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 product described safely. Therefore read this instruction and all further instructions included carefully. The safety instructions are highlighted in the text and are referred to at the relevant passages.

Info
Various information and warning labels are attached in prominent locations on the product described. Do not remove any information or 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
Identifies a danger that will immediately and invariably lead to fatal or serious permanent injury if the appropriate measures are not taken.

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

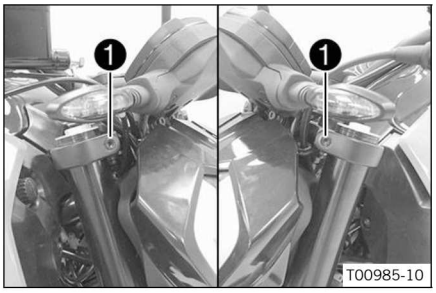
Caution
Identifies a danger that may lead to minor injuries if the appropriate measures are not taken.

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

Note
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 a component of the vehicle, but can be ordered using the number in parentheses. Example: bearing puller (15112017000)
During assembly, use new parts to replace parts which cannot be reused (e.g. self-locking screws and nuts, seals, sealing rings, O-rings, pins, and lock washers).
In the case of certain screws, a thread locker (e.g. **Loctite®**) is required. Apply according to the manufacturer's instructions.
After disassembly, clean the parts that are to be reused and check them for damage and wear. Change damaged or worn parts.
After completing a repair or service work, check the operating safety of the vehicle.



– Tighten screws ❶.

Guideline

Screw, top triple clamp	M8	15 Nm (11.1 lbf ft)

Finishing work

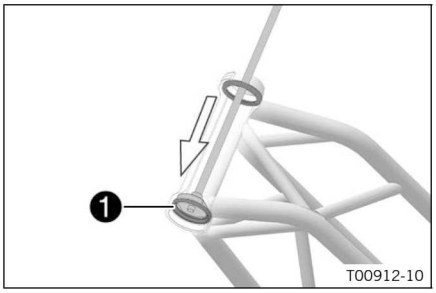
– Check the play of the steering head bearing. (📖 p. 31)
– Remove the motorcycle from the work stand. (📖 p. 12)

6.11 Changing the steering head bearing

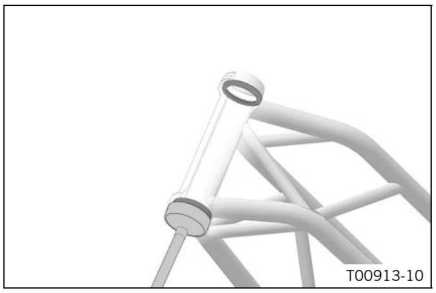
Preparatory work

– Raise the motorcycle with the work stand. (📖 p. 11)
– Clamp down the rear of the vehicle.
– Remove front fender. (📖 p. 87)
– Remove the fork legs. (📖 p. 15)
– Remove the lower triple clamp. (📖 p. 26)

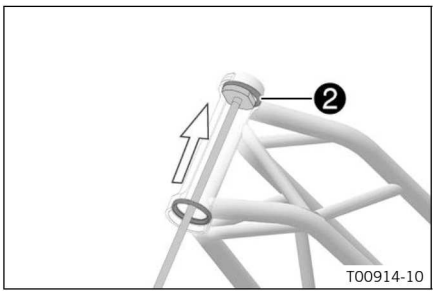
Main work



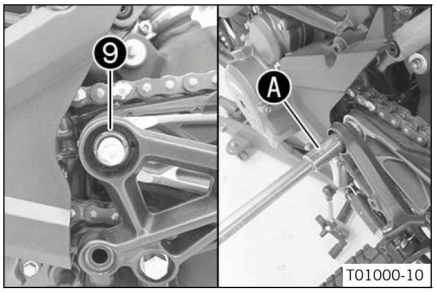
– Remove the lower bearing race ❶ using a suitable tool.



– Press in the new bearing ring all the way using a suitable tool.



– Remove the upper bearing race ❷ using a suitable tool.



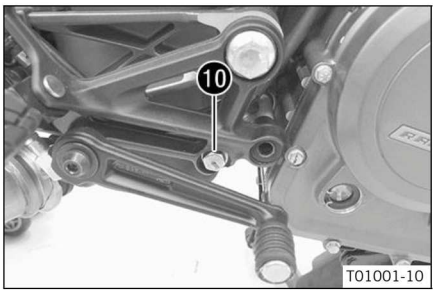
– Adjust adjusting ring ❾ with special tool Ⓐ.

