediately clean up any brake fluid that has overflowed or spilled with water.

12.45 Removing the skid plate (All except EXC-EU and EXC-BR standard models)



– Remove screws ❶ and engine guard.

12.46 Installing the skid plate (All except EXC-EU and EXC-BR standard models)

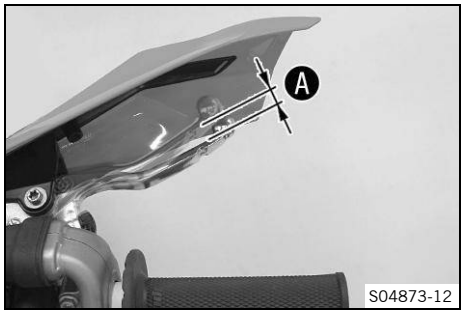


– Attach the engine guard on the frame at the rear and swing up at the front.
– Mount and tighten screws ❶.

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

13.1 Checking the free travel on the hand brake lever

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

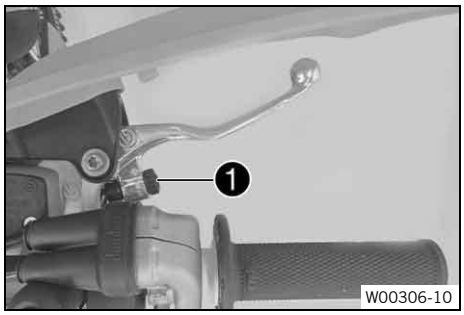


– Push the hand brake lever to the handlebar and check free travel A.

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

» If the free travel does not meet the specifications:
– Adjust the free travel of the handbrake lever.
(p. 102)

13.2 Adjusting the free travel of the handbrake lever



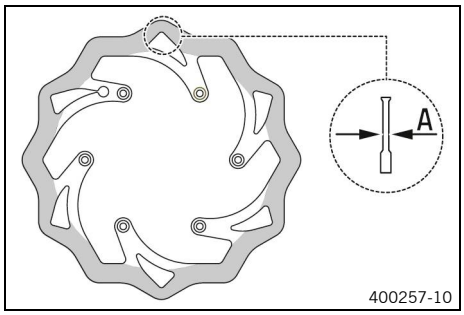
– Check the free travel on the hand brake lever. (p. 102)
– Adjust the free travel of the hand brake lever with adjusting screw 1.

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

Note
Turn the adjusting screw clockwise to reduce free travel. The pressure point moves away from the handlebar.
Turn the adjusting screw counterclockwise to increase free travel. The pressure point moves towards the handlebar.
The range of adjustment is limited.

13.3 Checking the brake discs

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



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

Brake disc wear limit	
(All standard models)	
front	2.5 mm (0.098 in)
rear	3.5 mm (0.138 in)

(All special models)	
front	2.5 mm (0.098 in)
rear	3.7 mm (0.146 in)

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

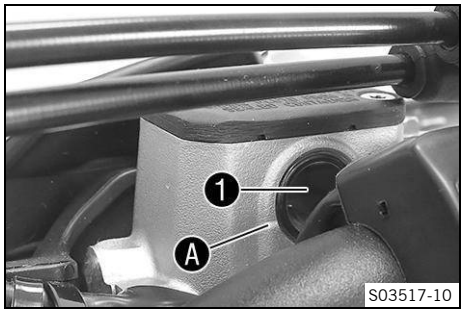
» If the brake disc thickness is less than the specified value:
– Change the brake discs of the front brake.
– Change the brake discs on the rear brake.

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

13.4 Checking the brake fluid level for the front brake

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

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



– Move the brake reservoir mounted on the handlebar to a horizontal position.
– Check the brake fluid level in sight glass 1.
» If the brake fluid level has dropped below marking A in the level viewer:
– Add brake fluid for the front brake. (p. 104)

13.5 Adding brake fluid for the front brake

WARNING

Danger of accidents Brake fluid which is too old or of the wrong type impairs the function of the brake system.

– Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule.
– Make sure that only clean, approved brake fluid from a tightly sealed container is used.

WARNING

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

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

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

WARNING

Health hazard Brake fluid is a harmful substance.

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

NOTE

Environmental hazard Hazardous substances cause environmental damage.

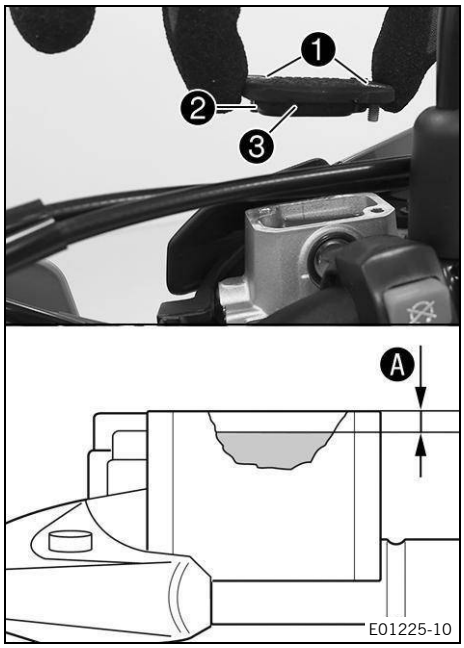
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

Note

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

Preparatory work

– Check that the brake pads of the front brake are secured.
(p. 105)



Main work

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

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

Brake fluid DOT 5.1 (p. 186)

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

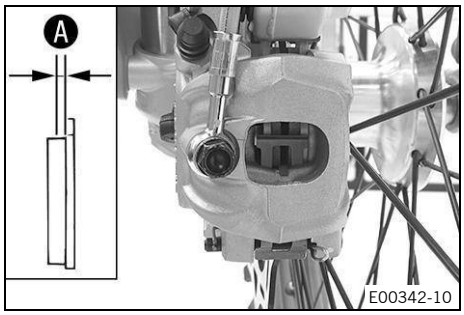
Immediately clean up any brake fluid that has overflowed or spilled with water.

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

WARNING

Danger of accidents Worn brake pads reduce the brake action.

– Make sure that worn brake pads are replaced immediately.



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

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

» If it is less than the minimum thickness:
  – Change the front brake pads. (p. 106)
– Check the brake pads for damage and cracking.
» If there is damage or cracking:
  – Change the front brake pads. (p. 106)
– Check that the brake pads are secured.
» If the brake pads are not secured correctly:
  – Secure brake pads, replace with new parts if necessary.

13.7 Changing the brake pads of the front brake

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

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

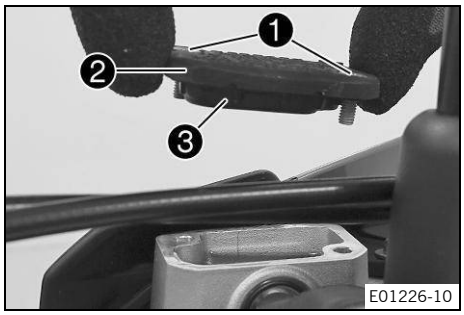
WARNING
Danger of accidents Brake fluid which is too old or of the wrong type impairs the function of the brake system.
– Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule.
– Make sure that only clean, approved brake fluid from a tightly sealed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

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

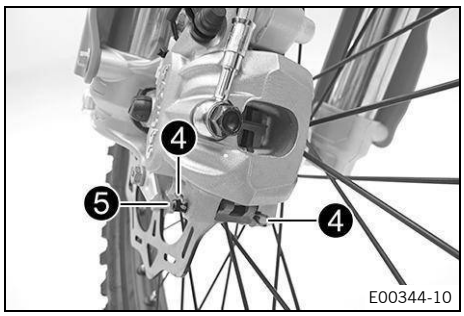
WARNING
Health hazard Brake fluid is a harmful substance.
– Keep brake fluid out of the reach of children.
– Wear suitable protective clothing and safety glasses.
– Do not allow brake fluid to come into contact with the skin, the eyes, or clothing.
– Consult a doctor immediately if brake fluid has been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

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

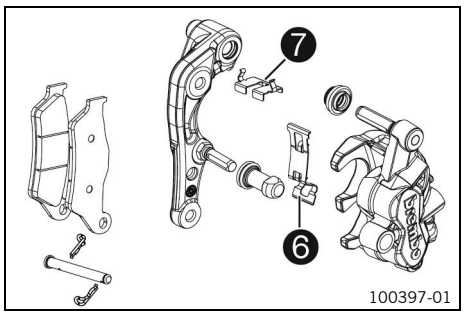
Note
Avoid contact between brake fluid and painted parts. Brake fluid corrodes paint.



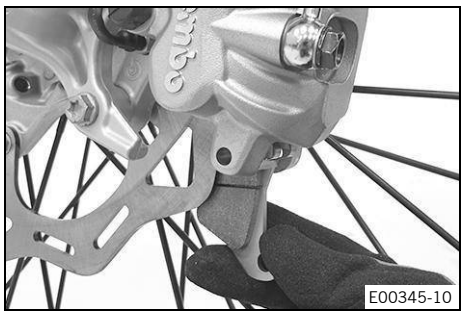
– Move the brake reservoir mounted on the handlebar to a horizontal position.
– Remove screws ❶.
– Take off cover ❷ with diaphragm ❸.
– Manually press the brake caliper toward the brake disc to push back the brake pistons. Ensure that brake fluid does not flow out of the brake fluid reservoir, extract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



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



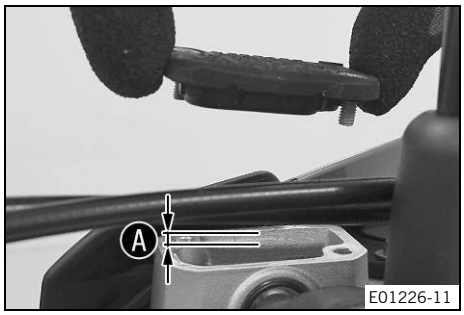
– Check that spring steel clip ❻ in the brake caliper and brake pad guide plate ❼ in the brake caliper support are properly seated.



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

Always replace brake pads in sets.

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



– Correct the brake fluid level to level Ⓐ.

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

Brake fluid DOT 5.1 (p. 186)

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

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

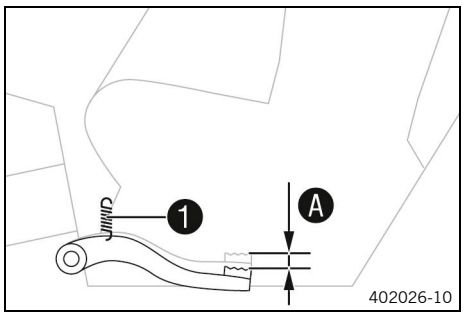
13.8 Checking the free travel of the brake pedal

WARNING

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

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

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



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

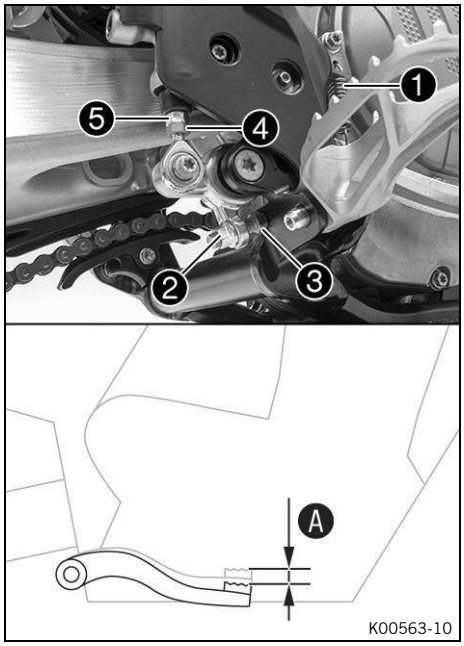
Free travel of brake pedal	3 mm ... 5 mm (0.12 in ... 0.20 in)

» If the free travel does not meet the specifications:
– Adjust the basic position of the brake pedal.
(p. 108)

– Attach spring ❶.

13.9 Adjusting the basic position of the brake pedal

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



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

Note
The range of adjustment is limited.

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

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

– Hold screw ❸ and tighten nut ❷.

Nut, brake pedal stop	
M8	25 Nm (18.4 ft·lb$_f$)

– Hold push rod ❺ and tighten nut ❹.

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

– Attach spring ❶.

13.10 Checking the brake fluid level for the rear brake

WARNING

Danger of accidents Brake fluid which is too old or of the wrong type impairs the function of the brake system.

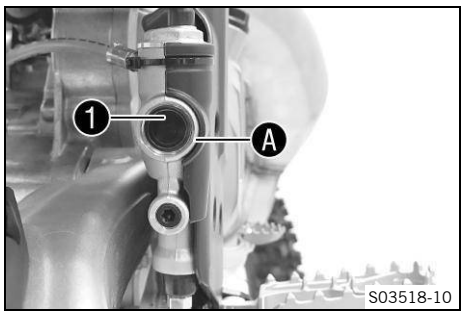
– Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule.
– Make sure that only clean, approved brake fluid from a tightly sealed container is used.

WARNING

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

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

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



– Stand the vehicle upright.
– Check the brake fluid level in sight glass 1.
  » If the fluid has dropped below marking A in the level viewer:
    – Add brake fluid for the rear brake. (p. 109)

13.11 Adding brake fluid for the rear brake

WARNING

Danger of accidents Brake fluid which is too old or of the wrong type impairs the function of the brake system.

– Make sure that brake fluid for the front and rear brake is changed in accordance with the service schedule.
– Make sure that only clean, approved brake fluid from a tightly sealed container is used.

WARNING

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

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

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

WARNING

Health hazard Brake fluid is a harmful substance.

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

NOTE

Environmental hazard Hazardous substances cause environmental damage.

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

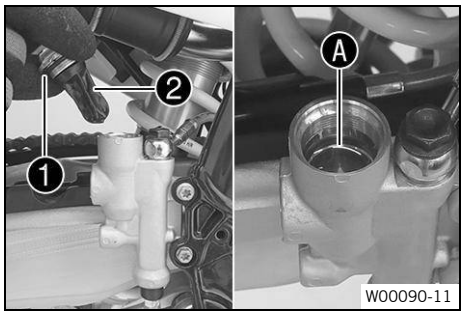
Note

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

Preparatory work

– Check that the brake pads of the rear brake are secured. (p. 110)
– Remove the frame protector. (p. 82)

Main work



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

Brake fluid DOT 5.1 (p. 186)

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

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

Reworking

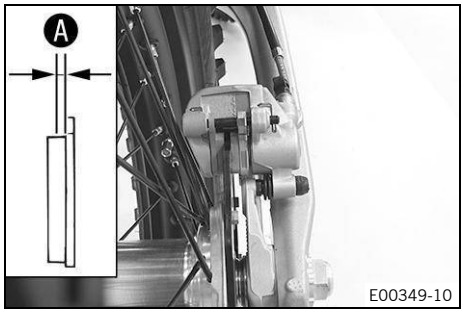
– Install the frame protector. (p. 83)

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

WARNING

Danger of accidents Worn brake pads reduce the brake action.

– Make sure that worn brake pads are replaced immediately.



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

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

» If it is less than the minimum thickness:
  – Change the rear brake pads. (p. 111)
– Check the brake pads for damage and cracking.
» If there is damage or cracking:
  – Change the rear brake pads. (p. 111)
– Check that the brake pads are secured.
» If the brake pads are not secured correctly:
  – Secure brake pads, replace with new parts if necessary.

13.13 Changing the rear brake pads

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

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

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

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

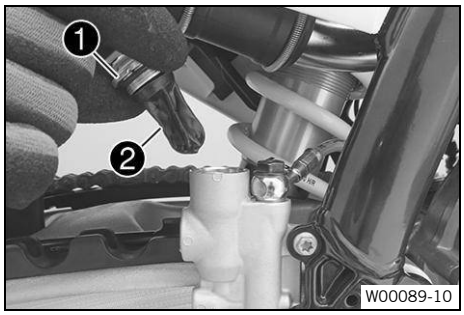
WARNING
Health hazard Brake fluid is a harmful substance.
– Keep brake fluid out of the reach of children.
– Wear suitable protective clothing and safety glasses.
– Do not allow brake fluid to come into contact with the skin, the eyes, or clothing.
– Consult a doctor immediately if brake fluid has been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

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

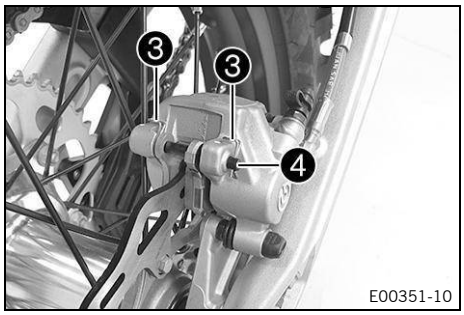
Note
Avoid contact between brake fluid and painted parts. Brake fluid corrodes paint.

