

Workshop Manual

Audi A6 2011 ➤

Audi A6 China 2012 ➤

6-speed manual gearbox 0B1, front-wheel drive

Edition 07.2015



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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

(ARL004363; Edition 07.2015)

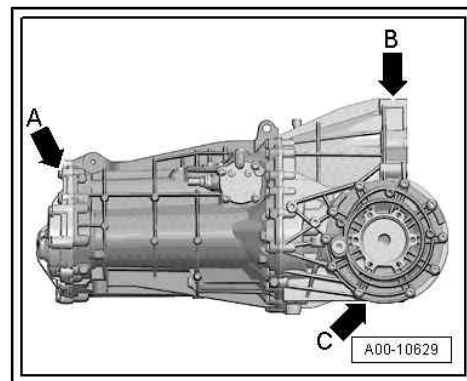
⇒ **“1.1 Gearbox identification”, page 1**

1.1 Gearbox identification

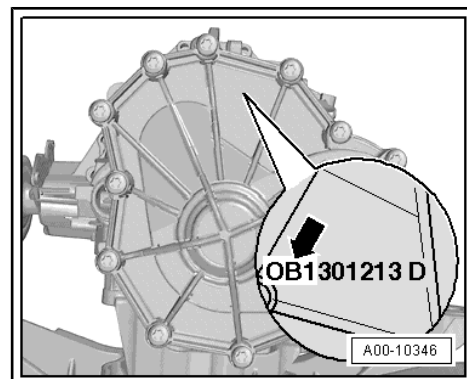
Allocation ⇒ **page 2**

Location on gearbox

- ◆ -Arrow A- Manual gearbox 0B1 ⇒ **page 1**
- ◆ -Arrow B- Code letters and production date ⇒ **page 1**
- ◆ -Arrow C- Code letters and production date on underside of gearbox housing (not on all versions)



Manual gearbox 0B1 -arrow-



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

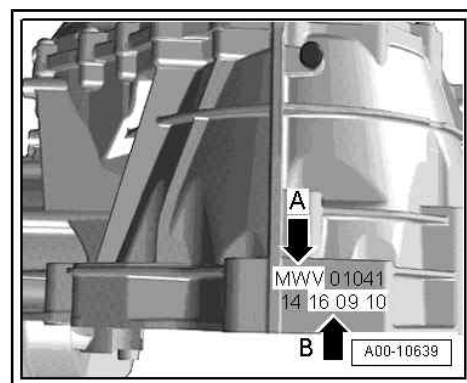
Example:	MWV	16 09 10
	Code letters	Production date:
		16.09.2010



Note

- ◆ *Additional data are manufacture-related.*
- ◆ *The code letters for the gearbox are also given on the vehicle data stickers.*
- ◆ *Location of vehicle data stickers ⇒ Maintenance ; Booklet*

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2 Technical data

⇒ "2.1 Capacities", page 2

⇒ "2.2 Allocation of gearbox to engine", page 2

2.1 Capacities

Manual gearbox	6-speed 0B1 (front-wheel drive)
Capacity	4.0 ltr.
◆ Gear oil specifications ⇒ Electronic parts catalogue	

2.2 Allocation of gearbox to engine

Manual gearbox	6-speed 0B1 (front-wheel drive)		
Code letters	MAJ	MAK	MWV
Allocation	Model	Audi A6 2011 ►	Audi A6 2011 ►
	Engine	2.8 ltr. FSI - 150 kW	2.0 ltr. TFSI - 132 kW
Ratio	Final drive	31 : 8 = 3.875	34 : 11 = 3.091
	Intermediate drive	31 : 29 = 1.069	35 : 31 = 1.129

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

◆ Date of manufacture

◆ 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 0B1 (front-wheel drive)		
Code letters	NEJ		
Allocation	Model	Audi A6 2011 ►	
	Engine	2.0 ltr. TDI - 100 kW 2.0 ltr. TDI - 120 kW 2.0 ltr. TDI - 130 kW	
Ratio	Final drive	38 : 11 = 3.455	
	Intermediate drive	31 : 29 = 1.069	

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

◆ Date of manufacture

◆ Individual gear ratios

◆ Correct type of flange shafts

◆ Correct type of dual-mass flywheel

◆ Correct type of clutch plate and pressure plate

3 Transmission layout

⇒ "3.1 Transmission layout - front-wheel drive", page 3

3.1 Transmission layout - front-wheel drive

Identification and ratio



Note

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 - Differential

5 - Input shaft (main shaft)

6 - Pinion shaft (side shaft)

7 - Output shaft

8 - Manual gearbox

I - 1st gear

II - 2nd gear

III - 3rd gear

IV - 4th gear

V - 5th gear

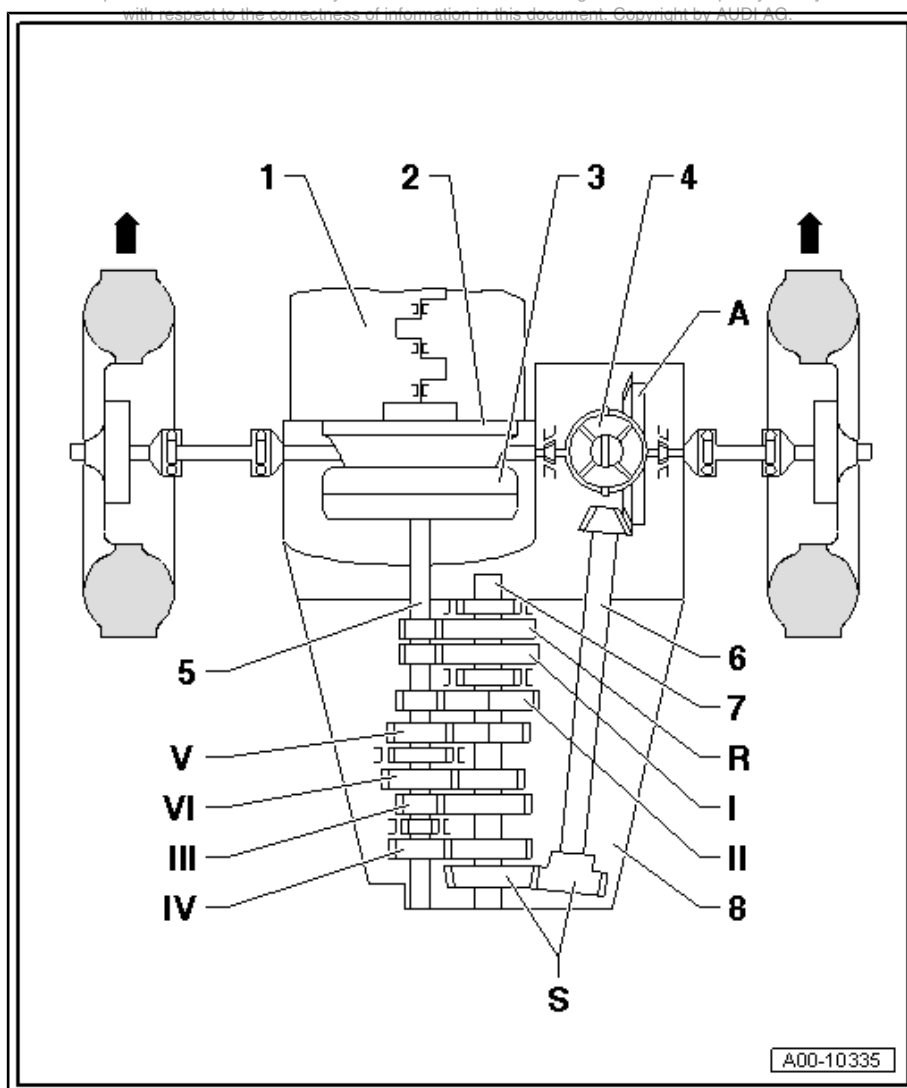
VI - 6th gear

R - Reverse gear

A - Final drive

S - Spur gears (intermediate drive)

- ☐ With beveloid teeth



A00-10335

4 Safety precautions

⇒ **"4.1 Safety precautions when working on vehicles with start/stop system", page 4**

4.1 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.*
- ◆ *Therefore it is important to ensure that the start/stop system is deactivated when performing repairs (switch off ignition, if required switch on ignition again).*

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5 Repair instructions

⇒ ["5.1 General repair instructions", page 5](#)

⇒ ["5.2 Contact corrosion", page 7](#)

5.1 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.

A number of generally applicable instructions for the various repair procedures - which were previously repeated at numerous places in the Workshop Manual - are summarised here. They apply to the work described in this Manual.

Special tools

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

Gearbox

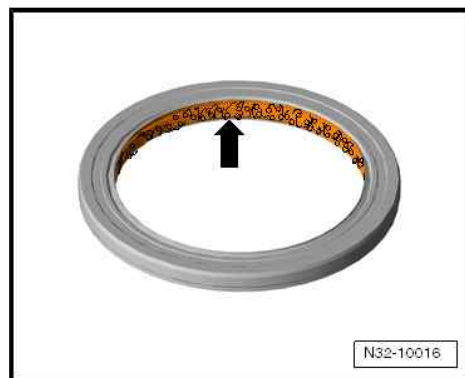
- ◆ Servicing ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 34 ; Dismantling and assembling gearbox
- ◆ Allocate bolts and other components according to gearbox code letters, refer to ⇒ Electronic parts catalogue ⇒ [page 2](#) .
- ◆ When installing a new gearbox, check the oil level and fill up with oil if necessary ⇒ [page 125](#) .
- ◆ Capacities ⇒ [page 2](#) , specifications ⇒ Electronic parts catalogue .
- ◆ Thoroughly clean all joints and connections and the surrounding areas before dismantling.
- ◆ When installing gearbox ensure dowel sleeves are correctly seated.

Sealants

- ◆ Thoroughly clean housing contact surfaces before applying sealing paste.
- ◆ Apply sealing paste - AMV 188 001 02- evenly and not too thickly.
- ◆ Breather holes must remain free of sealing paste.

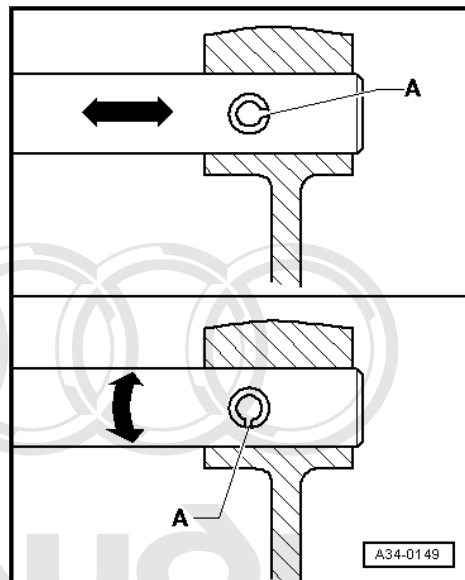
O-rings, oil seals, seals and gaskets

- ◆ Always renew O-rings, oil seals, seals and gaskets.
- ◆ After removing gaskets and 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 - G 052 128 A1- .
- ◆ 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, O-rings and oil seals, check and, if necessary, top up oil level in gearbox ➔ [page 125](#) .



Locking elements

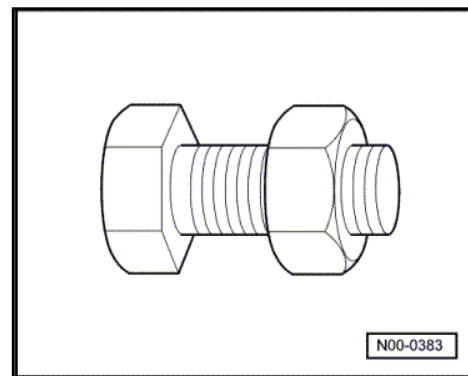
- ◆ Do not over-stretch circlips.
- ◆ Always renew circlips which have been damaged or over-stretched.
- ◆ Circlips must be properly seated in the base of the groove.
- ◆ Renew spring pins. Position: the slit -A- should be in line with the line of force -arrow-.



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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 apply locking fluid - AMV 185 101 A1- to bolt threads before installing.
- ◆ Threaded holes which take self-locking bolts or bolts coated with locking fluid must be cleaned (using a tap or similar). Otherwise there is a danger of the bolts shearing off the next time they are removed.



Clutch mechanism

- ◆ Before renewing the clutch master cylinder or slave cylinder on the assumption that it is defective, you must first carry out the appropriate function check ➔ [page 26](#).
- ◆ When removing gearbox, remove clutch slave cylinder without disconnecting pipes.
- ◆ Do not depress the clutch pedal after removing the clutch slave cylinder if the hydraulic pipe is still connected. Otherwise the piston will be pressed out of the clutch slave cylinder. As a result the clutch slave cylinder will be destroyed.
- ◆ If the clutch pedal does not return to its initial position after releasing it - clutch pedal in rest position-, you must bleed the clutch system.
- ◆ After installing the slave cylinder carefully press the clutch pedal. If you feel an unusually strong point of resistance when depressing the clutch pedal, you must not press it down further. The plunger of the slave cylinder is likely to have been guided past the clutch release lever. The slave cylinder would then be destroyed once pedal force exceeds approx. 300 N.
- ◆ If the clutch has burnt out, thoroughly clean the gearbox housing in area of clutch and parts of the engine facing the gearbox in order to prevent odours.
- ◆ Blow out clutch module with compressed air only.
- ◆ The brake fluid in the 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) .

5.2 Contact corrosion

Contact corrosion can occur if unsuitable fasteners are used on the vehicle (bolts, nuts, washers etc.).