Guideline

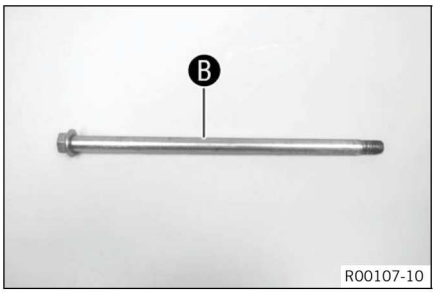
Swingarm bearing adjusting ring	M22x1	Tighten and ensure that there is no play

Groove nut wrench (45229021000) (📖 p. 331)

✓ The adjusting ring is flush with the collar bushing.



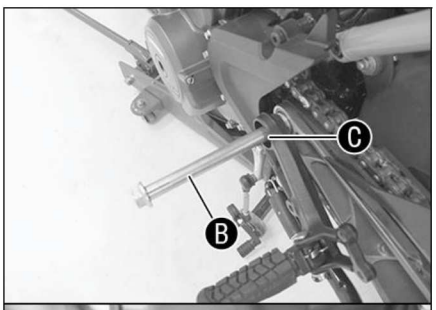
– Remove screw ❿.



– Procure the tool (pin) Ⓑ.

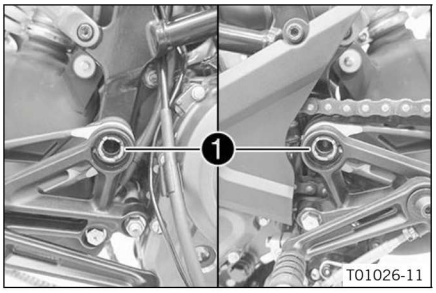
Guideline

Length	≥ 300 mm (≥ 11.81 in)
Diameter	15 mm (0.59 in)



– Push pin Ⓑ through hole Ⓒ in the swingarm.

✓ The pin Ⓑ replaces the swingarm pivot and stabilizes the vehicle.



(Option: With ABS)

– Position the swingarm.

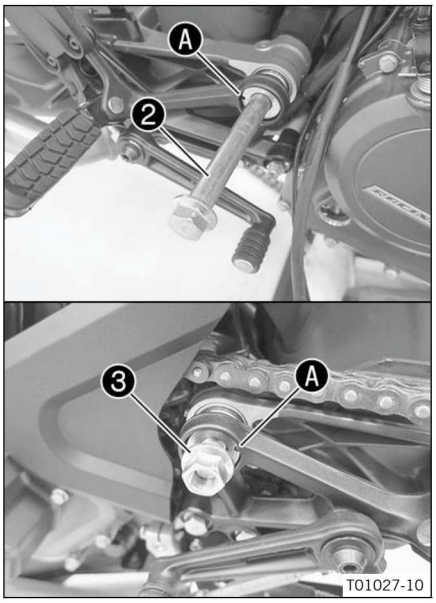
– Adjust adjusting rings ❶ evenly on the right and left using a special tool.

Guideline

Swingarm bearing adjusting ring	M22x1	Tighten and ensure that there is no play

Groove nut wrench (45229021000) (📖 p. 331)

✔ The adjusting ring is flush with the collar bushing.



– Mount the swingarm pivot ❷ with the washer.

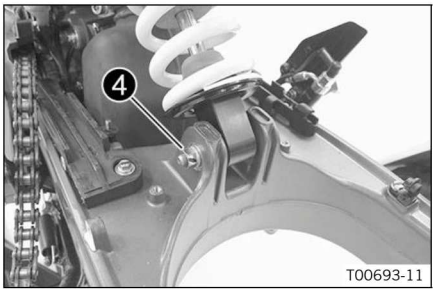
✔ Recess Ⓐ is aligned to the pin.

– Mount and tighten nut ❸ with the washer.

Guideline

Nut, swingarm pivot	M14x1.5	98 Nm (72.3 lbf ft)

✔ Recess Ⓐ is aligned to the pin.



– Lift the swingarm and position the shock absorber.

