

250 SX  
250 XC  
300 XC

Art. no. 3206247en



**KTM**



Read this repair manual carefully and thoroughly before beginning work.

The vehicle will only be able to meet the demands placed on it if the specified service work is performed regularly and properly.

This repair manual was written to correspond to the latest state of this model series. We reserve the right to make changes in the interest of technical advancement without updating this repair manual at the same time.

We shall not provide a description of general workshop methods. Likewise, safety rules that apply in a workshop are not specified here. It is assumed that the repair work will be performed by a fully trained mechanic.

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Issued by: TÜV Management Service

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KTM Sportmotorcycle GmbH  
5230 Mattighofen, Austria

This document is valid for the following models:

250 SX EU (F6301P0)

250 SX US (F6375P0)

250 XC US/EU (F6375P5)

300 XC US/EU (F6475P5)





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## 1.1 Symbols used

The meaning of specific symbols is described below.



Indicates an expected reaction (e.g. of a work step or a function).



Indicates an unexpected reaction (e.g. of a work step or a function).



Indicates a page reference (more information is provided on the specified page).



Indicates information with more details or tips.



Indicates the result of a testing step.



Denotes a voltage measurement.



Denotes a current measurement.



Denotes a resistance measurement.

## 1.2 Formats used

The typographical formats used in this document are explained below.

<b>Proprietary name</b>	Identifies a proprietary name.
<b>Name®</b>	Identifies a protected name.
<b>Brand™</b>	Identifies a trademark.
<b><u>Underlined terms</u></b>	Refer to technical details of the vehicle or indicate technical terms, which are explained in the glossary.



### 2.1 Repair Manual

Read this Repair Manual carefully and thoroughly before beginning work. It contains useful information and tips that will help you repair and maintain your vehicle.

This manual assumes that the necessary special KTM tools and KTM workplace and workshop equipment are available.

### 2.2 Safety advice

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



#### Info

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

### 2.3 Degrees of risk and symbols



#### Danger

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



#### Warning

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



#### Caution

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

#### Note

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



#### Warning

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

### 2.4 Work rules

Special tools are necessary for certain tasks. The tools are not contained in the vehicle but can be ordered under the number in parentheses. E.g.: bearing puller (15112017000)

During assembly, non-reusable parts (e.g. self-locking screws and nuts, seals and seal rings, O-rings, pins, lock washers) must be replaced by new parts.

In some instances, a thread locker (e.g. **Loctite®**) is required. The manufacturer instructions for use must be followed.

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

After you complete the repair or service work, check the operating safety of the vehicle.

### 3.1 Guarantee, warranty

The work prescribed in the service schedule must be carried out by an authorized KTM workshop only and confirmed in the customer's Service & Warranty Booklet and in the **KTM Dealer.net**; otherwise, all warranty claims will be void. No warranty claims can be considered for damage resulting from manipulations and/or alterations to the vehicle.

Additional information on the guarantee or warranty and the procedures involved can be found in the Service & Warranty Booklet.

### 3.2 Operating and auxiliary substances



#### Warning

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

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

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

### 3.3 Spare parts, accessories

Only use spare parts and accessories approved and/or recommended by KTM. KTM accepts no liability for other products and any resulting damage or loss.

The current **KTM PowerParts** for your vehicle can be found on the KTM website.

International KTM Website: <http://www.ktm.com>

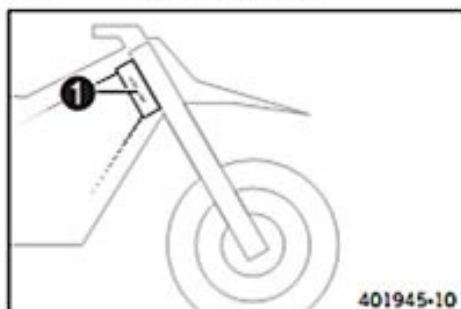
### 3.4 Figures

The figures contained in the manual may depict special equipment.

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

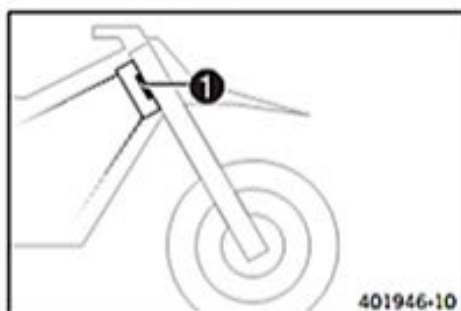


## 4.1 Chassis number



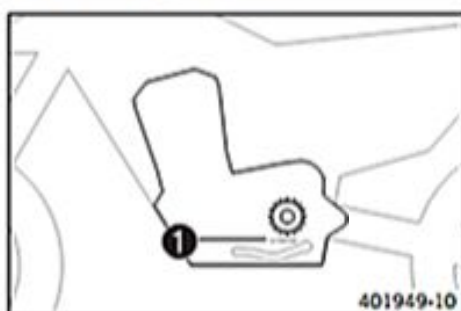
The chassis number ① is stamped on the right side of the steering head.

## 4.2 Type label



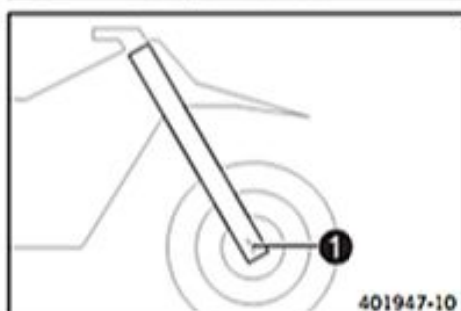
The type label ① is fixed to the front of the steering head.

## 4.3 Engine number



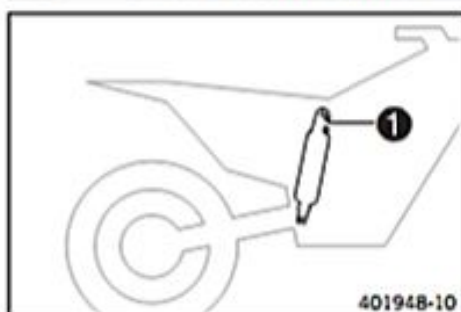
The engine number ① is stamped on the left side of the engine under the engine sprocket.

## 4.4 Fork part number



The fork part number ① is stamped on the inner side of the fork stub.

## 4.5 Shock absorber article number



The shock absorber part number ① is stamped on the top of the shock absorber above the adjusting ring towards the engine side.

## 5.1 Raising the motorcycle with a lift stand

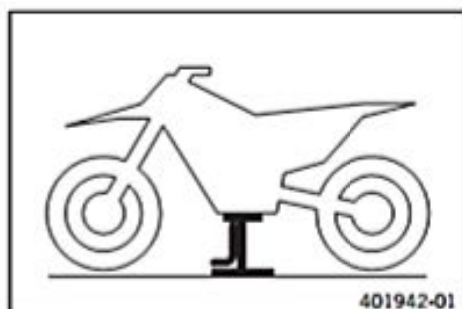
**Note**

**Material damage** The vehicle may be damaged by incorrect procedure when parking.

Significant damage may be caused 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.
- Ensure that nobody sits on the vehicle when the vehicle is parked on a stand.



- Raise the motorcycle at the frame underneath the engine.

Lift stand (78129955100) (☞ p. 288)

- ✓ Neither wheel is in contact with the ground.
- Secure the motorcycle against falling over.

## 5.2 Removing the motorcycle from the lift stand

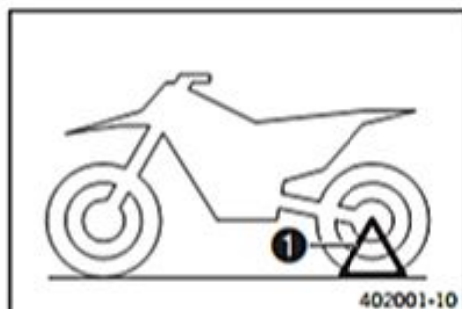
**Note**

**Material damage** The vehicle may be damaged by incorrect procedure when parking.

Significant damage may be caused if the vehicle rolls away or falls over.

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

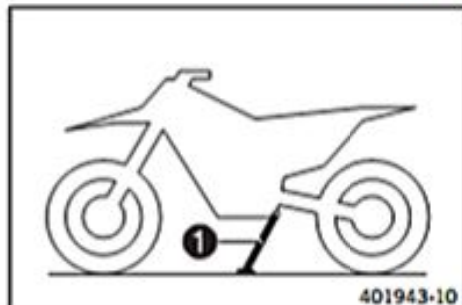
- Park the vehicle on a firm and level surface.
- Ensure that nobody sits on the vehicle when the vehicle is parked on a stand.

**(250 SX)**

- Remove the motorcycle from the lift stand.
- Remove the lift stand.
- To park the motorcycle, insert plug-in stand ① into the left side of the wheel spindle.

**Info**

Remove the plug-in stand before riding.

**(All XC models)**

- Remove the motorcycle from the lift stand.
- Remove the lift stand.
- To park the motorcycle, press side stand ① to the ground with your foot and lean the motorcycle on it.

**Info**

While riding, the side stand must be folded up and secured with the rubber band.



## 5.3 Starting

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

### Note

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

- Always warm up the engine at low engine speeds.

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

**The motorcycle has been out of use for more than 1 week**

- Empty the carburetor float chamber. (☞ p. 229)

**(250 SX)**

- Turn handle ❶ of the fuel tap to the **ON** position. (Figure B02072-10☞ p. 105)
- ✓ Fuel can flow from the fuel tank to the carburetor.

**(All XC models)**

- Turn handle ❶ of the fuel tap to the **ON** position. (Figure L00904-10☞ p. 106)
- ✓ Fuel can flow from the fuel tank to the carburetor.

**(250 SX)**

- Remove the plug-in stand.

**(All XC models)**

- Remove the motorcycle from the side stand.

- Shift gear to neutral.

**The engine is cold**

- Pull the choke lever out as far as possible.

**(250 SX)**

- Press the kick starter robustly through its full range.

- Info**
- Do not open the throttle.

**(All XC models)**

- Press the electric starter button or press the kick starter robustly through its full range.

- Info**
- Do not open the throttle.

## 5.4 Starting the motorcycle for checking

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

- Shift gear to neutral.
- Press the kick starter forcefully through its full range.

- Info**
- Do not open the throttle.

## 6.1 Adjusting the compression damping of the fork



## Info

The hydraulic compression damping determines the fork suspension behavior.



(250 SX EU)

- Turn adjusting screws 1 clockwise all the way.



## Info

Adjusting screws 1 are located at the top end of the fork legs. Make the same adjustment on both fork legs.

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

## Guideline

Compression damping	
Comfort	14 clicks
Standard	12 clicks
Sport	10 clicks



## Info

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



(All XC models, 250 SX US)

- Turn the white adjusting screw 1 all the way clockwise.



## Info

The adjusting screw 1 is located at the upper end of the left fork leg. The compression damping is located in the left fork leg **COMP** (white adjusting screw). The rebound damping is located in the right fork leg **REB** (red adjusting screw).

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

## Guideline

Compression damping (250 SX US)	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Compression damping (All XC models)	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks



## Info

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

## 6.2 Adjusting the rebound damping of the fork



## Info

The hydraulic rebound damping determines the fork suspension behavior.





(250 SX EU)

- Remove protection caps **1**.
- Turn adjusting screws **2** clockwise all the way.



## Info

Adjusting screws **2** are located at the bottom end of the fork legs. Make the same adjustment on both fork legs.

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

## Guideline

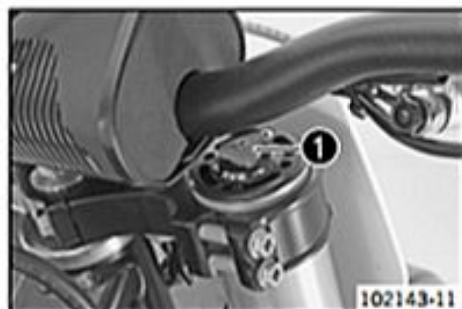
Rebound damping	
Comfort	14 clicks
Standard	12 clicks
Sport	10 clicks



## Info

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

- Mount protection caps **1**.



(All XC models, 250 SX US)

- Turn the red adjusting screw **1** all the way clockwise.



## Info

The adjusting screw **1** is located at the upper end of the right fork leg. The rebound damping is located in the right fork leg **REB** (red adjusting screw). The compression damping is located in the left fork leg **COMP** (white adjusting screw).

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

## Guideline

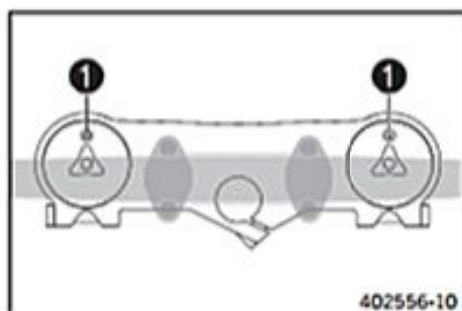
Rebound damping (250 SX US)	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Rebound damping (All XC models)	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks



## Info

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

## 6.3 Bleeding the fork legs



### Preparatory work

- Raise the motorcycle with a lift stand. (☞ p. 10)

### Main work

- Release bleeder screws **1**.  
✓ Any excess pressure escapes from the interior of the fork.
- Tighten the bleeder screws.

### Finishing work

- Remove the motorcycle from the lift stand. (☞ p. 10)



## 6.4 Cleaning the dust boots of the fork legs



## Preparatory work

- Raise the motorcycle with a lift stand. (☞ p. 10)
- Remove the fork protector. (☞ p. 15)

## Main work

- Push dust boots 1 of both fork legs downward.



## Info

The dust boots remove dust and coarse dirt particles from the inside 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** Reduced braking efficiency due to oil or grease on the brake discs.

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

- Clean and oil the dust boots and inner fork tubes of both fork legs.

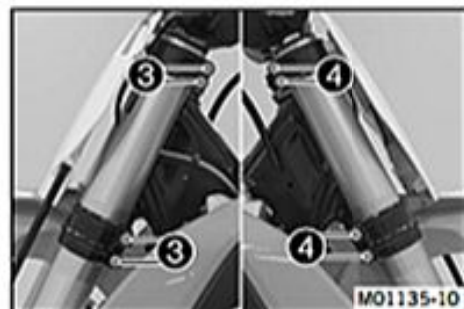
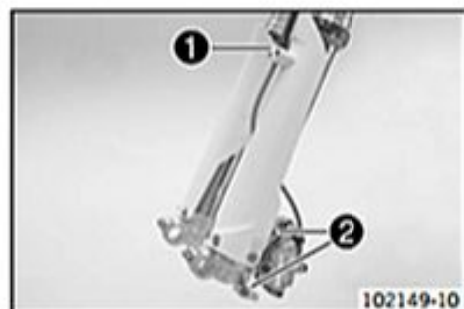
Universal oil spray (☞ p. 283)

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

## Finishing work

- Install the fork protector. (☞ p. 16)
- Remove the motorcycle from the lift stand. (☞ p. 10)

## 6.5 Removing the fork legs



## Preparatory work

- Raise the motorcycle with a lift stand. (☞ p. 10)
- Remove the front wheel. (☞ p. 109)

## Main work

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

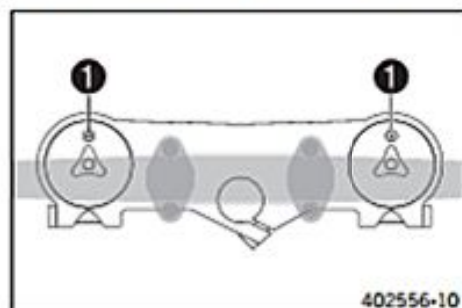


## Info

Do not activate the hand brake lever while the front wheel is removed.

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

## 6.6 Installing the fork legs

Main work  
(250 SX EU)

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



## Info

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

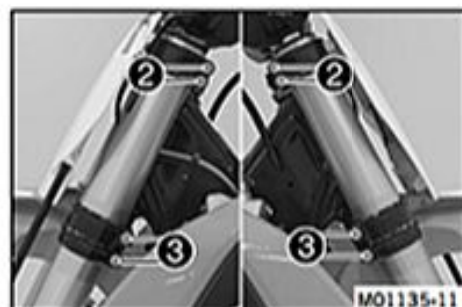
## (All XC models, 250 SX US)

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



## Info

The compression damping is located in the left fork leg **COMP** (white adjusting screw). The rebound damping is located in the right fork leg **REB** (red adjusting screw). Grooves are milled into the side of the upper end of the fork legs. The second milled groove (from the top) must be flush with the top edge of the upper triple clamp.



- Tighten screws ②.

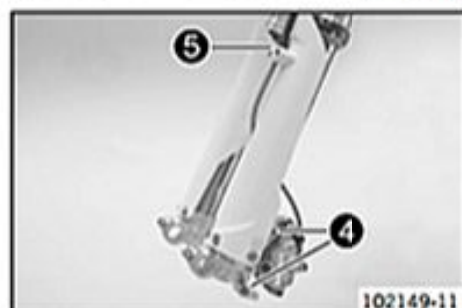
## Guideline

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

- Tighten screws ③.

## Guideline

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



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

## Guideline

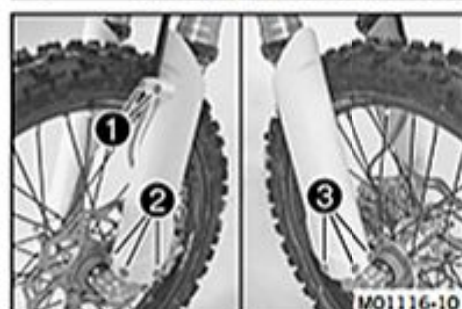
Screw, front brake caliper	M8	25 Nm (18.4 lbf ft)	Loctite® 243™
----------------------------	----	------------------------	---------------

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

## Finishing work

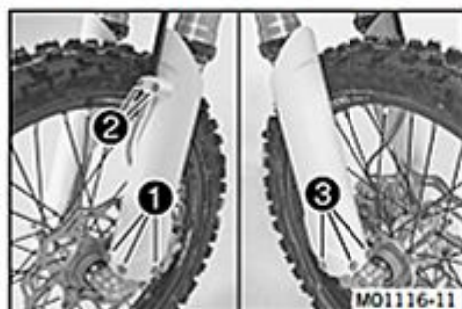
- Install the front wheel. (☛ p. 110)

## 6.7 Removing the fork protector



- Remove screws ①. Remove the clamp.
- Remove screws ②. Take off the left fork protector.
- Remove screws ③. Take off the right fork protector.

## 6.8 Installing the fork protector



- Position the fork protection on the left fork leg. Mount and tighten screws ①.

Guideline

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

- Position the brake line and clamp. Mount and tighten screws ②.
- Position the fork protector on the right fork leg. Mount and tighten screws ③.

Guideline

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

## 6.9 250 SX EU

## 6.9.1 Conducting major fork service



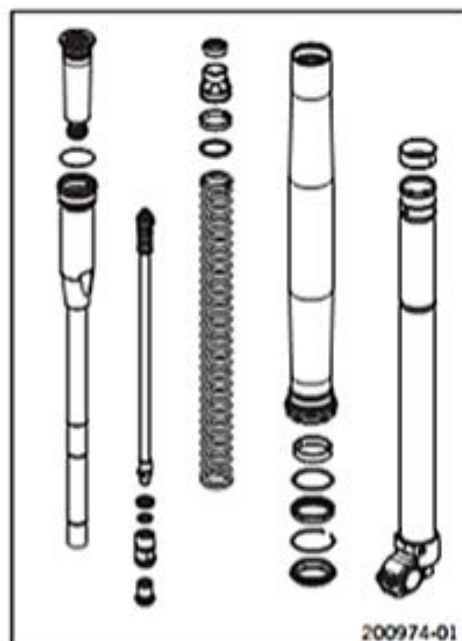
## Info

The steps are identical for both fork legs.

## Condition

The fork legs are disassembled.

- Disassemble the fork legs. (☞ p. 17)
- Disassemble the cartridge. (☞ p. 19)
- Disassemble the piston rod. (☞ p. 21)
- Disassemble the screw cap with the membrane holder. (☞ p. 23)
- Disassemble the screw sleeve. (☞ p. 24)
- Check the fork legs. (☞ p. 24)
- Change the pilot bushing. (☞ p. 27)
- Assemble the screw sleeve. (☞ p. 28)
- Assemble the screw cap with the membrane holder. (☞ p. 28)
- Assemble the piston rod. (☞ p. 29)
- Assemble the cartridge. (☞ p. 30)
- Assemble the fork legs. (☞ p. 32)



## 6.9.2 Conducting minor fork service



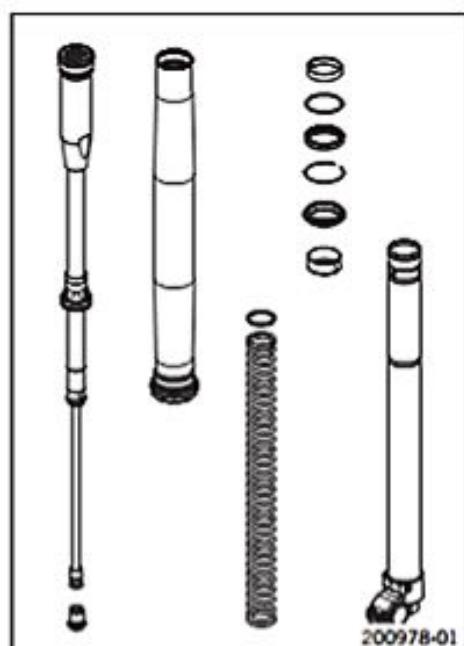
## Info

The steps are identical for both fork legs.

## Condition

The fork legs are disassembled.





- Disassemble the fork legs. (☛ p. 17)
- Check the fork legs - during a minor fork service. (☛ p. 26)
- Assemble the fork legs. (☛ p. 32)

## 6.9.3 Disassembling the fork legs



### Info

The steps are identical for both fork legs.

### Condition

The fork legs are disassembled.

- Remove protection cap **A**.
- Note down the present state of rebound damping **1** and compression damping **2**.
- Fully open the adjusters of the rebound and compression damping.

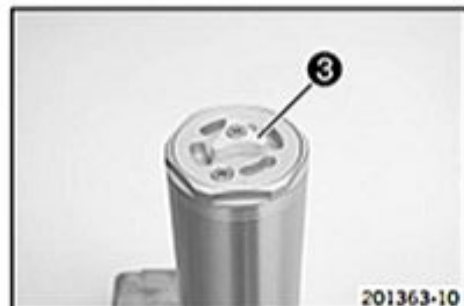


- Clamp the fork leg in the area of the lower triple clamp.

Clamping stand (T1403S) (☛ p. 293)



- Remove the screw. Remove adjuster **3** of the compression damping.





- Loosen cartridge (4).

Ring wrench (T14017) (☞ p. 291)

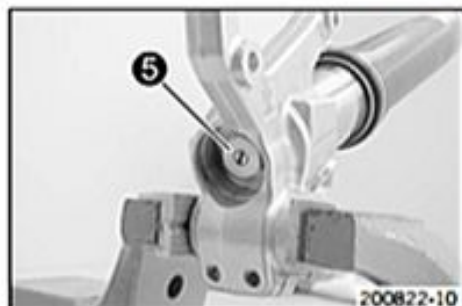


## Info

The cartridge cannot be taken off yet.



- Unclamp the fork leg.
- Push the outer tube down. Drain the fork oil.



- Clamp the fork leg with the axle clamp.

## Guideline

Use soft jaws.

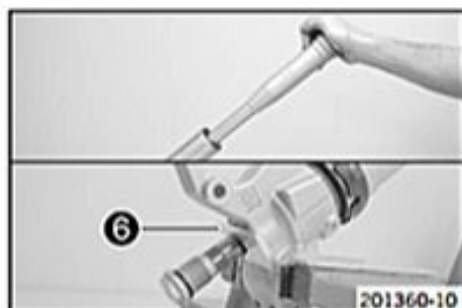
- Loosen rebound adjustment (5).



## Info

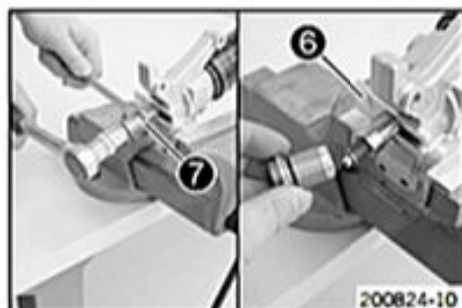
Do not use an impact wrench.

Place a fluid collector beneath it, as usually some oil will drain out.  
The rebound adjustment cannot be removed yet.

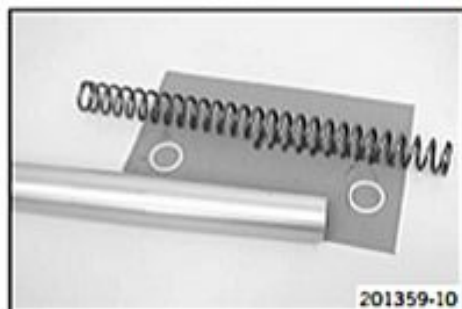


- Press the cartridge against the spring and mount special tool (6) on the piston rod.

Support tool (T14020) (☞ p. 291)



- Hold nut (7) and remove the rebound adjuster.
- Press the cartridge against the spring and remove special tool (6).
- Remove the cartridge from the fork leg.
- Unclamp the fork leg.



- Remove the preload spacers and spring.





- Remove dust boot **8**.
- Remove fork protection ring **B**.

**Info**

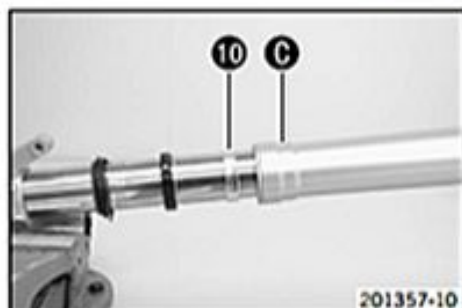
The fork protection ring does not necessarily need to be removed for repair work.



- Remove lock ring **9**.

**Info**

The lock ring has a ground end against which a screwdriver can be positioned.



- Warm the outer tube in area **C** of the lower sliding bushing.

**Guideline**

50 °C (122 °F)

- Pull the outer tube forcefully off of the inner tube.

**Info**

The lower sliding bushing **10** must be pulled out of its bearing seat.



- Remove upper sliding bushing **11**.

**Info**

Without using a tool, carefully pull the stack apart by hand.



- Take off the lower sliding bushing **10**.
- Take off support ring **12**.
- Take off seal ring **13**.
- Take off lock ring **9**.
- Take off dust boot **8**.
- Unclamp the fork leg.

#### 6.9.4 Disassembling the cartridge

**Info**

The steps are identical for both fork legs.

**Preparatory work**

- Disassemble the fork legs. (☛ p. 17)



## Main work

- Remove adjusting tube ① and nut ②.

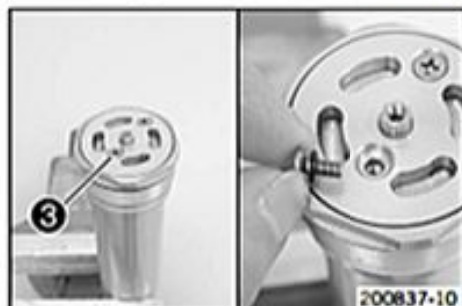


- Clamp the cartridge into a vise.



## Info

Use soft jaws.



- Remove filling screw ③.



- Pierce the membrane with the needle of the special tool.

Nitrogen charging tool (T14019) (☞ p. 291)

- ✓ The pressurized nitrogen is bled off.



- Loosen and remove screw cap ④ with the membrane holder.

Pin wrench (T103) (☞ p. 288)

- Unclamp the cartridge.



- Empty the cartridge.

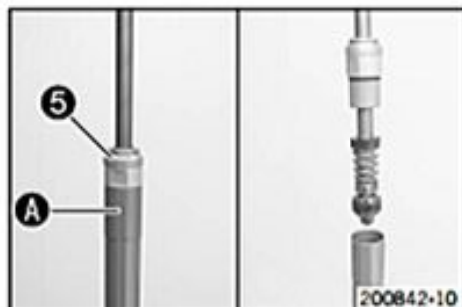




- Reclamp the cartridge upside down.

Guideline

Use soft jaws.

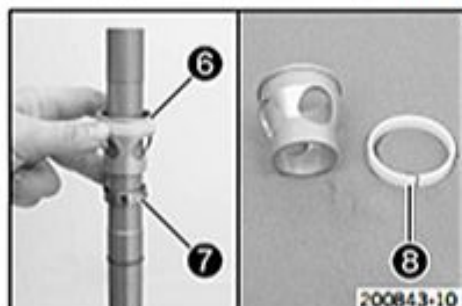


- Heat the cartridge in area A of pilot bushing (5).

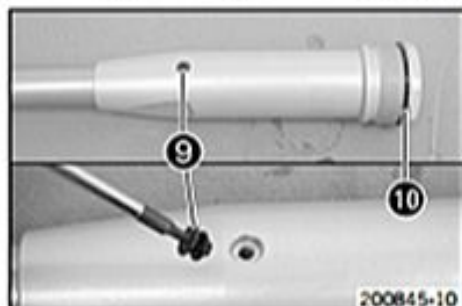
Guideline

100 °C (212 °F)

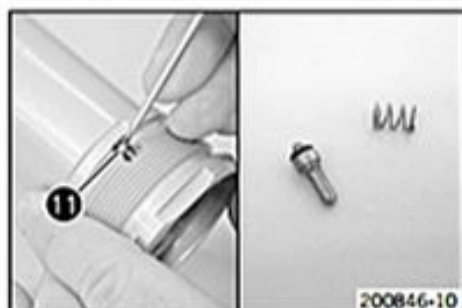
- Loosen the screw sleeve and remove the piston rod.



- Remove spring guide (6) and ring (7).
- Remove guide ring (8).



- Remove filling screw (9) and O-ring (10).



- Press check valve (11) against the spring and remove it.

### 6.9.5 Disassembling the piston rod



#### Info

The steps are identical for both fork legs.

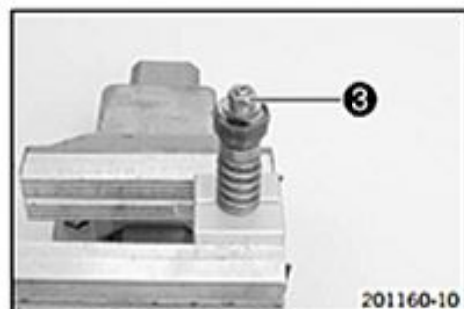
#### Preparatory work

- Disassemble the fork legs. (☛ p. 17)
- Disassemble the cartridge. (☛ p. 19)



## Main work

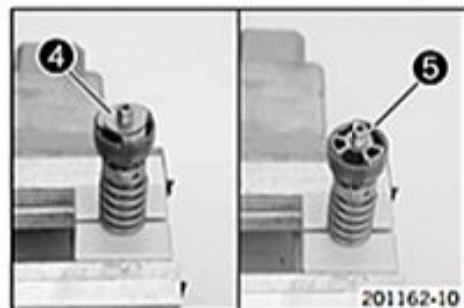
- Remove screw sleeve 1 and washer 2 from the piston rod.



- Degrease the piston rod.
- Clamp the piston rod with the special tool as far up as possible.

Clamping stand (T14016S) (☞ p. 291)

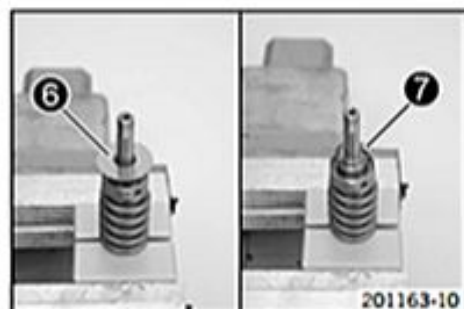
- Remove nut 3.



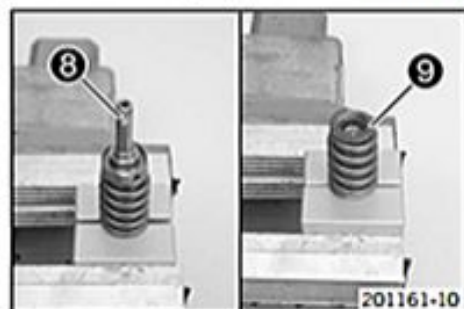
- Remove rebound shim stack 4.
- Remove rebound piston 5.



- Remove the piston ring from the piston.



- Remove compression shim stack 6.
- Remove spring 7.



- Remove tap rebound 8.
- Remove spring 9 with the sleeve.





- Remove the valve with the spring from tap rebound 8.
- Remove the O-rings.

## 6.9.6 Disassembling the screw cap with the membrane holder



### Info

The steps are identical for both fork legs.

### Preparatory work

- Disassemble the fork legs. (p. 17)
- Disassemble the cartridge. (p. 19)

### Main work

- Clamp the screw cap with the membrane holder and the special tool into a vise.

#### Guideline

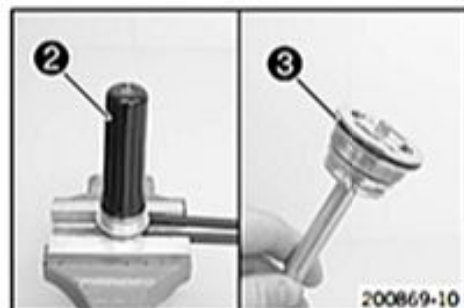
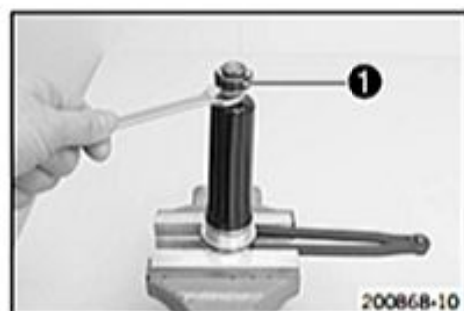
Use soft jaws.

Pin wrench (T103) (p. 288)

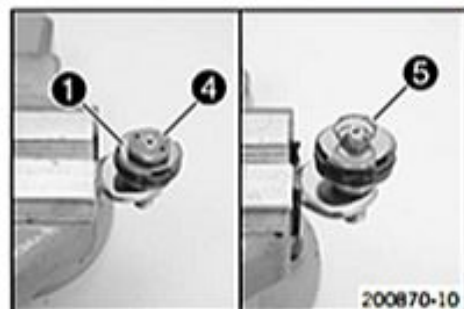


### Info

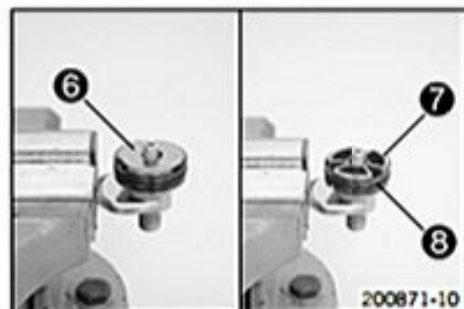
Only tighten the vise lightly.



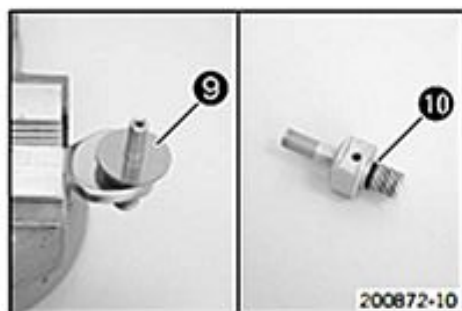
- Remove compression holder 1.
- Remove membrane 2. Unclamp the special tool.
- Remove O-ring 3.



- Clamp the open end wrench in a vise. Position compression holder 1.
- Remove nut 4.
- Remove spring 5.



- Remove rebound washer 6.
- Remove compression piston 7. Remove O-ring 8.



- Remove compression shim stack 9.
- Remove O-ring 10.

## 6.9.7 Disassembling the screw sleeve



### Info

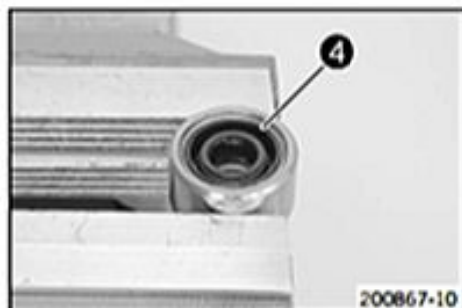
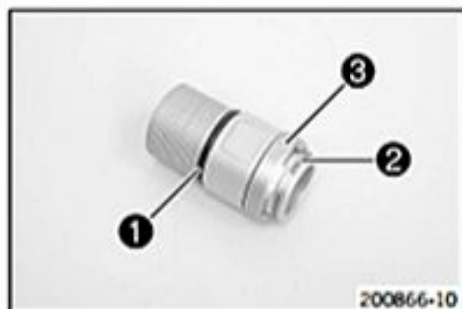
The steps are identical for both fork legs.

### Preparatory work

- Disassemble the fork legs. (p. 17)
- Disassemble the cartridge. (p. 19)
- Disassemble the piston rod. (p. 21)

### Main work

- Remove O-ring 1.
- Remove lock ring 2. Remove ring 3.



- Screw the special tool onto the screw sleeve.

Threaded bushing (T14023) (p. 292)

- ✓ The special tool must have an overhang to protect the thread.

Overhang	1 mm (0.04 in)
----------	----------------

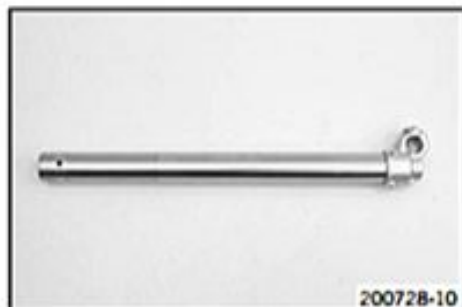
- Pry out seal ring 4, being sure only to brace the lever against the special tool.

## 6.9.8 Checking the fork legs

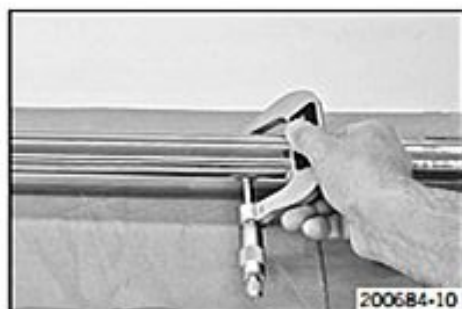
### Condition

The fork legs have been disassembled.

- Check the inner tube and axle clamp for damage.
  - If there is damage:
    - Change the inner tube.



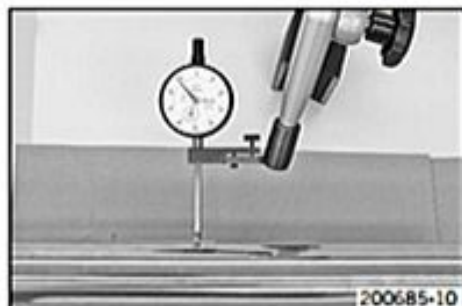




- Measure the outside diameter of the inner tube at several locations.

Outside diameter of the inner tube	47.975... 48.005 mm (1.88878... 1.88996 in)
------------------------------------	---

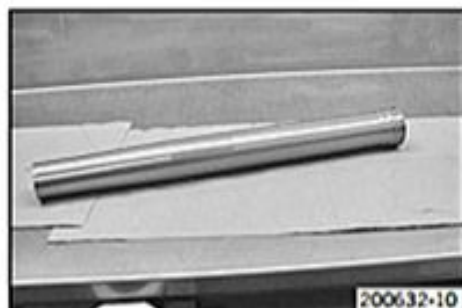
- If the measured value is less than the specified value:
  - Change the inner tube.



- Measure the run-out of the inner tube.

Inner tube run-out	≤ 0.20 mm (≤ 0.0079 in)
--------------------	-------------------------

- If the measured value is greater than the specified value:
  - Change the inner tube.



- Measure the inside diameter of the outer tube at several locations.

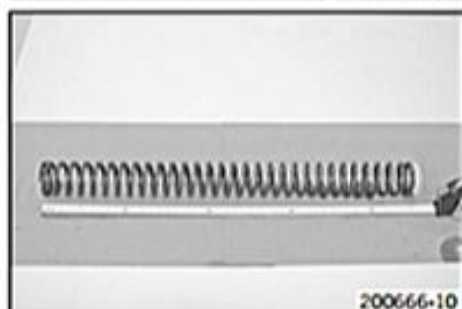
Inside diameter of the outer tube	≤ 49.20 mm (≤ 1.937 in)
-----------------------------------	-------------------------

- If the measured value is greater than the specified value:
  - Change the outer tube.
- Check the outer tube for damage.
  - If there is damage:
    - Change the outer tube.



- Check the surface of the sliding bushing.

- If the bronze-colored layer **A** under the sliding layer **B** is visible or the surface is rough:
  - Replace the sliding bushing.

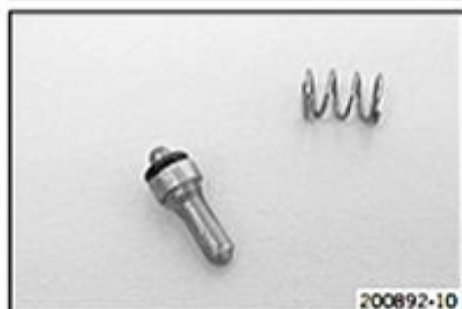


- Check the spring length.

Guideline

Spring length with preload spacer(s)	488 mm (19.21 in)
--------------------------------------	-------------------

- If the measured value is greater than the specified value:
  - Reduce the thickness of the preload spacers.
- If the measured value is less than the specified value:
  - Increase the thickness of the preload spacers.



- Check the check valve spring length.

Guideline

Spring length of the check valve	≥ 5.8 mm (≥ 0.228 in)
----------------------------------	-----------------------

- If the measured value is less than the specified value:
  - Change the spring.



- Check the piston rod for damage.
  - If there is damage:
    - Replace the piston rod.
- Measure the outside diameter of the piston rod at several locations.

Outside diameter of the piston rod	$\geq 11.965 \text{ mm } (\geq 0.47106 \text{ in})$
------------------------------------	---

- If the measured value is less than the specified value:
  - Replace the piston rod.
- Measure the run-out of the piston rod.

Run-out of the piston rod	$\leq 0.40 \text{ mm } (\leq 0.0157 \text{ in})$
---------------------------	--

- If the measured value is greater than the specified value:
  - Replace the piston rod.

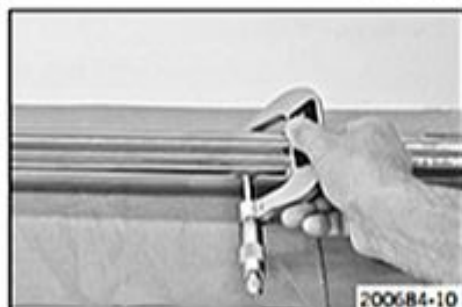
## 6.9.9 Checking the fork legs - during a minor fork service

### Condition

The fork legs have been disassembled.



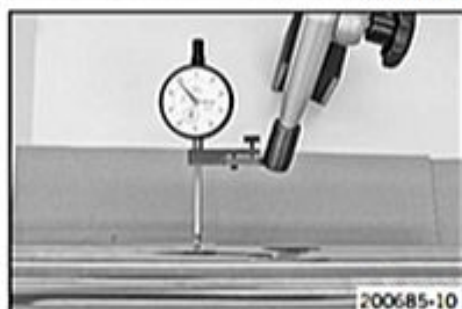
- Check the inner tube and axle clamp for damage.
  - If there is damage:
    - Change the inner tube.



- Measure the outside diameter of the inner tube at several locations.

Outside diameter of the inner tube	47.975... 48.005 mm (1.88878... 1.88996 in)
------------------------------------	---

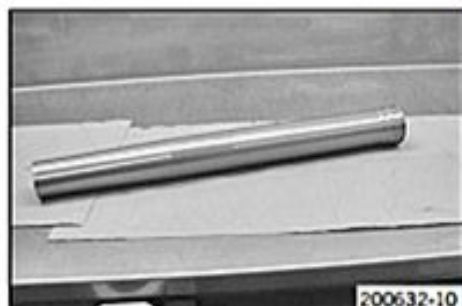
- If the measured value is less than the specified value:
  - Change the inner tube.



- Measure the run-out of the inner tube.

Inner tube run-out	$\leq 0.20 \text{ mm } (\leq 0.0079 \text{ in})$
--------------------	--

- If the measured value is greater than the specified value:
  - Change the inner tube.



- Measure the inside diameter of the outer tube at several locations.

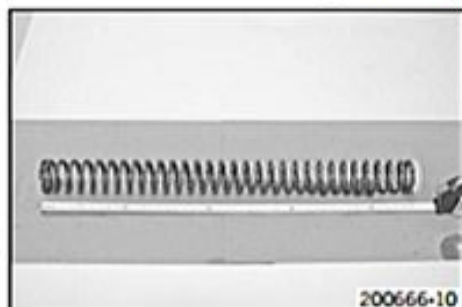
Inside diameter of the outer tube	$\leq 49.20 \text{ mm } (\leq 1.937 \text{ in})$
-----------------------------------	--

- If the measured value is greater than the specified value:
  - Change the outer tube.
- Check the outer tube for damage.
  - If there is damage:
    - Change the outer tube.





- Check the surface of the sliding bushing.
  - If the bronze-colored layer **A** under the sliding layer **B** is visible or the surface is rough:
    - Replace the sliding bushing.



- Check the spring length.

## Guideline

Spring length with preload spacer(s)	488 mm (19.21 in)
--------------------------------------	-------------------

- If the measured value is greater than the specified value:
  - Reduce the thickness of the preload spacers.
- If the measured value is less than the specified value:
  - Increase the thickness of the preload spacers.

## 6.9.10 Changing the pilot bushing

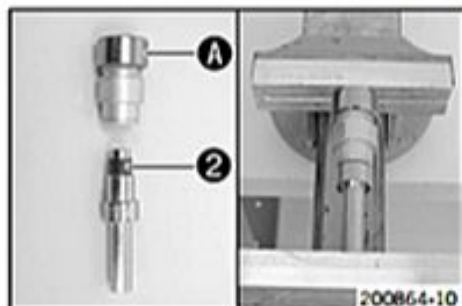
### Preparatory work

- Disassemble the fork legs. (☞ p. 17)
- Disassemble the cartridge. (☞ p. 19)
- Disassemble the piston rod. (☞ p. 21)
- Disassemble the screw sleeve. (☞ p. 24)

### Main work

- Press the pilot bushing out of screw sleeve **1** using the special tool.

Mounting tool (T14022) (☞ p. 292)



- Slide the new pilot bushing **2** onto the special tool.

Mounting tool (T14022) (☞ p. 292)

- Ensure that special tool **A** is mounted and that there is an overhang to protect the thread.

## Guideline

Overhang	1 mm (0.04 in)
----------	----------------

Threaded bushing (T14023) (☞ p. 292)

- Position the pilot bushing in the screw sleeve with the special tool and press it in all the way.

Mounting tool (T14022) (☞ p. 292)

- Lubricate the special tool.

Fork oil (SAE 4) (48601166S1) (☞ p. 280)

Calibrating unit (T14021) (☞ p. 291)

- Press the special tool through the new pilot bushing a number of times.

Calibrating unit (T14021) (☞ p. 291)

- ✓ The pilot bushing is calibrated.



### Finishing work

- Assemble the screw sleeve. (☞ p. 28)

## 6.9.11 Assembling the screw sleeve



## Info

The steps are identical for both fork legs.



- Mount and lubricate O-ring ①.

Lubricant (T158) (☞ p. 282)

- Mount ring ②.
- Mount lock ring ③.



## Info

The seal ring is mounted when the piston rod is assembled.

## 6.9.12 Assembling the screw cap with the membrane holder



## Info

The steps are identical for both fork legs.



## Preparatory work

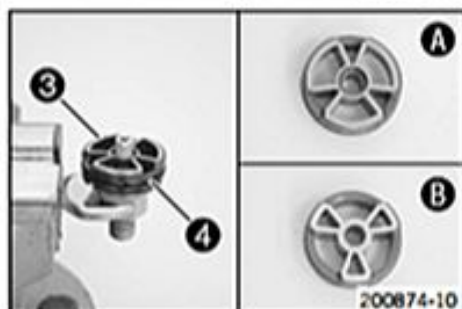
- Check the fork legs. (☞ p. 24)

## Main work

- Lubricate and mount O-ring ①.

Lubricant (T158) (☞ p. 282)

- Clamp the open end wrench in a vise. Position compression holder.
- Mount the compression shim stack ② with the smaller shims facing downward.



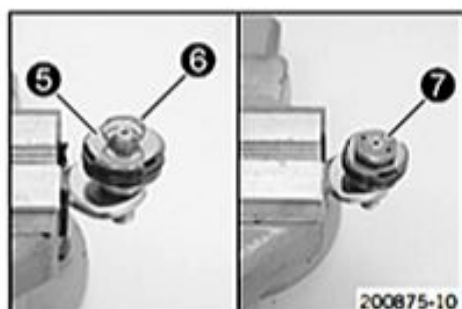
- Grind compression piston ③ on both sides on a surfacing plate using 1200 grit sandpaper.
- Clean the compression piston.
- Mount and grease O-ring ④.

Lubricant (T158) (☞ p. 282)

- Mount the compression piston.

## Guideline

View A	Compression piston from above
View B	Compression piston from below



- Mount rebound damping washer ⑤.
- Mount spring ⑥ with the tighter coil at the bottom.
- Mount and tighten new nut ⑦ with the collar facing downward.

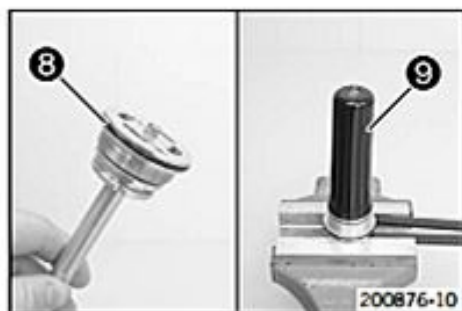
## Guideline

Nut, compression piston	M6x0.5	3 Nm (2.2 lbf ft)
-------------------------	--------	-------------------

✓ The collar centers the rebound washer and the spring.

- Check the freedom of movement of the rebound washer against the spring.
- Secure the nut by locking.





- Mount and grease O-ring (8).

Lubricant (T158) (☛ p. 282)

- Clamp the screw cap with the membrane holder and the special tool into a vise.

Pin wrench (T103) (☛ p. 288)



#### Info

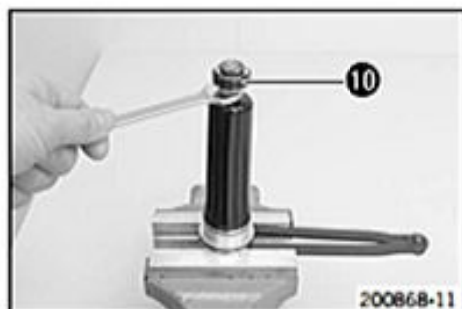
Only tighten the vise lightly.

- Mount membrane (9).
- Mount and tighten compression holder (10).

#### Guideline

Compression holder	M9x1	8 Nm (5.9 lbf ft)	Loctite® 241
--------------------	------	----------------------	--------------

- Unclamp the special tool.



### 6.9.13 Assembling the piston rod



#### Info

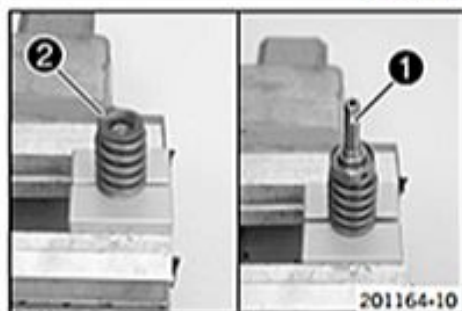
The steps are identical for both fork legs.



- Mount and grease the O-rings of tap rebound (1) and the valve.

Lubricant (T158) (☛ p. 282)

- Position the valve with the spring in the tap rebound.



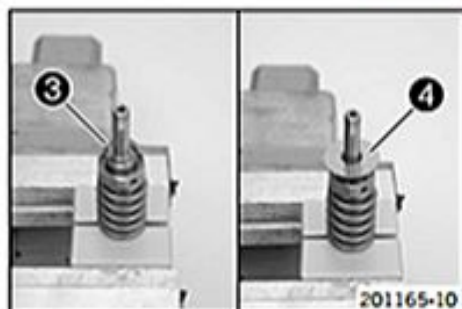
- Degrease the piston rod.
- Clamp the piston rod with the special tool.

Clamping stand (T14016S) (☛ p. 291)

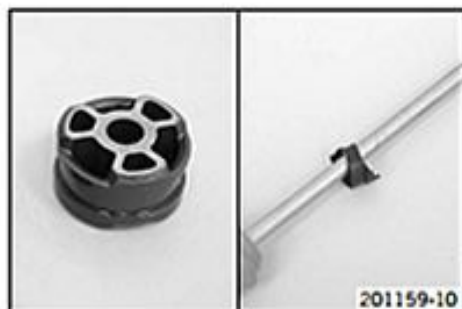
- Mount spring (2) with the sleeve.
- Mount and tighten tap rebound (1).

#### Guideline

Tap rebound	M9x1	18 Nm (13.3 lbf ft)	Loctite® 2701™
-------------	------	------------------------	----------------

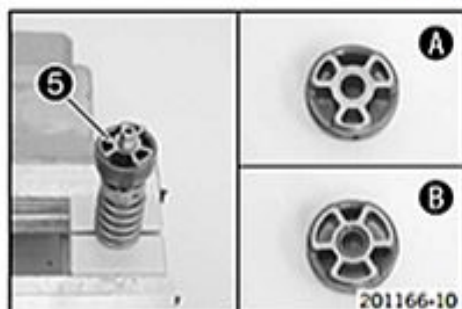


- Mount spring (3).
- Mount compression shim stack (4) with the smaller washer facing downward.



- Grind the rebound piston on both sides on a surface plate with 1200 grit sandpaper.
- Clean the rebound piston.
- Wrap the piston ring around the shaft of a screwdriver before mounting.
- Mount the piston ring.
- Lubricate the piston ring.

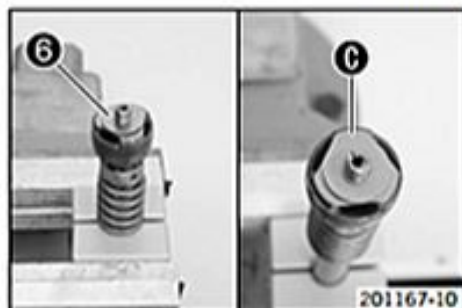
Fork oil (SAE 4) (48601166S1) (☞ p. 280)



- Mount rebound piston ⑤.

#### Guideline

View A	Rebound piston from above
View B	Rebound piston from below

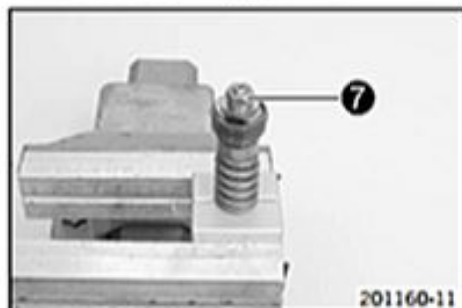


- Mount rebound shim stack ⑥.



#### Info

Align triangular plates ⑥ exactly with the openings of the rebound piston.



- Mount and tighten new nut ⑦ with the collar facing downward.

#### Guideline

Rebound nut	M6x0.5	5 Nm (3.7 lbf ft)
-------------	--------	-------------------



#### Info

Do not twist the triangular plates!

- Secure the nut by locking.
- Take out the piston rod.

### 6.9.14 Assembling the cartridge



#### Info

The steps are identical for both fork legs.

#### Preparatory work

- Check the fork legs. (☞ p. 24)
- Assemble the screw cap with the membrane holder. (☞ p. 28)
- Assemble the piston rod. (☞ p. 29)

#### Main work

- Lubricate and mount O-ring ①.

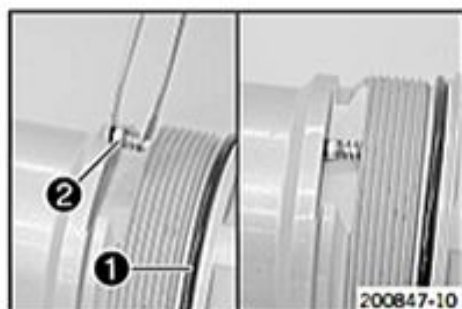
Lubricant (T158) (☞ p. 282)

- Mount the spring and O-ring on check valve ②.

Lubricant (T158) (☞ p. 282)

- Mount the check valve with the special tool.

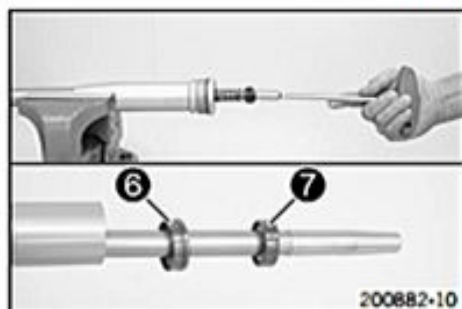
Tweezers (T14033) (☞ p. 292)







- Mount guide ring **3**.
- Mount spring guide **4** and ring **5**.



- Clamp the cartridge in a bench vise.

## Guideline

Use soft jaws.

- Push the piston rod into the cartridge.



## Info

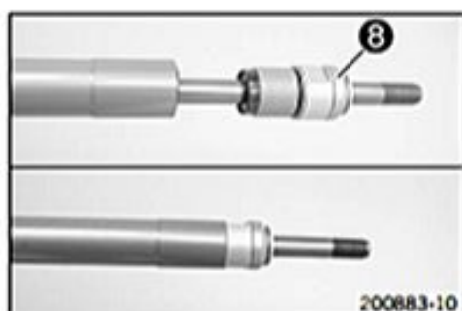
Check that the piston ring is correctly seated.

- Slide washer **6** onto the piston rod with the open side forward.
- Place the special tool onto the piston rod.

Mounting sleeve (T14029) (☞ p. 292)

- Grease seal ring **7** and slide onto the piston rod with the open side forward. Remove the special tool.

Lubricant (T511) (☞ p. 282)



- Slide screw sleeve **8** onto the piston rod.
- Press the seal ring flush into the screw sleeve.
- Grease the O-ring of the screw sleeve.

Lubricant (T158) (☞ p. 282)

- Tighten the screw sleeve.

## Guideline

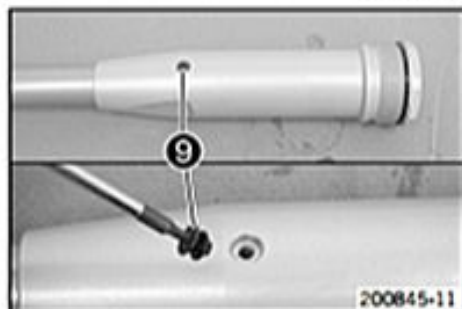
Screw sleeve on the cartridge

M24x1

40 Nm  
(29.5 lbf ft)

Loctite® 241

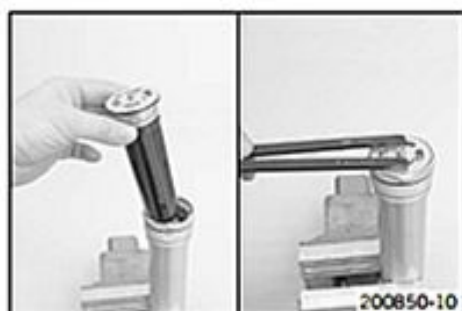
- Mount filling screw **9** with the O-ring.



- Clamp the cartridge vertically and fill with fork oil to the lower edge **A** of the upper part of the cartridge.

Fork oil (SAE 4) (48601166S1) (☞ p. 280)

- ✓ The piston rod is fully extended.



- Mount the screw cap with the membrane holder and tighten with the special tool.

## Guideline

Screw cap on the cartridge	M41x1	30 Nm (22.1 lbf ft)
----------------------------	-------	------------------------

Pin wrench (T103) (☞ p. 288)

- Bleed and fill the cartridge. (☞ p. 35)
- Fill the cartridge with nitrogen. (☞ p. 37)



- Mount adjusting tube 10.
- Screw nut 11 all the way on with the collar facing forward.



## Info

The nut must be screwed tightly against the stop. Do not use a tool.

## 6.9.15 Assembling the fork legs



## Info

The steps are identical for both fork legs.

## Preparatory work

- Check the fork legs. (☞ p. 24)
- Assemble the screw cap with the membrane holder. (☞ p. 28)
- Assemble the piston rod. (☞ p. 29)
- Assemble the cartridge. (☞ p. 30)

## Main work

- Clamp in the inner tube with the axle clamp.

## Guideline

Use soft jaws.

- Mount the special tool.

Protecting sleeve (T1401) (☞ p. 290)

- Lubricate and slide on dust boot 1.

Lubricant (T511) (☞ p. 282)



## Info

Always change the dust boot, seal ring, lock ring and support ring. Mount the sealing lip with the spring expander facing downward.

- Slide on lock ring 2.
- Lubricate and slide on seal ring 3.

Lubricant (T511) (☞ p. 282)

✓ Mount with the sealing lip facing downward the open side facing upward.

- Slide on support ring 4.
- Remove the special tool.





- Roughen, clean and lubricate the edges of the sliding bushings using 600 grit sandpaper.

Fork oil (SAE 4) (48601166S1) (☛ p. 280)



- Slide on lower sliding bushing 5.
- Mount upper sliding bushing 6.



## Info

Gently pull them apart without using a tool.



- Slide on the outer tube.
- Warm up the outer tube in area A of the lower sliding bushing.

## Guideline

50 °C (122 °F)

- Hold the lower sliding bushing with the longer shoulder of the special tool.

Mounting tool (T14040S) (☛ p. 293)

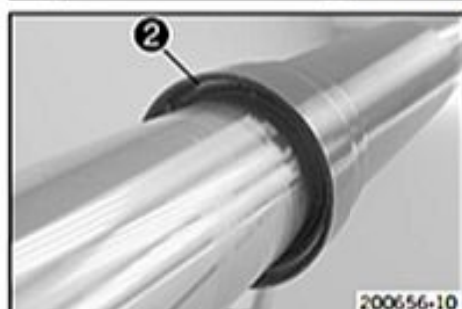
- Press the outer tube all the way in.



- Position the support ring.
- Hold the seal ring with the shorter shoulder of the special tool.

Mounting tool (T14040S) (☛ p. 293)

- Press the outer tube all the way in.

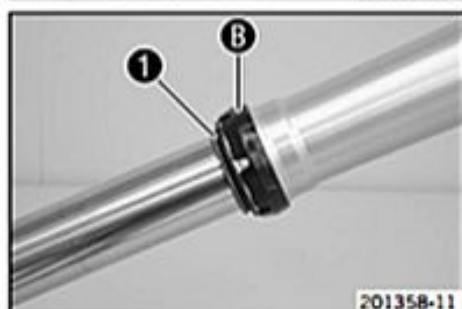


- Mount lock ring 2.



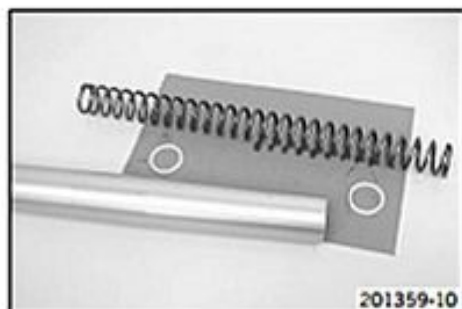
## Info

The lock ring must audibly lock into place.



- Install dust boot 1.
- Mount fork protector ring B.

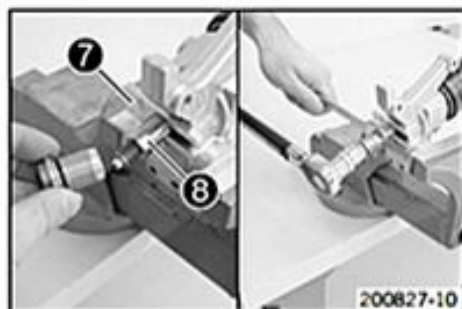




- Mount the preload spacers and spring.

## Guideline

Spring rate		
Weight of rider: 65... 75 kg (143... 165 lb.)		4.4 N/mm (25.1 lb/in)
Weight of rider: 75... 85 kg (165... 187 lb.)		4.6 N/mm (26.3 lb/in)
Weight of rider: 85... 95 kg (187... 209 lb.)		4.8 N/mm (27.4 lb/in)



- Push the cartridge into the fork leg.
- Press the cartridge against the spring and mount special tool 7.

Support tool (T14020) (☛ p. 291)

- Grease the O-ring of the rebound adjuster.

Lubricant (T158) (☛ p. 282)

- Mount the rebound adjuster.

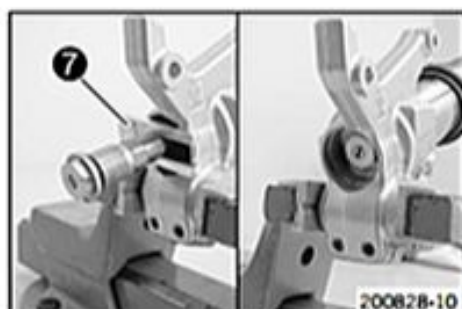
✓ The rebound adjuster must reach the stop before the piston rod turns with it. In case of tight piston rod threads, it must be held to keep it from turning.

✗ If the rebound adjuster is not turned all the way to the stop, the rebound damping cannot be correctly adjusted.

- Hold onto nut 8 and tighten the rebound adjuster.

## Guideline

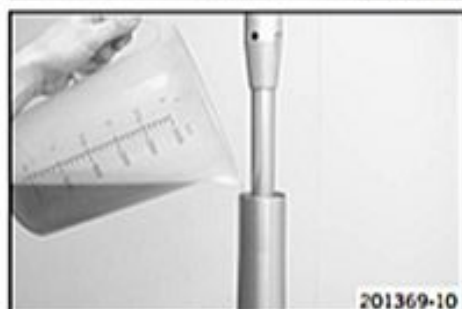
Rebound adjuster on the piston rod	M12x1	30 Nm (22.1 lbf ft)
------------------------------------	-------	------------------------



- Press the cartridge against the spring and remove special tool 7.
- Tighten the rebound adjuster.

## Guideline

Rebound adjuster on the axle clamp	M20x1	30 Nm (22.1 lbf ft)
------------------------------------	-------	------------------------



- Clamp in the fork vertically.

## Guideline

Use soft jaws.

- Fill with fork oil.

Oil capacity fork leg without cartridge	400 ml (13.52 fl. oz.)	Fork oil (SAE 4) (48601166S1) (☛ p. 280)
---	---------------------------	---

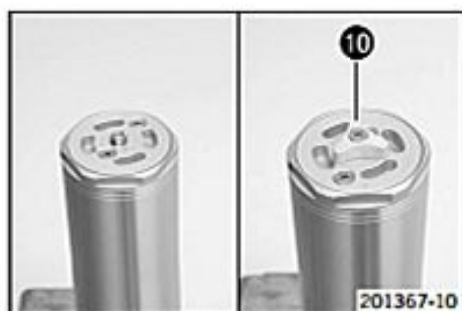


- Lubricate O-ring 9 of the cartridge.

Lubricant (T158) (☛ p. 282)

- Push the outer tube upward.
- Clamp the outer tube in the area of the lower triple clamp.

Clamping stand (T1403S) (☛ p. 293)



- Tighten the cartridge.

Guideline

Cartridge on the outer tube	M51x1.5	50 Nm (36.9 lbf ft)
-----------------------------	---------	------------------------

Ring wrench (T14017) (☞ p. 291)

- Mount adjuster 10 of the compression damping. Mount and tighten the screw.

Guideline

Screw, compression adjuster	M4x0.5	1.5 Nm (1.11 lbf ft)
-----------------------------	--------	-------------------------



#### Alternative 1

- Turn adjusting screw of compression damping 11 and adjusting screw of rebound damping 12 clockwise all the way.
- Turn back counterclockwise by the number of clicks corresponding to the fork type.

Guideline

Rebound damping	
Comfort	14 clicks
Standard	12 clicks
Sport	10 clicks
Compression damping	
Comfort	14 clicks
Standard	12 clicks
Sport	10 clicks

#### Alternative 2



#### Warning

**Danger of accident** Modifications to the suspension setting may seriously alter the handling characteristic.

Extreme modifications to the suspension setting may cause a serious deterioration in the handling characteristic and overload components.

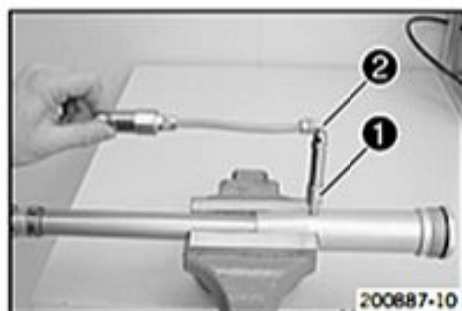
- Only make adjustments within the recommended range.
  - Ride slowly to start with after making adjustments to get the feel of the new handling characteristic.
- 
- Set the adjusting screws to the position determined before removal.
  - Mount protection cap 13.

### 6.9.16 Bleeding and filling the cartridge



#### Info

Before working with the vacuum pump, carefully read the vacuum pump operating manual.



- Clamp the cartridge as shown in the figure.

Guideline

Use soft jaws.



#### Info

Clamp the cartridge only lightly.

The filling port must be located at the highest point.

During the filling procedure, the cartridge must be lower than the oil tank of the vacuum pump.

The piston rod moves in and out during filling; do not immobilize it by holding it with your hand.

- Remove the screw of the filling port.
- Mount special tool 1 on the cartridge.

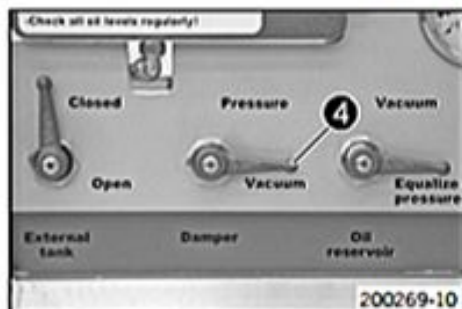
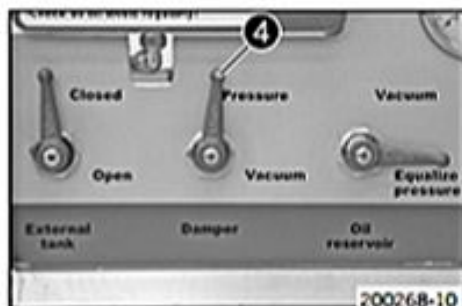
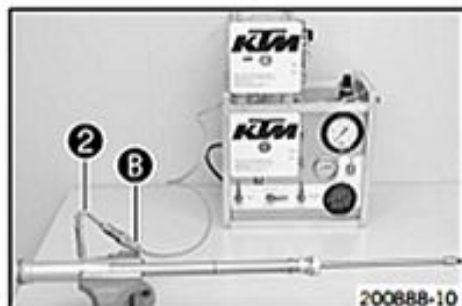
Filling adapter (T14030) (☞ p. 292)





## Info

Hand-tighten only without using a tool.



- Connect adapter 2 to special tool 1.
- Connect adapter 2 to the filling port of vacuum pump 8.

Vacuum pump (T1240S) (p. 290)

- Clamp the control lever as shown in the figure.
  - ✓ Control lever **External tank** 3 is set to **Closed**; **Damper** 4 is set to **Vacuum**; and **Oil reservoir** 5 is set to **Vacuum**.
- Activate **On/Off** switch 6.
  - ✓ The suction process begins.
  - ✓ Pressure gauge 7 drops to the required value.

< 0 bar

- ✓ Vacuum gauge 8 drops to the required value.

10 mbar

- When the vacuum gauge reaches the required value, turn control lever **Oil reservoir** 5 to **Equalize pressure**.

Guideline

10 mbar

- ✓ The pressure gauge increases to the required value.

0 bar

- When the pressure gauge reaches the required value, turn control lever **Damper** 4 to **Pressure**.

Guideline

0 bar

- ✓ Oil is pumped into the cartridge.
- ✓ The pressure gauge increases to the required value.

3 bar

- When the pressure gauge reaches the required value, turn control lever **Damper** 4 to **Vacuum**.

Guideline

3 bar

- ✓ The pressure gauge drops to the required value.

0 bar

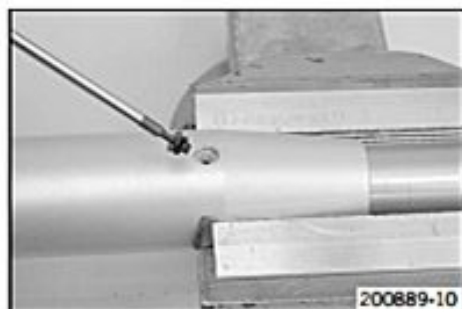
- When the pressure gauge reaches the required value, activate the **On/Off** switch.

Guideline

0 bar

- ✓ The vacuum pump is switched off.





200889-10

- Disconnect the vacuum pump. Remove the special tool.

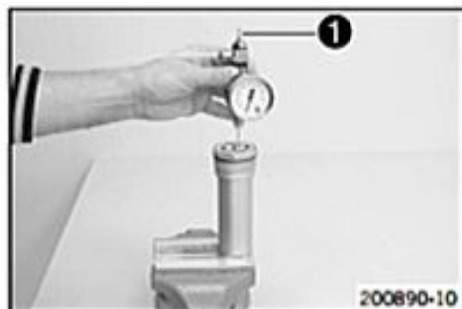
**Info**

The filling port must be positioned at the highest point.

- Mount and tighten the filling screw with the O-ring.

**Guideline**

Cartridge filling screw	M4x0.5	2 Nm (1.5 lbf ft)
-------------------------	--------	-------------------

**6.9.17 Filling the cartridge with nitrogen**

200890-10

- Clamp the cartridge in a vise using soft jaws.

**Info**

Clamp the cartridge only lightly.

- Connect the connector of the special tool to the pressure regulator of the nitrogen bottle.

Nitrogen charging tool (T14019) (☛ p. 291)

Filling gas - nitrogen

- Adjust the pressure regulator of the nitrogen bottle.

**Guideline**

Gas pressure	1.2 bar (17 psi)
--------------	------------------

- Pierce the membrane with the needle of the special tool.

- Open valve ①.

- Fill the cartridge for at least 15 seconds.

**Guideline**

Gas pressure	1.2 bar (17 psi)
--------------	------------------

**Info**

Watch the pressure regulator dial.

Ensure that the cartridge is filled to the specified pressure.

- Close the valve.
- Close the nitrogen bottle.
- Remove the special tool.
- Mount and tighten filling screw ② with the O-ring.

**Guideline**

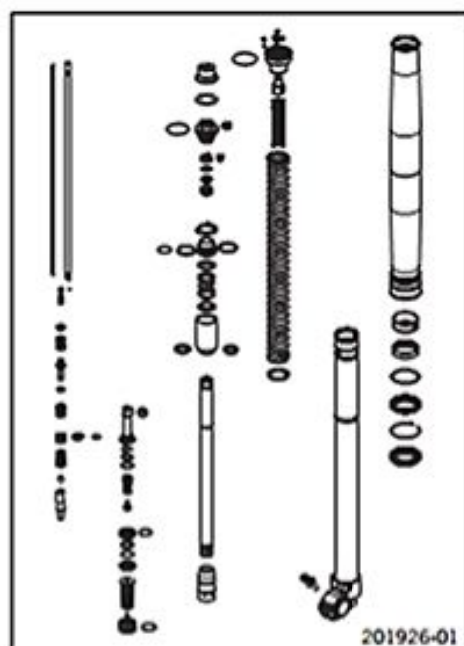
Nitrogen filling screw of the fork leg	M4x0.5	2.5 Nm (1.84 lbf ft)
--	--------	-------------------------



200837-11

**6.10 250 SX US****6.10.1 Performing a fork service****Condition**

The fork legs have been removed.



- Disassemble the fork legs. (☛ p. 38)
- Remove the spring. (☛ p. 40)
- Disassemble the cartridge. (☛ p. 41)
- Disassemble the piston rod. (☛ p. 42)
- Disassemble the hydrostop unit. (☛ p. 43)
- Disassemble the seal ring retainer. (☛ p. 43)
- Check the fork legs. (☛ p. 44)
- Assemble the seal ring retainer. (☛ p. 45)
- Assemble the hydrostop unit. (☛ p. 45)
- Assemble the piston rod. (☛ p. 46)
- Assemble the cartridge. (☛ p. 47)
- Assemble the fork legs. (☛ p. 48)

## 6.10.2 Disassembling the fork legs

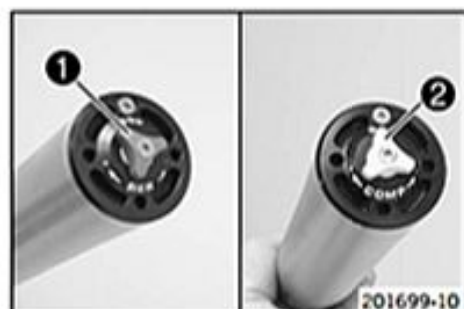


### Info

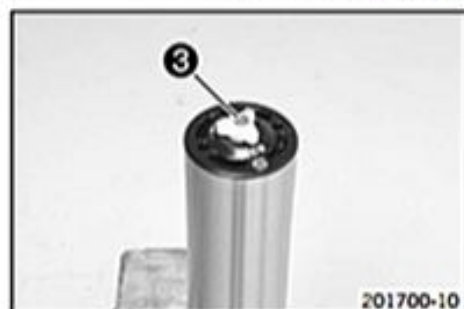
The steps are identical for both fork legs.

### Condition

The fork legs are disassembled.



- Note down the current state of rebound damping **1** REB (red adjuster of right fork leg).
- Note down the current state of compression damping **2** COMP (white adjuster of left fork leg).
- Fully open the adjusters of the rebound and compression damping.



- Clamp the fork leg in the area of the lower triple clamp.

Clamping stand (T1403S) (☛ p. 293)

- Remove the screw. Remove adjuster **3**.



- Release screw cap **4**.

Special socket (T14047) (☛ p. 293)



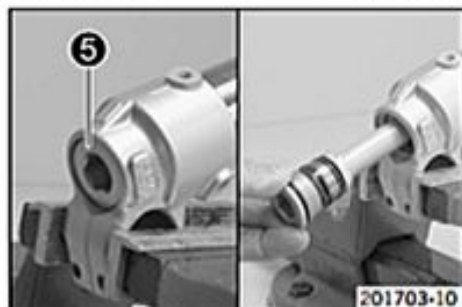
### Info

The cartridge cannot be taken off yet.





- Unclamp the fork leg.
- Push the outer tube down. Drain the fork oil.

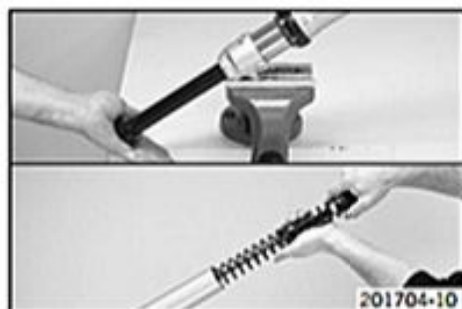


- Clamp the fork leg with the axle clamp.
- Release hydrostop unit **5** and remove it.



## Info

Do not use an impact wrench.  
Place a pan underneath since oil will run out.



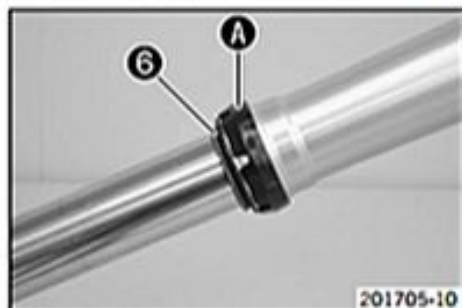
- Remove the cartridge from the fork leg.

