

Measure no.

US 64267274-05

Subject

Front and rear cross-spoke wheel - spokes with loss of preload

Status date (mm/dd/yy)

10/30/18

Status

Accepted

Organization

US, MOT

Date created (mm/dd/yy)

10/30/18

Created by

Robert Karl

PQM Problem reference**Release date (mm/dd/yy)****Approved by****Dealer release**

Allow automatic release

Vehicles affected**E series**

K23 K33 K50 K50/11 K51

Engine**Body****Production period (from/to)**

(mm/dd/yy)

/ 1/31/18

Comment on production period**Feedback (all cases relating to**

measure up to) (mm/dd/yy)

Complaint

One or more spokes on cross-spoke wheel has less tension. In some cases a slight change in drive ability can be detected.

Cause

open

Measure

Changes made in previous versions:

-02 = 12 FRU added to labor, under Measure

-03 = Updated Use of process-optimized cross spoke wheels

-04 = 3rd option was added, under Measure

-05 = Repair instruction modified (lubrication of Spoke nipple) And start of effected production date was added. (from 1/31/2018)

Measure:

A repair method was developed to retention the spokes in cross-spoke wheels, even if there are several spokes without preload.

If there are up to 7 spokes with a reduced preload (loose), rework both wheels according to the attached repair instructions 00 60 703.

If more than 7 spokes loose, the following 3 repairs are permissible.

1. The cross-spoked wheel can be reworked by an external company that is specialized on spoking and centering spoked wheels and is located in the vicinity of the retailer.

The costs can be invoiced to warranty using the invoicing code 03. An invoice has to be attached to the order as a .pdf file.

2. Replace entire cross-spoked wheel.

3. Reworking in accordance with the attached repair instructions 00 60 703. The radial and lateral runout of the rim must then be measured additionally. These must lie within the tolerances stipulated in the AIR. If the radial or lateral runout lie outside the tolerances, the wheel must be replaced as soon as the replacement part is available.

Invoicing for re-tensioning the spokes under warranty / goodwill:

Defect:

3631900100 Retightening cross-spoke wheel spokes

FRU number:

00 60 703 Check the spoke preload at the front and rear, retighten if necessary (wheels removed) 12 FRU

If necessary, the spokes and spoke nipples to be replaced as well as the necessary preworking and reworking can also be invoiced.

Note:

In accordance with the maintenance schedule, check at every service visit that the spokes of the cross-spoke wheels (front and rear wheel) fit tightly.

Note:

As of production date June 2018, streamlined cross-spoked wheels were introduced in the series. These are identified by a blue colored dot on a spoke nipple (see image 1 in the attachment). Please inform us immediately by PuMA message/case if one of these streamlined cross-spoked wheels comes to your attention due to loose spokes. Please do not retighten any spokes and do not remove the tyre. We may require this wheel for further analyses.

Complaint

	Fault location	Fault type	Fault place
▶	Constant-speed driving	Vibration, oscillation	Area, front suspension

Cause

#	Fault location	Fault type	Fault place
▶ 1	36/31 Spokes	Part connection: loose	
	Repair Task	Special Clearance	Area
	Checking, repairing, replacing	No	Chassis and Suspension

#	Fault location	Fault type	Fault place
▶ 2	36/31 Spoke, rear	Part connection: loose	
	Repair Task	Special Clearance	Area
	Checking, repairing, replacing	No	Chassis and Suspension

Fault code

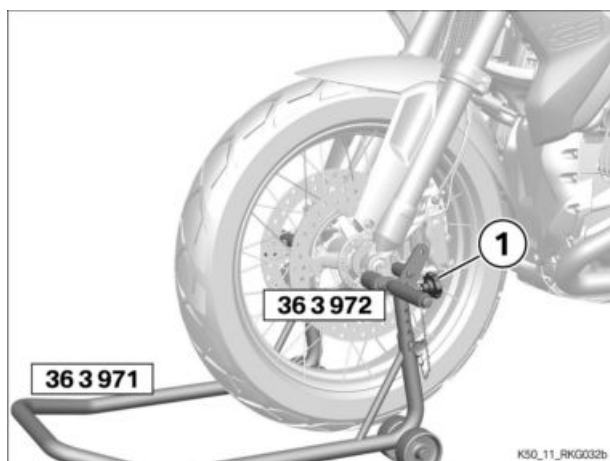
363100

Prozman / DIS / ISTA / ISTA/P

System	State	Version
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1



► Installing front-wheel stand

ATTENTION

Use of the BMW Motorrad front wheel stand without accompanying use of centre stand or auxiliary stand

Risk of damage to parts if vehicle topples

- Place the motorcycle on its centre stand or another auxiliary stand before lifting the front wheel with the BMW Motorrad front-wheel stand.

- Mount (36 3 972) in base position (36 3 971) and install in the required position.
- Loosen mounting bolts (1) and set to the required width.
- Tighten mounting bolts (1).

ATTENTION

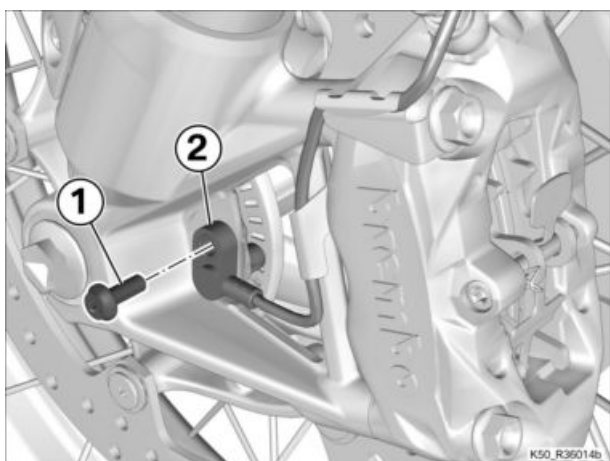
Vehicle toppling to side

Risk of damage to parts if vehicle topples

- Make sure that the vehicle is secured so that it cannot topple sideways.

