# Workshop Manual

## Audi A4 2015 ➤
## Audi A4 Avant 2015 ➤
## Audi A5 2016 ➤
## Audi Q5 2017 ➤

## 6-speed manual gearbox 0CS, 0DJ, 0CX

Edition 10.2017

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# List of Workshop Manual Repair Groups

## Repair Group

00 - Technical data

30 - Clutch

34 - Controls, housing

35 - Gears, shafts

39 - Final drive - front differential

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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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# 00 – Technical data

## 1 Identification

(ARL005467; Edition 10.2017)

⇒ "1.1 Gearbox identification", page 1

⇒ "1.2 Identification - four-wheel drive coupling 0CJ or 0CX", page 3

## 1.1 Gearbox identification

⇒ "1.1.1 Gearbox identification - manual gearbox 0CS and 0DJ, front-wheel drive", page 1

⇒ "1.1.2 Gearbox identification - manual gearbox 0CX, four-wheel drive", page 2

### 1.1.1 Gearbox identification - manual gearbox 0CS and 0DJ, front-wheel drive

⇒ "4.1 Allocation of gearbox to engine", page 10

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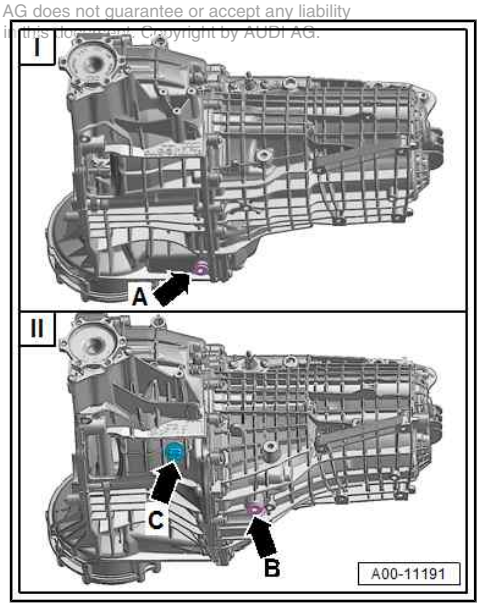
**Note**

- *From approx. 09/2016 onwards, manual gearboxes 0CS and 0DJ, front-wheel drive are fitted with a forced lubrication system.*
- *The gear wheels and bearings on these gearboxes are lubricated via a mechanical oil pump fitted in the gearbox.*
- *Visible differences ⇒ page 1*
- *Allocation according to gearbox code letters ⇒ page 10*




**Differentiation of manual gearbox 0CS, 0DJ with and without forced lubrication**

**I - Manual gearbox without forced lubrication**

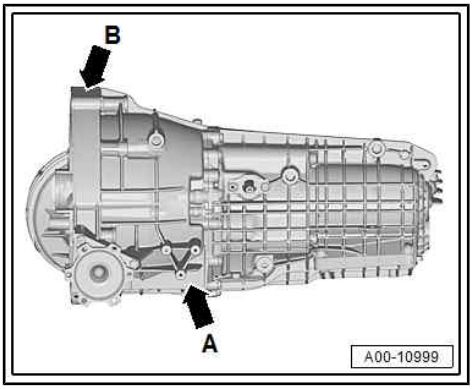
- Oil drain plug -arrow A- is located in gearbox housing

**II - Manual gearbox with forced lubrication**

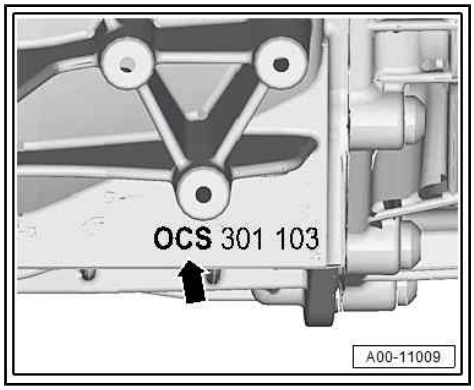
- Oil drain plug -arrow B- is located in gearbox cover
- Additional opening in gearbox housing with sealing plug -arrow C-

**Location on gearbox**

- -Arrow A- Manual gearbox 0CS or 0DJ ⇒ page 2
- -Arrow B- Code letters and production date ⇒ page 2



**Manual gearbox 0CS or 0DJ -arrow-**

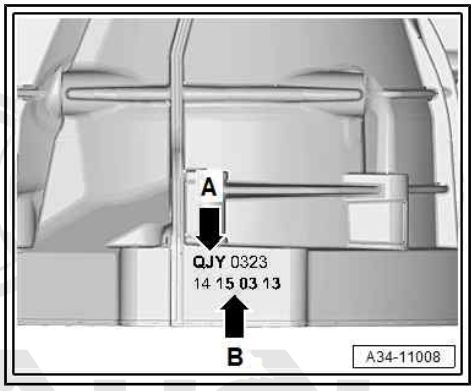



- The part number for the gearbox housing (0CS 301 103 in the example) may start with “0CS” or “0DJ”.
- The basic design of manual gearboxes 0CS and 0DJ is the same.

Difference:

- Gearbox 0CS does not have weight-optimising modifications.
- Gearbox 0DJ has weight-optimising modifications.
- They can only be distinguished by referring to the gearbox code letters
  ⇒ “4.1 Allocation of gearbox to engine”, page 10 .

**Code letters -arrow A- and production date of gearbox -arrow B-**




| Example: | QJY | 15 03 13 |
|---|---|---|
| | Code letters | Production date: 15.03.2013 |

**Note**

- *Additional data depend on manufacture.*
- *The code letters for the gearbox are also given on the vehicle data stickers.*

## 1.1.2 Gearbox identification - manual gearbox 0CX, four-wheel drive

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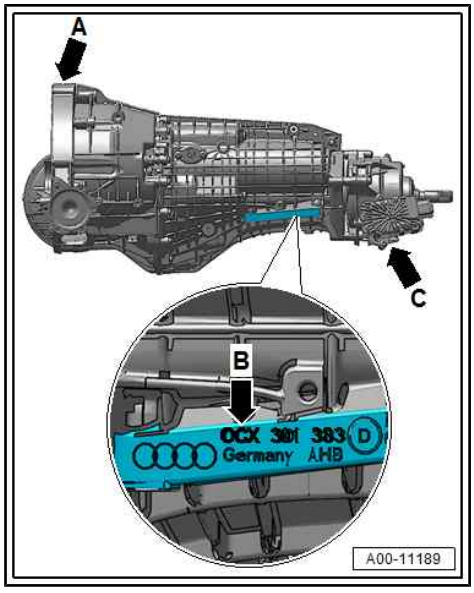
**Note**

- *All manual gearboxes 0CX, four-wheel drive, are fitted with a forced lubrication system.*
- *The gear wheels and bearings on these gearboxes are lubricated via a mechanical oil pump fitted in the gearbox.*

⇒ “4.1 Allocation of gearbox to engine”, page 10

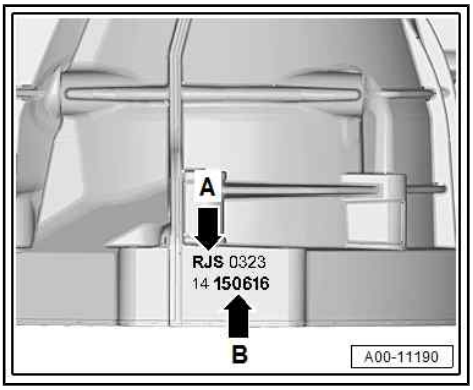
**Location on gearbox**




- -Arrow A- Code letters and production date ⇒ page 3
- -Arrow B- manual gearbox 0CX
- -Arrow C- four-wheel drive coupling 0CJ or 0CX
  ⇒ “1.2 Identification - four-wheel drive coupling 0CJ or 0CX”, page 3

**Code letters -arrow A- and production date of gearbox -arrow B-**

| Example: | RJS | 15 06 16 |
|---|---|---|
| | Code letters | Production date: 15.06.2016 |




**Note**

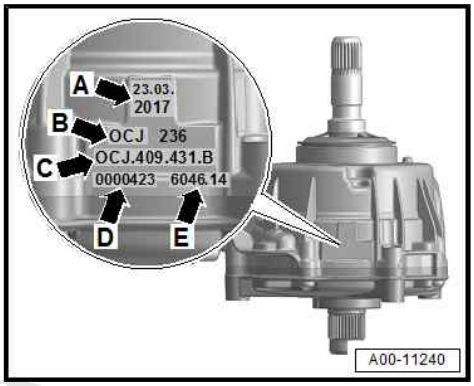
- *Additional data depend on manufacture.*
- *The code letters for the gearbox are also given on the vehicle data stickers.*

## 1.2 Identification - four-wheel drive coupling 0CJ or 0CX

**Note**

- *There are two versions of the four-wheel drive coupling. As they look identical, they can only be distinguished from each other by the part number.*
- *Four-wheel drive coupling 0CJ can transfer up to 800 Nm.*
- *Four-wheel drive coupling 0CX can transfer up to 1200 Nm.*
- *For extensive information on how to perform the repair, refer to ⇒ Rear final drive; Rep. gr. 39 ; Four-wheel drive coupling .*

**Location on four-wheel drive coupling 0CJ or 0CX**




- -Arrow A- Production date

Example: 23.03.2017

- -Arrow B- Type of four-wheel drive coupling

Example: 0CJ

- -Arrow C- Part number

Example: 0CJ 409 431 B

- -Arrow D- Serial number

Example: 0000423

- -Arrow E- Coupling classification

Example: 6046.14

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# 2 Safety precautions

⇒ “2.1 Safety precautions when working on vehicles with start/stop system”, page 4

⇒ “2.2 Safety precautions when working on subframe”, page 4

## 2.1 Safety precautions when working on vehicles with start/stop system

**WARNING**

*Risk of injury due to automatic engine start on vehicles with start/stop system.*

- *On vehicles with activated start/stop system (this is indicated by a message in the instrument cluster display), the engine may start automatically on demand.*
- *It is important to ensure that the start/stop system is deactivated when performing repairs (switch off ignition, if required switch on ignition again).*

## 2.2 Safety precautions when working on subframe

Note the following when working on the subframe:

**Caution**

*Risk of damage to parts of the running gear.*

- *Do not let the vehicle down on the wheels if the gearbox mounting, steering rack or subframe cross brace are not properly installed.*
- *Do NOT support the vehicle at the subframe or the subframe cross brace (e.g. with a trolley jack).*

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# 3 Repair instructions

⇒ "3.1 General repair instructions", page 5

⇒ "3.2 Contact corrosion", page 8

## 3.1 General repair instructions

Proper tools and the maximum possible care and cleanliness are essential for satisfactory repairs to the transmission units. The usual basic safety precautions also naturally apply when carrying out repair work.

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To avoid repetition, a number of generally applicable instructions for the various repair procedures are summarised here. They apply to the work described in this Manual.

### Special tool

For a complete list of special tools used in this Workshop Manual ⇒ Workshop equipment and special tools .

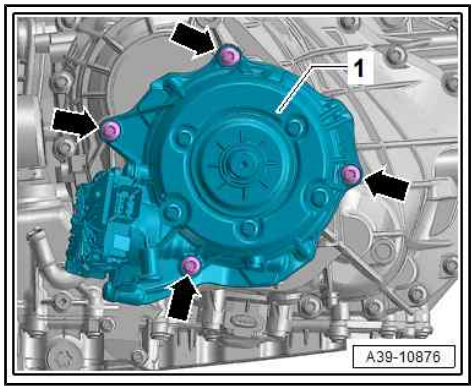
### Gearbox

- From approx. 09/2016 onwards, manual gearboxes 0CS and 0DJ, front-wheel drive are fitted with a forced lubrication system.
- Identification ⇒ page 1
- The gear wheels and bearings on these gearboxes are lubricated via a mechanical oil pump fitted in the gearbox.

> **Caution**
>
> *After gearbox repairs have been performed, the gear wheels may be insufficiently lubricated as air bubbles may have formed in the oil circuit.*
>
> - *To ensure that all gear wheels are supplied with enough gear oil on gearboxes with forced lubrication, these vehicles must only be driven at very low throttle for the first 30 seconds.*

- Manual gearbox 0CX, four-wheel drive, is always fitted with a forced lubrication system.
- The replacement manual gearbox 0CX, four-wheel drive, is always offered without all-wheel drive coupling.
- When exchanging or repairing the manual gearbox, check the oil level and fill up with oil if necessary ⇒ page 97 .
- For fluid capacities and specifications, refer to appropriate code letters ⇒ page 10 .
- Allocate bolts and other components according to gearbox code letters, refer to ⇒ Electronic parts catalogue .
- Thoroughly clean all joints and connections and the surrounding areas before disconnecting.
- When installing gearbox ensure dowel sleeves are correctly seated.

### Four-wheel drive coupling “quattro ultra”

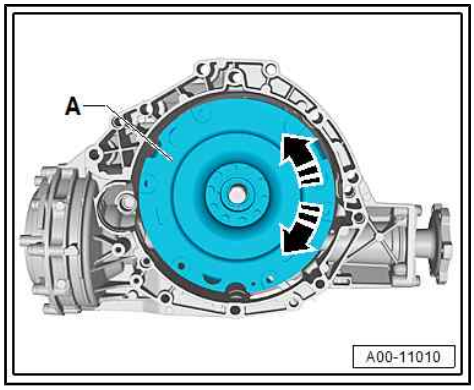



- For extensive information on how to repair the four-wheel drive coupling -1-, refer to ⇒ Rear final drive; Rep. gr. 39 ; Four-wheel drive coupling .
- The four-wheel drive coupling has its own oil supply.
- When exchanging or repairing the four-wheel drive coupling, check the ATF level and add ATF if necessary ⇒ Rear final drive; Rep. gr. 39 ; Four-wheel drive coupling; Checking fluid level .
- Removing and installing four-wheel drive coupling ⇒ Rear final drive; Rep. gr. 39 ; Four-wheel drive coupling; Removing and installing four-wheel drive coupling .
- Removing and installing all-wheel drive control unit - J492- ⇒ Rear final drive; Rep. gr. 39 ; Four-wheel drive coupling; Removing and installing control unit .

### Clutch mechanism; clutch

- If the clutch pedal does not return to its initial position after it is released (clutch pedal in rest position), the clutch mechanism must be bled. Further measures ⇒ “1.7 Checking clutch master cylinder and clutch slave cylinder”, page 34 .
- The brake fluid in the clutch mechanism should be changed at the same intervals as the brake fluid in the brake system ⇒ Maintenance ; Booklet 411 ; Description of work; Brake fluid: changing (every 2 years) .

“Clacking” sound in LuK version dual-mass flywheel with centrifugal pendulum absorber




- Depending on version, clutch modules -A- with or without centrifugal pendulum absorbers may be fitted.
- When a clutch module with a centrifugal pendulum absorber is turned by hand, a clacking sound can be heard at intervals of approx. 90°.
- This is caused by a centrifugal pendulum absorber in the dual-mass flywheel and is not a fault.

### Sealants

- Thoroughly clean housing contact surfaces before applying sealing paste.
- Breather holes must remain free of sealing paste.
- Apply sealing paste (⇒ Electronic parts catalogue ) evenly and not too thickly.

### O-rings, seals, oil seals and gaskets

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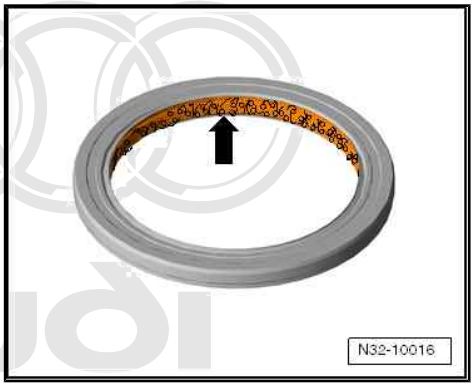
- Always renew O-rings, seals, oil seals and gaskets after removal.
- The seals for the flange shafts, input shaft and selector shaft are normally referred to as oil seals.
- After removing gaskets and oil seals, always inspect the contact surface on the housing or shaft for burrs resulting from removal or for other signs of damage.
- Thoroughly clean housing joint surfaces before assembling.
- Before installing oil seals, lightly oil the outer circumference of the seal and fill the space between the sealing lips -arrow- about half full with grease ⇒ Electronic parts catalogue .
- The open side of the oil seal should face the side containing the fluid.
- When installing a new oil seal, position the seal such that the sealing lip does not contact the shaft in the same place as the old seal (make use of installation depth tolerances).
- Lightly lubricate O-rings before installation to prevent them from being trapped and damaged during assembly.
- After renewing gaskets, seals, O-rings and oil seals, check fluid level and fill up if necessary ⇒ Rear final drive; Rep. gr. 39 ; Four-wheel drive coupling; Checking fluid level .

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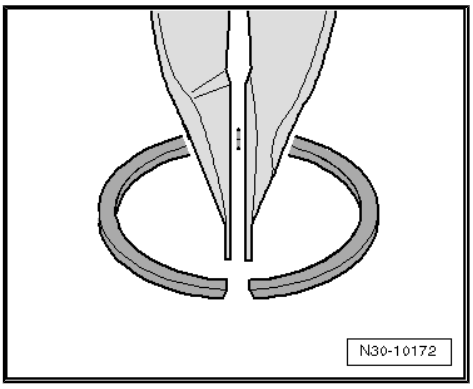
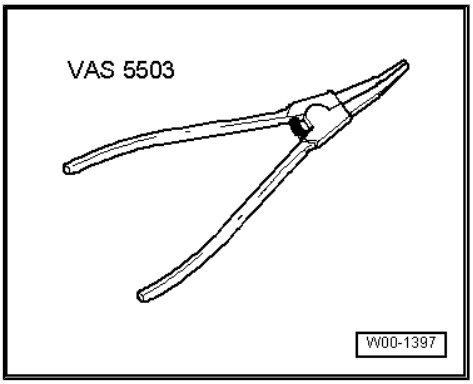
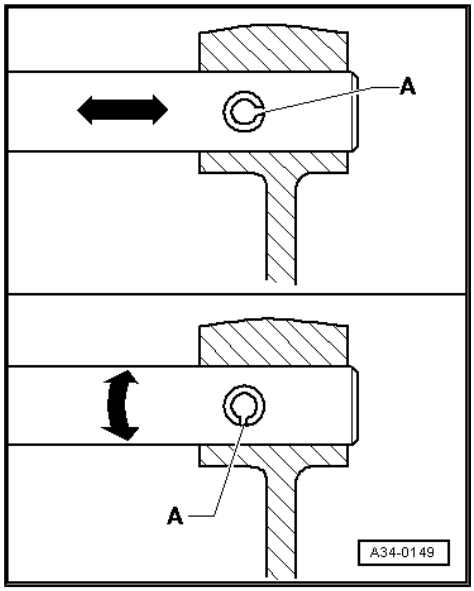
**Locking elements**



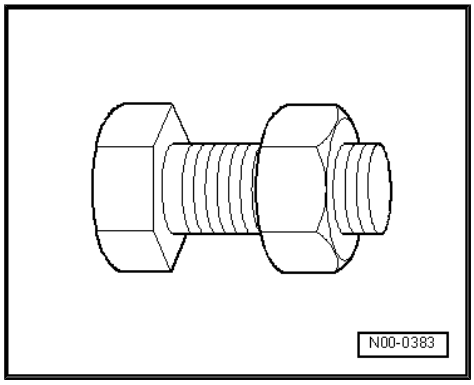



- Do not over-stretch circlips.
- Always renew circlips which have been damaged or over-stretched.
- Installation position for some circlips: the circlip is fitted so that the narrow part of the gap is at the top. This also gives the pliers a better grip when removing and installing.
- To facilitate assembly, use circlip pliers - VAS 5503A- .
- Circlips must be properly seated in the base of the groove.
- Renew spring pins. Position: the slit -A- should be in line with the line of force -arrow-.
-




**Nuts, bolts**

- Loosen the nuts and bolts in reverse sequence to the specified tightening sequence.
- Nuts and bolts which secure covers and housings should be loosened and tightened in diagonal sequence and in stages if no tightening sequence is specified.
- Loosen and tighten particularly sensitive parts in diagonal sequence and in stages, taking care to keep them straight.
- The tightening torques stated apply to non-oiled nuts and bolts.
- Always renew self-locking bolts and nuts.
- Use a wire brush to clean the threads of bolts which are secured with locking fluid. Then install bolts with locking fluid ; for locking fluid refer to ⇒ Electronic parts catalogue .
- Threaded holes which take self-locking bolts or bolts coated with locking fluid must be cleaned using a thread tap or similar. Otherwise there is a danger of the bolts shearing off the next time they are removed.
- To avoid damage to thread, check thread pitch to ensure that correct thread tap is used for cleaning.




## 3.2 Contact corrosion

Contact corrosion can occur if unsuitable fasteners are used (e.g. bolts, nuts, washers, etc.).

For this reason, only fasteners with a special surface coating are fitted.

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In addition, rubber components, plastic components and adhesives are made of non-conductive material.

If you are not sure whether used parts can be re-installed, always fit new parts ⇒ Electronic parts catalogue .

**Please note:**

- We recommend using only genuine spare parts: these have been fully tested and are compatible with aluminium.
- We recommend the use of accessories approved by Audi.

- Damage caused by contact corrosion is not covered by warranty.

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# 4 Technical data

⇒ “4.1 Allocation of gearbox to engine”, page 10

⇒ “4.2 Capacities”, page 15

## 4.1 Allocation of gearbox to engine

⇒ “4.1.1 Allocation - 6-speed manual gearbox 0DJ, front-wheel drive, Audi Q5”, page 10

⇒ “4.1.2 Allocation - 6-speed manual gearbox 0DJ, front-wheel drive, Audi A4 and A5”, page 11

⇒ “4.1.3 Allocation - 6-speed manual gearbox 0CS, front-wheel drive, Audi A4 and A5”, page 12

⇒ “4.1.4 Allocation - 6-speed manual gearbox 0CX, four-wheel drive, Audi Q5”, page 13

⇒ “4.1.5 Allocation - 6-speed manual gearbox 0CX, four-wheel drive, Audi A4 and A5”, page 14

### 4.1.1 Allocation - 6-speed manual gearbox 0DJ, front-wheel drive, Audi Q5

**Note**

- *The manual gearbox 0DJ (four-wheel drive) on the Audi Q5 is always fitted with a forced lubrication system.*
- *The gear wheels and bearings on this gearbox are lubricated via a mechanical oil pump fitted in the gearbox.*
- *Identification ⇒ page 1*

**The following data can be found in the ⇒ Electronic parts catalogue .**

- Production date
- Gear oil specification
- Individual gear ratios
- Correct type of flange shafts
- Correct type of dual-mass flywheel
- Correct type of clutch plate and pressure plate

| Manual gearbox | | 6-speed 0DJ (front-wheel drive) | | |
|---|---|---|---|---|
| Code letters | | RNX | | |
| Allocation | Model | Audi Q5 2017 ➢ | | |
| | Engine | 2.0 ltr. TDI - 100 kW<br>2.0 ltr. TDI - 110 kW | | |
| Ratio | Final drive | 40 : 16 = 2.500 | | |
| | Intermediate drive | 65 : 39 = 1.666 | | |
| Forced lubrication (with oil pump) | | No | | |

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## 4.1.2 Allocation - 6-speed manual gearbox 0DJ, front-wheel drive, Audi A4 and A5

**Note**

- *From approx. 09/2016 onwards, manual gearbox 0DJ, front-wheel drive is fitted with a forced lubrication system.*
- *The gear wheels and bearings on this gearbox are lubricated via a mechanical oil pump fitted in the gearbox.*
- *Identification* ⇒ page 1

**The following data can be found in the ⇒ Electronic parts catalogue .**

- Production date
- Gear oil specification
- Individual gear ratios
- Correct type of flange shafts
- Correct type of dual-mass flywheel
- Correct type of clutch plate and pressure plate

| Manual gearbox | | 6-speed 0DJ (front-wheel drive) | | |
|---|---|---|---|---|
| Code letters | | PZE | PZF | PZG |
| Allocation | Model | Audi A4 2015 ➢ | Audi A4 2015 ➢ | |
| | Engine | 2.0 ltr. TDI - 100 kW<br>2.0 ltr. TDI - 110 kW | 2.0 ltr. TDI - 110 kW | 1.4 ltr. TFSI - 110 kW |
| Ratio | Final drive | 41 : 17 = 2.412 | 41 : 17 = 2.412 | 41 : 17 = 2.412 |
| | Intermediate drive | 62 : 42 = 1.476 | 60 : 44 = 1.364 | 62 : 42 = 1.476 |
| Forced lubrication (with oil pump) | | No | No | No |

| Manual gearbox | | 6-speed 0DJ (front-wheel drive) | | |
|---|---|---|---|---|
| Code letters | | PZH | PZJ | RKD |
| Allocation | Model | Audi A4 2015 ➢<br>Audi A5 2017 ➢ | Audi A4 2015 ➢ | Audi A4 2015 ➢ |
| | Engine | 2.0 ltr. TFSI CNG - 125 kW | 2.0 ltr. TDI - 90 kW | 2.0 ltr. TFSI - 140 kW |
| Ratio | Final drive | 41 : 17 = 2.412 | 41 : 17 = 2.412 | 40 : 16 = 2.500 |
| | Intermediate drive | 62 : 42 = 1.476 | 60 : 44 = 1.364 | 60 : 44 = 1.364 |
| Forced lubrication (with oil pump) | | Yes | No | No |

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| Manual gearbox | | 6-speed 0DJ (front-wheel drive) | | |
|---|---|---|---|---|
| Code letters | | RYH | RYJ | RYK |
| Allocation | Model | Audi A4 2015 ➢ | Audi A4 2015 ➢<br>Audi A5 2017 ➢ | Audi A4 2015 ➢ |

| Manual gearbox | | 6-speed 0DJ (front-wheel drive) | | |
|---|---|---|---|---|
| | Engine | 1.4 ltr. TFSI - 110 kW | 2.0 ltr. TDI - 100 kW<br>2.0 ltr. TDI - 110 kW | 2.0 ltr. TDI - 110 kW |
| Ratio | Final drive | 41 : 17 = 2.412 | 41 : 17 = 2.412 | 41 : 17 = 2.412 |
| | Intermediate drive | 62 : 42 = 1.476 | 62 : 42 = 1.476 | 60 : 44 = 1.364 |
| Forced lubrication (with oil pump) | | Yes | Yes | Yes |

| Manual gearbox | | 6-speed 0DJ (front-wheel drive) | | |
|---|---|---|---|---|
| Code letters | | RYL | RYN | |
| Allocation | Model | Audi A4 2015 ➤ | Audi A4 2015 ➤<br>Audi A5 2017 ➤ | |
| | Engine | 2.0 ltr. TDI - 90 kW | 2.0 ltr. TFSI - 140 kW | |
| Ratio | Final drive | 41 : 17 = 2.412 | 40 : 16 = 2.500 | |
| | Intermediate drive | 60 : 44 = 1.364 | 60 : 44 = 1.364 | |
| Forced lubrication (with oil pump) | | Yes | Yes | |

## 4.1.3 Allocation - 6-speed manual gearbox 0CS, front-wheel drive, Audi A4 and A5

**Note**

- *From approx. 09/2016 onwards, manual gearbox 0CS, front-wheel drive is fitted with a forced lubrication system.*
- *The gear wheels and bearings on this gearbox are lubricated via a mechanical oil pump fitted in the gearbox.*
- *Identification ⇒ page 1*

**The following data can be found in the ⇒ Electronic parts catalogue .**

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- Production date
- Gear oil specification
- Individual gear ratios
- Correct type of flange shafts
- Correct type of dual-mass flywheel
- Correct type of clutch plate and pressure plate

| Manual gearbox | | 6-speed 0CS (front-wheel drive) | | |
|---|---|---|---|---|
| Code letters | | PYY | PYZ | RYQ |
| Allocation | Model | Audi A4 2015 ➤ | Audi A4 2015 ➤ | Audi A4 2015 ➤<br>Audi A5 2017 ➤ |
| | Engine | 2.0 ltr. TDI - 140 kW | 2.0 ltr. TDI - 140 kW | 2.0 ltr. TDI - 140 kW |
| Ratio | Final drive | 41 : 17 = 2.412 | 41 : 17 = 2.412 | 41 : 17 = 2.412 |
| | Intermediate drive | 60 : 44 = 1.364 | 62 : 42 = 1.476 | 62 : 42 = 1.476 |

| Manual gearbox | | 6-speed 0CS (front-wheel drive) | | |
|---|---|---|---|---|
| Forced lubrication (with oil pump) | | No | No | Yes |

| Manual gearbox | | 6-speed 0CS (front-wheel drive) | | |
|---|---|---|---|---|
| Code letters | | RYR | | |
| Allocation | Model | Audi A4 2015 ➢<br>Audi A5 2017 ➢ | | |
| | Engine | 2.0 ltr. TDI - 140 kW | | |
| Ratio | Final drive | 41 : 17 = 2.412 | | |
| | Intermediate drive | 60 : 44 = 1.364 | | |
| Forced lubrication (with oil pump) | | Yes | | |

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## 4.1.4 Allocation - 6-speed manual gearbox 0CX, four-wheel drive, Audi Q5

**Note**

- *Manual gearbox 0CX, four-wheel drive, is always fitted with a forced lubrication system.*
- *The gear wheels and bearings on this gearbox are lubricated via a mechanical oil pump fitted in the gearbox.*
- *Identification* ⇒ page 1

**The following data can be found in the ⇒ Electronic parts catalogue .**

- Production date
- Gear oil specification
- Individual gear ratios
- Correct type of flange shafts
- Correct type of dual-mass flywheel
- Correct type of clutch plate and pressure plate

| Manual gearbox | | 6-speed 0CX, four-wheel drive | | |
|---|---|---|---|---|
| Code letters | | RPR | RPS | |
| Allocation | Model | Audi Q5 2017 ➢ | Audi Q5 2017 ➢ | |
| | Engine | 2.0 ltr. TDI - 140 kW | 2.0 ltr. TDI - 100 kW<br>2.0 ltr. TDI - 110 kW | |
| Ratio | Final drive | 45 : 17 = 2.647 | 45 : 17 = 2.647 | |
| | Intermediate drive | 65 : 39 = 1.666 | 65 : 39 = 1.666 | |
| Forced lubrication (with oil pump) | | Yes | Yes | |

## 4.1.5 Allocation - 6-speed manual gearbox 0CX, four-wheel drive, Audi A4 and A5

**Note**

- *Manual gearbox 0CX, four-wheel drive, is always fitted with a forced lubrication system.*
- *The gear wheels and bearings on this gearbox are lubricated via a mechanical oil pump fitted in the gearbox.*
- *Identification ⇒ page 1*

**The following data can be found in the ⇒ Electronic parts catalogue .**

- Production date
- Gear oil specification
- Individual gear ratios
- Correct type of flange shafts
- Correct type of dual-mass flywheel
- Correct type of clutch plate and pressure plate

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| Manual gearbox | | 6-speed 0CX, four-wheel drive | | |
|---|---|---|---|---|
| Code letters | | RJL | RJM | RJN |
| Allocation | Model | Audi A4 2015 ► Audi A5 2017 ► | Audi A4 2015 ► Audi A5 2017 ► | Audi A4 2015 ► Audi A5 2017 ► |
| | Engine | 2.0 ltr. TDI - 110 kW | 2.0 ltr. TDI - 140 kW | 2.0 ltr. TFSI - 183 kW 2.0 ltr. TFSI - 185 kW |
| Ratio | Final drive | 41 : 17 = 2.412 | 41 : 17 = 2.412 | 41 : 17 = 2.412 |
| | Intermediate drive | 62 : 42 = 1.476 | 62 : 42 = 1.476 | 62 : 42 = 1.476 |
| Forced lubrication (with oil pump) | | Yes | Yes | Yes |

| Manual gearbox | | 6-speed 0CX, four-wheel drive | | |
|---|---|---|---|---|
| Code letters | | RJS | RJT | |
| Allocation | Model | Audi A4 2015 ► | Audi A4 2015 ► | |
| | Engine | 2.0 ltr. TDI - 110 kW | 2.0 ltr. TDI - 140 kW | |
| Ratio | Final drive | 45 : 17 = 2.647 | 45 : 17 = 2.647 | |
| | Intermediate drive | 62 : 42 = 1.476 | 62 : 42 = 1.476 | |
| Forced lubrication (with oil pump) | | Yes | Yes | |

## 4.2 Capacities

⇒ "4.2.1 Capacities - 6-speed manual gearbox 0CS and 0DJ, front-wheel drive", page 15

⇒ "4.2.2 Capacities - 6-speed manual gearbox 0CX, four-wheel drive", page 15

⇒ "4.2.3 Capacity of four-wheel drive coupling 0CX, 0DJ", page 16

### 4.2.1 Capacities - 6-speed manual gearbox 0CS and 0DJ, front-wheel drive

**Note**

- *6-speed manual gearbox 0CS and 0DJ, front-wheel drive, are available with and without a forced lubrication system.*
- *The oil capacity is reduced on gearboxes with forced lubrication.*
- *Identification ⇒ page 1*

| Manual gearbox | 6-speed 0CS, 0DJ (front-wheel drive) | |
|---|---|---|
| Capacity on gearbox without forced lubrication | 2.5 ltr. | |
| Capacity on gearbox with forced lubrication | Filling with new oil | Changing gear oil |
| | 1.8 ltr. | 1.1 ltr.<br>(0.7 ltr. remain in gearbox) |
| ♦ Gear oil specifications ⇒ Electronic parts catalogue | | |

### 4.2.2 Capacities - 6-speed manual gearbox 0CX, four-wheel drive

| Manual gearbox | 6-speed 0CX, four-wheel drive | |
|---|---|---|
| Capacity on gearbox with forced lubrication | Filling with new oil | Changing gear oil |

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| Manual gearbox | 6-speed 0CX, four-wheel drive | |
|---|---|---|
| | 1.8 ltr. | 1.1 ltr.<br>(0.7 ltr. remain in gearbox) |
| ♦ Gear oil specifications ⇒ Electronic parts catalogue | | |

## 4.2.3 Capacity of four-wheel drive coupling 0CX, 0DJ

| Four-wheel drive coupling | Four-wheel drive coupling 0CX, 0DJ |
|---|---|
| Capacity of four-wheel drive coupling | ⇒ Rear final drive; Rep. gr. 00 ; Technical data; Capacities |

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# 5 Transmission layout

⇒ “5.1 Transmission layout - front-wheel drive”, page 17

⇒ “5.2 Transmission layout - four-wheel drive”, page 18

## 5.1 Transmission layout - front-wheel drive

**Identification and ratio**

**Note**

- *The layout of the components for front-wheel drive and four-wheel drive versions is identical.*
- *-Arrows- point in direction of travel.*

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**1 - Engine**

**2 - Drive plate**

- ❑ With needle bearing for gearbox input shaft

**3 - Clutch module**

- ❑ Consists of pressure plate, clutch plate and dual-mass flywheel with flange for drive plate

