

## 00 Danger of injury if oil comes into contact with eyes and skin



### Danger of injury!

Contact with eyes or skin may result in injury!

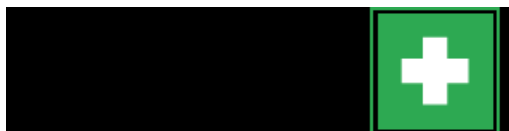
Possible symptoms are:

- Impaired sight
- Irritation of the eyes
- Reddening of the skin
- Rough and cracked skin



### Protective measures/rules of conduct:

- Wear safety goggles.
- Wear oil-resistant protective gloves.
- Observe country-specific safety regulations.



### First aid measures:

- Eye contact: Immediately flush eyes with lots of water for at least 15 minutes. In the case that it is available, use an eye wash bottle. If eye irritation persists, consult a doctor.
- Skin contact: Wash off with soap and water immediately. If irritation persists, consult a doctor.

Note: Do not use solvents/thinners.

## 00 Danger of poisoning if oil is ingested/absorbed through the skin



### **Danger of poisoning!**

Ingesting oil or absorbing through the skin may cause poisoning!

Possible symptoms are:

- Headaches
- Dizziness
- Stomach aches
- Vomiting
- Diarrhoea
- Cramps/fits
- Unconsciousness



### **Protective measures/rules of conduct:**

- Fill oil in appropriately marked containers only.
- Do not fill oil in containers meant for drinking out of. (bottles for beverages, glasses or cups)
- Observe country-specific safety regulations.



### **First aid measures:**

- Do not induce vomiting.

If the person affected is still conscious, he/she must rinse out their mouth with water, drink plenty of water and consult a doctor immediately.

Do not administer anything to an unconscious person via their mouth; place them in a stable position on their side. Call the emergency doctor immediately.

## 00 Safety information for working on vehicles with automatic engine start-stop function (MSA)



### Warning!

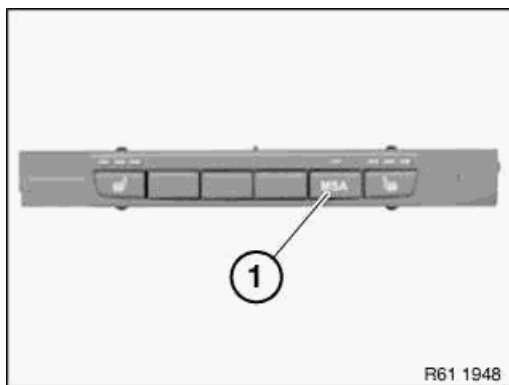
If the engine hood/bonnet contact is pulled upwards (workshop mode), the information "switch closed" is output. The automatic engine start-stop function is active.

An automatic engine start is possible.

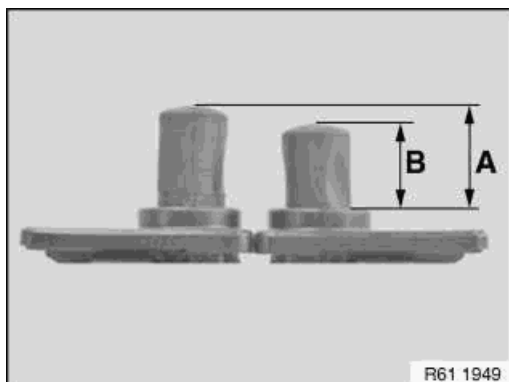
### Observe safety precautions when working on MSA vehicles.

Before carrying out practical work on the engine, always ensure that the MSA functionality is deactivated so as to prevent automatic engine starting while work is being carried out in the engine compartment.

### MSA function is deactivated by:



- Deactivate MSA by means of button (1) in passenger compartment
- Open seat belt buckle and driver's door



- Open engine bonnet/hood and ensure that engine hood/bonnet contact is not in workshop mode
  - Workshop mode  
 $A = 10 \text{ mm}$
  - Basic setting (engine hood/bonnet open)  
 $B = 7 \text{ mm}$

To make sure that the engine hood/bonnet contact is at the basic setting, if necessary press the hood/bonnet contact up to the limit position before starting work and slowly release.



### When working with diagnosis tools:

- Observe instructions in diagnosis tool



*Note:*

For further information on automatic engine start-stop function (MSA):

- Refer to the Service Information (bulletin) (for manual transmissions) [Service Information \(bulletin\) 61 01 07 335](#)
- Refer to the Service Information (bulletin) (for automatic transmissions or twin-clutch gearboxes) [Service Information \(bulletin\) 61 01 10 629](#)

## 00 Safety instructions for handling oil



### Warning!

[Danger of poisoning](#) if oil is ingested/absorbed through the skin!

[Risk of injury](#) if oil comes into contact with eyes and skin!



### Recycling:

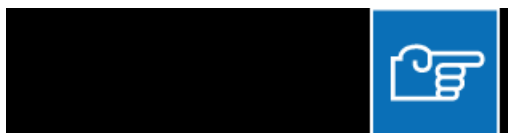
Observe country-specific waste disposal regulations.



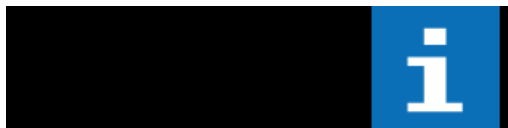
### Measures if oil is unintentionally released:

- Personal precautionary measures: Danger of slipping! Keep non-involved persons away from the work area. Wear personal protective clothing/equipment.
- Environmental protection measures: Prevent oil from draining into drain channels, sewerage systems, pits, cellars, water and the ground.
- Limiting spread: Use oil blocks to prevent the surface spread of oil.
- Cleaning procedure: Bind and dispose of escaped oil with nonflammable absorbents.

Note: Do not flush oil away with water or aqueous cleaning agents.

*Installation note:*

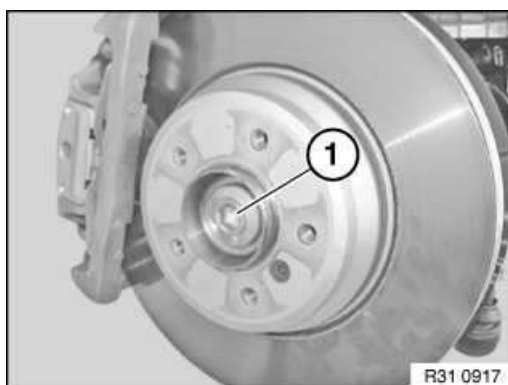
1. All screws, nuts, bolts and hose clamps removed during the repair must be replaced.
2. Retaining elements on chassis and suspension and steering parts must be replaced.

**Necessary preliminary work:**

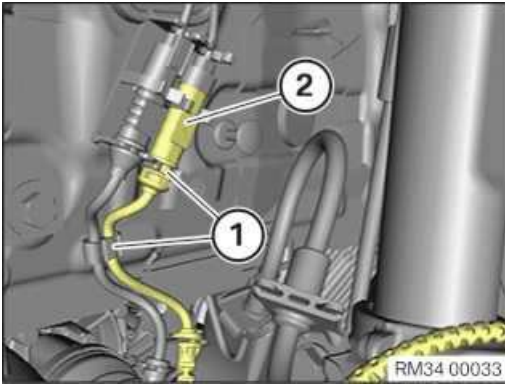
- Remove [front cowl panel cover](#).
- Remove [front wheel](#).

**Removal:**

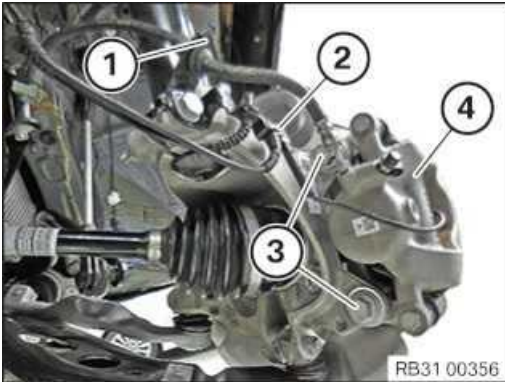
If necessary, lever off protective cap (1).



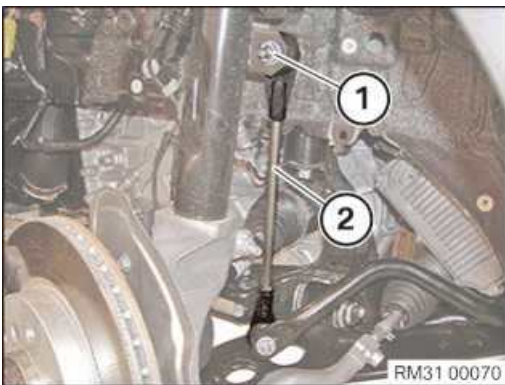
Release collar bolt (1), press brake pedal to floor for this purpose.



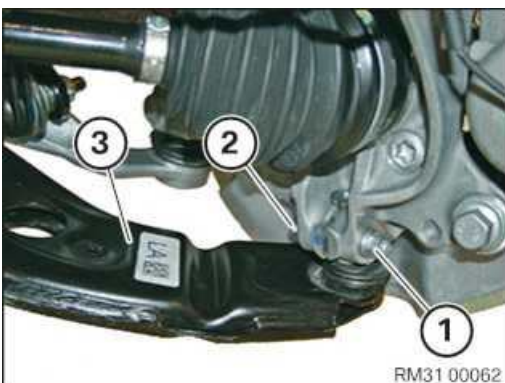
Detach pulse sensor cable from the brackets (1).  
Disconnect plug connection (2).



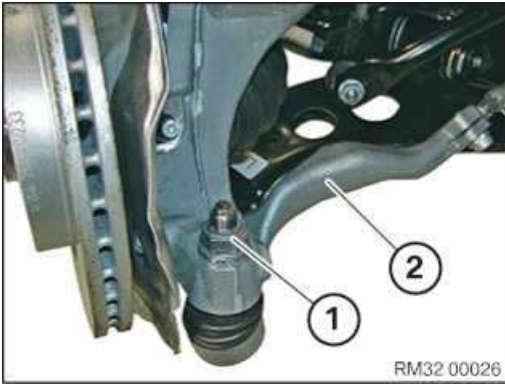
Release brake hose (1) from holder.  
If necessary, release brake wear indicator (2) from holder.  
Loosen screws (3).  
Lay brake caliper (4) with brake-caliper support to one side and tight up.



Slacken nut (1).  
Release anti-roll bar link (2) from spring strut.

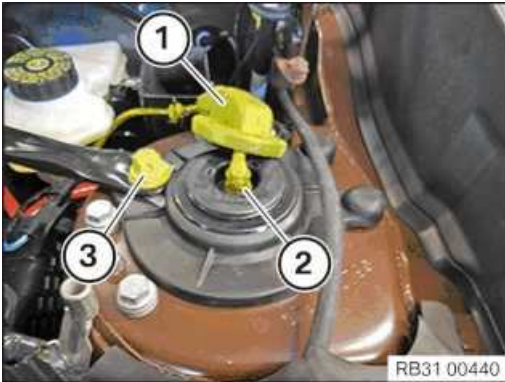


Slacken nut (1).  
Pull out screw (2).  
Release wishbone (3) from swivel bearing.



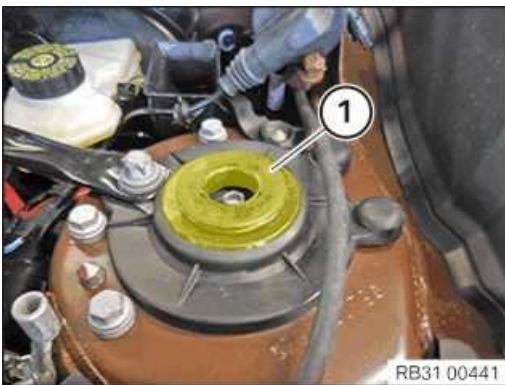
Slacken nut (1).