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

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:

- ◆ Use only genuine spare parts: these have been fully tested and are compatible with aluminium.
- ◆ We recommend the use of accessories approved by Audi.
- ◆ Damage resulting from contact corrosion is not covered by the warranty.



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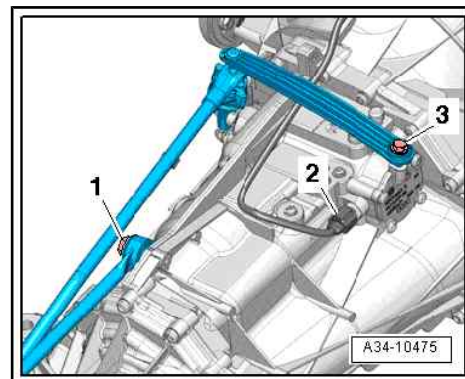
6 Electrical components

⇒ [“6.1 Overview of fitting locations - electrical components”, page 9](#)

6.1 Overview of fitting locations - electrical components

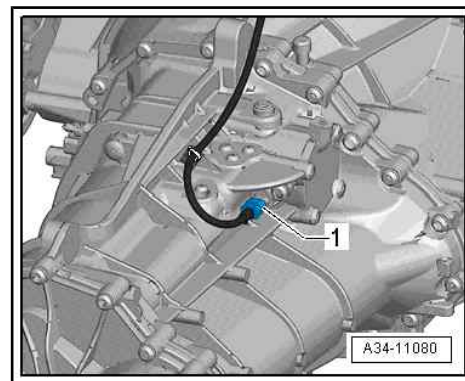
Gear detector switch - F208- item -2-

- ⇒ [“1.10 Removing and installing gear detector switch F208 ”, page 49](#)



Gear detection sensor - G604- item -1-

- ⇒ [“1.11 Removing and installing gear detection sensor G604 ”, page 53](#)



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30 – Clutch

1 Clutch mechanism

⇒ [“1.1 Exploded view - pedal cluster”, page 10](#)

⇒ [“1.2 Exploded view - clutch hydraulics”, page 13](#)

⇒ [“1.3 Removing and installing clutch pedal”, page 15](#)

⇒ [“1.4 Removing and installing over-centre spring”, page 16](#)

⇒ [“1.5 Removing and installing clutch master cylinder”,
page 18](#)

⇒ [“1.6 Removing and installing clutch slave cylinder”, page 22](#)

⇒ [“1.7 Bleeding clutch hydraulics”, page 24](#)

⇒ [“1.8 Checking clutch master cylinder and clutch slave cylinder”,
page 26](#)

1.1 Exploded view - pedal cluster

⇒ [“1.1.1 Exploded view - pedal cluster, LHD vehicles”,
page 10](#)

⇒ [“1.1.2 Exploded view - pedal cluster, RHD vehicles”,
page 12](#)

1.1.1 Exploded view - pedal cluster, LHD vehicles



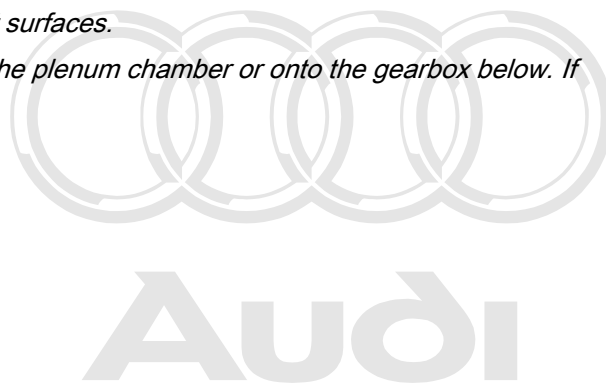
Caution

Risk of accident.



Note

- ◆ *Apply grease - G 000 450 02- to all bearings and contact surfaces.*
- ◆ *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

3 - Clutch pedal

- ☐ Removing and installing
⇒ [page 15](#)

4 - Clutch pedal stop

5 - Locking pin

- ☐ For clutch master cylinder
- ☐ Grease bearing surface

6 - Pivot pin for clutch pedal

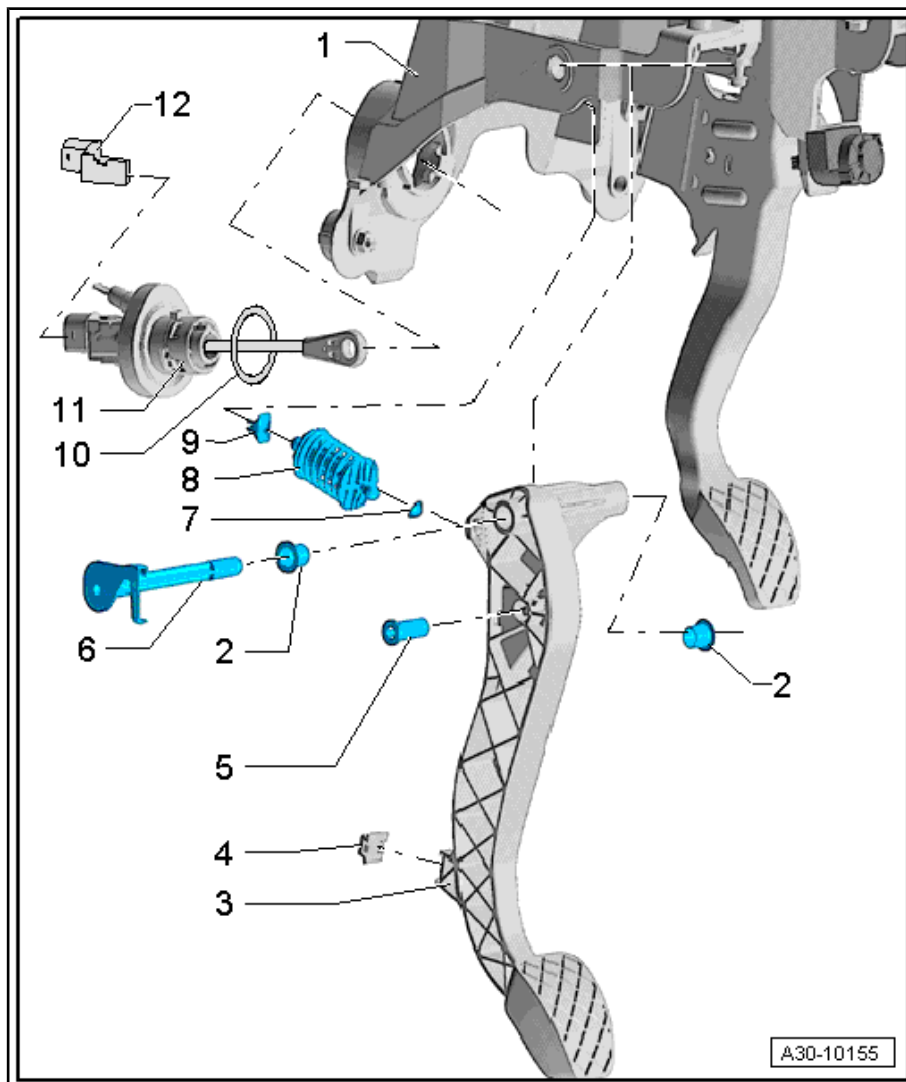
- ☐ Grease bearing surface

7 - Bearing shell

- ☐ Located in clutch pedal

8 - Over-centre spring

- ☐ Black side points to-
wards clutch pedal
- ☐ Note different bearing
positions in mounting
bracket ⇒ [page 17](#)
- ☐ For correct version, re-
fer to ⇒ Electronic parts
catalogue
- ☐ Removing and installing
⇒ [page 16](#)



9 - Bearing shell

- ☐ Note different bearing positions in mounting bracket ⇒ [page 17](#)

10 - Seal

- ☐ Renew

11 - Clutch master cylinder

- ☐ Removing and installing ⇒ [page 18](#)
- ☐ Grease mounting eye of pushrod

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 11 \(page 11\)](#)

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Exploded view - pedal cluster, RHD vehicles



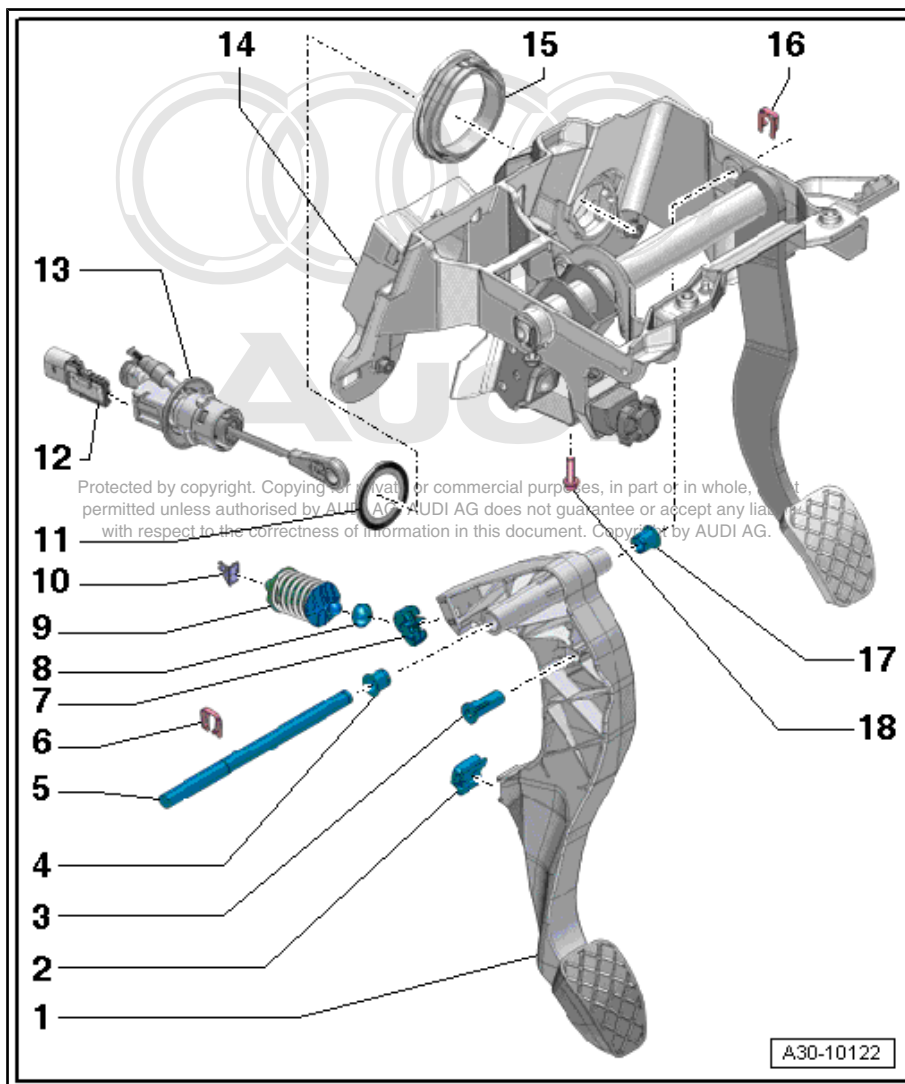
Risk of accident.

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



- ◆ *Apply grease - G 000 450 02- to all bearings and contact surfaces.*
- ◆ *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.*

- 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 13](#)
- 8 - Bearing shell
- 9 - Over-centre spring
 - ☐ Black side points towards clutch pedal
 - ☐ Note different bearing positions in clutch pedal
⇒ [page 13](#)
 - ☐ For correct version, refer to ⇒ Electronic parts catalogue
 - ☐ Remove and install with assembly clip - T40025-
- 10 - Bearing shell
- 11 - Seal
 - ☐ Renew
- 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 \(page 13\)](#)

13 - Clutch master cylinder

- ☐ Grease mounting eye of pushrod

14 - Mounting bracket

- ☐ With brake pedal

15 - Seal

16 - Retaining clip

17 - Bearing bush

18 - Bolt

- ☐ 2x
- ☐ 8 Nm

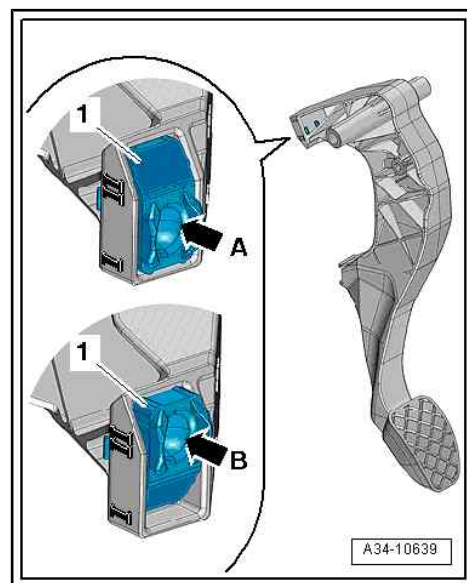
Installing over-centre spring

- Always clip in bearing -1- in position "I" -arrow A- on clutch pedal.



Note

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Bearing position "II" -arrow B- is not used for the Audi A6.



1.2 Exploded view - clutch hydraulics

Observe notes on removing and installing clutch master cylinder and slave cylinder ⇒ [page 7](#) .

1 - Clutch slave cylinder

- ❑ Do not operate clutch pedal after slave cylinder has been removed
- ❑ Removing and installing ⇒ [page 22](#)
- ❑ After working on hydraulic clutch mechanism, bleed clutch system ⇒ [page 24](#)
- ❑ Do not allow brake fluid to come into contact with gearbox.