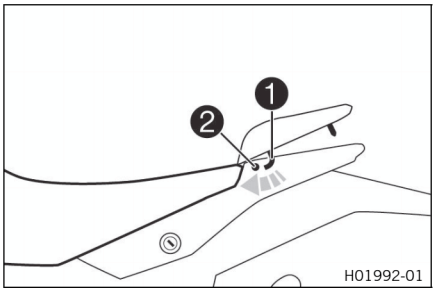
– Mount and tighten fitting ❹.

Guideline

Fitting, shock absorber, bottom	M10x1.25	51 Nm (37.6 lbf ft) **Loctite®243™**

– Position the chain.

12.6 Mounting the passenger seat



– Attach hooks ❶ on the passenger seat to the hangers ❷ on the subframe, and lower at the rear while pushing forward.
– Press passenger seat downward until it clicks into place.

Warning
Danger of accidents The seat can come loose from the anchoring if it is not mounted correctly.
– After assembly, check whether the seat is correctly locked and cannot be pulled up.

– Finally, check that the passenger seat is correctly mounted.

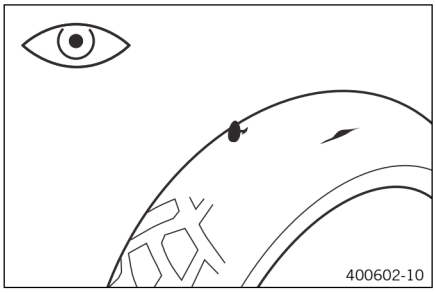
12.7 Removing the fuel tank cover

Danger
Fire hazard Fuel is highly flammable.
The fuel in the fuel tank expands when warm and can escape if overfilled.
– Do not refuel the vehicle in the vicinity of open flames or lit cigarettes.
– Switch off the engine for refueling.
– Make sure that no fuel is spilled; particularly not on hot parts of the vehicle.
– If any fuel is spilled, wipe it off immediately.
– Observe the specifications for refueling.

Warning
Danger of poisoning Fuel is poisonous and a health hazard.
– Avoid skin, eye and clothing contact with fuel.
– Immediately consult a doctor if you swallow fuel.
– Do not inhale fuel vapors.
– In case of skin contact, rinse the affected area with plenty of water.
– Rinse the eyes thoroughly with water, and consult a doctor in case of fuel contact with the eyes.
– Change your clothing in case of fuel spills on them.
– Keep fuels correctly in a suitable canister, and out of the reach of children.

Note
Environmental hazard Improper handling of fuel is a danger to the environment.
– Do not allow fuel to enter the groundwater, the soil, or the sewage system.

Preparatory work
– Remove the passenger seat. (📖 p. 76)
– Remove the front rider's seat. (📖 p. 76)



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

Info
Observe the minimum profile depth required by national law.

Minimum tread depth	≥ 2 mm (≥ 0.08 in)

  » If the tread depth is less than the minimum tread depth:
    – Change the tires.

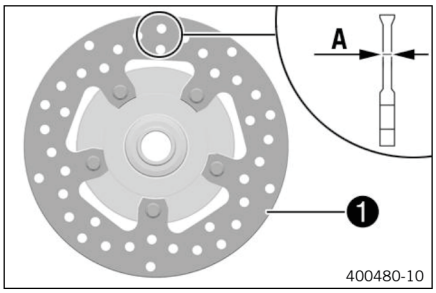
– Check the tire age.

Info
The tire date of manufacture is usually contained in the tire label and is indicated by the last four digits of the **DOT** number. The first two digits indicate the week of manufacture and the last two digits the year of manufacture.
KTM recommends that the tires be changed after 5 years at the latest, regardless of the actual state of wear.

  » If the tires are more than 5 years old:
    – Change the tires.

13.3 Checking the brake discs

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

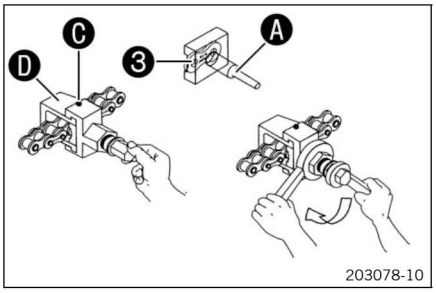


– Check the front and rear brake disc thickness at multiple points for the dimension Ⓐ.

Info
Wear will reduce the thickness of the brake disc at contact surface ❶ of the brake linings.

