

## Suspension mounted ABS components

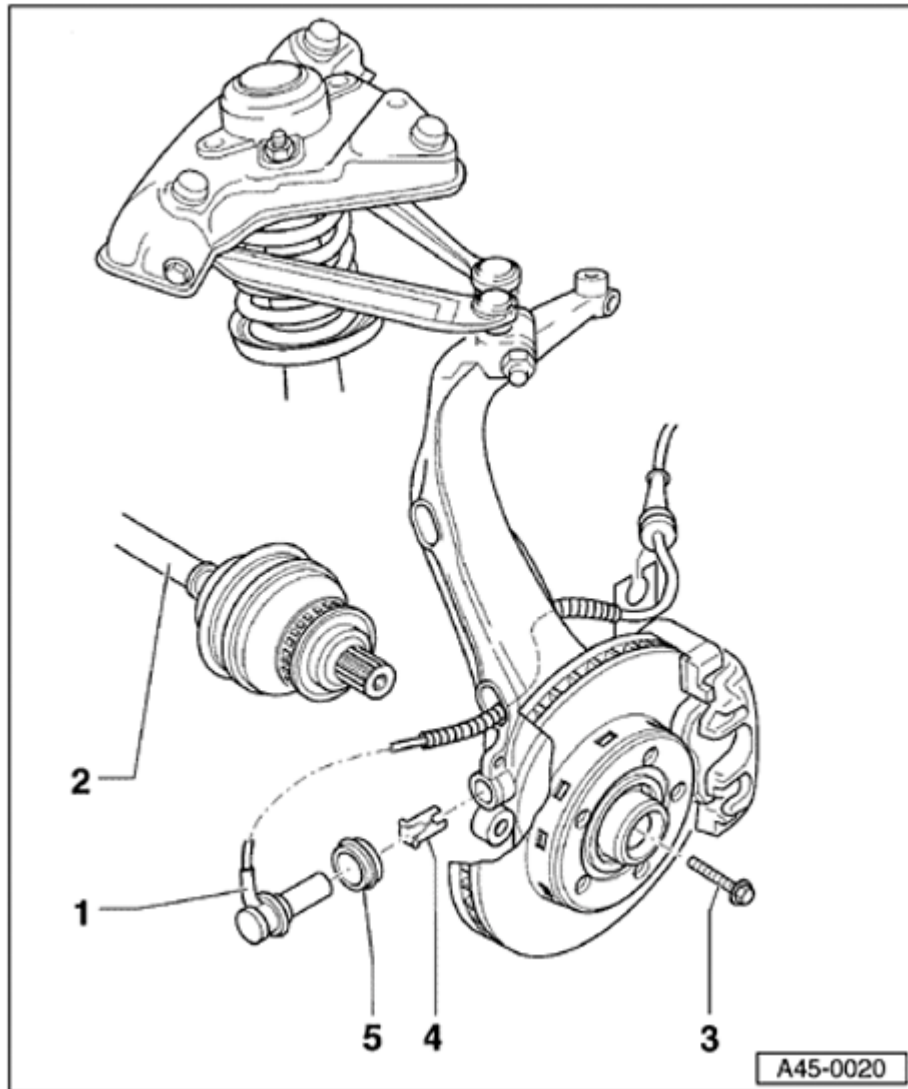
Front suspension ABS components, removing and installing

### **WARNING!**

- ◆ *Do not re-use any fasteners that are worn or deformed in normal use.*
- ◆ *Some fasteners are designed to be used only once, and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual-replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.*

### 1 - ABS wheel speed sensor

- ◆ Identical part on left and right
- ◆ Removing and installing ⇒ [page 45-27](#)
- ◆ Harness connector for ABS wheel speed sensor ⇒ [page 45-27](#)



## 2 - Drive axle with ABS wheel speed sensor rotor

- ◆ Examine rotor for signs of dirt and damage  
⇒ [page 45-28](#)
- ◆ If rotor is damaged, replace outer CV joint together with rotor ⇒ [Repair Manual, Suspension, Wheels, Steering, Repair Group 40](#)
- ◆ Outer CV joint is supplied as replacement part with ABS wheel speed sensor rotor