2 - Bleeder screw

- ❑ 5.5 Nm
- ❑ Follow correct procedure when bleeding
⇒ [page 24](#)
- ❑ If bleeder screw has broken off, it can be removed with 3 mm Allen key

3 - Dust cap

4 - Pipe/hose assembly

- ❑ With grommet and frequency modulator (vibration damper)
- ❑ Connecting and disconnecting ⇒ [page 15](#)
- ❑ Allocation for LHD and RHD vehicles ⇒ Electronic parts catalogue

5 - Retaining clip

6 - O-rings

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

7 - Supply hose

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

- Brake fluid reservoir

8 - Brake fluid reservoir

9 - Retaining clip

- ❑ To remove pipe/hose assembly, pull out clip as far as stop ⇒ **page 15**.

10 - Clutch master cylinder

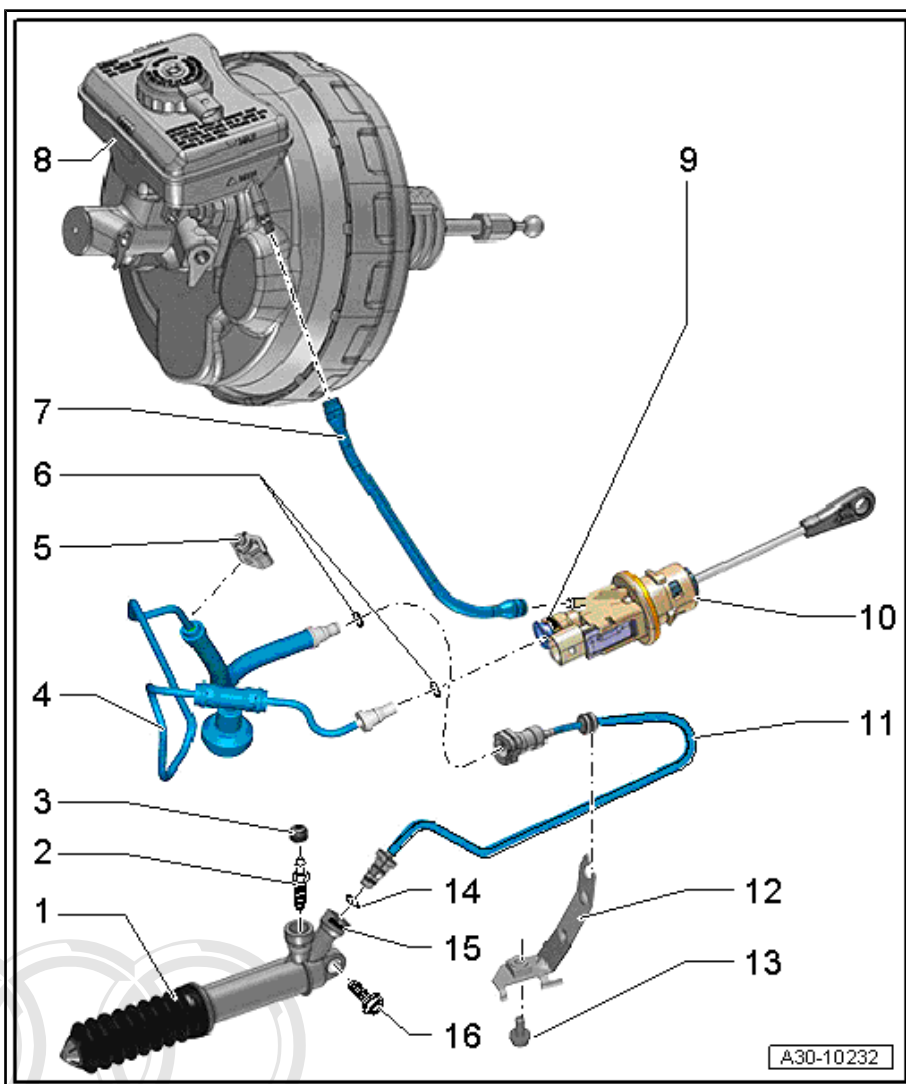
- ❑ Removing and installing ⇒ [page 18](#)
- ❑ After working on hydraulic clutch mechanism, bleed clutch system ⇒ [page 24](#)

11 - Pipe

- ☐ Connecting and disconnecting ⇒ [page 15](#)
- ☐ Allocation for LHD and RHD vehicles ⇒ Electronic parts catalogue

12 - Bracket

- ☐ For pipe
- ☐ Attached to gearbox



13 - Bolt

- ☐ 20 Nm

14 - O-ring

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

15 - Retaining clip

- ☐ To remove pipe/hose assembly, pull out clip as far as stop ➔ [page 15](#) .

16 - Bolt

- ☐ Clutch slave cylinder to gearbox
- ☐ 20 Nm

Connecting and disconnecting pipe/hose assembly

Disconnecting

- Release retaining clip -A- using a screwdriver and pull out as far as stop.
- Pull off pipe/hose assembly.

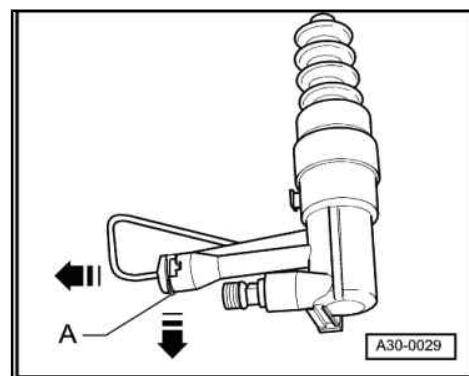
Connecting



Note

Renew O-ring if damaged.

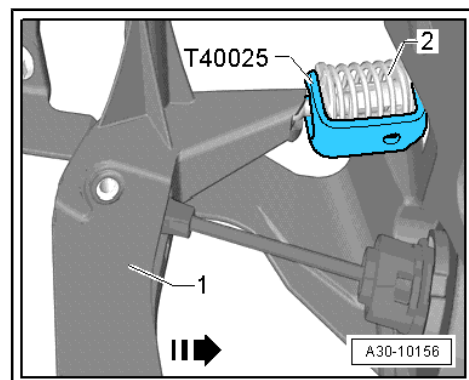
- Press retaining clip -A- in as far as it will go.
- Push pipe/hose assembly into connection until it engages audibly.
- Pull on pipe/hose assembly to check it is secure.



1.3 Removing and installing clutch pedal

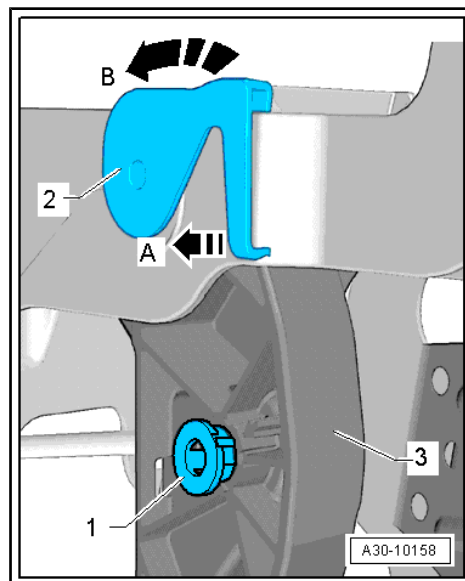
Removing

- Remove mounting bracket ➔ Brake system; Rep. gr. 46 ; Brake pedal; Removing and installing mounting bracket .
- Remove over-centre spring -2- ➔ [page 16](#) .



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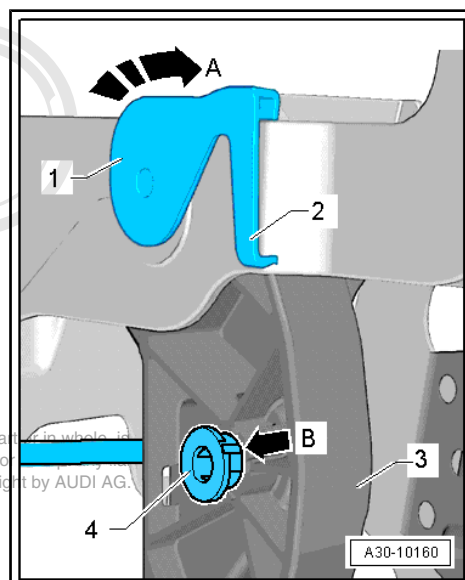
- Remove locking pin -1-.
- Remove pivot pin -2- by lifting retaining tab -arrow A- and turning pivot pin in direction of -arrow B-.
- Pull out pivot pin and remove clutch pedal -3-.



Installing

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

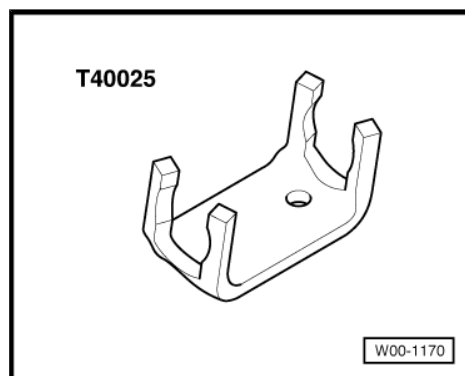
- Apply grease - G 000 450 02- to all bearings and contact surfaces.
- Install clutch pedal -3-, push in pivot pin -1- and lock in direction of -arrow A-. Bottom of retaining tab -2- should engage at pedal bracket.
- Insert locking pin -4-. Shoulder on pin -arrow B- must be introduced into groove on clutch pedal.
- Install over-centre spring ➔ [page 16](#).
- Install mounting bracket ➔ Brake system; Rep. gr. 46 ; Brake pedal; Removing and installing mounting bracket.



1.4 Removing and installing over-centre spring

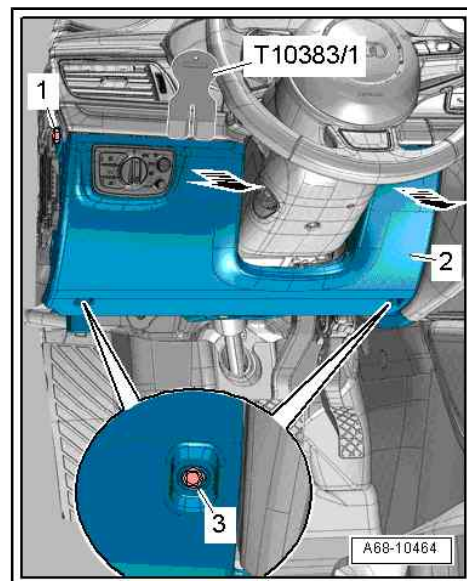
Special tools and workshop equipment required

- ♦ Assembly clip - T40025-

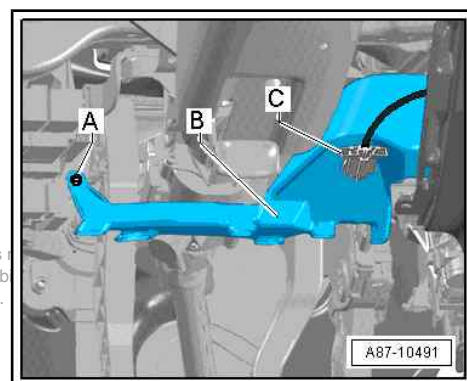


Removing

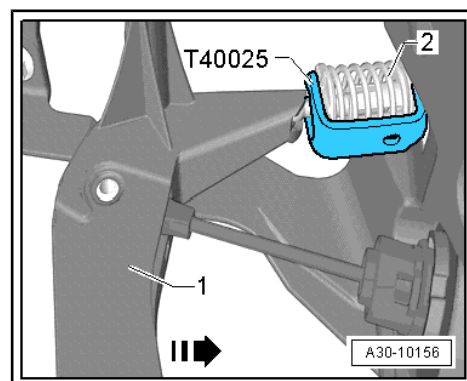
- Remove dash panel cover (driver side) ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves / trim panels; Removing and installing dash panel cover (driver side) .



- Remove footwell vent (left-side) ⇒ Heating, air conditioning; Rep. gr. 87 ; Air duct system; Removing and installing footwell vent (driver side) .



- Move clutch pedal -1- slightly in direction of -arrow-. Press assembly clip - T40025- onto over-centre spring -2- while over-centre spring is compressed.
- Depress clutch pedal fully to stop and remove over-centre spring downwards with assembly clip.



Installing

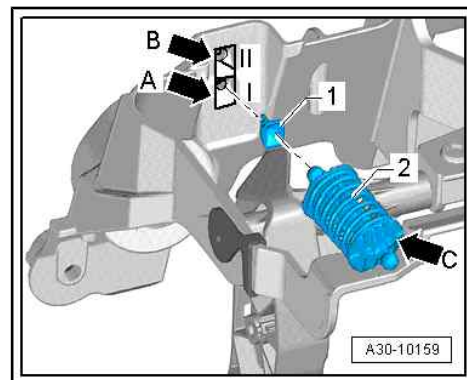
- Always clip in bearing shell -1- in bearing position "I" -arrow A-.



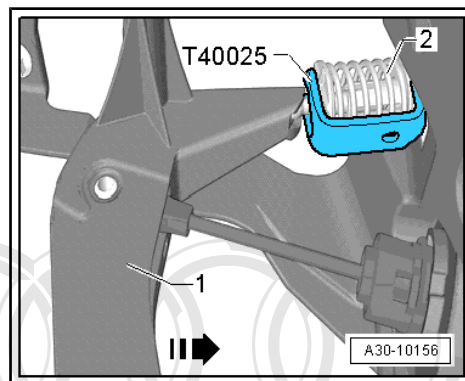
Note

Bearing position "II" -arrow B- is not used for the Audi A6.