**4 - Front differential**

**5 - Output gear of intermediate drive**

**6 - Front pinion shaft**

**7 - Input gear of intermediate drive**

**8 - Manual gearbox**

**9 - Output shaft**

**10 - Input shaft (main shaft)**

**11 - Reverse gear wheel**

**I - 1st gear**

**II - 2nd gear**

**III - 3rd gear**

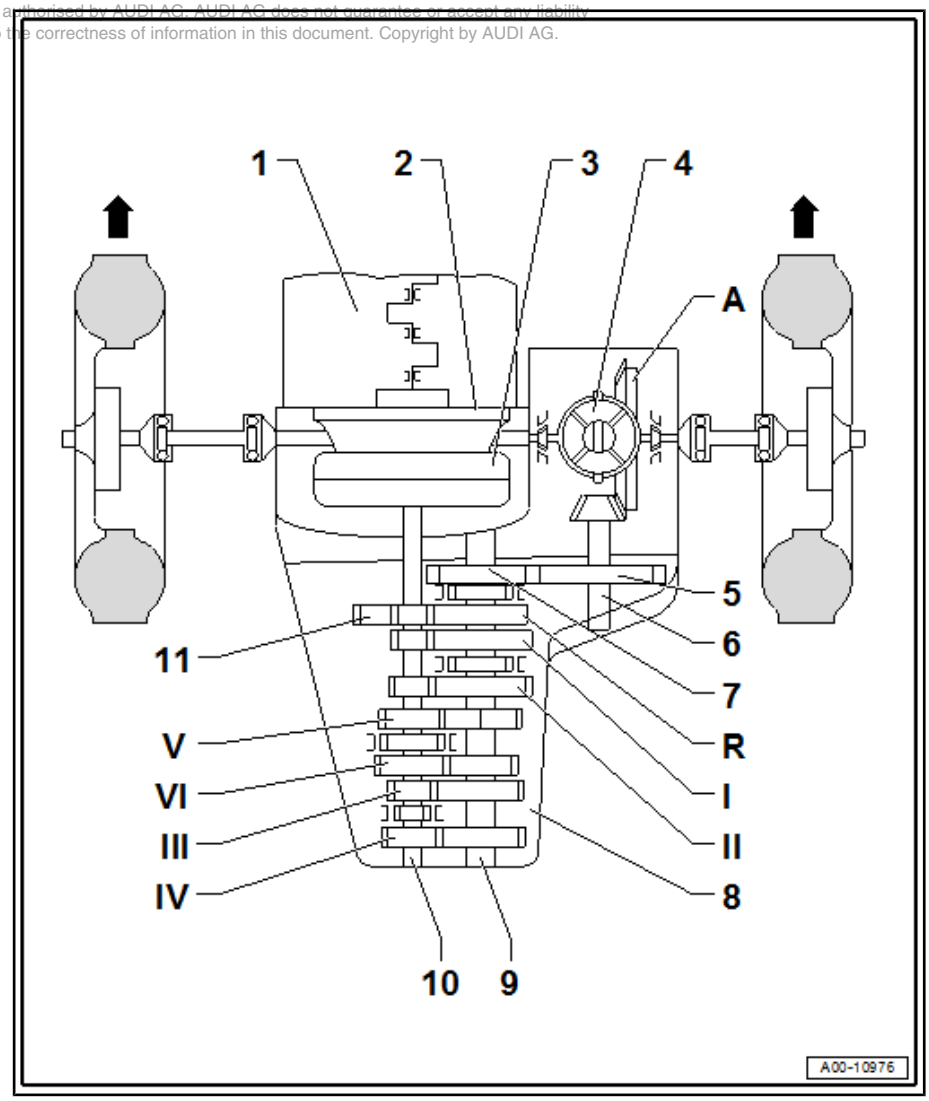
**IV - 4th gear**

**V - 5th gear**

**VI - 6th gear**

**R - Reverse gear**

**A - Front final drive**

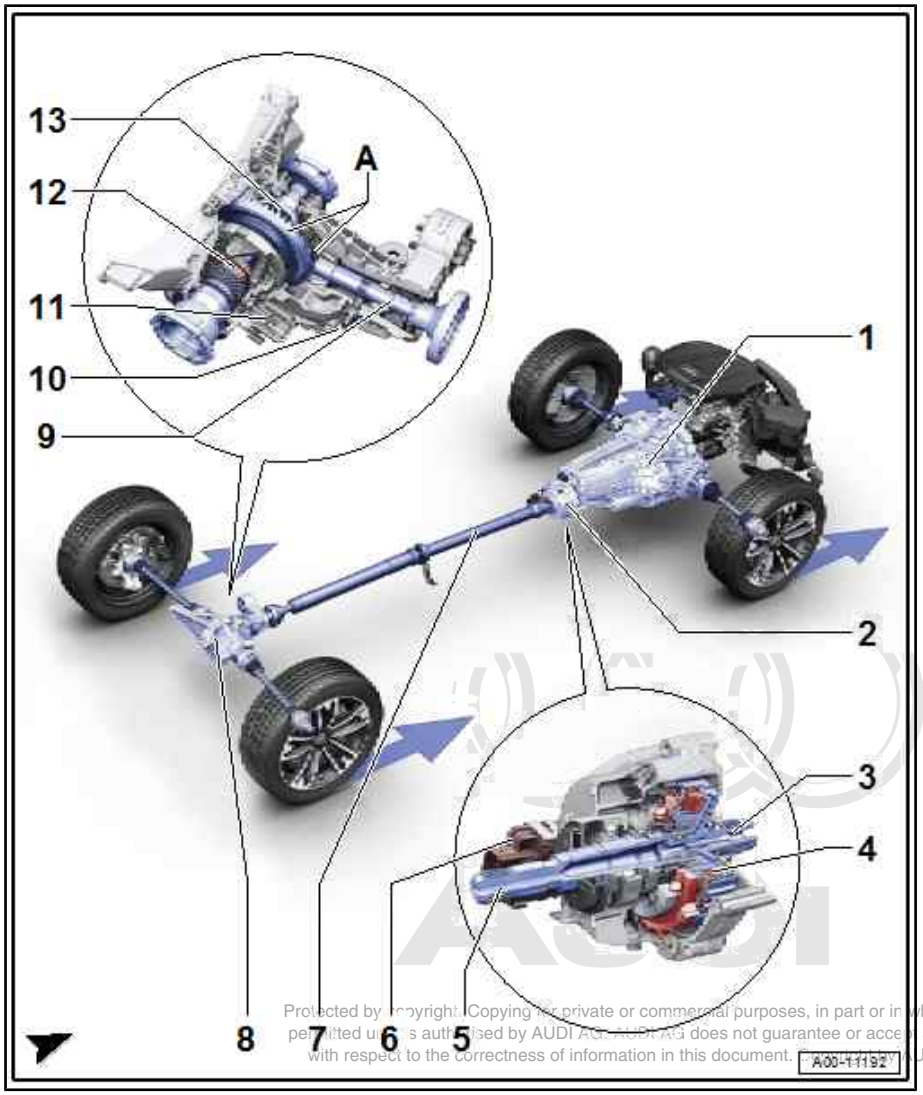


## 5.2 Transmission layout - four-wheel drive

**Identification and ratio**

**Note**

*-Arrows- point in direction of travel.*




**1 - Manual gearbox**

- ❑ Layout of components for front-wheel drive and four-wheel drive versions is identical ⇒ page 17
- ❑ Removing and installing ⇒ page 59

**2 - Four-wheel drive coupling**

- ❑ Servicing ⇒ Rear final drive; Rep. gr. 39 ; Four-wheel drive coupling

**3 - Four-wheel drive coupling input shaft**

**4 - Multi-plate clutch**

**5 - Four-wheel drive coupling output shaft**

**6 - All-wheel drive control unit - J492-**

The following are integrated in the all-wheel drive control unit :

- ♦ Clutch actuator for all-wheel drive - V622-
- ♦ Clutch position sender for all-wheel drive - G969-
  - ❑ Removing and installing ⇒ Rear final drive; Rep. gr. 39 ; Four-wheel drive coupling; Removing and installing control unit

**7 - Propshaft**

- ❑ Overview ⇒ Rear final drive; Rep. gr. 39 ; Propshaft

**8 - Rear final drive**

- ❑ Overview ⇒ Rear final drive; Rep. gr. 39 ; Final drive

**9 - Rear pinion shaft**

**10 - Propshaft speed sender - G970-**

**11 - Clutch actuator 2 for all-wheel drive - V623-**

**12 - Dog clutch**

**13 - Rear differential**

**A - Rear final drive**

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# 6 Electrical components

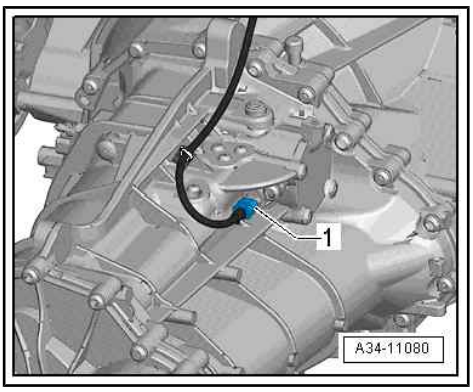
⇒ "6.1 Overview of fitting locations - electrical components", page 19

## 6.1 Overview of fitting locations - electrical components

**-1- Gear detection sensor - G604-**

Fitting location: on right side of gearbox in area of selector shaft

Removing and installing gear detection sensor - G604- ⇒ page 56

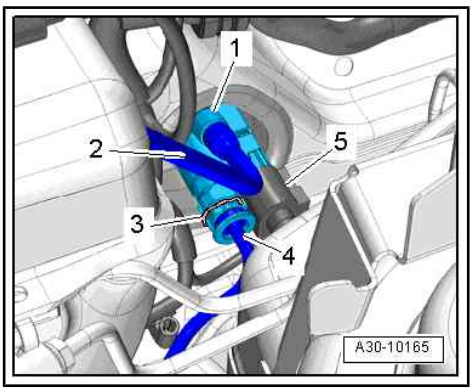



**-5- Clutch position sender - G476-**

Fitting location: on clutch master cylinder

- Clutch pedal switch - F36- and clutch pedal switch for engine start - F194- are integrated in the clutch position sender - G476- .
- Can only be renewed together with clutch master cylinder ⇒ Item 11 (page 21) .

– Removing and installing ⇒ page 29




**-1- All-wheel drive control unit - J492-**

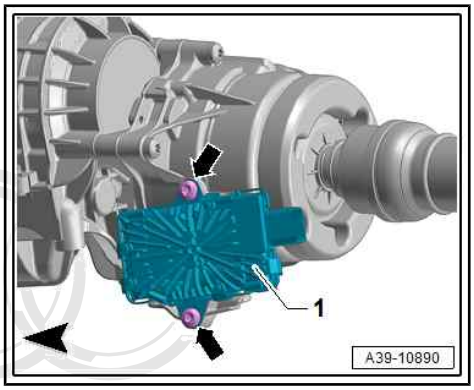
The following are integrated in the all-wheel drive control unit - J492- :

**Clutch actuator for all-wheel drive - V622-**

**Clutch position sender for all-wheel drive - G969-**

Fitting location: the all-wheel drive control unit - J492- -1- is located on rear left of gearbox on the four-wheel drive coupling.

– Removing and installing all-wheel drive control unit - J492- ⇒ Rear final drive; Rep. gr. 39 ; Four-wheel drive coupling; Removing and installing control unit .

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# 30 – Clutch

## 1 Clutch mechanism

⇒ “1.1 Exploded view - pedal cluster”, page 20

⇒ “1.2 Exploded view - clutch hydraulics”, page 24

⇒ “1.3 Removing and installing clutch pedal”, page 26

⇒ “1.4 Removing and installing over-centre spring”, page 27

⇒ “1.5 Removing and installing clutch master cylinder”, page 29

⇒ “1.6 Bleeding clutch hydraulics”, page 33

⇒ “1.7 Checking clutch master cylinder and clutch slave cylinder”, page 34

### 1.1 Exploded view - pedal cluster

⇒ “1.1.1 Exploded view - pedal cluster, LHD vehicles”, page 20

⇒ “1.1.2 Exploded view - pedal cluster, RHD vehicles”, page 22

#### 1.1.1 Exploded view - pedal cluster, LHD vehicles

**Caution**

*Risk of accident!*

- *The travel of the clutch pedal and the brake pedal must not be restricted due to additional floor mats or the like.*

**Note**

- *Lubricate all bearings and contact surfaces. Select correct type of grease from ⇒ Electronic parts catalogue .*
- *Make sure that no brake fluid escapes into the footwell, the plenum chamber or onto the gearbox below. If this does happen, clean the affected area thoroughly.*

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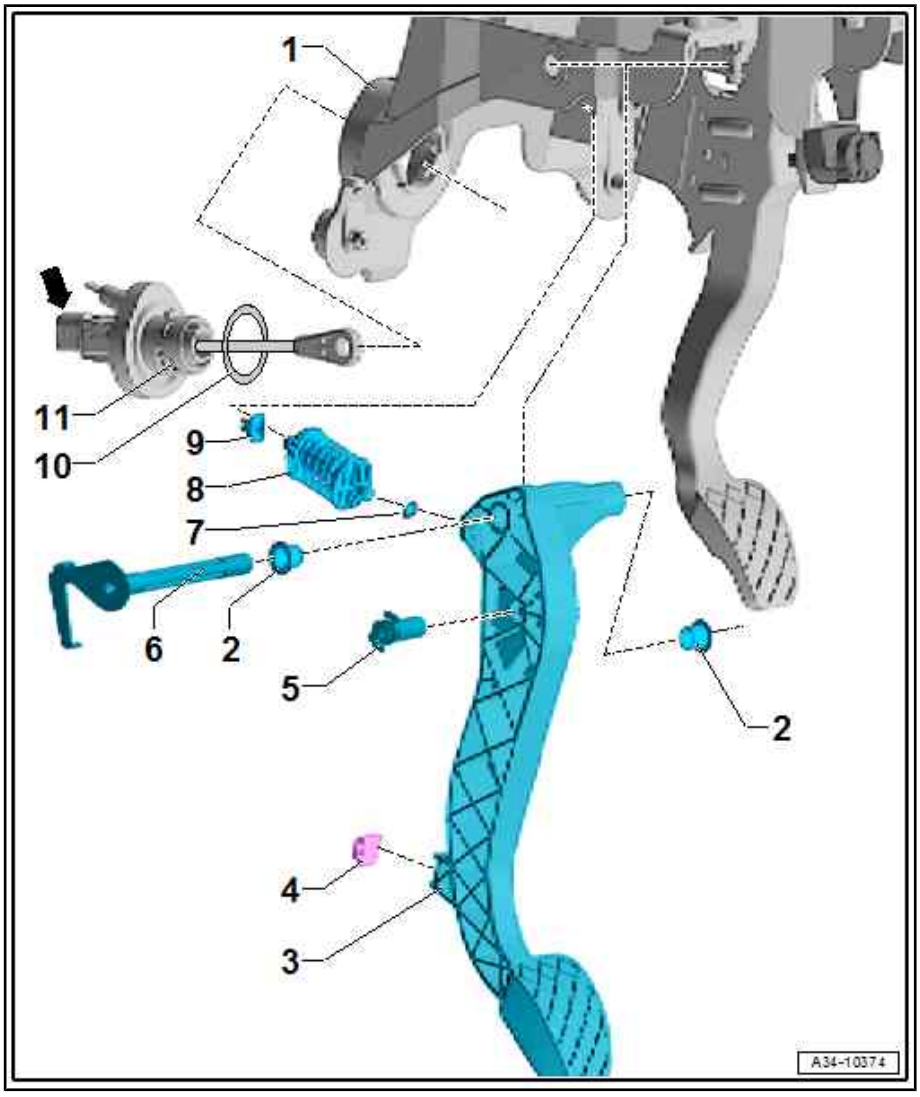


**1 - Mounting bracket**

- ❑ With brake pedal
- ❑ Removing and installing ⇒ Brake system; Rep. gr. 46 ; Brake pedal; Removing and installing mounting bracket

**2 - Bearing bush**

- ❑ Insert in clutch pedal

**3 - Clutch pedal**

- ❑ Removing and installing ⇒ page 26

**4 - Clutch pedal stop**

**5 - Locking pin**

- ❑ For clutch master cylinder
- ❑ Grease bearing surface

**6 - Pivot pin for clutch pedal**

- ❑ Grease bearing surface

**7 - Bearing shell**

- ❑ Located in clutch pedal

**8 - Over-centre spring**

- ❑ Black side points towards clutch pedal
- ❑ Removing and installing ⇒ page 27
- ❑ Allocate according to engine code ⇒ Electronic parts catalogue

**9 - Bearing shell**

- ❑ Note different bearing positions in mounting bracket ⇒ page 22

**10 - Seal**

- ❑ Renew after removing

**11 - Clutch master cylinder**

- ❑ With clutch position sender - G476- -arrow-
- ❑ Clutch position sender - G476- can only be renewed together with clutch master cylinder
- ❑ Clutch pedal switch - F36- and clutch pedal switch for engine start - F194- are integrated in clutch position sender - G476-
- ❑ Removing and installing ⇒ page 29
- ❑ Grease mounting eye of push rod

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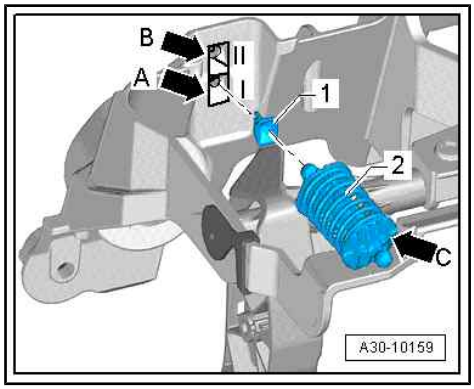
**Installing over-centre spring**

– Clip bearing shell -1- into appropriate bearing position.

| Bearing position | Length of over-centre spring |
|---|---|
| • “I” -arrow A-: | ♦ 40 mm |
| • “II” -arrow B- | ♦ 75 mm |




## 1.1.2 Exploded view - pedal cluster, RHD vehicles

**Caution**

*Risk of accident!*

- *The travel of the clutch pedal and the brake pedal must not be restricted due to additional floor mats or the like.*

**Note**

- *Lubricate all bearings and contact surfaces. Select correct type of grease from ⇒ Electronic parts catalogue .*
- *Make sure that no brake fluid escapes into the footwell, the plenum chamber or onto the gearbox below. If this does happen, clean the affected area thoroughly.*

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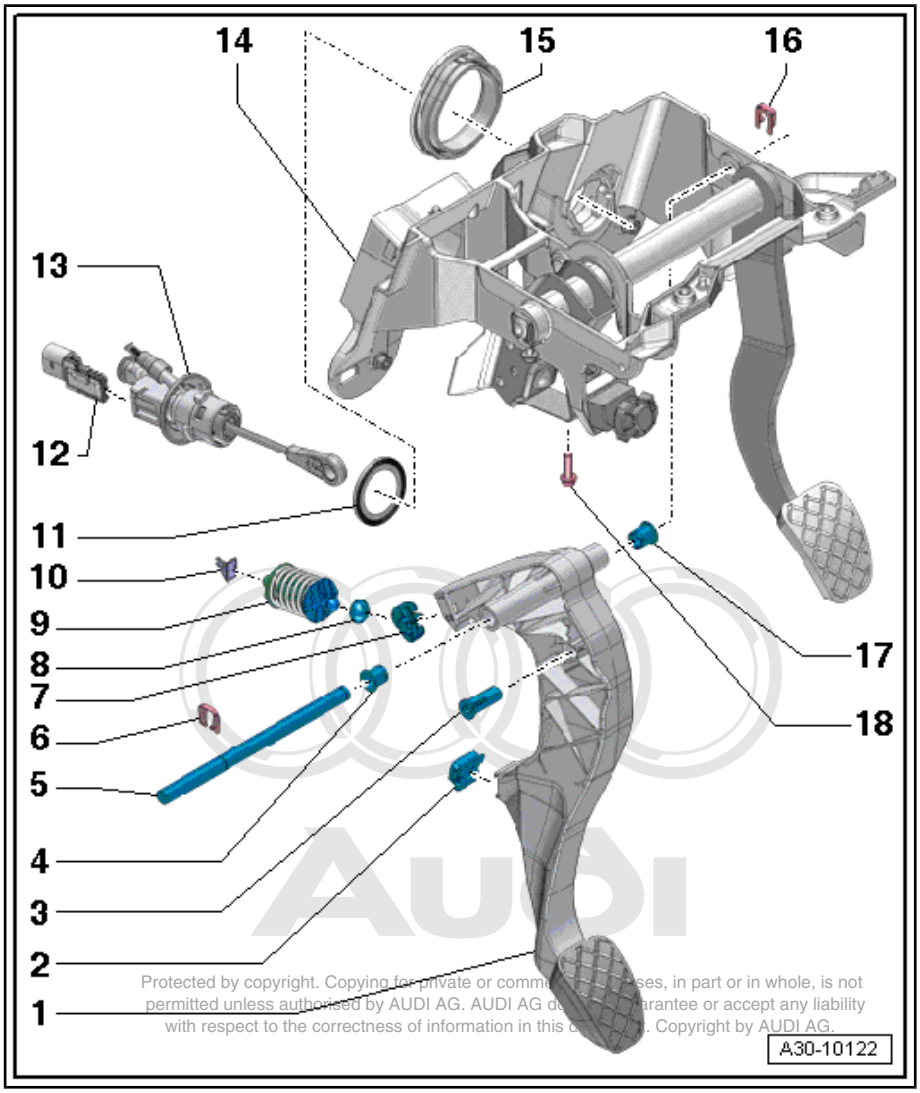



**1 - Clutch pedal**

**2 - Clutch pedal stop**

**3 - Locking pin**

- ❑ For clutch master cylinder
- ❑ Grease bearing surface

**4 - Bearing bush**

**5 - Pivot pin for clutch pedal**

- ❑ Grease bearing surface

**6 - Retaining clip**

**7 - Bearing**

- ❑ Note different bearing positions in clutch pedal ⇒ page 24

**8 - Bearing shell**

- ❑ Located in clutch pedal

**9 - Over-centre spring**

- ❑ Black side points towards clutch pedal
- ❑ For correct version, refer to ⇒ Electronic parts catalogue
- ❑ Remove and install with assembly clip - T40025-

**10 - Bearing shell**

- ❑ Located in mounting bracket

**11 - Seal**

- ❑ Renew after removing

**12 - Clutch position sender - G476-**

- ❑ Clutch pedal switch - F36- and clutch pedal switch for engine start - F194- are integrated
- ❑ Can only be renewed together with clutch master cylinder ⇒ Item 13 (page 23)

**13 - Clutch master cylinder**

- ❑ Grease mounting eye of push rod

**14 - Mounting bracket**

- ❑ With brake pedal

**15 - Seal**

**16 - Retaining clip**

**17 - Bearing bush**

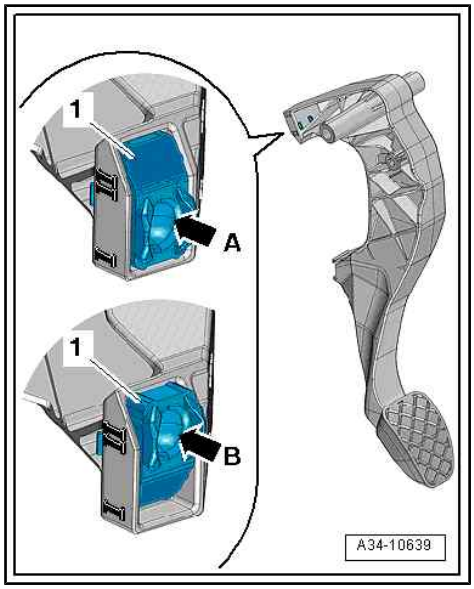
**18 - Bolt**

- ❑ 2x
- ❑ 8 Nm

**Installing over-centre spring**

– Clip bearing -1- into corresponding position on clutch pedal.

| Bearing position | Colour of over-centre spring |
|---|---|
| • “I” -arrow A-: | ♦ Green<br>♦ Blue<br>♦ Red/purple |
| • “II” -arrow B- | ♦ White |




## 1.2 Exploded view - clutch hydraulics

**Note**

*If you suspect a defective clutch master cylinder or clutch slave cylinder, perform function test prior to renewing ⇒ page 34 .*

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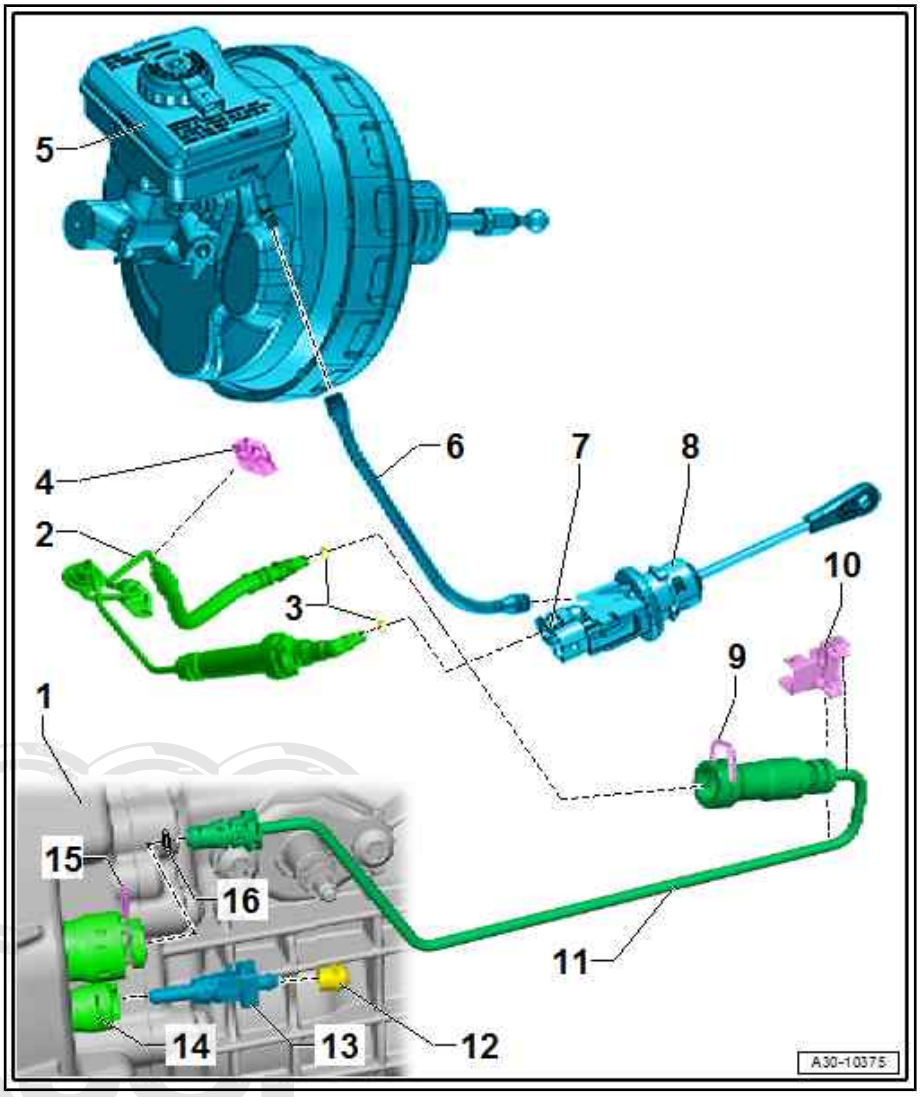


**1 - Gearbox**

- ❑ With clutch slave cylinder installed

**2 - Pipe/hose assembly**

- ❑ With grommet and frequency modulator (vibration damper)
- ❑ Connecting and disconnecting ⇒ page 29
- ❑ Allocation for LHD and RHD vehicles ⇒ Electronic parts catalogue

**3 - O-rings**

- ❑ Renew if damaged
- ❑ Lubricate with brake fluid before installing

**4 - Retaining clip**

**5 - Brake fluid reservoir**

**6 - Supply hose**

- ❑ For clutch master cylinder
- ❑ With integrated sealing grommets
- ❑ Renew supply hose if sealing grommets are damaged

**7 - Retaining clip**

- ❑ To remove pipe/hose assembly, pull out clip as far as stop ⇒ page 26 .

**8 - Clutch master cylinder**

- ❑ With clutch position sender - G476-
- ❑ Removing and installing ⇒ page 29
- ❑ After working on hydraulic clutch mechanism, bleed clutch mechanism ⇒ page 33

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**9 - Retaining clip**

- ❑ Pull out as far as stop to disconnect pipe/hose assembly from pipe

**10 - Retaining clip**

- ❑ For pipe
- ❑ Engage on gearbox

**11 - Pipe**

- ❑ Connecting and disconnecting ⇒ page 26
- ❑ Allocation for LHD and RHD vehicles ⇒ Electronic parts catalogue

**12 - Dust cap**

**13 - Bleeder screw**

- ❑ Component of clutch slave cylinder
- ❑ Opening and closing ⇒ page 33
- ❑ Follow correct procedure when bleeding ⇒ page 33

**14 - Clutch slave cylinder**

- ❑ Removing and installing ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 30 ; Clutch mechanism; Removing and installing clutch slave cylinder together with release bearing

**15 - Retaining clip**

- ❑ To remove pipe, pull out clip as far as it will go ⇒ page 26

**16 - O-ring**

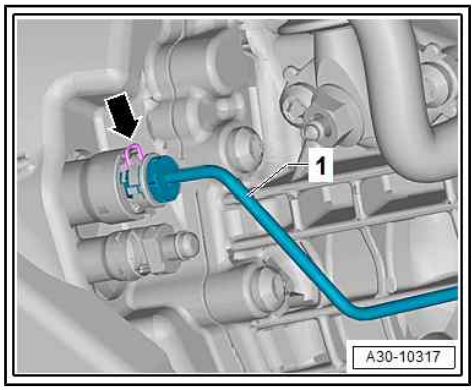
- ❑ Renew if damaged
- ❑ Lubricate with brake fluid before installing

**Connecting and disconnecting pipe/hose assembly or pipe**

**Disconnecting**

– Release retaining clip -arrow- using a screwdriver and pull out as far as stop.

– Pull off pipe/hose assembly or pipe -1-.




**Connecting**

**Note**

*Renew O-ring ⇒ Item 16 (page 26) if damaged.*

– Fit pipe/hose assembly or pipe -1- into connection of clutch slave cylinder.

– Press in retaining clip -arrow- as far as stop.

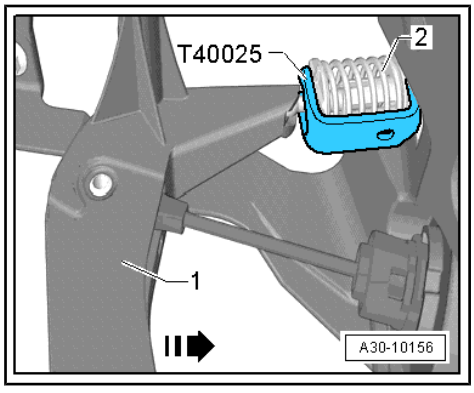
– Pull on pipe/hose assembly or pipe to check it is secure.

## 1.3 Removing and installing clutch pedal

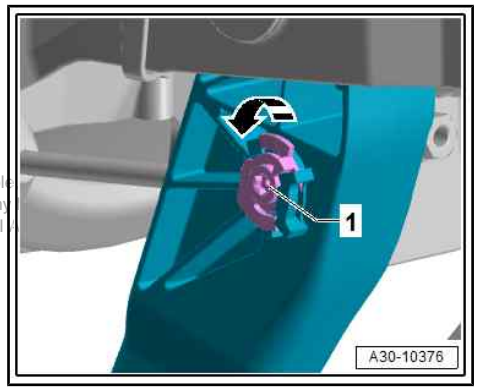
**Removing**

– Remove mounting bracket ⇒ Brake system; Rep. gr. 46 ; Brake pedal; Removing and installing mounting bracket .

– Remove over-centre spring -2- ⇒ page 27 .




– Disengage locking pin -1- in direction of -arrow- and pull it out of clutch pedal.

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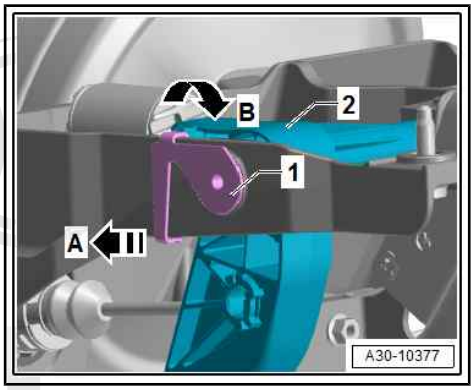
– Remove pivot pin -1- by lifting retaining tab in direction of -arrow A- and turning pivot pin in direction of -arrow B-.
– Pull out pivot pin -1- and remove clutch pedal -2-.




### Installing

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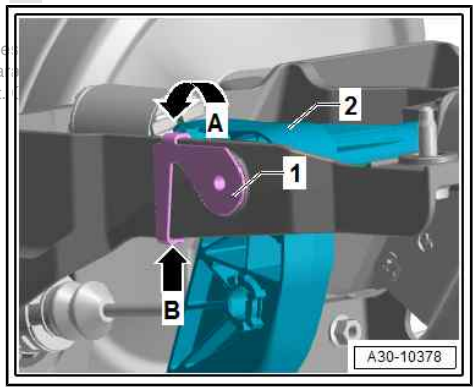
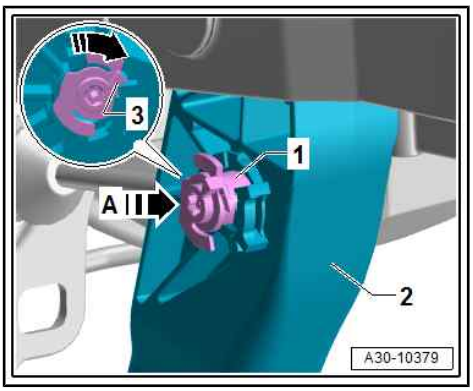
Installation is carried out in reverse order; note the following:

– Lubricate all bearings and contact surfaces. Select correct type of grease from ⇒ Electronic parts catalogue .
– Install clutch pedal -2-, push in pivot pin -1- and lock in direction of -arrow A-. Bottom of retaining tab should engage at pedal bracket -arrow B-.



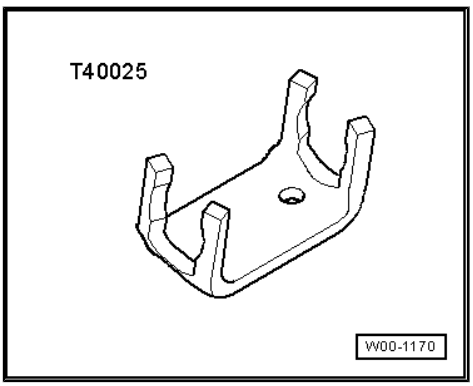

– Lubricate locking pin -1- and mounting eye of master cylinder push rod.
– Insert locking pin -1- through clutch pedal and mounting eye of master cylinder push rod in direction of -arrow A-.
– Then turn locking pin as far as stop in direction of -arrow-.
• Installation position: Can only be turned as far as stop -3- in one position.
• Locking pin must be secured on clutch pedal -2-.
– Install over-centre spring ⇒ page 27 .
– Install mounting bracket ⇒ Brake system; Rep. gr. 46 ; Brake pedal; Removing and installing mounting bracket .



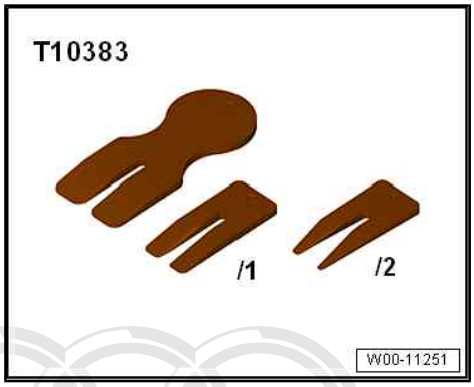

## 1.4 Removing and installing over-centre spring

### Special tools and workshop equipment required

♦ Assembly clip - T40025-

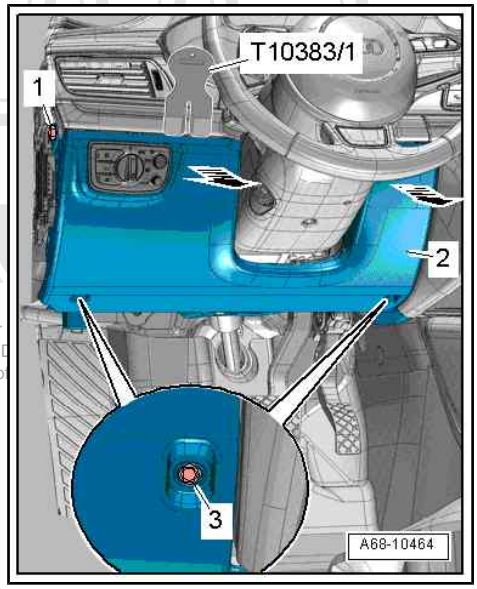


♦ Wedges - T10383-




**Removing**

– Remove dash panel cover (driver side) -2- ⇒ General body repairs, interior; Rep. gr. 68 ; Storage compartments/covers/ trim panels; Removing and installing dash panel cover (driver side) .

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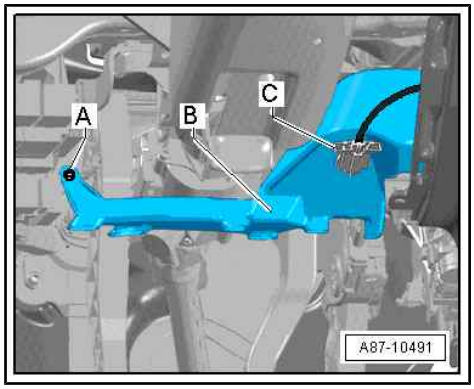
– Remove footwell vent (left-side) -B- ⇒ Heating, air conditioning; Rep. gr. 80 ; Air duct system; Exploded view - routing of air flow and air distribution in passenger compartment .




– Move clutch pedal -1- slightly in direction of -arrow-. Press assembly clip - T40025- onto over-centre spring -2- while over-centre spring is compressed.

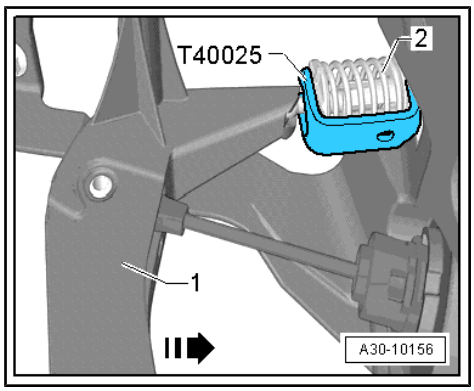
– Pull clutch pedal back to rest position and remove over-centre spring downwards with assembly clip .

**Installing**

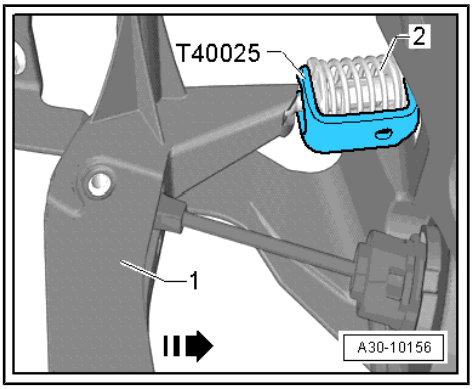
– Clip bearing shell into appropriate bearing position -arrow A or B- ⇒ page 20 .

– Insert over-centre spring -2-.

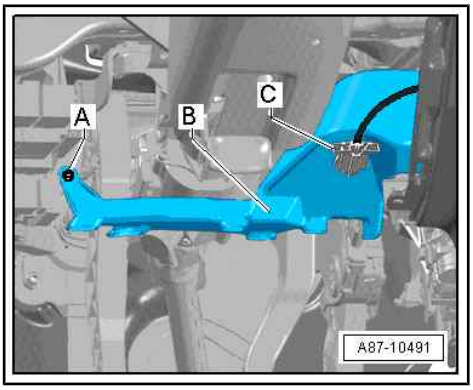
• Black side -arrow C- faces clutch pedal.



