



SIB 33 02 22

2023-04-24

## UPDATE: SWINGARM DRAIN RETROFIT AND DRIVE SHAFT CHECK

This Service Information Bulletin replaces SIB 33 02 22 **dated Fed 3rd, 2023**

### What's New:

- New approved Drill

### MODEL

Model	Model Description
K50	R 1200 GS / R 1250 GS
K51	R 1200 GS Adventure / R 1250 GS Adventure
K52 Authority	R 1200 RT Authority / R 1250 RT Authority

The affected vehicles have been marked with campaign number **0033130000** in AIR.

In order to determine if a specific vehicle is affected by this campaign it will be necessary to verify the vehicle VIN in AIR (Aftersales Information Research). Based on the response of the system, either proceed with the repair or take no further action. Please note, open campaigns or vehicle stops may not appear in DCS Warranty Vehicle Inquiry or sales systems until 24-72 hours after they are announced, therefore AIR is always the recommended method for determining open campaigns and vehicle stops.

### SITUATION

Multiple factors may cause the driveshaft to become damaged; among them are corrosion in certain parts of the driveshaft, and wear and tear exacerbated by certain climatic conditions.

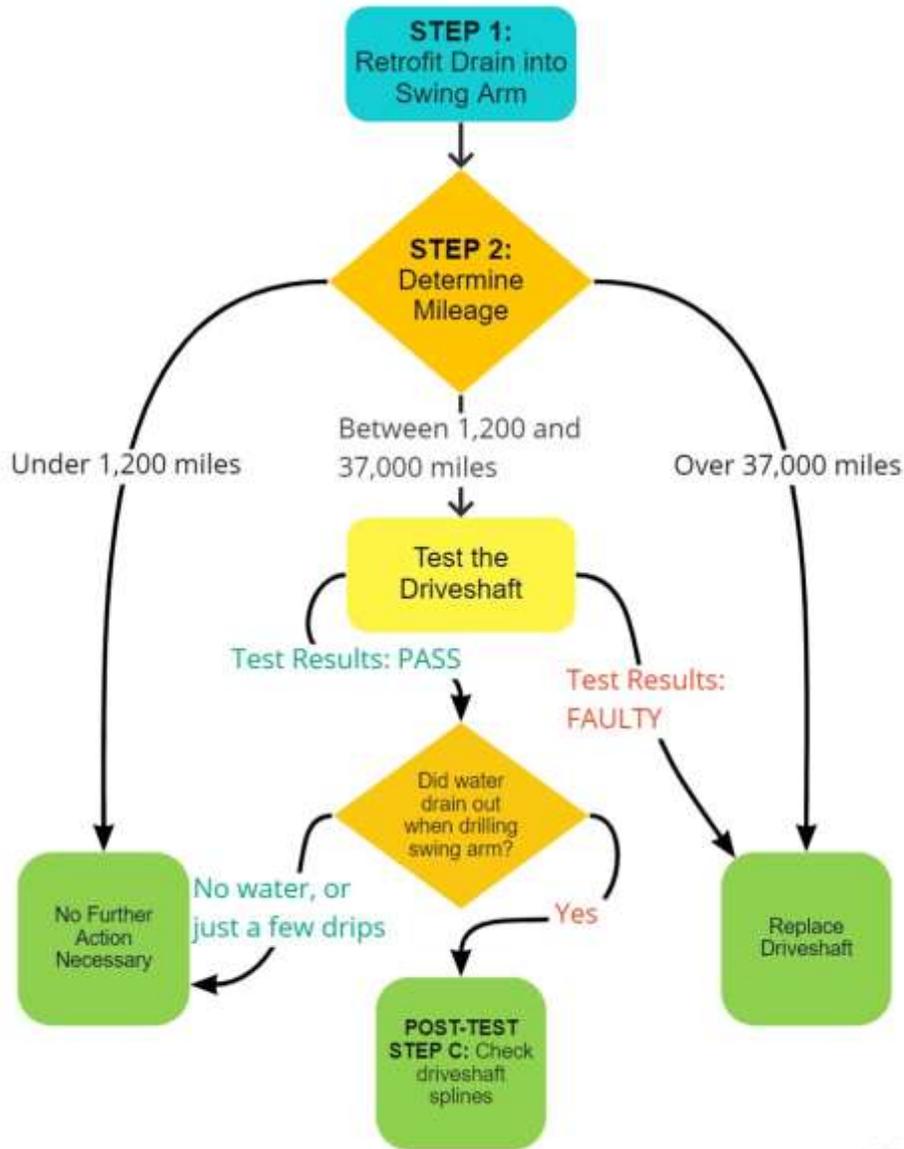
#### The following driveshaft failures can occur:

1. The driveshaft can rust onto its mating parts, hindering repair and maintenance work.
2. The splines of the driveshaft at the transmission output shaft or at the differential can corrode. Over time, this may lead to increased play in the splines which may eventually cause the driveshaft to fail.
3. The bearings of the universal joints may be damaged. This can cause the universal joints to start seizing, which over time may lead to further damage of the joint.

Letters will be mailed to owners via First Class mail advising them of this Service Action and asking them to schedule an appointment with an authorized BMW Motorrad dealer to perform the swingarm drain valve retrofit as well as a driveshaft test, if needed.

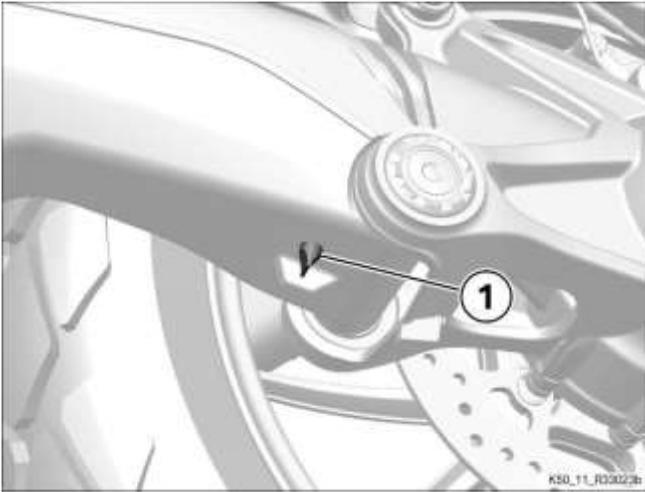
### PROCEDURE

For the affected vehicles, this service action must be performed at the next workshop visit.



**STEP 1: For all affected vehicles:**

Follow repair instruction "00 60 406 – Retrofitting drainage in rear wheel swinging arm" to install a one-way drain valve in the rear wheel swing arm and punch a ventilation hole in the front rubber boot.



When drilling the hole in the swing arm, note whether any water drains out – this will be important when performing next steps, below.

## STEP 2: Determine Mileage

Once the drain valve is installed, the following work must then be carried out, mileage dependent:

### A. Vehicles with less than 1,200 miles:

No additional work is required.

NOTE: A check of a new drive shaft using this test method returns invalid results because the U-Joints are not run in yet. Do not use the test plan for new drive shafts.

### B. Vehicles with mileage greater than 1,200 miles but less than 37,000 miles:

**Test the driveshaft** for damage according to repair instruction “33 73 002 – Checking Cardan shaft”.

### C. Vehicles with greater than 37,000 miles:

Replace driveshaft according to the repair instruction “33 73 000 – Replacing Cardan shaft”. It is essential to ensure sufficient and thorough **greasing of all gearing**. Up to 1 gram per spline connection (Klüber lubricant LFT 71-402). Also observe the current **specification for the Paralever bolting** to the angle drive and secure the bolt with Loctite.

**NOTICE: If the drive shaft is new, the “Check” is not Necessary.**

## TESTING THE DRIVESHAFT: Only if directed in STEP 2 above.

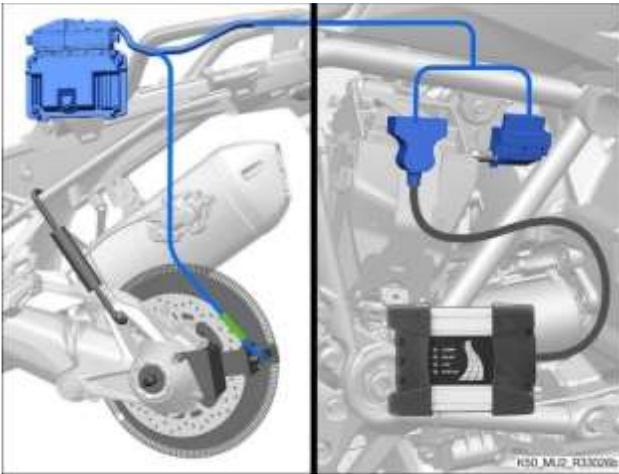
This test method is used to check the functional health of the driveshaft while installed in the vehicle and measures the vibrations of the rear-wheel flange to detect damage in universal joints or gearing.

In the guided measurement procedure, the technician will drive the special speed sensor wheel with a cordless drill (see the list of approved models, below) across several speed ranges defined in the ISTA procedure.

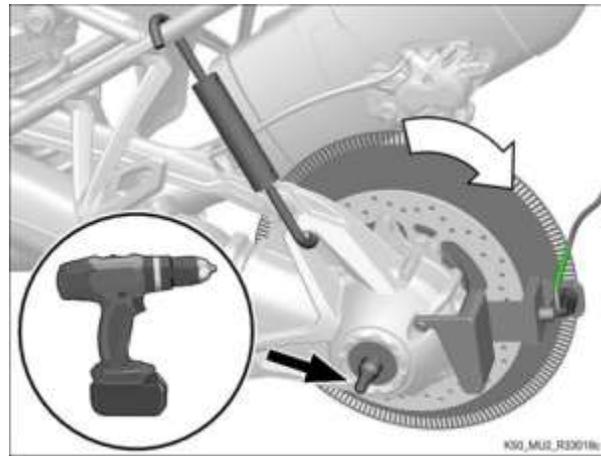
The service function required for this test is available in ISTA versions 4.36.14 and newer.

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A **video** of the test procedure is available in TIS.



*Measuring setup*



*Test procedure*

**NOTICE:** Before the first check the dealer performs, please make sure the software in the special tools “Measuring control unit” is up to date using ISTA version 4.36.14 and newer. This can be claimed only once per a dealer.

**NOTE:** The aluminum pannier rack does not need to be removed to perform this check.

## POST-TEST STEPS:

**A. If the test results in “Cardan shaft faulty”,** Replace the driveshaft according to repair instruction “33 73 507 – Replacing Cardan shaft with testing”. It is essential to ensure sufficient and thorough **greasing of all gearing** with Klüber lubricant LFT 71-402 – PN 83 23 8 847 417. Up to 1 gram per spline connection.

The changed specification for the Paralever bolting to the angle drive must also be observed and the bolting must be secured correctly with Loctite.

**B. If the test results in “Cardan shaft OK” and there was no water leakage** after drilling the bore hole for the drain valve (or only a few drops), no additional work is required.

**C. If the test results in “Cardan shaft OK” but there was water leakage** when drilling the rear wheel swinging arm for the one-way drain valve (water that has accumulated in the rear wheel swing arm leaked out from the bore hole), then **the splines at the front and rear must be checked**, even with the test result “Cardan shaft OK”.

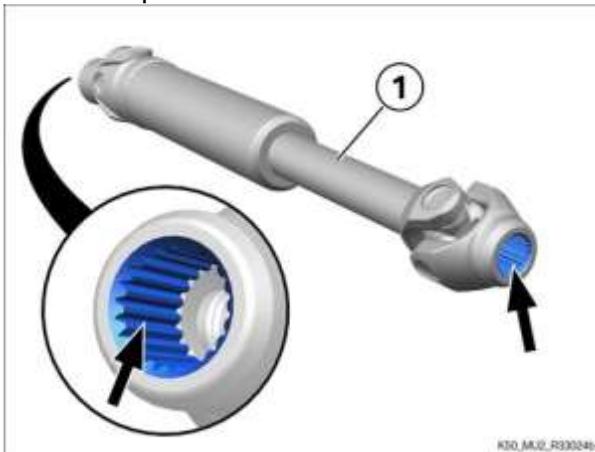
### Replace the driveshaft if:

- Driveshaft is stuck to the transmission from corrosion and cannot be removed.
  - Submit a TSARA case if this necessitates replacing additional parts.
- Driveshaft is stuck to the angle drive and cannot be removed using the new special tool to pull off the Cardan shaft from the rear drive (26 1 930)
  - Submit a TSARA case if this necessitates replacing additional parts.
- Splines are worn out or have play when cleaned up and test-fitted.

**Surface rust on the driveshaft or the universal joints has no functional effects and does not justify a part exchange.**

If reusing the existing driveshaft, the splines must be cleaned thoroughly with a wire brush followed by a sufficient and thorough **greasing of all splines** using Klüber lubricant LFT 71-402 – PN 83 23 8 847 417. Up to 1 gram per spline connection.

**NOTICE:** The workshop specification for the lubrication of splines of the driveshaft has been revised. The relevant repair instructions in AIR have been updated.

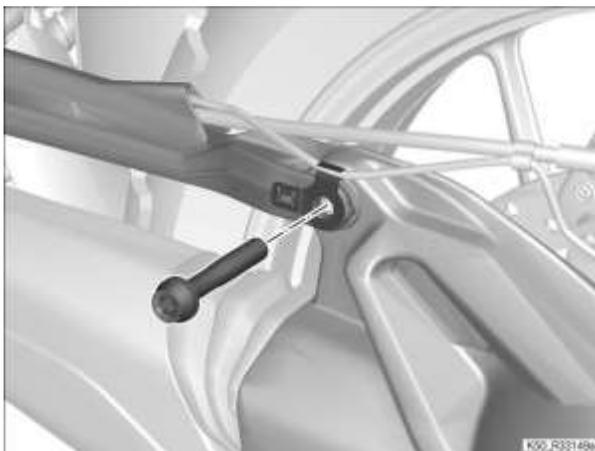


For replacement or re-greasing of the existing driveshaft, proceed as follows:

Carefully clean and lubricate gearing on driveshaft (1) with a wire brush, using Klüber lubricant LFT 71-402 – PN 83 23 8 847 417.

- Brush on Approx. 1 gram of lubricant with brush in recesses of gearing all the way around.
- Apply lubricating material over full length of gearing.

**NOTICE:** The bolting specification for the Paralever link on the rear axle has been changed. The relevant repair instructions in AIR have been updated.



Since the existing screw is being re-used, it is essential to clean the screw as well as the thread in the differential, and use **Loctite 2701** - PN 33 17 2 331 095 when re-installing.

**Summary of steps to consider the Service Action as completed.**

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- The one-way drain valve is inserted correctly in the rear wheel swinging arm and the front gaiter is punctured.
- The measure was carried out correctly based on the mileage of the vehicle.
- During a visual check or an exchange of the driveshaft, both splines were sufficiently and thoroughly greased (PN 83 23 8 847 417 – Klüber lubricant LFT 71-402).
- During a visual check or an exchange of the driveshaft, the Paralever bolting was secured correctly with Loctite (PN 33 17 2 331 095 – Loctite 2701).

**NOTE:** Do not replace gaiters with minor damage. If you have questions about what minor damage is acceptable, please create a TSARA case to review. With the introduction of the rear wheel swing arm drainage, water tightness of the rear wheel swing arm is no longer required. The gaiters merely serve for protection from larger amounts of dust as well as mechanical damage of the drive shaft.

## TOOLS:

### Special tool for retrofitting a one-way drain valve:

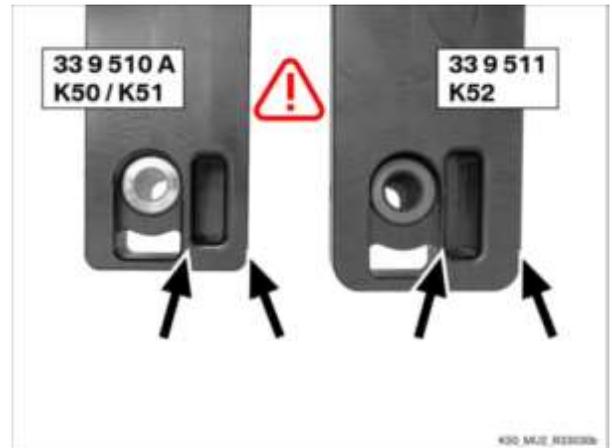
#### Overview tool set (33 9 510):

- Bow with threaded rod
- Bottom shell A
- Drill with bush B
- Universal deburring tool C
- Set of pliers D



### Spare Parts:

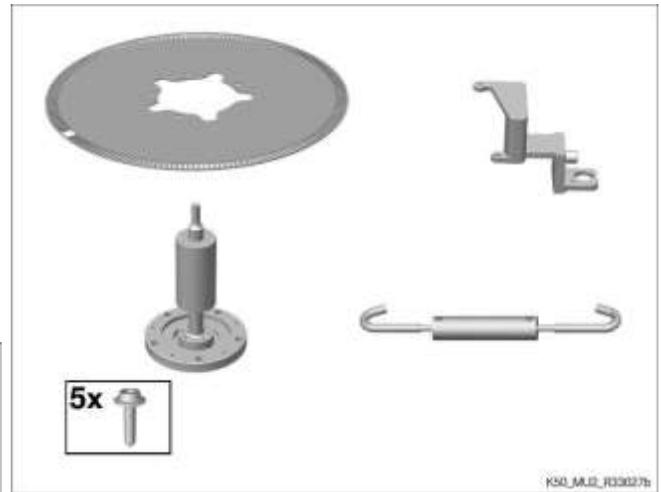
- Drill Bit Without Bushing (33 9 512)
- Pliers Attachment Repair Kit (83 30 5 A76 DF6)
- Sub Drilling Template For (K50/K51) (33 9 510 A)
- Sub Drilling Template for (K52) (33 9 511)



**Special tool for checking the driveshaft:**

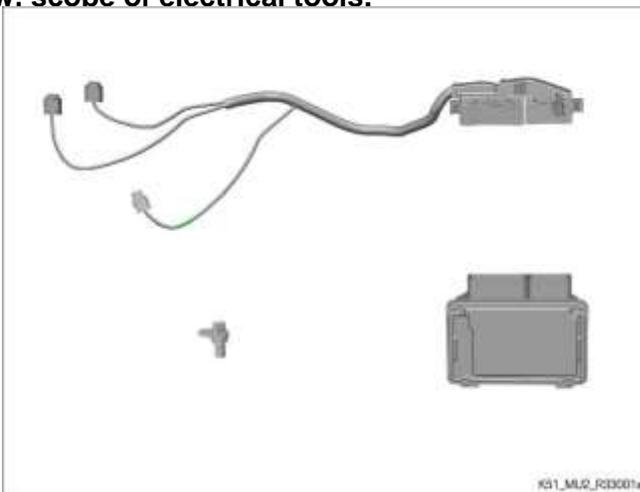
**Overview mechanical tool set (33 1 920):**

- Hook
- Sensor bracket
- Wheel flange adapter with screws
- Sensor wheel



**Overview. scope of electrical tools:**

- Measuring wiring harness
- Measuring control unit
- Speed sensor



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Cordless screwdriver is not part of tool set:

For a valid test result, it is essential to use a BMW Motorrad **approved brushless cordless screwdriver** as a test device:

- Makita XFD14
- Milwaukee 2803
- Makita DF001 (HP001G) 40V stronger model

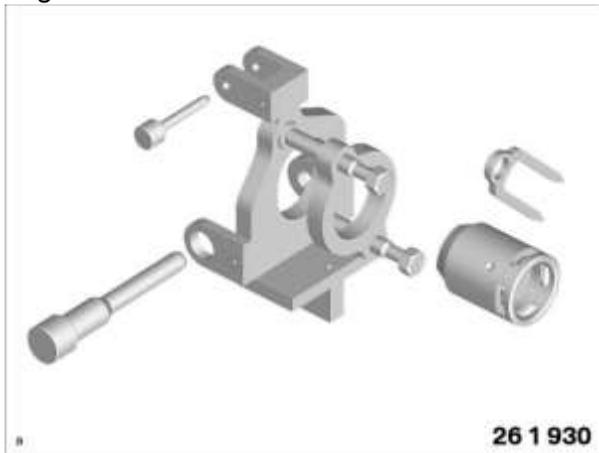
Other brands/models, especially corded models and those with an impact hammer-drill function can lead to an invalid test result.

**NOTICE:** The approved brushless screwdriver can be claimed once, on the first warranty claim under sublet.

**Special tool to pull off the Cardan shaft from the angular drive(26 1 930)**

Additional work when pulling off the Cardan shaft from the angular drive (in case of taper splines that are seized up due to corrosion)

Application, see repair instructions “33 73 503 – Additional work when disconnecting Cardan shaft from angular drive”



**PARTS INFORMATION**

**Part Number**

33 17 8 358 789	Drain valve	Qty: 1
07 11 9 908 207	Cheese head screw (M12x75-10.9-MK)	Qty: 1

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07 12 9 908 076	Cheese head screw (M6x20-8-8 MK)	Qty: 3 AS NEEDED
46 63 9 908 452	Cheese head screw (M8x30-8.8-MK)	Qty: 2
07 12 9 908 467	Cheese head screw (M8x25-8.8-MK)	Qty: 2  (Alternative)
33 73 8 531 102	Driveshaft (ONLY IF REQUIRED)	Qty: 1
33 73 5 A67 0C3	Driveshaft (ONLY IF REQUIRED)	Qty: 1
83 23 8 847 417	Klüber lubricant LFT 71-402	Can be entered on the warranty claim under a  Sublet 04
33 17 2 331 095 or source locally	Loctite 2701	

**NOTICE:** The preferred lubrication is Klüber lubricant LFT 71-402 (83 23 8 847 417) and should be used if available, If Klüber lubricant LFT 71-402 is not available please source Klüberplex BEM 34-132 as an alternative.

**NOTE:** If re-using the cheese head screws 07 12 9 908 076 for the mudguard, please clean the threads and apply Loctite 2701

**NOTE:** 33 73 8 531 102 has been superseded with 33 73 5 A67 0C3. Order the new part number if needed; however, if there is still dealer inventory of 33 73 8 531 102 driveshafts, then these should be used before ordering the new part number.

### Special tools

83 30 5 A64 813	Drilling template K50, K51 (339510)
83 30 5 A6D DB8	Drilling template K52 (339511)
83 30 5 A68 857	Kit measuring tool (331920 )
83 30 5 A67 885	Cable harness
83 30 5 A67 886	Measuring adapter module
13 62 8 623 437	Sensor

### Spare Parts

83 30 5 A71 268	Drill bit without bushing (339512)
83 30 5 A76 DF6	Pliers repair kit
83 30 5 A82 5D4	Subshell for drilling template (K50/51 )
83 30 5 A6D DB8	Subshell for drilling template (K52)

**NOTICE:** One special tool kit will be auto shipped to each dealer and can be claimed one time on the first warranty claim.

**NOTE:** Due to limited availability dealers requiring the K52 drilling template should submit an IDS ticket requesting the drilling template. The IDS ticket needs to include the affected VIN. The request will be examined to ensure requirements for the K52 drilling template are met before shipping.

## CLAIM INFORMATION

Please submit claims via the normal claim process using the information below:

### ALL CLAIMS:

#### Defect code

00 33 13 00 00	Retrofitting drain valve in swing arm and checking Driveshaft
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#### Labor Operation

00 60 406	Retrofitting drainage in rear wheel swinging arm	3 FRU
+00 60 906	Retrofitting drainage in rear wheel swinging arm	2 FRU
46 52 510	Mounting and dismounting the rear-wheel stand with special tools (for motorbikes without a center-stand)	1 FRU

**ADDITIONAL: ONE TIME CLAIM FOR SOFTWARE CHECK/UPDATE OF THE MEASURING ADAPTER MODULE, CAN ONLY BE CLAIMED ONCE PER A DEALER**

#### Labor Operation

61 00 502	Checking the software	2 FRU
61 00 510	Performing software update	2 FRU

**ADDITIONAL: FOR VEHICLES THAT QUALIFY FOR A DRIVESHAFT REPLACEMENT TEST**

#### Labor Operation

+33 73 500	Removing/installing or replacing the Cardan shaft	6 FRU (K50, K51) 7 FRU (K52)
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**ADDITIONAL: FOR VEHICLES REQUIRING A DRIVESHAFT TEST:**

#### Labor Operation

+33 73 502	Checking Cardan shaft	6 FRU (K50, K51) 10 FRU (K52)
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**ADDITIONAL: FOR VEHICLES THAT NEED DRIVESHAFT REMOVAL OR REPLACEMENT AFTER THE TEST:**

#### Labor Operation

33 73 507	Replacing Cardan shaft on inspection *OR* cleaning/re-greasing existing driveshaft. 4 FRU (K52)	3 FRU (K50, K51)
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33 73 503

Additional work: Disconnecting drive shaft from rear drive using special tool 3 FRU

FRUs includes all repair procedures to complete the task with allowance for necessary ancillary tasks (e.g., visual inspection, lubrication, cleaning parts etc.) and administrative tasks.