Brake discs - wear limit	
front	3.6 mm (0.142 in)
rear	3.6 mm (0.142 in)

  » If the brake disc thickness is less than the specified value.
    – Change the front brake disc. (📖 p. 96)
    – Change the rear brake disc. (📖 p. 104)
– Check the front and rear brake discs for damage, cracking, and deformation.



– Position the special tool on the chain.
  ✔ Locking screw C points upwards.
– Position retaining clamp D of the special tool on the chain from the rear.
  ✔ Markings **A** and **B** point upwards.
– Slide retaining clamp D of the special tool into the pressing tool.
  ✔ The arrow of marking **A** points to locking screw C.
– Screw the locking screw hand-tight as far as it will go.
  ✔ The retaining clamp is fixed.
– Hold the special tool and screw in the spindle.
  ✔ Press drift A of the special tool presses against the center of the chain joint plate 3.
  ✔ The chain joint plate is pressed on.
– Unscrew the locking screw and remove the special tool.
– Rivet the two pins of the connecting link with special tool.

Chain rivet tool (60029020000) (p. 333)

13.5.12 Changing the drivetrain kit

Preparatory work

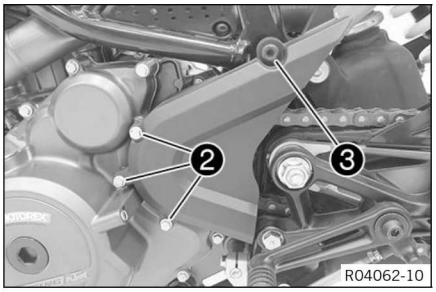
– Raise the motorcycle with the rear lifting gear. (p. 10)
– Remove the rear wheel. (p. 102)

Main work

– Remove fittings 1. Take off the rear sprocket.
– Position the new rear sprocket.
– Mount and tighten the fittings.

  Guideline

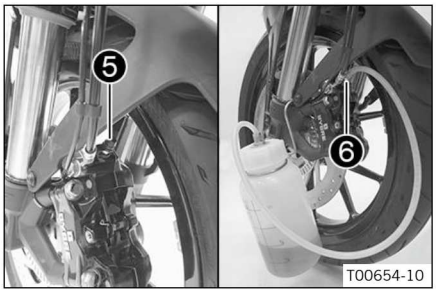
Nut, rear sprocket	M8	27 Nm (19.9 lbf ft)



– Remove screws 2.
– Remove screw 3 with the spacer.
– Take off the engine sprocket cover.

Guideline

Filling pressure	2 ... 2.5 bar (29 ... 36 psi)



– Pull off dust cap ❺ of the bleeder screw on the brake caliper. Connect the bleeder bottle hose.

Bleeding device (00029013100) (p. 330)

– Open bleeder screw ❻ by approximately one half turn.

Info
Drain until fresh brake fluid emerges in the bleeder bottle hose without bubbles.

– Tighten the bleeder screw.
– Close shut-off valve ❹.
– Open the bleeder screw again until brake fluid stops emerging.

Info
Overfilling of the brake fluid reservoir is prevented.

– Tighten the bleeder screw. Remove the bleeder bottle hose. Attach the dust cap.
– Disconnect the bleeding device. Remove the bleeder cover.

– Add brake fluid up to level Ⓒ.

Guideline

Dimension Ⓒ	5 mm (0.2 in)

Brake fluid DOT 4 / DOT 5.1 (p. 326)

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

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

– Check the hand brake lever for a firm pressure point.

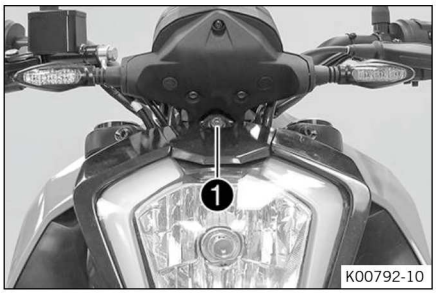
15.6 Checking the rear brake linings

Warning
Danger of accidents Worn-out brake linings reduce the braking effect.
– Ensure that worn-out brake linings are replaced immediately.