– Pull clutch pedal -1- back to rest position and install over-centre spring -2- with assembly clip - T40025- .
– Move clutch pedal -1- slightly in direction of -arrow-. Take assembly clip off over-centre spring while over-centre spring is compressed.



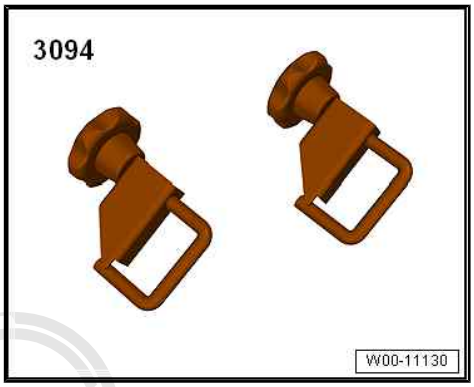

– Install footwell vent -B- ⇒ Heating, air conditioning; Rep. gr. 80 ; Air duct system; Exploded view - routing of air flow and air distribution in passenger compartment .
– Install dash panel cover (driver side) ⇒ General body repairs, interior; Rep. gr. 68 ; Storage compartments/covers/trim panels; Removing and installing dash panel cover (driver side) .



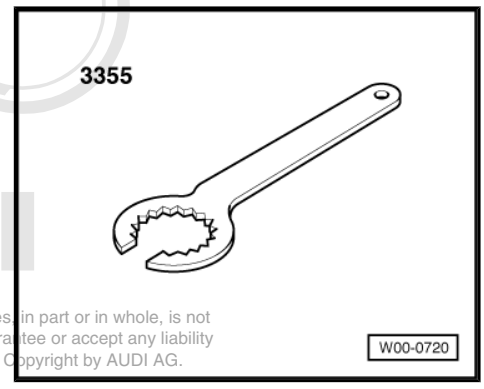

## 1.5 Removing and installing clutch master cylinder

**Special tools and workshop equipment required**

♦ Hose clamp, up to 25 mm - 3094-




♦ Open ring spanner, 32 mm - 3355-

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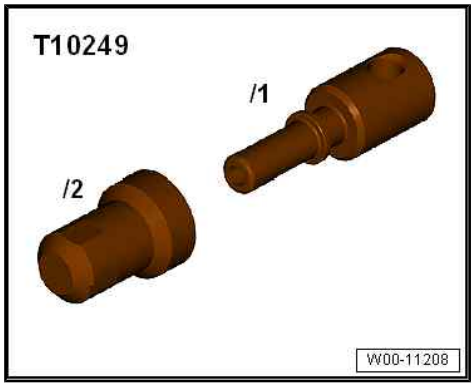
♦ Sealing tool - T10249-




## Removing

**Note**

*If you suspect a defective clutch master cylinder or clutch slave cylinder, perform function test prior to renewing ⇒ page 34 .*

**Caution**

***Risk of irreparable damage to electronic components.***

♦ ***Observe notes on procedure for disconnecting the battery.***

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– Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

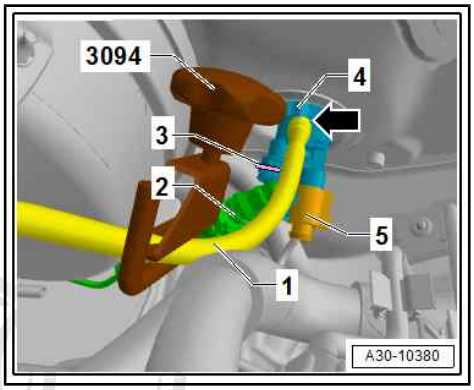
– Remove cover for brake fluid reservoir in plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber cover .

**Note**

*In the following steps make sure that no brake fluid escapes into the plenum chamber or onto the gearbox below. If this does happen, clean the affected area thoroughly.*

– Place lint-free cloth under clutch master cylinder.

– Clamp off supply hose -1- from brake fluid reservoir leading to clutch master cylinder using hose clamp - 3094- . Disconnect hose from clutch master cylinder -4- -arrow- and plug hose.



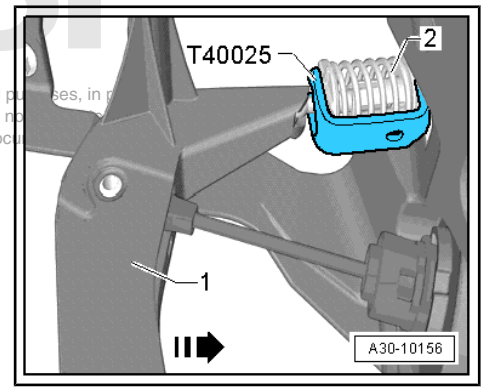

**Note**

- *Clamping off the supply hose with the hose clamp - 3094- will cause a permanent deformation.*
- *However, this does not damage the supply hose.*
- *After removing the hose clamp -3094- , the supply hose must be returned to its original shape.*
- *Leave connector -item 5- connected.*

– Release retaining clip -3- using a screwdriver and pull out to limit stop.

– Pull off pipe/hose assembly -2-.

– Remove over-centre spring -2- ⇒ page 27 .

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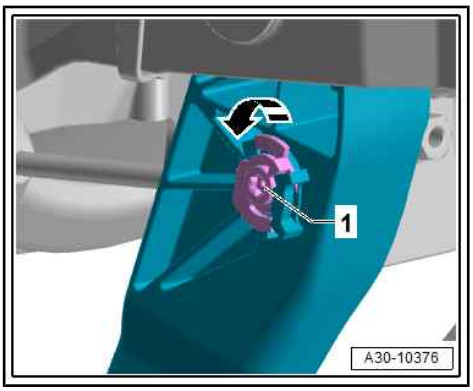
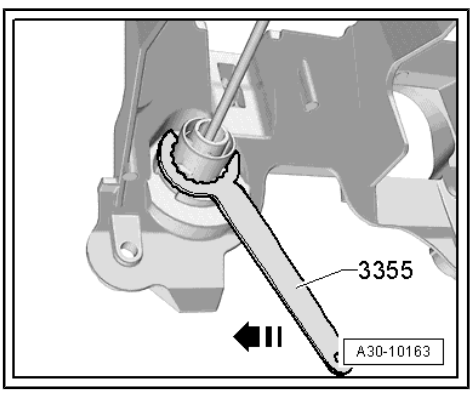
– Disengage locking pin -1- in direction of -arrow- and pull it out of clutch pedal.

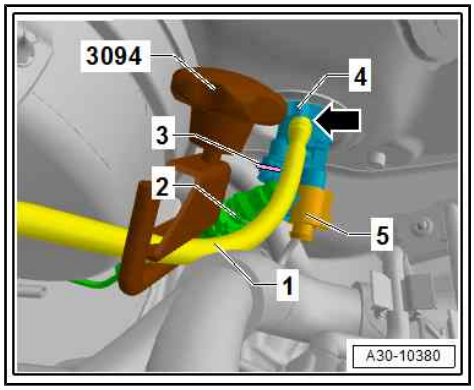



– Release clutch master cylinder in direction of -arrow- using open ring spanner, 32 mm - 3355- .



– Pull out clutch master cylinder -4-.

– Release and unplug electrical connector -5-.




**Installing**

Installation is carried out in reverse order; note the following:

**Note**

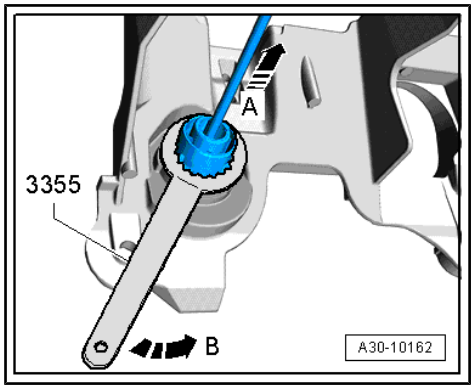
*Renew O-ring ⇒ Item 3 (page 25) if damaged.*

– Plug in electrical connector -5-.

• Clutch master cylinder -4- only fits through opening in mounting bracket in one position.

– Install clutch master cylinder -4-.

– Pull clutch master cylinder into footwell in direction of -arrow A-. At the same time lock clutch master cylinder in direction of -arrow B- using open ring spanner, 32 mm - 3355- .




**Caution**

***Grating/creaking noises can occur when clutch is operated.***

- ***Lack of grease at the bearings on the clutch pedal and in particular on the mounting eye of the master cylinder push rod can cause creaking/grating noises when the clutch is operated.***
- ***Lubricate all bearings and contact surfaces. Select correct type of grease from ⇒ Electronic parts catalogue .***

– Lubricate locking pin -1- and mounting eye of master cylinder push rod.

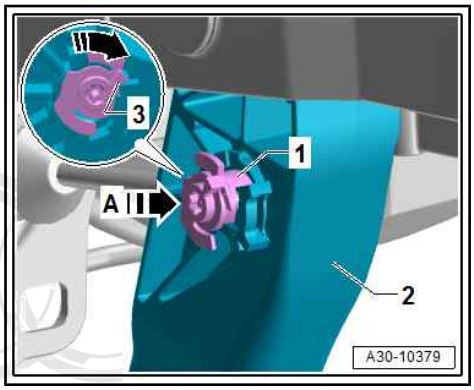
– Insert locking pin -1- through clutch pedal and mounting eye of master cylinder push rod in direction of -arrow A-.

– Then turn locking pin as far as stop in direction of -arrow-.

• Installation position: Can only be turned as far as stop -3- in one position.

• Locking pin must be secured on clutch pedal -2-.

– Install over-centre spring ⇒ page 27 .

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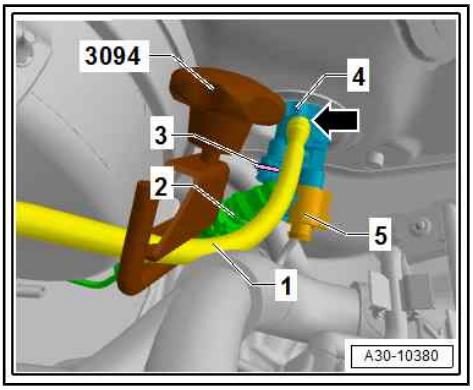
– Press in retaining clip -3- as far as stop.
– Insert pipe/hose assembly -2- into clutch master cylinder -4- and make sure that it engages audibly.
– Pull on pipe/hose assembly to check it is secure.
– Slide on supply hose -1- as far as stop -arrow-.
– Remove hose clamp - 3094- .
• After removing the hose clamp - 3094- , the supply hose -1- must be returned to its original shape.
– Bleed clutch hydraulics ⇒ page 33 .
– Insert cover for brake fluid reservoir in plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber cover .
– Observe measures required after connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .




## 1.6 Bleeding clutch hydraulics

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### Special tools and workshop equipment required

♦ Brake filling and bleeding equipment - VAS 5234-

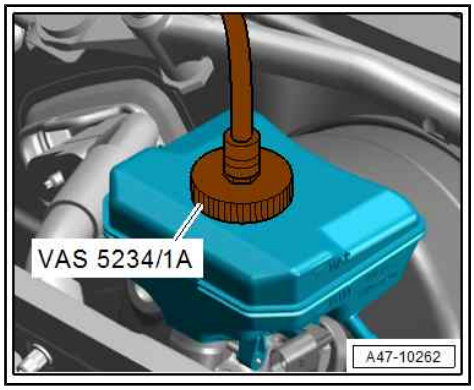
### Procedure

**Note**

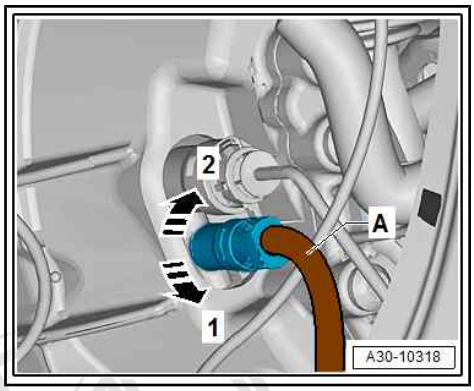
♦ *The clutch system must be bled after performing work on the hydraulic clutch mechanism ⇒ page 33 .*
♦ *Brake fluid specification ⇒ Brake system; Rep. gr. 47 ; Hydraulic system*
♦ *When performing the following work, make sure that no brake fluid escapes onto the gearbox.*
♦ *Before bleeding the clutch system, top up the brake fluid reservoir to "Max" marking with brake fluid.*
♦ *The brake fluid in the hydraulic clutch system should be changed at the same intervals as the brake fluid in the brake system ⇒ Maintenance ; Booklet 411 ; Description of work; Brake fluid: changing (every 2 years) .*

– Remove cover for brake fluid reservoir in plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber cover .

– Pull clutch pedal back to rest position.
– Connect brake filling and bleeding equipment - VAS 5234- , but do not switch on at this stage.
– Remove rear noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .




– Remove protective cap from bleeder screw and fit bleeder hose -A- onto clutch slave cylinder.
– Switch on brake filling and bleeding equipment - VAS 5234- .
• Operating pressure 2.0 bar
– Open bleeder screw by $^1/_2$ a turn in direction of -arrow 1-.




**Note**

*Ensure bleeder hose is correctly fitted during bleeding operation.*

– Pump clutch pedal rapidly all the way in and out by hand 15 to 20 times (approx. 2 times per second).
– Close bleeder screw all the way in direction of -arrow 2-.
– Switch off brake filling and bleeding equipment - VAS 5234- and relieve pressure completely from bleeding equipment.
– Pump clutch pedal all the way in and out 10 times with your foot.
– Check that clutch mechanism is functioning properly.
– Repeat bleeding procedure if necessary.
– Disconnect bleeder hose and fit protective cap.
– Disconnect brake filling and bleeding equipment - VAS 5234- from brake fluid reservoir.
– Install rear noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
– Insert cover for brake fluid reservoir in plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber cover .

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## 1.7 Checking clutch master cylinder and clutch slave cylinder

Before you renew the clutch master cylinder or slave cylinder you must - in the case of the following faults - first carry out the appropriate checks.

**Noises when operating the clutch:**

♦ First check whether any noise is coming from the over-centre spring.
♦ If you hear any noise, remove the over-centre spring and check again.

- Renew the affected component.

**After releasing clutch pedal it still remains pressed / does not return to its initial position.**

- Check whether the clutch pedal returns all the way to its initial position, thereby uncovering the vent opening in the master cylinder.
- Check that footwell trim and/or floor mats are not trapped.
- Make the customer aware that the driver must not rest his/her foot on the clutch pedal when not using it.
- This could impair the self-bleeding function of the hydraulic clutch system as the vent opening in the clutch master cylinder can no longer function.
- The vent opening must be uncovered, otherwise the permanent self-bleeding function for the hydraulic clutch system will no longer be effective.
- The vent opening is integrated in the clutch master cylinder and cannot be seen from the outside.

**Checking entire hydraulic system for leaks**

- Check brake fluid level in brake fluid reservoir.
- Check clutch master cylinder and slave cylinder as well as the pipe/hose assembly including connections for external leaks (visual inspection).
- If you identify any leaks you must renew the leaking component.
- Bleed clutch hydraulics ⇒ page 33 .

**High pedal force:**

- In the event of a mechanical fault on clutch plate or pressure plate, refer to ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 30 ; Clutch; Exploded view - clutch .

**Pedal forces:**

Approx. 140 N for complete service life of the clutch

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**Clutch does not disengage or does not disengage fully:**

- Air in hydraulic system: bleed clutch mechanism ⇒ page 33 and check hydraulic system for external and internal leaks.
- Clutch plate does not move smoothly on input shaft splines.
- Needle bearing in drive plate defective (centring bearing for input shaft); renew needle bearing ⇒ Engine, mechanics; Rep. gr. 13 ; Cylinder block (gearbox end); Renewing needle bearing in drive plate .
- Foreign body in clutch system
- In the event of a mechanical fault on clutch plate or pressure plate, refer to ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 30 ; Clutch; Exploded view - clutch .
- Wrong components installed when carrying out repair work (e.g. clutch plate, clutch pressure plate and dual-mass flywheel are not from the same manufacturer); for correct version refer to ⇒ Electronic parts catalogue .
- Components were forgotten when carrying out repair work (e.g. intermediate plate or dowel sleeves between engine and gearbox).
- Clutch plate was installed incorrectly when carrying out repair work.

# 2 Clutch

⇒ “2.1 Exploded view - clutch module”, page 36

⇒ “2.2 Tightening sequence - clutch module to drive plate”, page 36

⇒ “2.3 Removing and installing clutch module”, page 39

⇒ “2.4 Servicing clutch”, page 39

## 2.1 Exploded view - clutch module

**Note**

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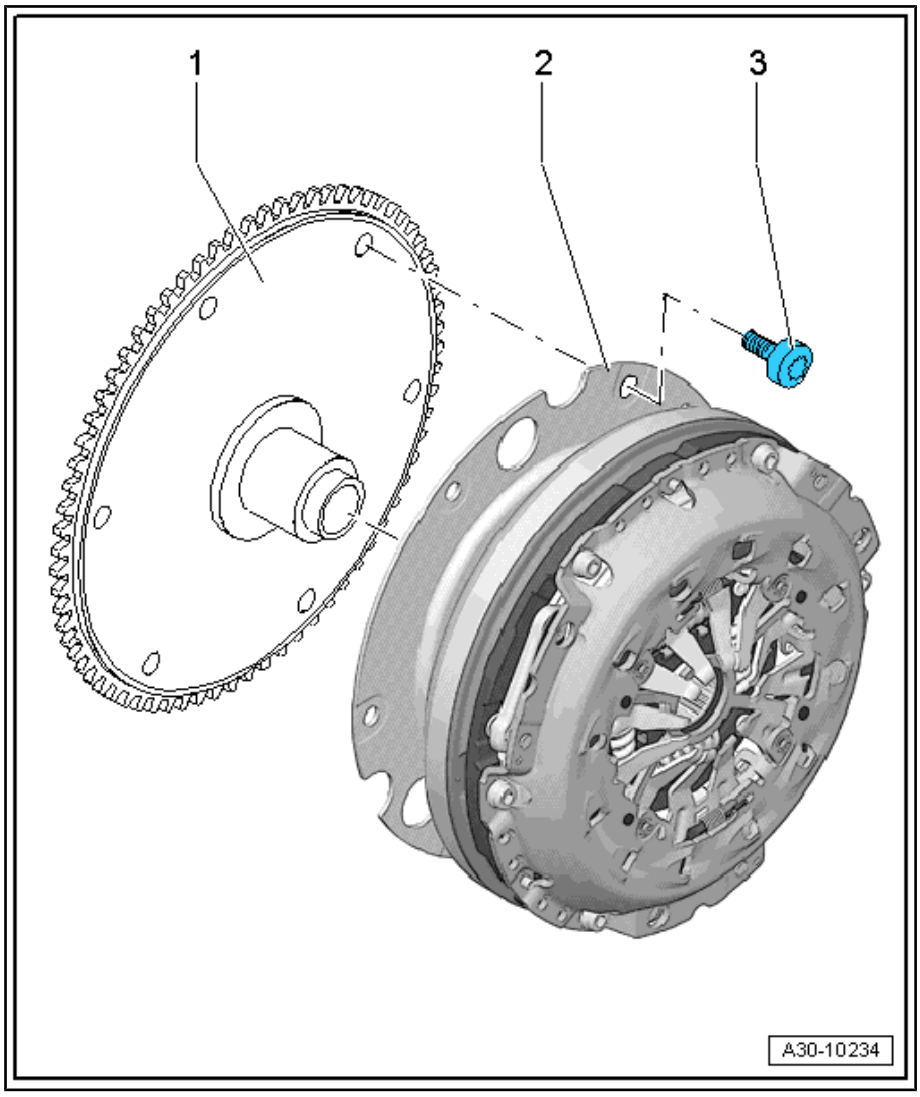
*Servicing clutch module -2- ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 30 ; Clutch .*




**1 - Drive plate**

- ❑ 3 holes with threaded sleeves
- ❑ With needle bearing
- ❑ Removing and installing ⇒ Engine, mechanics; Rep. gr. 13 ; Cylinder block (gearbox end); Removing and installing drive plate

**2 - Clutch module**

- ❑ With flange for drive plate
- ❑ Components: dual-mass flywheel, clutch plate and clutch pressure plate
- ❑ Removing and installing ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 30 ; Clutch; Removing and installing clutch module
- ❑ Servicing ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 30 ; Clutch

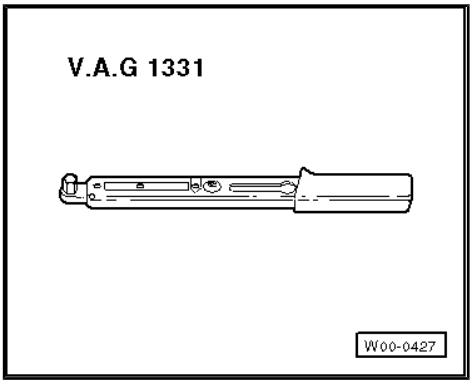
**3 - Bolt**

- ❑ Secures clutch module to drive plate
- ❑ 60 Nm
- ❑ Follow correct tightening sequence ⇒ page 36
- ❑ 3x

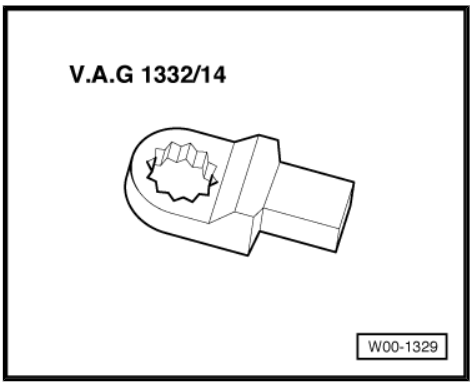
## 2.2 Tightening sequence - clutch module to drive plate

**Special tools and workshop equipment required**

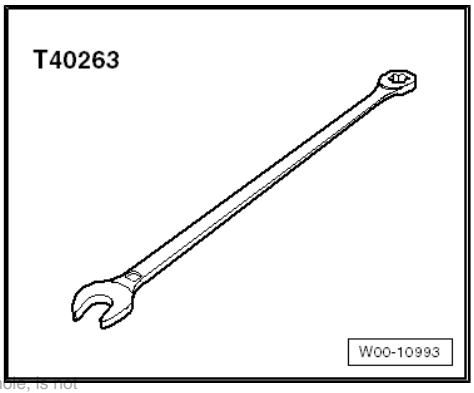
- Torque wrench - V.A.G 1331-




- Ring spanner insert, 16 mm - V.A.G 1332/14-




- Wrench 21 mm - T40263-

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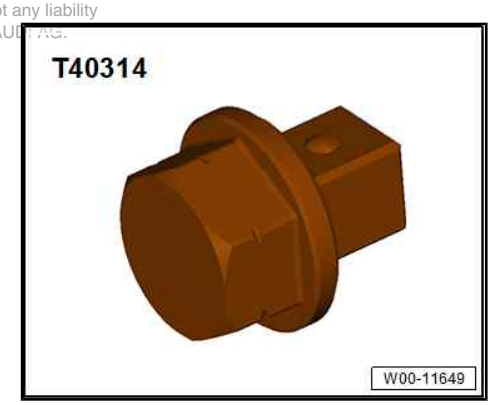
- Adapter - T40314-




- Tighten bolts using ring spanner insert, 16 mm - V.A.G 1332/14- .

**Note**

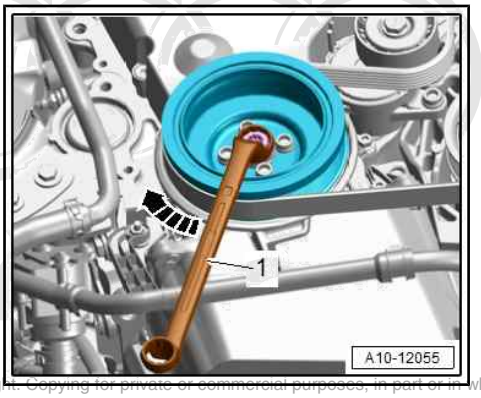
*The following step is essential to ensure that the clutch module makes even and proper contact on the drive plate and does not cant.*

### Vehicles with 4-cylinder TDI engine

– Remove cap from vibration damper.

– To slacken bolts for flywheel, counterhold crankshaft at central bolt on vibration damper.

– Using an angled ring spanner -1-, turn crankshaft at vibration damper 360° in direction of engine rotation -arrow-.




**Caution**

*Irreparable engine damage can be caused if the toothed belt slips.*

- *Only turn crankshaft in the direction of engine rotation -arrow-.*

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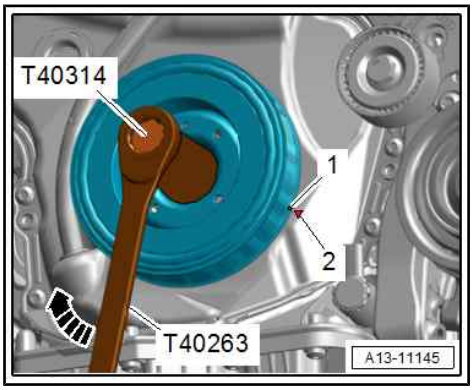
### Vehicles with 4-cylinder TFSI engine

– Using wrench (21 mm) - T40263- and adapter -T40314- , turn crankshaft 360° in direction of engine rotation -arrow-.



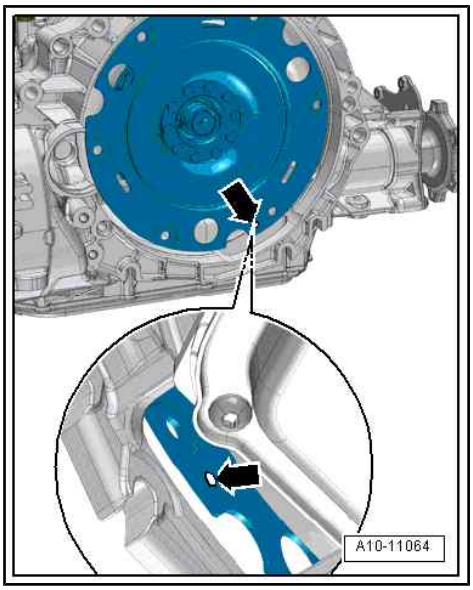

**Caution**

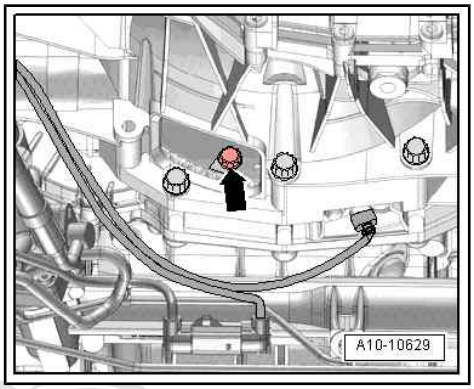
*Irreparable damage can be caused if the camshaft drive chain slips.*

- *Only turn crankshaft in the direction of engine rotation -arrow-.*

### Continued for all vehicles

– Continue turning crankshaft at vibration damper until inspection hole -arrow- is visible in recess on gearbox housing.






**Note**

*Use ring spanner insert, 16 mm - V.A.G 1332/14- , to tighten bolts.*

Secure clutch module as follows:

- Tighten first bolt -arrow- to 10 Nm and loosen again; then tighten to 2 Nm (hand-tight).
- Using an angled ring spanner, turn crankshaft at vibration damper 120° further in direction of engine rotation.
- Screw in next bolt in this crankshaft position and tighten to 60 Nm.
- Turn crankshaft 120° further in direction of engine rotation, screw in next bolt and tighten to 60 Nm.
- Turn crankshaft 120° further in direction of engine rotation and tighten final bolt to 60 Nm.

**Tightening torques**

◆ ⇒ “2.1 Exploded view - clutch module”, page 36

## 2.3 Removing and installing clutch module

**For a detailed description please refer to the Workshop Manual ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 30 ; Clutch; Removing and installing clutch module .**

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## 2.4 Servicing clutch

**For a detailed description please refer to the Workshop Manual ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 30 ; Clutch; Exploded view - clutch .**

# 34 – Controls, housing

## 1 Selector mechanism

⇒ “1.1 Overview - selector mechanism”, page 40
⇒ “1.2 Exploded view - gear knob and cover”, page 41
⇒ “1.3 Exploded view - selector mechanism”, page 42
⇒ “1.4 Removing and installing gear knob”, page 43
⇒ “1.5 Removing and installing selector mechanism”, page 44
⇒ “1.6 Adjusting selector mechanism”, page 50
⇒ “1.7 Checking selector mechanism”, page 52
⇒ “1.8 Renewing selector shaft oil seal”, page 53
⇒ “1.9 Removing and installing gear detection sensor G604 ”, page 56

## 1.1 Overview - selector mechanism

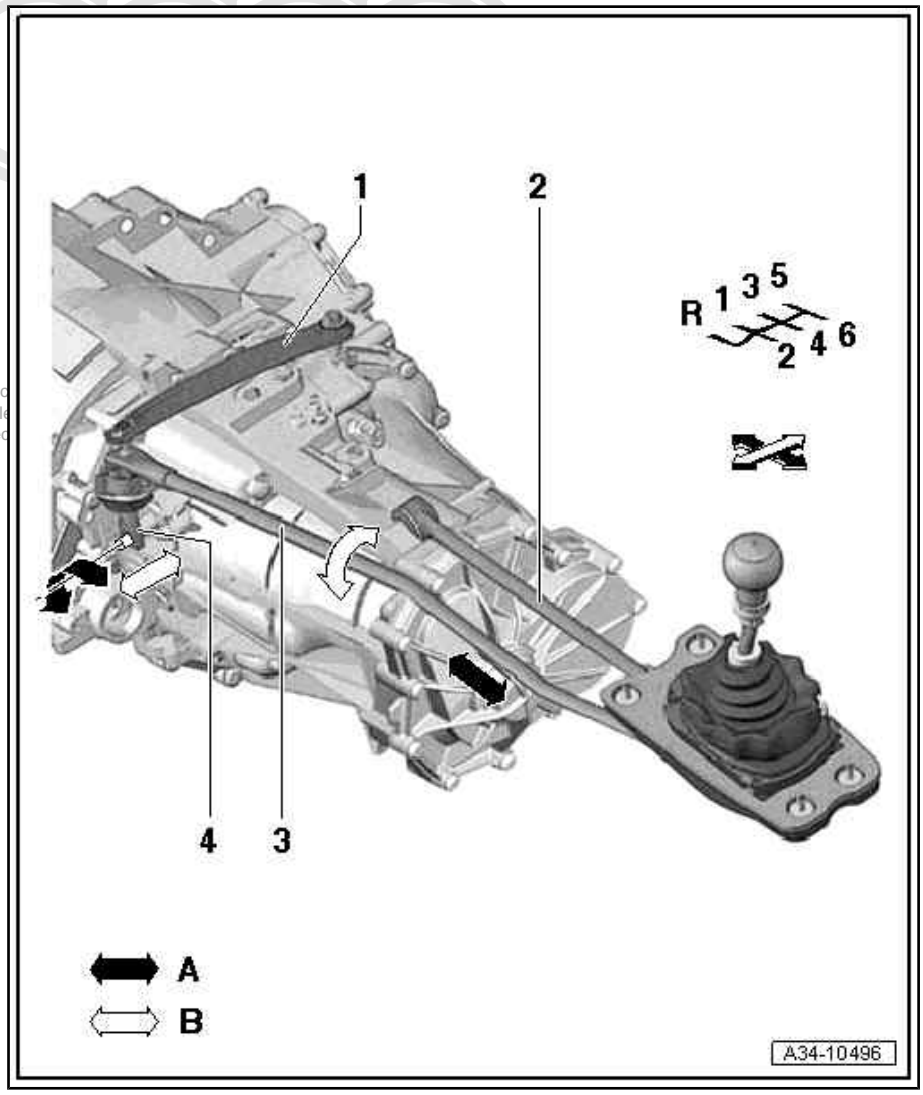
-Arrow A- gear selection movement

-Arrow B- gate selection movement

1 - Connecting rod

2 - Push rod

3 - Selector rod

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**4 - Gearbox selector lever**

## 1.2 Exploded view - gear knob and cover

**1 - Gear knob**
- ❑ With gear lever boot
- ❑ Removing and installing ⇒ page 43

**2 - Clip**
- ❑ Secures gear knob to gear lever
- ❑ Secure with hose clip pliers - V.A.G 1275-

**3 - Boot**
- ❑ Only supplied together with support ring ⇒ Item 4 (page 41)
- ❑ Remove and install together with noise insulation ⇒ Item 5 (page 41)

**4 - Support ring**
- ❑ Only supplied together with boot ⇒ Item 3 (page 41)

**5 - Noise insulation**
- ❑ Removing and installing ⇒ page 44

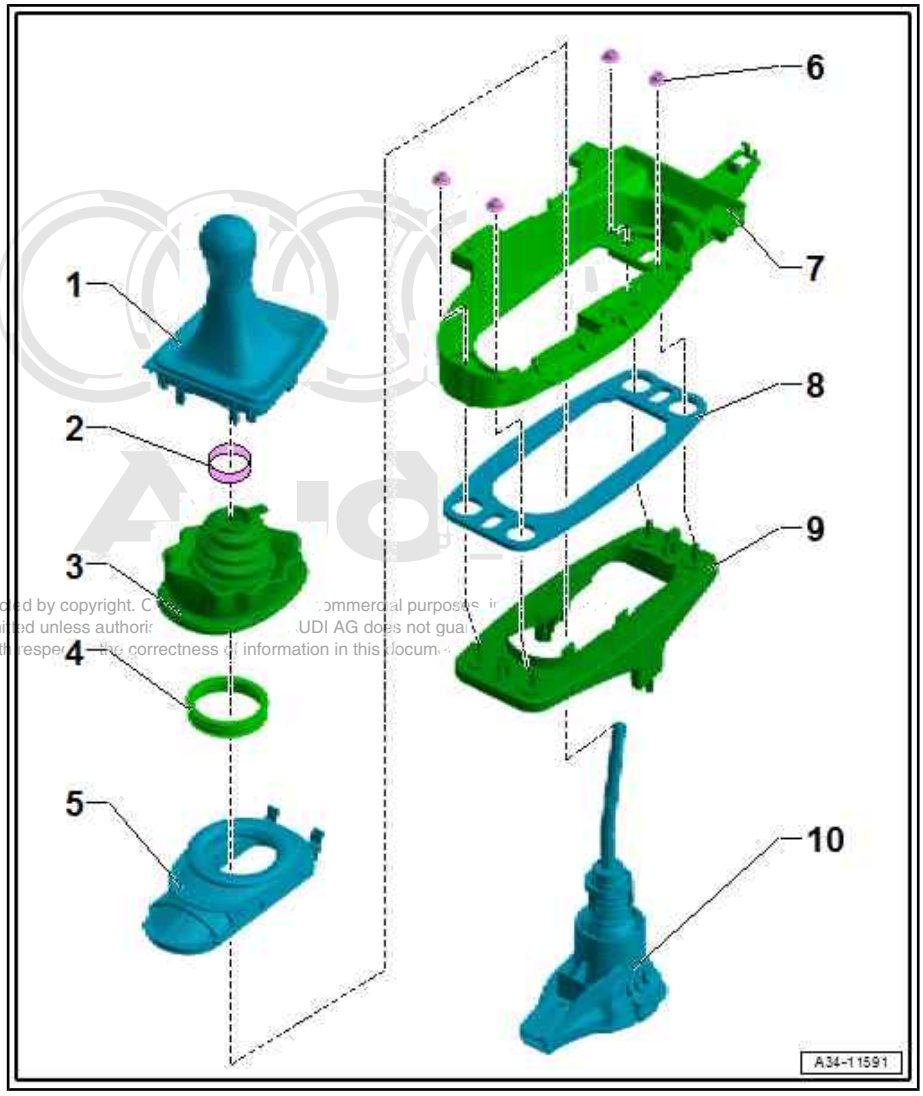
**6 - Nut**
- ❑ 8 Nm

**7 - Bracket**
- ❑ For selector mechanism

**8 - Gasket**

**9 - Mounting bracket**
- ❑ For gear lever bearing

**10 - Gear lever with gear lever bearing**

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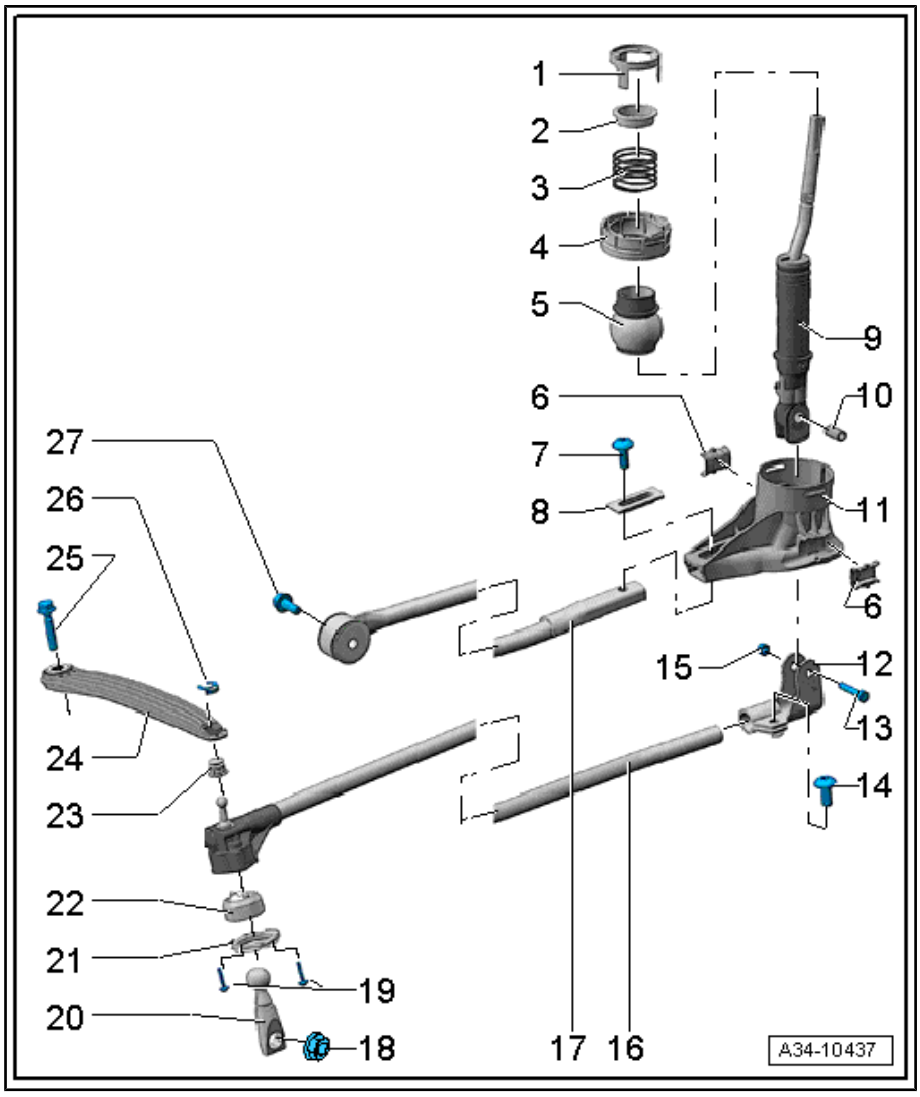
## 1.3 Exploded view - selector mechanism