- Insert over-centre spring -2-.
- Black side -arrow C- faces clutch pedal.



- Depress clutch pedal -1- fully to stop and install over-centre spring -2- with assembly clip - T40025- .
- Pull clutch pedal back to rest position. Take assembly clip off over-centre spring while over-centre spring is compressed.
- Install footwell vent ⇒ Heating, air conditioning; Rep. gr. 87 ; Air duct system; Removing and installing footwell vent (driver side) .
- Install dash panel cover (driver side) ⇒ General body repairs, interior; Rep. gr. 68 ; Shelves / trim panels; Removing and installing dash panel cover (driver side) .



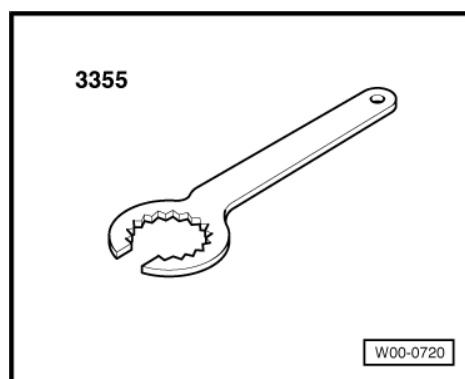
1.5 Removing and installing clutch master cylinder

Special tools and workshop equipment required

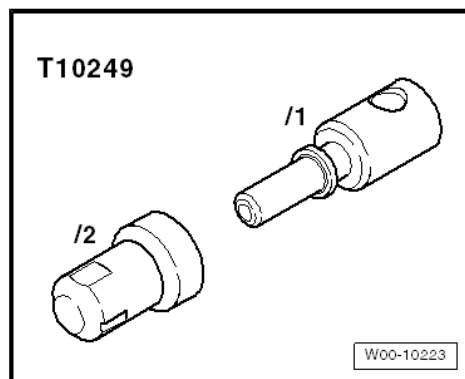
- ◆ Hose clamp, up to 25 mm - 3094-



- ◆ Open ring spanner, 32 mm - 3355-



- ◆ Sealing tool - T10249-



Removing

- Observe notes on removing and installing clutch master cylinder and slave cylinder ⇒ [page 7](#) .

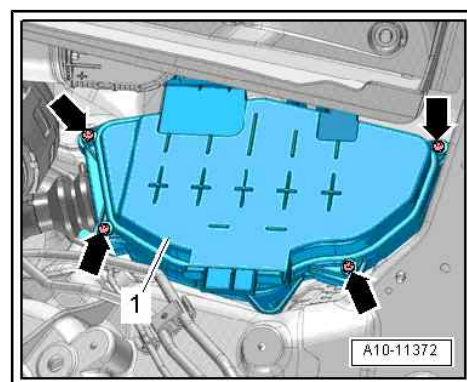
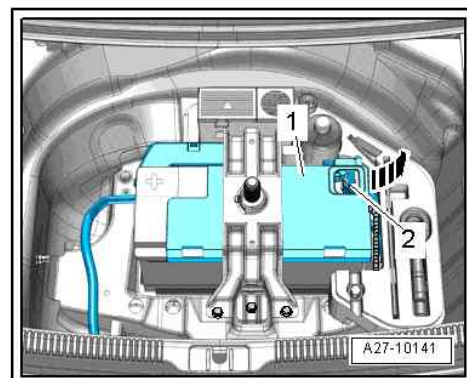


Caution

Risk of damage to electronic components.

- ◆ *Observe the correct procedure for disconnecting the battery.*

- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove electronics box -1- from engine compartment ⇒ Electrical system; Rep. gr. 97 ; Relay carriers, fuse carriers, electronics boxes; Overview of fitting locations - relay carriers, fuse carriers, electronic boxes .



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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.

- Using hose clamp - 3094- , clamp off supply hose -2- from brake fluid reservoir.



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.*

- Place lint-free cloth under clutch master cylinder.
- Disconnect supply hose -2- from clutch master cylinder and plug hose using sealing tool - T10249/1- .
- Release retaining clip -3- using a screwdriver and pull out to limit stop.
- Pull off pipe/hose assembly -4-.



Note

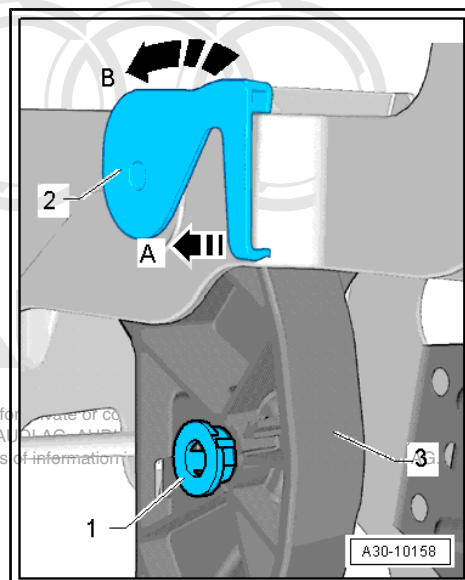
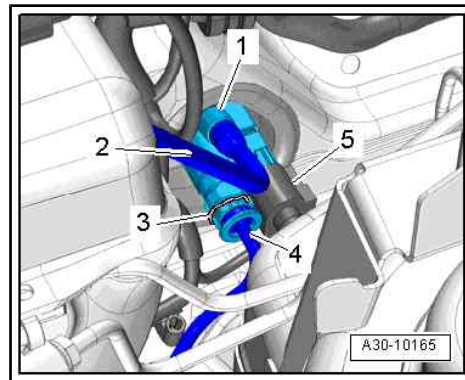
Leave connector -item 5- connected.

- Remove over-centre spring ➔ [page 16](#) .
- Pull locking pin -1- out of clutch pedal -3-.



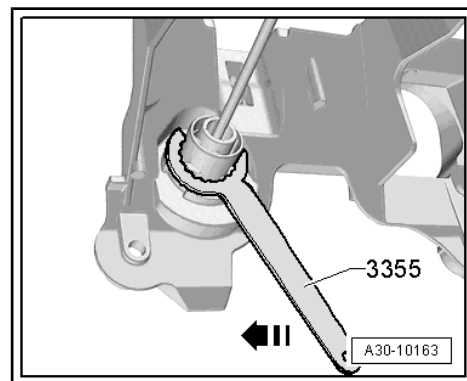
Note

-Item 2- and -arrows A, B- can be disregarded.



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



- Pull out clutch master cylinder -1-.
- Release electrical connector -5- and unplug.

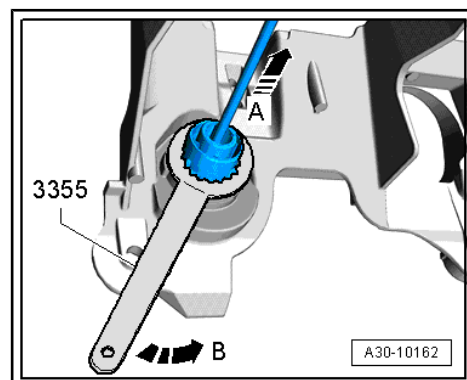
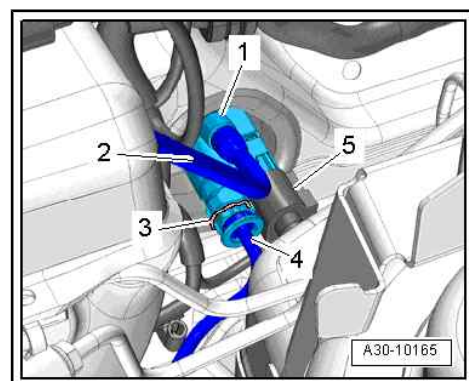
Installing



Note

Renew O-ring if damaged.

- Attach electrical connector -5-.
- ~~Install clutch master cylinder -1-~~
- 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 pushrod can cause creaking/grating noises when the clutch is operated.*
- ◆ *Apply grease - G 000 450 02- to all bearings and contact surfaces.*

- Lubricate locking pin -4- and mounting eye of master cylinder push rod.
- Insert locking pin -4-. Shoulder on pin -arrow B- must be introduced into groove on clutch pedal.



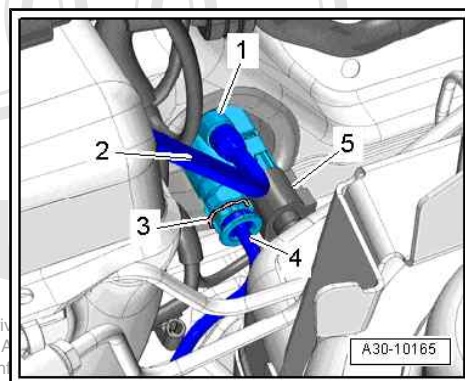
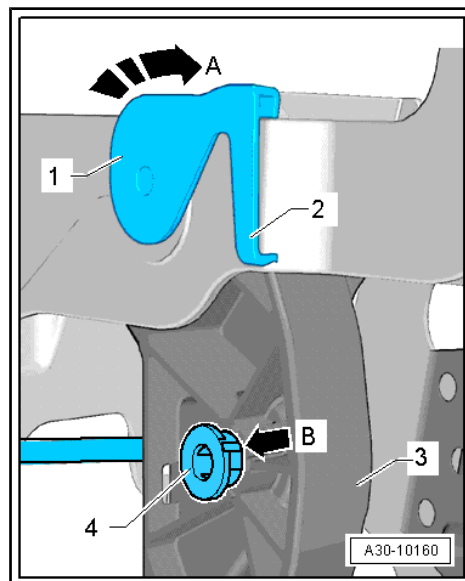
Note

-Items 1, 2, 3- and -arrow A- can be disregarded.

- Install over-centre spring ➔ [page 16](#) .
- Press in retaining clip -3- as far as stop.
- Insert pipe/hose assembly -4- into clutch master cylinder and make sure that it engages audibly.
- Pull on pipe/hose assembly to check it is secure.
- Slide on supply hose -2- as far as stop.
- After removing the hose clamp - 3094- , the supply hose -2- must be returned to its original shape.
- Bleed clutch system ➔ [page 24](#) .

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

- Install electronics box in engine compartment ➔ Electrical system; Rep. gr. 97 ; Relay carriers, fuse carriers, electronics boxes; Overview of fitting locations - relay carriers, fuse carriers, electronic boxes .
- Observe measures required after connecting battery ➔ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .



1.6 Removing and installing clutch slave cylinder

Special tools and workshop equipment required

◆ Torque wrench - V.A.G 1331-



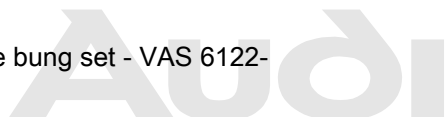
V.A.G 1331



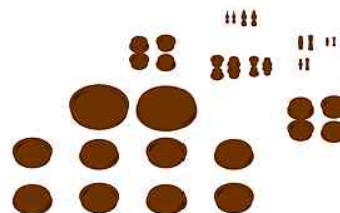
W00-11166

◆ Engine bung set - VAS 6122-

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VAS 6122



W00-11228

◆ Safety goggles

Removing

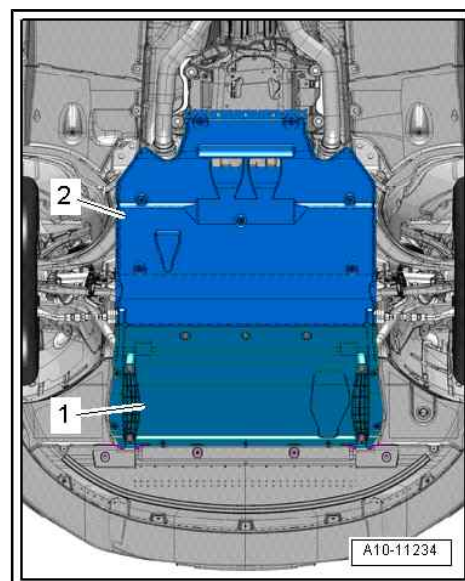
- Observe notes on removing and installing clutch master cylinder and slave cylinder ⇒ [page 7](#) .



Note

Do not allow brake fluid to come into contact with the gearbox. If necessary, clean the gearbox housing.

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



A10-11234



WARNING

Risk of eye injury.

- ◆ *Wear safety goggles.*

- Release retaining clip -2- using a screwdriver and pull out to limit stop.
- Disconnect pipe/hose assembly from clutch slave cylinder and plug pipe/hose.
- Remove bolt -3- and pull out clutch slave cylinder -1- to the rear.



Note

Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- to prevent dirt from entering.