**Collect & Return:** As part of the Service Action, the vehicles can be picked up from the customer to carry out the campaign work. A flat rate of 7 FRU with FRU number 00 98 510 can be invoiced for each vehicle. This is only possible in combination with FRU number 00 60 406. **Only eligible between December 16<sup>th</sup> 2022 to March 31st 2023.**

## QUESTIONS REGARDING THIS BULLETIN

Technical inquiries	Contact the BMW Technical Support Group via TSARA
Warranty inquiries	Submit an IDS ticket to the Warranty Department
Parts inquiries	Submit an IDS ticket to the Motorrad Parts Department

### Supporting Materials

- [picture as pdf RM 3373002 0J91 0033130000 EN.pdf](#)
- [picture as pdf RM 0060406 0A01 0033130000 EN.pdf](#)
- [picture as pdf 33 02 22 Drain Retrofit and Driveshaft Check \(2\).pdf](#)
- [picture as pdf RM 3373507 0A01 0033130000 EN.pdf](#)
- [picture as pdf RM 3373002 0A03 0033130000 EN.pdf](#)
- [picture as pdf 33 73 503 Special tool instructions.pdf](#)

### Videos

[33 02 22](#)

## 0J91-R1250GS

### 33 73 002 Checking Cardan shaft

#### NOTICE

This check requires the exclusive use of cordless screwdrivers **that are approved for this purpose**. Non-compliance can falsify the measuring result. Use cross-handle for cordless screwdriver, high torque during check.

Do not support cross-handle on vehicle, danger of falsification of measuring results.

Refer to Service Information for a list of cordless screwdrivers.

#### NOTICE

Cardan shaft must be checked at room temperature of vehicle.

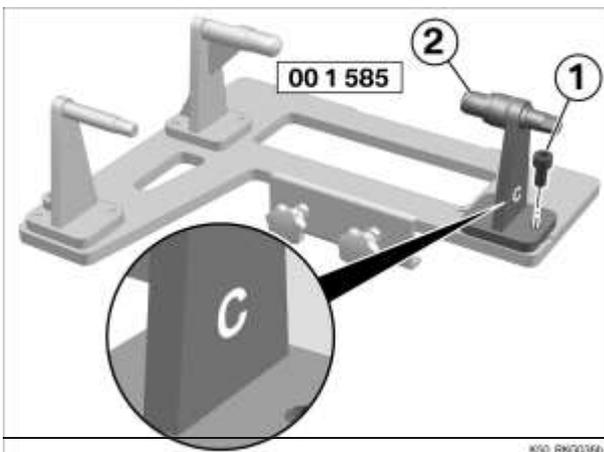
If temperature is too high/too low, "Service function Cardan shaft" will be cancelled.

– withStyleHP <sup>OE</sup> (0456)

– withouttwo-upridingpackage <sup>OE</sup> (0413)

Additional work: 46 52 510 Mounting and dismounting the rear-wheel stand with special tools (for motorbikes withoutacentrestand) ◇

## 1

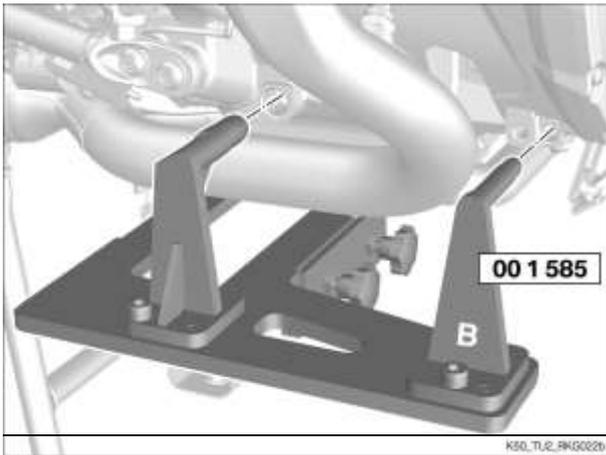


– withStyleHP <sup>OE</sup> (0456)

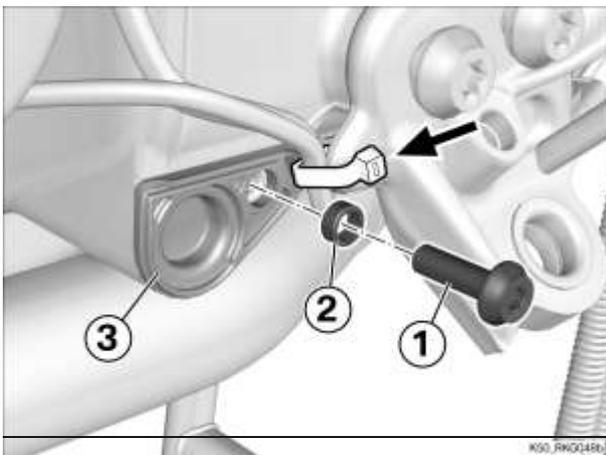
– withouttwo-upridingpackage <sup>OE</sup> (0413)

#### ► **Installing engine lifter**

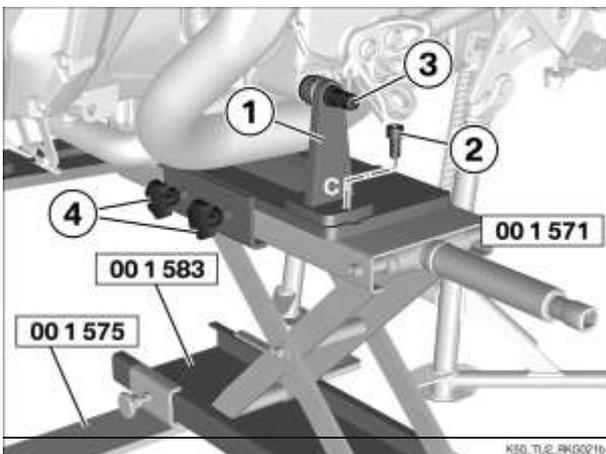
- Remove screw **(1)**.
- Remove mounting **C (2)** from engine fixture (001585).



- Insert engine adapter (001585) into the right side of the engine.



- Remove cable strap (arrow).
- Remove bolt (1) and bush (2).
- Loosen cable duct (3).



- Install mounting C (1) with bolt (2).
- Secure the engine fixture with screw (3).
- Install scissor-type lifter (001571) with rail (001583) and extensions (001575).
- Tighten knurled screws (4).

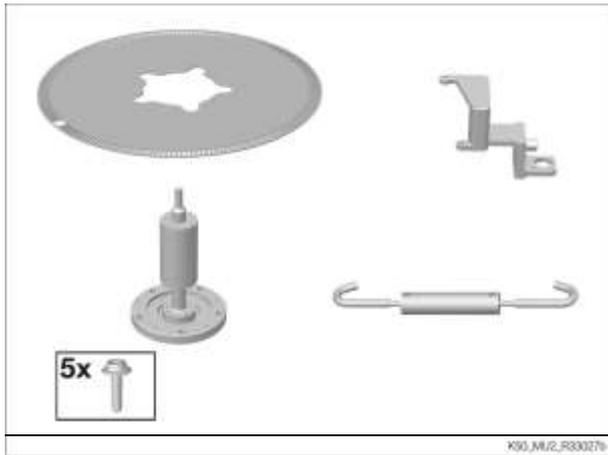
**ATTENTION**

**Vehicle toppling to side**

Risk of damage to parts if vehicle topples. Make sure

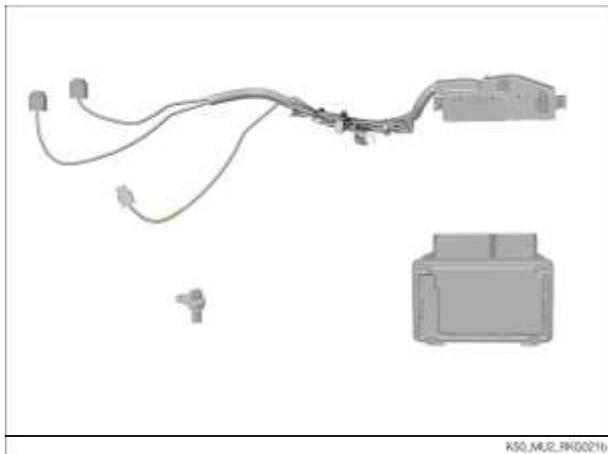
- that the vehicle is secured so that it cannot topple sideways.

- Lift vehicle as required. ◊



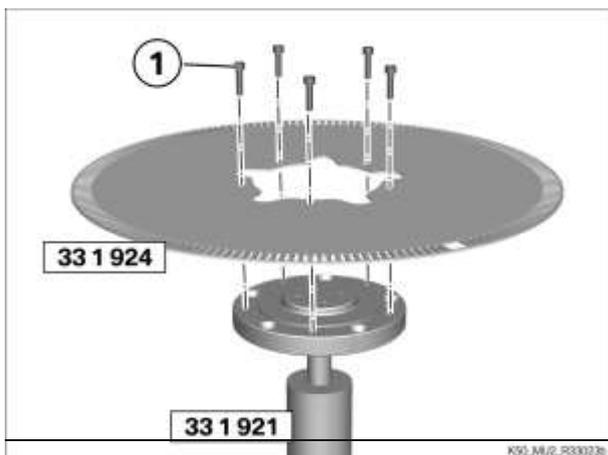
**Overview, scope of tools**

- 
- 
- Overview, scope of mechanical tools (33 1 920):
- Hook (33 1 922)
- Sensor bracket (33 1 923)
- Wheel flange adapter with screws (33 1 921)
- Sensor wheel (33 1 924)



- 
- 
- Overview, scope of electrical tools :
- Measuring wiring harness, part number 61 12 5 A6d
- ED0
- Measuring control unit, part number 83 30 5 A67 886
- Speed sensor, part number 13 62 8 623 437

**3**

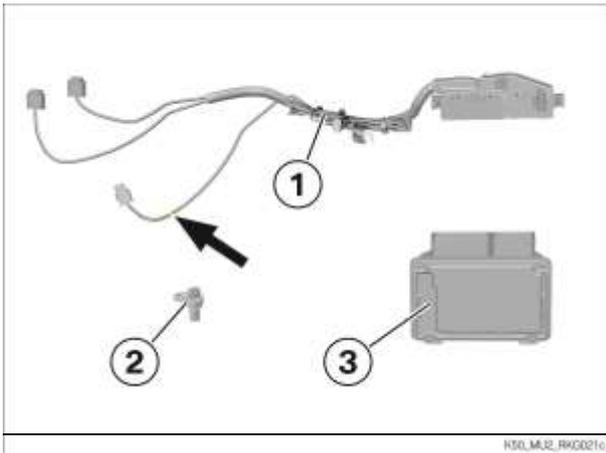


**Assembling tools (for initial use)**

**ATTENTION**

**Sensor wheel will be bent, receives lateral runout**  
Component damage

- Always handle sensor wheel with care.
  - Always set down sensor wheel on a flat surface.
- 
- Secure sensor wheel (33 1 924) with included screws **(1)** on wheel flange adapter (33 1 921).



### ATTENTION

Measuring wiring harness/sensor/control unit will be damaged

Component damage

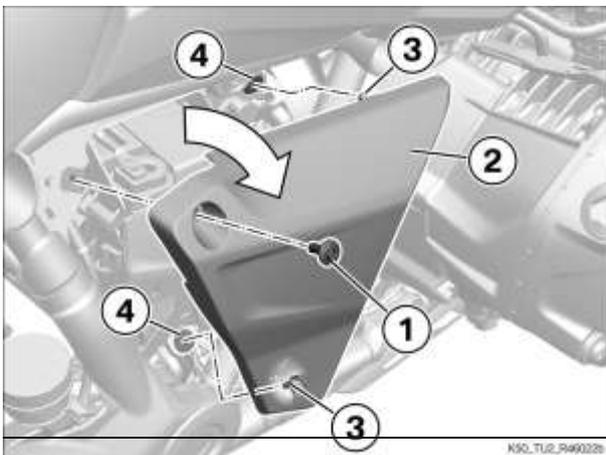
- Do **not disconnect** plug connections of speed sensor and control unit (plug cycles restricted).

- Connect measuring wiring harness (1) with speed sensor (2).

– Note green colour coding (arrow).

- Connect measuring wiring harness (1) with control unit (3).

4



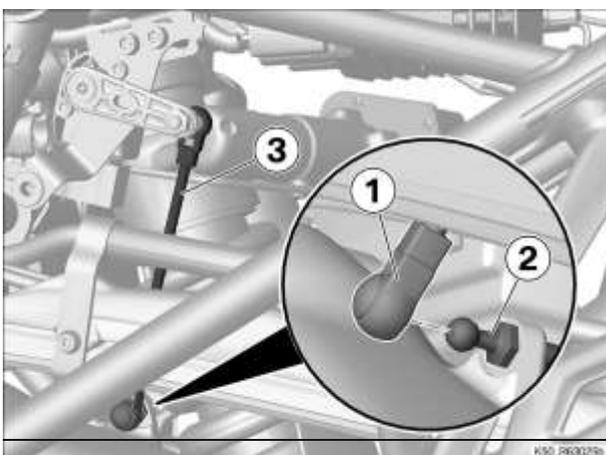
### ► Removing battery cover

- Remove screw (1).

- Pull off battery cover (2) in direction of arrow (arrow).

» Detent pins (3) are pulled out of grommets (4).

5



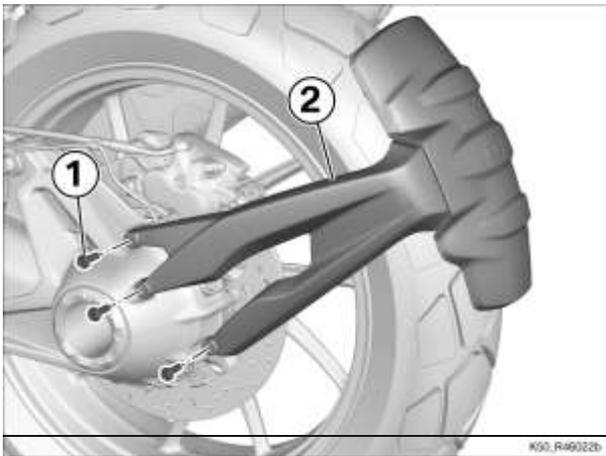
– with Dynamic ESA <sup>OE</sup> (0191)

### ► Disengaging actuator rod for ride-height sensor from swing arm

- Unclip ball socket (1) from ball head (2).

- Pivot attachment rod (3) up.◇

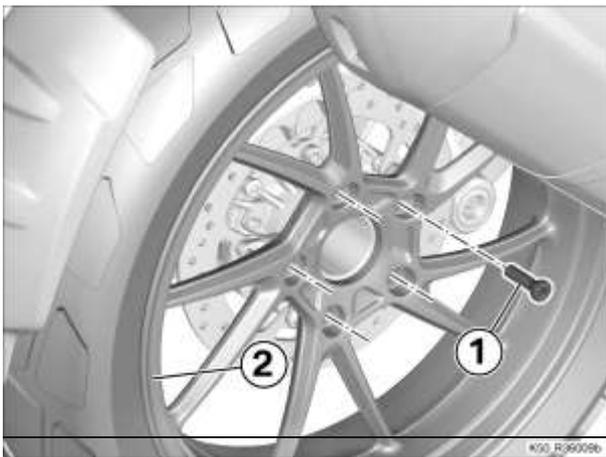
6



► **Removingsprayguard**

- Removescrews (1).
- Remove (2) sprayguard.

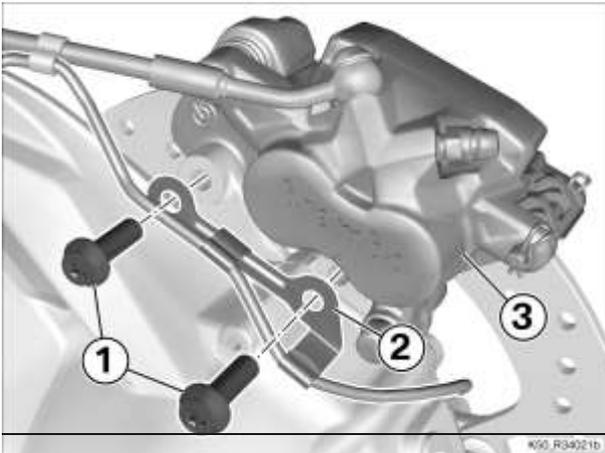
**7**



► **Removetherearwheel**

- Removewheelbolts (1).
- Removerearwheel (2).

## 8

**► Removing rear brake calliper**

- Remove screws **(1)**.
- Loosen cable clip **(2)**.

**ATTENTION****Brake actuation with brake pads or brake callipers removed**

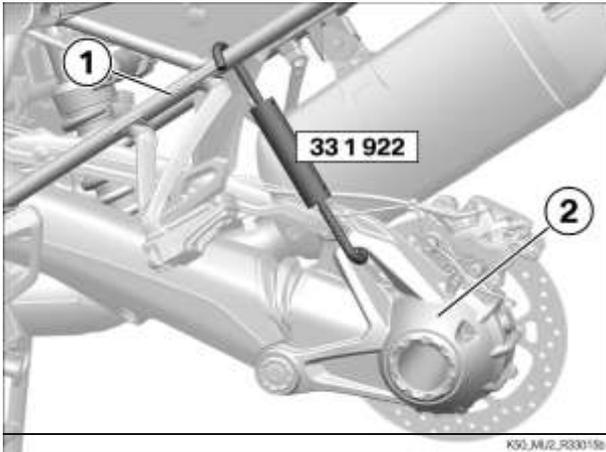
Brake piston pushed out

- Do not operate brake.
- Install brake pads and brake calliper or insert the piston resetting device.

- Remove brake calliper **(3)**.
- Prevent **(3)** brake calliper from falling, secure with tensioning belt on rear frame, if necessary.

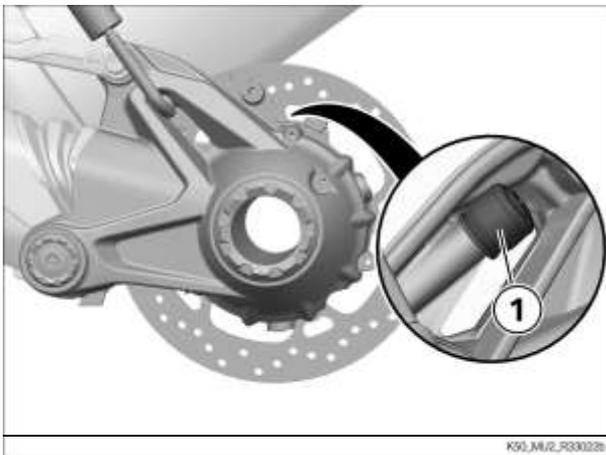


## 9



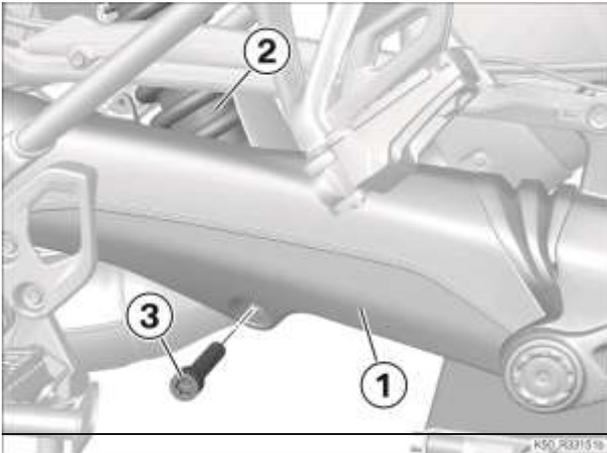
- **Securing angular gearbox on rear frame**

Hook hooks (33 1 922) on rear frame **(1)** and angular gearbox **(2)**.



- 
- Observe breather **(1)**, it must not be pushed out of its mounting.  
Make sure breather **(1)** is not damaged by sharp-edged hook (33 1 922).

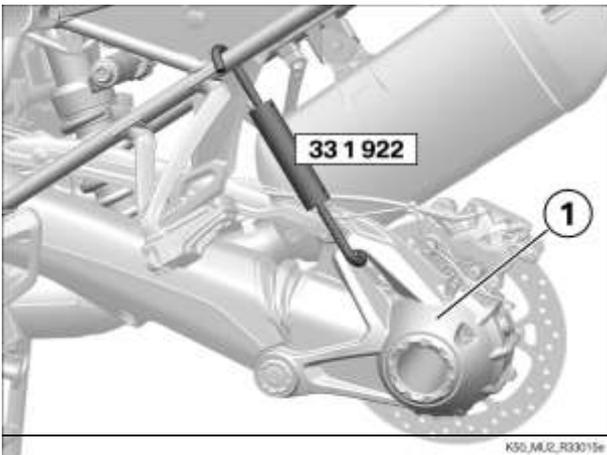
## 10



► **Loosening suspension strut from rear wheel swinging arm**

- Raise rear wheel swinging arm (1) with tension hook until suspension strut (2) is relieved.
- Remove screw (3).
- Loosen suspension strut (2) from rear wheel swinging arm (1).

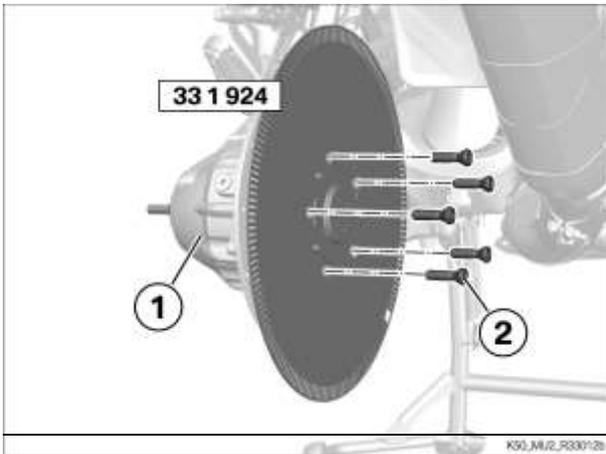
## 11



**Lowering rear wheel swinging arm for sensor wheel installation**

- Lower angular gearbox (1) with hook (33 1 922).

## 12

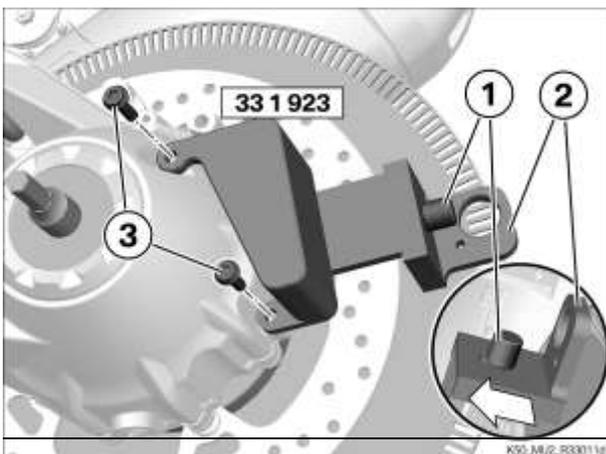
► **Preparing Cardanshaft for check**

- Clean hollow axle in angular transmission, lubricate wheel flange adapter lightly.

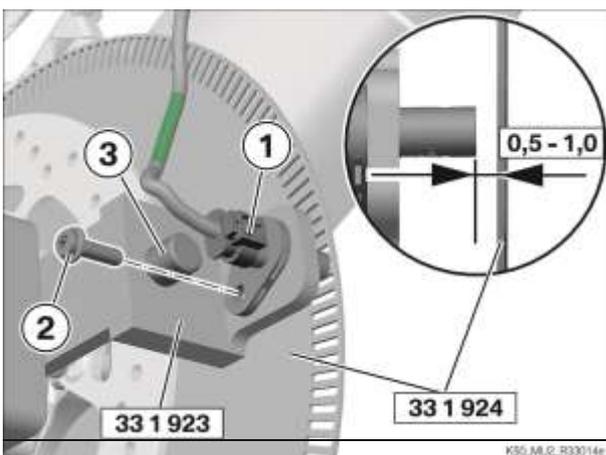
**Installation tool**

Silicone spray	83 19 2 208 609
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- » Wheel flange adapter can be inserted more easily.
- Insert sensor wheel (33 1 924) with wheel flange adapter in angular gearbox **(1)**.
- Secure wheel flange adapter with wheel bolts **(2) hand-tight**.