**1 - Circlip**
- ❑ Take out before removing ball

**2 - Spacer bush**

**3 - Spring**

**4 - Ball guide**
- ❑ Do not grease

**5 - Ball**
- ❑ Do not grease

**6 - Damper**
- ❑ For gear lever bearing ⇒ Item 11 (page 42)
- ❑ Do not grease

**7 - Bolt**
- ❑ 23 Nm

**8 - Clamping plate**
- ❑ Do not grease

**9 - Gearbox selector lever**
- ❑ Bend points towards rear
- ❑ Grease gear lever contact surfaces and guide for reverse gear detent; for grease refer to ⇒ Electronic parts catalogue
- ❑ Grease contact surfaces for joint ⇒ Item 12 (page 42) ; for grease refer to ⇒ Electronic parts catalogue

**10 - Spacer tube**
- ❑ Grease outside circumference; for grease refer to ⇒ Electronic parts catalogue

**11 - Gear lever bearing**
- ❑ Removing and installing ⇒ page 44
- ❑ Do not grease

**12 - Joint**
- ❑ Between selector rod and gear lever
- ❑ Grease contact surfaces for gear lever; for grease refer to ⇒ Electronic parts catalogue

**13 - Bolt**
- ❑ For joint ⇒ Item 12 (page 42)

**14 - Bolt**
- ❑ 23 Nm

**15 - Nut**
- ❑ 10 Nm

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**16 - Selector rod**

**17 - Push rod**

- ❑ With bolt and washer

**18 - Nut**

- ❑ Renew after removing
- ❑ 20 Nm

**19 - Bolt**

- ❑ 4 Nm

**20 - Gearbox selector lever**

- ❑ Pulling off ⇒ page 48
- ❑ Install so that gap in splines aligns with selector shaft

**21 - Sealing collar**

**22 - Ball socket**

- ❑ Grease pivot for gearbox selector lever ⇒ Item 20 (page 43) if necessary; for grease refer to ⇒ Electronic parts catalogue

**23 - Bearing bush**

- ❑ To remove, pull off retaining clip ⇒ Item 26 (page 43)

**24 - Connecting rod**

- ❑ To remove, pull off retaining clip ⇒ Item 26 (page 43)

**25 - Bolt**

- ❑ 20 Nm

**26 - Retaining clip**

**27 - Bolt**

- ❑ 20 Nm

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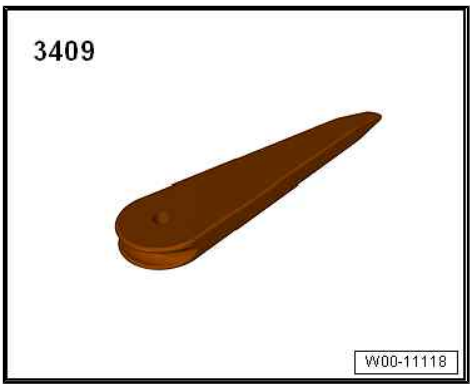
## 1.4 Removing and installing gear knob

**Note**

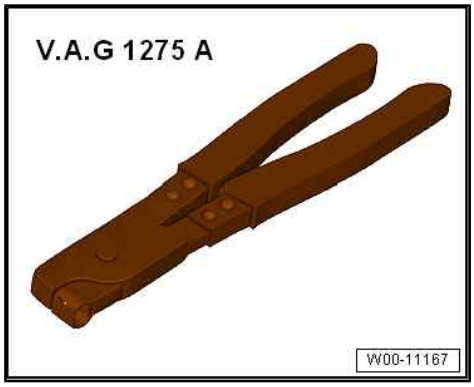
*The gear knob is removed together with the gear lever boot.*

**Special tools and workshop equipment required**

- ♦ Removal wedge - 3409-



♦ Hose clip pliers - V.A.G 1275-




**Removing**

– Prise out gear lever boot using removal wedge - 3409- -arrows- and pull upwards to detach.

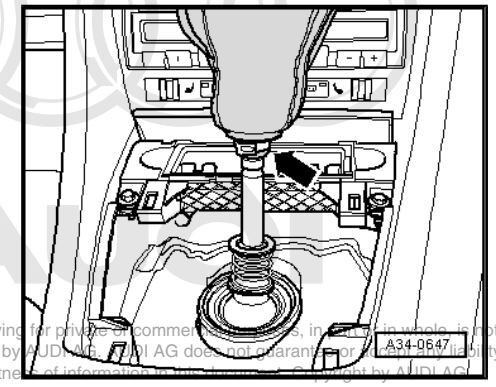
– Pull boot up and over gear knob.

– Open clip -arrow- and pull off gear knob together with boot.

**Installing**

Installation is carried out in reverse order; note the following:

– Secure clip -arrow- using hose clip pliers - V.A.G 1275- .

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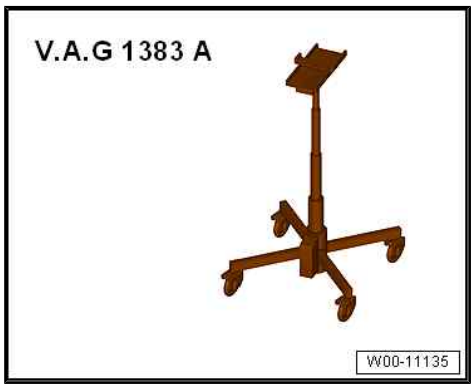
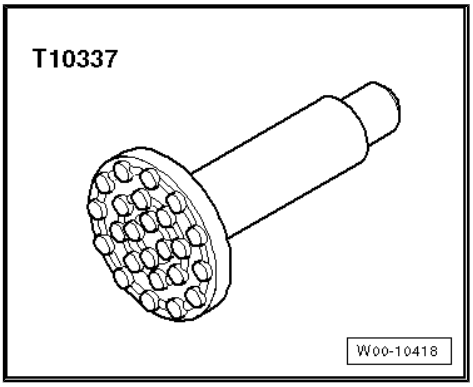
## 1.5 Removing and installing selector mechanism

**Special tools and workshop equipment required**

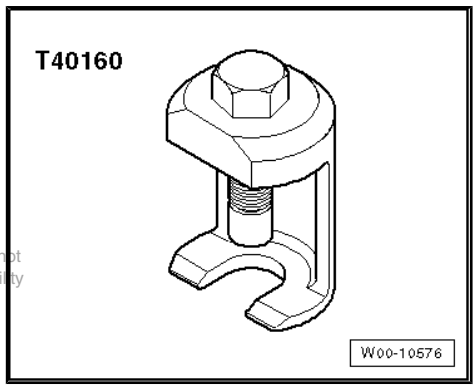
♦ Engine and gearbox jack - V.A.G 1383 A-



♦ Gearbox support - T10337-




♦ Puller - T40160-

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## Removing

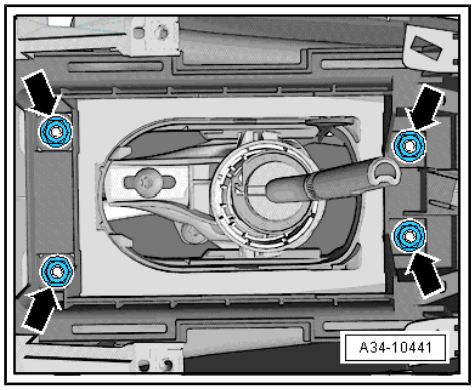
– Switch off ignition.

– Remove gear knob with gear lever boot ⇒ page 43 .

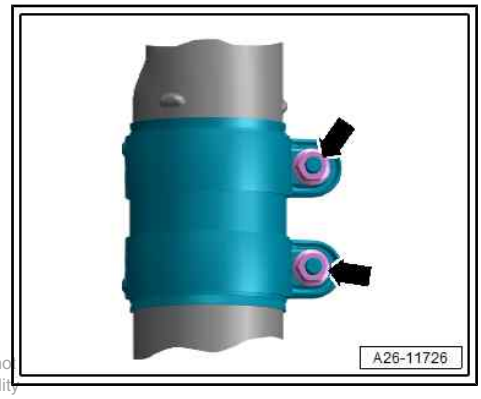
– Remove centre console insert ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console insert .

– Remove noise insulation above selector mechanism; to do so, release catches -1- and lift noise insulation (rear) in direction of -arrow-.
– Pull noise insulation out of tabs -3- towards rear.
– Pull boot -2- off gear lever.

– Unscrew nuts -arrows-.




– Remove noise insulation (front and rear) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .




**Audi Q5**

– Disconnect section of exhaust system below selector mechanism at clamps -arrows- and tie up front exhaust pipe to vehicle underbody.

**Audi A4, A5 with front-wheel drive**

– Remove section of exhaust system below selector mechanism ⇒ Engine, mechanics; Rep. gr. 26 ; Exhaust pipes/silencers; Removing and installing silencer .

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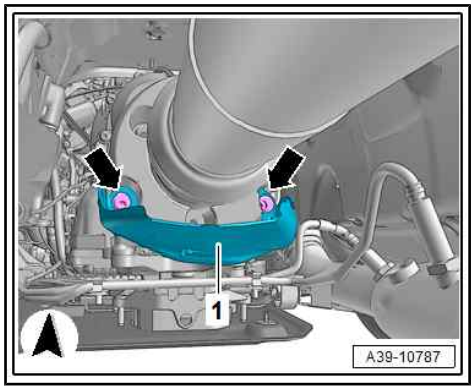
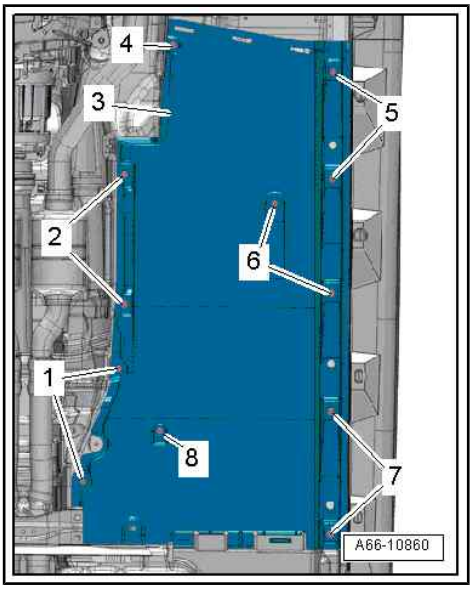
**Audi A4 and A5 with four-wheel drive**

– If fitted, remove bolts -arrows- and detach heat shield -1- for propshaft.
– Remove propshaft ⇒ Rear final drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .



**Continued for all vehicles**

– Unscrew nuts -1- and -2- on centre cover for underbody (left and right) -3-.



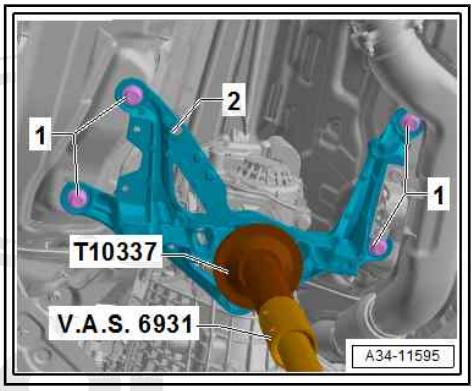

**Note**

*Items -4 ... 8- can be disregarded.*

– Remove heat shield beneath selector mechanism ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim .

– Apply lifting column of engine and gearbox jack -V.A.G 1383 A- to tunnel cross member -2- (with gearbox support - T10337- attached).

– Raise gearbox slightly using engine and gearbox jack - V.A.G 1383 A- .




**WARNING**

***Risk of accident.***

- ***Engine and gearbox jack - V.A.G 1383 A- must not be left unattended under the vehicle when work is being carried out.***

– Remove bolts -1- for tunnel cross member -2-.

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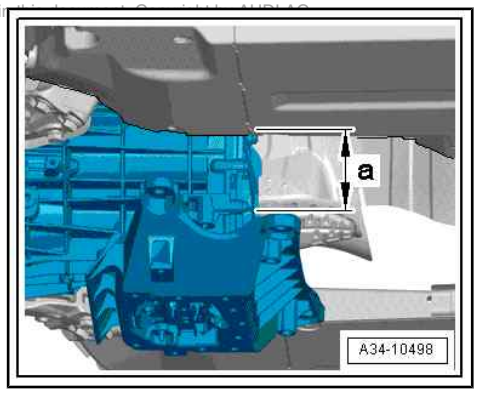
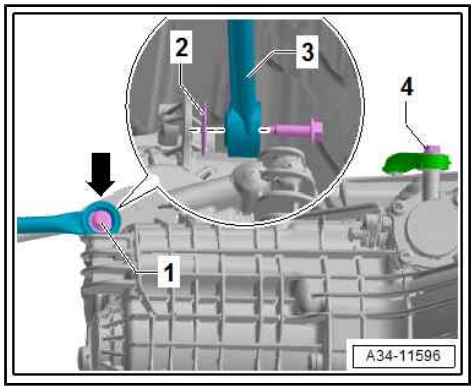
– Lower gearbox initially only by dimension -a- using engine and gearbox jack - V.A.G 1383 A- .

- Dimension -a- = 80 mm (maximum)
- Pay attention to subframe cross brace while lowering gearbox.
- If necessary, press front exhaust pipe slightly outwards in vicinity of tunnel cross member.



– Remove bolt -1- and detach push rod -3- together with washer -2-.
– Remove bolt -4- for connecting rod.



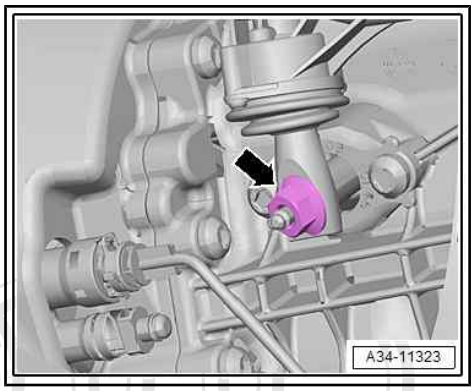

– Remove nut -arrow- for gear selector lever on selector shaft.

**Removing gearbox selector lever**

**Caution**

*Risk of damage to selector shaft in gearbox.*

- *Do not prise off or knock off the gearbox selector lever with a lever or hammer.*
- *Always use puller - T40160- when removing the gearbox selector lever.*




– Apply puller - T40160- and pull off gearbox selector lever -1-.
– Take out selector mechanism towards rear.

**Installing**

Installation is carried out in reverse order; note the following:

**Note**

*Always renew seals/gaskets and self-locking nuts.*

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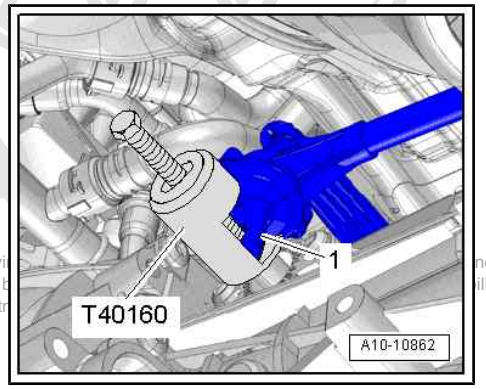
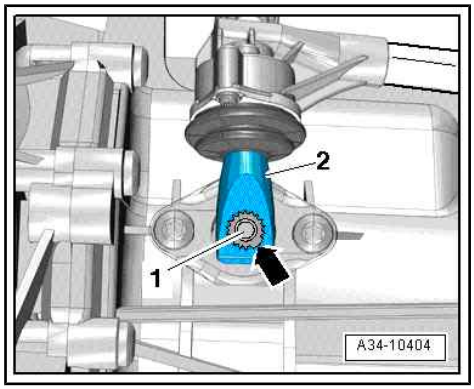
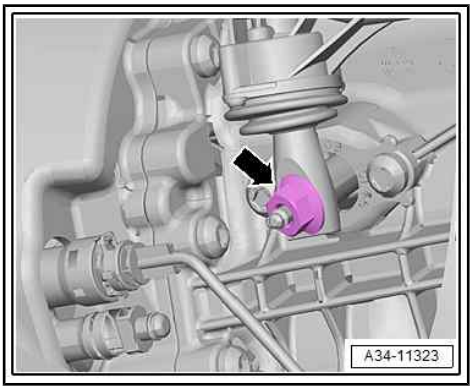



– Install gearbox selector lever as follows:

- Gearbox selector lever -2- can only be fitted onto selector shaft -1- in one position (gap in splines -arrow-).

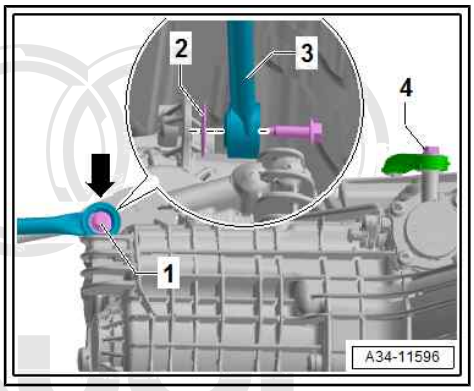


– Tighten nut -arrow- for gear selector lever on selector shaft.



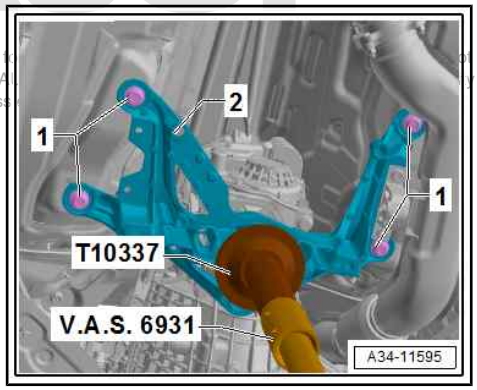

– Secure push rod -3- and connecting rod -4- on gearbox.

• Secure push rod with washer -2- at rear attachment point -arrow-.




– Secure tunnel cross member -2- to body with bolts -1-.

– Install heat shield beneath selector mechanism ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim .

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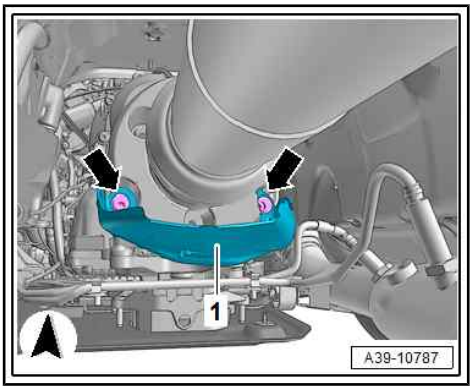
**Vehicles with four-wheel drive**

– If removed previously, install propshaft ⇒ Rear final drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .

– If fitted previously, fit heat shield for propshaft -1- and tighten bolts -arrows-. Tightening torque: 28 Nm




**Continued for all vehicles**

– Assemble exhaust system and perform stress-free alignment ⇒ Engine, mechanics; Rep. gr. 26 ; Exhaust pipes/silencers; Stress-free alignment of exhaust system .

– Install noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

– Adjust selector mechanism ⇒ page 50 .

– Pull boot -2- over gear lever.
– Slide noise insulation into tabs -3- and press down until retaining tabs -1- engage.
– Pull boot -2- over gear lever and into rounded groove.
– Press support ring in boot over gear lever bearing as far as stop.
– Insert noise insulation panel above selector mechanism.
– Install centre console insert ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console insert .
– Install gear knob with gear lever boot ⇒ page 43 .

**Tightening torques**

- ⇒ “1.2 Exploded view - gear knob and cover”, page 41
- ⇒ “1.3 Exploded view - selector mechanism”, page 42
- ⇒ “3.1 Exploded view - assembly mountings”, page 91

## 1.6 Adjusting selector mechanism

The following are prerequisites for correct gear lever alignment:

- Gear selector linkage must be in proper condition and undamaged.
- Selector mechanism must move freely.
- Gearbox, clutch and clutch mechanism must be in proper condition.
- Gearbox in neutral.

**Procedure**

– Switch off ignition.
– Remove gear knob with gear lever boot ⇒ page 43 .
– Remove centre console insert ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console insert .
– Remove noise insulation panel above selector mechanism.

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– Remove noise insulation above selector mechanism; to do so, release catches -1- and lift noise insulation (rear) in direction of -arrow-.
– Pull noise insulation out of tabs -3- towards rear.
– Pull boot -2- off gear lever.

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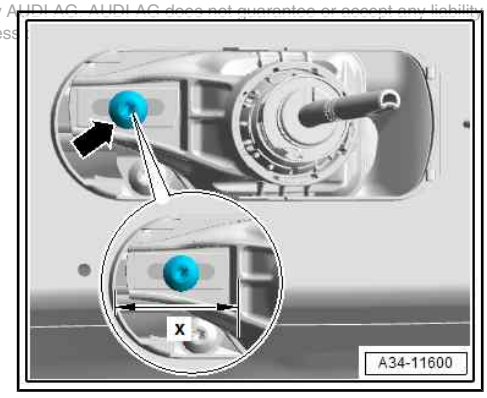
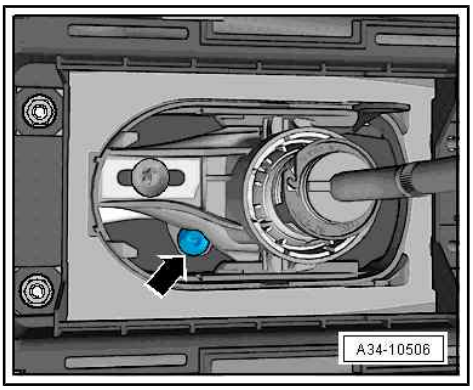
– Check adjustment of push rod: dimension -x-.
• Specification: distance -x- = 65 mm
– If distance -x- is not correct, adjust as follows:
– Loosen bolt -arrow- for push rod.
• The gear lever bearing should move freely in both directions on slide
– Set dimension -x- by moving gear lever bearing.
– Tighten bolt for push rod -arrow- in this position ⇒ Item 7 (page 42) .

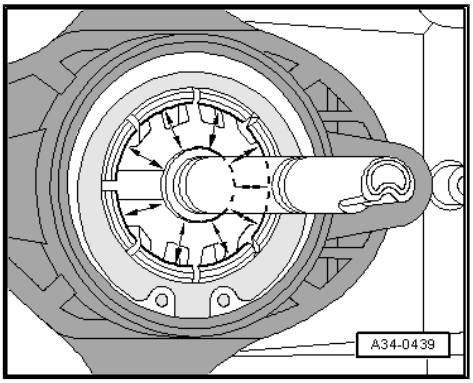



– Loosen bolt -arrow- for selector rod .
• Connection between selector rod and selector mechanism should move freely.

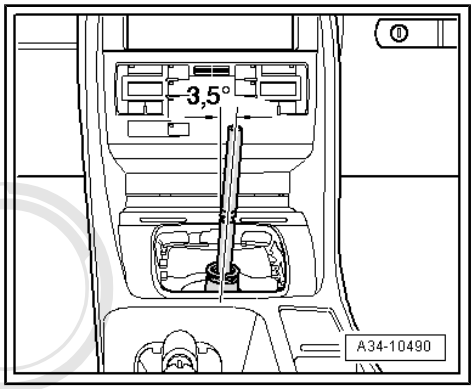



**Adjust gear lever as follows:**

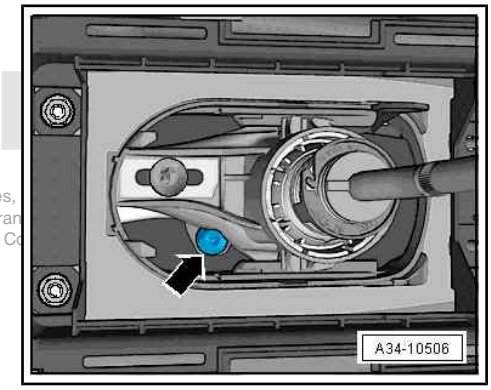
– Position bottom of gear lever in centre of gear lever bearing.
• Distance between gear lever bearing and bottom of gear lever -arrows- must be the same at all points.



– Align gear lever so that it points slightly (3.5°) to the right (as seen in direction of travel).
– Hold gear lever in this position.




– Tighten bolt for selector rod -arrow- ⇒ Item 14 (page 42) .




**Note**

*The gear lever must remain in the same position while the bolt is being tightened.*

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– Check gear lever setting ⇒ page 52 .

– Pull boot -2- over gear lever.
– Slide noise insulation into tabs -3- and press down until retaining tabs -1- engage.
– Pull boot -2- over gear lever and into rounded groove.
– Press support ring in boot over gear lever bearing as far as stop.
– Insert noise insulation panel above selector mechanism.
– Install centre console insert ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console insert .
– Install gear knob with gear lever boot ⇒ page 43 .

**Tightening torques**

◆ ⇒ “1.3 Exploded view - selector mechanism”, page 42

## 1.7 Checking selector mechanism

• Switch off engine.
– Press clutch pedal.
– Select all gears several times.
– Operate reverse gear detent (press gear lever downwards) and move gear lever all the way to the left into reverse gear gate.
– Now move gear lever forwards and engage reverse gear.

**Note**

*Do not exert any sideways pressure on the gear lever while engaging reverse.*

– Check that reverse gear has actually been engaged, and not 1st gear.

• If 1st gear has been engaged instead of reverse, the gear lever is set too far to the left. Adjust appropriately ⇒ page 51 .

– Move gear lever out of reverse.

• Gear lever is in neutral position.

– Now engage 2nd gear, but at the same time exert increased pressure towards the left.

• If the gear lever sticks when engaging 2nd gear, it is set too far to the right. Adjust appropriately ⇒ page 51 .

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**Note**

♦ *It should only be possible to engage reverse gear after overcoming the reverse gear detent.*

♦ *The gear lever should return by itself from the reverse gear gate to the 3rd/4th gear gate.*

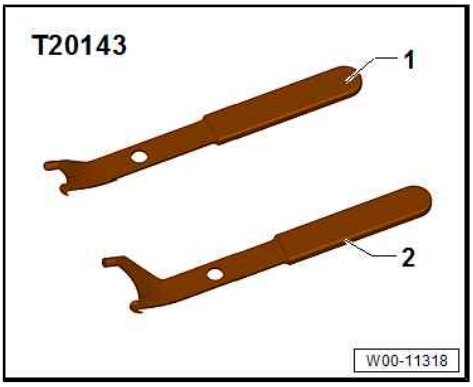
♦ *If the gear lever sticks or baulks repeatedly when engaging a gear, perform the adjustment procedure again ⇒ page 51 .*

## 1.8 Renewing selector shaft oil seal

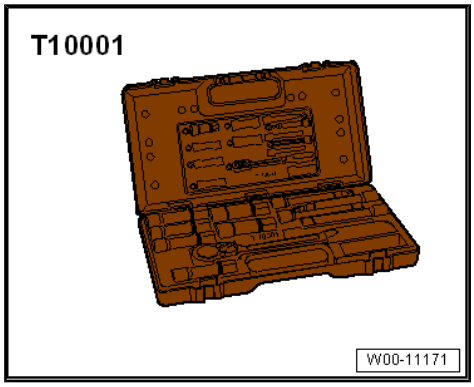
**Removing and installing selector shaft oil seal (with gearbox installed in vehicle)**

**Special tools and workshop equipment required**

♦ Extractor tool - T20143/1-



- Shock absorber tool set - T10001-




- Puller - T40160-

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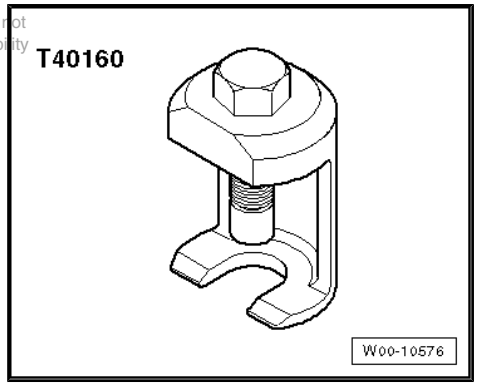



- Sealing grease ; select correct type from ⇒ Electronic parts catalogue

**Removing**

– Engage 1st gear.

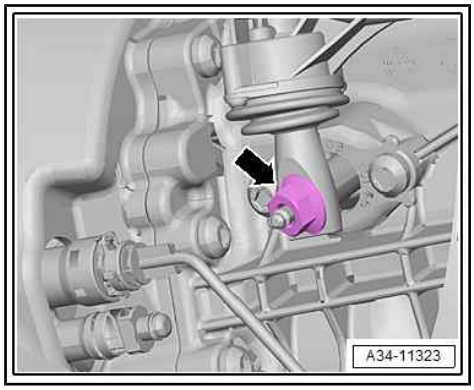
– Remove rear noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

– Unscrew nut -arrow- securing gear selector lever.

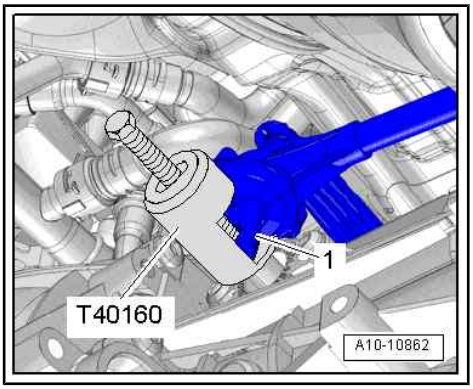
**Caution**

*Risk of damage to selector shaft in gearbox.*

- *Do not prise off or knock off the gearbox selector lever with a lever or hammer.*
- *Always use puller - T40160- when removing the gearbox selector lever.*

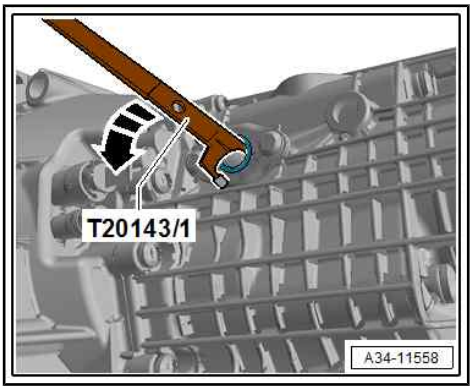


– Apply puller - T40160- and pull off gearbox selector lever -1-.




– Lever out selector shaft oil seal using extractor tool - T20143/1- .

• Check selector shaft for damage.



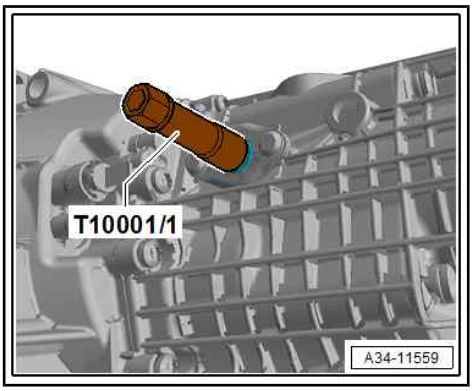

**Installing**

– Lightly oil outer circumference of oil seal.

– Pack space between sealing lip and dust lip half-full with sealing grease .

– Drive in selector shaft oil seal using -T10001/1- .

• Installation depth: 2 mm below outer edge of housing

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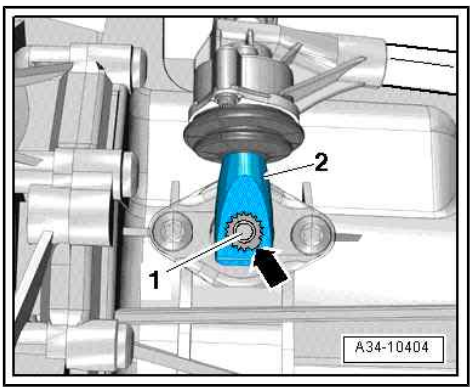
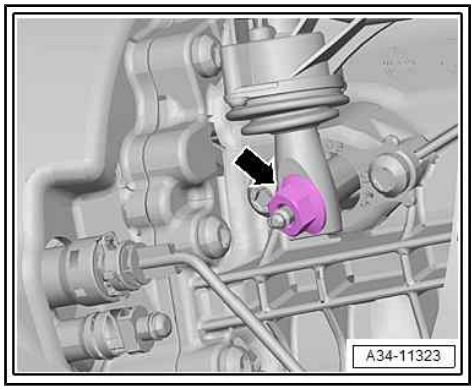
– Install gearbox selector lever as follows:

• Gearbox selector lever -2- can only be fitted onto selector shaft -1- in one position (gap in splines -arrow-).



– Tighten new nut -arrow- securing gear selector lever ⇒ Item 18 (page 43) .

– Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



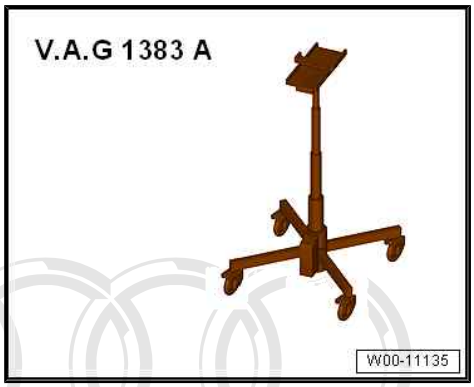

**Tightening torques**

◆ ⇒ “1.3 Exploded view - selector mechanism”, page 42

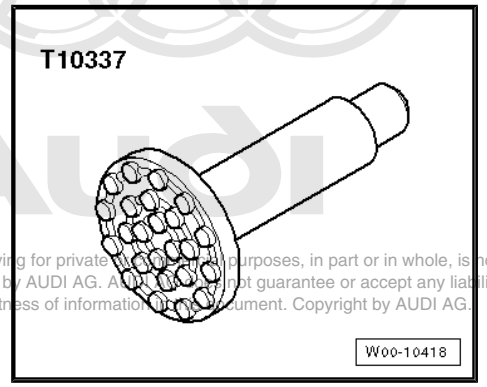
## 1.9 Removing and installing gear detection sensor - G604-

**Special tools and workshop equipment required**

◆ Engine and gearbox jack - V.A.G 1383 A-




◆ Gearbox support - T10337-

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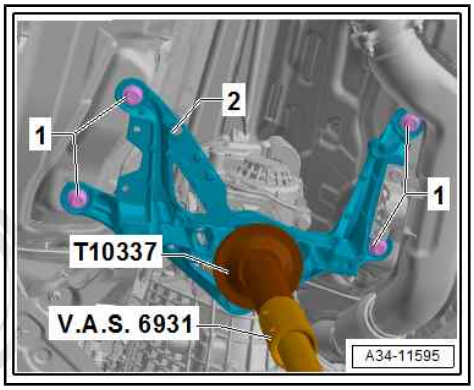
**Removing**

– Remove rear noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

– Apply lifting column of engine and gearbox jack -V.A.G 1383 A- to tunnel cross member -2- (with gearbox support - T10337- attached).

– Raise gearbox slightly using engine and gearbox jack - V.A.G 1383 A- .



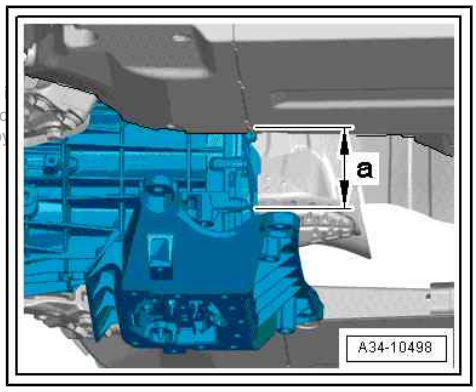

**WARNING**

*Risk of accident.*

- *Engine and gearbox jack - V.A.G 1383 A- must not be left unattended under the vehicle when work is being carried out.*

– Remove bolts -1- for tunnel cross member -2-.