Press-out tool (T14051) (☞ p. 293)



## Info

Removing the O-ring seat from the cartridge usually requires the application of force.



- Remove dust boot **6**.
- Remove fork protection ring **A**.



## Info

The fork protection ring does not necessarily need to be removed for repair work.

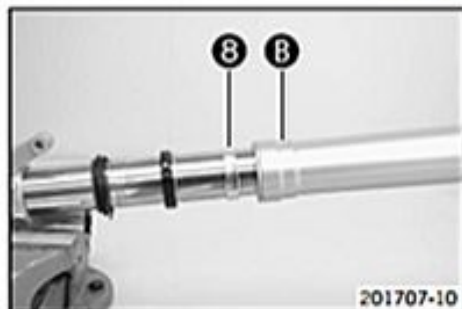


- Remove lock ring **7**.



## Info

The lock ring has a ground end against which a screwdriver can be positioned.



- Warm the outer tube in area **B** of the lower sliding bushing.

Guideline

50 °C (122 °F)

- Pull the outer tube forcefully off of the inner tube.



## Info

The lower sliding bushing **B** must be pulled out of its bearing seat.



- Remove the upper sliding bushing **9**.


**Info**

Do not use a tool; pull the ends apart slightly by hand.



- Take off the lower sliding bushing **8**.
- Take off support ring **10**.
- Take off seal ring **11**.
- Take off lock ring **7**.
- Take off dust boot **6**.
- Unclamp the fork leg.

## 6.10.3 Removing the spring


**Info**

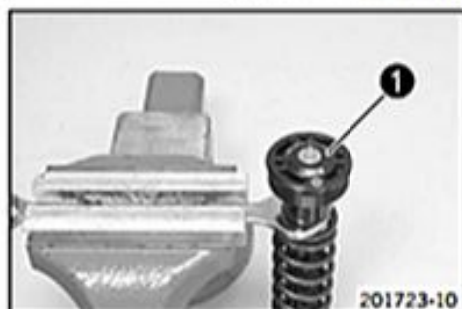
The steps are identical for both fork legs.

**Preparatory work**

- Disassemble the fork legs. (☛ p. 38)

**Main work**

- Pull the spring down. Mount the open end wrench on the hexagonal part.



- Clamp the open end wrench in the vise. Release screw cap **1** but do not remove it yet.

Special socket (T14047) (☛ p. 293)



- Pull the spring down. Remove the open end wrench.
- Remove the screw cap.
- Remove the spring with the preload spacer(s).

## 6.10.4 Disassembling the cartridge



### Info

The steps are identical for both fork legs.

### Preparatory work

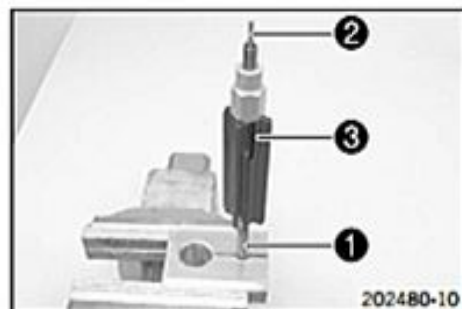
- Disassemble the fork legs. (☞ p. 38)
- Remove the spring. (☞ p. 40)

### Main work

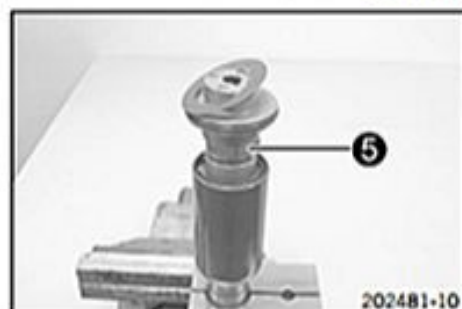
- Degrease piston rod ① and clamp it in the vise.

Clamping stand (T14049S) (☞ p. 293)

- Remove adjusting tube ②. Unscrew spring guide ③.



- Remove spring seat ④.
- Pull the piston rod out of the cartridge.



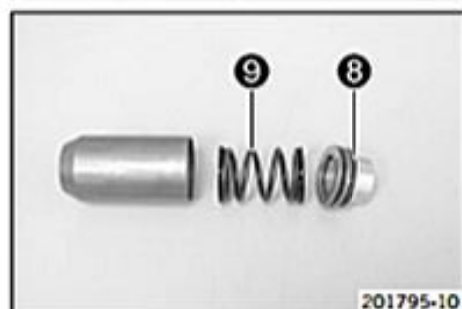
- Clamp the tube of the cartridge into a vise.

Clamping stand (T14049S) (☞ p. 293)

- Release seal ring retainer ⑤ and remove with the washer.

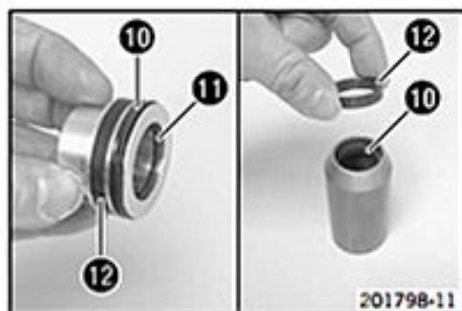


- Remove lock ring ⑥.
- Pull reservoir ⑦ off of the tube.



- Pull sleeve ⑧ out of the reservoir.
- Remove spring ⑨.





- Remove seal rings **10** and O-ring **11**.
- Remove pilot bushings **12**.

## 6.10.5 Disassembling the piston rod



### Info

The steps are identical for both fork legs, except for the hydrostop needle and valve.

### Preparatory work

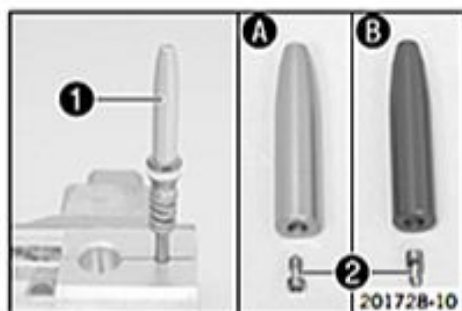
- Disassemble the fork legs. (☞ p. 38)
- Remove the spring. (☞ p. 40)
- Disassemble the cartridge. (☞ p. 41)

### Main work

- Degrease the piston rod.
- Clamp the piston rod with the special tool as far up as possible.

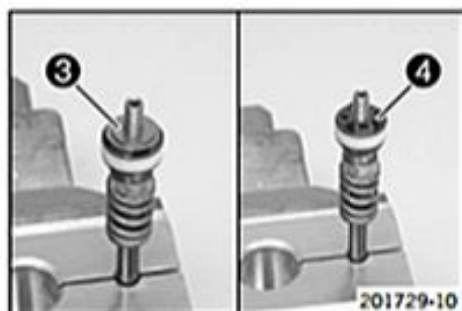
Clamping stand (T14049S) (☞ p. 293)

- Release hydrostop needle **1** and remove it from the piston rod.
- ✓ The valve **2** usually remains in the hydrostop needle.

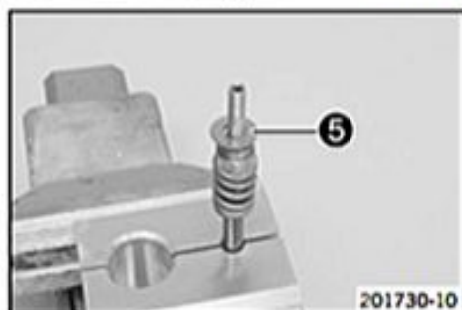


### Info

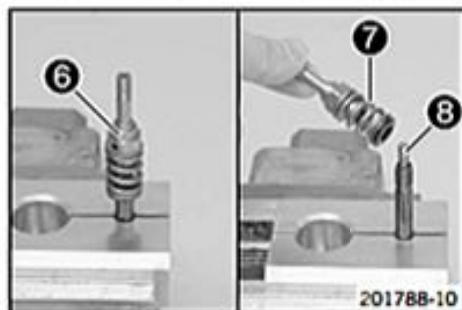
- A** - silver hydrostop needle on compression damping side.
- B** - red hydrostop needle on rebound damping side.



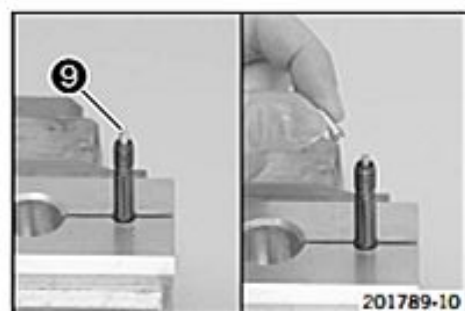
- Remove the rebound shim stack **3**.
- Remove piston **4**.



- Remove the compression shim stack **5**.
- Remove spring.



- Remove adapter **6** with spring **7** and washer.
- Remove spring **8**.



- Remove valve needle 9 from the piston rod.


**Info**

The adjusting tube can be used for this.

## 6.10.6 Disassembling the hydrostop unit


**Info**

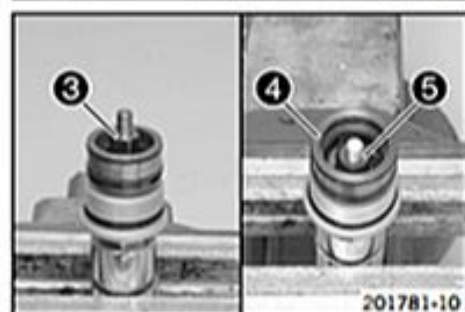
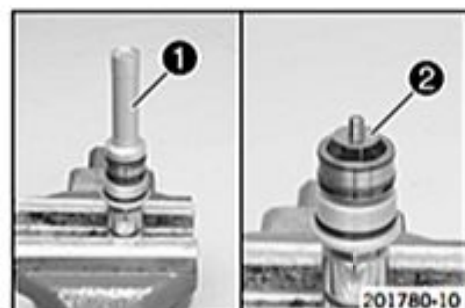
The steps are identical for both fork legs.

**Preparatory work**

- Disassemble the fork legs. (☛ p. 38)

**Main work**

- Mount the hydrostop unit on a fitting hexagon socket and clamp into a vice.
- Remove sleeve 1.
- Remove shim stack 2.

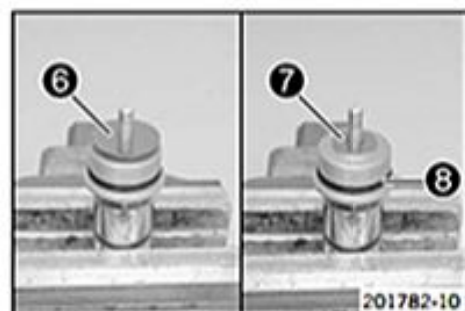


- Remove adapter 3.
- Remove hub 4 with washers 5.


**Info**

It is possible that only one washer or no washer is present.

- Remove the O-ring from the hub.



- Remove shim stack 6.
- Remove washer 7.
- Remove O-ring 8.

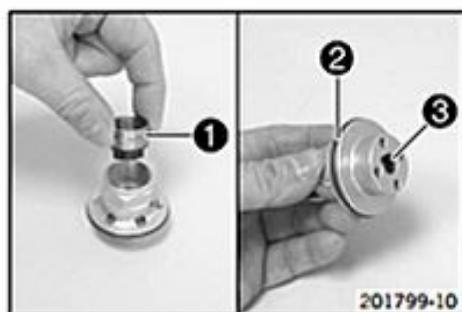
## 6.10.7 Disassembling the seal ring retainer


**Info**

The steps are identical for both fork legs.

**Preparatory work**

- Disassemble the fork legs. (☛ p. 38)
- Remove the spring. (☛ p. 40)
- Disassemble the cartridge. (☛ p. 41)



## Main work

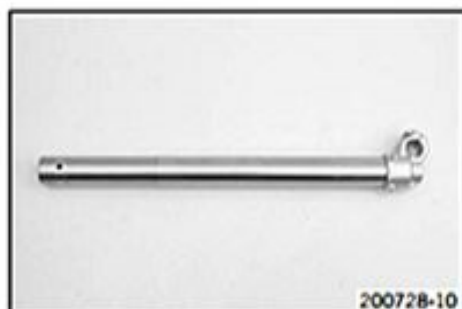
- Remove pilot bushing support ①.
- Remove O-ring ② and seal ring ③.

## 6.10.8 Checking the fork legs

### Condition

The fork legs have been disassembled.

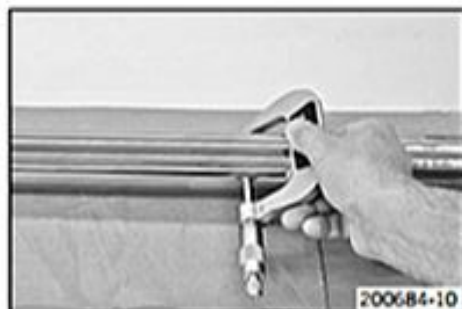
- Check the inner tube and axle clamp for damage.
  - If there is damage:
    - Change the inner tube.



- Measure the outside diameter at multiple locations of the inner tube.

Outside diameter of inner tube	47.975... 48.005 mm (1.88878... 1.88996 in)
--------------------------------	---

- If the measured value is smaller than the specified value:
  - Change the inner tube.



- Measure the run-out of the inner tube.

Inner tube run-out	≤ 0.20 mm (≤ 0.0079 in)
--------------------	-------------------------

- If the measured value is larger than the specified value:
  - Change the inner tube.



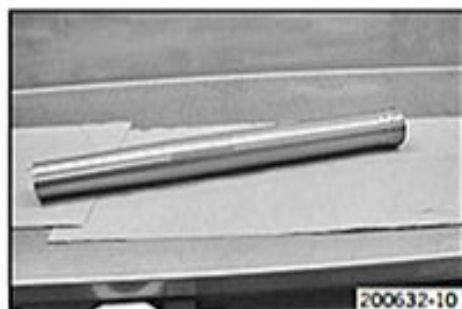
- Measure the inside diameter at multiple locations of the outer tube.

Inside diameter of outer tube	≤ 49.20 mm (≤ 1.937 in)
-------------------------------	-------------------------

- If the measured value is larger than the specified value:
  - Change the outer tube.

- Check the outer tube for damage.

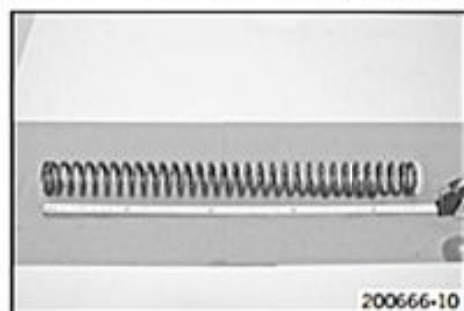
- If there is damage:
  - Change the outer tube.







- Check the surface of the sliding bushings.
  - If the bronze-colored layer **A** under sliding layer **B** is visible or the surface is rough:
    - Change the sliding bushings.



- Check the spring length.

## Guideline

Spring length with preload spacer(s)	480 mm (18.9 in)
--------------------------------------	------------------

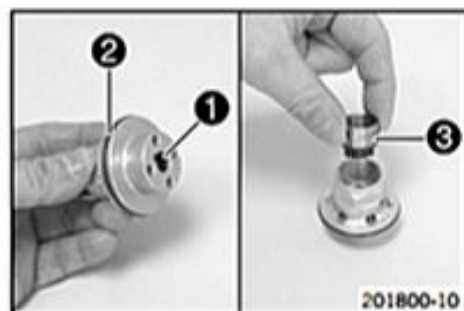
- If the measured value is larger than the specified value:
  - Reduce the thickness of the preload spacers.
- If the measured value is smaller than the specified value:
  - Increase the thickness of the preload spacers.

## 6.10.9 Assembling the seal ring retainer



## Info

The steps are identical for both fork legs.



- Mount and grease seal ring **1**.

Lubricant (T158) (☛ p. 282)

- Mount and grease O-ring **2**.

Lubricant (T158) (☛ p. 282)

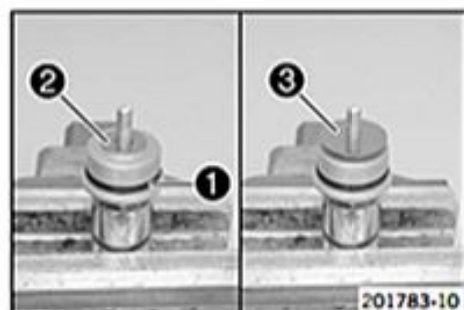
- Position pilot bushing support **3**.

## 6.10.10 Assembling the hydrostop unit



## Info

The steps are identical for both fork legs.

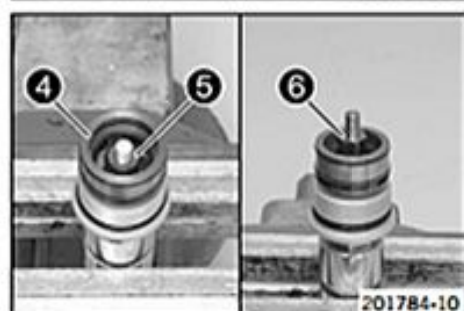


- Mount and grease O-ring **1**.

Lubricant (T158) (☛ p. 282)

- Mount washer **2**.

- Mount shim stack **3** with the smaller washers facing downward.



- Mount the new O-ring on hub **4**.

- Mount the hub with washers **5**.



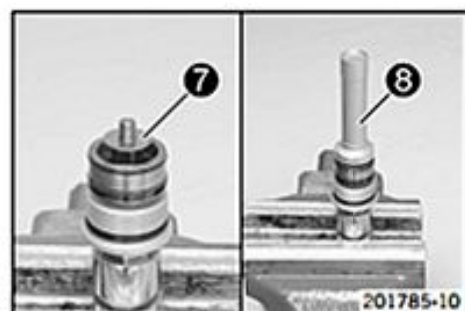
## Info

It is possible that only one or no washer is present.

- Mount and tighten adapter **6**.

## Guideline

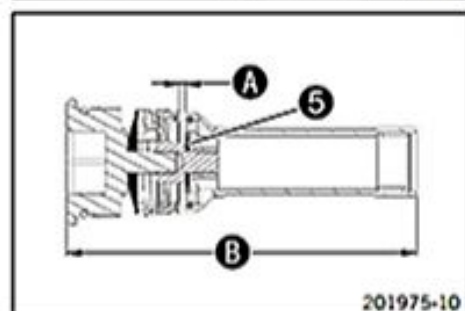
Hydrostop unit adapter	M6x0.5	7 Nm (5.2 lbf ft)
------------------------	--------	-------------------



- Mount shim stack (7) with the smaller washers facing downward.
- Mount and tighten sleeve (8).

Guideline

Hydrostop unit sleeve	M6x0.5	7 Nm (5.2 lbf ft)
-----------------------	--------	-------------------



- Check distance (A) and total length (B) of the hydrostop.

Guideline

Hydrostop distance	$\geq 1.5 \text{ mm}$ ( $\geq 0.059 \text{ in}$ )	
Hydrostop length	108.5... 109.5 mm (4.272... 4.311 in)	

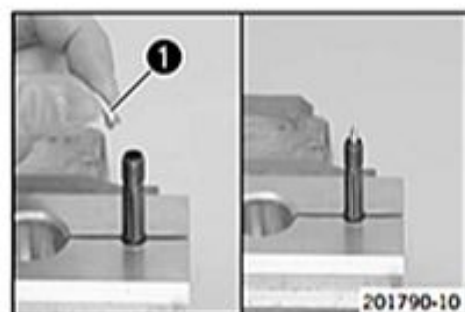
- If the dimensions are out of tolerance:
  - Add or remove washers (5).

## 6.10.11 Assembling the piston rod



### Info

The steps are identical for both fork legs, except for the hydrostop needle and valve.

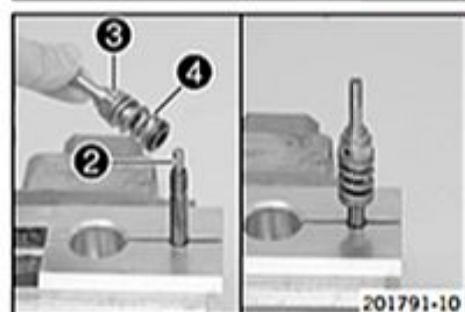


- Degrease the piston rod.
- Clamp the piston rod with the special tool.

Clamping stand (T14049S) (☞ p. 293)

- Lubricate the O-ring. Mount valve needle (1) in the piston rod.

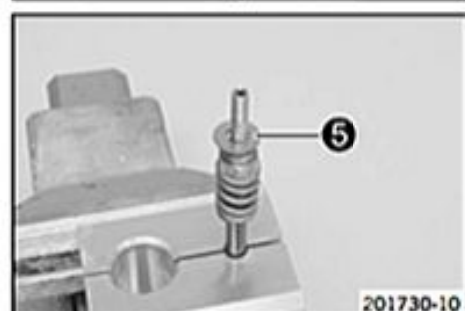
Lubricant (T158) (☞ p. 282)



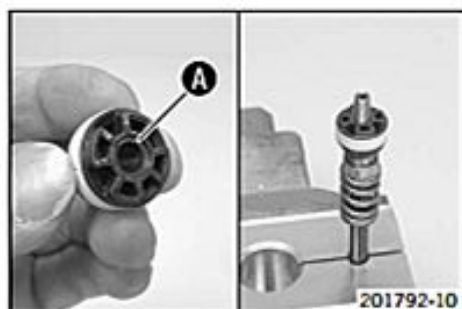
- Mount spring (2).
- Mount and tighten adapter (3) with spring (4) and washer.

Guideline

Adapter of piston rod	M6x0.5	12 Nm (8.9 lbf ft)
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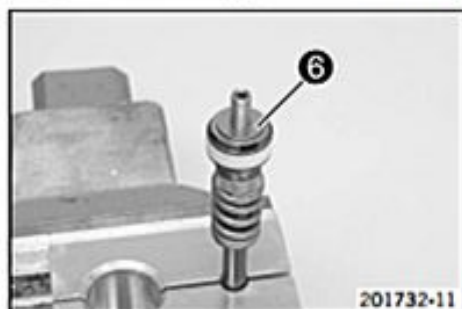
- Position the spring.
- Mount the compression shim stack (5) with the smaller washers facing downward.



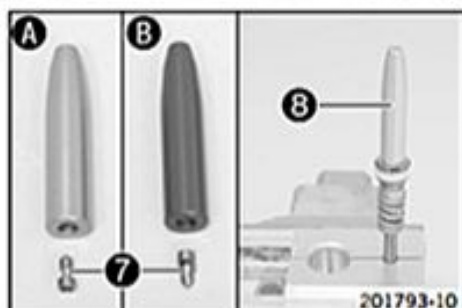
- Grind the piston on both sides on a surfacing plate using 1200 grit sandpaper.
- Clean the piston.
- Lubricate the piston ring.

Fork oil (SAE 4) (48601166S1) (☞ p. 280)

- Mount the piston with chamfer **A** facing down.



- Mount the rebound shim stack **6** with the smaller washers facing upward.



- Press the piston downward against the spring.  
✓ The piston should not squeeze the shims.
- Position valve **7** in the hydrostop needle **8**. Mount and tighten the hydrostop needle.

#### Guideline

Hydrostop needle on piston rod	M6x0.5	7 Nm (5.2 lbf ft)
--------------------------------	--------	-------------------



#### Info

- A** – silver hydrostop needle on compression damping side.
- B** – red hydrostop needle on rebound damping side.

- Unclamp the piston rod.

### 6.10.12 Assembling the cartridge



#### Info

The steps are identical for both fork legs.

#### Preparatory work

- Assemble the seal ring retainer. (☞ p. 45)
- Assemble the piston rod. (☞ p. 46)

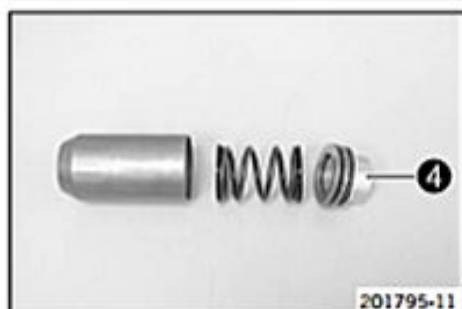
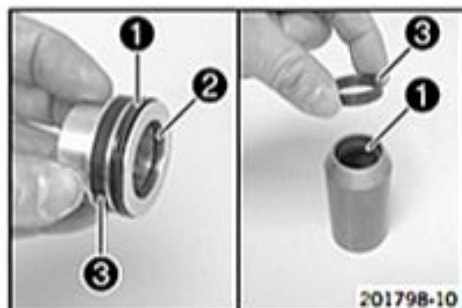
#### Main work

- Mount and grease seal rings **1** and O-ring **2**.

Lubricant (T158) (☞ p. 282)

- Mount and lubricate pilot bushings **3**.

Fork oil (SAE 4) (48601166S1) (☞ p. 280)



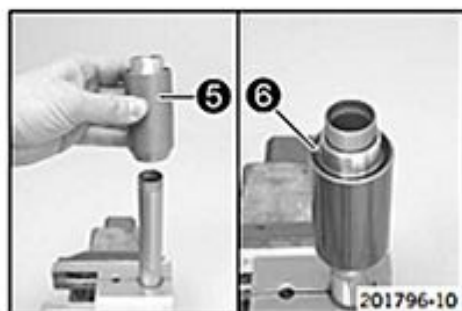
- Check the length of the reservoir spring.

#### Guideline

Reservoir spring length with preload spacer	46 mm (1.81 in)
---	-----------------

- If the length is out of tolerance:
  - Correct the preload spacers.
- Position the spring with the preload spacers in the reservoir.





- Position sleeve 4 in the reservoir.
- Clamp the tube of the cartridge into a vise.

Clamping stand (T14049S) (☞ p. 293)

- Slide reservoir 5 onto the tube.

**Info**

Hold the sleeve in the reservoir to prevent it from sliding out.

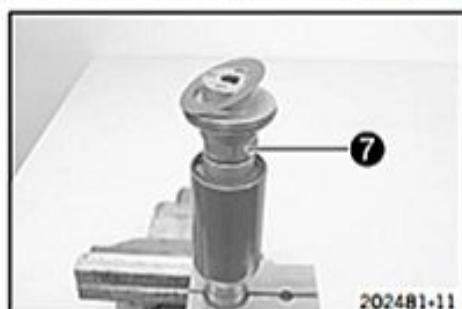
- Mount lock ring 6.

- Mount seal ring retainer 7 with the washer and tighten.

**Guideline**

Seal ring retainer	M23.5x0.75	46 Nm (33.9 lbf ft)	Loctite® 2701™
--------------------	------------	------------------------	----------------

- Unclamp the cartridge.



- Slide piston rod 8 into the cartridge.

**Info**

Ensure that the piston ring is seated correctly.

- Mount spring seat 9.

- Degrease piston rod 8 and clamp in the vise.

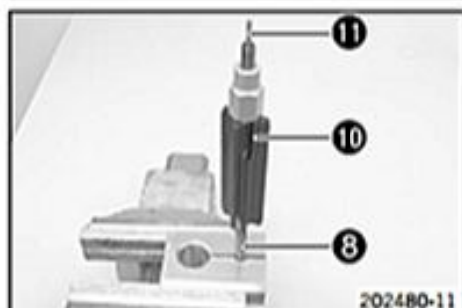
Clamping stand (T14049S) (☞ p. 293)

- Screw spring guide 10 all the way on.

**Info**

The nut must be firmly tightened against the stop by hand. Do not use a tool.

- Mount adjusting tube 11.
- Unclamp the piston rod. Mount the preload spacer(s).

**6.10.13 Assembling the fork legs****Info**

When assembling, ensure that the right cartridge is mounted in the corresponding inner tube and the right adjuster is mounted on the corresponding screw cap.

Compression damping side – screw cap with mark **COMP**, brake caliper holder, white adjuster.

Rebound damping side – screw cap with mark **REB**, no brake caliper holder, red adjuster.

**Preparatory work**

- Assemble the hydrostop unit. (☞ p. 45)

**Main work**

- Clamp the inner tube with the axle clamp.

**Guideline**

Use soft jaws.

- Mount special tool.

Protecting sleeve (T1401) (☞ p. 290)



- Lubricate and mount dust boot ①.

Lubricant (T511) (☞ p. 282)

**Info**

Always change the dust boot, seal ring, lock ring and support ring. Mount the sealing lip with the spring expander facing downward.

- Slide on lock ring ②.
- Lubricate and slide on seal ring ③.

Lubricant (T511) (☞ p. 282)

**Info**

Mount with the sealing lip facing down and the open side facing up.

- Slide on support ring ④.
- Remove the special tool.
- Grind the edges of the sliding bushings with sandpaper grit 600, clean the bushings and lubricate them.

Fork oil (SAE 4) (48601166S1) (☞ p. 280)



201715-10



201716-10

- Slide on the lower sliding bushing ⑤.
- Mount the upper sliding bushing ⑥.

**Info**

Do not use a tool; pull the ends apart slightly by hand.



201717-10

- Warm the outer tube in area A of the lower sliding bushing.

Guideline

50 °C (122 °F)

- Slide the outer tube onto the inner tube.
- Hold the lower sliding bushing with the longer section of the special tool.

Mounting tool (T14040S) (☞ p. 293)

- Push the sliding bushing all the way into the outer tube.

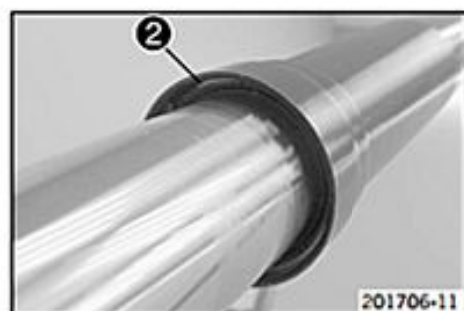


201718-10

- Position the support ring.
- Hold the seal ring with the shorter section of the special tool.

Mounting tool (T14040S) (☞ p. 293)

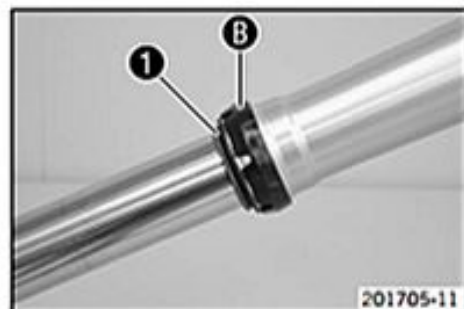
- Push the seal ring and support ring all the way into the outer tube.



- Mount lock ring ②.

**Info**

The lock ring must engage audibly.



- Mount dust boot ①.
- Mount fork protection ring ⑧.



- Lubricate the O-ring. Slide the cartridge all the way into the fork leg.

Fork oil (SAE 4) (48601166S1) (☛ p. 280)
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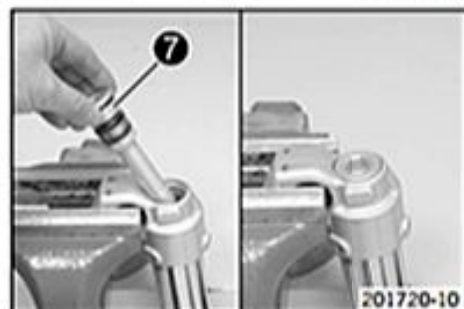
- Turn the fork. Have the entire filling quantity of fork oil available.

Oil capacity per fork leg	665 ml (22.48 fl. oz.)	Fork oil (SAE 4) (48601166S1) (☛ p. 280)
---------------------------	---------------------------	---

- Add some of the fork oil while pulling out and pushing in the piston rod numerous times.

**Guideline**

Fork oil quantity	510 ml (17.24 fl. oz.)
-------------------	------------------------



- Mount and tighten hydrostop unit ⑦.

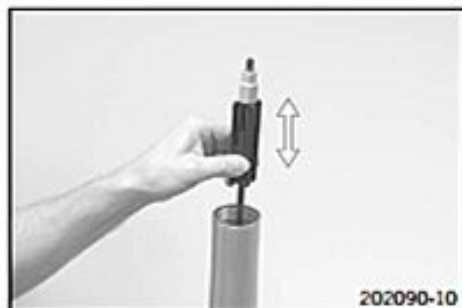
**Guideline**

Hydrostop unit	M30x1	40 Nm (29.5 lbf ft)
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- Clamp the fork vertically.
- Add the remaining quantity of fork oil.

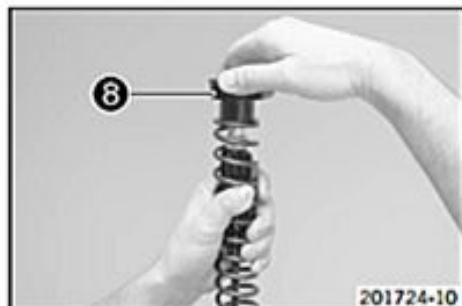




- Pull out the piston rod and push it back in numerous times while pressing it to one side slightly.
  - ✓ Air bubbles emerge and the cartridge is bled.
- Keep bleeding until no more air bubbles emerge.
  - ✓ The piston rod moves out automatically to the middle of the total stroke distance.

**Info**

When fully bled, the correct air chamber length is achieved automatically.



- Position spring.
- Pull the spring down. Mount screw cap (8).

**Info**

When assembling, ensure that the screw caps are correctly mounted according to the hydrostop needles.

Rebound damping side – red hydrostop needle, screw cap with mark **REB**.

Compression damping side – silver hydrostop needle, screw cap with mark **COMP**.



- Pull the spring down. Mount the open end wrench on the hexagonal part.
- Hold the open end wrench. Tighten screw cap (8).

**Guideline**

Screw cap on piston rod	M8x0.75	18 Nm (13.3 lbf ft)
Special socket (T14047) (☛ p. 293)		



- Push the outer tube up.
- Clamp the outer tube in the area of the lower triple clamp.

Clamping stand (T1403S) (☛ p. 293)

- Tighten screw cap (8).

**Guideline**

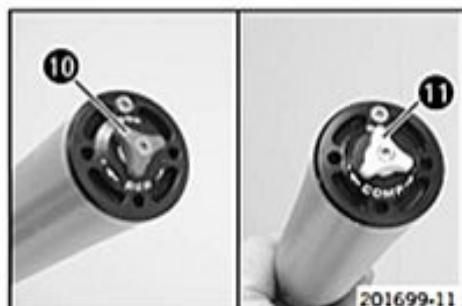
Cartridge on outer tube	M51x1.5	40 Nm (29.5 lbf ft)
Special socket (T14047) (☛ p. 293)		



- Mount the adjuster. Mount and tighten screw (9).

**Guideline**

Screw, adjuster	M4x0.5	2.5 Nm (1.84 lbf ft)
-----------------	--------	-------------------------

**Alternative 1**

- Turn the adjuster of compression damping (10) (mark **COMP**) and the adjuster of rebound damping (11) (mark **REB**) all the way clockwise.

## Guideline

Rebound damping	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Compression damping	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks

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

## Alternative 2

**Warning**

**Danger of accident** Modifications to the suspension setting may seriously alter the handling characteristic.

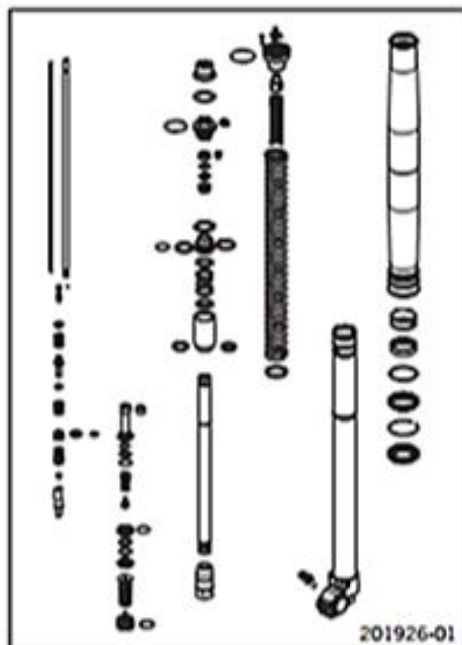
Extreme modifications to the suspension setting may cause a serious deterioration in the handling characteristic and overload components.

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

- Set the adjusters to the positions determined upon removal.

## 6.11 All XC models

## 6.11.1 Performing a fork service

**Condition**

The fork legs have been removed.

- Disassemble the fork legs. (☞ p. 52)
- Remove the spring. (☞ p. 54)
- Disassemble the cartridge. (☞ p. 55)
- Disassemble the piston rod. (☞ p. 56)
- Disassemble the hydrostop unit. (☞ p. 57)
- Disassemble the seal ring retainer. (☞ p. 58)
- Check the fork legs. (☞ p. 58)
- Assemble the seal ring retainer. (☞ p. 59)
- Assemble the hydrostop unit. (☞ p. 60)
- Assemble the piston rod. (☞ p. 60)
- Assemble the cartridge. (☞ p. 62)
- Assemble the fork legs. (☞ p. 63)

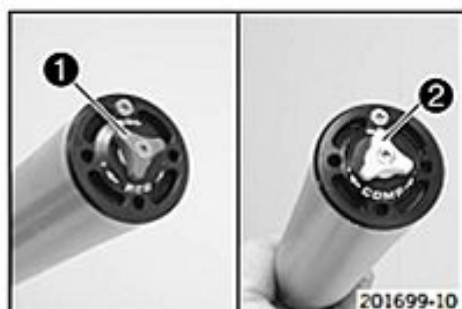
## 6.11.2 Disassembling the fork legs

**Info**

The steps are identical for both fork legs.

**Condition**

The fork legs are disassembled.



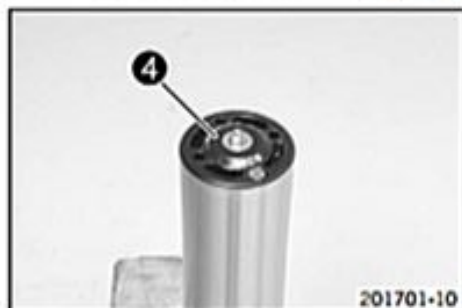
- Note down the current state of rebound damping **1 REB** (red adjuster of right fork leg).
- Note down the current state of compression damping **2 COMP** (white adjuster of left fork leg).
- Fully open the adjusters of the rebound and compression damping.



- Clamp the fork leg in the area of the lower triple clamp.

Clamping stand (T1403S) (☛ p. 293)

- Remove the screw. Remove adjuster **3**.



- Release screw cap **4**.

Special socket (T14047) (☛ p. 293)

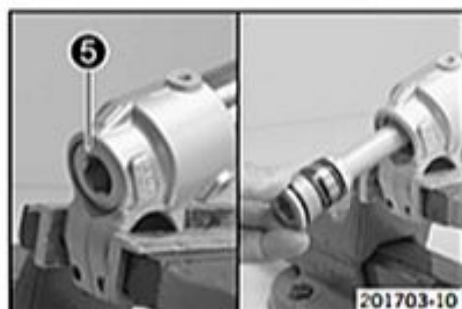


## Info

The cartridge cannot be taken off yet.



- Unclamp the fork leg.
- Push the outer tube down. Drain the fork oil.

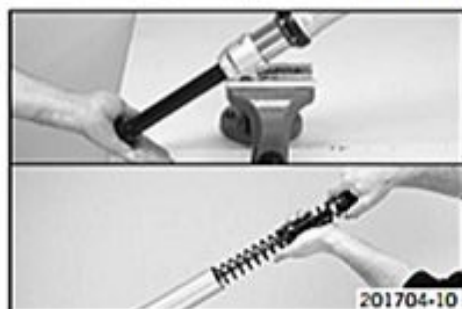


- Clamp the fork leg with the axle clamp.
- Release hydrostop unit **5** and remove it.



## Info

Do not use an impact wrench.  
Place a pan underneath since oil will run out.



- Remove the cartridge from the fork leg.

Press-out tool (T14051) (☛ p. 293)



## Info

Removing the O-ring seat from the cartridge usually requires the application of force.





- Remove dust boot **6**.
- Remove fork protection ring **A**.


**Info**

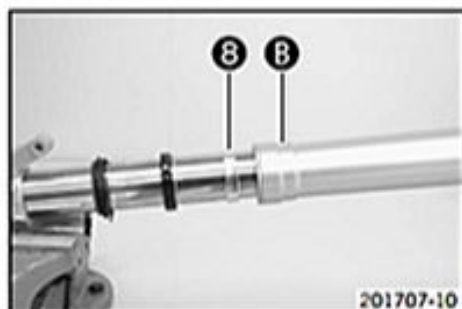
The fork protection ring does not necessarily need to be removed for repair work.



- Remove lock ring **7**.


**Info**

The lock ring has a ground end against which a screwdriver can be positioned.



- Warm the outer tube in area **B** of the lower sliding bushing.

**Guideline**

50 °C (122 °F)

- Pull the outer tube forcefully off of the inner tube.


**Info**

The lower sliding bushing **8** must be pulled out of its bearing seat.



- Remove the upper sliding bushing **9**.


**Info**

Do not use a tool; pull the ends apart slightly by hand.



- Take off the lower sliding bushing **8**.
- Take off support ring **10**.
- Take off seal ring **11**.
- Take off lock ring **7**.
- Take off dust boot **6**.
- Unclamp the fork leg.

## 6.11.3 Removing the spring


**Info**

The steps are identical for both fork legs.

**Preparatory work**

- Disassemble the fork legs. (☛ p. 52)



## Main work

- Pull the spring down. Mount the open end wrench on the hexagonal part.



- Clamp the open end wrench in the vise. Release screw cap ① but do not remove it yet.

Special socket (T14047) (☞ p. 293)



- Pull the spring down. Remove the open end wrench.
- Remove the screw cap.
- Remove the spring with the preload spacer(s).

## 6.11.4 Disassembling the cartridge



### Info

The steps are identical for both fork legs.

## Preparatory work

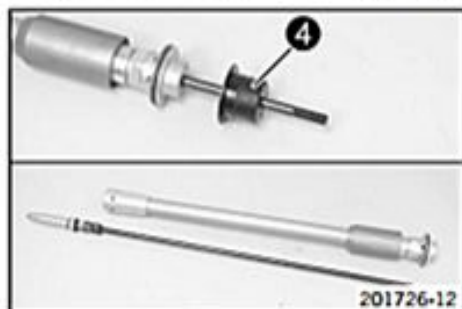
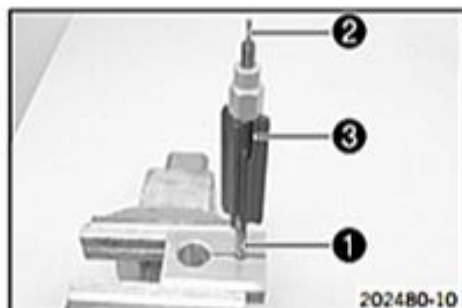
- Disassemble the fork legs. (☞ p. 52)
- Remove the spring. (☞ p. 54)

## Main work

- Degrease piston rod ① and clamp it in the vise.

Clamping stand (T14049S) (☞ p. 293)

- Remove adjusting tube ②. Unscrew spring guide ③.



- Remove spring seat ④.
- Pull the piston rod out of the cartridge.



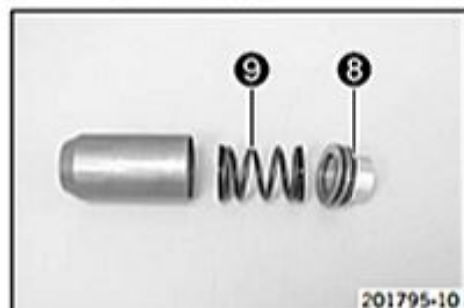
- Clamp the tube of the cartridge into a vise.

Clamping stand (T14049S) (☞ p. 293)

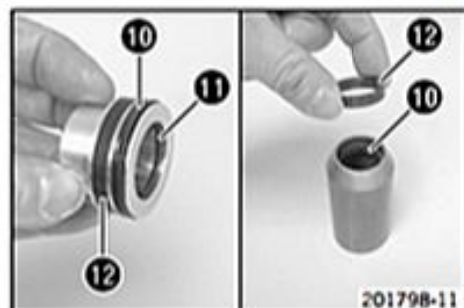
- Release seal ring retainer (5) and remove with the washer.



- Remove lock ring (6).
- Pull reservoir (7) off of the tube.



- Pull sleeve (8) out of the reservoir.
- Remove spring (9).



- Remove seal rings (10) and O-ring (11).
- Remove pilot bushings (12).

## 6.11.5 Disassembling the piston rod



### Info

The steps are identical for both fork legs, except for the hydrostop needle and valve.

### Preparatory work

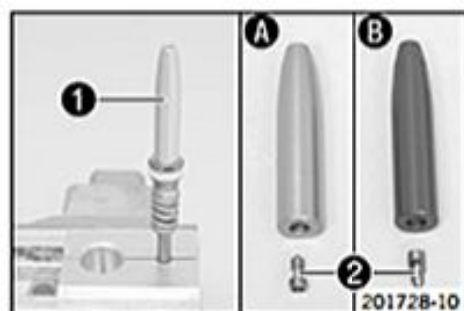
- Disassemble the fork legs. (☞ p. 52)
- Remove the spring. (☞ p. 54)
- Disassemble the cartridge. (☞ p. 55)

### Main work

- Degrease the piston rod.
- Clamp the piston rod with the special tool as far up as possible.

Clamping stand (T14049S) (☞ p. 293)

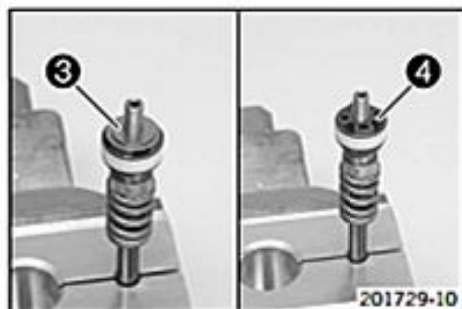
- Release hydrostop needle (1) and remove it from the piston rod.
- ✓ The valve (2) usually remains in the hydrostop needle.



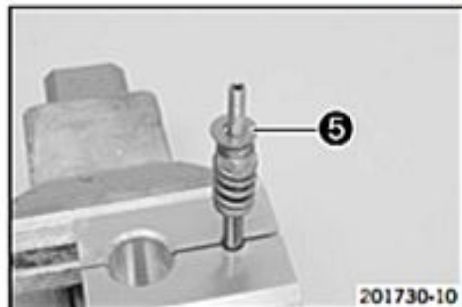
### Info

- A - silver hydrostop needle on compression damping side.
- B - red hydrostop needle on rebound damping side.

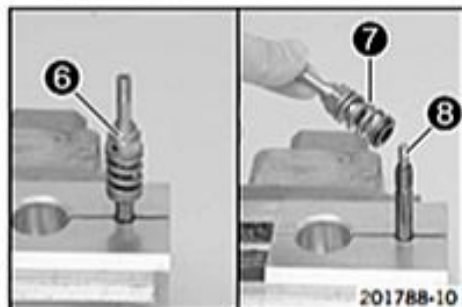




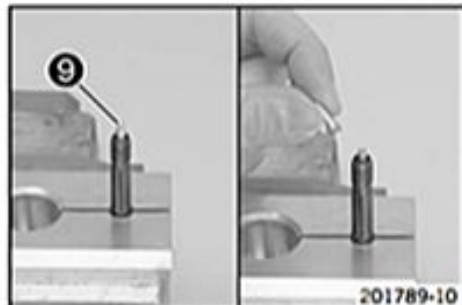
- Remove the rebound shim stack ③.
- Remove piston ④.



- Remove the compression shim stack ⑤.
- Remove spring.



- Remove adapter ⑥ with spring ⑦ and washer.
- Remove spring ⑧.



- Remove valve needle ⑨ from the piston rod.



## Info

The adjusting tube can be used for this.

### 6.11.6 Disassembling the hydrostop unit



## Info

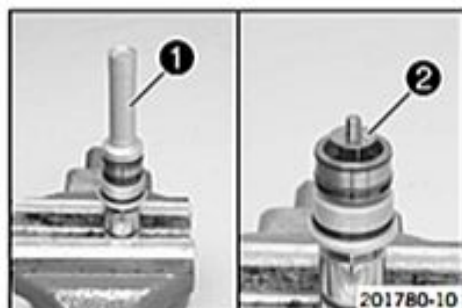
The steps are identical for both fork legs.

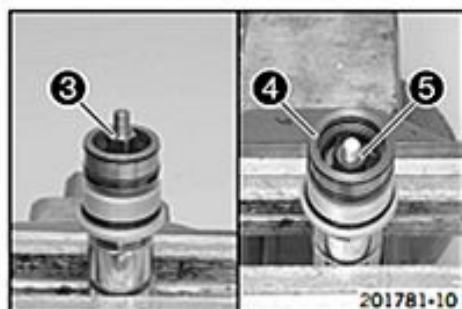
## Preparatory work

- Disassemble the fork legs. (☛ p. 52)

## Main work

- Mount the hydrostop unit on a fitting hexagon socket and clamp into a vice.
- Remove sleeve ①.
- Remove shim stack ②.



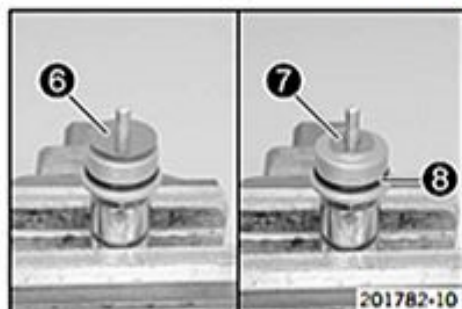


- Remove adapter **3**.
- Remove hub **4** with washers **5**.


**Info**

It is possible that only one washer or no washer is present.

- Remove the O-ring from the hub.



- Remove shim stack **6**.
- Remove washer **7**.
- Remove O-ring **8**.

### 6.11.7 Disassembling the seal ring retainer


**Info**

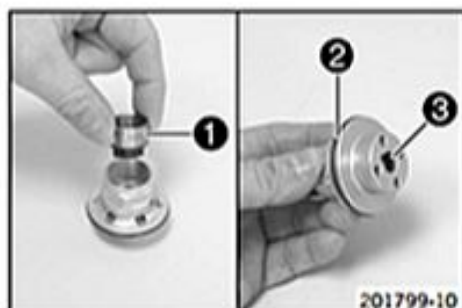
The steps are identical for both fork legs.

**Preparatory work**

- Disassemble the fork legs. (☛ p. 52)
- Remove the spring. (☛ p. 54)
- Disassemble the cartridge. (☛ p. 55)

**Main work**

- Remove pilot bushing support **1**.
- Remove O-ring **2** and seal ring **3**.

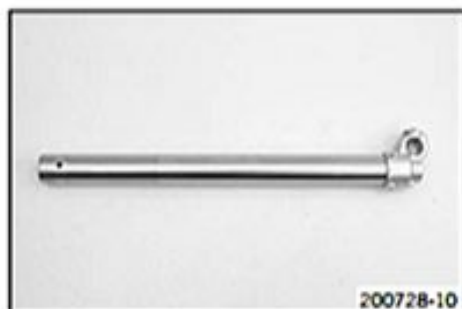


### 6.11.8 Checking the fork legs

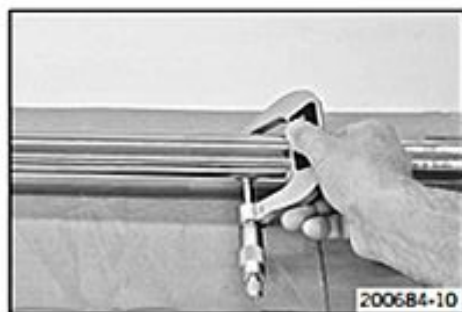
**Condition**

The fork legs have been disassembled.

- Check the inner tube and axle clamp for damage.
  - If there is damage:
    - Change the inner tube.



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- Measure the outside diameter at multiple locations of the inner tube.

Outside diameter of inner tube	47.975... 48.005 mm (1.88878... 1.88996 in)
--------------------------------	---

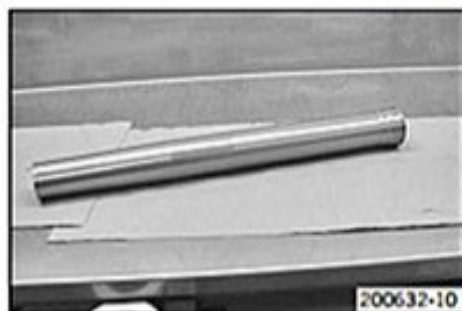
- If the measured value is smaller than the specified value:
  - Change the inner tube.



- Measure the run-out of the inner tube.

Inner tube run-out	≤ 0.20 mm (≤ 0.0079 in)
--------------------	-------------------------

- If the measured value is larger than the specified value:
  - Change the inner tube.



- Measure the inside diameter at multiple locations of the outer tube.

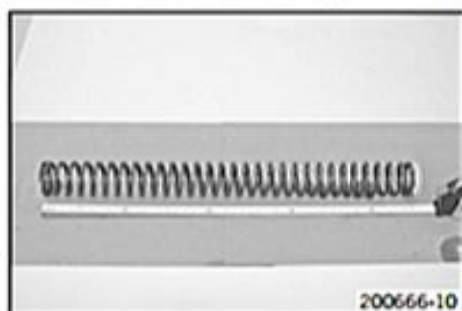
Inside diameter of outer tube	≤ 49.20 mm (≤ 1.937 in)
-------------------------------	-------------------------

- If the measured value is larger than the specified value:
  - Change the outer tube.
- Check the outer tube for damage.
  - If there is damage:
    - Change the outer tube.



- Check the surface of the sliding bushings.

- If the bronze-colored layer **A** under sliding layer **B** is visible or the surface is rough:
  - Change the sliding bushings.



- Check the spring length.

Guideline

Spring length with preload spacer(s)	480 mm (18.9 in)
--------------------------------------	------------------

- If the measured value is larger than the specified value:
  - Reduce the thickness of the preload spacers.
- If the measured value is smaller than the specified value:
  - Increase the thickness of the preload spacers.

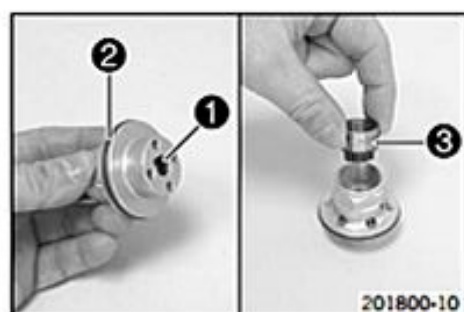
### 6.11.9 Assembling the seal ring retainer



#### Info

The steps are identical for both fork legs.





- Mount and grease seal ring **1**.

Lubricant (T158) (☛ p. 282)

- Mount and grease O-ring **2**.

Lubricant (T158) (☛ p. 282)

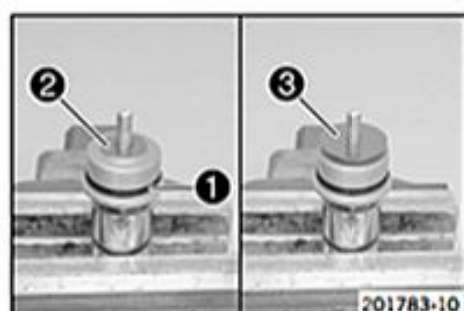
- Position pilot bushing support **3**.

## 6.11.10 Assembling the hydrostop unit



### Info

The steps are identical for both fork legs.

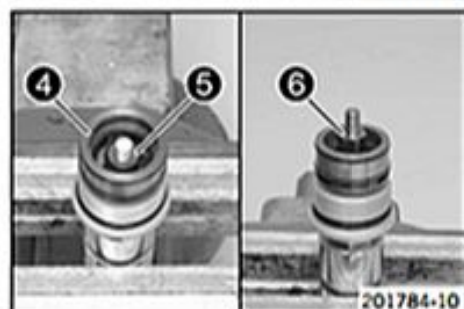


- Mount and grease O-ring **1**.

Lubricant (T158) (☛ p. 282)

- Mount washer **2**.

- Mount shim stack **3** with the smaller washers facing downward.



- Mount the new O-ring on hub **4**.

- Mount the hub with washers **5**.



### Info

It is possible that only one or no washer is present.

- Mount and tighten adapter **6**.

### Guideline

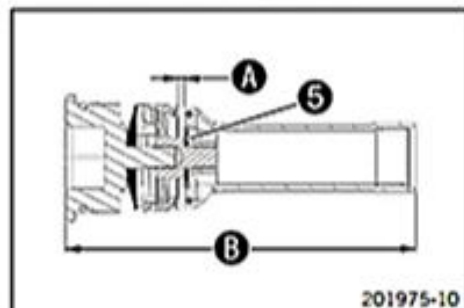
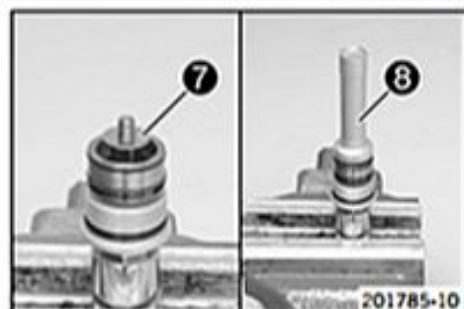
Hydrostop unit adapter	M6x0.5	7 Nm (5.2 lbf ft)
------------------------	--------	-------------------

- Mount shim stack **7** with the smaller washers facing downward.

- Mount and tighten sleeve **8**.

### Guideline

Hydrostop unit sleeve	M6x0.5	7 Nm (5.2 lbf ft)
-----------------------	--------	-------------------



- Check distance **A** and total length **B** of the hydrostop.

### Guideline

Hydrostop distance	≥ 1.5 mm (≥ 0.059 in)
Hydrostop length	108.5... 109.5 mm (4.272... 4.311 in)

- If the dimensions are out of tolerance:

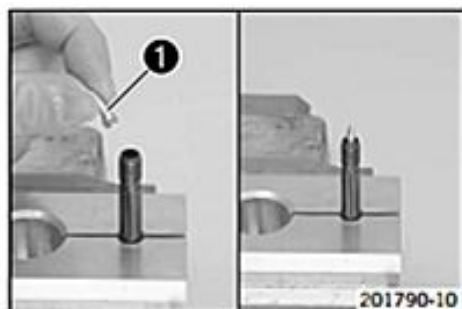
- Add or remove washers **5**.

## 6.11.11 Assembling the piston rod



### Info

The steps are identical for both fork legs, except for the hydrostop needle and valve.

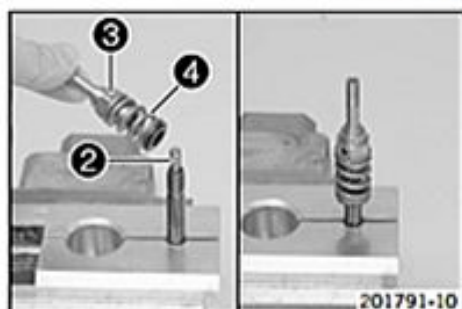


- Degrease the piston rod.
- Clamp the piston rod with the special tool.

Clamping stand (T14049S) (☞ p. 293)

- Lubricate the O-ring. Mount valve needle (1) in the piston rod.

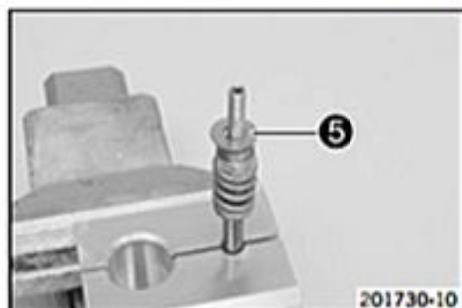
Lubricant (T158) (☞ p. 282)



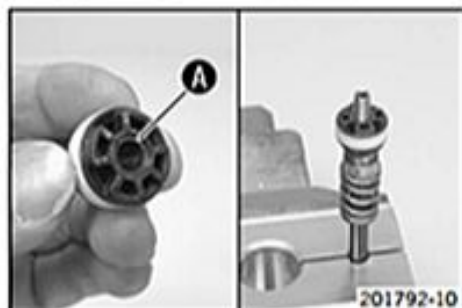
- Mount spring (2).
- Mount and tighten adapter (3) with spring (4) and washer.

Guideline

Adapter of piston rod	M6x0.5	12 Nm (8.9 lbf ft)
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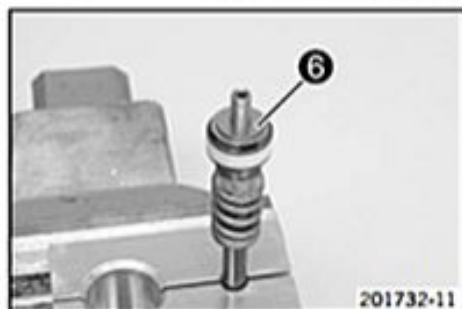
- Position the spring.
- Mount the compression shim stack (5) with the smaller washers facing downward.



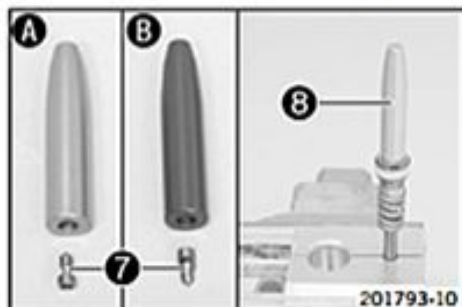
- Grind the piston on both sides on a surfacing plate using 1200 grit sandpaper.
- Clean the piston.
- Lubricate the piston ring.

Fork oil (SAE 4) (48601166S1) (☞ p. 280)

- Mount the piston with chamfer (A) facing down.



- Mount the rebound shim stack (6) with the smaller washers facing upward.



- Press the piston downward against the spring.  
✓ The piston should not squeeze the shims.
- Position valve (7) in the hydrostop needle (8). Mount and tighten the hydrostop needle.

Guideline

Hydrostop needle on piston rod	M6x0.5	7 Nm (5.2 lbf ft)
--------------------------------	--------	-------------------



Info

(A) – silver hydrostop needle on compression damping side.

(B) – red hydrostop needle on rebound damping side.

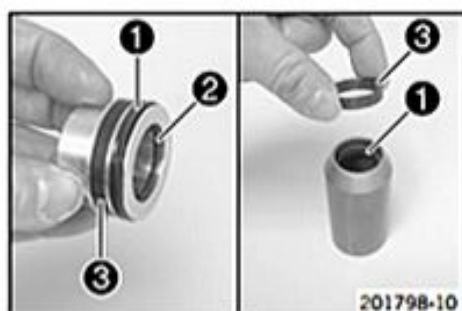
- Unclamp the piston rod.

## 6.11.12 Assembling the cartridge



### Info

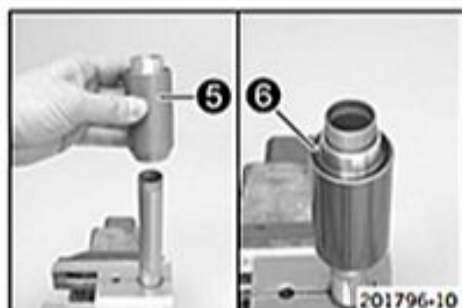
The steps are identical for both fork legs.



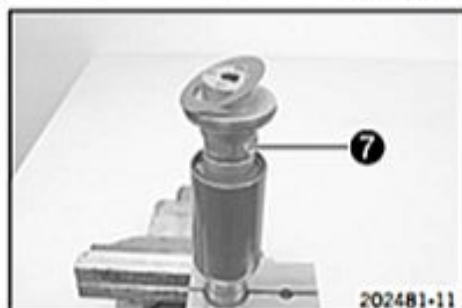
201798-10



201795-11



201796-10



202481-11



201797-10

### Preparatory work

- Assemble the seal ring retainer. (☞ p. 59)
- Assemble the piston rod. (☞ p. 60)

### Main work

- Mount and grease seal rings 1 and O-ring 2.

Lubricant (T158) (☞ p. 282)

- Mount and lubricate pilot bushings 3.

Fork oil (SAE 4) (48601166S1) (☞ p. 280)

- Check the length of the reservoir spring.

### Guideline

Reservoir spring length with preload spacer	46 mm (1.81 in)
---	-----------------

- If the length is out of tolerance:

- Correct the preload spacers.

- Position the spring with the preload spacers in the reservoir.
- Position sleeve 4 in the reservoir.

- Clamp the tube of the cartridge into a vise.

Clamping stand (T14049S) (☞ p. 293)

- Slide reservoir 5 onto the tube.



### Info

Hold the sleeve in the reservoir to prevent it from sliding out.

- Mount lock ring 6.

- Mount seal ring retainer 7 with the washer and tighten.

### Guideline

Seal ring retainer	M23.5x0.75	46 Nm (33.9 lbf ft)	Loctite® 2701™
--------------------	------------	------------------------	----------------

- Unclamp the cartridge.

- Slide piston rod 8 into the cartridge.

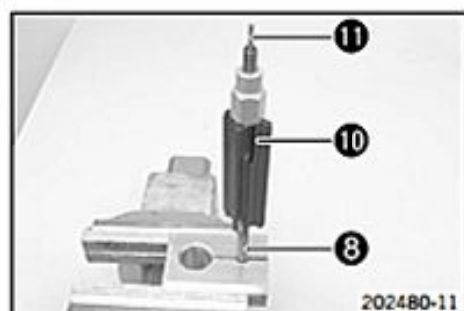


### Info

Ensure that the piston ring is seated correctly.

- Mount spring seat 9.





- Degrease piston rod (8) and clamp in the vise.

Clamping stand (T14049S) (☞ p. 293)

- Screw spring guide (10) all the way on.

**Info**

The nut must be firmly tightened against the stop by hand. Do not use a tool.

- Mount adjusting tube (11).
- Unclamp the piston rod. Mount the preload spacer(s).

**6.11.13 Assembling the fork legs****Info**

When assembling, ensure that the right cartridge is mounted in the corresponding inner tube and the right adjuster is mounted on the corresponding screw cap.

Compression damping side – screw cap with mark **COMP**, brake caliper holder, white adjuster.

Rebound damping side – screw cap with mark **REB**, no brake caliper holder, red adjuster.

**Preparatory work**

- Assemble the hydrostop unit. (☞ p. 60)

**Main work**

- Clamp the inner tube with the axle clamp.

**Guideline**

Use soft jaws.

- Mount special tool.

Protecting sleeve (T1401) (☞ p. 290)

- Lubricate and mount dust boot (1).

Lubricant (T511) (☞ p. 282)

**Info**

Always change the dust boot, seal ring, lock ring and support ring. Mount the sealing lip with the spring expander facing downward.

- Slide on lock ring (2).
- Lubricate and slide on seal ring (3).

Lubricant (T511) (☞ p. 282)

**Info**

Mount with the sealing lip facing down and the open side facing up.

- Slide on support ring (4).
- Remove the special tool.
- Grind the edges of the sliding bushings with sandpaper grit 600, clean the bushings and lubricate them.

Fork oil (SAE 4) (48601166S1) (☞ p. 280)





- Slide on the lower sliding bushing 5.
- Mount the upper sliding bushing 6.


**Info**

Do not use a tool; pull the ends apart slightly by hand.



- Warm the outer tube in area A of the lower sliding bushing.

**Guideline**

50 °C (122 °F)

- Slide the outer tube onto the inner tube.
- Hold the lower sliding bushing with the longer section of the special tool.

Mounting tool (T14040S) (☞ p. 293)

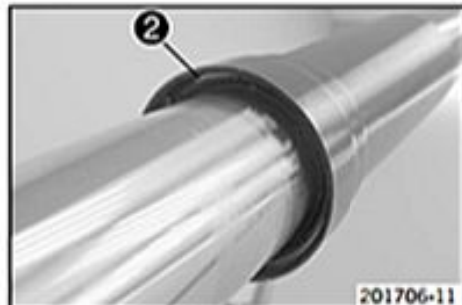
- Push the sliding bushing all the way into the outer tube.



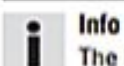
- Position the support ring.
- Hold the seal ring with the shorter section of the special tool.

Mounting tool (T14040S) (☞ p. 293)

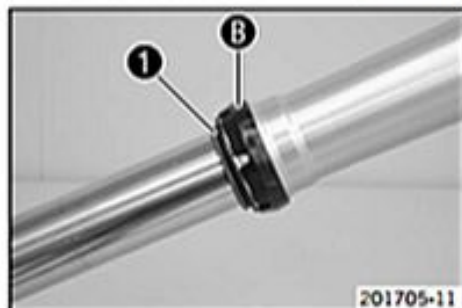
- Push the seal ring and support ring all the way into the outer tube.



- Mount lock ring 2.


**Info**

The lock ring must engage audibly.

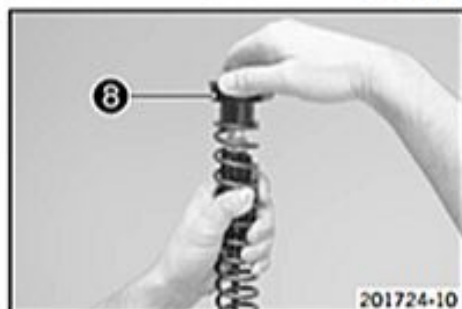
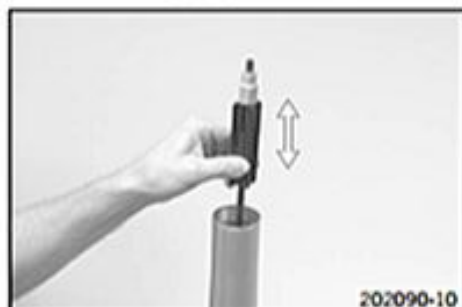
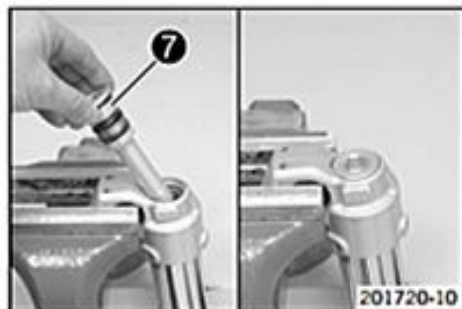


- Mount dust boot 1.
- Mount fork protection ring B.



- Lubricate the O-ring. Slide the cartridge all the way into the fork leg.

Fork oil (SAE 4) (48601166S1) (☞ p. 280)



- Turn the fork. Have the entire filling quantity of fork oil available.

Oil capacity per fork leg	640 ml (21.64 fl. oz.)	Fork oil (SAE 4) (48601166S1) (☛ p. 280)
---------------------------	------------------------	--

- Add some of the fork oil while pulling out and pushing in the piston rod numerous times.

Guideline

Fork oil quantity	510 ml (17.24 fl. oz.)
-------------------	------------------------

- Mount and tighten hydrostop unit (7).

Guideline

Hydrostop unit	M30x1	40 Nm (29.5 lbf ft)
----------------	-------	---------------------

- Clamp the fork vertically.
- Add the remaining quantity of fork oil.

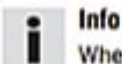
- Pull out the piston rod and push it back in numerous times while pressing it to one side slightly.
  - ✓ Air bubbles emerge and the cartridge is bled.
- Keep bleeding until no more air bubbles emerge.
  - ✓ The piston rod moves out automatically to the middle of the total stroke distance.



#### Info

When fully bled, the correct air chamber length is achieved automatically.

- Position spring.
- Pull the spring down. Mount screw cap (8).



#### Info

When assembling, ensure that the screw caps are correctly mounted according to the hydrostop needles.

Rebound damping side – red hydrostop needle, screw cap with mark **REB**.

Compression damping side – silver hydrostop needle, screw cap with mark **COMP**.

- Pull the spring down. Mount the open end wrench on the hexagonal part.
- Hold the open end wrench. Tighten screw cap (8).

Guideline

Screw cap on piston rod	M8x0.75	18 Nm (13.3 lbf ft)
-------------------------	---------	---------------------

Special socket (T14047) (☛ p. 293)
------------------------------------





- Push the outer tube up.
- Clamp the outer tube in the area of the lower triple clamp.

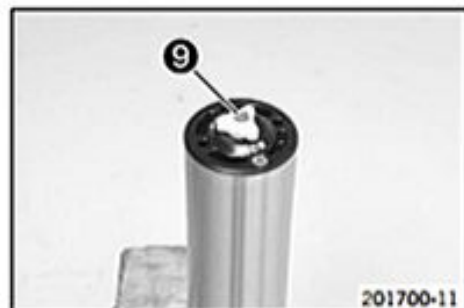
Clamping stand (T1403S) (☛ p. 293)

- Tighten screw cap (8).

Guideline

Cartridge on outer tube	M51x1.5	40 Nm (29.5 lbf ft)
-------------------------	---------	------------------------

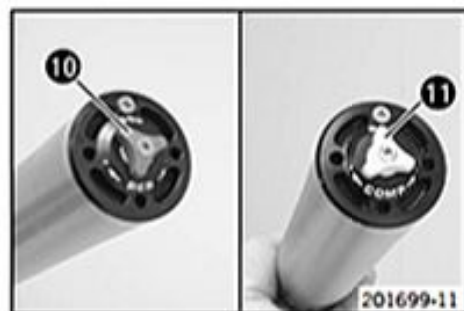
Special socket (T14047) (☛ p. 293)



- Mount the adjuster. Mount and tighten screw (9).

Guideline

Screw, adjuster	M4x0.5	2.5 Nm (1.84 lbf ft)
-----------------	--------	-------------------------



#### Alternative 1

- Turn the adjuster of compression damping (10) (mark **COMP**) and the adjuster of rebound damping (11) (mark **REB**) all the way clockwise.

Guideline

Rebound damping	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Compression damping	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks

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

#### Alternative 2



#### Warning

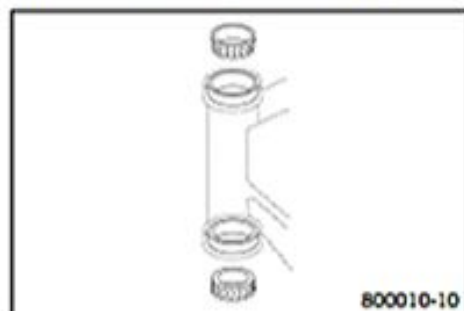
**Danger of accident** Modifications to the suspension setting may seriously alter the handling characteristic.

Extreme modifications to the suspension setting may cause a serious deterioration in the handling characteristic and overload components.

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

- Set the adjusters to the positions determined upon removal.

### 6.12 Greasing the steering head bearing



- Remove the lower triple clamp. (☛ p. 67)
- Install the lower triple clamp. (☛ p. 67)

## 6.13 Removing the lower triple clamp

### Preparatory work

- Raise the motorcycle with a lift stand. (☞ p. 10)
- Remove the front wheel. (☞ p. 109)
- Remove the fork legs. (☞ p. 14)
- Remove the start number plate. (☞ p. 107)
- Remove the front fender. (☞ p. 107)
- Remove the handlebar cushion.



### Main work

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



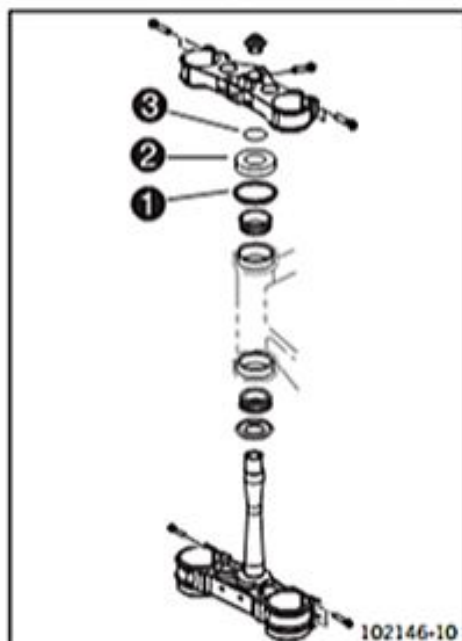
### Info

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



- Remove O-ring 3. Remove protective ring 4.
- Take off the lower triple clamp with the steering stem.
- Remove the upper steering head bearing.

## 6.14 Installing the lower triple clamp



### Main work

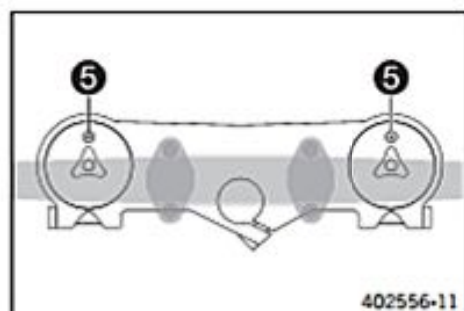
- Clean the bearing and sealing elements, check for damage, and grease.

High viscosity grease (☞ p. 282)

- Insert the lower triple clamp with the steering stem. Mount the upper steering head bearing.
- Check whether the upper steering head seal 1 is correctly positioned.
- Slide on protective ring 2 and O-ring 3.



- Position the upper triple clamp with the handlebar.
- Mount screw 4 but do not tighten yet.



## (250 SX EU)

- Position the fork legs.
- ✓ Bleeder screws 5 are positioned toward the front.



## Info

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

## (All XC models, 250 SX US)

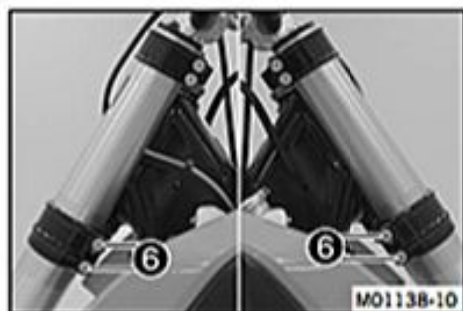
- Position the fork legs.
- ✓ Bleeder screws 5 are positioned toward the front.



## Info

The compression damping is located in the left fork leg **COMP** (white adjusting screw). The rebound damping is located in the right fork leg **REB** (red adjusting screw).

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



- Tighten screws 6.

## Guideline

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



- Tighten screw 4.

## Guideline

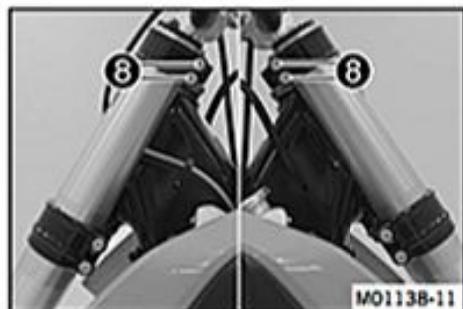
Screw, top steering head	M20x1.5	12 Nm (8.9 lbf ft)
--------------------------	---------	--------------------



- Mount and tighten screw 7.

## Guideline

Screw, top steering stem (250 SX)	M8	20 Nm (14.8 lbf ft)	Loctite® 243™
Screw, top steering stem (All XC models)	M8	17 Nm (12.5 lbf ft)	Loctite® 243™



- Tighten screws 8.

## Guideline

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





- Position the brake caliper. Mount and tighten screws (9).

#### Guideline

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

- Position the brake line and clamp. Mount and tighten screws (10).

#### Finishing work

- Check that the wiring harness, throttle cables, and brake and clutch lines can move freely and are routed correctly.
- Install the front fender. (☛ p. 107)
- Install the front wheel. (☛ p. 110)
- Check the play of the steering head bearing. (☛ p. 69)
- Remove the motorcycle from the lift stand. (☛ p. 10)
- Install the start number plate. (☛ p. 107)
- Mount the handlebar cushion.

### 6.15 Checking the play of the steering head bearing



#### Warning

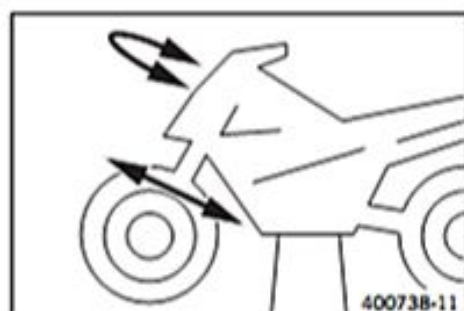
**Danger of accidents** Unstable vehicle handling from incorrect steering head bearing play.

- Adjust the steering head bearing play without delay.