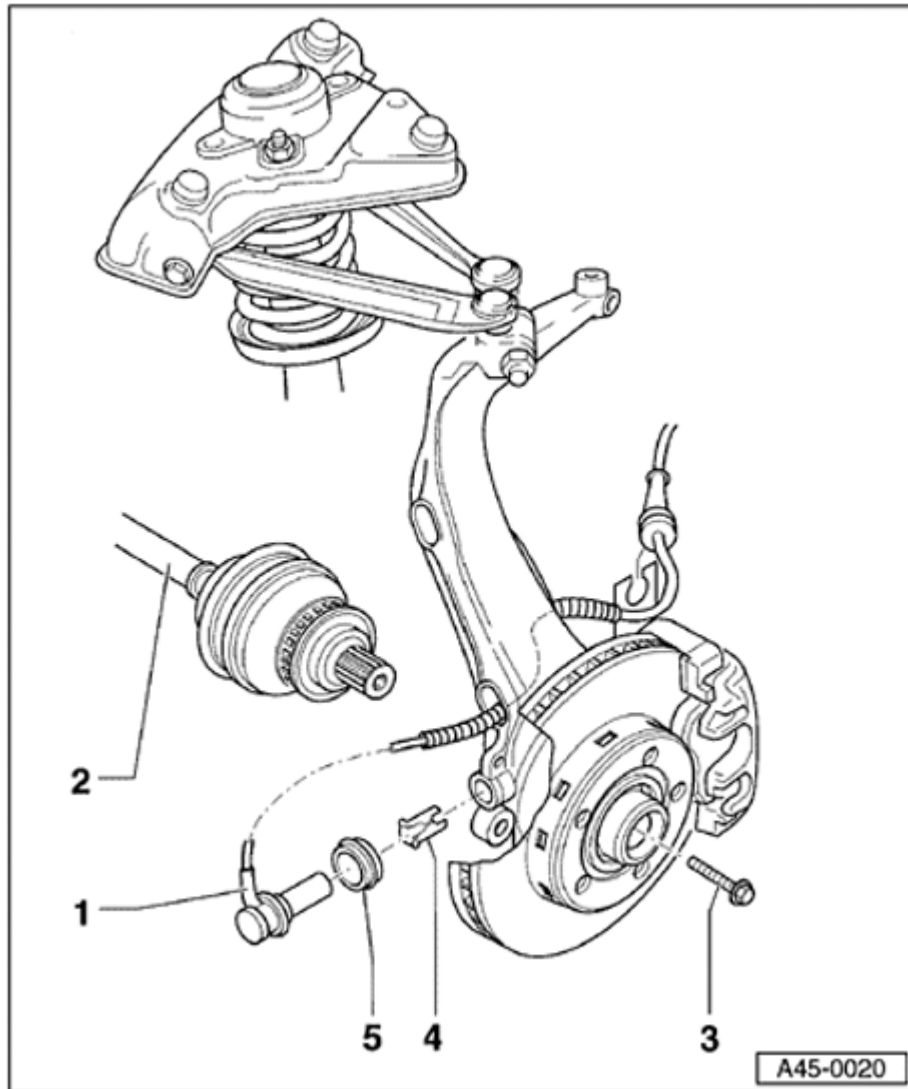
## 3 - Collar bolt

- ◆ Always replace
- ◆ Be aware of different versions
- ◆ M14 thread: tighten to 115 Nm (85 ft lb) plus additional 1/2-turn (180°)
- ◆ M16 thread: tighten to 190 Nm (140 ft lb) plus additional 1/2-turn (180°)

## **WARNING!**

**Do not loosen and tighten hex bolt - 3 - unless car is standing on its wheels-risk of accident.**

45-26



#### 4 - Clamping sleeve

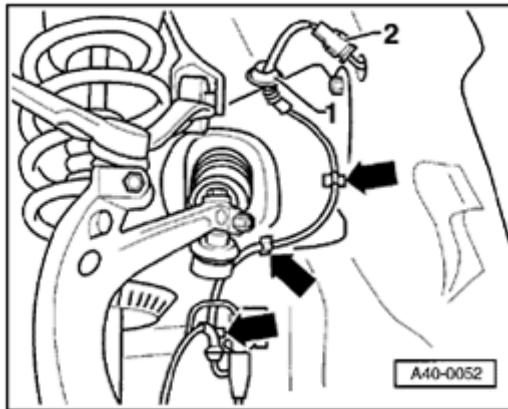
- ◆ Always replace
- ◆ Identical part on left and right
- ◆ Grease all around with assembly paste before inserting into wheel bearing housing
- ◆ Press into wheel bearing housing until fully seated

#### 5 - Boot seal

## ABS wheel speed sensor on front axle, removing and installing

### Removing

- Loosen wheel bolts.
- Raise vehicle.
- Remove wheel.

**A**

- Detach boot -1- from wheel housing.
- Separate harness connector -2- from ABS wheel speed sensor harness.
- Pull harness out of brackets (arrows).
- Remove ABS wheel speed sensor from wheel bearing housing.

### Installing

- Before inserting ABS wheel speed sensor, install boot seal and grease sensor all around with assembly paste.
- Press speed sensor in by hand until fully seated.
- Connect ABS wheel speed sensor cable harness connector and press boot into wheel housing.
- After routing ABS wheel speed sensor cable (arrows), install wheel and tighten wheel bolts to 120 Nm (89 ft lb).

- Turn steering to full left and full right lock and check clearance of ABS wheel speed sensor cable.