– Lower gearbox initially only by dimension -a- using engine and gearbox jack - V.A.G 1383 A- .




- Dimension -a- = 80 mm (maximum)
- Pay attention to subframe cross brace while lowering gearbox.
- If necessary, press front exhaust pipe slightly outwards in vicinity of tunnel cross member.

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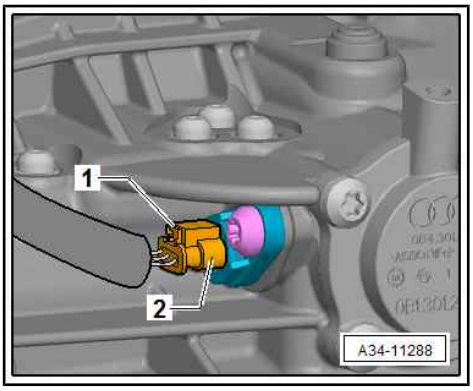
**Different connectors for gear detection sensor - G604-**

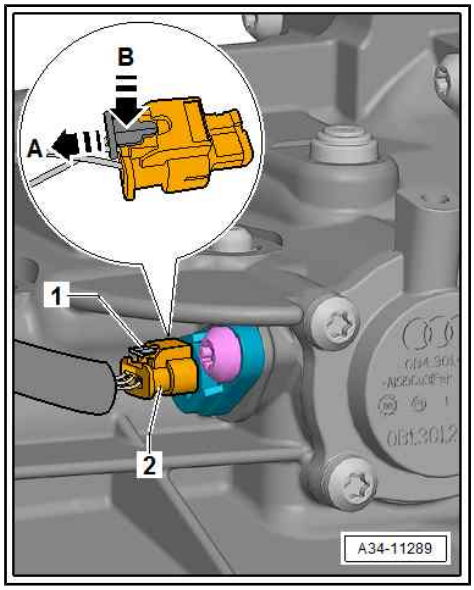
Unplug electrical connector as follows:

– Press catch -1- downwards and unplug connector -2-.

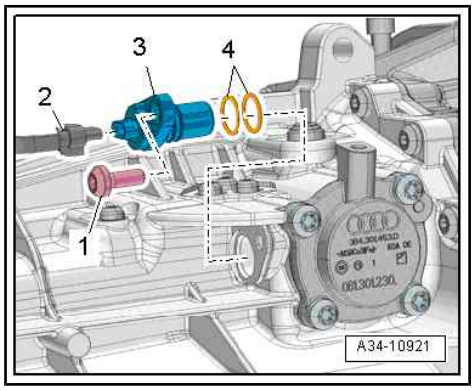


Or:

– Use screwdriver to pry out catch -1- approx. 3 mm in direction of -arrow A-.
– Press catch -1- downwards in direction of -arrow B- and unplug connector -2-.




– Remove bolt -1- and pull out gear detection sensor - G604- -3-.



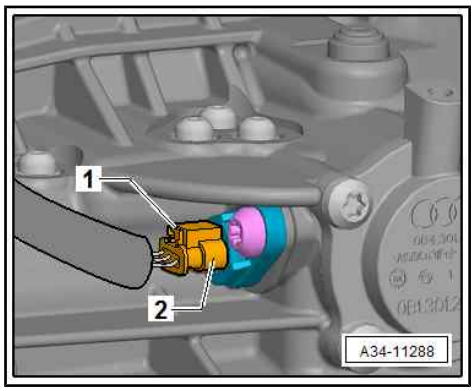

**Installing**

Installation is carried out in reverse order; note the following:

– Renew bolt -1- and O-rings -4-.

> **Caution**
>
> *Take care when installing gear detection sensor - G604- : risk of breakage or sensor malfunction*
>
> - *Gear detection sensor - G604- -3- must not be knocked into the gearbox or pulled in by tightening bolt -1-.*
> - *O-rings -4- and bore in gearbox cover must be lubricated with gear oil.*
> - *Gear detection sensor - G604- -3- can be pushed in carefully using a suitable tool, such as a hammer handle.*

– Fit gear detection sensor - G604- -3- with new O-rings -4- in gearbox.
– Tighten new bolt -1- to specified torque.
– Attach connector -2- at gear detection sensor - G604- and press in locking element -1- if necessary.




– Raise gearbox and bolt tunnel cross member to body ⇒ “3.1 Exploded view - assembly mountings”, page 91 .
– Install rear noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation.

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**Tightening torques**

| Component | Tightening torque |
|---|---|
| Gear detection sensor - G604- | 8 Nm + 60°<br>• Renew bolt |

# 2 Removing and installing gearbox

⇒ “2.1 Removing gearbox”, page 59

⇒ “2.2 Installing gearbox”, page 79

⇒ “2.3 Tightening torques for gearbox”, page 89

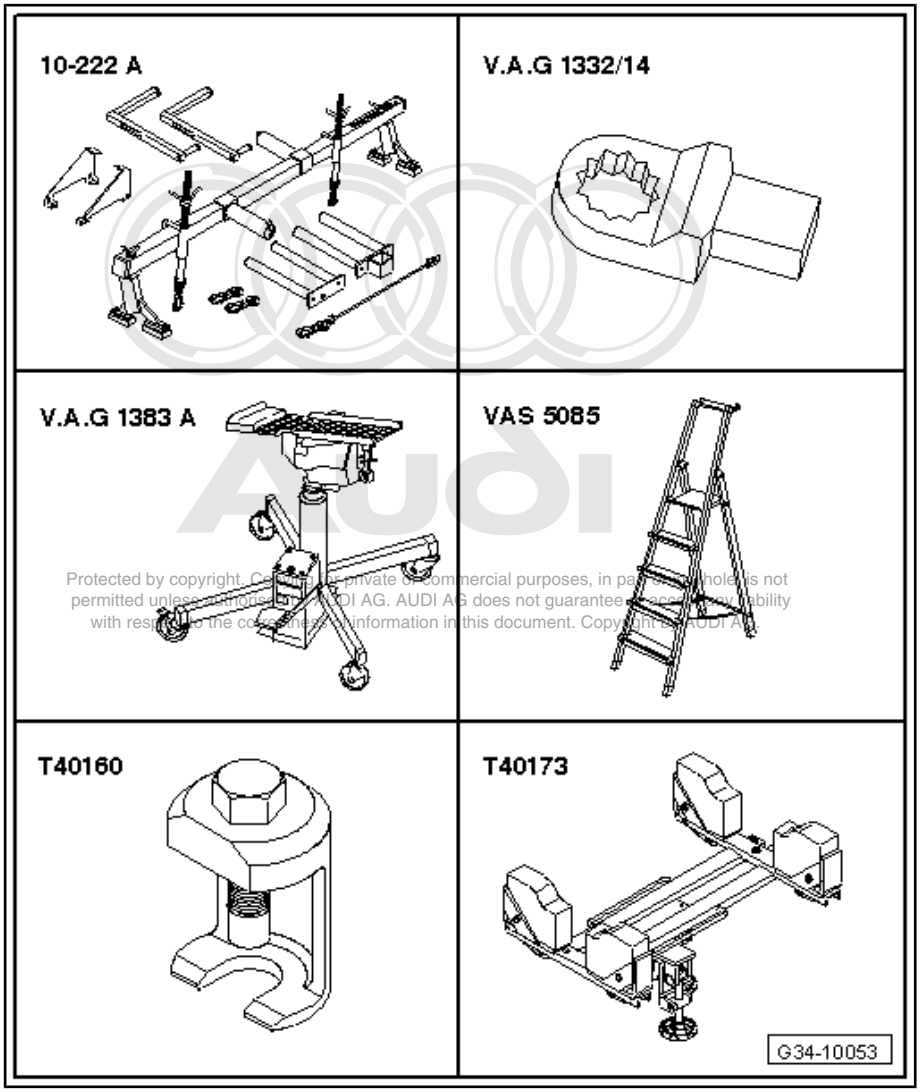
## 2.1 Removing gearbox

⇒ “2.1.1 Removing gearbox - vehicles with 1.4 ltr. TFSI and 2.0 ltr. TFSI engine”, page 59

⇒ “2.1.2 Removing gearbox - vehicles with 2.0 ltr. TDI engine”, page 69

## 2.1.1 Removing gearbox - vehicles with 1.4 ltr. TFSI and 2.0 ltr. TFSI engine

**Special tools and workshop equipment required**

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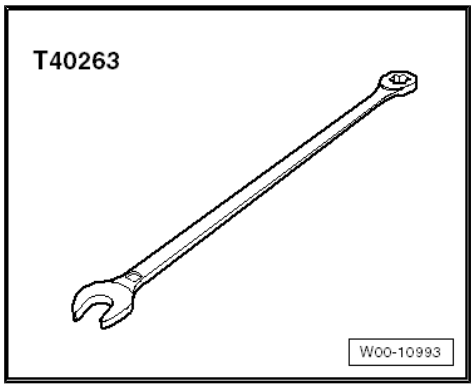
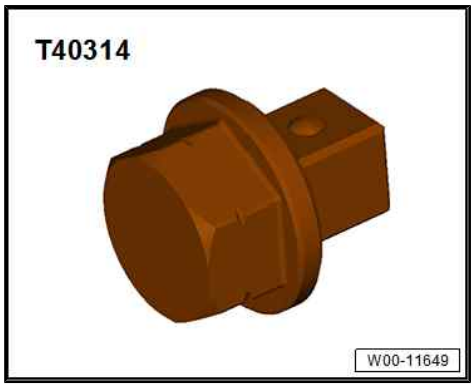
- Support bracket - 10 - 222 A-
- Ring spanner insert, 16 mm - V.A.G 1332/14-
- Engine and gearbox jack - V.A.G 1383 A-
- Stepladder (e.g. stepladder - VAS 5085- )
- Puller - T40160-

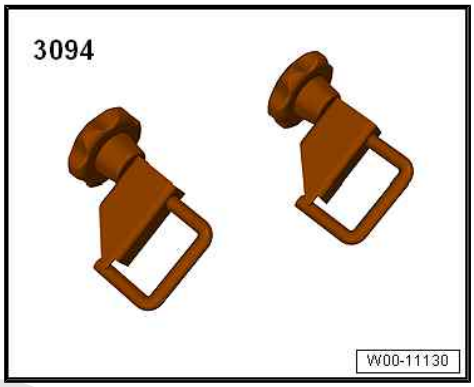
- Gearbox support - T40173-
- Wrench 21 mm - T40263-



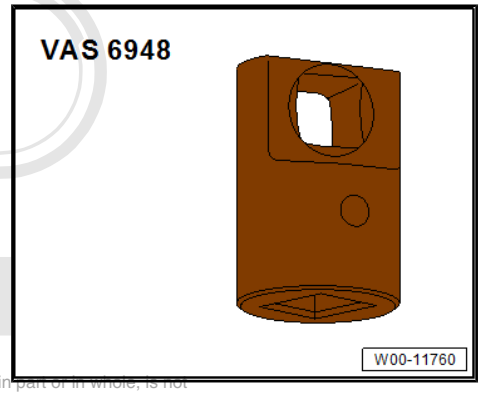

- Adapter - T40314-




- Hose clamps up to Ø 25 mm - 3094-




- Adapter - VAS 6948-

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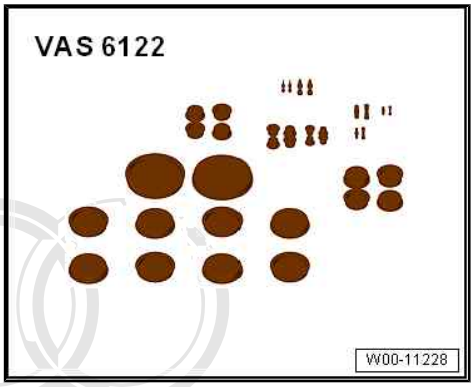
- Engine bung set - VAS 6122-




- Tensioning strap - T10038-

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– Bring front wheels into straight-ahead position.
– Switch off ignition.
– Disconnect battery in luggage compartment.

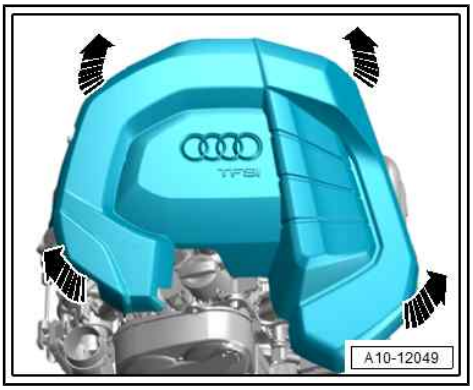
**Caution**

***When disconnecting the battery there is a risk of irreparable damage to electronic components.***

- ***Observe measures required when disconnecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .***

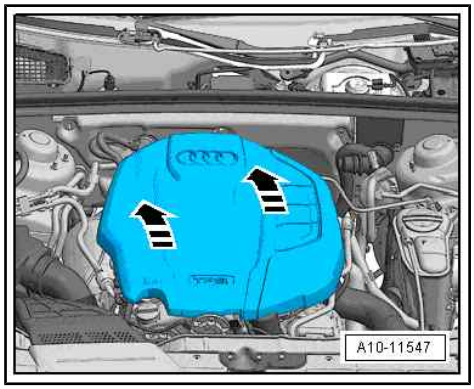
**Vehicles with 1.4 ltr. TFSI engine**

– First pull engine cover panel off ball stud (right-side) -arrow A- and then detach it towards right side -arrow B-.



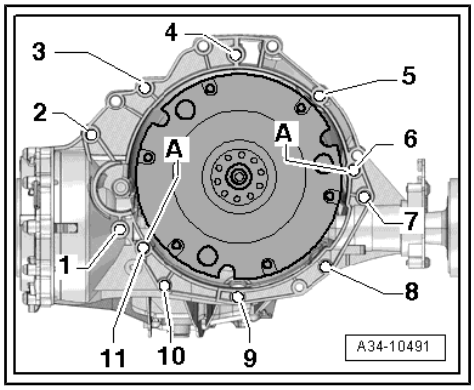
**Vehicles with 2.0 ltr. TFSI engine**

– Remove engine cover panel -arrows-.

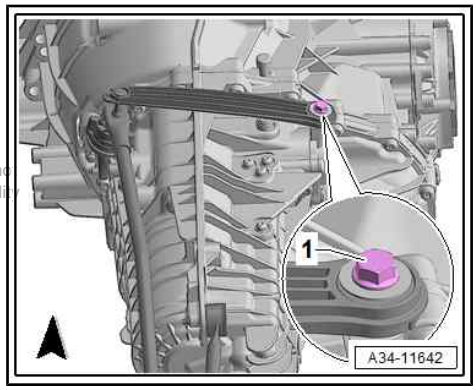



**Continued for all vehicles**

– Remove bolts -2 … 5- securing engine to gearbox (accessible from above).




– Working from above, remove bolt -1- for connecting rod.

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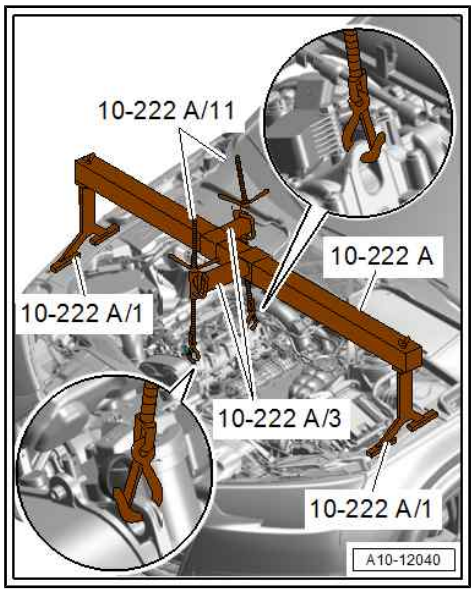
– If there are hoses and wire connections in area of engine lifting eyes for support bracket - 10 - 222 A- , remove these now.
– Set up support bracket - 10 - 222 A- with racks - 10 - 222 A / 1- on wing mounting flanges, as shown in illustration.
– Hook spindle - 10 - 222 A /11- onto engine lifting eyes (front and rear).
– Lift vehicle and remove front wheels.
– Remove noise insulation for vehicle underbody ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



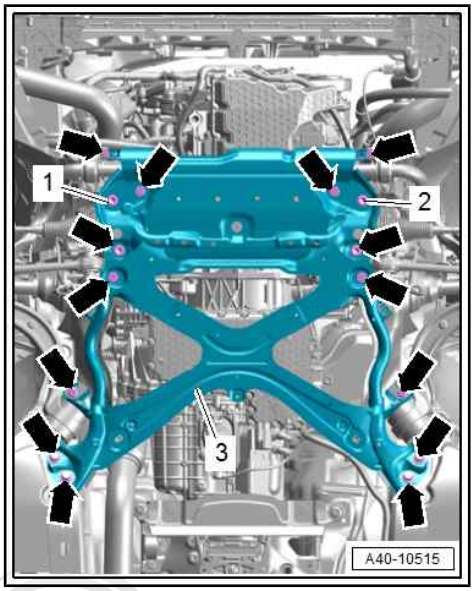
– Remove subframe cross brace ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .

**Caution**

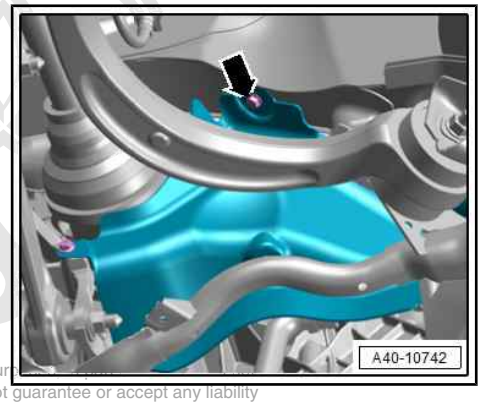
*Risk of damage to parts of the running gear.*

*Do NOT let the vehicle down on the wheels if the subframe, steering rack or subframe cross brace are not properly installed.*

*Do NOT support the vehicle at the subframe or the subframe cross brace (e.g. with a trolley jack).*




– Remove subframe shield -arrow- (below drive shaft on both sides) ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe .

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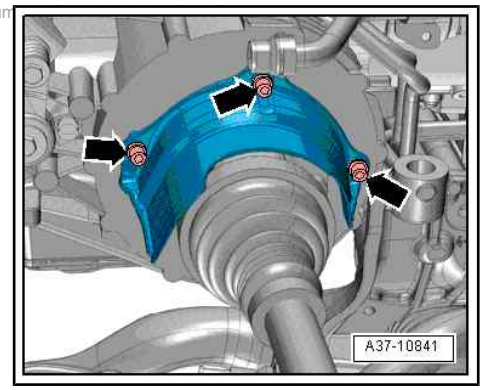
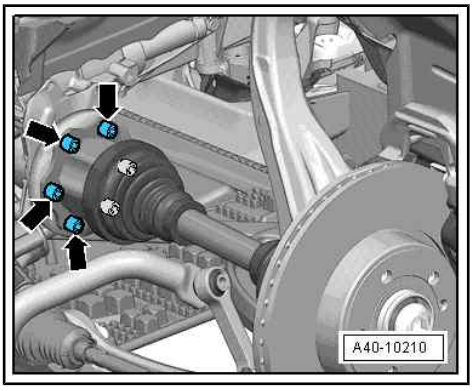
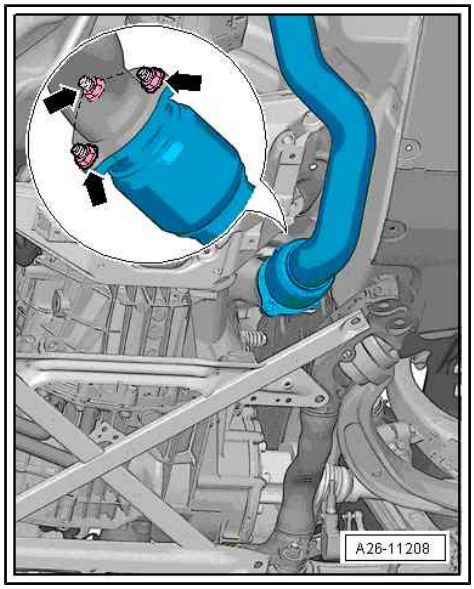
– Remove bolts -arrows- and detach heat shield for drive shaft (right-side).



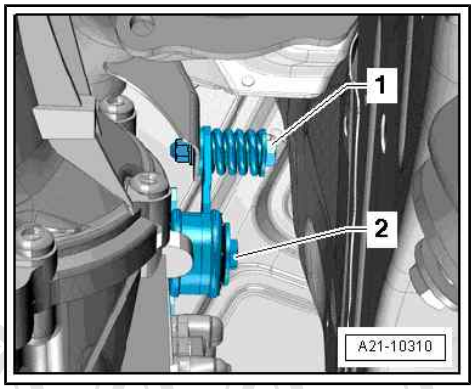

– Unbolt drive shafts (left and right) from flange shafts on gearbox -arrows-.



– Remove front exhaust pipe together with front silencer ⇒ Engine, mechanics; Rep. gr. 26 ; Exhaust pipes/silencers; Removing and installing front silencer .



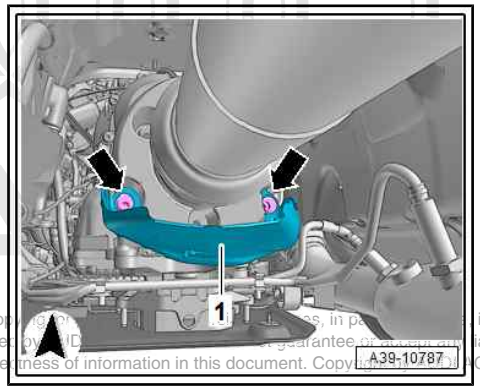

– If fitted, remove bolt -2- and pivot retaining tab for catalytic converter towards front.




**Vehicles with four-wheel drive**

– If fitted, remove bolts -arrows- and detach heat shield -1- for propshaft.

– Remove propshaft ⇒ Rear final drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .

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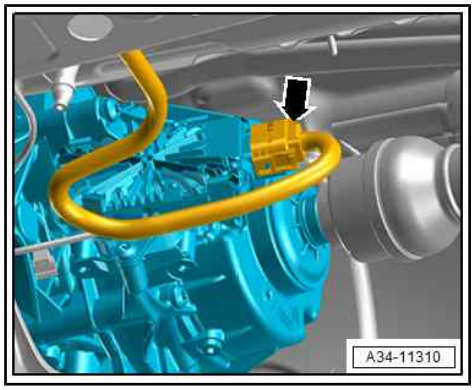
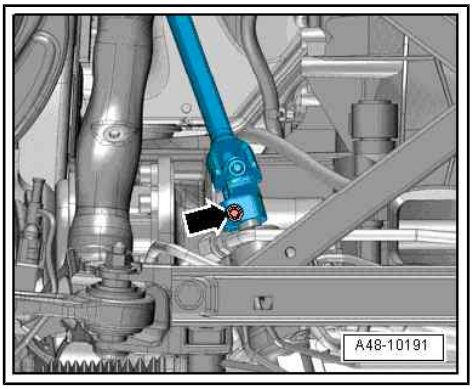
– Unplug electrical connector -arrow- at all-wheel drive system control unit - J492- and move wire clear.



**Continued for all vehicles**

– Detach intermediate steering shaft from steering rack and telescope shaft upwards ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 48 ; Steering column; Removing and installing intermediate steering shaft .

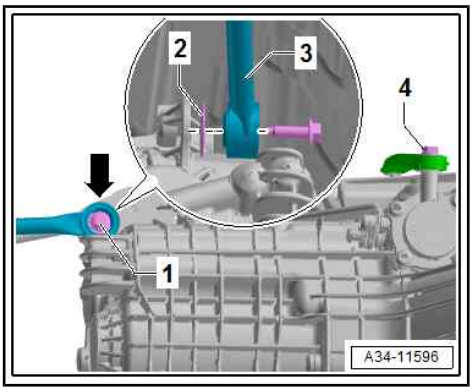



**Caution**

*Risk of damage to coil connector for airbag.*

- *Front wheels must be in straight-ahead position when universal joint is detached from steering rack.*
- *Do not change position of steering wheel or steering rack after this step (if necessary, fix steering wheel in position with adhesive tape).*

– Remove bolt -1- for push rod -3-.

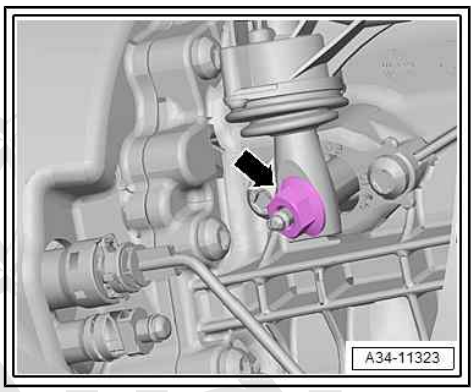



– Unscrew nut -arrow- securing gear selector lever.

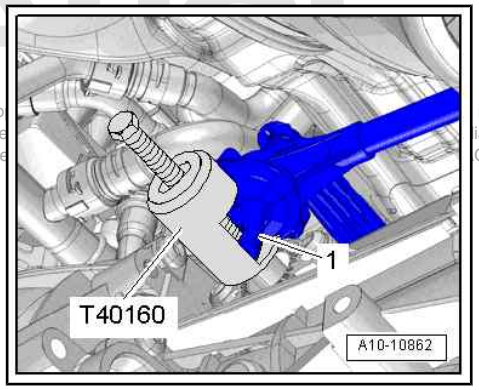
**Caution**

*Risk of damage to selector shaft in gearbox.*

- *Do not prise off or knock off the gearbox selector lever with a lever or hammer.*
- *Always use puller - T40160- when removing the gearbox selector lever.*




– Apply puller - T40160- and pull off gearbox selector lever -1-.

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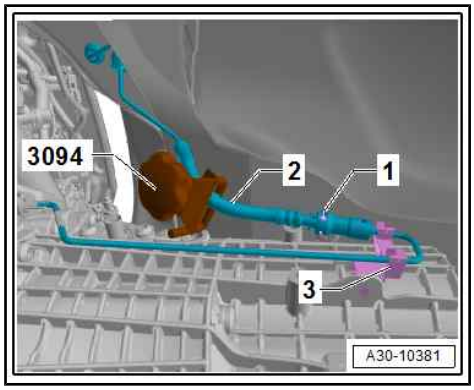
**Caution**

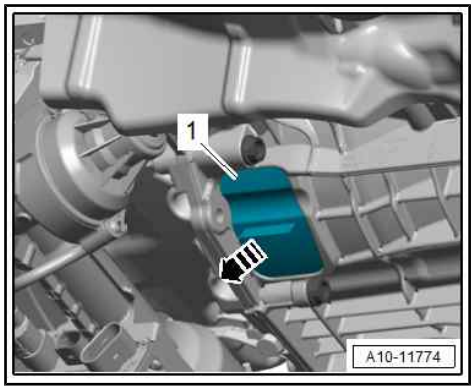
*Catch escaping brake fluid.*

- *Do not operate clutch pedal after detaching pipe/hose assembly from clutch slave cylinder.*




– Use hose clamp - 3094- to clamp off pipe/hose assembly -2-.
– Release retaining clip -1- using a screwdriver and pull out to limit stop.
– Pull pipe/hose assembly -2- off pipe for clutch slave cylinder.
– Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .

– Pull cover -1- off gearbox -arrow-.

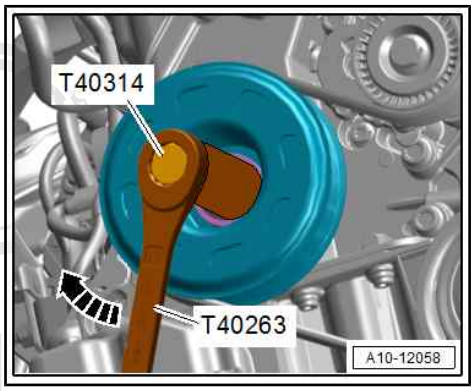



– To slacken bolts for clutch module, counterhold crankshaft at central bolt on vibration damper using wrench (21 mm) - T40263- and adapter -T40314- .

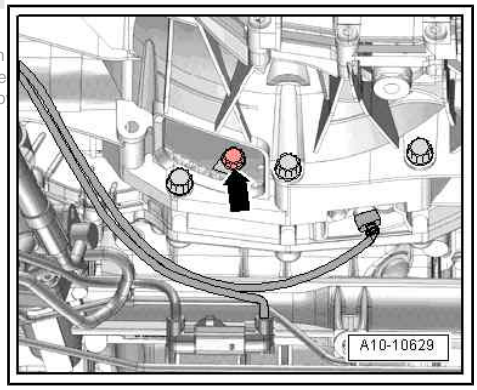
**Caution**

*Irreparable damage can be caused if the camshaft drive chain slips.*

- *Only turn crankshaft in the direction of engine rotation -arrow-.*




– Remove 3 bolts -arrow- securing clutch module to drive plate. To do so, turn crankshaft 120° further in direction of engine rotation each time.
– Use ring spanner insert, 16 mm - V.A.G 1332/14- if necessary.

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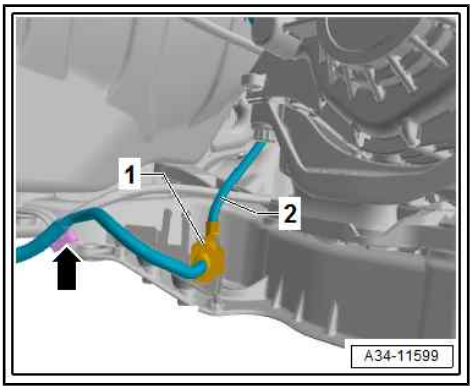
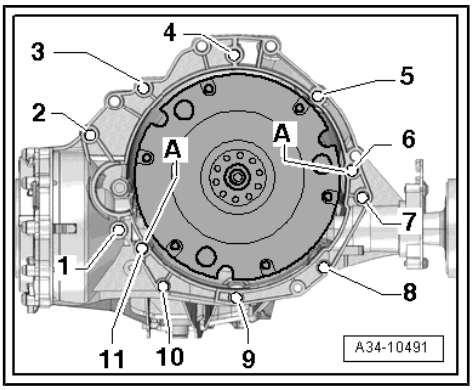
– Unplug electrical connector -1- at tunnel cross member and unclip wire -2-.




– Remove bolts -7 ... 10- securing engine to gearbox.
– Remove bolt -1- for starter from engine side using ring spanner insert, 16 mm - V.A.G 1332/14- and adapter - VAS 6948- .
– Do not remove starter.

**Note**

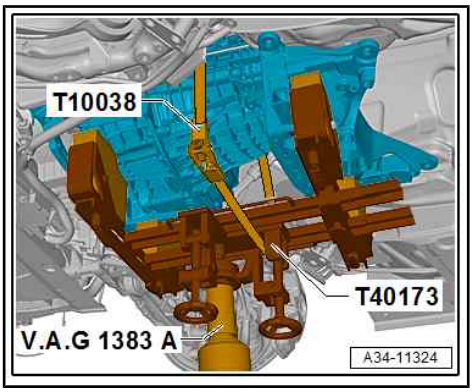
*Starter cables do not need to be disconnected.*



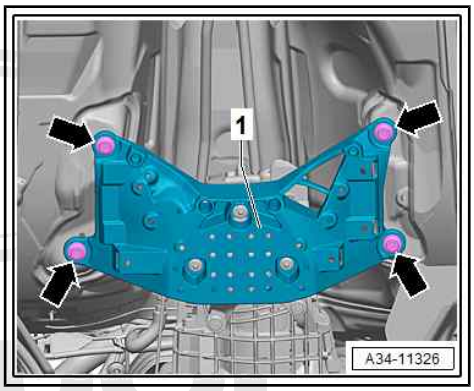

– Position engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- at gearbox and secure with tensioning strap - T10038- .

**Note**

*Make sure no electrical wiring is trapped when attaching tensioning strap.*




– Remove bolts -arrows- for tunnel cross member -1-.

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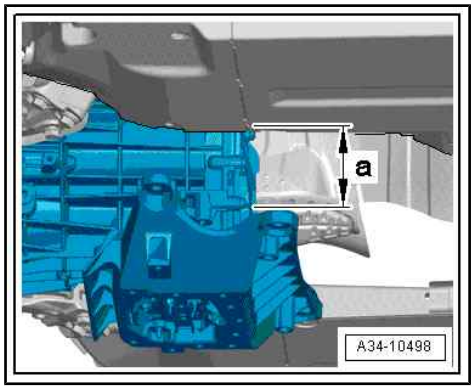
– Lower gearbox initially only by dimension -a- using engine and gearbox jack - V.A.G 1383 A- .

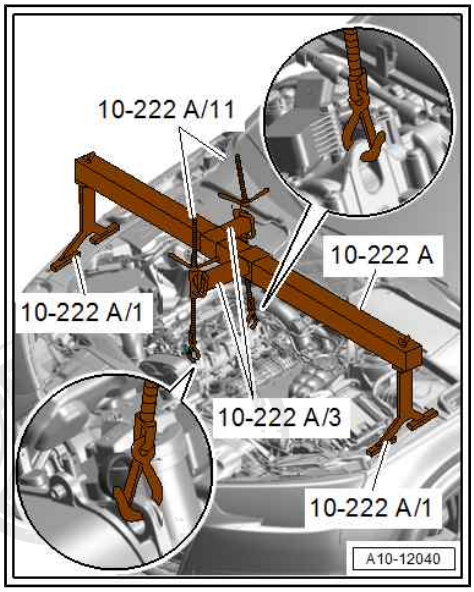
• Dimension -a- = 80 mm (maximum)




– Take up weight of engine slightly with both spindles -10 - 222 A/11- , but do not lift.

**Note**

*Use a stepladder to be able to adjust threaded spindles while vehicle is raised.*




– Remove last bolts -6- and -11- connecting engine to gearbox.

– Press gearbox off engine and dowel sleeves (approx. 20 mm).

– Then lower gearbox carefully, guiding gearbox housing past steering pinion/steering rack and cover for final drive past subframe.

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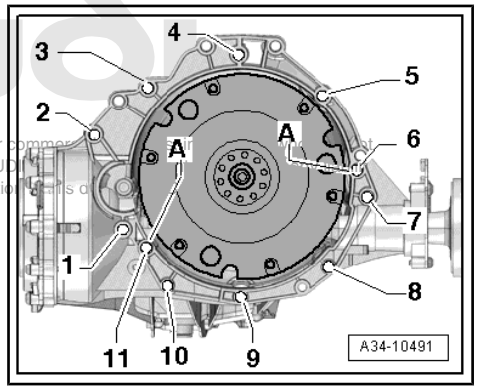
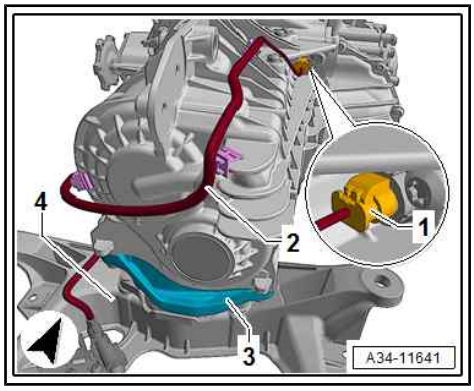


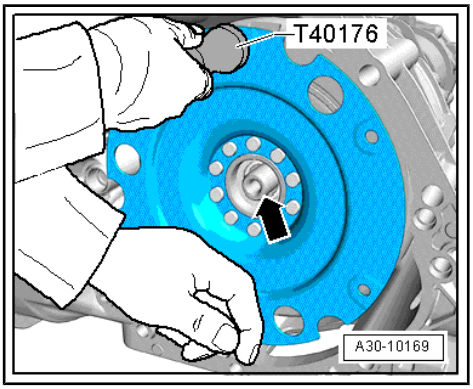

**Note**

- *When lowering the gearbox, make sure that no electrical wires are trapped on the top of the gearbox.*
- *When lowering gearbox, make sure there is sufficient clearance from drive shafts.*

**If the gearbox removed previously is being replaced, the following components must be transferred to the replacement gearbox:**

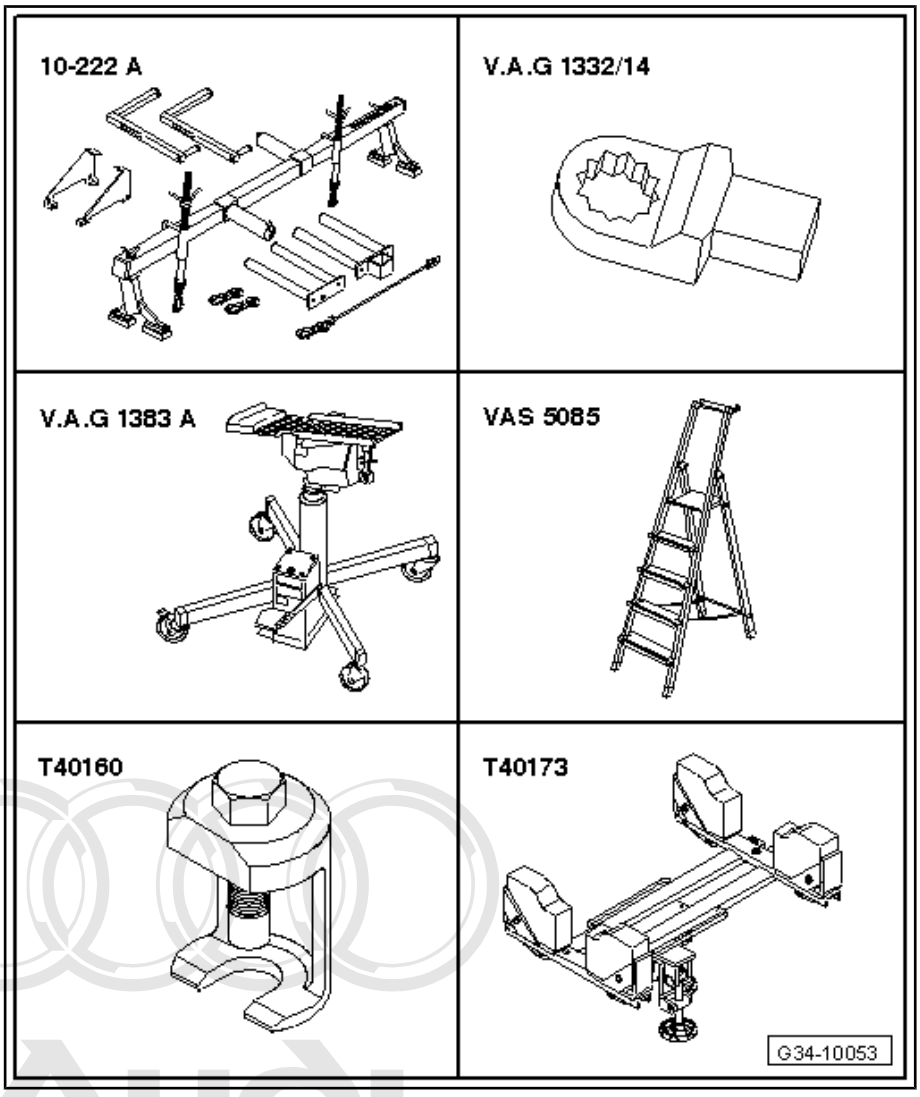


- Unplug electrical connector -1- at gear detection sensor - G604- and detach wiring -2-.
- Bracket for pipe/hose assembly of clutch mechanism ⇒ page 24
- Tunnel cross member -4- with gearbox mounting and gearbox support -3- ⇒ page 91
- If necessary, remove clutch module ⇒ page 39 .