#### Info

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



#### Preparatory work

- Raise the motorcycle with a lift stand. (☛ p. 10)

#### Main work

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

No play should be noticeable in the steering head bearing.

- If there is noticeable play present:
  - Adjust the steering head bearing play. (☛ p. 69)
- Move the handlebar to and fro over the entire steering range.

The handlebar must be able to move easily over the entire steering range. There should be no perceptible detent positions.

- If detent positions are noticeable:
  - Adjust the steering head bearing play. (☛ p. 69)
  - Check the steering head bearing and replace if required.

#### Finishing work

- Remove the motorcycle from the lift stand. (☛ p. 10)

### 6.16 Adjusting the steering head bearing play

#### Preparatory work

- Raise the motorcycle with a lift stand. (☛ p. 10)
- Remove the handlebar cushion.

**Main work**

- Loosen screws ①. Remove screw ②.
- Loosen and retighten screw ③.

**Guideline**

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

- Using a plastic hammer, tap lightly on the upper triple clamp to avoid strains.
- Tighten screws ①.

**Guideline**

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

- Locate and tighten screw ②.

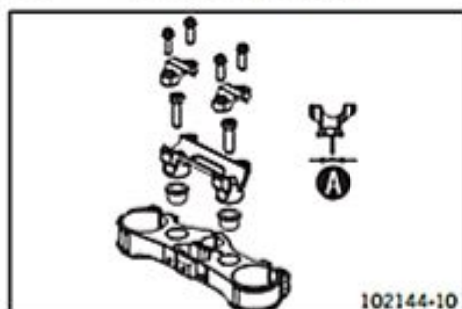
**Guideline**

Screw, top steering stem (250 SX)	M8	20 Nm (14.8 lbf ft)	Loctite® 243™
Screw, top steering stem (All XC models)	M8	17 Nm (12.5 lbf ft)	Loctite® 243™

**Finishing work**

- Check the play of the steering head bearing. (☞ p. 69)
- Remove the motorcycle from the lift stand. (☞ p. 10)
- Mount the handlebar cushion.

## 7.1 Handlebar position



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

Hole distance A	3.5 mm (0.138 in)
-----------------	-------------------

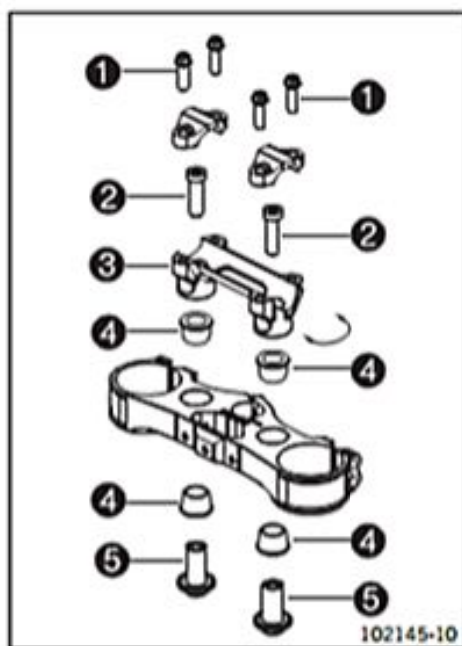
The handlebar can be mounted in 2 different positions. In this way, the handlebar can be mounted in the position that is most comfortable for the rider.

## 7.2 Adjusting the handlebar position

**Warning**

**Danger of accidents** Handlebar breakage.

- If the handlebar is bent or straightened it will cause material fatigue, and the handlebar can break. Always replace handlebar.

**Preparatory work**

- Remove the handlebar cushion.

**Main work**

- Remove screws **1**. Take off the handlebar clamps. Remove the handlebar and lay it to one side.

**Info**

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

- Remove screws **2**. Remove handlebar support **3**.
- Position rubber bushings **4** and push through nuts **5** from below.
- Place the handlebar support in the required position. Mount and tighten screws **2**.

**Guideline**

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

- Position the handlebar.

**Info**

Make sure the cables and wiring are positioned correctly.

- Position the handlebar clamps.
- Mount screws **1**, but do not tighten yet.
- Screw the handlebar clamps so that both parts touch at the front and tighten all of the screws.

**Guideline**

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

**Finishing work**

- Mount the handlebar cushion.



## 7.3 Adjusting basic position of clutch lever



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

**i** Info

Turn the adjusting screw counterclockwise to decrease the distance between the clutch lever and the handlebar.

Turn the adjusting screw clockwise to increase the distance between the clutch lever and the handlebar.

The range of adjustment is limited.

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

Do not make any adjustments while riding.

## 7.4 Checking the routing of the throttle cable

## Preparatory work

- Remove the seat. (☞ p. 103)

## (250 SX)

- Turn handle 1 of the fuel tap to the OFF position. (Figure B02072-10 ☞ p. 105)

## (All XC models)

- Turn handle 1 of the fuel tap to the OFF position. (Figure L00904-10 ☞ p. 106)

- Remove the fuel tank. (☞ p. 103)

## Main work

- Check the throttle cable routing.

The throttle cable must be routed along the back of the handlebar, to the right of the frame, below the fuel tank bracket, and to the carburetor. The throttle cable must be fixed on the fuel tank bracket with a rubber band.

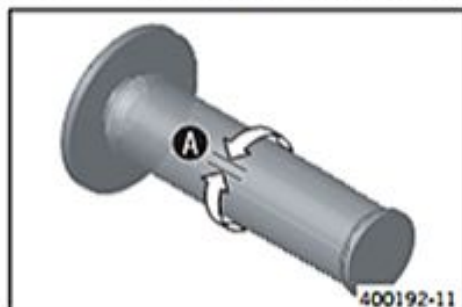
- If the throttle cable is not routed as specified:
  - Correct the throttle cable routing.



## Finishing work

- Install the fuel tank. (☞ p. 104)
- Mount the seat. (☞ p. 103)

## 7.5 Checking the play in the throttle cable



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

Play in throttle cable	2... 3 mm (0.08... 0.12 in)
------------------------	-----------------------------

- If the throttle cable play does not meet specifications:
  - Adjust the play in the throttle cable. (☞ p. 73)

**Danger**

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

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

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

The idle speed must not change.

- If the idle speed changes:
  - Adjust the play in the throttle cable. (☞ p. 73)

## 7.6 Adjusting the play in the throttle cable

**Preparatory work**

- Remove the seat. (☞ p. 103)

**(250 SX)**

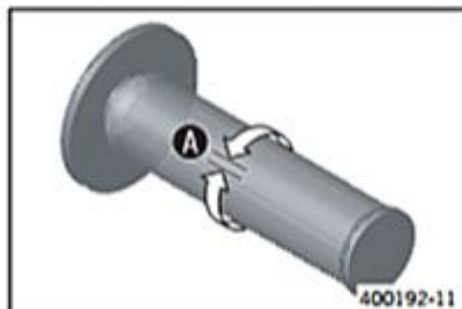
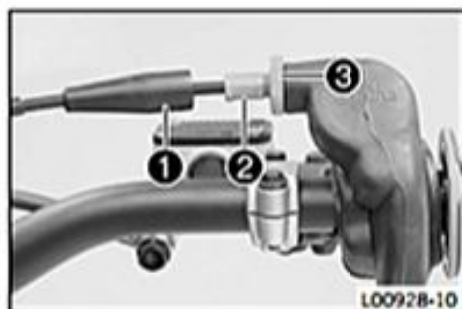
- Turn handle ❶ of the fuel tap to the **OFF** position. (Figure B02072-10 ☞ p. 105)

**(All XC models)**

- Turn handle ❶ of the fuel tap to the **OFF** position. (Figure L00904-10 ☞ p. 106)
- Remove the fuel tank. (☞ p. 103)
- Check the routing of the throttle cable. (☞ p. 72)

**Main work**

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



- Turn adjusting screw ❷ in such a way there is throttle cable play A in the throttle grip.

**Guideline**

Play in throttle cable	2... 3 mm (0.08... 0.12 in)
------------------------	-----------------------------

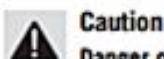
- Tighten nut ❸.
- Slide on sleeve ❶.

**Finishing work**

- Check the throttle grip for smooth operation.
- Install the fuel tank. (☞ p. 104)
- Mount the seat. (☞ p. 103)
- Check the play in the throttle cable. (☞ p. 72)



## 8.1 Adjusting the high-speed compression damping of the shock absorber



### Caution

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

- The shock absorber is filled with high density nitrogen. Adhere to the description provided.



### Info

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



- Turn adjusting screw **1** all the way clockwise with a socket wrench.



### Info

Do not loosen fitting **2**!

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

### Guideline

Compression damping, high-speed (250 SX EU)	
Comfort	2.5 turns
Standard	2 turns
Sport	1.5 turns
Compression damping, high-speed (250 SX US)	
Comfort	2.5 turns
Standard	2 turns
Sport	1.5 turns
Compression damping, high-speed (All XC models)	
Comfort	2.5 turns
Standard	2 turns
Sport	1.5 turns



### Info

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

## 8.2 Adjusting the low-speed compression damping of the shock absorber



### Caution

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

- The shock absorber is filled with high density nitrogen. Adhere to the description provided.



### Info

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



- Turn adjusting screw **1** clockwise with a screwdriver up to the last perceptible click.



### Info

Do not loosen fitting **2**!

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



## Guideline

Compression damping, low-speed (250 SX EU)	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Compression damping, low-speed (250 SX US)	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Compression damping, low-speed (All XC models)	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks



## Info

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

## 8.3 Adjusting the rebound damping of the shock absorber



## Caution

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

- The shock absorber is filled with high density nitrogen. Adhere to the description provided.



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

## Guideline

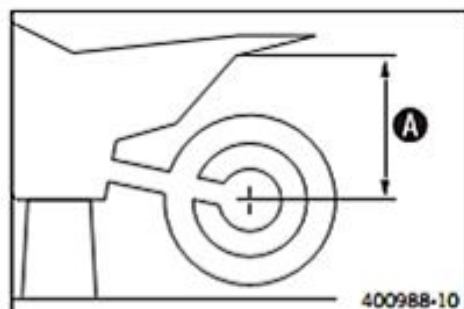
Rebound damping (250 SX EU)	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Rebound damping (250 SX US)	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Rebound damping (All XC models)	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks



## Info

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

## 8.4 Measuring the rear wheel sag unloaded



### Preparatory work

- Raise the motorcycle with a lift stand. (☛ p. 10)

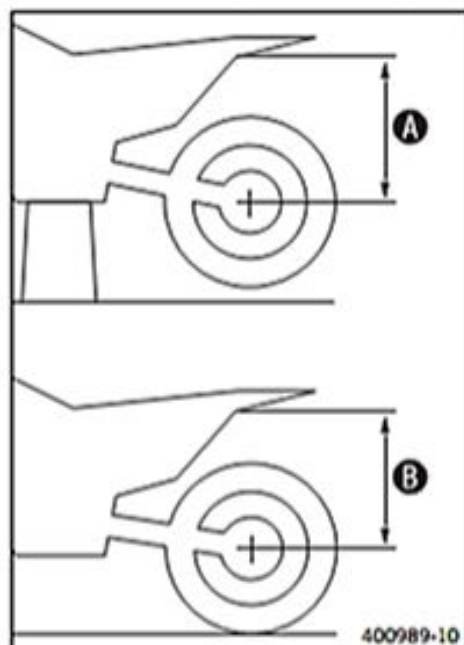
### Main work

- Measure the distance – as vertical as possible – between the rear axle and a fixed point, for example, a mark on the rear fairing.
- Note down the value as dimension **A**.

### Finishing work

- Remove the motorcycle from the lift stand. (☛ p. 10)

## 8.5 Checking the static sag of the shock absorber



- Measure distance **A** of rear wheel unloaded. (☛ p. 76)
- Hold the motorcycle upright with the aid of an assistant.
- Measure the distance between the rear axle and the fixed point again.
- Note down the value as dimension **B**.



### Info

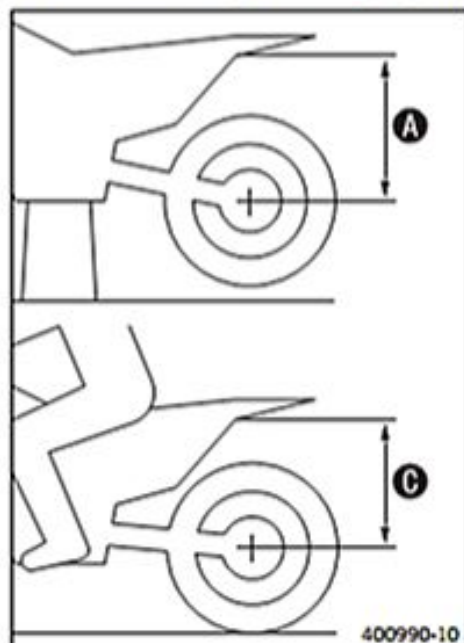
The static sag is the difference between measurements **A** and **B**.

- Check the static sag.

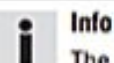
Static sag (250 SX EU)	30 mm (1.18 in)
Static sag (250 SX US)	30 mm (1.18 in)
Static sag (All XC models)	30 mm (1.18 in)

- If the static sag is less or more than the specified value:
  - Adjust the spring preload of the shock absorber. (☛ p. 77)

## 8.6 Checking the riding sag of the shock absorber



- Measure distance **A** of rear wheel unloaded. (☛ p. 76)
- With another person holding the motorcycle, the rider, wearing full protective clothing, sits on the seat in a normal sitting position (feet on footrests) and bounces up and down a few times.
  - ✓ The rear wheel suspension levels out.
- Another person now measures the distance between the rear axle and the fixed point.
- Note down the value as dimension **C**.



### Info

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

- Check the riding sag.

### Guideline

Riding sag (250 SX EU)	100 mm (3.94 in)
Riding sag (250 SX US)	100 mm (3.94 in)
Riding sag (All XC models)	100 mm (3.94 in)

- If the riding sag differs from the specified measurement:
  - Adjust the riding sag. (☛ p. 77)



## 8.7 Adjusting the spring preload of the shock absorber



### Caution

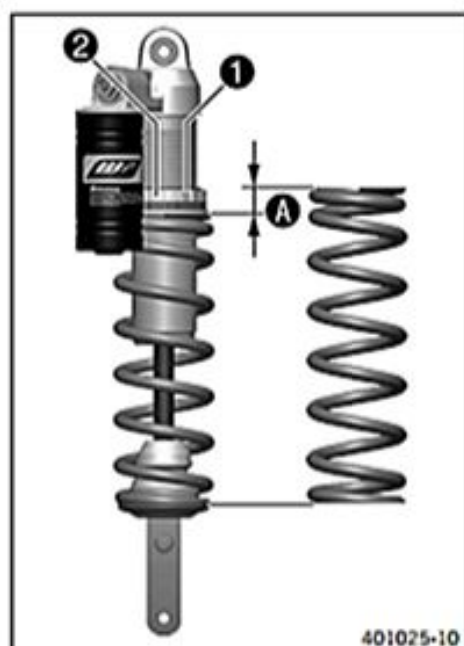
**Danger of accidents** Disassembly of pressurized parts can lead to injury.

- The shock absorber is filled with high density nitrogen. Adhere to the description provided.



### Info

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



### Preparatory work

- Raise the motorcycle with a lift stand. (☞ p. 10)
- Disassemble the main silencer. (☞ p. 97)
- Remove the shock absorber. (☞ p. 78)
- After removing the shock absorber, clean it thoroughly.

### Main work

- Loosen screw 1.
- Turn adjusting ring 2 until the spring is no longer under tension.

Hook wrench (T106S) (☞ p. 288)

- Measure the overall spring length while the spring is not under tension.
- Tighten the spring by turning adjusting ring 2 to measurement A.

### Guideline

Spring preload (250 SX EU)	8 mm (0.31 in)
Spring preload (250 SX US)	8 mm (0.31 in)
Spring preload (All XC models)	8 mm (0.31 in)



### Info

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

- Tighten screw 1.

### Guideline

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

### Finishing work

- Install the shock absorber. (☞ p. 79)
- Install the main silencer. (☞ p. 97)
- Remove the motorcycle from the lift stand. (☞ p. 10)

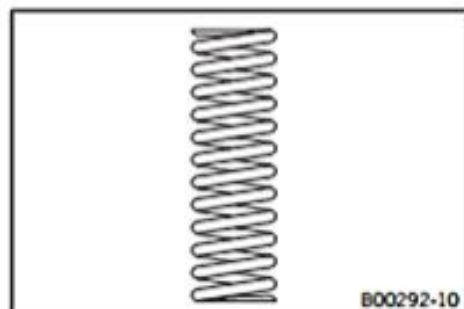
## 8.8 Adjusting the riding sag

### Preparatory work

- Raise the motorcycle with a lift stand. (☞ p. 10)
- Disassemble the main silencer. (☞ p. 97)
- Remove the shock absorber. (☞ p. 78)
- After removing the shock absorber, clean it thoroughly.

### Main work

- Choose and mount a suitable spring.





## Guideline

Spring rate (250 SX EU)	
Weight of rider: 65... 75 kg (143... 165 lb.)	51 N/mm (291 lb/in)
Weight of rider: 75... 85 kg (165... 187 lb.)	54 N/mm (308 lb/in)
Weight of rider: 85... 95 kg (187... 209 lb.)	57 N/mm (325 lb/in)
Spring rate (250 SX US)	
Weight of rider: 65... 75 kg (143... 165 lb.)	51 N/mm (291 lb/in)
Weight of rider: 75... 85 kg (165... 187 lb.)	54 N/mm (308 lb/in)
Weight of rider: 85... 95 kg (187... 209 lb.)	57 N/mm (325 lb/in)
Spring rate (All XC models)	
Weight of rider: 65... 75 kg (143... 165 lb.)	51 N/mm (291 lb/in)
Weight of rider: 75... 85 kg (165... 187 lb.)	54 N/mm (308 lb/in)
Weight of rider: 85... 95 kg (187... 209 lb.)	57 N/mm (325 lb/in)



## Info

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

## Finishing work

- Install the shock absorber. (☛ p. 79)
- Install the main silencer. (☛ p. 97)
- Remove the motorcycle from the lift stand. (☛ p. 10)
- Check the static sag of the shock absorber. (☛ p. 76)
- Check the riding sag of the shock absorber. (☛ p. 76)
- Adjust the rebound damping of the shock absorber. (☛ p. 75)

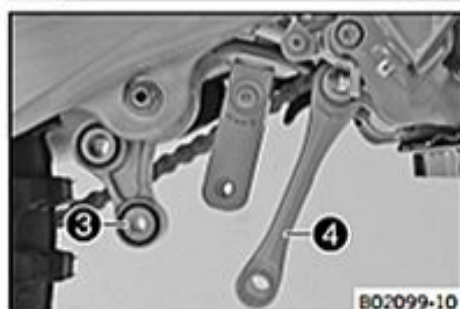
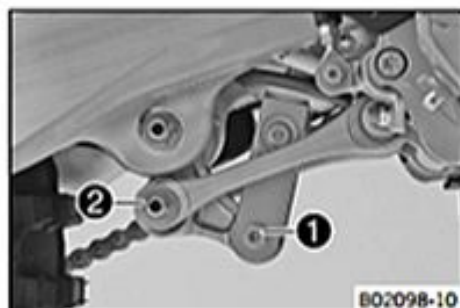
## 8.9 Removing the shock absorber

## Preparatory work

- Raise the motorcycle with a lift stand. (☛ p. 10)
- Disassemble the main silencer. (☛ p. 97)

## Main work

- Remove screw ①.
- Remove fitting ②.



- Press angle lever ③ toward the rear.
- Press linkage lever ④ downward.



- Remove screw ⑤.
- Raise the swingarm slightly and remove the shock absorber in upward direction.

### 8.10 Installing the shock absorber



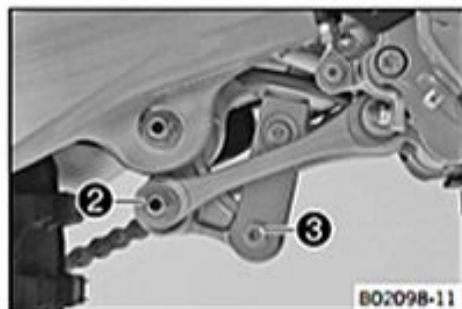
#### Main work

- Raise the swingarm slightly, and carefully position the shock absorber in the vehicle from the top.

- Mount and tighten screw ①.

#### Guideline

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



- Position the angle lever and linkage lever.

- Mount and tighten screw cap ②.

#### Guideline

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

- Mount and tighten screw ③.

#### Guideline

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

#### Finishing work

- Install the main silencer. (☛ p. 97)
- Remove the motorcycle from the lift stand. (☛ p. 10)

### 8.11 Servicing the shock absorber



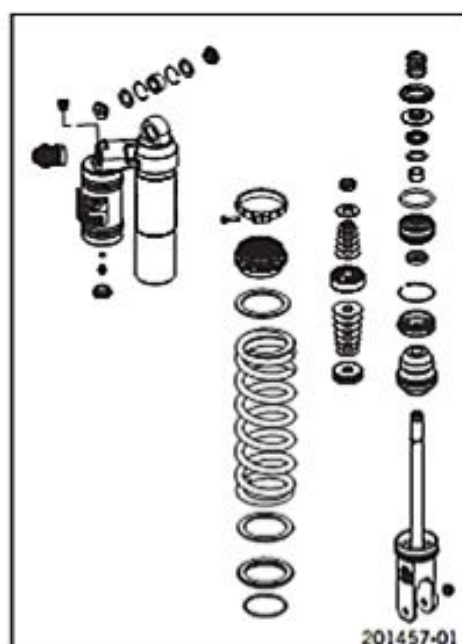
#### Caution

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

- The shock absorber is filled with high density nitrogen. Adhere to the description provided.

#### Condition

The shock absorber has been removed.



- Remove the spring. (☞ p. 80)
- Disassemble the damper. (☞ p. 80)
- Disassemble the piston rod. (☞ p. 82)
- Disassemble the seal ring retainer. (☞ p. 83)
- Check the damper. (☞ p. 84)
- Remove the heim joint. (☞ p. 85)
- Install the heim joint. (☞ p. 86)
- Assemble the seal ring retainer. (☞ p. 86)
- Assemble the piston rod. (☞ p. 87)
- Assemble the damper. (☞ p. 88)
- Install the spring. (☞ p. 94)

## 8.12 Removing the spring

### Condition

The shock absorber has been removed.



- Clamp the shock absorber in the vise using soft jaws for protection.
- Measure and note spring length in its preloaded state.
- Loosen screw ①.
- Turn adjusting ring until the spring is no longer under tension.

Hook wrench (T106S) (☞ p. 288)



- Remove ring ②.
- Remove spring retainer ③ and intermediate washer ④.
- Remove the spring.

## 8.13 Disassembling the damper

### Preparatory work

- Remove the spring. (☞ p. 80)

### Main work

- Note down the current state of rebound damping ① and compression damping ②.
- Completely open the adjusters of the rebound and compression damping.







- Remove rubber cap **3** of the reservoir.
- Open screw **4** slowly.  
✓ The pressurized nitrogen escapes.



- Remove locking cap **5**.



- Press in seal ring retainer **6** using the special tool.

Disassembly tool (T1216) (☛ p. 290)



- Remove lock ring **7**.



## Info

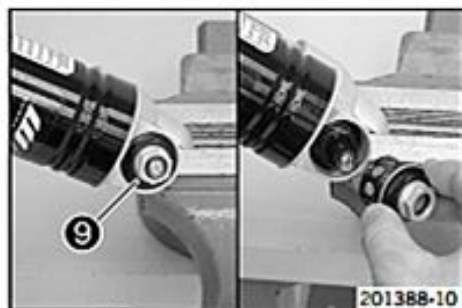
Do not scratch the inner surface.



- Remove the piston rod.



- Remove adjusting ring **8** with the intermediate washer.
- Drain the oil.



- Remove compression adjuster 9. Remove the spring and piston.

## 8.14 Disassembling the piston rod

### Preparatory work

- Remove the spring. (☛ p. 80)
- Disassemble the damper. (☛ p. 80)

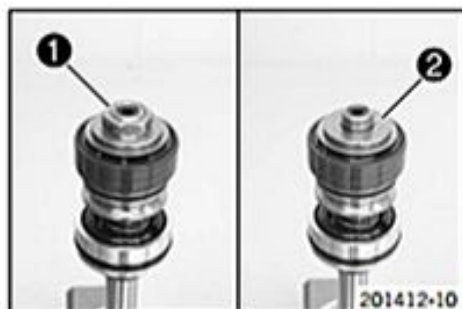
### Main work

- Clamp the piston rod with the fork in a vise.

#### Guideline

Use soft jaws.

- Remove nut 1.
- Remove washer 2.



- Remove rebound shim stack 3.



#### Info

Place the rebound shim stack onto a screwdriver and set it down as a unit.

- Remove piston 4.



- Remove compression shim stack 5.



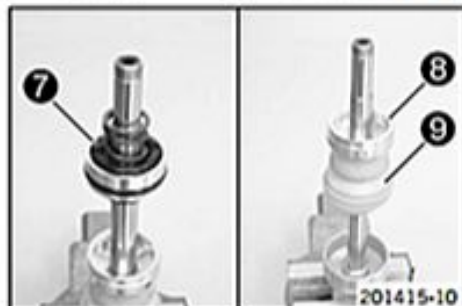
#### Info

Place the compression shim stack onto a screwdriver and set it down as a unit.

- Remove rebound washer 6.



- Remove seal ring retainer 7.
- Remove locking cap 8 and rubber buffer 9.



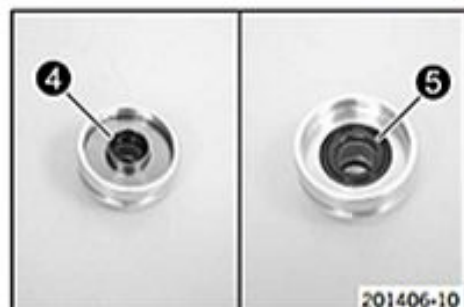
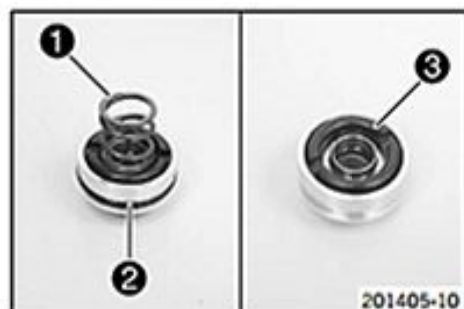
## 8.15 Disassembling the seal ring retainer

### Preparatory work

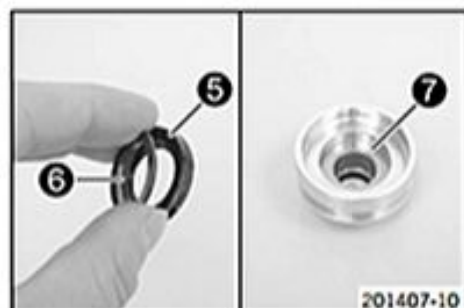
- Remove the spring. (☞ p. 80)
- Disassemble the damper. (☞ p. 80)
- Disassemble the piston rod. (☞ p. 82)

### Main work

- Remove spring ①.
- Remove O-ring ②.
- Remove rebound rubber ③.



- Remove centering disk ④.
- Remove seal ring ⑤.



- Remove washer ⑥ for seal ring ⑤.
- Remove washer ⑦.
- Remove dust boot.

## 8.16 Changing the pilot bushing

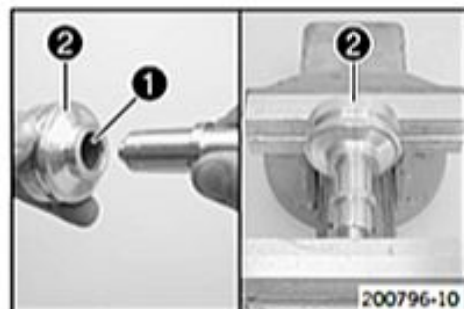
### Preparatory work

- Remove the spring. (☞ p. 80)
- Disassemble the damper. (☞ p. 80)
- Disassemble the piston rod. (☞ p. 82)
- Disassemble the seal ring retainer. (☞ p. 83)

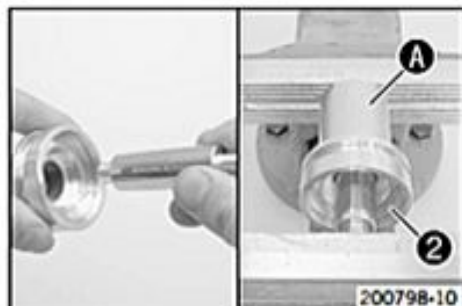
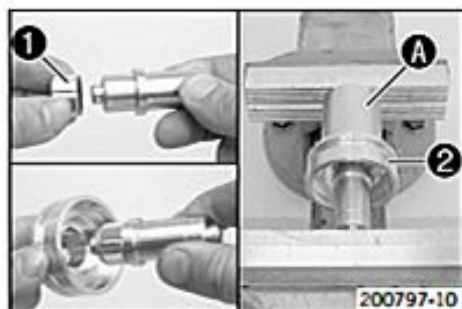
### Main work

- Press pilot bushing ① out of seal ring retainer ② with the special tool.

Press drift (T1504) (☞ p. 294)







- Slide the new pilot bushing **1** onto the special tool.

Press drift (T1504) (☞ p. 294)

- Position the pilot bushing in the seal ring retainer using the special tool.

Press drift (T1504) (☞ p. 294)

- Support seal ring retainer **2** with sleeve **A** of the special tool. Press the pilot bushing all the way in.

Assembly tool (T150S) (☞ p. 294)

- Lubricate the special tool.

Shock absorber fluid (SAE 2.5) (50180751S1) (☞ p. 281)

Calibration pin (T1205) (☞ p. 289)

- Support seal ring retainer **2** with sleeve **A** of the special tool.

Assembly tool (T150S) (☞ p. 294)

- Press the special tool through the new pilot bushing.

Calibration pin (T1205) (☞ p. 289)

✓ The pilot bushing is calibrated.

## Finishing work

- Assemble the seal ring retainer. (☞ p. 86)

## 8.17 Checking the damper



### Condition

The damper has been disassembled.

- Measure the inside diameter on both ends and in the middle of the damper cartridge.

#### Damper cartridge

Diameter	≤ 50.08 mm (≤ 1.9716 in)
----------	--------------------------

- If the measured value is greater than the specified value:
  - Change the damper cartridge.
- Check the damper cartridge for damage and wear.
  - If there is damage or wear:
    - Change the damper cartridge.
- Check the heim joint for damage and wear.
  - If there is damage or wear:
    - Change the heim joint.
- Measure the diameter of the piston rod.

#### Piston rod

Diameter	≥ 17.95 mm (≥ 0.7067 in)
----------	--------------------------

- If the measured value is less than the specified value:
  - Change the piston rod.
- Measure the run-out of the piston rod.

#### Piston rod

Run-out	≤ 0.02 mm (≤ 0.0008 in)
---------	-------------------------

- If the measured value is greater than the specified value:
  - Change the piston rod.
- Check the piston rod for damage and wear.
  - If there is damage or wear:
    - Change the piston rod.

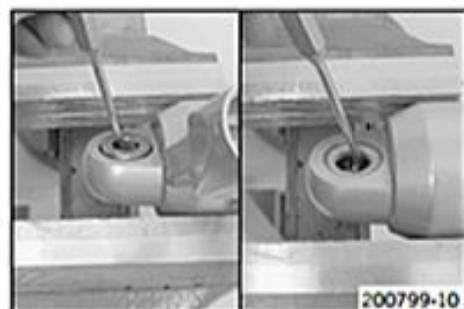


- Check the piston rings for damage and wear.
  - » If damage or a bronze-colored surface is visible:
    - Change the piston.

## 8.18 Removing the heim joint

### Condition

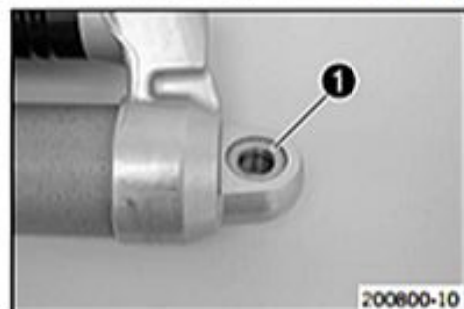
The shock absorber has been removed.



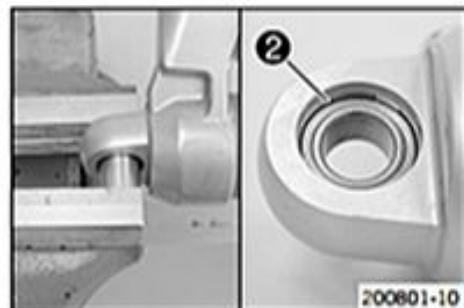
- Clamp the shock absorber in the vise using soft jaws for protection.
- Remove the collar bushing of the heim joint.

Pin (T120) (☞ p. 289)

- Turn the shock absorber and remove the second collar bushing of the heim joint.



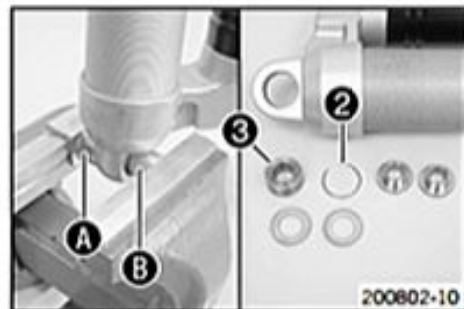
- Remove seal rings **1** on both sides.



- Press the heim joint against a lock ring using the special tool.

Pressing tool (T1207S) (☞ p. 290)

- Remove the second lock ring **2**.



- Place special tool **A** underneath and press out heim joint **3** with special tool **B**.

Pressing tool (T1207S) (☞ p. 290)

## 8.19 Installing the heim joint



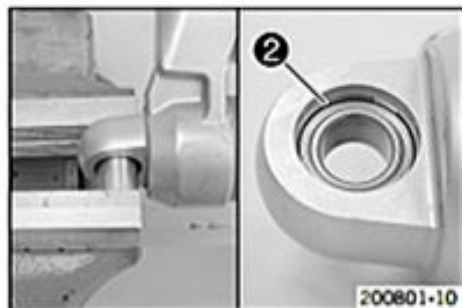
- Position the new heim joint **1** and the special tool into a vise as shown.

Guideline

Use soft jaws.

Pressing tool (T1206) (☞ p. 289)

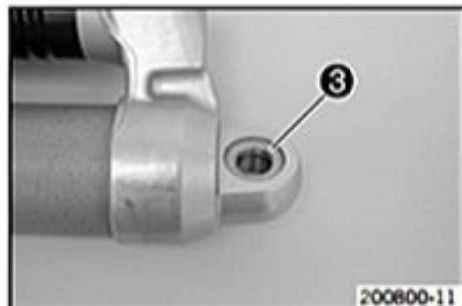
- Press the heim joint all the way in.



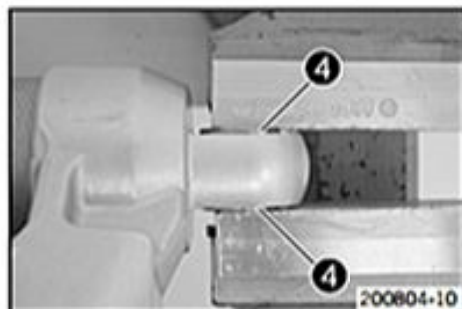
- Press the heim joint against the lock ring using the special tool.

Pressing tool (T1207S) (☞ p. 290)

- Mount the second lock ring **2**.



- Mount seal rings **3** on both sides.



- Position both collar bushings **4** and press them in.

## 8.20 Assembling the seal ring retainer



- Mount dust boot **1** using the special tool.

Mounting sleeve (T1204) (☞ p. 289)

- Lubricate the sealing lip of the dust boot.

Lubricant (T625) (☞ p. 282)





- Mount washer ②.
- Position washer ③ on seal ring ④.



- Grease seal ring ④ and mount with the washer facing downward.  
Lubricant (T511) (☛ p. 282)
- Mount centering disk ⑤.



- Mount rebound rubber ⑥.
- Lubricate the groove of the O-ring.  
Lubricant (T158) (☛ p. 282)
- Mount O-ring ⑦.
- Mount spring ⑧.

## 8.21 Assembling the piston rod

### Preparatory work

- Assemble the seal ring retainer. (☛ p. 86)

### Main work

- Clamp the piston rod with the fork in a vise.

#### Guideline

Use soft jaws.



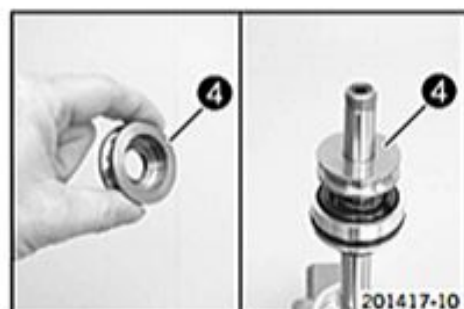
- Mount rubber buffer ① and locking cap ②.
- Position special tool on the piston rod.

Mounting sleeve (T1215) (☛ p. 290)

- Grease the dust boot and push seal ring retainer ③ onto the piston rod.

Lubricant (T625) (☛ p. 282)

- Remove the special tool.
- Mount rebound washer ④ with the cut-out facing downward.





- Mount the compression shim stack (5) with the smaller shims facing downward.



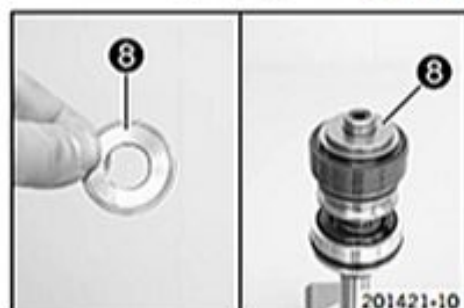
- Sand both sides of piston (6) on a surface plate using 1200-grit sandpaper.
- Clean the piston.
- Assemble the piston.

## Guideline

View A	Piston from above
View B	Piston from below



- Mount the rebound shim stack (7) with the smaller shims facing upward.



- Mount washer (8) with the collar facing downward.



- Grease the thread of the piston rod.

Lubricant (T152) (☞ p. 282)

- Mount and tighten nut (9).

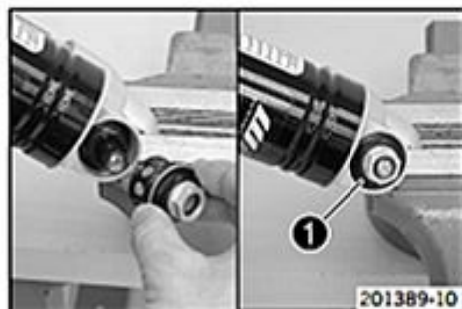
## Guideline

Nut, piston rod	M16x1	45 Nm (33.2 lbf ft)
-----------------	-------	------------------------

## 8.22 Assembling the damper

## Preparatory work

- Assemble the seal ring retainer. (☞ p. 86)
- Assemble the piston rod. (☞ p. 87)



## Main work

- Lubricate the O-rings of the compression adjuster.

Lubricant (T158) (☞ p. 282)

- Lubricate the threads.

Lubricant (T159) (☞ p. 282)

- Mount the piston with the spring.
- Mount and tighten the compression adjuster **1**.

## Guideline

Compression adjuster	M31x1	45 Nm (33.2 lbf ft)
----------------------	-------	------------------------

- Clamp the damper in a bench vise.

## Guideline

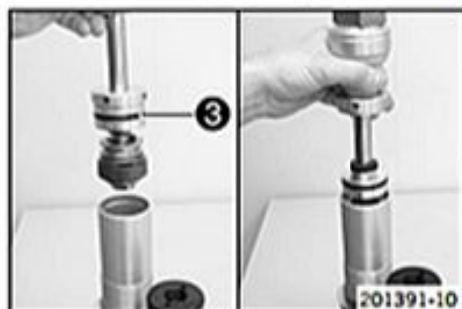
Use soft jaws.

- Mount adjusting ring **2** with the intermediate washer.



## Info

The adjusting ring cannot be mounted after the piston rod is mounted.



- Fill the damper cartridge about half full.

Shock absorber fluid (SAE 2.5) (50180751S1) (☞ p. 281)

- Lubricate O-ring **3** of the seal ring retainer.

Lubricant (T158) (☞ p. 282)

- Mount the piston rod carefully.



- Install the seal ring bearer **4** and push it under the ring groove.
- Mount lock ring **5**.



## Info

Do not scratch the inner surface.

- Pull out the piston rod so that the seal ring retainer rests against the lock ring.



- Mount locking cap **6** of the damper cartridge.
- Bleed and fill the damper. (☞ p. 90)
- Fill the damper with nitrogen. (☞ p. 93)



- Mount rubber cap **7** of the reservoir.





## Alternative 1

- Turn adjusting screw 8 clockwise with a screwdriver up to the last perceptible click.
- Turn counterclockwise by the number of clicks corresponding to the shock absorber type.

## Guideline

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

- Turn adjusting screw 9 all the way clockwise with a socket wrench.
- Turn counterclockwise by the number of turns corresponding to the shock absorber type.

## Guideline

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

- Turn adjusting screw 10 clockwise up to the last perceptible click.
- Turn counterclockwise by the number of clicks corresponding to the shock absorber type.

## Guideline

Rebound damping	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks

## Alternative 2



## Warning

**Danger of accident** Modifications to the suspension setting may seriously alter the handling characteristic.

Extreme modifications to the suspension setting may cause a serious deterioration in the handling characteristic and overload components.

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

- Turn adjusting screws 8, 9 and 10 to the position determined during disassembly.

## 8.23 Bleeding and filling the damper



## Info

Before working with the vacuum pump, be sure to read the operating instructions carefully. Completely open the adjusters of the rebound and compression damping.



- Remove the screw of the filling port.
- Install adapter 1 on the damper.



## Info

Tighten only hand-tight, without the use of tools.

- Connect the adapter 1 to connector 2 of the vacuum pump.

Vacuum pump (T1240S) (p. 290)

- Clamp the damper with soft jaws or hold it as shown in the figure.



## Info

Clamp the damper only lightly.  
The filling port must be at the highest point.  
The piston rod slides in and out during filling - do not hold it tight with your hand!



- Clamp the control lever as shown in the figure.
  - ✓ The **External tank** ③ control lever is on **Closed**, **Damper** ④ on **Vacuum**, and **Oil reservoir** ⑤ on **Vacuum**.
- Operate the **On/Off** switch ⑥.
  - ✓ The vacuum pump process starts.
  - ✓ Pressure gauge ⑦ drops to the specified value.

< 0 bar

- ✓ The vacuum gauge ⑧ falls to the specified value.

4 mbar

- Measure distance **A** between the floating piston and reservoir hole with the special tool.

Depth micrometer (T107S) (↖ p. 289)

- ✓ The floating piston is positioned all the way at the bottom.



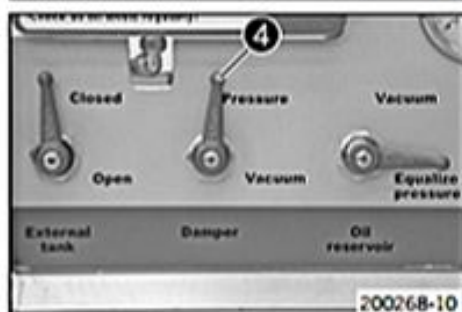
- When the vacuum pressure gauge reaches the specified value, turn the **Oil reservoir** control lever ⑤ to **Equalize pressure**.

Guideline

4 mbar

- ✓ The pressure gauge increases to the specified value.

0 bar



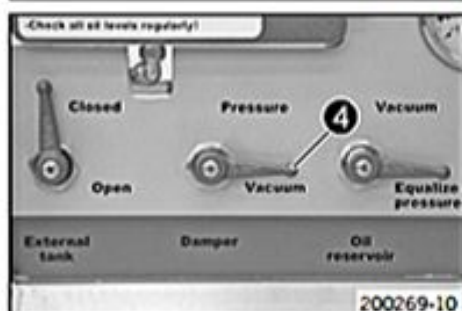
- When the pressure gauge reaches the specified value, turn the **Damper** control lever ④ to **Pressure**.

Guideline

0 bar

- ✓ Oil is pumped into the damper.
- ✓ The pressure gauge increases to the specified value.

3 bar



- When the pressure gauge reaches the specified value, turn the **Damper** ④ control lever to **Vacuum**.

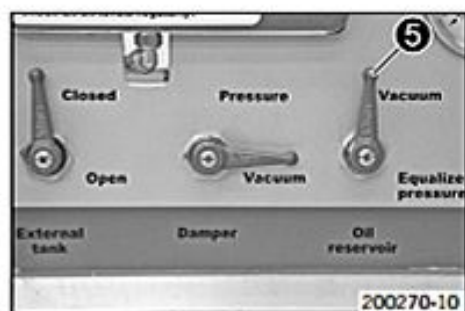
Guideline

3 bar

- ✓ The pressure gauge drops to the specified value.

0 bar





- When the pressure gauge reaches the specified value, turn the **Oil reservoir** **5** control lever to **Vacuum**.

Guideline

0 bar

- ✓ The vacuum gauge falls to the specified value.

8 mbar



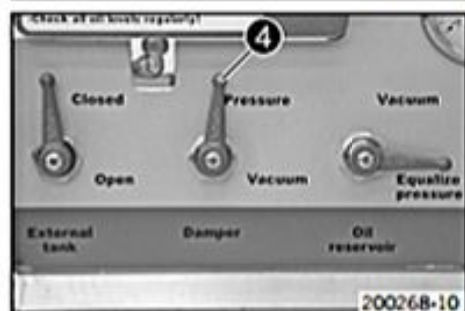
- When the vacuum pressure gauge reaches the specified value, turn the **Oil reservoir** control lever **5** to **Equalize Pressure**.

Guideline

8 mbar

- ✓ The pressure gauge drops to the specified value.

0 bar



- When the pressure gauge reaches the specified value, turn the **Damper** control lever **4** to **Pressure**.

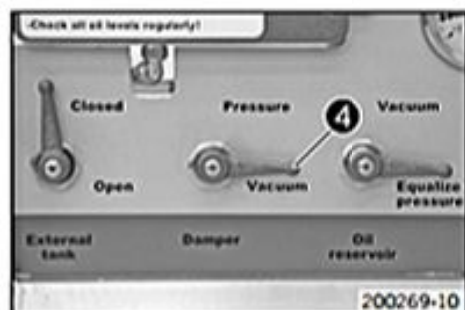
Guideline

0 bar

- ✓ Oil is pumped into the damper.

- ✓ The pressure gauge increases to the specified value.

3 bar



- When the pressure gauge reaches the specified value, turn the **Damper** control lever **4** to **Vacuum**.

Guideline

3 bar

- ✓ The pressure gauge drops to the specified value.

0 bar

- When the pressure gauge reaches the specified value, operate the **On/Off** switch.

Guideline

0 bar

- ✓ The vacuum pump is switched off.

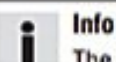
- Slide O-ring **B** to the end of the special tool by the specified value (distance **A** minus specified value).

Guideline

10 mm

Depth micrometer (T107S) (p. 289)

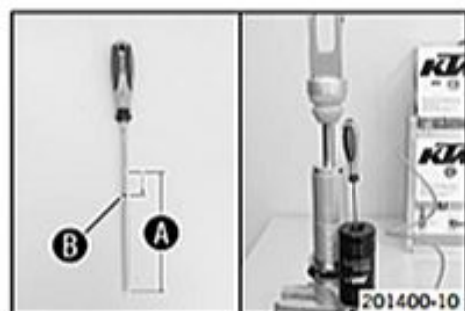
- Slide the floating piston into the reservoir to the shortened position using the special tool.



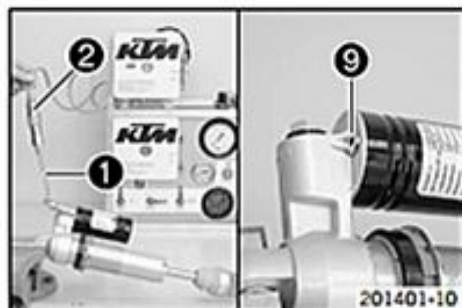
## Info

The floating piston must be positioned at exactly this point when the rod is fully extended; otherwise, damage will occur during compression of the shock absorber.

- Remove the special tool.







- Remove adapter ① from connection ② of the vacuum pump.

**Info**

Hold the damper so that the filling port is at the highest point.

- Remove the adapter.
- Mount and tighten screw ⑨.

## Guideline

Screw, filling port	M10x1	14 Nm (10.3 lbf ft)
---------------------	-------	------------------------

## 8.24 Filling the damper with nitrogen



- Screw in screw ① by approx. 2 rotations but do not tighten.

**Info**

The piston rod is fully extended.



- Clamp the special tool in the vise.

Nitrogen filling tool (T170S1) (☛ p. 294)

- Connect the special tool to the pressure regulator of the filling cylinder.

Filling gas - nitrogen

- Adjust the pressure regulator.

## Guideline

Gas pressure	10 bar (145 psi)
--------------	------------------

- Position the damper in the special tool.

- ✓ The hexagonal part of the tap handle ① engages in the hexagon socket of the filling port screw.

- Open filler tap ②.
- Fill the damper for at least 15 seconds.

## Guideline

Gas pressure	10 bar (145 psi)
--------------	------------------

**Info**

Watch the pressure regulator dial.  
Make sure that the damper is filled to the specified pressure.

- Close the filling port screw using tap handle ①.
- Close spigot ② and take the damper out of the special tool.
- Tighten the filling port screw.

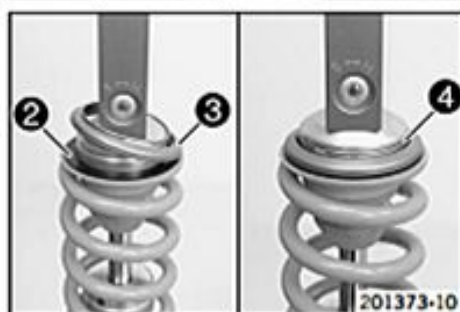
## Guideline

Screw, reservoir filling port	M5	3 Nm (2.2 lbf ft)
-------------------------------	----	-------------------

## 8.25 Installing the spring (250 SX EU)



- Ensure that adjusting ring ① is screwed on with the intermediate washer.



- Measure the overall spring length while the spring is not under tension.
- Position spring.

## Guideline

Spring rate	
Weight of rider: 65... 75 kg (143... 165 lb.)	51 N/mm (291 lb/in)
Weight of rider: 75... 85 kg (165... 187 lb.)	54 N/mm (308 lb/in)
Weight of rider: 85... 95 kg (187... 209 lb.)	57 N/mm (325 lb/in)

- Mount intermediate washer ② and spring retainer ③.
- Mount ring ④.

## Alternative 1

- Tension the spring to the prescribed amount by turning the adjusting ring.

## Guideline

Spring preload	8 mm (0.31 in)
Hook wrench (T106S) (☛ p. 288)	

## Alternative 2



## Warning

**Danger of accident** Modifications to the suspension setting may seriously alter the handling characteristic.

Extreme modifications to the suspension setting may cause a serious deterioration in the handling characteristic and overload components.

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

- Tension the spring to the amount measured during dismantling by turning the adjusting ring.

Hook wrench (T106S) (☛ p. 288)
--------------------------------

- Tighten screw ⑤.

## Guideline

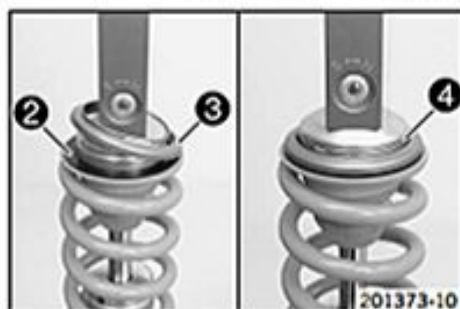
Screw, shock absorber adjusting ring	M5	5 Nm (3.7 lbf ft)
--------------------------------------	----	-------------------



## 8.26 Installing the spring (250 SX US)



- Ensure that adjusting ring **1** is screwed on with the intermediate washer.



- Measure the overall spring length while the spring is not under tension.
- Position spring.

## Guideline

Spring rate	
Weight of rider: 65... 75 kg (143... 165 lb.)	51 N/mm (291 lb/in)
Weight of rider: 75... 85 kg (165... 187 lb.)	54 N/mm (308 lb/in)
Weight of rider: 85... 95 kg (187... 209 lb.)	57 N/mm (325 lb/in)

- Mount intermediate washer **2** and spring retainer **3**.
- Mount ring **4**.

## Alternative 1

- Tension the spring to the prescribed amount by turning the adjusting ring.

## Guideline

Spring preload	8 mm (0.31 in)
Hook wrench (T106S) (☞ p. 288)	

## Alternative 2



## Warning

**Danger of accident** Modifications to the suspension setting may seriously alter the handling characteristic.

Extreme modifications to the suspension setting may cause a serious deterioration in the handling characteristic and overload components.

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

- Tension the spring to the amount measured during dismantling by turning the adjusting ring.

Hook wrench (T106S) (☞ p. 288)
--------------------------------

- Tighten screw **5**.

## Guideline

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

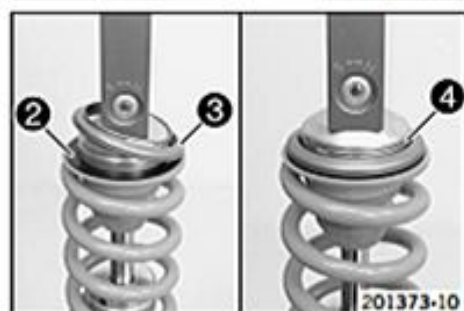




## 8.27 Installing the spring (All XC models)



- Ensure that adjusting ring **1** is screwed on with the intermediate washer.



- Measure the overall spring length while the spring is not under tension.
- Position spring.

## Guideline

Spring rate	
Weight of rider: 65... 75 kg (143... 165 lb.)	51 N/mm (291 lb/in)
Weight of rider: 75... 85 kg (165... 187 lb.)	54 N/mm (308 lb/in)
Weight of rider: 85... 95 kg (187... 209 lb.)	57 N/mm (325 lb/in)

- Mount intermediate washer **2** and spring retainer **3**.
- Mount ring **4**.

## Alternative 1

- Tension the spring to the prescribed amount by turning the adjusting ring.

## Guideline

Spring preload	8 mm (0.31 in)
Hook wrench (T106S) (☞ p. 288)	

## Alternative 2



## Warning

**Danger of accident** Modifications to the suspension setting may seriously alter the handling characteristic.

Extreme modifications to the suspension setting may cause a serious deterioration in the handling characteristic and overload components.

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

- Tension the spring to the amount measured during dismantling by turning the adjusting ring.

Hook wrench (T106S) (☞ p. 288)
--------------------------------

- Tighten screw **5**.

## Guideline

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

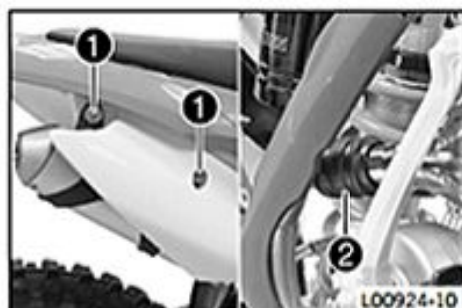


## 9.1 Disassembling the main silencer

**Warning**

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

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



- Remove screws **1** with the washers.
- Pull off the main silencer from the manifold at rubber sleeve **2**.

## 9.2 Installing the main silencer



- Position the main silencer with rubber sleeve **1**.
- Mount and tighten screws **2** with the washers.

**Guideline**

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

## 9.3 Changing the glass fiber yarn filling in the main silencer

**Warning**

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

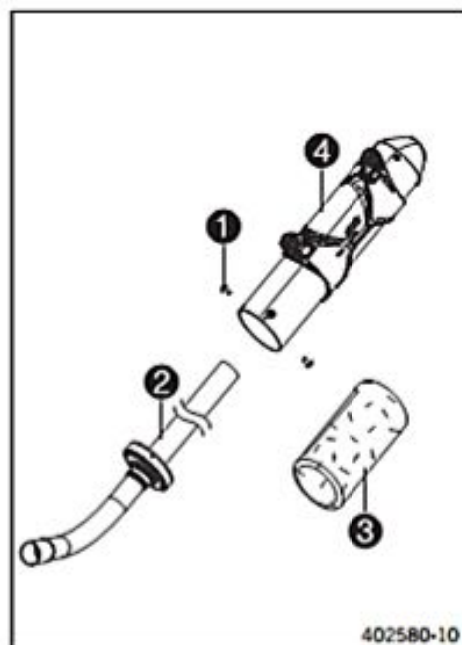
- Allow the exhaust system to cool down. Do not touch hot components.

**Info**

Over time, the fibers of the glass fiber yarn escape and the damper "burns" out. Not only is the noise level higher, the performance characteristic changes.

**Preparatory work**

- Disassemble the main silencer. (↖ p. 97)



## Main work

- Remove screws ①. Pull out inner tube ②.
- Remove the glass fiber yarn filling ③ from the inner tube.
- Clean the parts that need to be reinstalled and check for damage.
- Fit the new glass fiber yarn filling ③ into the inner tube.
- Slide outer tube ④ over the inner tube with the new glass fiber yarn filling.
- Mount and tighten all screws ①.

## Guideline

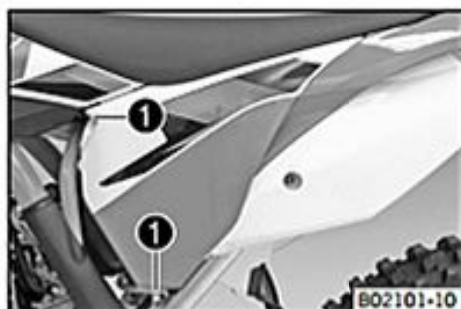
Screws on the main silencer	M5	7 Nm (5.2 lbf ft)
-----------------------------	----	-------------------

## Finishing work

- Install the main silencer. (☛ p. 97)



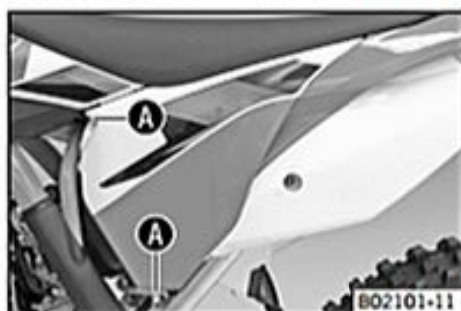
## 10.1 Removing the air filter box cover



## Condition

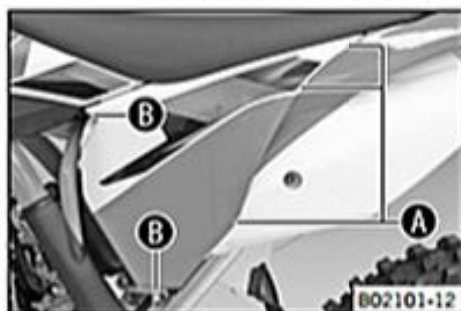
The air filter box cover is secured.

- Remove screws 1.

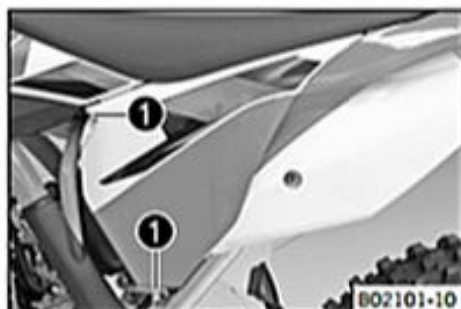


- Pull off the air filter box cover in area A sideways and remove it toward the front.

## 10.2 Installing the air filter box cover



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



## Condition

The air filter box cover is secured.

- Mount and tighten screws 1.

## Guideline

Screw, air filter box cover	EJOT PT® K60x20-Z	3 Nm (2.2 lbf ft)	EJOT PT screw (0017060204)
-----------------------------	----------------------	----------------------	-------------------------------

## 10.3 Removing the air filter

## Note

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

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



## Warning

**Environmental hazard** Hazardous substances cause environmental damage.

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

## Preparatory work

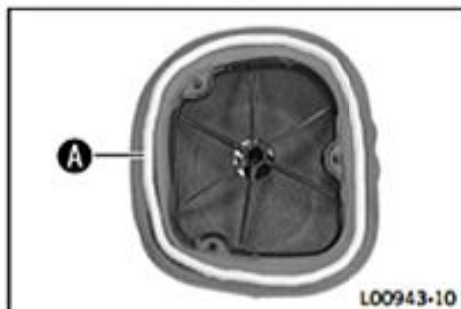
- Remove the air filter box cover. (➔ p. 99)



B02102-10

**Main work**

- Detach air filter holder ① at the bottom and swing it to one side. Remove the air filter with the air filter support.
- Remove the air filter from the air filter support.

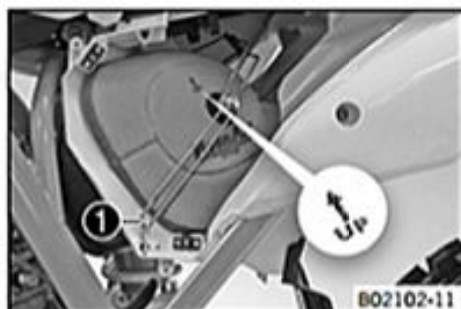
**10.4 Installing the air filter**

L00943-10

**Main work**

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

Long-life grease (☞ p. 282)



B02102-11

- Insert both parts together, position them, and fasten them using air filter holder ①.

✓ The arrow on the marking UP faces up.

**Info**

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

**Finishing work**

- Install the air filter box cover. (☞ p. 99)

**10.5 Cleaning the air filter and air filter box****Warning**

**Environmental hazard** Hazardous substances cause environmental damage.

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

**Info**

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

**Preparatory work**

- Remove the air filter box cover. (☞ p. 99)
- Remove the air filter. (☞ p. 99)

**Main work**

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

Air filter cleaner (☞ p. 282)

**Info**

Only squeeze the air filter to dry it; never wring it out.

- Oil the dry air filter with a high quality filter oil.

Oil for foam air filter (☞ p. 283)

- Clean the air filter box.



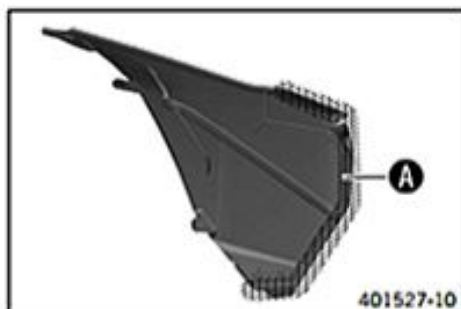
M01108-01

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

## Finishing work

- Install the air filter. (☛ p. 100)
- Install the air filter box cover. (☛ p. 99)

### 10.6 Sealing the air filter box



## Preparatory work

- Remove the air filter box cover. (☛ p. 99)

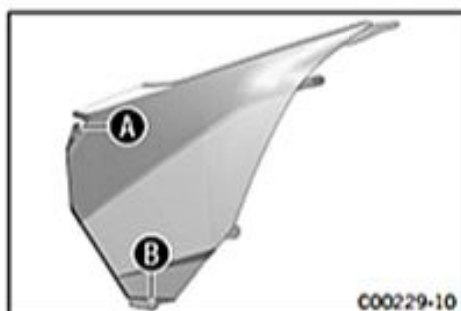
## Main work

- Seal the air filter box in the marked area **A**.

## Finishing work

- Install the air filter box cover. (☛ p. 99)

### 10.7 Securing the air filter box cover



## Preparatory work

- Remove the air filter box cover. (☛ p. 99)

## Main work

- Drill a hole at markings **A** and **B**.

## Guideline

Diameter	6 mm (0.24 in)
----------	----------------

## Finishing work

- Install the air filter box cover. (☛ p. 99)



## 11.1 Opening the filler cap



### Danger

**Fire hazard** Fuel is highly flammable.

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



### Warning

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

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



### Warning

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

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



(250 SX)

- Turn filler cap ① counterclockwise and lift it off.



(All XC models)

- Press release button ①, turn the filler cap counterclockwise, and lift it off.

## 11.2 Closing the filler cap



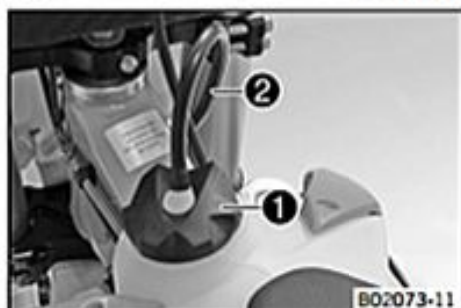
(250 SX)

- Mount filler cap ① and turn it clockwise until the fuel tank is tightly closed.



### Info

Run the fuel tank breather hose ② without kinks.



(All XC models)

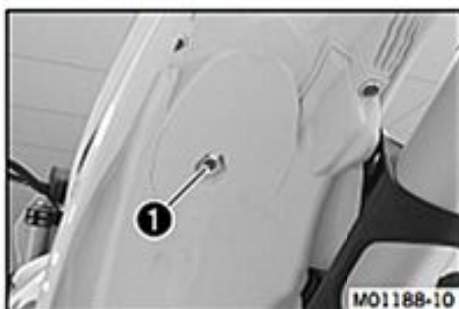
- Mount filler cap ① and turn it clockwise until the release button engages.



### Info

Run the fuel tank breather hose ② without kinks.

## 11.3 Removing the seat

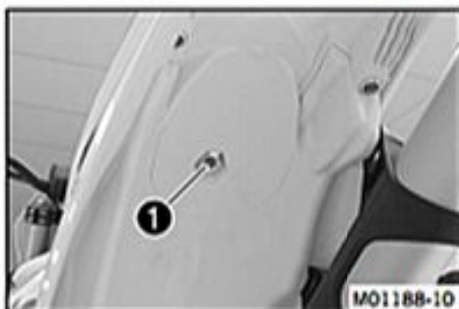


- Remove screw 1.
- Raise the rear of the seat, pull the seat back, and lift it off.

## 11.4 Mounting the seat



- Mount the front seat on to the collar bushing of the fuel tank, lower it at the rear, and simultaneously push it forward.
- Make sure that the seat is correctly locked in.



- Mount and tighten screw 1.

## Guideline

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

## 11.5 Removing the fuel tank

**Danger**

**Fire hazard** Fuel is highly flammable.

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

**Warning**

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

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

**Preparatory work**

- Remove the seat. (☞ p. 103)

**(250 SX)**

- Turn handle 1 of the fuel tap to the **OFF** position. (Figure B02072-10 ☞ p. 105)

**(All XC models)**

- Turn handle 1 of the fuel tap to the **OFF** position. (Figure L00904-10 ☞ p. 106)





## Main work

- Pull off the fuel hose.



## Info

Remaining fuel may flow out of the fuel hose.

- Remove screws 1 with the collar bushings.



- Remove screw 2 with the rubber bushing.
- Pull the hose off the fuel tank breather on the tank lid.



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

## 11.6 Installing the fuel tank



## Danger

**Fire hazard** Fuel is highly flammable.

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



## Warning

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

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

## Main work

- Check the routing of the throttle cable. (☛ p. 72)
- Position the fuel tank and fit the two spoilers to the sides of the radiator bracket.
- Make sure that no cables are trapped or damaged.



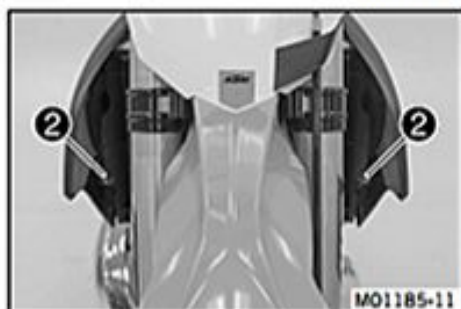




- Mount the fuel tank breather.
- Mount and tighten screw **1** with the rubber bushing.

Guideline

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



- Mount and tighten screws **2** with the collar bushings.

Guideline

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

- Connect the fuel hose.

Finishing work

- Mount the seat. (☛ p. 103)

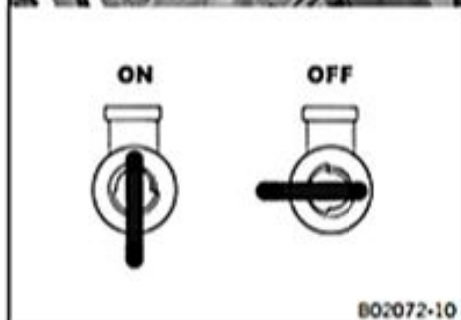
## 11.7 Fuel tap (250 SX)



Fuel tap **1** is on the left of the fuel tank.

Possible states

- Fuel supply closed **OFF** – Fuel cannot flow from the fuel tank to the carburetor.
- Fuel supply open **ON** – Fuel can flow from the fuel tank to the carburetor. The fuel tank empties completely.



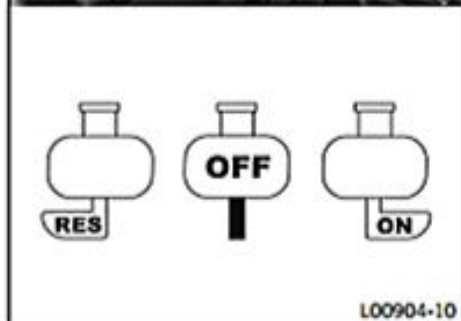
## 11.8 Fuel tap (All XC models)



Fuel tap **1** is on the left of the fuel tank.

### Possible states

- Fuel supply closed **OFF** – Fuel cannot flow from the fuel tank to the carburetor.
- Fuel supply open **ON** – Fuel can flow from the fuel tank to the carburetor. The fuel tank empties down to the reserve level.
- Fuel reserve supply open **RES** – Fuel can flow from the fuel tank to the carburetor. The fuel tank empties completely.



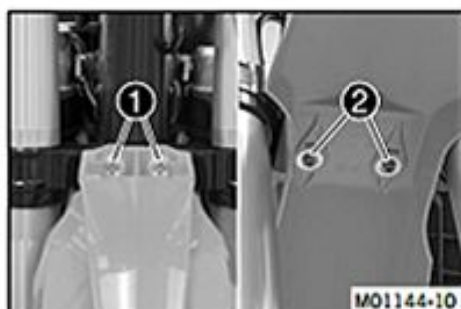
## 12.1 Removing the front fender

### Preparatory work

- Remove the start number plate. (↖ p. 107)

### Main work

- Remove screws ① and ②. Remove the front fender.



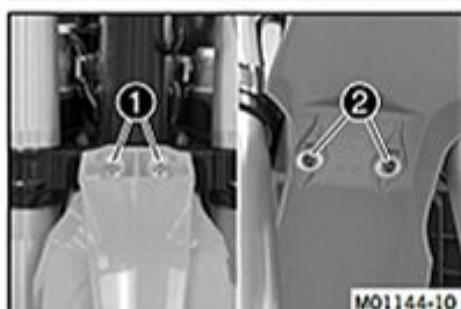
## 12.2 Installing the front fender

### Main work

- Position the front fender. Mount and tighten screws ① and ②.

### Guideline

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



### Finishing work

- Install the start number plate. (↖ p. 107)

## 12.3 Removing the start number plate

- Remove screw ① and take off the clamp.
- Remove screw ②. Take off the start number plate.



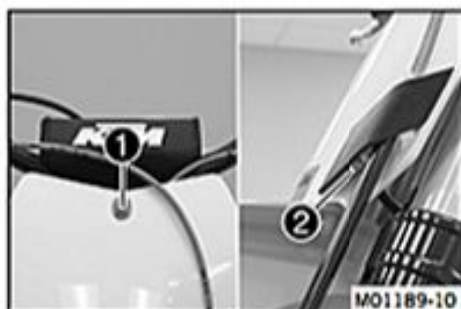
## 12.4 Installing the start number plate

- Position the start number plate.  
✓ The holding lugs engage in the fender.
- Mount and tighten screw ①.

### Guideline

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

- Position the brake line and clamp. Mount and tighten screw ②.

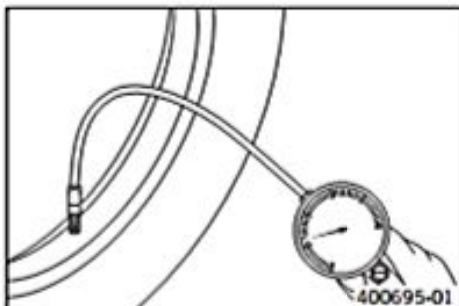




## 13.1 Checking the tire air pressure

**Info**

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



- Remove the dust cap.
- Check the tire air pressure when the tires are cold.

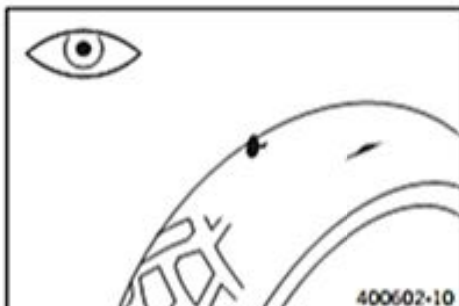
Tire air pressure off road	
Front	1.0 bar (15 psi)
Rear	1.0 bar (15 psi)

- If the tire pressure does not meet specifications:
  - Correct the tire pressure.
- Mount the dust cap.

## 13.2 Checking the tire condition

**Info**

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



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

**Info**

Note local national regulations concerning the minimum tread depth.

Minimum tread depth	≥ 2 mm (≥ 0.08 in)
---------------------	--------------------

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

**Info**

The tire's date of manufacture is usually part of the tire markings and is indicated by the last four digits of the **DOT** marking. The first two digits indicate the week of manufacture and the last two digits the year of manufacture.  
KTM recommends that the tires are changed at the latest after 5 years, regardless of the actual state of wear.

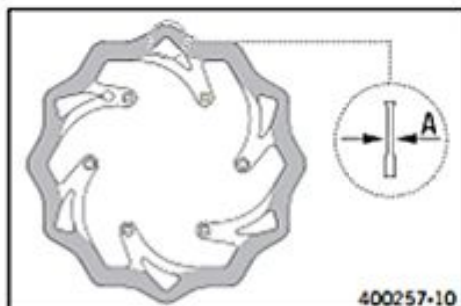
- If the tire is older than five years:
  - Change the tire.

## 13.3 Checking the brake discs

**Warning**

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

- Change the worn brake disc(s) without delay.



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

**Info**

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

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

- If the brake disc thickness is less than the specified value:
    - Change the brake disc.
- Check the front and rear brake discs for damage, cracking and deformation.
  - If the brake disc exhibits damage, cracking or deformation:
    - Change the brake disc.

### 13.4 Checking the spoke tension

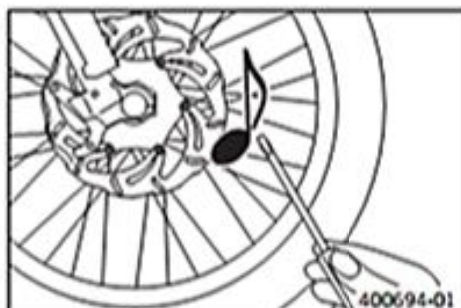
**Warning**

**Danger of accidents** Instable handling due to incorrect spoke tension.

- Ensure that the spoke tension is correct.

**Info**

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



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

**Info**

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

If you hear different tone frequencies from different spokes of equal length and diameter, this is an indication of different spoke tensions.

You should hear a high note.
------------------------------

- If the spoke tension varies:
    - Correct the spoke tension.
- Check the spoke torque.

**Guideline**

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

Torque wrench with various accessories in set (58429094000) (☛ p. 287)
--

### 13.5 Front wheel

#### 13.5.1 Removing the front wheel

**Preparatory work**

- Raise the motorcycle with a lift stand. (☛ p. 10)

**Main work**

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

**Info**

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





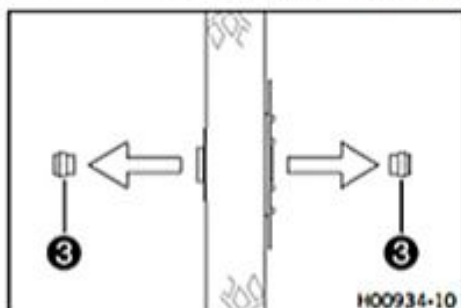
- Loosen screw 1 by several rotations.
- Loosen screws 2.
- Press on screw 1 to push the wheel spindle out of the axle clamp.
- Remove screw 1.



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

**Info**

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

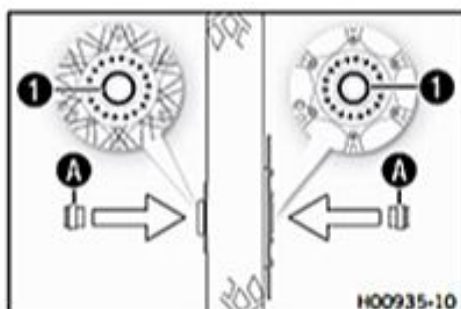


- Remove spacers 3.

**13.5.2 Installing the front wheel****Warning**

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

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



- Check the wheel bearing for damage and wear.
  - If the wheel bearing is damaged or worn:
    - Change the front wheel bearing. (p. 111)
- Clean and grease shaft seal rings 1 and contact surface A of the spacers.

Long-life grease (p. 282)

- Insert the spacers.



- Lift the front wheel into the fork, position it, and insert the wheel spindle.
  - ✓ The brake linings are correctly positioned.
- Mount and tighten screw 2.

**Guideline**

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

- Operate the hand brake lever several times until the brake linings are lying correctly against the brake disc.
- Remove the motorcycle from the lift stand. (p. 10)
- Operate the front brake and compress the fork a few times firmly.
  - ✓ The fork legs straighten.



- Tighten screws **3**.

## Guideline

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

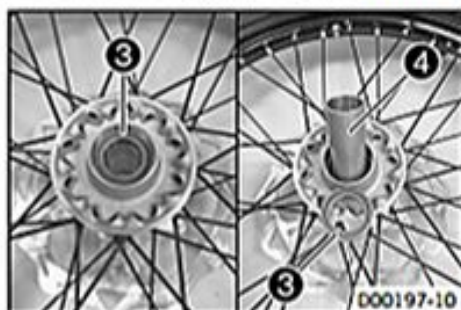
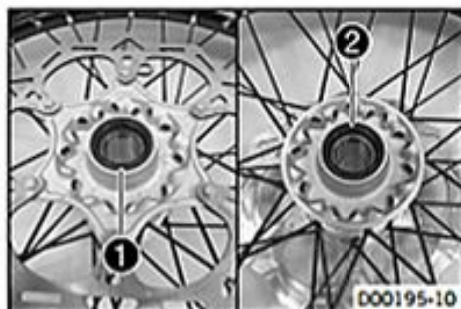
## 13.5.3 Changing the front wheel bearing

## Preparatory work

- Raise the motorcycle with a lift stand. (☞ p. 10)
- Remove the front wheel. (☞ p. 109)

## Main work

- Remove shaft seal rings **1** and **2**.



- Press out bearing **3** using a suitable tool.



## Info

Spacing tube **4** can be pushed aside.

- Remove spacing tube **4**.

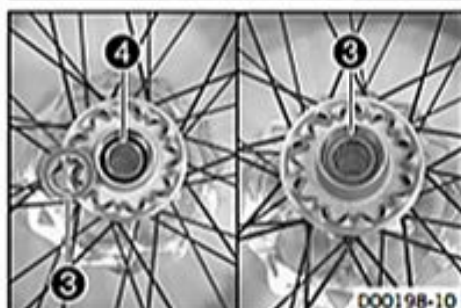


- Press out bearing **5** using a suitable tool.
- Press in the new bearing **5** all the way using a suitable tool.

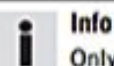


## Info

Only press the bearing in via the outer ring; otherwise, the bearing will be damaged when it is pressed in.