- Hold mounting (36 3 972) in position on fork and press front-wheel stand uniformly to the bottom, till the grip of the stand lies on the floor.

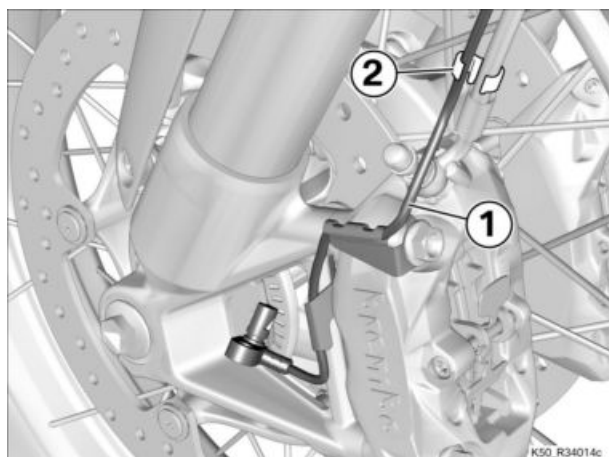
2



► Disengaging front wheel-speed sensor

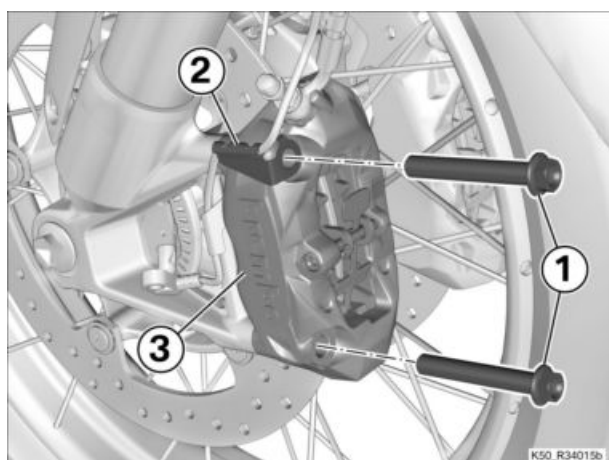
- Remove bolt (1).
- Release wheel speed sensor (2).

3



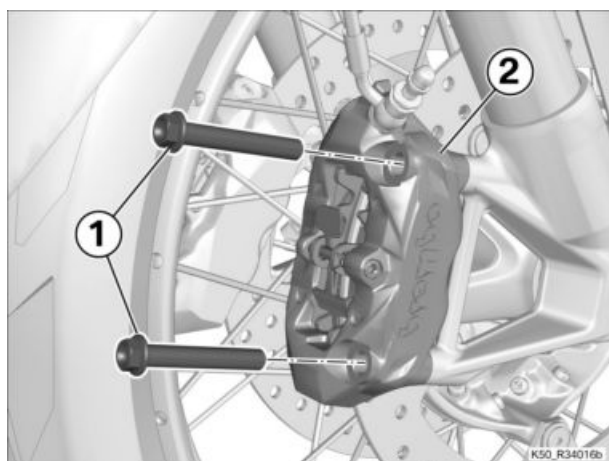
► Removing left brake calliper

- Release line (1) from holder (2).



- Remove screws (1).
- Loosen holder (2).
- Release the brake calliper (3).

4



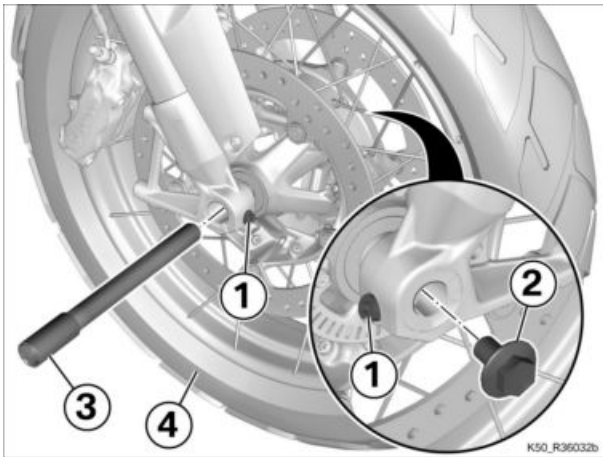
► Remove the right brake calliper

- Remove screws (1).
- Release the brake calliper (2).

5

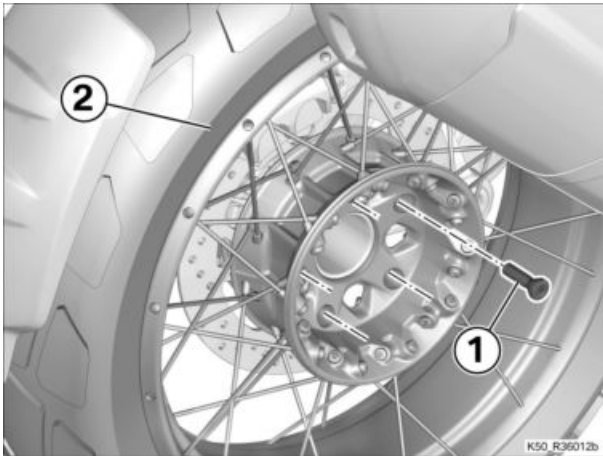
► Removing front wheel

- Use straps to pull the rear of the motorcycle down and secure it in this position.



- Slacken axle clamping screws **(1)**.
- Remove bolt **(2)**.
- Remove quick-release axle **(3)**.
- Roll the front wheel forward to remove **(4)**.

6



► Remove the rear wheel

- Remove wheel bolts **(1)**.
- Remove rear wheel **(2)**.