Release track rod (2) from swivel bearing.

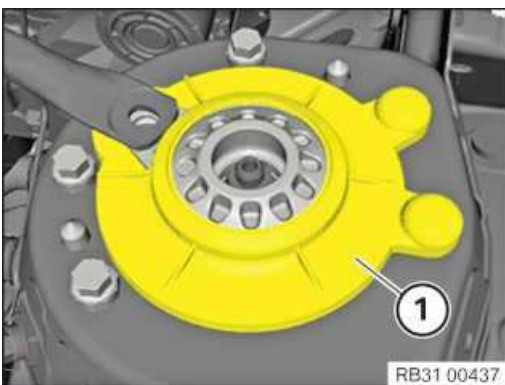


Remove protective cap (1) and unplug underlying connector (2) from the spring strut.

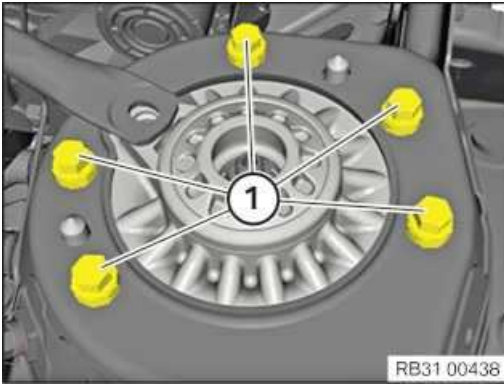
Release screw (3).



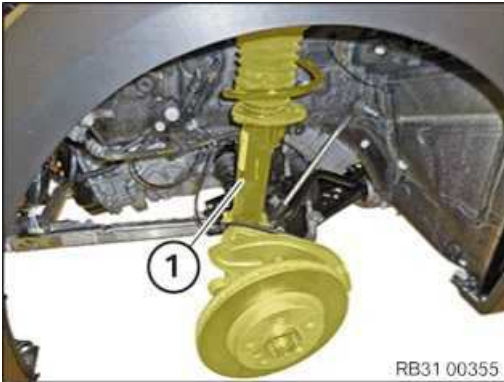
Remove adapter ring (1).



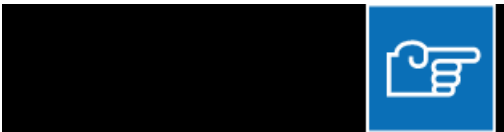
Lift the strut brace slightly and remove the cover (1).



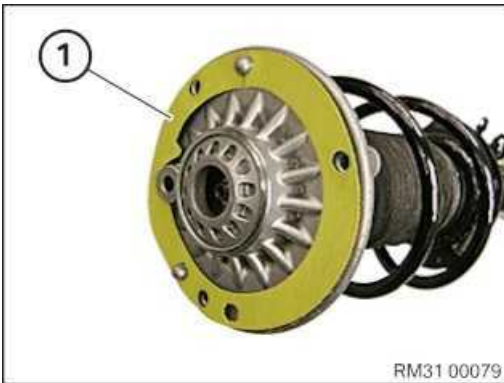
Secure spring strut against falling out.  
Loosen screws (1).



Remove spring strut (1) from wheel arch.



**Installation:**

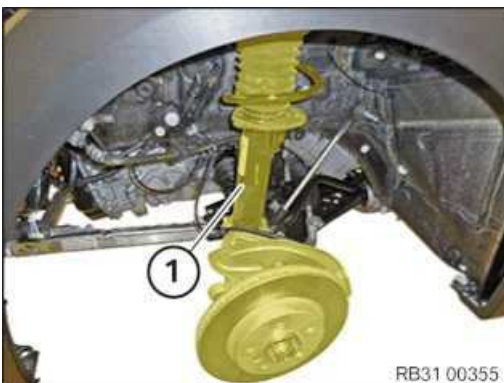


If installed: Remove and dispose of the seal (1).  
Clean contact surface at spring strut dome.

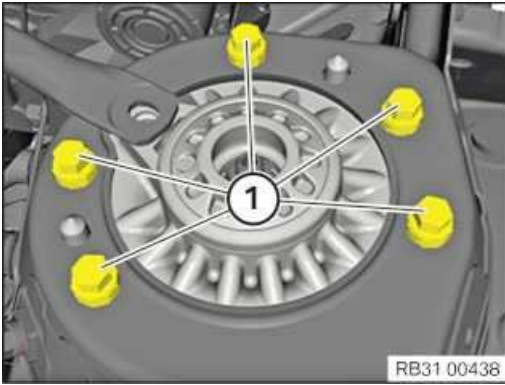
*Note:*

Seal (1) is no longer installed.

The seal (1) can also only be omitted on one side (left or right).



Guide the spring strut (1) into the wheel arch.

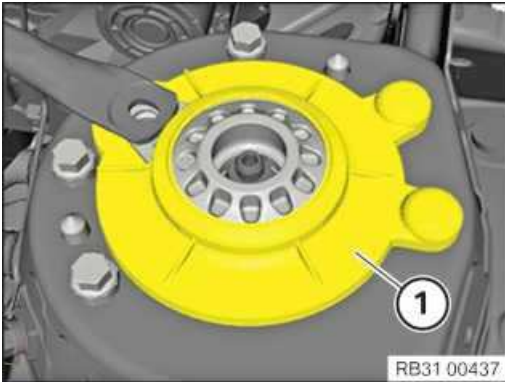


Align spring strut to the bores in the spring strut dome using the centring pins.

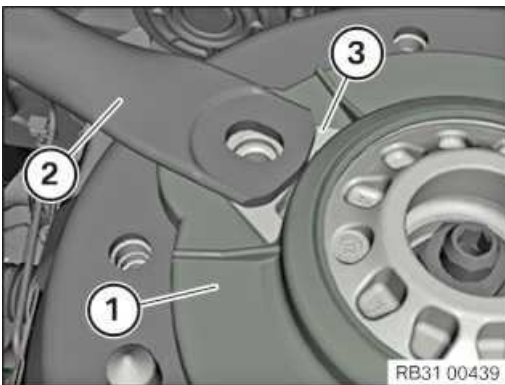
**Part:** Renew screws (1).

Tighten screws (1).

Tightening torque [31 31 1AZ](#)



Lift the strut brace slightly and put on cover (1).

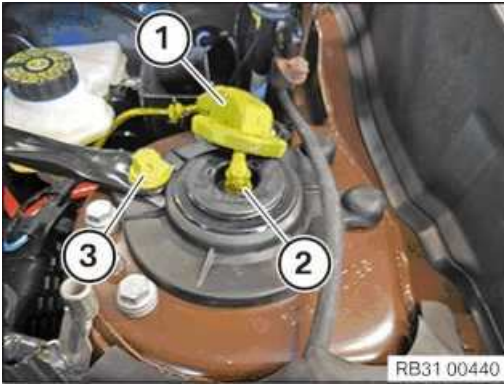


Make sure cover ring (1) is positioned correctly on strut brace facing (3).

Cover ring (1) must not be trapped between strut brace (2) and support bearing!



Put on adapter ring (1).



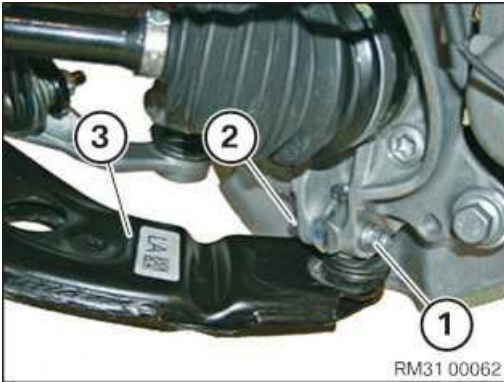
Connect connector (2) with the spring strut.

Mount protective cap (1).

**Parts:** Replace screw (3).

Tighten screw (3).

Tightening torque [51 61 3AZ](#).



Join the wishbone (3) to the swivel bearing.

**Part:** Replace screw (2) and nut (1).

Insert screw (2) with washer.

**Caution!**

The washer must lie between the screw head and the swivel bearing.

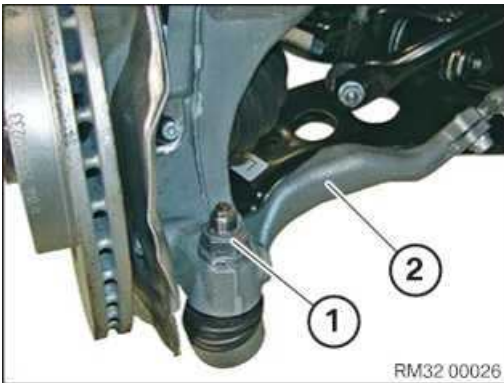
Note insertion direction of bolt (2). The screw (2) is inserted from the rear in the direction of travel.

Screw on the nut (1).

Tighten screw connection.

- Tightening is done via screw (2).

Tightening torque [31 12 1AZ](#)

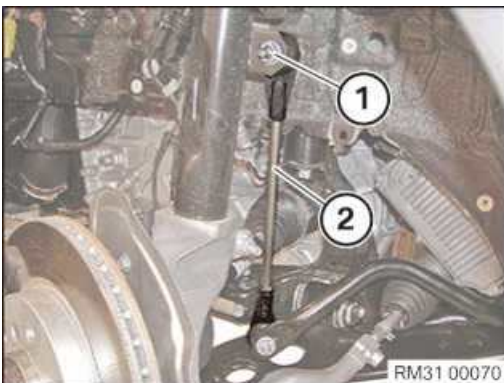


Insert track rod (2) into the swivel bearing.

**Part:** Replace nut (1).

Tighten nut (1).

Tightening torque [32 21 1AZ](#)

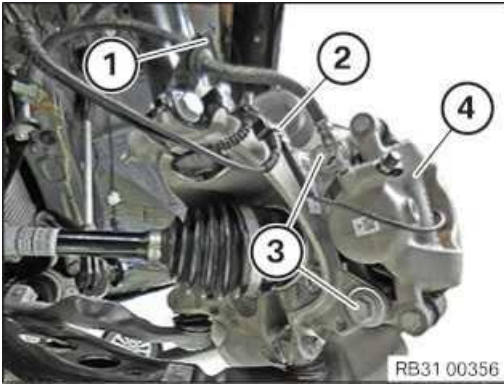


Position anti-roll bar link (2) on spring strut.

**Part:** Replace nut (1).

Tighten nut (1).

Tightening torque [31 35 2AZ](#)



Position brake caliper (4) with brake-caliper support on swivel bearing.

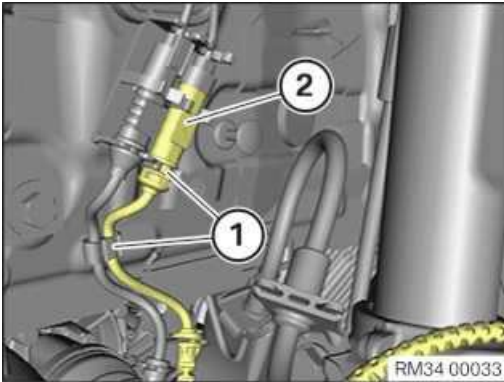
**Part:** Replace screws (3).

Tighten down screws (3).

Tightening torque [34 11 2AZ](#)

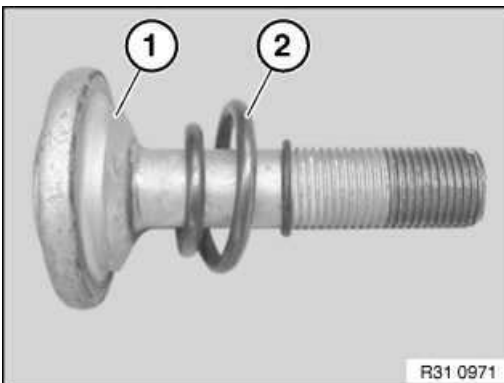
Secure brake hose (1) on holder.