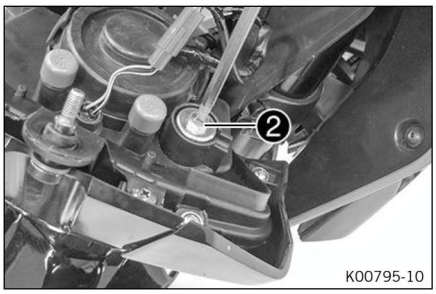
Warning
Danger of accidents Damaged brake discs reduce the braking effect.
If the brake linings are not changed in time, the brake lining carriers grind against the brake disc. As a consequence, the braking effect is greatly reduced and the brake discs are destroyed.
– Check the brake linings regularly.

» If the light-dark border does not meet specifications:
– Adjust the headlight range. (📖 p. 154)

16.7 Adjusting the headlight range



Main work
– Remove screw ❶.
– Lift the headlight mask slightly and swing forward.



– Adjust the beam headlight range by turning screw ❷.
Guideline

For a motorcycle with rider, and with luggage and a passenger if applicable, the light/dark boundary must be exactly on the lower marking (applied in: Checking the headlight setting).

Info
Turn clockwise to reduce the headlight range; turn counterclockwise to increase the headlight range.

– Swivel the headlight mask up.
– Mount screw ❶.
Guideline

Screw, headlight	M6	8 Nm (5.9 lbf ft)

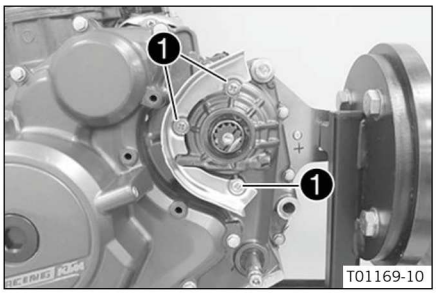
Finishing work
– Check the headlight setting. (📖 p. 153)

16.8 Changing the headlight bulb

Note
Damage to reflector Grease on the reflector reduces the brightness.
Grease on the bulb will evaporate due to the heat and be deposited on the reflector.
– Clean and degrease the bulbs before mounting.
– Do not touch the bulbs with your bare hands.

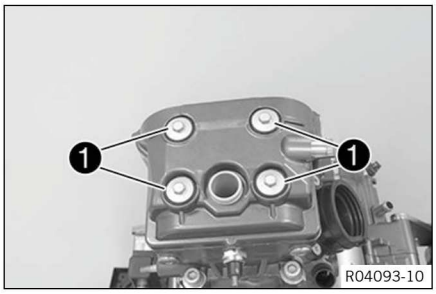
Preparatory work
– Switch off the ignition by turning the ignition key to the position ⊠.

17.3.3 Removing the chain securing guide

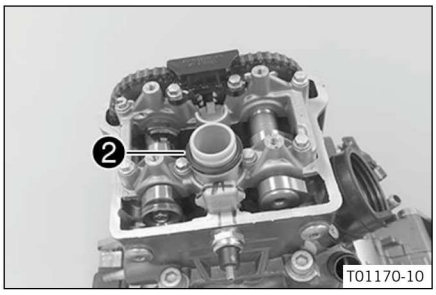


– Remove screws ❶.
– Take off the chain securing guide.

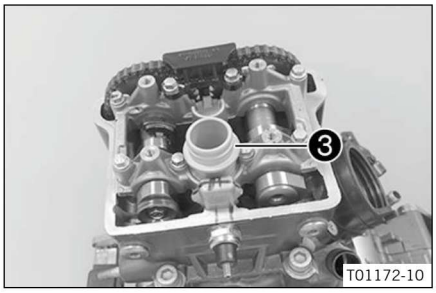
17.3.4 Removing the valve cover



– Remove screws ❶ with the gasket.
– Take off the valve cover with the valve cover seal.

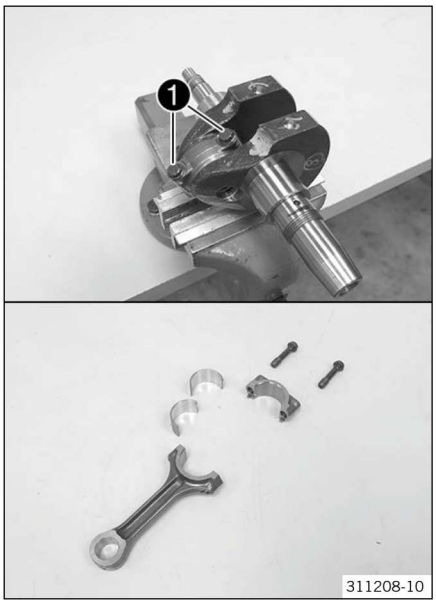


– Take off gasket ❷.