7

► Check spoke tension

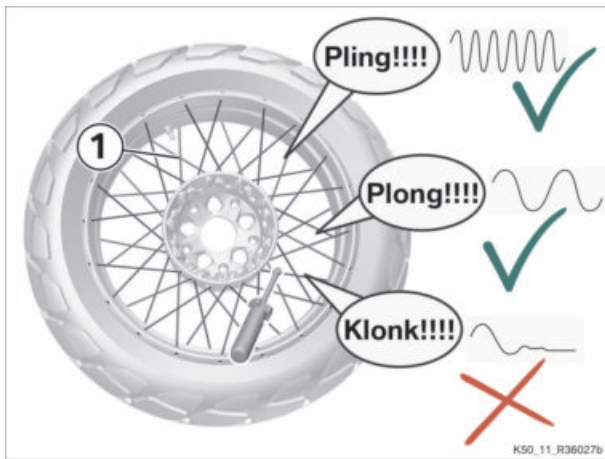
NOTICE

The procedure described for the check and for adjustment of the spoke tension is the same for front wheel and rear wheel.

- Adjust tyre pressure for check.

 Technical data			
Tyre pressure, front	tyre cold	2.5 bar	
Tyre pressure, rear	tyre cold	2.9 bar	

- Clean wheels, especially wheel hubs, in case of strong contamination.



Check

- Tap the spokes with a screwdriver and listen for the correct ringing sound.

Result

Tone of the spoke is not present, spoke does not vibrate

Measure

- Mark spoke.

Check

Result

More than 7 spokes with a loss of tension

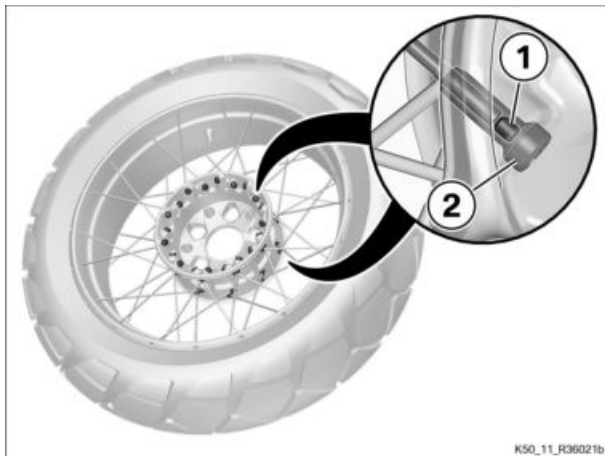
Measure

- Replace the wheel rim.

Result

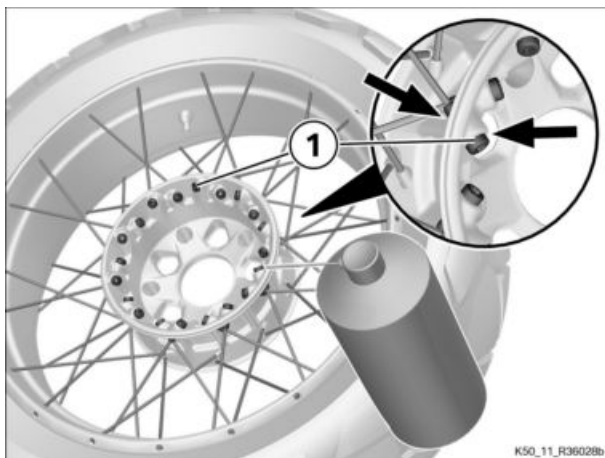
Less than 7 spokes with a loss of tension

Measure



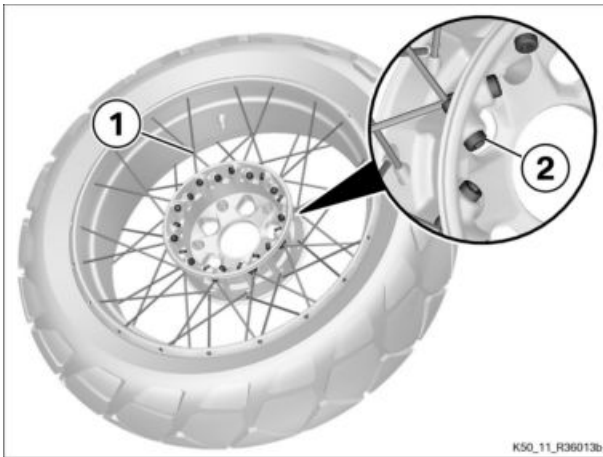
▷ Adjust spoke tension

- On both sides, slacken the set screws **(1)** in spoke nipples **(2)** and unscrew by 4 revolutions.

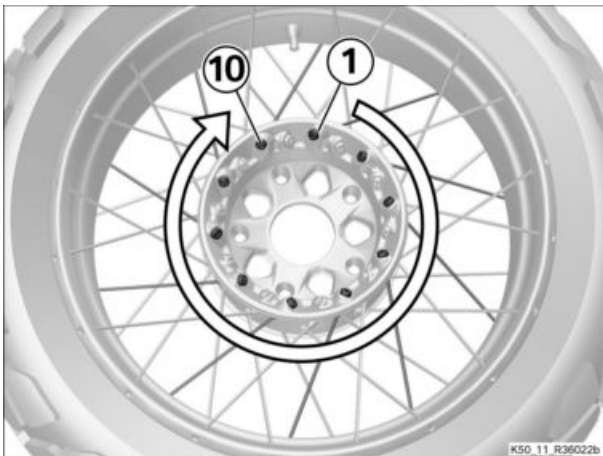


- On both sides lubricate spoke nipples **(1)** on head and spokes side.