Preparatory work
– Remove the frame protector. (p. 82)

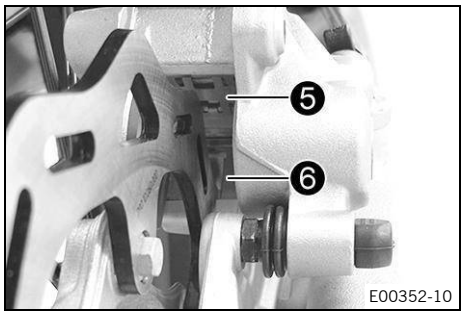
Main work



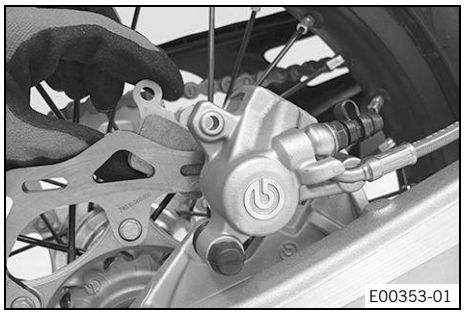
– Stand the vehicle upright.
– Remove screw cap ❶ with diaphragm ❷ and the O-ring.
– Press the brake piston back to its basic position and make sure that no brake fluid overflows from the brake reservoir, extract some brake fluid if necessary.



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



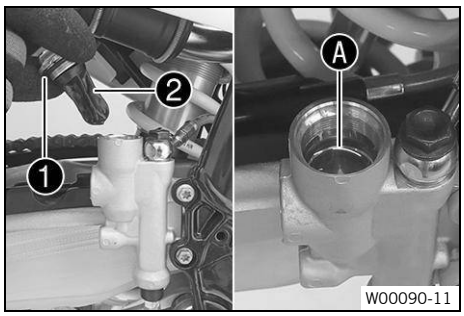
– Check that spring steel clip ❺ in the brake caliper and brake pad guide plate ❻ in the brake caliper support are properly seated.



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

Always replace brake pads in sets.

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



– Correct the brake fluid level to mark Ⓐ.

Brake fluid DOT 5.1 (p. 186)

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

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

Reworking

– Install the frame protector. (p. 83)

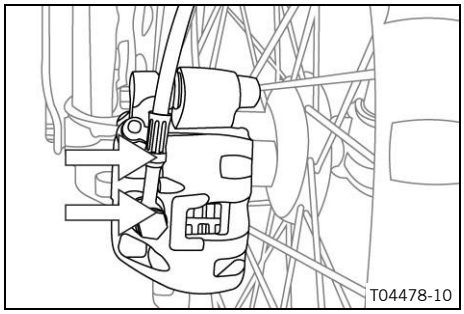
14.1 Removing the front wheel

Preparatory work

– Raise the motorcycle with a lift stand. (p. 68)

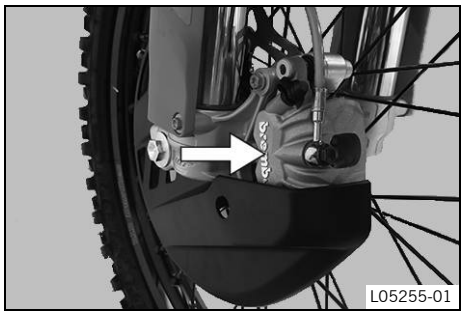
Main work

(All except HARDENDURO models)

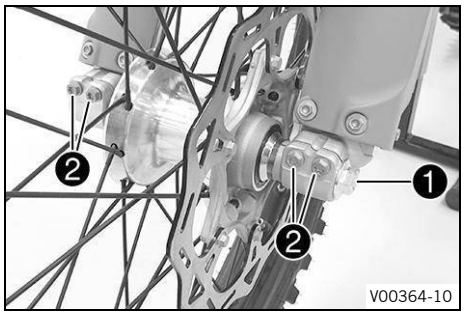


– Manually press the brake caliper toward the brake disc to push back the brake pistons.

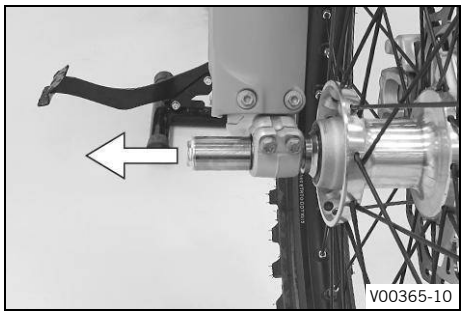
(All HARDENDURO models)



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



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



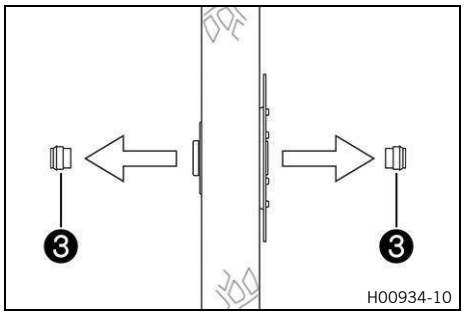
WARNING

Danger of accidents Damaged brake discs reduce the braking action.

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

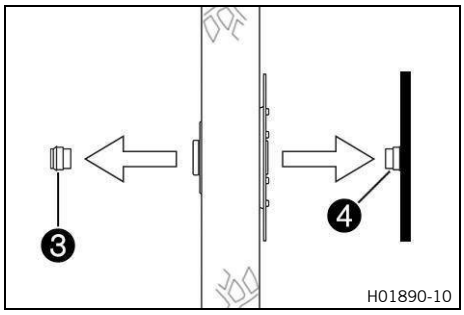
– Hold front wheel and remove wheel spindle. Take the front wheel out of the fork.

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



(All except HARDENDURO models)

– Remove spacers ❸.



(All HARDENDURO models)

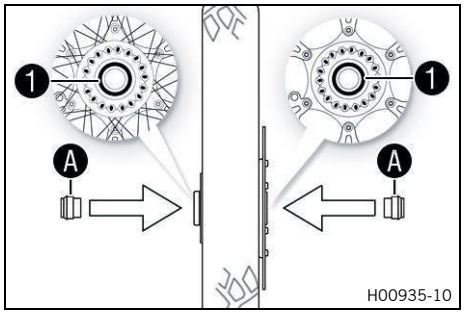
– Remove spacer ❸ and brake disc guard ❹.

14.2 Installing the front wheel

WARNING

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

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



(All except HARDENDURO models)

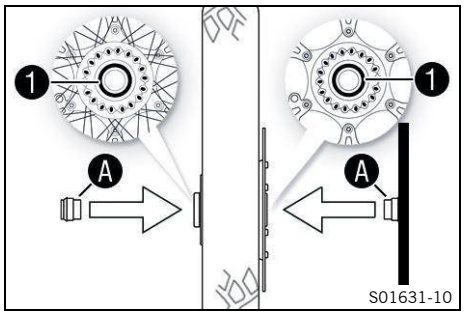
– Check the wheel bearing for damage and wear.
  » If the wheel bearing is damaged or worn:
    – Change the front wheel bearing.
– Clean and grease radial shaft seal ❶ and contact surfaces Ⓐ on the spacers.

Long-life grease (p. 185)

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

Long-life grease (p. 185)

– Jack up the front wheel into the fork, position it, and insert the wheel spindle.
  ✓ The brake pads are positioned correctly.



(All HARDENDURO models)

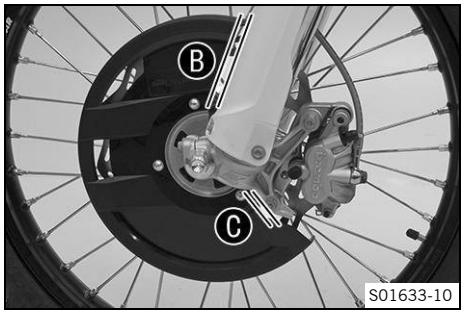
– Check the wheel bearing for damage and wear.
  » If the wheel bearing is damaged or worn:
    – Change the front wheel bearing.
– Clean and grease radial shaft seal ❶ and contact surfaces Ⓐ on the spacers.

Long-life grease (p. 185)

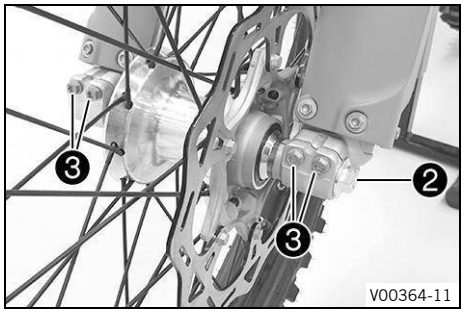
– Insert the spacer and brake disc guard.
– Clean and lightly grease the wheel spindle.

Long-life grease (p. 185)

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



– Align the brake disc guard so that distance Ⓑ and Ⓒ are equal in size.



– Mount and tighten screw ❷.

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

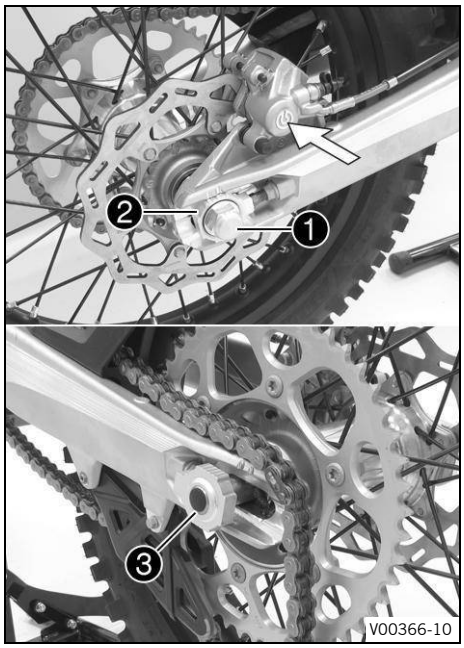
– Operate the hand brake lever several times until the brake pads are in contact with the brake disc.
– Remove the motorcycle from the lift stand. (p. 68)
– Operate the front brake and compress the fork a few times firmly.
  ✓ The fork legs straighten.
– Tighten screws ❸.

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

14.3 Removing the rear wheel

Preparatory work

– Raise the motorcycle with a lift stand. (p. 68)



Main work

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

Protect the components against damage by covering them.

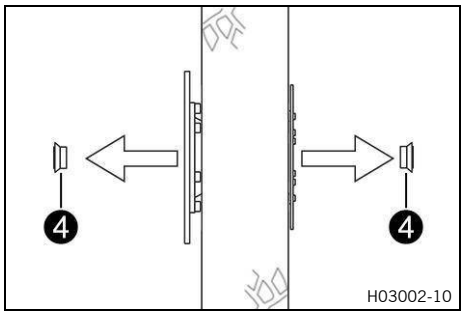
WARNING

Danger of accidents Damaged brake discs reduce the braking action.

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

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

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



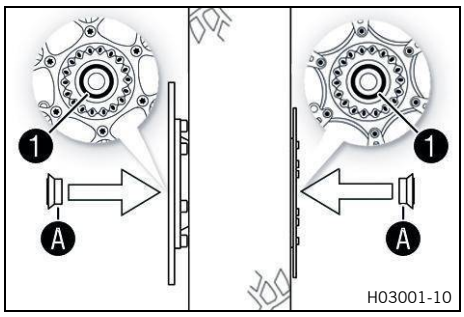
- Remove spacers ❹.

14.4 Installing the rear wheel

WARNING

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

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



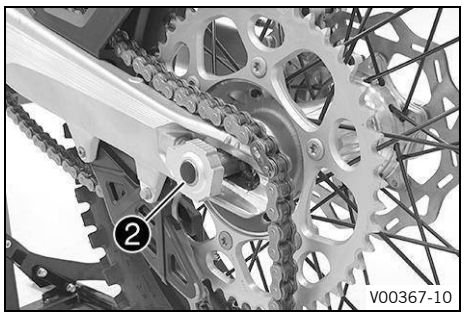
Main work

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

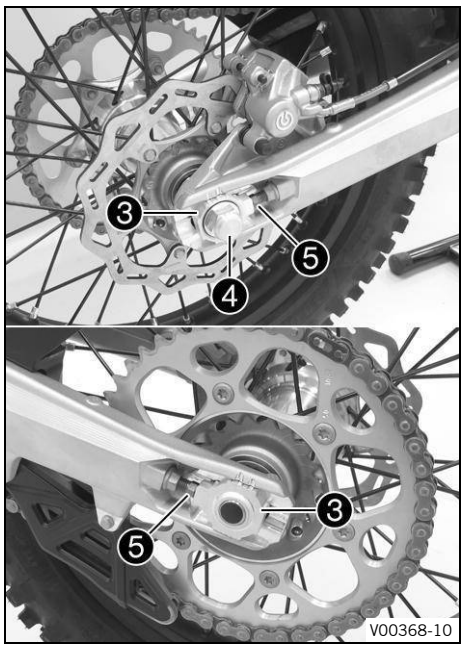
Long-life grease (p. 185)

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

Long-life grease (p. 185)



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



– Position chain tension adjuster ❸.
– Mount nut ❹ but do not tighten yet.
– Make sure that chain tension adjusters ❸ are fitted correctly on adjusting screws ❺.
– Check the chain tension. (p. 92)
– Tighten nut ❹.

Nut, wheel spindle, rear	
M22×1.5	80 Nm (59.0 ft·lb$_f$)

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

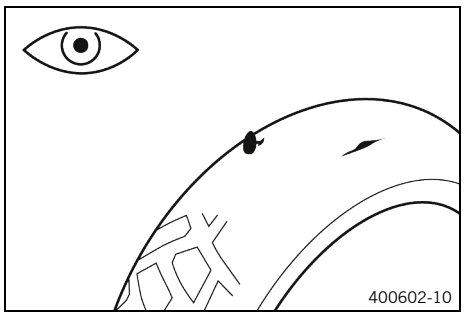
– Actuate the brake disc repeatedly until the brake pads are in contact with the brake disc and a pressure point is achieved.

Reworking

– Remove the motorcycle from the lift stand. (p. 68)

14.5 Checking the tire condition

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

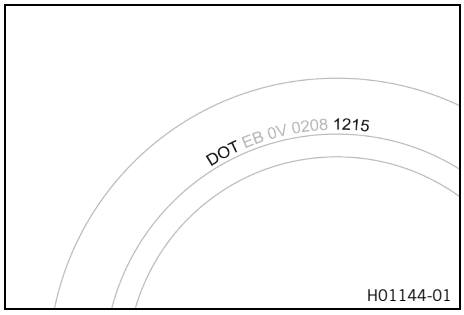


– Check the front and rear tires for cuts, embedded objects, and other damage.
  » If the tires have cuts, run-in objects, or other damage:
    – Change the tires.
– Check the tread depth.

Minimum tread depth	≥ 2 mm (≥ 0.08 in)

Note
Observe the minimum tread depth required by national law.

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



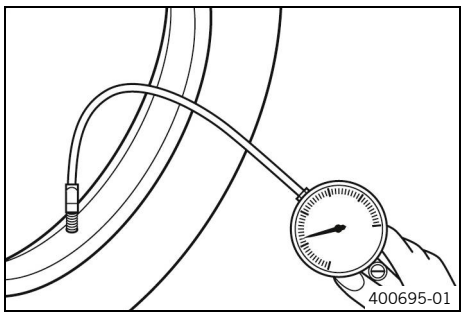
– Check the tire age.

Note
The tire date of manufacture is usually contained in the tire label and is indicated by the last four digits of the **DOT** number. The first two digits indicate the week of manufacture and the last two digits the year of manufacture.
KTM recommends that the tires be changed after 5 years at the latest, regardless of the actual state of wear.

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

14.6 Checking the tire pressure

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



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

Street tire pressure **(All EXC models, including special edition models)**	
front	2.0 bar (29.0 psi)
rear	2.0 bar (29.0 psi)

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

» If the tire pressure does not meet specifications:
– Correct the tire air pressure.

– Mount the protection cap.

14.7 Checking the spoke tension

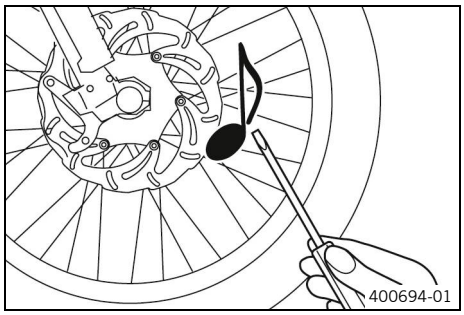
WARNING

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

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

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

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



– Briefly tap each spoke with a screwdriver.

You should hear a high-pitched sound.

Note

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

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

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

– Check the spoke torque.

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

Torque wrench kit (58429094000)

15.1 Removing the 12 V battery

WARNING

Risk of injury 12–V batteries contain harmful substances.

- Keep 12–V batteries out of the reach of children.
- Keep the battery away from sparks or open flames.
- Only charge batteries in well-ventilated rooms.
- Maintain a minimum distance from flammable materials when charging 12-V batteries.

Minimum distance	1 m (3 ft – 3 in)

- Do not charge deeply discharged 12– V batteries if the charge is already below the minimum voltage.

Minimum voltage before starting charging	9 V

- Dispose of 12 V batteries correctly if they have less than the minimum voltage.