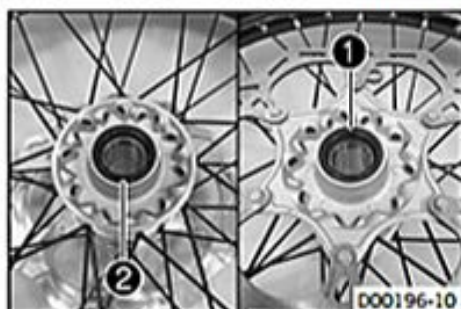


- Position spacing tube **4**.
- Press in the new bearing **3** all the way using a suitable tool.



## Info

Only press the bearing in via the outer ring; otherwise, the bearing will be damaged when it is pressed in.



- Grease the new shaft seal rings **2** and **1** and press in until they are flush.

## Finishing work

- Install the front wheel. (☞ p. 110)

## 13.5.4 Changing the front brake discs



## Preparatory work

- Raise the motorcycle with a lift stand. (☞ p. 10)
- Remove the front wheel. (☞ p. 109)

## Main work

- Remove screws 1. Remove the brake disc.
- Clean the contact surface of the brake disc.
- Position the new brake disc with the label facing outward.
- Mount and tighten screws 1.

## Guideline

Screw, front brake disc	M6	14 Nm (10.3 lbf ft)	Loctite® 243™
-------------------------	----	------------------------	---------------

## Finishing work

- Install the front wheel. (☞ p. 110)

## 13.6 Rear wheel

## 13.6.1 Removing the rear wheel



## Preparatory work

- Raise the motorcycle with a lift stand. (☞ p. 10)

## Main work

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



## Info

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

- Remove nut 1.
- Remove chain adjuster 2. Withdraw wheel spindle 3 only enough to allow the rear wheel to be pushed forward.
- Push the rear wheel forward as far as possible. Remove the chain from the rear sprocket.



## Info

Cover the components to protect them against damage.

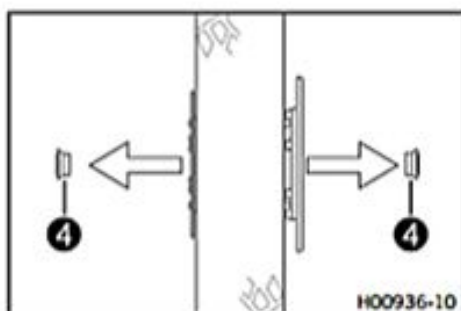
- Holding the rear wheel, withdraw the wheel spindle. Take the rear wheel out of the swingarm.



## Info

Do not operate the foot brake lever when the rear wheel is removed. Always lay the wheel down in such a way that the brake disc is not damaged.

- Remove spacers 4.



## 13.6.2 Installing the rear wheel

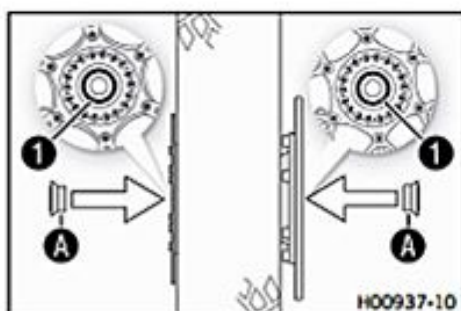


## Warning

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

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



**Main work**

- Check the wheel bearing for damage and wear.
  - If the wheel bearing is damaged or worn:
    - Change the rear wheel bearing. (☛ p. 113)
- Clean and grease shaft seal rings **1** and contact surface **A** of the spacers.

Long-life grease (☛ p. 282)

- Insert the spacers.



- Position the rear wheel and insert wheel spindle **2**.
  - ✓ The brake linings are correctly positioned.
- Mount the chain.



- Position chain adjuster **3**. Mount nut **4**, but do not tighten it yet.
- Make sure that chain adjusters **3** are fitted correctly on adjusting screws **5**.
- Check the chain tension. (☛ p. 116)
- Tighten nut **4**.

**Guideline**

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

**Info**

The wide adjustment range of the chain adjusters (32 mm (1.26 in)) enables different secondary ratios with the same chain length. Chain adjusters **3** can be turned by 180°.

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

**Finishing work**

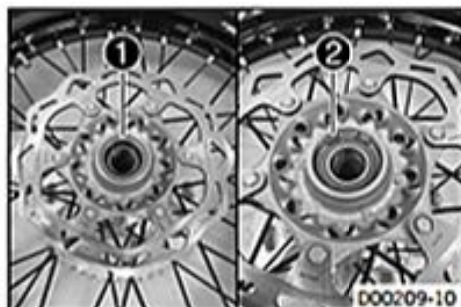
- Remove the motorcycle from the lift stand. (☛ p. 10)

**13.6.3 Changing the rear wheel bearing****Preparatory work**

- Raise the motorcycle with a lift stand. (☛ p. 10)
- Remove the rear wheel. (☛ p. 112)

**Main work**

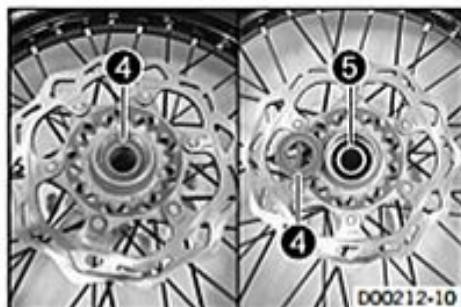
- Remove shaft seal ring **1**.
- Remove lock ring **2**.



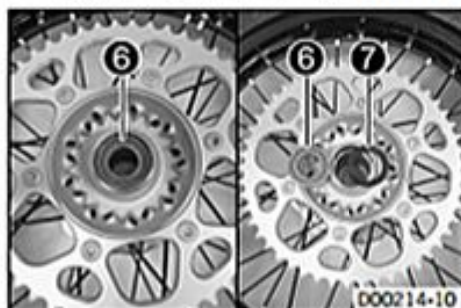




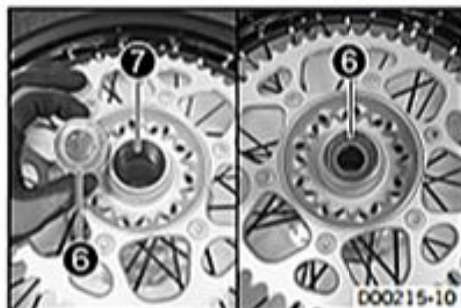
- Remove shaft seal ring (3).



- Using a suitable tool, press bearing (4) out from the inside to the outside.
- Remove spacing tube (5).



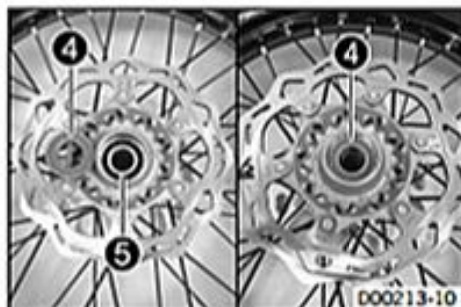
- Using a suitable tool, press bearing (6) out from the inside to the outside.
- Check spacer washer (7) for damage and wear.
  - If the spacer washer is damaged or worn:
    - Replace the spacer washer.



- Position spacer washer (7).
- Press the new bearing (6) all the way in from the outside to the inside.

**Info**

Only press the bearing in via the outer ring; otherwise, the bearing will be damaged when it is pressed in.



- Clean, grease, and mount spacing tube (5).

Long-life grease (☞ p. 282)

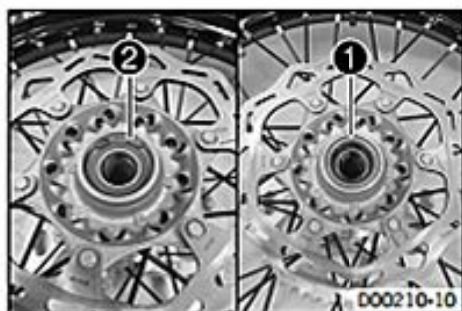
- Press the new bearing (4) all the way in from the outside to the inside.

**Info**

Only press the bearing in via the outer ring; otherwise, the bearing will be damaged when it is pressed in.



- Grease the new shaft seal ring (3) and press it in until it is flush.



- Mount lock ring **2**.
  - ✓ The lock ring engages audibly.
- Grease the new shaft seal ring **1** and press it in until it is flush.

**Finishing work**

- Install the rear wheel. (☞ p. 112)
- Remove the motorcycle from the lift stand. (☞ p. 10)

**13.6.4 Changing the rear brake discs****Preparatory work**

- Raise the motorcycle with a lift stand. (☞ p. 10)
- Remove the rear wheel. (☞ p. 112)

**Main work**

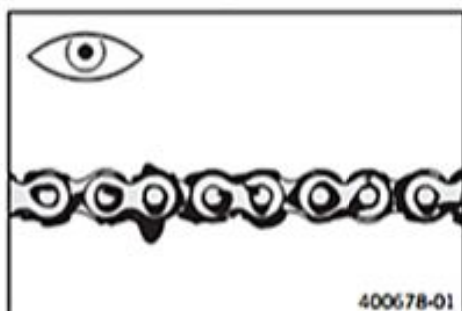
- Remove screws **1**. Remove the brake disc.
- Clean the contact surface of the brake disc.
- Position the new brake disc with the label facing outward.
- Mount and tighten screws **1**.

**Guideline**

Screw, rear brake disc	M6	14 Nm (10.3 lbf ft)	Loctite® 243™
------------------------	----	------------------------	---------------

**Finishing work**

- Install the rear wheel. (☞ p. 112)
- Remove the motorcycle from the lift stand. (☞ p. 10)

**13.6.5 Checking the chain for dirt**

- Check the chain for heavy soiling.
  - If the chain is very dirty:
    - Clean the chain. (☞ p. 115)

**13.6.6 Cleaning the chain****Warning**

**Danger of accidents** Oil or grease on the tires reduces their grip.

- Remove oil and grease with a suitable cleaning material.

**Warning**

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

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

**Warning**

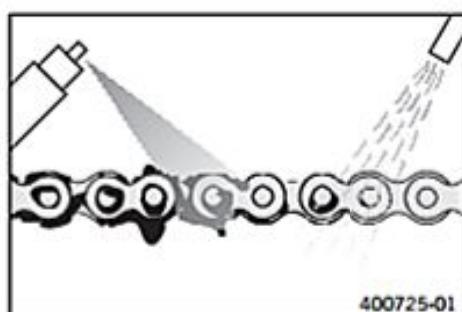
**Environmental hazard** Hazardous substances cause environmental damage.

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

**Info**

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



**Preparatory work**

- Raise the motorcycle with a lift stand. (☞ p. 10)

**Main work**

- Clean the chain regularly and then treat with chain spray.

Chain cleaner (☞ p. 282)
--------------------------

Off-road chain spray (☞ p. 283)
---------------------------------

**Finishing work**

- Remove the motorcycle from the lift stand. (☞ p. 10)

**13.6.7 Checking the chain tension****Warning**

**Danger of accidents** Danger caused by incorrect chain tension.

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

**Preparatory work**

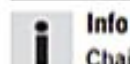
- Raise the motorcycle with a lift stand. (☞ p. 10)

**Main work**

- Pull the chain at the end of the chain sliding piece upward to measure chain tension **A**.

**Guideline**

The lower chain section <b>1</b> must be taut.
--

**Info**

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

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

- If the chain tension does not meet the specification:
  - Adjust the chain tension. (☞ p. 118)

**Finishing work**

- Remove the motorcycle from the lift stand. (☞ p. 10)

**13.6.8 Checking the chain, rear sprocket, engine sprocket, and chain guide****Preparatory work**

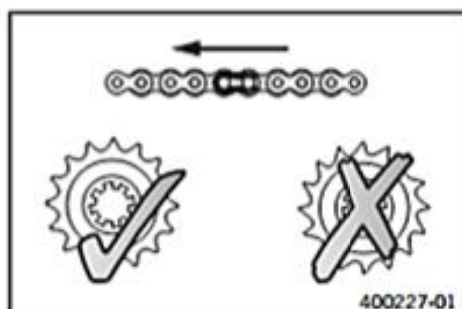
- Raise the motorcycle with a lift stand. (☞ p. 10)

**Main work**

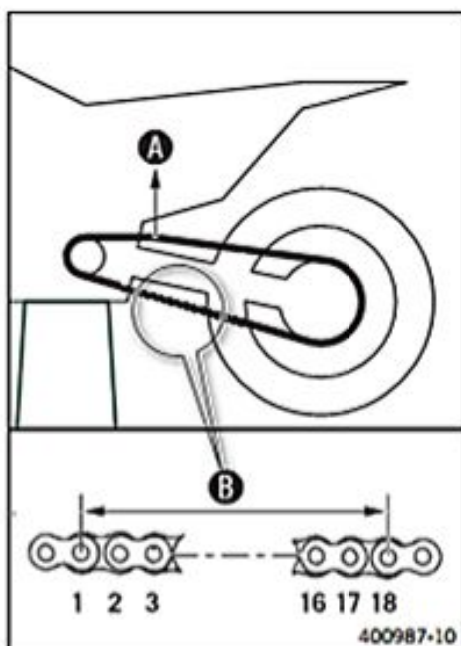
- Shift the transmission to idle.
- Check the rear sprocket and engine sprocket for wear.
  - If the rear sprocket and engine sprocket are worn:
    - Change the drivetrain kit. (☞ p. 119)

**Info**

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







- Pull at the top part of the chain with the specified weight **A**.

## Guideline

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

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



## Info

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

Maximum distance <b>B</b> at the longest chain section	272 mm (10.71 in)
--	-------------------

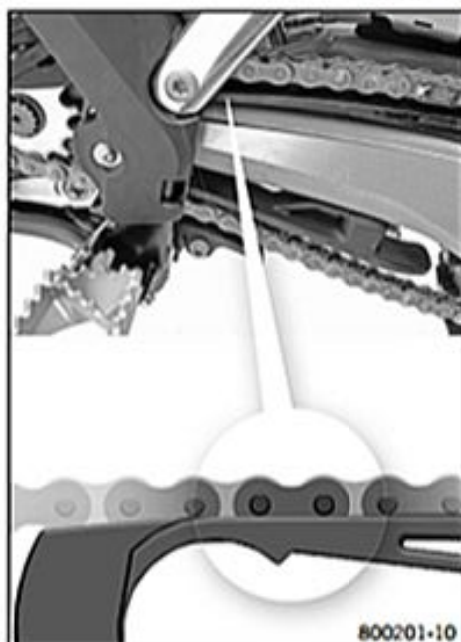
- If the distance **B** is greater than the specified measurement:
  - Change the drivetrain kit. (☛ p. 119)



## Info

When the chain is replaced, the rear sprocket and engine sprocket should also be changed.

New chains wear out faster on old, worn sprockets.



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

## Guideline

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



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

## Guideline

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



401760-01



102192-01

- Check the chain guide for wear.

**Info**

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.

**Guideline**

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

**Finishing work**

- Remove the motorcycle from the lift stand. (☛ p. 10)

**13.6.9 Adjusting the chain tension****Warning**

**Danger of accidents** Danger caused by incorrect chain tension.

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

**Preparatory work**

- Raise the motorcycle with a lift stand. (☛ p. 10)
- Check the chain tension. (☛ p. 116)

**Main work**

- Loosen nut ①.
- Loosen nuts ②.
- Adjust the chain tension by turning adjusting screws ③ to the left and right.

**Guideline**

Chain tension	55... 58 mm (2.17... 2.28 in)
Turn adjusting screws ③ on the left and right so that the markings on the left and right chain adjusters are in the same position relative to reference marks A. The rear wheel is now correctly aligned.	

- Tighten nuts ②.
- Make sure that chain adjusters ④ are fitted correctly on adjusting screws ③.
- Tighten nut ①.

**Guideline**

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

**Info**

The wide adjustment range of the chain adjusters (32 mm) enables different secondary ratios with the same chain length. Chain adjusters ④ can be turned by 180°.

**Finishing work**

- Remove the motorcycle from the lift stand. (☛ p. 10)



H00016-10



## 13.6.10 Changing the drivetrain kit

## Preparatory work

- Raise the motorcycle with a lift stand. (☞ p. 10)
- Remove the air filter box cover. (☞ p. 99)

## Main work

- Remove screw ①.
- Remove screw ②.
- Take the engine sprocket cover off to the front.



- Remove lock ring ③.



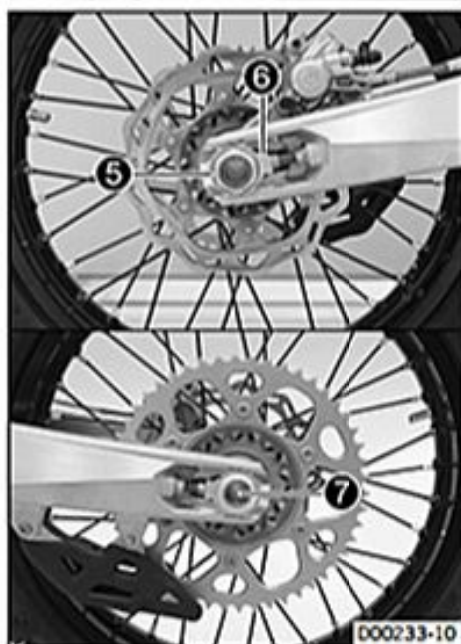
- Remove connecting link ④ of the chain.



## Info

Cover the components to protect them against damage.

- Take off the chain.



- Remove nut ⑤.
- Remove chain adjuster ⑥.
- Hold the rear wheel and remove the wheel spindle ⑦.
- Take the rear wheel out of the swingarm.



## Info

Do not operate the rear brake lever when the rear wheel is removed. Always lay the wheel down in such a way that the brake disc is not damaged.





- Remove engine sprocket **8**.



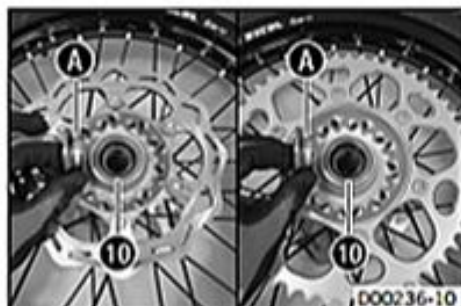
- Remove fittings **9**. Remove the rear sprocket.
- Position the new rear sprocket. Mount and tighten fittings.

Guideline

Nut, rear sprocket screw	M8	35 Nm (25.8 lbf ft)	Loctite® 2701™
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- Slide the new engine sprocket **8** onto the countershaft.



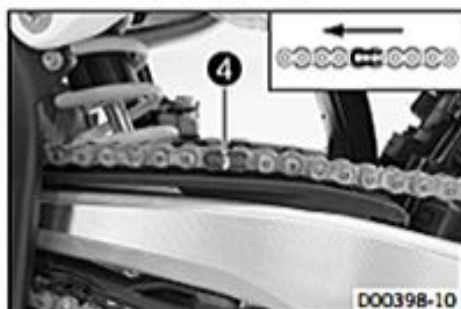
- Check the wheel bearing for damage and wear.
  - If the wheel bearing is damaged or worn:
    - Change the rear wheel bearing. (☞ p. 113)
- Remove the spacers.
- Clean and grease shaft seal rings **10** and contact surface **A** of the spacers.

Long-life grease (☞ p. 282)

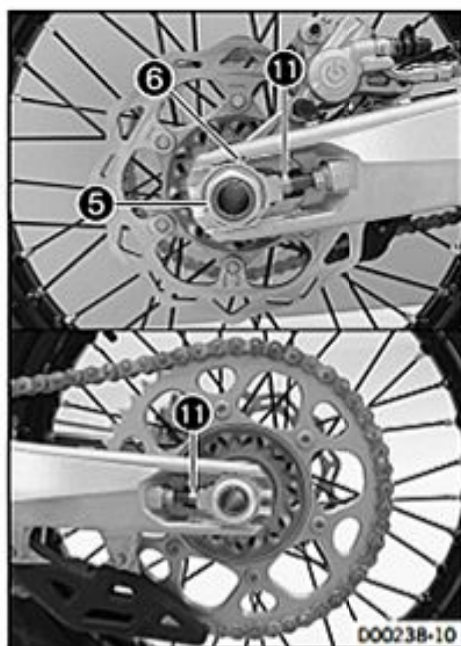
- Insert the spacers.



- Position the rear wheel.
  - ✓ The brake linings are correctly positioned.
- Insert wheel spindle **7**.



- Mount the new chain.
- Connect the chain with connecting link **4**.



D00238-10



D00396-10



D00395-10

- Position chain adjuster (6). Mount nut (5), but do not tighten it yet.
- Make sure that chain adjusters (6) are fitted correctly on adjusting screws (11).
- Check the chain tension. (☛ p. 116)
- Tighten nut (5).

## Guideline

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



## Info

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

Chain adjusters (6) can be turned by 180°.

- Operate the rear brake lever several times until the brake linings are in contact with the brake disc and there is a pressure point.

- Mount lock ring (3).

- Position the engine sprocket cover and mount it in the holder.
- Mount and tighten screw (1).

## Guideline

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

- Mount and tighten screw (2).

## Guideline

Remaining screws, chassis	M8	25 Nm (18.4 lbf ft)
---------------------------	----	------------------------

## Finishing work

- Install the air filter box cover. (☛ p. 99)
- Remove the motorcycle from the lift stand. (☛ p. 10)



## 14.1 Ignition curve plug-in connector



The plug-in connector **1** is located on the frame under the fuel tank.

### Possible states

- Soft – The plug-in connection of the ignition timing map is disconnected to achieve better rideability.
- Performance – The plug-in connector of the ignition timing map is connected to achieve higher performance.

## 14.2 Change the main fuse (All XC models)



### Warning

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

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



### Info

The main fuse protects all power consumers of the vehicle. It is located in the starter relay housing under the air filter box cover.

### Preparatory work

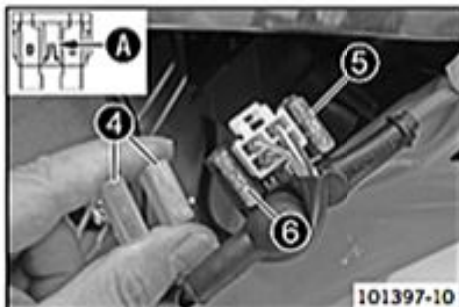
- Switch off all power consumers and switch off the engine.
- Remove the air filter box cover. (☛ p. 99)

### Main work

- Remove screw **1**.



- Lift rear fairing **2** slightly and pull starter relay **3** out of the holder.



- Remove protection caps **4**.
- Remove the faulty main fuse **5**.



### Info

A defective fuse is indicated by a burned-out fuse wire **A**.  
A spare fuse **6** is located in the starter relay.

- Install a new main fuse.

Fuse (58011109110) (☛ p. 255)

- Check that the electrical equipment is functioning properly.



### Tip

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



- Mount the protection caps.
- Mount the starter relay onto the holder and lay the cable.
- Position the rear fairing. Mount and tighten the screw.

## Guideline

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

## Finishing work

- Install the air filter box cover. (☛ p. 99)

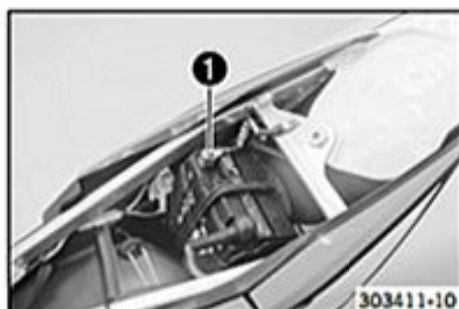
## 14.3 Disconnecting the negative cable of the battery (All XC models)

## Preparatory work

- Remove the seat. (☛ p. 103)

## Main work

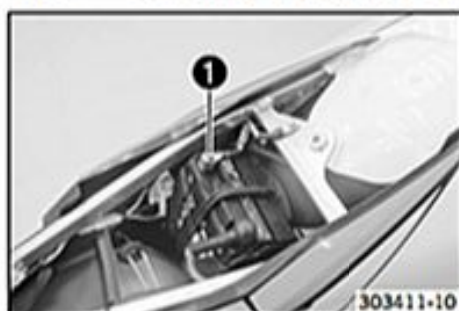
- Disconnect the negative (minus) cable ❶ of the battery.



## 14.4 Connecting the negative cable of the battery (All XC models)

## Main work

- Attach the minus cable ❶.



## Finishing work

- Mount the seat. (☛ p. 103)

## 14.5 Removing the battery (All XC models)



## Warning

**Risk of injury** Battery acid and battery gases cause serious chemical burns.

- Keep batteries out of the reach of children.
- Wear suitable protective clothing and goggles.
- Avoid contact with battery acid and battery gases.
- Keep sparks and open flames away from the battery. Only charge in well-ventilated rooms.
- In the event of skin contact, rinse with large amounts of water. If battery acid gets in the eyes, rinse with water for at least 15 minutes and contact a physician.

## Preparatory work

- Switch off all power consumers and the engine.
- Remove the seat. (☛ p. 103)

## Main work

- Disconnect negative cable ❶ from the battery.
- Pull back the positive terminal cover ❷ and disconnect the positive cable from the battery.
- Detach rubber band ❸ at the bottom.
- Lift the battery up.



## 14.6 Installing the battery (All XC models)



## Main work

- Insert the battery into the battery compartment with the terminals facing to the front.

Battery (YTX4L-BS) (☞ p. 255)

- Attach rubber band ①.
- Position positive cable ②, and mount and tighten the screw.

## Guideline

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



## Info

Contact disks ④ must be mounted between screws ⑤ and cable sockets ⑥ with the claws facing down.

- Slide positive terminal cover ⑦ over the positive terminal.
- Position negative cable ③, and mount and tighten the screw.

## Guideline

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

## Finishing work

- Mount the seat. (☞ p. 103)

## 14.7 Checking the charging voltage (All XC models)



## Condition

The battery must be fully functional and completely charged.

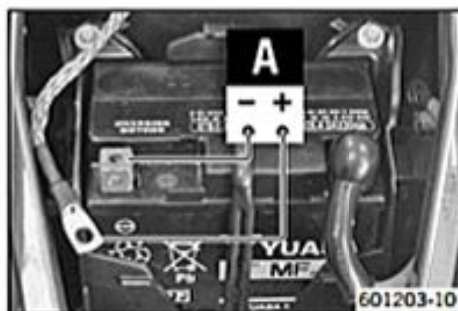
- Carry out the start procedure. (☞ p. 11)
- Measure the voltage between the specified points.  
Measuring point Plus (+) – Measuring point Ground (–)

## Charging voltage

5,000 rpm	13.5... 15.0 V
-----------	----------------

- If the displayed value is less than the specified value:
  - Check the plug-in connections from the alternator to the voltage regulator.
  - Check the plug-in connections from the voltage regulator to the wiring harness.
  - Alternator - check the light and battery winding. (☞ p. 247)
- If the displayed value is greater than the specified value:
  - Change the voltage regulator.

## 14.8 Checking the closed current (All XC models)



## Preparatory work

- Switch off all power consumers and switch off the engine.
- Remove the seat. (☞ p. 103)

## Main work

- Disconnect the negative (minus) cable of the battery.
- Measure the current between battery ground (–) and the negative cable.



## Info

The value of the quiescent current applies only to vehicles in the original state, i.e. without additional power consumers.

maximum closed current	< 1.0 mA
------------------------	----------

- If the measured value is higher than the specified value:
  - Disconnect the voltage regulator from the wiring harness and perform the measurement again.



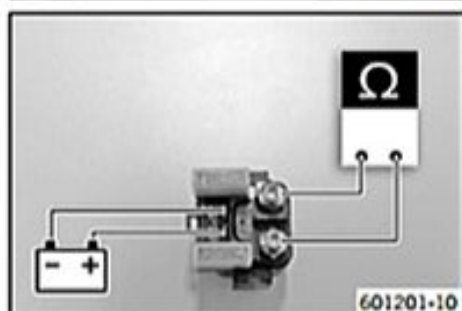
## 14.9 Checking the starter relay (All XC models)

### Preparatory work

- Switch off all power consumers and switch off the engine.
- Remove the seat. (☛ p. 103)
- Remove the air filter box cover. (☛ p. 99)

### Main work

- Disconnect the negative (minus) cable of the battery.
- Pull starter relay off of the bracket.
- Pull off connector ①.
- Disconnect cables ② and ③ from the starter relay.



- Connect the starter relay to a 12 V power supply as shown in the figure.
- Measure the resistance between the specified points.

Resistance of open circuit	0 Ω
----------------------------	-----

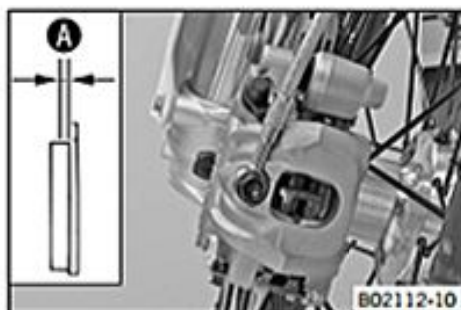
- If the display does not equal the setpoint value:
  - Change the starter relay.



## 15.1 Checking the front brake linings

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

- Change worn brake linings immediately.



- Check the brake linings for minimum thickness **A**.

Minimum thickness <b>A</b>	$\geq 1 \text{ mm } (\geq 0.04 \text{ in})$
----------------------------	---

- If the minimum thickness is less than specified:
  - Change the front brake linings. (↖ p. 126)
- Check the brake linings for damage and cracking.
  - If damage or cracking is visible:
    - Change the front brake linings. (↖ p. 126)

## 15.2 Changing the front brake linings

**Warning****Danger of accident** Brake system failure.

- Maintenance work and repairs must be carried out professionally.

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

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

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

- Change the brake fluid of the front and rear brake according to the service schedule.

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

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

**Warning****Danger of accidents** Reduced braking efficiency due to use of non-approved brake linings.

- Brake linings available from accessory suppliers are often not tested and approved for use on KTM vehicles. The construction and friction factor of the brake linings and therefore the brake power can differ considerably from the original KTM brake linings. If brake linings are used that differ from the originals, there is no guarantee that they comply with the original license. The vehicle no longer corresponds to the condition at delivery, and the warranty is no longer valid.

**Warning****Environmental hazard** Hazardous substances cause environmental damage.

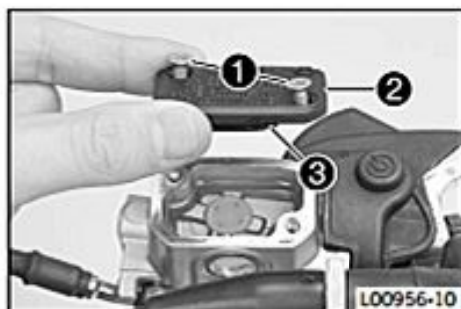
- Oil, grease, filters, fuel, cleaners, brake fluid, etc., should be disposed of as stipulated in applicable regulations.

**Info**

Never use DOT 5 brake fluid! It is silicone-based and purple in color. Oil seals and brake lines are not designed for DOT 5 brake fluid.

Avoid contact between brake fluid and painted parts. Brake fluid attacks paint!

Use only clean brake fluid from a sealed container!

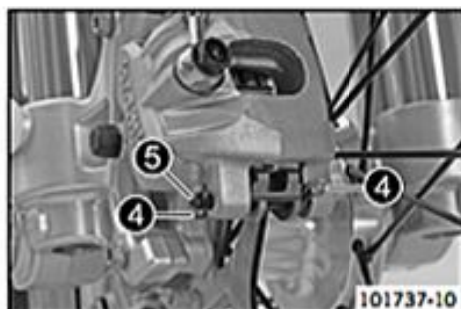


- Move the brake fluid reservoir mounted on the handlebar to a horizontal position.
- Remove screws **1**.
- Remove cover **2** with membrane **3**.
- Manually press the brake caliper toward the brake disc to push back the brake pistons. Ensure that brake fluid does not flow out of the brake fluid reservoir, extracting it by suction if it does.

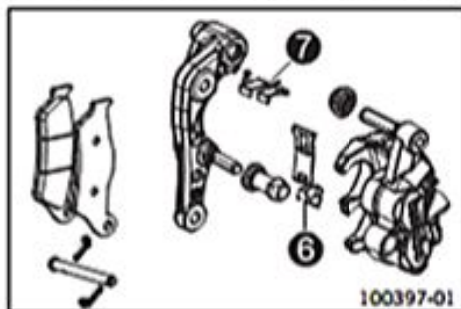


## Info

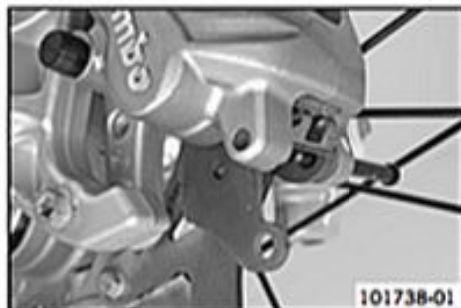
Make sure when pushing back the brake pistons that you do not press the brake caliper against the spokes.



- Remove cotter pins **4**, pull out pin **5**, and remove the brake linings.
- Clean the brake caliper and brake caliper support.



- Check that leaf spring **6** in the brake caliper and sliding plate **7** in the brake caliper support are seated correctly.



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



## Info

Always change the full set of brake linings.

- Operate the hand brake lever several times until the brake linings are lying correctly against the brake disc and there is a pressure point.



- Correct the brake fluid quantity to level **A**.

## Guideline

Dimension <b>A</b> (brake fluid level below top edge of container)	5 mm (0.2 in)
--	---------------

Brake fluid DOT 4 / DOT 5.1 (☞ p. 280)
--

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



## Info

Wash off overflowed or spilled brake fluid immediately with water.



## 15.3 Checking the free travel of the hand brake lever

- Warning**  
**Danger of accidents** Brake system failure.
- If there is no free travel on the hand brake lever, pressure builds up on the front brake circuit. The front brake can fail due to overheating. Adjust the free travel on hand brake lever according to specifications.

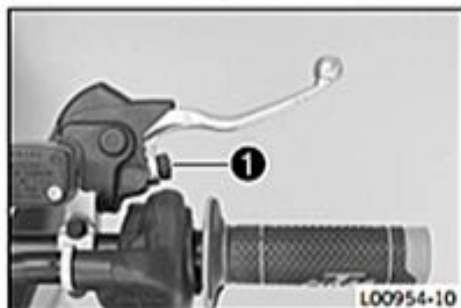


- Push the hand brake lever forward and check free travel **A**.

Free travel of hand brake lever	$\geq 3 \text{ mm } (\geq 0.12 \text{ in})$
---------------------------------	---

- If the free travel does not meet specifications:
  - Adjust the basic position of the hand brake lever. (☛ p. 128)

## 15.4 Adjusting the basic position of the hand brake lever



- Check the free travel of the hand brake lever. (☛ p. 128)
- Adjust the basic setting of the hand brake lever to your hand size by turning adjusting screw **1**.

**i Info**

When the adjusting screw is turned clockwise, the hand brake lever moves away from the handlebar.  
 When the adjusting screw is turned counterclockwise, the hand brake lever moves closer to the handlebar.  
 The range of adjustment is limited.  
 Turn the adjusting screw by hand only, and do not apply any force.  
 Do not make any adjustments while riding!

## 15.5 Checking the front brake fluid level

- Warning**  
**Danger of accidents** Brake system failure.
- If the brake fluid level drops below the specified marking or the specified value, this is an indication that the brake system is leaking or that the brake linings are completely worn down. Check the brake system and do not continue riding.

- Warning**  
**Danger of accidents** Reduced braking efficiency due to old brake fluid.
- Change the brake fluid of the front and rear brake according to the service schedule.

**Preparatory work**

- Check the front brake linings. (☛ p. 126)

**Main work**

- Move the brake fluid reservoir mounted on the handlebar to a horizontal position.
- Check the brake fluid level in the viewer **1**.
  - If the brake fluid level is below the **A** marking:
    - Add front brake fluid. (☛ p. 129)

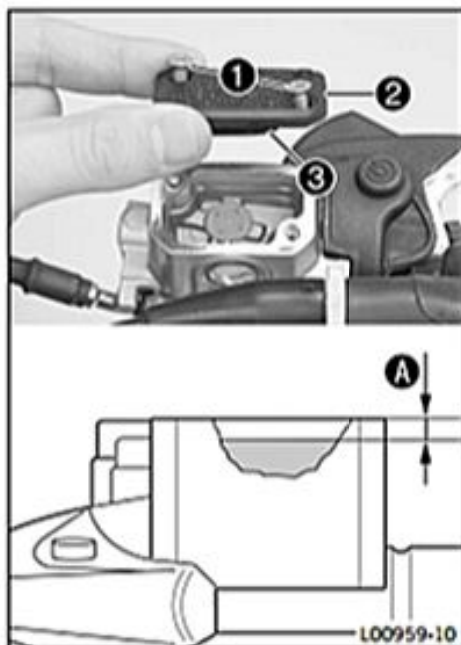




## 15.6 Adding front brake fluid

- Warning**  
**Danger of accidents** Brake system failure.
- If the brake fluid level drops below the specified marking or the specified value, this is an indication that the brake system is leaking or that the brake linings are completely worn down. Check the brake system and do not continue riding.
- Warning**  
**Skin irritation** Brake fluid can cause skin irritation on contact.
- Avoid contact with skin and eyes, and keep out of the reach of children.
  - Wear suitable protective clothing and goggles.
  - If brake fluid comes into contact with the eyes, flush the eyes thoroughly with water and consult a physician immediately.
- Warning**  
**Danger of accidents** Reduced braking efficiency due to old brake fluid.
- Change the brake fluid of the front and rear brake according to the service schedule.
- Warning**  
**Environmental hazard** Hazardous substances cause environmental damage.
- Oil, grease, filters, fuel, cleaners, brake fluid, etc., should be disposed of as stipulated in applicable regulations.

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

**Preparatory work**

- Check the front brake linings. (☞ p. 126)

**Main work**

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

**Guideline**

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

Brake fluid DOT 4 / DOT 5.1 (☞ p. 280)

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

**Info**

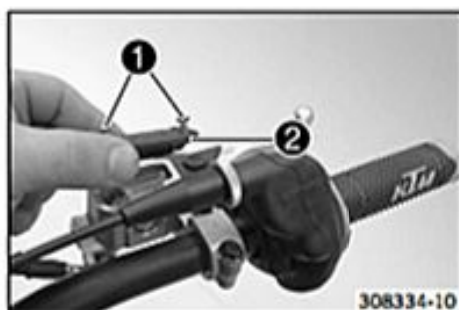
Clean up overflowed or spilled brake fluid immediately with water.

## 15.7 Changing the front brake fluid

- Warning**  
**Skin irritation** Brake fluid can cause skin irritation on contact.
- Avoid contact with skin and eyes, and keep out of the reach of children.
  - Wear suitable protective clothing and goggles.
  - If brake fluid comes into contact with the eyes, flush the eyes thoroughly with water and consult a physician immediately.

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

- i Info**  
 Avoid contact between brake fluid and painted parts. Brake fluid attacks paint!  
 Use only clean brake fluid from a sealed container.



- Move the brake fluid reservoir mounted on the handlebar to a horizontal position.
- Cover the painted parts.
- Remove screws ①.
- Remove cover ② with membrane.
- Draw the old brake fluid out of the brake fluid reservoir using a syringe and fill with fresh brake fluid.

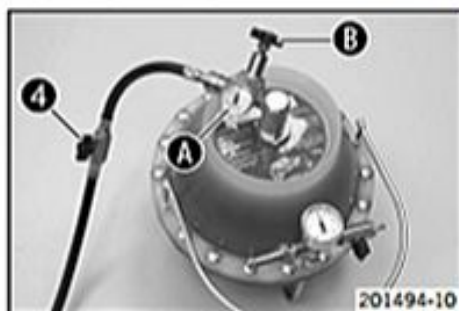
Bleed syringe (50329050000) (☞ p. 284)

Brake fluid DOT 4 / DOT 5.1 (☞ p. 280)



- Mount bleeder cover ③.
- Connect the bleeding device.

Bleeding device (00029013100) (☞ p. 284)



- Open shut-off valve ④.

- i Info**  
 Follow the operating instructions of the bleeding device.

- Ensure that the filling pressure is correctly set at pressure gauge A. If necessary, adjust the filling pressure at pressure regulator B.

Guideline

Filling pressure	2... 2.5 bar (29... 36 psi)
------------------	-----------------------------

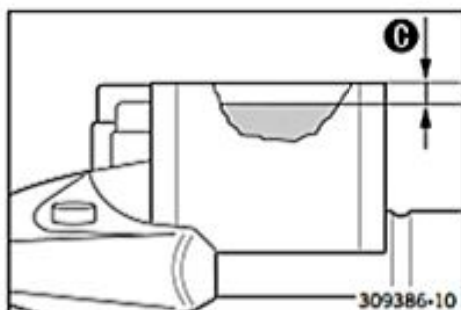


- Pull off protection cap ⑤ of the brake caliper bleeder screw. Connect the hose of the bleeder bottle.
- Open bleeder screw ⑥ by approx. one half turn.

- i Info**  
 Bleed until fresh brake fluid emerges from the bleeder bottle hose without bubbles.

- Tighten the bleeder screw.
- Close shut-off valve ④.





- Open the bleeder screw again until brake fluid stops emerging.

**Info**

This prevents overfilling of the brake fluid reservoir.

- Tighten the bleeder screw. Remove the hose of the bleeder bottle. Mount the protection cap.
- Disconnect the bleeding device. Remove the bleeder cover.
- Add brake fluid to level **C**.

**Guideline**

Level <b>C</b>	5 mm (0.2 in)
Brake fluid DOT 4 / DOT 5.1 (☞ p. 280)	

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

**Info**

Clean up overflowed or spilt brake fluid immediately with water.

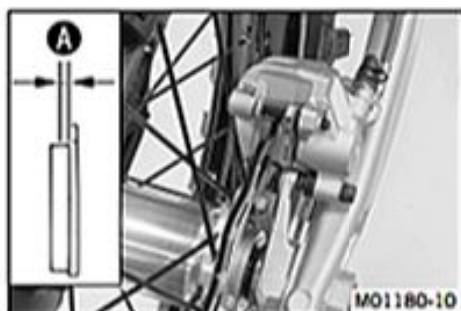
- Check the hand brake lever for a firm pressure point.

### 15.8 Checking the rear brake linings

**Warning**

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

- Change worn brake linings immediately.



- Check the brake linings for minimum thickness **A**.

Minimum thickness <b>A</b>	$\geq 1 \text{ mm } (\geq 0.04 \text{ in})$
----------------------------	---

- If the minimum thickness is less than specified:
  - Change the rear brake linings. (☞ p. 131)
- Check the brake linings for damage and cracking.
  - If damage or cracking is visible:
    - Change the rear brake linings. (☞ p. 131)

### 15.9 Changing the rear brake linings

**Warning**

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

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

**Warning**

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

- Change the brake fluid of the front and rear brake according to the service schedule.

**Warning**

**Environmental hazard** Hazardous substances cause environmental damage.

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

**Info**

Never use DOT 5 brake fluid! It is silicone-based and purple in color. Oil seals and brake lines are not designed for DOT 5 brake fluid.

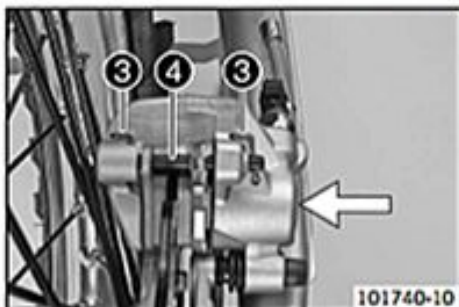
Avoid contact between brake fluid and painted parts. Brake fluid attacks paint!

Use only clean brake fluid from a sealed container.





- Stand the vehicle upright.
- Remove screw cap ① with membrane ② and the O-ring.



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

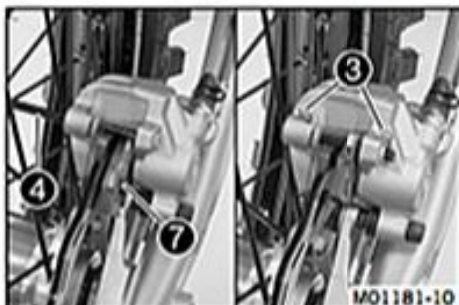
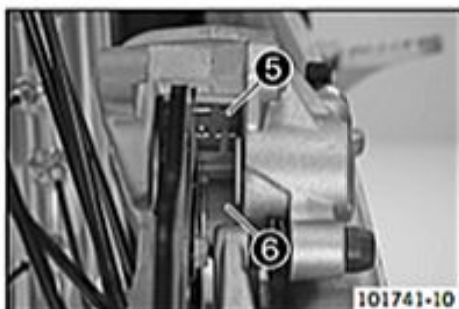
**i Info**

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

- Remove cotter pins ③, pull out pin ④, and remove the brake linings.
- Clean the brake caliper and brake caliper support.
- Check that leaf spring ⑤ in the brake caliper and sliding plate ⑥ in the brake caliper support are seated correctly.

**i Info**

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



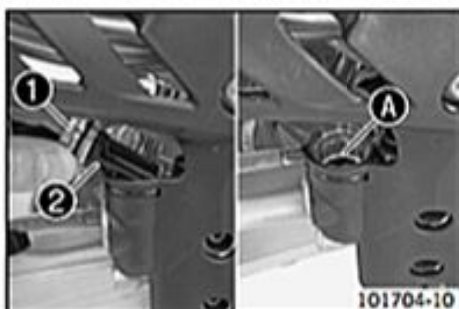
- Insert the new brake linings, insert pin ④, and mount cotter pins ③.

**i Info**

Always change the brake linings in pairs.

Make sure that decoupling plate ⑦ is mounted on the piston side brake lining.

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



- Add brake fluid to level A.

Brake fluid DOT 4 / DOT 5.1 (☞ p. 280)

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

**i Info**

Clean up overflowed or spilled brake fluid immediately with water.

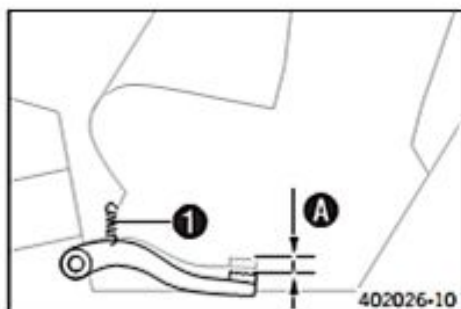
## 15.10 Checking the free travel of foot brake lever



**Warning**

**Danger of accidents** Brake system failure.

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



- Disconnect spring **1**.
- Move the foot brake lever back and forth between the end stop and the contact to the foot brake cylinder piston and check free travel **A**.

Guideline

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

- If the free travel does not meet specifications:
  - Adjust the basic position of the foot brake lever. (☛ p. 133)
- Reconnect spring **1**.

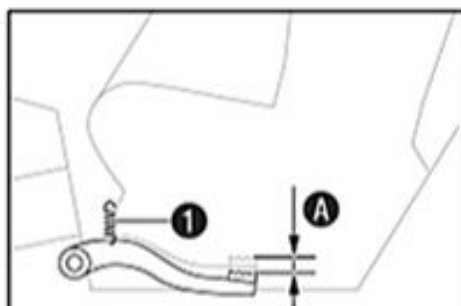
## 15.11 Adjusting the basic position of the foot brake lever



### Warning

**Danger of accidents** Brake system failure.

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



- Disconnect spring **1**.
- Loosen nut **2** and, with push rod **3**, turn it back until you have maximum free travel.
- To adjust the basic position of the foot brake lever to individual requirements, loosen nut **4** and turn screw **5** accordingly.



### Info

The range of adjustment is limited.

- Turn push rod **3** accordingly until you have free travel **A**. If necessary, adjust the basic position of the foot brake lever.

Guideline

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

- Hold screw **5** and tighten nut **4**.

Guideline

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

- Hold push rod **3** and tighten nut **2**.

Guideline

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

- Attach spring **1**.

## 15.12 Checking the rear brake fluid level



### Warning

**Danger of accidents** Brake system failure.

- If the brake fluid level drops below the specified marking or the specified value, this is an indication that the brake system is leaking or that the brake linings are completely worn down. Check the brake system and do not continue riding.



### Warning

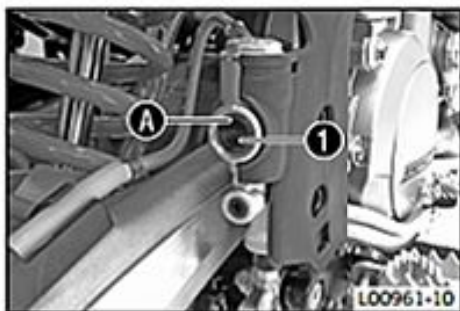
**Danger of accidents** Reduced braking efficiency due to old brake fluid.

- Change the brake fluid of the front and rear brake according to the service schedule.

### Preparatory work

- Check the rear brake linings. (☛ p. 131)



**Main work**

- Stand the vehicle upright.
- Check the brake fluid level in level viewer **1**.
  - If the brake fluid has dropped below marking **A**:
    - Add rear brake fluid. (☞ p. 134)

**15.13 Adding rear brake fluid****Warning****Danger of accidents** Brake system failure.

- If the brake fluid level drops below the specified marking or the specified value, this is an indication that the brake system is leaking or that the brake linings are completely worn down. Check the brake system and do not continue riding.

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

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

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

- Change the brake fluid of the front and rear brake according to the service schedule.

**Warning****Environmental hazard** Hazardous substances cause environmental damage.

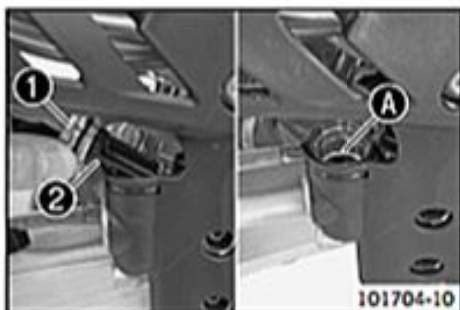
- Oil, grease, filters, fuel, cleaners, brake fluid, etc., should be disposed of as stipulated in applicable regulations.

**Info**

Never use DOT 5 brake fluid! It is silicone-based and purple in color. Oil seals and brake lines are not designed for DOT 5 brake fluid.

Avoid contact between brake fluid and painted parts. Brake fluid attacks paint!

Use only clean brake fluid from a sealed container.

**Preparatory work**

- Check the rear brake linings. (☞ p. 131)

**Main work**

- Stand the vehicle upright.
- Remove screw cap **1** with membrane **2** and the O-ring.
- Add brake fluid to level **A**.

Brake fluid DOT 4 / DOT 5.1 (☞ p. 280)

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

**Info**

Clean up overflowed or spilled brake fluid immediately with water.



## 15.14 Changing the rear brake fluid

**Warning**

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

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

**Warning**

**Environmental hazard** Hazardous substances cause environmental damage.

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

**Info**

Avoid contact between brake fluid and painted parts. Brake fluid attacks paint!  
Use only clean brake fluid from a sealed container.



- Cover the painted parts.
- Remove screw cap ① with membrane and the O-ring.
- Draw the old brake fluid out of the brake fluid reservoir using a syringe and fill with fresh brake fluid.

Bleed syringe (50329050000) (☞ p. 284)

Brake fluid DOT 4 / DOT 5.1 (☞ p. 280)

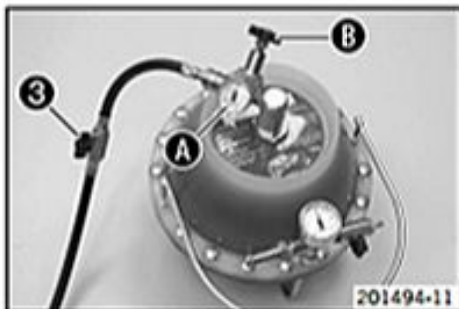


- Mount bleeder cover ②.

Bleeder cover (00029013006) (☞ p. 284)

- Connect the bleeding device.

Bleeding device (00029013100) (☞ p. 284)



- Open shut-off valve ③.

**Info**

Follow the operating instructions of the bleeding device.

- Ensure that the filling pressure is correctly set at pressure gauge A. If necessary, adjust the filling pressure at pressure regulator B.

**Guideline**

Filling pressure	2... 2.5 bar (29... 36 psi)
------------------	-----------------------------



- Pull off protection cap ④ of the bleeder screw. Connect the hose of the bleeder bottle.

Bleeding device (00029013100) (☞ p. 284)

- Open bleeder screw ⑤ by approx. one half turn.

**Info**

Bleed until fresh brake fluid emerges from the bleeder bottle hose without bubbles.

- Tighten the bleeder screw.
- Close shut-off valve ③.

- Open the bleeder screw again until brake fluid stops emerging.


**Info**

This prevents overfilling of the brake fluid reservoir.

- Tighten the bleeder screw. Remove the hose of the bleeder bottle. Mount the protection cap.
- Disconnect the bleeding device. Remove the bleeder cover.
- Stand the vehicle upright.
- Add brake fluid to level **C**.

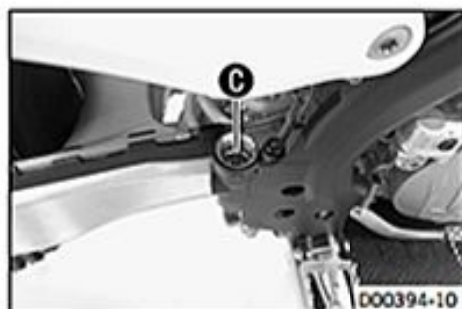
Brake fluid DOT 4 / DOT 5.1 (↖ p. 280)

- Fit and tighten the screw cap with the membrane and O-ring.


**Info**

Clean up overflowed or spilt brake fluid immediately with water.

- Check the foot brake lever for a firm pressure point.



## 16.1 Removing the engine

## Preparatory work

- Raise the motorcycle with a lift stand. (☛ p. 10)
- Remove the seat. (☛ p. 103)

## (All XC models)

- Disconnect the negative (minus) cable of the battery. (☛ p. 123)
- Drain the coolant. (☛ p. 239)
- Disassemble the main silencer. (☛ p. 97)

## Main work

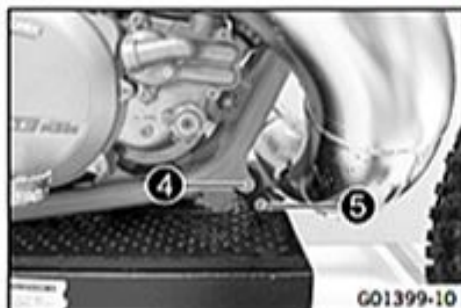
(250 SX)

- Remove springs ①.

Spring hooks (50305017000) (☛ p. 284)



- Loosen screw ②.
- Remove screw ③.



- Loosen screw ④.
- Remove screw ⑤.
- Take off the exhaust manifold.



- Loosen screw ⑥.
- Remove the cable binders.
- Take off the frame protector.



- Loosen screw ⑦.
- Remove the cable binder.
- Take off the frame protector.





- Loosen hose clip 8.



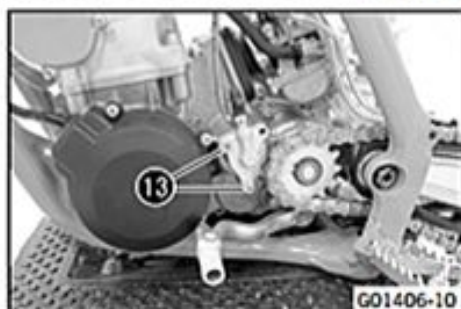
- Remove screw 9.
- Loosen screw 10.
- Repeat these steps on the opposite side.
- Swing up the subframe and secure it.



- Remove screw 11.



- Remove screw 12.
- Take off the engine sprocket cover.



- Remove screws 13.
- Take off the clutch slave cylinder and hang it to one side.

**Info**

Do not kink the clutch line.  
Do not activate the clutch lever while the clutch slave cylinder is removed.



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



- Remove screw 14.
- Take off the shift lever.



- Pull off the spark plug connector.
- Pull off vent hose 15.



- Disconnect plug-in connector 16.



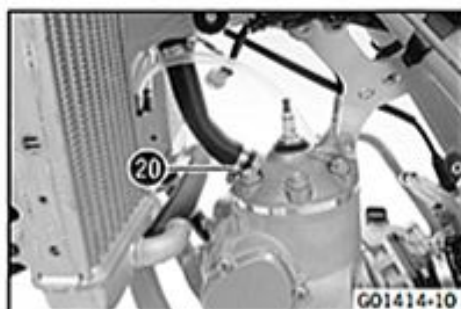
- Remove spring 17.



- Loosen hose clip 18.
- Pull off the radiator hose.



- Loosen hose clip 19.
- Pull off the radiator hose.



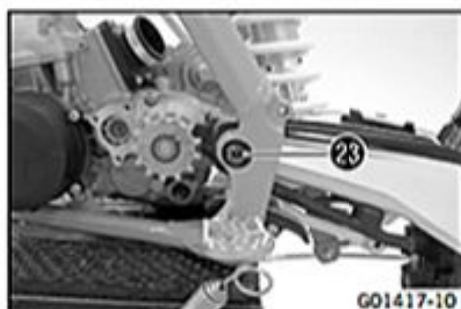
- Loosen hose clip 20.
- Pull off the radiator hose.



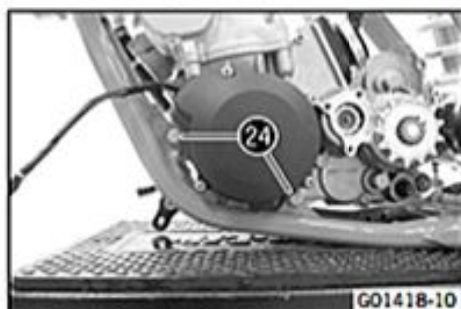
- Loosen hose clip 21.
- Pull the carburetor rearward out of the intake flange and hang it to one side.



- Remove fittings 22.
- Take off the engine braces.



- Remove nut 23.
- Remove the swingarm pivot.
- Pull the swingarm toward the rear slightly.



- Remove screws 24.





G01419-10

- Lift out the engine sideways.

**Info**

The help of an assistant is useful in this step.  
Ensure that the motorcycle is sufficiently secured against falling over.  
Protect the frame and attachments against damage.

**(All XC models)**

- Remove springs ①.

Spring hooks (50305017000) (☛ p. 284)

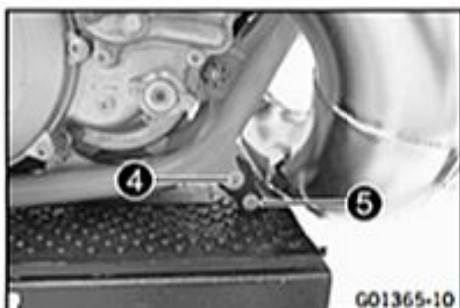


G01363-10



G01364-10

- Loosen screw ②.
- Remove screw ③.



G01365-10

- Loosen screw ④.
- Remove screw ⑤.
- Take off the exhaust manifold.



G01366-10

- Loosen screw ⑥.
- Remove the cable binders.
- Take off the frame protector.



G01367-10

- Loosen screw ⑦.
- Remove the cable binder.
- Take off the frame protector.



- Push back cover 8.
- Remove nut 9 and hang the positive cable to the side.



- Release hose clip 10.



- Remove screw 11.
- Loosen screw 12.
- Repeat these steps on the opposite side.
- Swing up the subframe and secure it.



- Remove screw 13.



- Remove screw 14.
- Take off the engine sprocket cover.



- Remove screws 15.
- Take off the clutch slave cylinder and hang it to one side.



## Info

Do not kink the clutch line.

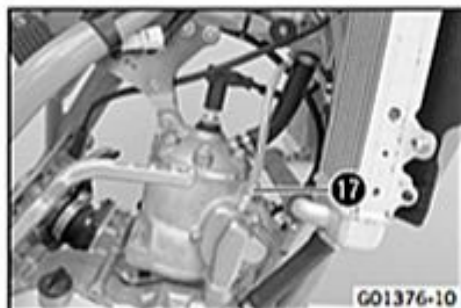
Do not activate the clutch lever while the clutch slave cylinder is removed.



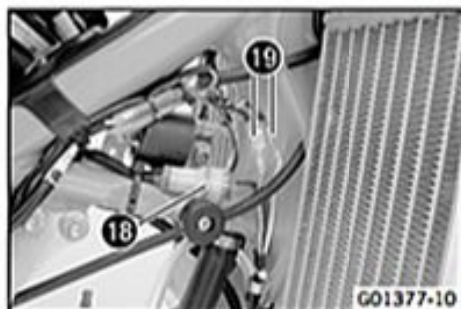
- Remove the connecting link of the chain.
- Take off the chain.



- Remove screw 16.
- Take off the shift lever.



- Pull off the spark plug connector.
- Pull off vent hose 17.

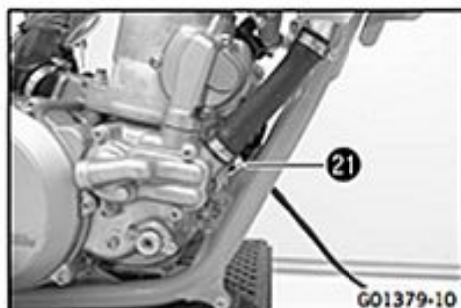


- Disconnect plug-in connector 18.
- Disconnect plug-in connectors 19.
- Remove the cable binder and expose the cable.



- Remove spring 20.





- Loosen hose clip 21.
- Pull off the radiator hose.



- Loosen hose clip 22.
- Pull off the radiator hose.



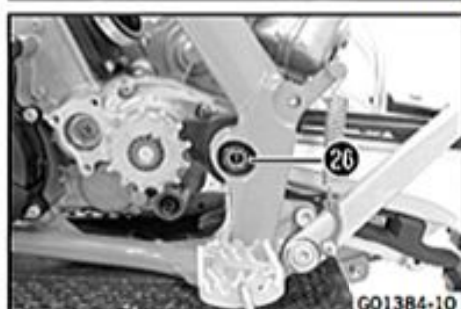
- Loosen hose clip 23.
- Pull off the radiator hose.



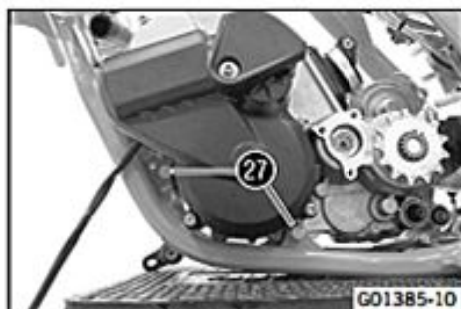
- Loosen hose clip 24.
- Pull the carburetor rearward out of the intake flange and hang it to one side.



- Remove fittings 25.
- Take off the engine braces.



- Remove nut 26.
- Remove the swingarm pivot.
- Pull the swingarm toward the rear slightly.



- Remove screws 27.



- Lift out the engine sideways.

**Info**

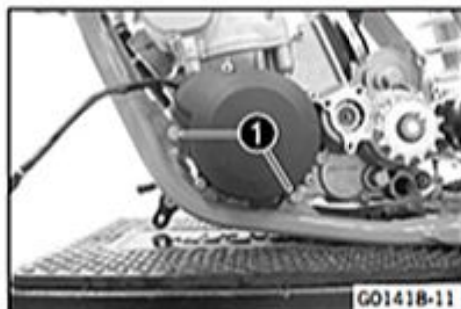
The help of an assistant is useful in this step.  
Ensure that the motorcycle is sufficiently secured against falling over.  
Protect the frame and attachments against damage.

**16.2 Installing the engine****Main work  
(250 SX)**

- Position the engine in the frame.

**Info**

The help of an assistant is useful in this step.  
Make sure that the engine is sufficiently secured against falling over.  
Protect the frame and attachments against damage.



- Mount screws 1, but do not tighten yet.

**Guideline**

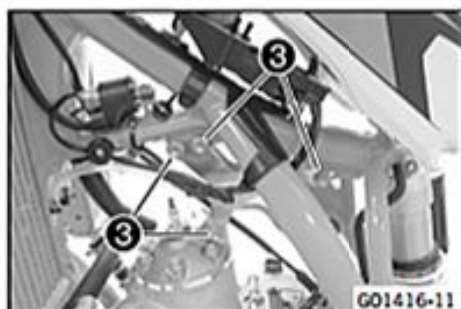
Engine bracket screw	M10	60 Nm (44.3 lbf ft)
----------------------	-----	------------------------



- Position the swingarm.
- Mount the swingarm pivot.
- Mount nut 2, but do not tighten it yet.

**Guideline**

Nut, swingarm pivot	M16x1.5	100 Nm (73.8 lbf ft)
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- Position the engine braces.
- Mount and tighten fittings 3.

**Guideline**

Screw, engine brace	M8	33 Nm (24.3 lbf ft)	Loctite® 2701™
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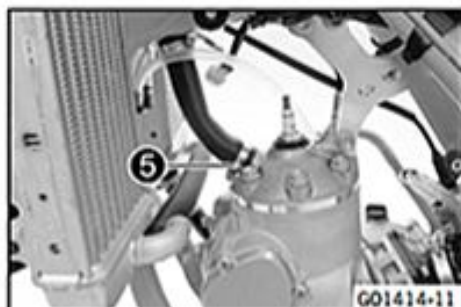
- Tighten screws 1 and nut 2.

## Guideline

Engine bracket screw	M10	60 Nm (44.3 lbf ft)
Nut, swingarm pivot	M16x1.5	100 Nm (73.8 lbf ft)



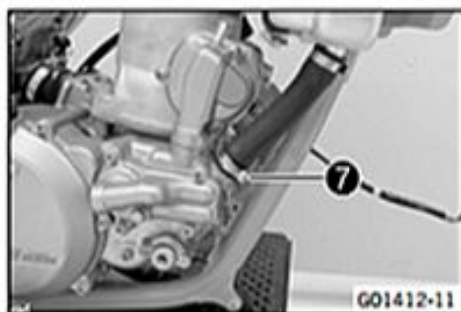
- Mount the carburetor in the intake flange.
- Position and tighten hose clip ④.



- Mount the radiator hose.
- Position and tighten hose clip ⑤.



- Mount the radiator hose.
- Position and tighten hose clip ⑥.



- Mount the radiator hose.
- Position and tighten hose clip ⑦.



- Mount spring ⑧.

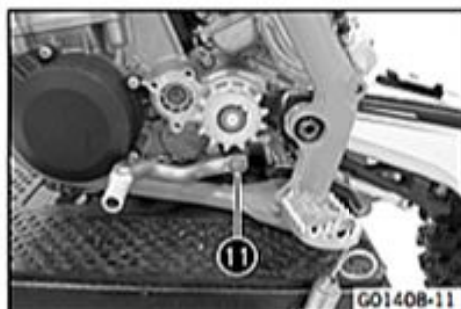




- Connect plug-in connector 9.



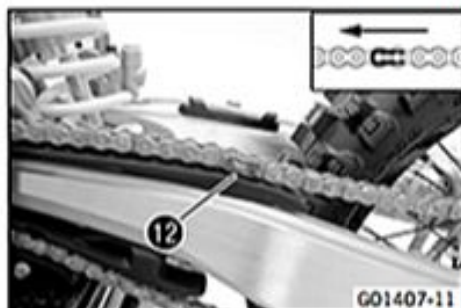
- Mount the spark plug connector.
- Mount vent hose 10.



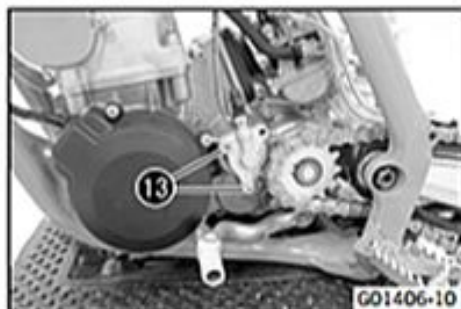
- Position the shift lever.
- Mount and tighten screw 11 with the washers.

## Guideline

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



- Mount the chain.
- Connect the chain with connecting link 12.



- Position the clutch slave cylinder with the O-ring.
- Mount and tighten screws 13.

## Guideline

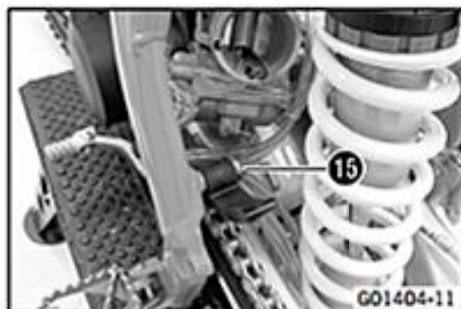
Screw, slave cylinder of the clutch	M6	10 Nm (7.4 lbf ft)	
-------------------------------------	----	-----------------------	--



- Position the engine sprocket cover.
- Mount and tighten screw 14.

## Guideline

Screw, slave cylinder of the clutch	M6	10 Nm (7.4 lbf ft)	
-------------------------------------	----	-----------------------	--



- Mount and tighten screw 15.

## Guideline

Remaining screws, chassis	M8	25 Nm (18.4 lbf ft)
---------------------------	----	------------------------



- Remove the fixation and position the subframe.



## Info

Watch out for the intake flange.

- Mount and tighten screw 16.

## Guideline

Screw, subframe	M8	35 Nm (25.8 lbf ft)	Loctite® 2701™
-----------------	----	------------------------	----------------

- Remove screw 17.
- Mount and tighten screw 17.

## Guideline

Screw, subframe	M8	35 Nm (25.8 lbf ft)	Loctite® 2701™
-----------------	----	------------------------	----------------

- Repeat these steps on the opposite side.



- Position and tighten hose clip 18.



- Mount the frame protector.
- Mount and tighten screw 19 with the washer.

## Guideline

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

- Mount the cable tie(s).



- Mount the frame protector.
- Mount and tighten screw 20 with the washer.

## Guideline

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

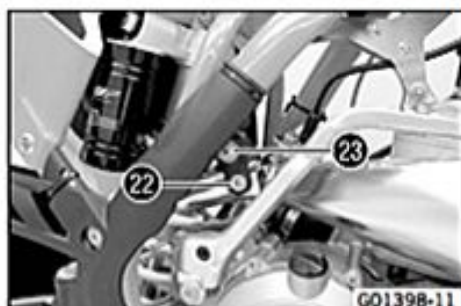
- Mount the cable tie(s).





- Position the exhaust manifold.
- Mount springs 21.

Spring hooks (50305017000) (☞ p. 284)



- Mount and tighten screw 22.

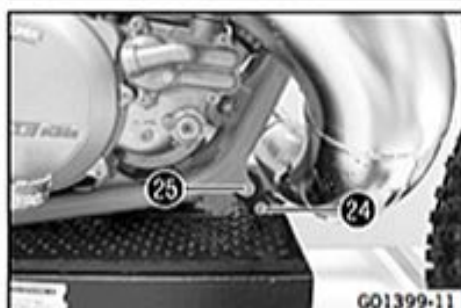
#### Guideline

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

- Tighten screw 23.

#### Guideline

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



- Mount and tighten screw 24.

#### Guideline

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

- Tighten screw 25.

#### Guideline

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

- Install the main silencer. (☞ p. 97)
- Remove screw cap 26 and fill up with gear oil.

Gear oil	0.80 l (0.85 qt.)	Engine oil (15W/50) (☞ p. 280)
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- Mount and tighten screw cap 26.



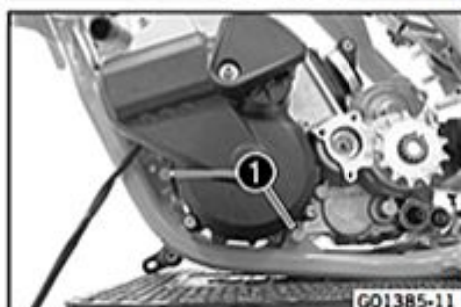
#### (All XC models)

- Position the engine in the frame.



#### Info

The help of an assistant is useful in this step.  
Make sure that the engine is sufficiently secured against falling over.  
Protect the frame and attachments against damage.



- Mount screws 1, but do not tighten yet.

#### Guideline

Engine bracket screw	M10	60 Nm (44.3 lbf ft)
----------------------	-----	------------------------





- Position the swingarm.
- Mount the swingarm pivot.
- Mount nut 2, but do not tighten it yet.

## Guideline

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



- Position the engine braces.
- Mount and tighten fittings 3.

## Guideline

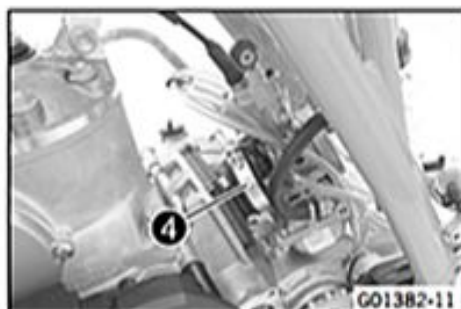
Screw, engine brace	M8	33 Nm (24.3 lbf ft)	Loctite® 2701™
---------------------	----	------------------------	----------------

- Tighten screws 1 and nut 2.

## Guideline

Engine bracket screw	M10	60 Nm (44.3 lbf ft)
Nut, swingarm pivot	M16x1.5	100 Nm (73.8 lbf ft)

- Slide the carburetor into the intake flange.
- Position and tighten hose clip 4.



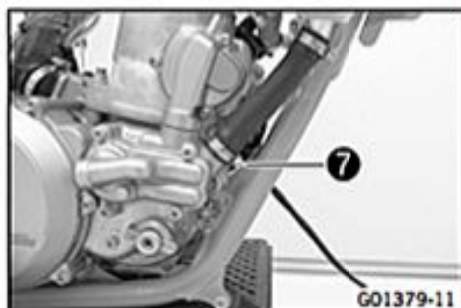
- Mount the radiator hose.
- Position and tighten hose clip 5.



- Mount the radiator hose.
- Position and tighten hose clip 6.

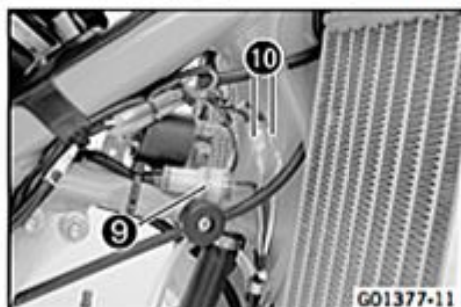


- Mount the radiator hose.
- Position and tighten hose clip 7.





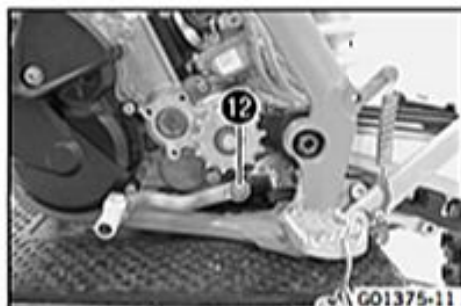
- Mount spring 8.



- Connect plug-in connector 9.
- Connect plug-in connectors 10.
- Route the cable without tension and secure with cable tie(s).



- Mount the spark plug connector.
- Mount vent hose 11.



- Position the shift lever.
- Mount and tighten screw 12 with the washers.

## Guideline

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



- Mount the chain.
- Connect the chain with connecting link 13.



- Position the clutch slave cylinder with the O-ring.
- Mount and tighten screws 14.

## Guideline

Screw, slave cylinder of the clutch	M6	10 Nm (7.4 lbf ft)	
-------------------------------------	----	-----------------------	--





- Position the engine sprocket cover.
- Mount and tighten screw 15.

## Guideline

Screw, slave cylinder of the clutch	M6	10 Nm (7.4 lbf ft)
-------------------------------------	----	-----------------------



- Mount and tighten screw 16.

## Guideline

Remaining screws, chassis	M8	25 Nm (18.4 lbf ft)
---------------------------	----	------------------------



- Remove the fixation and position the subframe.



## Info

Watch out for the intake flange.

- Mount and tighten screw 17.

## Guideline

Screw, subframe	M8	35 Nm (25.8 lbf ft)	Loctite® 2701™
-----------------	----	------------------------	----------------

- Remove screw 18.
- Mount and tighten screw 18.

## Guideline

Screw, subframe	M8	35 Nm (25.8 lbf ft)	Loctite® 2701™
-----------------	----	------------------------	----------------

- Repeat these steps on the opposite side.



- Position and tighten hose clip 19.



- Position the positive cable on the starter motor.
- Mount and tighten nut 20.

## Guideline

Nut, cable on starter motor	M6	4 Nm (3 lbf ft)
-----------------------------	----	-----------------

- Position cover 21.





- Mount the frame protector.

- Tighten screw 22.

Guideline

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

- Mount the cable tie(s).



- Mount the frame protector.

- Tighten screw 23.

Guideline

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

- Mount the cable tie(s).



- Position the exhaust manifold.

- Mount springs 24.

Spring hooks (50305017000) (☛ p. 284)



- Mount and tighten screw 25.

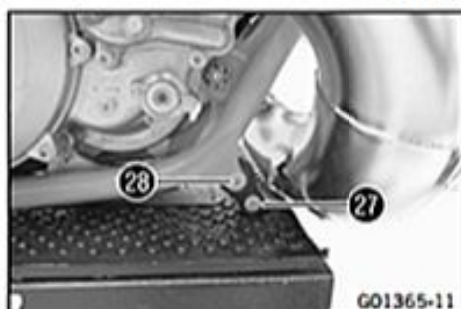
Guideline

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

- Tighten screw 26.

Guideline

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



- Mount and tighten screw 27.

Guideline

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

- Tighten screw 28.

Guideline

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

- Install the main silencer. (☛ p. 97)

- Connect the negative cable of the battery. (☛ p. 123)

- Remove screw cap 29 and fill up with gear oil.

Gear oil	0.80 l (0.85 qt.)	Engine oil (15W/50) (☛ p. 280)
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- Mount and tighten screw cap 29.



## Finishing work

- Remove the motorcycle from the lift stand. (☛ p. 10)
- Refill with coolant. (☛ p. 239)
- Go for a short test ride.
- Check the engine for leak tightness.
- Check the gear oil level. (☛ p. 243)
- Check the coolant level. (☛ p. 238)

## 16.3 Engine disassembly

## 16.3.1 Clamping the engine into the engine work stand



- Mount special tool ① on engine work stand ②.

Engine assembly stand (61229001000) (☛ p. 288)

Engine fixing arm (56029002030) (☛ p. 286)

- Mount the engine on special tool ①.

## 16.3.2 Draining the gear oil



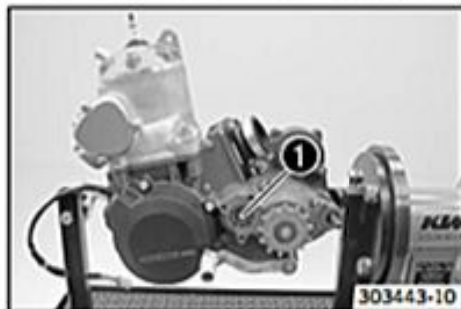
- Remove gear oil drain plug ① with the magnet and seal ring.
- Completely drain the gear oil.

## 16.3.3 Removing the clutch push rod



## (All XC models)

- Remove clutch push rod ①.



## (250 SX)

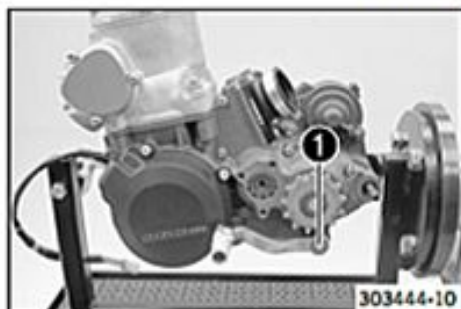
- Remove clutch push rod ①.

## 16.3.4 Removing the shift lever



(All XC models)

- Remove screw ① with the washers. Take off the shift lever.



(250 SX)

- Remove screw ① with the washers. Take off the shift lever.

## 16.3.5 Removing the engine sprocket



(All XC models)

- Remove lock ring ①. Take off the engine sprocket.



(250 SX)

- Remove lock ring ①. Take off the engine sprocket.