 Lubricant	
Multifunction spray	83 23 0 418 567

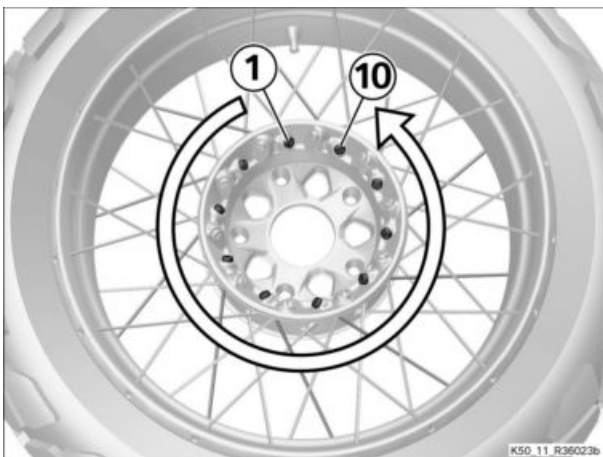


- Adjust spokes tension **mark** spokes **(1)** on spokes nipples **(2)**.
- » Same clear sound in the sound test, as for the adjacent spokes.



- Tighten spoke nipple of the upper row in tightening sequence from **(1)** to **(10)** with a suitable torque wrench.

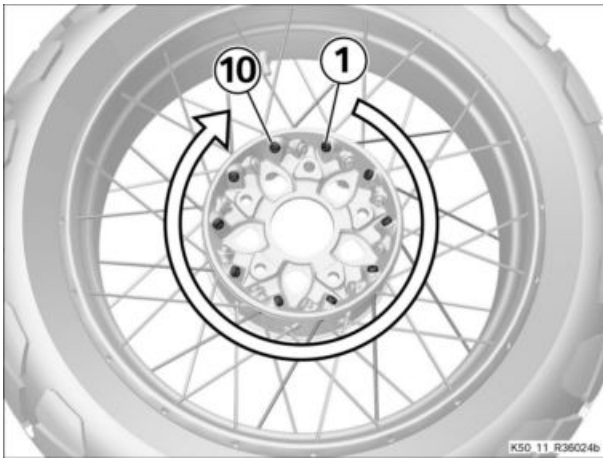
Tightening torques		
Nipple on spoke of pre-torquing		
M4	3 Nm	– with cross-spoked wheels ^{OE} (0771)



- Tighten spoke nipple of the lower row in tightening sequence from **(1)** to **(10)** with a suitable torque wrench.

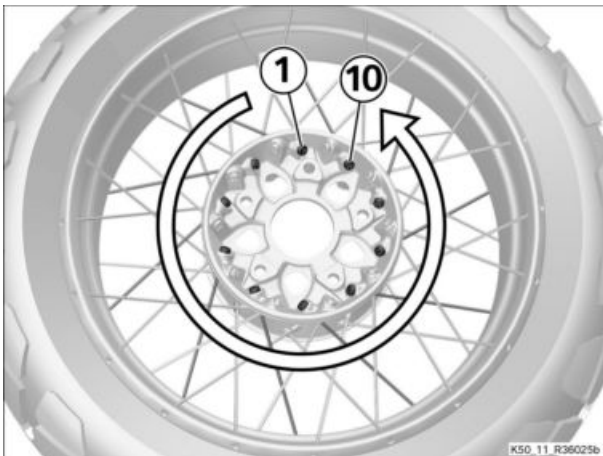
Tightening torques		
Nipple on spoke of pre-torquing		
M4	3 Nm	– with cross-spoked wheels ^{OE} (0771)

- Turn the wheel.



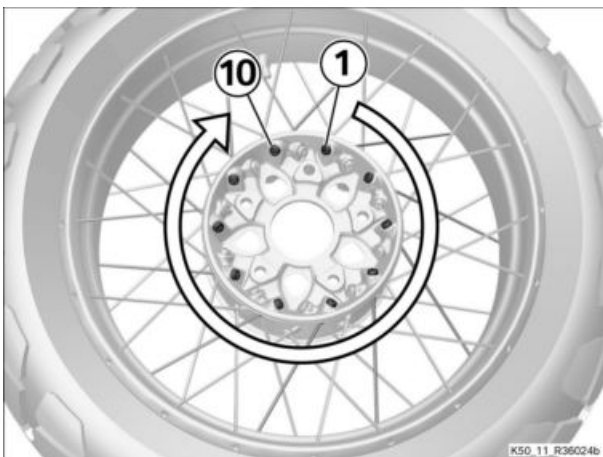
- Tighten spoke nipple of the upper row in tightening sequence from **(1)** to **(10)** with a suitable torque wrench.

 Tightening torques		
Nipple on spoke of pre-torquing		
M4	3 Nm	– with cross-spoked wheels ^{OE} (0771)



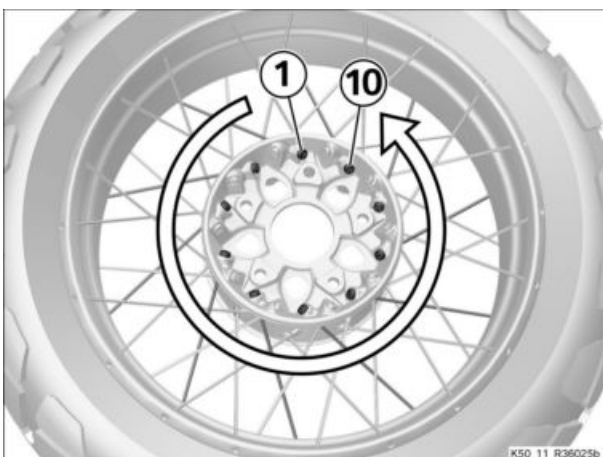
- Tighten spoke nipple of the lower row in tightening sequence from **(1)** to **(10)** with a suitable torque wrench.