### **ABS wheel speed sensor rotor on front axle, examining**

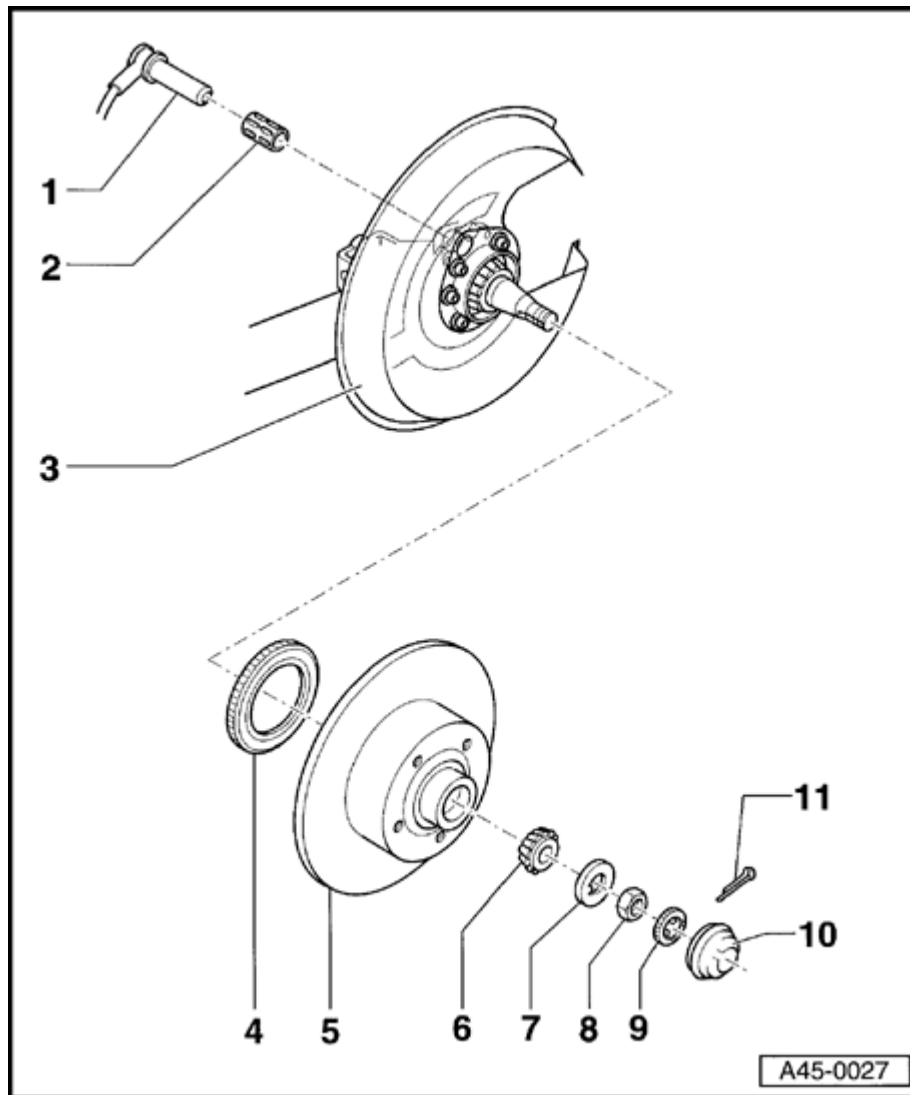
- Raise vehicle.
- Remove wheel.
- Pull ABS wheel speed sensor out of wheel bearing housing.
- Examine rotor for signs of dirt and damage, working through ABS wheel speed sensor mounting hole in wheel bearing housing.

#### **Note:**

- ◆ *If the rotor is dirty or damaged, remove the drive axle. If the rotor is damaged, replace the outer CV joint along with the rotor.*

⇒ [Repair Manual, Suspension, Wheels, Steering, Repair Group 40](#)