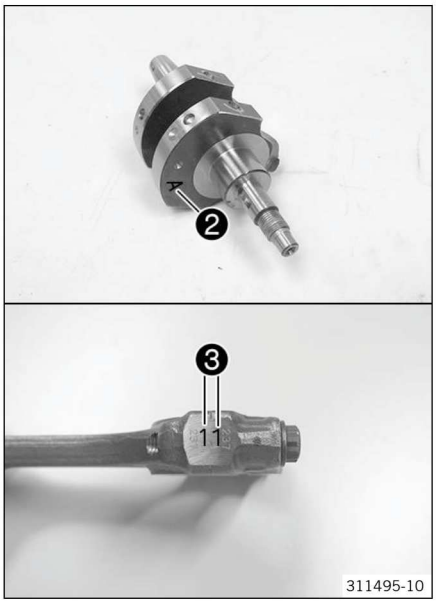


– Remove the spark plug shaft insert ❸.

17.4.5 Changing the conrod bearing



– Clamp the connecting rod with soft jaws.
– Remove screws ❶.
– Remove the conrod bearing cover and crankshaft. Remove the bearing shells.



New crankshaft

– Select new bearing shells according to the crankshaft classification and connecting rod classification.

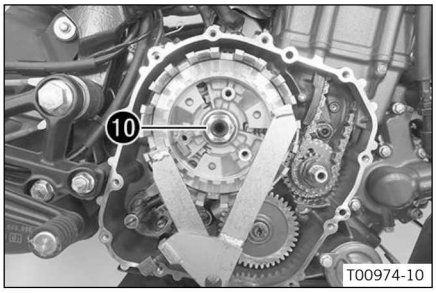
Guideline

Crankshaft – diameter, crank pin	
Crankshaft classification **A**	29.970 ... 29.977 mm (1.17992 ... 1.18019 in)
Crankshaft classification **B**	29.978 ... 29.985 mm (1.18023 ... 1.18051 in)
Color coding for conrod bearing shell	
Green	Crankshaft classification **B** and connecting rod classification **1**
None	Crankshaft classification **B** and connecting rod classification **2**
None	Crankshaft classification **A** and connecting rod classification **1**
Black	Crankshaft classification **A** and connecting rod classification **2**

Info

The crankshaft classification is indicated by marking ❷.
The connecting rod classification is indicated by marking ❸.

– Check the radial play of the lower conrod bearing.
(📖 p. 191)

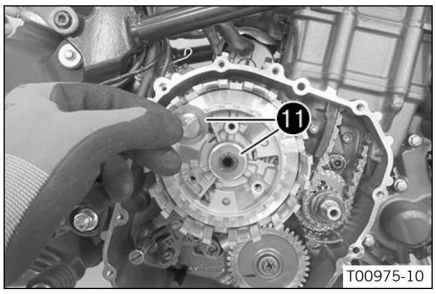


– Hold the clutch basket using the special tool.

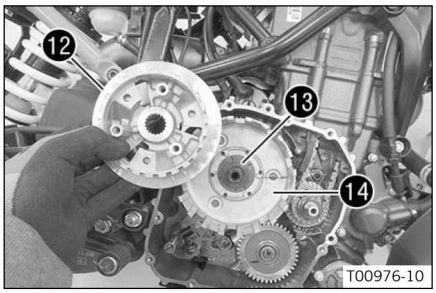
Holding wrench (51129003000) (p. 332)

– Remove nut ⓾.

Info
LH thread!



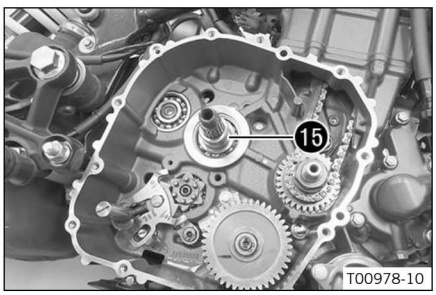
– Remove washers ⓫.