 Tightening torques		
Nipple on spoke of pre-torquing		
M4	3 Nm	– with cross-spoked wheels ^{OE} (0771)



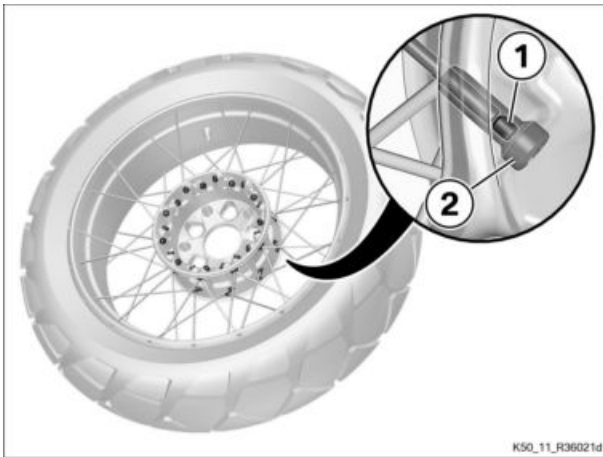
- Tighten spoke nipple of the lower row in tightening sequence from **(1)** to **(10)** with a suitable torque wrench.

 Tightening torques		
Nipple on spoke tightening torque		
M4	5 Nm	– with cross-spoked wheels ^{OE} (0771)



- Tighten spoke nipple of the lower row in tightening sequence from **(1)** to **(10)** with a suitable torque wrench.

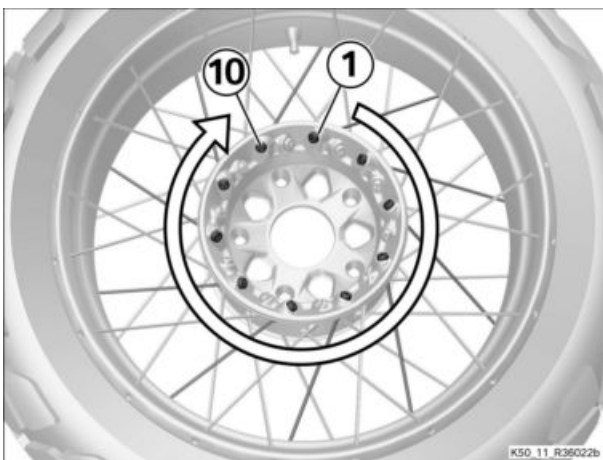
 Tightening torques		
Nipple on spoke tightening torque		
M4	5 Nm	– with cross-spoked wheels ^{OE} (0771)



- Tighten set screw **(1)** in spoke nipples**(2)** with a suitable torque wrench.

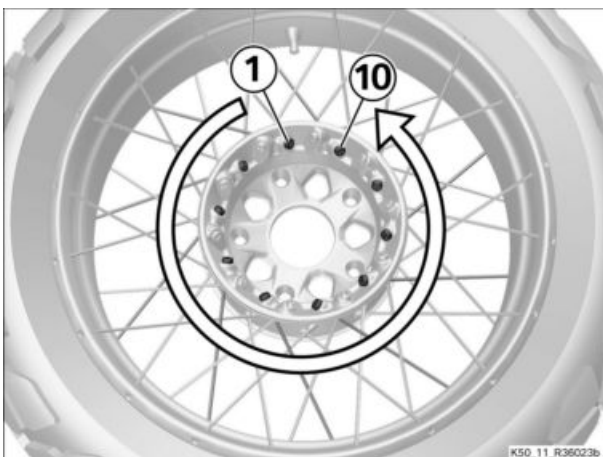
Tightening torques		
Screw lock for spoke nipple		
Set screw, M4	2 Nm	

- **Turn the wheel once again.**



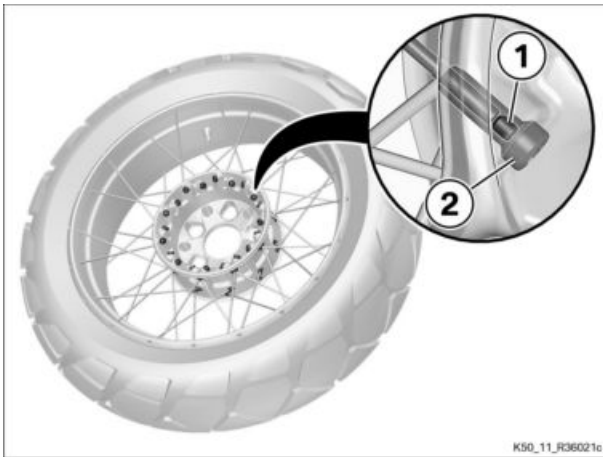
- Tighten spoke nipple of the upper row in tightening sequence from **(1)** to **(10)** with a suitable torque wrench.

Tightening torques		
Nipple on spoke tightening torque		
M4	5 Nm	– with cross-spoked wheels ^{OE} (0771)



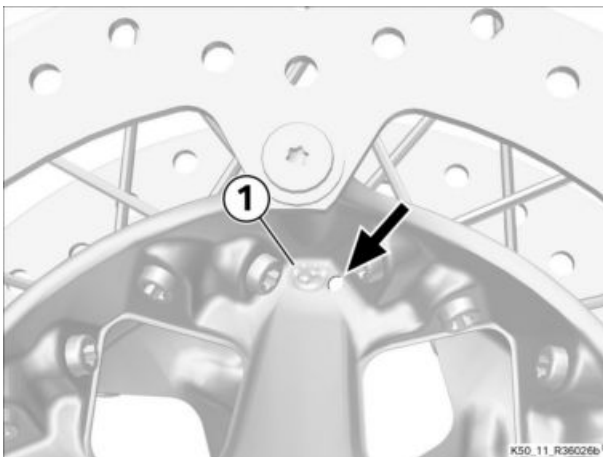
- Tighten spoke nipple of the lower row in tightening sequence from **(1)** to **(10)** with a suitable torque wrench.