- ◆ *The outer CV joint is supplied as a replacement part with the rotor.*



## Rear suspension ABS components for FWD models, removing and installing

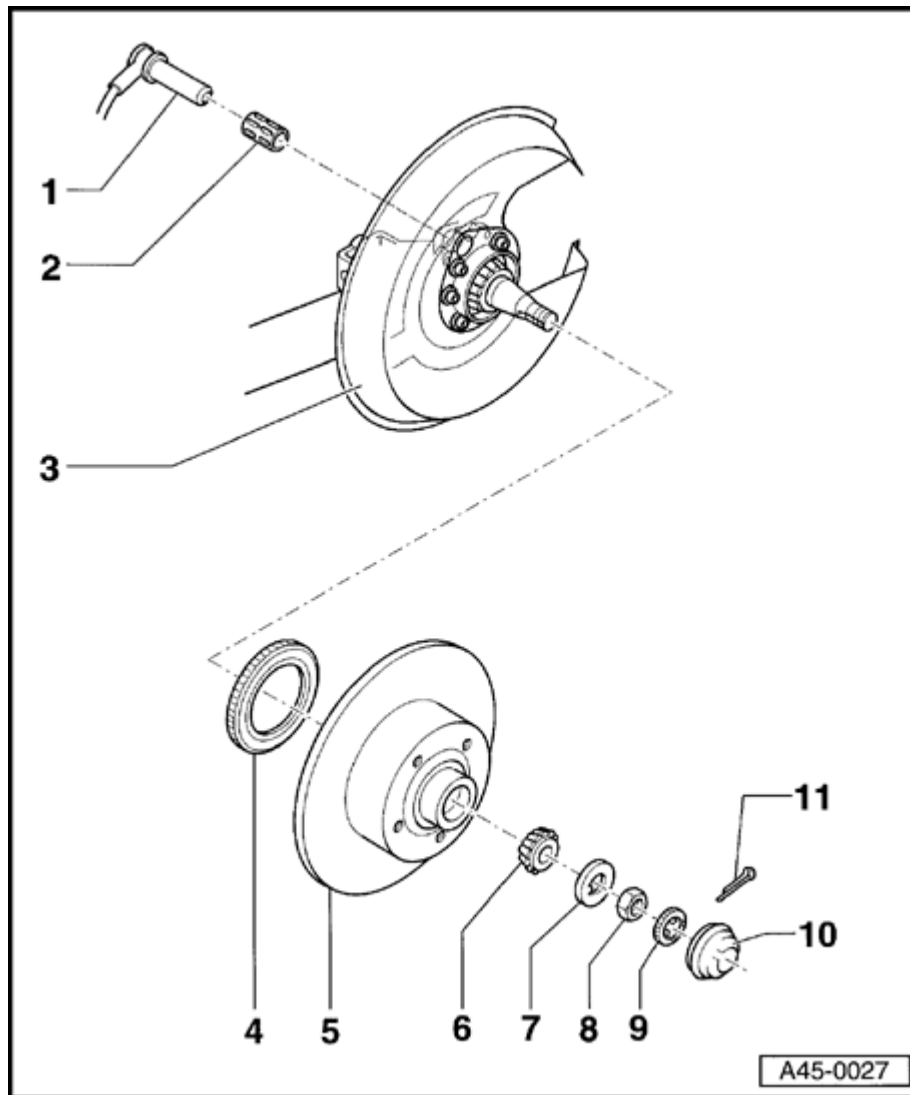
### **WARNING!**

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### **1 - ABS wheel speed sensor**

- ◆ Identical part on left and right
- ◆ Removing and installing ⇒ [page 45-31](#)
- ◆ Release harness connector of ABS speed sensor cable and separate. Unclip speed sensor cable.

45-30

**2 - Clamping sleeve**

- ◆ Always replace
- ◆ Identical part on left and right
- ◆ Grease all around with assembly paste before inserting into wheel bearing housing
- ◆ Press into wheel bearing housing until fully seated

**3 - Axle beam/rear axle with splash guard and stub axle****4 - ABS wheel speed sensor rotor**

- ◆ Removing and installing ⇒ [page 45-33](#)

**5 - Brake disc with wheel hub****6 - Outer wheel bearing****7 - Thrust washer****8 - Hex nut**

- ◆ Adjusting ⇒ [page 45-33](#)

**9 - Castellated lock**

- ◆ Install onto hex nut

**10 - Grease cap**

- ◆ Replace

**11 - Cotter pin**



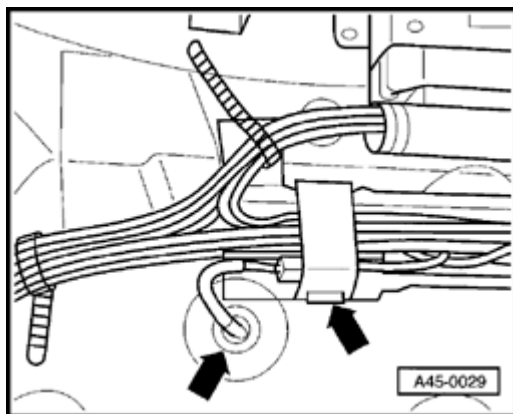
◆ Always replace

## ABS wheel speed sensor on FWD rear axle, removing and installing

### Removing

- Switch ignition off.

- Lift rear seat out of its brackets.

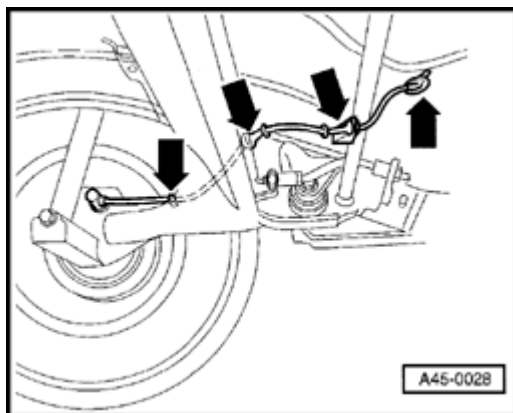


A - Detach cable holder (right arrow), separate ABS wheel speed sensor harness connector and press out grommet (left arrow). Left and right sides are mirror images.

- Loosen wheel bolts.

- Raise vehicle.

- Remove wheel.



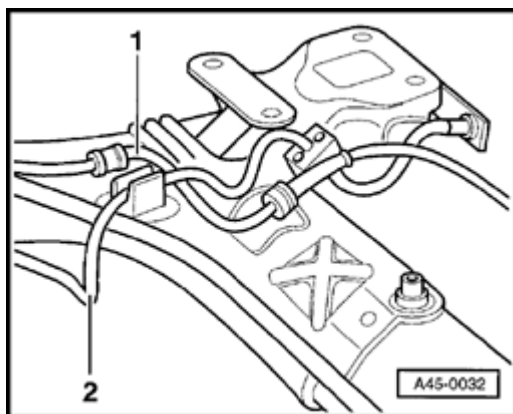
A - Pull ABS wheel speed sensor cable out of brackets.

- Pull ABS wheel speed sensor out of axle beam.

## Installing

- Replace clamping sleeve ⇒ [page 45-30](#) item - 2
- Grease ABS wheel speed sensor all around with assembly paste before inserting. Then, press in by hand until fully seated.
- Reconnect ABS wheel speed sensor cable and route cable as when removed.