## 16.3.6 Removing the spacer



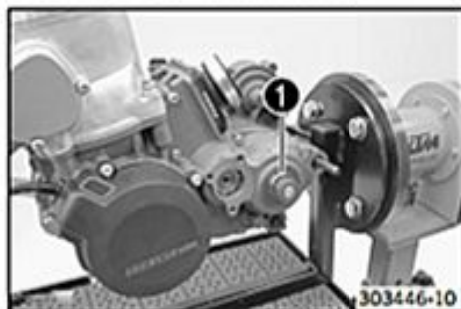
(All XC models)

- Remove spacer ①.



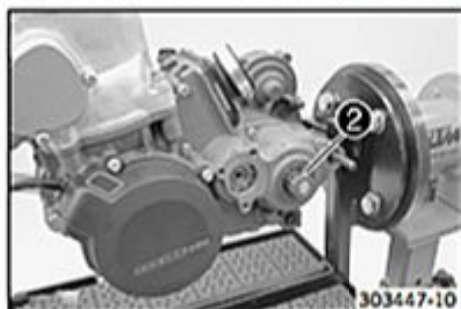


- Remove O-ring **2**.



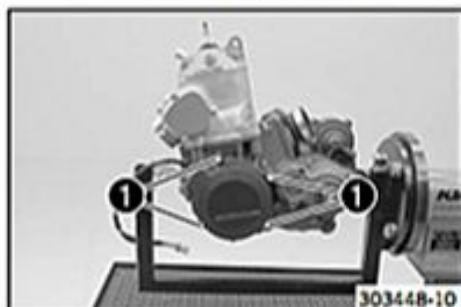
(250 SX)

- Remove spacer **1**.



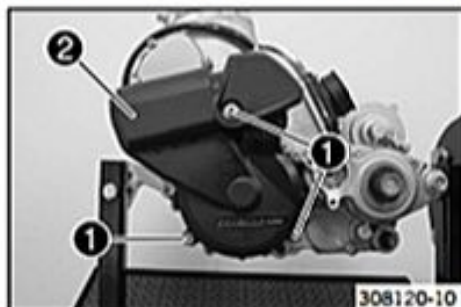
- Remove O-ring **2**.

## 16.3.7 Removing the alternator cover (250 SX)



- Remove screws **1**. Remove the alternator cover.

## 16.3.8 Removing the starter motor (All XC models)



- Remove screws **1**.
- Take off cover **2**.



- Remove screws 3.
- Remove starter motor.



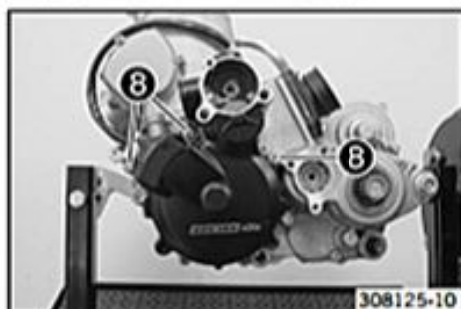
- Remove screws 4 and 5.
- Remove the cover.



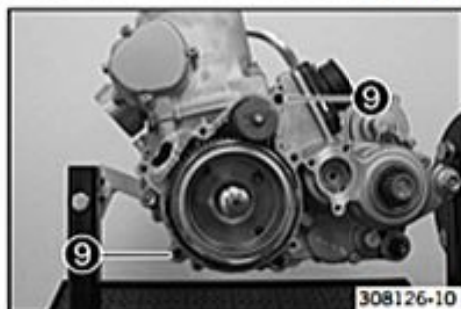
- Remove gasket and dowels 6.



- Remove starter idler gear 7.



- Remove screws 8.
- Remove the alternator cover.



- Remove gasket and dowels 9.



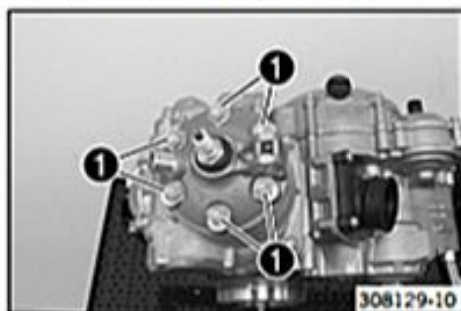
- Take off Bendix 10.

## 16.3.9 Removing the kick starter



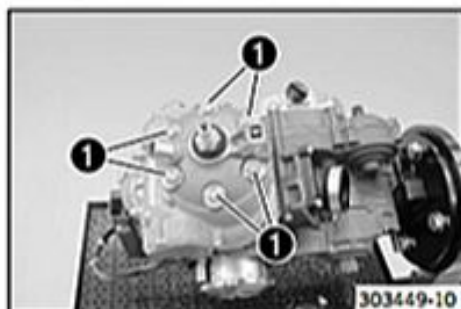
- Remove screw 1 with the washer.
- Remove the kick starter.

## 16.3.10 Removing the cylinder head



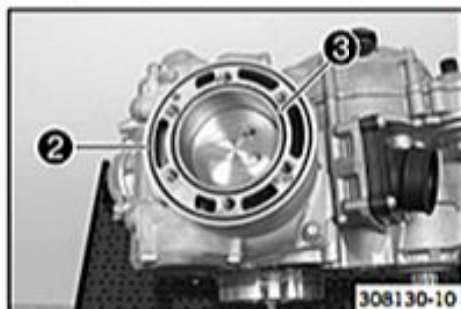
(All XC models)

- Alternately loosen screws 1 and remove them.
- Remove the cylinder head.



(250 SX)

- Alternately loosen screws 1 and remove them.
- Remove the cylinder head.



(250 XC US/EU)

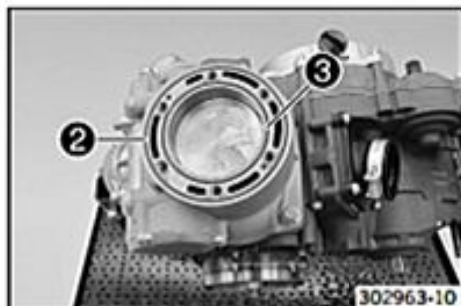
- Remove O-rings 2 and 3.





(250 SX)

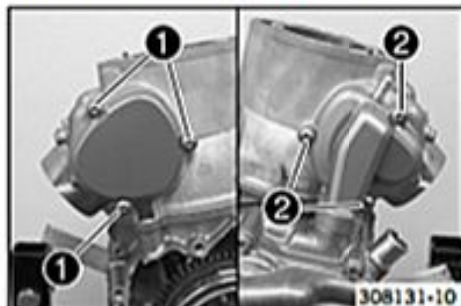
- Remove O-rings 2 and 3.



(300 XC US/EU)

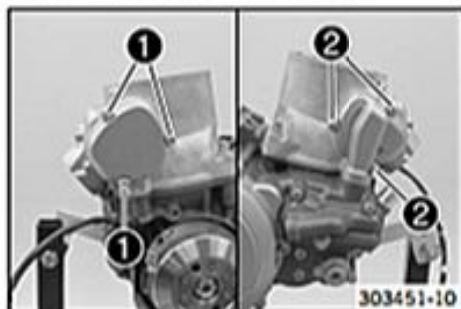
- Remove O-rings 2 and 3.

### 16.3.11 Removing the cylinder



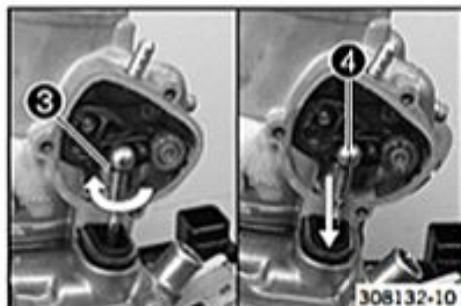
(All XC models)

- Remove screws 1 and 2.
- Take off both covers.

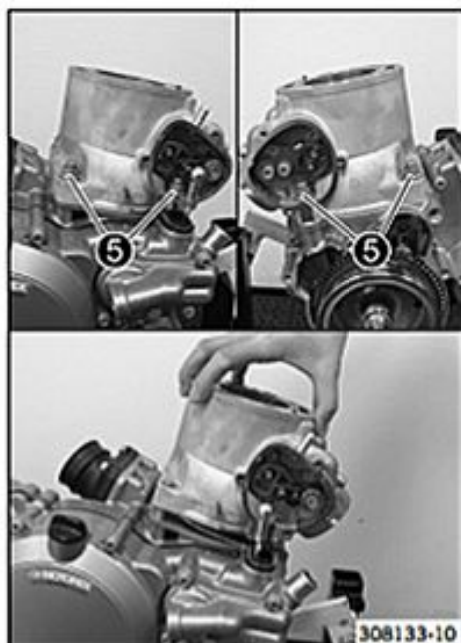


(250 SX)

- Remove screws 1 and 2.
- Take off both covers.



- Remove retainer 3 of ball socket 4.
- Pull off the ball socket.
- Remove the gaskets on both sides.



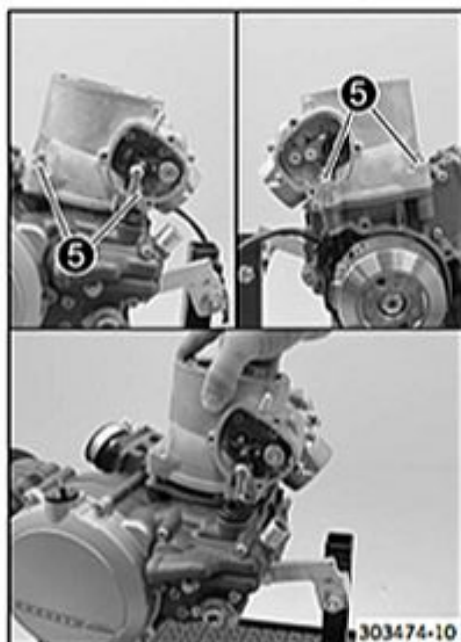
(All XC models)

- Remove nuts ⑤.

**Info**

Raise the cylinder slightly to be able to remove the front nuts.

- Carefully slide the cylinder up and take it off.



(250 SX)

- Remove nuts ⑤.

**Info**

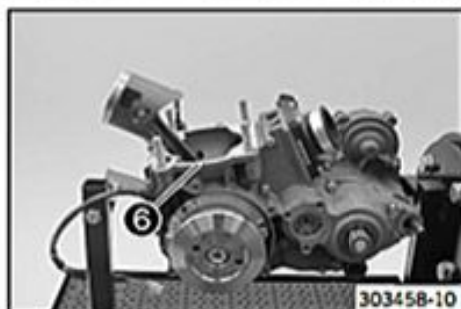
Raise the cylinder slightly to be able to remove the front nuts.

- Carefully slide the cylinder up and take it off.



(250 XC US/EU)

- Take off gasket ⑥.



(250 SX)

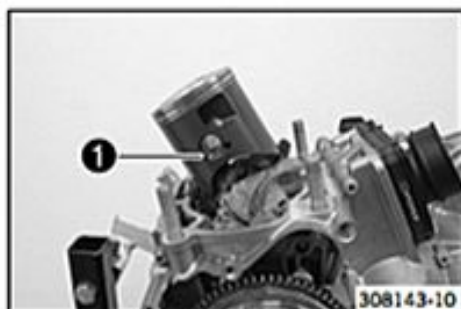
- Take off gasket ⑥.



(300 XC US/EU)

- Take off gasket ⑥.

## 16.3.12 Removing the piston



(250 XC US/EU)

- Uncover the crankcase.
- Remove the piston pin retainer ①.
- Remove piston pin.
- Take off the piston.



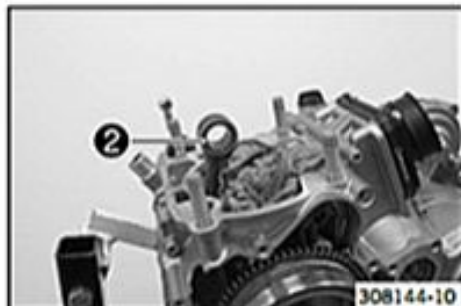
(250 SX)

- Uncover the crankcase.
- Remove the piston pin retainer ①.
- Remove piston pin.
- Take off the piston.



(300 XC US/EU)

- Uncover the crankcase.
- Remove the piston pin retainer ①.
- Remove piston pin.
- Take off the piston.



- Remove the upper conrod bearing ②.

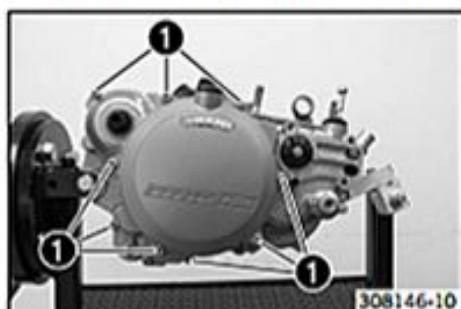


## 16.3.13 Removing the water pump cover



- Remove screws ①.
- Take off the water pump cover.
- Remove the form ring.

## 16.3.14 Removing the clutch cover



- Remove screws ①. Take off the clutch cover.

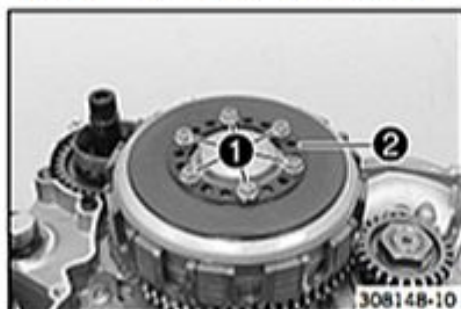
**Info**

Ensure that the kick starter shaft remains in the engine case.



- Remove the dowels and clutch cover gasket ②.

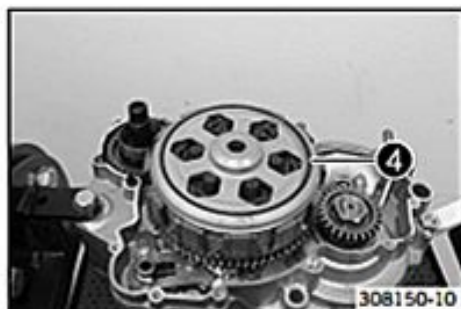
## 16.3.15 Removing the clutch discs



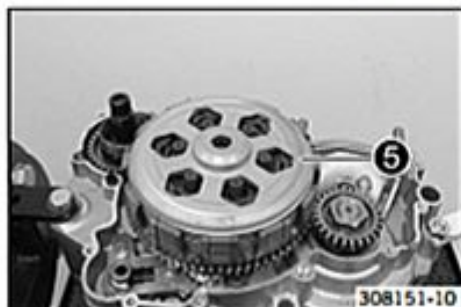
- Remove screws ①.
- Take off spring retainer ②.



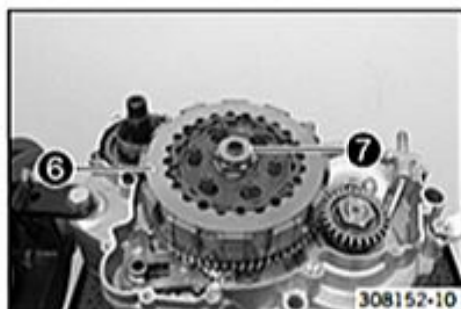
- Take off spring washer ③.



- Take off pretension ring **4**.

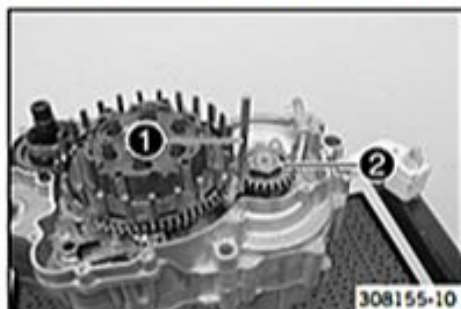


- Take off pressure cap **5**.



- Remove clutch disc pack **6** entirely.
- Remove clutch pressure piece **7**.

### 16.3.16 Removing the clutch basket



- Hold the primary gear using special tool **1**.

Gear segment (56012004000) (☞ p. 286)

- Remove nut **2** with the washer.



#### Info

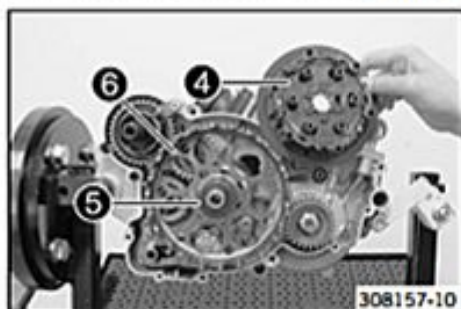
Left-handed thread!



- Bend up the lock washer.
- Hold the inner clutch hub with the special tool. Loosen nut **3**.

Clutch holder (51129003000) (☞ p. 285)

- Remove the nut with the lock washer.



- Take off inner clutch hub **4** and washer **5**.



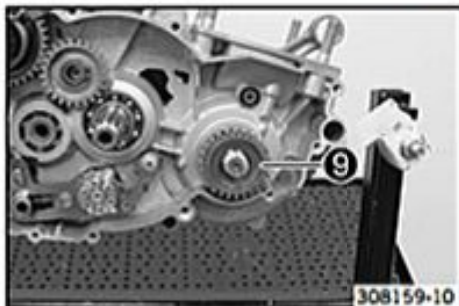
#### Info

The washer usually sticks to the inner clutch hub.

- Take off clutch basket **6**.

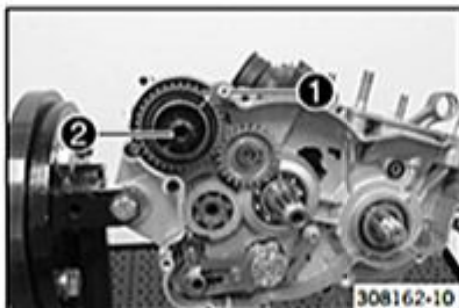


- Take off needle bearing 7 and collar bushing 8.



- Take off primary gear 9.
- Remove the distance sleeve.

### 16.3.17 Removing the kick starter shaft



- Remove screw 1.
- Remove kick starter shaft 2 with the washer.



#### Info

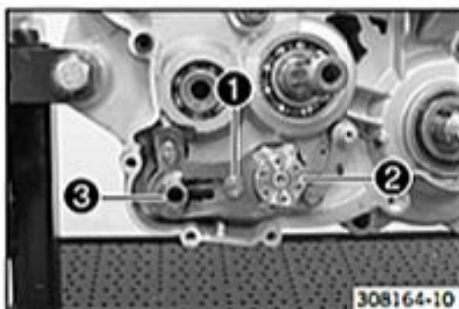
Turn the kick starter shaft slightly to the left.

### 16.3.18 Removing the intermediate kick starter gear



- Remove lock ring 1.
- Take off intermediate kick starter gear 2 with the washer.

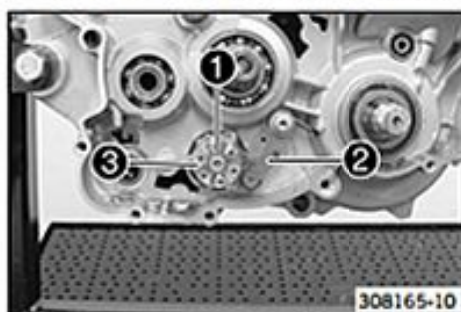
### 16.3.19 Removing the shift shaft



- Push sliding plate 1 away from the shift drum locating unit 2. Remove shift shaft 3 with the washer.



## 16.3.20 Removing the shift drum locating unit



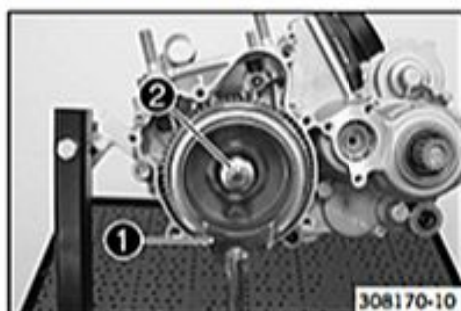
- Remove screw ①.
- Push away locking lever ② from shift drum locating unit ③ and remove the shift drum locating unit.
- Relieve tension from the locking lever.

## 16.3.21 Removing the locking lever



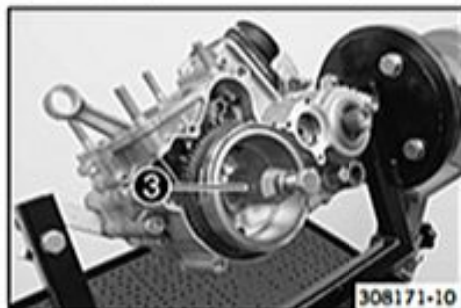
- Remove screw ①.
- Take off locking lever ② with the sleeve and spring.

## 16.3.22 Removing the rotor

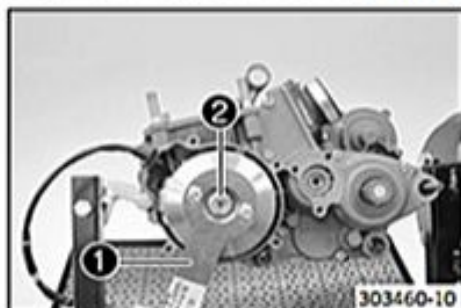


(All XC models)

- Hold the rotor with special tool ①.  
Holding spanner, rotor (55129001000) (☛ p. 286)
- Remove nut ② and the washer.

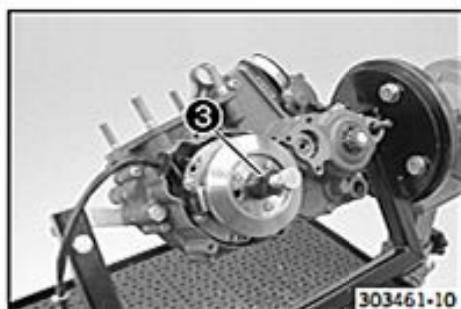


- Mount special tool ③, apply counterpressure, and pull off the rotor by screwing in the screw.  
Extractor (58012009000) (☛ p. 287)



(250 SX)

- Hold the rotor with special tool ①.  
Holding spanner (54629012100) (☛ p. 285)
- Remove nut ② and the washer.



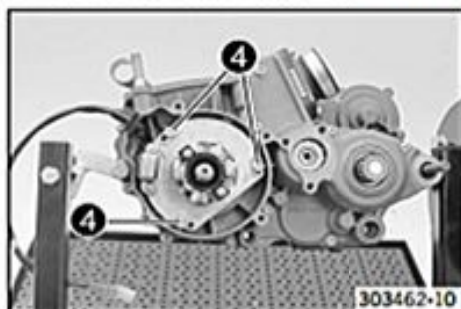
- Mount special tool ③, apply counterpressure, and pull off the rotor by screwing in the screw.

Extractor (54629009044) (☛ p. 285)



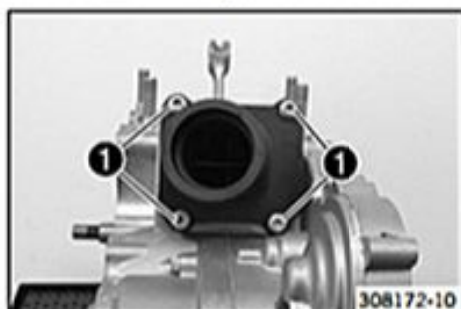
#### Info

Left-handed thread!



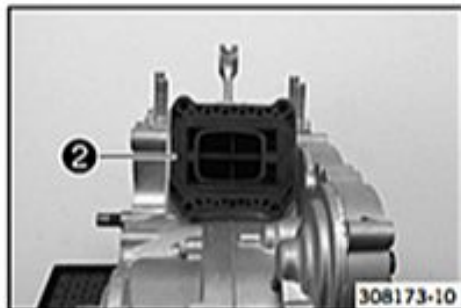
- Remove screws ④.
- Pull the cable support sleeve out of the engine case and take off the stator with the ignition pulse generator.

### 16.3.23 Removing the reed valve housing



(All XC models)

- Remove screws ①.
- Take off the intake flange.

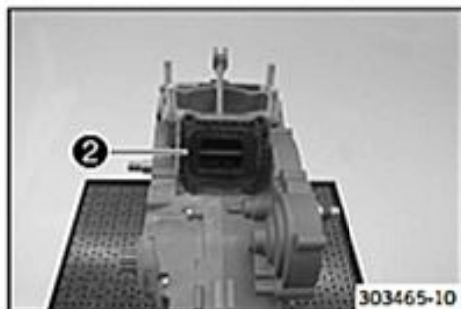


- Remove reed valve housing ②.
- Take off the gasket.



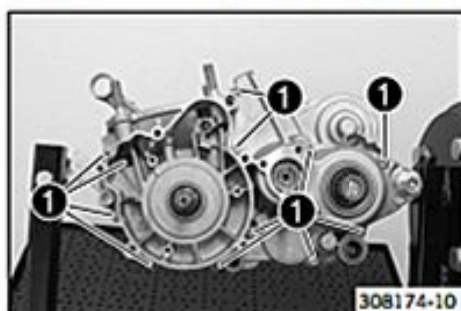
(250 SX)

- Remove screws ①.
- Take off the intake flange.



- Remove reed valve housing ②.
- Take off the gasket.

## 16.3.24 Removing the left engine case section



(All XC models)

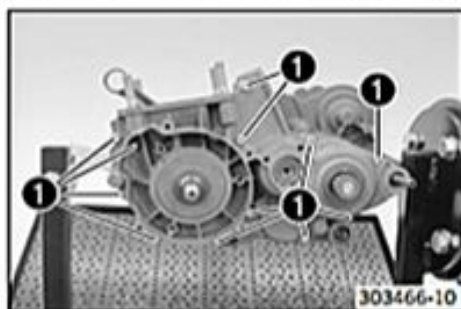
- Remove screws ①.
- Tilt the left section of the engine case upward and remove the screw connections of the engine fixing arm.
- Loosen the left section of the engine case by striking it lightly with a plastic hammer and remove it.



## Info

Do not pry it apart with screwdrivers since the sealing areas are easily damaged.

- Remove engine case gasket ②.



(250 SX)

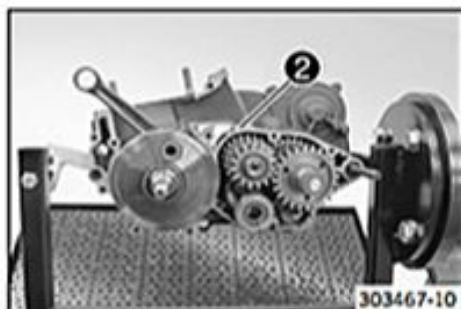
- Remove screws ①.
- Tilt the left section of the engine case upward and remove the screw connections of the engine fixing arm.
- Loosen the left section of the engine case by striking it lightly with a plastic hammer and remove it.



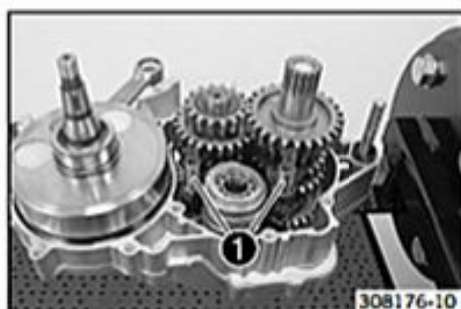
## Info

Do not pry it apart with screwdrivers since the sealing areas are easily damaged.

- Remove engine case gasket ②.



## 16.3.25 Removing the shift rails



(All XC models)

- Remove shift rails ① with the springs.

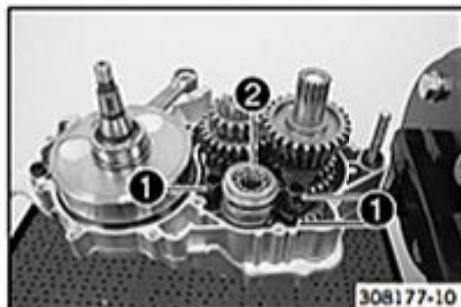




(250 SX)

- Remove shift rails **1** with the springs.

## 16.3.26 Removing the shift drum



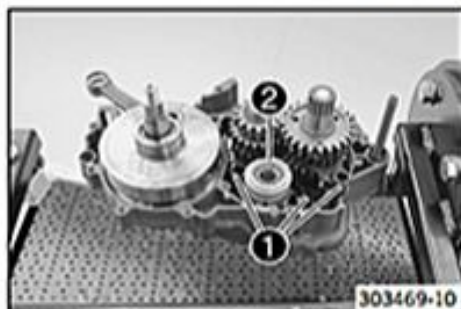
(All XC models)

- Tilt shift forks **1** to the side.

**Info**

Do not misplace the shift rollers.

- Remove shift drum **2**.



(250 SX)

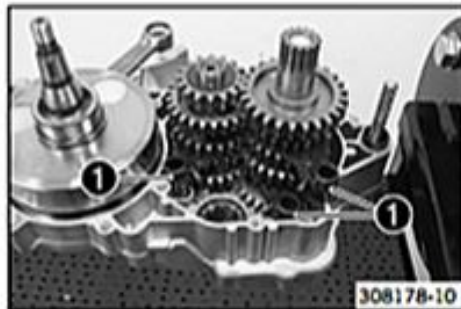
- Tilt shift forks **1** to the side.

**Info**

Do not misplace the shift rollers.

- Remove shift drum **2**.

## 16.3.27 Removing the shift forks

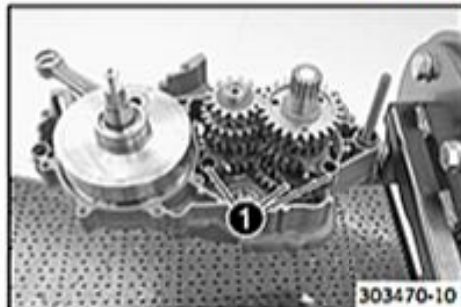


(All XC models)

- Remove shift forks **1**.

**Info**

Do not misplace the shift rollers.



(250 SX)

- Remove shift forks **1**.

**Info**

Do not misplace the shift rollers.

## 16.3.28 Removing the transmission shafts



(All XC models)

- Pull both transmission shafts **1** out of the bearing seats together.

**Info**

The stop disks of the transmission shafts usually stick to the bearings.



(250 SX)

- Pull both transmission shafts **1** out of the bearing seats together.

**Info**

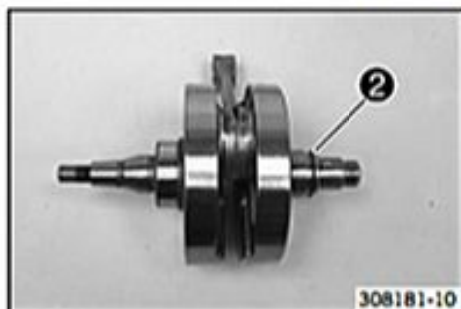
The stop disks of the transmission shafts usually stick to the bearings.

## 16.3.29 Removing the crankshaft

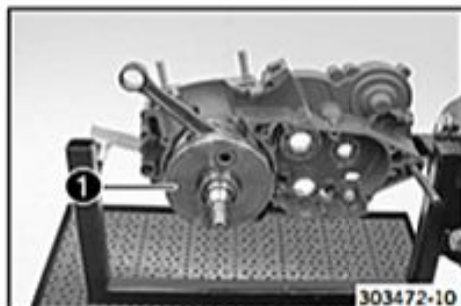


(All XC models)

- Take out crankshaft **1**.

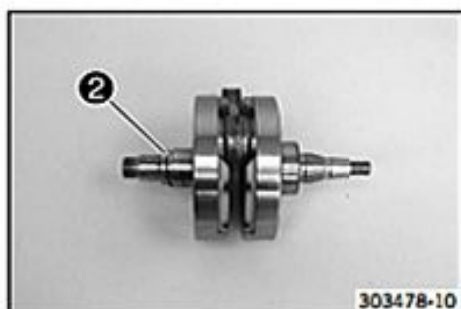


- Remove O-ring **2**.



(250 SX)

- Take out crankshaft **1**.



- Remove O-ring 2.

## 16.4 Working on individual parts

### 16.4.1 Work on the right section of the engine case



- Remove all dowels.
- Remove shaft seal ring 1 of the crankshaft.
- Remove screws 2. Remove the bearing retainers.
- Clean the engine case section thoroughly.
- Warm the engine case section in an oven.

#### Guideline

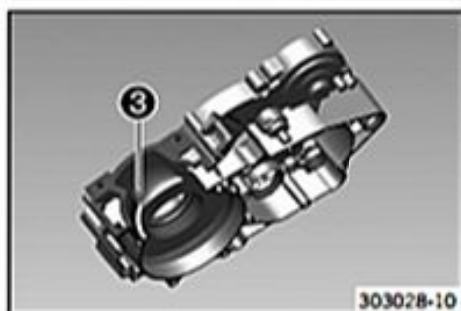
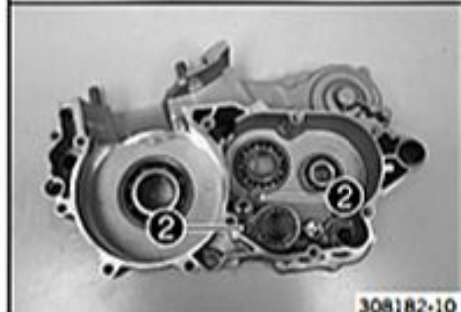
150 °C (302 °F)

- Knock the engine case section against a level wooden plate. This will cause the bearings to drop out of the bearing seats.



#### Info

Any bearings that remain in the engine case section must be removed using a suitable tool.



- Blow out lubrication bore 3 with compressed air and check that it is clear.
- Insert the new cold bearings in the bearing seats of the heated section of the engine case; if necessary, use a suitable press drift to push them all the way in and make them flush.



#### Info

When pressing the bearing in, ensure that the engine case section is level to prevent damage.

Only press the bearings in via the outer ring; otherwise, the bearings will be damaged when they are pressed in.

- After the engine case section has cooled, check that the bearings are firmly seated.



#### Info

If the bearings are not firmly seated after cooling, it is likely that they will rotate in the engine case when warm. In this case, the engine case must be renewed.

- Press in shaft seal ring 1 of the crankshaft so it is flush with the open side facing in.
- Mount and tighten screws 2 with the bearing retainers.

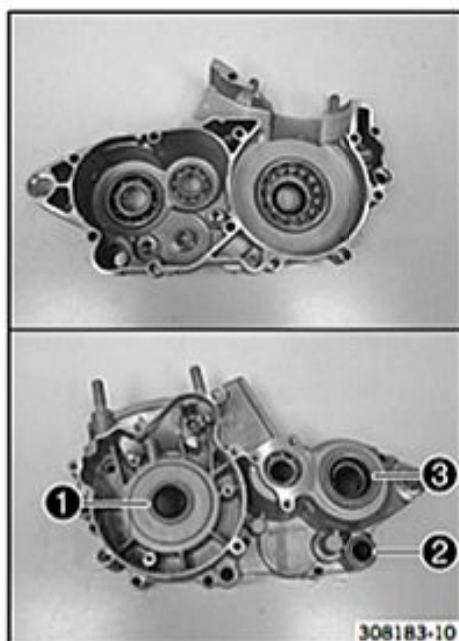
#### Guideline

Screw, bearing retainer	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
-------------------------	----	-----------------------	---------------

- Mount the dowels.



## 16.4.2 Work on the left section of the engine case



## (All XC models)

- Remove all dowels.
- Remove shaft seal ring ① of the crankshaft, ② shift shaft and ③ counter-shaft.
- Clean the engine case section thoroughly.
- Warm the engine case section in an oven.

## Guideline

150 °C (302 °F)

- Knock the engine case section against a level wooden plate. This will cause the bearings to drop out of the bearing seats.



## Info

Any bearings that remain in the engine case section must be removed using a suitable tool.

- Insert the new cold bearings in the bearing seats of the heated section of the engine case; if necessary, use a suitable press drift to push them all the way in and make them flush.



## Info

When pressing the bearing in, ensure that the engine case section is level to prevent damage.

Only press the bearings in via the outer ring; otherwise, the bearings will be damaged when they are pressed in.

- After the engine case section has cooled, check that the bearings are firmly seated.



## Info

If the bearings are not firmly seated after cooling, it is likely that they will rotate in the engine case when warm. In this case, the engine case must be renewed.

- Press in shaft seal ring ① of the crankshaft so it is flush with the open side facing in.
- Press in shaft seal ring ② of the shift shaft so it is flush with the open side facing in.
- Press in shaft seal ring ③ of the countershaft so it is flush with the open side facing in.

## (250 SX)

- Remove all dowels.
- Remove shaft seal ring ① of the crankshaft, ② shift shaft and ③ counter-shaft.
- Clean the engine case section thoroughly.
- Warm the engine case section in an oven.

## Guideline

150 °C (302 °F)

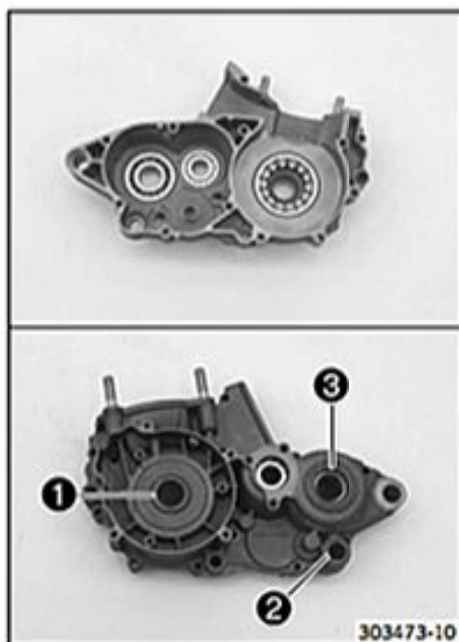
- Knock the engine case section against a level wooden plate. This will cause the bearings to drop out of the bearing seats.



## Info

Any bearings that remain in the engine case section must be removed using a suitable tool.

- Insert the new cold bearings in the bearing seats of the heated section of the engine case; if necessary, use a suitable press drift to push them all the way in and make them flush.



**Info**

When pressing the bearing in, ensure that the engine case section is level to prevent damage.

Only press the bearings in via the outer ring; otherwise, the bearings will be damaged when they are pressed in.

- After the engine case section has cooled, check that the bearings are firmly seated.

**Info**

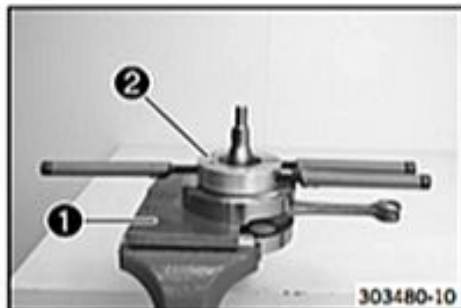
If the bearings are not firmly seated after cooling, it is likely that they will rotate in the engine case when warm. In this case, the engine case must be renewed.

- Press in shaft seal ring ① of the crankshaft so it is flush with the open side facing in.
- Press in shaft seal ring ② of the shift shaft so it is flush with the open side facing in.
- Press in shaft seal ring ③ of the countershaft so it is flush with the open side facing in.
- Blow out lubrication bore ④ with compressed air and check that it is clear.
- Mount the dowels.



303029-10

### 16.4.3 Removing the crankshaft bearing inner race



303480-10

**(All XC models)**

- Fixate the crankshaft in the vice with special tool ①.

Separator plate (54829009000) (☞ p. 286)

**Info**

Use soft jaws.

- Warm up special tool ②.

**Guideline**

150 °C (302 °F)

Tool for inner bearing race (58429037040) (☞ p. 287)

- Push the warmed up special tool ② onto the crankshaft bearing inner race, press firmly together and pull jointly from the crankshaft.

**(250 SX)**

- Fixate the crankshaft in the vice with special tool ①.

Separator plate (54829009000) (☞ p. 286)

**Info**

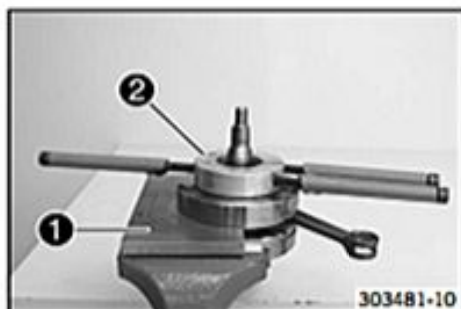
Use soft jaws.

- Warm up special tool ②.

**Guideline**

150 °C (302 °F)

Tool for inner bearing race (58429037040) (☞ p. 287)

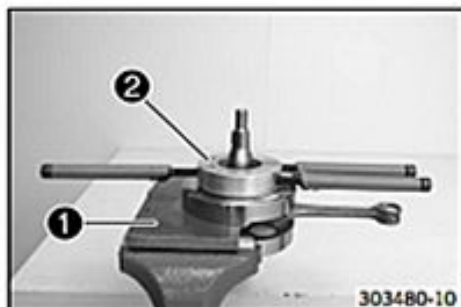


303481-10



- Push the warmed up special tool ② onto the crankshaft bearing inner race, press firmly together and pull jointly from the crankshaft.

#### 16.4.4 Installing the crankshaft bearing inner race



(All XC models)

- Fixate the crankshaft in the vice with special tool ①.

Separator plate (54829009000) (☞ p. 286)



#### Info

Use soft jaws.

- Heat the crankshaft bearing inner race in special tool ② and mount together.

Guideline

120 °C (248 °F)

Tool for inner bearing race (58429037040) (☞ p. 287)

- Ensure that the new crankshaft bearing inner race is flush.

(250 SX)

- Fixate the crankshaft in the vice with special tool ①.

Separator plate (54829009000) (☞ p. 286)



#### Info

Use soft jaws.

- Heat the crankshaft bearing inner race in special tool ② and mount together.

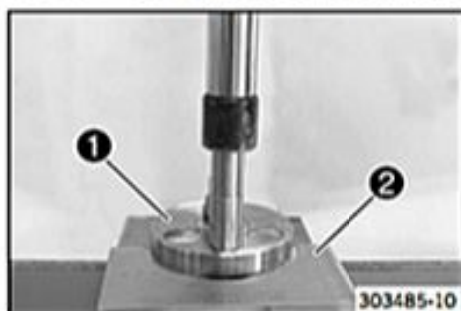
Guideline

120 °C (248 °F)

Tool for inner bearing race (58429037040) (☞ p. 287)

- Ensure that the new crankshaft bearing inner race is flush.

#### 16.4.5 Changing the connecting rod, conrod bearing, and crank pin



Main work  
(All XC models)

- Position crankshaft ① in the press using special tool ②.

Separator plate (54829009000) (☞ p. 286)

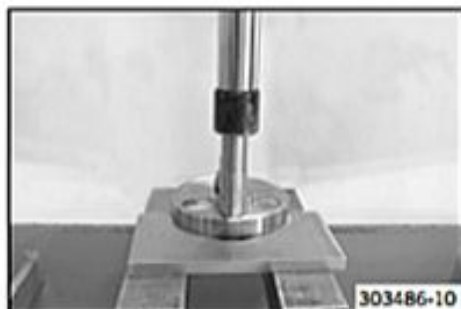
- Press the crank pin out of the upper crank web with a suitable tool.



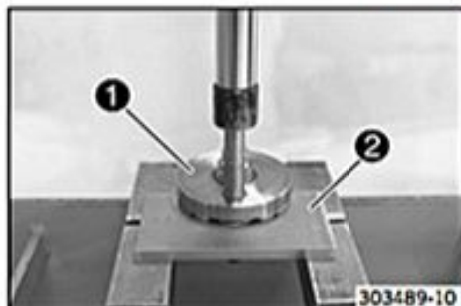
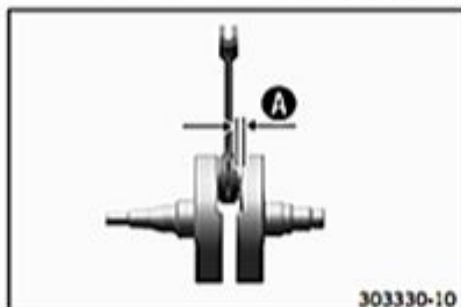
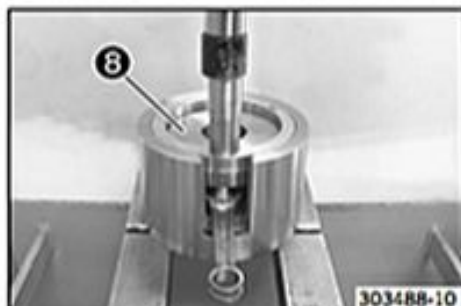
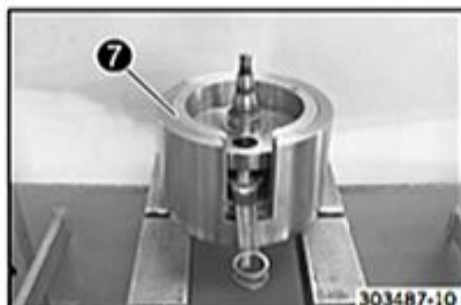
#### Info

Hold the lower crank web.

- Remove the connecting rod and bearing.
- Press the crank pin out of the lower crank web.







- Press in the new crank pin (3) as far as possible.

- Mount new bearing (4) with washers (5) and connecting rod (6).

**Info**

Thoroughly oil the bearing.

- Position special tool (7) on the press.

Pressing tool for crankshaft, complete (75029047000) (☞ p. 288)

Insert for crankshaft pressing tool (54829108000) (☞ p. 286)

- Insert the crank web with connecting rod and bearing. Position the second crank web.

- Position special tool (8) with the heel pointing down.

Insert for crankshaft pressing tool (54829108000) (☞ p. 286)

- Press in the upper crank web as far as possible.

**Info**

The press mandrel must be positioned over the crank pin.

- Take the crankshaft out of the special tool and check that the connecting rod can move freely.

- Measure axial play (A) between the connecting rod and the crank webs using the special tool.

Feeler gauge (59029041100) (☞ p. 287)

Connecting rod - axial play of lower conrod bearing	0.60... 0.70 mm (0.0236... 0.0276 in)
---	---------------------------------------

- If the specification is not reached:
  - Correct it so the dimension is equal to the specified value.

**(250 SX)**

- Position crankshaft (1) in the press using special tool (2).

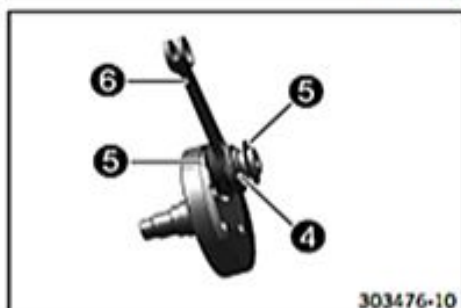
Separator plate (54829009000) (☞ p. 286)

- Press the crank pin out of the upper crank web with a suitable tool.

**Info**

Hold the lower crank web.

- Remove the connecting rod and bearing.



- Press the crank pin out of the lower crank web.

- Press in the new crank pin (3) as far as possible.

- Mount new bearing (4) with washers (5) and connecting rod (6).

**Info**

Thoroughly oil the bearing.

- Position special tool (7) on the press.

Pressing tool for crankshaft, complete (75029047000) (☞ p. 288)

Insert for crankshaft pressing tool (54829008000) (☞ p. 285)

- Insert the crank web with connecting rod and bearing. Position the second crank web.

- Position special tool (8) with the heel pointing down.

Insert for crankshaft pressing tool (54829008000) (☞ p. 285)

- Press in the upper crank web as far as possible.

**Info**

The press mandrel must be positioned over the crank pin.

- Take the crankshaft out of the special tool and check that the connecting rod can move freely.

- Measure axial play (A) between the connecting rod and the crank webs using the special tool.

Feeler gauge (59029041100) (☞ p. 287)

Connecting rod - axial play of lower conrod bearing

0.60... 0.70 mm (0.0236... 0.0276 in)

- If the specification is not reached:

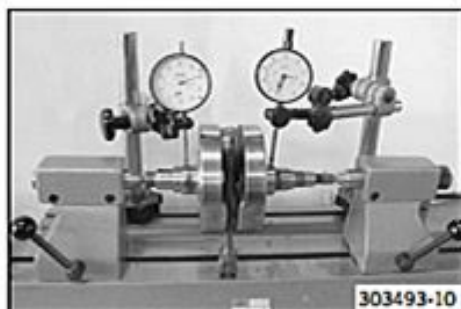
- Correct it so the dimension is equal to the specified value.

**Finishing work**

- Check the crankshaft run-out at the bearing pin. (☞ p. 176)



## 16.4.6 Checking the crankshaft run-out at the bearing pin

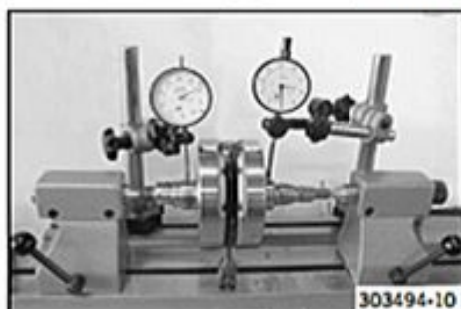


(All XC models)

- Position the crankshaft on a roller block.
- Turn the crankshaft slowly.
- Check the crankshaft run-out on both bearing pins.

Crankshaft - run-out at bearing pin	$\leq 0.03 \text{ mm } (\leq 0.0012 \text{ in})$
-------------------------------------	--

- If the crankshaft run-out at the bearing pin is larger than the specification:
  - Align the crankshaft.



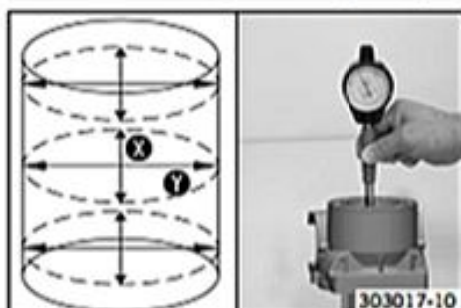
(250 SX)

- Position the crankshaft on a roller block.
- Turn the crankshaft slowly.
- Check the crankshaft run-out on both bearing pins.

Crankshaft - run-out at bearing pin	$\leq 0.03 \text{ mm } (\leq 0.0012 \text{ in})$
-------------------------------------	--

- If the crankshaft run-out at the bearing pin is larger than the specification:
  - Align the crankshaft.

## 16.4.7 Checking/measuring the cylinder



- Check the cylinder bearing surface for damage.
  - If the cylinder bearing surface is damaged:
    - Change the cylinder and piston.
- Measure the cylinder diameter at several locations on the X- and Y-axes using a micrometer to identify oval wear.

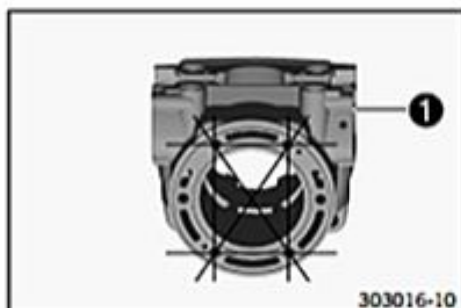
Guideline

Cylinder - drill hole diameter (250 SX, 250 XC US/EU)	
Size I	66.400... 66.412 mm (2.61417... 2.61464 in)
Size II	66.412... 66.425 mm (2.61464... 2.61515 in)
Cylinder - drill hole diameter (300 XC US/EU)	
Size I	72.000... 72.012 mm (2.83464... 2.83511 in)
Size II	72.012... 72.025 mm (2.83511... 2.83562 in)



Info

The cylinder size ① is labeled on the right side of the cylinder.



- Using a straightedge and the special tool, check the sealing area of the cylinder head for distortion.

Feeler gauge (59029041100) (☛ p. 287)
---------------------------------------

Cylinder/cylinder head - distortion of sealing area	$\leq 0.10 \text{ mm } (\leq 0.0039 \text{ in})$
---	--

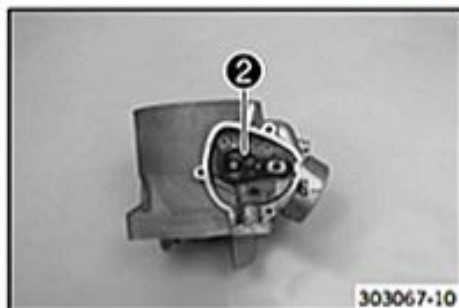
- If the measured value does not meet specifications:
  - Change the cylinder.



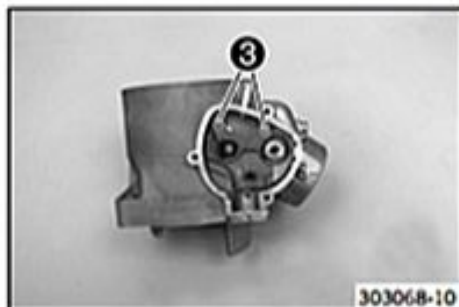
## 16.4.8 Removing the exhaust control



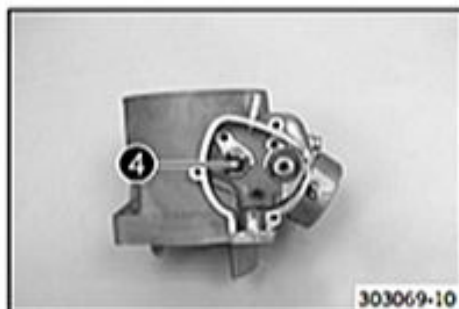
- Remove screw **1** with the bushing and spring.



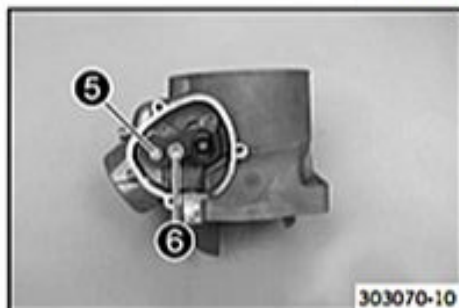
- Take off gear segment **2**.



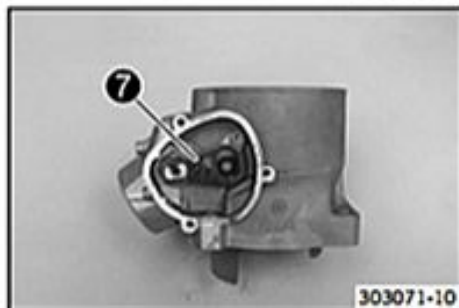
- Remove screws **3**.
- Remove the retaining bracket.



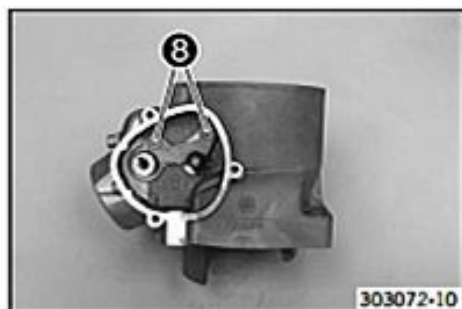
- Remove control shaft **4**.



- Remove screw **5**.
- Remove screw **6** with the washer.
- Take off the stop plate.



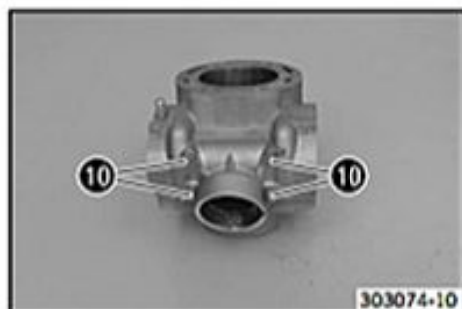
- Take off gear segment **7**.



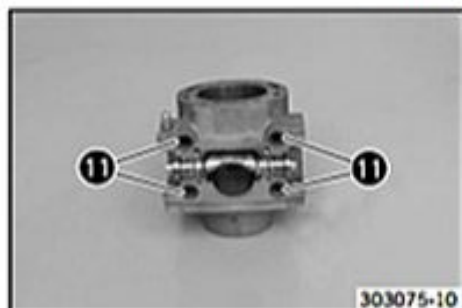
- Remove screws **8**.
- Take off the retaining bracket.



- Remove control shaft **9**.

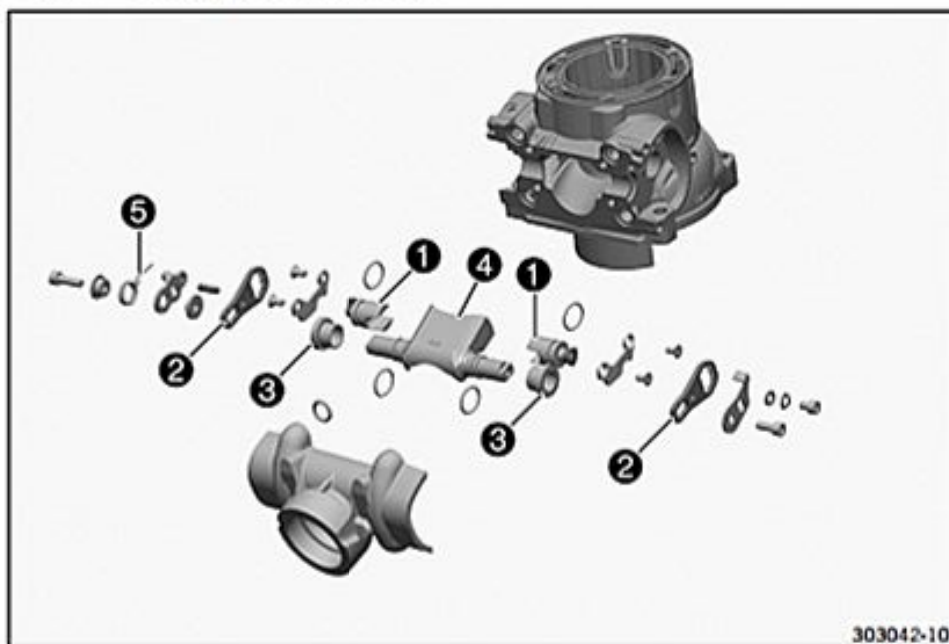


- Remove screws **10**.
- Take off the exhaust flange.



- Remove O-rings **11**.
- Take off the control flap.

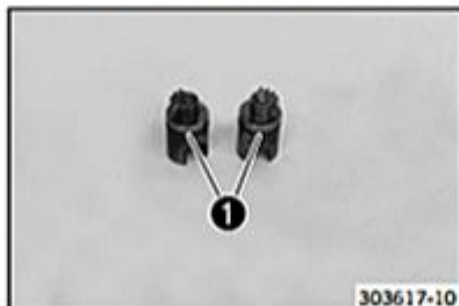
## 16.4.9 Checking the exhaust control



303042-10

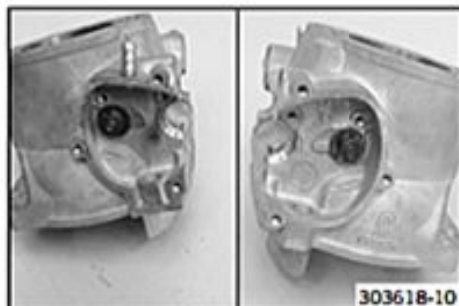
- Check control shafts **1** for damage and wear.
  - If there is damage or wear:
    - Change the control shaft.
- Check gear segments **2** for damage and wear.
  - If there is damage or wear:
    - Change the gear segments.
- Check bearing sleeves **3** for damage and wear.
  - If there is damage or wear:
    - Change the bearing sleeves.
- Check control flap **4** for damage and wear.
  - If there is damage or wear:
    - Change the control flap.
- Check control springs **5** for damage and wear.
  - If there is damage or wear:
    - Change the spring.

## 16.4.10 Installing the exhaust control



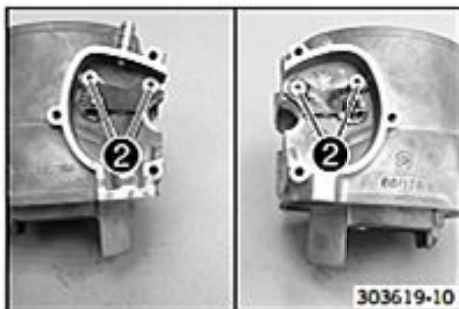
- Mount and grease O-rings **1**.

Long-life grease (☛ p. 282)



- Mount the control shafts.





- Mount the retaining brackets.
- Mount and tighten screws ②.

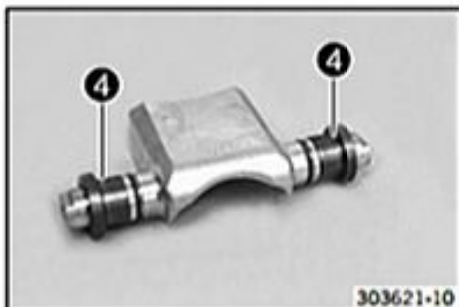
## Guideline

Screw, retaining bracket of exhaust control	M5	7 Nm (5.2 lbf ft)	Loctite® 2701™
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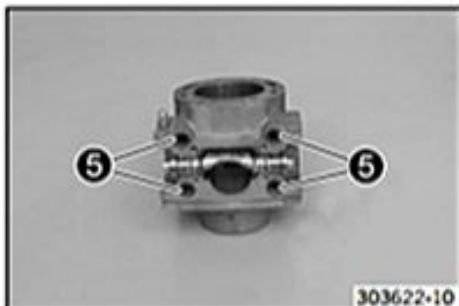
- Mount and grease O-rings ③.

Long-life grease (☛ p. 282)

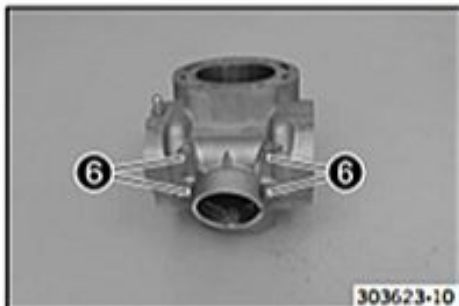


- Mount and grease bearing sleeves ④.

Long-life grease (☛ p. 282)



- Position the control flap.
- Mount O-rings ⑤.



- Degrease the sealing area and coat thinly with sealant.

Loctite® 5910

- Position the exhaust flange.
- Mount and tighten screws ⑥.

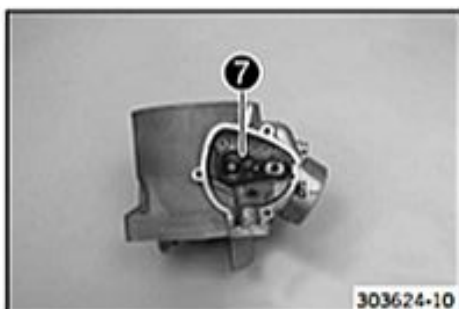
## Guideline

Screw, exhaust flange	M6	8 Nm (5.9 lbf ft)
-----------------------	----	-------------------



## Info

Do not forget the spring hangers.



- Position gear segment ⑦.



- Position the spring with the short leg toward the outside.
- Mount screw **8** with the bushing and spring but do not tighten yet.

## Guideline

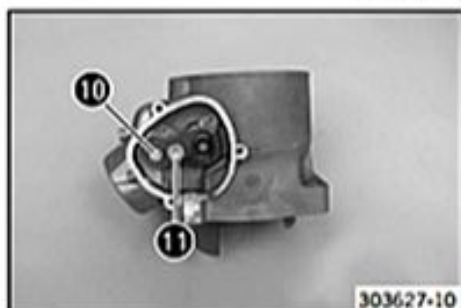
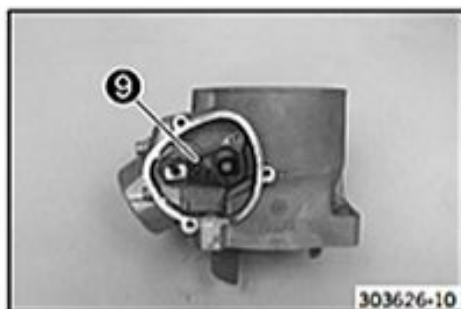
Screw, control flap, exhaust control	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
--------------------------------------	----	-----------------------	---------------

- Attach the spring to the cylinder pin.
- Tighten screw.

## Guideline

Screw, control flap, exhaust control	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
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- Position gear segment **9**.



- Position the stop plate.
- Mount screw **10** but do not tighten yet.
- Mount screw **11** with the washer but do not tighten yet.

**i** Info

The screws are tightened when the Z-distance is adjusted.

## 16.4.11 Cylinder - Nikasil® coating



**Nikasil®** is a surface protection layer for a coating procedure developed by Mahle. The name is derived from the two materials used in this procedure - a layer of nickel into which is embedded the particularly hard silicone carbide. The most important advantages of the **Nikasil®** coating are very good heat conductivity, resulting in much improved performance, low wear, and a lightweight cylinder.

## 16.4.12 Checking/measuring the piston



## (250 SX, 250 XC US/EU)

- Check the piston sliding surface for damage.
  - If the piston sliding surface is damaged:
    - Replace the piston and, if necessary, the cylinder.
- Check that the piston rings move easily in the piston ring grooves.
  - If the piston ring is stiff:
    - Clean the piston ring groove.

**i** Tip

An old piston ring can be used to clean the piston ring groove.

- Check the piston rings for damage.
  - If the piston ring is damaged:

- Change the piston ring.

**Info**

Mount the piston ring with the marking facing upward.

- Check the piston pins for discoloration or signs of wear.
  - If the piston pin shows severe discoloration/signs of wear:
    - Change the piston pin.
- Place the piston pin in the connecting rod and check the seating for play.
  - If the piston pin seating has excessive play:
    - Change the connecting rod and piston pin.

**(300 XC US/EU)**

- Check the piston sliding surface for damage.
  - If the piston sliding surface is damaged:
    - Replace the piston and, if necessary, the cylinder.
- Check that the piston rings move easily in the piston ring grooves.
  - If the piston ring is stiff:
    - Clean the piston ring groove.

**Tip**

An old piston ring can be used to clean the piston ring groove.

- Check the piston rings for damage.
  - If the piston ring is damaged:
    - Change the piston ring.

**Info**

Mount the piston ring with the marking facing upward.

- Check the piston pins for discoloration or signs of wear.
  - If the piston pin shows severe discoloration/signs of wear:
    - Change the piston pin.
- Place the piston pin in the connecting rod and check the seating for play.
  - If the piston pin seating has excessive play:
    - Change the connecting rod and piston pin.

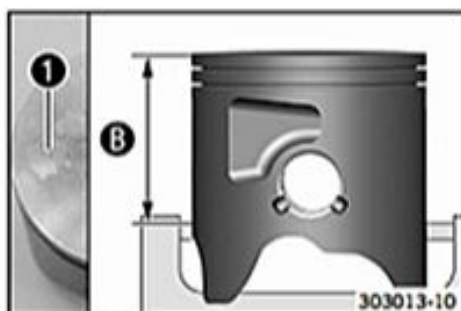
- Measure the piston at the piston skirt, at right angles to the piston pin, at a distance **B**.

**Guideline**

Distance <b>B</b>	50 mm (1.97 in)
Piston - diameter (250 SX, 250 XC US/EU)	
Size I	66.340... 66.350 mm (2.61181... 2.6122 in)
Size II	66.351... 66.360 mm (2.61224... 2.61259 in)
Piston - diameter (300 XC US/EU)	
Size I	71.940... 71.950 mm (2.83228... 2.83267 in)
Size II	71.951... 71.960 mm (2.83271... 2.83307 in)

**Info**

Piston dimensions **1** are marked on the piston head.





## 16.4.13 Checking the piston ring end gap



- Remove the piston ring from the piston.
- Place the piston ring in the cylinder and align with the piston.

Guideline

Below the upper edge of the cylinder	20 mm (0.79 in)
--------------------------------------	-----------------

- Measure end gap A with a feeler gauge.

Guideline

Piston ring - end gap	
Ring 1	$\leq 0.40$ mm ( $\leq 0.0157$ in)
Ring 2	$\leq 0.40$ mm ( $\leq 0.0157$ in)

- If the end gap is greater than the specified value:
  - Check/measure the cylinder. (☛ p. 176)
- If cylinder wear lies within the specified tolerance:
  - Change the piston ring.
- Mount the piston ring with the marking facing toward the piston head.

## 16.4.14 Piston/cylinder - measuring the mounting clearance



(250 SX, 250 XC US/EU)

- Check/measure the cylinder. (☛ p. 176)
- Check/measure the piston. (☛ p. 181)
- The smallest piston/cylinder mounting clearance equals the smallest cylinder bore diameter minus the largest piston diameter. The largest piston/cylinder mounting clearance equals the largest cylinder bore diameter minus the smallest piston diameter.

Guideline

Piston/cylinder - mounting clearance	
New condition	0.050... 0.074 mm (0.00197... 0.00291 in)
Piston/cylinder - mounting clearance	
Wear limit	0.10 mm (0.0039 in)



(300 XC US/EU)

- Check/measure the cylinder. (☛ p. 176)
- Check/measure the piston. (☛ p. 181)
- The smallest piston/cylinder mounting clearance equals the smallest cylinder bore diameter minus the largest piston diameter. The largest piston/cylinder mounting clearance equals the largest cylinder bore diameter minus the smallest piston diameter.

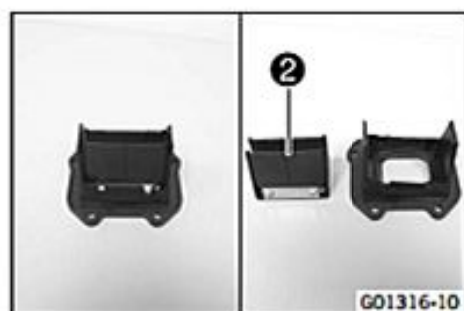
Guideline

Piston/cylinder - mounting clearance	
New condition	0.050... 0.085 mm (0.00197... 0.00335 in)
Piston/cylinder - mounting clearance	
Wear limit	0.10 mm (0.0039 in)

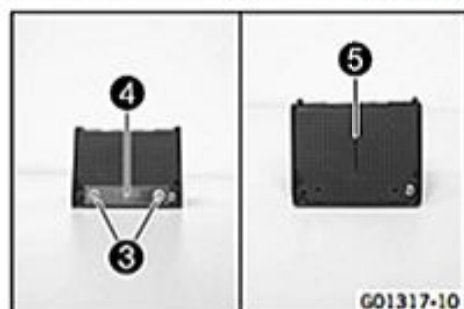
## 16.4.15 Disassembling the reed valve housing



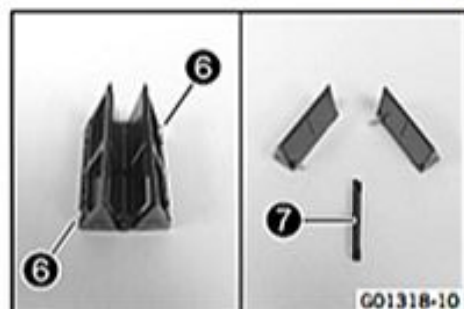
- Remove screws 1.



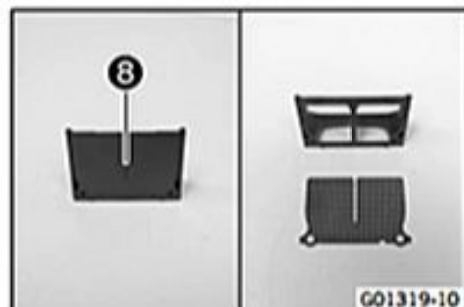
- Remove the reed valve housing **2** from the support plate.



- Remove screws **3** on both sides.
- Take off clamping plate **4** on both sides.
- Remove the outer reed valve **5** on both sides.

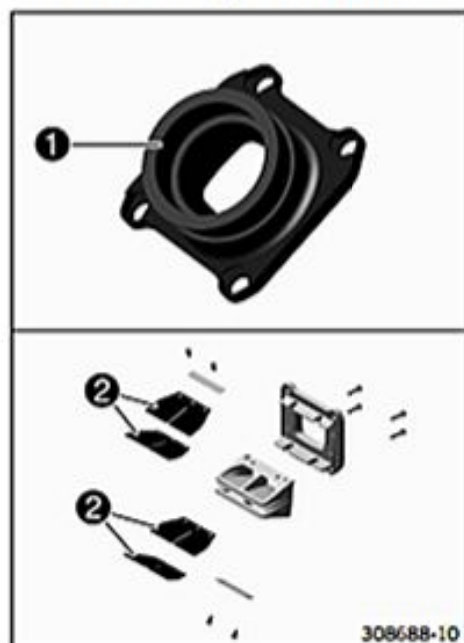


- Remove screws **6**.
- Separate the reed valve holders. Remove holding strip **7**.



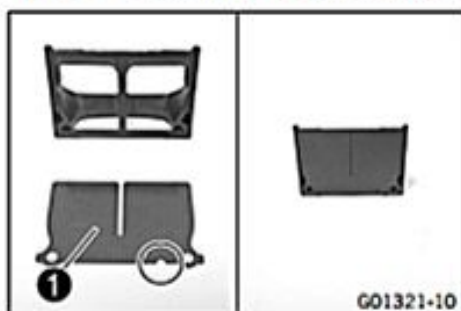
- Take off the inner reed valve **8** from both reed valve holders.

#### 16.4.16 Checking the reed valve housing, reed valve, and intake flange



- Check intake flange **1** for damage and wear.
  - If there is damage or wear:
    - Change the intake flange.
- Check membrane **2** for damage and wear.
  - If there is damage or wear:
    - Change the membrane.
- Check reed valve housing for damage and wear.
  - If there is damage or wear:
    - Change the reed valve housing.

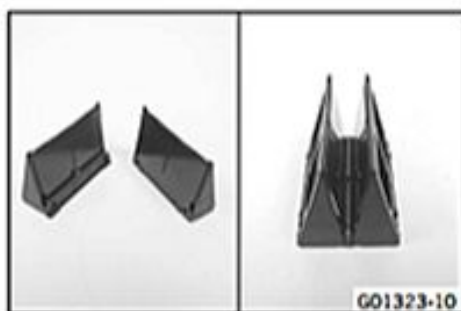
## 16.4.17 Assembling the reed valve housing



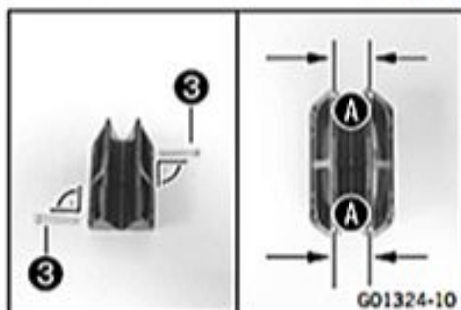
- Position the inner reed valve **1** on both reed valve holders.
- ✓ The recesses are located on the right side.



- Position holding strip **2**.
- ✓ The pins engage in the drilled holes.



- Position the reed valve holders.



- Mount screws **3** and screw in all the way.

**Info**

Mount the screws at right angles to prevent damage.

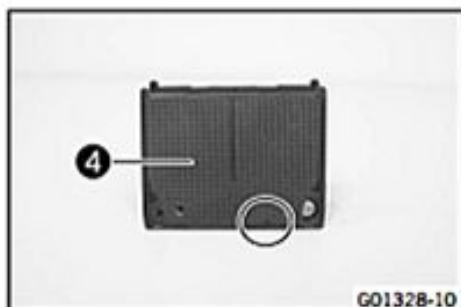
- Loosen screws **3** and tighten again.

## Guideline

Screw, inner membrane sheets	EJOT DELTA PT® 35x25	1 Nm (0.7 lbf ft)
------------------------------	-------------------------	-------------------

- ✓ Distance **A** is equal on both sides.

- Position the outer reed valve **4** on both sides.
- ✓ The recesses are located on the right side.



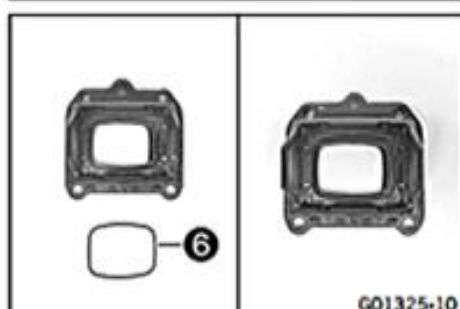




- Position the clamping plates on both sides.
- ✓ After installation, the **TOP** marking must be visible as shown.
- Mount screws **5** on both sides and screw in all the way.
- Loosen screws **5** and tighten again.

## Guideline

Screw, outer membrane sheets	EJOT DELTA PT® 30x6	1 Nm (0.7 lbf ft)
------------------------------	------------------------	-------------------



- Position gasket **6**.



- Position the reed valve housing in the support plate.
- ✓ The outer recess is located on the right in the direction of travel when installed.
- Mount and tighten screws **7**.

## Guideline

Screw, membrane core plate	EJOT DELTA PT® 30x12	1 Nm (0.7 lbf ft)
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## 16.4.18 Work on the clutch cover

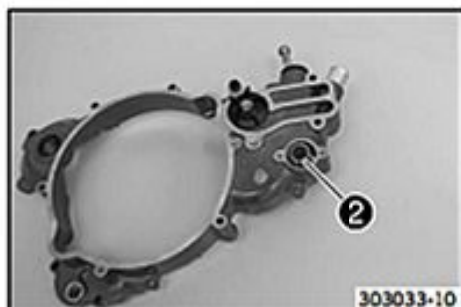


## Info

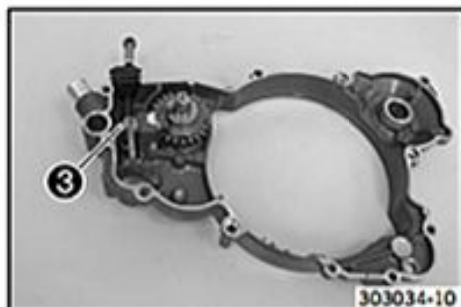
Remove the outer clutch cover to avoid damage.



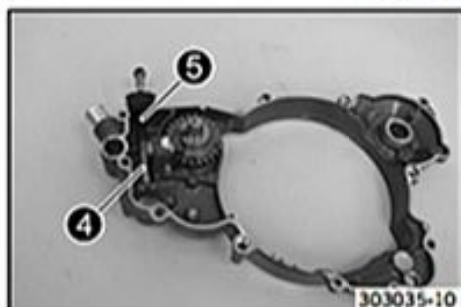
- Remove screws **1**.
- Remove the locking cap.



- Remove adjusting spring **2**, the auxiliary spring, and the spring insert.



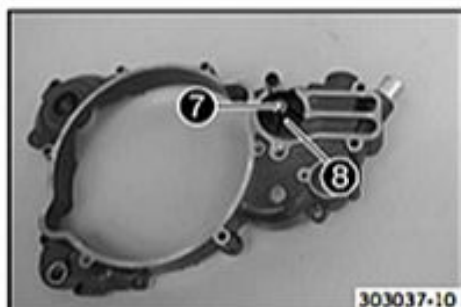
- Remove screw **3** with the washer.



- Take off angle lever **4**.
- Remove linkage **5**.



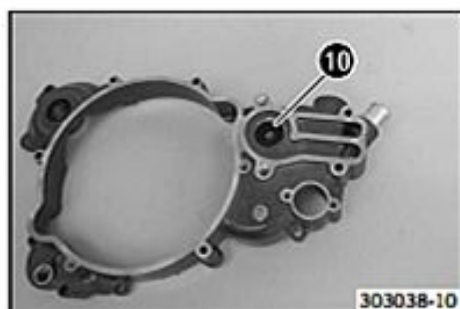
- Remove adjusting lever **6** with the washers.



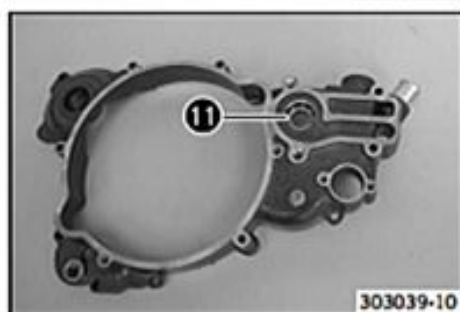
- Remove screw **7**.
- Take off water pump impeller **8**.
- Remove the centrifugal timer.



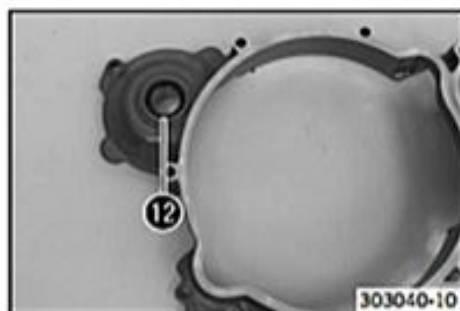
- Press out both needle bearings **9**.