Tightening torques		
Nipple on spoke tightening torque		
M4	5 Nm	– with cross-spoked wheels ^{OE} (0771)



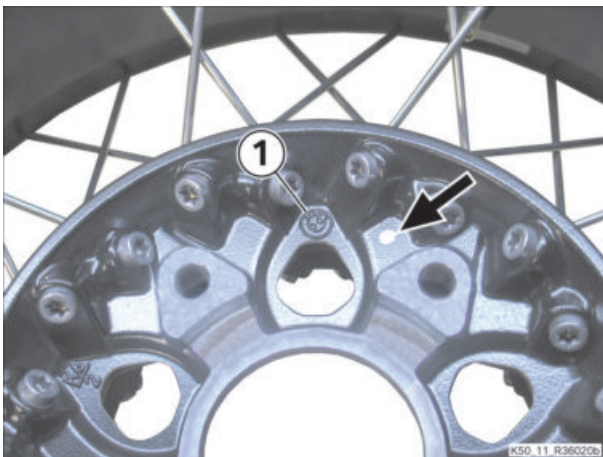
- Tighten set screws **(1)** in spoke nipples **(2)** with a suitable torque wrench.

Tightening torques		
Screw lock for spoke nipple		
Set screw, M4	2 Nm	



▷ Affix mark on the front side

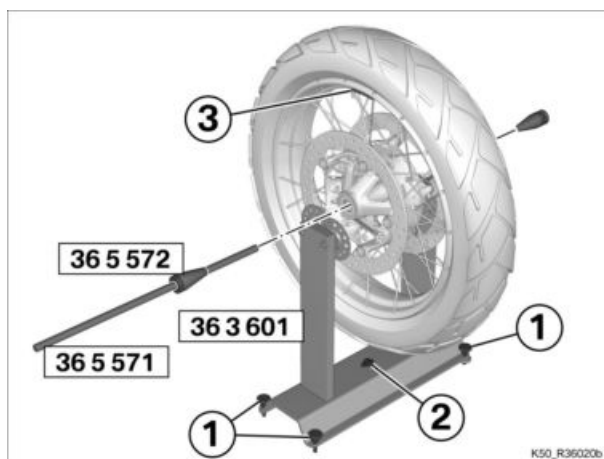
- Put a **White** point(**arrow**) on right near BMW brand.



▷ Affix mark on the rear side

- Put a **White** point(**arrow**) on right near BMW brand.





▷ Statically balancing front wheel

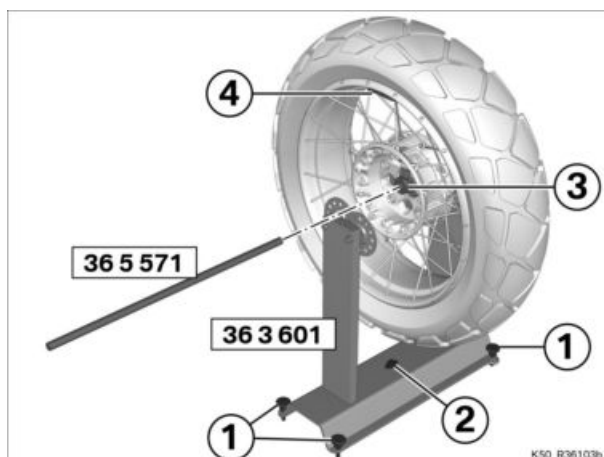
- Align balancing jig (36 3 601) with knurled screws **(1)** and bubble level **(2)**.
- Insert balancing shaft (36 5 571) in front-wheel bearing and secure it with tensioner (36 5 572), making sure that front-wheel bearing is **lightly** preloaded.
- Remove old adhesive weights **(3)**.
- Place the front wheel on the balancing jig and allow it to come to rest.
- Clean the attachment points for the adhesive weights.
- Affix **new** adhesive weights **(3)** opposite the heaviest point of the wheel.

 Technical data			
Permissible front-wheel im- balance		max 5 g	
Balance weight for front wheel One half of the weights must be attached to the left and the other half to the right of the wheel rim		max 80 g	

- Repeat the balancing procedure as a check.

◁

▷ Statically balancing rear wheel



- Align balancing jig (36 3 601) with knurled screws **(1)** and bubble level **(2)**.
- Introduce balancing shaft (36 5 571) into the rear wheel and secure it with tensioning device **(3)**.
- Place the rear wheel on the balancer and allow it to come to rest.
- Clean the attachment points for the adhesive weights.
- Affix adhesive weights **(4)** **opposite the heaviest point of the wheel.**

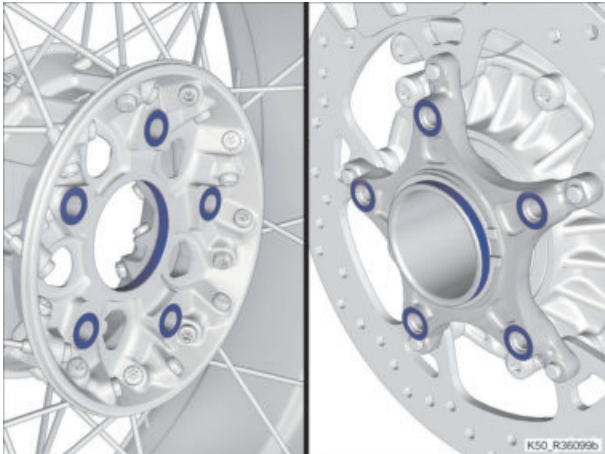
 Technical data			
Permissible rear-wheel im- balance		max 45 g	
Balance weight for the rear wheel One half of the weights must be attached to the left and the other half to the right of the wheel rim		max 80 g	

- Repeat the balancing procedure as a check.