When routing the ABS wheel speed sensor cable, pay attention to the following points:

**A**

- Route ABS wheel speed sensor cable -1- below brake line -2- on left and right sides in area shown.
- On left side, maintain clearance of about 2 cm (3/4 in.) between heat shield for exhaust system, and ABS wheel speed sensor cable.

**A**

- On right side, route ABS wheel speed sensor cable -1- between fuel lines -2-.
- Install wheel and tighten wheel bolts to 120 Nm (89 ft lb).

### **ABS wheel speed sensor rotor on FWD rear axle, examining**

- Raise vehicle.
- Remove wheel.
- Pull ABS wheel speed sensor out of wheel bearing housing.
- Examine rotor for signs of dirt and damage.

### **ABS wheel speed sensor rotor on rear axle, removing and installing**

#### **Removing**

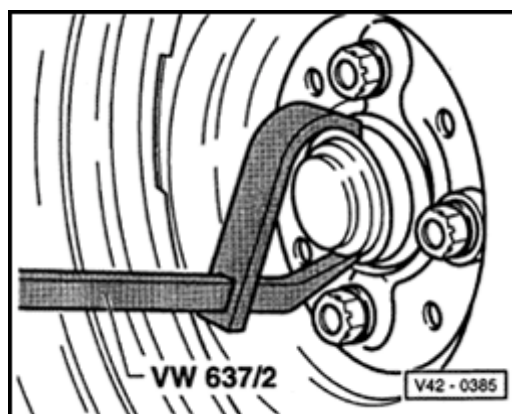
- Raise vehicle.
- Remove wheel.
- Unbolt brake caliper ⇒ [page 46-20](#) .

#### **CAUTION!**

- ♦ ***Do not loosen brake hose or lines.***
- ♦ ***Secure the brake caliper with a piece of wire***

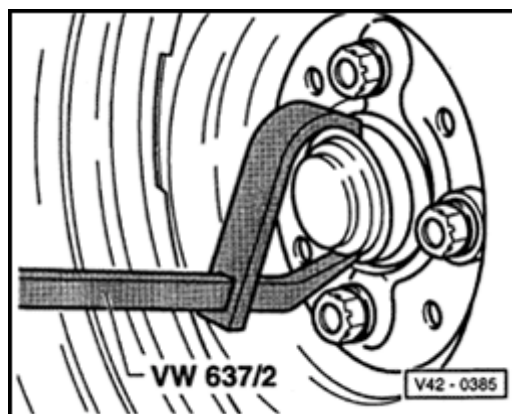
***in order to relieve the stress on the brake hose.***

**♦ Do not allow caliper to hang by brake hose.**



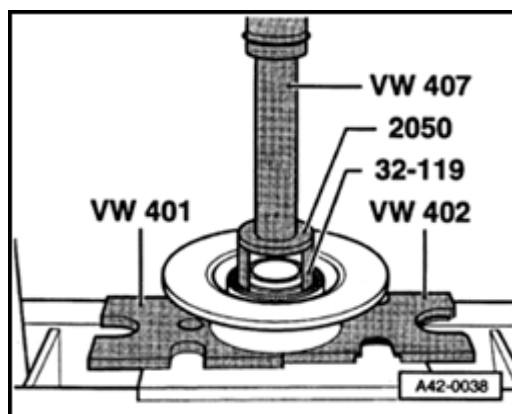
**A**

- Apply light blows with hammer to jaw of special tool in order to slightly knock grease cap loose from wheel hub ⇒ [page 45-30](#) , item -10-.

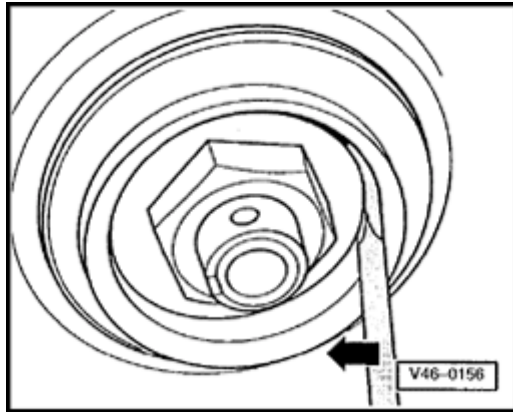


- A
- Press grease cap off hub.
  - Remove cotter pin ⇒ [page 45-30](#) , item -11-.
  - Remove castellated lock ⇒ [page 45-30](#) , item -9-.
  - Remove hex nut ⇒ [page 45-30](#) , item -8-.
  - Remove thrust washer, outer wheel bearing, and wheel hub ⇒ [page 45-30](#) , items -5-, -6- and -7-.
  - Use copper drift inserted through tapped holes to evenly drive rotor off wheel hub ⇒ [page 45-30](#) , item -4-.

### Installing



- A
- Press ABS wheel speed sensor rotor onto wheel hub.
  - Position wheel hub, outer wheel bearing and thrust washer on stub axle.
  - Install hex nut ⇒ [page 45-30](#) , item -8-.