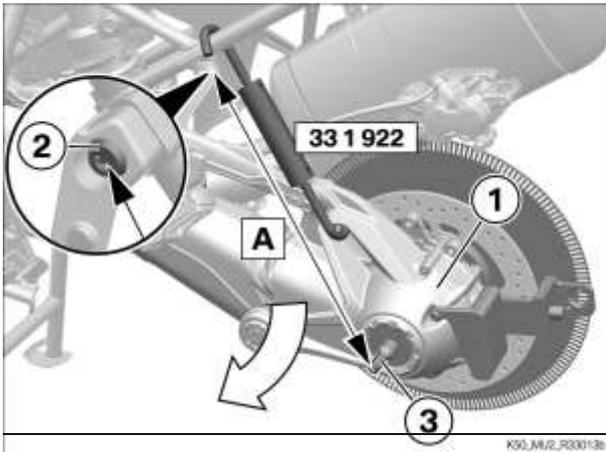


- Loosen knurled screw **(1)** and push back carriage **(2)**.
- Secure sensor bracket (33 1 923) with screws **(3) hand-tight**.
- Screws M6x16



- Secure speed sensor **(1)** with suitable screw **(2)** in sensor bracket **hand-tight**. Screw, M6 x 12
- Adjust distance setting between speed sensor **(1)** and sensor wheel, tighten knurled screw **(3)**.
- Distance setting 0.5mm - 1.0mm**
- Spin sensor wheel several times and measure distance **circumferentially**.
- If the sensor wheel has lateral runout and the distance cannot be maintained, the sensor wheel must be replaced.

## 13



► **Lowering rear wheel swinging arm for check**

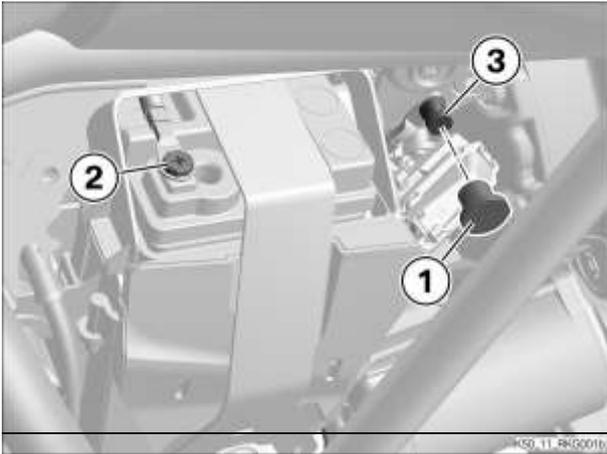
- Lower angular gearbox (1) with hook (331922) **total dimension A** .
- **With rear footrests:** Measuring points: **Endface screw (2)** on **centre hexagon wheel flange adapter (3)**
- 440mm
- **Without rear footrests:** Measuring points: **Threaded hole for screw (2)** on **centre hexagon wheel flange adapter (3)**
- 460mm

## 14

► **Connecting measuring wiring harness with vehicle and diagnosis system**

**NOTICE**

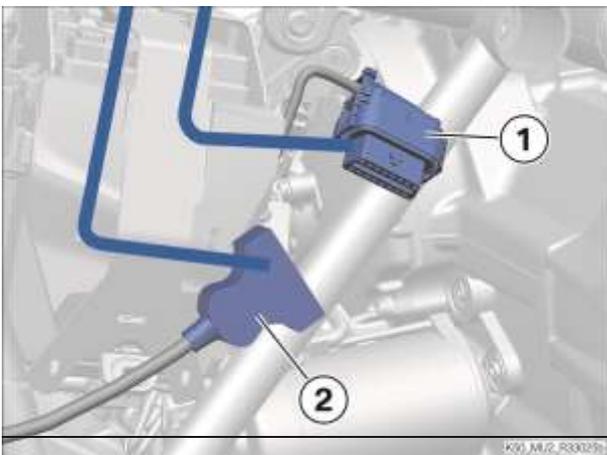
Vehicles with round analysis connector (build level before August 2016) require use of adapter 2 360 886. Secure adapter between analysis connector and measuring wiring harness.



- Remove cap (1).
- Connect BMW Motorrad battery charger on negative terminal (2) and battery-positive connection point (3).

#### NOTICE

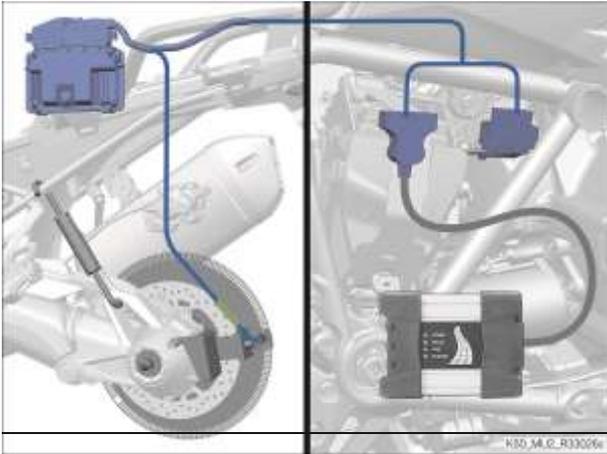
When carrying out diagnosis and programming, use a battery charger with 30A approved by BMW Motorrad that ensures an **on-board system voltage of 13V**.



- Follow sequence!
  - First, connect all connectors.
  - Only after that, switch on ignition and start service function.
- Loosen analysis connector (1).
- Connect measuring wiring harness on vehicle with analysis connector (1).
- Connect measuring wiring harness with diagnosis system connector (2).

- Switch on ignition and start service function "Check Cardan shaft".

## 15



## ► Overview, measurement setup

- Overview, measurement setup:
  - Rear wheel winging arm hang correctly lowered on tensioning hook
  - Speed sensor in sensor bracket, distance set
  - Sensor wheel with drive secured in angular gearbox
- Overview, measuring wiring harness:
  - Speed sensor connected with measuring wiring harness
  - Measuring wiring harness connected with diagnostic connector and diagnosis system
- Cordless screwdriver:
  - Accumulator fully charged
  - Setting “Drill”
  - Setting “Slow running speed”
  - Cross-handle mounted
  - With chuck fully pushed onto hexagon.
- Vehicle:
  - Transmission in neutral
  - Ignition switched on



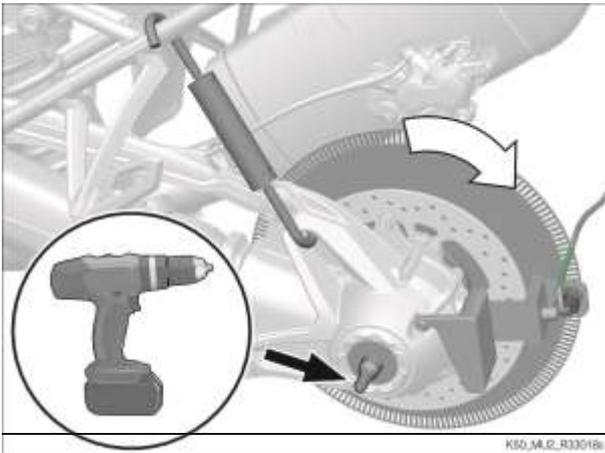
## 16

## ► Checking Cardan shaft with diagnosis system


**NOTICE**

This check requires the exclusive use of cordless screwdrivers **that are approved for this purpose**. Non-compliance can falsify the measuring result. Use cross-handle for cordless screwdriver, high torque during check.

Do not support cross-handle on vehicle, danger of falsific-



- ation of measuring results.  
RefertoServiceInformationforalistofcordlesscrewdrivers.

- Drivewheel flange adapter and sensor wheel with cordless screwdriver **in clockwise direction** .
- Drivewheel flange adapter on hexagon, chuck fully pushed onto hexagon.
- Accumulator fully charged
- Setting "Drill"
- Setting "Clockwise rotation"
- Setting "Slow running speed"
- Cross-handle mounted
- **Use only predefined cordless drill for this check!**
- Observe test module in diagnosis process "Service function Cardan shaft".

#### Check

#### Result

Diagnosis result is "Cardan shaft damaged"

#### Measure

- Replace Cardan shaft,

#### Result

Diagnosis result is "Cardan shaft OK"

#### Measure

- Take down measurement setup, assemble vehicle.

## 17

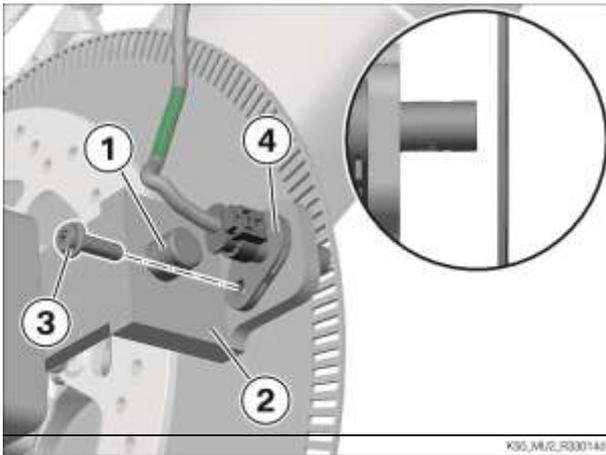
### ► Removing measuring devices from vehicle

#### ATTENTION

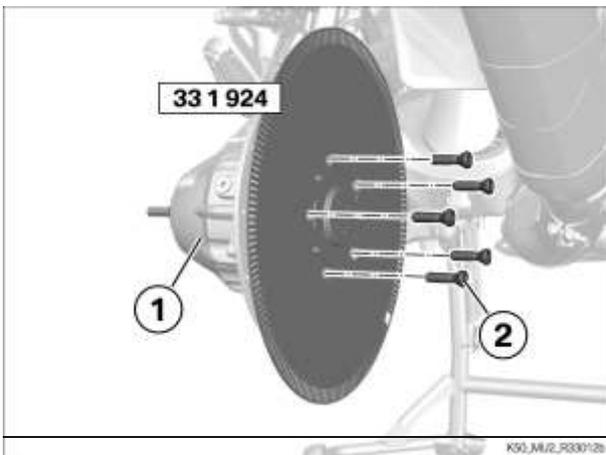
#### Measuring cable or sensor will be damaged

Component damage

- Do **not disconnect** plug connection for sensor-measuring wiring harness (plug cycles restricted).



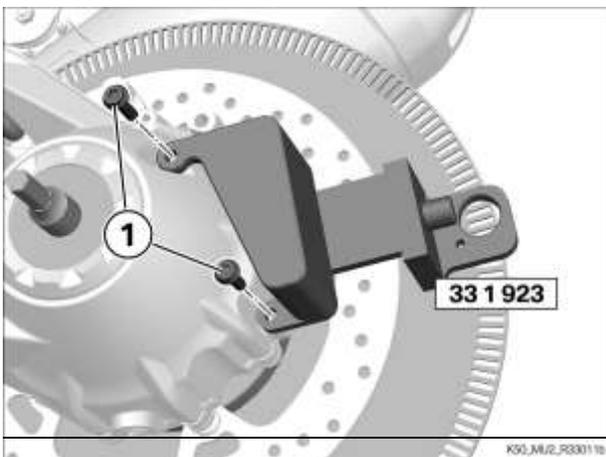
- Slackenknurledscrew (1) and pushback carriage (2).
- Removescrew (3) and loosenspeedsensor (4) from holder.
- **Donotdisconnectconnector!**



**ATTENTION**

**Sensor wheel will be bent, receives lateral runout**  
Component damage

- Always handlesensor wheelwithcare.
- Always setdownsensor wheelon a flatsurface.
- Removewheelbolts (2) and removewheel flange adapterwithsensor wheel from angular gearbox (1).

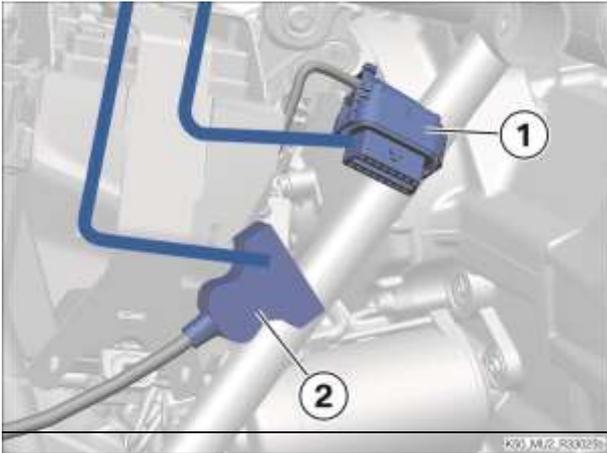


- Removescrews (1) and take off sensor bracket.

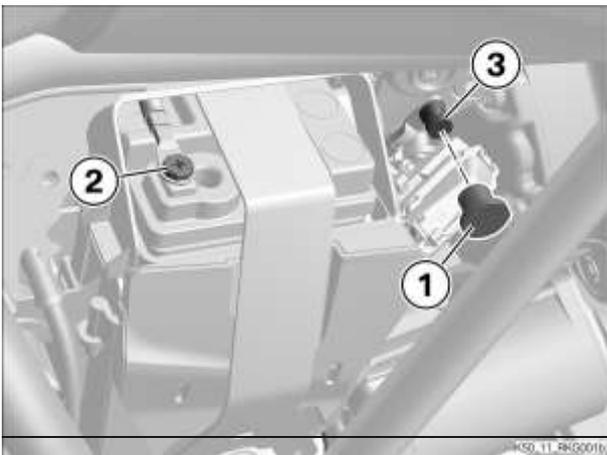
**18**

► **Disconnecting measuring wiring harness from vehicle and diagnosis system**

- End service function "Check Cardan shaft" and switch off ignition.

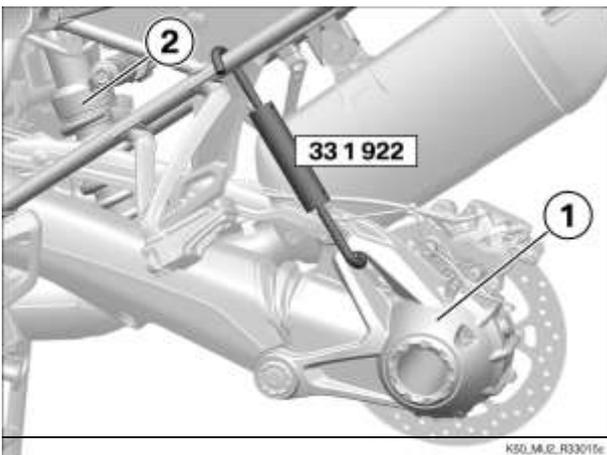


- Disconnect measuring wiring harness on vehicle analysis connector **(1)**.
- Disconnect measuring wiring harness from diagnosis system connector **(2)**. Secure analysis connector **(1)** on vehicle.



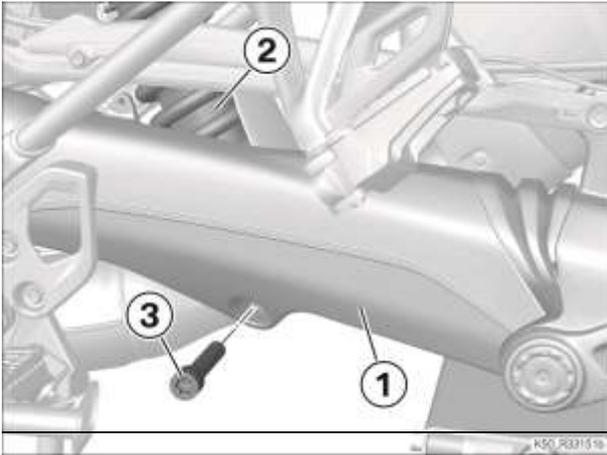
- Disconnect BMW Motorrad battery charger from battery positive connection point **(3)** and negative terminal **(2)**.
- Install cap **(1)**.

## 19



### ► Securing suspension strut on rear wheel swinging arm

- Clean threads for suspension strut bolting.
- Position angular gearbox **(1)** and suspension strut **(2)** with hook (33 1922) in driving position.

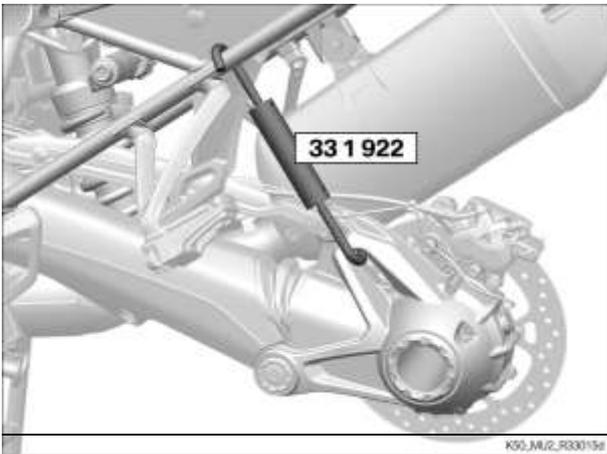


Align rear wheel swing arm (1) on suspension strut (2).

- Install new screw (3).

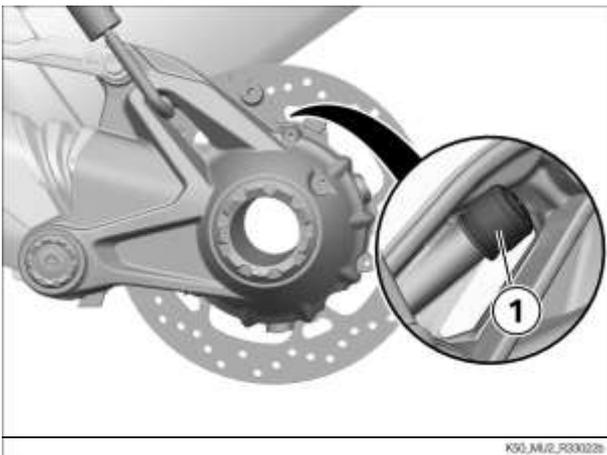
Tightening torques		
Spring strut to frame		
M12 x 1.5, Replace screw Thread-locking compound (micro-encapsulated)	100 Nm	

## 20



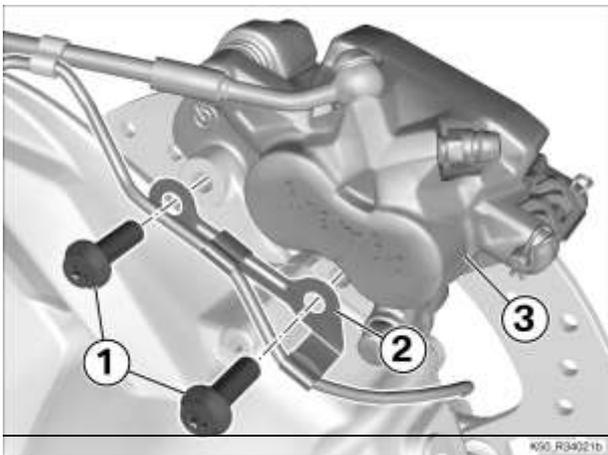
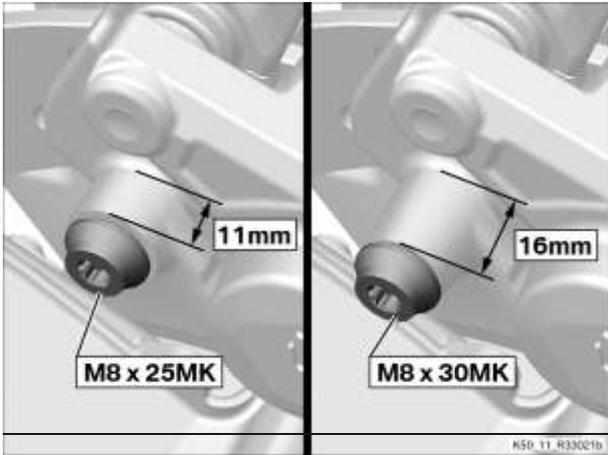
▶ Loosen hook from angular gear box and rear frame.

- Loosen hook and remove.



- Check breather (1) for damage, replace as needed.
- Make sure breather (1) is installed correctly.

# 21



## ► Securing rear brake caliper

### ATTENTION

#### Thread damage on brake caliper, bolt in contact with brake disc

Component damage by using incorrect screws

- Bevel gears with modified threaded dome can also be installed as a replacement for older vehicles.
- Before installing/mounting the brake caliper, check the assignment of the screws.

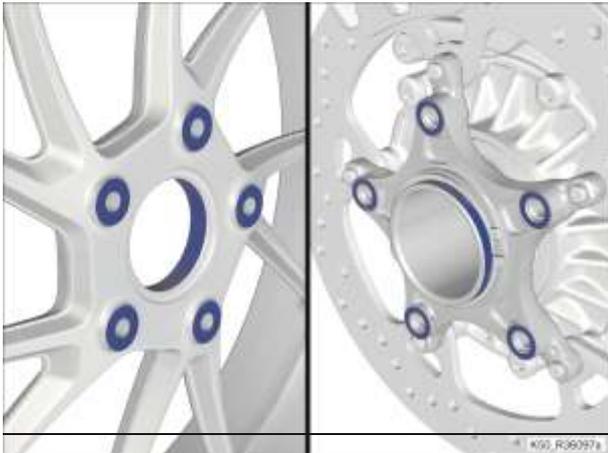
- Note the correct screw allocation according to the figure.

- Clean the threads.
- Position brake caliper (3).
- Position cable routing (2).
- Install new screws (1).

 Tightening torques		
Brake caliper to bevel gears		
Short threaded dome to bevel gears, M8 x 25, Replace screw Thread-locking compound (micro-encapsulated)	24 Nm	
Long threaded dome to bevel gears, M8 x 30, Replace screw Thread-locking compound (micro-encapsulated)	24 Nm	

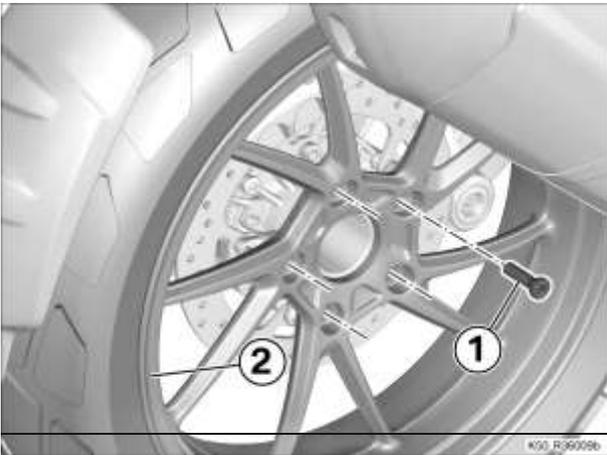


# 22



### ► Install the rear wheel

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

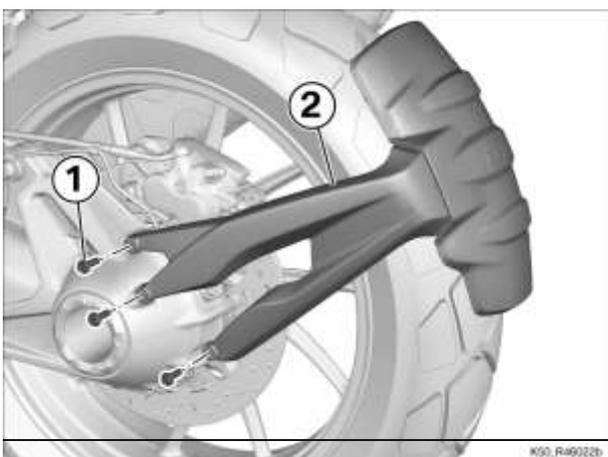


Hold the rear wheel **(2)** in position.

- Engage **(1)** all wheel bolts loosely first, then tighten.

 <b>Tightening torques</b>		
<b>Rear wheel to wheel flange</b>		
M10 x 1.25 x 40	<b>Tightening sequence:</b> tighten in diagonally opposite sequence	

# 23

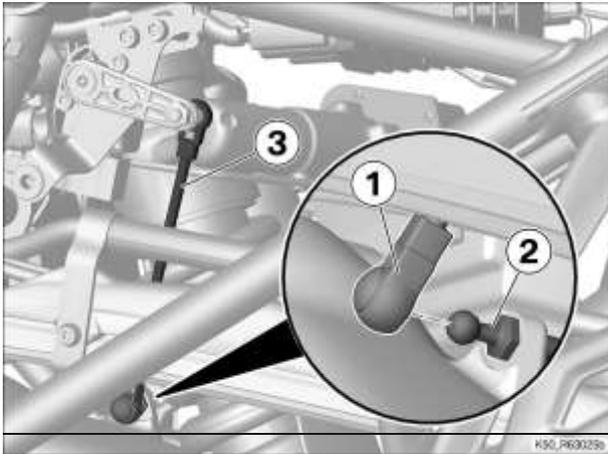


### ► Install spray guard

- Clean the threads.
- Position spray guard **(2)**.
- Install screws **(1)**.