Installing

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



Note

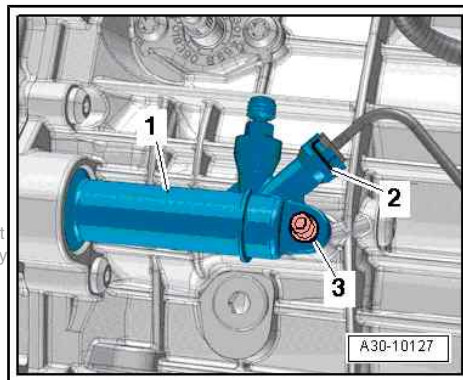
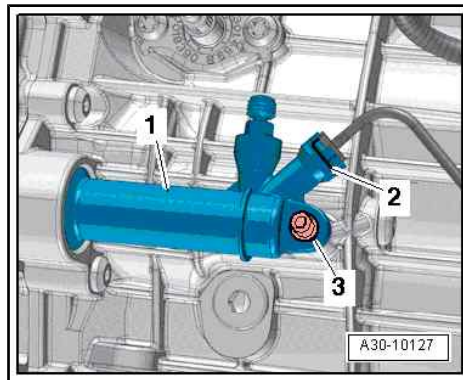
- ◆ *Renew O-ring if damaged.*
- ◆ *If the clutch slave cylinder is inserted at an angle, there is a danger that the operating rod will be guided past the clutch release lever.*
- When installing, press in clutch slave cylinder -1- so that bolt -3- can be fitted easily. Tightening torque
⇒ [Item 16 \(page 15\)](#)
- Press in retaining clip -2- as far as stop.
- Push hose/pipe assembly into clutch slave cylinder until it engages audibly.
- Pull on pipe/hose assembly to check it is secure.
- Bleed clutch system ⇒ [page 24](#).

Tightening torques

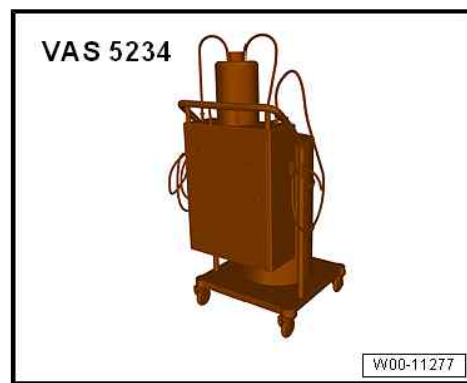
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

1.7 Bleeding clutch hydraulics

Special tools and workshop equipment required



◆ Brake filling and bleeding equipment - VAS 5234-



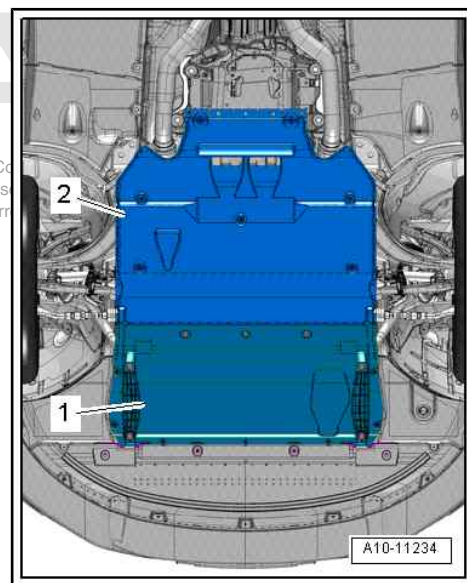
◆ Brake fluid specification ⇒ Electronic parts catalogue .

Procedure



Note

- ◆ *The clutch system must be bled after performing work on the hydraulic clutch mechanism.*
 - ◆ *When performing the following steps, make sure that no brake fluid escapes onto the gearbox.*
 - ◆ *Before bleeding the clutch system, pull back the clutch pedal to the normal position and top up brake fluid to "Max" marking on brake fluid reservoir.*
 - ◆ *Open the bleeder screw before switching on the bleeding appliance.*
 - ◆ *The brake fluid in the 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) .*
- Connect brake filling and bleeding equipment - VAS 5234- , but do not switch on at this stage ⇒ Brake system; Rep. gr. 47 ; Hydraulic system; Bleeding hydraulic system (normal bleeding procedure) .
 - Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



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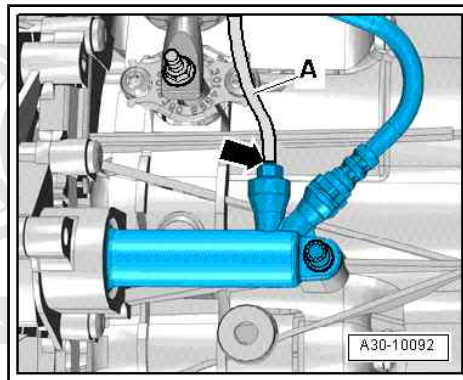
is not liability AG.

- Connect bleeder hose -A- to clutch slave cylinder and open bleeder screw -arrow-.
- Connect bleeder hose to pressure hose of fluid collector bottle.
- Switch on bleeding appliance and allow about 100 cm³ of brake fluid to drain out.
- Operating pressure 2.0 bar



Note

Ensure bleeder hose is correctly fitted during bleeding operation.



- Tighten bleeder screw. Tightening torque ➔ [Item 2 \(page 14\)](#)
- Depress clutch pedal several times after bleeding process is completed.
- Repeat bleeding procedure if necessary.

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Tightening torques

- ◆ ➔ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

1.8 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 the over-centre spring / clutch pedal switch for noise.
- ◆ If you hear a noise, remove over-centre spring and repeat check.
- ◆ Renew relevant component.

After releasing clutch pedal it still remains depressed / 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 for long periods of time.
- ◆ This could impair the self-bleeding function of the 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. It is not visible from the outside.

Check the complete 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 system ⇒ [page 24](#) .

High pedal force:

- ◆ Mechanical fault on clutch plate or pressure plate ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 30 ; Exploded view - clutch

Pedal forces:

- approx. 140 N for complete service life of the clutch

Clutch does not disengage or does not disengage fully:

- ◆ Air in hydraulic system: bleed clutch system ⇒ [page 24](#) and check hydraulic system for external and internal leaks.
- ◆ Clutch plate does not run smoothly on input shaft splines
- ◆ Needle bearing in drive plate defective (centring bearing for input shaft); renew needle bearing ⇒ Rep. gr. 13 ; Cylinder block (gearbox end); Renewing needle bearing in drive plate .
- ◆ Foreign body in clutch system
- ◆ Mechanical fault on clutch plate or pressure plate ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 30 ; Exploded view - clutch
- ◆ Wrong components used or components forgotten when carrying out repair work (e.g. intermediate plate or dowel sleeves between engine and gearbox).

1.9 Servicing clutch release mechanism

For a detailed description please refer to the Workshop Manual
⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive;
Rep. gr. 30 ; Exploded view - clutch release mechanism .



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2 Clutch

⇒ "2.1 Exploded view - clutch module", page 28

⇒ "2.2 Tightening sequence - clutch module to drive plate", page 29

⇒ "2.3 Removing and installing clutch module", page 30

⇒ "2.4 Servicing clutch", page 30

2.1 Exploded view - clutch module



Note

Servicing clutch module -2- ⇒ Servicing manual gearbox; Rep. gr. 30 ; Clutch

1 - Drive plate

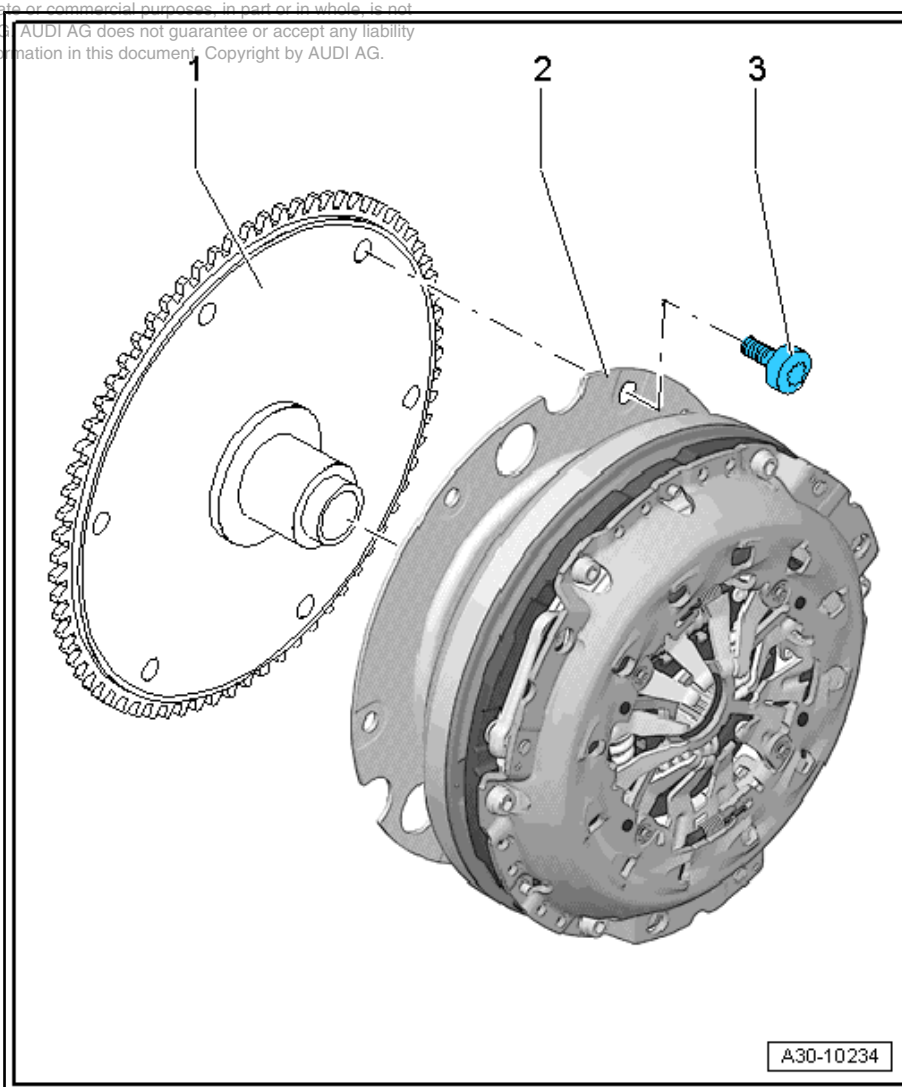
- ☐ 4-cylinder TFSI engine:
3 holes with threaded sleeves
- ☐ 4-cylinder TDI engine: 3 or 6 holes with threaded sleeves (depending on version)
- ☐ 6-cylinder engine:
6 holes with threaded sleeves
- ☐ With needle bearing
- ☐ Removing and installing
⇒ Rep. gr. 13 ; Cylinder block (gearbox end);
Removing 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 0B1, front-wheel drive; Rep. gr. 30 ; Removing and installing clutch module
- ☐ Servicing ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 30 ; Exploded view - clutch

3 - Bolt

- ☐ 60 Nm
- ☐ Secures dual-mass flywheel to drive plate
- ☐ 4-cylinder TFSI engine: 3x
- ☐ 4-cylinder TDI engine: 3x or 6x (depending on version)
- ☐ 6-cylinder engine: 6x
- ☐ Always renew

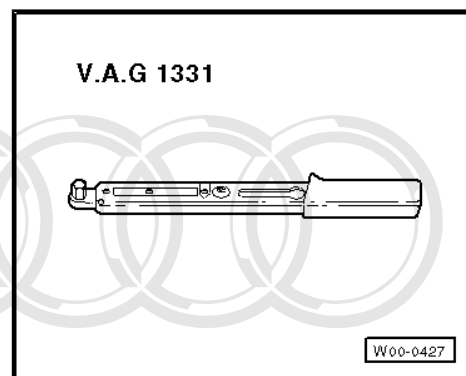


- ❑ Follow correct tightening sequence ⇒ [page 30](#)

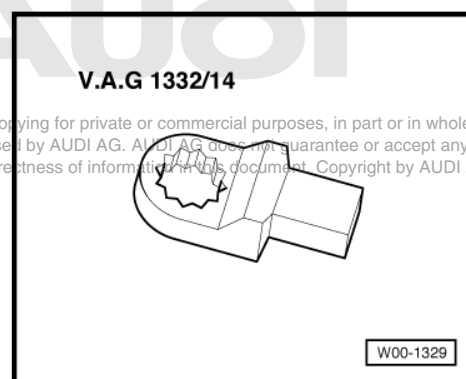
2.2 Tightening sequence - clutch module to drive plate

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-

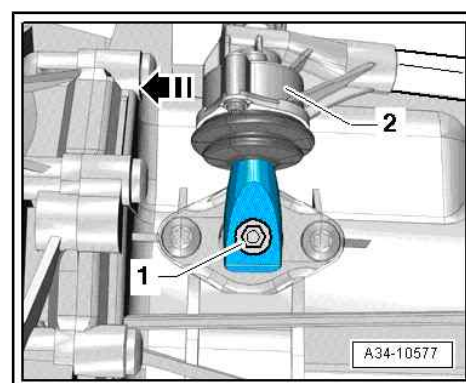


- ◆ Ring spanner insert, 16 mm - V.A.G 1332/14-



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- Use new bolts.
- Tighten bolts using ring spanner insert, 16 mm - V.A.G 1332/14- .
- Engage 6th gear by pulling out selector shaft -1- and shifting gearbox selector lever -2- forwards in direction of -arrow-.



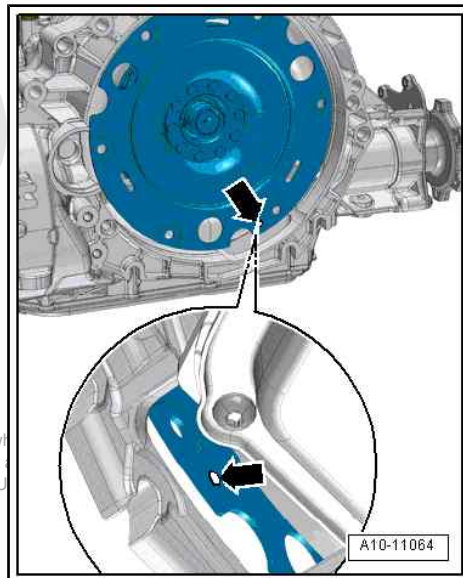


Note

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

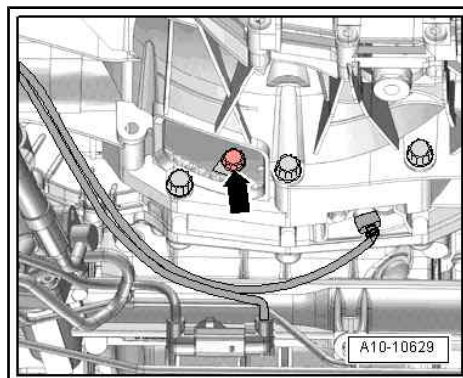
- Turn both front wheels together in one direction until the clutch module has turned through one complete revolution (360°).
- The inspection hole -arrow- should be visible again in the recess on the gearbox housing.