◁

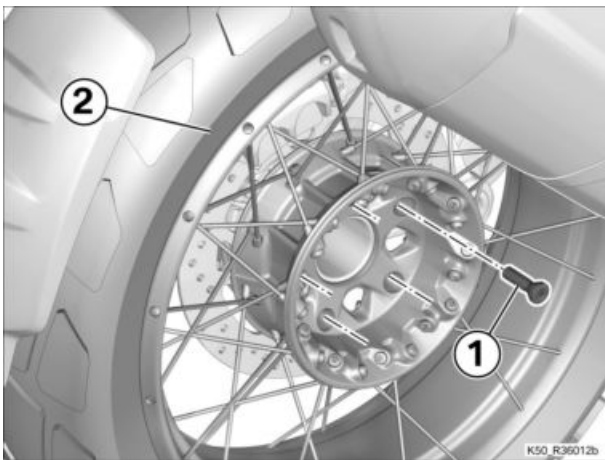
▶

8



► Install the rear wheel

- Clean the wheel centring spigot and the contact surfaces of the wheel hub.



- Hold the rear wheel **(2)** in position.
- Engage all wheel bolts **(1)** loosely first, then tighten.



Tightening torques

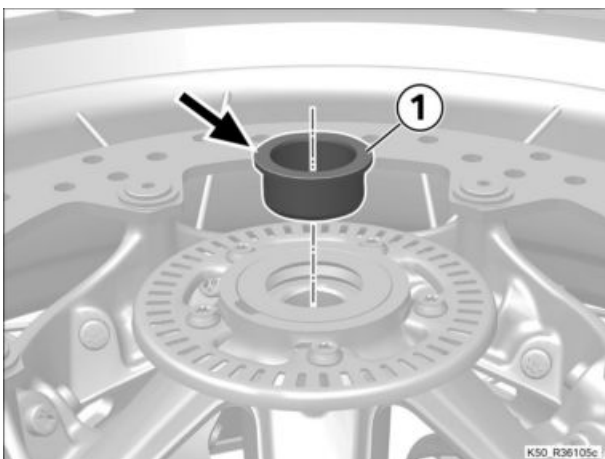
Rear wheel to wheel flange

M10 x 1.25 x 40

**Tightening
sequence:
tighten in
diagonally
opposite se-
quence**

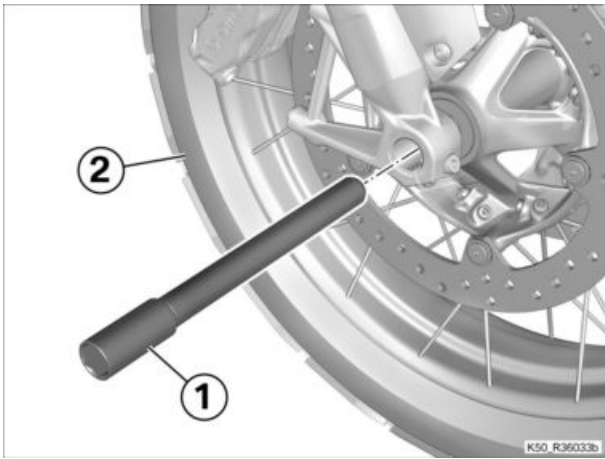
60 Nm

9



► Install the front wheel

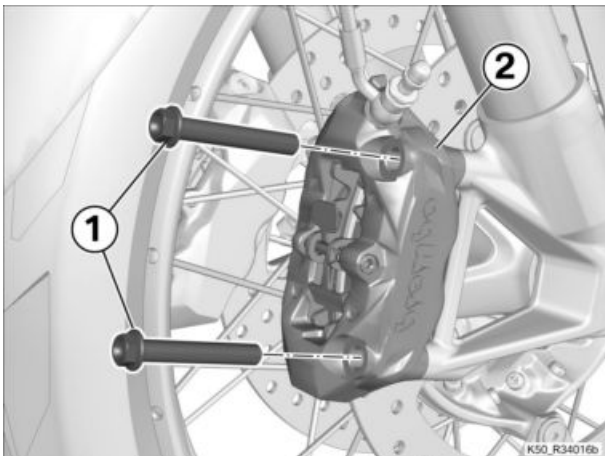
- Make sure that spacer bush **(1)** is installed with the col-
lar **(arrow)** toward the outside.



- Clean and lubricate quick-release axle **(1)**.

 Lubricant	
Optimoly TA	18 21 9 062 599

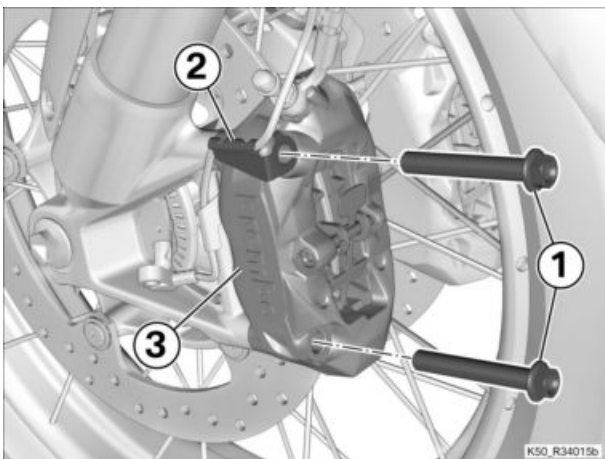
- Hold front wheel **(2)** in position.
- Install quick-release axle **(1)**.



▷ **Securing right brake calliper**

- Position brake caliper **(2)**.
- Install screws **(1)**.