 <b>Tightening torques</b>		
<b>Spray guard to bevel gears</b>		
M6x20	8 Nm	
Micro-encapsulated, Thread-locking compound (micro-encapsulated)		

# 24

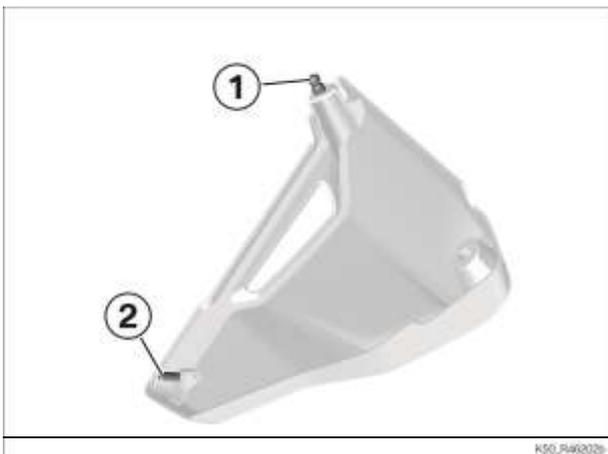


– with DynamicESA <sup>OE</sup> (0191)

► **Securing actuator rod for ride-height sensor to swing arm**

- Position attachment rod **(3)** with ball socket **(1)**.
- Clip in ball socket **(1)** in ball head **(2)**. ◊

# 25

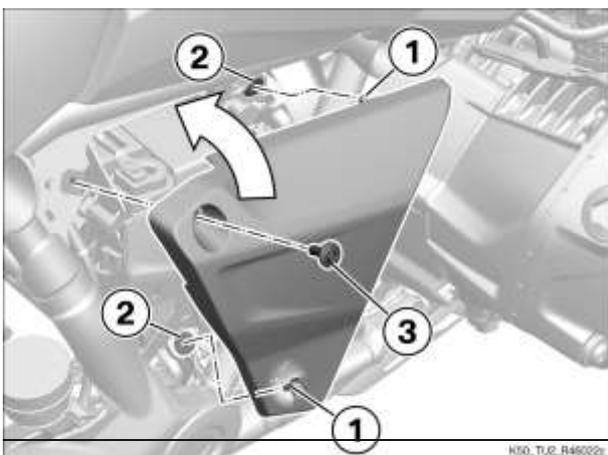


► **Install the battery cover**

- Lubricate detent pins **(1)** and **(2)**.

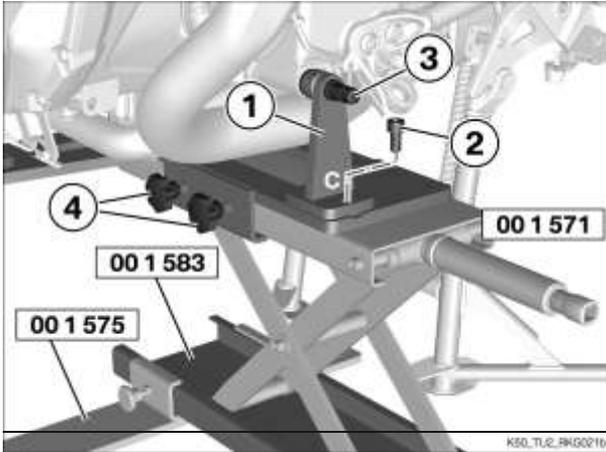
 <b>Care products</b>	
Rubber care product	83 12 0 397 018

» Rubber grommets are not forced out of position during installation.



- Position detent pins **(1)** of battery cover in grommets **(2)** and tightenscrew **(3)**.

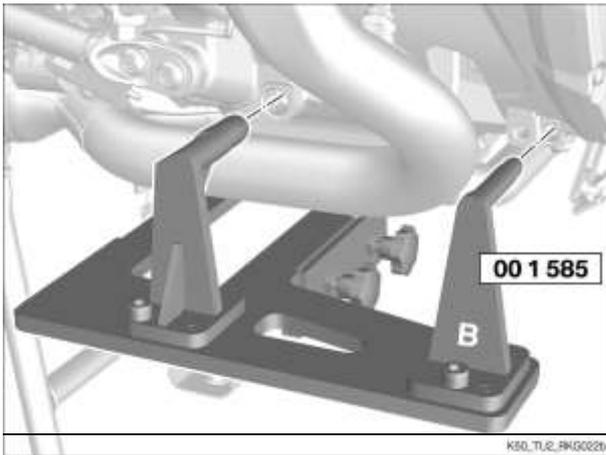
## 26



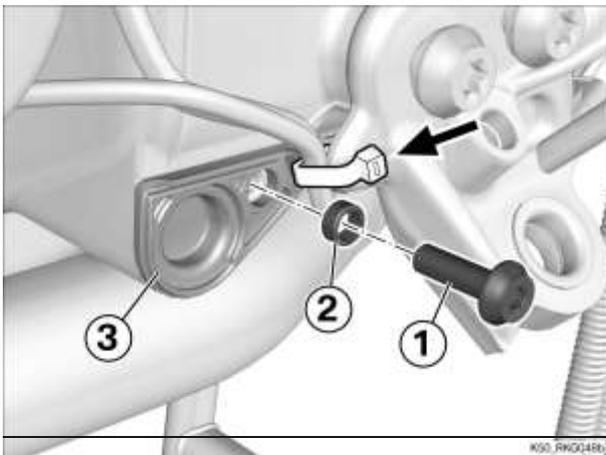
- withStyleHP <sup>OE</sup> (0456)
- withouttwo-upridingpackage <sup>OE</sup> (0413)

► **Removingengine lifter**

- Slackenknurledscrews **(4)**.
- Removescissor-typelifter(001571)withrail(001583) andextensions (001575).
- Slackenscrew **(3)**.
- Removescrew **(2)**.
- RemovemountingC **(1)**.



- Remove engine adapter (00 1 585).



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## 27

### ► Final inspection of completed work

- Ensure the following:
  - The objective of the completed work was achieved.
  - All operating fluids have been filled in and the fluids are at the correct fill level.
  - All loosened screw connections have been retightened correctly.
  - The fuel system is free of leaks.
  - The lighting and signal system is functional and the vehicle is roadworthy.
  - The brake pads of the front and rear wheel brakes are resting against the brake disks.

### ▷ Function test, engine start suppression

- 
- 
- 
- »
- 
- »
-

Hold cable duct in position **(3)**.  
Install the bolt **(1)** and bush **(2)**. Secure  
the cable strap **(arrow)**.◇

**Check** Set kill switch to centred  
position.

Select neutral.

Switch on the ignition.

Neutral indicator 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.



## 0A01-R1200GS

### 00 60 406 Retrofitting drainage in rear wheel swinging arm

# 1

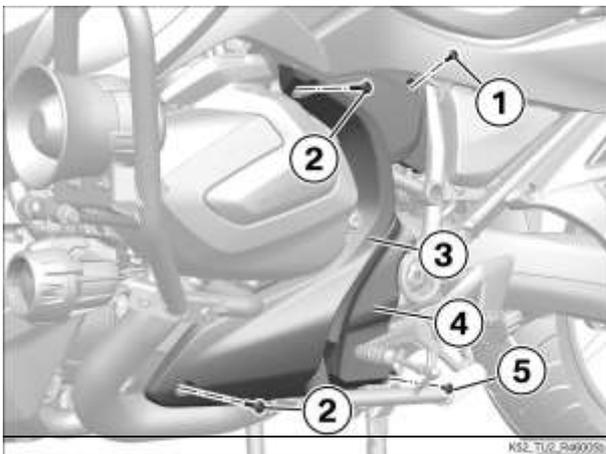
#### ► Only K52: Removing left engine spoiler

#### ATTENTION

##### Use of hard or sharp-edged objects in proximity to component

Component damage

- Take care not to scratch components; cover or mask as necessary.



- Remove screws (1), (2) and (5).
- Remove engine spoiler (3) with trim (4).

# 2

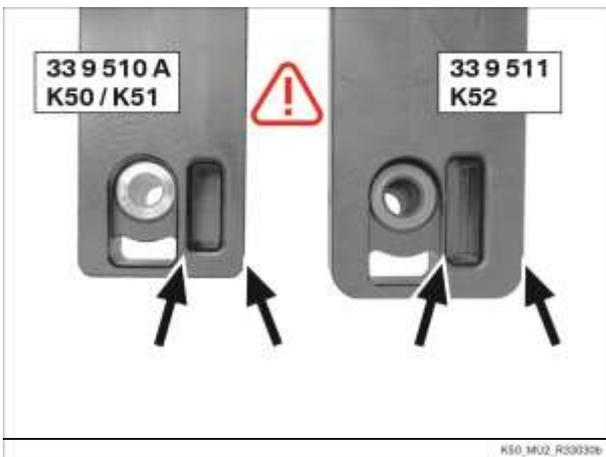


#### ► Overview, scope of tools

- Overview, scope of tools (339510):
  - Bow with threaded rod
  - Bottom shell A (for K50/51)
  - Drill with bush B, drill available separately (339512)
  - Universal deburring tool C
  - Pliers D



- Bottomshell(339511)
- OnlyK52

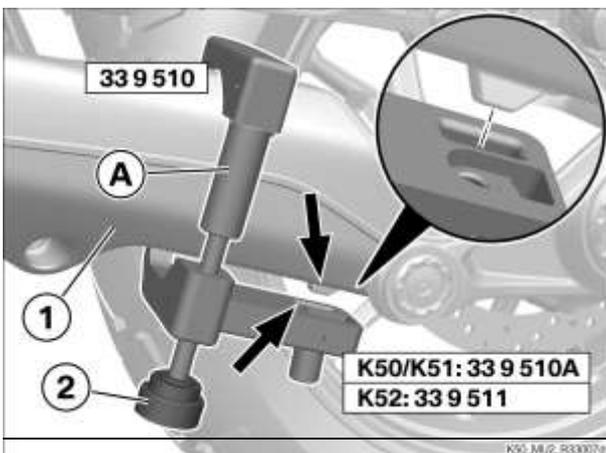


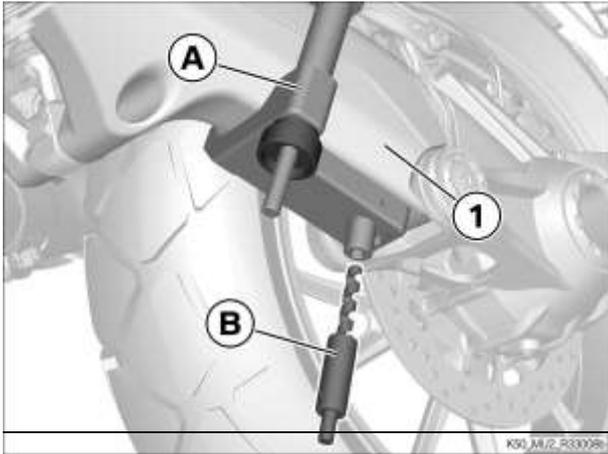
- Distinguishingfeatureofbottomshells:differentbar widths (**arrows**).

### 3

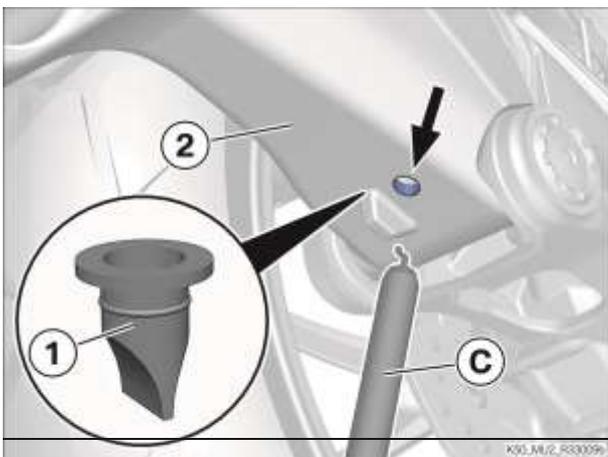
#### ► Installingventilationvalveinrearwheel swingingarm

- Cleandrillbeforework **thoroughly** andlubricate **cutters withconventionaldrillingpaste** .
- Preventsmaterialaccumulationatdrillcuts.
- Cleanrearwheelswingingarminworkingarea.
- Positiondrillingjig **(A)** onrearwheelswingingarm **(1)**.
- Positiondrillingjigwithrecessinsprue **(arrows)**.
- Clampdrillingjigwithknurledscrew **(2)**
- Drillingjigmust **beflushonrearwheelswingingarm** .
- Ifnecessary,pressondrillingjig.





- Position drill **(B)** in sleeve of drilling jig **(A)**.
- **Drill to limit position** in rear wheel swinging arm **(1)**.
  - Drill with slow rotational speed and high pressure.
- Remove drilling jig.



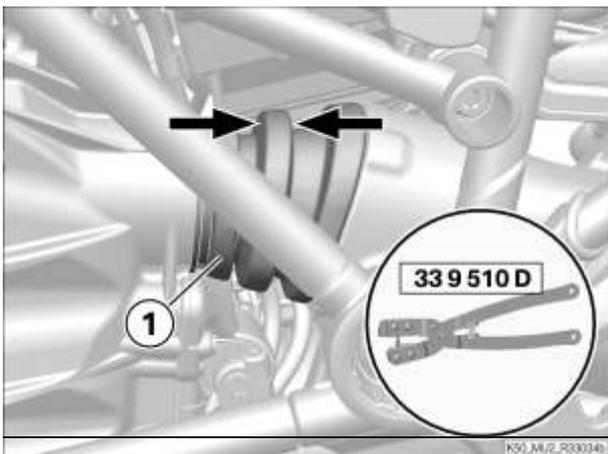
**ATTENTION**

**Rear wheel swinging arms scratched in invisible area**  
Component damage

- Deburr **only inner** borehole.
- Leave the sharp edge on the outside of the rear wheel swinging arm.

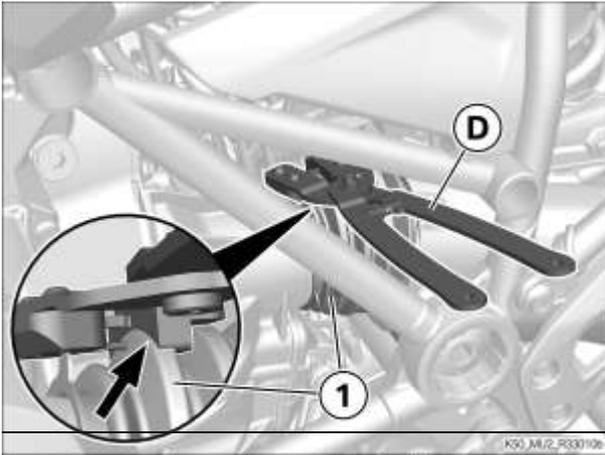
- Deburr borehole **(arrow)** with universal deburring tool **(C)** **inside**.
- Install beak valve **(1)** in rear wheel swinging arm **(2)**.
  - **Do not lubricate** beak valve!
  - Collar must be inside of rear wheel swinging arm.
  - Valve side faces down/out.

4



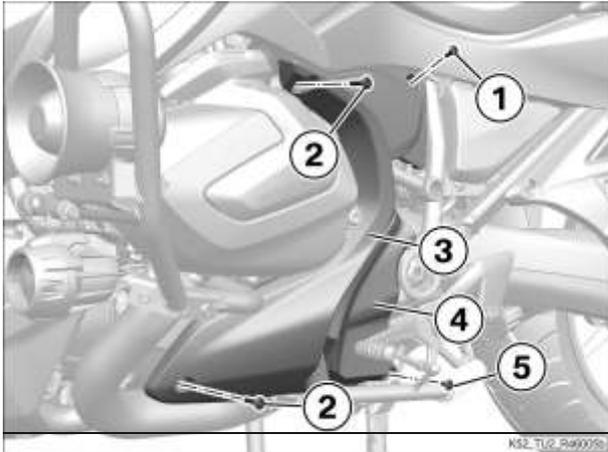
► **Drilling ventilation hole in front gaiter**

- **Gaiter with three ribs (older design):**
- Clean gaiter **(1)** in working area.
- Push center rib together **(arrows)** and position pliers (339510).
- Actuate pliers **to limit position**.
  - Drill through gaiter **(1)**.
- Remove pliers.



- **Gaiter with five ribs (newer design):**
- Clean gaiter **(1)** in working area.
- Position pliers D (33 9 510) **on 2nd rib from the front.**
  - Place pliers with template on rounding **(arrow)**.
- Actuate pliers **to limit position.**
  - Drill through gaiter **(1)**.
- Remove pliers.

5



► **Only K52: Installing left engine spoiler**

- Position engine spoiler (3) with trim (4).
- Install screws (short collar) (2).
- Install screws (long collar) (1) and (5).

6

► **Final inspection of completed work**

- Ensure the following:
  - The objective of the completed work was achieved.
  - All operating fluids have been filled in and the fluids are at the correct fill level.
  - All loosened screw connections have been retightened correctly.
  - The fuel system is free of leaks.
  - The lighting and signals system is functional and the vehicle is roadworthy.
  - The brake pads of the front and rear wheel brakes are resting against the brake disks.

▷ **Function test, engine start suppression**

- 
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- 

» **Check**

- Set kill switch to centred position.
- Select neutral.
- Switch on the ignition.
- Neutral indicator 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.



# Service Information Bulletin

March 20<sup>th</sup>, 2023

Rear Axle, Rear Drive

33 02 22

## UPDATE: SERVICE ACTION – SWINGARM DRAIN RETROFIT AND DRIVESHAFT CHECK



This Service Information Bulletin replaces SIB 33 02 22 dated Feb 3<sup>rd</sup>, 2023.

### What's New:

- New approved drill added

### MODEL

Model	Model Description
K50	R 1200 GS / R 1250 GS
K51	R 1200 GS Adventure / R 1250 GS Adventure
K52 Authority	R 1200 RT Authority / R 1250 RT Authority

The affected vehicles have been marked with campaign number 0033130000 in AIR.

In order to determine if a specific vehicle is affected by this campaign it will be necessary to verify the vehicle VIN in AIR (Aftersales Information Research). Based on the response of the system, either proceed with the repair or take no further action. Please note, open campaigns or vehicle stops may not appear in DCS Warranty Vehicle Inquiry or sales systems until 24-72 hours after they are announced, therefore AIR is always the recommended method for determining open campaigns and vehicle stops.

### SITUATION

Multiple factors may cause the driveshaft to become damaged; among them are corrosion in certain parts of the driveshaft, and wear and tear exacerbated by certain climatic conditions.

#### The following driveshaft failures can occur:

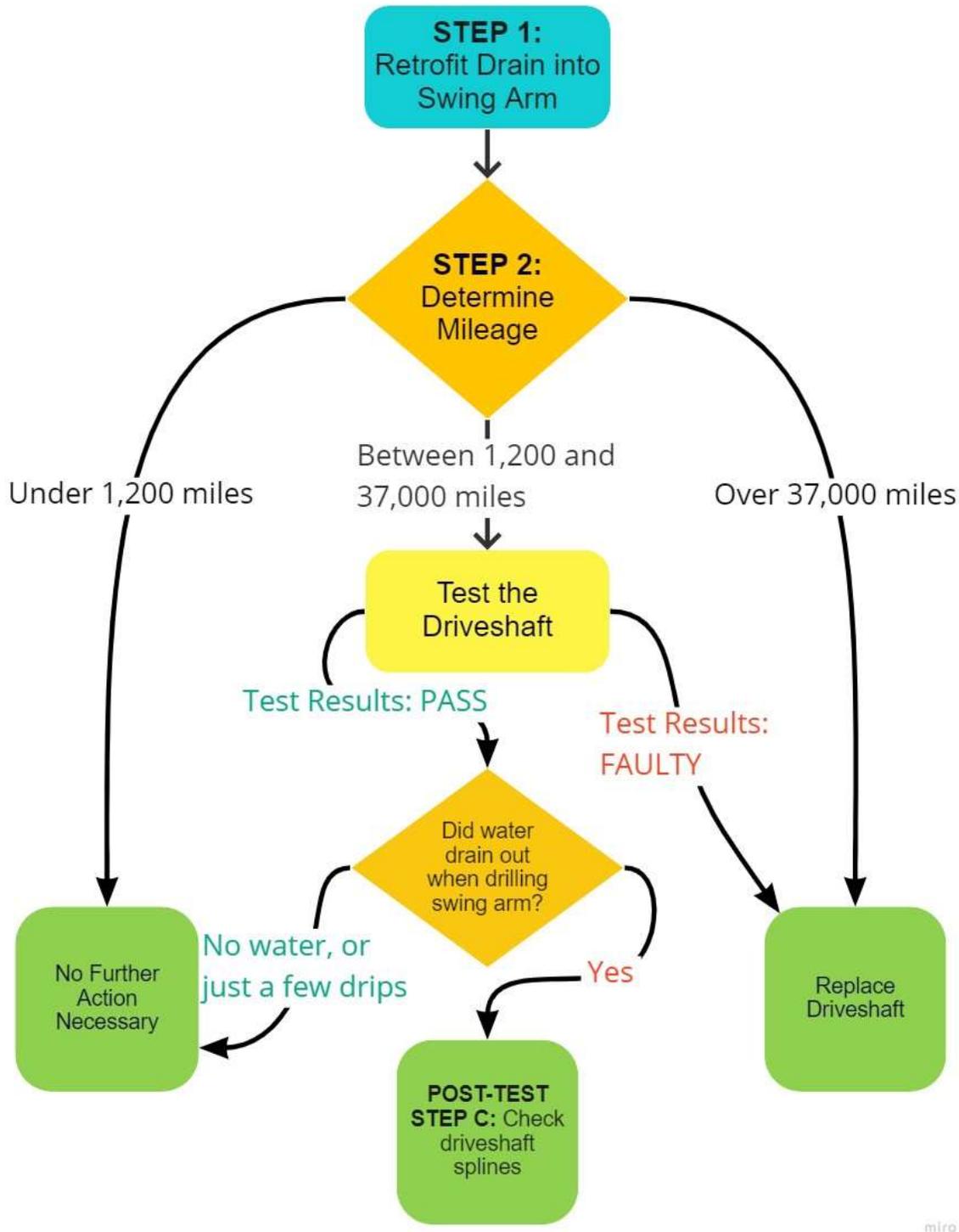
1. The driveshaft can rust onto its mating parts, hindering repair and maintenance work.
2. The splines of the driveshaft at the transmission output shaft or at the differential can corrode. Over time, this may lead to increased play in the splines which may eventually cause the driveshaft to fail.
3. The bearings of the universal joints may be damaged. This can cause the universal joints to start seizing, which over time may lead to further damage of the joint.

Letters will be mailed to owners via First Class mail advising them of this Service Action and asking them to schedule an appointment with an authorized BMW Motorrad dealer to perform the swingarm drain valve retrofit as well as a driveshaft test, if needed.

## PROCEDURE

For the affected vehicles, this service action must be performed at the next workshop visit.

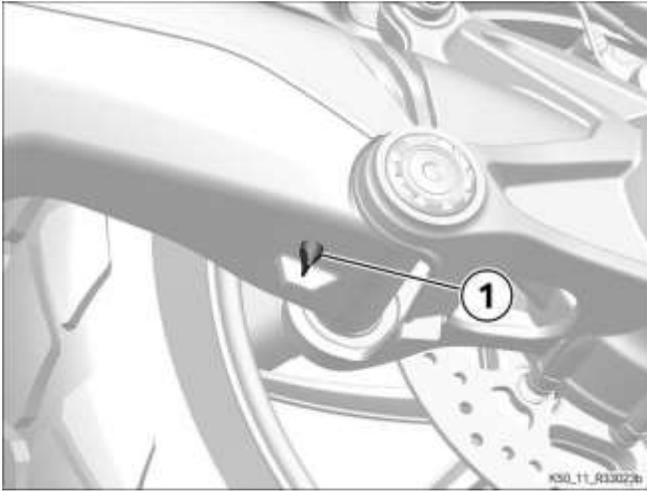
*Procedural Flow Chart; Further Details Below*



### **STEP 1: For all affected vehicles:**

Follow repair instruction "00 60 406 – Retrofitting drainage in rear wheel swinging arm" to install a one-way drain valve in the rear wheel swing arm and punch a ventilation hole in the front rubber boot.

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When drilling the hole in the swing arm, note whether any water drains out – this will be important when performing next steps, below.

## STEP 2: Determine Mileage

Once the drain valve is installed, the following work must then be carried out, mileage dependent:

**A. Vehicles with less than 1,200 miles:**

No additional work is required.

**NOTE:** A check of a new drive shaft using this test method returns invalid results because the U-Joints are not run in yet. Do not use the test plan for new drive shafts.

**B. Vehicles with mileage greater than 1,200 miles but less than 37,000 miles:**

**Test the driveshaft** for damage according to repair instruction “33 73 002 – Checking Cardan shaft”.

**C. Vehicles with greater than 37,000 miles:**

Replace driveshaft according to the repair instruction “33 73 000 – Replacing Cardan shaft”. It is essential to ensure sufficient and thorough **greasing of all gearing**. Up to 1 gram per spline connection (Klüber lubricant LFT 71-402). Also observe the current **specification for the Paralever bolting** to the angle drive and secure the bolt with Loctite.