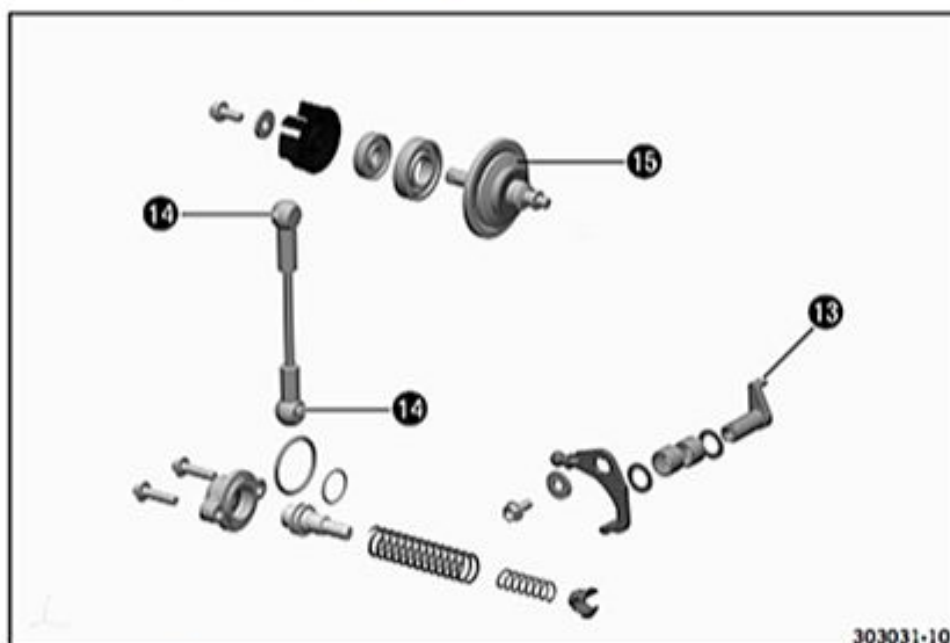
- Remove shaft seal ring **10**.



- Press out bearing **11** toward the inside.



- Remove shaft seal ring **12**.



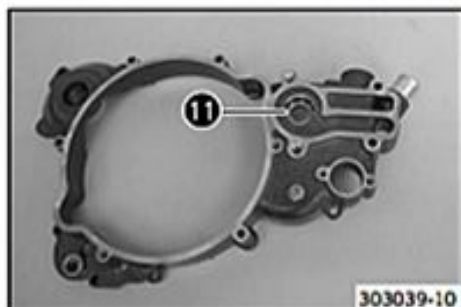
- Check pin **13** of the adjusting lever for damage and wear.
  - If there is damage or wear:
    - Change the adjusting lever.
- Check ball heads **14** of the linkage for damage and wear.
  - If there is damage or wear:
    - Change the linkage.
- Check centrifugal timer **15** for damage and wear.
  - If there is damage or wear:



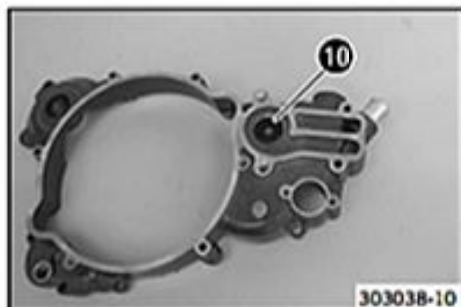
- Change the centrifugal timer.



- Press shaft seal ring 12 all the way in.



- Press bearing 11 all the way in to the stop from the inside.



- Press shaft seal ring 10 so it is flush.
- Ensure that the bearing can turn freely and does not touch the shaft seal ring.



- Press in both needle bearings 9.

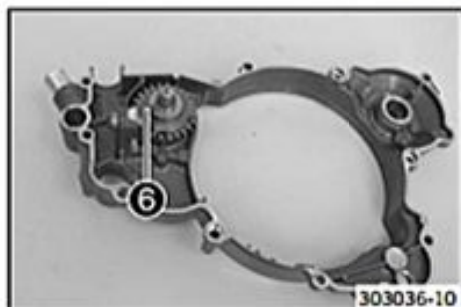


- Mount the centrifugal timer.
- Position water pump impeller 8.
- Mount and tighten screw 7.

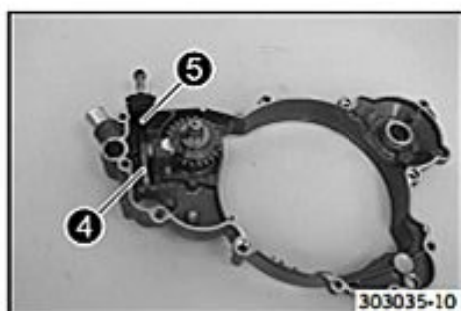
Guideline

Screw, water pump wheel	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
-------------------------	----	----------------------	---------------

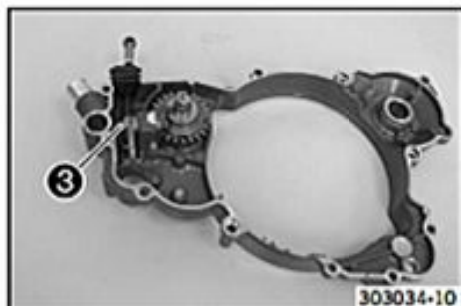
- Turn the water pump impeller all the way around to ensure that it can move easily.



- Mount adjusting lever 6 with the washers.



- Position linkage **5**.
- Mount angle lever **4**.



- Mount and tighten screw **3** with the washer.

## Guideline

Screw, angle lever, exhaust control	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
-------------------------------------	----	-------------------	---------------



- Mount adjusting spring **2** with the auxiliary spring and spring insert.

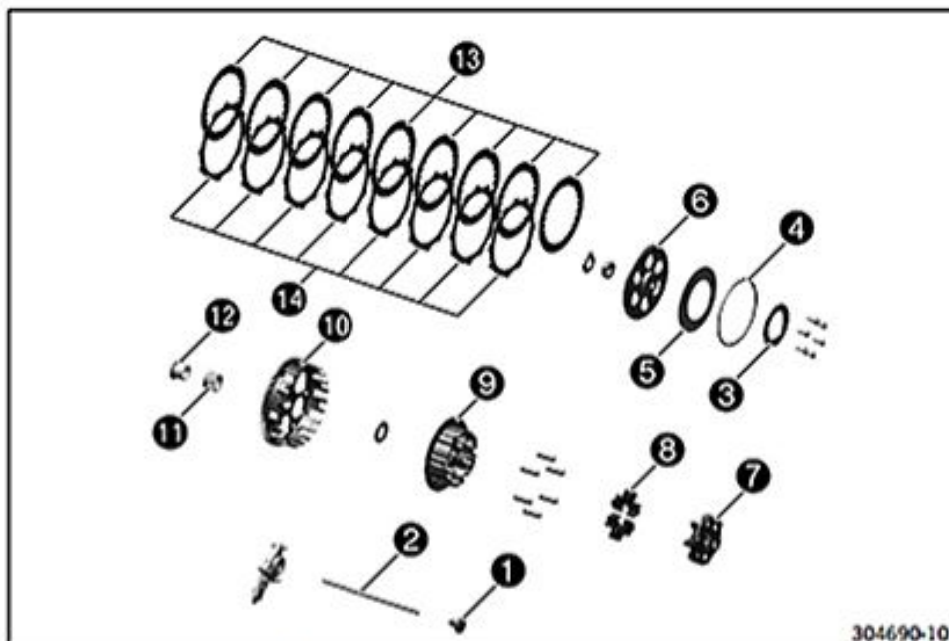


- Position the locking cap.
- Mount and tighten screws **1**.

## Guideline

Screw, exhaust control cover	M5	6 Nm (4.4 lbf ft)	
------------------------------	----	-------------------	--

## 16.4.19 Checking the clutch



- Check pressure piece **1** for damage and wear.
  - If there is damage or wear:
    - Change the pressure piece.
- Place push rod **2** on a level surface and check for run-out.
  - If there is run-out:
    - Change the push rod.
- Check spring retainer **3** for damage and wear.
  - If there is damage or wear:
    - Change the spring retainer.
- Check pretension ring **4** for damage and wear.
  - If there is damage or wear:
    - Change the pretension ring.
- Check spring washer **5** for damage and wear.
  - If there is damage or wear:
    - Change the spring washer.
- Check the contact surface of pressure cap **6** for damage and wear.
  - If there is damage or wear:
    - Change the pressure cap.
- Check clutch center **7** for damage and wear.
  - If there is damage or wear:
    - Change the clutch center.
- Check damping rubber pieces **8** for damage and wear.
  - If there is damage or wear:
    - Change the damping rubber pieces.
- Check the inner clutch hub **9** for damage and wear.
  - If there is damage or wear:
    - Change the inner clutch hub.
- Check the thrust surfaces of the clutch facing discs in clutch basket **10** for damage and wear.
  - If there is damage or wear:
    - Change the clutch facing discs and the outer clutch hub.
- Check needle bearing **11** and collar sleeve **12** for damage and wear.
  - If there is damage or wear:

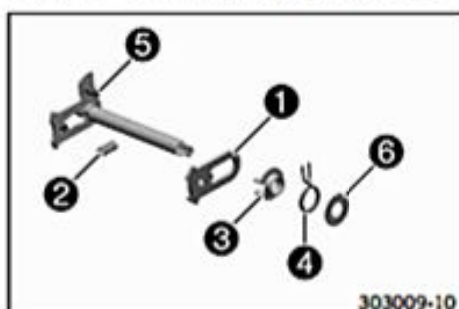


- Change the needle bearing and collar sleeve.
- Check the intermediate discs **13** for damage and wear.
  - If the intermediate discs are not flat or have punctiform outbreaks:
    - Change all intermediate discs.
- Check clutch facing discs **14** for discoloration and scoring.
  - If there is discoloration or scoring:
    - Change all clutch facing discs.
- Check the thickness of clutch facing discs **14**.

Clutch facing disc - thickness	$\geq 1.9 \text{ mm } (\geq 0.075 \text{ in})$
--------------------------------	--

- If the clutch lining disc does not meet specifications:
  - Change all clutch facing discs.

#### 16.4.20 Preassembling the shift shaft



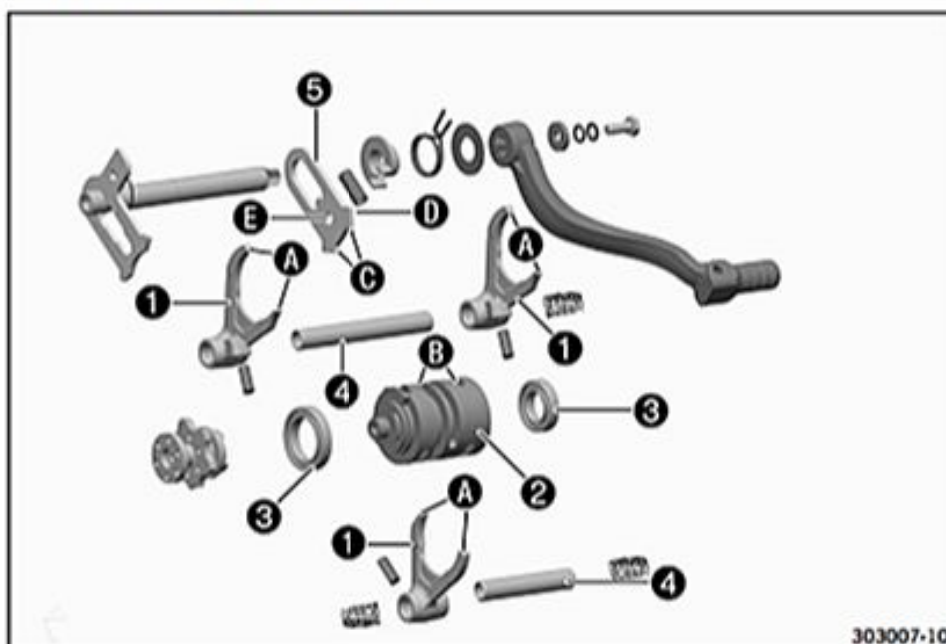
- Secure the short end of the shift shaft in the bench vise.

##### Guideline

Use soft jaws.

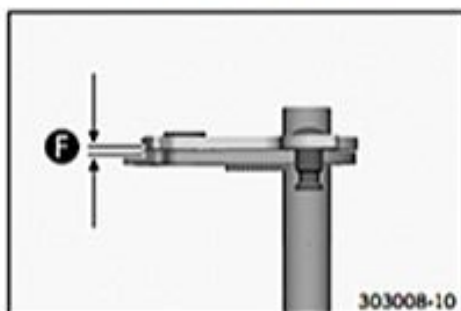
- Mount sliding plate **1** with the guide pin facing downward and put the guide pin on the shift quadrant.
- Mount pressure spring **2**.
- Slide on spring guide **3**, push return spring **4**, with the offset end facing upward, over the spring guide and lift the offset end over abutment bolt **5**.
- Mount stop disk **6**.

#### 16.4.21 Checking the shift mechanism



- Check shift forks **1** on disc **A** for damage and wear (visual check).
  - If there is damage or wear:
    - Change the shift fork and gear wheel pair.
- Check shift grooves **B** of shift drum **2** for wear.
  - If the shift groove is worn:
    - Change the shift drum.
- Check the seating of the shift drum in bearings **3**.
  - If the shift drum is not correctly seated:
    - Change the shift drum and/or bearings.

- Check bearings **3** for smooth operation and wear.
  - If the bearings are stiff or worn:
    - Change the bearings.
- Check the shift rollers for damage and wear.
  - If there is damage or wear:
    - Change the shift rollers.
- Check the springs of shift rails **4** for damage and wear.
  - If the spring is damaged or worn:
    - Change the spring of the shift rail.
- Check the shift rails **4** for run-out on a flat surface.
  - If there is run-out:
    - Change the shift rail.
- Check the shift rails for scoring, wear and smooth operation in the shift forks.
  - If scoring or wear is present or if the shift fork is stiff:
    - Change the shift rail.
- Check sliding plate **5** for wear on contact areas **6**.
  - If the sliding plate is worn:
    - Change the sliding plate.
- Check return surface **D** on the sliding plate for wear.
  - If there is severe grooving:
    - Change the sliding plate.
- Check guide bolts **E** for firm seating and wear.
  - If the guide bolts are loose or worn:
    - Change the sliding plate.



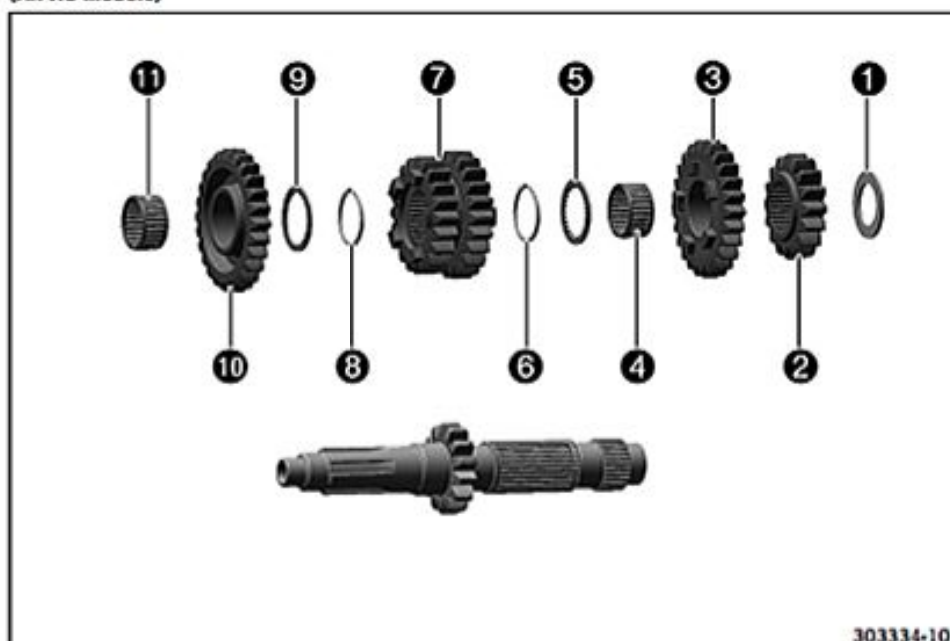
- Preassemble the shift shaft. (☛ p. 192)
- Check clearance **F** between the sliding plate and the shift quadrant.

Shift shaft - sliding plate/shift quadrant clearance	0.40... 0.80 mm (0.0157... 0.0315 in)
--	---------------------------------------

- If the measured value does not meet specifications:
  - Change the sliding plate.

## 16.4.22 Disassembling the main shaft

(All XC models)



303334-10

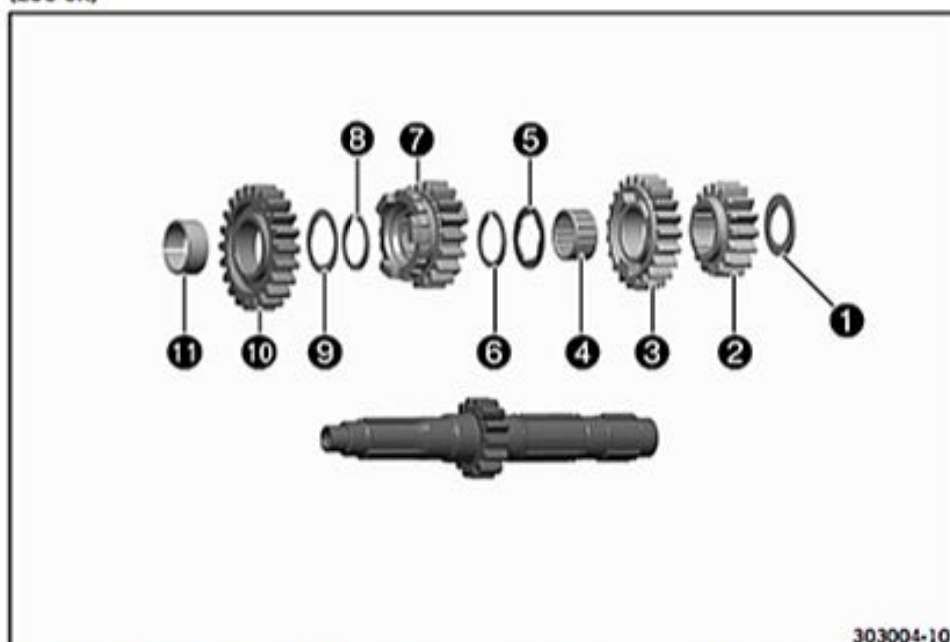
- Secure the main shaft with the toothed end facing downward in the vise.

Guideline

Use soft jaws.

- Remove stop disk ① and 2nd-gear fixed gear ②.
- Remove 5th-gear idler gear ③ and needle bearing ④.
- Remove stop disk ⑤.
- Remove lock ring ⑥.
- Remove 3rd/4th-gear sliding gear ⑦.
- Remove lock ring ⑧.
- Remove stop disk ⑨.
- Remove 6th-gear idler gear ⑩.
- Remove needle bearing ⑪.

(250 SX)



303004-10

- Secure the main shaft with the toothed end facing downward in the vise.



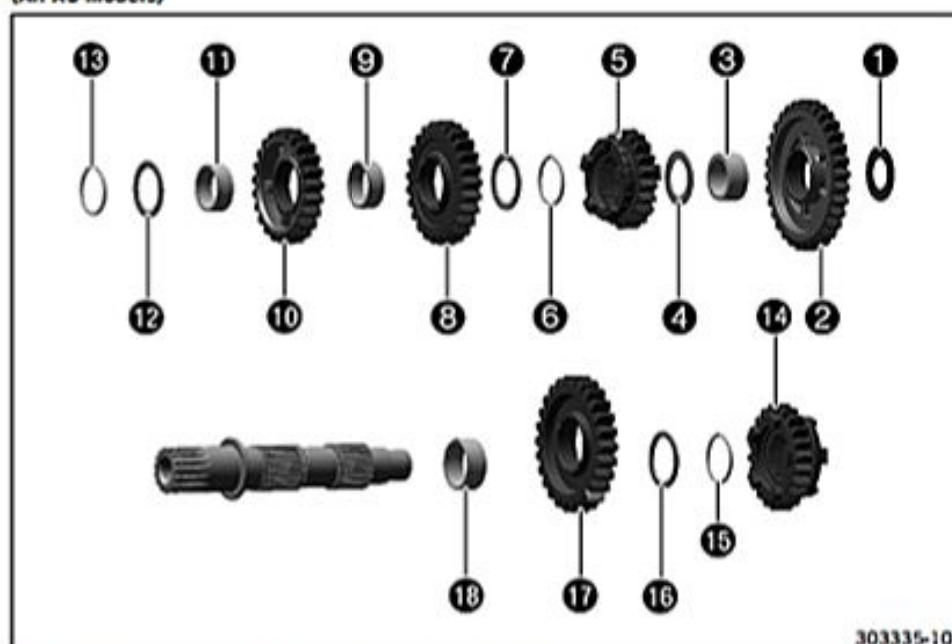
## Guideline

Use soft jaws.

- Remove stop disk **1** and 2nd-gear fixed gear **2**.
- Remove 4th-gear idler gear **3** and needle bearing **4**.
- Remove stop disk **5**.
- Remove lock ring **6**.
- Remove 3rd-gear sliding gear **7**.
- Remove lock ring **8**.
- Remove stop disk **9**.
- Remove 5th-gear idler gear **10**.
- Remove needle bearing **11**.

## 16.4.23 Disassembling the countershaft

(All XC models)



303335-10

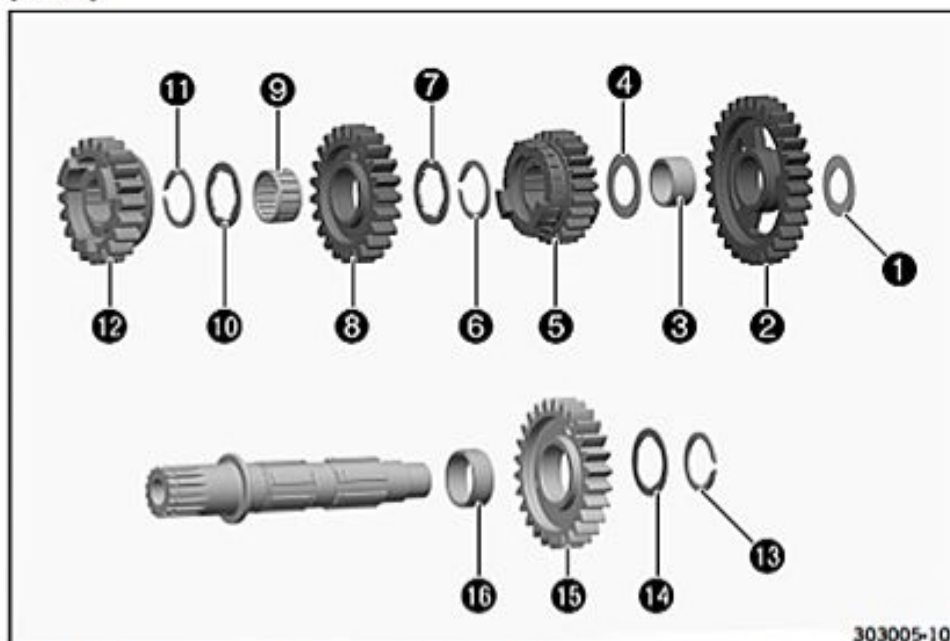
- Fix the countershaft in the vice with the toothed end facing downward.

## Guideline

Use soft jaws

- Remove stop disk **1** and 1st-gear idler gear **2**.
- Remove needle bearing **3** and stop disk **4**.
- Remove 6th-gear sliding gear **5**.
- Remove lock ring **6**.
- Remove stop disk **7**.
- Remove 3rd-gear idler gear **8** and needle bearing **9**.
- Remove 4th-gear idler gear **10**.
- Remove needle bearing **11**.
- Remove stop disk **12** and lock ring **13**.
- Remove 5th-gear sliding gear **14**.
- Remove lock ring **15**.
- Remove stop disk **16**.
- Remove 2nd-gear idler gear **17** and needle bearing **18**.

(250 SX)



- Fix the countershaft in the vice with the toothed end facing downward.

Guideline

Use soft jaws

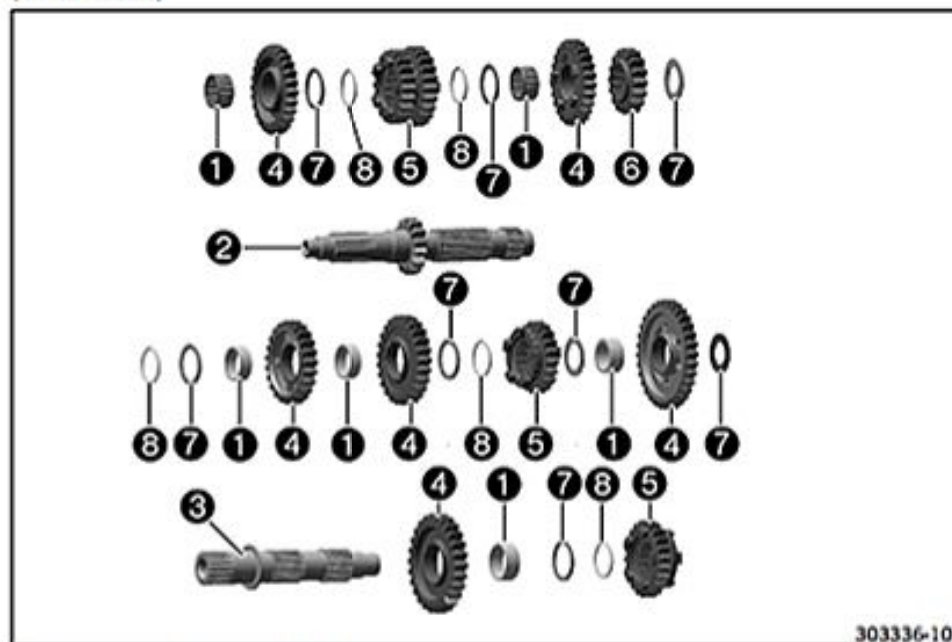
- Remove stop disk 1 and 1st-gear idler gear 2.
- Remove needle bearing 3 and stop disk 4.
- Remove 5th-gear sliding gear 5.
- Remove lock ring 6.
- Remove stop disk 7.
- Remove 3rd-gear idler gear 8 and needle bearing 9.
- Remove stop disk 10.
- Remove lock ring 11.
- Remove 4th-gear sliding gear 12.
- Remove lock ring 13.
- Remove stop disk 14.
- Remove 2nd-gear idler gear 15 and needle bearing 16.

## 16.4.24 Checking the transmission

Condition

The transmission has been disassembled.

(All XC models)

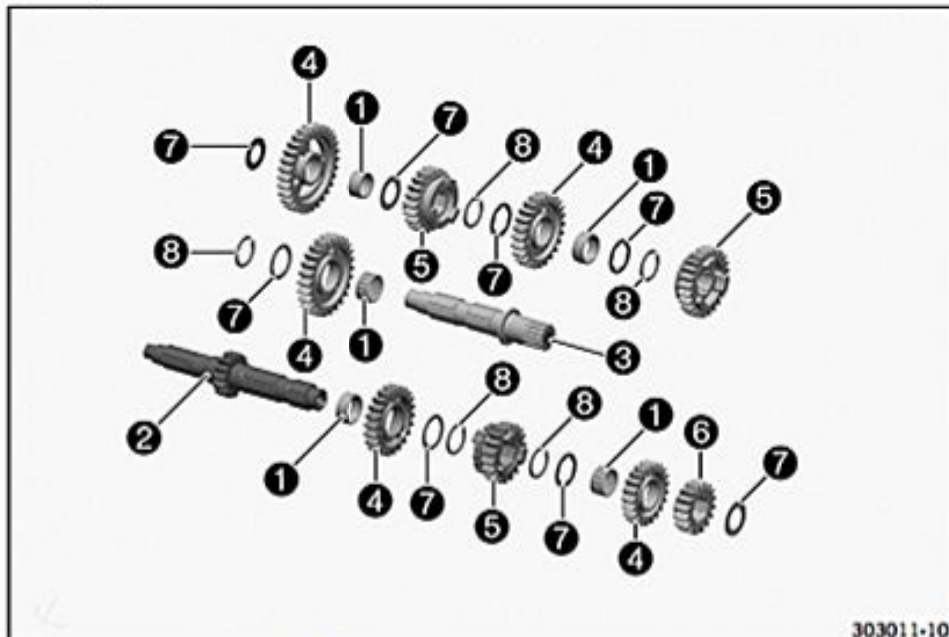


303336-10

- Check needle bearings **1** for damage and wear.
  - If there is damage or wear:
    - Change the needle bearing.
- Check the pivot points of main shaft **2** and countershaft **3** for damage and wear.
  - If there is damage or wear:
    - Change the main shaft and/or countershaft.
- Check the tooth profiles of main shaft **2** and countershaft **3** for damage and wear.
  - If there is damage or wear:
    - Change the main shaft and/or countershaft.
- Check the pivot points of idler gears **4** for damage and wear.
  - If there is damage or wear:
    - Change the gear wheel pair.
- Check the shift dogs of idler gears **4** and sliding gears **5** for damage and wear.
  - If there is damage or wear:
    - Change the gear wheel pair.
- Check the tooth faces of idler gears **4**, sliding gears **5** and fixed gear **6** for damage and wear.
  - If there is damage or wear:
    - Change the gear wheel pair.
- Check the tooth profiles of sliding gears **5** for damage and wear.
  - If there is damage or wear:
    - Change the gear wheel pair.
- Check sliding gears **5** for smooth operation in the profile of main shaft **2**.
  - If the sliding gear does not move freely:
    - Change the sliding gear or the main shaft.
- Check sliding gears **5** for smooth operation in the profile of countershaft **3**.
  - If the sliding gear does not move freely:
    - Change the sliding gear or the countershaft.
- Check stop disks **7** for damage and wear.
  - If there is damage or wear:
    - Change the stop disks.
- Use new lock rings **8** with every repair.



(250 SX)



303011-10

- Check needle bearings **1** for damage and wear.
  - If there is damage or wear:
    - Change the needle bearing.
- Check the pivot points of main shaft **2** and countershaft **3** for damage and wear.
  - If there is damage or wear:
    - Change the main shaft and/or countershaft.
- Check the tooth profiles of main shaft **2** and countershaft **3** for damage and wear.
  - If there is damage or wear:
    - Change the main shaft and/or countershaft.
- Check the pivot points of idler gears **4** for damage and wear.
  - If there is damage or wear:
    - Change the gear wheel pair.
- Check the shift dogs of idler gears **4** and sliding gears **5** for damage and wear.
  - If there is damage or wear:
    - Change the gear wheel pair.
- Check the tooth faces of idler gears **4**, sliding gears **5** and fixed gear **6** for damage and wear.
  - If there is damage or wear:
    - Change the gear wheel pair.
- Check the tooth profiles of sliding gears **5** for damage and wear.
  - If there is damage or wear:
    - Change the gear wheel pair.
- Check sliding gears **5** for smooth operation in the profile of main shaft **2**.
  - If the sliding gear does not move freely:
    - Change the sliding gear or the main shaft.
- Check sliding gears **5** for smooth operation in the profile of countershaft **3**.
  - If the sliding gear does not move freely:
    - Change the sliding gear or the countershaft.
- Check stop disks **7** for damage and wear.
  - If there is damage or wear:
    - Change the stop disks.
- Use new lock rings **8** with every repair.

## 16.4.25 Assembling the main shaft



## Info

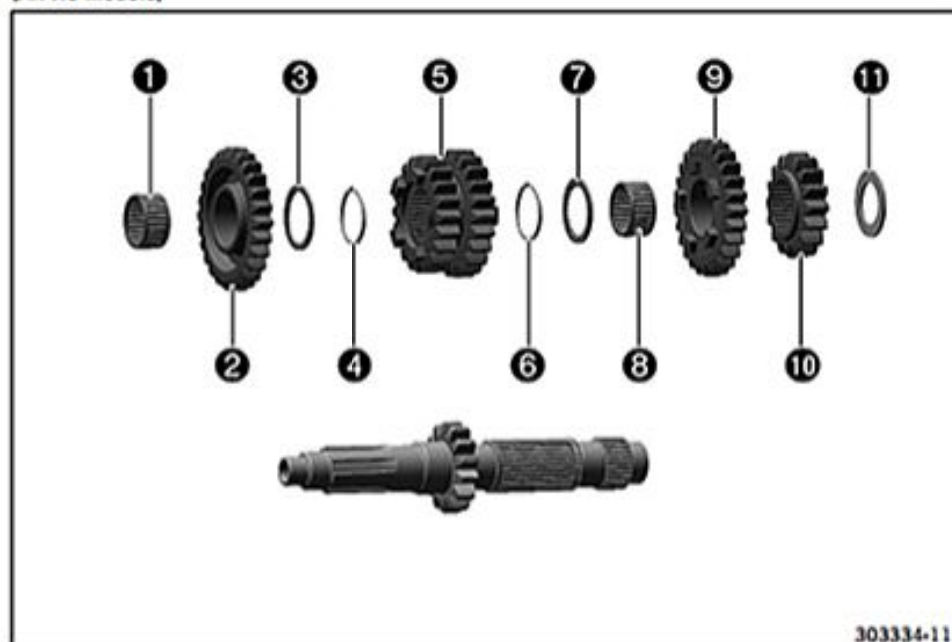
Use new lock rings with every repair.

## Preparatory work

- Carefully lubricate all parts before assembling.
- Check the transmission. (↖ p. 196)

## Main work

(All XC models)



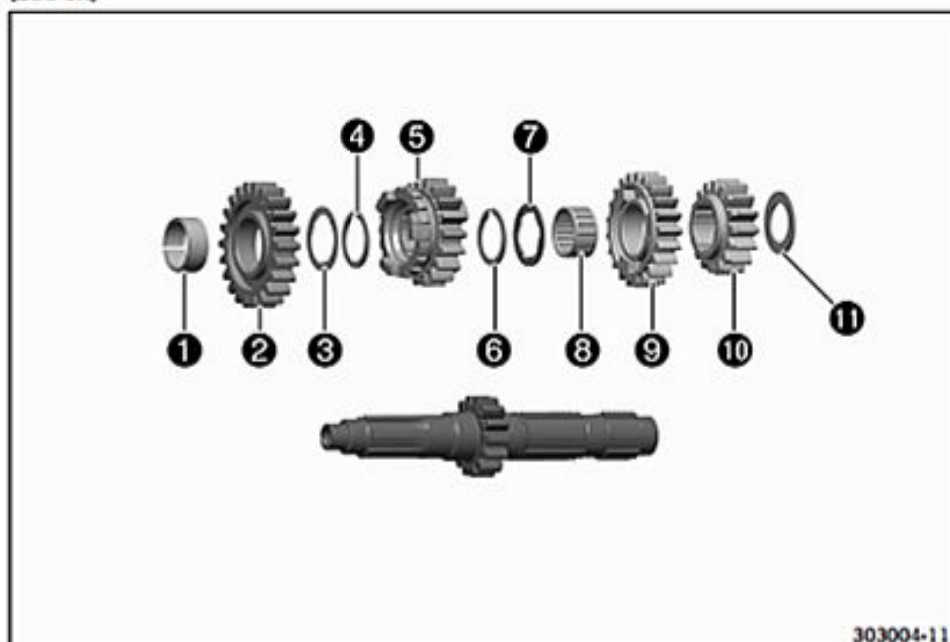
- Secure the main shaft with the toothed end facing downward in the vise.

## Guideline

Use soft jaws

- Mount needle bearing ①.
- Mount 6th-gear idler gear ②.
- Mount stop disk ③ and lock ring ④.
- Mount 3rd/4th-gear sliding gear ⑤ with the small gear wheel facing downward.
- Mount lock ring ⑥ and stop disk ⑦.
- Mount needle bearing ⑧.
- Mount 5th-gear idler gear ⑨.
- Mount 2nd-gear fixed gear ⑩ and stop disk ⑪.
- Finally, check all gear wheels for smooth operation.

(250 SX)



303004-11

- Secure the main shaft with the toothed end facing downward in the vise.

Guideline

Use soft jaws

- Mount needle bearing 1.
- Mount 5th-gear idler gear 2.
- Mount stop disk 3 and lock ring 4.
- Mount 3rd-gear sliding gear 5 with the shift groove facing downward.
- Mount lock ring 6 and stop disk 7.
- Mount needle bearing 8.
- Mount 4th-gear idler gear 9.
- Mount 2nd-gear fixed gear 10 and stop disk 11.
- Finally, check all gear wheels for smooth operation.

## 16.4.26 Assembling the countershaft



Info

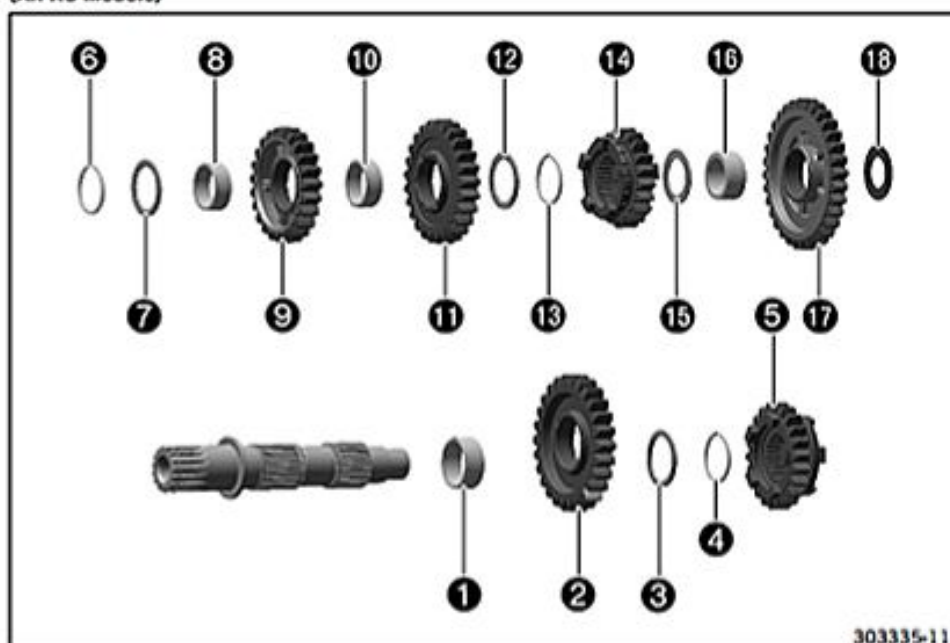
Use new lock rings with every repair.

### Preparatory work

- Carefully lubricate all parts before assembling.
- Check the transmission. (☛ p. 196)



Main work  
(All XC models)



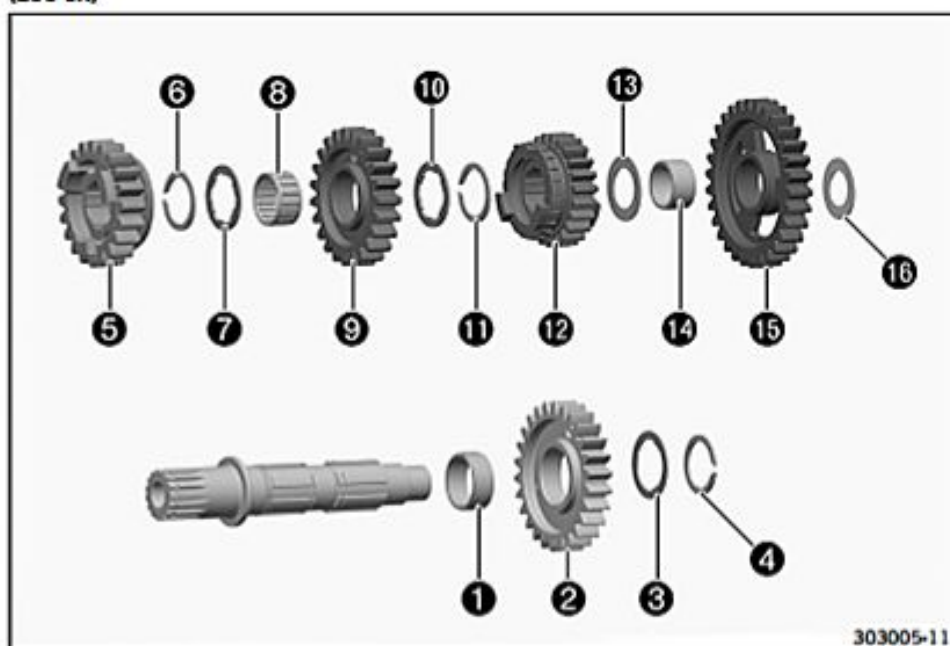
- Fix the countershaft in the vice with the toothed end facing downward.

Guideline

Use soft jaws

- Mount needle bearing ① and 2nd-gear idler gear ② onto the countershaft with the protruding collar facing downward.
- Mount stop disk ③ and lock ring ④.
- Mount 5th-gear sliding gear ⑤ with the shift groove facing up.
- Mount lock ring ⑥ and stop disk ⑦.
- Mount needle bearing ⑧ and 4th-gear idler gear ⑨.
- Mount needle bearing ⑩.
- Mount 3rd-gear idler gear ⑪.
- Mount stop disk ⑫ and lock ring ⑬.
- Mount 6th-gear sliding gear ⑭ with the shift groove facing downward.
- Mount stop disk ⑮.
- Mount needle bearing ⑯ and 1st-gear idler gear ⑰.
- Mount stop disk ⑱.
- Finally, check all gear wheels for smooth operation.

(250 SX)



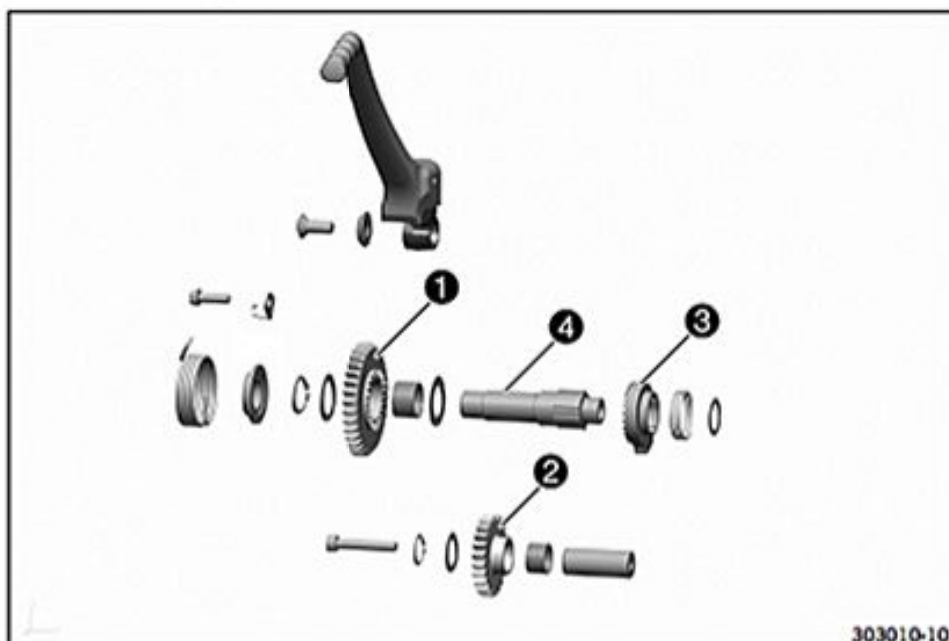
- Fix the countershaft in the vice with the toothed end facing downward.

Guideline

Use soft jaws

- Mount needle bearing ① and 2nd-gear idler gear ② onto the countershaft with the protruding collar facing downward.
- Mount stop disk ③ and lock ring ④.
- Mount 4th-gear sliding gear ⑤ with the shift groove facing up.
- Mount lock ring ⑥ and stop disk ⑦.
- Mount needle bearing ⑧ and 3rd-gear idler gear ⑨ with the shift dogs facing upward.
- Mount stop disk ⑩ and lock ring ⑪.
- Mount 5th-gear sliding gear ⑫ with the shift groove facing downward.
- Mount stop disk ⑬.
- Mount needle bearing ⑭ and 1st-gear idler gear ⑮.
- Mount stop disk ⑯.
- Finally, check all gear wheels for smooth operation.

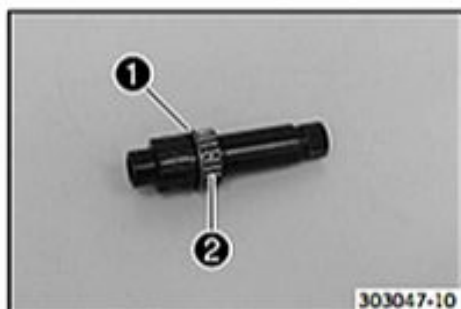
## 16.4.27 Checking the kick starter



303010-10

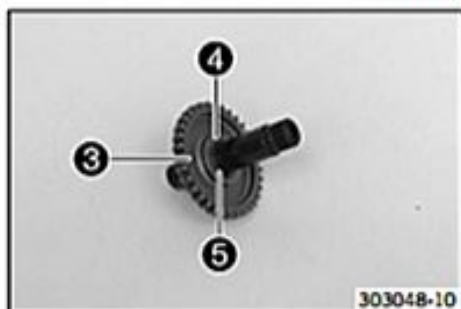
- Check the gear mesh and bearing of kick starter gear **1** for damage and wear.
  - If there is damage or wear:
    - Change the kick starter gear.
- Check the gear mesh and bearing of intermediate kick starter gear **2** for damage and wear.
  - If there is damage or wear:
    - Change the intermediate kick starter gear.
- Check the gear mesh and contact surface of kick starter ratchet wheel **3** for damage and wear.
  - If there is damage or wear:
    - Change the kick starter ratchet wheel.
- Check the gear mesh and bearing of kick starter shaft **4** for damage and wear.
  - If there is damage or wear:
    - Change the kick starter shaft.

## 16.4.28 Preassembling the kick starter shaft



303047-10

- Mount washer **1** and bearing **2**.



303048-10

- Mount kick starter gear **3** with washer **4**.
- Mount lock ring **5**.

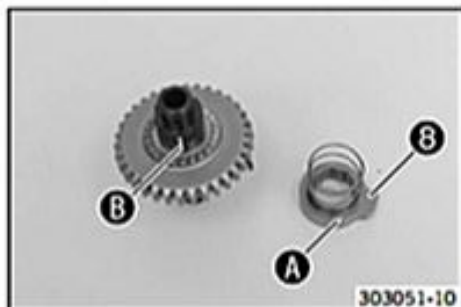




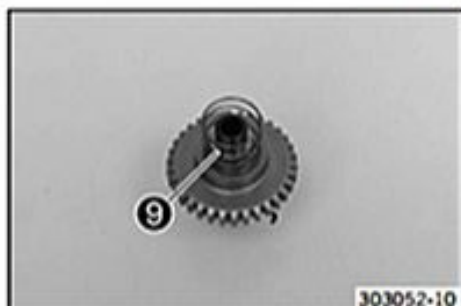
- Mount driving hub 6.
- ✓ The cut-out must be aligned with the hole in the kick starter shaft.



- Mount kick starter spring 7.
- ✓ The end of the kick starter spring engages in the hole.

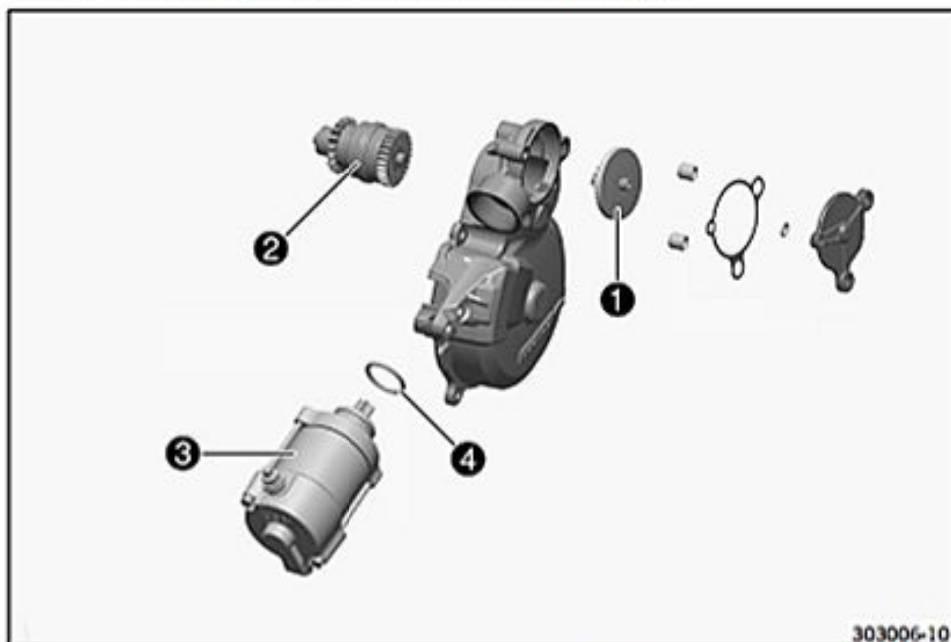


- Mount kick starter ratchet wheel 8 with the spring.
- ✓ Marking A is offset by one tooth behind marking B.



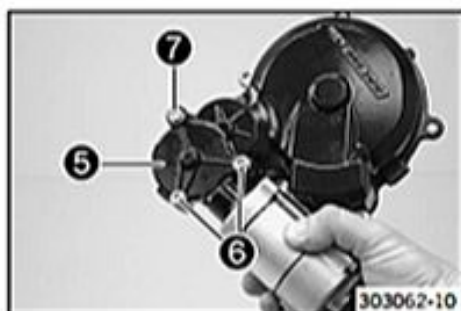
- Mount washer 9.

## 16.4.29 Checking the electric starter drive (All XC models)



303006-10

- Check the gear mesh and bearing of starter idler gear **1** for damage and wear.
  - If there is damage or wear:
    - Change the starter idler gear.
- Check the gear mesh and bearing of Bendix **2** for smooth operation, damage and wear.
  - If damaged or worn, or if the Bendix does not move easily:
    - Change the Bendix.
- Check the gear mesh of starter motor **3** for damage and wear.
  - If there is damage or wear:
    - Change the starter motor.
- Change O-ring **4** of the starter motor.
- Connect the negative cable of a 12 volt power supply to the housing of the starter motor. Connect the positive cable of the power supply briefly with the connector of the starter motor.
  - If the starter motor does not turn when the circuit is closed:
    - Change the starter motor.



303062-10

- Mount the starter idler gear in the alternator cover.
- Mount cover **5** with the gasket.
- Mount and tighten screws **6**.

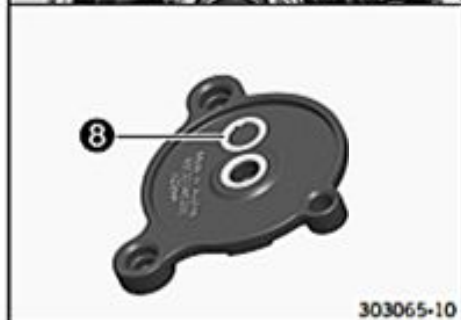
Guideline

Screw, alternator cover	M6	8 Nm (5.9 lbf ft)
-------------------------	----	-------------------

- Mount and tighten a fitting screw **7** with the washer and nut.

Guideline

Screw, alternator cover	M6	8 Nm (5.9 lbf ft)
-------------------------	----	-------------------



- Move starter idler gear **1** back and forth in the direction of rotation.
- Check for play.

Guideline

Play may not exceed half the tooth width.

- If the play is greater:
  - Remove the cover.
  - Add enough compensating disks **8** to eliminate the play.
  - Remove one compensating disk again.

Guideline

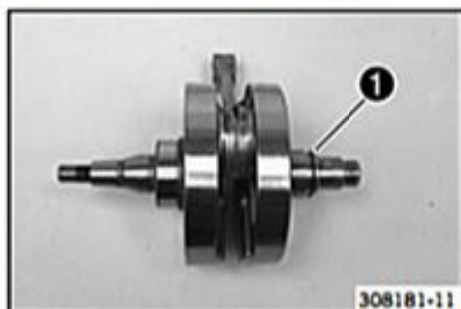
Compensating disk 0.10 mm (0.0039 in)

- Check the play again.
- Grease all pivot points.

Lubricant (T625) (☛ p. 282)

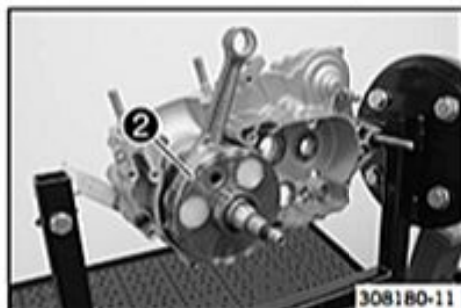
## 16.5 Engine assembly

### 16.5.1 Installing the crankshaft



(All XC models)

- Mount O-ring **1**.



- Position the right section of the engine case in the engine work stand.

Engine assembly stand (61229001000) (☛ p. 288)

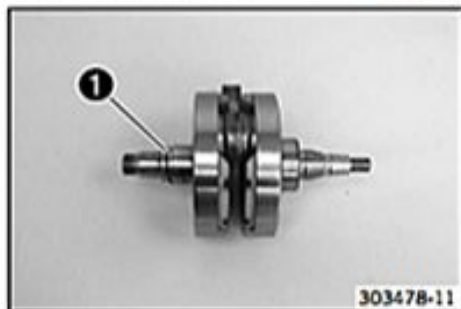
Engine fixing arm (56029002030) (☛ p. 286)

- Warm up the crankshaft bearing.

Guideline

100 °C (212 °F)

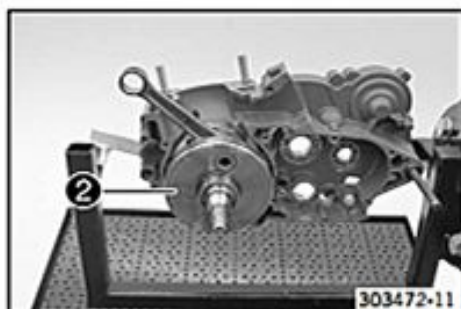
- Slide crankshaft **2** all the way into the bearing seat of the right section of the engine case.



(250 SX)

- Mount O-ring **1**.





- Position the right section of the engine case in the engine work stand.

Engine assembly stand (61229001000) (☞ p. 288)

Engine fixing arm (56029002030) (☞ p. 286)

- Warm up the crankshaft bearing.

Guideline

100 °C (212 °F)

- Slide crankshaft ② all the way into the bearing seat of the right section of the engine case.

### 16.5.2 Installing the transmission shafts

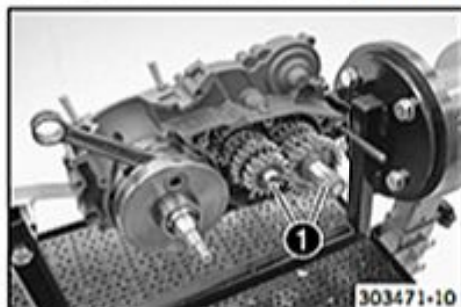


(All XC models)

- Oil all bearing.

Engine oil (15W/50) (☞ p. 280)

- Assemble the two transmission shafts ① and slide them into the bearing seats together.



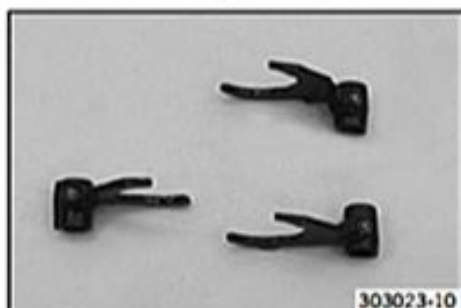
(250 SX)

- Oil all bearing.

Engine oil (15W/50) (☞ p. 280)

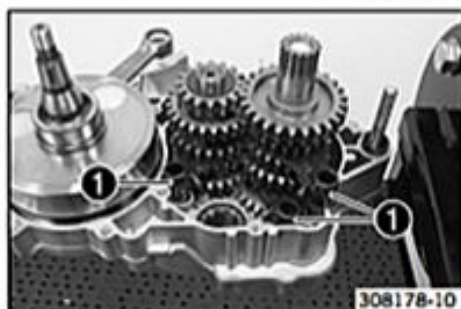
- Assemble the two transmission shafts ① and slide them into the bearing seats together.

### 16.5.3 Installing the shift forks



(All XC models)

- Arrange the shift forks as shown above.



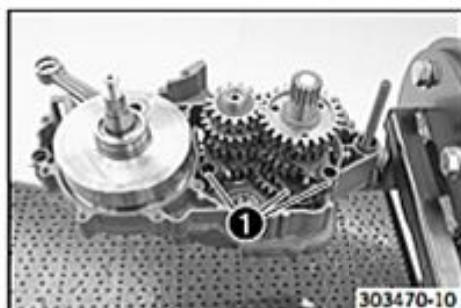
- Position shift forks ① in the shift grooves.



303479-10

(250 SX)

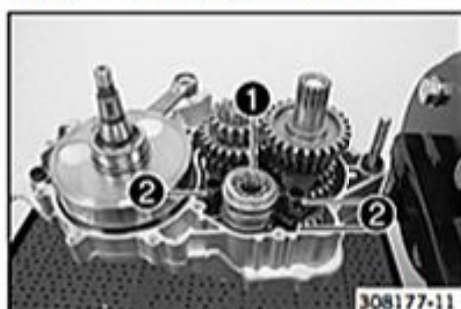
- Arrange the shift forks as shown.



303470-10

- Position shift forks 1 in the shift grooves.

#### 16.5.4 Installing the shift drum



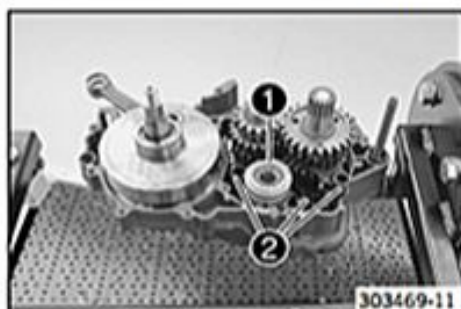
308177-11

(All XC models)

- Push shift drum 1 into the bearing seat.
- Put shift forks 2 in the shift drum.


**Info**

Do not misplace the shift rollers.



303469-11

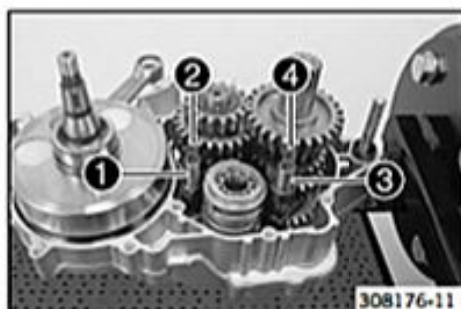
(250 SX)

- Push shift drum 1 into the bearing seat.
- Put shift forks 2 in the shift drum.


**Info**

Do not misplace the shift rollers.

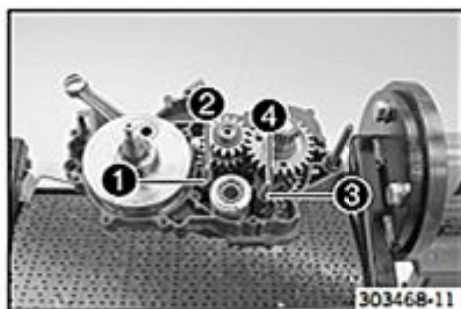
#### 16.5.5 Installing the shift rails



308176-11

(All XC models)

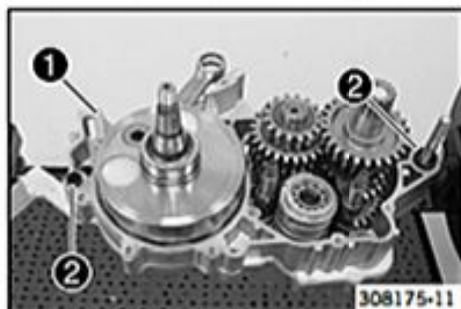
- Install shift rail 1 together with upper spring 2 and the lower spring.
- Install shift rail 3 together with upper spring 4.



(250 SX)

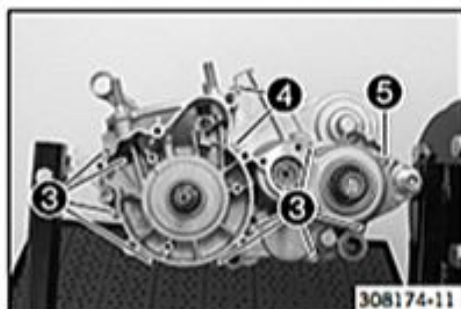
- Install shift rail ① together with upper spring ② and the lower spring.
- Install shift rail ③ together with upper spring ④.

### 16.5.6 Installing the left engine case section



(All XC models)

- Coat the sealing area thinly with grease.
- Mount engine case gasket ①.
- Check that dowels ② are seated correctly.



- Mount the left section of the engine case.

**Info**

Do not use the screws to pull the two sections of the engine case together.

- Mount screws ③ and, once all screws of the left section of the engine case have been mounted, tighten them.

**Guideline**

Screw, engine case	M6x40	10 Nm (7.4 lbf ft)
--------------------	-------	-----------------------

- Mount screws ④ and, once all screws of the left section of the engine case have been mounted, tighten them.

**Guideline**

Screw, engine case	M6x55	10 Nm (7.4 lbf ft)
--------------------	-------	-----------------------

- Mount screws ⑤ and tighten all screws in a crisscross pattern.

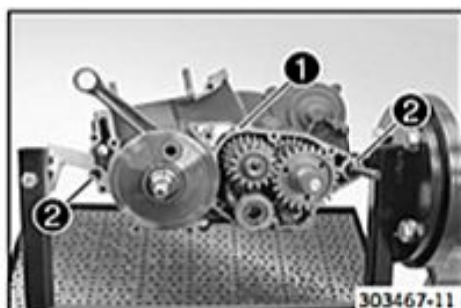
**Guideline**

Screw, engine case	M6x60	10 Nm (7.4 lbf ft)
--------------------	-------	-----------------------

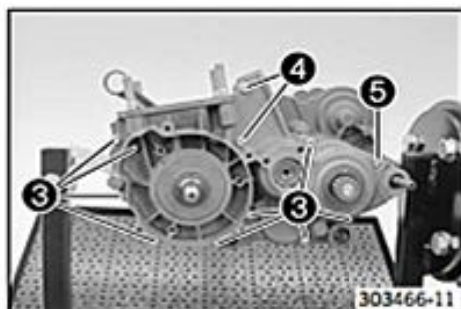
- Fix the engine in the engine work stand.
- Remove the excess lengths of the engine case gasket in the area of the cylinder support and the reed valve housing.

(250 SX)

- Coat the sealing area thinly with grease.
- Mount engine case gasket ①.
- Check that dowels ② are seated correctly.







- Mount the left section of the engine case.

**Info**

Do not use the screws to pull the two sections of the engine case together.

- Mount screws 3 and, once all screws of the left section of the engine case have been mounted, tighten them.

**Guideline**

Screw, engine case	M6x40	10 Nm (7.4 lbf ft)
--------------------	-------	-----------------------

- Mount screws 4 and, once all screws of the left section of the engine case have been mounted, tighten them.

**Guideline**

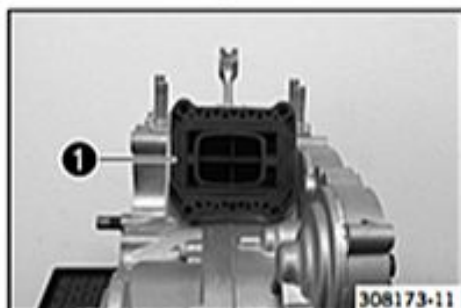
Screw, engine case	M6x55	10 Nm (7.4 lbf ft)
--------------------	-------	-----------------------

- Mount screws 5 and tighten all screws in a crisscross pattern.

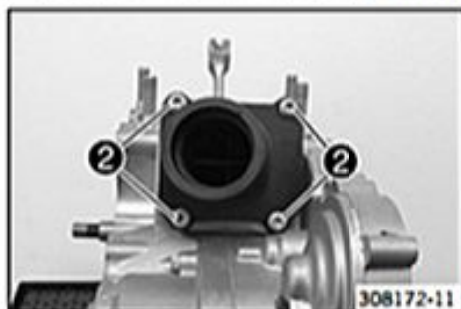
**Guideline**

Screw, engine case	M6x60	10 Nm (7.4 lbf ft)
--------------------	-------	-----------------------

- Fix the engine in the engine work stand.
- Remove the excess lengths of the engine case gasket in the area of the cylinder support and the reed valve housing.

**16.5.7 Installing the reed valve housing****(All XC models)**

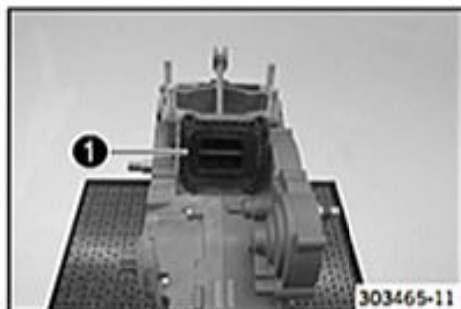
- Position the gasket.
- Position reed valve housing 1 in the engine case opening.



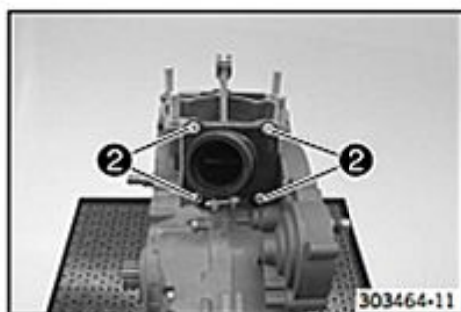
- Position the intake flange.
- Mount and tighten screws 2.

**Guideline**

Screw, intake flange/reed valve housing	M6	10 Nm (7.4 lbf ft)
---	----	-----------------------

**(250 SX)**

- Position the gasket.
- Position reed valve housing 1 in the engine case opening.

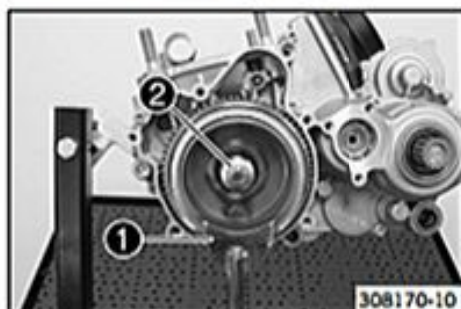


- Position the intake flange.
- Mount and tighten screws ②.

## Guideline

Screw, intake flange/reed valve housing	M6	10 Nm (7.4 lbf ft)
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## 16.5.8 Installing the rotor



## (All XC models)

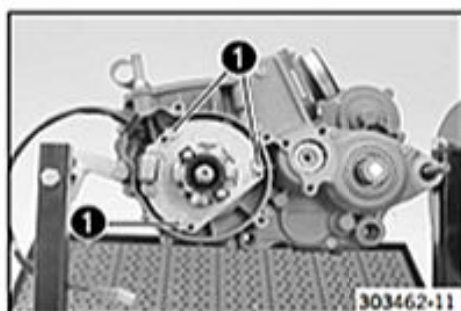
- Ensure that the woodruff key is seated properly.
- Grease the cone.
- Mount the rotor and hold it with special tool ①.

Holding spanner, rotor (55129001000) (☛ p. 286)

- Mount washer and nut ②. Tighten the nut.

## Guideline

Nut, rotor	M12x1	60 Nm (44.3 lbf ft)
------------	-------	------------------------



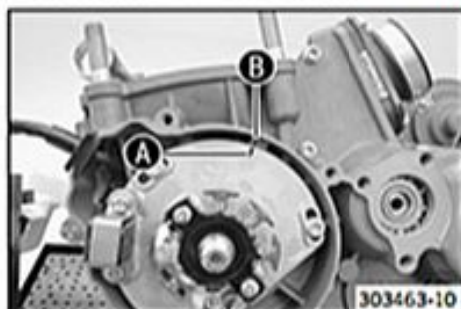
## (250 SX)

- Position the stator with ignition pulse generator.
- Mount screws ①, but do not tighten yet.

## Guideline

Screw, stator	M5	6 Nm (4.4 lbf ft)	Loctite® 222™
---------------	----	----------------------	---------------

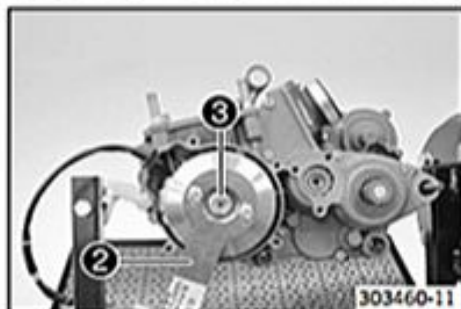
- Position the cable and insert the cable sleeve into the engine case.



- Turn the stator until markings A and B are aligned.
- Tighten screws ①.

## Guideline

Screw, stator	M5	6 Nm (4.4 lbf ft)	Loctite® 222™
---------------	----	----------------------	---------------



- Ensure that the woodruff key is seated properly.
- Grease the cone.
- Mount the rotor and hold it with special tool ②.

Holding spanner (54629012100) (☛ p. 285)

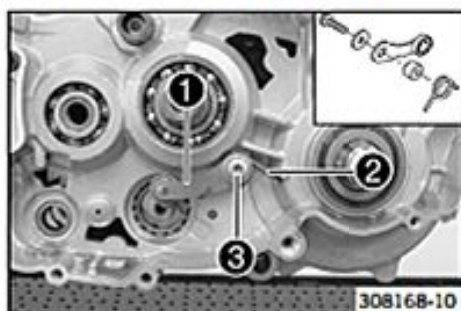
- Mount washer and nut ③. Tighten the nut.

## Guideline

Nut, rotor	M12x1	60 Nm (44.3 lbf ft)
------------	-------	------------------------



## 16.5.9 Installing the locking lever

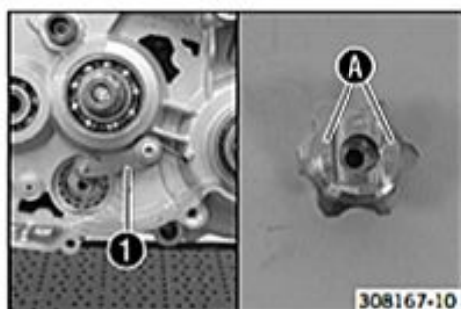


- Position locking lever ① with the sleeve and spring ②.
- Mount and tighten screw ③.

## Guideline

Screw, shift drum locating	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
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## 16.5.10 Installing the shift drum locating unit



- Press locking lever ① to the right and position the shift drum locating unit.



## Info

The flat surfaces A of the shift drum locating unit are not symmetrical.

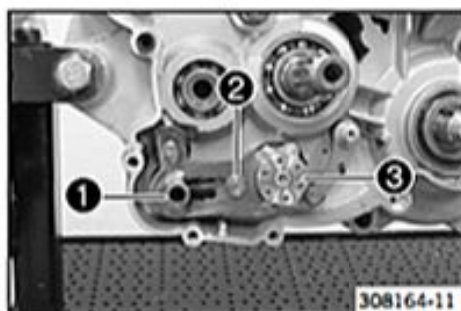


- Relieve tension from the locking lever.
- Mount and tighten screw ②.

## Guideline

Screw, shift drum locating	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
----------------------------	----	-----------------------	---------------

## 16.5.11 Installing the shift shaft



- Slide shift shaft ① with the washer into the bearing seat.
- Push sliding plate ② away from the shift drum locating unit ③. Insert the shift shaft all the way.
- Let the sliding plate engage in the shift drum locating unit.
- Shift through the transmission.

## 16.5.12 Installing the intermediate kick starter gear



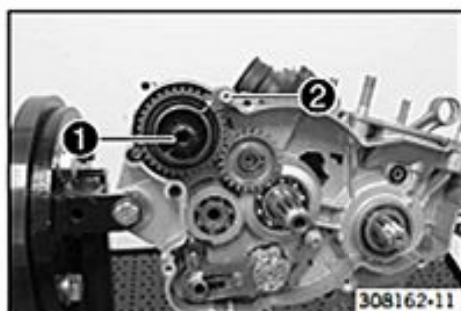
- Mount intermediate kick starter gear ① with the high collar facing the engine case.
- Position the washer.
- Mount lock ring ②.

## 16.5.13 Installing the kick starter shaft

## Preparatory work

- Preassemble the kick starter shaft. (☛ p. 203)



**Main work**

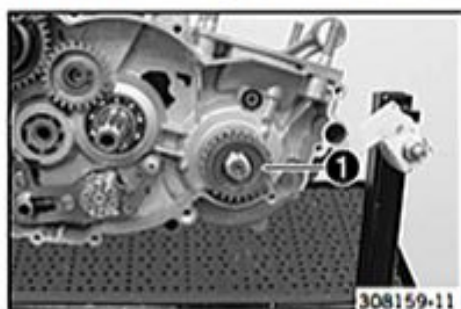
- Mount the preassembled kick starter shaft **1** with the washer.
- Tension the kick starter spring and mount and tighten screw **2**.

**Guideline**

Screw, kick starter spring	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
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**Info**

Ensure that the distance from the kick starter spring to the kick starter shaft is the same all around.

**16.5.14 Installing the clutch basket**

- Mount the distance sleeve.

**Info**

Do not damage the shaft seal ring.

- Position primary gear **1**.

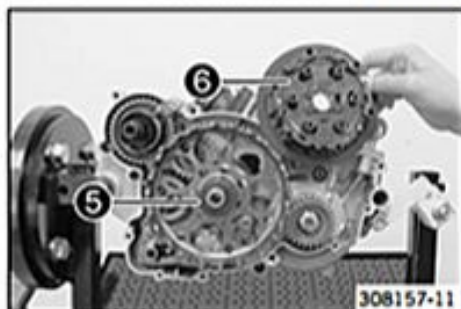


- Mount collar bushing **2**.
- Oil and mount needle bearing **3**.

Engine oil (15W/50) (☛ p. 280)



- Slide clutch basket **4** onto the gearbox main shaft.



- Slide on washer **5** and inner clutch hub **6**.



- Position the new lock washer and mount nut **7**. Tighten the nut, holding the inner clutch hub with a special tool.

**Guideline**

Nut, inner clutch hub	M18x1.5	120 Nm (88.5 lbf ft)	Loctite® 648™
-----------------------	---------	-------------------------	---------------

Clutch holder (51129003000) (☛ p. 285)



- Secure the nut with the lock washer.
- Hold the primary gear using special tool 8.

Gear segment (56012004000) (☛ p. 286)

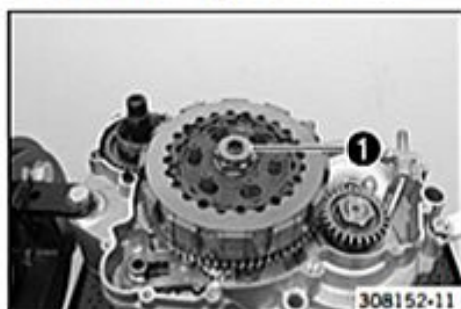
- Mount and tighten nut 9 with the washer.

#### Guideline

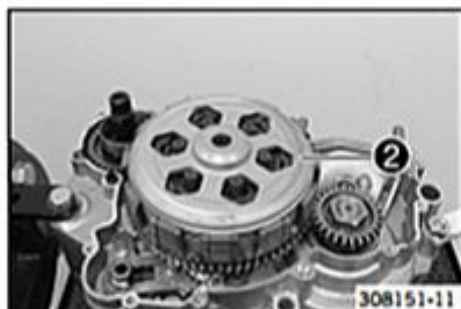
Nut, primary gear	M18LHx1.5	150 Nm (110.6 lbf ft)	Loctite® 648™
-------------------	-----------	--------------------------	---------------

- Crank the engine to ensure that it can move easily.

### 16.5.15 Installing the clutch discs



- Thoroughly oil the clutch facing discs.
- Beginning with an intermediate clutch disc, alternately insert all other clutch facing discs and intermediate clutch discs into the clutch basket.
- Mount clutch pressure piece 1.



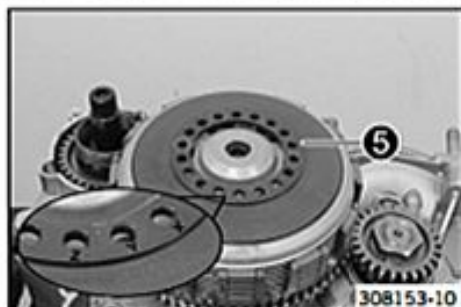
- Position pressure cap 2.



- Mount pretension ring 3 with the Top marking facing up.



- Position spring washer 4.



- Position spring retainer 5 with the X marking.





- Mount screws **6** and tighten in a crisscross pattern.

Guideline

Screw, clutch spring retainer	M5	6 Nm (4.4 lbf ft)
-------------------------------	----	-------------------



- Using a straightedge and the special tool, check the spring washers for distortion.

Feeler gauge (59029041100) (☛ p. 287)	
---------------------------------------	--

Spring washer distortion	0... 0.10 mm (0... 0.0039 in)
--------------------------	-------------------------------

- If the specified value was not attained:

- Remove screws **6** and mount the spring retainer with marking **Y**.

- Using a straightedge and the special tool, check the spring washers for distortion.

Feeler gauge (59029041100) (☛ p. 287)	
---------------------------------------	--

Spring washer distortion	0... 0.10 mm (0... 0.0039 in)
--------------------------	-------------------------------

- If the specified value was not attained:

- Remove screws **6** and mount the spring retainer with marking **Z**.

- Using a straightedge and the special tool, check the spring washers for distortion.

Feeler gauge (59029041100) (☛ p. 287)	
---------------------------------------	--

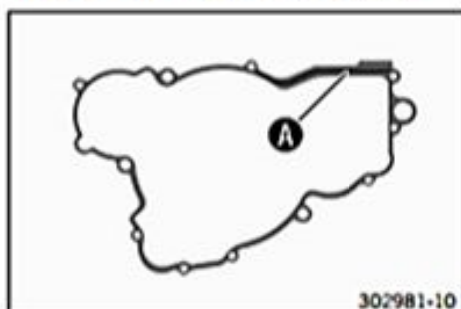
Spring washer distortion	0... 0.10 mm (0... 0.0039 in)
--------------------------	-------------------------------

- If the specified value was not attained:

- Change the clutch facing discs.



### 16.5.16 Installing the clutch cover

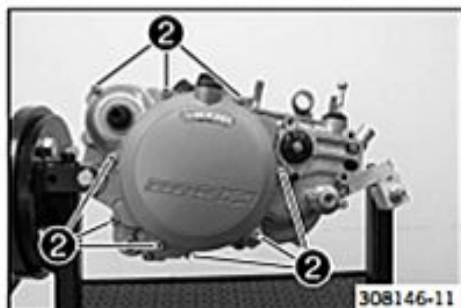


- Apply a thin layer of sealing compound in area **A** on both sides.

Loctite® 5910	
---------------	--



- Mount the dowels.
- Mount clutch cover gasket **1**.



- Position the clutch cover. Mount and tighten screws **2**.

Guideline

Screw, clutch cover	M6	10 Nm (7.4 lbf ft)
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## 16.5.17 Installing the water pump cover



- Mount the form ring.

**Info**

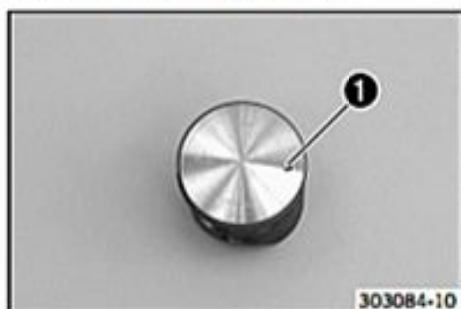
Ensure that the dowels are seated properly.