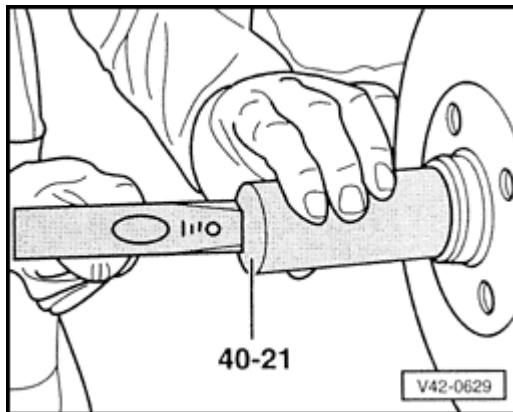
A

- Adjust wheel bearing play.

**Note:**

*Wheel bearing play is correctly set if it is just possible to move the thrust washer with a screwdriver by applying finger pressure (without any prying).*

- To adjust, tighten hex nut while rotating wheel in order to avoid stress on bearing.
- Secure hex nut with castellated lock and new cotter pin.



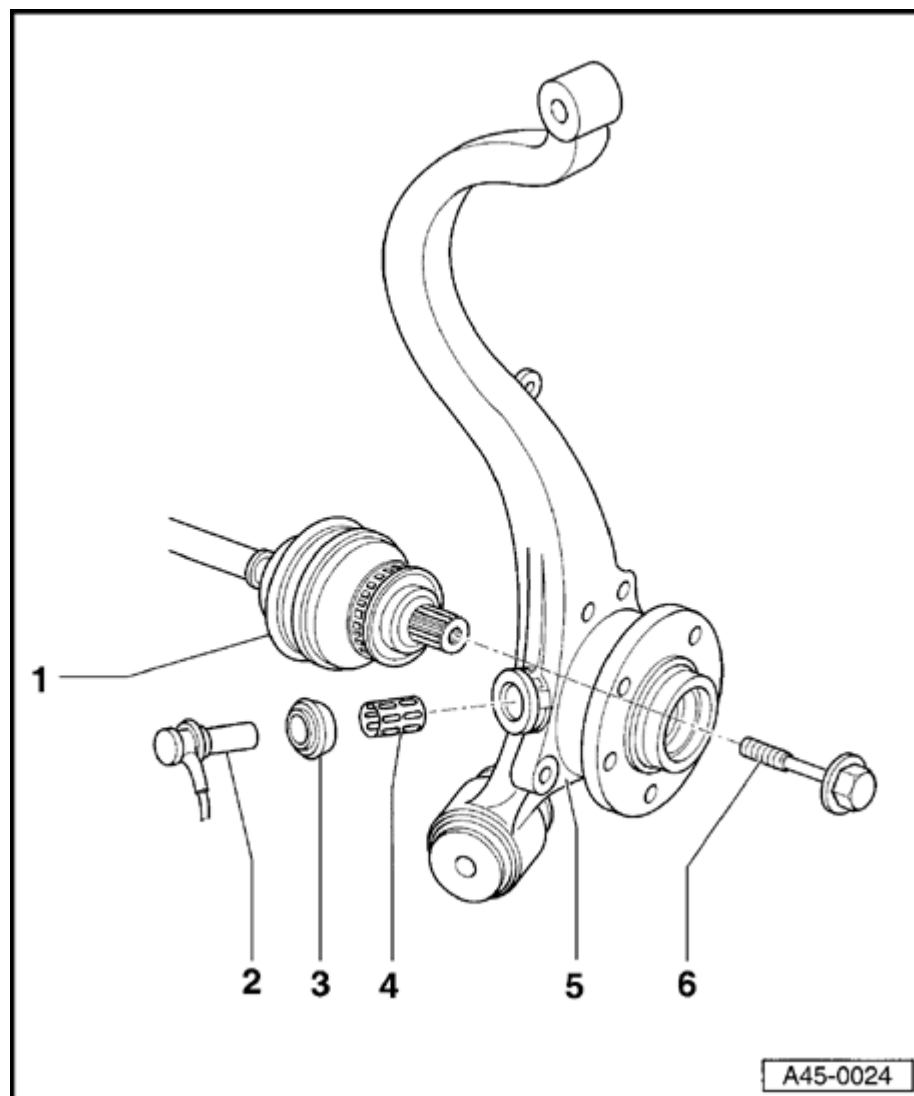
A

- Install grease cap.

**CAUTION!**

***Always replace the grease cap. Any damage to the cap will allow moisture in, which can destroy the wheel bearing.***

- Install brake caliper ⇒ [page 46-20](#) .