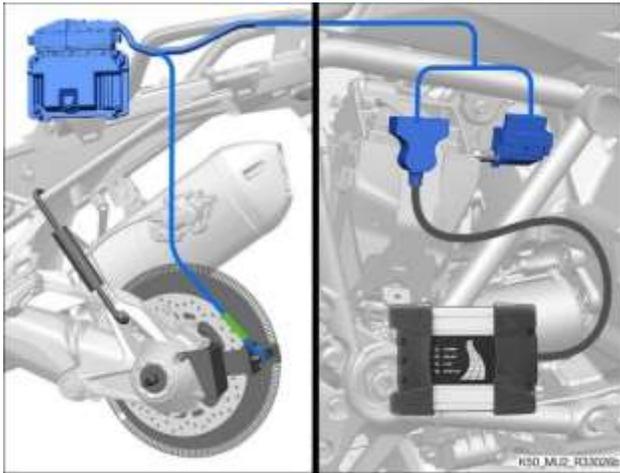
**NOTICE: If the drive shaft is new, the “Check” is not Necessary.**

## TESTING THE DRIVESHAFT: Only if directed in STEP 2 above.

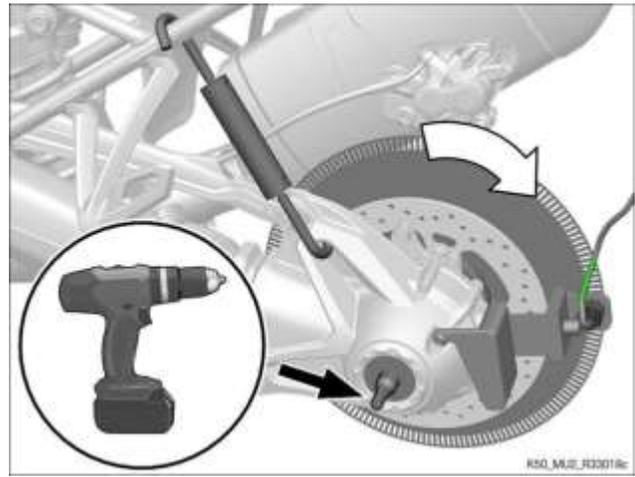
This test method is used to check the functional health of the driveshaft while installed in the vehicle and measures the vibrations of the rear-wheel flange to detect damage in universal joints or gearing.

In the guided measurement procedure, the technician will drive the special speed sensor wheel with a cordless drill (see the list of approved models, below) across several speed ranges defined in the ISTA procedure.

The service function required for this test is available in ISTA versions 4.36.14 and newer. A **video** of the test procedure is available in TIS.



Measuring setup



Test procedure

**NOTICE:** Before the first check the dealer performs, please make sure the software in the special tools “Measuring control unit” is up to date using ISTA version 4.36.14 and newer. This can be claimed only once per a dealer.

**NOTE:** The aluminum pannier rack does not need to be removed to perform this check.

## POST-TEST STEPS:

- A. If the test results in “Cardan shaft faulty”,** Replace the driveshaft according to repair instruction “33 73 507 – Replacing Cardan shaft with testing”. It is essential to ensure sufficient and thorough **greasing of all gearing** with Klüber lubricant LFT 71-402 – PN 83 23 8 847 417. Up to 1 gram per spline connection.

The changed specification for the Paralever bolting to the angle drive must also be observed and the bolting must be secured correctly with Loctite.

- B. If the test results in “Cardan shaft OK” and there was no water leakage** after drilling the bore hole for the drain valve (or only a few drops), no additional work is required.
- C. If the test results in “Cardan shaft OK” but there was water leakage** when drilling the rear wheel swinging arm for the one-way drain valve (water that has accumulated in the rear wheel swing arm leaked out from the bore hole), then **the splines at the front and rear must be checked**, even with the test result “Cardan shaft OK”.

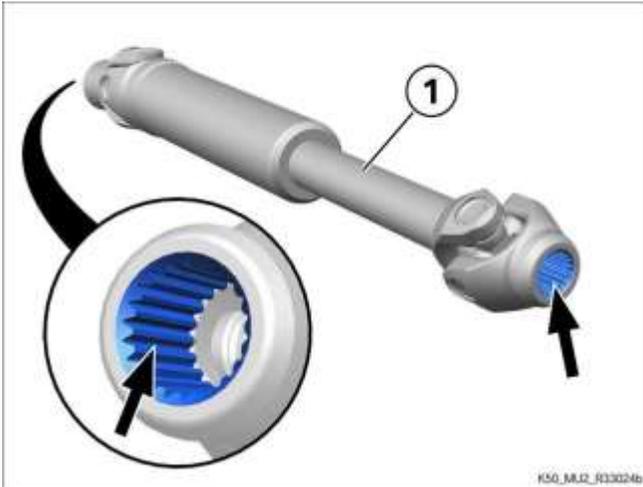
### Replace the driveshaft if:

- Driveshaft is stuck to the transmission from corrosion and cannot be removed.
  - Submit a TSARA case if this necessitates replacing additional parts.
- Driveshaft is stuck to the angle drive and cannot be removed using the new special tool to pull off the Cardan shaft from the rear drive (26 1 930) ○ Submit a TSARA case if this necessitates replacing additional parts.
- Splines are worn out or have play when cleaned up and test-fitted.

**Surface rust on the driveshaft or the universal joints has no functional effects and does not justify a part exchange.**

If reusing the existing driveshaft, the splines must be cleaned thoroughly with a wire brush followed by a sufficient and thorough **greasing of all splines** using Klüber lubricant LFT 71-402 – PN 83 23 8 847 417. Up to 1 gram per spline connection.

**NOTICE:** The workshop specification for the lubrication of splines of the driveshaft has been revised. The relevant repair instructions in AIR have been updated.



For replacement or re-greasing of the existing driveshaft, proceed as follows:

Carefully clean and lubricate gearing on driveshaft (1) with a wire brush, using Klüber lubricant LFT 71-402 – PN 83 23 8 847 417.

- Brush on Approx. 1 gram of lubricant with brush in recesses of gearing all the way around.
- Apply lubricating material over full length of gearing.

**NOTICE:** The bolting specification for the Paralever link on the rear axle has been changed. The relevant repair instructions in AIR have been updated.



Since the existing screw is being re-used, it is essential to clean the screw as well as the thread in the differential, and use **Loctite 2701** - PN 33 17 2 331 095 when re-installing.

### Summary of steps to consider the Service Action as completed.

- The one-way drain valve is inserted correctly in the rear wheel swinging arm and the front gaiter is punctured.
- The measure was carried out correctly based on the mileage of the vehicle.
- During a visual check or an exchange of the driveshaft, both splines were sufficiently and thoroughly greased (PN 83 23 8 847 417 – Klüber lubricant LFT 71-402).
- During a visual check or an exchange of the driveshaft, the Paralever bolting was secured correctly with Loctite (PN 33 17 2 331 095 – Loctite 2701).

**NOTE:** Do not replace gaiters with minor damage. If you have questions about what minor damage is acceptable, please create a TSARA case to review. With the introduction of the rear wheel swing arm drainage, water tightness of the rear wheel swing arm is no longer required. The gaiters merely serve for protection from larger amounts of dust as well as mechanical damage of the drive shaft.

### TOOLS:

**Special tool for retrofitting a one-way drain valve:**

#### Overview tool set (33 9 510):

- Bow with threaded rod
- Bottom shell A
- Drill with bush B
- Universal deburring tool C
- Set of pliers D

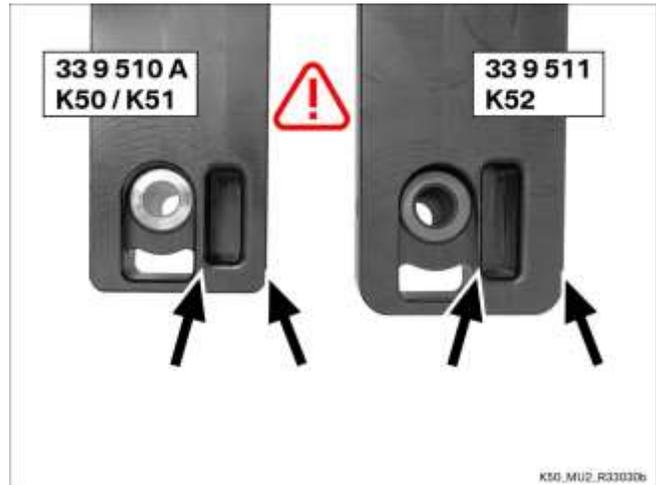


#### Spare Parts:

- Drill Bit Without Bushing (33 9 512)
- Pliers Attachment Repair Kit (83 30 5 A76 DF6)
- Sub Drilling Template For (K50/K51) (33 9 510 A)
- Sub Drilling Template for (K52) (33 9 511)

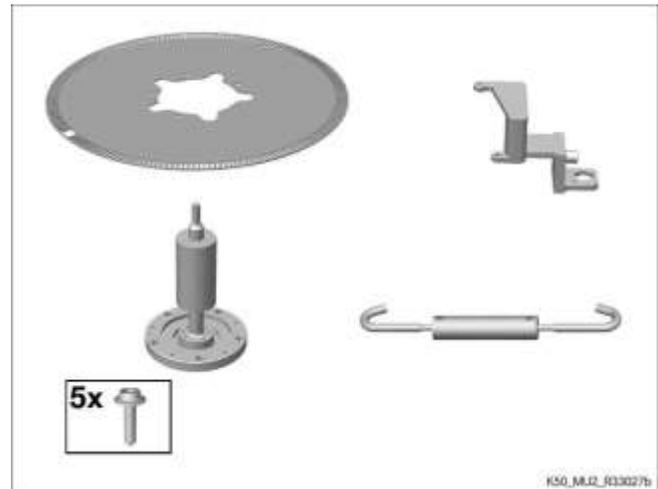


**Special tool for checking the driveshaft:**



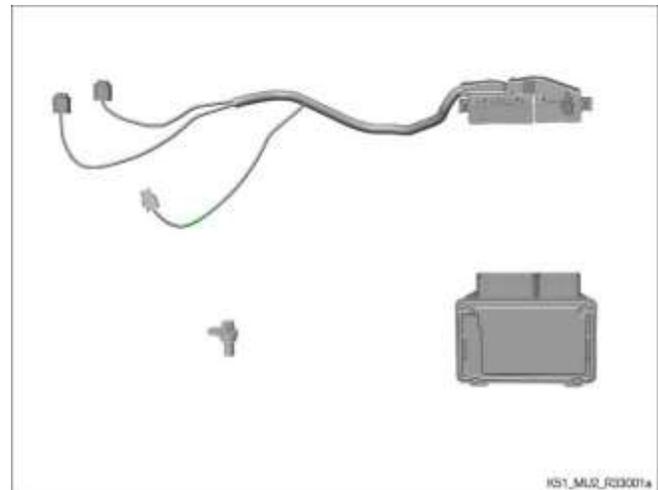
**Overview mechanical tool set (33 1 920):**

- Hook
- Sensor bracket
- Wheel flange adapter with screws
- Sensor wheel



**Overview, scope of electrical tools:**

- Measuring wiring harness
- Measuring control unit
- Speed sensor



Cordless screwdriver is not part of tool set:

For a valid test result, it is essential to use a BMW Motorrad **approved brushless cordless screwdriver** as a test device:

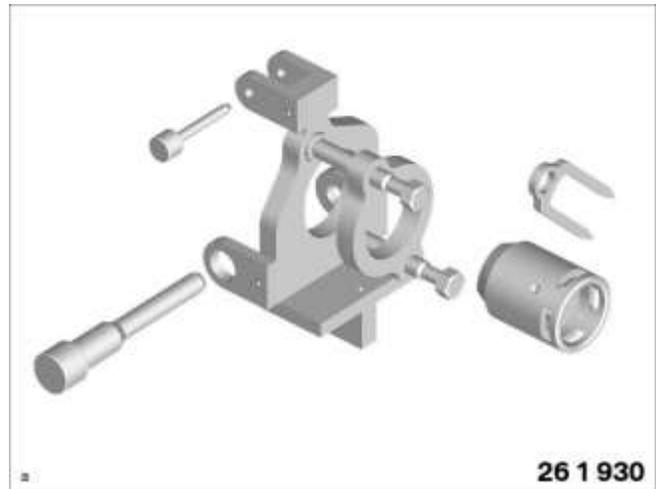
- Makita XFD14
- Milwaukee 2803
- Makita DF001 (HP001G) 40V stronger model

Other brands/models, especially corded models and those with an impact hammer-drill function can lead to an invalid test result.

**NOTICE:** The approved brushless screwdriver can be claimed once, on the first warranty claim under sublet.

**Special tool to pull off the Cardan shaft from the angular drive(26 1 930)**

Additional work when pulling off the Cardan shaft from the angular drive (in case of taper splines that are seized up due to corrosion)  
 Application, see repair instructions “33 73 503 – Additional work when disconnecting Cardan shaft from angular drive”



**PARTS INFORMATION**

**Part Number**

33 17 8 358 789	Drain valve	Qty: 1
07 11 9 908 207	Cheese head screw (M12x75-10.9-MK)	Qty: 1
07 12 9 908 076	Cheese head screw (M6x20-8-8 MK)	Qty: 3 AS NEEDED
46 63 9 908 452	Cheese head screw (M8x30-8.8-MK)	Qty: 2
07 12 9 908 467	Cheese head screw (M8x25-8.8-MK)	Qty: 2 (Alternative)
33 73 5 A67 0C3	Driveshaft (ONLY IF REQUIRED)	Qty: 1
83 23 8 847 417	Klüber lubricant LFT 71-402	Can be entered on the warranty claim under a Sublet 04
33 17 2 331 095 or source locally	Loctite 2701	

**NOTICE:** The preferred lubrication is Klüber lubricant LFT 71-402 (83 23 8 847 417) and should be used if available, If Klüber lubricant LFT 71-402 is not available please source Klüberplex BEM 34-132 as an alternative.

**NOTE:** If re-using the cheese head screws 07 12 9 908 076 for the mudguard, please clean the threads and apply Loctite 2701

**NOTE:** 33 73 8 531 102 has been superseded with 33 73 5 A67 0C3. Order the new part number if needed; however, if there is still dealer inventory of 33 73 8 531 102 driveshafts, then these should be used before ordering the new part number.

## Special tools

83 30 5 A64 813	Drilling template K50, K51 (339510)
83 30 5 A6D DB8	Drilling template K52 (339511)
83 30 5 A68 857	Kit measuring tool (331920)
83 30 5 A67 885	Cable harness
83 30 5 A67 886	Measuring adapter module
13 62 8 623 437	Sensor
83 30 5 A7B 1E6	Puller for drive shaft from angular drive

## Spare Parts

83 30 5 A71 268	Drill bit without bushing (339512)
83 30 5 A76 DF6	Pliers repair kit
83 30 5 A82 5D4	Subshell for drilling template (K50/51)
83 30 5 A6D DB8	Subshell for drilling template (K52)

**NOTICE:** One special tool kit will be auto shipped to each dealer and can be claimed one time on the first warranty claim.

**NOTE:** Due to limited availability dealers requiring the K52 drilling template should submit an IDS ticket requesting the drilling template. The IDS ticket needs to include the affected VIN. The request will be examined to ensure requirements for the K52 drilling template are met before shipping.

## CLAIM INFORMATION

Please submit claims via the normal claim process using the information below:

### ALL CLAIMS:

#### Defect code

00 33 13 00 00	Retrofitting drain valve in swing arm and checking Driveshaft
----------------	---

#### Labor Operation

00 60 406	Retrofitting drainage in rear wheel swinging arm	3 FRU
+00 60 906	Retrofitting drainage in rear wheel swinging arm	2 FRU
46 52 510	Mounting and dismounting the rear-wheel stand with special tools (for motorbikes without a center-stand)	1 FRU

**ADDITIONAL: ONE TIME CLAIM FOR SOFTWARE CHECK/UPDATE OF THE MEASURING ADAPTER MODULE, CAN ONLY BE CLAIMED ONCE PER A DEALER**

#### Labor Operation

61 00 502	Checking the software	2 FRU
61 00 510	Performing software update	2 FRU

**ADDITIONAL: FOR VEHICLES THAT QUALIFY FOR A DRIVESHAFT REPLACEMENT TEST**

**Labor Operation**

+33 73 500	Removing/installing or replacing the Cardan shaft	6 FRU (K50, K51) 7 FRU (K52)
------------	---	---------------------------------

**ADDITIONAL: FOR VEHICLES REQUIRING A DRIVESHAFT TEST:**

**Labor Operation**

+33 73 502	Checking Cardan shaft	6 FRU (K50, K51) 10 FRU (K52)
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**REPLACEMENT**

**ADDITIONAL: FOR VEHICLES THAT NEED DRIVESHAFT REMOVAL OR REINSTALLATION AFTER THE TEST:**

**Labor Operation**

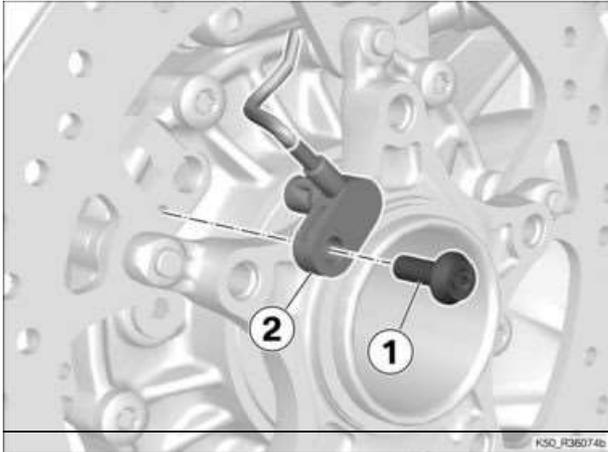
33 73 507	Replacing Cardan shaft on inspection *OR* cleaning/re-greasing existing driveshaft.	3 FRU (K50, K51) 4 FRU (K52)
33 73 503	Additional work: Disconnecting drive shaft from rear drive using special tool	3 FRU

FRUs includes all repair procedures to complete the task with allowance for necessary ancillary tasks (e.g., visual inspection, lubrication, cleaning parts etc.) and administrative tasks.

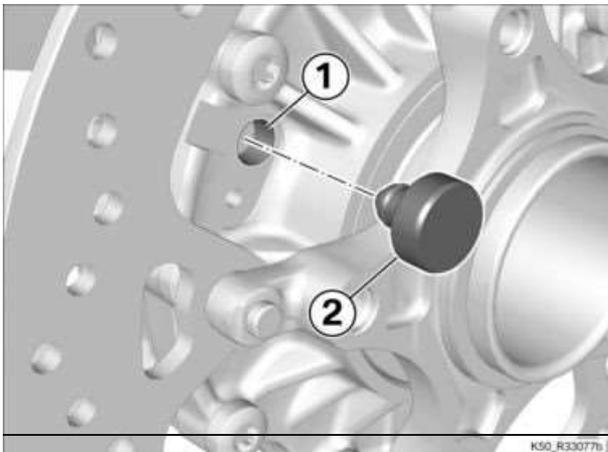
**Collect & Return:** As part of the Service Action, the vehicles can be picked up from the customer to carry out the campaign work. A flat rate of 7 FRU with FRU number 00 98 510 can be invoiced for each vehicle. This is only possible in combination with FRU number 00 60 406. **Only eligible between December 16<sup>th</sup> 2022 to March 31<sup>st</sup> 2023.**

**QUESTIONS REGARDING THIS BULLETIN**

Technical inquiries	Contact the BMW Technical Support Group via TSARA
Warranty inquiries	Submit an IDS ticket to the Warranty Department
Parts inquiries	Submit an IDS ticket to the Motorrad Parts Department

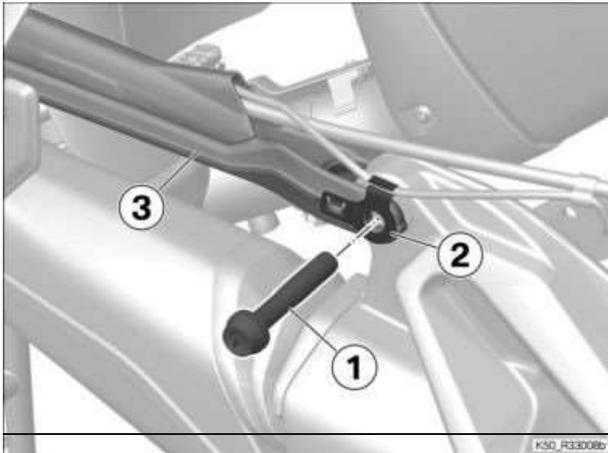
**0A01-R1200GS****33 73 507 Replacing Cardan shaft on inspection****1****► Releasing rear wheel-speed sensor**

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

**2****► Sealing bore for wheel-speed sensor**

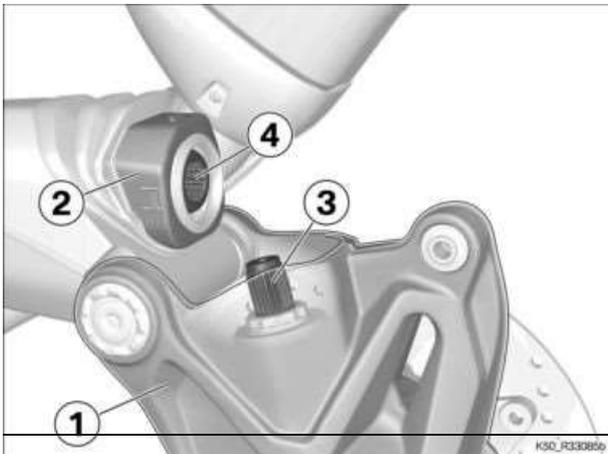
- Close bore hole (1) for wheel speed sensor with suitable rubber plug (2).
- Alternatively, use old wheel speed sensor (cable shortened).

## 3



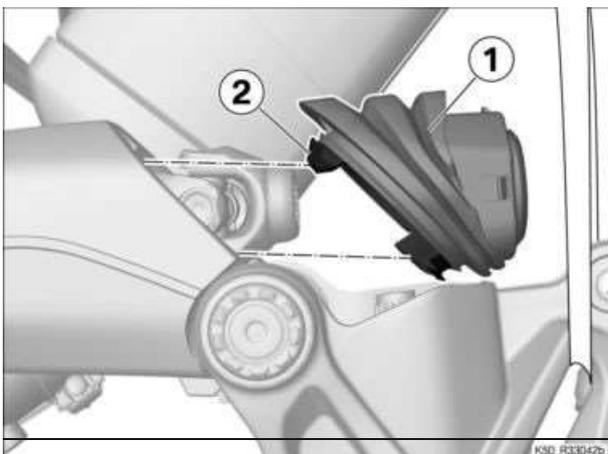
► **Loosening and folding down bevel gears**

- Support bevel gears with tensioning belt or scissor-type lifter.
- Remove (1) old takeoff cable routing (2).
- Loosen Paraleverlink (3).



- Lower bevel gears (1) and secure to prevent damage.
- Unclip gaiter (2) from bevel gears (1).
- Pulloff (3) bevel gear from Cardan shaft (4).

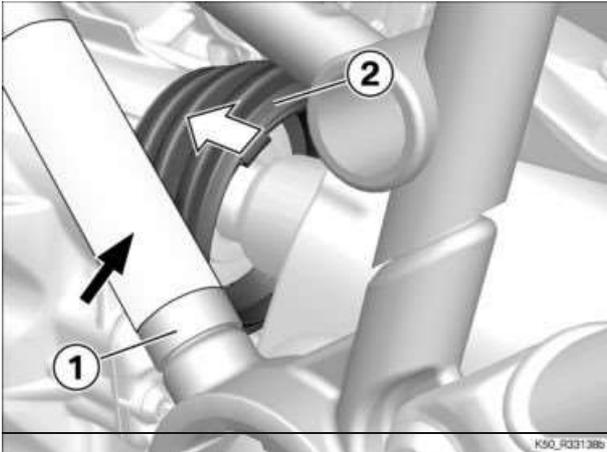
## 4



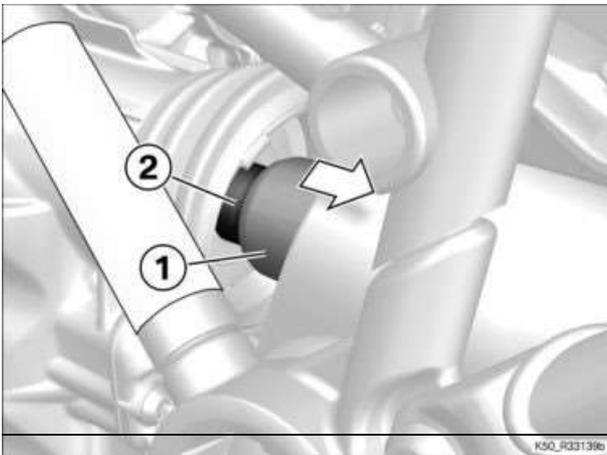
► **Removing flexible gaiter from swinging arm and bevel gears**

- Remove gaiter (1) completely with plastic insert (2).