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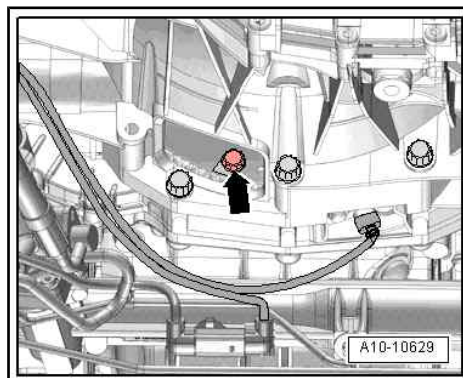
Vehicles with three bolts securing clutch module to drive plate

- Install first bolt -arrow- and tighten hand-tight (2 Nm).
- Turn both front wheels so that clutch module turns 120° further in direction of engine rotation and install second bolt hand-tight (2 Nm).
- Turn clutch module 120° further in direction of engine rotation.
- Now install third bolt and tighten to specified torque
⇒ [Item 3 \(page 28\)](#) .
- Now tighten the remaining two bolts to specified torque.



Vehicles with six bolts securing clutch module to drive plate

- Install first bolt -arrow- and tighten hand-tight (2 Nm).
- Turn both front wheels so that clutch module turns 180° further in direction of engine rotation.
- Install second bolt and tighten to specified torque
⇒ [Item 3 \(page 28\)](#) .
- Tighten remaining five bolts to specified torque (including first bolt installed), turning clutch module 60° further each time.



Tightening torques

- ♦ ⇒ [Item 3 \(page 28\)](#)

2.3 Removing and installing clutch module

For a detailed description please refer to the Workshop Manual
⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive;
Rep. gr. 30 ; Removing and installing clutch module .

2.4 Servicing clutch

For a detailed description please refer to the Workshop Manual
⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive;
Rep. gr. 30 ; Exploded view - clutch .

34 – Controls, housing

1 Selector mechanism

⇒ [“1.1 Overview - selector mechanism”, page 31](#)

⇒ [“1.2 Exploded view - gear knob and cover”, page 33](#)

⇒ [“1.3 Exploded view - selector mechanism”, page 34](#)

⇒ [“1.4 Removing and installing gear knob”, page 35](#)

⇒ [“1.5 Removing and installing noise insulation”, page 36](#)

⇒ [“1.6 Removing and installing selector mechanism”, page 37](#)

⇒ [“1.7 Adjusting selector mechanism”, page 43](#)

⇒ [“1.8 Checking selector mechanism”, page 46](#)

⇒ [“1.9 Renewing selector shaft oil seal”, page 47](#)

⇒ [“1.10 Removing and installing gear detector switch F208 ”, page 49](#)

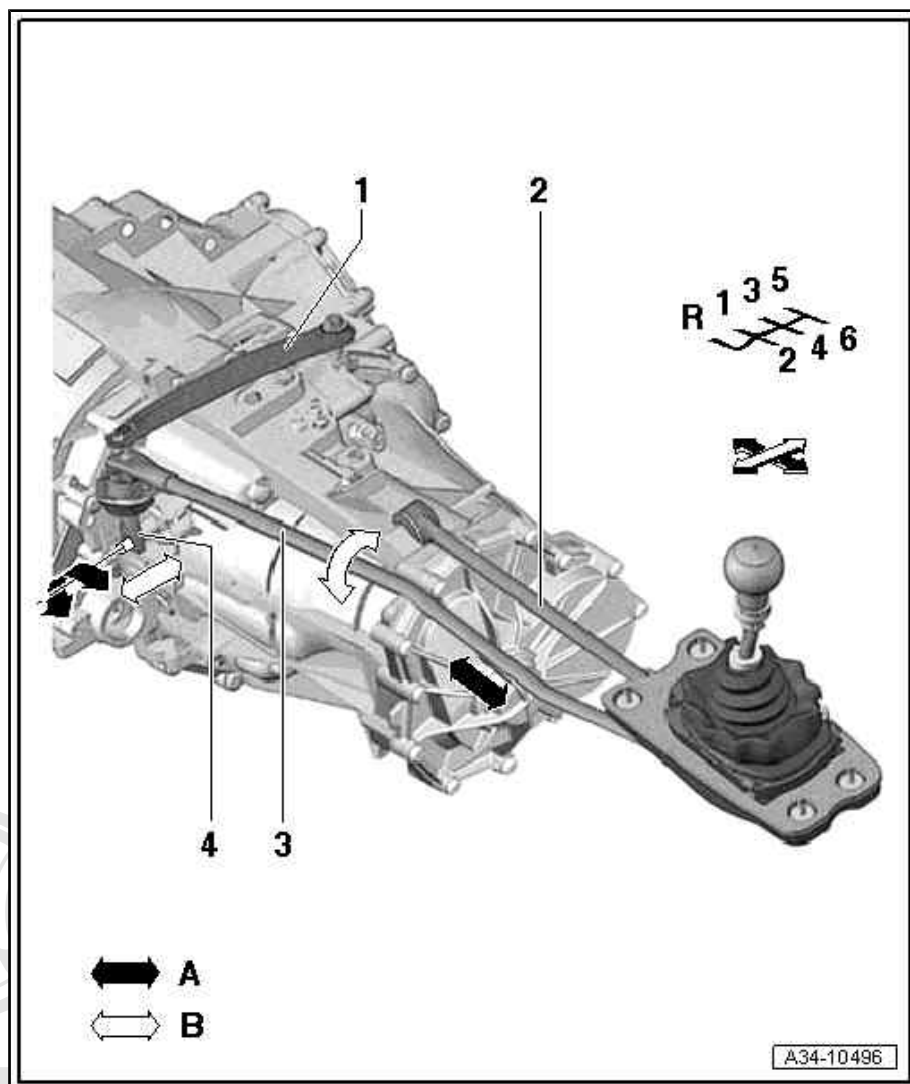
⇒ [“1.11 Removing and installing gear detection sensor G604 ”, page 53](#)

1.1 Overview - selector mechanism

-Arrow A- gear selection movement

-Arrow B- gate selection movement

- 1 - Connecting rod
- 2 - Push rod
- 3 - Selector rod
- 4 - Gearbox selector lever



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1.2 Exploded view - gear knob and cover

1 - Gear knob

- ☐ With gear lever boot
- ☐ Removing and installing
⇒ [page 35](#)

2 - Clamp

- ☐ 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 \(page 33\)](#)
- ☐ Removing and installing
⇒ [page 36](#) together with noise insulation
⇒ [Item 5 \(page 33\)](#)

4 - Support ring

- ☐ Only supplied together with boot
⇒ [Item 3 \(page 33\)](#)

5 - Noise insulation

- ☐ Removing and installing
⇒ [page 36](#)

6 - Gasket

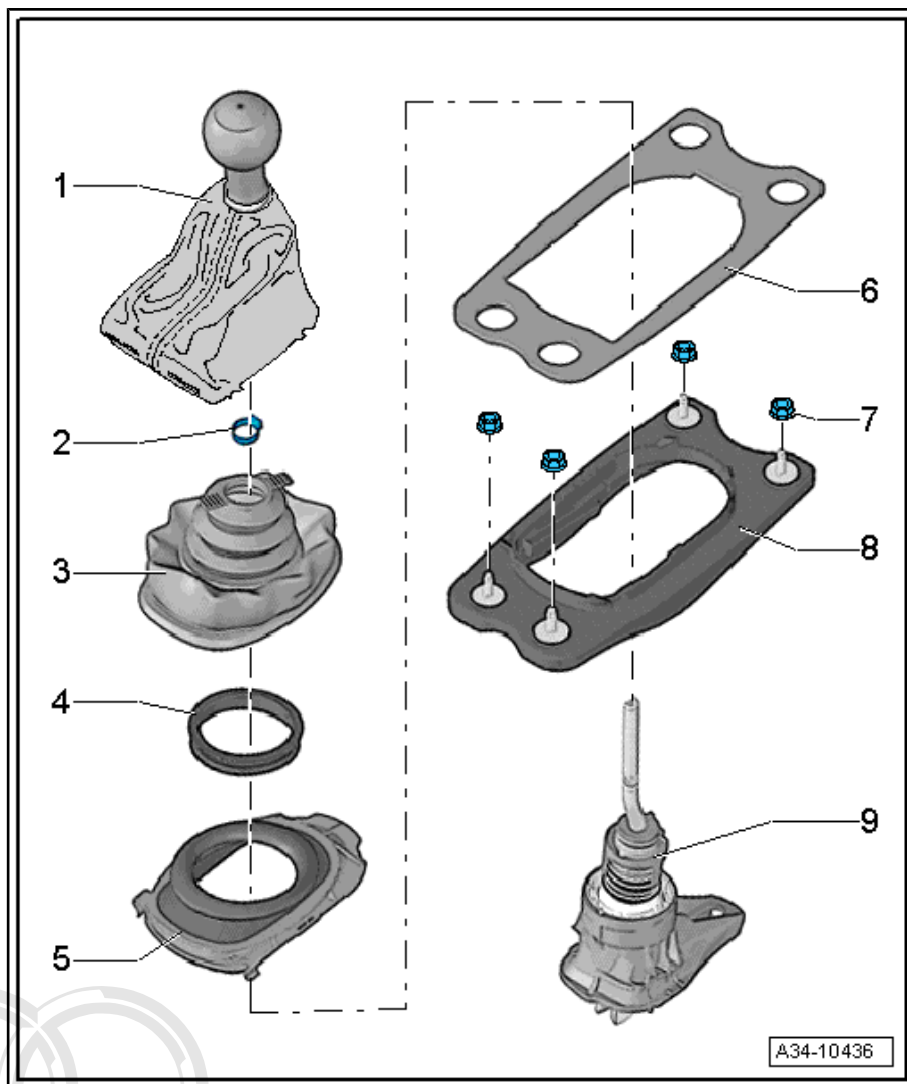
7 - Nut

- ☐ 8 Nm

8 - Mounting bracket

- ☐ For gear lever bearing

9 - Gear lever with gear lever bearing



Audi

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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 \(page 34\)](#)
- ☐ Do not grease

7 - Bolt

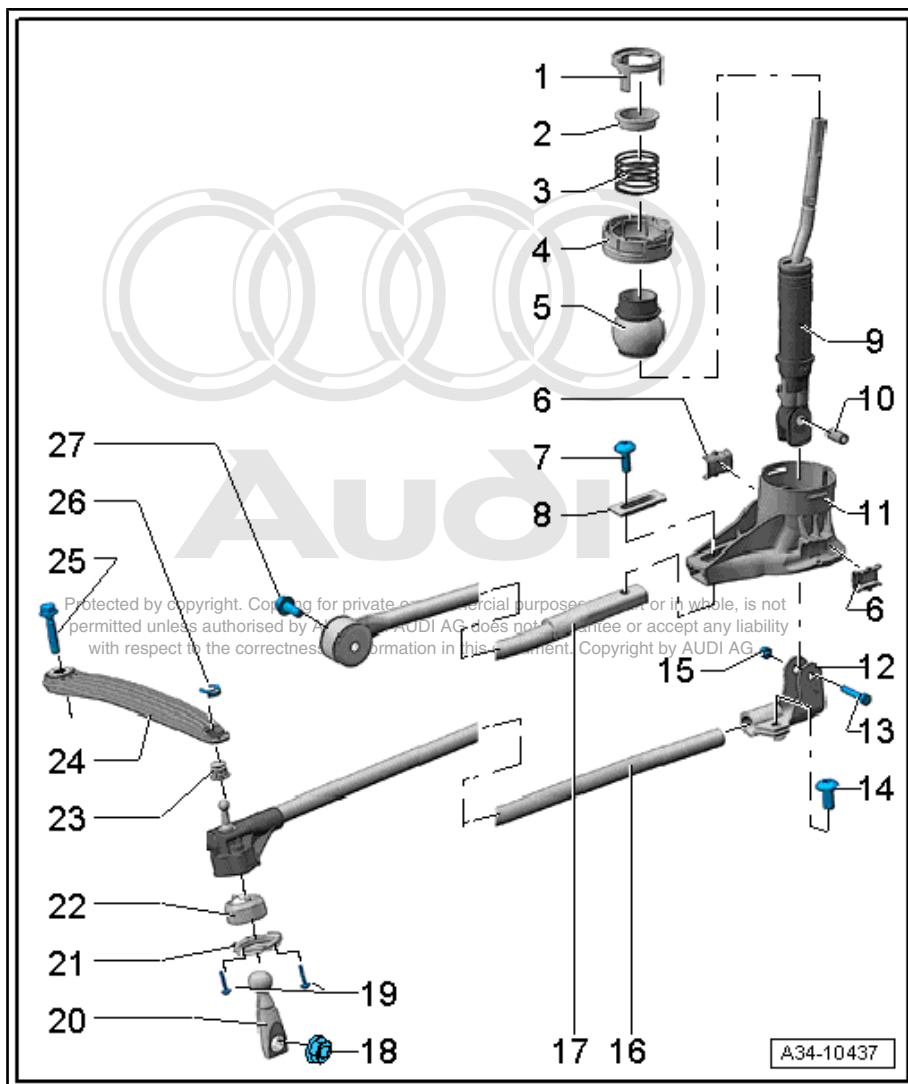
- ☐ 23 Nm

8 - Clamping plate

- ☐ Do not grease

9 - Gear lever

- ☐ Bend points towards rear
- ☐ Grease gear lever stops and gear lever contact surfaces; for grease refer to ⇒ [Electronic parts catalogue](#)
- ☐ Grease contact surfaces for joint
⇒ [Item 12 \(page 34\)](#) ;
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 37](#)
- ☐ 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 \(page 34\)](#)