- Position the water pump cover.
- Mount and tighten screws ①.

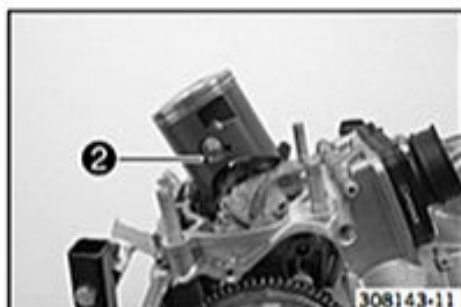
**Guideline**

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

## 16.5.18 Installing the piston

**(250 XC US/EU)**

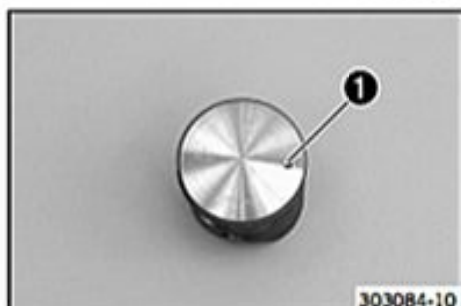
- Oil the upper conrod bearing and position it in the connecting rod.
- Position the piston.
- ✓ Piston marking ① must face the exhaust side.



- Slide piston pin ② into the connecting rod by hand.



- Cover the engine case opening with a cloth.
- Position the piston pin retainer in the 6 o'clock or 12 o'clock position.
- Ensure that the piston pin retainer is seated properly on both sides.
- Remove the cloth.

**(250 SX)**

- Oil the upper conrod bearing and position it in the connecting rod.
- Position the piston.
- ✓ Piston marking ① must face the exhaust side.



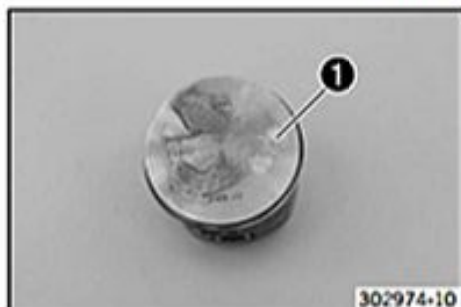
302975-10



302973-10

- Slide piston pin ② into the connecting rod by hand.

- Cover the engine case opening with a cloth.
- Position the piston pin retainer in the 6 o'clock or 12 o'clock position.
- Ensure that the piston pin retainer is seated properly on both sides.
- Remove the cloth.



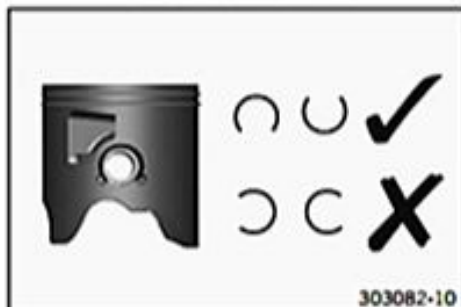
302974-10

**(300 XC US/EU)**

- Oil the upper conrod bearing and position it in the connecting rod.
- Position the piston.
- ✓ Piston marking ① must face the exhaust side.



302975-10



303082-10

- Slide piston pin ② into the connecting rod by hand.

- Cover the engine case opening with a cloth.
- Position the piston pin retainer in the 6 o'clock or 12 o'clock position.
- Ensure that the piston pin retainer is seated properly on both sides.
- Remove the cloth.

**16.5.19 Installing the cylinder**

308134-12

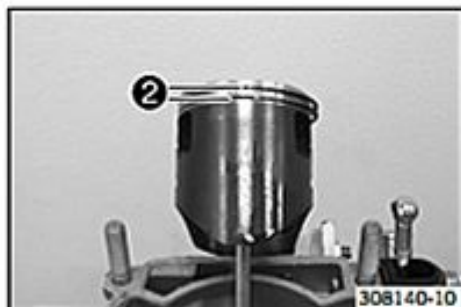
**(250 XC US/EU)**

- Position the new cylinder base gasket ①.

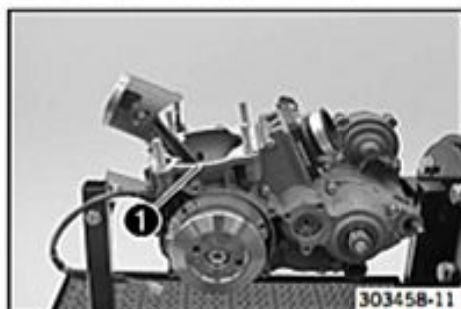
**Info**

If neither the piston, cylinder, crankshaft, or engine case need to be changed, the same gasket thickness can be used as before.

- Oil the cylinder and piston.



- Position the piston ring.
- ✓ The anti-rotation lock engages in piston ring end ②.



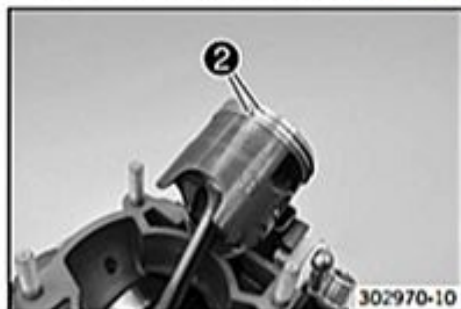
(250 SX)

- Position the new cylinder base gasket ①.

**Info**

If neither the piston, cylinder, crankshaft, or engine case need to be changed, the same gasket thickness can be used as before.

- Oil the cylinder and piston.



- Position the piston ring.
- ✓ The anti-rotation lock engages in piston ring end ②.



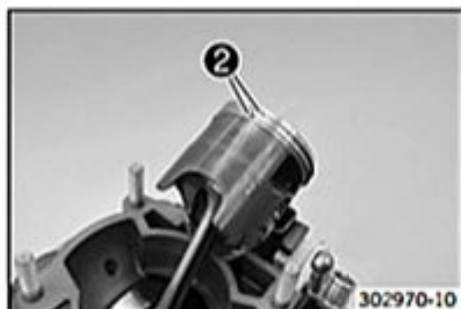
(300 XC US/EU)

- Position the new cylinder base gasket ①.

**Info**

If neither the piston, cylinder, crankshaft, or engine case need to be changed, the same gasket thickness can be used as before.

- Oil the cylinder and piston.



- Position the piston ring.
- ✓ The anti-rotation lock engages in piston ring end ②.



- Slide the cylinder over the piston.
- Push the cylinder down carefully.



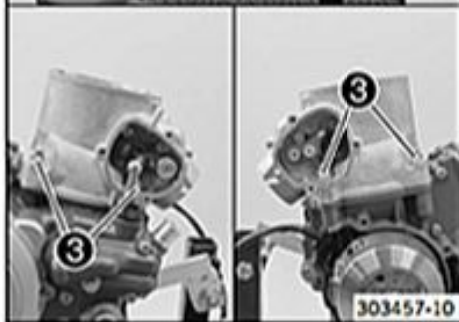


(All XC models)

- Mount nuts **3** on both sides and tighten in a crisscross pattern.

Guideline

Nut, cylinder base	M10	35 Nm (25.8 lbf ft)
--------------------	-----	------------------------



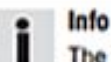
(250 SX)

- Mount nuts **3** on both sides and tighten in a crisscross pattern.

Guideline

Nut, cylinder base	M10	35 Nm (25.8 lbf ft)
--------------------	-----	------------------------

## 16.5.20 Checking the X-distance



## Info

The X-distance is the distance defined for the piston protrusion, when the cylinder is clamped down and the piston is at top dead center.

The X-distance must be checked very carefully. If the X-distance is too large, the compression decreases and the engine loses power. If the X-distance is too small, the engine knocks and overheats.



(250 XC US/EU)

- Apply special tool **1** to the cylinder.

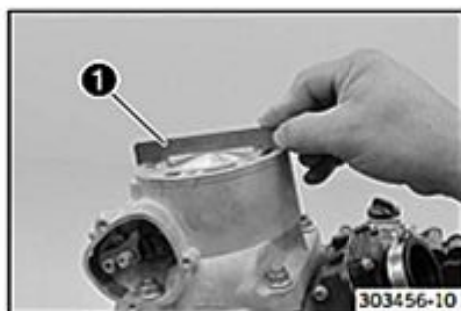
Adjustment gauge (54829001100) (☞ p. 285)

- Position the piston at top dead center.
- Check the X-distance using the special tool.

Feeler gauge (59029041100) (☞ p. 287)

X (upper edge of piston to upper edge of cylinder)	0... 0.10 mm (0... 0.0039 in)
--	-------------------------------

- If the specified value is not attained:
  - Adjust the X-distance. (☞ p. 220)

**(250 SX)**

- Apply special tool 1 to the cylinder.

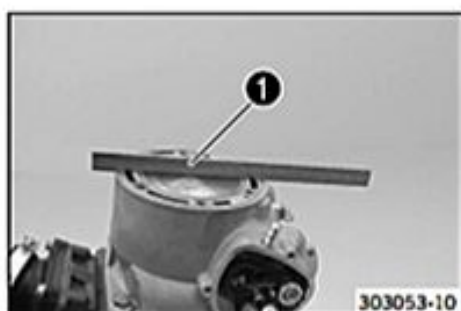
Adjustment gauge (54829001100) (☞ p. 285)

- Position the piston at top dead center.
- Check the X-distance using the special tool.

Feeler gauge (59029041100) (☞ p. 287)

X (upper edge of piston to upper edge of cylinder)	0... 0.10 mm (0... 0.0039 in)
--	-------------------------------

- If the specified value is not attained:
  - Adjust the X-distance. (☞ p. 220)

**(300 XC US/EU)**

- Place straightedge 1 on the cylinder.
- Position the piston at top dead center.
- Check the X-distance using the special tool.

Feeler gauge (59029041100) (☞ p. 287)

X (upper edge of piston to upper edge of cylinder)	0... 0.10 mm (0... 0.0039 in)
--	-------------------------------

- If the specified value is not attained:
  - Adjust the X-distance. (☞ p. 220)

**16.5.21 Adjusting the X-distance****Info**

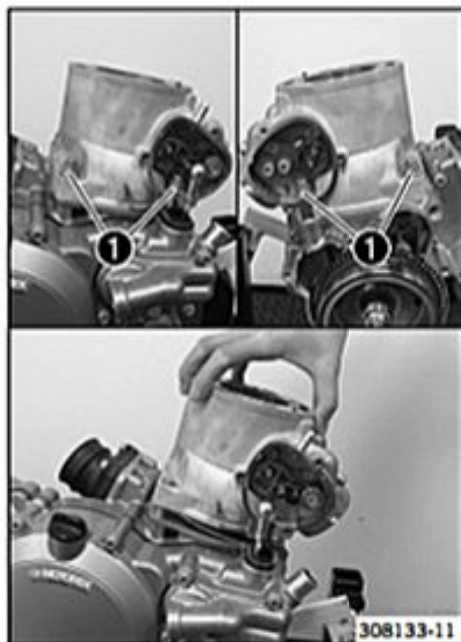
The X-distance is adjusted by inserting cylinder base gaskets of various thicknesses.

**Preparatory work**

- Check the X-distance. (☞ p. 219)

**Main work**

- Remove nuts 1.
- Carefully slide the cylinder up and take it off.





- Replace cylinder base gasket **2** with a cylinder base gasket of the required X-distance.

**Info**

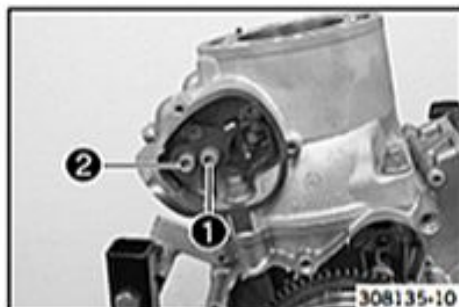
Multiple cylinder base gaskets can be combined.

**Finishing work**

- Install the cylinder. (→ p. 217)

**16.5.22 Adjusting the Z-distance****Info**

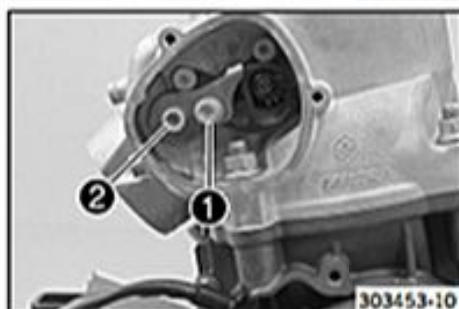
The Z-distance is the distance from the lower edge of the control flap to the upper edge of the cylinder, measured in the middle of the exhaust port.

**(All XC models)**

- Remove screws **1** and **2**.
- Remove screws **1** and **2** but do not tighten yet.

**Guideline**

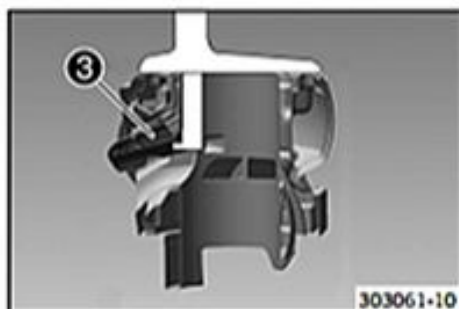
Screw, control flap, exhaust control	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
--------------------------------------	----	-----------------------	---------------

**(250 SX)**

- Remove screws **1** and **2**.
- Remove screws **1** and **2** but do not tighten yet.

**Guideline**

Screw, control flap, exhaust control	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
--------------------------------------	----	-----------------------	---------------

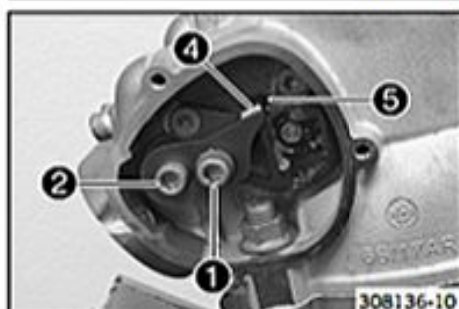


- Adjust the Z-distance using the depth gauge.

**Guideline**

Z (height of control flap) (250 SX, 250 XC US/EU)	48 mm (1.89 in)
Z (height of control flap) (300 XC US/EU)	48.5 mm (1.909 in)

- Move control flap **3** up and position the depth gauge.

**(All XC models)**

- Position stop plate **4** so it is in contact with retaining bracket **5**.
- Tighten screws **1** and **2**.

**Guideline**

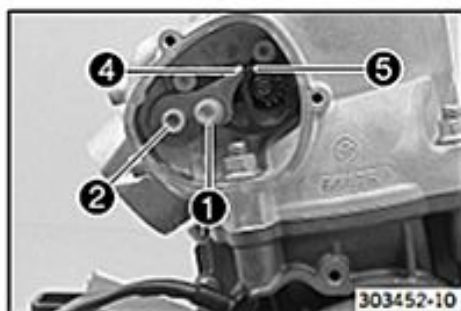
Screw, control flap, exhaust control	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
--------------------------------------	----	-----------------------	---------------

- Check the Z-distance.

**Guideline**

Z (height of control flap) (250 XC US/EU)	48 mm (1.89 in)
Z (height of control flap) (300 XC US/EU)	48.5 mm (1.909 in)





(250 SX)

- Position stop plate **4** so it is in contact with retaining bracket **5**.
- Tighten screws **1** and **2**.

Guideline

Screw, control flap, exhaust control	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
--------------------------------------	----	--------------------	---------------

- Check the Z-distance.

Guideline

Z (height of control flap)	48 mm (1.89 in)
----------------------------	-----------------

- Mount gasket **6**.
- Press the control flap all the way down.
- Mount ball socket **7**.

**Info**

The linkage may only be pulled up slightly.  
The control flap may not be moved up.

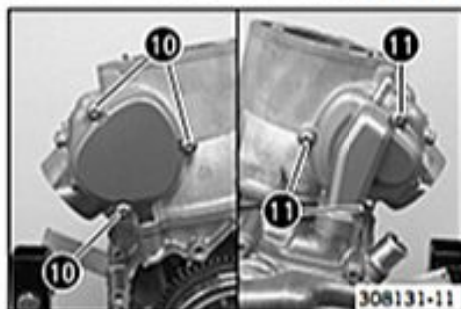
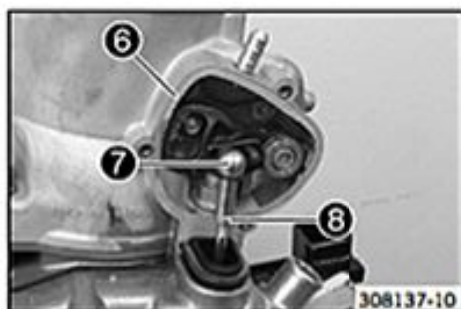
- Check the movement of the linkage.

Guideline

≤ 1 mm (≤ 0.04 in)
--------------------

- If the linkage is pulled up further:
  - Loosen counter nut **8**.
  - Turn the ball socket accordingly until the linkage has the correct length.
  - Tighten the lock nut.

- Mount retainer **9**.

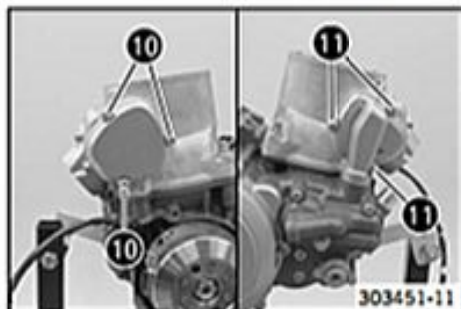


(All XC models)

- Position the gasket.
- Position both covers.
- Mount and tighten screws **10** and **11**.

Guideline

Screw, exhaust control cover	M5	6 Nm (4.4 lbf ft)
------------------------------	----	-------------------



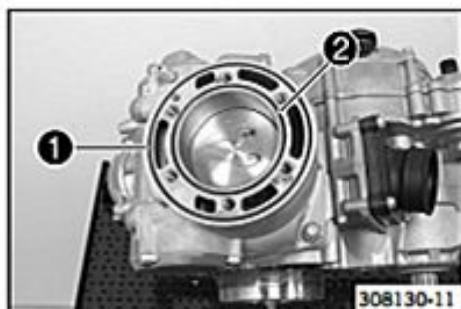
(250 SX)

- Position the gasket.
- Position both covers.
- Mount and tighten screws **10** and **11**.

Guideline

Screw, exhaust control cover	M5	6 Nm (4.4 lbf ft)
------------------------------	----	-------------------

## 16.5.23 Installing the cylinder head



(250 XC US/EU)

- Mount O-rings 1 and 2.

**Info**

Ensure that the dowels are seated correctly.



(250 SX)

- Mount O-rings 1 and 2.

**Info**

Ensure that the dowels are seated correctly.

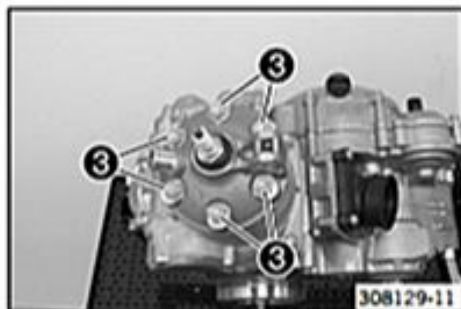


(300 XC US/EU)

- Mount O-rings 1 and 2.

**Info**

Ensure that the dowels are seated correctly.



(All XC models)

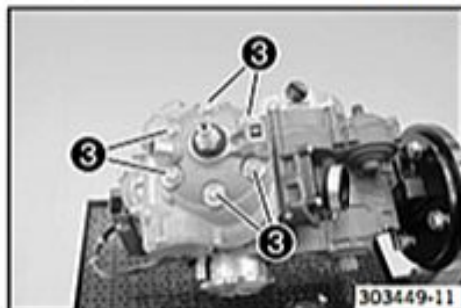
- Put the cylinder head in place. Mount screws 3 with the washers and tighten them in a crisscross pattern.

## Guideline

Screw, cylinder head	M8	27 Nm (19.9 lbf ft)
----------------------	----	------------------------

**Info**

Use new washers.



(250 SX)

- Put the cylinder head in place. Mount screws 3 with the washers and tighten them in a crisscross pattern.

## Guideline

Screw, cylinder head	M8	27 Nm (19.9 lbf ft)
----------------------	----	------------------------

**Info**

Use new washers.

## 16.5.24 Installing the kick starter

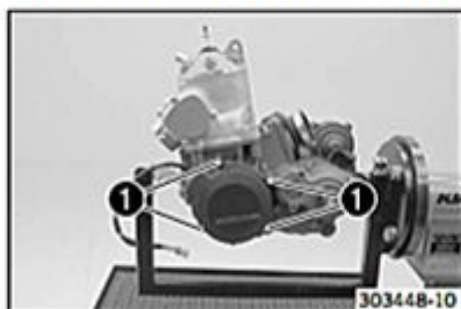


- Position the kick starter. Mount and tighten screw ①.

## Guideline

Screw, kick starter	M8	25 Nm (18.4 lbf ft)	Loctite® 2701™
---------------------	----	------------------------	----------------

## 16.5.25 Installing the alternator cover (250 SX)



- Position the alternator cover.
- Mount and tighten screws ①.

## Guideline

Screw, alternator cover	M5	5 Nm (3.7 lbf ft)	
-------------------------	----	-------------------	--

## 16.5.26 Installing the starter motor (All XC models)

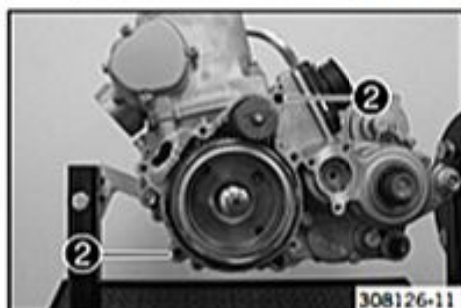
## Preparatory work

- Check the electric starter drive. (☞ p. 205)

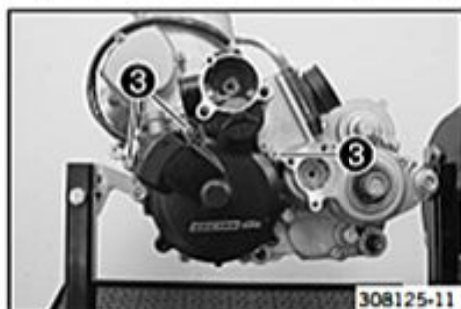
## Main work

- Grease and mount Bendix ①.

Lubricant (T625) (☞ p. 282)
-----------------------------



- Mount dowels ②.
- Position the gasket.



- Position the alternator cover.
- Mount and tighten screw ③.

## Guideline

Screw, alternator cover	M6	8 Nm (5.9 lbf ft)	
-------------------------	----	-------------------	--





- Grease and mount starter idler gear **4**.

Lubricant (T625) (☛ p. 282)



- Mount dowels **5**.
- Position the gasket.



- Position the cover.
- Mount and tighten screws **6**.

Guideline

Screw, alternator cover	M6	8 Nm (5.9 lbf ft)
-------------------------	----	-------------------



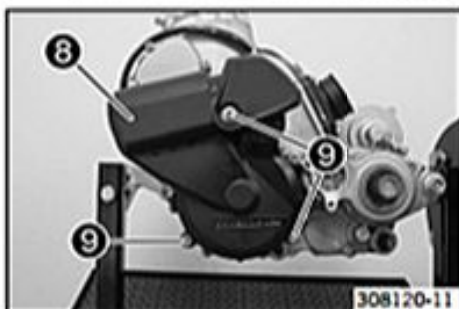
- Grease the O-ring. Position the starter motor.

Long-life grease (☛ p. 282)

- Mount and tighten screws **7**.

Guideline

Screw, starter motor	M6	8 Nm (5.9 lbf ft)
----------------------	----	-------------------

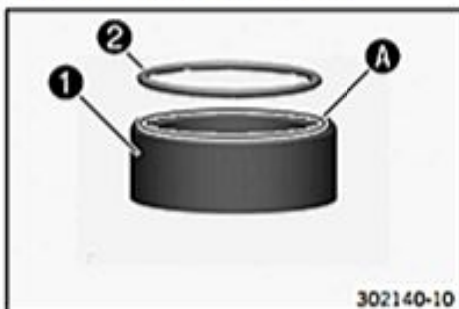


- Position cover **8**.
- Mount and tighten screws **9**.

Guideline

Screw, alternator cover	M6	8 Nm (5.9 lbf ft)
-------------------------	----	-------------------

#### 16.5.27 Installing the spacer



- Before mounting, grease spacer **1** in area **A** and O-Ring **2**.

Long-life grease (☛ p. 282)

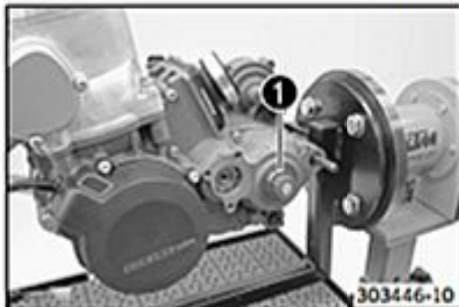
- Position the O-ring in the cut-out of the spacer.

**(All XC models)**

- Grease the shaft seal ring.

Long-life grease (☛ p. 282)

- Push spacer 1 with the O-ring onto the countershaft with a twisting motion.
  - ✓ The cut-out with the O-ring must face inward.
  - ✓ The shaft seal ring rests against the spacer along the entire circumference.

**(250 SX)**

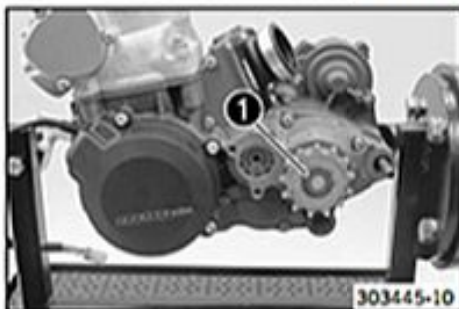
- Grease the shaft seal ring.

Long-life grease (☛ p. 282)

- Push spacer 1 with the O-ring onto the countershaft with a twisting motion.
  - ✓ The cut-out with the O-ring must face inward.
  - ✓ The shaft seal ring rests against the spacer along the entire circumference.

**16.5.28 Installing the engine sprocket****(All XC models)**

- Slide on the engine sprocket with the collar facing the engine. Mount lock ring 1.

**(250 SX)**

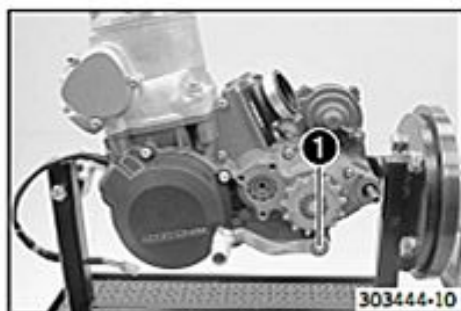
- Slide on the engine sprocket with the collar facing the engine. Mount lock ring 1.

**16.5.29 Installing the shift lever****(All XC models)**

- Position the shift lever. Mount and tighten screw 1 with the washers.

**Guideline**

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



(250 SX)

- Position the shift lever. Mount and tighten screw 1 with the washers.

Guideline

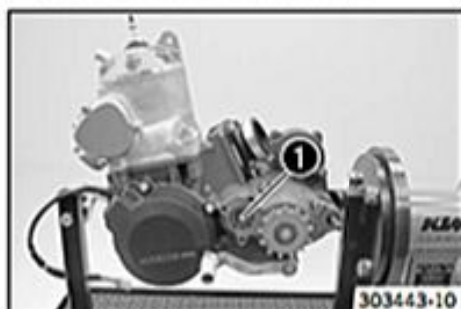
Screw, shift lever	M6	14 Nm (10.3 lbf ft)	Loctite® 243™
--------------------	----	------------------------	---------------

## 16.5.30 Installing the clutch push rod



(All XC models)

- Mount clutch push rod 1.



(250 SX)

- Mount clutch push rod 1.

## 16.5.31 Installing the gear oil drain plug



- Mount and tighten the gear oil drain plug 1 with the magnet and the new seal ring.

Guideline

Gear oil drain plug with magnet	M12x1.5	20 Nm (14.8 lbf ft)
---------------------------------	---------	------------------------

- Activate the kick starter several times to check whether the engine turns over freely.

## 16.5.32 Removing the engine from the work stand



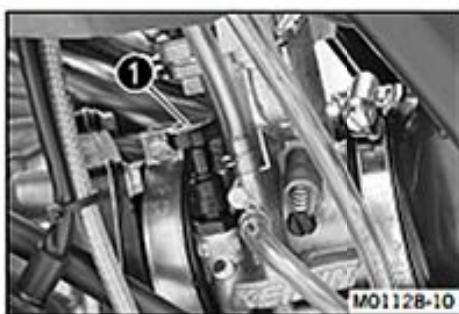
- Remove the screw connection from the special tool.

Engine fixing arm (56029002030) (☛ p. 286)

- Remove the engine from the work stand.



## 17.1 Choke



Choke ① is fitted on the left side of the carburetor.

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

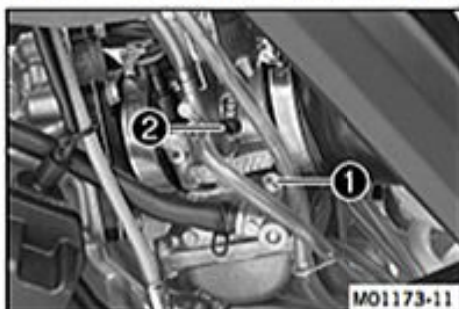
**Info**

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

**Possible states**

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

## 17.2 Carburetor – adjusting the idle speed



- Screw in idle air adjusting screw ① all the way and turn it to the specified basic position.

**Guideline**

Idle air adjusting screw (250 SX)	
Open	2 turns
Idle air adjusting screw (250 XC US/EU)	
Open	2 turns
Idle air adjusting screw (300 XC US/EU)	
Open	2 turns

- Run the engine until warm.

**Guideline**

Warm-up time	≥ 5 min
--------------	---------

**Danger**

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

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

- Adjust the idle speed with adjusting screw ②.

**Guideline**

Choke function deactivated – The choke lever is pushed in to the stop. (☛ p. 228)	
Idle speed	1,400... 1,500 rpm

- Turn idle air adjusting screw ① slowly in a clockwise direction until the idle speed begins to fall.
- Note the position and turn the idle air adjusting screw slowly counterclockwise until the idle speed again begins to fall.
- Adjust to the point between these two positions with the highest idle speed.

**Info**

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

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

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

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

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

## 17.3 Emptying the carburetor float chamber

**Danger****Fire hazard** Fuel is highly flammable.

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

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

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

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

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

**Info**

Carry out this work with a cold engine.  
Water in the float chamber results in malfunctioning.

**Preparatory work  
(250 SX)**

- Turn handle ❶ of the fuel tap to the **OFF** position.  
(Figure B02072-10 p. 105)
- ✓ Fuel no longer flows from the fuel tank to the carburetor.

**(All XC models)**

- Turn handle ❶ of the fuel tap to the **OFF** position.  
(Figure L00904-10 p. 106)
- ✓ Fuel no longer flows from the fuel tank to the carburetor.

**Main work**

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



## 17.4 Removing the carburetor

**Danger****Fire hazard** Fuel is highly flammable.

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

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

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





## Warning

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

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

### Preparatory work

- Remove the seat. (☛ p. 103)

#### (250 SX)

- Turn handle ❶ of the fuel tap to the **OFF** position. (Figure B02072-10 ☛ p. 105)

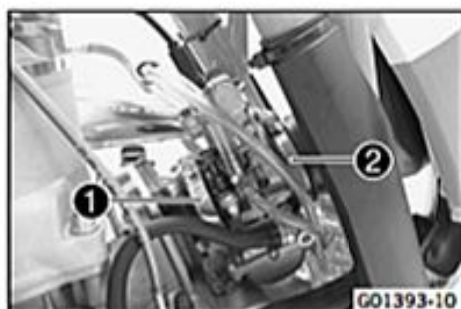
#### (All XC models)

- Turn handle ❶ of the fuel tap to the **OFF** position. (Figure L00904-10 ☛ p. 106)
- Remove the fuel tank. (☛ p. 103)

### Main work

#### (250 SX)

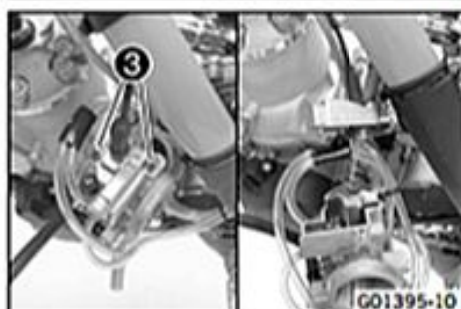
- Loosen hose clip ❶.
- Loosen hose clip ❷.
- Pull the carburetor out of the intake flange toward the rear.



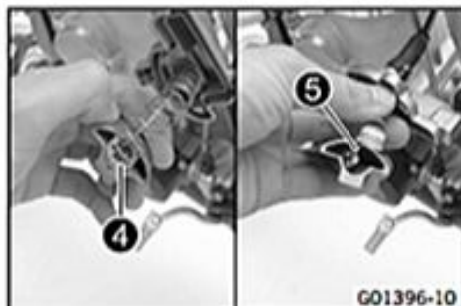
- Pull the carburetor forward out of the intake flange.



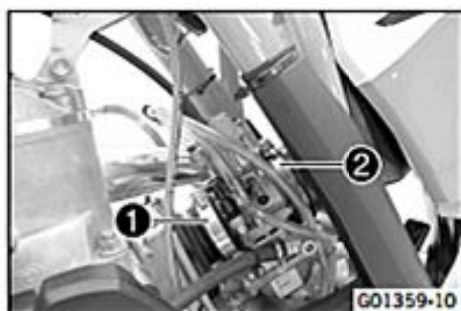
- Remove screws ❸.
- Remove the throttle slide cover and pull the throttle slide out of the carburetor.
- Drain the remaining fuel.



- Pull back the throttle slide spring and plastic lock ❹.
- Detach throttle cable ❺.
- Remove the throttle slide.







G01359-10

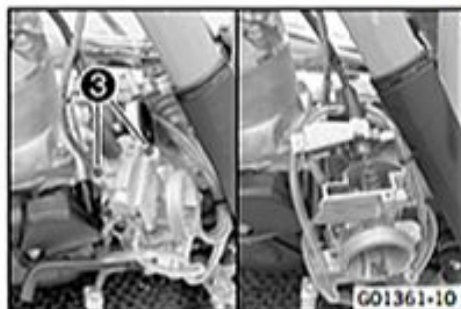
(All XC models)

- Loosen hose clip 1.
- Loosen hose clip 2.
- Pull the carburetor out of the intake flange toward the rear.



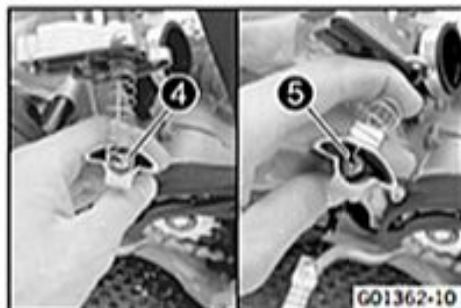
G01360-10

- Pull the carburetor forward out of the intake flange.



G01361-10

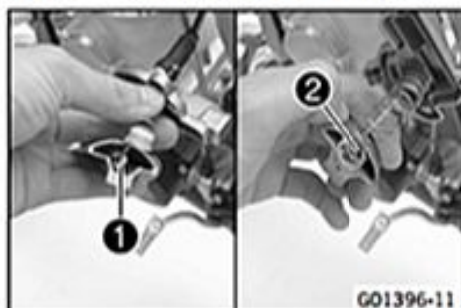
- Remove screws 3.
- Remove the throttle slide cover and pull the throttle slide out of the carburetor.
- Drain the remaining fuel.



G01362-10

- Pull back the throttle slide spring and plastic lock 4.
- Detach throttle cable 5.
- Remove the throttle slide.

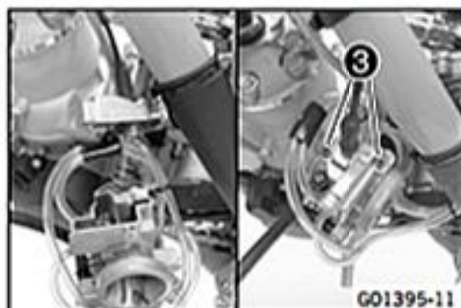
## 17.5 Installing the carburetor



G01396-11

Main work  
(250 SX)

- Attach throttle cable 1.
- Position plastic lock 2.
- ✓ The catch of the plastic retainer engages in the cut-out of the jet needle screw.



G01395-11

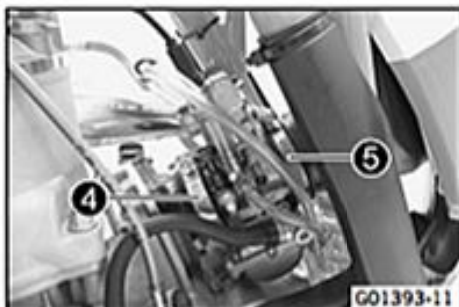
- Position the throttle slide and throttle slide cover.
- Mount and tighten screws 3.

Guideline

Screw, throttle slide cover	M5	3 Nm (2.2 lbf ft)
-----------------------------	----	-------------------



- Position the carburetor in the intake flange.

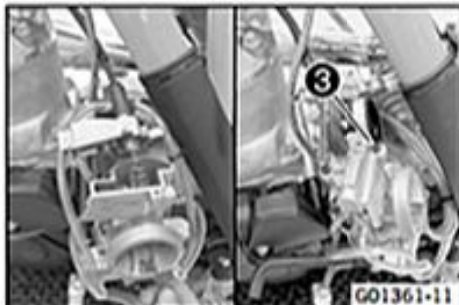


- Position the carburetor in the intake flange.
- Position and tighten hose clip 4.
- Position and tighten hose clip 5.



## (All XC models)

- Attach throttle cable 1.
- Position plastic retainer 2.
- ✓ The catch of the plastic retainer engages in the cut-out of the jet needle screw.



- Position the throttle slide and throttle slide cover.
- Mount and tighten screws 3.

## Guideline

Screw, throttle slide cover	M5	3 Nm (2.2 lbf ft)
-----------------------------	----	-------------------



- Position the carburetor on the intake flange.



- Position the carburetor on the intake flange.
- Position and tighten hose clip 4.
- Position and tighten hose clip 5.

## Finishing work

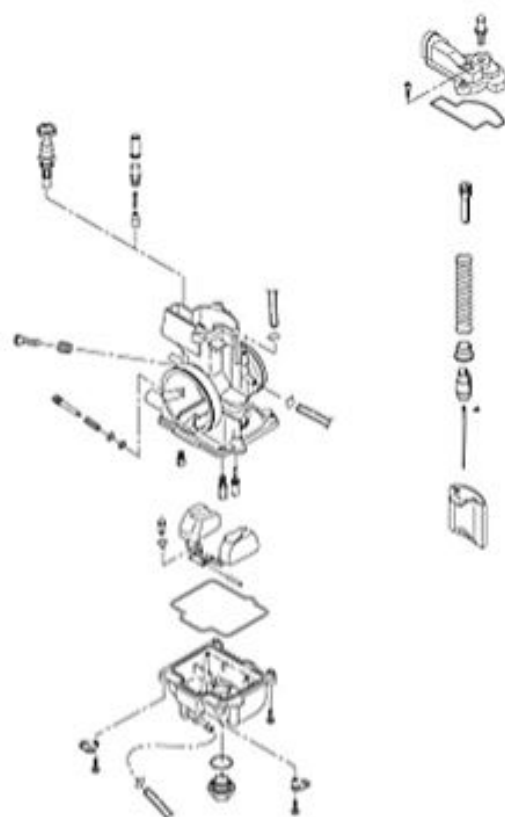
- Install the fuel tank. (p. 104)
- Mount the seat. (p. 103)

- Check the play in the throttle cable. (☞ p. 72)
- Carburetor – adjust the idle speed. (☞ p. 228)

## 17.6 Checking/adjusting the carburetor components

### Condition

The carburetor has been removed.



303400-10

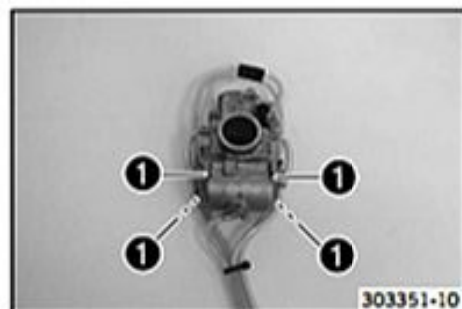
- Disassemble the carburetor. (☞ p. 233)
- Check the choke slide. (☞ p. 234)
- Check the jet needle. (☞ p. 235)
- Check the throttle slide. (☞ p. 235)
- Check the float needle valve. (☞ p. 235)
- Assemble the carburetor. (☞ p. 235)

## 17.7 Disassembling the carburetor

### Condition

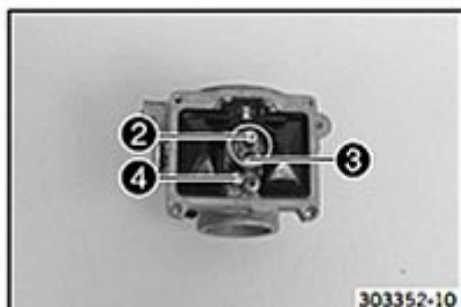
The carburetor has been removed.

- Remove screws ①.
- Remove the float chamber.
- Pull the hoses off of the carburetor.

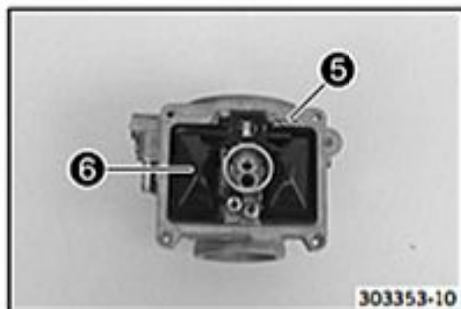


303351-10

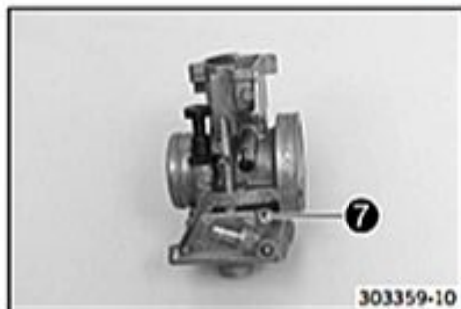




- Remove main jet ②.
- Remove idling jet ③.
- Remove cold start jet ④.



- Remove fulcrum pin ⑤.
- Remove float ⑥ and the float needle valve.

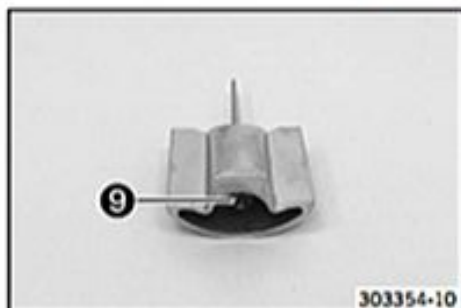


- Note the setting of the idle air adjusting screw ⑦.
- Remove the idle air adjusting screw with the O-ring.



## Info

Make sure not to misplace the spring.



- Remove needle screw cap ⑨.
- Pull the jet needle out of the throttle slide.

## 17.8 Checking the choke slide

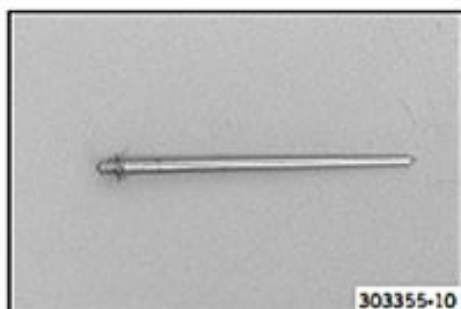


### Condition

The choke slide has been removed.

- Check the choke slide for smooth operation.
  - If the choke slide is difficult to move or is dirty:
    - Clean the choke slide and check its activation.
- Check the piston of the choke slide for damage and wear.
  - If the piston of the choke slide is damaged or worn:
    - Change the choke slide.
- Check the rubber sleeve and lock.
  - If the rubber sleeve is damaged or brittle, or if the lock is not functioning:
    - Change the choke slide.

## 17.9 Checking the jet needle



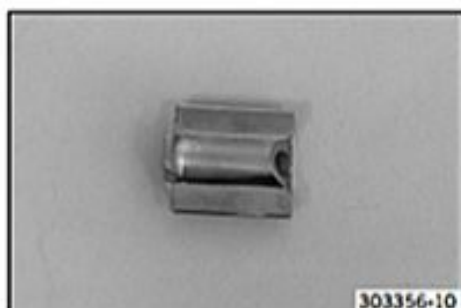
303355-10

### Condition

The jet needle has been removed.

- Check the jet needle for bending and wear of the coating.
  - If the jet needle is bent, or the coating is damaged or worn:
    - Change the jet needle.
- Check the needle clip for tightness.
  - If the needle clip is loose:
    - Change the needle clip or jet needle.

## 17.10 Checking the throttle slide



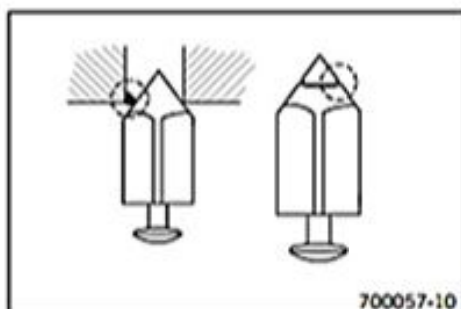
303356-10

### Condition

The throttle slide has been removed.

- Check the throttle slide for damage and wear.
  - If the throttle slide is damaged or worn:
    - Change the throttle slide.
- Check the coating of the throttle slide for damage and wear.
  - If the coating is broken or worn:
    - Change the throttle slide.

## 17.11 Checking the float needle valve



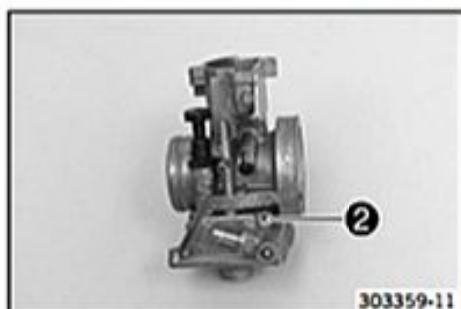
700057-10

### Condition

The float needle valve has been removed.

- Check the float needle valve including the valve seat for deposits.
  - If there are deposits:
    - Clean the valve seat. Clean or change the float needle valve.
- Check the float needle valve for wear and the sealing area for notches.
  - If the sealing area is damaged or worn:
    - Change the float needle valve.

## 17.12 Assembling the carburetor



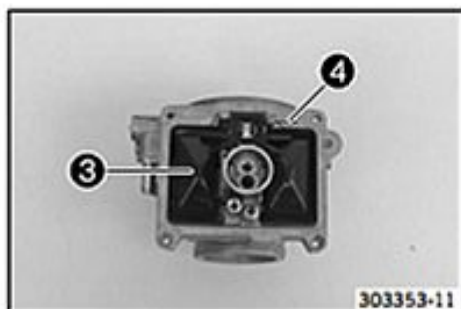
303359-11

### Alternative 1

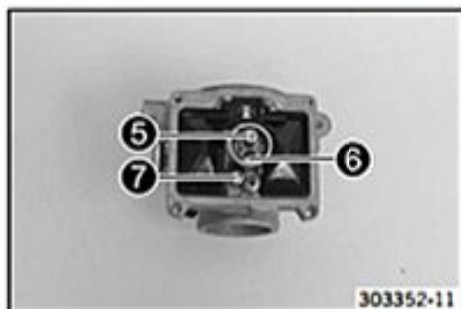
- Mount idle air adjusting screw ② with the spring and O-ring.
- Set the idle air adjusting screw to the specified value.

### Alternative 2

- Set the idle air adjusting screw to the value determined when it was disassembled.



- Position the float needle valve and float **3**.
- Mount fulcrum pin **4**.



- Mount and tighten main jet **5**.

## Guideline

Main jet	M5x0.75	2 Nm (1.5 lbf ft)
----------	---------	-------------------

- Mount and tighten idling jet **6**.

## Guideline

Idling jet	M5	2 Nm (1.5 lbf ft)
------------	----	-------------------

- Mount and tighten cold start jet **7**.

## Guideline

Cold start jet	M5	2 Nm (1.5 lbf ft)
----------------	----	-------------------

- Check/adjust the float level. (☛ p. 236)

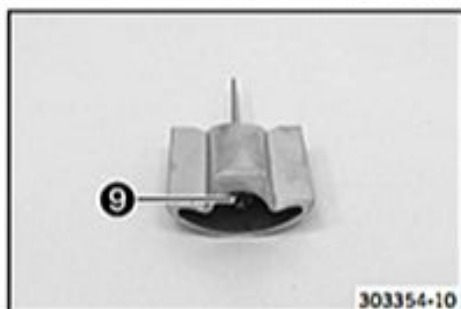
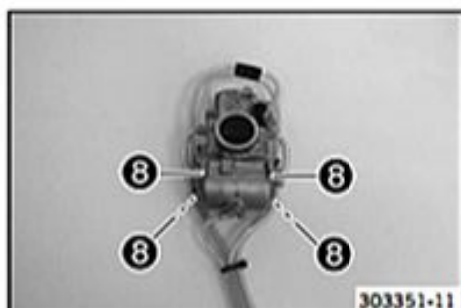
- Mount the hoses on the carburetor.

- Position the float chamber.

- Mount and tighten screws **8**.

## Guideline

Other screws, carburetor	M4	2 Nm (1.5 lbf ft)
--------------------------	----	-------------------



- Position the jet needle in the throttle slide.

- Mount and tighten needle screw cap **9**.

## Guideline

Needle screw cap	M8	3.5 Nm (2.58 lbf ft)
------------------	----	-------------------------

## 17.13 Checking/adjusting the float level

### Condition

The carburetor and float chamber have been removed.

- Tilt the carburetor sideways, preventing the fulcrum pin from falling out.
- Tilt the carburetor until the float is resting against the float needle valve, but the float needle valve is not being pressed together.

60°

- If the edge of the float is not parallel (max. 1° deviation upwards) to the sealing area of the float housing in this position:
  - Adjust the float level by bending the float lever.





## 18.1 Checking/correcting the fluid level of the hydraulic clutch



## Info

The fluid level rises with increasing wear of the clutch facing discs.



- Move the clutch fluid reservoir mounted on the handlebar to a horizontal position.
- Remove screws ①.
- Remove cover ② with membrane ③.
- Check the fluid level.

Fluid level below container rim	4 mm (0.16 in)
---------------------------------	----------------

- If the level of the fluid does not meet specifications:

- Correct the fluid level of the hydraulic clutch.

Brake fluid DOT 4 / DOT 5.1 (☞ p. 280)
--

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



## Info

Clean up overflowed or spilled brake fluid immediately with water.

## 18.2 Changing the hydraulic clutch fluid



## Warning

**Environmental hazard** Hazardous substances cause environmental damage.

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



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

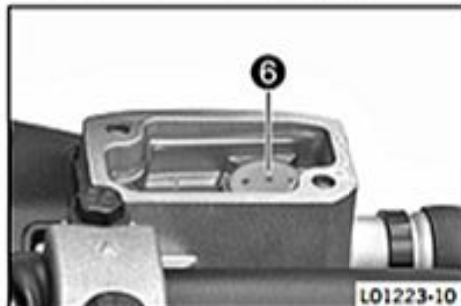


- Fill bleeding syringe ④ with the appropriate hydraulic fluid.

Bleed syringe (50329050000) (☞ p. 284)
--

Brake fluid DOT 4 / DOT 5.1 (☞ p. 280)
--

- On the clutch slave cylinder, remove bleeder screw ⑤ and mount bleeding syringe ④.



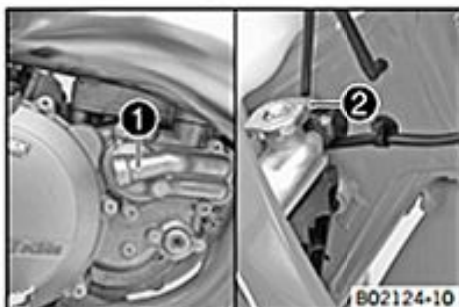
- Inject the liquid into the system until it escapes from drill hole ⑥ of the master cylinder without bubbles.
- Drain fluid occasionally from the master cylinder reservoir, to prevent overflow.
- Remove the bleeding syringe. Mount and tighten screws bleeder screw.
- Correct the fluid level of the hydraulic clutch.

## Guideline

Fluid level below container rim	4 mm (0.16 in)
---------------------------------	----------------

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

## 19.1 Cooling system



The water pump ① in the engine ensures forced circulation of the coolant. The pressure resulting from the warming of the cooling system is regulated by a valve in radiator cap ②. This ensures that operating the vehicle at the specified coolant temperature will not result in a risk of malfunctions.

120 °C (248 °F)

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

## 19.2 Checking the antifreeze and coolant level

**Warning**

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

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

**Warning**

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

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

**Condition**

The engine is cold.

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

-25... -45 °C (-13... -49 °F)

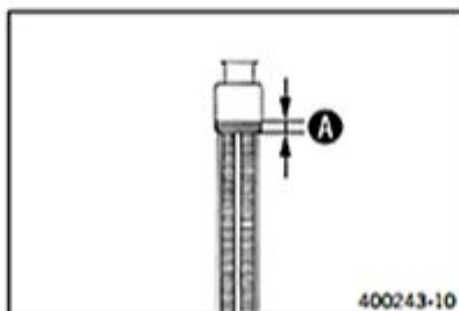
- If the antifreeze in the coolant does not match the specified value:
  - Correct the coolant antifreeze.
- Check the coolant level in the radiator.

Coolant level ① above the radiator fins	10 mm (0.39 in)
---	-----------------

- If the coolant level does not match the specified value:
  - Correct the coolant level.

Coolant (☛ p. 280)

- Mount the radiator cap.



## 19.3 Checking the coolant level

**Warning**

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

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

**Warning**

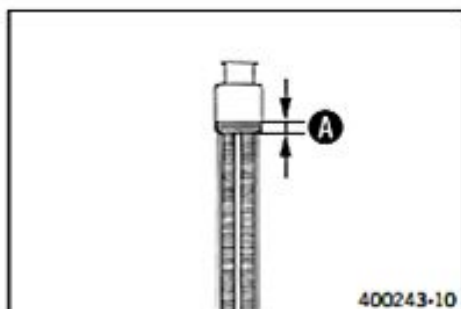
**Danger of poisoning** Coolant is poisonous and a health hazard.

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

**Condition**

The engine is cold.





- Stand the motorcycle upright on a horizontal surface.
- Remove the radiator cap.
- Check the coolant level in the radiator.

Coolant level <b>A</b> above the radiator fins	10 mm (0.39 in)
--	-----------------

- If the coolant level does not match the specified value:
  - Correct the coolant level.

Coolant (☛ p. 280)

- Mount the radiator cap.

## 19.4 Draining the coolant



### Warning

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

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



### Warning

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

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

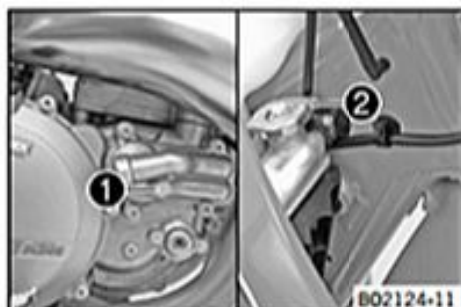
### Condition

The engine is cold.

- Position the motorcycle upright.
- Place a suitable container under the water pump cover.
- Remove screw **1**. Take off radiator cap **2**.
- Completely drain the coolant.
- Mount and tighten screw **1** with a new seal ring.

### Guideline

Drain plug, water pump cover	M10x1	15 Nm (11.1 lbf ft)
------------------------------	-------	------------------------



## 19.5 Refilling with coolant



### Warning

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

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



- Make sure that screw **1** is tightened.





- Position the motorcycle upright.
- Completely fill the radiator with coolant.

Coolant	1.2 l (1.3 qt.)	Coolant (☛ p. 280)
---------	-----------------	--------------------

- Mount radiator cap ②.

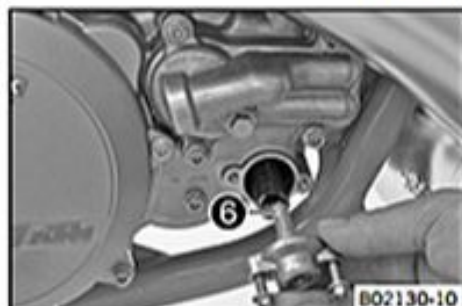
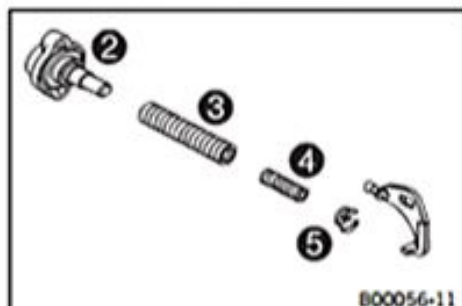
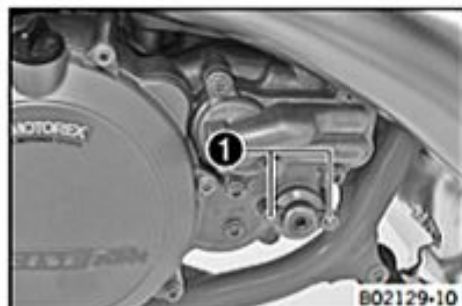
**Danger**

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

- When running the engine, always make sure there is sufficient ventilation, and do not start or run the engine in an enclosed space without an effective exhaust extraction system.
- 
- Allow the engine to warm up and cool down again.
  - Check the coolant level. (☛ p. 238)

## 20.1 Engine characteristic – setting the auxiliary spring

- Warning**
- Danger of burns** Some vehicle components become very hot when the vehicle is operated.
- Do not touch hot components such as exhaust system, radiator, engine, shock absorber, and the brake system. Allow these components to cool down before starting work on them.

**Preparatory work**

- Tilt the motorcycle approx. 45° to the left and secure it to prevent it from falling.

**Main work**

- Remove screws 1.
- Remove cap 2, adjusting spring 3, auxiliary spring 4, and spring insert 5 from the clutch cover.
- Pull both springs off of the spring insert.
- Mount the required auxiliary spring 4 and adjusting spring 3 and position them together in the clutch cover.

Auxiliary spring with yellow marking (54637072300)
--

Auxiliary spring with green marking (54837072100)
---

Auxiliary spring with red marking (54837072000)
---

- ✓ The recess in spring insert 5 engages in the angle lever.

**Info**

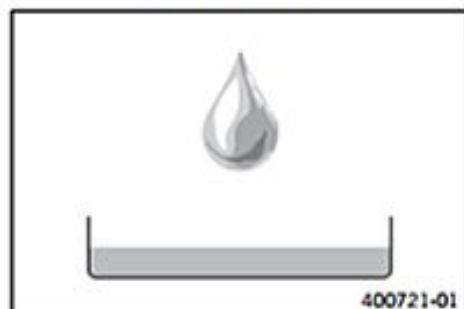
Screw 6 must not be turned as this would worsen the engine characteristic.

- Check the O-ring in the cap.
- Position the cap.
- Mount and tighten the screws.

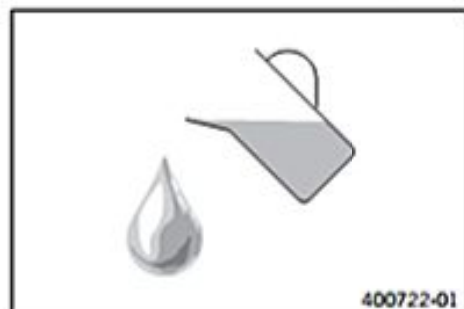
**Guideline**

Screw, exhaust control cover	M5	6 Nm (4,4 lbf ft)
------------------------------	----	-------------------

## 21.1 Changing the gear oil



- Drain the gear oil. (☞ p. 242)



- Refill with gear oil. (☞ p. 243)

## 21.2 Draining the gear oil



### Warning

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

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



### Warning

**Environmental hazard** Hazardous substances cause environmental damage.

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



### Info

Drain the gear oil while the engine is warm.

### Preparatory work

- Park the motorcycle on a level surface.
- Place a suitable container under the engine.

### Main work

- Remove the gear oil drain plug with magnet ①.
- Let the gear oil drain fully.
- Thoroughly clean the gear oil drain plug with magnet.
- Clean the sealing surface on the engine.
- Mount and tighten gear oil drain plug with magnet ① and seal ring.

### Guideline

Gear oil drain plug with magnet	M12x1.5	20 Nm (14.8 lbf ft)
---------------------------------	---------	------------------------



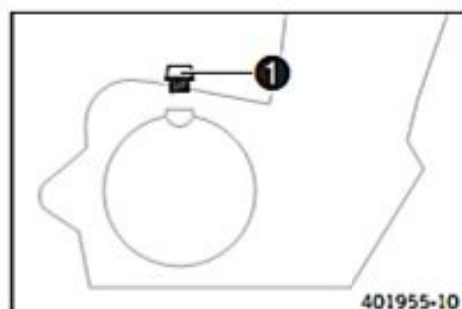


## 21.3 Refilling with gear oil



## Info

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



401955-10

## Main work

- Remove filler plug ① and fill up with gear oil.

Gear oil	0.80 l (0.85 qt.)	Engine oil (15W/50) (☛ p. 280)
----------	-------------------	--------------------------------

- Mount and tighten the oil filler plug.



## Danger

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

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

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

## Finishing work

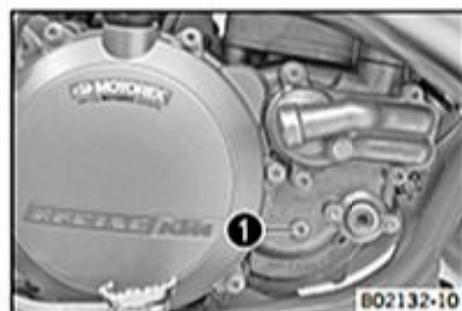
- Check the gear oil level. (☛ p. 243)

## 21.4 Checking the gear oil level



## Info

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



B02132-10

## Preparatory work

- Stand the motorcycle upright on a horizontal surface.

## Main work

- Remove the gear oil monitoring screw ①.
- Check the gear oil level.

A small quantity of gear oil must run out of the drilled hole.

- If no gear oil runs out:
  - Add gear oil. (☛ p. 243)
- Mount and tighten the gear oil monitoring screw.

## Guideline

Screw, gear oil level check	M6	10 Nm (7.4 lbf ft)
-----------------------------	----	--------------------

## 21.5 Adding gear oil



## Info

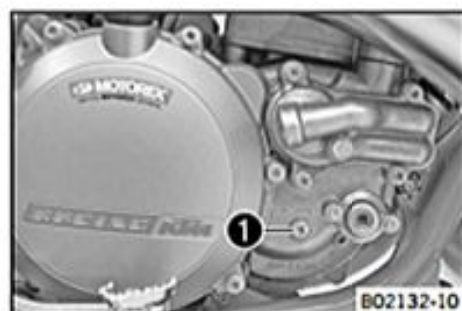
Too little gear oil or poor-quality gear oil results in premature wear to the transmission. Gear oil must only be topped up when the engine is cold.

## Preparatory work

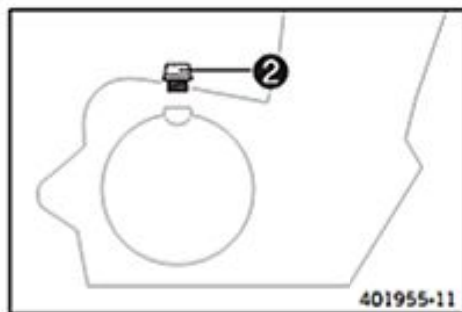
- Park the motorcycle on a level surface.

## Main work

- Remove the gear oil monitoring screw ①.



B02132-10



- Remove filler plug ②.
- Fill in gear oil until it emerges from the drilled hole of the gear oil monitoring screw.

Engine oil (15W/50) (☛ p. 280)

- Mount and tighten the gear oil monitoring screw.

Guideline

Screw, gear oil level check	M6	10 Nm (7.4 lbf ft)
-----------------------------	----	--------------------

- Mount and tighten filler plug ②.

Finishing work



## Danger

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

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

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

## 22.1 Checking the ignition system

- Warning**  
**Risk of injury** The ignition system is under high voltage.
- To avoid the danger of an electric shock, do not touch metal parts and the ends of the connection cable during and immediately after measuring.



- Shift gear to neutral.
- Pull off the spark plug connector and remove the spark plug connector from the ignition wire.
- Remove the spark plug.
- Hold the free end of the ignition wire at a distance **A** from ground.

### Guideline

Distance <b>A</b>	5 mm (0.2 in)
-------------------	---------------

- Press the kick starter forcefully through its full range.

**Info**  
Do not open the throttle.

- Check the ignition spark.
  - If no ignition spark is visible:
    - Check the kill switch.
    - Check the ground connection of the CDI controller and ignition coil.
    - Check the cable from the CDI controller to the ignition coil.

**Info**  
The CDI controller cannot be tested using simple methods but only using an ignition test stand.

- Ignition coil - check the primary winding. (☞ p. 245)
- Ignition coil - check the secondary winding. (☞ p. 246)
- Check the ignition pulse generator. (☞ p. 248)
- Alternator - check the charging coil of the ignition. (☞ p. 247)

- Fit the spark plug connector on the ignition cable again. Insert the spark plug into the spark plug connector. Hold the spark plug to ground.
- Press the kick starter forcefully through its full range.

**Info**  
Do not open the throttle.

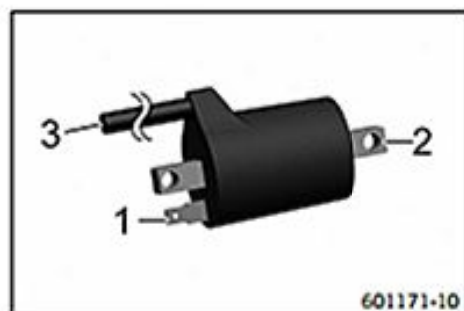
- Check the ignition spark.
  - If no ignition spark is visible:
    - Check the spark plug connector. (☞ p. 246)
    - Change the spark plug.



## 22.2 Ignition coil - checking the primary winding

- Warning**  
**Risk of injury** The ignition system is under high voltage.
- To avoid the danger of an electric shock, do not touch metal parts and the ends of the connection cable during and immediately after measuring.





## Condition

Ignition coil cylinder 1 is disconnected.

### Ignition coil cylinder 1 - check the primary winding resistance

- Measure the resistance between the specified points.  
Ignition coil pin 1 (+) – Ignition coil pin 2 (-)

#### Ignition coil

Primary winding resistance at: 20 °C (68 °F)	0.255... 0.345 Ω
---	------------------

- If the displayed value does not correspond to the nominal value:
  - Change the ignition coil.

## Condition

Ignition coil cylinder 1 is connected.

- Connect the special tool to the multimeter.

Peak voltage adapter (58429042000) (☛ p. 287)



### Info

When using the peak voltage adapter, adjust the measuring range of the multimeter to DCV.

- Start the motorcycle for checking. (☛ p. 11)

### Ignition coil cylinder 1 - check the primary winding voltage

- Measure the voltage between the specified points.  
Ignition coil pin 1 (+) – Ignition coil pin 2 (-)



### Info

Connect the black measuring lead to pin 1 and the red measuring lead to pin 2 of the ignition coil.

#### Ignition coil

Voltage, primary winding	120... 160 V
--------------------------	--------------

- If the displayed value does not correspond to the nominal value:
  - Change the ignition coil.

## 22.3 Ignition coil - checking the secondary winding

### Condition

Ignition coil cylinder 1 is disconnected.

Spark plug connector cylinder 1 has been removed.

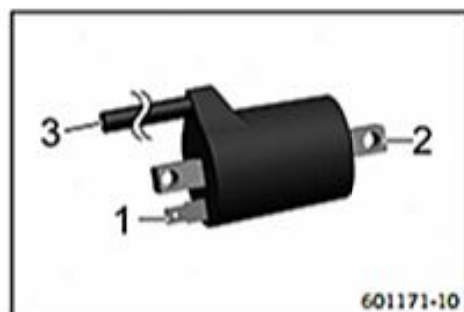
### Ignition coil cylinder 1 - check the secondary winding resistance

- Measure the resistance between the specified points.  
Ignition coil pin 2 (-) – Ignition coil pin 3

#### Ignition coil

Secondary winding resistance at: 20 °C (68 °F)	5.04... 7.56 kΩ
---	-----------------

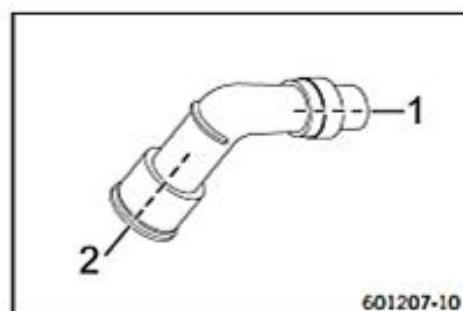
- If the displayed value does not correspond to the nominal value:
  - Change the ignition coil.



## 22.4 Checking the spark plug connector

### Condition

Spark plug connector cylinder 1 has been removed.



- $\Omega$  Measure the resistance between the specified points.  
 Measuring point 1 – Measuring point 2

## Spark plug connector

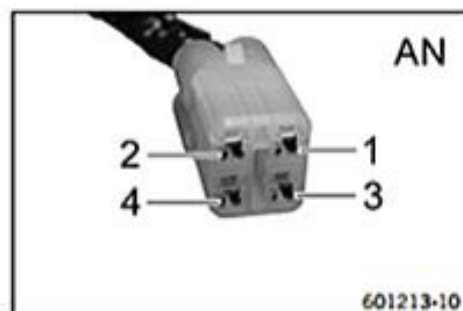
Resistance at: 20 °C (68 °F) 4.3... 5.7 k $\Omega$ 

- If the specification is not reached:
  - Change the spark plug connector.

## 22.5 Alternator - checking the charging coil of the ignition

## Condition

The alternator has been disconnected.



- $\Omega$  Measure the resistance between the specified points.  
 Alternator, charging coil/ignition pulse generator, connector **AN** pin 1 –  
 Alternator, charging coil/ignition pulse generator, connector **AN** pin 2

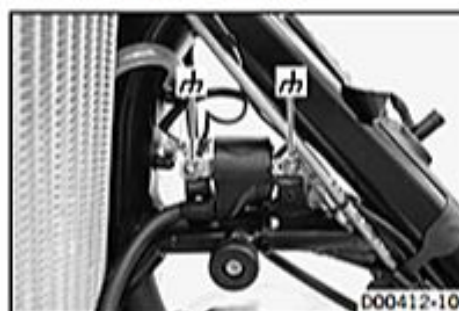
## Alternator (250 SX)

Resistance of ignition charging coil at: 20 °C (68 °F) 20... 28  $\Omega$ 

## Alternator (All XC models)

Resistance of ignition charging coil at: 20 °C (68 °F) 12... 16.5  $\Omega$ 

- The specifications have not been met:
  - Replace the stator.



- $\Omega$  Measure the resistance between the specified points.  
 Alternator, charging coil/ignition pulse generator, connector **AN** pin 1 – Measuring point Ground, wiring harness/frame

Resistance

=  $\Omega$ 

- The specifications have not been met:
  - Replace the stator.

## 22.6 Alternator - checking the light and battery winding (All XC models)

## Condition

The alternator has been disconnected.



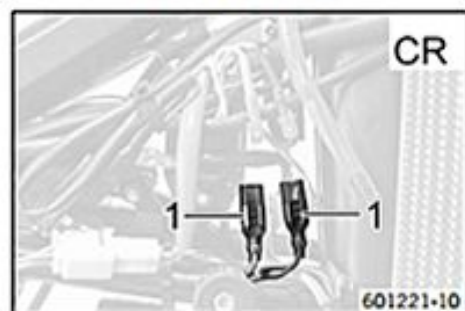
- $\Omega$  Measure the resistance between the specified points.  
 Alternator, connector **CR** pin 1 (White) – Measuring point **Ground** (–)

## Alternator

Battery winding resistance at: 20 °C (68 °F) 0.5... 0.9  $\Omega$



- The specifications have not been met:
  - Replace the stator.



- $\Omega$  Measure the resistance between the specified points.  
Alternator, connector CR pin 1 (White) – Alternator, connector CR pin 1 (Yellow)

Alternator	
Light winding resistance at: 20 °C (68 °F)	0.1... 0.2 $\Omega$

- The specifications have not been met:
  - Replace the stator.

## 22.7 Checking the ignition pulse generator

### Condition

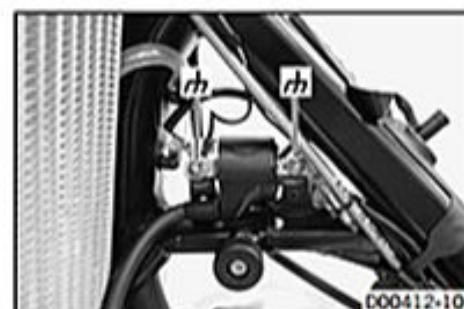
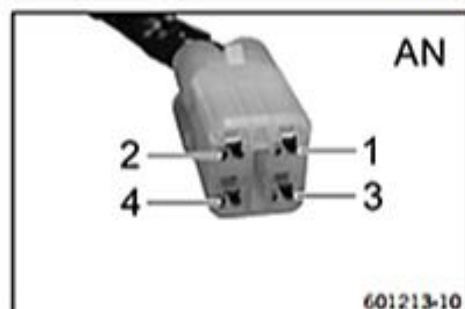
The crankshaft position sensor is disconnected.



- $\Omega$  Measure the resistance between the specified points.  
Alternator, charging coil/ignition pulse generator, connector AN pin 3 – Alternator, charging coil/ignition pulse generator, connector AN pin 4

Crankshaft position sensor	
Resistance at: 20 °C (68 °F)	80... 120 $\Omega$

- The specifications have not been met:
  - Change the ignition pulse generator.

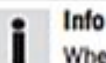


- $\Omega$  Measure the resistance between the specified points.  
Alternator, charging coil/ignition pulse generator, connector AN pin 3 – Measuring point Ground, wiring harness/frame

Resistance	$\infty \Omega$
------------	-----------------

- The specifications have not been met:
  - Change the ignition pulse generator.
- Connect the special tool to the multimeter.

Peak voltage adapter (58429042000) (☞ p. 287)
---



### Info

When using the peak voltage adapter, adjust the measuring range of the multimeter to DCV.

- Start the motorcycle for checking. (☞ p. 11)



### Check the ignition pulse generator voltage

- $V$  Measure the voltage between the specified points.  
Alternator, charging coil/ignition pulse generator, connector AN pin 3 – Alternator, charging coil/ignition pulse generator, connector AN pin 4

Crankshaft position sensor	
Voltage at: 20 °C (68 °F)	2... 4 V

- The specifications have not been met:
  - Change the ignition pulse generator.



**22.8 Removing the stator and crankshaft position sensor (All XC models)****Condition**

The alternator cover has been removed.

- Remove screw ①.
- Remove cable support sleeve ② from the alternator cover.



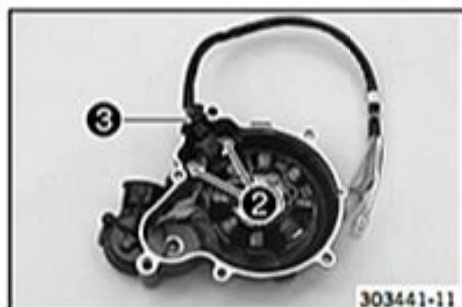
- Remove screw ③.
- Remove the stator and crankshaft position sensor from the alternator cover.

**22.9 Installing the stator and crankshaft position sensor (All XC models)**

- Position the stator in the alternator cover.
- Mount and tighten screws ①.

**Guideline**

Screw, stator	M6	8 Nm (5.9 lbf ft)	Loctite® 243™
---------------	----	----------------------	---------------



- Position the crankshaft position sensor.
- Mount and tighten screws ②.

**Guideline**

Screw, crankshaft position sensor	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
-----------------------------------	----	----------------------	---------------

- Position cable support sleeve ③ in the alternator cover.

### 23.1 Checking the starter motor (All XC models)

**Condition**

The starter motor has been removed.

- Connect the negative cable of a 12 volt power supply to the housing of the starter motor. Connect the positive cable of the power supply briefly with the connector of the starter motor.
  - If the starter motor does not turn when the circuit is closed:
    - Change the starter motor.