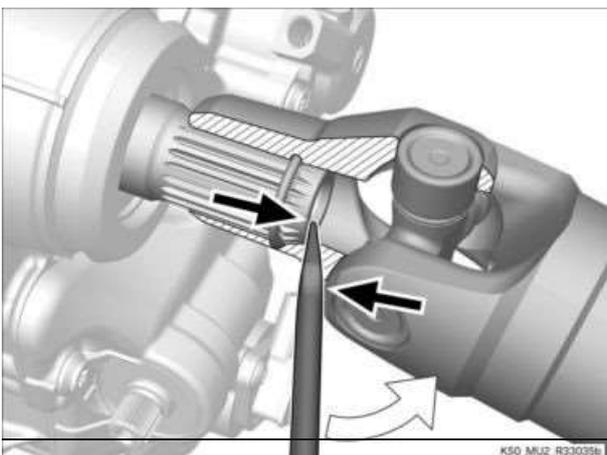
## 5

► **Removing universal shaft**

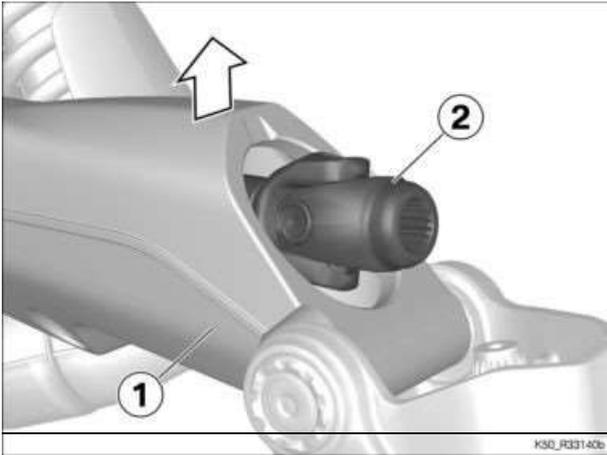
- Mask frame **(1)** (arrow).
- Pulloff gaiter **(2)** to the front.



- Loosen Cardan shaft **(1)** with suitable lever tool from transmission output shaft **(2)**:

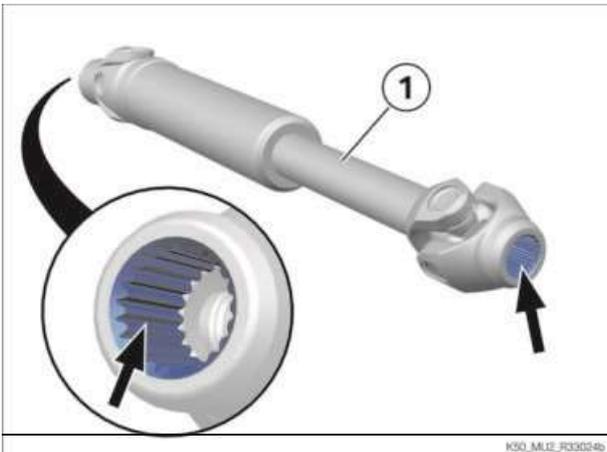


- Position lever tool on universal joint and support on transmission output shaft **(arrows)**.
- Lever the lever tool to the rear.
- » Cardan shaft is pushed off to the rear.



- Lift rear wheel swing arm (1) and remove Cardan shaft (2).

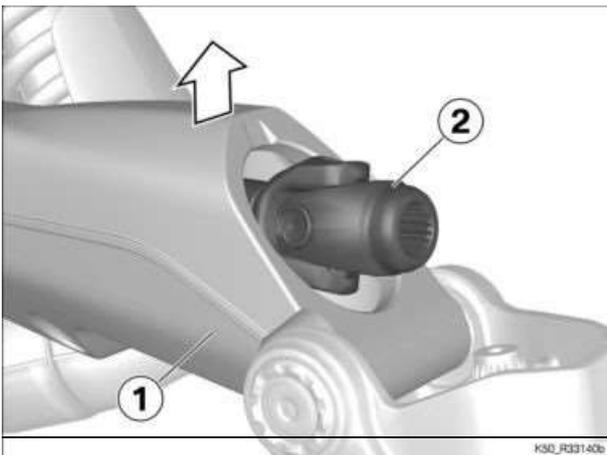
6



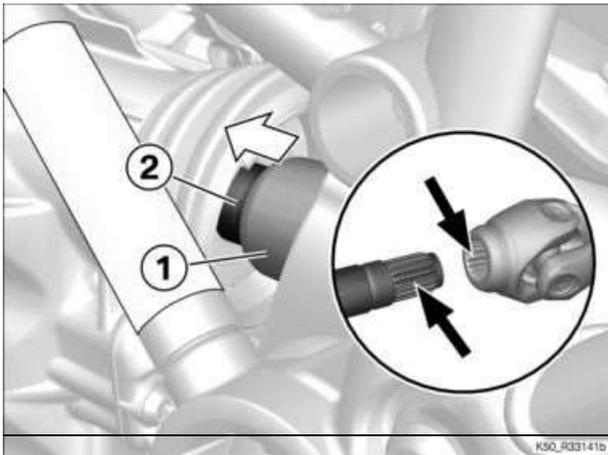
► Install the universal shaft

- Clean and lubricate gearing on Cardan shaft (1).
  - Apply lubricating material with brush in recesses of the gearing **all the way around**.
  - Apply lubricating material over full length of gearing.

Lubricant	
Klüber lubricant LFT 71 -402	83 23 8 847 417



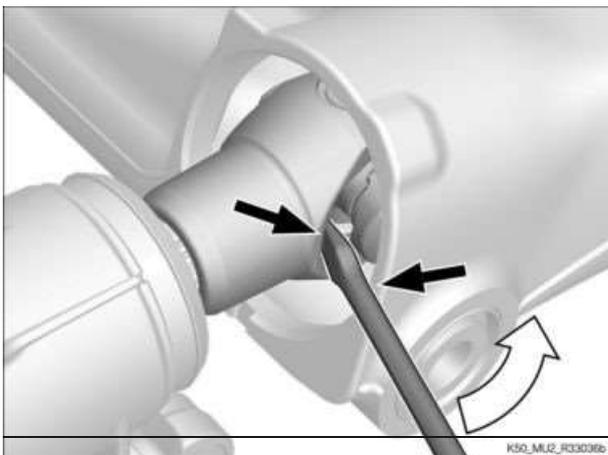
- Lift rear wheel swing arm (1) and install Cardan shaft (2).



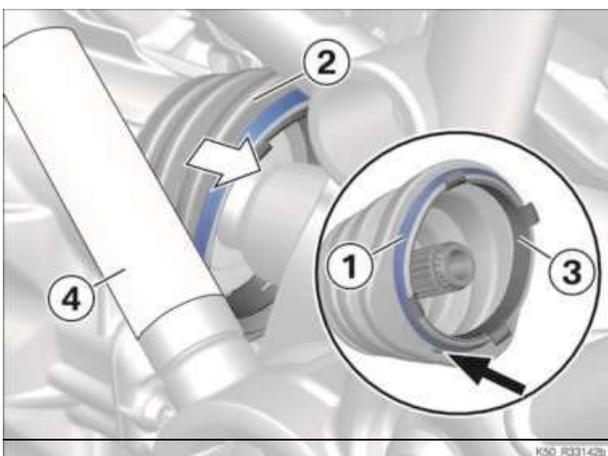
- Twist Cardan shaft **(1)** until gearing **(arrows)** engages.
- Push Cardan shaft **(1)** to limit position on transmission output shaft **(2)**.

**NOTICE**

Raise front universal joint with cable strap loop, for example. After positioning on transmission shaft, raise universal joint with screwdriver.



- Push to the front with suitable tool on universal joint while supporting on rear wheels winging arm.
- Cover rear wheels winging arm in the area/cushion tool.
- The Cardan shaft must **audibly engage** with circlip in transmission output shaft.

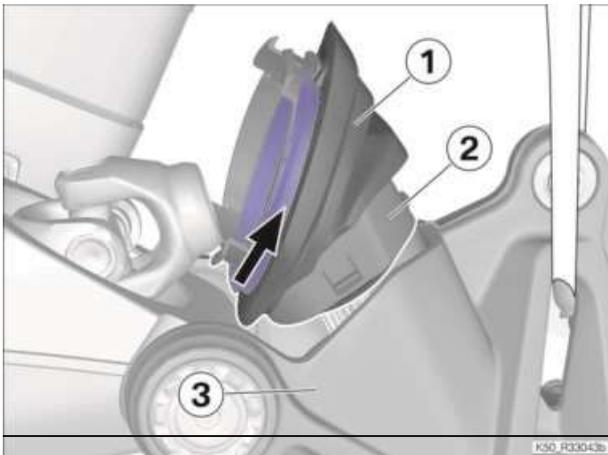


- Lubricate supporting surface **(1)** of gaiter **(2)**.

Lubricant	
Staburags NBU 30 PTM	07 55 9 056 992

- Check plastic insert **(3)** for correct fit on gaiter **(2)** and correct, if necessary.
- Install gaiter **(2)** completely with plastic insert **(3)** and align positioning **(arrow)**.
  - » Plastic insert **(3)** engages
- Remove adhesive tape **(4)**.

7



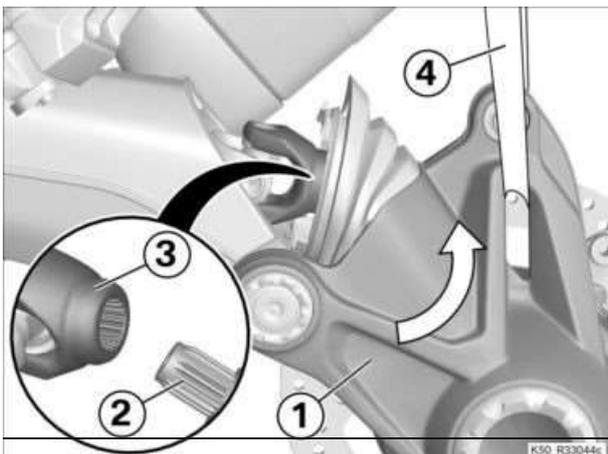
► **Installing gaiter to angular gearbox**

- Lubricates supporting surface (arrow) of gaiter (1).

Lubricant	
Staburags NBU 30 PTM	07 55 9 056 992

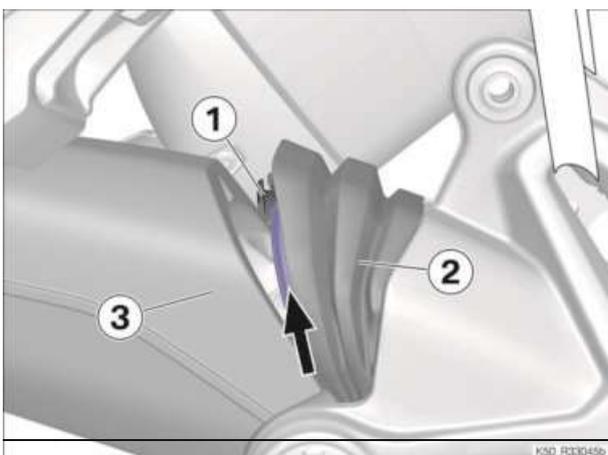
- Install gaiter (1) with plastic insert (2) in angular gearbox.
- » Plastic insert (2) engages audibly.

8

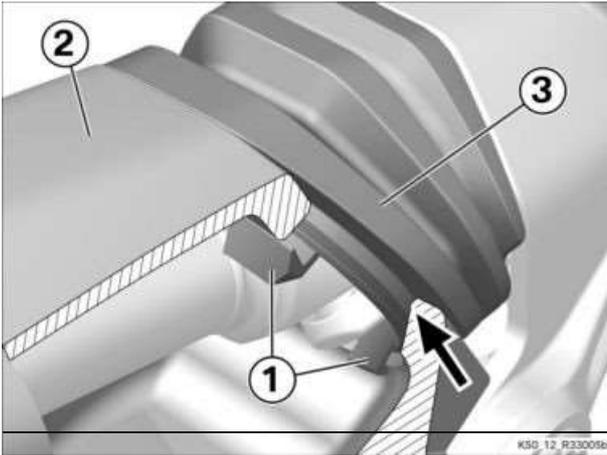


► **Securing angular gearbox with gaiter**

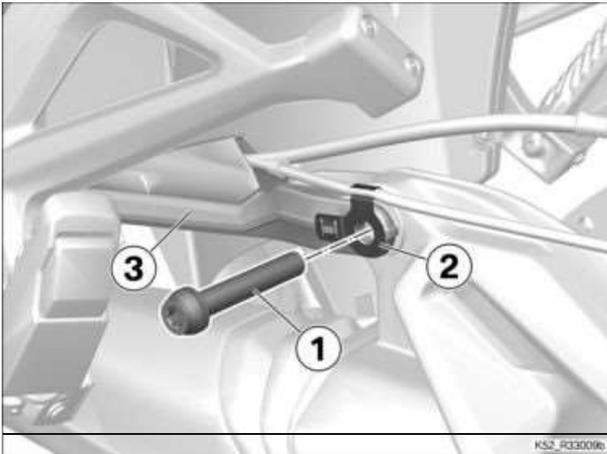
- Lift angular gearbox (3).
- Engage gearing of bevel gear (1) and Cardan shaft (2).
- Secure angular gearbox (3) with tensioning belt (4).



- Slide plastic insert (1) with gaiter (2) into swinging arm until plastic insert (1) and supporting surface (arrow) engage correctly in swinging arm (3).



- Check plastic insert **(1)** for correct fit, correct as needed.
  - Plastic insert is engaged in swinging arm **(2)**.
- Check gaiter **(3)** for correct fit, correct as needed.
  - Gaiter rests **circumferentially** inside on flange (**arrow**).
  - Gaiter not inverted anywhere.



Position paralever link **(3)**.  
Position cable routing **(2)** and install screw **(1)**.

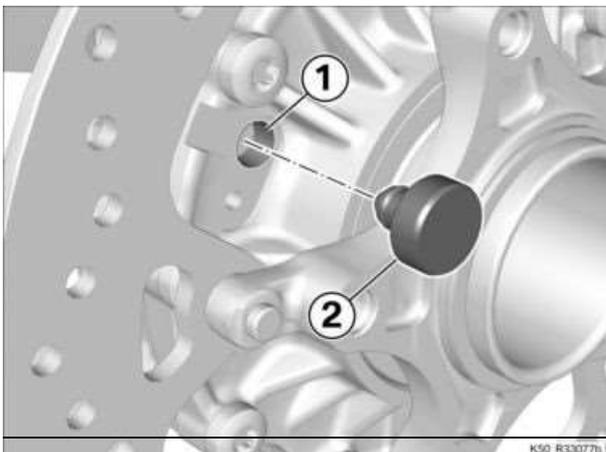
- With a new screw, it is absolutely necessary to remove the microencapsulation with a wire brush or a brass brush.
- Clean thread (screw and Paralever link) and apply screw locking agent to screw **(1)**.
  - Apply screw locking to 5 circumferential threads starting

 <b>Thread-locking compound</b>	
Loctite 2701, High strength	33 17 2 331 095

- from the end.

 <b>Tightening torques</b>		
<b>Paralever strut on bevel gears</b>		
M10 x 60 - 10.9	56 Nm	
Thread-locking compound (Loctite 2701, High strength)		

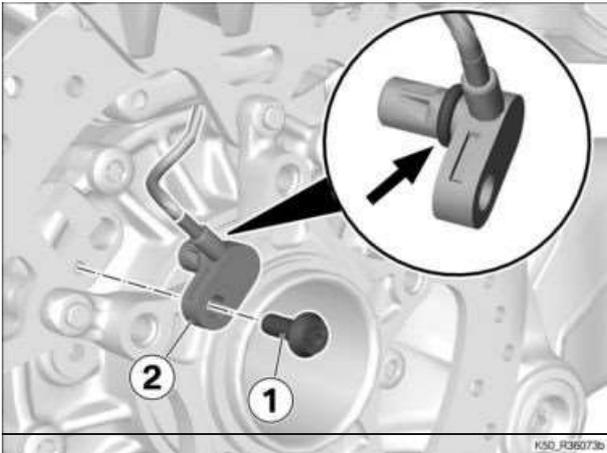
**9**



► **Removing plug from bore for wheel-speed sensor**

- Remove plug **(2)** from borehole **(1)** for wheel speed sensor.

# 10



### ► Securing rear wheel-speed sensor

- Check the sealing ring (**arrow**) for damage; replace if necessary.
- Install wheel speed sensor (**2**).
- Install screw (**1**).

 <b>Tightening torques</b>		
<b>Wheel-speed sensor to bevel gears</b>		
M6 x 16	8 Nm	



## 0A03-R1200RT

### 33 73 002 Checking Cardan shaft

#### NOTICE

This check requires the exclusive use of cordless screwdrivers **that are approved for this purpose**. Non-compliance can falsify the measuring result. Use cross-handle for cordless screwdriver, high torque during check.

Do not support cross-handle on vehicle, danger of falsification of measuring results.

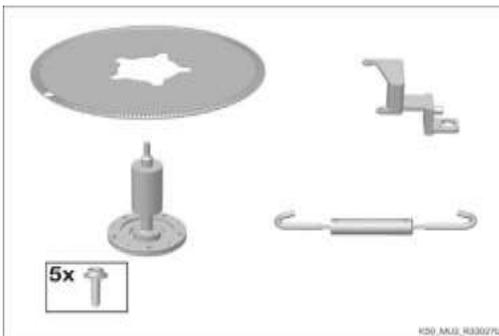
Refer to Service Information for a list of cordless screwdrivers.

#### NOTICE

Cardan shaft must be checked at room temperature of vehicle.

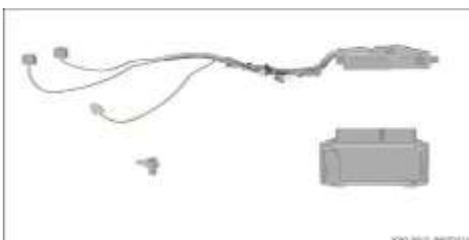
If temperature is too high/toolow, "Servicefunction Cardanshaft" will be cancelled.

# 1



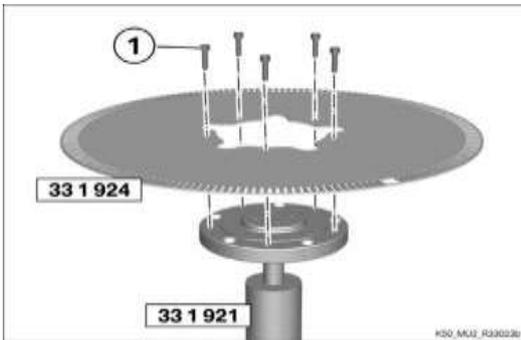
#### ► Overview, scope of tools

- Overview, scope of mechanical tools (33 1920):
  - Hook (33 1922)
  - Sensor bracket (33 1923)
  - Wheel flange adapter with screws (33 1921)
  - Sensor wheel (33 1924)



- Overview, scope of electrical tools:
  - Measuring wiring harness, part number 611 25A6d EDO
  - Measuring control unit, part number 833 05A67886
  - Speed sensor, part number 136 28623437

# 2

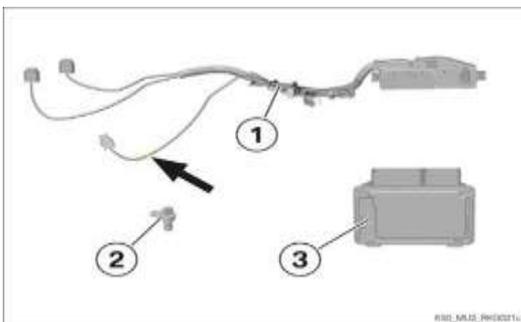


▶ **Assembling tools (for initial use)**

**ATTENTION**

**Sensor wheel will be bent, receives lateral runout**  
Component damage

- Always handle sensor wheel with care.
  - Always set down sensor wheel on a flat surface.
- 
- Secure sensor wheel (33 1924) with included screws (1) on wheel flange adapter (33 1921).

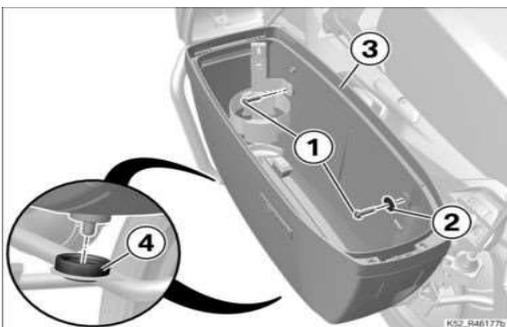


**ATTENTION**

**Measuring wiring harness sensor/control unit will be damaged**  
Component damage

- Do **not disconnect** plug connections of speed sensor and control unit (plug cycles restricted).
- 
- Connect measuring wiring harness (1) with speed sensor (2).
  - Note green colour coding (arrow).
  - Connect measuring wiring harness (1) with control unit (3).

**3**



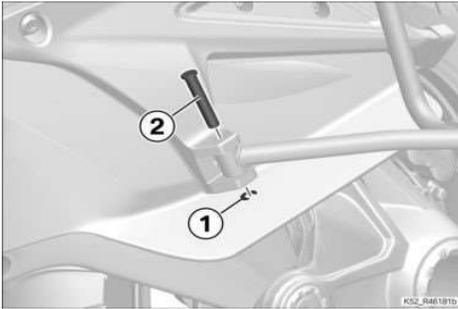
– with deviation from standard for authority vehicles BU

▶ **Removing left case**

- Removing fire extinguisher.
- Remove screws (1) and washer (2).
- Remove case (3) from locators (4) to the top. ◇

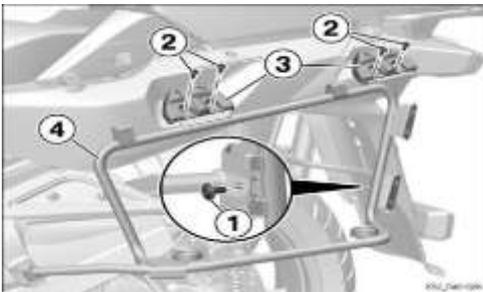
**4**

with deviation from standard for authority vehicles BU



– **Removing left case carrier** Remove

• circlip (1) and bolts (2).

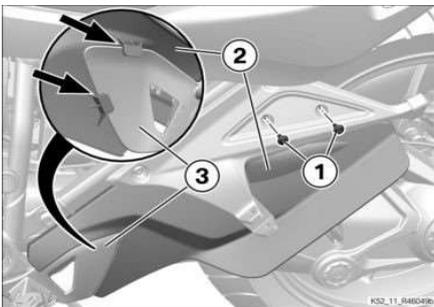


Remove screw (1).

• Remove screws (2) and remove covers (3).

• Remove case holder (4).◇

5



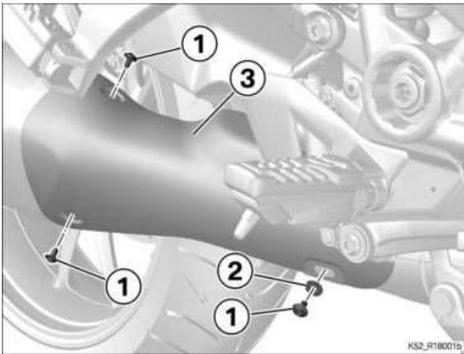
– with deviation from standard for authority vehicles BU

▶ **Removing sprayguard, left**

• Remove screws (1).

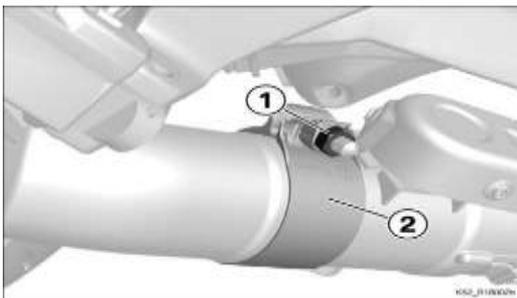
• Loosen sprayguard (2) from rider footrest (3) (arrows) and remove. ◇

# 6



- ▶ **Removing silencer cover**
  - Remove screws (1), at front with washer (2).
  - Remove cover (3).

# 7

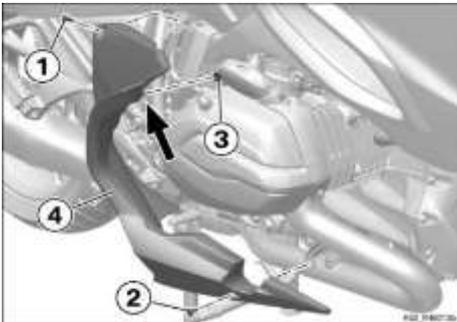


- ▶ **Removingsilencer**
  - Slackennut (1).
  - Pushclamp (2) totherear.



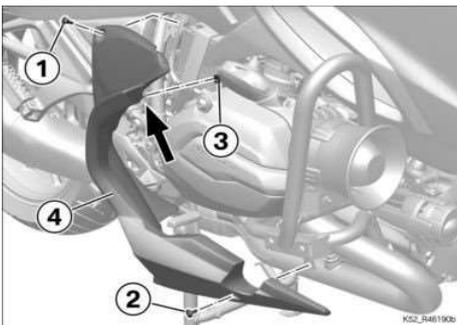
- Removescrew (1) andwasher (2).
- Removesilencer (3).