If necessary, secure brake wear indicator (2) on holder.



Connect plug connection (2).

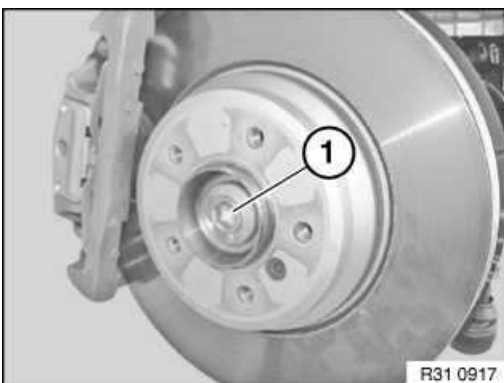
Attach the pulse sensor cable to the brackets (1).



- Pay attention to installation position of compression spring (2).
- Keep collar bolt and spur toothing of wheel hub/output shaft clean and free of grease

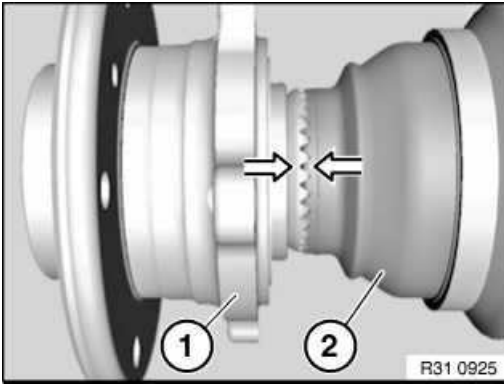
**Caution!**

Following installation note for spur gearing must be observed without fail!



**Part:** Replace collar bolt and compression spring.

Tighten collar bolt (1) and compression spring by hand.

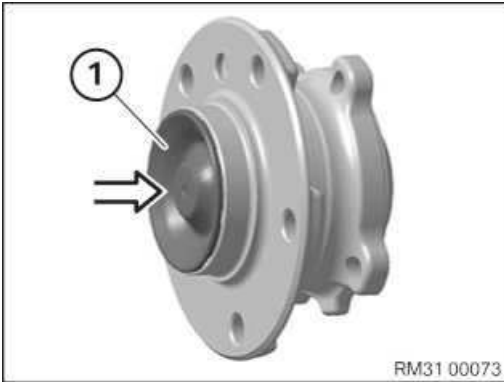


- Front gearing of wheel hub (1) and output shaft (2) should be installed form-fit (tooth in tooth position).

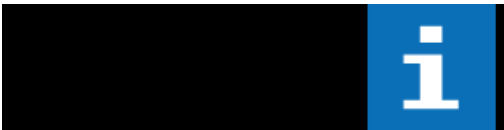
Check whether spur gearing is locked tooth in tooth by reciprocally rotating wheel hub/output shaft.

Once a form-fit has been ensured, tighten to final torque.

Tightening torque [31 60 2AZ](#)

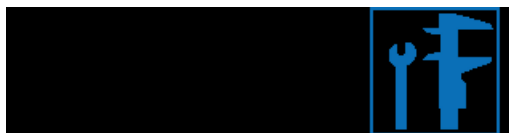


If necessary, attach protective cap (1).



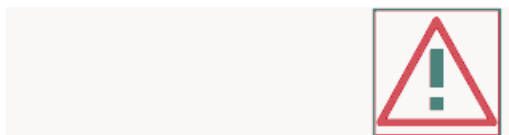
#### Required follow-up work:

- Install [front wheel](#).
- Attach [front cowl panel cover](#).



**Special tools required:**

- [31 3 340](#)
- [31 2 230](#)
- [2 240 516](#)
- [2 364 829](#)
- [31 3 341](#)
- [2 240 482](#)
- [2 364 828](#)
- [2 240 486](#)
- [2 240 487](#)
- [2 412 607](#)
- [2 240 490](#)
- [2 360 213](#)



**Attention!**

- When replacing shock absorber/spring strut, renew auxiliary damper!



**Warning!**

Before using the special tool [31 3 340](#) take care to read through the Owner's Handbook!

All the safety precautions and instructions contained in the Owner's Handbook must be strictly observed!

Failure to observe these safety precautions and instructions increases the risk of serious physical injury, damage to your health and damage to property and equipment!



### Attention!

1. Use only the BMW approved special tool!
2. Prior to each use, check the special tools for defects, modifications and operational reliability.
3. Damaged/modified special tools must not be used!
4. No changes or modifications may be made to the special tools!
5. These special tools are intended solely for the purpose of tightening and relieving cylindrical and tapered suspension springs.
6. Keep special tools dry, clean and (down to the spindle) free from grease.
7. Impact screwdrivers are prohibited!  
Risk of damage inside the shock absorber!
8. Do not compress coil spring to full extent.

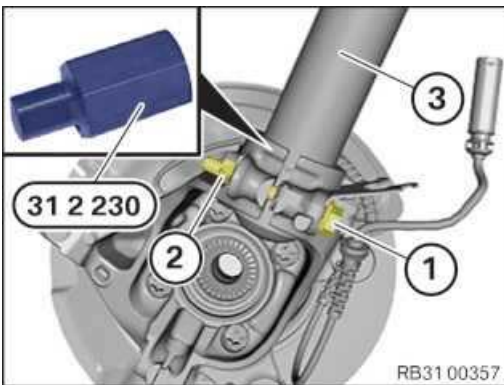


### Necessary preliminary tasks:

- Remove [front spring strut \(EDC\)](#).



### Removing:



Loosen the nut (2).

Pull out screw (1).

Remove brake hose holder.

Spread swivel bearing with special tool [31 2 230](#).

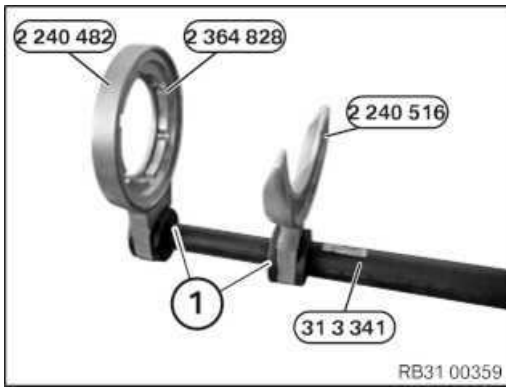
Lift the spring strut (3) out of the swivel bearing.



### Attention!

Risk of damage to the coil spring protective sheath.

Use tensioning plate [2 240 516](#) without fail with protective insert [2 364 829](#).

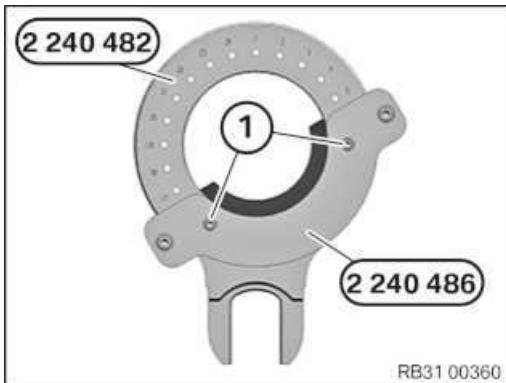


Clamp special tool [31 3 341](#) in vice.

Fit special tool [2 240 516](#) and [2 240 482](#) onto special tool [31 3 341](#) until retaining bolt (1) can be felt and heard to snap into place.

Insert the centring insert [2 364 828](#) in the round tensioning plate [2 240 482](#).

Check seating of special tools [2 240 516](#) and [2 240 482](#) with centring insert [2 364 828](#), correct if necessary.



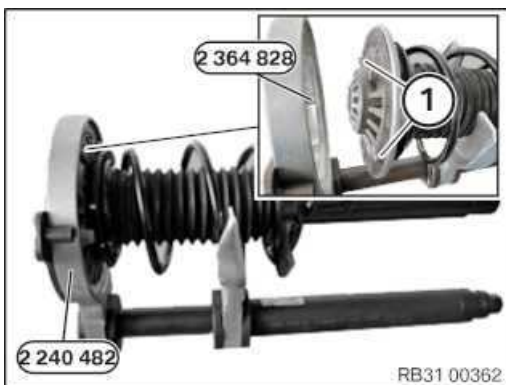
Installation of brake onto round tensioning plate:

Place counter support [2 240 486](#) in the correct position/bore hole:

- **Screw connection using bore holes 7 and 15**

Turn centring insert [2 364 828](#) until counter support [2 240 486](#) can be screwed into place at the specified position.

Screw together counter support with round tension plate and centring insert with screws (1) so they are hand-tight.



**Clean coil spring to remove contamination.**

**Spring must be free of grease, clean and dry.**

Insert spring strut into spring tensioner.

**Warning!**

Insert the guide pins (1) of the support bearing must fit into the recesses on the centring insert [2 364 828](#).

The support bearing must be completely fitted against the centring ring [2 364 828](#).

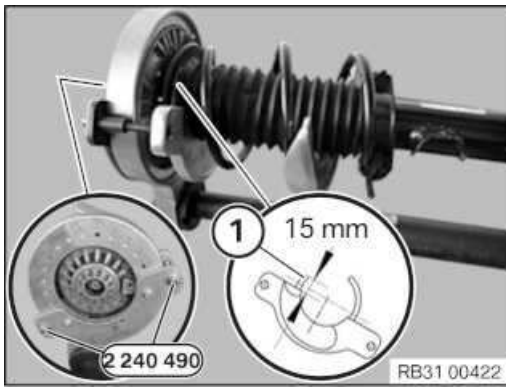
The lower spring coil must be placed completely into the recess of special tool [2 240 516](#) !



**Attention!**

Risk of damage to the coil spring protective sheath.

Always use the pressure plate [2 240 487](#) with protective insert [2 412 607](#).

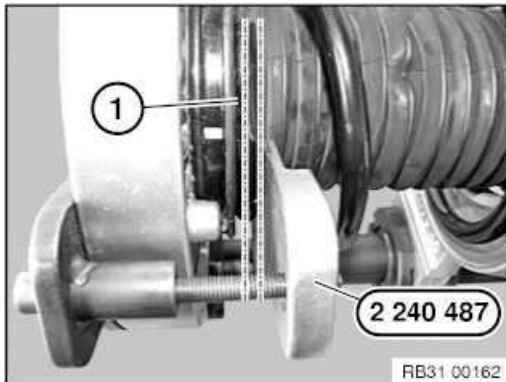


Attach pressure plate [2 240 487](#) with the screws [2 240 490](#) !

The gummed side of the pressure plate [2 240 487](#) must be fitted against the top spring coil.

Position the spring strut such that the end of the spring (1) at the pressure plate [2 240 487](#) protrudes by 15 mm.

Tighten the screws [2 240 490](#) evenly at 7 Nm.



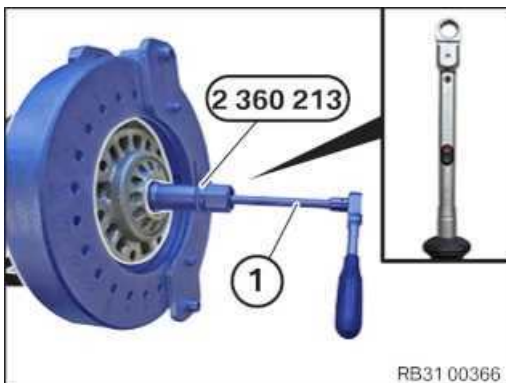
#### Attention!

The pressure plate [2 240 487](#) must be aligned parallel with the top spring coil (1)!

When the end of the spring begins to twist relative to the pressure plate, tensioning must be stopped immediately.