14 - Bolt

- ☐ 23 Nm

15 - Nut

- ☐ 10 Nm

16 - Selector rod

17 - Push rod

- ☐ With bolt and washer

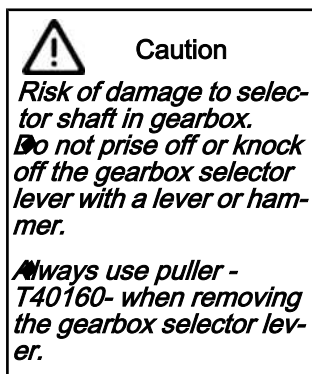
18 - Nut

- ☐ 20 Nm
- ☐ Always renew

19 - Bolt

- ☐ 4 Nm

20 - Gearbox selector lever



- ☐ Pulling off ⇒ [page 42](#)
- ☐ Install so that gap in splines aligns with selector shaft

21 - Sealing collar

22 - Ball socket

- ☐ Grease pivot for gearbox selector lever ⇒ [Item 20 \(page 35\)](#) if necessary, for grease refer to ⇒ [Electronic](#) parts catalogue

23 - Bearing bush

- ☐ To remove, pull off retaining clip ⇒ [Item 26 \(page 35\)](#)

24 - Connecting rod

- ☐ To remove, pull off retaining clip ⇒ [Item 26 \(page 35\)](#)

25 - Bolt

- ☐ 20 Nm

26 - Retaining clip

27 - Bolt

- ☐ 20 Nm

1.4 Removing and installing gear knob

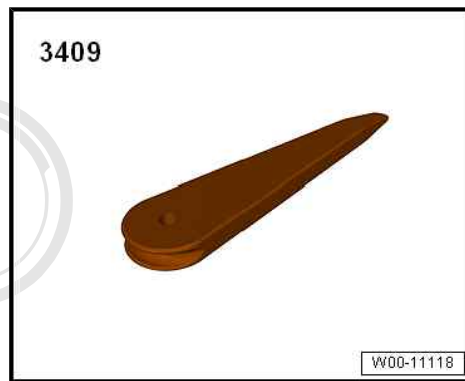


Note

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

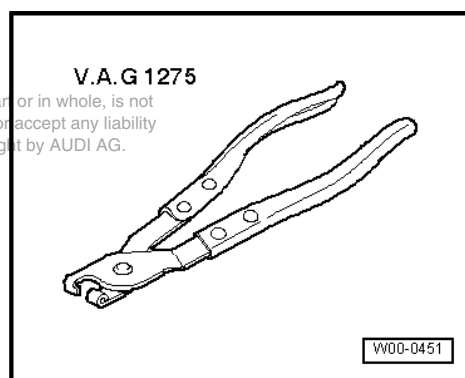
Special tools and workshop equipment required

◆ Removal wedge - 3409-



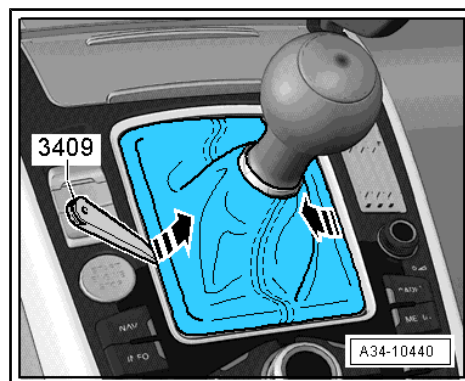
◆ Hose clip pliers - V.A.G 1275-

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Removing

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

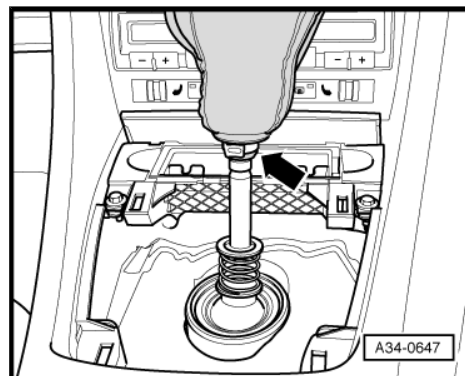


- Pull boot up and over gear knob.
- Open clip -arrow- and pull off gear knob together with boot.

Installing

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

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

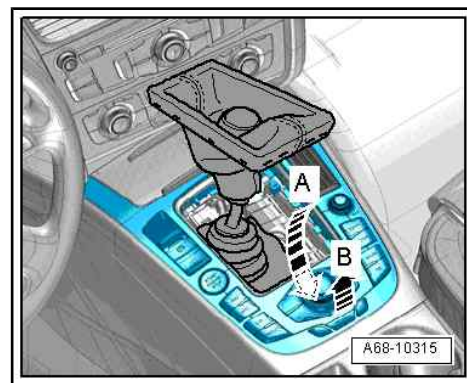


1.5 Removing and installing noise insulation

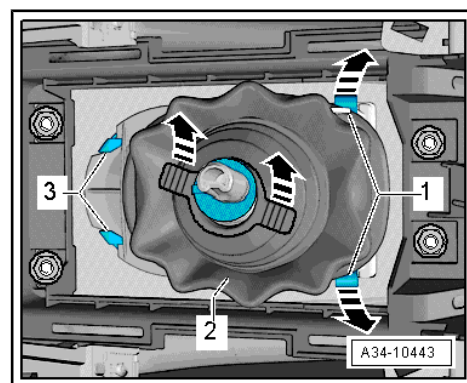
Removing

- Switch off ignition.
- Remove gear knob with gear lever boot ⇒ [page 35](#) .

- Remove multimedia system operating unit - E380- ➔ Communication; Rep. gr. 91 ; Infotainment system; Removing and installing multimedia system operating unit - E380- .



- Release retaining tabs -1- in direction of -arrow-. At the same time, lift rear end of noise insulation slightly.
- Pull noise insulation out of tabs -3-.
- Pull boot -2- off gear lever in direction of -arrow-.

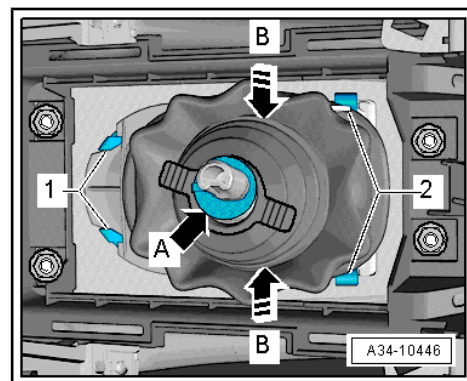


Installing

- Insert noise insulation into tabs -1- and press down until retaining tabs -2- engage.
- Pull boot over gear lever and into rounded groove -arrow A-.
- Press support ring in boot over gear lever bearing as far as stop in direction of -arrow B-.

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

- Install multimedia system operating unit - E380- ➔ Communication; Rep. gr. 91 ; Infotainment system; Removing and installing multimedia system operating unit - E380- .
- Install gear knob with gear lever boot ➔ [page 35](#) .



1.6 Removing and installing selector mechanism

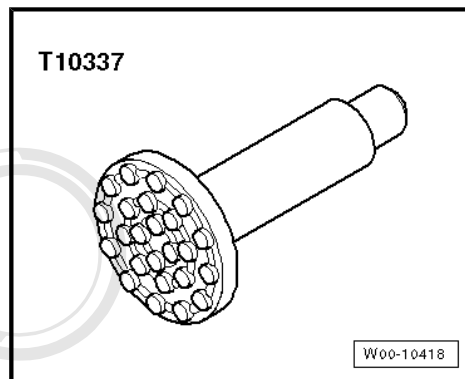
Special tools and workshop equipment required

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

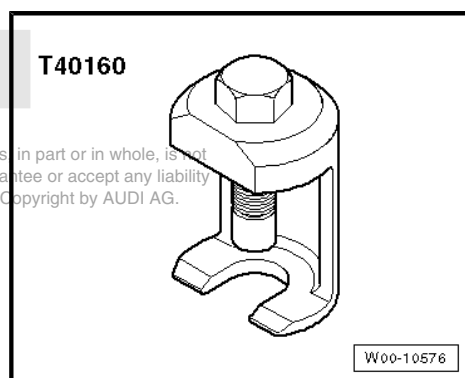
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◆ Gearbox support - T10337-



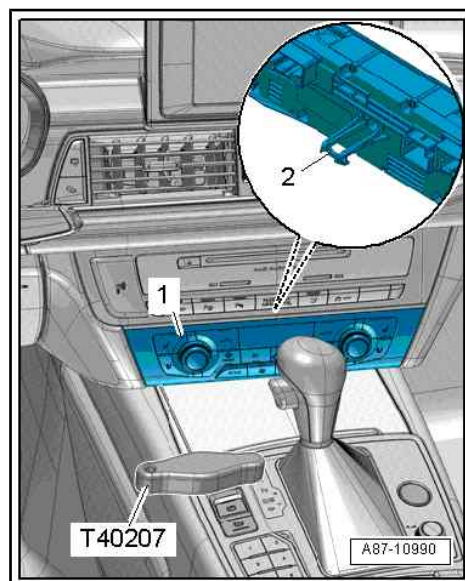
◆ Puller - T40160-



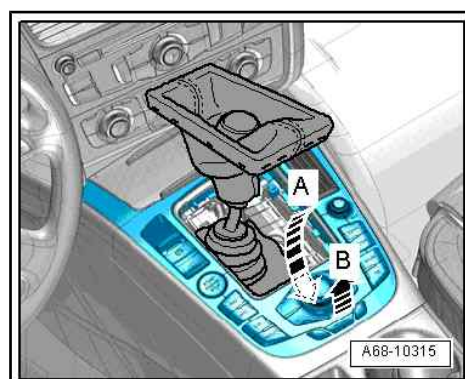
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Removing

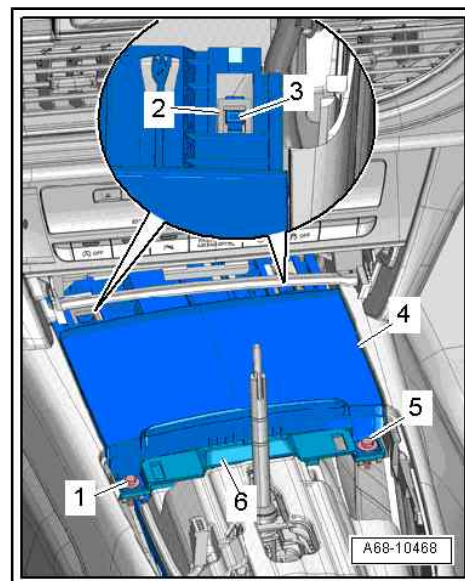
- Switch off ignition.
- Remove gear knob with gear lever boot ➔ [page 35](#) .
- Remove air conditioner operating and display unit ➔ Heating, air conditioning; Rep. gr. 87 ; Operating and display unit; Removing and installing operating and display unit .



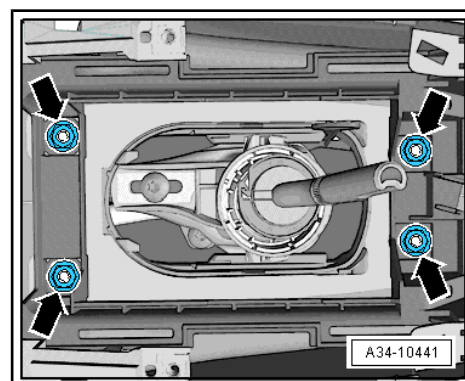
- Remove multimedia system operating unit - E380- ➔ Communication; Rep. gr. 91 ; Infotainment system; Removing and installing multimedia system operating unit - E380- .



- Remove front ashtray/storage compartment -6- ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .



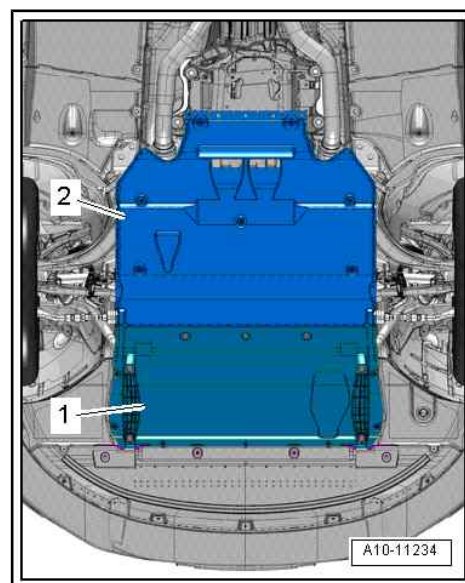
- Remove noise insulation above selector mechanism
⇒ [page 36](#) .
- Remove nuts -arrows-.