NOTE

Environmental hazard 12–V batteries contain environmentally-hazardous materials.

- Do not dispose of 12–V batteries as household waste.
- Dispose of 12–V batteries at a collection point for used batteries.

NOTE

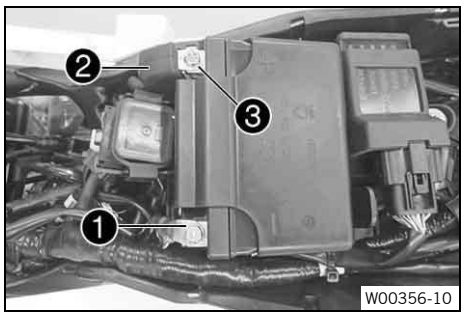
Environmental hazard Hazardous substances cause environmental damage.

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

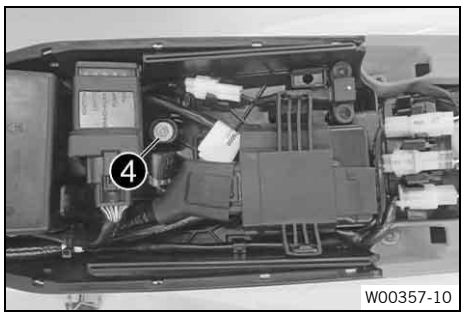
Preparatory work

- Remove the seat. (p. 81)
- Remove the fuel tank. (p. 87)

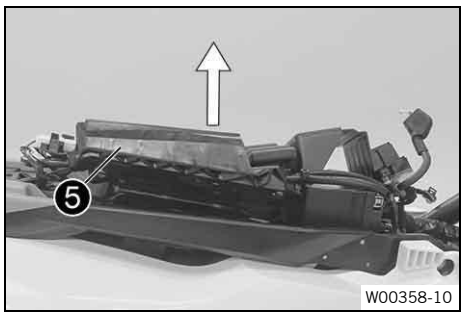
Main work



- Disconnect negative cable ❶ from the 12 V battery.
- Pull back positive terminal cover ❷ and disconnect positive cable ❸ from the 12-V battery.



- Remove screw ❹.

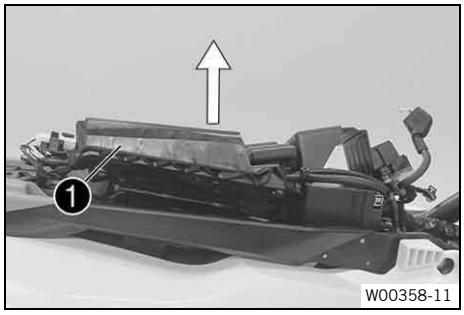


– Pull up battery holding bracket ❺ and remove the 12-V battery to the rear.

Pay attention to the wiring harness.

15.2 Installing the 12 V battery

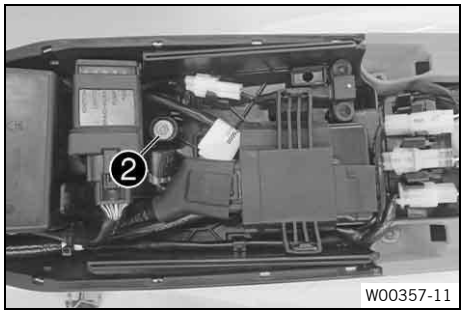
Main work



– Pull up battery holding bracket ❶, insert the 12-V battery into the battery compartment with the terminals facing upwards and secure with battery holding bracket ❶.

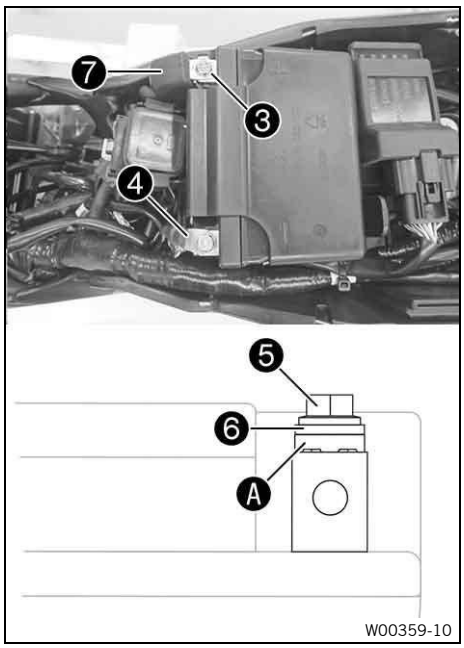
Ensure that the cable is routed correctly.

12-V battery (HJTZ5S-FP-C) (p. 188)



– Mount and tighten screw ❷.

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



– Connect positive cable ❸ to the 12 V battery.

Screw, battery terminal	
M5	2.5 Nm (1.84 ft·lb$_f$)

– Connect negative cable ❹ to the 12 V battery.

Screw, battery terminal	
M5	2.5 Nm (1.84 ft·lb$_f$)

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

– Slide positive terminal cover ❼ over the positive terminal.

Reworking

– Install the fuel tank. (p. 89)
– Mount the seat. (p. 82)

15.3 Charging the 12 V battery

WARNING

Risk of injury 12–V batteries contain harmful substances.

– Keep 12–V batteries out of the reach of children.
– Keep the battery away from sparks or open flames.
– Only charge batteries in well-ventilated rooms.
– Maintain a minimum distance from flammable materials when charging 12-V batteries.

Minimum distance	1 m (3 ft – 3 in)

– Do not charge deeply discharged 12– V batteries if the charge is already below the minimum voltage.

Minimum voltage before starting charging	9 V

– Dispose of 12 V batteries correctly if they have less than the minimum voltage.

NOTE

Environmental hazard 12–V batteries contain environmentally-hazardous materials.

– Do not dispose of 12–V batteries as household waste.
– Dispose of 12–V batteries at a collection point for used batteries.

NOTE

Environmental hazard Hazardous substances cause environmental damage.

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

Note

Even when there is no load on the 12 V battery, it discharges steadily each day.

The state of charge and the method of charging are very important for the service life of the 12 V battery.

Rapid recharging with a high charging current shortens the service life of the battery.

If the charging current or charging voltage are exceeded, the 12-V battery will be irreparably damaged.

If the 12 V battery is left in a discharged state for an extended period, it will become deeply discharged and suffer a loss of capacity, destroying the battery.

The 12 V battery is maintenance-free.

Preparatory work

– Remove the seat. (p. 81)
– Remove the fuel tank. (p. 87)
– Remove the 12 V battery. (p. 121)

Main work



– Do not remove cover 1.
– Check the battery voltage.

» Battery voltage:
  • < 9 V
  – Do not charge the 12 V battery.
  – Replace the 12 V battery and dispose of the old 12 V battery properly.
» If the specifications have been met:
  Battery voltage:
  • ≥ 9 V
  – Charge the 12 V battery.

Read the accompanying instructions.	
Maximum charging voltage	14.4 V
Minimum charging voltage	3.0 A
Maximum charging time	12 h
The charging current, charging voltage, and charging time must not be exceeded.	
Recharge the 12-V battery regularly when the motorcycle is not being used	6 months
If the 12 V battery is depleted from starting the vehicle repeatedly, the battery must be charged immediately.	
Ideal charging and storage temperature of the lithium-ion battery	10 °C ... 20 °C (50.0 °F ... 68.0 °F)

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

Note
This battery charger tests whether the 12 V battery retains its voltage. It is also impossible to overcharge the 12 V battery with this battery charger. The charging time may be longer at low temperatures.
This battery charger is only suitable for lithium iron phosphate batteries.

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

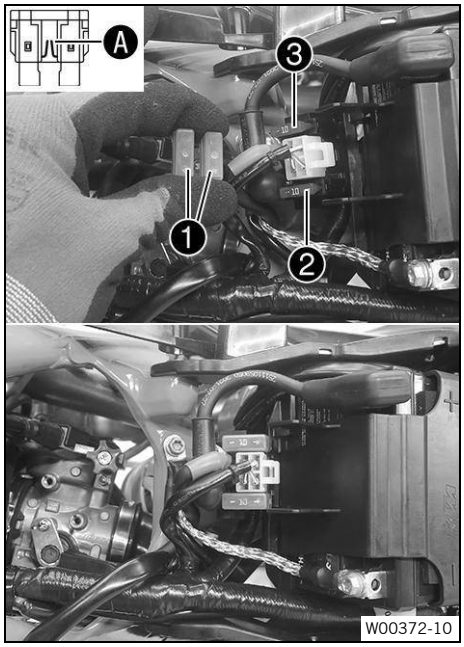
Reworking

– Install the 12 V battery. (p. 122)
– Install the fuel tank. (p. 89)
– Mount the seat. (p. 82)

15.4 Changing the main fuse

WARNING
Fire hazard Incorrect fuses overload the electrical system.
– Use only fuses with the prescribed amperage.
– Do not bypass or repair fuses.

Note
The main fuse protects all electrical power loads of the vehicle.



Preparatory work
– Remove the seat. (p. 81)

Main work
– Remove protection caps ❶.
– Remove faulty main fuse ❷.

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

– Insert the main fuse.

Fuse (58011109120) (p. 189)

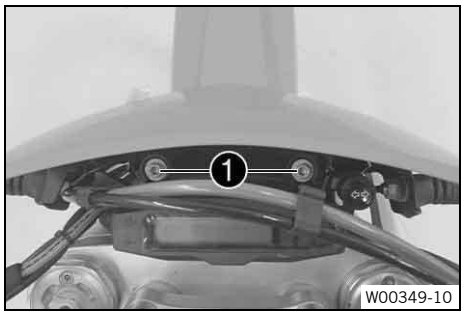
– Check that the electrical equipment is functioning properly.

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

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

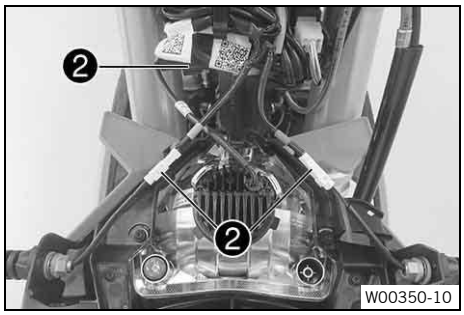
Reworking
– Mount the seat. (p. 82)

15.5 Removing the headlight mask with the headlight



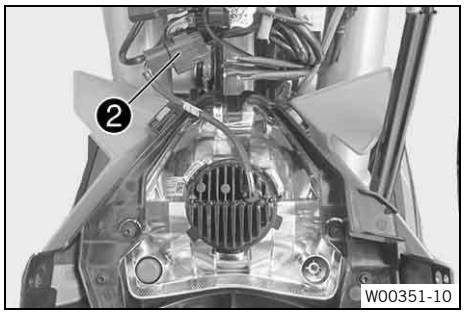
– Release screws ❶.
– Slide the headlight mask up and swing it forward.
– Disconnect the brake line at the headlight mask.

(All EXC models, including special edition models)



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

(All XC-W models)

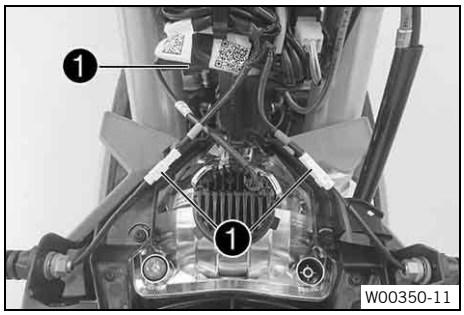


– Disconnect plug-in connector ❷ and take off the headlight mask together with the headlight.

15.6 Installing the headlight mask with the headlight

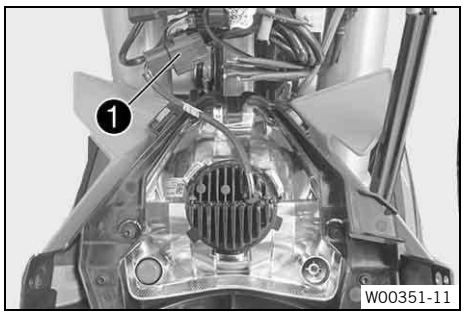
Main work

(All EXC models, including special edition models)

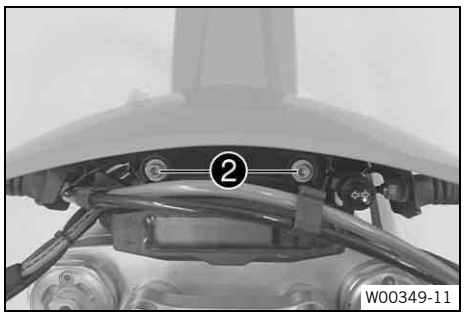


– Join plug-in connectors ❶.

(All XC-W models)



– Join plug-in connector ❶.



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

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

Reworking

– Check the headlight setting. (p. 130)

15.7 Changing the headlight bulb

NOTE

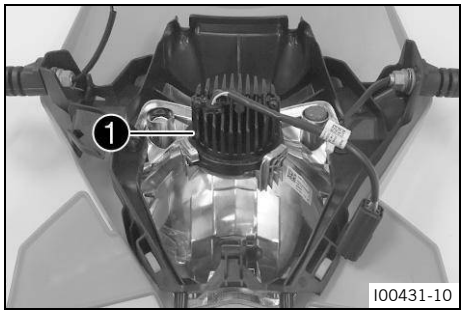
Impairments to reflectors and lamps Grease on the reflector reduces the emitted light.
Grease on the bulb will evaporate due to the heat and be deposited on the reflector.
Grease residue on the bulb reduces heat dissipation and increases the heat of the bulb, thus reducing its service life.

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

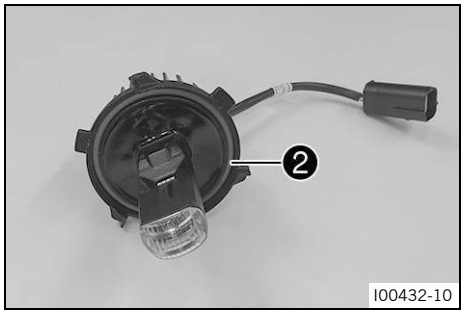
Preparatory work

– Remove the headlight mask with the headlight. (p. 126)

Main work



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



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

Ensure that O-ring ❷ is seated properly.

Low beam (LED) (p. 188)

Reworking

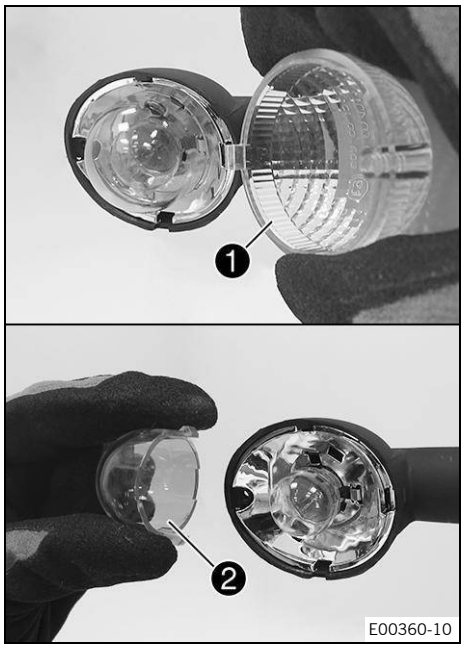
– Install the headlight mask with the headlight. (p. 127)
– Check the headlight setting. (p. 130)

15.8 Changing the turn signal bulb (All EXC models, including special edition models)

NOTE

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

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



Main work

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

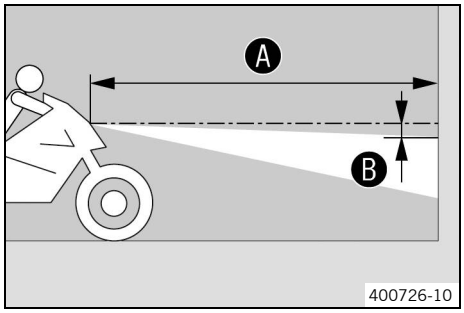
Turn signal (R10W / Sockel BA15s) (p. 188)

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

Reworking

– Check that the turn signal system is functioning properly.

15.9 Checking the headlight setting



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

Distance Ⓑ	5 cm (2.0 in)

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

Distance Ⓐ	5 m (16 ft – 5 in)

– Sit on the motorcycle.
– Switch on the low beam.
– Check the headlight setting.

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

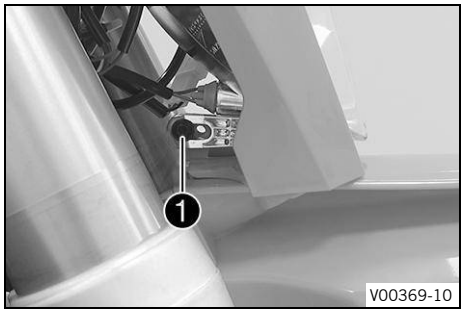
» If the boundary between light and dark does not meet specifications:
– Adjust headlight range. (p. 130)

15.10 Adjusting the headlight range

Preparatory work

– Check the headlight setting. (p. 130)

Main work



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

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

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

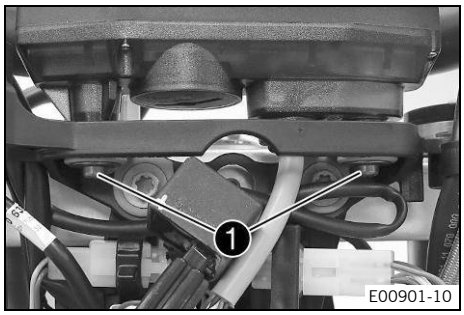
– Tighten screw ❶.