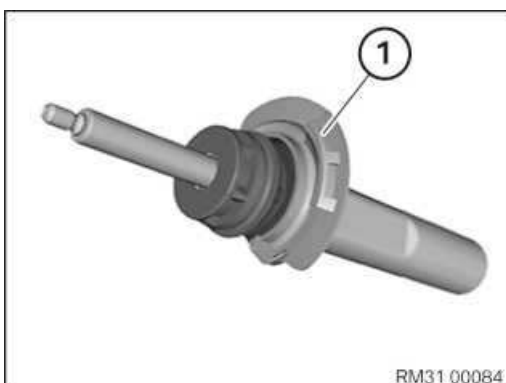
The pressure plate must be checked for correct seating and the rubber-coated facing and pressure plate also checked for wear.

Tension coil spring with spring tensioner [31 3 341](#) until stress on piston rod is relieved.

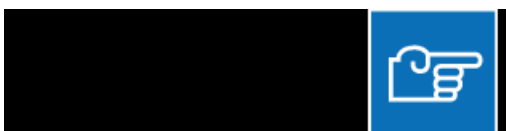


Release nut with special tool [2 360 213](#) , reversible ratchet with extension and socket SW10.

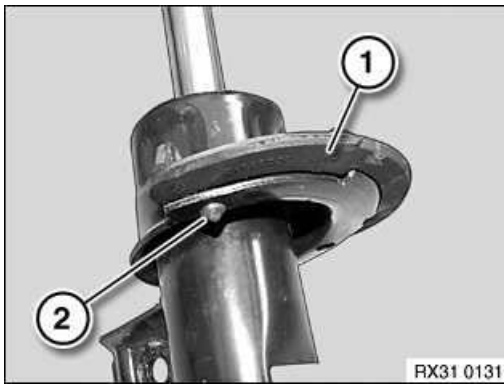
Remove shock absorber from coil spring.



Remove lower spring pad (1) from shock absorber.



**Assembly:**

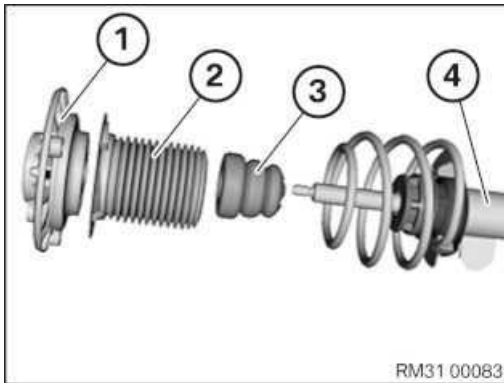


Check lower spring pad (1) for damage, replace if necessary.

Attach lower spring pad (1) to spring cup.

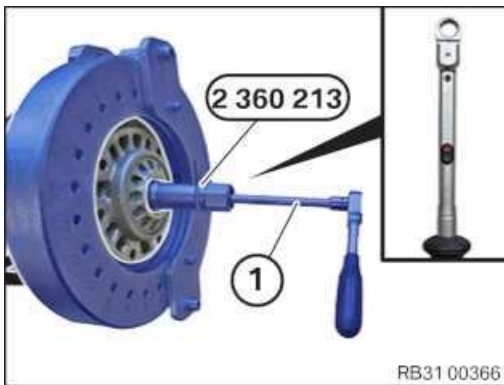
*Note:*

Make sure rubber knob (2) is correctly positioned in spring cup bore.



Check protective tube/upper spring pad (2) for damage, replace if necessary.

**Part:** Replace the auxiliary damper (3).



Insert spring strut into tensioned coil spring.

**Part:** Renew nut.

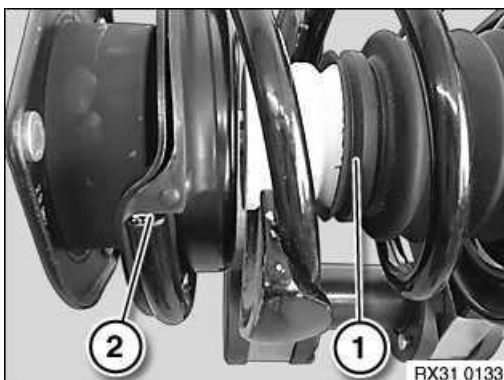
Tighten nut with special tool [2 360 213](#), reversible ratchet with extension, socket SW10 and torque wrench with ring spanner attachment SW21.

Tightening torque [31 31 2AZ](#).

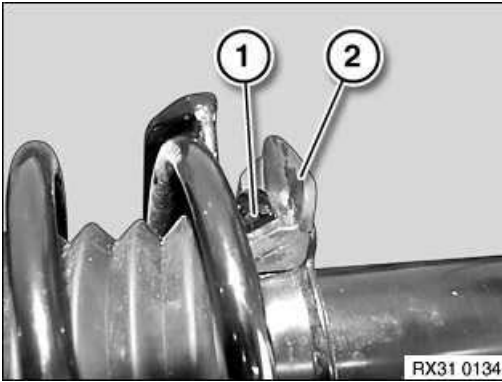


Impact screwdrivers are prohibited!

**Risk of damage inside the shock absorber!**

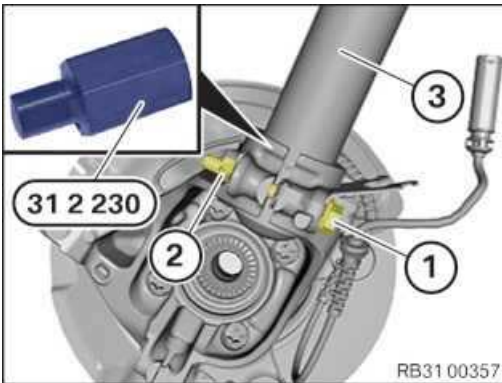


Check installation position of protective tube, correct if necessary.



End of lower coil spring (1) must rest on stop of spring pad (2).

Align all components correctly to each other and relieve tension on coil spring.



Spread swivel bearing with special tool [31 2 230](#) .

Align the swivel bearing using the gap to the positioning pin on the rear side of the spring strut (3) and push it on as far as it will go.

Remove special tool [31 2 230](#) .

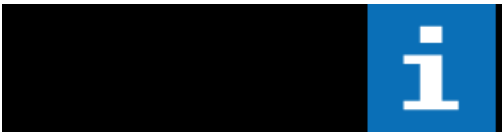
Position the brake hose holder.

**Part:** Renew screw (1) and nut (2).

Insert bolt (1).

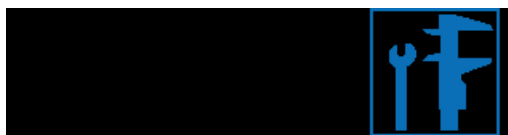
Tighten nut (2).

Tightening torque [31 31 3AZ](#).

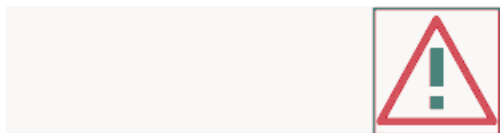


#### Required follow-up work:

- Install [front spring strut \(EDC\)](#).

**Special tools required:**

- [31 3 340](#)
- [31 2 230](#)
- [2 240 516](#)
- [2 364 829](#)
- [31 3 341](#)
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- [2 360 213](#)

**Attention!**

- When replacing shock absorber/spring strut, renew auxiliary damper!

**Warning!**

Completely read the respective operating instructions before using special tools [31 3 340](#) !

Strictly adhere to all safety information and instructions in the operating instructions!

Failure to observe these safety precautions and instructions increases the risk of serious physical injury, damage to your health and damage to property and equipment!



### Attention!

1. Use only the BMW approved special tool!
2. Prior to each use, check the special tools for defects, modifications and operational reliability.
3. Damaged/modified special tools must not be used!
4. No changes or modifications may be made to the special tools!
5. These special tools are intended solely for the purpose of tightening and relieving cylindrical and tapered suspension springs.
6. Keep special tools dry, clean and (down to the spindle) free from grease.
7. Impact screwdrivers are prohibited!
8. Do not compress coil spring to full extent.

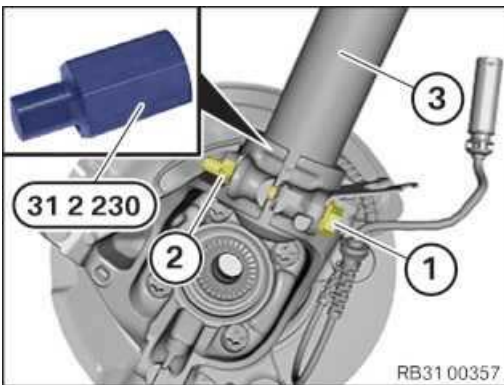


### Necessary preliminary work:

- Remove [front spring strut](#).



### Removing:



Slacken nut (2).

Pull out screw (1).

Remove bracket from brake hose.

Spread swivel bearing with the special tool [31 2 230](#).

Lift the spring strut (3) out of the swivel bearing.



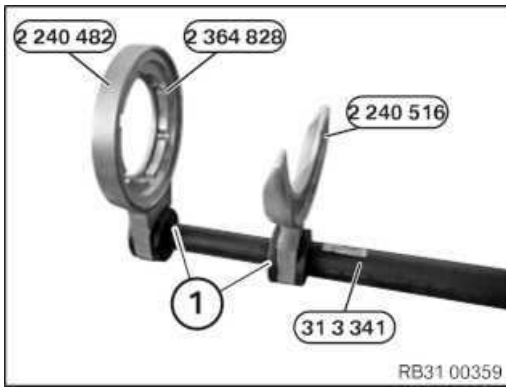
### Attention!

Risk of damage to the coil spring!

Before application: Check protective insert for wear, replace if necessary.

Use of faulty protective inserts leads to coil spring damage. This can lead to coil spring breakage (corrosion).

Always use the pressure plate [2 240 516](#) with protective insert [2 364 829](#).

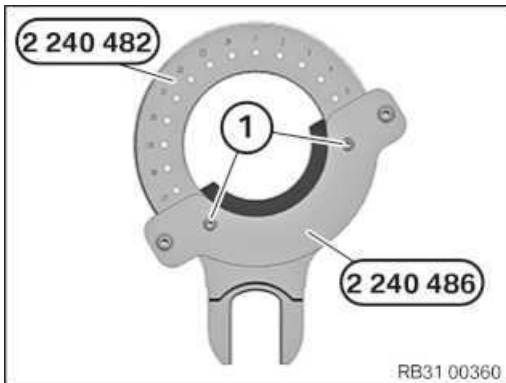


Clamp special tool [31 3 341](#) in vice.

Fit special tool [2 240 516](#) and [2 240 482](#) onto special tool [31 3 341](#) until retaining bolt (1) can be felt and heard to snap into place.

Insert centering ring [2 364 828](#) into mounting plate [2 240 482](#).

Check the seating of the special tools [2 240 516](#) and [2 240 482](#) by means of the centering ring [2 364 828](#), correct if necessary.



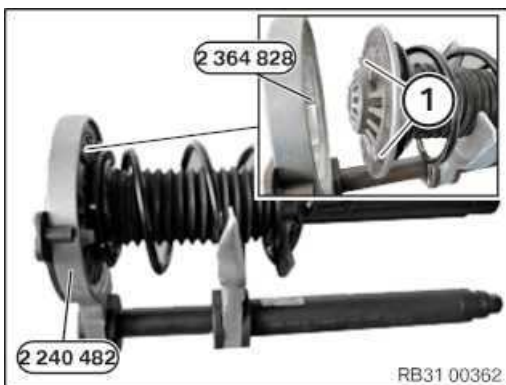
Installation of brake onto mounting plate:

Place counter support [2 240 486](#) in the correct position/bore hole:

- **Screw connection using bore holes 1 and 17**

Turn centering ring [2 364 828](#) until counter support [2 240 486](#) can be screwed into place at the specified position.

Screw together counter support with mounting plate and the centering ring with screws (1) so they are hand-tight.