## 2.1.2 Removing gearbox - vehicles with 2.0 ltr. TDI engine

**Special tools and workshop equipment required**




- Support bracket - 10 - 222 A-
- Ring spanner insert, 16 mm - V.A.G 1332/14-
- Engine and gearbox jack - V.A.G 1383 A-
- Stepladder (e.g. stepladder - VAS 5085- )
- Puller - T40160-

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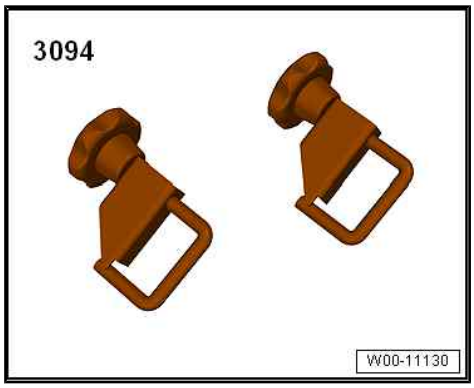
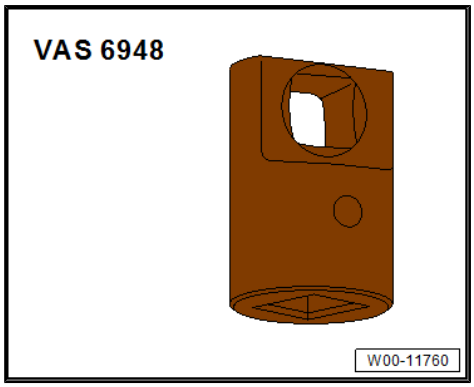
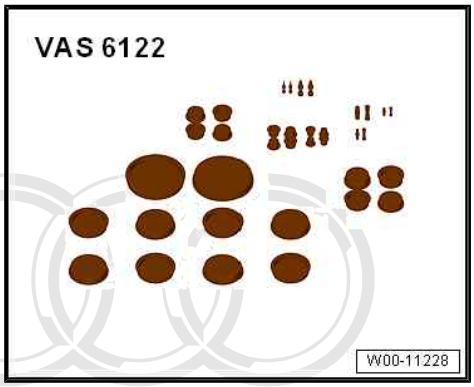
- Gearbox support - T40173-
- Hose clamps up to Ø 25 mm - 3094-




- Adapter - VAS 6948-




- Engine bung set - VAS 6122-




- Tensioning strap - T10038-

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– Bring front wheels into straight-ahead position.
– Switch off ignition.
– Disconnect battery in luggage compartment.

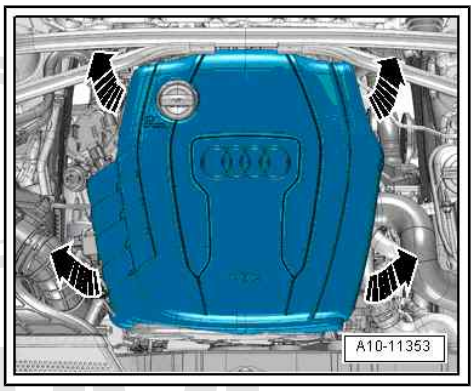
**Caution**

*When disconnecting the battery there is a risk of irreparable damage to electronic components.*

- *Observe measures required when disconnecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .*

– Carefully detach engine cover panel from retaining studs in direction of -arrows-. Do not jerk engine cover panel away, and do not try to pull on one side only.

– Remove air cleaner housing ⇒ Rep. gr. 23 ; Air cleaner; Removing and installing air cleaner housing .




– Remove nut -1- (accessible from above) securing front exhaust pipe to emission control module.

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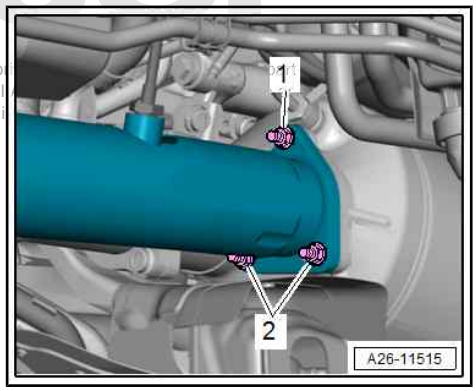
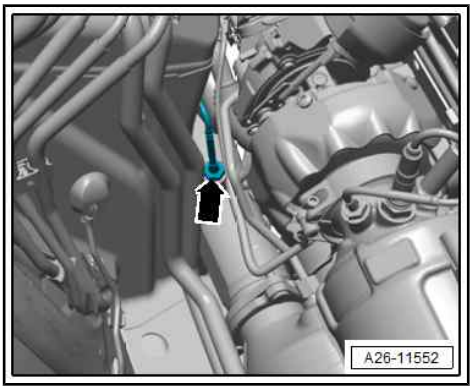



– Unscrew exhaust gas temperature sender 4 - G648- -arrow- using a tool from tool set - T10395A- .

– Support engine in installation position ⇒ 4-cyl. TDI engine; Rep. gr. 10 ; Assembly mountings; Supporting engine in installation position .

– Lift vehicle and remove front wheels.

– Remove noise insulation for vehicle underbody ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



– Remove subframe cross brace ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .

**Caution**

*Risk of damage to parts of the running gear.*

*Do NOT let the vehicle down on the wheels if the subframe, steering rack or subframe cross brace are not properly installed.*

*Do NOT support the vehicle at the subframe or the subframe cross brace (e.g. with a trolley jack).*

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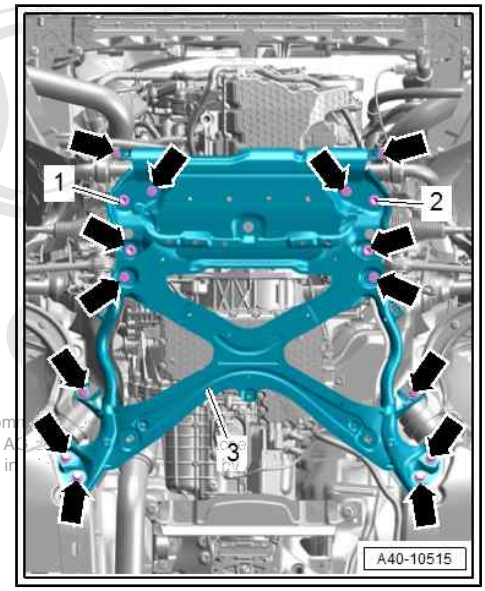
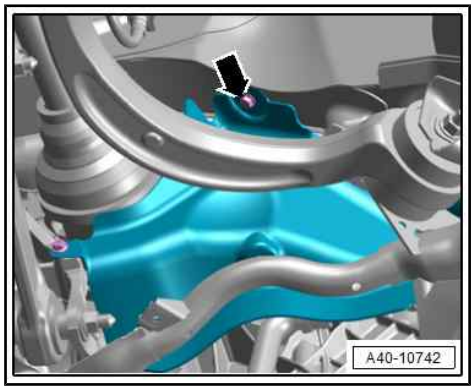
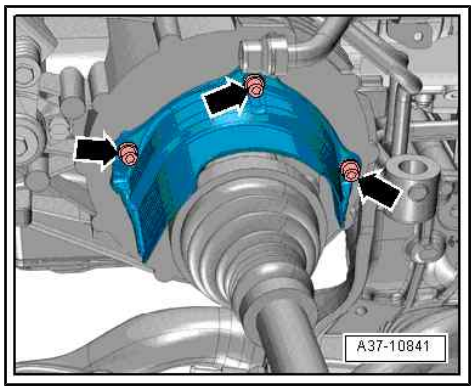


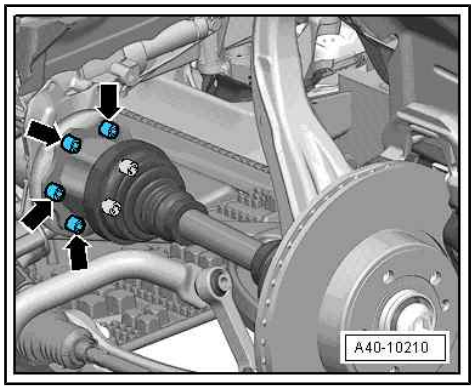

– Remove subframe shield -arrow- (below drive shaft on both sides) ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe .



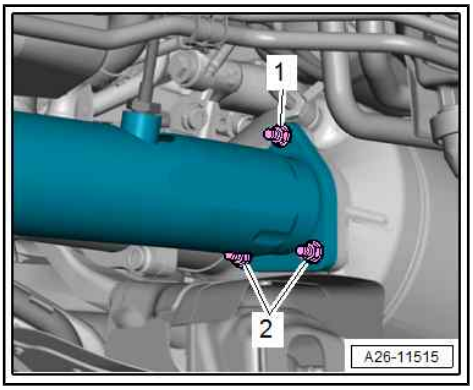

– Remove bolts -arrows- and detach heat shield for drive shaft (right-side).




– Unbolt drive shafts (left and right) from flange shafts on gearbox -arrows-.



– Remove nuts -2- securing front exhaust pipe (accessible from below), and remove front exhaust pipe ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Removing and installing front exhaust pipe .




**Caution**

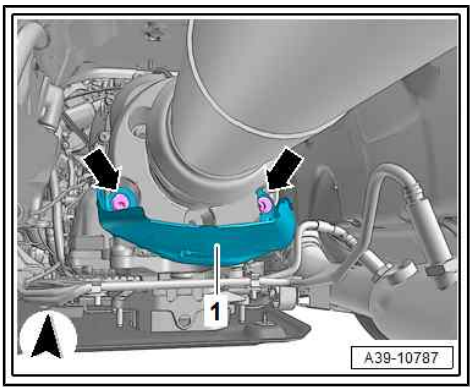
*Risk of damage to flexible joint in front exhaust pipe.*

- *The flexible joint in the front exhaust pipe must not be bent further than 10°.*

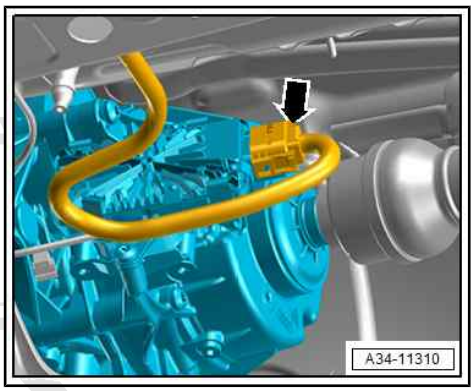
**Vehicles with four-wheel drive**

– If fitted, remove heat shield -1- for propshaft. To do so, remove bolts -arrows-.

– Remove propshaft ⇒ Rear final drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .

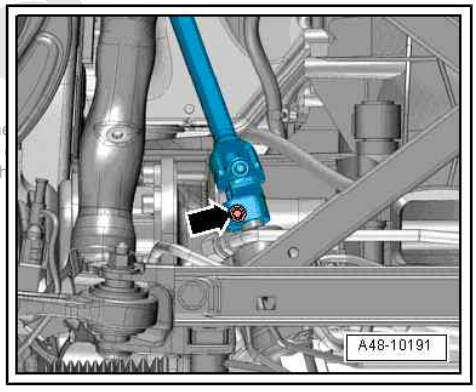



– Unplug electrical connector -arrow- at all-wheel drive system control unit - J492- and move wire clear.




**Continued for all vehicles**

– Detach intermediate steering shaft from steering rack and telescope shaft upwards ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 48 ; Steering column; Removing and installing intermediate steering shaft.

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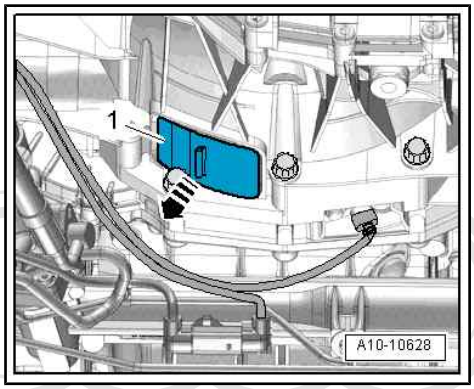
**Caution**

*Risk of damage to coil connector for airbag.*

- *Front wheels must be in straight-ahead position when universal joint is detached from steering rack.*
- *Do not change position of steering wheel or steering rack after this step (if necessary, fix steering wheel in position with adhesive tape).*

– Pull cover -1- off gearbox -arrow-.

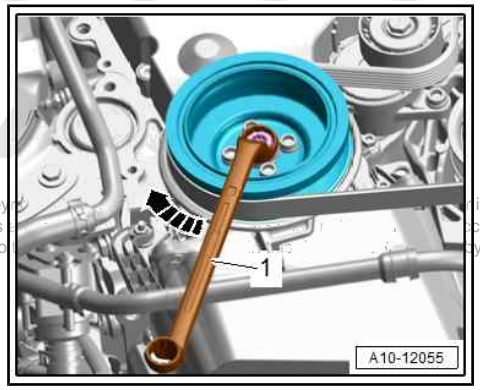



– Remove cap from vibration damper.
– To slacken bolts for flywheel, counterhold crankshaft with angled ring spanner -1- at central bolt on vibration damper.

**Caution**

*Irreparable engine damage can be caused if the toothed belt slips.*

- *Only turn crankshaft in the direction of engine rotation -arrow-.*

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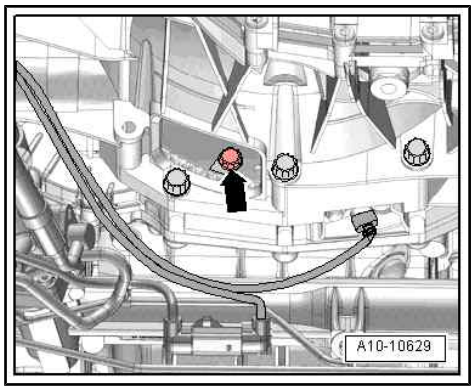
– Remove 3 bolts -arrow- securing clutch module to drive plate. To do so, turn crankshaft 120° further in direction of engine rotation each time.
– Use ring spanner insert, 16 mm - V.A.G 1332/14- if necessary.

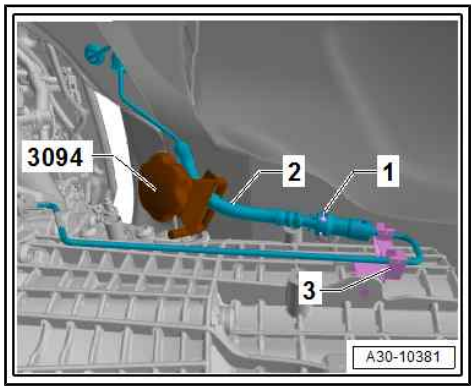
**Caution**

*Catch escaping brake fluid.*

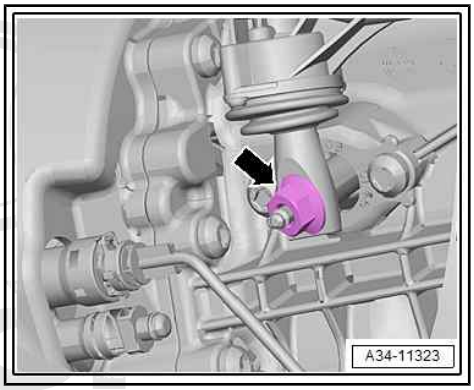
- *Do not operate clutch pedal after detaching pipe/hose assembly from clutch slave cylinder.*




– Use hose clamp - 3094- to clamp off pipe/hose assembly -2-.
– Release retaining clip -1- using a screwdriver and pull out to limit stop.
– Pull pipe/hose assembly -2- off pipe for clutch slave cylinder.
– Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



– Unscrew nut -arrow- securing gear selector lever.




**Caution**

*Risk of damage to selector shaft in gearbox.*

- *Do not prise off or knock off the gearbox selector lever with a lever or hammer.*
- *Always use puller - T40160- when removing the gearbox selector lever.*

– Apply puller - T40160- and pull off gearbox selector lever -1-.

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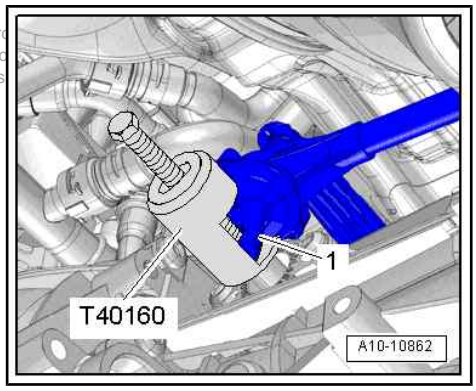
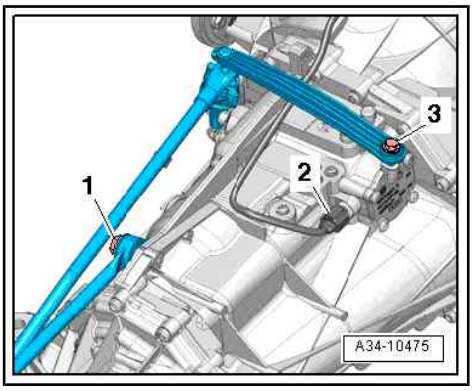


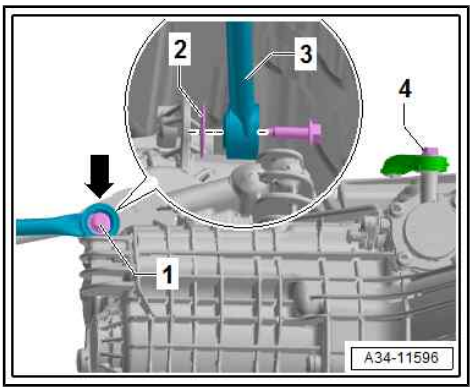

**Audi Q5**

– Remove bolt -1- for push rod and bolt for connecting rod -3-.

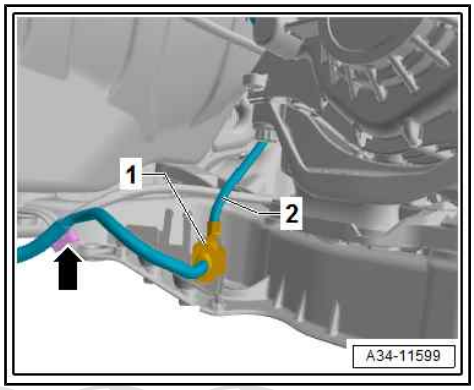



**Audi A4, A5**

– Remove bolt -1- for push rod -3- and bolt for connecting rod -4-.

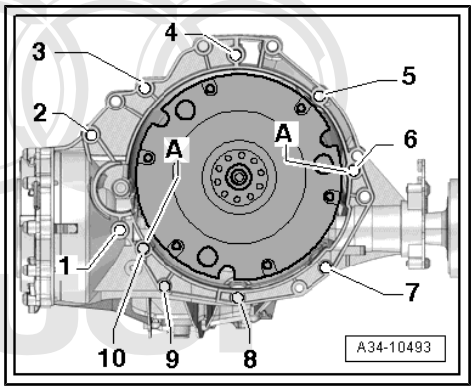


– Unplug electrical connector -1- and unclip wire -2- from tunnel cross member.




**Continued for all vehicles**

– Remove bolts -2, 3, 4, 5, 7, 8, 9- securing engine to gearbox.

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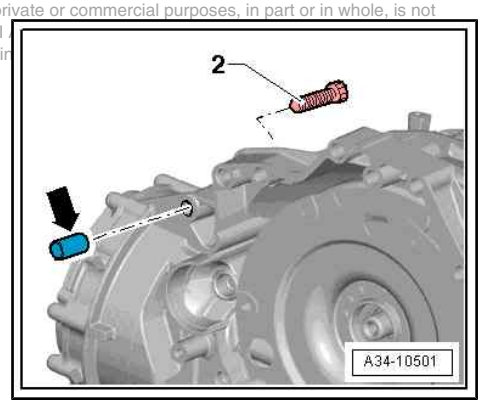
**Note**

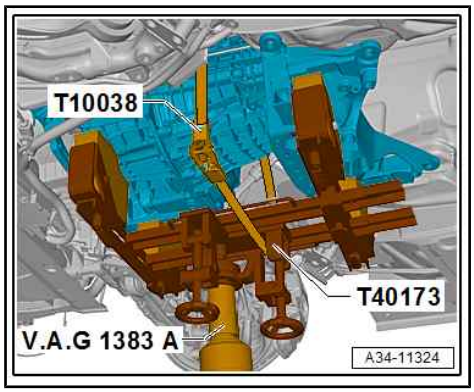
*Bolt -2- secures the starter to the gearbox and has an additional spacer sleeve -arrow-.*



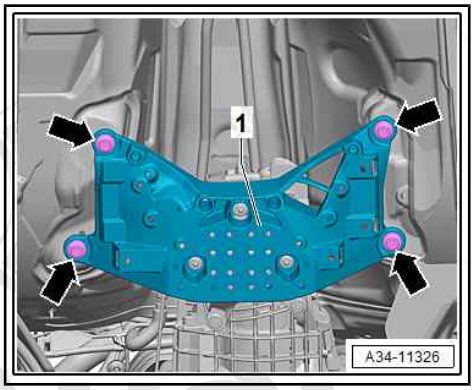

– Position engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- at gearbox and secure with tensioning strap - T10038- .

**Note**

*Make sure no electrical wiring is trapped when attaching tensioning strap.*



– Remove bolts -arrows- for tunnel cross member -1-.




– Lower gearbox initially only by dimension -a- using engine and gearbox jack - V.A.G 1383 A- .

• Dimension -a- = 80 mm (maximum)

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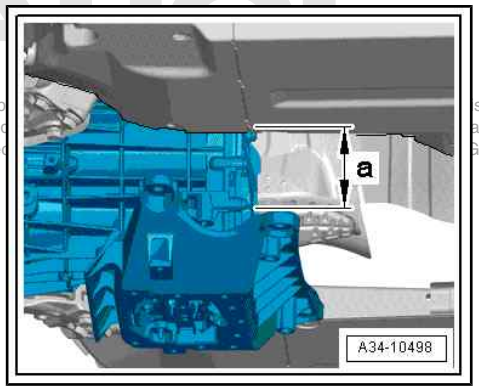
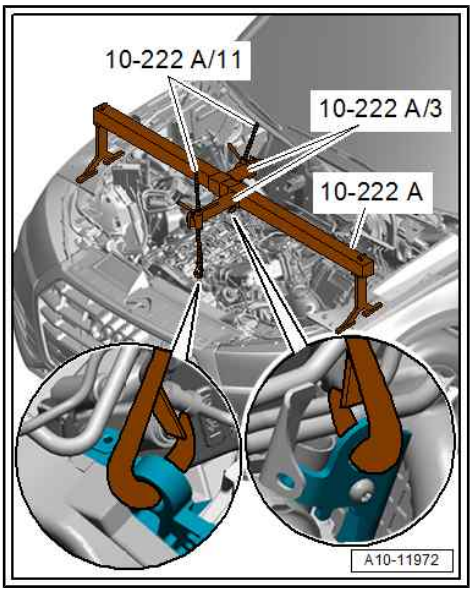



– Take up weight of engine slightly with both spindles, but do not lift.

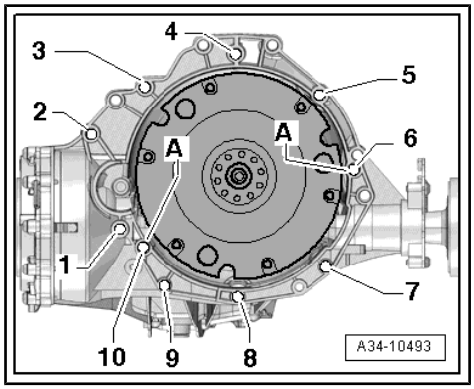
– Lower engine/gearbox slightly via rear spindles of support bracket - 10 - 222 A- .

**Note**

*Use a stepladder to be able to adjust threaded spindles while vehicle is raised.*



– Remove bolt -1- for starter from engine side using ring spanner insert, 16 mm - V.A.G 1332/14- and adapter - VAS 6948- .




**Note**

- *Do not remove starter.*
- *Starter cables do not need to be disconnected.*
- *Bolt -10- is fitted from the engine side.*

– Remove last bolts -6- and -10- connecting engine to gearbox.

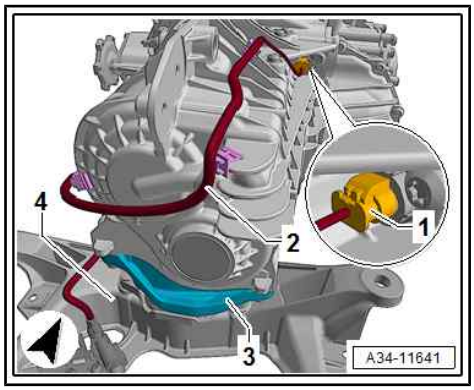
– Press gearbox off engine and dowel sleeves (approx. 20 mm).

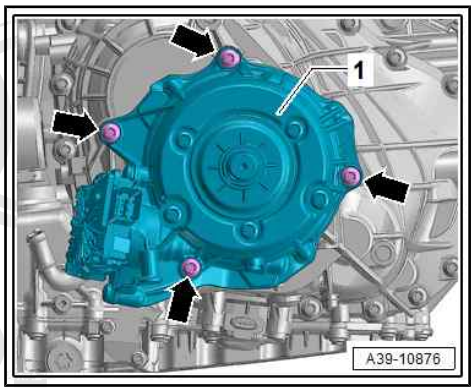
– Then lower gearbox carefully, guiding gearbox housing past steering pinion/steering rack and cover for final drive past sub-frame.

**Note**

- *When lowering the gearbox, make sure that no electrical wires are trapped on the top of the gearbox.*
- *When lowering gearbox, make sure there is sufficient clearance from drive shafts.*

**If the gearbox removed previously is being replaced, the following components must be transferred to the replacement gearbox:**

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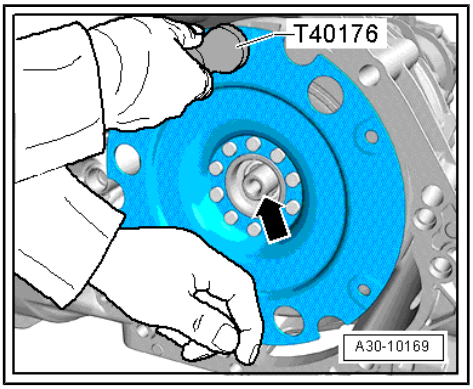
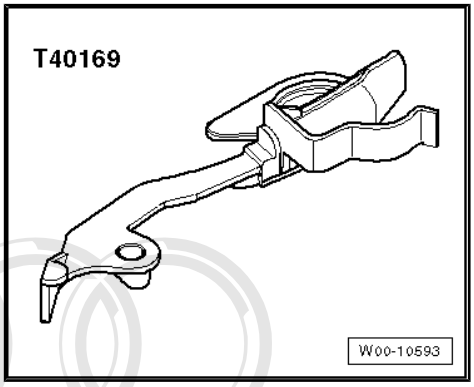
- Unplug electrical connector -1- at gear detection sensor - G604- and detach wiring -2-.
- Bracket for pipe/hose assembly of clutch mechanism ⇒ page 24
- Tunnel cross member -4- with gearbox mounting and gearbox support -3- ⇒ page 91
- On vehicles with four-wheel drive, remove four-wheel drive coupling -1- from gearbox ⇒ Rear final drive; Rep. gr. 39 ; Four-wheel drive coupling; Removing and installing four-wheel drive coupling .
- If necessary, remove clutch module ⇒ page 39 .



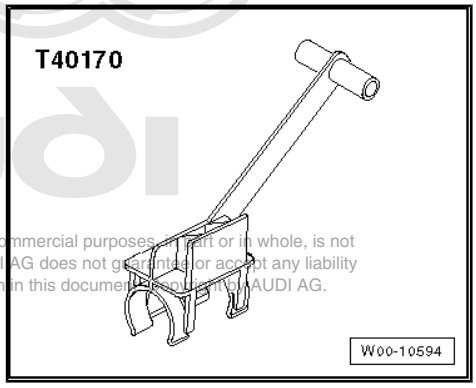

## 2.2 Installing gearbox

**Special tools and workshop equipment required**

- Assembly aid - T40169-




- Transportation lock - T40170-

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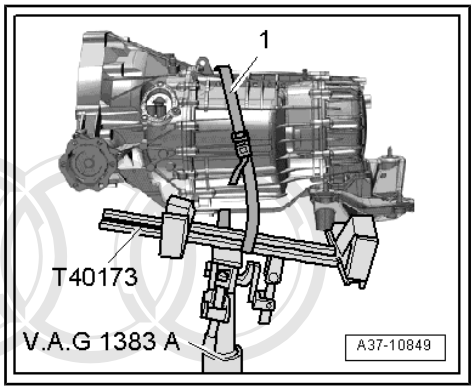
**Procedure**

**Note**

- *Renew all bolts which are tightened by turning through a specified angle. The aluminium bolts securing the engine to the gearbox can be used twice only.*
- *Renew self-locking nuts and bolts, and seals, O-rings and gaskets.*
- *Secure all hose connections with the correct hose clips (as original equipment); refer to ⇒ Electronic parts catalogue .*
- *Re-attach all cable ties at the same locations when re-installing.*

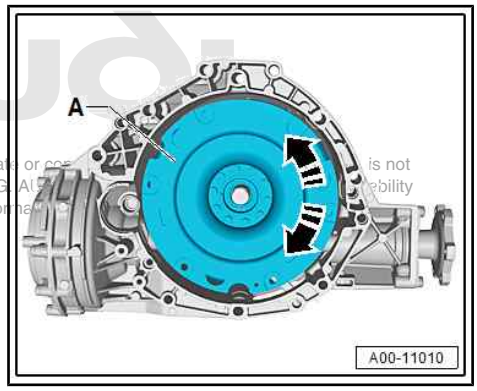
**Tightening torques for installing gearbox** ⇒ page 89

– Position gearbox on gearbox support - T40173- and secure with tensioning strap -1-, as shown in illustration.

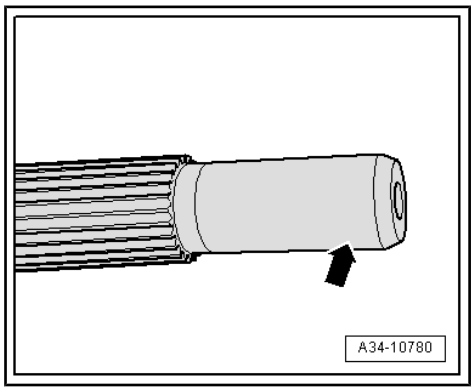



"Clacking" sound in LuK version dual-mass flywheel with centrifugal pendulum absorber

- Depending on version, clutch modules -A- with or without centrifugal pendulum absorbers may be fitted.
- When a clutch module with a centrifugal pendulum absorber is turned by hand, a clacking sound can be heard at intervals of approx. 90°.
- This is caused by a centrifugal pendulum absorber in the dual-mass flywheel and is not a fault.

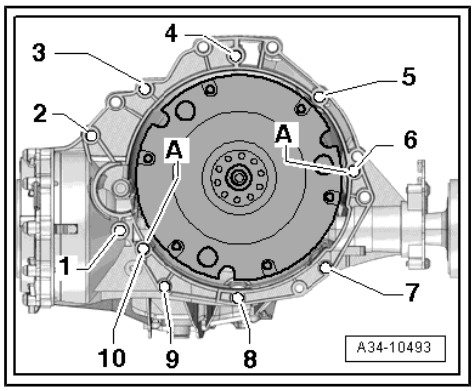



– Check input shaft for scoring around bearing for drive plate -arrow-. Renew needle bearing in drive plate if necessary ⇒ Engine, mechanics; Rep. gr. 13 ; Cylinder block (gearbox end); Renewing needle bearing in drive plate .

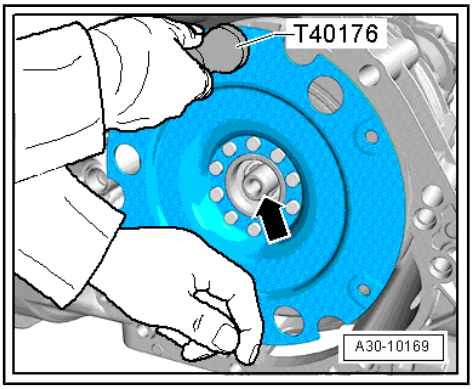



– Check that dowel sleeves -A- for centralising engine/gearbox are in the cylinder block; install any missing dowel sleeves.

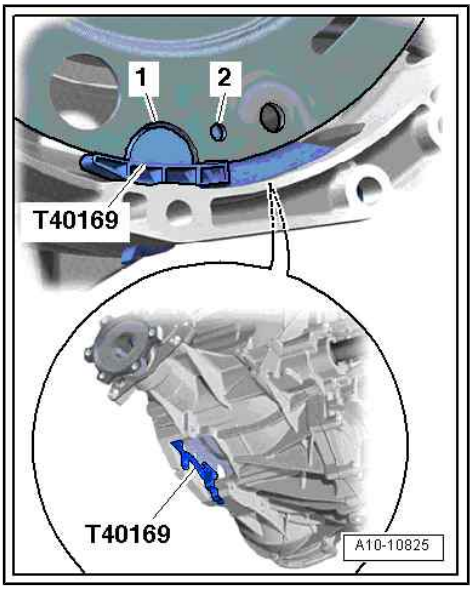
• Check whether bolts -2 … 10- securing engine to gearbox can be reused and mark bolts if necessary ⇒ page 90 .



– If removed previously, install clutch module ⇒ page 39 .




– The following preparations must be made before joining the engine and gearbox:
– Insert assembly aid - T40169- into gearbox housing and clutch module from below, as shown in illustration.




• The assembly tool - T40169- must engage in the semi-circular recess and in the hole (-arrow A- and -arrow B-).

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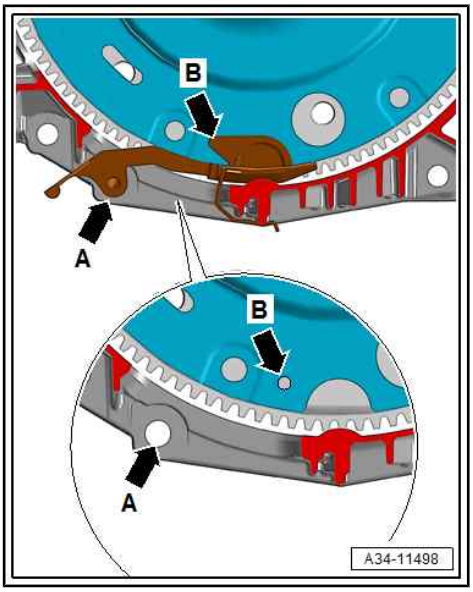
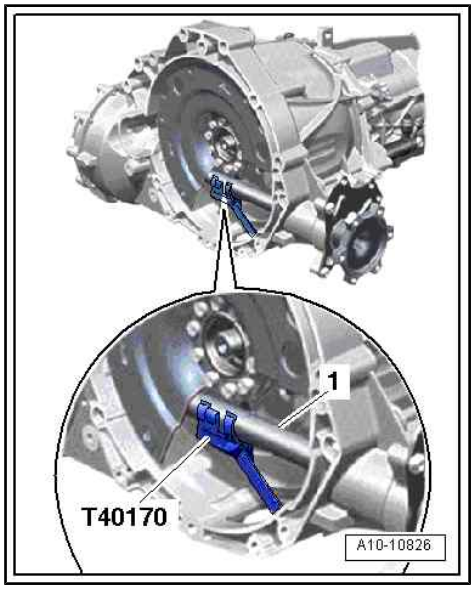
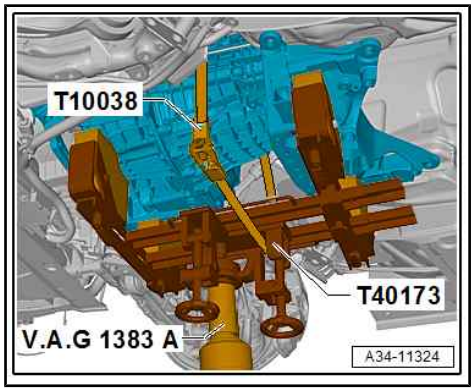
*There is only one inspection hole -arrow B- at the periphery; turn the clutch module accordingly.*



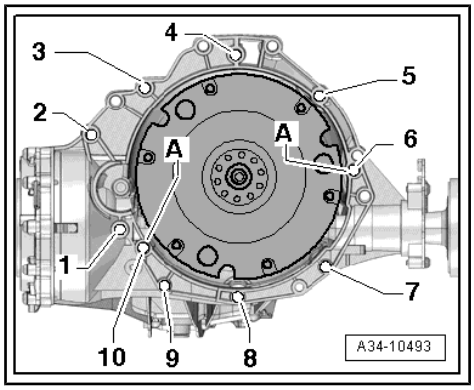
– Insert transportation lock - T40170- into gearbox housing from below and clamp onto flange shaft -1-.