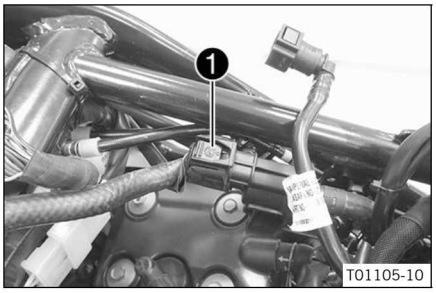
– Take off inner clutch hub ⓬ and washer ⓭.

Info
The washer usually sticks to the inner clutch hub.

– Take off clutch basket ⓮.

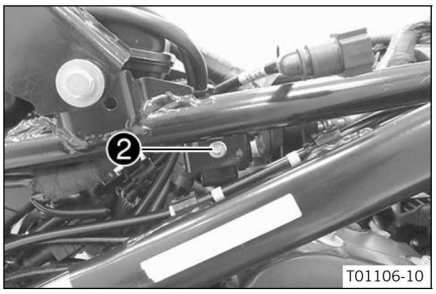


– Remove collar sleeve ⓯.

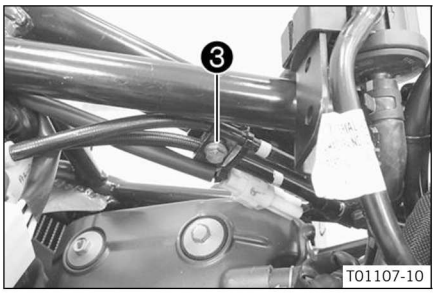


Main work

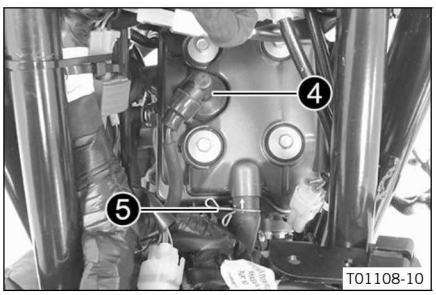
– Unplug connector ❶.



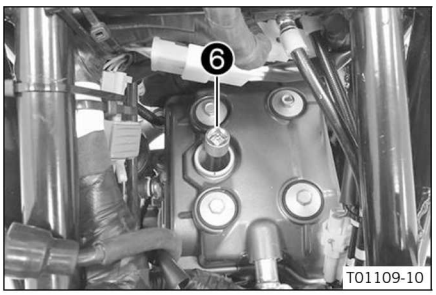
– Remove screw ❷.
– Take off the valve with holder and hang to the side.



– Remove screw ❸.
– Remove the cable holder.



– Disconnect spark plug connector ❹.
– Push back hose clamp ❺.
– Pull off the air release hose.



– Remove the spark plug with special tool ❻.

Spark plug wrench with link (77229172000) (📖 p. 337)

25.1 Engine

Design	1-cylinder 4-stroke engine, water-cooled
Displacement	249 cm^3 (15.19 cu in)
Stroke	61.1 mm (2.406 in)
Bore	72 mm (2.83 in)
Compression ratio	12.5:1
Control	DOHC, 4 valves controlled via cam lever, chain drive
Valve diameter, intake	29 mm (1.14 in)
Valve diameter, exhaust	24 mm (0.94 in)
Valve clearance, intake, cold	0.10 ... 0.15 mm (0.0039 ... 0.0059 in)
Valve clearance, exhaust, cold	0.15 ... 0.20 mm (0.0059 ... 0.0079 in)
Crankshaft bearing	2 slide bearings
Conrod bearing	Sleeve bearing
Pistons	Cast light alloy
Piston rings	1 compression ring, 1 tapered compression piston ring, 1 oil scraper ring
Engine lubrication	Pressure circulation lubrication with two rotary pumps
Primary transmission	30:80
Clutch	Clutch in oil bath/mechanically activated
Transmission	6-gear, claw shifted
Transmission ratio	
1st gear	12:32
2nd gear	14:26
3rd gear	19:27
4th gear	21:24
5th gear	23:22
6th gear	25:21
Mixture preparation	Electronically controlled fuel injection
Ignition	Contactless controlled fully electronic ignition with digital ignition adjustment
Alternator	12 V, 230 W
Spark plug	**BOSCHVR5NEU**
Spark plug electrode gap	1 mm (0.04 in)
Cooling	Water cooling, permanent circulation of coolant by water pump
Idle speed	1,450 ... 1,550 rpm
Starting aid	Electric starter

29.13 Page 4 of 9 (Option: With ABS)