15.11 combination instrument battery, changing

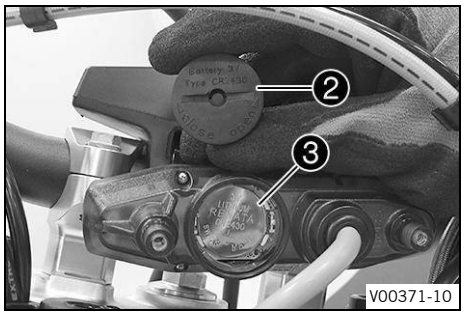
Preparatory work

– Remove the headlight mask with the headlight. (p. 126)

Main work



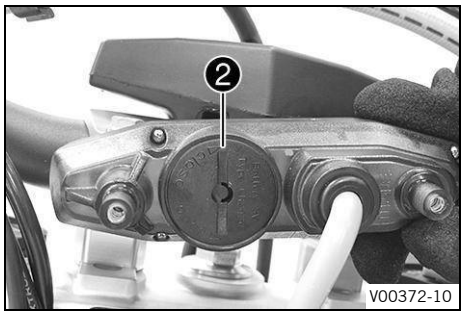
– Remove ❶ screws.
– Pull the combination instrument upward out of the holder.



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

Button cell (CR 2430) (p. 188)

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

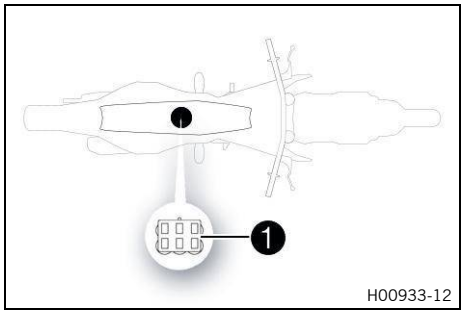


– Position protection cap ❷ and turn all the way clockwise using a coin.
– Press any button on the combination instrument.
  ✓ The combination instrument is activated.
– Position the combination instrument in the holder.
– Mount and tighten the screws with washers.

Reworking

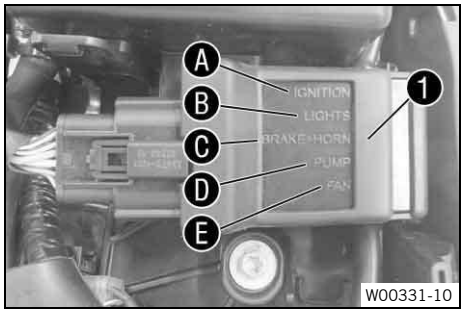
– Install the headlight mask with the headlight. (p. 127)
– Check the headlight setting. (p. 130)
– Set to kilometers or miles. (p. 29)
– Adjust combination instrument function. (p. 30)
– Set the clock. (p. 30)

15.12 Diagnostic connector



The diagnostics connector ❶ is located under the seat below the EFI control unit.

15.13 OCU



OCU ❶ is located under the seat.

The OCU replaces the electronic fuses and relays.

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

The outputs are deactivated individually in the event of overcurrent.

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

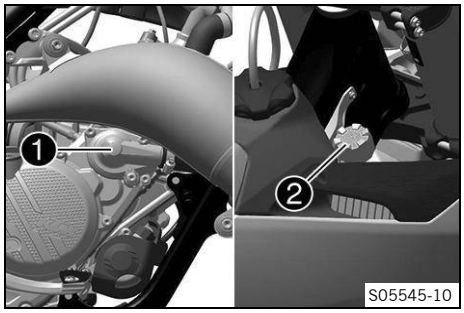
The OCU monitors the electronics system completely independently.

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

overview

A	Ignition
B	Light
C	Brake light + horn
D	Fuel pump
E	Radiator fan

16.1 Cooling system



Water pump ❶ in the engine circulates the coolant.

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

120 °C (248.0 °F)

The coolant is cooled by the air stream.

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

16.2 Checking the frost protection and coolant level

WARNING

Health hazard Coolant is harmful to health.

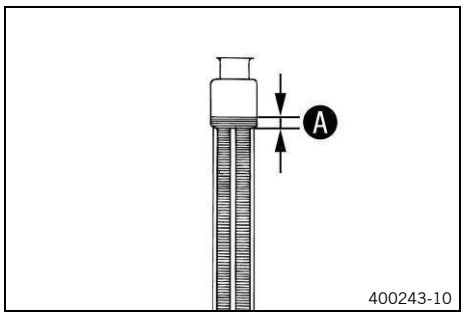
- Keep coolant out of the reach of children.
- Do not allow coolant to come into contact with skin, eyes, or clothing.
- Consult a doctor immediately if coolant has been ingested.
- Rinse the affected area immediately with plenty of water in the event of contact with skin.
- Rinse eyes thoroughly with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

WARNING

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

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

Condition: The engine is cold



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

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

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

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

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

coolant	
Coolant (p. 186) Antifreeze protection to at least: −25 °C (−13.0 °F)	1.2 l (0.32 liq. gal_{US})

– Mount the radiator cap.

16.3 Checking the coolant level

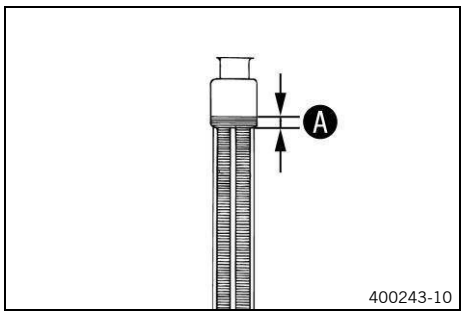
WARNING

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

WARNING

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

Condition: The engine is cold



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

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

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

coolant	
Coolant (p. 186) Antifreeze protection to at least: −25 °C (−13.0 °F)	1.2 l (0.32 liq. gal_{US})

– Mount the radiator cap.

16.4 Draining the coolant

WARNING

Health hazard Coolant is harmful to health.

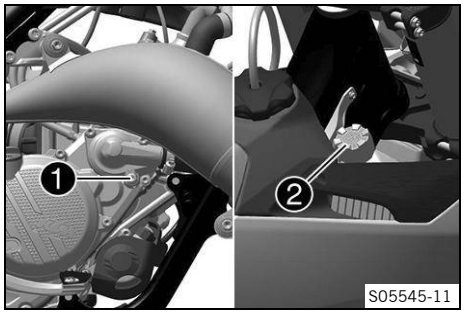
- Keep coolant out of the reach of children.
- Do not allow coolant to come into contact with skin, eyes, or clothing.
- Consult a doctor immediately if coolant has been ingested.
- Rinse the affected area immediately with plenty of water in the event of contact with skin.
- Rinse eyes thoroughly with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

WARNING

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

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

Condition: The engine is cold



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

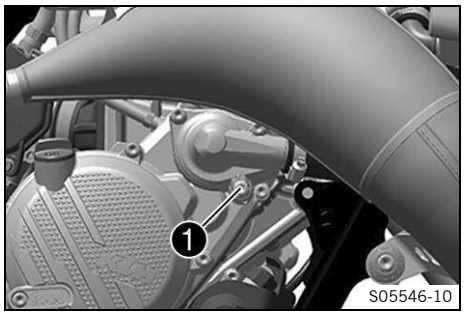
Screw, water pump cover	
M6×40	10 Nm (7.4 ft·lb$_f$)

16.5 Refilling the coolant

WARNING

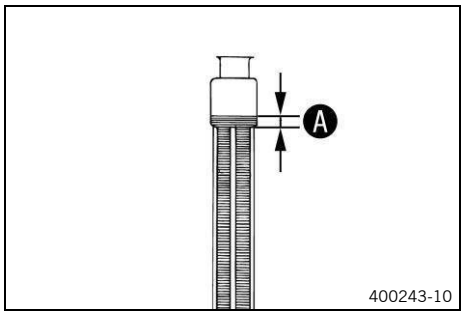
Health hazard Coolant is harmful to health.

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



Main work

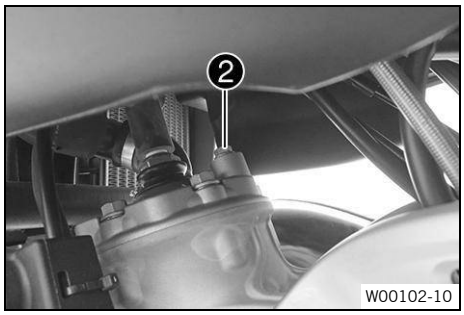
– Make sure that screw ❶ is tightened.
– Stand the motorcycle upright.



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

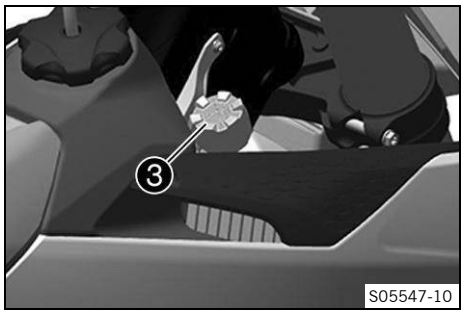
10 mm (0.39 in)

coolant	
Coolant 📖 (p. 186) Antifreeze protection to at least: −25 °C (−13.0 °F)	1.2 l (0.32 liq. gal_{US})



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

Cylinder head bleed screw	
M6	10 Nm (7.4 ft·lb_f)



– Mount radiator cap ❸.

DANGER

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

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

– Allow the engine to warm up and cool down again.

Reworking

– Check the coolant level. 📖 (p. 134)

16.6 Changing the coolant

WARNING

Health hazard Coolant is harmful to health.

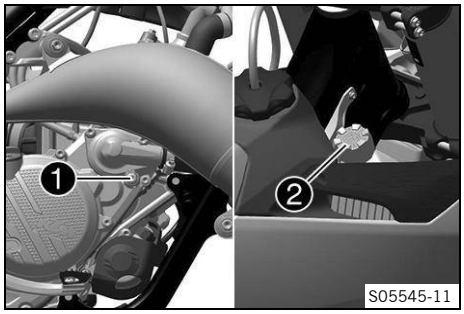
- Keep coolant out of the reach of children.
- Do not allow coolant to come into contact with skin, eyes, or clothing.
- Consult a doctor immediately if coolant has been ingested.
- Rinse the affected area immediately with plenty of water in the event of contact with skin.
- Rinse eyes thoroughly with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

WARNING

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

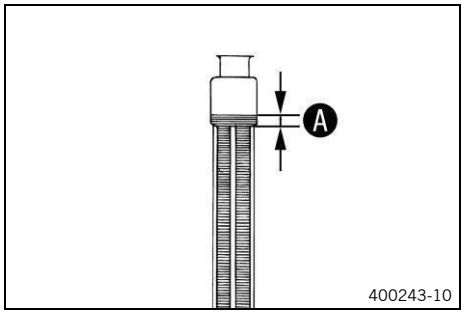
- Do not open the radiator, the radiator hoses, or other cooling system components if the engine or the cooling system are at operating temperature.
- Allow the cooling system and the engine to cool down before you open the radiator, the radiator hoses, or other components of the cooling system.
- In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

Condition: The engine is cold



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

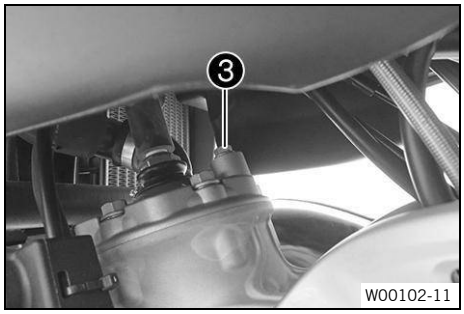
Screw, water pump cover	
M6×40	10 Nm (7.4 ft·lb$_f$)



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

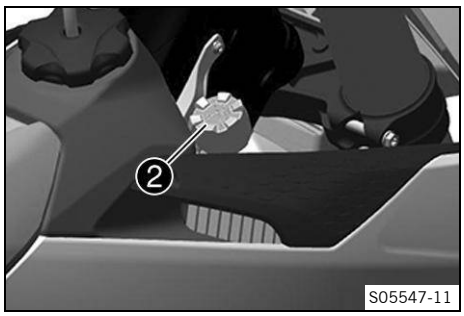
10 mm (0.39 in)

coolant	
Coolant (p. 186) Antifreeze protection to at least: −25 °C (−13.0 °F)	1.2 l (0.32 liq. gal$_{US}$)



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

Cylinder head bleed screw	
M6	10 Nm (7.4 ft·lb$_f$)



– Mount radiator cap ❷.

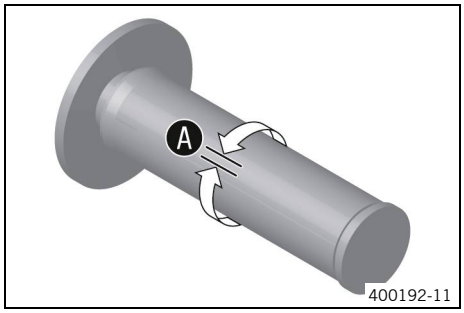
DANGER

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

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

– Allow the engine to warm up and cool down again.
– Check the transmission and cooling system for leaks.
– Check the coolant level. (p. 134)

17.1 Checking the play in the throttle cable



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

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

» If the throttle cable play does not meet the specified value:
– Adjust the throttle cable play. (p. 139)

DANGER

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

– Start the engine and let it run at idle speed. Move the handlebar back and forth over the entire steering range.

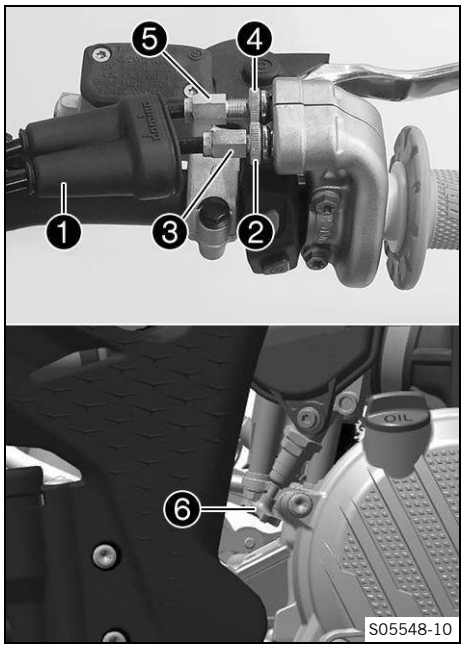
The idle speed must not change.

» If the idle speed changes:
– Adjust the throttle cable play. (p. 139)

17.2 Adjusting the throttle cable play

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

Preparatory work
– Remove the seat. (p. 81)
– Remove the fuel tank. (p. 87)
– Check the throttle cable routing. (p. 97)



Main work

– Move the handlebar to the straight-ahead position.
– Push back boot ❶.
– Loosen nut ❷.
– Screw adjusting screw ❸ in as far as possible.
– Loosen nut ❹.
– Press 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 twist grip is turned forward.
– Tighten nut ❹.
– Turn adjusting screw ❸ so that there is play in the throttle cable at the throttle twist grip.

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

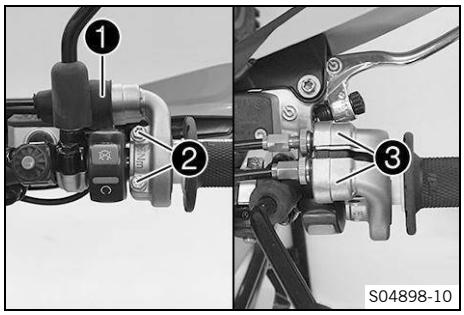
– Tighten nut ❷.
– Slide on boot ❶.
– Check the throttle grip for smooth operation.