**Clean coil spring to remove contamination.**

**Spring must be free of grease, clean and dry.**

Insert spring strut into the spring tensioner.

**Warning!**

The guide pins (1) of the support bearing must fit into the recesses on the centering ring [2 364 828](#).

The support bearing must be completely fitted against the centering ring [2 364 828](#).

The lower spring coil must be placed completely into the recess of special tool [2 240 516](#) !



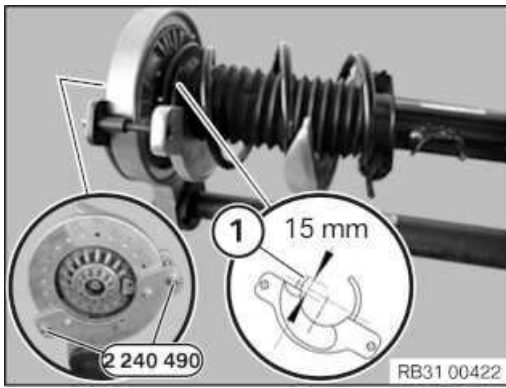
**Attention!**

Risk of damage to the coil spring!

Before application: Check protective insert for wear, replace if necessary.

Use of faulty protective inserts leads to coil spring damage. This can lead to coil spring breakage (corrosion).

Always use the pressure plate [2 240 487](#) with protective insert [2 412 607](#)

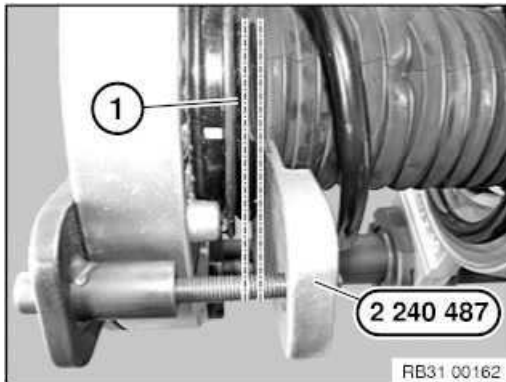


Attach pressure plate [2 240 487](#) with the screws [2 240 490](#) !

The gummed side of the pressure plate [2 240 487](#) must be fitted against the top spring coil.

Position the spring strut such that the end of the spring (1) at the pressure plate [2 240 487](#) protrudes by 15 mm.

Tighten the screws [2 240 490](#) evenly at 8 Nm.



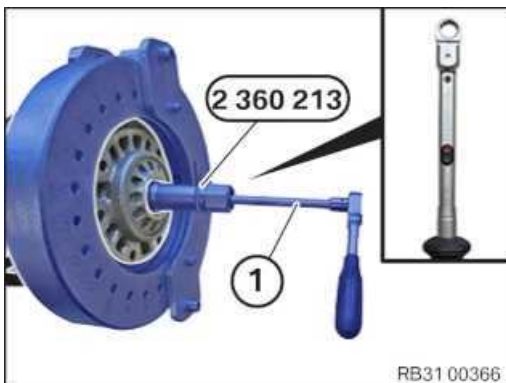
#### Attention!

The pressure plate [2 240 487](#) must be aligned parallel with the top spring coil (1)!

When the end of the spring begins to twist relative to the pressure plate, tensioning must be stopped immediately.

The pressure plate must be checked for correct seating and the rubber-coated facing and pressure plate also checked for wear.

Tension the coil spring with the spring tensioner [31 3 341](#) until the stress on the piston rod is relieved.



Release nut with special tool [2 360 213](#) , reversible ratchet with extension and socket SW10.



Impact screwdrivers are prohibited!

**Risk of damage inside the shock absorber!**

Remove shock absorber from coil spring.



Relieve tension on coil spring.

Release special tool [2 240 487](#) .

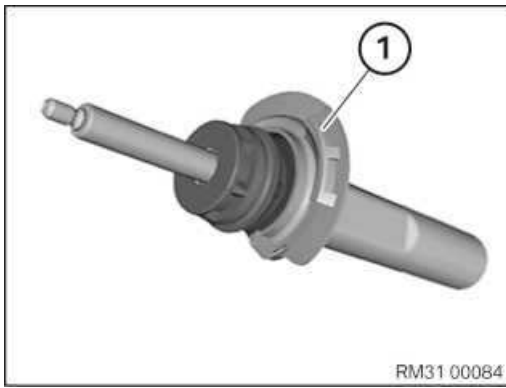
Take out the coil spring with protective tube and support bearing.

*Installation note:*

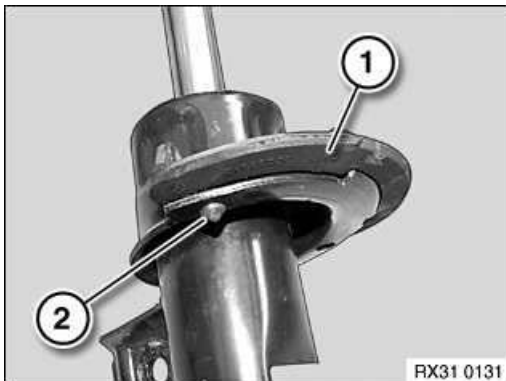
Check support bearing and protective tube for damage, replace if necessary.

**Assembly:**

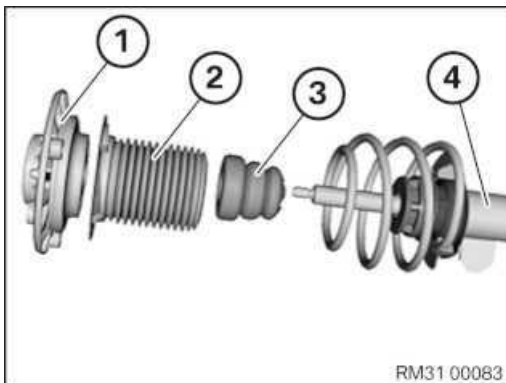




Check bottom spring pad (1) and replace if necessary.



Make sure the journal (2) is properly positioned in the bore hole of the spring cup.



Apply and tension the new spring with the special tool [31 3 341](#).

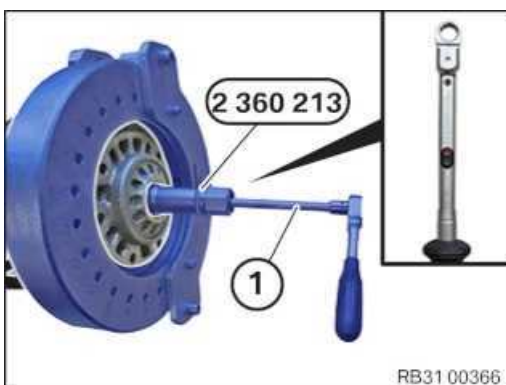
Check protective tube/top spring pad (2) and support bearing (1) for damage, replace if necessary.

Insert spring strut (4) in tensioned coil spring.

Replace the auxiliary damper (3).

**Parts:** Auxiliary damper

Attach auxiliary damper (3), protective tube/upper spring pad (2) and support bearing (1) to piston rod.



Insert spring strut into tensioned coil spring.

Renew nut.

**Parts:** Nut

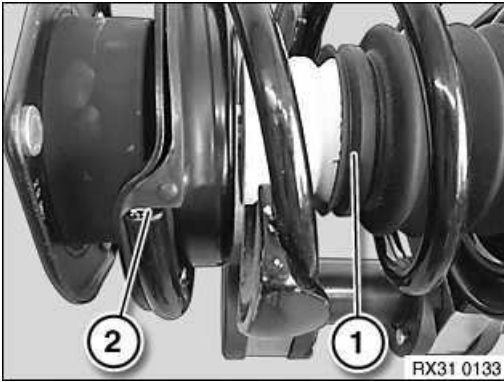
Tighten nut with special tool [2 360 213](#), reversible ratchet with extension, socket SW10 and torque wrench with ring spanner insert SW21.

Tightening torque [31 31 2AZ](#).

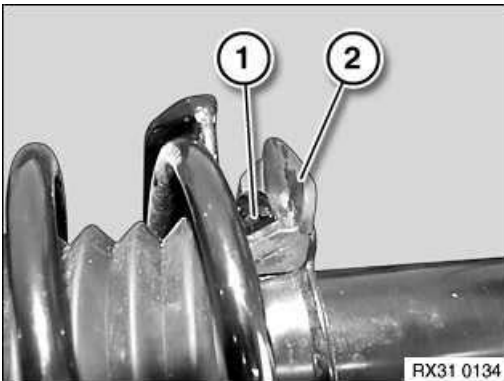


Impact screwdrivers are prohibited!

**Risk of damage inside the shock absorber!**

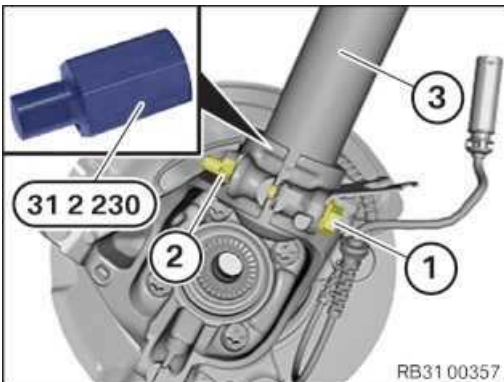


Check installation position of protective tube, correct if necessary.



End of lower coil spring (1) must rest on stop of spring pad (2).

Align all components correctly to each other and relieve tension on coil spring.



Spread swivel bearing with the special tool [31 2 230](#).

Align the swivel bearing using the gap to the positioning pin on the rear side of the spring strut (3) and push it on as far as it will go.

Remove special tool [31 2 230](#).

Position the brake hose bracket.

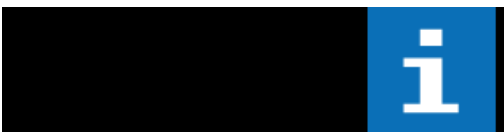
Renew screw (1) and nut (2).

**Parts:** Bolt and nut

Insert bolt (1).

Tighten nut (2).

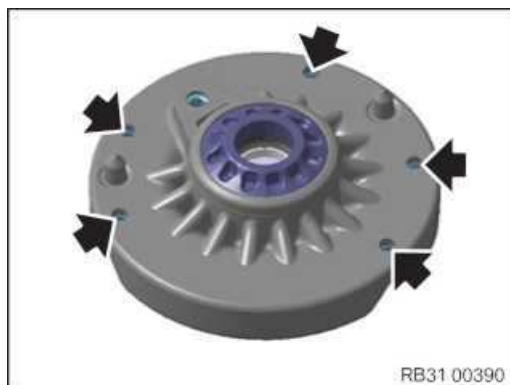
Tightening torque [31 31 3AZ](#).



#### Required follow-up work:

- Install [front spring strut](#).
- Check [headlight adjustment](#), correct if necessary.

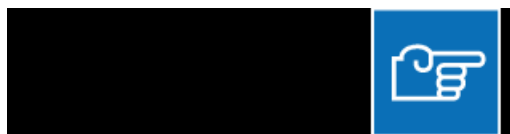
## 31 33 001 Replacing front left or right spring strut support bearing



### Important!

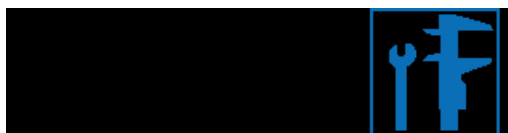
Support bearings with 5-hole screw connection (see graphic) are fitted in motor vehicles from 01/2015.

In motor vehicles up to 01/2015 (support bearings with 3-hole screw connection), in case of replacement, a support bearing matching the new version (5-hole version) can be used, but using only 3 screws.