– Lift gearbox using engine and gearbox jack - V.A.G 1383 A- and bring into position on engine.

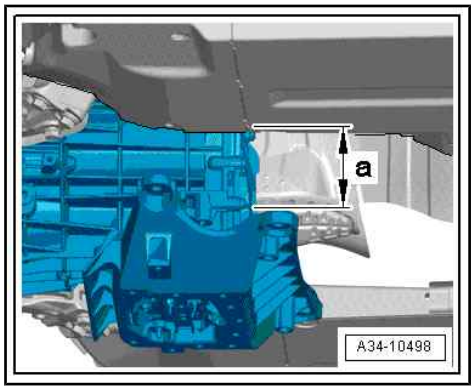



– Tighten bolts -3 ... 10- securing engine to gearbox ⇒ page 89 .




– Raise gearbox using engine and gearbox jack - V.A.G 1383 A- initially only until dimension -a- is reached between tunnel cross member and body.

• Dimension -a- = min. 80 mm.

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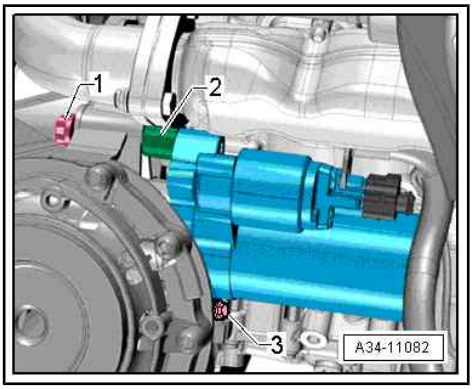
– Tighten bottom starter bolt -3- hand-tight from engine side.




**Note**

*When inserting bolt -1-, hold spacer sleeve -2- in installation position e.g. with pliers or a cable tie.*

– Fit spacer sleeve -2- between starter and gearbox, push through bolt -1- and tighten ⇒ page 89 .

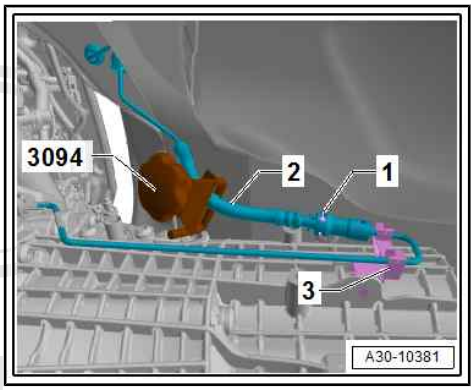
– Tighten bolts -1- securing starter using ring spanner insert, 16 mm - V.A.G 1332/14- and adapter - VAS 6948- ⇒ page 89 .

– Fit pipe/hose assembly -2- into connection of clutch slave cylinder and press in retaining clip -1- as far as stop.

– Pull on pipe/hose assembly -2- to check that it is secure.

– Remove hose clamp - 3094- .

– If previously unclipped, clip pipe/hose assembly into bracket -3- on gearbox.




Install gearbox selector lever as follows:

• Gearbox selector lever -2- can only be fitted onto selector shaft -1- in one position (gap in splines -arrow-).

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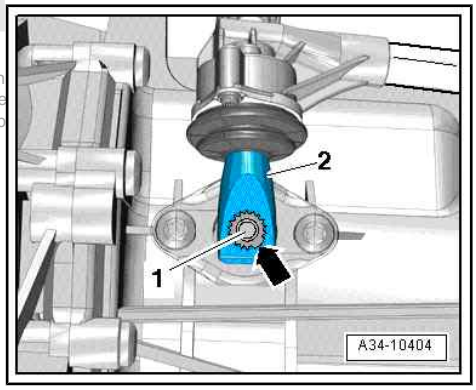
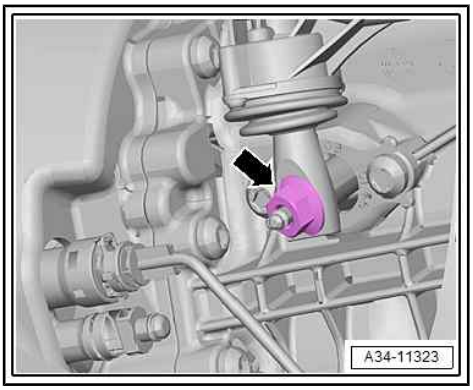
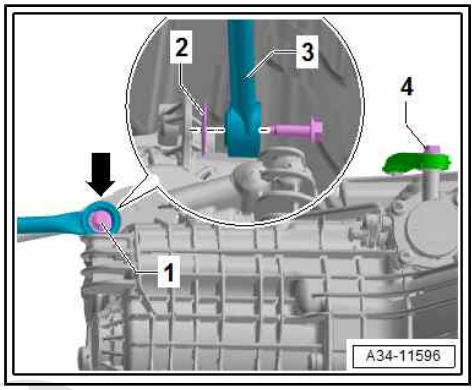



– Tighten new nut -arrow- securing gear selector lever ⇒ Item 18 (page 43) .



– Secure push rod -3- and connecting rod -4- on gearbox.

- Secure push rod with washer -3- at rear attachment point -arrow-.
- On Audi Q5 models, push rod -arrow- is bolted on from left side.




– Unscrew threaded spindles on support bracket - 10 - 222 A- slightly.

**Note**

*Use a stepladder to be able to adjust threaded spindles while vehicle is raised.*

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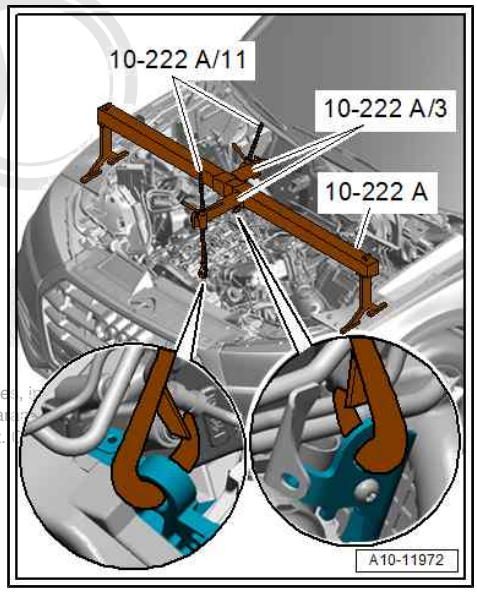
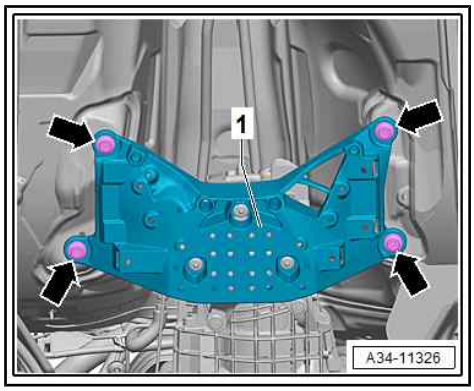


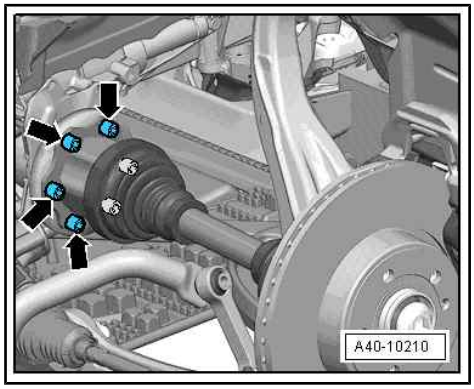

– Raise gearbox further and tighten bolts -arrows- for tunnel cross member -1- ⇒ Item 2 (page 91) .

– Detach engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- from gearbox.

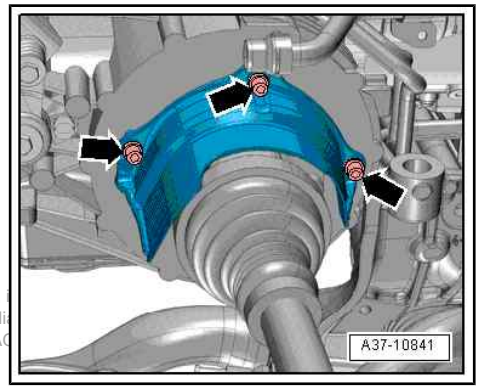
– Install front exhaust pipe, assemble exhaust system and perform stress-free alignment ⇒ Engine, mechanics; Rep. gr. 26 ; Exhaust pipes/silencers; Stress-free alignment of exhaust system .




– Secure drive shafts (left and right) to flange shafts of gearbox ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Loosening and tightening bolt securing drive shaft .



– Install heat shield for drive shaft and tighten bolts -arrows- ⇒ page 90 .

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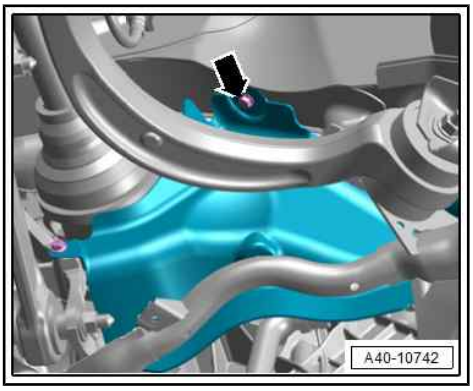
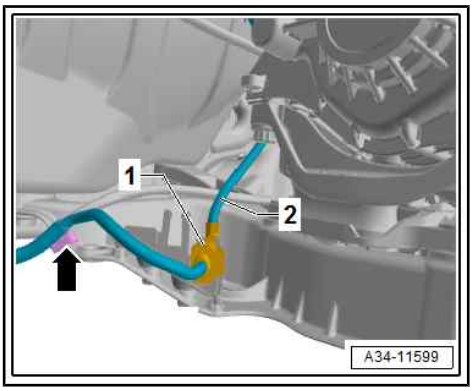
– Install subframe shield -arrow- (below drive shaft on both sides) ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe .

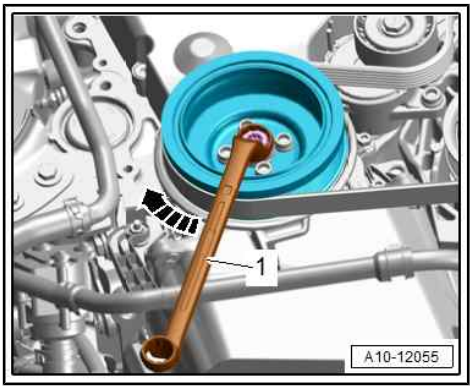



– Clip in wire -2- at tunnel cross member -arrow- and plug in electrical connector -1-.




**Vehicles with 4-cylinder TDI engine**

– Turn crankshaft at vibration damper 360° further in direction of engine rotation (direction of -arrow-).



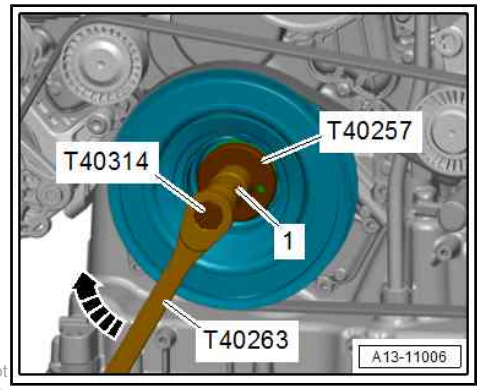

**Caution**

***Irreparable engine damage can be caused if the toothed belt slips.***

- ***Only turn crankshaft in the direction of engine rotation -arrow-.***

**Vehicles with 4-cylinder TFSI engine**

– Turn crankshaft at vibration damper 360° further in direction of engine rotation (direction of -arrow-).




**Caution**

***Irreparable damage can be caused if the camshaft drive chain slips.***

- ***Only turn crankshaft in the direction of engine rotation -arrow-.***

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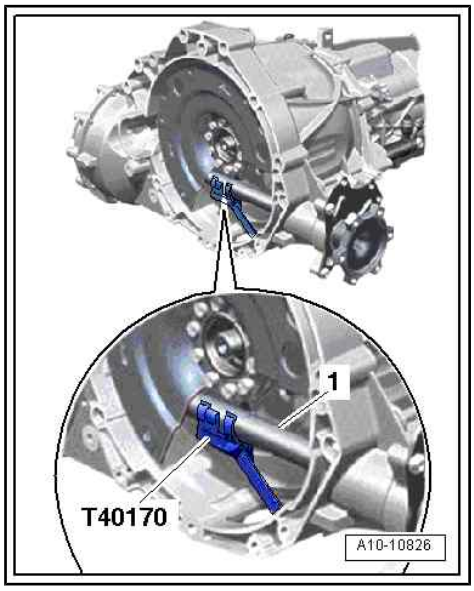
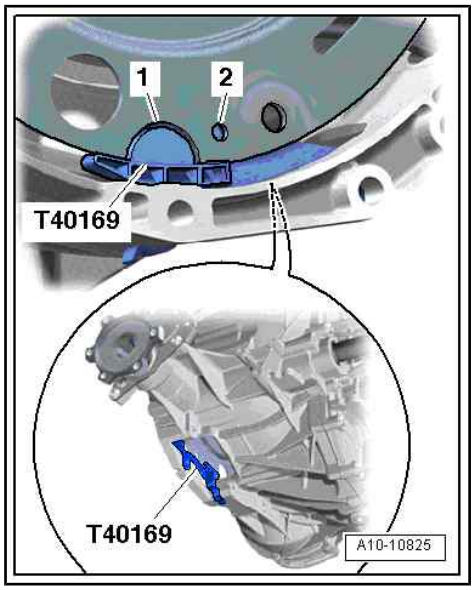
**Continued for all vehicles**

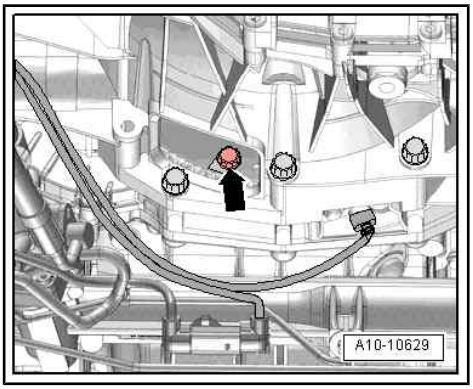
– Remove transportation lock - T40170- .




– Remove assembly aid - T40169- .



**Vehicles with three bolts securing clutch module to drive plate**




**Note**

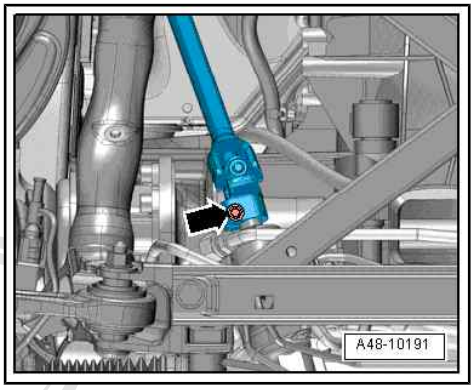
*Use ring spanner insert, 16 mm - V.A.G 1332/14- , to tighten bolts.*

Secure clutch module as follows:

- Tighten first bolt -arrow- to 10 Nm and loosen again; then tighten to 2 Nm (hand-tight).
- Using an angled ring spanner, turn crankshaft at vibration damper 120° further in direction of engine rotation.
- Screw in next bolt in this crankshaft position and tighten to 60 Nm.
- Turn crankshaft 120° further in direction of engine rotation, screw in next bolt and tighten to 60 Nm.
- Turn crankshaft 120° further in direction of engine rotation and tighten final bolt to 60 Nm.

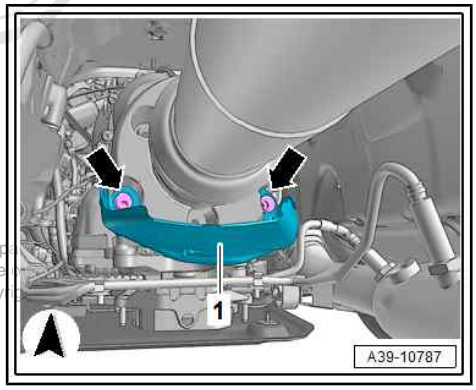
Remaining installation steps are carried out in reverse sequence; note the following:

- Secure universal joint of intermediate steering shaft to steering rack ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 48 ; Steering column; Removing and installing intermediate steering shaft .




**Vehicles with four-wheel drive**

- Install propshaft ⇒ Rear final drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .
- If fitted previously, fit heat shield for propshaft -1- and tighten bolts -arrows-. Tightening torque: 28 Nm

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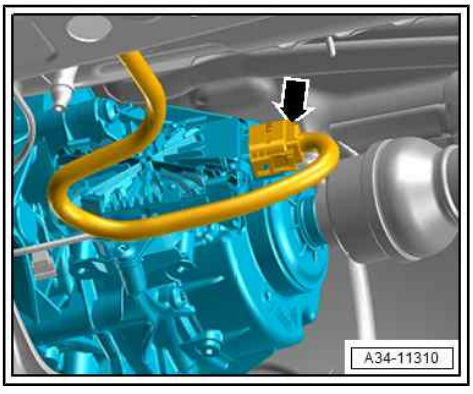
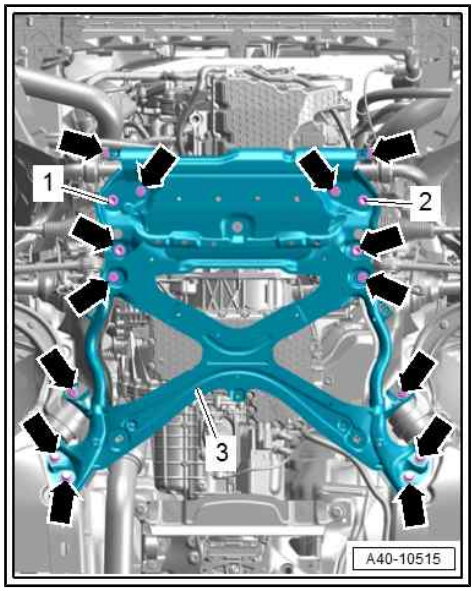
- Plug in connector -arrow- at all-wheel drive control unit and secure cable.



**Continued for all vehicles**




- Install subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .
- Remove support bracket - 10 - 222 A- .
- Bleed clutch hydraulics ⇒ page 33 .
- Install noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Fit both front wheels and tighten wheel bolts to specified torque ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- If previously removed, install air cleaner housing ⇒ Rep. gr. 23 ; Air cleaner; Removing and installing air cleaner housing .
- Observe measures required after connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

**Caution**

*Overvoltage can cause irreparable damage to control units.*

- *Do not use charger for boost starting.*

**Manual gearbox with forced lubrication system from 09.2016 onwards** ⇒ page 1

**Caution**

*After gearbox repairs have been performed, the gear wheels may be insufficiently lubricated as air bubbles may have formed in the oil circuit.*

- *To ensure that all gear wheels are supplied with enough gear oil, these vehicles must only be driven at very low throttle for the first 30 seconds.*

**Tightening torques**

- ⇒ “1.3 Exploded view - selector mechanism”, page 42
- ⇒ “2.3 Tightening torques for gearbox”, page 89
- ⇒ “2.1 Exploded view - clutch module”, page 36
- ⇒ “3.1 Exploded view - assembly mountings”, page 91
- ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe

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## 2.3 Tightening torques for gearbox

**Note**

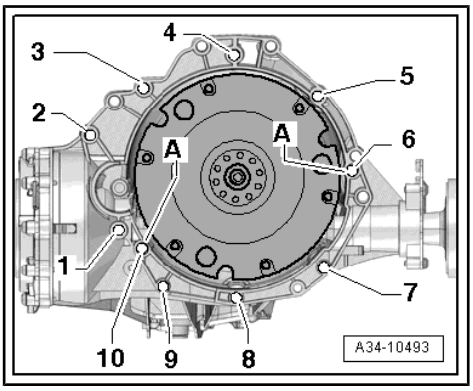
- *Tightening torques apply only to lightly greased, oiled, phosphated or black-finished nuts and bolts.*
- *Additional lubricant such as engine or gear oil may be used, but do not use graphite lubricant.*
- *Do not use parts which have been degreased.*
- *Tolerance for tightening torques is ± 15 %.*

| Component | | Tightening torque |
|---|---|---|
| Bolts and nuts | M6 | 9 Nm |
| | M7 | 15 Nm |
| | M8 | 20 Nm |
| | M10 | 40 Nm |
| | M12 | 65 Nm |
| Except for the following: | | |

**Engine/gearbox attachment (4-cyl. TDI engine)**

| Item | Bolt | Tightening torque |
|---|---|---|
| 1 [1)] | M10 x 50 [2)] | 65 Nm |
| 2 [1) 4)] | M12 x 100 [3)] | 30 Nm +90° |
| 3, 6 | M12 x 75 [3)] | 30 Nm +90° |
| 4, 5 | M12 x 120 [3)] | 30 Nm +90° |
| 7 … 9 | M10 x 75 [3)] | 15 Nm +90° |
| 10 | M12 x 50 [3)] | 30 Nm +90° |
| A | Dowel sleeves for centralising | |

- [1)] Also secures starter.
- [2)] Property class 10.9; the steel bolt can be re-used any number of times.
- [3)] Aluminium bolts must not be used more than twice ⇒ page 90 .
- [4)] Also secures bracket for electrical wiring.

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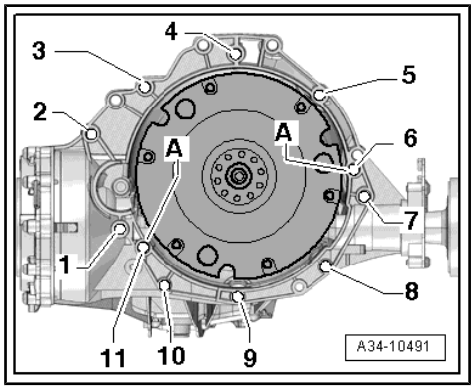
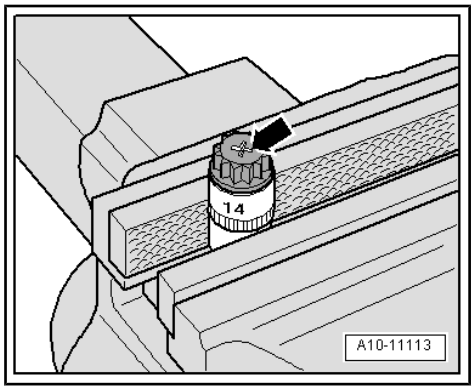
### Engine/gearbox attachment (4-cyl. TFSI engine)

| Item | Bolt | Tightening torque |
|---|---|---|
| 1 [1] | M10 x 50 [2] | 65 Nm |
| 2 [1], 7 | M12 x 100 [3] | 30 Nm +90° |
| 3 | M12 x 70 [3] | 30 Nm +90° |
| 4, 5 | M12 x 120 [3] | 30 Nm +90° |
| 6 | M12 x 85 [3] | 30 Nm +90° |
| 8 … 10 | M10 x 75 [3] | 15 Nm +90° |
| 11 | M12 x 50 [3] | 30 Nm +90° |
| A | Dowel sleeves for centralising | |

- [1] Also secures starter.
- [2] Property class 10.9; the steel bolt can be re-used any number of times.
- [3] Aluminium bolts must not be used more than twice ⇒ page 90 .
- [4] Also secures bracket for electrical wiring.

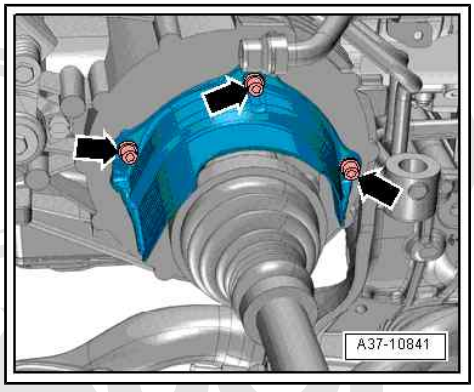



- The aluminium bolts -2 … 10- may only be used twice. After they have been used once, an “X” -arrow- must therefore be chiselled onto the bolts.
- To prevent damage to the bolts, they must not be clamped in a vice when marking them. Clamp a 14 mm socket with 1/2" drive in the vice instead, and insert the bolt into the socket, as shown in illustration.
- Bolts marked with an “X” must not be used again.




### Heat shield for drive shaft - tightening torque

| Component | Tightening torque |
|---|---|
| Heat shield for drive shaft -arrows- to gearbox | 23 Nm |

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# 3 Assembly mountings

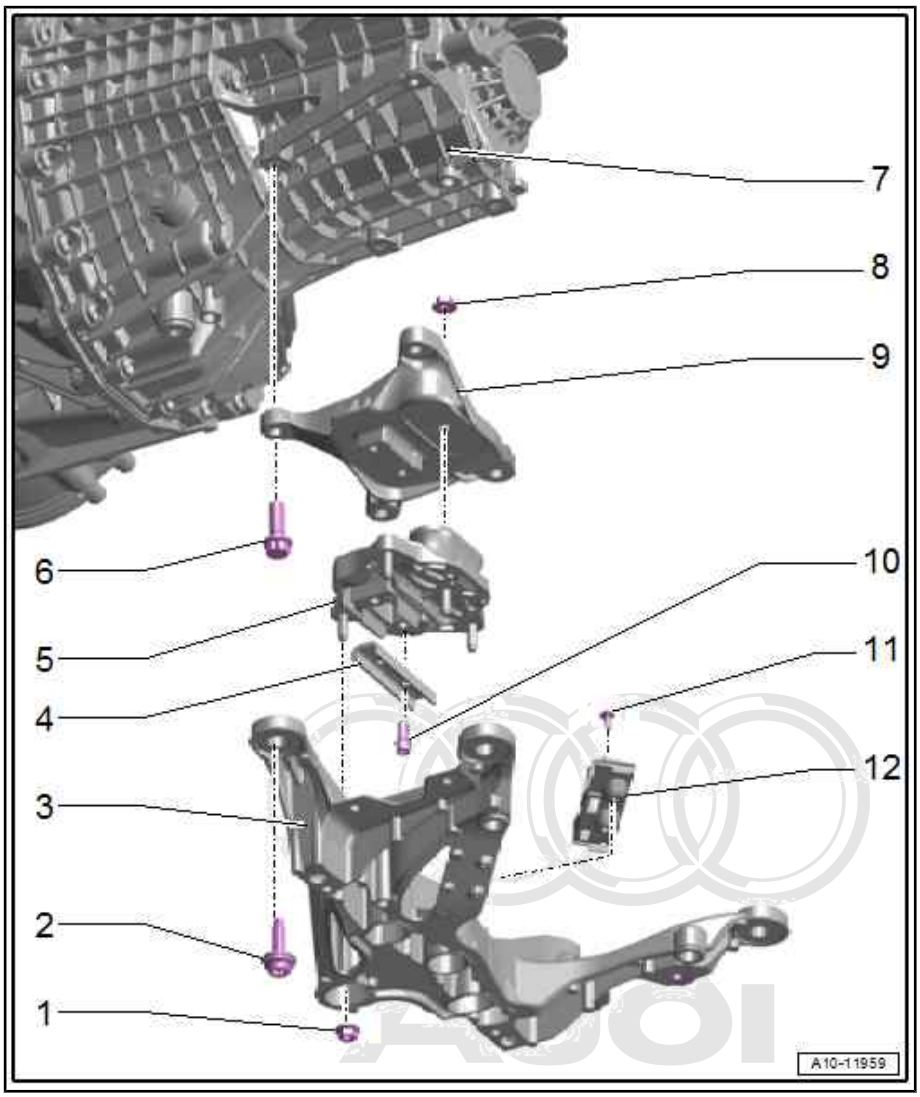
⇒ “3.1 Exploded view - assembly mountings”, page 91

⇒ “3.2 Removing and installing tunnel cross member”, page 92

⇒ “3.3 Removing and installing gearbox support with gearbox mounting”, page 93

⇒ “3.4 Removing and installing gearbox mounting”, page 94

## 3.1 Exploded view - assembly mountings




**1 - Nut**
- ❑ 4x
- ❑ 20 Nm

**2 - Bolt**
- ❑ Tunnel cross member to body
- ❑ 4x
- ❑ 70 Nm

**3 - Tunnel cross member**
- ❑ Removing and installing ⇒ page 92

**4 - Stop (bottom)**
- ❑ For gearbox mounting

**5 - Gearbox mounting**
- ❑ Removing and installing ⇒ page 94

**6 - Bolt**
- ❑ 4x
- ❑ 40 Nm

**7 - Gearbox**

**8 - Nut**
- ❑ 20 Nm
- ❑ Only remove if gearbox mounting has to be detached from gearbox support

**9 - Gearbox support**
- ❑ Removing and installing ⇒ page 93

**10 - Bolt**
- ❑ 20 Nm +90°
- ❑ Renew after removing
- ❑ Only remove if gearbox mounting has to be detached from gearbox support

**11 - Bolt**
- ❑ 9 Nm
- ❑ Only fitted on Audi A4 and A5

**12 - Bracket**
- ❑ For electrical connector

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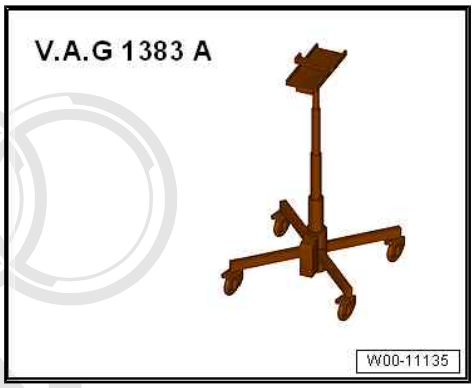
❑ Only fitted on Audi A4 and A5

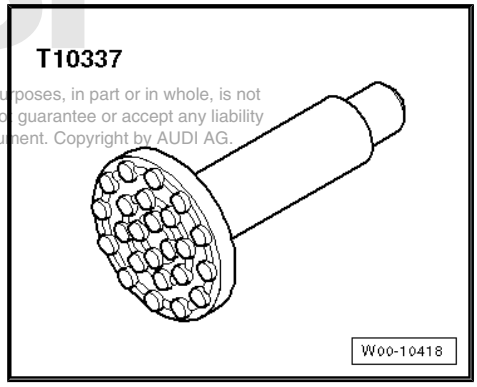
## 3.2 Removing and installing tunnel cross member

**Special tools and workshop equipment required**

♦ Engine and gearbox jack - V.A.G 1383 A-




♦ Gearbox support - T10337-

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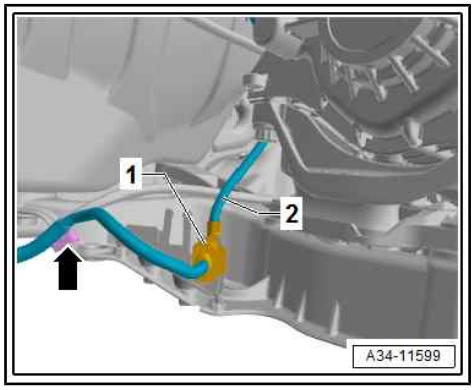
**Removing**

– Remove rear noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

**Audi A4, A5**

– Unplug electrical connector -1- and unclip wire -2- from tunnel cross member -arrow-.




**Continued for all vehicles**

**WARNING**

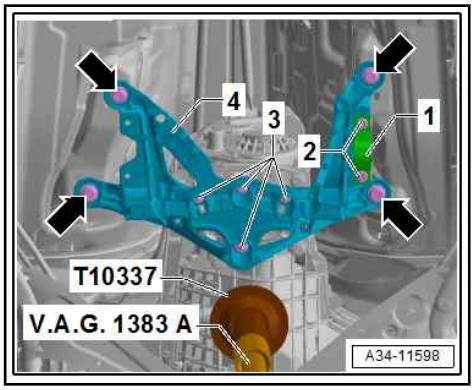
*Risk of accident.*

♦ *Engine and gearbox jack - V.A.G 1383 A- must remain in position when work is being carried out and must not be left unattended.*

– Apply lifting column of engine and gearbox jack -V.A.G 1383 A- to gearbox from below (with gearbox support - T10337- attached).

– Raise gearbox slightly using engine and gearbox jack - V.A.G 1383 A- .

– Remove bolts -2- and detach mounting -1- for exhaust system from tunnel cross member -4-.
– Remove nuts -3- and bolts -arrows- for tunnel cross member.
– Remove tunnel cross member -4-.




### Installing

Installation is carried out in reverse order; note the following:

– Install rear noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

### Tightening torques

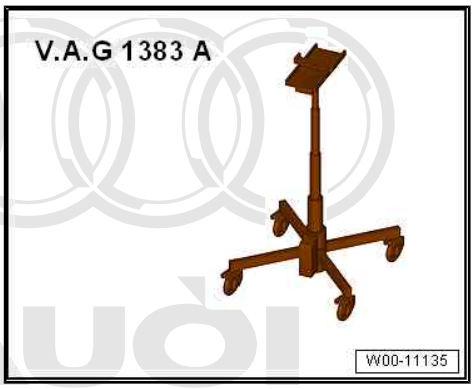
| Component | Tightening torque |
|---|---|
| Mounting for exhaust system to tunnel cross member | 23 Nm |

♦ ⇒ “3.1 Exploded view - assembly mountings”, page 91

## 3.3 Removing and installing gearbox support with gearbox mounting

### Special tools and workshop equipment required

♦ Engine and gearbox jack - V.A.G 1383 A-




♦ Gearbox support - T10337-

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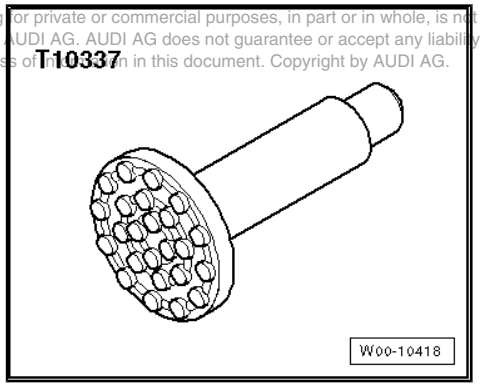
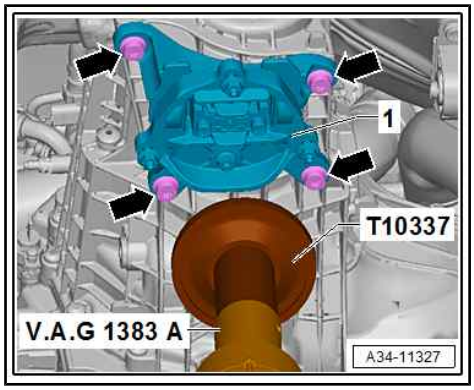


### Removing

– Remove tunnel cross member ⇒ page 92 .

– Remove bolts -arrows- and detach gearbox support from gearbox together with gearbox mounting -1-.




### Installing

Installation is carried out in reverse order; note the following:

– Secure gearbox support to gearbox together with gearbox mounting -1- -arrows- ⇒ Item 6 (page 91) .

– Install tunnel cross member ⇒ page 92 .

### Tightening torques

◆ ⇒ “3.1 Exploded view - assembly mountings”, page 91

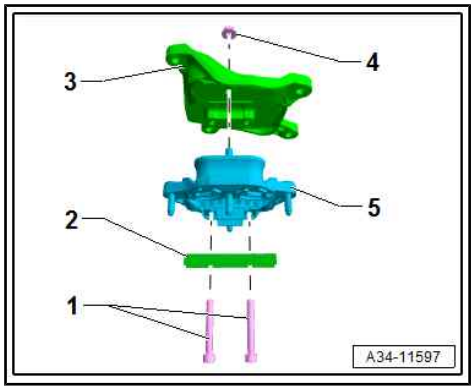
## 3.4 Removing and installing gearbox mounting

### Removing

– Remove gearbox support together with gearbox mounting ⇒ page 93 .

– Remove bolts -1- and detach stop -2- (bottom) for gearbox mounting.

– Remove nut -4- and detach gearbox mounting -5- from gearbox support -3-.




### Installing

– Fit gearbox support -3- onto gearbox mounting -5- and tighten nut -4- hand-tight.

– Secure stop (bottom) -2- with bolts -1- ⇒ Item 10 (page 91) .