**8**



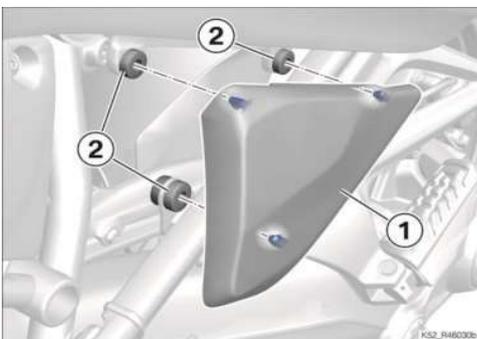
**Removing right engine spoiler**

- Remove screws **(1)** and **(2)**.
- Pull **(lug)** arrow out of grommet **(3)**.
- Remove engine spoiler **(4)**.



- with deviation from standard for authority vehicles BU
- Remove screws **(1)** and **(2)**.
- Pull **(lug)** arrow out of grommet **(3)**.
- Remove engine spoiler **(4)**.◇

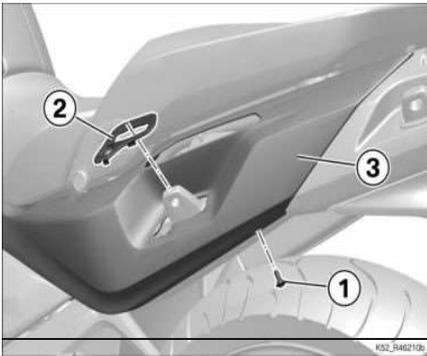
**9**



**▶ Removing left cover for spring strut**

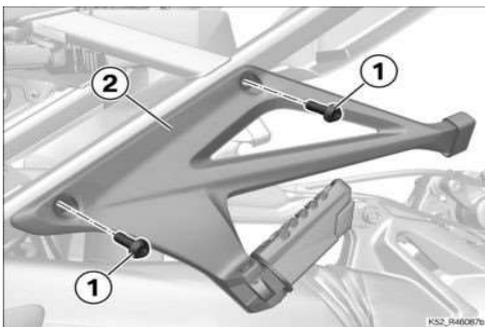
- Pull out trim **(1)** from grommets **(2)** and remove.

---

**10****Removing left rear trim panel**

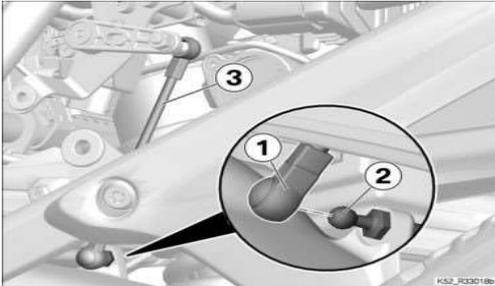
- Remove screw (1) and trim (2).
- Carefully loosen rear trim panel (3).

---

**11****▶ Removing left rear footrest bracket**

- Remove screws (1).
  - Carefully spread top rear trim panel apart.
  - Remove footrest bracket (2).
- 
- ◀

---

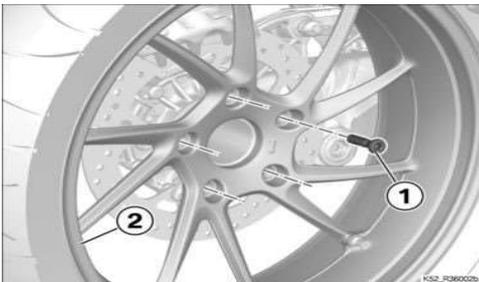
**12**

– with DynamicESA <sup>OE</sup> (0191)

▶ **Disengaging actuator rod for ride-height sensor from swinging arm**

- Unclip ball socket (1) from ball head (2).
- Pivot attachment rod (3) up.

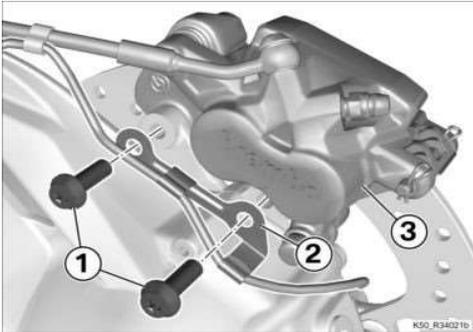
---

**13**

◀ **Remove the rear wheel**

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

## 14

▶ **Removing rear brake caliper**

- Remove screws (1).
- Loosen cable clip (2).

 **ATTENTION**
**Brake actuation with brake pads or brake calipers removed**

Brake piston pushed out

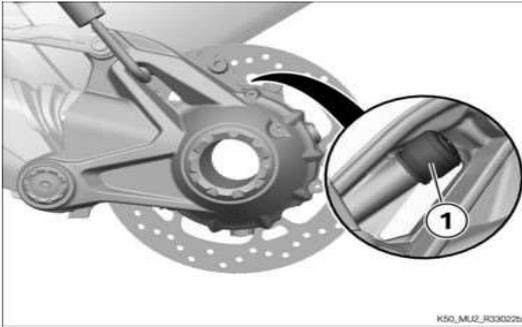
- Do not operate brake.
- Install brake pads and brake caliper or insert the piston resetting device.

- Remove brake caliper (3).
- Secure brake caliper (3) against falling.

## 15

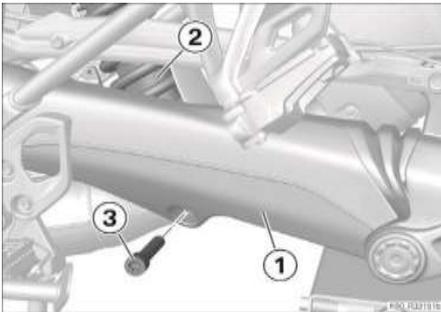
▶ **Securing angular gearbox on rear frame**

- Hook hooks (33 1 922) on rear frame (1) and angular gearbox (2).



- Observe breather (1), it must not be pushed out of its mounting.
- Make sure breather (1) is not damaged by sharp-edged hook (331922).

## 16



### ► Loosening suspension strut from rear wheel swingarm

- Raise rear wheel swingarm (1) with tension hook until suspension strut (2) is relieved.
- Remove screw (3).
- Loosen suspension strut (2) from rear wheel swingarm (1).

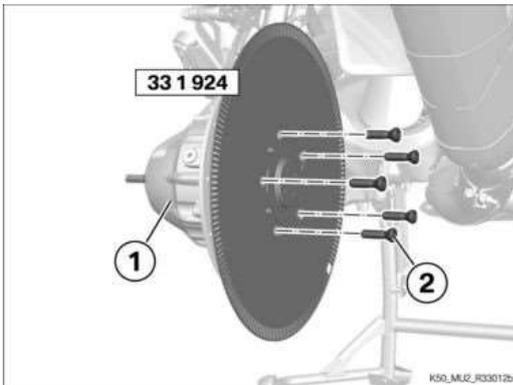
## 17



### ► Lowering rear wheel swingarm for sensor wheel installation

- Lower angular gearbox (1) with hook (331922).

## 18



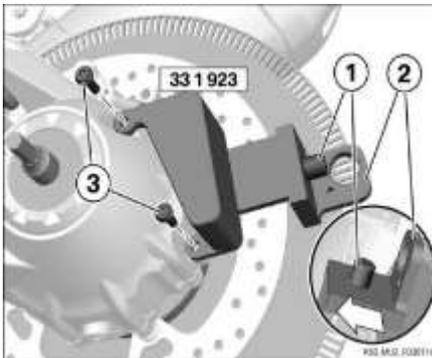
## ► Preparing Cardanshaft for check

- Clean hollow axle in angular transmission, lubricate wheel flange adapter lightly.

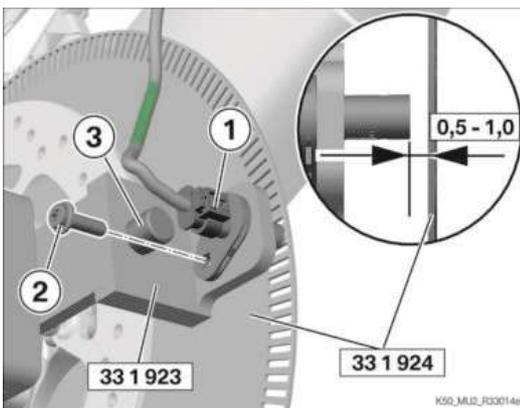
Installation tool	
Silicone spray	83 19 2 208 609

» Wheel flange adapter can be inserted more easily.

- Insert sensor wheel (33 1924) with wheel flange adapter in angular gearbox (1).
- Secure wheel flange adapter with wheel bolts (2) **hand-tight**.

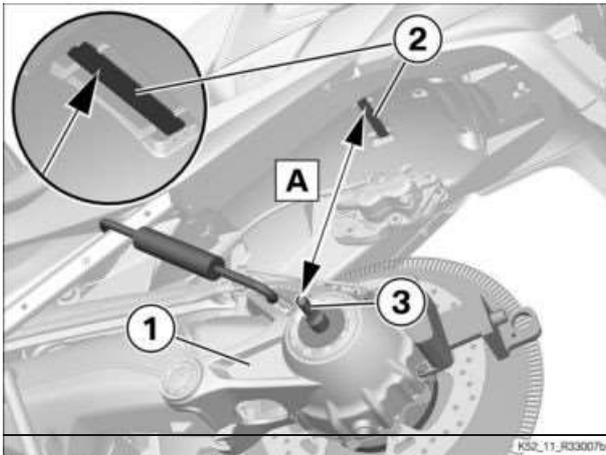


- Loosen knurled screw (1) and push back carriage (2).
- Secure sensor bracket (33 1923) with screws (3) **hand-tight**.
- Screws M6x16



- Secure speed sensor (1) with suitable screw (2) in sensor bracket **hand-tight**.
- Screw, M6x12
- Adjust distance setting between speed sensor (1) and sensor wheel, tighten knurled screw (3).
- **Distance setting 0.5mm-1.0mm**
- Spin sensor wheel several times and measure distance **circumferentially**.
- If the sensor wheel has a lateral runout and the distance cannot be maintained, the sensor wheel must be replaced.

## 19



## ► Lowering rear wheel winging arm for check

- Lower angular gearbox (1) with hook (331922) **total dimension A** .
  - 640mm
  - Measuring points: Holder (2) (in direction of travel, left ) for sensor box on **centre hexagon** wheel flange adapter (3)

## 20

## ► Connecting measuring wiring harness with vehicle and diagnosis system

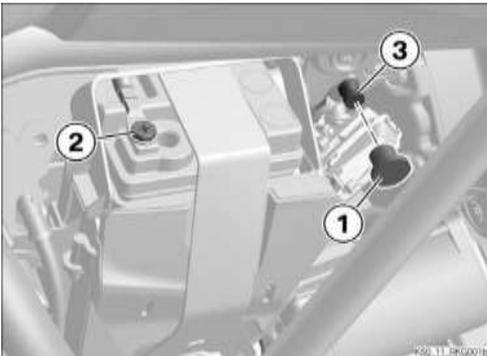
 **NOTICE**

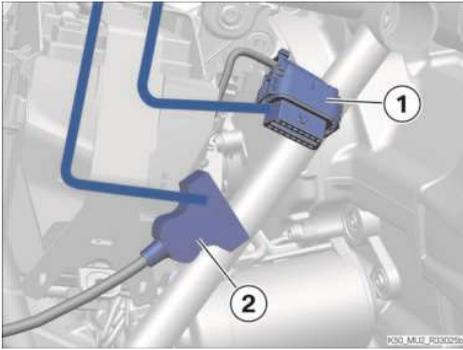
Vehicles with round analysis connector (build level before August 2016) require use of adapter 2360886. Secure adapter between analysis connector and measuring wiring harness.

- Remove cap (1).
- Connect BMW Motorrad battery charger on negative terminal (2) and battery-positive connection point (3).

 **NOTICE**

When carrying out diagnosis and programming, use a battery charger with 30A approved by BMW Motorrad that ensures an **on-board system voltage of 13V** .

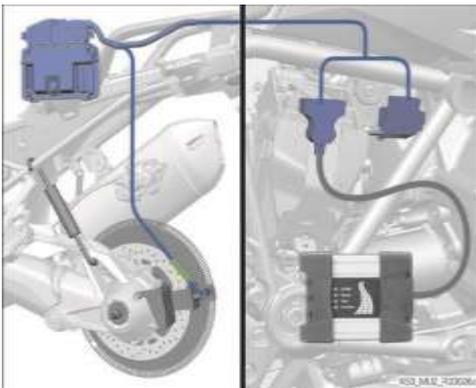




- Follow sequence!
  - First, connect all connectors.
  - Only after that, switch on ignition and start service function.
- Loosen analysis connector (1).
- Connect measuring wiring harness on vehicle with analysis connector (1).
- Connect measuring wiring harness with diagnosis system connector (2).

- Switch on ignition and start service function "Check Cardan shaft".

## 21



### ► Overview, measurement setup

- Overview, measurement setup:
  - Rear wheel winging arm hang correctly lowered on tensioning hook
  - Speed sensor in sensor bracket, distance set
  - Sensor wheel with drive secured in angular gearbox
- Overview, measuring wiring harness:
  - Speed sensor connected with measuring wiring harness
  - Measuring wiring harness connected with diagnostic connector and diagnosis system
- Cordless screwdriver:
  - Accumulator fully charged
  - Setting "Drill"
  - Setting "Slow running speed"
  - Cross-handle mounted
  - With chuck fully pushed onto hexagon.
- Vehicle:
  - Transmission in neutral
  - Ignition switched on

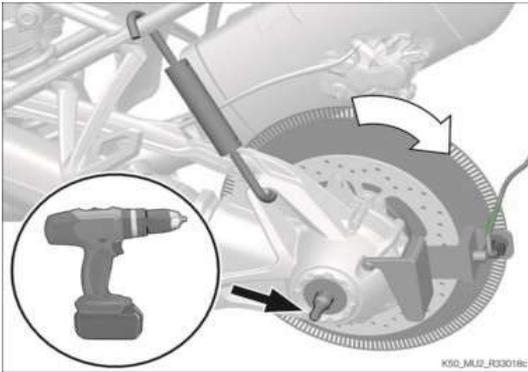
## 22

### ► Checking Cardan shaft with diagnosis system

#### NOTICE

This check requires the exclusive use of cordless screwdrivers **that are approved for this purpose**. Non-compliance can falsify the measuring result. Use cross-handle for cordless screwdriver, high torque during check.

Do not support cross-handle on vehicle, danger of falsification of measuring results.



Refer to Service Information for a list of cordless screwdrivers.

- Drive wheel flange adapter and sensor wheel with cordless screwdriver **in clockwise direction** .
- Drive wheel flange adapter on hexagon, chuck fully pushed onto hexagon.
- Accumulator fully charged
- Setting "Drill"
- Setting "Clockwise rotation"
- Setting "Slow running speed"
- Cross-handle mounted
- **Use only a predefined cordless drill for this check!**
- Observe test module in diagnosis process "Service function Cardan shaft".

#### Check Result

Diagnosis result is "Cardan shaft damaged"

##### Measure

- Replace Cardan shaft,

##### Result

Diagnosis result is "Cardan shaft OK"

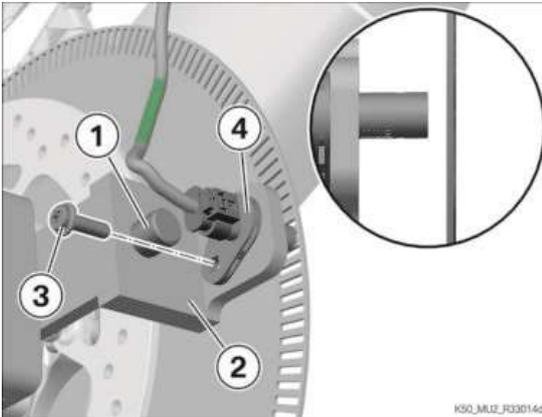
##### Measure

- 
- ◀ Take down measurement setup, assemble vehicle.

 **ATTENTION**

# 23

## ► Removing measuring devices from vehicle

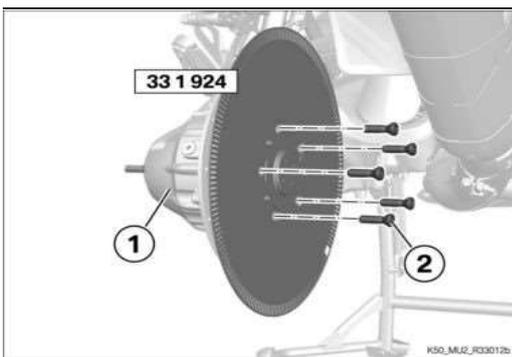


### Measuring cable or sensor will be damaged

Component damage

- Do **not disconnect** plug connection for sensor-measuring wiring harness (plug cycles restricted).

- Slacken knurled screw **(1)** and push back carriage **(2)**.
- Remove screw **(3)** and loosen speed sensor **(4)** from holder.
- **Do not disconnect connector!**

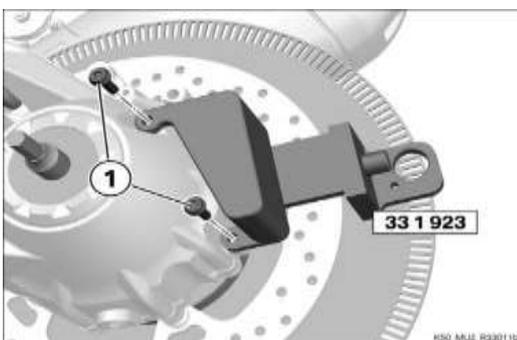


### ATTENTION

### Sensor wheel will be bent, receives lateral runout

Component damage

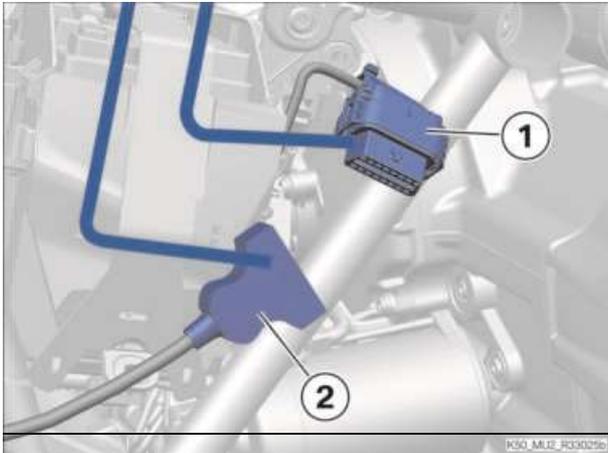
- Always handle sensor wheel with care.
- Always set down sensor wheel on a flat surface.
- Remove wheel bolts **(2)** and remove wheel flange adapter with sensor wheel from angular gearbox **(1)**.



- Remove screws **(1)** and take off sensor bracket.

24

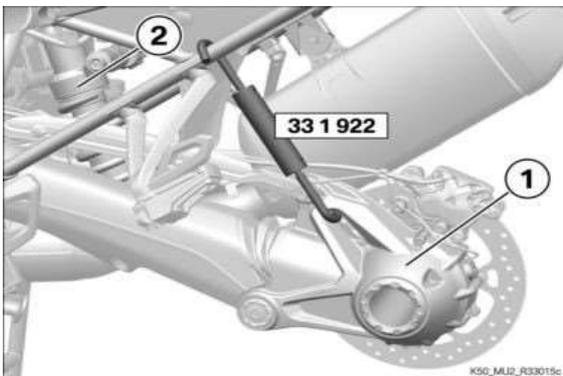
► **Disconnecting measuring wiring harness from vehicle and diagnosis system**



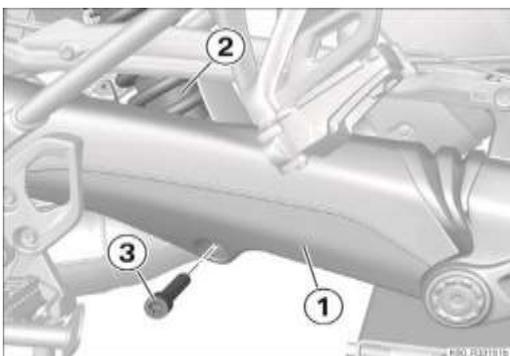
- End service function "Check Cardan shaft" and switch off ignition.
- Disconnect measuring wiring harness on vehicle analysis connector **(1)**.
- Disconnect measuring wiring harness from diagnosis system connector **(2)**.
- Secure analysis connector **(1)** on vehicle.
- Disconnect BMW Motorrad battery charger from battery positive connection point **(3)** and negative terminal **(2)**.
- Install cap **(1)**.

25

► **Securing suspension strut on rear wheel swinging arm**



- Clean threads for suspension strut bolting.
- Position angular gearbox **(1)** and suspension strut **(2)** with hook (33 1 922) in driving position.

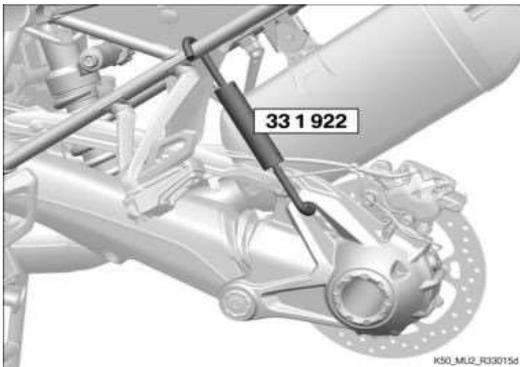


- Align rear wheel swinging arm **(1)** on suspension strut **(2)**.
- Install **new** screw **(3)**.

 <b>Tightening torques</b>	
<b>Spring strut to frame</b>	
M12 x 1.5 x 60, Replace screw	100 Nm
Thread-locking compound (micro-encapsulated)	

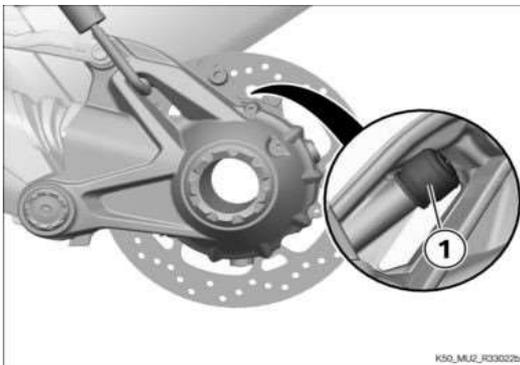


26



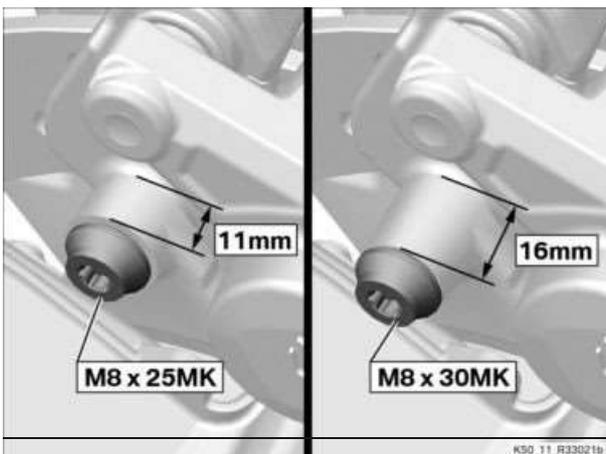
► **Loosening hook from angular gearbox and rear frame.**

- Loosen hook and remove.



- Make sure breather (1) is installed correctly.

27



► **Securing rear brake caliper**

**ATTENTION**

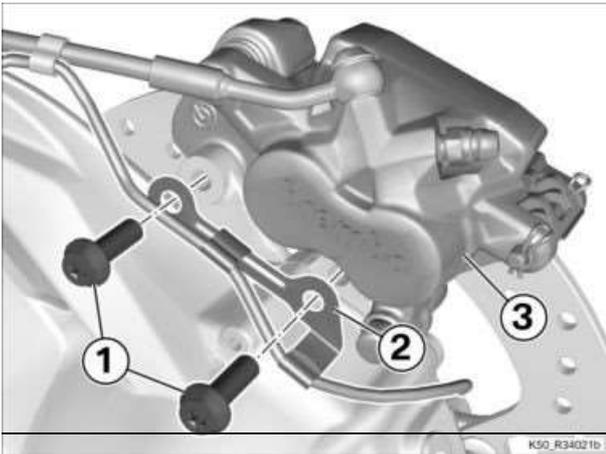
**Thread damage on brake caliper, bolt in contact with brake disc**

Component damage by using incorrect screws

- Bevel gears with modified threaded domes can also be installed as a replacement for older vehicles.
- Before installing/mounting the brake caliper, check the assignment of the screws.