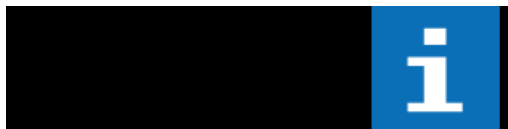


### Note:

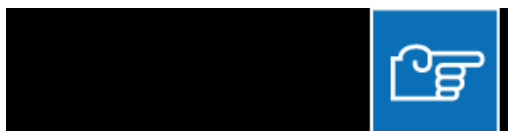
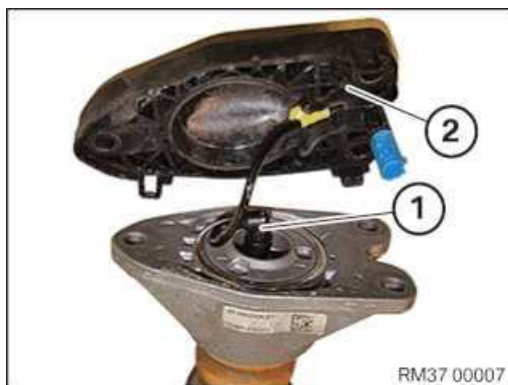
Procedure is described in the document "[Replacing front left or front right spring strut shock absorber](#)".

**Special tools required:**

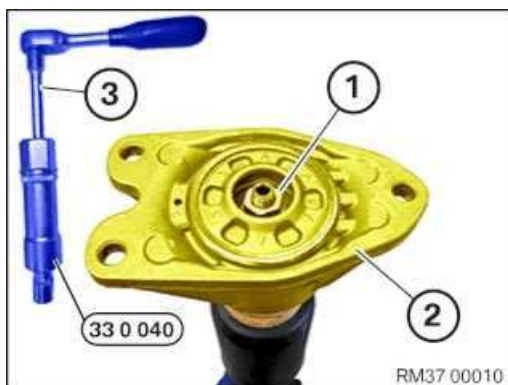
- [33 0 040](#)

**Necessary preliminary tasks:**

- Remove [rear shock absorber](#).

**Removal:**

Release adapter plate (2) from support bearing.  
Disconnect connector (1) from shock absorber.  
Remove adapter plate (2).



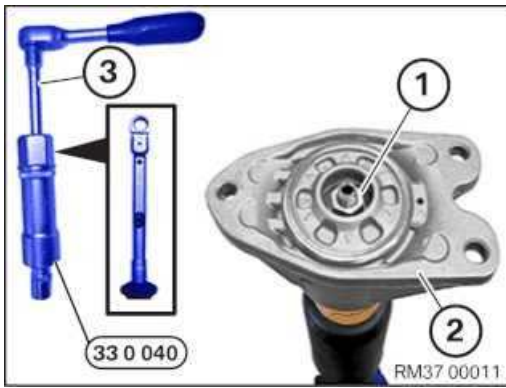
Release nut (1) with special tool [33 0 040](#) , reversible ratchet with extension and socket SW10.  
Remove spring strut mounting (2).



Impact screwdrivers are prohibited!

**Risk of damage inside the shock absorber!**

**Installation:**



Fit support bearing (2).

**Part:** Replace nut (1).

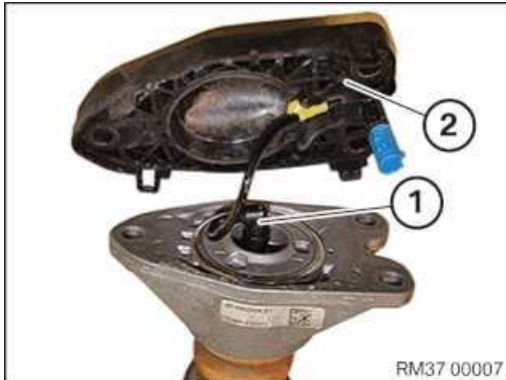
Tighten down nut (1) with special tool [33 0 040](#) , reversible ratchet with extension, socket SW10 and torque wrench with ring spanner attachment SW21.

Tightening torque [33 52 3AZ](#).



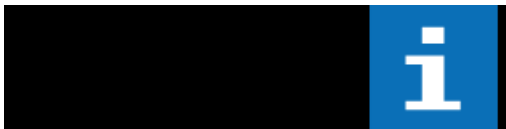
Impact screwdrivers are prohibited!

**Risk of damage inside the shock absorber!**



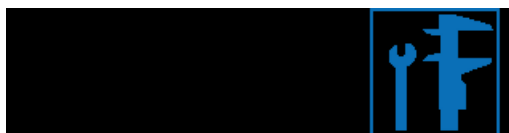
Connect connector (1) to shock absorber.

Fit adapter plate (2) on support bearing and engage.

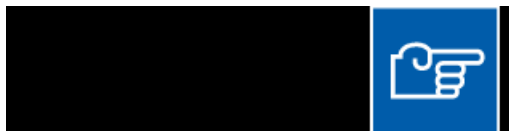


**Required follow-up work:**

- Install [rear shock absorber](#).

**Special tools required:**

- [2 358 630](#)

**Installation note:**

1. All screws, nuts, bolts and hose clamps removed during the repair must be replaced.
2. Retaining elements on chassis and suspension and steering parts must be replaced.

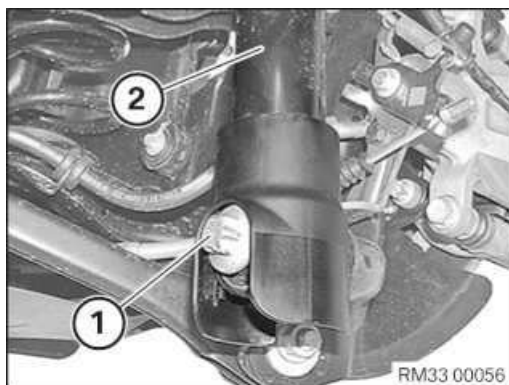
**Necessary preliminary tasks:**

- Remove [rear wheel](#).

**Removal:**

Secure special tool [2 358 630](#) with wheel studs to drive flange.

Support trailing arm with special tool [2 358 630](#) and workshop jack on wheel hub.

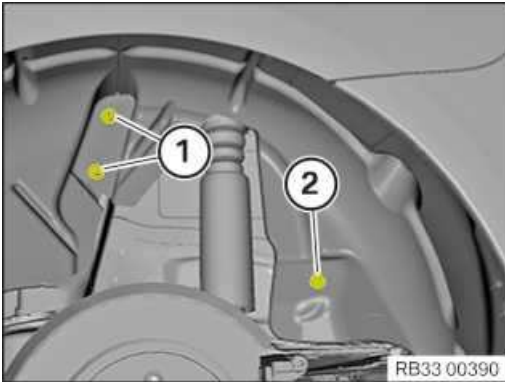


Release shock absorber (2) from trailing arm by unscrewing screw (1).

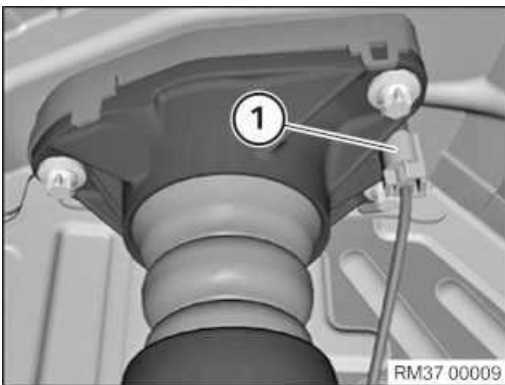


Lower workshop jack and relieve coil spring.  
Place workshop jack to side.

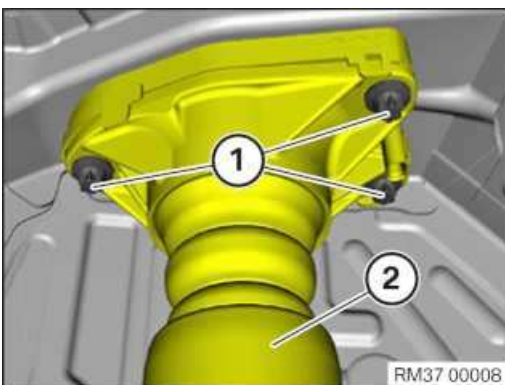
*Note:*  
Special tool [2 358 630](#) can remain on wheel hub.



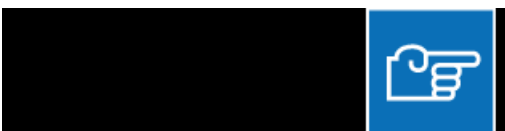
Release nuts (1) and screw (2) of wheel arch panel.



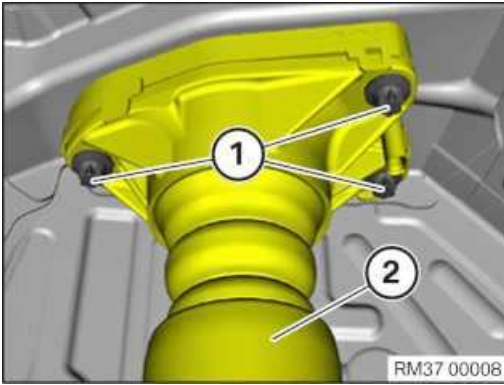
Bend wheel arch panel to side.  
Disconnect plug connection (1).



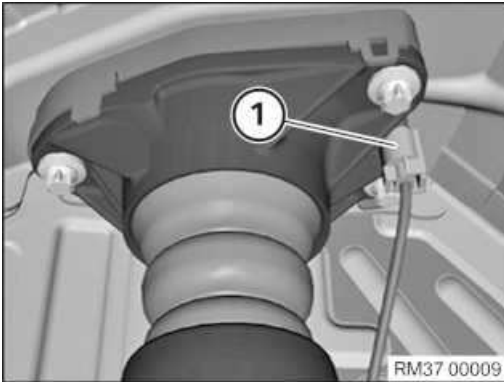
Loosen screws (1).  
Remove shock absorber (2).



**Installation:**



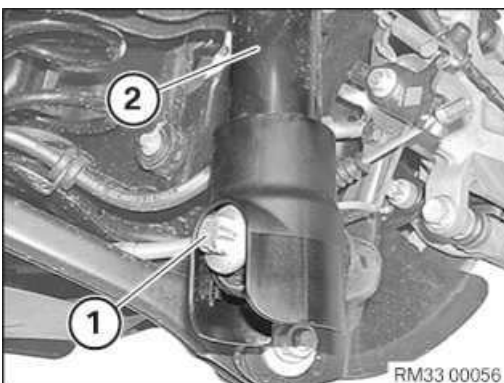
Bend wheel arch panel to side.  
Align shock absorber (2) to body.  
Tighten down screws (1).  
Tightening torque [33 52 2AZ](#).



Connect plug connection (1).



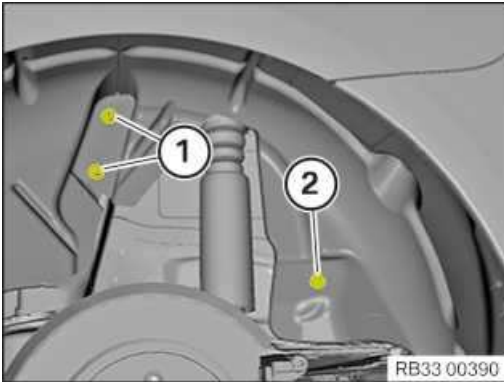
Insert workshop jack into special tool [2 358 630](#) .  
Press trailing arm upwards with special tool [2 358 630](#) until shock absorber can be screwed to trailing arm.



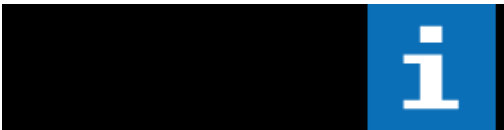
Tighten screw (1).  
Tightening torque [33 52 1AZ](#).



Lower workshop jack and place to one side.  
Remove special tool [2 358 630](#).