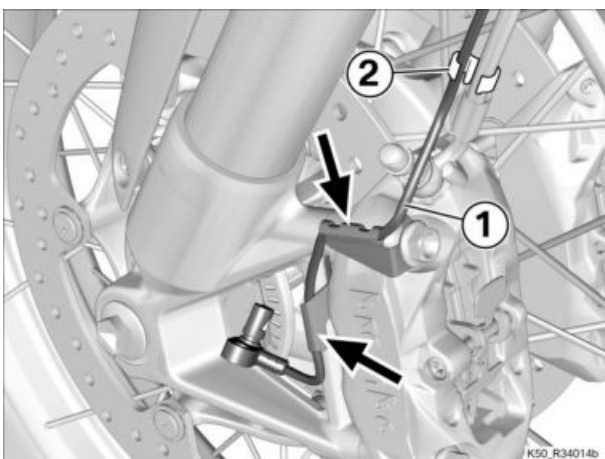
 Tightening torques	
Brake caliper on telescopic fork	
M10 x 65	38 Nm



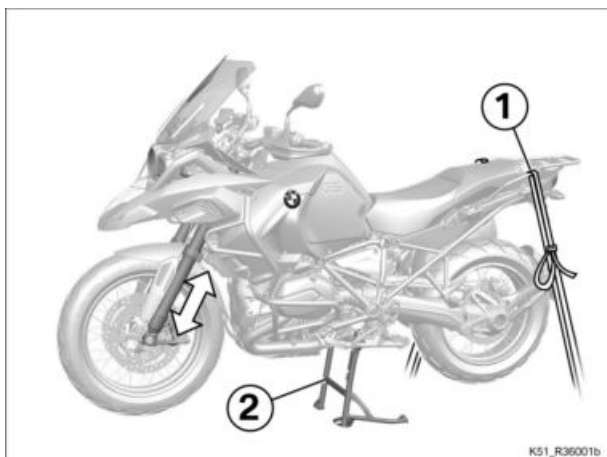
▷ **Securing left brake calliper**

- Position brake calliper **(3)** with holder **(2)**.
- Install screws **(1)**.

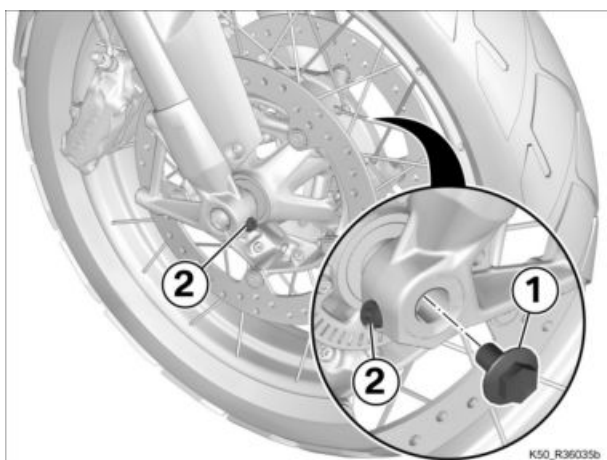
 Tightening torques	
Brake caliper on telescopic fork	
M10 x 65	38 Nm



- Secure line **(1)** in holder **(2)**.
- Check that line is correctly routed **(1)** in the holder **(arrows)**.



- Disengage tensioning straps **(1)** at the rear.
- Fold in centre stands **(2)**.
- Firmly compress the front forks several times.
- Place the motorcycle on its centre stand **(2)**.



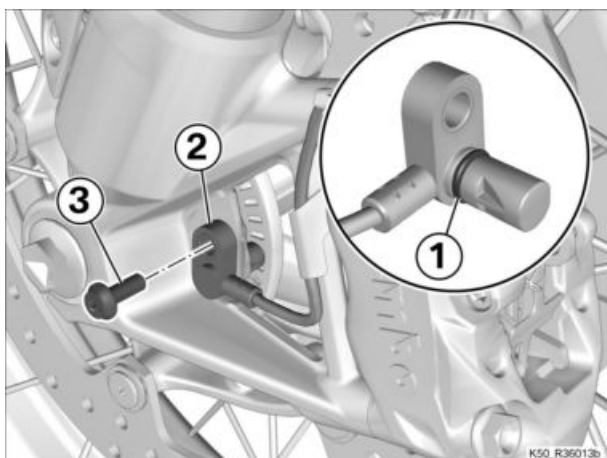
- Install bolt **(1)**

Tightening torques		
Quick-release axle in telescopic forks		
M12 x 20	30 Nm	

- Tighten clamping bolts **(2)**.

Tightening torques		
Clamping screw for quick-release axle in telescopic fork		
M8 x 35	19 Nm	

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► Securing front wheel-speed sensor

- Check the O-ring **(1)** for damage, replace if necessary.
- Hold wheel speed sensor **(2)** in position.
- Install bolt **(3)**.

Tightening torques		
Wheel-speed sensor to bevel gears		
M6 x 16	8 Nm	

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► Final check of work performed

- Check the following:
 - The work as performed achieved the intended purpose.

- All reservoirs and containers have been filled and all fluids and lubricants are at their correct levels.
- All threaded fasteners released beforehand have been correctly retightened.
- The fuel system is free of leaks.
- The lights and signalling equipment are fully operational and the vehicle is roadworthy.
- The brake pads of the front and rear brakes are bedded against the brake discs.

▷ **Function test, engine start suppression**

Check

- Set kill switch to centred position.
- Select neutral.
- Switch on the ignition.
 - » Neutral telltale light "N" lights up.
- Select a gear.
 - » Neutral indicator light "N" goes out.
- Press the starter button.
 - » Starter does **not** operate.
- Extend the side stand.
- Pull the clutch lever.
- Press the starter button.
 - » Starter does **not** operate.
- Retract the side stand.
- Press the starter button without releasing the clutch lever.
 - » Starter operates.

Result

Not all test steps completed successfully.

Measure

- Check the appropriate parts with the BMW Motorrad diagnostic system.