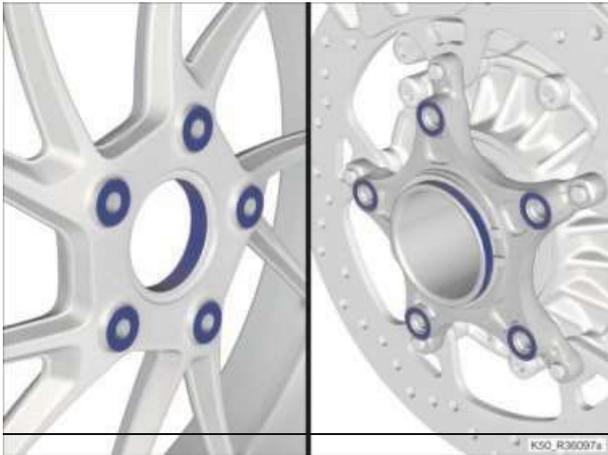
- Note the correct screw allocation according to the figure.

 <b>Tightening torques</b>		
<b>Brake caliper to bevel gears</b>		
Short threaded dome to bevel gears, M8 x 25, Replace screw Thread-locking compound (micro-encapsulated)	24 Nm	
Long threaded dome to bevel gears, M8 x 30, Replace screw Thread-locking compound (micro-encapsulated)	24 Nm	



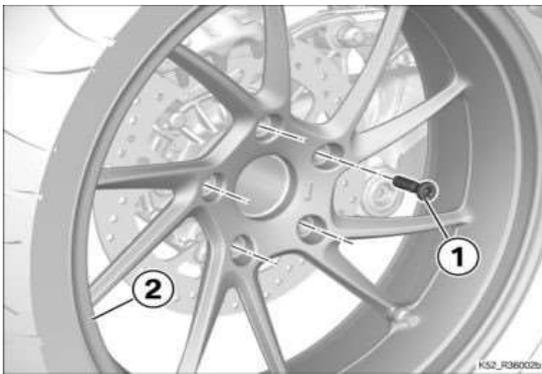
- ◀ • Clean the threads.
- Position the brake caliper **(3)**.
- Position the cable routing **(2)**.
- **Install** new screws **(1)**.

# 28



## ▶ Install the rear wheel

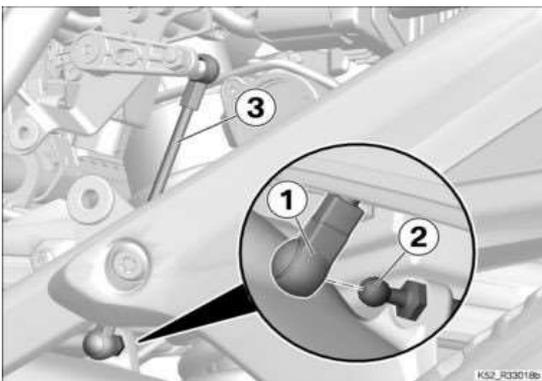
- Clean the wheel centering spigot and the contact surfaces of the wheel hub.



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

 <b>Tightening torques</b>		
<b>Rear wheel to wheel flange</b>		
M10 x 1.25 x 40	<b>Tightening sequence:</b> tighten in diagonally opposite sequence	
	60 Nm	

# 29



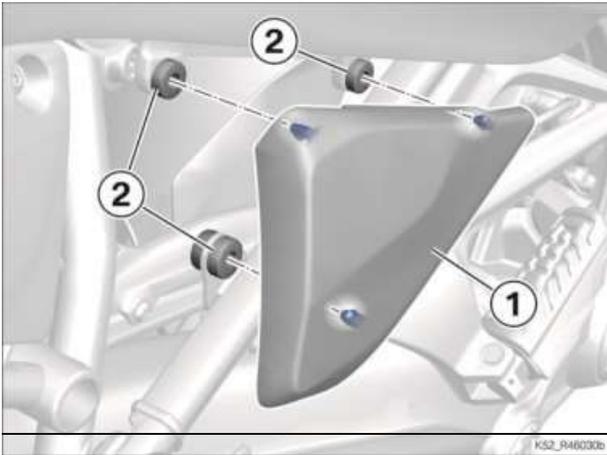
with Dynamic ESA<sup>oE</sup> (0191)

## ▶ Securing actuator rod for ride-height sensor to swinging arm

- Position attachment rod **(3)** with ball socket **(1)**.
- Clip in ball socket **(1)** in ball head **(2)**.◇
- 



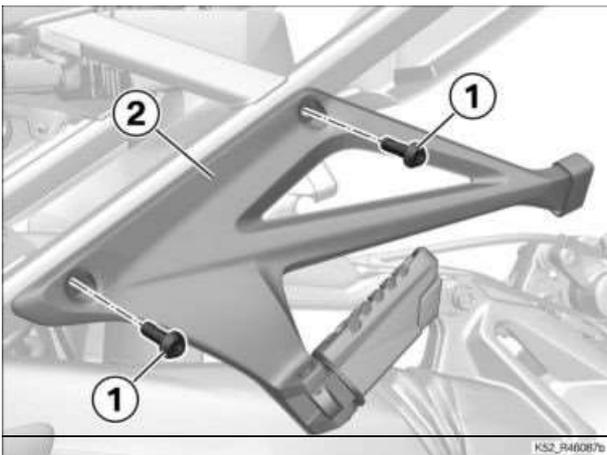
# 30



► **Install left cover for spring strut**

- Position trim (1) and push into trim pins (2).

# 31

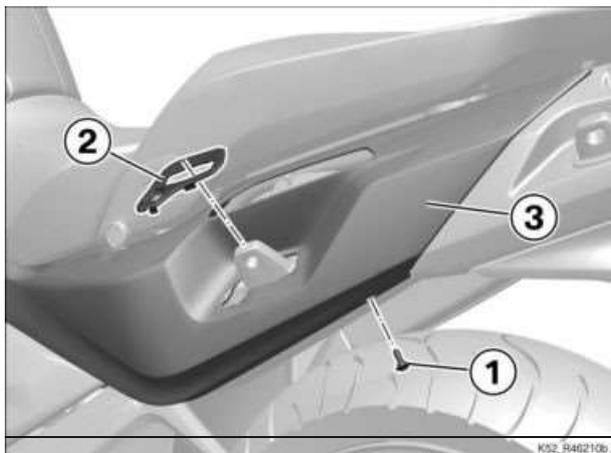


► **Install left rear footrest bracket**

- Position footrest bracket (2).
- Install screws (1).

 <b>Tightening torques</b>		
<b>Footrest plate (rear) to rear frame</b>		
M8 x 25	19 Nm	

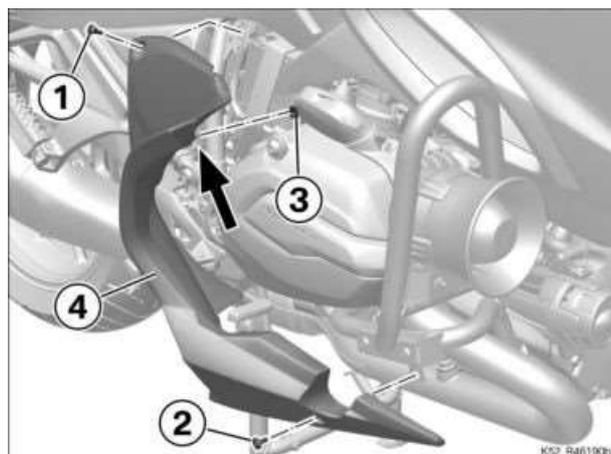
# 32



## ► Securing left rear trim panel

- Position rear trim panel (3).
- Install screw (1) and trim (2).

# 33



## ► Installing right engine spoiler

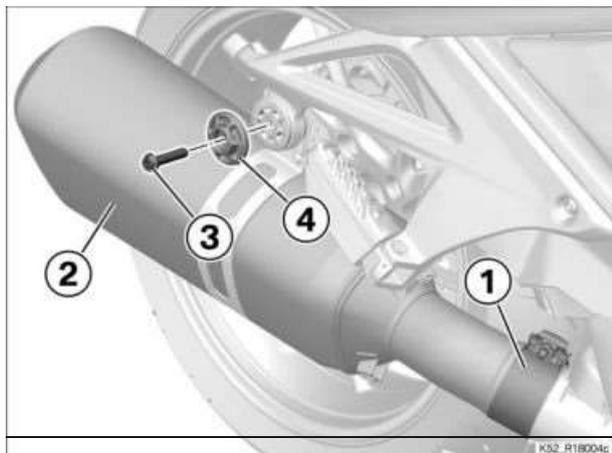
- Position engine spoiler (4).
- Press (the lug arrow) into grommet (3).
- Install screw (short collar) (2).
- Install screw (long collar) (1).

– with deviation from standard for authority vehicles

BU

- Position engine spoiler (4).
- Press (the lug arrow) into grommet (3).
- Install screw (short collar) (2).
- Install screw (long collar) (1).◇

**34**



**Installing silencer**

Lightly lubricate (1) the inner face of clamp.

- 

Lubricant	
Optimoly TA	18 21 9 062 599

- 

Slide the clamp (1) onto the silencer (2).

- 

Push silencer (2) to limit position.

- 

Install screw (3) and washer (4).

Tightening torques		
Silencer to footrest bracket		
M8 x 35	19 Nm	

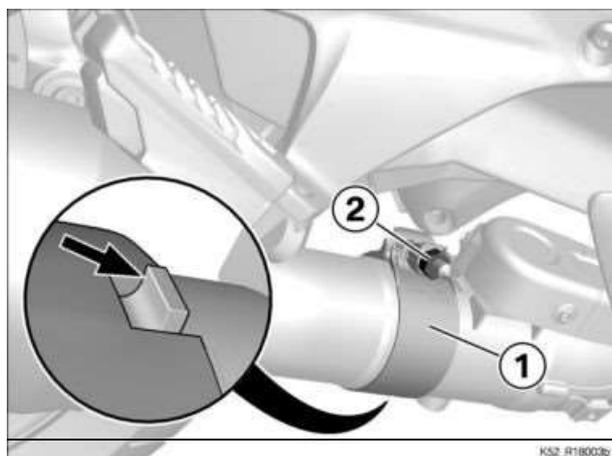
- 

Position clamp (1) with recess in lug (arrow).

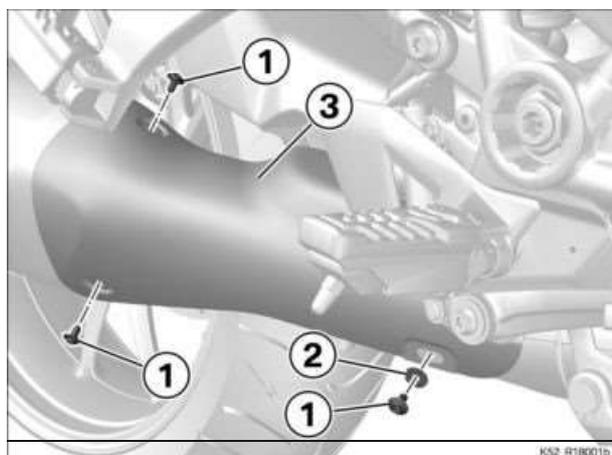
- 

Tighten nut (2).

Tightening torques		
Clamp to silencer and exhaust manifold		
	22 Nm	



**35**



**Install the silencer cover**

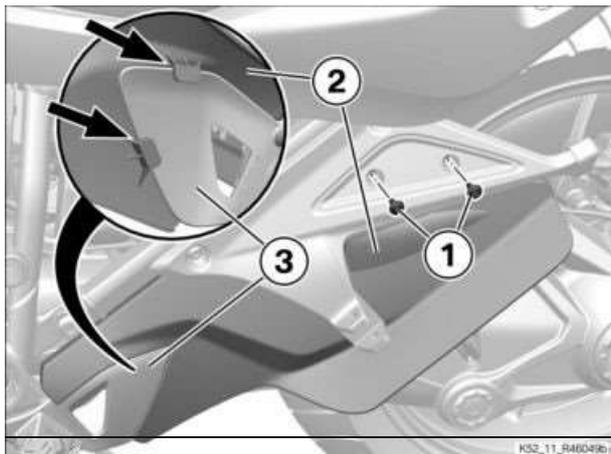
- 

Position cover (3).

- 

Position screws (1) in front with washer (2) and tighten.

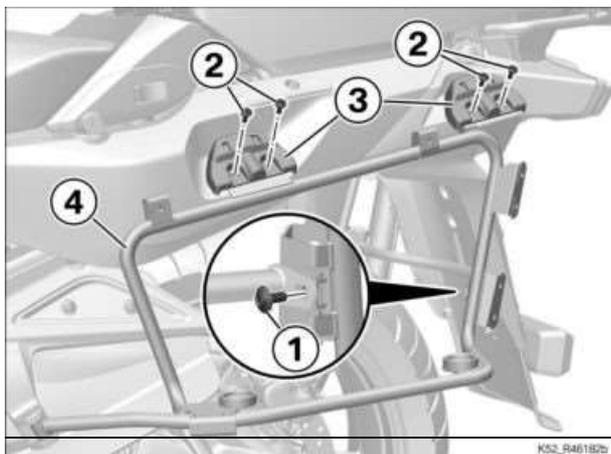
**36**



– **Installing spray guard, left**

- ▶ Position spray guard (2) and secure on rider footrest
- (3) (arrows). Install screws (1).◇

**37**



– with deviation from standard for authority vehicles BU

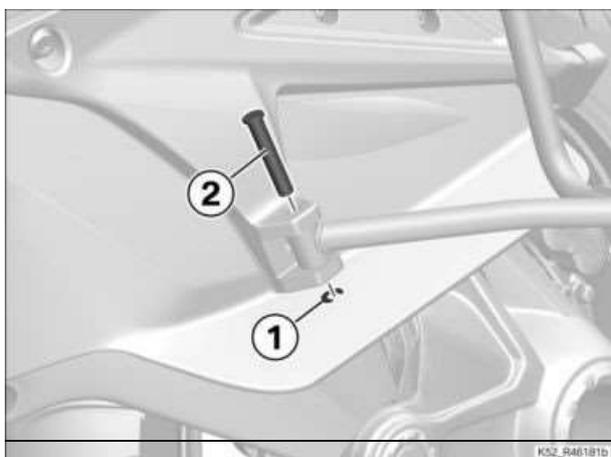
▶ **Installing left case carrier**

- Position case holder (4) on vehicle.
- Position cover (3).
- Install screws (2).

Tightening torques		
<b>Case carrier to rear frame</b>		
M6 x 20 Thread-locking compound (Loctite 243, Medium strength)	8 Nm	

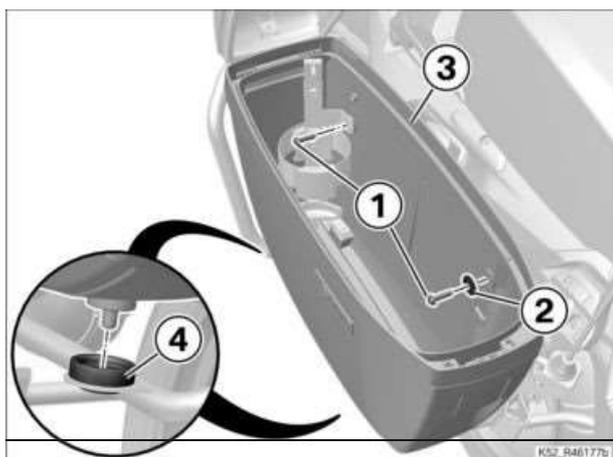
- Install screw (1).

Tightening torques		
<b>Transverse strut on case holder</b>		
M6 x 16	8 Nm	



- ◀ Install bolts (2) and circlip (1).◇

**38**



 <b>Tightening torques</b>		
<b>Special vehicle case to case holder</b>		
M6 x 25	8 Nm	

# 39

► **Final inspection of completed work**

- Ensure the following:
  - The objective of the completed work was achieved.
  - All operating fluids have been filled in and the fluids are at the correct fill level.
  - All loosened screw connections have been retightened correctly.
  - The fuel system is free of leaks.
  - The lighting and signal system is functional and the vehicle is roadworthy.
  - The brake pads of the front and rear wheel brakes are resting against the brake disks.

▷ **Function test, engine start suppression**

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Install case (3) from top in locators (4). Intall screws (1) with washer (2).

**0A01-R1200GS**

**33 73 503 Additional work: disconnecting propeller shaft from angular gearbox**

**1**

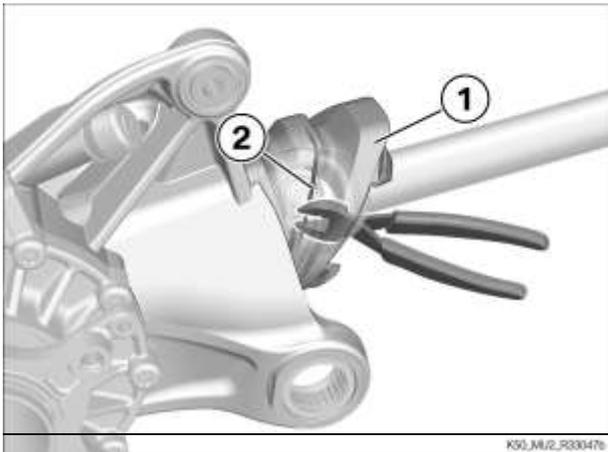
▶ **Disconnect Cardan shaft from angular gearbox**

 **ATTENTION**

**with pull-off device****Component damage**

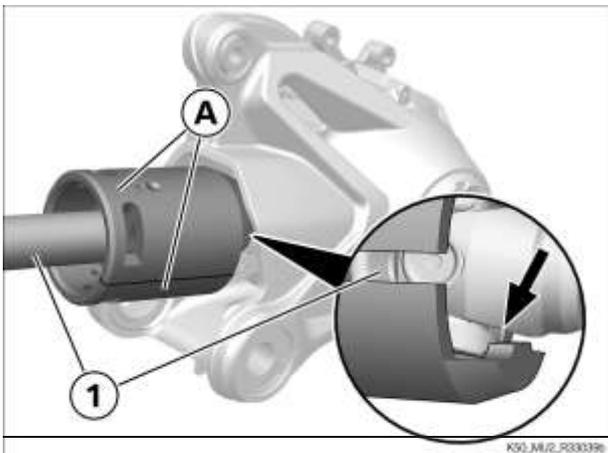
Bearing in angular gearbox is damaged.

- Observe maximum torque of jackscrews!
- Apply jackscrews in stages to prevent tilting of the extract tool.



- If necessary, spray the area of the taper splines with rust remover and let it interact before starting work.
  - Active ice rust remover, part number 83 19 22 1 1267.

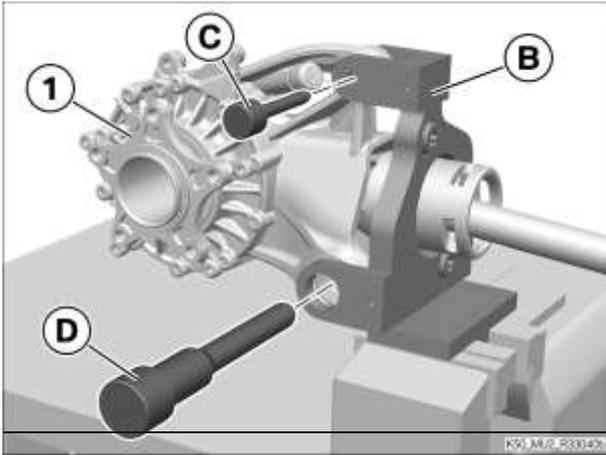
- Cut through gaiter **(1)** and wiring **(2)** and remove.
  - Loosen gaiter on angular gearbox with rotational movement.



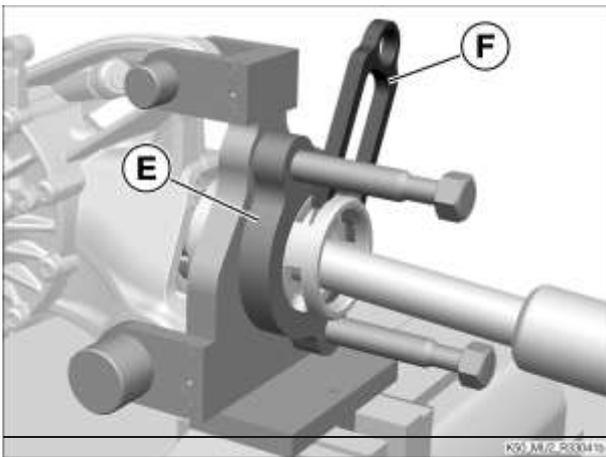
- Position halfshells **(A)** from toolset (261930) on Cardan shaft **(1)**.

- Hooks engage on bottom side of universal joint (Cardan shaft side) **(arrow)**.

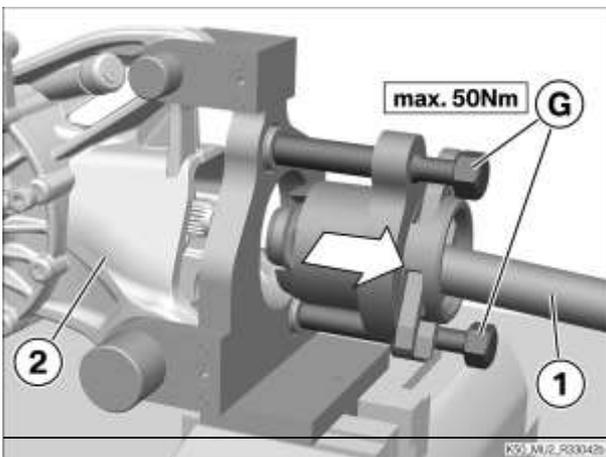
- Halfshells are repositioned toward each other with **retaining pins**.



- Insert angular gearbox **(1)** with attached half shells in mount **(B)**.
- Secure angular gearbox **(1)** with bolts **(C)** and **(D)**.
- Bolt at bottom **(D)** can only be inserted from the right (direction of travel).



- Completely unscrew jack screw from extractor tool **(E)**.
- Attach extractor tool **(E)** and insert fork **(F)** in half shells to limit position.



- Apply jack screws **(G)** alternating/evenly and push off half shells with Cardan shaft **(1)** from angular gearbox **(2)**.
- Do not tilt extractor tool!
- Observe maximum torque of jack screws!

Technical data			
Maximum torque for jack screws		max 50 Nm	

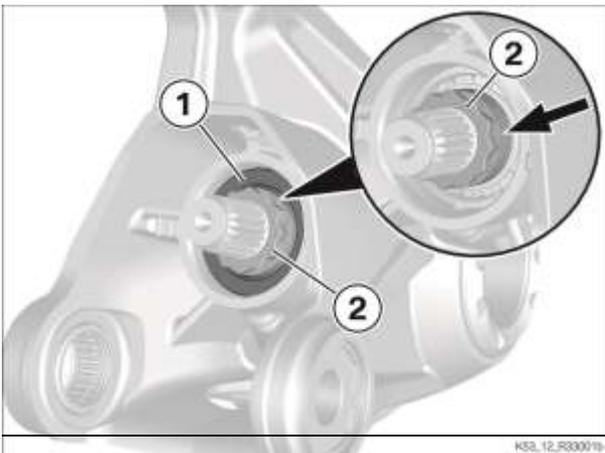
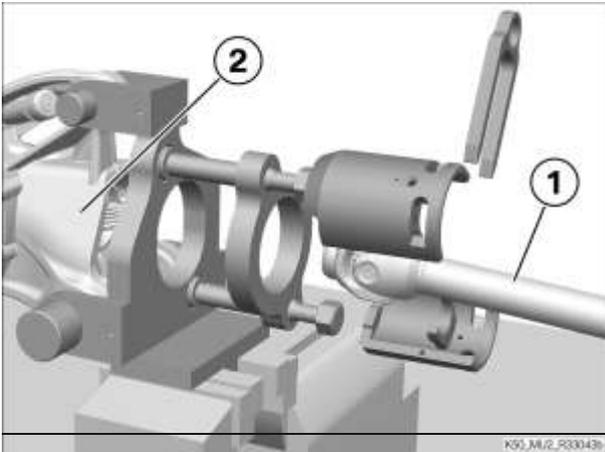
- » **Check**  
Tighten jack screws with torque wrench.

**Result**  
**A higher torque will damage the bearing in the angular gearbox.**

Cardan shaft cannot be disconnected from angular gearbox with nominal torque.

#### Measure

- Replacing bevel gears
- Take off half shells from Cardan shaft **(1)**.
- Remove angular gearbox **(2)** from mount.



#### Check

- Check angular gearbox for tightness at shaft sealing ring **(1)**.

#### Result

Shaft sealing ring **(1)** is leaking.

#### Measure

- Remove shaft sealing ring and **check running surface (arrow)** of pinion nut **(2)** for scoring. See 33 74 502 Replacing radial shaft seal for
- bevel gear (rear bevel gears removed) Renew shaft sealing ring.

#### Result

- Running surface **(arrow)** is damaged.

#### Measure

Renew angular gearbox.