– Tighten nut -4- ⇒ Item 8 (page 91) .

– Install gearbox support with gearbox mounting ⇒ page 93 .

### Tightening torques

◆ ⇒ “3.1 Exploded view - assembly mountings”, page 91

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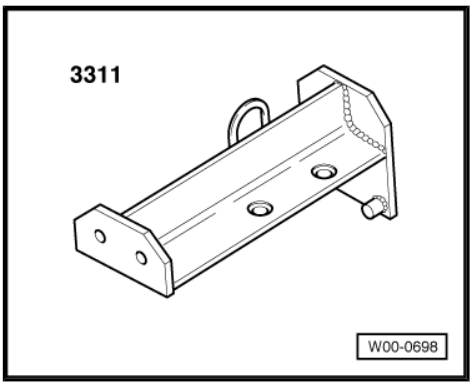
# 4 Transporting gearbox

**Special tools and workshop equipment required**

- Hook and support tool - 3311-

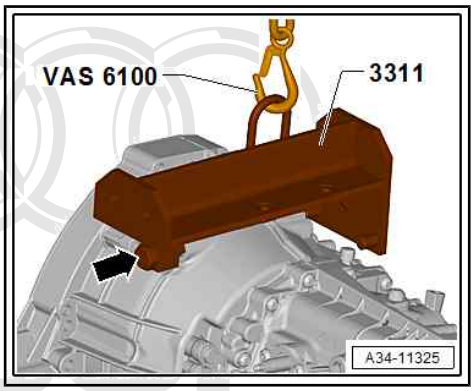



- Workshop hoist - VAS 6100-

**Procedure**

– Attach gearbox to hook and support tool - 3311- and secure with bolt -arrow-.

– The workshop hoist - VAS 6100- can be used to lift and move the gearbox.

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# 5 Dismantling and assembling gearbox

**For a detailed description please refer to the Workshop Manual ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 34 ; Dismantling and assembling gearbox .**

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# 6 Gear oil

⇒ "6.1 Checking gear oil level", page 97

⇒ "6.2 Checking ATF level for four-wheel drive coupling", page 101

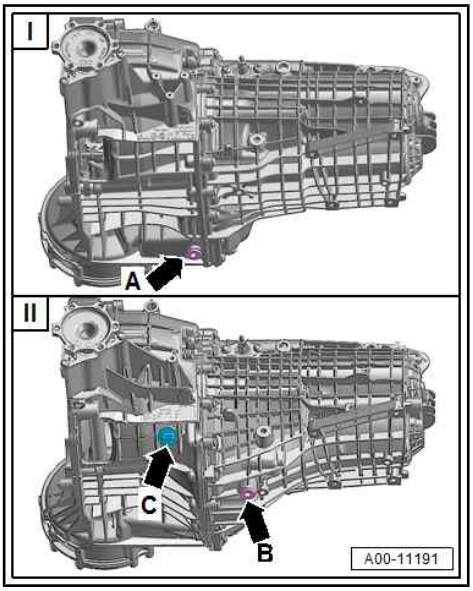
## 6.1 Checking gear oil level

⇒ "6.1.1 Differentiation of manual gearboxes with and without forced lubrication", page 97

⇒ "6.1.2 Checking gear oil level - manual gearbox without forced lubrication", page 97

⇒ "6.1.3 Checking gear oil level - manual gearbox with forced lubrication ", page 100

### 6.1.1 Differentiation of manual gearboxes with and without forced lubrication




**Note**

- *From approx. 09/2016 onwards, manual gearboxes 0CS and 0DJ, front-wheel drive are fitted with a forced lubrication system.*
- *The gear wheels and bearings on these gearboxes are lubricated via a mechanical oil pump fitted in the gearbox.*
- *Manual gearbox 0CX, four-wheel drive, is always fitted with a forced lubrication system.*

**Differentiation of manual gearbox 0CS, 0DJ with and without forced lubrication**

**I - Manual gearbox without forced lubrication**

- Oil drain plug -arrow A- is located in gearbox housing

**II - Manual gearbox with forced lubrication**

- Oil drain plug -arrow B- is located in gearbox cover
- Additional opening in gearbox housing with sealing plug -arrow C-

### 6.1.2 Checking gear oil level - manual gearbox without forced lubrication

**Note**

- *Differentiation of manual gearbox 0CS, 0DJ with and without forced lubrication ⇒ page 97*
- *Manual gearbox 0CX, four-wheel drive, is always fitted with a forced lubrication system.*

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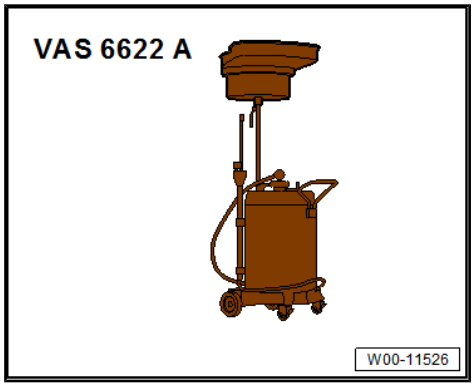
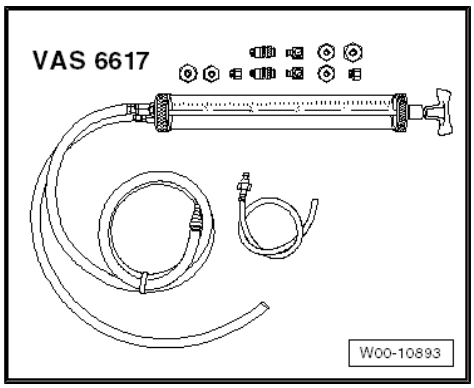
**Special tools and workshop equipment required**

♦ Used oil collection and extraction unit - VAS 6622-




♦ Hand pump for gear oil - VAS 6617-




♦ Safety goggles

**Procedure**

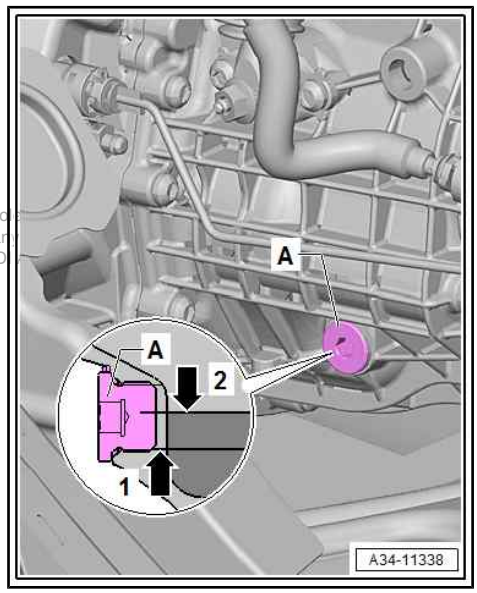
**Caution**

***It is not possible to check the gear oil level by removing the oil filler plug.***

**Installation position of oil filler plug -A-**

The oil level -arrow 2- will be above the bottom lip of the oil filler hole -arrow 1-.

**Procedure**




**Note**

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*The vehicle must be level when checking gear oil.*

**The gear oil level can only be adjusted as follows:**

– Remove rear noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

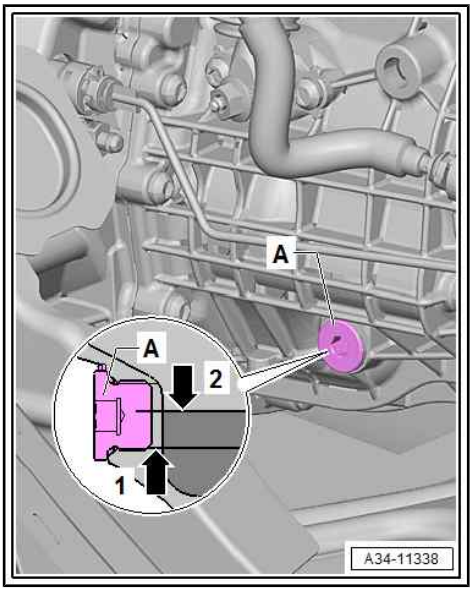
– Place used oil collection and extraction unit - VAS 6622- below gearbox.

**Note**

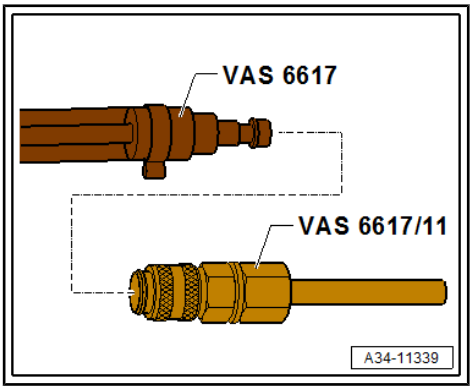
*Gear oil can escape as the gear oil level is above the oil filler plug.*

– Carefully unscrew oil filler plug -A- and, if necessary, fill gear oil up to bottom edge of oil filler hole -arrow 1-.
– Fit oil filler plug and tighten to specified torque.
– Detach breather cap from breather pipe on upper side of gearbox.

Fill up gear oil using hand pump for gear oil - VAS 6617- .




– Fit adapter - VAS 6617/11- onto hand pump for gear oil - VAS 6617- .

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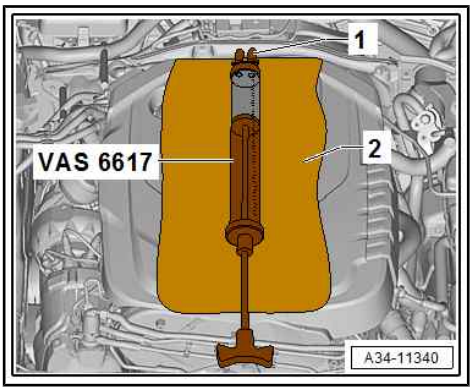
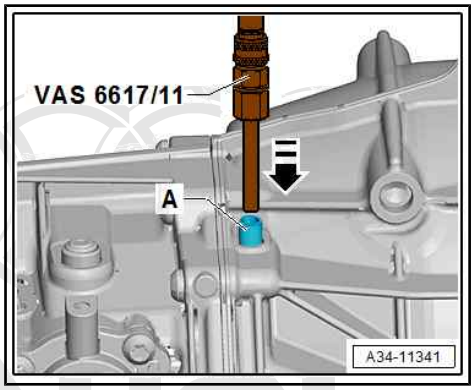
– Route hose -1- of hand pump for gear oil - VAS 6617- through engine compartment to gearbox breather.
– Cover area underneath hand pump for gear oil - VAS 6617- with a cloth -2-.



– Insert adapter - VAS 6617/11- into breather pipe -A- of gearbox in direction of -arrow-.
– Slowly fill with remaining 0.6 ltr. gear oil. For gear oil specification, refer to ⇒ Electronic parts catalogue .
– Disconnect charging device from breather pipe and clip on breather cap.
– Wipe area clean around breather and oil filler plug with a cloth.
– Install rear noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .




**Tightening torques**

| Component | Nm |
|---|---|
| Oil filler plug | 45 |

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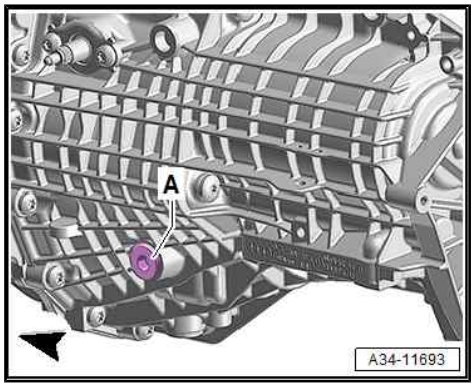
## 6.1.3 Checking gear oil level - manual gearbox with forced lubrication

**Procedure**

**Note**

- *Differentiation of manual gearbox 0CS, 0DJ with and without forced lubrication* *⇒ page 97*
- *Manual gearbox 0CX, four-wheel drive, is always fitted with a forced lubrication system.*
- *The vehicle must be level when checking gear oil.*
- *The gear oil level is correct when the oil is up to the bottom lip of the filler hole.*
- *When the vehicle is delivered, the oil level can be up to 3 mm below the oil filler hole.*
- *Due to the position of the oil drain plug, it is not possible to drain all of the gear oil completely. A residual amount of approx. 0.7 ltr. will remain in the gearbox.*

– Remove rear noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
– Remove oil filler plug -A-.
• The gear oil level is correct when the oil is up to the bottom lip of the oil filler hole -arrow 1- or up to max. 3 mm beneath it.
– If necessary, fill gear oil up to bottom edge of oil filler hole -arrow 1-.
– Fit oil filler plug and tighten to specified torque.
– Install rear noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

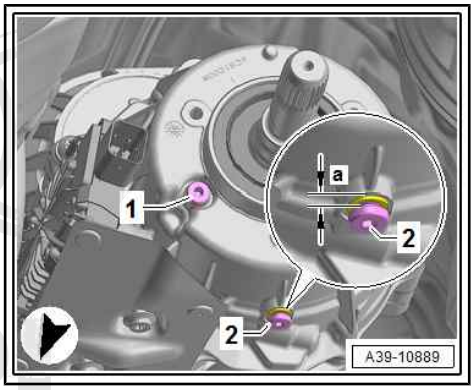



**Tightening torques**

| Component | Nm |
|---|---|
| Oil filler plug | 45 |

## 6.2 Checking ATF level for four-wheel drive coupling

**For the description of this procedure, refer to ⇒ Rear final drive; Rep. gr. 39 ; Four-wheel drive coupling; Checking fluid level .**

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# 35 – Gears, shafts

## 1 Dismantling and assembling gears and shafts

**For a detailed description please refer to the Workshop Manual ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 35 ; Dismantling and assembling gears and shafts .**

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# 39 – Final drive - front differential

## 1 Oil seals

⇒ “1.1 Overview of fitting locations - oil seals”, page 103

⇒ “1.3 Renewing oil seal (right-side)”, page 104

⇒ “1.2 Renewing oil seal (left-side)”, page 104

⇒ “1.4 Renewing oil seal for output shaft”, page 105

## 1.1 Overview of fitting locations - oil seals

⇒ “1.1.1 Overview of fitting locations - oil seals in manual gearbox”, page 103

**Overview of fitting locations - oil seals on four-wheel drive coupling ⇒ Rear final drive; Rep. gr. 39 ; Oil seals; Overview of fitting locations - oil seals**

## 1.1.1 Overview of fitting locations - oil seals in manual gearbox

**A - Input shaft oil seal**

- ❑ Renewing ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 39 ; Oil seals; Overview of fitting locations - oil seals

**B - Sealing cap**

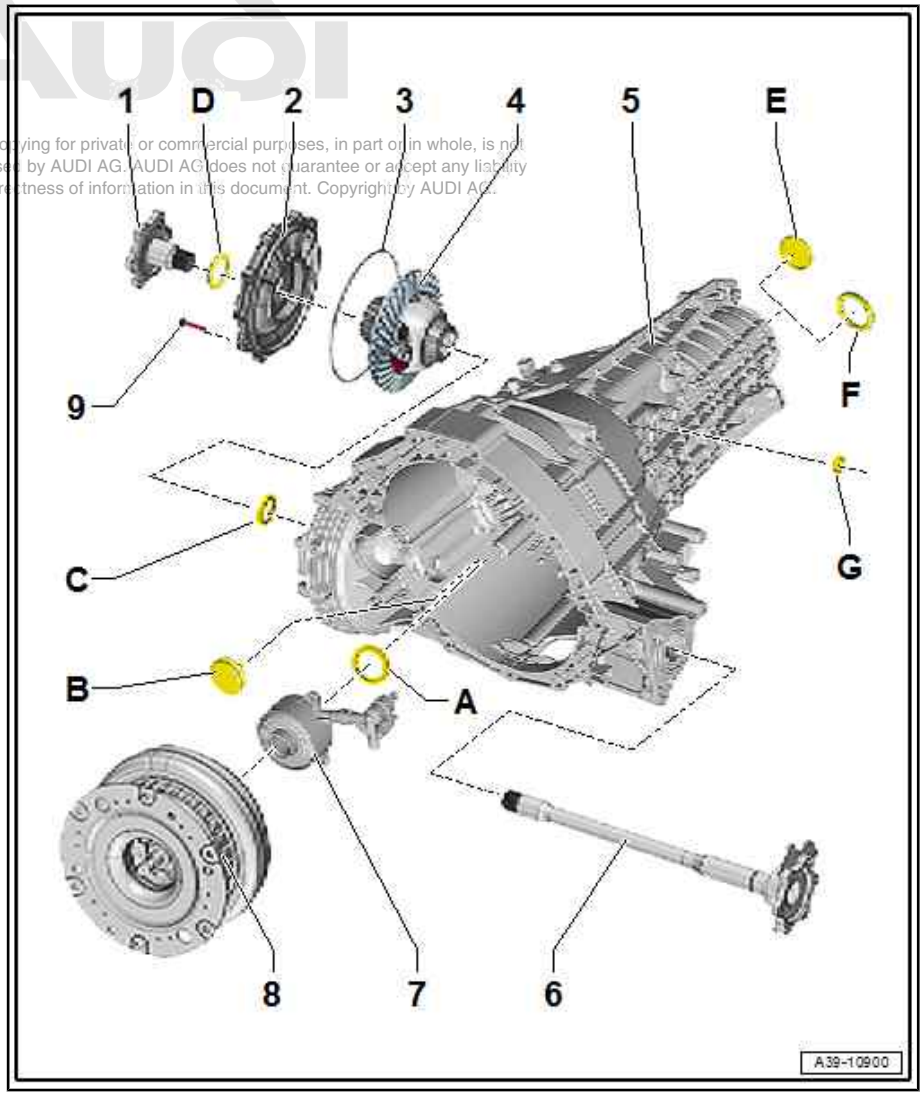
- ❑ With oil guide
- ❑ For output shaft
- ❑ Only for gearbox on vehicles with front-wheel drive
- ❑ Do not use additional lubricant on outer circumference for installation
- ❑ Renew after removing ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 39 ; Oil seals; Overview of fitting locations - oil seals

**C - Oil seal**

- ❑ For flange shaft (left-side)
- ❑ Renewing ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 39 ; Oil seals; Overview of fitting locations - oil seals

**D - Oil seal**

- ❑ For flange shaft (right-

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side)

- ❑ Renewing ⇒ page 104

**E - Sealing cap**

- ❑ Without oil guide
- ❑ Only for gearbox on vehicles with front-wheel drive
- ❑ Do not use additional lubricant on outer circumference for installation
- ❑ Renew after removing ⇒ “1.5 Renewing sealing cap for output shaft in gearbox cover”, page 106

**F - Oil seal for output shaft**

- ❑ Only for gearbox on vehicles with four-wheel drive
- ❑ Removing and installing ⇒ page 105

**G - Oil seal for selector shaft**

- ❑ Removing and installing ⇒ page 53

**1 - Flange shaft (right-side)**

- ❑ Removing and installing ⇒ page 109

**2 - Cover for final drive**

- ❑ Removing and installing ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 39 ; Exploded view - differential

**3 - O-ring**

- ❑ On cover for final drive
- ❑ Renew after removing

**4 - Differential**

- ❑ Removing and installing ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 39 ; Exploded view - differential

**5 - Gearbox**

- ❑ Removing and installing ⇒ page 59

**6 - Flange shaft (left-side)**

- ❑ Removing and installing ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 39 ; Differential; Exploded view - differential

**7 - Clutch slave cylinder with release bearing**

- ❑ Removing and installing ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 30 ; Clutch mechanism; Removing and installing clutch slave cylinder together with release bearing

**7 - Clutch module**

- ❑ Removing and installing ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 30 ; Clutch; Removing and installing clutch module

**8 - Bolt**

- ❑ Steel bolts
- ❑ 20 Nm +90°

Audi
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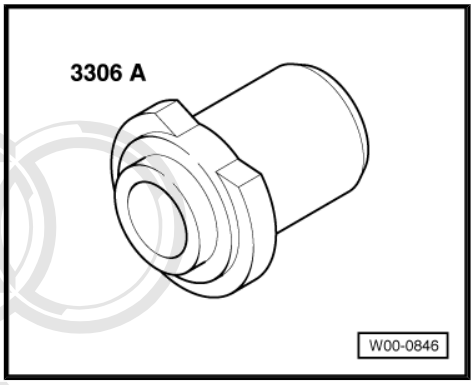
## 1.2 Renewing oil seal (left-side)

**For a detailed description please refer to the Workshop Manual ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 39 ; Oil seals, Overview of fitting locations - oil seals .**

## 1.3 Renewing oil seal (right-side)

**Special tools and workshop equipment required**

♦ Thrust piece - 3306 A-




♦ Sealing grease ; select correct type from ⇒ Electronic parts catalogue

**Removing**

– Remove flange shaft (right-side) ⇒ page 109 .

– Lever out flange shaft oil seal.

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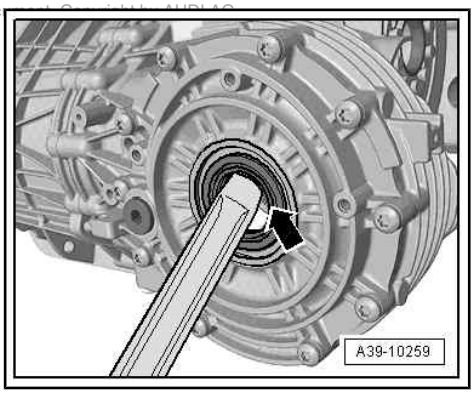



**Installing**

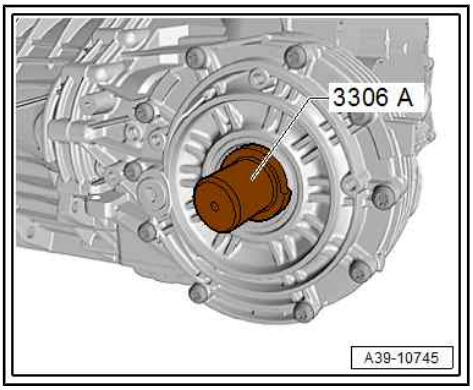
Installation is carried out in reverse order; note the following:

– Lightly oil outer circumference of new oil seal.

– Drive in new oil seal for flange shaft (right-side) as far as stop; keep seal straight when installing.

– Pack space between sealing lip and dust lip half-full with sealing grease .

– Install flange shaft (right-side) ⇒ page 109 .

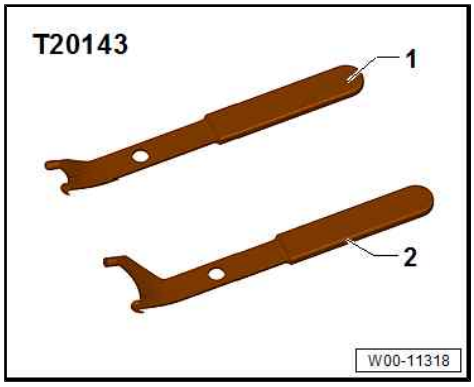



## 1.4 Renewing oil seal for output shaft

**Removing and installing selector shaft oil seal (with gearbox installed in vehicle)**

**Special tools and workshop equipment required**

- Extractor tool - T20143/2-

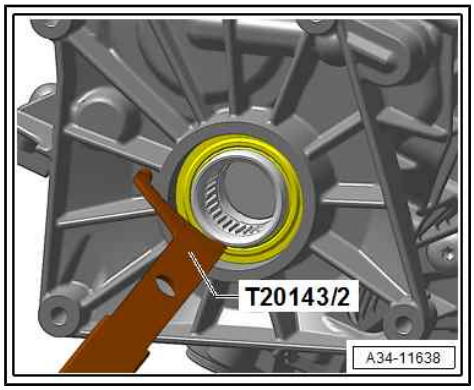



- Sealing grease ; select correct type from ⇒ Electronic parts catalogue

**Removing**

– Remove four-wheel drive coupling ⇒ Rear final drive; Rep. gr. 39 ; Four-wheel drive coupling; Removing and installing four-wheel drive coupling .

– Lever out input shaft oil seal using extractor tool - T20143/2- .

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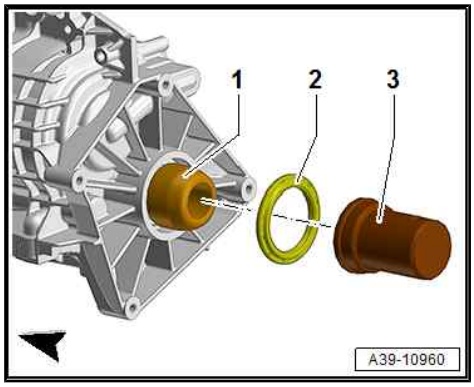
**Installing**

– Insert guide sleeve - T40367/1- -1- in rear splined shaft.

– Lightly oil outer circumference of oil seal.

– Pack space between sealing lip and dust lip half-full with sealing grease .

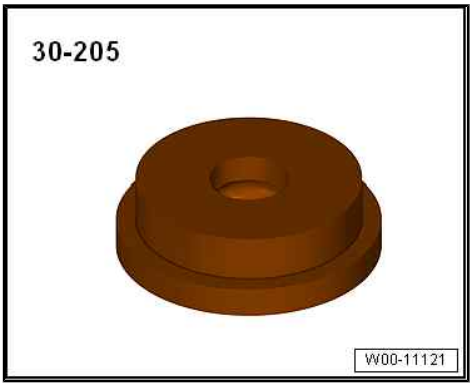
– Slide oil seal -2- over guide sleeve -1- and drive it in using thrust piece - T40367/3- -3- until it is flush.



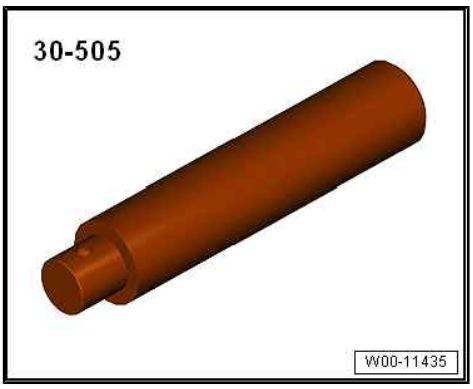

## 1.5 Renewing sealing cap for output shaft in gearbox cover

**Special tools and workshop equipment required**

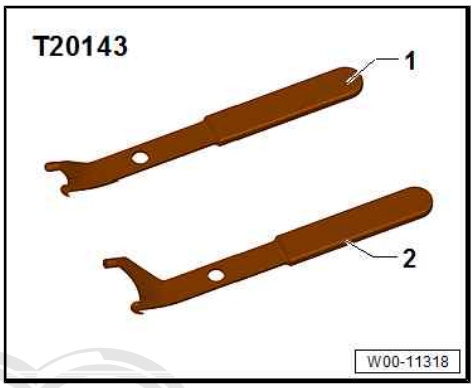
♦ Thrust plate - 30 - 205-




♦ Mandrel - 30 - 505-

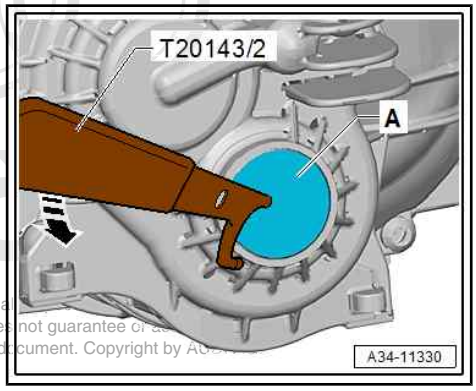



♦ Extractor tool - T20143/2-




**Removing**

– Pierce through centre of sealing cap -A- for output shaft and prise out in direction of -arrow-.




**Installing**

**Caution**

***The sealing cap can only be fitted properly if the outer circumference has not been lubricated.***

- ***Do not lubricate outer circumference of new sealing cap for installation.***

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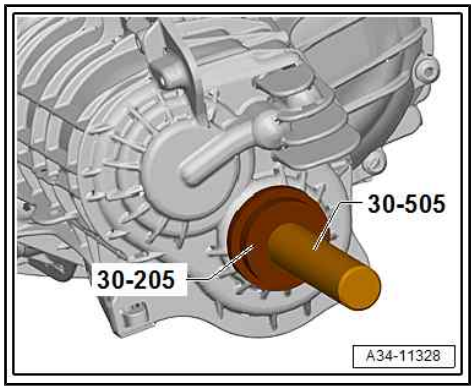
– Drive in sealing cap for output shaft until it is flush.

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# 2 Differential

⇒ "2.1 Removing and installing flange shaft (left-side)", page 109

⇒ "2.2 Removing and installing flange shaft (right-side)", page 109

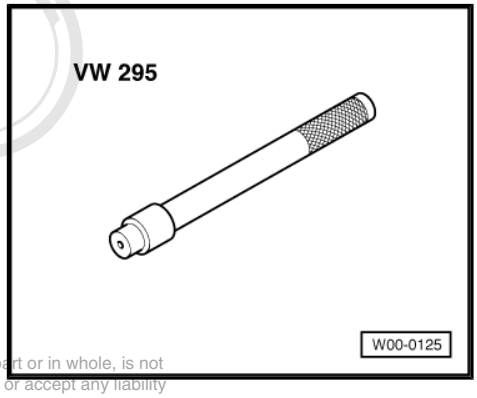
## 2.1 Removing and installing flange shaft (left-side)

**For a detailed description please refer to the Workshop Manual ⇒ Servicing 6-speed manual gearbox 0CS, 0DJ, 0CX; Rep. gr. 39 ; Differential; Exploded view - differential .**

## 2.2 Removing and installing flange shaft (right-side)

**Special tools and workshop equipment required**

- Drift - VW 295-

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- Puller - T10037-

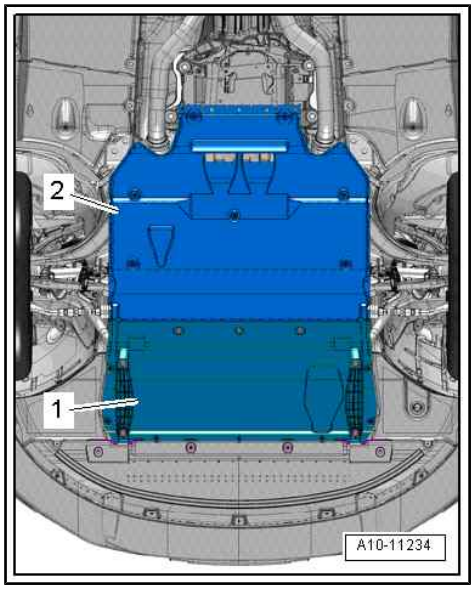
- Sealing grease ; select correct type from ⇒ Electronic parts catalogue

**Removing**

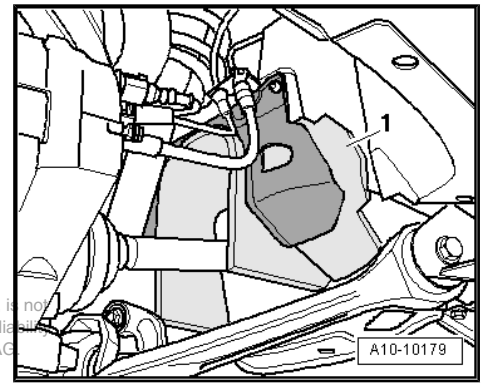
- Gearbox is installed.
- Refer to general repair instructions ⇒ page 5 .

– Remove front right wheel.

– Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .




– Remove noise insulation -1- from wheel housing (right-side).

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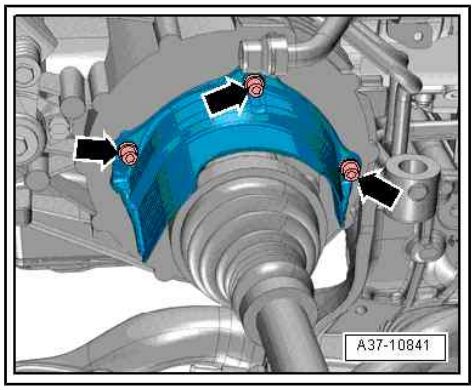
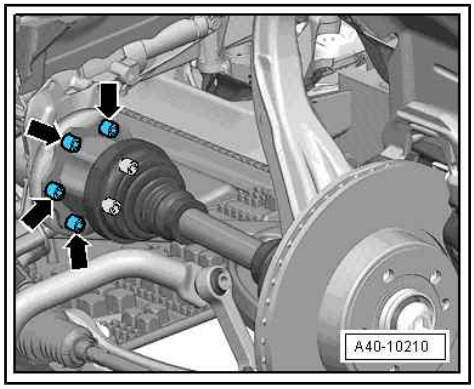
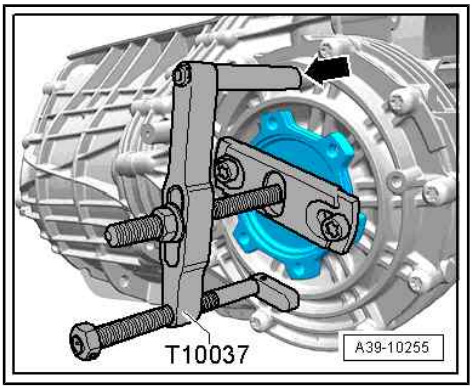
– Remove bolts -arrows- and detach heat shield for drive shaft (right-side).




– Unbolt drive shaft (right-side) from gearbox and place to one side ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Loosening and tightening bolt securing drive shaft .



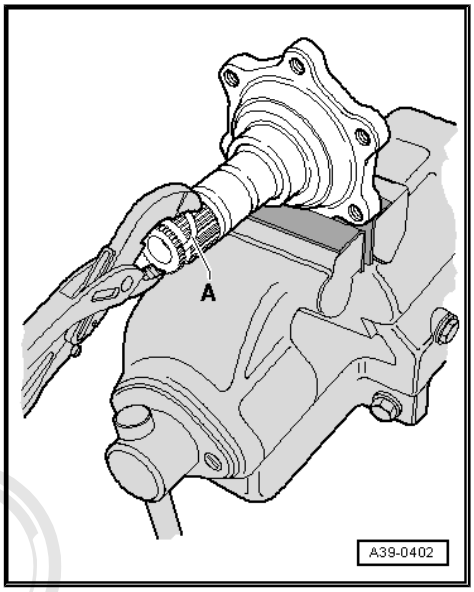
– Place drip tray under gearbox.
– Remove flange shaft (right-side); to do so, secure puller - T10037- to gearbox housing -arrow-.



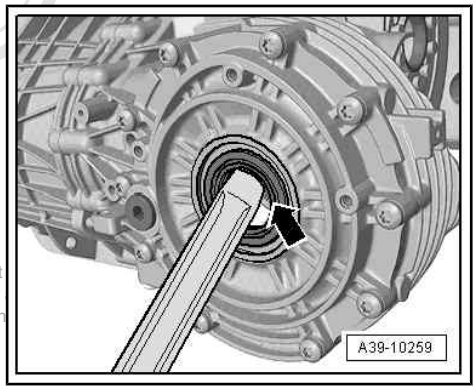

## Installing

Installation is carried out in reverse order; note the following:

– Always renew circlip for flange shaft -A-.
– Clamp flange shaft in vice, using jaw protectors. Use new circlip -A- to press old circlip out of groove in flange shaft.




– Check flange shaft oil seal (right-side) -arrow- for damage and renew if necessary ⇒ page 104 .
– Pack space between sealing lip and dust lip half-full with sealing grease .
– Knock flange shaft in with drift - VW 295- .

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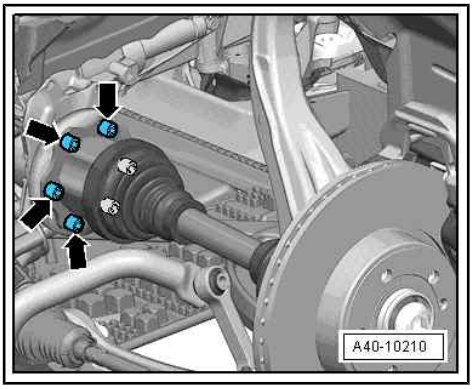
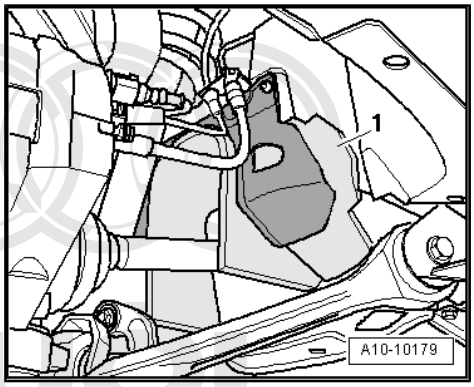
– Attach drive shaft to flange shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Loosening and tightening bolt securing drive shaft .
– Install heat shield for drive shaft and tighten bolts to specified torque ⇒ page 90 .



– Install noise insulation -1- in wheel housing (right-side).
– Check gear oil level ⇒ page 97 .
– Install rear noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

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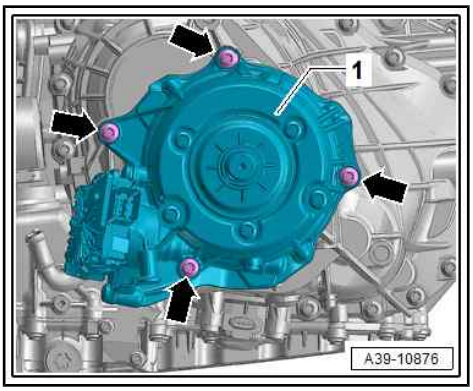
# 3 Four-wheel drive coupling

**For extensive information on the four-wheel drive coupling -1-, refer to ⇒ Rear final drive; Rep. gr. 39 ; Four-wheel drive coupling .**

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