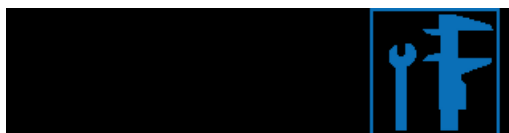
Tighten wheel arch panel nuts (1) and screw (2).



**Required follow-up work:**

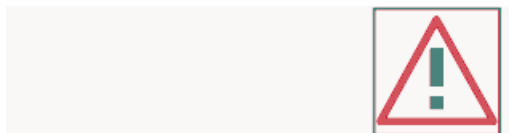
- Install [rear wheel](#).

## 37 12 310 Replace rear left or right shock absorber (EDC)



### Special tools required:

- [33 0 040](#)



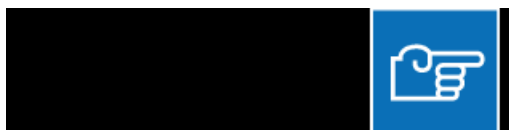
### Attention!

- On replacement of shock absorber, replace additional absorber!
- In vehicles up to 06/2017, the shock absorbers must always be exchanged in pairs. (Shock absorbers from 06/2017 have a different alignment)

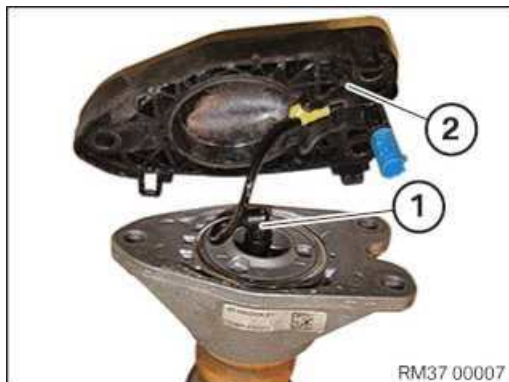


### Necessary preliminary work:

- Remove [rear shock absorber](#).



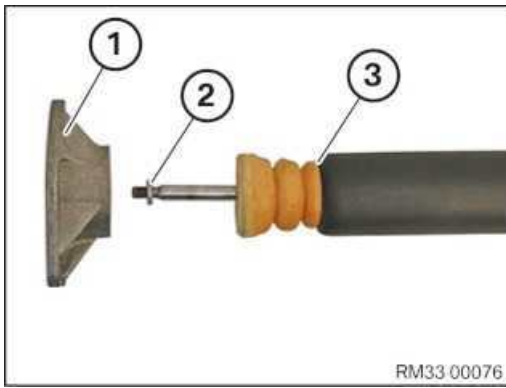
### Removal:



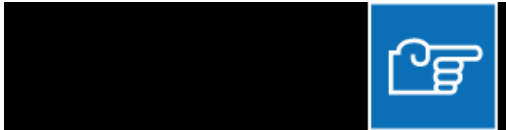
Release adapter plate (2) from support bearing.  
Disconnect connector (1) from shock absorber.  
Remove adapter plate (2).



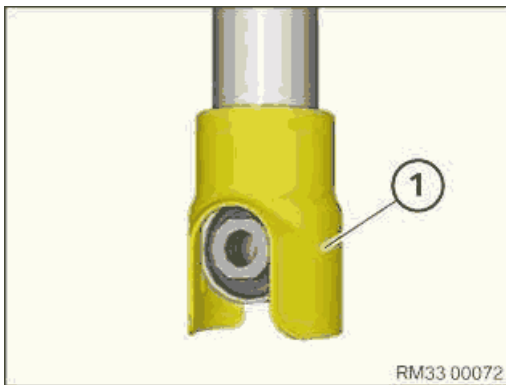
Release nut (1) with special tool [33 0 040](#), reversible ratchet with extension and socket SW10.  
Remove spring strut mounting (2).



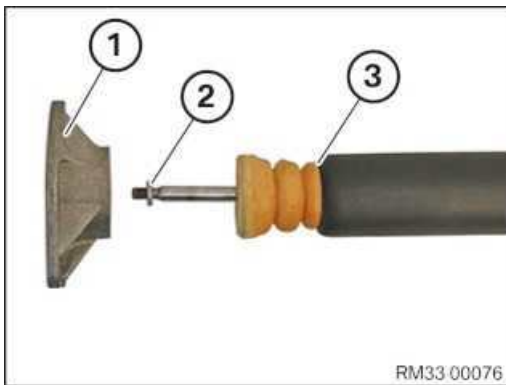
Remove gasket (2).



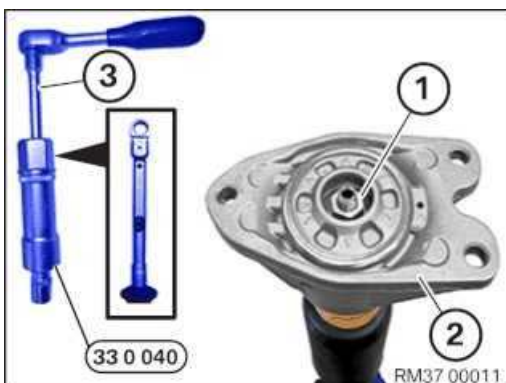
**Installation:**



Remount stoneguard (1). *Installation note:*  
Check stoneguard and replace if necessary.



**Part:** Replace auxiliary damper with protective tube (3).  
Connect additional absorber with protective tube (3) onto shock absorber.  
Connect gasket (2) and support bearing (1).

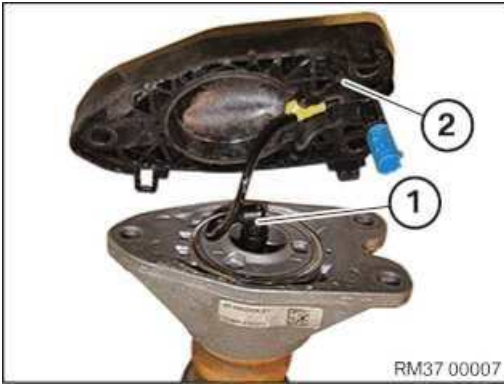


**Part:** Replace nut (1).  
Tighten down nut (1) with special tool [33 0 040](#) , reversible ratchet with extension, socket SW10 and torque wrench with ring spanner attachment SW21.  
Tightening torque [33 52 3AZ](#).

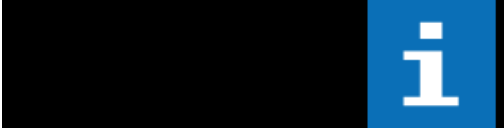


Impact screwdrivers are prohibited!

**Risk of damage inside the shock absorber!**

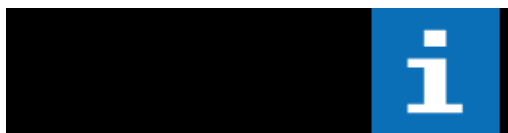


Connect connector (1) to shock absorber.  
Fit adapter plate (2) on support bearing and engage.



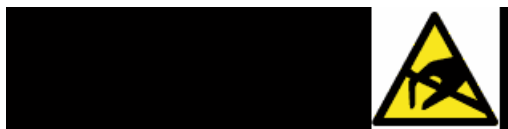
**Required follow-up work:**

- Install [rear shock absorber](#).

**Note:**

The optional equipment system (SAS) is a control unit in which the functions of the suspension control systems and the assist systems are integrated.

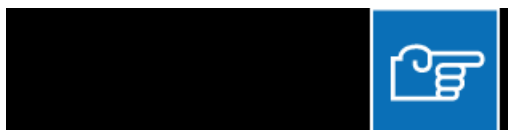
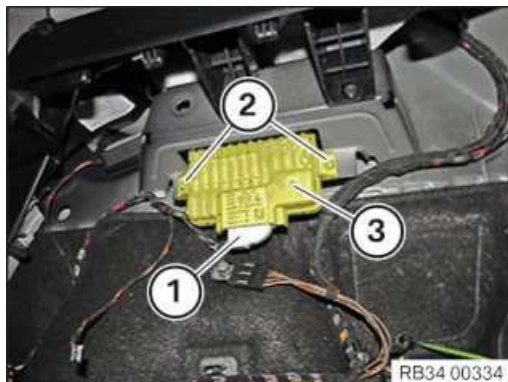
(In the AW System and in the Electronic Parts Catalogue, the control unit is under Main Group 34.)

**Attention!**

Read and comply with notes on [protection against electrostatic discharge \(ESD protection\)](#)!

**Necessary preliminary work:**

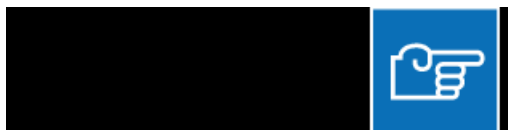
- Disconnect [battery earth lead](#).
- Remove [right luggage compartment wheel arch panel](#).

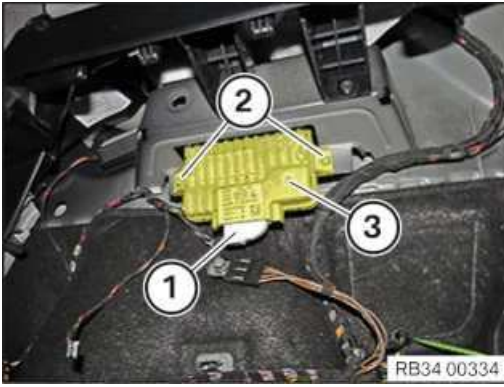
**Removal:**

Unlock and disconnect plugs (1).

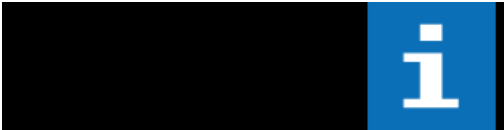
Loosen screws (2).

Remove SAS control unit (3).

**Installation:**



Position SAS control unit (1).  
Insert nuts (2) and tighten.  
Tightening torque [37 14 6AZ](#).  
Connect plug connection (3).



**Required follow-up work:**

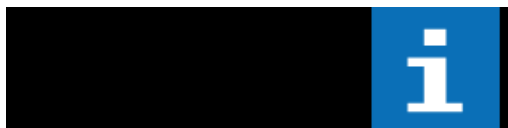
- Install [right luggage compartment wheel arch panel](#).
- Connect [battery earth lead](#).
- Replacement only: Carry out [programming/encoding](#).

## 37 14 511 Replacing front ride height sensor



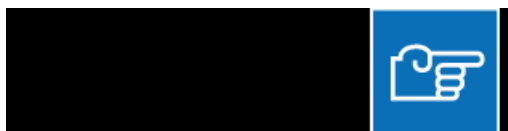
### Important!

Read and comply with notes on [protection against electrostatic discharge \(ESD protection\)](#).

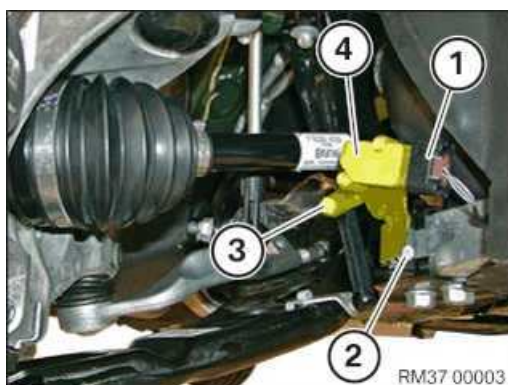


### Necessary preliminary tasks:

- Turn steering wheel to right.



### Removal:

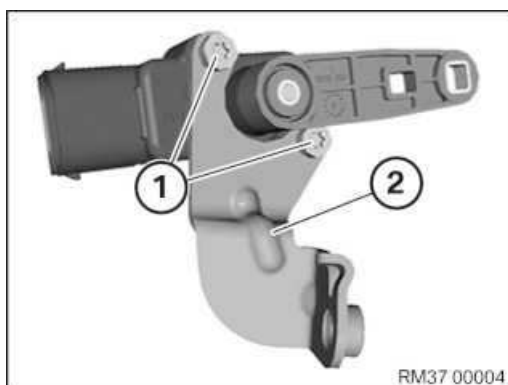


Unlock connector (1) and disconnect.