Reworking

– Check the play in the throttle cable. (p. 139)

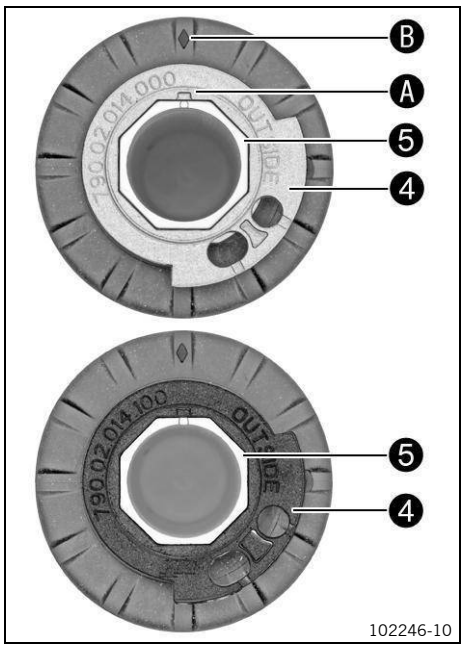
17.3 Adjusting the characteristic map of the throttle response

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



Main work

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



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

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

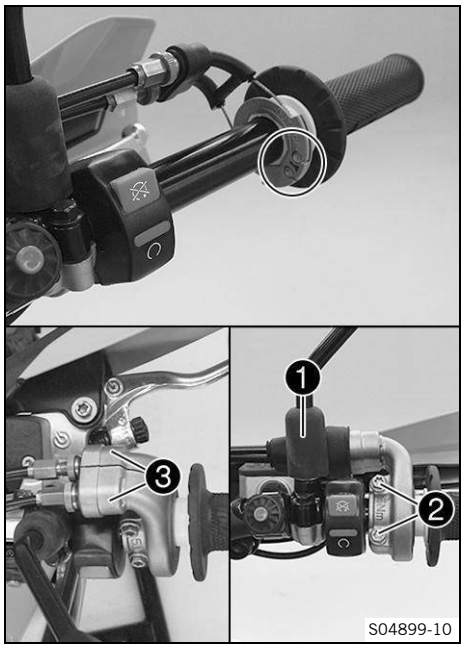
Work material (Alternative 1 / 2)
Gray guide plate (79002014000)
Work material (Alternative 2 / 2)
Black guide plate (79002014100)

Note

The gray guide plate opens the throttle valve more slowly.

The black guide plate opens the throttle valve more quickly.

The gray guide plate is mounted upon delivery.



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

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

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

Reworking

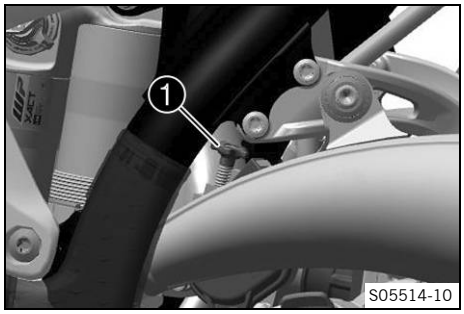
– Check the play in the throttle cable. (p. 139)

17.4 Adjusting the idle speed

WARNING

Danger of accidents The engine may suddenly come to a halt if the idle speed is set too low.

– Set the idle speed to the specified value.



– Run the engine until warm.
– Check whether the cold start button has returned to its basic position.

DANGER

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

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

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

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

Service hour counter with revolution counter (A54012920100)

Note

Turning clockwise increases the idle speed.

Turning counterclockwise lowers the idle speed.

An incorrect idle speed can have a negative impact on overall engine running.

17.5 Programming ambient air pressure

DANGER

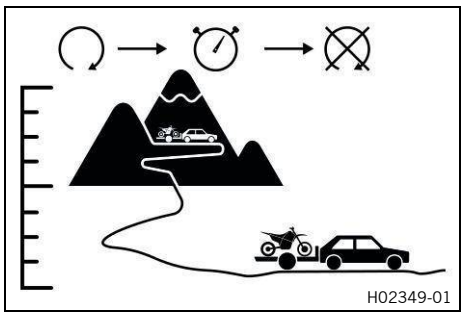
Danger of poisoning Exhaust gases are toxic and inhaling them may result in unconsciousness and death.

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

Note

If the vehicle is ridden with the engine running at various heights above sea level, the ambient pressure is programmed on an ongoing basis.

If the vehicle is transported over great height differences, the ambient pressure must be reprogrammed.



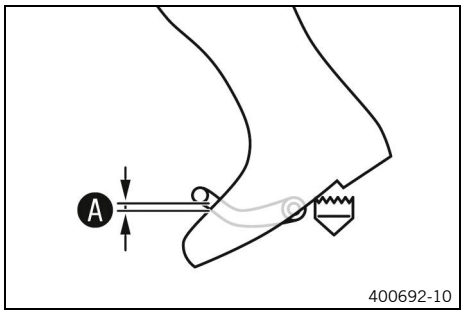
– Start the vehicle at the new height above sea level and switch off the engine again.

Wait for at least five seconds.

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

17.6 Checking the basic position of the gear shift lever

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

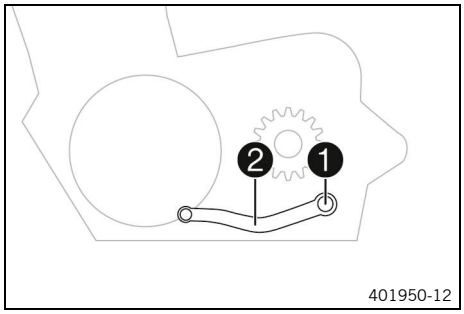


– Sit on the vehicle in the riding position and measure the distance Ⓐ between the upper edge of your boot and the shift lever.

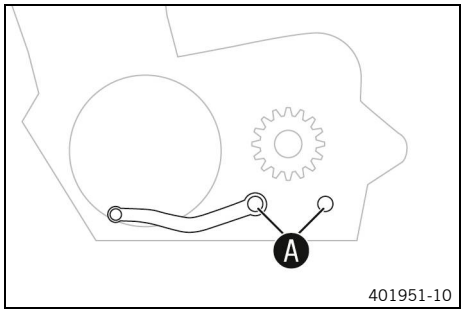
Distance between the gear shift lever and upper edge of boot	10 mm ... 20 mm (0.39 in ... 0.79 in)

  » If the distance does not meet the specifications:
    – Adjust the basic position of the gear shift lever. (p. 143)

17.7 Adjusting the basic position of the gear shift lever



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



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

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

Note
The range of adjustment is limited.

– Mount and tighten screw ❶ with the washers.

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

18.1 Programming the end positions of the exhaust control

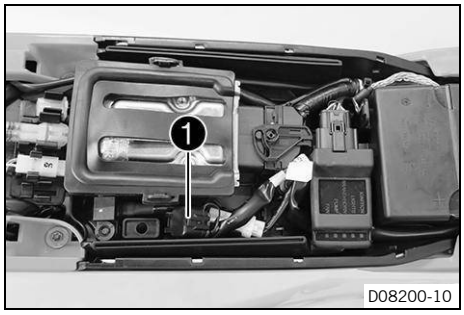
Note
If work has been carried out on the exhaust control, the end positions must be reprogrammed.

Condition: Engine is off

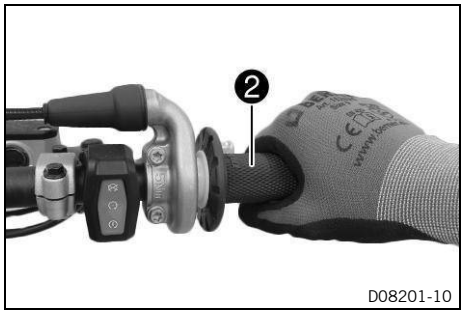
Preparatory work

– Remove the seat. (p. 81)

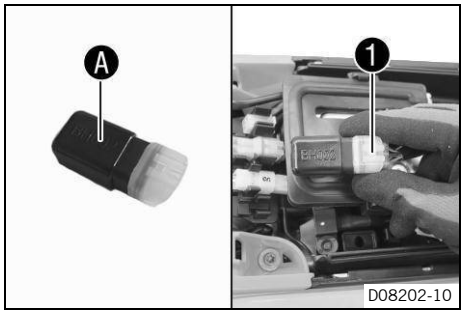
Main work



– Pull diagnostics connector ❶ off the holder.



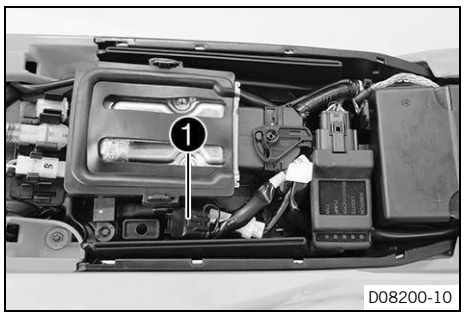
– Move throttle twist grip ❷ to where it is half open and hold in position.



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

Note
Wake-up connector Ⓐ is in the motorcycle's accessory pack.

– Wait for at least five seconds.
  ✓ The end positions of the exhaust control are read. The procedure is clearly audible.
  ✓ The dashboard illumination is activated, the combination switch lights up green.
– Release the fixing from the throttle grip.
  ✓ The end positions of the exhaust control are programmed.
– Wait until you can no longer hear the exhaust control engine operating.
– Disconnect wake-up connector Ⓐ from diagnostic connector ❶.



– Mount diagnostics connector ❶ on the holder.

Reworking

– Mount the seat. (p. 82)

19.1 Changing the fuel screen

DANGER

Fire hazard Fuel is highly flammable.

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

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

WARNING

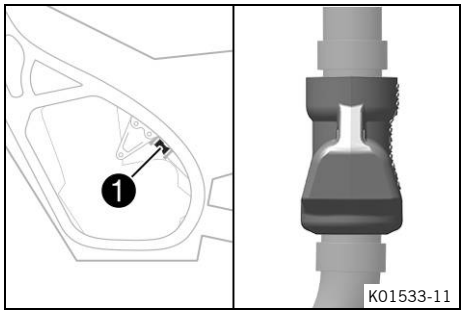
Danger of poisoning Fuel is harmful to health.

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

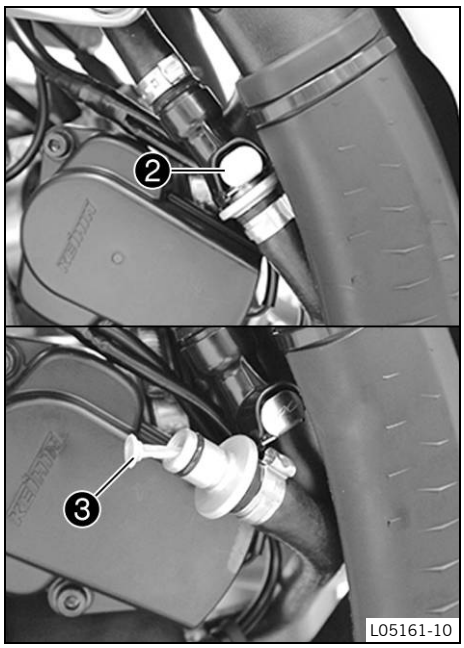
NOTE

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

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



– Remove protection cap ❶ of the fuel line.



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

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

– Disconnect the quick-lock coupling.

Note
Remaining fuel may flow out of the fuel hose.

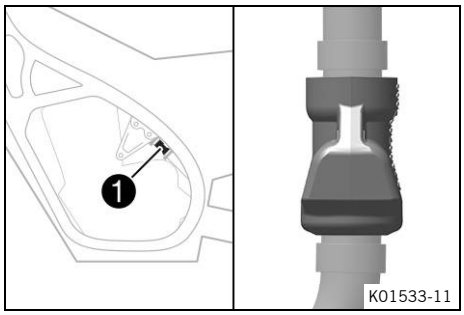
– Pull fuel screen ❸ out of the connecting piece.
– Slide the new fuel screen all the way into the connecting piece.
– Spray silicone spray onto a lint-free cleaning cloth and lightly lubricate the O-ring of the quick-lock coupling.

Silicone spray (p. 186)

– Join quick-lock couplings.

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

– Start the engine and check the response.



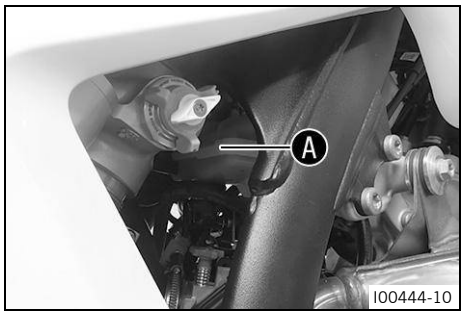
– Mount protection cap ❶ of the fuel line.

19.2 Checking 2-stroke oil level

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

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

Main work



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

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

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

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

– Add 2-stroke oil. (p. 53)

19.3 Priming oil pump

WARNING

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

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

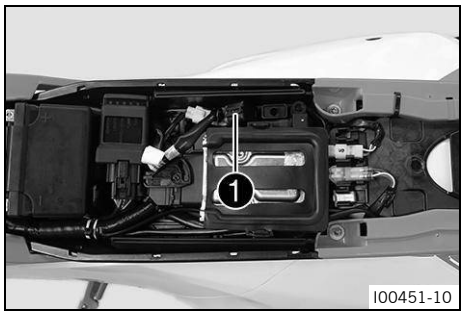
– As soon as the oil level warning light lights up, ride for no longer than until the remaining fuel in the tank is depleted.
– At the next opportunity add 2-stroke oil before you refuel.
– Time the oil pump if the 2-stroke oil hose has been removed or the 2-stroke oil tank has been fully depleted in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

Condition: Engine is off

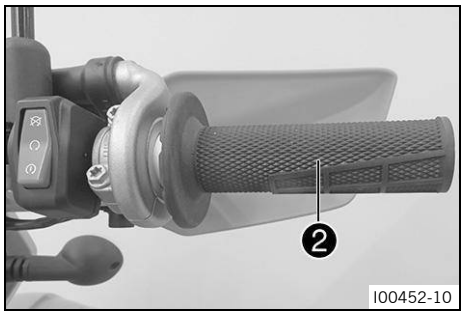
Preparatory work

– Remove the seat. (p. 81)
– Stand the motorcycle upright on a level surface.
– Check 2-stroke oil level. (p. 148)

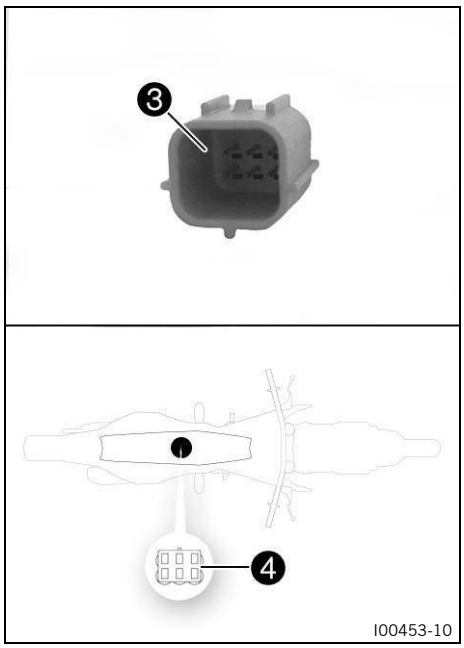
Main work



– Pull diagnostics connector ❶ off the holder.



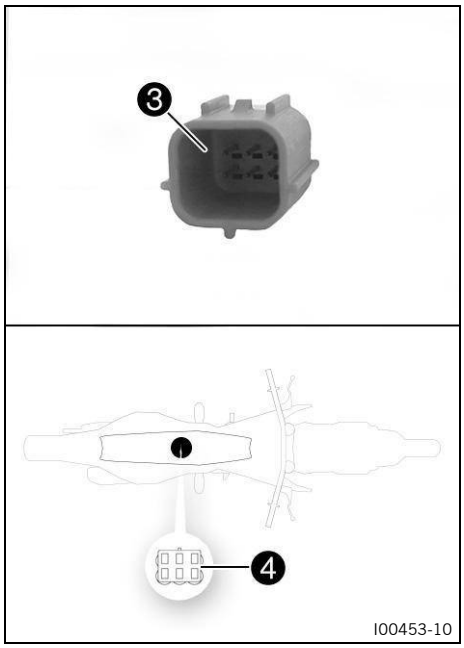
– Put throttle grip ❷ into full throttle position and secure.



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

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

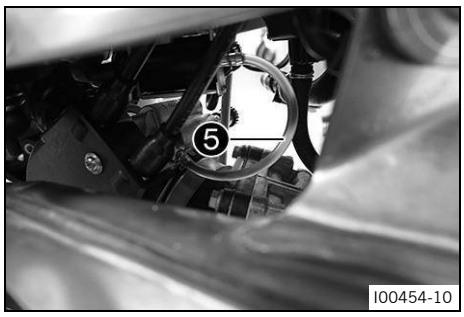
– Wait for at least five seconds.



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

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

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



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

Reworking

– Mount the seat. (p. 82)

19.4 Cleaning the oil screen in the oil tank

NOTE

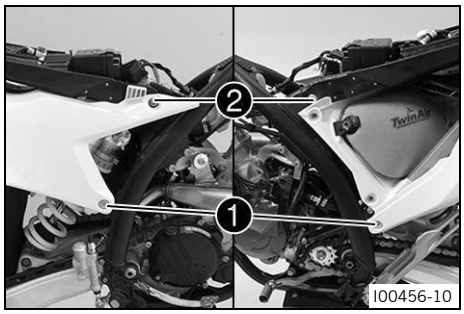
Environmental hazard Hazardous substances cause environmental damage.