303410-10

**24.1 Engine****24.1.1 250 SX**

Design	1-cylinder 2-stroke engine, water-cooled, with reed intake and exhaust control
Displacement	249 cm <sup>3</sup> (15.19 cu in)
Stroke	72 mm (2.83 in)
Bore	66.4 mm (2.614 in)
Exhaust valve - Beginning of adjustment	5,550 rpm
Exhaust valve - end of adjustment with red auxiliary spring	7,200 rpm
Exhaust valve - end of adjustment with yellow auxiliary spring	7,900 rpm
Exhaust valve - end of adjustment with green auxiliary spring	8,400 rpm
Crankshaft bearing	1 grooved ball bearing/1 roller bearing
Conrod bearing	Needle bearing
Piston pin bearing	Needle bearing
Pistons	Aluminum cast
Piston rings	2 half keystone rings
X (upper edge of piston to upper edge of cylinder)	0... 0.10 mm (0... 0.0039 in)
Z (height of control flap)	48 mm (1.89 in)
Primary transmission	26:72
Clutch	Multidisc clutch in oil bath/hydraulically activated
Gearbox	5-gear, claw shifted
Transmission ratio	
First gear	14:28
Second gear	15:24
Third gear	18:24
Fourth gear	21:24
Fifth gear	22:21
Ignition	Contactless controlled fully electronic ignition with digital ignition adjustment, type Kokusan
Ignition point (BTDC)	1.9 mm (0.075 in)
Spark plug	NGK BR 8 ECM
Spark plug electrode gap	0.60 mm (0.0236 in)
Starting aid	Kick starter

**24.1.2 250 XC US/EU**

Design	1-cylinder 2-stroke engine, water-cooled, with reed intake and exhaust control
Displacement	249 cm <sup>3</sup> (15.19 cu in)
Stroke	72 mm (2.83 in)
Bore	66.4 mm (2.614 in)
Exhaust valve - Beginning of adjustment	5,550 rpm
Exhaust valve - end of adjustment with red auxiliary spring	7,200 rpm
Exhaust valve - end of adjustment with yellow auxiliary spring	7,900 rpm
Exhaust valve - end of adjustment with green auxiliary spring	8,400 rpm
Crankshaft bearing	1 grooved ball bearing/1 roller bearing
Conrod bearing	Needle bearing
Piston pin bearing	Needle bearing
Pistons	Aluminum cast
Piston rings	2 half keystone rings
X (upper edge of piston to upper edge of cylinder)	0... 0.10 mm (0... 0.0039 in)
Z (height of control flap)	48 mm (1.89 in)
Primary transmission	26:72



Clutch	Multidisc clutch in oil bath/hydraulically activated
Gearbox	6-gear, claw shifted
Transmission ratio	
First gear	14:32
Second gear	16:26
Third gear	20:25
Fourth gear	22:23
Fifth gear	25:22
Sixth gear	26:20
Ignition	Contactless controlled fully electronic ignition with digital ignition adjustment, type Kokusan
Ignition point (BTDC)	1.9 mm (0.075 in)
Spark plug	NGK BR 7 ES
Spark plug electrode gap	0.60 mm (0.0236 in)
Starting aid	Kick starter and electric starter

## 24.1.3 300 XC US/EU

Design	1-cylinder 2-stroke engine, water-cooled, with reed intake and exhaust control
Displacement	293.2 cm <sup>3</sup> (17.892 cu in)
Stroke	72 mm (2.83 in)
Bore	72 mm (2.83 in)
Exhaust valve - Beginning of adjustment	5,550 rpm
Exhaust valve - end of adjustment with red auxiliary spring	7,200 rpm
Exhaust valve - end of adjustment with yellow auxiliary spring	7,900 rpm
Exhaust valve - end of adjustment with green auxiliary spring	8,400 rpm
Crankshaft bearing	1 grooved ball bearing/1 roller bearing
Conrod bearing	Needle bearing
Piston pin bearing	Needle bearing
Pistons	Aluminum cast
Piston rings	2 rectangular rings
X (upper edge of piston to upper edge of cylinder)	0... 0.10 mm (0... 0.0039 in)
Z (height of control flap)	48.5 mm (1.909 in)
Primary transmission	26:72
Clutch	Multidisc clutch in oil bath/hydraulically activated
Gearbox	6-gear, claw shifted
Transmission ratio	
First gear	14:32
Second gear	16:26
Third gear	20:25
Fourth gear	22:23
Fifth gear	25:22
Sixth gear	26:20
Ignition	Contactless controlled fully electronic ignition with digital ignition adjustment, type Kokusan
Ignition point (BTDC)	1.9 mm (0.075 in)
Spark plug	NGK BR 7 ES
Spark plug electrode gap	0.60 mm (0.0236 in)
Starting aid	Kick starter and electric starter

**24.2 Engine tolerance, wear limits**

Piston - diameter (250 SX, 250 XC US/EU)	
Size I	66.340... 66.350 mm (2.61181... 2.6122 in)
Size II	66.351... 66.360 mm (2.61224... 2.61259 in)
Piston - diameter (300 XC US/EU)	
Size I	71.940... 71.950 mm (2.83228... 2.83267 in)
Size II	71.951... 71.960 mm (2.83271... 2.83307 in)
Cylinder - drill hole diameter (250 SX, 250 XC US/EU)	
Size I	66.400... 66.412 mm (2.61417... 2.61464 in)
Size II	66.412... 66.425 mm (2.61464... 2.61515 in)
Cylinder - drill hole diameter (300 XC US/EU)	
Size I	72.000... 72.012 mm (2.83464... 2.83511 in)
Size II	72.012... 72.025 mm (2.83511... 2.83562 in)
Piston/cylinder - mounting clearance (250 SX, 250 XC US/EU)	
New condition	0.050... 0.074 mm (0.00197... 0.00291 in)
Wear limit	0.10 mm (0.0039 in)
Piston/cylinder - mounting clearance (300 XC US/EU)	
New condition	0.050... 0.085 mm (0.00197... 0.00335 in)
Wear limit	0.10 mm (0.0039 in)
Piston ring - end gap	
Ring 1	≤ 0.40 mm (≤ 0.0157 in)
Ring 2	≤ 0.40 mm (≤ 0.0157 in)
Cylinder/cylinder head - distortion of sealing area	
	≤ 0.10 mm (≤ 0.0039 in)
Connecting rod - axial play of lower conrod bearing	
	0.60... 0.70 mm (0.0236... 0.0276 in)
Crankshaft - run-out at bearing pin	
	≤ 0.03 mm (≤ 0.0012 in)
Clutch facing disc - thickness	
	≥ 1.9 mm (≥ 0.075 in)
Contact surface of clutch facing discs in outer clutch hub	
	≤ 0.5 mm (≤ 0.02 in)
Shift shaft - sliding plate/shift quadrant clearance	
	0.40... 0.80 mm (0.0157... 0.0315 in)

**24.3 Engine tightening torques**

Screw, inner membrane sheets	EJOT DELTA PT® 35x25	1 Nm (0.7 lbf ft)	–
Screw, membrane core plate	EJOT DELTA PT® 30x12	1 Nm (0.7 lbf ft)	–
Screw, outer membrane sheets	EJOT DELTA PT® 30x6	1 Nm (0.7 lbf ft)	–
Screw, alternator cover	M5	5 Nm (3.7 lbf ft)	–
Screw, angle lever, exhaust control	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, clutch spring retainer	M5	6 Nm (4.4 lbf ft)	–
Screw, crankshaft position sensor	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, exhaust control cover	M5	6 Nm (4.4 lbf ft)	–
Screw, locking lever	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, retaining bracket of exhaust control	M5	7 Nm (5.2 lbf ft)	Loctite® 2701™
Screw, stator	M5	6 Nm (4.4 lbf ft)	Loctite® 222™
Screw, water pump wheel	M5	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, alternator cover	M6	8 Nm (5.9 lbf ft)	–
Screw, bearing retainer	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
Screw, clutch cover	M6	10 Nm (7.4 lbf ft)	–
Screw, control flap, exhaust control	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
Screw, engine case	M6x40	10 Nm (7.4 lbf ft)	–
Screw, engine case	M6x55	10 Nm (7.4 lbf ft)	–
Screw, engine case	M6x60	10 Nm (7.4 lbf ft)	–
Screw, exhaust flange	M6	8 Nm (5.9 lbf ft)	–
Screw, gear oil level check	M6	10 Nm (7.4 lbf ft)	–



Screw, intake flange/reed valve housing	M6	10 Nm (7.4 lbf ft)	–
Screw, kick starter spring	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
Screw, kick starter stop plate	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
Screw, shift drum locating	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
Screw, shift lever	M6	14 Nm (10.3 lbf ft)	Loctite® 243™
Screw, slave cylinder of the clutch	M6	10 Nm (7.4 lbf ft)	–
Screw, starter motor	M6	8 Nm (5.9 lbf ft)	–
Screw, stator	M6	8 Nm (5.9 lbf ft)	Loctite® 243™
Screw, water pump cover	M6	10 Nm (7.4 lbf ft)	–
Screw, cylinder head	M8	27 Nm (19.9 lbf ft)	–
Screw, kick starter	M8	25 Nm (18.4 lbf ft)	Loctite® 2701™
Nut, cylinder base	M10	35 Nm (25.8 lbf ft)	–
Drain plug, water pump cover	M10x1	15 Nm (11.1 lbf ft)	–
Nut, rotor	M12x1	60 Nm (44.3 lbf ft)	–
Gear oil drain plug with magnet	M12x1.5	20 Nm (14.8 lbf ft)	–
Spark plug	M14x1.25	25 Nm (18.4 lbf ft)	–
Nut, inner clutch hub	M18x1.5	120 Nm (88.5 lbf ft)	Loctite® 648™
Nut, primary gear	M18LHx1.5	150 Nm (110.6 lbf ft)	Loctite® 648™

## 24.4 Capacities

### 24.4.1 Gear oil

Gear oil	0.80 l (0.85 qt.)	Engine oil (15W/50) (☛ p. 280)
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### 24.4.2 Coolant

Coolant	1.2 l (1.3 qt.)	Coolant (☛ p. 280)
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### 24.4.3 Fuel

Total fuel tank capacity, approx. (All XC models)	10 l (2.6 US gal)	Super unleaded (95 octane) mixed with 2-stroke engine oil (1:60) (☛ p. 281)
Total fuel tank capacity, approx. (250 SX)	7.5 l (1.98 US gal)	Super unleaded (95 octane) mixed with 2-stroke engine oil (1:60) (☛ p. 281)
Fuel reserve approx. (All XC models)	2 l (2 qt.)	

## 24.5 Chassis

Frame	Central tube frame made of chrome molybdenum steel tubing	
Fork (250 SX EU)	WP Performance Systems Upside down 4860 MXMA CC	
Fork (All XC models, 250 SX US)	WP Performance Systems Upside down 4860 MXMA 4CS	
Suspension travel		
Front	300 mm (11.81 in)	
Suspension travel		
Rear	317 mm (12.48 in)	
Fork offset	22 mm (0.87 in)	
Shock absorber (250 SX EU)	WP Performance Systems 5018 DCC Link	
Shock absorber (250 SX US)	WP Performance Systems 5018 DCC Link	
Shock absorber (All XC models)	WP Performance Systems 5018 DCC Link	
Brake system	Disc brakes, brake calipers on floating bearings	
Brake discs - diameter		
Front	260 mm (10.24 in)	
Rear	220 mm (8.66 in)	
Brake discs - wear limit		
Front	2.5 mm (0.098 in)	



Rear	3.5 mm (0.138 in)
Tire air pressure off road	
Front	1.0 bar (15 psi)
Rear	1.0 bar (15 psi)
Secondary ratio (All XC models)	13:50
Secondary ratio (250 SX)	13:48
Chain	5/8 x 1/4"
Rear sprockets available	48, 50, 52
Steering head angle	63.5°
Wheelbase	1,495±10 mm (58.86±0.39 in)
Seat height unloaded	992 mm (39.06 in)
Ground clearance unloaded	385 mm (15.16 in)
Weight without fuel, approx. (250 SX)	95.9 kg (211.4 lb.)
Weight without fuel, approx. (All XC models)	100.7 kg (222 lb.)
Maximum permissible front axle load	145 kg (320 lb.)
Maximum permissible rear axle load	190 kg (419 lb.)
Maximum permissible overall weight	335 kg (739 lb.)

## 24.6 Electrical system

Battery (All XC models)	YTX4L-BS	Battery voltage: 12 V Nominal capacity: 3 Ah maintenance-free
Fuse (All XC models)	58011109110	10 A

## 24.7 Tires

Validity	Front tires	Rear tires
(250 SX)	80/100 - 21 51M TT Dunlop GEOMAX MX 52 F	110/90 - 19 62M TT Dunlop GEOMAX MX 52
(All XC models)	90/90 - 21 54M TT Dunlop Geomax AT 81 F	110/100 - 18 64M TT Dunlop Geomax AT 81

Additional information is available in the Service section under:  
<http://www.ktm.com>

## 24.8 Fork

### 24.8.1 250 SX EU

Fork part number	14.18.70.03
Fork	WP Performance Systems Upside down 4860 MXMA CC
Compression damping	
Comfort	14 clicks
Standard	12 clicks
Sport	10 clicks
Rebound damping	
Comfort	14 clicks
Standard	12 clicks
Sport	10 clicks
Spring length with preload spacer(s)	488 mm (19.21 in)
Spring rate	
Weight of rider: 65... 75 kg (143... 165 lb.)	4.4 N/mm (25.1 lb/in)
Weight of rider: 75... 85 kg (165... 187 lb.)	4.6 N/mm (26.3 lb/in)
Weight of rider: 85... 95 kg (187... 209 lb.)	4.8 N/mm (27.4 lb/in)
Gas pressure	1.2 bar (17 psi)
Fork length	940 mm (37.01 in)

Oil capacity per cartridge	195 ml (6.59 fl. oz.)	Fork oil (SAE 4) (48601166S1) (☛ p. 280)
Oil capacity fork leg without cartridge	400 ml (13.52 fl. oz.)	Fork oil (SAE 4) (48601166S1) (☛ p. 280)

**24.8.2 250 SX US**

Fork part number	24.18.70.53	
Fork	WP Performance Systems Upside down 4860 MXMA 4CS	
Compression damping		
Comfort	17 clicks	
Standard	15 clicks	
Sport	13 clicks	
Rebound damping		
Comfort	17 clicks	
Standard	15 clicks	
Sport	13 clicks	
Spring length with preload spacer(s)	480 mm (18.9 in)	
Spring rate		
Weight of rider: 65... 75 kg (143... 165 lb.)	4.4 N/mm (25.1 lb/in)	
Weight of rider: 75... 85 kg (165... 187 lb.)	4.6 N/mm (26.3 lb/in)	
Weight of rider: 85... 95 kg (187... 209 lb.)	4.8 N/mm (27.4 lb/in)	
Fork length	940 mm (37.01 in)	
Oil capacity per fork leg	665 ml (22.48 fl. oz.)	Fork oil (SAE 4) (48601166S1) (☛ p. 280)

**24.8.3 All XC models**

Fork part number	24.18.70.73	
Fork	WP Performance Systems Upside down 4860 MXMA 4CS	
Compression damping		
Comfort	17 clicks	
Standard	15 clicks	
Sport	13 clicks	
Rebound damping		
Comfort	17 clicks	
Standard	15 clicks	
Sport	13 clicks	
Spring length with preload spacer(s)	480 mm (18.9 in)	
Spring rate		
Weight of rider: 65... 75 kg (143... 165 lb.)	4.2 N/mm (24 lb/in)	
Weight of rider: 75... 85 kg (165... 187 lb.)	4.4 N/mm (25.1 lb/in)	
Weight of rider: 85... 95 kg (187... 209 lb.)	4.6 N/mm (26.3 lb/in)	
Fork length	940 mm (37.01 in)	
Oil capacity per fork leg	640 ml (21.64 fl. oz.)	Fork oil (SAE 4) (48601166S1) (☛ p. 280)

**24.9 Shock absorber****24.9.1 250 SX EU**

Shock absorber part number	18.18.70.03
Shock absorber	WP Performance Systems 5018 DCC Link
Compression damping, low-speed	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Compression damping, high-speed	
Comfort	2.5 turns
Standard	2 turns
Sport	1.5 turns
Rebound damping	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Spring preload	8 mm (0.31 in)
Spring rate	
Weight of rider: 65... 75 kg (143... 165 lb.)	51 N/mm (291 lb/in)
Weight of rider: 75... 85 kg (165... 187 lb.)	54 N/mm (308 lb/in)
Weight of rider: 85... 95 kg (187... 209 lb.)	57 N/mm (325 lb/in)
Spring length	260 mm (10.24 in)
Gas pressure	10 bar (145 psi)
Static sag	30 mm (1.18 in)
Riding sag	100 mm (3.94 in)
Fitted length	490 mm (19.29 in)
Shock absorber fluid (☛ p. 281)	SAE 2.5

**24.9.2 250 SX US**

Shock absorber part number	18.18.70.53
Shock absorber	WP Performance Systems 5018 DCC Link
Compression damping, low-speed	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Compression damping, high-speed	
Comfort	2.5 turns
Standard	2 turns
Sport	1.5 turns
Rebound damping	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Spring preload	8 mm (0.31 in)
Spring rate	
Weight of rider: 65... 75 kg (143... 165 lb.)	51 N/mm (291 lb/in)
Weight of rider: 75... 85 kg (165... 187 lb.)	54 N/mm (308 lb/in)
Weight of rider: 85... 95 kg (187... 209 lb.)	57 N/mm (325 lb/in)
Spring length	260 mm (10.24 in)
Gas pressure	10 bar (145 psi)
Static sag	30 mm (1.18 in)



Riding sag	100 mm (3.94 in)
Fitted length	490 mm (19.29 in)
Shock absorber fluid (☛ p. 281)	SAE 2.5

**24.9.3 All XC models**

Shock absorber part number	18.18.70.73
Shock absorber	WP Performance Systems 5018 DCC Link
Compression damping, low-speed	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Compression damping, high-speed	
Comfort	2.5 turns
Standard	2 turns
Sport	1.5 turns
Rebound damping	
Comfort	17 clicks
Standard	15 clicks
Sport	13 clicks
Spring preload	8 mm (0.31 in)
Spring rate	
Weight of rider: 65... 75 kg (143... 165 lb.)	51 N/mm (291 lb/in)
Weight of rider: 75... 85 kg (165... 187 lb.)	54 N/mm (308 lb/in)
Weight of rider: 85... 95 kg (187... 209 lb.)	57 N/mm (325 lb/in)
Spring length	260 mm (10.24 in)
Gas pressure	10 bar (145 psi)
Static sag	30 mm (1.18 in)
Riding sag	100 mm (3.94 in)
Fitted length	490 mm (19.29 in)
Shock absorber fluid (☛ p. 281)	SAE 2.5

**24.10 Chassis tightening torques**

Spoke nipple, front wheel	M4.5	6 Nm (4.4 lbf ft)	–
Spoke nipple, rear wheel	M4.5	6 Nm (4.4 lbf ft)	–
Screw, shock absorber adjusting ring	M5	5 Nm (3.7 lbf ft)	–
Nut, cable on starter motor (All XC models)	M6	4 Nm (3 lbf ft)	–
Remaining nuts, chassis	M6	10 Nm (7.4 lbf ft)	–
Remaining screws, chassis	M6	10 Nm (7.4 lbf ft)	–
Screw, ball joint of push rod on foot brake cylinder	M6	10 Nm (7.4 lbf ft)	Loctite® 243™
Screw, chain sliding guard	M6	6 Nm (4.4 lbf ft)	Loctite® 243™
Screw, front brake disc	M6	14 Nm (10.3 lbf ft)	Loctite® 243™
Screw, rear brake disc	M6	14 Nm (10.3 lbf ft)	Loctite® 243™
Nut, foot brake lever stop	M8	20 Nm (14.8 lbf ft)	–
Nut, rear sprocket screw	M8	35 Nm (25.8 lbf ft)	Loctite® 2701™
Nut, rim lock	M8	12 Nm (8.9 lbf ft)	–
Remaining nuts, chassis	M8	25 Nm (18.4 lbf ft)	–
Remaining screws, chassis	M8	25 Nm (18.4 lbf ft)	–
Screw, bottom triple clamp	M8	12 Nm (8.9 lbf ft)	–
Screw, chain sliding piece	M8	15 Nm (11.1 lbf ft)	–
Screw, engine brace	M8	33 Nm (24.3 lbf ft)	Loctite® 2701™

Screw, fork stub	M8	15 Nm (11.1 lbf ft)	–
Screw, front brake caliper	M8	25 Nm (18.4 lbf ft)	Loctite® 243™
Screw, handlebar clamp	M8	20 Nm (14.8 lbf ft)	–
Screw, side stand attachment (All XC models)	M8	35 Nm (25.8 lbf ft)	Loctite® 2701™
Screw, subframe	M8	35 Nm (25.8 lbf ft)	Loctite® 2701™
Screw, top steering stem (All XC models)	M8	17 Nm (12.5 lbf ft)	Loctite® 243™
Screw, top triple clamp	M8	17 Nm (12.5 lbf ft)	–
Engine bracket screw	M10	60 Nm (44.3 lbf ft)	–
Remaining nuts, chassis	M10	45 Nm (33.2 lbf ft)	–
Remaining screws, chassis	M10	45 Nm (33.2 lbf ft)	–
Screw, bottom shock absorber	M10	60 Nm (44.3 lbf ft)	Loctite® 2701™
Screw, handlebar support	M10	40 Nm (29.5 lbf ft)	Loctite® 243™
Screw, top shock absorber	M10	60 Nm (44.3 lbf ft)	Loctite® 2701™
Nut, seat fixing	M12x1	20 Nm (14.8 lbf ft)	–
Nut, swingarm pivot	M16x1.5	100 Nm (73.8 lbf ft)	–
Screw, front wheel spindle	M20x1.5	35 Nm (25.8 lbf ft)	–
Screw, top steering head	M20x1.5	12 Nm (8.9 lbf ft)	–
Screw-in nozzles, cooling system	M20x1.5	12 Nm (8.9 lbf ft)	Loctite® 243™
Nut, rear wheel spindle	M25x1.5	80 Nm (59 lbf ft)	–

## 24.11 Carburetor

### 24.11.1 250 SX

Carburetor type	KEIHIN PWK 36S AG
Carburetor identification number	BS8_0
Needle position	2nd position from top
Jet needle	N1EH (N1EF, N1EG)
Main jet	158 (160, 162)
Idling jet	42 (45)
Starting jet	85
Idle air adjusting screw	
Open	2 turns
Throttle slide	6.5 with cut-out

### 24.11.2 Carburetor - basic setting for sandy surfaces (250 SX)

Idle air adjusting screw	
Open	1.5 turns
Idling jet	45
Jet needle	N1EF
Needle position	5th position from top
Main jet	170



#### Info

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

### 24.11.3 250 XC US/EU

Carburetor type	KEIHIN PWK 36S AG
Carburetor identification number	BZ6_A
Needle position	3rd position from top
Jet needle	N2ZW (N2ZH, N2ZJ)

Main jet	175 (172)
Idling jet	38 (40)
Starting jet	85
Idle air adjusting screw	
Open	2 turns
Throttle slide	7 with cut-out

## 24.11.4 300 XC US/EU

Carburetor type	KEIHIN PWK 36S AG
Carburetor identification number	B27_A
Needle position	3rd position from top
Jet needle	NBRG (NBRH)
Main jet	172 (170, 175)
Idling jet	35
Starting jet	85
Idle air adjusting screw	
Open	2 turns
Throttle slide	7 with cut-out



## 24.12 Carburetor tuning

## 24.12.1 Carburetor tuning (250 SX)

KEIHIN PWK 36S AG							
M/FT ASL ↓	TEMP →	-20°C ... -7°C -2°F ... 20°F	-6°C ... 5°C 19°F ... 41°F	6°C ... 15°C 42°F ... 60°F	16°C ... 24°C 61°F ... 78°F	25°C ... 36°C 79°F ... 98°F	37°C ... 49°C 99°F ... 120°F
3,000 m 10,000 ft ↑ 2,301 m 7,501 ft	ASO IJ NDL POS MJ	2 42 N1E G 4 158	2 42 N1E H 4 158	2 42 N1E H 3 158	2 40 N1E I 3 155	2 40 N1E I 2 155	
2,300 m 7,500 ft ↑ 1,501 m 5,001 ft	ASO IJ NDL POS MJ	2 45 N1E G 4 160	2 42 N1E G 4 158	2 42 N1E H 4 158	2 42 N1E H 3 158	2 40 N1E I 3 155	2 40 N1E I 2 155
1,500 m 5,000 ft ↑ 751 m 2,501 ft	ASO IJ NDL POS MJ	2 45 N1E F 4 162	2 45 N1E G 4 160	2 42 N1E G 4 158	2 42 N1E H 4 158	2 42 N1E H 3 158	2 40 N1E I 3 155
750 m 2,500 ft ↑ 301 m 1,001 ft	ASO IJ NDL POS MJ	1,5 48 N1E F 4 165	2 45 N1E F 4 162	2 45 N1E G 4 160	2 42 N1E G 4 158	2 42 N1E H 4 158	2 42 N1E H 3 158
300 m 1,000 ft ↑ 0 m 0 ft	ASO IJ NDL POS MJ	1,5 48 N1E E 5 168	1,5 48 N1E F 4 165	2 45 N1E F 4 162	2 45 N1E G 4 160	2 42 N1E G 4 158	2 42 N1E H 4 158

402550-01

M/FT ASL	Sea level
TEMP	Temperature
ASO	Open idle air adjusting screw
IJ	Idling jet
NDL	Needle
POS	Needle position from above
MJ	Main jet



## Info

Not for sandy surfaces

## 24.12.2 Carburetor tuning (250 XC US/EU)

KEIHIN PWK 36S AG							
M/FT ASL ↓	TEMP →	-20°C ... -7°C -2°F ... 20°F	-6°C ... 5°C 19°F ... 41°F	6°C ... 15°C 42°F ... 60°F	16°C ... 24°C 61°F ... 78°F	25°C ... 36°C 79°F ... 98°F	37°C ... 49°C 99°F ... 120°F
3.000 m 10,000 ft ↑ 2.301 m 7,501 ft	ASO IJ NDL POS MJ	2 38 N2Z W 3 175	2 38 N2Z W 3 175	2 38 N2Z J 3 172	2 38 N2Z J 2 172	2 35 N2Z J 2 170	
2.300 m 7,500 ft ↑ 1.501 m 5,001 ft	ASO IJ NDL POS MJ	2 38 N2Z H 3 175	2 38 N2Z W 3 175	2 38 N2Z W 3 175	2 38 N2Z J 3 172	2 38 N2Z J 2 172	2 35 N2Z J 2 170
1.500 m 5,000 ft ↑ 751 m 2,501 ft	ASO IJ NDL POS MJ	2 38 N2Z G 3 175	2 38 N2Z H 3 175	2 38 N2Z W 3 175	2 38 N2Z W 3 175	2 38 N2Z J 3 172	2 38 N2Z J 2 172
750 m 2,500 ft ↑ 301 m 1,001 ft	ASO IJ NDL POS MJ	2 40 N2Z G 3 178	2 38 N2Z G 3 175	2 38 N2Z H 3 175	2 38 N2Z W 3 175	2 38 N2Z W 3 175	2 38 N2Z J 3 172
300 m 1,000 ft ↑ 0 m 0 ft	ASO IJ NDL POS MJ	2 40 N2Z G 4 178	2 40 N2Z G 3 178	2 38 N2Z G 3 175	2 38 N2Z H 3 175	2 38 N2Z W 3 175	2 38 N2Z W 3 175

402140-01

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



## Info

Not for sandy surfaces

## 24.12.3 Carburetor tuning (300 XC US/EU)

## KEIHIN PWK 36S AG

M/FT ASL ↓	TEMP →	-20°C ... -7°C -2°F ... 20°F	-6°C ... 5°C 19°F ... 41°F	6°C ... 15°C 42°F ... 60°F	16°C ... 24°C 61°F ... 78°F	25°C ... 36°C 79°F ... 98°F	37°C ... 49°C 99°F ... 120°F
3.000 m 10,000 ft ↑ 2.301 m 7,501 ft	ASO IJ NDL POS MJ	2 35 N8R G 3 172	2 35 N8R H 3 172	2 35 N8R H 2 172	2 35 N8R W 2 170	3 35 N8R W 2 168	
2.300 m 7,500 ft ↑ 1.501 m 5,001 ft	ASO IJ NDL POS MJ	2 35 N8R G 3 175	2 35 N8R G 3 172	2 35 N8R H 3 172	2 35 N8R H 2 172	2 35 N8R W 2 170	3 35 N8R W 2 168
1.500 m 5,000 ft ↑ 751 m 2,501 ft	ASO IJ NDL POS MJ	2 38 N8R G 3 178	2 35 N8R G 3 175	2 35 N8R G 3 172	2 35 N8R H 3 172	2 35 N8R H 2 172	2 35 N8R W 2 170
750 m 2,500 ft ↑ 301 m 1,001 ft	ASO IJ NDL POS MJ	2 38 N8R G 4 178	2 38 N8R G 3 178	2 35 N8R G 3 175	2 35 N8R G 3 172	2 35 N8R H 3 172	2 35 N8R H 2 172
300 m 1,000 ft ↑ 0 m 0 ft	ASO IJ NDL POS MJ	2 38 N8R F 4 180	2 38 N8R G 4 178	2 38 N8R G 3 178	2 35 N8R G 3 175	2 35 N8R G 3 172	2 35 N8R H 3 172

402141-01

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

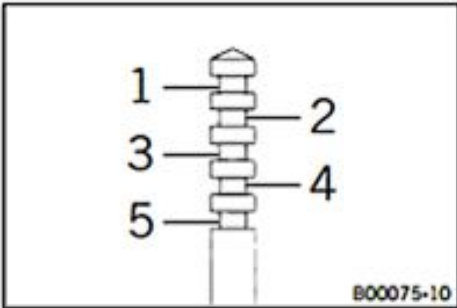


## Info

Not for sandy surfaces



## 24.12.4 General carburetor tuning



1... 5

Needle position from top

The five possible needle positions are shown here.  
The carburetor tuning depends on the defined ambient and operating conditions.

## 25.1 Cleaning the motorcycle

### Note

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

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



### Warning

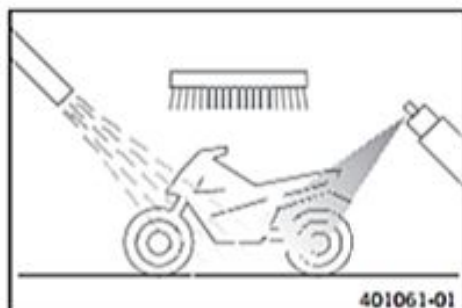
**Environmental hazard** Hazardous substances cause environmental damage.

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



### Info

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



- Close off the exhaust system to prevent water from entering.
- Remove coarse dirt particles by spraying gently with water.
- Spray very dirty areas with a normal motorcycle cleaner and then clean with a soft brush.

Motorcycle cleaner (☛ p. 282)



### Info

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

- After rinsing the motorcycle with a gentle water spray, allow it to dry thoroughly.
- Empty the carburetor float chamber. (☛ p. 229)
- Remove the plug from the exhaust system.



### Warning

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

- Clean or dry a dirty or wet brake system by riding and braking gently.
- After cleaning, take a short ride until the engine reaches operating temperature.



### Info

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

- After the motorcycle has cooled off, lubricate all moving parts and bearings.
- Clean the chain. (☛ p. 115)
- Treat bare metal parts (except for brake discs and exhaust system) with anti-corrosion materials.

Preserving materials for paints, metal and rubber (☛ p. 283)

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

Special cleaner for glossy and matte paint finishes, metal and plastic surfaces (☛ p. 283)

## 26.1 Storage

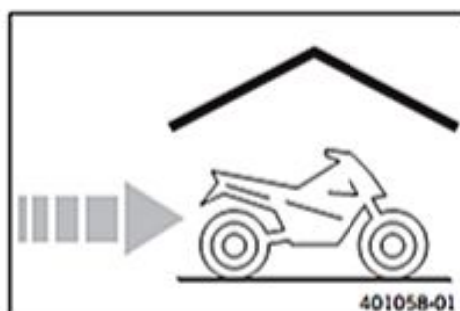
**Warning**

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

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

**Info**

If you plan to garage the motorcycle for a longer period, perform the following steps or have them performed. Before storing the motorcycle, check all parts for function and wear. If service, repairs, or replacements are necessary, you should do this during the storage period (less workshop overload). In this way, you can avoid long workshop waiting times at the start of the new season.



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

Fuel additive (☞ p. 282)

- Refuel.
- Clean the motorcycle. (☞ p. 265)
- Change the gear oil. (☞ p. 242)
- Check the antifreeze and coolant level. (☞ p. 238)
- Empty the carburetor float chamber. (☞ p. 229)
- Check the tire air pressure. (☞ p. 108)

**(All XC models)**

- Remove the battery. (☞ p. 123)

**(All XC models)**

- Recharge the battery.

**Guideline**

Storage temperature of battery without direct sunshine

0... 35 °C (32... 95 °F)

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

**Info**

KTM recommends jacking up the motorcycle.

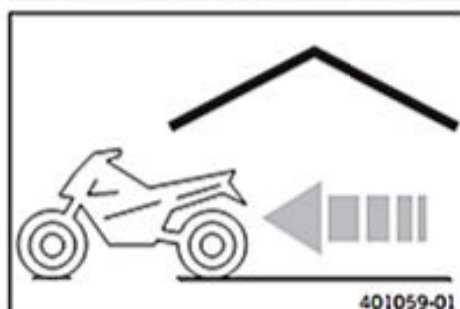
- Raise the motorcycle with a lift stand. (☞ p. 10)
- Cover the vehicle with a tarp or similar cover that is permeable to air.

**Info**

Do not use non-porous materials since they prevent humidity from escaping, thus causing corrosion.

Avoid running the engine for a short time only. 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.

## 26.2 Preparing for use after storage

**(All XC models)**

- Install the battery. (☞ p. 124)
- Remove the motorcycle from the lift stand. (☞ p. 10)
- Perform checks and maintenance work when preparing the vehicle for use.
- Make a test ride.



## 27.1 Service schedule

	Every 20 operating hours	
	Every 10 operating hours/after every race	
Change the gear oil. (250 SX)		•
Check the front brake linings. (☛ p. 126)	•	•
Check the rear brake linings. (☛ p. 131)	•	•
Check the brake discs. (☛ p. 108)	•	•
Check the brake lines for damage and leakage.	•	•
Check the rear brake fluid level. (☛ p. 133)	•	•
Check the free travel of the foot brake lever. (☛ p. 132)	•	•
Check the frame and swingarm.	•	•
Check the swingarm bearing.		•
Check the shock absorber linkage.	•	•
Check the tire condition. (☛ p. 108)	•	•
Check the tire air pressure. (☛ p. 108)	•	•
Check the wheel bearing for play.	•	•
Check the wheel hubs.	•	•
Check the rim run-out.	•	•
Check the spoke tension. (☛ p. 109)	•	•
Check the chain, rear sprocket, engine sprocket, and chain guide. (☛ p. 116)	•	•
Check the chain tension. (☛ p. 116)	•	•
Grease all moving parts (e.g., hand lever, chain, ...) and check for smooth operation.	•	•
Check/rectify the fluid level of the hydraulic clutch. (☛ p. 237)	•	•
Check the front brake fluid level. (☛ p. 128)	•	•
Check the free travel of the hand brake lever. (☛ p. 128)	•	•
Check the play of the steering head bearing. (☛ p. 69)	•	•
Change the piston and check the cylinder.		•
Change the piston and check the cylinder. (under difficult operating conditions)	•	•
Change the spark plug and spark plug connector. (250 SX)		•
Check the inlet membrane.	•	•
Check the exhaust control for functioning and smooth operation.		•
Check the clutch.	•	•
Check all hoses (e.g. fuel, cooling, bleeder, drainage, etc.) and sleeves for cracking, leaks, and incorrect routing.	•	•
Check the antifreeze and coolant level. (☛ p. 238)	•	•
Check the cables for damage and routing without sharp bends.	•	•
Check that the throttle cables are undamaged, routed without sharp bends, and set correctly.	•	•
Clean the air filter and air filter box. (☛ p. 100)	•	•
Change glass fiber yarn filling in the main silencer. (☛ p. 97)		•
Check the screws and nuts for tightness.	•	•
Check idle.	•	•
Final check: Check the vehicle for safe operation and take a test ride.	•	•
Make the service entry in the <b>KTM Dealer.net</b> and in the Service and Warranty Booklet.	•	•

- Periodic interval

## 27.2 Service work (as additional order)

	Annually				
	Every 40 operating hours				
	Every 30 operating hours				
	Once after 20 operating hours				
	Every 10 operating hours/after every race				
	Once after 10 operating hours				
Change the front brake fluid. (☛ p. 130)					•
Change the rear brake fluid. (☛ p. 135)					•
Change the hydraulic clutch fluid. (☛ p. 237)					•
Grease the steering head bearing. (☛ p. 66)					•
Check/adjust the carburetor components.				•	•
Conduct a minor fork service. (250 SX EU) (☛ p. 16)		•	•	•	•
Conduct a major fork service. (250 SX EU) (☛ p. 16)				•	
Perform a fork service. (250 SX US) (☛ p. 37)	○				•
Service the shock absorber. (250 SX) (☛ p. 79)			○		•
Change the connecting rod, conrod bearing, and crank pin.					•
Check the transmission and shift mechanism.					•
Change all engine bearings.					•

○ One-time interval

• Periodic interval

## 28.1 Service schedule

	Every 40 operating hours/after every race	
	Every 20 operating hours	
Check and charge the battery. (All XC models)	•	•
Change the gear oil.	•	•
Check the front brake linings. (☞ p. 126)	•	•
Check the rear brake linings. (☞ p. 131)	•	•
Check the brake discs. (☞ p. 108)	•	•
Check the brake lines for damage and leakage.	•	•
Check the rear brake fluid level. (☞ p. 133)	•	•
Check the free travel of the foot brake lever. (☞ p. 132)	•	•
Check the frame and swingarm.	•	•
Check the swingarm bearing.		•
Check the shock absorber linkage.	•	•
Check the tire condition. (☞ p. 108)	•	•
Check the tire air pressure. (☞ p. 108)	•	•
Check the wheel bearing for play.	•	•
Check the wheel hubs.	•	•
Check the rim run-out.	•	•
Check the spoke tension. (☞ p. 109)	•	•
Check the chain, rear sprocket, engine sprocket, and chain guide. (☞ p. 116)	•	•
Check the chain tension. (☞ p. 116)	•	•
Grease all moving parts (e.g., hand lever, chain, ...) and check for smooth operation.	•	•
Check/rectify the fluid level of the hydraulic clutch. (☞ p. 237)	•	•
Check the front brake fluid level. (☞ p. 128)	•	•
Check the free travel of the hand brake lever. (☞ p. 128)	•	•
Check the play of the steering head bearing. (☞ p. 69)	•	•
Change the spark plug and spark plug connector.	•	•
Check the inlet membrane.	•	•
Check the exhaust control for functioning and smooth operation.		•
Check the clutch.		•
Check all hoses (e.g. fuel, cooling, bleeder, drainage, etc.) and sleeves for cracking, leaks, and incorrect routing.	•	•
Check the antifreeze and coolant level. (☞ p. 238)	•	•
Check the cables for damage and routing without sharp bends.	•	•
Check that the throttle cables are undamaged, routed without sharp bends, and set correctly.	•	•
Clean the air filter and air filter box. (☞ p. 100)	•	•
Change glass fiber yarn filling in the main silencer. (☞ p. 97)	•	•
Check the screws and nuts for tightness.	•	•
Check idle.	•	•
Final check: Check the vehicle for safe operation and take a test ride.	•	•
Make the service entry in the <b>KTM Dealer.net</b> and in the Service and Warranty Booklet.	•	•

- Periodic interval



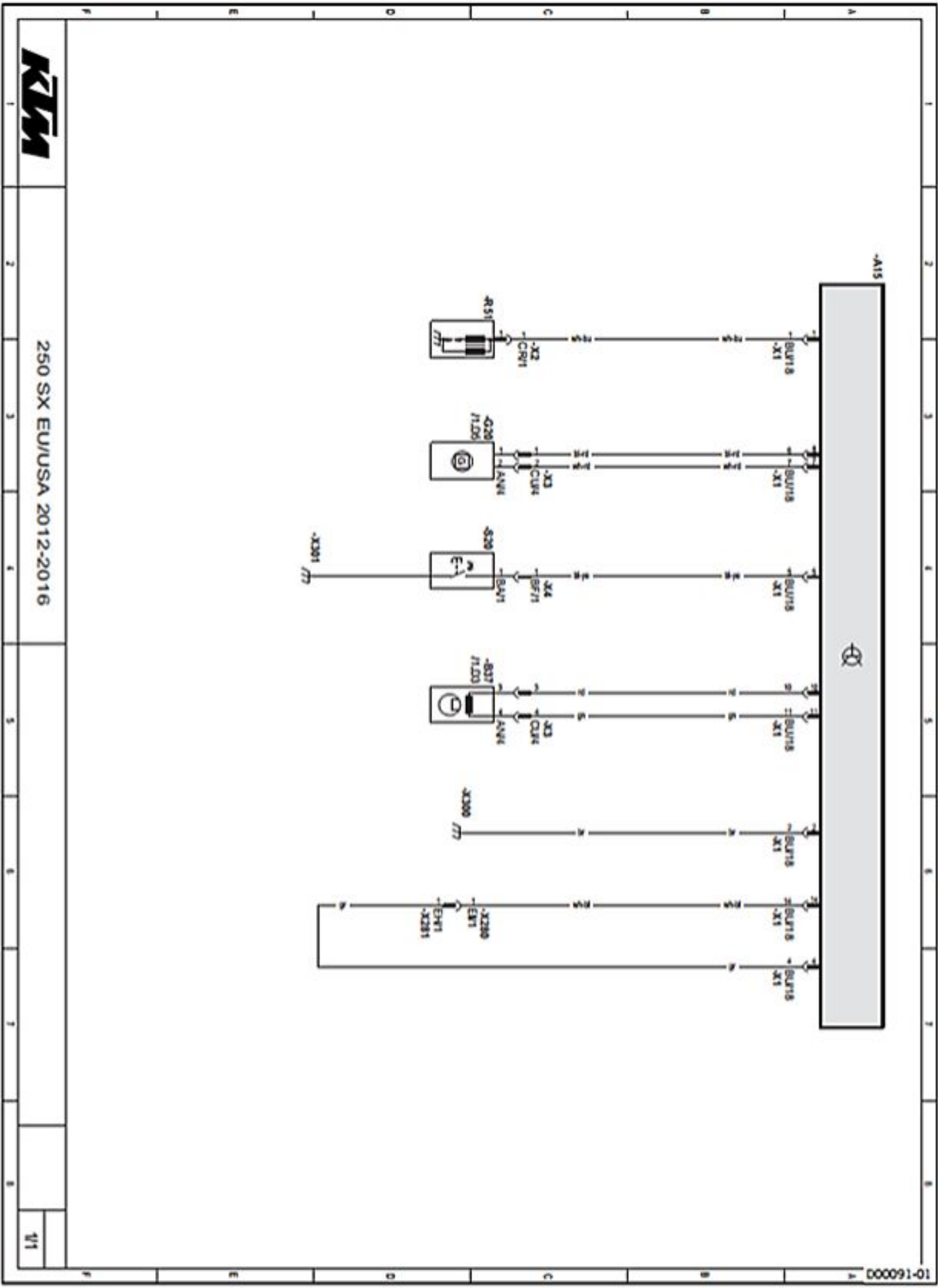
## 28.2 Service work (as additional order)

	Annually		
Every 80 operating hours/every 40 operating hours when used for motorsports			
Every 40 operating hours			
Once after 10 operating hours			
Change the front brake fluid. (☛ p. 130)			•
Change the rear brake fluid. (☛ p. 135)			•
Change the hydraulic clutch fluid. (☛ p. 237)			•
Grease the steering head bearing. (☛ p. 66)			•
Check/adjust the carburetor components.		•	•
Perform a fork service. (All XC models) (☛ p. 52)	○	•	•
Service the shock absorber. (All XC models) (☛ p. 79)		•	•
Check the starter drive. (All XC models)		•	•
Change the piston and check the cylinder.			•
Change the connecting rod, conrod bearing, and crank pin.			•
Check the transmission and shift mechanism.			•
Change all engine bearings.			•

○ One-time interval

• Periodic interval





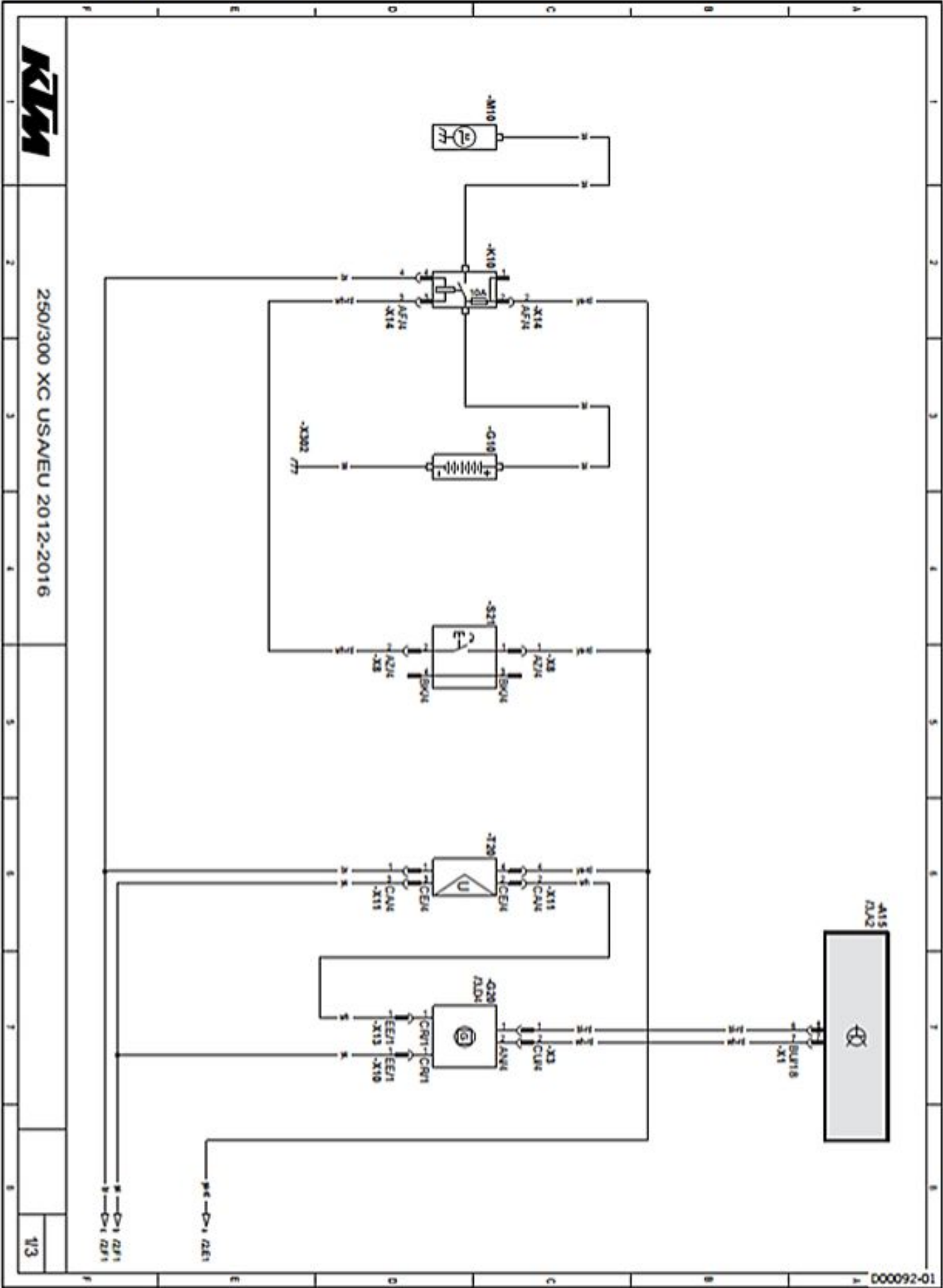


**Components:**

A15	CDI controller
B37	Crankshaft position sensor
G20	Alternator
R51	Ignition coil (cylinder 1)
S20	Kill switch
X280	Connector, ignition timing map
X281	Connector, ignition timing map

**Cable colors:**

bl	Black
br	Brown
bu	Blue
gn	Green
gr	Gray
lbu	Light blue
or	Orange
pk	Pink
pu	Violet
rd	Red
wh	White
ye	Yellow



**Components:**

A15	CDI controller
G10	Battery
G20	Alternator
K10	Starter relay with main fuse
M10	Starter motor
S21	Electric starter button
T20	Voltage regulator

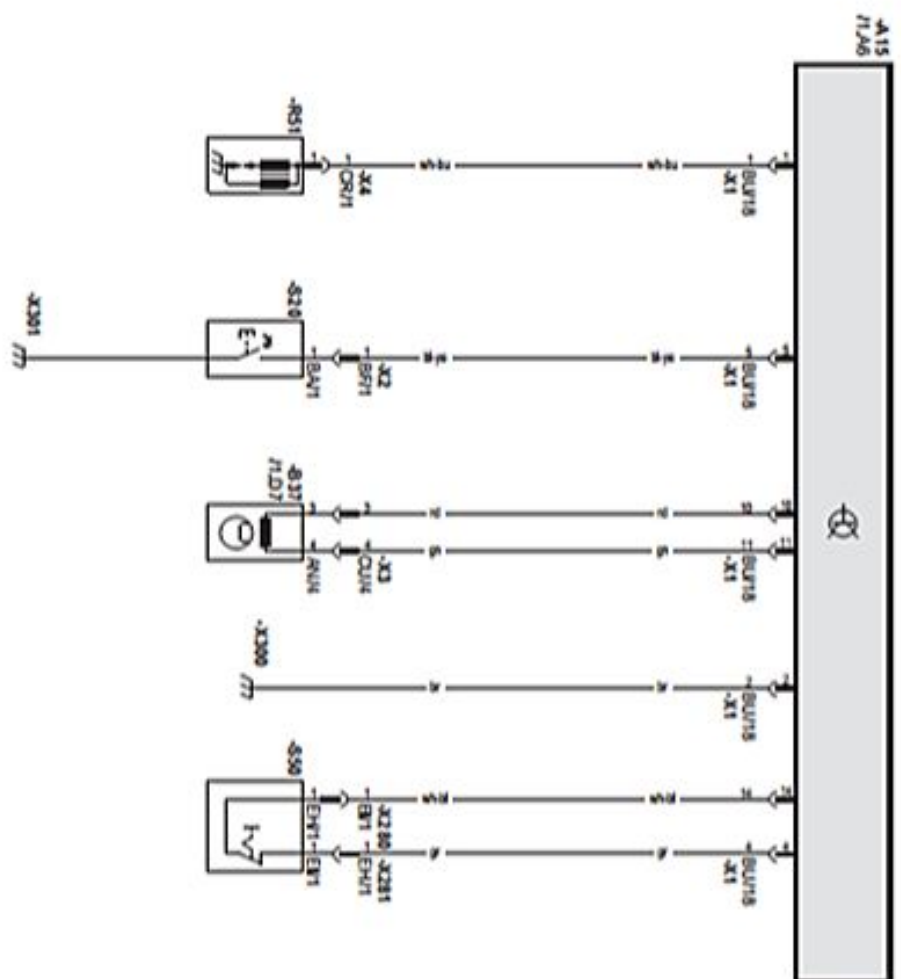


Components:

X285	Connector for radiator fan (optional)
------	---------------------------------------

Components:

X285	Connector for radiator fan (optional)
------	---------------------------------------





## Components:

A15	CDI controller
B37	Crankshaft position sensor
R51	Ignition coil (cylinder 1)
S20	Kill switch
S50	Map switch for ride mode (optional)
X280	Connector, ignition timing map
X281	Connector, ignition timing map

## Cable colors:

bl	Black
br	Brown
bu	Blue
gn	Green
gr	Gray
lbu	Light blue
or	Orange
pk	Pink
pu	Violet
rd	Red
wh	White
ye	Yellow

**Brake fluid DOT 4 / DOT 5.1****Standard/classification**

- DOT

**Guideline**

- Use only brake fluid that complies with the specified standard (see specifications on the container) and that exhibits the corresponding properties.

**Recommended supplier****Castrol**

- RESPONSE BRAKE FLUID SUPER DOT 4

**Motorex®**

- Brake Fluid DOT 5.1

**Coolant****Guideline**

- Only use high quality coolant with corrosion inhibitor for aluminum motors (even in countries with high temperatures). Using inferior antifreeze can result in corrosion and foaming.

**Mixture ratio**

Antifreeze protection: -25... -45 °C (-13... -49 °F)	anti-corrosion/antifreeze distilled water
--	---

**Recommended supplier****Motorex®**

- COOLANT M3.0

**Engine oil (15W/50)****Standard/classification**

- JASO T903 MA (☛ p. 295)
- SAE (☛ p. 295) (15W/50)

**Guideline**

- Use only engine oils that comply with the specified standards (see specifications on the container) and that possess the corresponding properties.

**Recommended supplier****Motorex®**

- Top Speed 4T

**Engine oil, 2-stroke****Standard/classification**

- JASO FD (☛ p. 295)

**Guideline**

- Only use high grade 2-stroke engine oil of a reputable brand.

Fully synthetic
-----------------

**Recommended supplier****Motorex®**

- Cross Power 2T

**Fork oil (SAE 4) (48601166S1)****Standard/classification**

- SAE (☛ p. 295) (SAE 4)

**Guideline**

- Use only oils that comply with the specified standards (see specifications on the container) and that exhibit the corresponding properties.

## Shock absorber fluid (SAE 2.5) (50180751S1)

### Standard/classification

- SAE (☛ p. 295) (SAE 2.5)

### Guideline

- Use only oils that comply with the specified standards (see specifications on the container) and that exhibit the corresponding properties.

## Super unleaded (ROZ 95/RON 95/PON 91)

### Standard/classification

- DIN EN 228 (ROZ 95/RON 95/PON 91)

### Guideline

- Only use unleaded super fuel that matches or is equivalent to the specified fuel grade.
- Fuel with an ethanol content of up to 10 % (E10 fuel) is safe to use.



### Info

Do not use fuel containing methanol (e. g. M15, M85, M100) or more than 10 % ethanol (e. g. E15, E25, E85, E100).

## Super unleaded (95 octane) mixed with 2-stroke engine oil (1:60)

### Standard/classification

- DIN EN 228
- JASO FD (☛ p. 295) (1:60)

### Mixture ratio

1:60	Engine oil, 2-stroke (☛ p. 280) Super unleaded (ROZ 95/RON 95/PON 91) (☛ p. 281)
------	---

### Recommended supplier

#### Motorex®

- Cross Power 2T



### Air filter cleaner

Recommended supplier

Motorex®

- Racing Bio Dirt Remover

### Chain cleaner

Recommended supplier

Motorex®

- Chain Clean

### Fuel additive

Recommended supplier

Motorex®

- Fuel Stabilizer

### High viscosity grease

Recommended supplier

SKF®

- LGHB 2

### Long-life grease

Recommended supplier

Motorex®

- Bike Grease 2000

### Lubricant (T158)

Recommended supplier

Lubcon®

- Turmogrease® PP 300

### Lubricant (T511)

Recommended supplier

Lubcon®

- Turmsilon® GTI 300 P

### Lubricant (T625)

Recommended supplier

Molykote®

- 33 Medium

### Lubricant (T152)

Recommended supplier

Bel-Ray®

- Molytube® Anti-Seize

### Lubricant (T159)

Recommended supplier

Bel-Ray®

- MC-11®

### Motorcycle cleaner

Recommended supplier

Motorex®

- Moto Clean

### Off-road chain spray

Recommended supplier

Motorex®

- Chainlube Offroad

### Oil for foam air filter

Recommended supplier

Motorex®

- Racing Bio Liquid Power

### Preserving materials for paints, metal and rubber

Recommended supplier

Motorex®

- Moto Protect

### Special cleaner for glossy and matte paint finishes, metal and plastic surfaces

Recommended supplier

Motorex®

- Quick Cleaner

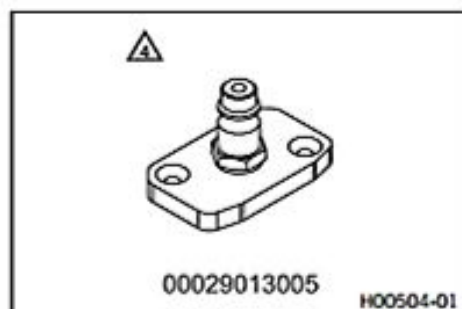
### Universal oil spray

Recommended supplier

Motorex®

- Joker 440 Synthetic

## Bleeder cover



Art. no.: 00029013005

## Bleeder cover



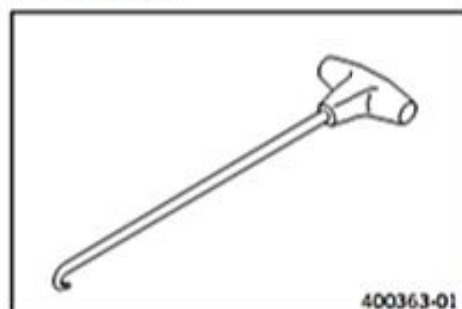
Art. no.: 00029013006

## Bleeding device



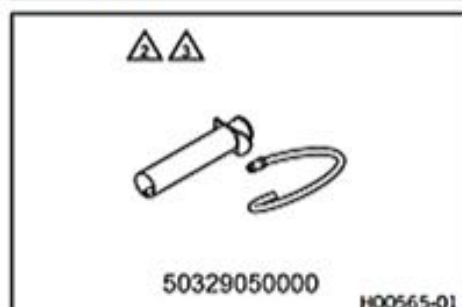
Art. no.: 00029013100

## Spring hooks



Art. no.: 50305017000

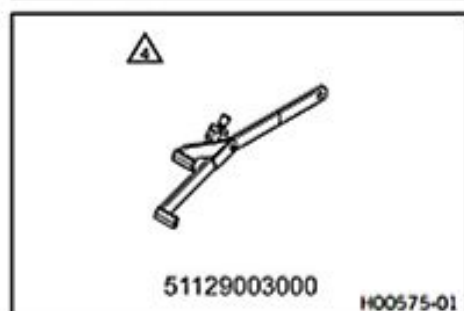
## Bleed syringe



Art. no.: 50329050000

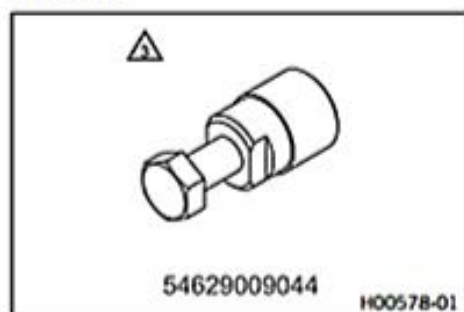


## Clutch holder



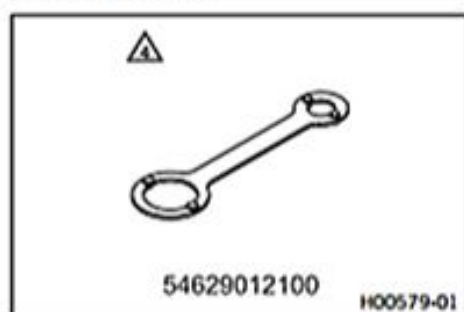
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## Extractor



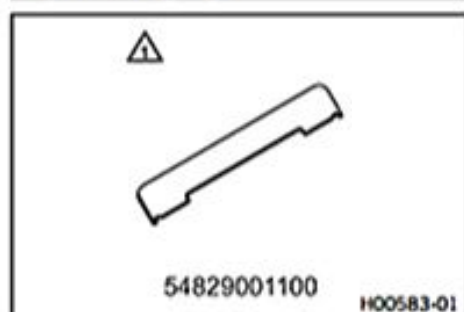
Art. no.: 54629009044

## Holding spanner



Art. no.: 54629012100

## Adjustment gauge



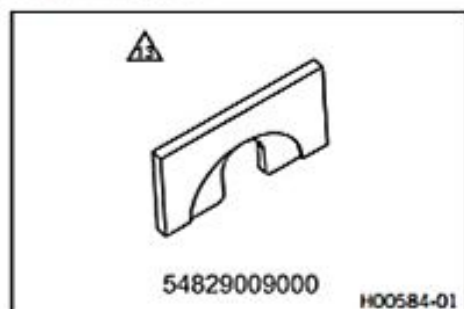
Art. no.: 54829001100

## Insert for crankshaft pressing tool



Art. no.: 54829008000

## Separator plate



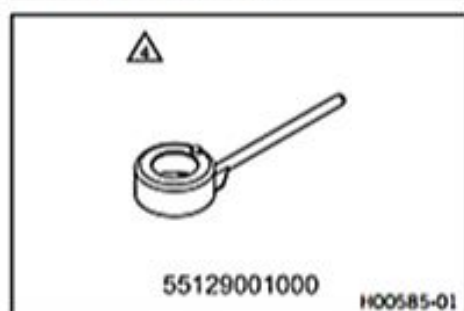
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## Insert for crankshaft pressing tool



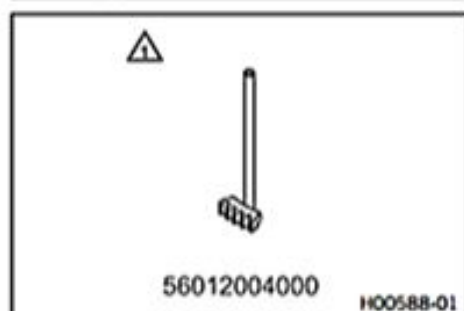
Art. no.: 54829108000

## Holding spanner, rotor



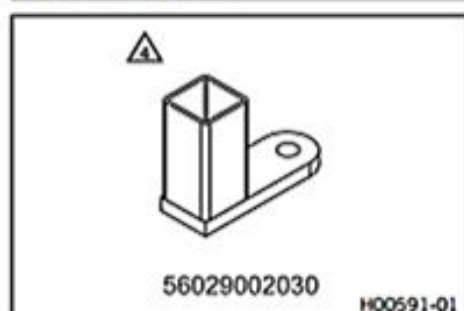
Art. no.: 55129001000

## Gear segment



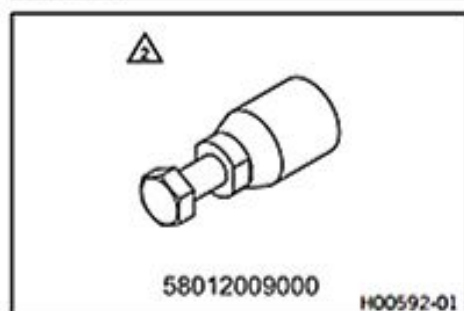
Art. no.: 56012004000

## Engine fixing arm



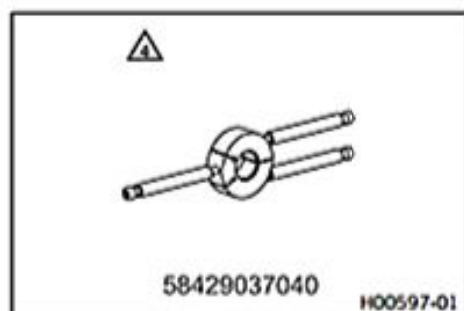
Art. no.: 56029002030

## Extractor



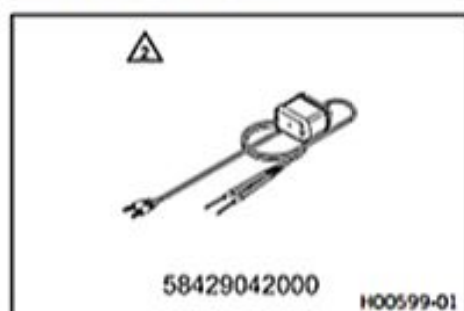
Art. no.: 58012009000

## Tool for inner bearing race



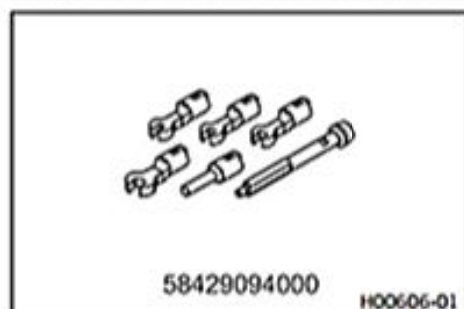
Art. no.: 58429037040

## Peak voltage adapter



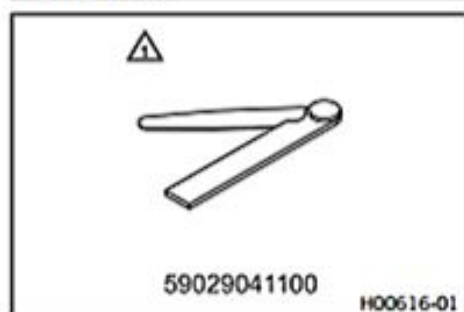
Art. no.: 58429042000

## Torque wrench with various accessories in set



Art. no.: 58429094000

## Feeler gauge



Art. no.: 59029041100

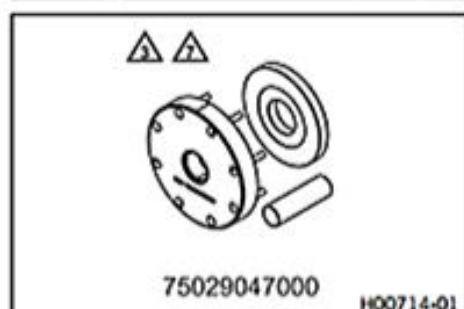


## Engine assembly stand



Art. no.: 61229001000

## Pressing tool for crankshaft, complete



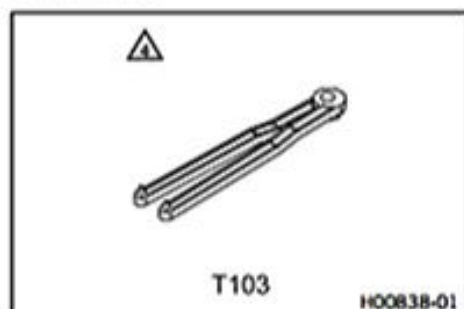
Art. no.: 75029047000

## Lift stand



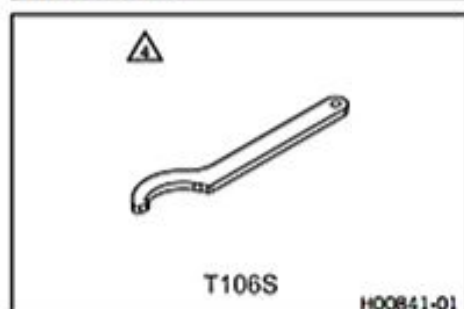
Art. no.: 78129955100

## Pin wrench



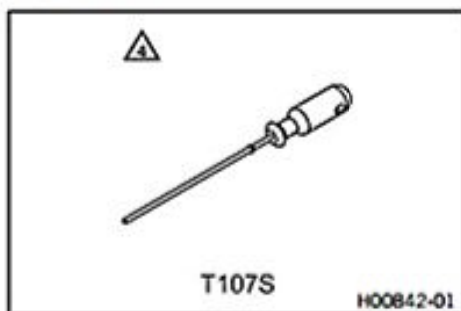
Art. no.: T103

## Hook wrench



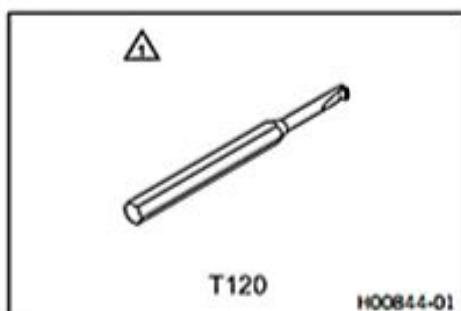
Art. no.: T106S

## Depth micrometer



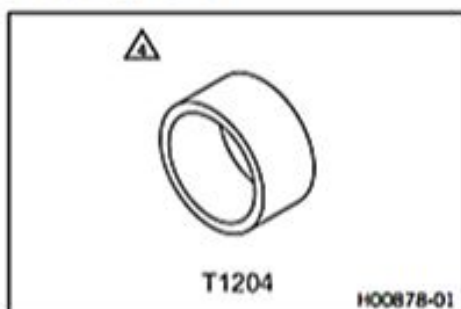
Art. no.: T107S

## Pin



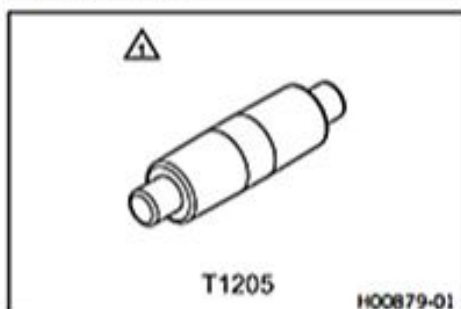
Art. no.: T120

## Mounting sleeve



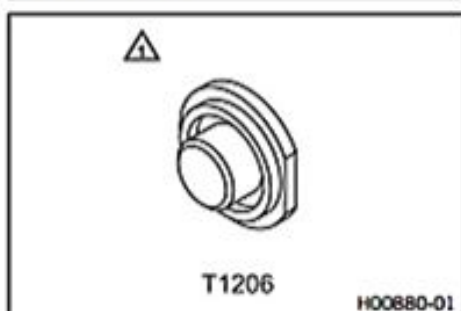
Art. no.: T1204

## Calibration pin



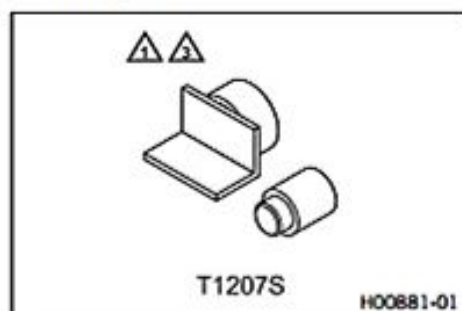
Art. no.: T1205

## Pressing tool



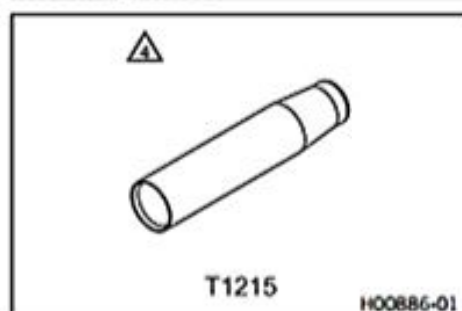
Art. no.: T1206

## Pressing tool



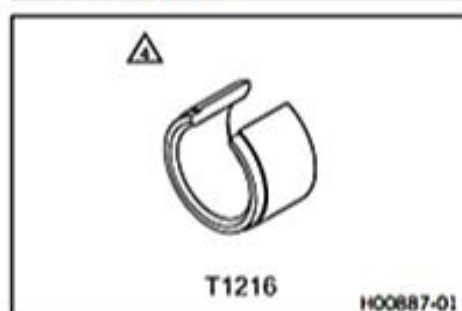
Art. no.: T1207S

## Mounting sleeve



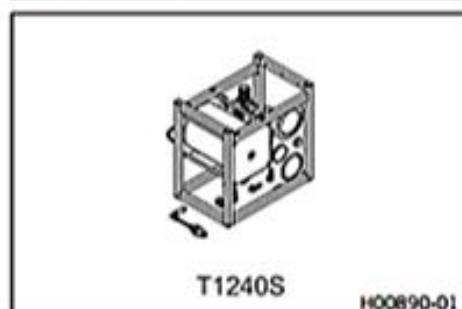
Art. no.: T1215

## Disassembly tool



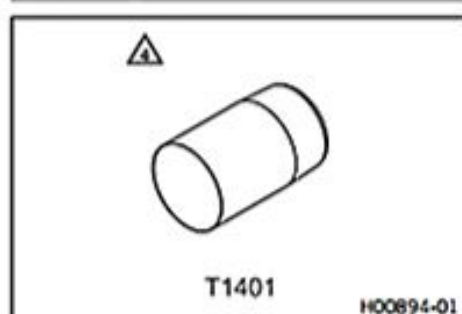
Art. no.: T1216

## Vacuum pump



Art. no.: T1240S

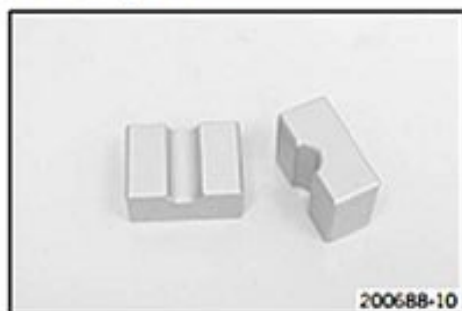
## Protecting sleeve



Art. no.: T1401

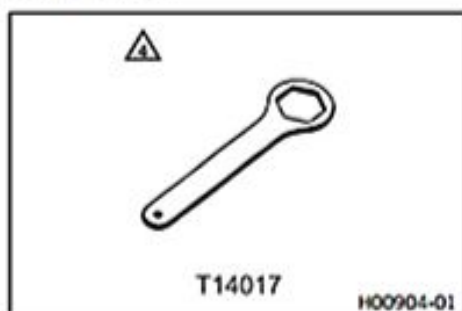


## Clamping stand



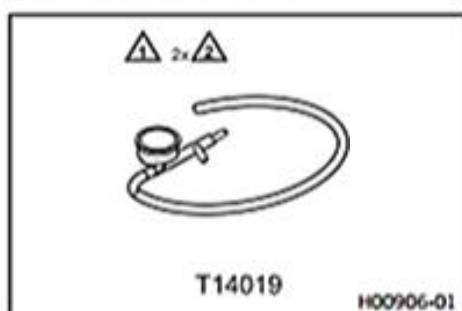
Art. no.: T14016S

## Ring wrench



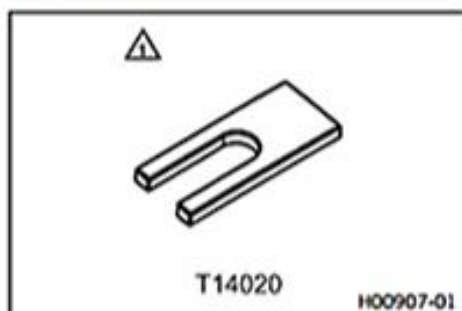
Art. no.: T14017

## Nitrogen charging tool



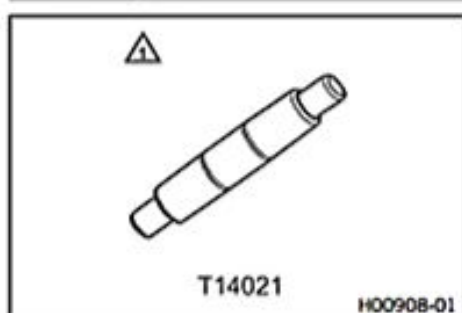
Art. no.: T14019

## Support tool



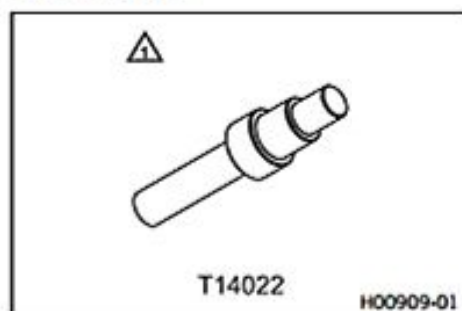
Art. no.: T14020

## Calibrating unit



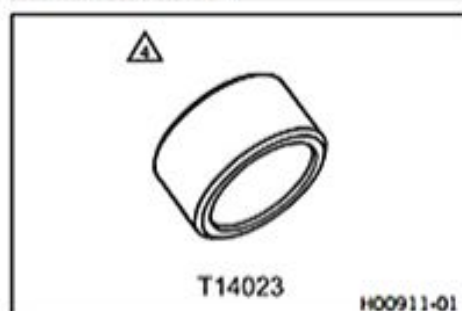
Art. no.: T14021

### Mounting tool



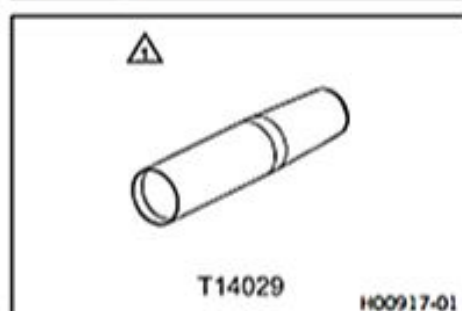
Art. no.: T14022

### Threaded bushing



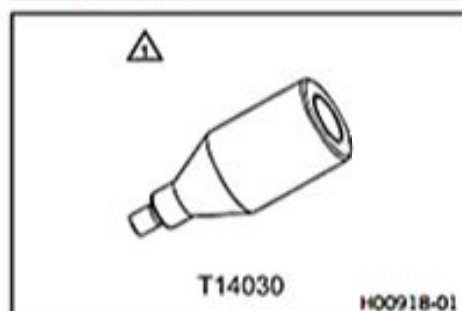
Art. no.: T14023

### Mounting sleeve



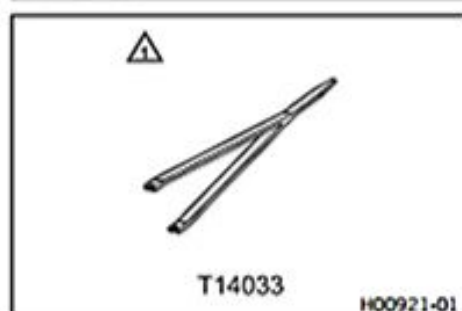
Art. no.: T14029

### Filling adapter



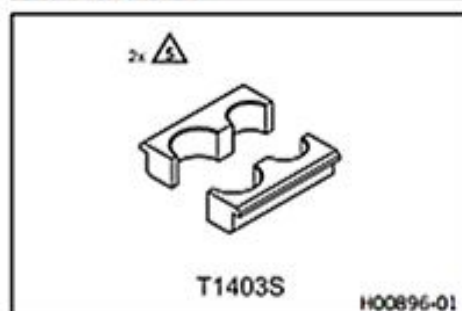
Art. no.: T14030

### Tweezers



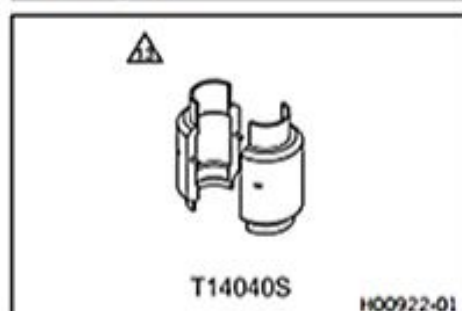
Art. no.: T14033

## Clamping stand



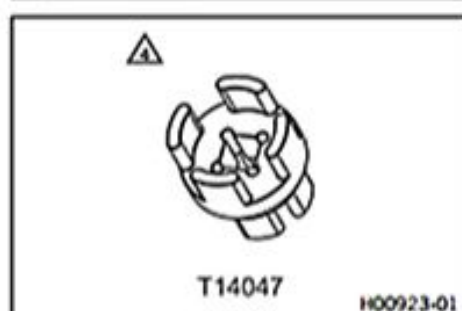
Art. no.: T1403S

## Mounting tool



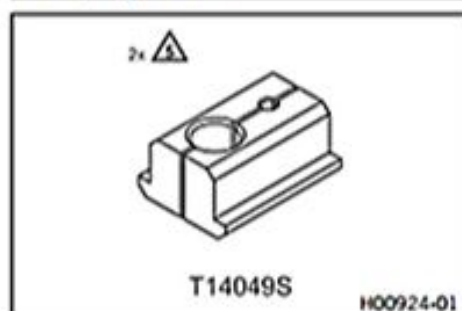
Art. no.: T14040S

## Special socket



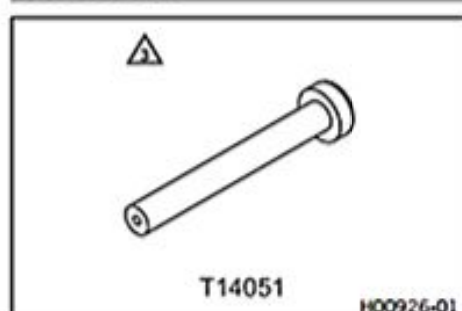
Art. no.: T14047

## Clamping stand



Art. no.: T14049S

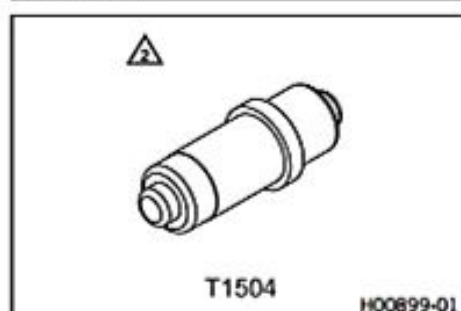
## Press-out tool



Art. no.: T14051

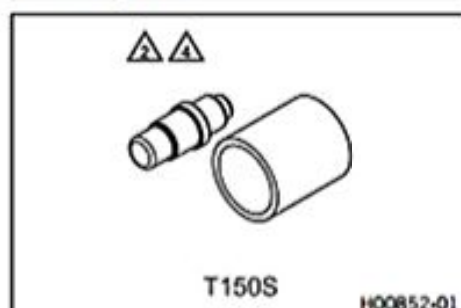


## Press drift



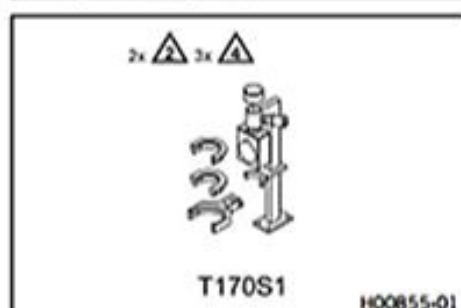
Art. no.: T1504

## Assembly tool



Art. no.: T150S

## Nitrogen filling tool



Art. no.: T170S1

### **JASO T903 MA**

Different technical development directions required a new specification for 4-stroke motorcycles – the JASO T903 MA Standard. Earlier, engine oils from the automobile industry were used for 4-stroke motorcycles because there was no separate motorcycle specification. Whereas long service intervals are demanded for automobile engines, high performance at high engine speeds are in the foreground for motorcycle engines. In most motorcycles, the gearbox and the clutch are lubricated with the same oil as the engine. The JASO MA Standard meets these special requirements.

### **SAE**

The SAE viscosity classes were defined by the Society of Automotive Engineers and are used for classifying oils according to their viscosity. The viscosity describes only one property of oil and says nothing about quality.

### **JASO FD**

JASO FD is a classification for a 2-stroke engine oil that was specifically developed for the extreme demands of racing. Thanks to first rate synthetic esters and specially designed additives, superb combustion is achieved even under extreme operating conditions.

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