Release nut (3) and detach jointed rod from sensor lever.

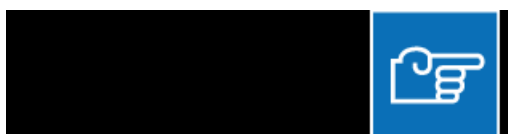
Release screw (2).

Remove ride height sensor (4).

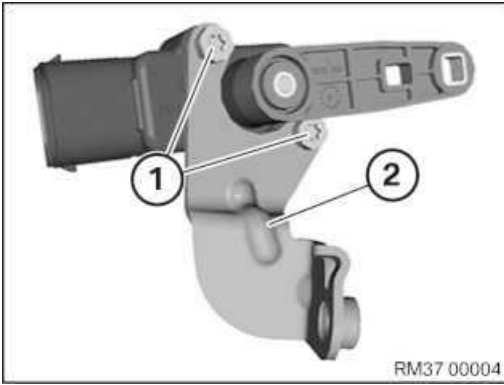


Release screws (1).

Remove holder (2) from ride height sensor.



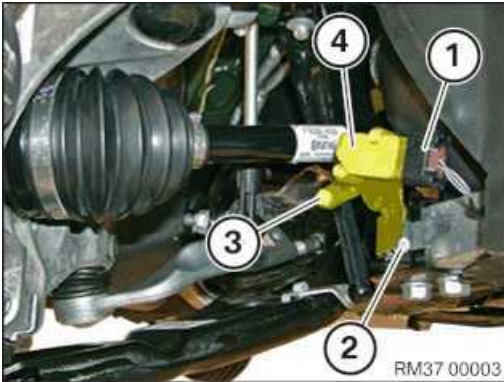
### Installation:



Align holder (2) to ride height sensor.

Tighten down screws (1).

Tightening torque [37 14 1AZ](#).



Align ride height sensor (4) with holder on front axle support.

Tighten screw (2).

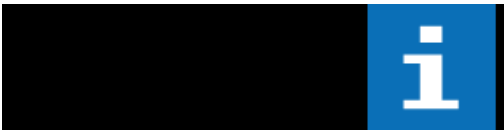
Tightening torque [37 14 2AZ](#).

Insert jointed rod on ride height sensor.

Tighten nut (3).

Tightening torque [37 14 4AZ](#).

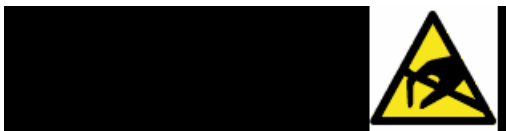
Insert connector (1).



#### Required follow-up work:

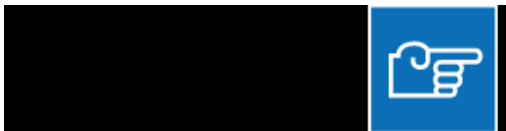
- Check [headlight adjustment](#), correct if necessary.

## 37 14 512 Replacing rear ride height sensor

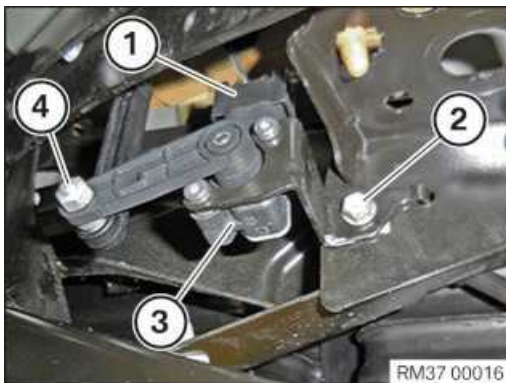


### Important!

Read and comply with notes on [protection against electrostatic discharge \(ESD protection\)](#).



### Removal:



Disconnect plug connection (1).

Release nut (4) and detach jointed rod from sensor lever.

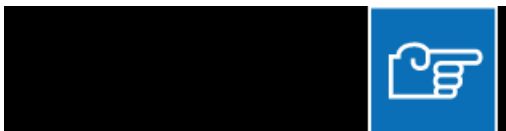
Release screw (2).

Remove ride height sensor (3).



Release screws (1).

Take off holder (2).



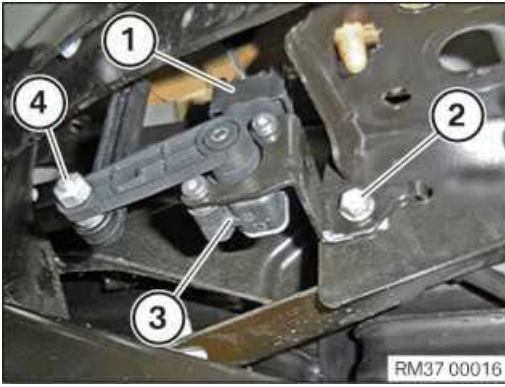
### Installation:



Position holder (2) on ride height sensor.

Tighten down screws (1).

Tightening torque [37 14 1AZ](#).



Position ride height sensor (3) with holder on rear axle support.

Tighten screw (2).

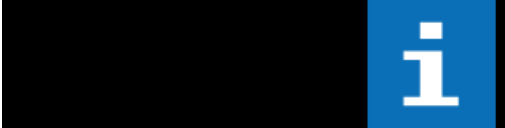
Tightening torque [37 14 3AZ](#).

Connect plug connection (1).

Attach jointed rod to sensor lever.

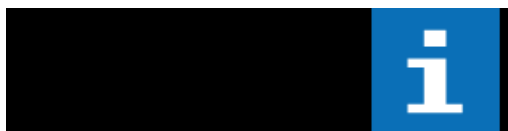
Tighten nut (4).

Tightening torque [37 14 4AZ](#).



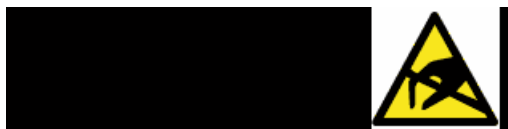
**Required follow-up work:**

- Check [headlight adjustment](#), correct if necessary.

**Note:**

The optional equipment system (SAS) is a control unit in which the functions of the suspension control systems and the assist systems are integrated.

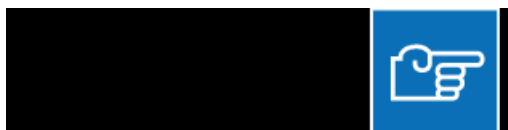
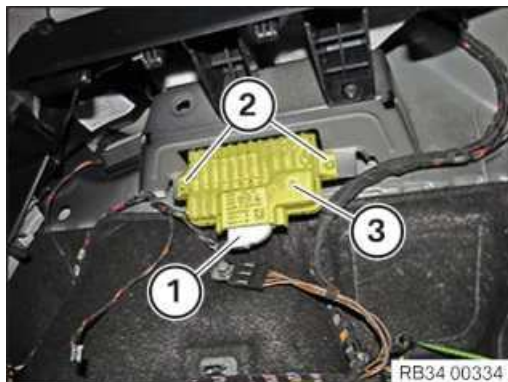
(In the AW System and in the Electronic Parts Catalogue, the control unit is under Main Group 34.)

**Attention!**

Read and comply with notes on [protection against electrostatic discharge \(ESD protection\)](#)!

**Necessary preliminary work:**

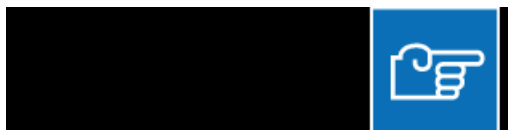
- Disconnect [battery earth lead](#).
- Remove [right luggage compartment wheel arch panel](#).

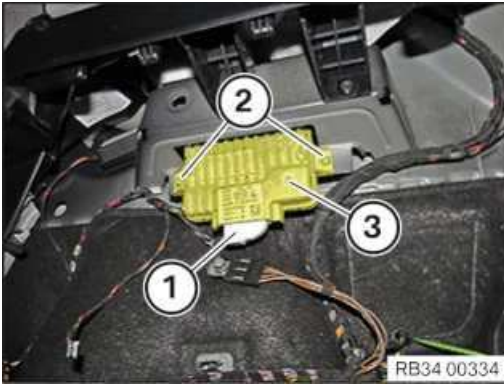
**Removal:**

Unlock and disconnect plugs (1).

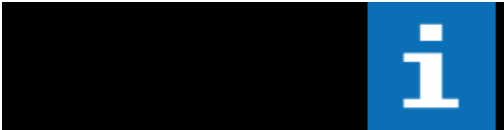
Loosen screws (2).

Remove SAS control unit (3).

**Installation:**



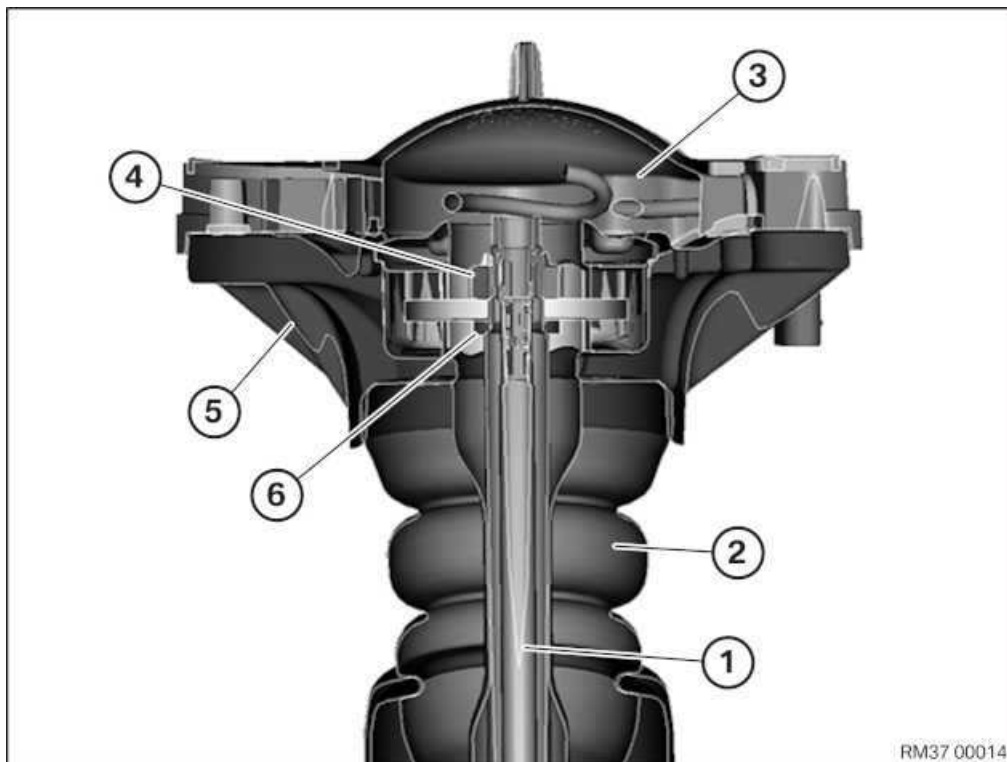
Position SAS control unit (1).  
Insert nuts (2) and tighten.  
Tightening torque [37 14 6AZ](#).  
Connect plug connection (3).



**Required follow-up work:**

- Install [right luggage compartment wheel arch panel](#).
- Connect [battery earth lead](#).
- Replacement only: Carry out [programming/encoding](#).

## 37 Layout of EDC shock absorber



- |                                   |                   |
|-----------------------------------|-------------------|
| 1 Shock Absorbers                 | 4 Nut             |
| 2 Auxiliary damper with dust boot | 5 Support bearing |
| 3 Adapter plate                   | 6 Gasket          |