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

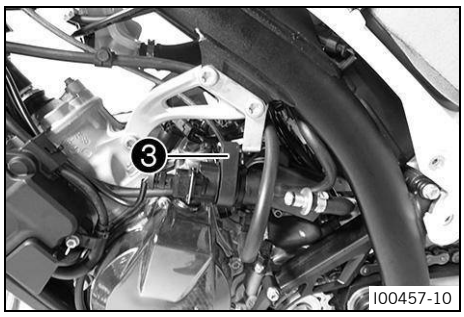
Preparatory work

– Raise the motorcycle with a lift stand. (p. 68)
– Remove the muffler. (p. 86)
– Remove the seat. (p. 81)
– Remove the fuel tank. (p. 87)
– Remove air filter box cover. (p. 83)

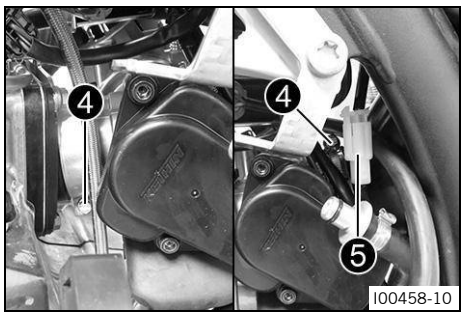
Main work



– Remove screws 1.
– Loosen screws 2.



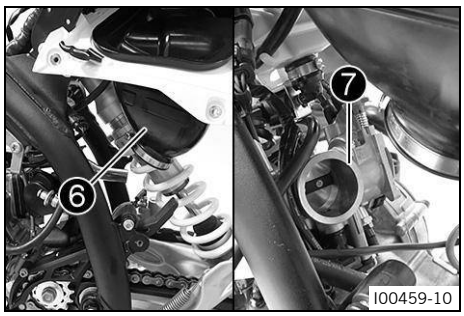
– Remove fuel vapor valve 3 from the bracket and hang it to the side.



– Loosen clamps 4 of the throttle valve body.

(All EXC models, including special edition models)

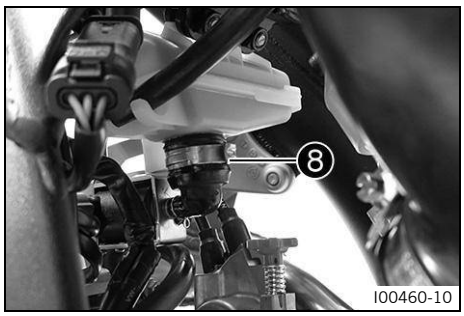
– Disconnect plug-in connector ❺ of the rear brake light switch.



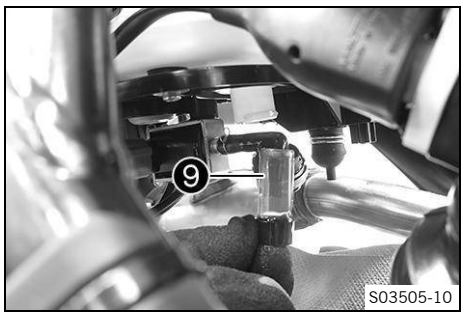
– Lift the subframe slightly and secure it.

Pay attention to intake flange ❻.

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



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

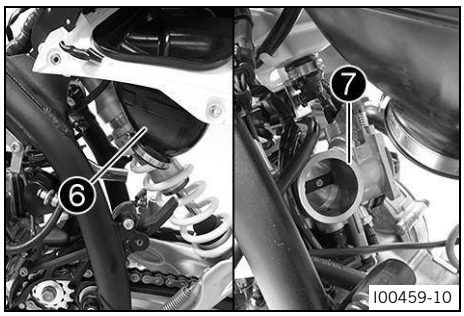


– Remove oil screen ❾ and clean it.
– Check the oil screen for damage.
  » If the oil screen is damaged:
    – Change the oil screen.



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

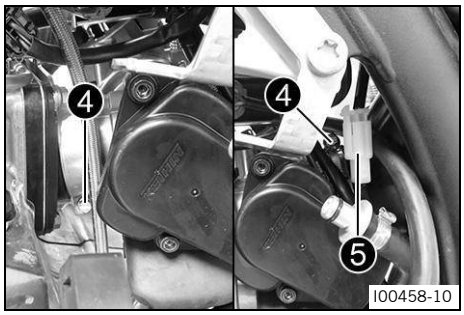
Hose clamp pliers (60029057000)



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

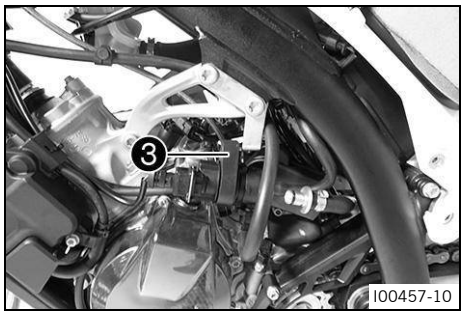
Pay attention to intake flange ❻.

(All EXC models, including special edition models)

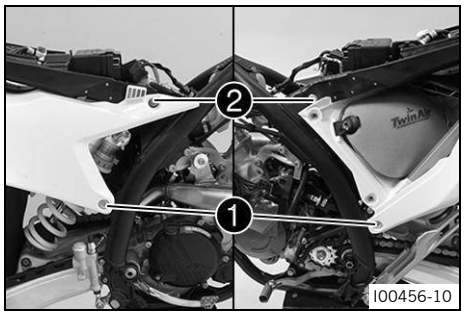


– Join plug-in connector ❺ of the rear brake light switch.
– Position and tighten clamps ❹ of the throttle valve body.

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



– Mount fuel vapor valve ❸.



– Mount and tighten screws ❶.

Screw, subframe, bottom	
M8	30 Nm (22.1 ft·lb$_f$) **Loctite® 2701**

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

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

Reworking

– Install the air filter box cover. (p. 83)
– Install the fuel tank. (p. 89)
– Add 2-stroke oil. (p. 53)
– Pre-fill the oil pump.
– Mount the seat. (p. 82)

– Install the muffler. (p. 86)
– Remove the motorcycle from the lift stand. (p. 68)

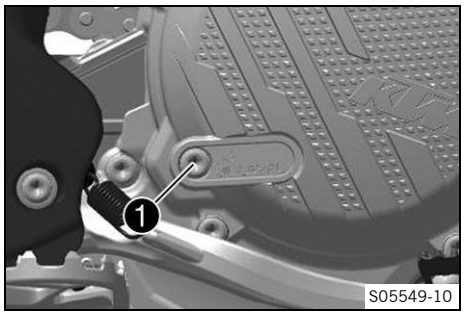
19.5 Checking the gear oil level

Condition: The engine is cold

Preparatory work

– Stand the motorcycle upright on a level surface.

Main work



– Remove gear oil level check screw 1.
– Check the gear oil level.

A small amount of gear oil should run out of the bore.

» If no gear oil runs out:
– Add gear oil. (p. 155)

– Mount and tighten the gear oil level check screw.

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

19.6 Changing the gear oil

WARNING

Danger of scalding Engine and gear oil heat up when the motorcycle is operated.

– Wear suitable protective clothing and safety gloves.
– In the event of scalding, rinse the area affected immediately with lukewarm water.

NOTE

Environmental hazard Hazardous substances cause environmental damage.

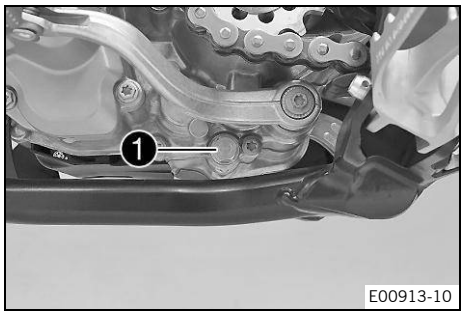
– Dispose of oils, grease, filters, fuel, cleaning agents, brake fluid, etc. correctly and in accordance with the applicable regulations.

Condition: Engine is at operating temperature

Preparatory work

(All except EXC-EU and EXC-BR standard models)

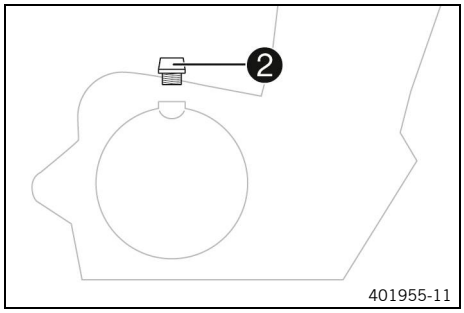
– Remove the skid plate. (p. 101)
– Park the motorcycle on a level surface.



Main work

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

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



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

gear oil	
Engine oil (15W/50) 📖 (p. 185) Partially synthetic	0.80 l (0.211 liq. gal$_{US}$)

– Mount and tighten the oil plug together with the O-ring.

DANGER

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

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

– Start the engine and check it for leaks.

Reworking

– Check the gear oil level. 📖 (p. 154)

(All except EXC-EU and EXC-BR standard models)

– Install the skid plate. 📖 (p. 101)

19.7 Adding gear oil

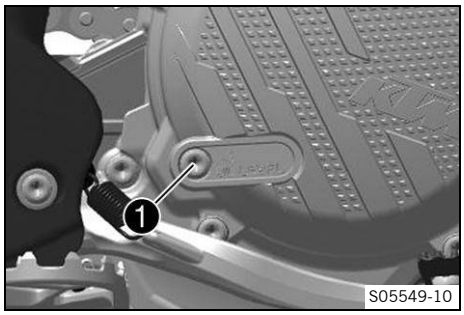
Note

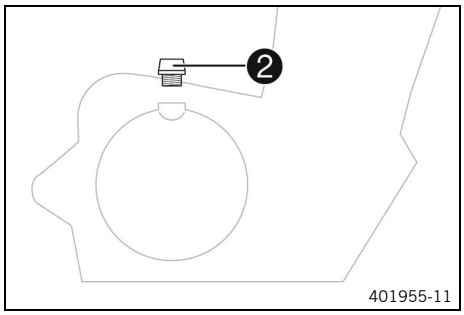
Too little gear oil or poor-quality oil results in premature wear to the transmission.

Condition: The engine is cold

Preparatory work

– Park the motorcycle on a level surface.





Main work

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

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

Engine oil (15W/50) (p. 185) Partially synthetic

– Mount and tighten the gear oil level check screw.

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

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

DANGER

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

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

– Start the engine and check it for leaks.

Reworking

– Check the gear oil level. (p. 154)

20.1 Cleaning the motorcycle

NOTE

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

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

Too high a pressure can cause malfunctions and destroy components.

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

Minimum distance	60 cm (23.6 in)

NOTE

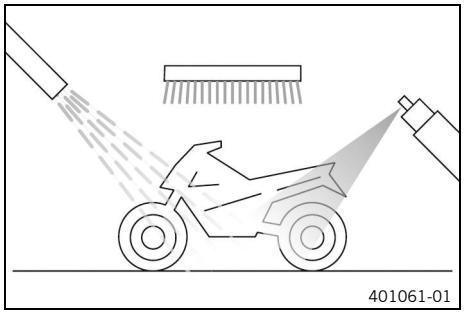
Environmental hazard Hazardous substances cause environmental damage.

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

Note

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

Avoid direct sunshine when cleaning the motorcycle.



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

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

Environmentally neutral universal cleaning agent (p. 190)

Note

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

– Clean the motorcycle thoroughly with a soft water jet, then allow to dry.
– Remove the cover from the exhaust system.

WARNING

Danger of accidents Moisture and dirt impair the brake system.

– Brake carefully several times to dry out and remove dirt from the brake pads and the brake discs.

– After cleaning, ride the vehicle a short distance until the engine warms up.

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

– After the motorcycle has cooled off, lubricate all moving parts and pivot points.
– Clean the chain. (p. 91)

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

– Treat bare metal (except for brake discs and the exhaust system) with an anticorrosive.

Preserving materials (p. 190)

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

Cleaning agents for plastics, glass, lacquers, metals, windshields and visors (p. 190)

(All EXC-EU models)
– Oil the steering lock.

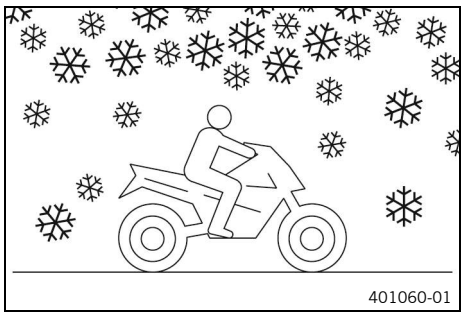
Universal oil spray (p. 185)

20.2 Checks and maintenance steps for winter operation

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

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

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



– Clean the motorcycle. (p. 157)
– Clean brake system.

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

Note
Warm water enhances the corrosive effects of salt.

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

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

– Clean the chain. (p. 91)

21.1 Storage

WARNING

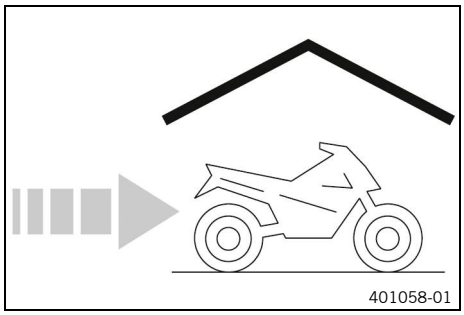
Danger of poisoning Fuel is harmful to health.

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

Note

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

Before storing the motorcycle, check all parts for function and wear. If service, repairs, or replacements are necessary, you should do this during the storage period (workshops less busy). This allows you to avoid long waiting periods when the next season starts.


401058-01

- Clean the motorcycle. (p. 157)
- Change the gear oil. (p. 154)
- Check the frost protection and coolant level. (p. 133)
- When refueling for the last time before taking the motorcycle out of service, add fuel additive.

Fuel additive (p. 184)

- Refuel. (p. 52)

Tip

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

- Add 2-stroke oil. (p. 53)
- Check the tire pressure. (p. 119)
- Remove the 12 V battery. (p. 121)
- Charge the 12 V battery. (p. 123)

Ideal charging and storage temperature of the lithium-ion battery	10 °C ... 20 °C (50.0 °F ... 68.0 °F)

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

Note

KTM recommends jacking up the motorcycle.

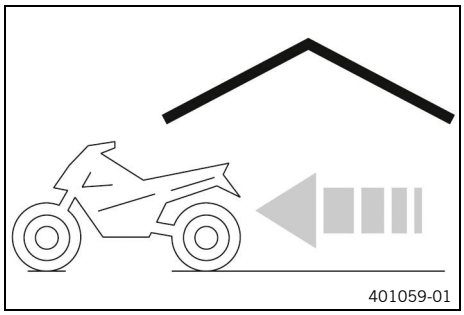
- Raise the motorcycle with a lift stand. (p. 68)

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

Note

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

21.2 Preparing for use after storage



- Remove the motorcycle from the lift stand. (p. 68)
- Install the 12 V battery. (p. 122)
- Perform checks and maintenance measures when preparing for use. (p. 48)
- Take a test ride.

22.1 troubleshooting

Cause	Finding	Remedy
The engine does not turn over (starter motor)	Operating error 12 V battery discharged Main fuse blown Starter relay defective Starter motor defective	– Carry out the starting procedure. (p. 48) – Charge the 12 V battery. (p. 123) – Check the charging voltage. – Check the open-circuit current. – Check the stator winding of the alternator. – Change the main fuse. (p. 126) – Check the starter relay.
The engine turns but does not start	Operating error Quick-lock coupling not joined Idle speed is not set correctly Fuel supply interrupted Spark plug sooty or wet Plug gap of spark plug too wide Faulty ignition Short-circuit cable in wiring harness frayed, stop button or emergency OFF switch faulty Connector or ignition coil loose or oxidized Malfunction in the electronic fuel injection	– Carry out the starting procedure. (p. 48) – Join quick-lock couplings. – Adjust the idle speed. (p. 142) – Check the fuel tank vent. – Clean and dry the spark plug and spark plug connector, or change if necessary. – Adjust plug gap. Plug gap of spark plug: 0.6 mm (0.024 in) – Ignition coil - check the primary winding. – Check the spark plug connector. – Check the stator winding of the alternator. – Check wiring harness (visual check). – Check the electrical system. – Clean the connector and treat with contact spray. – Check wiring for damage and electrical plug-in connectors for corrosion and damage. – Read out the fault memory using the diagnostics tool.
The engine has no idle speed	Faulty spark plug Faulty ignition Idle speed is not set correctly	– Change the spark plug. – Ignition coil - check the primary winding. – Check the spark plug connector. – Check the stator winding of the alternator. – Adjust the idle speed. (p. 142)
Engine does not speed up	Malfunction in the electronic fuel injection Faulty ignition Ambient pressure is incorrectly stored	– Check wiring for damage and electrical plug-in connectors for corrosion and damage. – Read out the fault memory using the diagnostics tool.