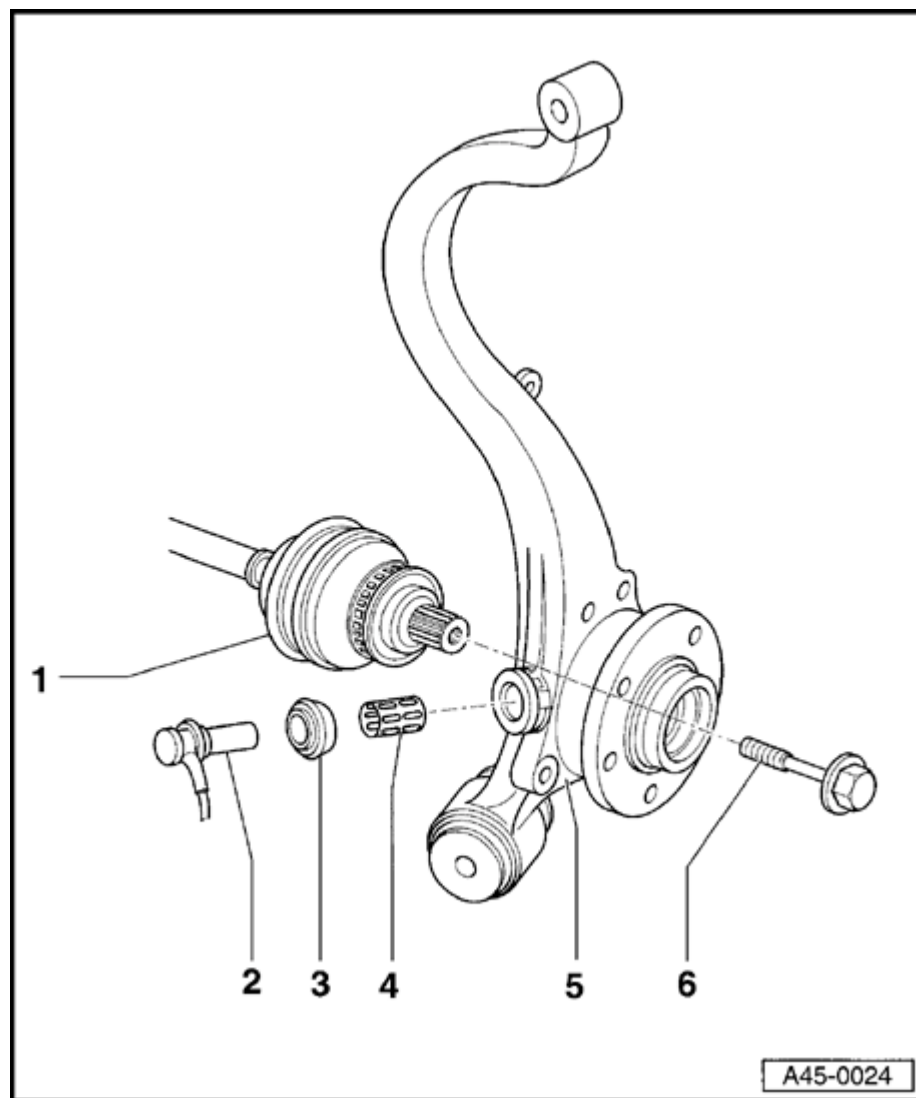


## Rear suspension ABS components for AWD models, removing and installing

### **WARNING!**

- ◆ *Do not re-use any fasteners that are worn or deformed in normal use.*
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### 1 - Drive axle with ABS wheel speed sensor rotor

- ◆ Examine rotor for signs of dirt and damage  
⇒ [page 45-40](#)
- ◆ If the rotor is damaged, replace outer CV joint along with rotor ⇒ [Repair Manual, Suspension, Wheels, Steering, Repair Group 42](#)
- ◆ Outer CV joint is supplied as replacement part with rotor

### 2 - ABS wheel speed sensor

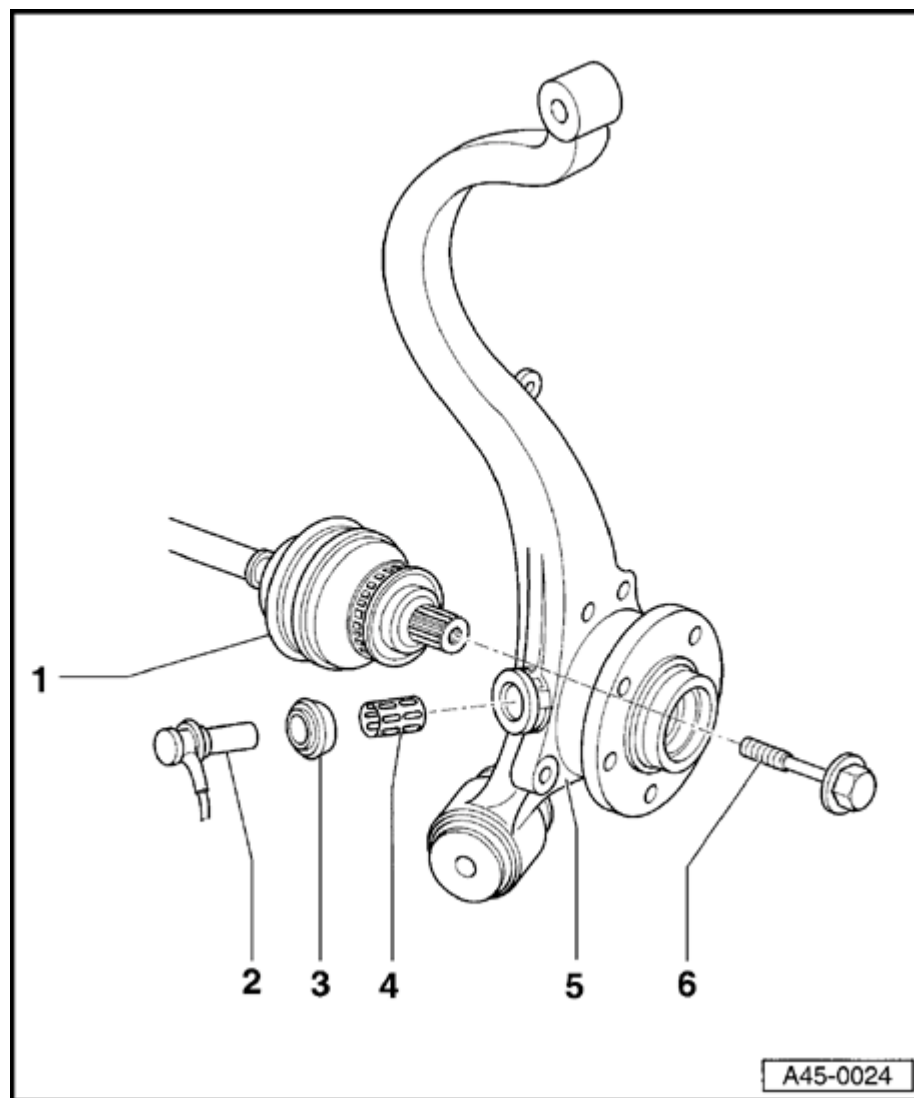
- ◆ Identical part on left and right
- ◆ Clean inside surface of hole before inserting sensor
- ◆ Replacing ⇒ [page 45-39](#)