Cause	Finding	Remedy
		– Ignition coil - check the primary winding. – Check the spark plug connector. – Check the stator winding of the alternator. – Program ambient air pressure. (p. 142)
Engine has too little power	Air filter is very dirty Fuel filter is very dirty Fuel screen is very dirty Malfunction in the electronic fuel injection Fuel supply interrupted Exhaust system leaks, deformed or too little damping material in the silencer Faulty ignition Damaged membrane or reed valve housing Ambient pressure is incorrectly stored	– Clean the air filter and air filter box. (p. 85) – Change the fuel filter. – Change the fuel screen. (p. 147) – Check wiring for damage and electrical plug-in connectors for corrosion and damage. – Read out the fault memory using the diagnostics tool. – Check the fuel tank vent. – Check exhaust system for damage. – Change the damping material on the main silencer. (p. 87) – Ignition coil - check the primary winding. – Check the spark plug connector. – Check the stator winding of the alternator. – Check the membrane and reed valve housing. – Program ambient air pressure. (p. 142)
The engine dies during the trip	Lack of fuel The engine takes in false air Connector or ignition coil loose or oxidized Ambient pressure is incorrectly stored	– Refuel. (p. 52) – Check that the intake manifold is firmly seated. – Clean the connector and treat with contact spray. – Program ambient air pressure. (p. 142)
Engine overheats	Too little coolant in cooling system Too little air stream Radiator fins very dirty Foam formation in the cooling system Damaged cylinder head or cylinder head gasket Bent radiator hose Thermostat defective	– Check the transmission and cooling system for leaks. – Check the coolant level. (p. 134) – Switch off the engine when standing. – Clean the radiator fins. – Drain the coolant. (p. 135) – Refill the coolant. (p. 135) – Check the cylinder head and cylinder head gasket. – Change the radiator hose. – Check the thermostat.

Cause	Finding	Remedy
		Opening temperature: 70 °C (158.0 °F)
White smoke development (steam in the exhaust gas)	Damaged cylinder head or cylinder head gasket	– Check the cylinder head and cylinder head gasket.
Gear oil emerges from the vent hose	Too much gear oil added	– Check the gear oil level. (p. 154)
Water in the gear oil	Damaged radial shaft seal ring or water pump	– Check the radial shaft seal ring and the water pump.
Malfunction indicator lamp lights up or flashes	Malfunction in the electronic fuel injection	– Check wiring for damage and electrical plug-in connectors for corrosion and damage. – Read out the fault memory using the diagnostics tool.
12 V battery discharged	The 12-V battery is not being charged by the alternator unwanted electrical load	– Check the charging voltage. – Check the stator winding of the alternator. – Check the open-circuit current.
Values in combination instrument deleted (time, stop watch, lap times)	The combination instrument battery is empty	– Change combination instrument battery. (p. 130)

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

23.1 Engine control trouble code

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

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

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

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

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

Blink code for malfunction indicator light	 14: Malfunction indicator light flashes 1x long, 4x short
Error level condition	Crankcase pressure sensor – difference too high between sensor and engine control unit

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

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

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

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

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

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

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

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

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

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

Blink code for malfunction indicator light	 50: Malfunction indicator light flashes 5x long
Error level condition	Exhaust control actuator – no signal Exhaust control actuator – temperature too high Exhaust control actuator – incorrect setting Exhaust control actuator – setpoint value signal faulty Exhaust control actuator – input signal too low Exhaust control actuator – input signal too high Exhaust control actuator – mechanical error in the lower position Exhaust control actuator – mechanical error in the upper position Exhaust control actuator – mechanical error

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

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

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

24.1 Engine

24.1.1 Technical data - engine

Design	Single-cylinder 2-stroke engine, liquid-cooled, with diaphragm intake and exhaust control
Displacement	
(250 XC-W)	249 cm³ (15.19 in³)
(All 300 models)	293.15 cm³ (17.8891 in³)
Stroke	72 mm (2.83 in)
Bore	
(250 XC-W)	66.4 mm (2.614 in)
(All 300 models)	72 mm (2.83 in)
idle speed	1,400 rpm ... 1,500 rpm (23.33 Hz ... 25.00 Hz)
Crankshaft bearing	1 grooved ball bearing, 1 roller bearing
Big (bottom) end bearing	Needle bearing
Wrist pin bearing	Needle bearing
Piston	Cast aluminum
Piston rings	
(250 XC-W)	2 half keystone rings
(All 300 models)	2 rectangular rings
X-dimension (upper edge of piston to upper edge of cylinder)	0 mm ... 0.10 mm (0 in ... 0.0039 in)
Z-dimension (height of control flap)	
(250 XC-W)	49.7 mm ... 50.0 mm (1.957 in ... 1.969 in)
(All 300 models)	50.2 mm ... 50.5 mm (1.976 in ... 1.988 in)
Primary transmission	26:72
Clutch	Multi-disc wet clutch / hydraulically activated
Transmission	6 speed transmission, claw shift
Gear ratios	
1st gear	13:33
2nd Gear	16:30
3rd Gear	18:26
4th Gear	22:26
5th Gear	23:23
6th Gear	26:22
Ignition system	Contactless controlled fully electronic ignition with digital ignition adjustment
Spark plug	NGK BR 7 ES

Plug gap of spark plug	0.6 mm (0.024 in)
Starting aid	Electric starter

24.1.2 Capacities - engine

gear oil	
Engine oil (15W/50) (p. 185) Partially synthetic	0.80 l (0.211 liq. gal_{US})
coolant	
Coolant (p. 186) Antifreeze protection to at least: −25 °C (−13.0 °F)	1.2 l (0.32 liq. gal_{US})

24.2 Chassis

24.2.1 Technical data - chassis

Frame	Central tube frame made of chrome molybdenum steel tubing
Suspension travel:	
front	300 mm (11.81 in)
rear	310 mm (12.20 in)
Triple clamp offset	22 mm (0.87 in)
Brake system	Disc brakes, floating brake calipers
Brake discs - diameter	
front	260 mm (10.24 in)
rear	220 mm (8.66 in)
Brake disc wear limit **(All standard models)**	
front	2.5 mm (0.098 in)
rear	3.5 mm (0.138 in)
Brake disc wear limit **(All special models)**	
front	2.5 mm (0.098 in)
rear	3.7 mm (0.146 in)
Final drive **(All 300 XC-W models)**	14:45
Final drive **(All BR-models)**	14:48
Final drive **(250 XC–W US)**	13:45
Final drive **(250 XC–W EU)**	13:50
Final drive **(All EXC-EU models)**	14:50

Chain	5/8 x 1/4"
Rear sprockets available	• 45 teeth • 46 teeth • 47 teeth • 48 teeth • 49 teeth • 50 teeth • 51 teeth • 52 teeth
Steering head angle	63.9° (1.115 rad)
Wheelbase	1,489 ±10 mm (58.62 ±0.39 in)
Seat Height unloaded	963 mm (37.91 in)
Ground clearance unloaded	347 mm (13.66 in)
Weight without fuel approx. **(All Six Days and BR models)**	104.7 kg (230.82 lb)
Weight without fuel approx. **(All HARDENDURO models)**	105.9 kg (233.47 lb)
Weight without fuel approx. **(All standard models except BR)**	104.4 kg (230.16 lb)
Maximum permissible front axle load	145 kg (319.7 lb)
Maximum permissible rear axle load	190 kg (418.9 lb)
Maximum permissible total weight	335 kg (738.5 lb)

24.2.2 Technical data - tires

Street tire pressure **(All EXC models, including special edition models)**	
front	2.0 bar (29.0 psi)
rear	2.0 bar (29.0 psi)
Off-road tire pressure	
front	1.0 bar (14.5 psi)
rear	1.0 bar (14.5 psi)

Validity	Tire front	Rear tire
(All 250 XC-W EU and 300 EXC EU standard models)	**90/90 - 21 M/C 54R M+S TT** MAXXIS Maxx Enduro	**140/80 - 18 M/C 70R M+S TT** MAXXIS Maxx Enduro
(All BR-models)	**90/90 - 21 M/C 54M M+S TT** Pirelli 6 Days Extreme	**140/80 - 18 M/C 70R M+S TT** Pirelli 6 Days Extreme

Validity	Tire front	Rear tire
(All 300 EXC EU special edition models)	**90/90 - 21 M/C 54M M+S TT** Metzeler MCE 6 DAYS EXTREME	**140/80 - 18 M/C 70M M+S TT** Metzeler MCE 6 DAYS EXTREME
(All US models)	**80/100 - 21 M/C 51M M+S TT** Dunlop Geomax AT82F	**110/100 - 18 M/C 64M M+S TT** Dunlop Geomax AT82
The tires specified represent one of the possible series production tires. For alternative manufacturers, if any, contact an authorized manufacturer or qualified tire dealership. If local road approval regulations apply, these and the respective technical specifications must be observed.		

24.2.3 Capacities - vehicle

Total fuel tank capacity, approx.	
Super unleaded (ROZ 95) (p. 184)	9 l (2.4 liq. gal_{US})
Fuel reserve, approx.	
Super unleaded (ROZ 95) (p. 184)	1.5 l (0.40 liq. gal_{US})
2-stroke oil tank content approx.	
2-stroke engine oil (p. 185) fully synthetic	0.8 l (0.21 liq. gal_{US})

24.3 Electrics

24.3.1 Battery

12-V battery	HJTZ5S-FP-C	Lithium-ion battery Battery voltage: 12 V Nominal capacity: 2.0 Ah Maintenance-free
Button cell	CR 2430	Battery voltage: 3 V

24.3.2 Fuses

Fuse	58011109120	20 A

24.3.3 Lamps

Low beam/high beam	LED	
Parking light	LED	
Indicator lamps	W2,3W / Sockel W2x4,6d	12 V 2.3 W (0.0031 hp)
(All EXC models, including special edition models) Turn signal	R10W / Sockel BA15s	12 V 10 W (0.013 hp)
Brake/tail light	LED	
(All EXC models, including special edition models) License plate lighting	LED	

24.4 Fork

24.4.1 Technical data - fork (All except HARDENDURO models)

Fork part number	A490C163Z402000

Fork	**WP XPLOR CC**
Compression damping	
Comfort	17 clicks
Standard	15 clicks
Sport	7 clicks
Rebound damping	
Comfort	19 clicks
Standard	17 clicks
Sport	9 clicks
Spring length with preload spacer(s)	457 mm (17.99 in)
Spring rate	
Weight of rider: 65 kg ... 75 kg (143.3 lb ... 165.3 lb)	4.4 N/mm (25.12 lb_f/in)
Weight of rider: 75 kg ... 85 kg (165.3 lb ... 187.4 lb)	4.6 N/mm (26.27 lb_f/in)
Weight of rider: 85 kg ... 95 kg (187.4 lb ... 209.4 lb)	4.8 N/mm (27.41 lb_f/in)
Fork length	940 mm (37.01 in)

24.4.2 Capacities - fork (All except HARDENDURO models)

Oil capacity, cartridge	
Fork oil (48601166S1) (SAE 4) (p. 185)	175 ml (5.92 fl. oz_{US})
Oil capacity, outer assembly	
Fork oil (48601166S1) (SAE 4) (p. 185)	350 ml (11.83 fl. oz_{US})

24.4.3 Technical data - fork (All HARDENDURO models)

Fork part number	A490C183Z402000

Fork	**WP XPLOR CC**
Compression damping	
Comfort	17 clicks
Standard	15 clicks
Sport	7 clicks
Rebound damping	
Comfort	19 clicks
Standard	17 clicks

Sport	9 clicks
Spring preload – preload adjuster	0 turns (0°)
Spring length with preload spacer(s)	457 mm (17.99 in)
Spring rate	
Rider's weight: 65 kg ... 75 kg (143.3 lb ... 165.3 lb)	4.4 N/mm (25.12 lb_f/in)
Rider's weight: 75 kg ... 85 kg (165.3 lb ... 187.4 lb)	4.6 N/mm (26.27 lb_f/in)
Rider's weight: 85 kg ... 95 kg (187.4 lb ... 209.4 lb)	4.8 N/mm (27.41 lb_f/in)
Fork length	940 mm (37.01 in)

24.4.4 Capacities - fork (All HARDENDURO models)

Oil capacity, cartridge	
Fork oil (48601166S1) (SAE 4) (p. 185)	175 ml (5.92 fl. oz_{US})
Oil capacity, outer assembly	
Fork oil (48601166S1) (SAE 4) (p. 185)	350 ml (11.83 fl. oz_{US})

24.5 Shock absorber

24.5.1 Technical data - shock absorber

Shock absorber part number	A490C463Z305000

Shock absorber	**WP PDS**
Low-speed compression damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks
High-speed compression damping	
Comfort	2.5 turns (900°)
Standard	2 turns (720°)
Sport	1.5 turns (540°)
Rebound damping	
Comfort	18 clicks
Standard	15 clicks
Sport	12 clicks
Preload	7 mm (0.28 in)

Spring rate	
Weight of rider: 65 kg ... 75 kg (143.3 lb ... 165.3 lb)	66 N/mm ($376.9\ lb_f/in$)
Weight of rider: 75 kg ... 85 kg (165.3 lb ... 187.4 lb)	69 N/mm ($394.0\ lb_f/in$)
Weight of rider: 85 kg ... 95 kg (187.4 lb ... 209.4 lb)	72 N/mm ($411.1\ lb_f/in$)
Spring length	225 mm (8.86 in)
Gas assisted	10 bar (145 psi)
Static sag	38 mm (1.50 in)
Rider sag	110 mm (4.33 in)
Installation position	402.7 mm (15.854 in)

24.5.2 Capacities - shock absorber

Oil capacity, shock absorber	
Shock absorber oil (50180751S1) (SAE 2.5) (p. 186)	Fill to the maximum mark

24.6 Tightening torque

24.6.1 engine tightening torques

Detent arm screw	M5	6 Nm ($4.4\ ft{\cdot}lb_f$) **Loctite® 243**
Actuator screw	M5	5 Nm ($3.7\ ft{\cdot}lb_f$) **Loctite® 243**
Actuator cover screw	M5	5 Nm ($3.7\ ft{\cdot}lb_f$) **Loctite® 243**
Exhaust control flap screw	M5	8 Nm ($5.9\ ft{\cdot}lb_f$) **Loctite® 243**
Screw, bearing retainer	M5	6 Nm ($4.4\ ft{\cdot}lb_f$) **Loctite® 243**
Screw, retaining bracket of exhaust control	M5	6 Nm ($4.4\ ft{\cdot}lb_f$) **Loctite® 2701**
Control unit cover screw	M5	6 Nm ($4.4\ ft{\cdot}lb_f$)

Screw, clutch spring retainer M5	6 Nm (4.4 ft·lb$_f$)
Screw, crankshaft position sensor M5	6 Nm (4.4 ft·lb$_f$) **Loctite® 243**
Screw, main shaft of exhaust control M5	8 Nm (5.9 ft·lb$_f$) **Loctite® 243**
Nut, axle for control flap M5	5 Nm (3.7 ft·lb$_f$)
Screw, cover, actuator, exhaust control M5	5 Nm (3.7 ft·lb$_f$) **Loctite® 243**
Stator screw M5	6 Nm (4.4 ft·lb$_f$) **Loctite® 2701**
Screw, intake manifold / diaphragm housing M6	6 Nm (4.4 ft·lb$_f$)
Screw, gear oil level check M6	8 Nm (5.9 ft·lb$_f$)
Shift star screw M6	10 Nm (7.4 ft·lb$_f$) **Loctite® 243**
Screw, shift lever M6	14 Nm (10.3 ft·lb$_f$) **Loctite® 243**
Screw, water pump cover M6×40	10 Nm (7.4 ft·lb$_f$)
Screw, ignition cover M6	8 Nm (5.9 ft·lb$_f$)
Cap nut, water pump impeller M6	5 Nm (3.7 ft·lb$_f$) **Loctite® 243**
Screw, outer clutch cover M6	8 Nm (5.9 ft·lb$_f$)
Screw, inner clutch cover M6	10 Nm (7.4 ft·lb$_f$)
Screw, starter motor M6	10 Nm (7.4 ft·lb$_f$)
Screw, starter motor cover M6	8 Nm (5.9 ft·lb$_f$)
Screw, engine case M6	10 Nm (7.4 ft·lb$_f$)
Screw, intermediate flange M6	8 Nm (5.9 ft·lb$_f$)
Cylinder head bleed screw M6	10 Nm (7.4 ft·lb$_f$)

Screw, balancer shaft M8	30 Nm (22.1 ft·lb$_f$) **Loctite® 243**
Screw, cylinder head M8	27 Nm (19.9 ft·lb$_f$)
Nut, cylinder base M10	35 Nm (25.8 ft·lb$_f$)
Screw, drive chain front sprocket M10	60 Nm (44.3 ft·lb$_f$) **Loctite® 2701**
Stud, cylinder base M10	12 Nm (8.9 ft·lb$_f$)
Nut, crankshaft M12LH×1	60 Nm (44.3 ft·lb$_f$)
Transmission drain plug with magnet M12×1.5	20 Nm (14.8 ft·lb$_f$)
Spark plug M14×1.25	25 Nm (18.4 ft·lb$_f$)
Nut, inner clutch hub M18×1.5	100 Nm (73.8 ft·lb$_f$) **Loctite® 243**
Nut, primary gear M18LH×1.5	150 Nm (110.6 ft·lb$_f$) **Loctite® 243**
Screw, reed valve support plate **EJOT DELTA PT®** – 30×12	1 Nm (0.7 ft·lb$_f$)
Screw, outer membrane sheets **EJOT DELTA PT®** – 30×6	1 Nm (0.7 ft·lb$_f$)
Screw, inner membrane sheets **EJOT DELTA PT®** – 35×25	1 Nm (0.7 ft·lb$_f$)
Screw, pressure sensor **EJOT PT®** – K60×20 – AL	2.5 Nm (1.84 ft·lb$_f$)

24.6.2 Chassis tightening torques

Screw, radiator hoses clip	2.4 Nm (1.77 ft·lb$_f$)
Screw, hose clip, inlet sleeve	2.8 Nm (2.07 ft·lb$_f$)
Screw, start button/kill switch **EJOT PT®**	2 Nm (1.5 ft·lb$_f$)
Mushroom head screw for spoiler and seat	2.5 Nm (1.84 ft·lb$_f$)
Hose connector, active carbon filter	3.8 Nm (2.80 ft·lb$_f$)
Screw, fixed grip M4	5 Nm (3.7 ft·lb$_f$) **Loctite® 243**

Screw, throttle body cover M5	2.6 Nm (1.92 ft·lb$_f$)
Remaining nuts on chassis M5	5 Nm (3.7 ft·lb$_f$)
Remaining screws on chassis M5	5 Nm (3.7 ft·lb$_f$)
Screw, battery terminal M5	2.5 Nm (1.84 ft·lb$_f$)
Screw, shock absorber adjusting ring M5	5 Nm (3.7 ft·lb$_f$)
(All models except US) Screw, light switch M5	1 Nm (0.7 ft·lb$_f$)
(All EXC models, including special edition models) Screw, turn signal switch M5	1 Nm (0.7 ft·lb$_f$)
Screw, frame protector M5	3 Nm (2.2 ft·lb$_f$)
Screw, battery terminal M5	2.5 Nm (1.84 ft·lb$_f$)
Screw, oil tank on frame M6	6 Nm (4.4 ft·lb$_f$)
Screw, oil pump M6	6 Nm (4.4 ft·lb$_f$)
Screw, fuel tank spoiler on radiator M6	6 Nm (4.4 ft·lb$_f$)
Nut, throttle cable wire on throttle valve body M6	3 Nm (2.2 ft·lb$_f$)
Screw, throttle twist grip M6	5 Nm (3.7 ft·lb$_f$)
Remaining nuts on chassis M6	10 Nm (7.4 ft·lb$_f$)
Remaining screws on chassis M6	10 Nm (7.4 ft·lb$_f$)
Screw, rear brake disc M6	14 Nm (10.3 ft·lb$_f$) **Loctite® 243**
Screw, front brake disc M6	14 Nm (10.3 ft·lb$_f$) **Loctite® 243**
Screw, ball joint of push rod on rear brake cylinder M6	10 Nm (7.4 ft·lb$_f$) **Loctite® 243**
Screw, chain slider guard M6	6 Nm (4.4 ft·lb$_f$) **Loctite® 243**
Screw, battery holding bracket M6	6 Nm (4.4 ft·lb$_f$)

Screw, cable on starter relay M6	6 Nm (4.4 ft·lb$_f$)
Screw, brake line guide for link fork M6	4.5 Nm (3.32 ft·lb$_f$) **Loctite® 243**
Screw, chain guide M6	10 Nm (7.4 ft·lb$_f$)
Screw, brake lever M6	5 Nm (3.7 ft·lb$_f$)
Screw, clutch lever M6	5 Nm (3.7 ft·lb$_f$)
Screw, seat installation M6	8 Nm (5.9 ft·lb$_f$)
Screw, oil pump holder on oil tank M6	6 Nm (4.4 ft·lb$_f$)
Screw, ground wire in tail section M6	10 Nm (7.4 ft·lb$_f$)
Screw, fender to triple clamp M6	12 Nm (8.9 ft·lb$_f$)
Screw, connector board incl. combination instrument M6	5 Nm (3.7 ft·lb$_f$)
Screw, oil tank cap M6	6 Nm (4.4 ft·lb$_f$)
Screw, wheel speed sensor on axle clamp M8	4.5 Nm (3.32 ft·lb$_f$)
Nut, rear sprocket screw M8	35 Nm (25.8 ft·lb$_f$) **Loctite® 2701**
Nut, rim lock M8	12 Nm (8.9 ft·lb$_f$)
Remaining nuts on chassis M8	25 Nm (18.4 ft·lb$_f$)
Remaining screws on chassis M8	25 Nm (18.4 ft·lb$_f$)
Screw, front brake caliper M8	25 Nm (18.4 ft·lb$_f$) **Loctite® 243**
(All standard models) Screw, top triple clamp M8	20 Nm (14.8 ft·lb$_f$)
(All standard models) Screw, bottom triple clamp M8	15 Nm (11.1 ft·lb$_f$)
(All standard models) Screw, upper steering stem M8	20 Nm (14.8 ft·lb$_f$) **Loctite® 243**

(All special models) Screw, top triple clamp M8	17 Nm (12.5 ft·lb$_f$)
(All special models) Screw, bottom triple clamp M8	12 Nm (8.9 ft·lb$_f$)
Screw, chain slider M8	15 Nm (11.1 ft·lb$_f$)
Screw, engine brace M8×20	25 Nm (18.4 ft·lb$_f$) **Loctite® 243**
Screw, subframe, bottom M8	30 Nm (22.1 ft·lb$_f$) **Loctite® 2701**
Screw, subframe, top M8	35 Nm (25.8 ft·lb$_f$) **Loctite® 243**
Screw, side stand attachment M8×26	33 Nm (24.3 ft·lb$_f$) **Loctite® 2701**
Screw, manifold M8	15 Nm (11.1 ft·lb$_f$)
Screw, front sprocket cover M8	15 Nm (11.1 ft·lb$_f$)
Handlebar clamp screw M8	20 Nm (14.8 ft·lb$_f$)
Screw, fork shoe M8	15 Nm (11.1 ft·lb$_f$)
Nut, brake pedal stop M8	25 Nm (18.4 ft·lb$_f$)
(All XC-W models) Nut, pull switch M8	0.8 Nm (0.59 ft·lb$_f$)
Engine bracket screw M10	60 Nm (44.3 ft·lb$_f$)
Remaining nuts on chassis M10	45 Nm (33.2 ft·lb$_f$)
Remaining screws on chassis M10	45 Nm (33.2 ft·lb$_f$)
Screw, handlebar mount M10	40 Nm (29.5 ft·lb$_f$) **Loctite® 243**
Bushing, foot brake lever M10	45 Nm (33.2 ft·lb$_f$)
Screw, brake caliper on brake caliper bracket M10	45 Nm (33.2 ft·lb$_f$) **Loctite® 243**

Temperature sensor water to t-plate M10	10 Nm (7.4 ft·lb$_f$)
Top shock absorber screw M12	80 Nm (59.0 ft·lb$_f$) **Loctite® 2701**
Bottom shock absorber screw M12	80 Nm (59.0 ft·lb$_f$) **Loctite® 2701**
Nut, swingarm pivot M16×1.5	100 Nm (73.8 ft·lb$_f$)
Screw, top steering head M20×1.5	12 Nm (8.9 ft·lb$_f$)
Screw, wheel spindle, front M20×1.5	35 Nm (25.8 ft·lb$_f$)
Nut, wheel spindle, rear M22×1.5	80 Nm (59.0 ft·lb$_f$)
Screw-in nozzle, cooling system M24×1.5	7.5 Nm (5.53 ft·lb$_f$) **Loctite® 243**
Spoke nipple, front wheel M4,5	6 Nm (4.4 ft·lb$_f$)
Spoke nipple, rear wheel M4,5	6 Nm (4.4 ft·lb$_f$)
(All EXC models, including special edition models) Screw, start/kill button **EJOT PT®** – K50×18	2 Nm (1.5 ft·lb$_f$)
Screw, intake air temperature sensor **EJOT DELTA PT®** – K50×18	0.7 Nm (0.52 ft·lb$_f$)
Screw, oil fill level sensor **EJOT PT®** – 50×18	2.5 Nm (1.84 ft·lb$_f$)
Screw, fuel pump **EJOT PT®** – K60×30 – Z	2.3 Nm (1.70 ft·lb$_f$)
Remaining screws on chassis **EJOT PT®** – K60×25 – Z	2 Nm (1.5 ft·lb$_f$)
Screw, subframe with filter box **EJOT PT®** – K60×20 – AL	5 Nm (3.7 ft·lb$_f$)

24 Technical specifications

A Technical terms

OBD	On-board diagnosis	Vehicle system that monitors the specified parameters of the vehicle electronics.

B Fuels

Super unleaded

Standards

• ROZ 95	→ DIN EN 228

Fuel additive

Recommended supplier

MOTOREX®

- **FUEL STABILIZER**

C Operating material

Off-road chain spray

Recommended supplier

MOTOREX®

- **CHAINLUBE OFF ROAD**

Fork oil

Order details

- 48601166S1

Standards

- SAE 4 → SAE

Universal oil spray

Recommended supplier

MOTOREX®

- **JOKER 440 SYNTHETIC**

Long-life grease

Recommended supplier

MOTOREX®

- **Bike Grease 2000**

Engine oil

Recommended supplier

MOTOREX®

- **TOP SPEED 4T**

Standards

→ JASO T903 MA2

- 15W/50 → SAE

Properties

- Partially synthetic

2-stroke engine oil

Recommended supplier

MOTOREX®

- **CROSS POWER 2T**

Standards

→ JASO FD

Properties

- fully synthetic

High viscosity grease

Recommended supplier

SKF®

- **LGHB 2**

Silicone spray

Recommended supplier

MOTOREX®

- **SILICONE SPRAY**

Shock absorber oil

Order details

- 50180751S1

Standards

- SAE 2.5 → SAE

Oil for foam air filter

Recommended supplier

MOTOREX®

- **RACING BIO AIR FILTER OIL**

Brake fluid DOT 5.1

Recommended supplier

MOTOREX®

- **BRAKE FLUID DOT 5.1**

Standards

→ DOT

Coolant

Recommended supplier

MOTOREX®

- **COOLANT M3.0**

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

D Electrics

Low beam/high beam (LED)

Product code

- LED

Low beam (LED)

Product code

- LED

Button cell (CR 2430)

Product code

- CR 2430

Properties

• Battery voltage	3 V

12-V battery (HJTZ5S-FP-C)

Product code

- HJTZ5S-FP-C

Properties

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

Turn signal (R10W / Sockel BA15s)

Product code

- R10W / Sockel BA15s

Properties

- 12 V
- 10 W
  (0.013 hp)

Brake/tail light (LED)

Product code

- LED

License plate lighting (LED)

Product code

- LED

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

Product code

- W2,3W / Sockel W2x4,6d

Properties

- 12 V
- 2.3 W
  (0.0031 hp)

Parking light (LED)

Product code

- LED

Fuse (58011109120)

Product code

- 58011109120

Properties

- 20 A

E Cleaning agents

Chain cleaner

Recommended supplier
MOTOREX®
• CHAIN CLEAN

Preserving materials

Recommended supplier
MOTOREX®
• MOTO PROTECT

Air filter cleaning agent

Recommended supplier
MOTOREX®
• RACING BIO AIR FILTER CLEANER

Cleaning agents for plastics, glass, lacquers, metals, windshields and visors

Recommended supplier
MOTOREX®
• QUICK CLEANER

Environmentally neutral universal cleaning agent

Recommended supplier
MOTOREX®
• MOTO CLEAN UNIVERSAL

F Icons

F.1 Symbol colors

F.1.1 Red symbols

Red symbols indicate a fault status that requires immediate intervention.

	The oil level warning lamp lights up red

F.1.2 Yellow and orange symbols

Yellow and orange symbols indicate a malfunction status that requires prompt intervention. Active driving aids are also represented by yellow or orange symbols.

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

F.1.3 Green and blue symbols

Green and blue symbols convey information.

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

1

12 V battery
- charging . . . 123
- installation . . . 122
- removing . . . 121

2

2-stroke oil level
- checking . . . 148

2-stroke oil tank cap
- closing . . . 24
- opening . . . 23

A

Accessories . . . 14

Air filter
- cleaning . . . 85
- installing . . . 84
- removing . . . 84

Air filter box
- cleaning . . . 85

Air filter box cover
- installing . . . 83
- preparing for securing . . . 86
- removing . . . 83

Ambient pressure
- programming . . . 142

Auxiliary substances . . . 14

B

Battery . . . 172

Brake discs
- checking . . . 102

Brake fluid
- adding front brake . . . 104
- adding to rear brake . . . 109

Brake fluid level
- checking on front brake . . . 103
- checking on rear brake . . . 109

Brake lining retainers
- checking on front brake . . . 105
- checking on rear brake . . . 110

Brake pad
- checking on front brake . . . 105

Brake pads
- changing on the rear brake . . . 111
- checking on rear brake . . . 110
- of the front brake, changing . . . 106

Brake pedal
- adjusting the basic position . . . 108
- checking the free travel . . . 107

C

Capacities
- Engine . . . 170
- vehicle . . . 172

Chain
- checking . . . 94
- cleaning . . . 91

Chain guide
- checking . . . 94

Chain tension
- adjusting . . . 93
- checking . . . 92

Characteristic map of the throttle response
- adjusting . . . 140

Checking basic chassis setting with
- rider's weight . . . 57

Clothing . . . 11

Clutch
- changing fluid . . . 100
- checking/correcting fluid level . . . 99

Clutch lever
- adjusting the basic position . . . 99

Compression damping
- adjusting the fork . . . 63

Coolant
- changing . . . 137
- draining . . . 135
- refilling . . . 135

Coolant level
- checking . . . 133...134

Customer service . . . 14

D

Dashboard
- adjusting . . . 30
- combination instrument battery, changing . . . 130
- setting kilometers or miles . . . 29
- setting the clock . . . 30

Defined use . . . 12

Difficult operating conditions . . . 44
- dry sand . . . 45
- high temperatures . . . 46
- low temperature . . . 47
- muddy surfaces . . . 46
- slow speed . . . 46
- snow . . . 47

wet sand 45
wet surfaces 46

E

Engine
running in 43
Engine number 18
Environment 12
Exhaust control
end positions, programming 145

F

Figures 14
Fork
checking basic setting 63
Fork legs
bleeding 68
cleaning the dust boots 69
installing 71
removing 71
Fork protector
installation 70
removing 70
Frame
checking 97
Frame protector
installation 83
removing 82
Front fender
installation 78
removing 78
Front sprocket
checking 94
Front wheel
installing 115
removing 114
Frost protection
checking 133
Fuel screen
changing 147
Fuel tank
installation 89
removing 87
Fuel tank cap
closing 23
opening 22
Fuse
changing the main fuse 126
Fuses 172

G

Gear oil
adding 155
changing 154
Gear oil level
checking 154
Gear shift lever
adjusting the basic position 143
checking the basic position 143

H

Hand grip
checking 98
Handbrake lever
checking the free travel 102
free travel, adjusting 102
Handlebar position
adjusting 66
Headlight
adjusting headlight range 130
Headlight bulb
changing 128
Headlight mask with headlight
installation 127
removing 126
Headlight setting
checking 130
High-speed compression damping
adjusting the shock absorber 58

I

Idle speed
adjusting 142
Implied warranty 14
Improper use 13
Intended use 12

L

Lamps 172
Lower triple clamp
installation 73
removing 72
Low-speed compression damping
adjusting the shock absorber 57

M

Main fuse
changing 126
Manufacturer's warranty 14

Motorcycle
cleaning 157
raising with lift stand 68
removing from lift stand 68
Muffler
changing damping material 87
installation 86
removing 86

O

Oil pump
priming 149
Owner's manual 12

P

Preload
adjusting the fork 64
Preparing for use
after storage 161
checks and maintenance measures when preparing for use 48
notes on preparing for first use 42
Protective clothing 11

R

Rear sprocket
checking 94
Rear wheel
installation 117
removing 116
Rebound damping
adjusting the fork 65
adjusting the shock absorber 59
Refueling
2-stroke oil 53
fuel 52
Resources 14
Rider sag
adjusting 62

S

Safe use 11
Seat
mounting 82
removing 81
Service 14
Shock absorber
adjusting the spring preload 61
checking static sag 60
checking the rider sag 60
installation 80
removing 79
Skid plate
installation 101
removing 101
Spare parts 14
Spoke tension
checking 120
Starting 48
Steering
locking 27
unlocking 27
Steering head bearing
lubricating 78
Steering head bearing play
adjusting 77
checking 76
Storage 160
Swingarm
checking 97

T

Tampering 10
Technical specifications
tires 171
Throttle cable play
adjusting 139
checking 139
Throttle cable routing
checking 97
Tire condition
checking 118
Tire pressure
checking 119
Transportation 51
Turn signal bulb
changing 129

V

Vehicle identification number 17
VIN 17

W

Winter operation
checks and maintenance steps 158
Work rules 11

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