### 3 - Boot seal

### 4 - Clamping sleeve

- ◆ Always replace
- ◆ Identical part on left and right
- ◆ Grease all around with assembly paste before inserting into wheel bearing housing
- ◆ Press into wheel bearing housing until fully seated

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**5 - Wheel bearing housing****6 - Hex bolt**

- ◆ M14 thread: tighten to 115 Nm (85 ft lb) plus additional 1/2-turn (180°)

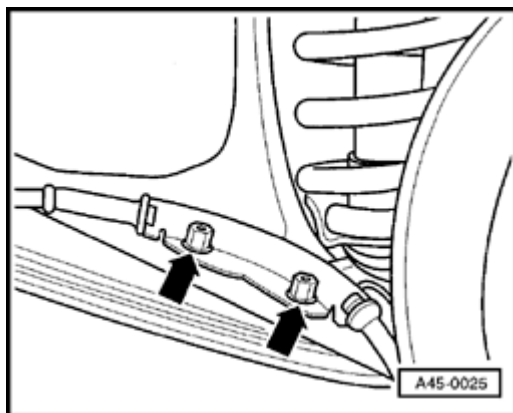
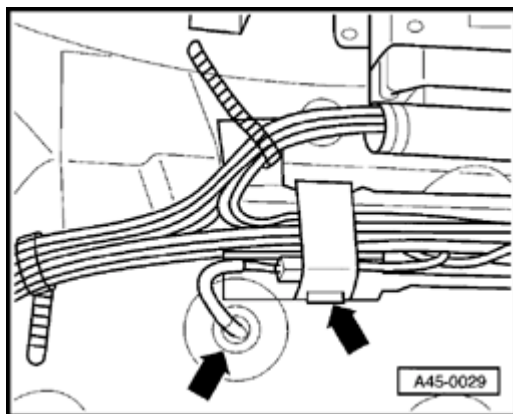
***WARNING!***

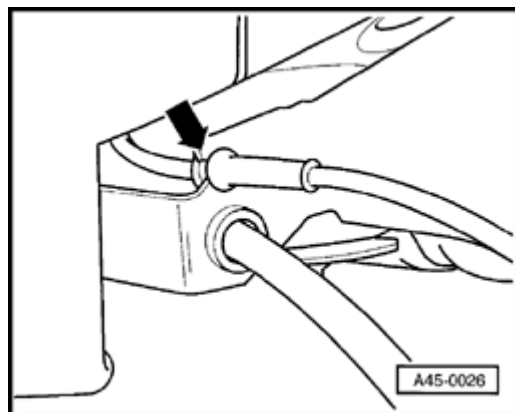
***Do not loosen and tighten hex bolt - 6 - unless car is standing on its wheels-risk of accident.***

## ABS wheel speed sensor on AWD rear axle, removing and installing

### Removing

- Switch ignition off.
- Lift rear seat out of its brackets.
- A** - Detach cable holder (right arrow), separate ABS wheel speed sensor harness connector and press out grommet (left arrow). Left and right sides are mirror images.
- Loosen wheel bolts.
- Raise vehicle.
- Remove wheel.
- A** - Remove nuts (arrows) securing ABS wheel speed sensor harness retaining plate.





A

- Release ABS wheel speed sensor harness from holder (arrow).
- Pull ABS wheel speed sensor out of wheel bearing housing.

### Installing

- Replace clamping sleeve ⇒ [page 45-37](#) item - 4 -.
- Before inserting wheel speed sensor, install boot seal and grease sensor all around with assembly paste. Then, press in wheel speed sensor by hand until fully seated.
- Re-route sensor harness in reverse order of removal.

### ABS wheel speed sensor rotor on AWD rear axle, examining

- Raise vehicle.
- Remove wheel.
- Pull ABS wheel speed sensor out of wheel bearing housing.
- Examine rotor for signs of dirt and damage.

### Note:

- ◆ *If the rotor is dirty or damaged, remove the drive axle. If the rotor is damaged, replace the outer CV joint together with the rotor.*

⇒ [Repair Manual, "Suspension, Wheels, Steering", Repair Group 42](#)

- ◆ *The outer CV joint is supplied as a replacement part with the rotor.*