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

Vehicles with 4-cylinder TDI engine:

- Also remove front noise insulation -1- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



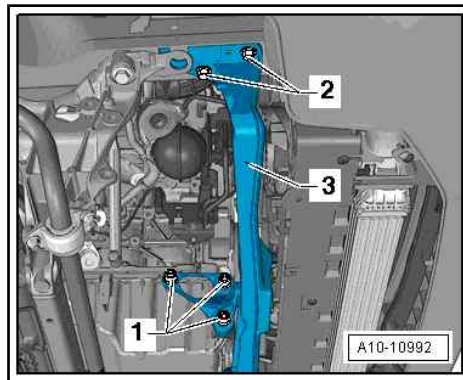
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- Remove bolts -1- and detach torque reaction support from engine.



Note

-Items 2 and 3- can be disregarded.



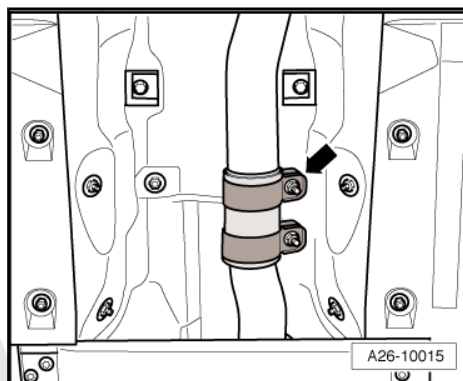
Continued for all vehicles:



Note

The flexible pipe connection (de-coupling element) in the front exhaust pipe must not be bent more than 10° - otherwise it can be damaged.

- Disconnect exhaust system at clamp -arrow-.

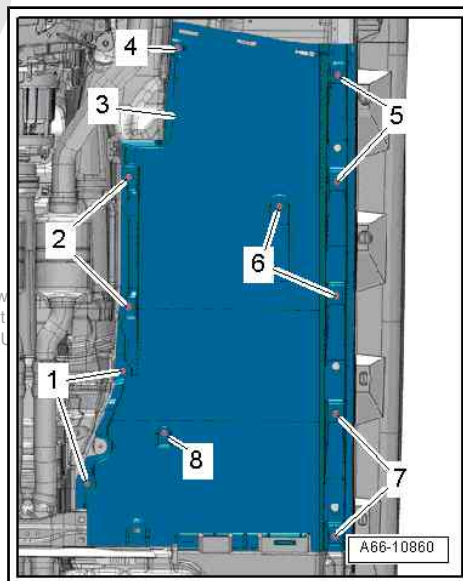


- Unscrew nuts -1- and -2- on centre cover for underbody (left and right) -3-.

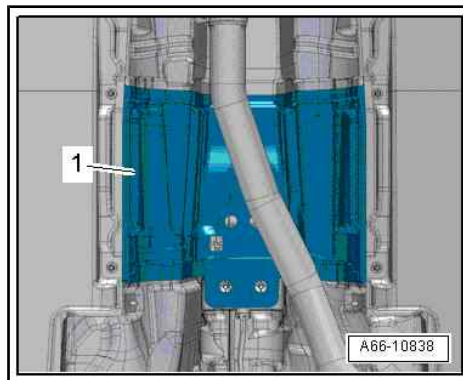


Note

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



- Pull out and detach heat shield (rear) -1- behind centre covers for underbody.



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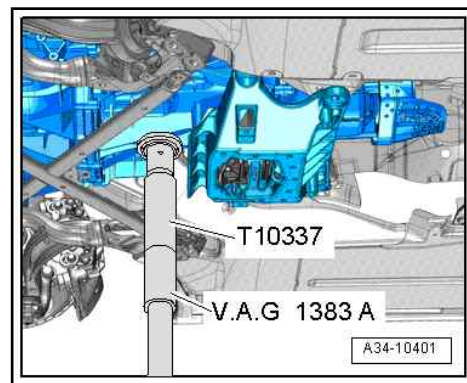
- Apply lifting column of engine and gearbox jack -V.A.G 1383 A- to gearbox from below (with gearbox support - T10337- attached).
- Slightly lift gearbox with engine and gearbox jack - V.A.G 1383 A- .



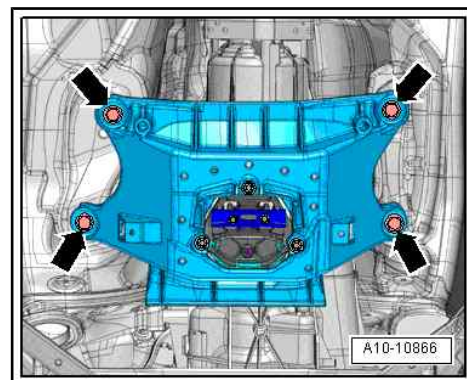
WARNING

Risk of accident.

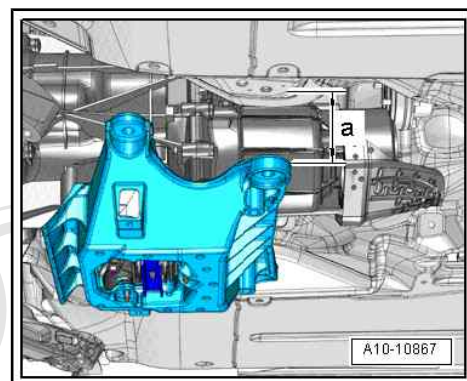
- ◆ **Engine and gearbox jack - V.A.G 1383 A- must remain in position when work is being carried out and must not be left unattended.**



- Remove bolts -arrows- for tunnel cross member.



- Lower gearbox by dimension -a- using engine and gearbox jack - V.A.G 1383 A- .
- Dimension -a- = 80 mm (maximum)

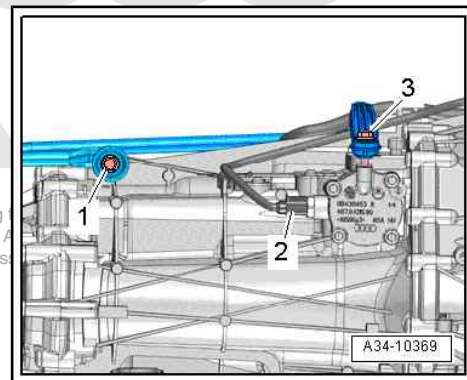


- Remove bolt -1- for push rod and bolt -3- for connecting rod.



Note

-Item 2- can be disregarded.



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- Remove nut -1-.



Note

-Item 2- can be disregarded.



Caution

Risk of damage to selector shaft in gearbox.

- ◆ **Do not prise off or knock off the gearbox selector lever -1- 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

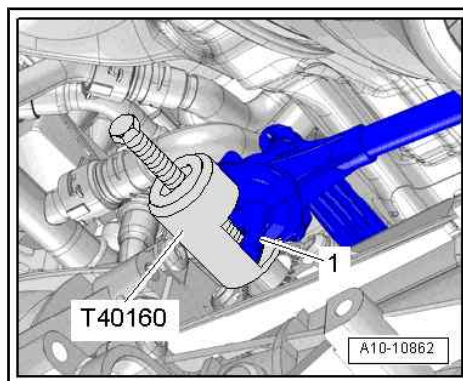
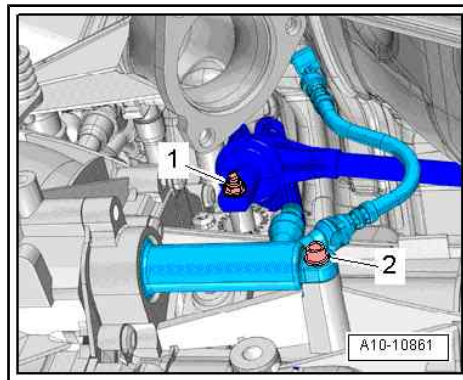
Installation is carried out in reverse sequence; note the following:



Note

Always renew seals, gaskets and self-locking nuts.

- Install tunnel cross member → [page 120](#) .



Vehicles with 4-cylinder TDI engine:

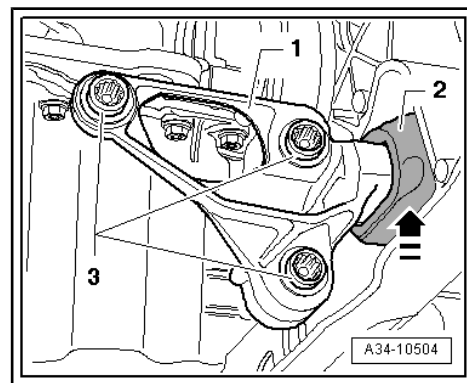
- Push torque reaction support -1- upwards in direction indicated by -arrow- until it makes contact with cross member.



Note

Bump stop -2- must be in contact with cross member without play, but must not be under tension.

- Then tighten bolts -3- to specified torque ⇒ Rep. gr. 10 ; Assembly mountings; Exploded view - assembly mountings .



Continued for all vehicles:

- Adjust selector mechanism ⇒ [page 43](#) .
- Install front ashtray/storage compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .
- Install multimedia system operating unit - E380- ⇒ Communication; Rep. gr. 91 ; Infotainment system; Removing and installing multimedia system operating unit - E380- .
- Install air conditioner operating and display unit ⇒ Heating, air conditioning; Rep. gr. 87 ; Operating and display unit; Removing and installing operating and display unit .

Tightening torques

- ◆ ⇒ [“1.2 Exploded view - gear knob and cover”, page 33](#)

- ◆ ⇒ [“1.3 Exploded view - selector mechanism”, page 34](#)

- ◆ Heat shield below selector mechanism – General body repairs, exterior; Rep. gr. 66 ; Strips / trim panels / extensions; Exploded view - heat shield

- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers

- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

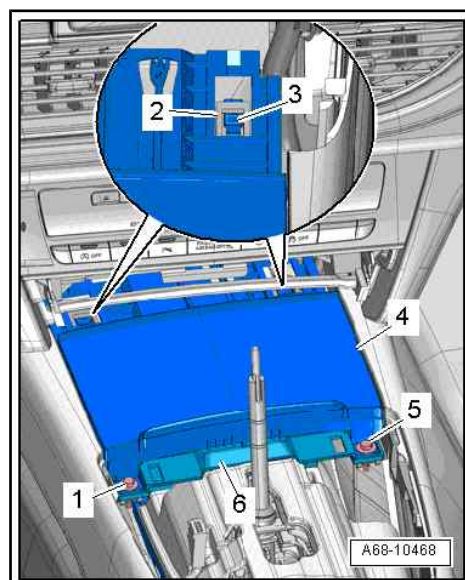
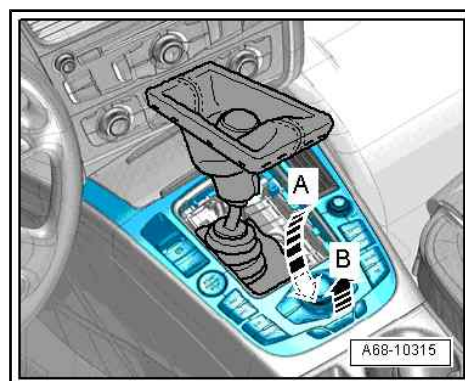
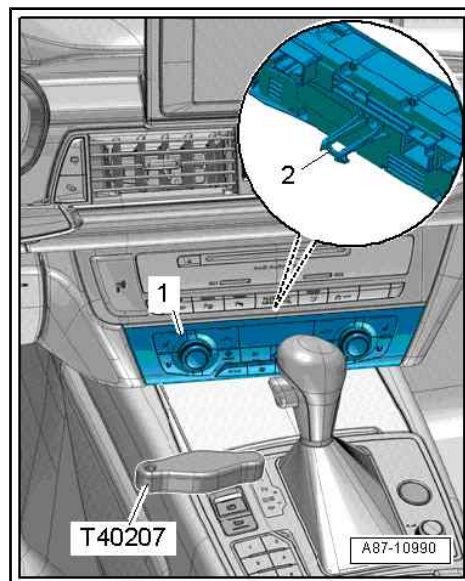
1.7 Adjusting selector mechanism

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.

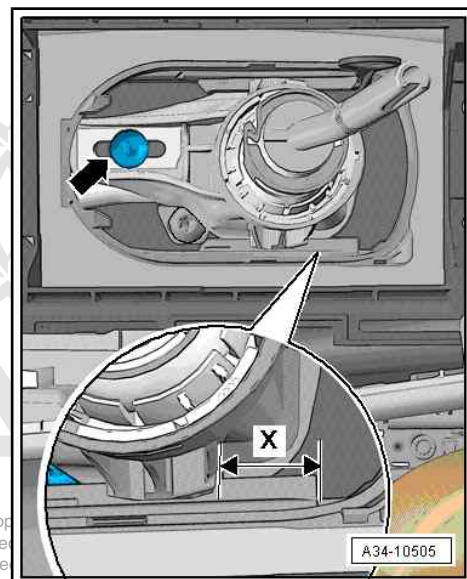
Procedure

- Switch off ignition.
- Remove gear knob with gear lever boot ➔ [page 35](#) .
- Remove air conditioner operating and display unit ➔ Heating, air conditioning; Rep. gr. 87 ; Operating and display unit; Removing and installing operating and display unit .
- Remove multimedia system operating unit - E380- ➔ Communication; Rep. gr. 91 ; Infotainment system; Removing and installing multimedia system operating unit - E380- .
- Remove front ashtray/storage compartment -6- ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .
- Remove noise insulation above selector mechanism ➔ [page 36](#) .

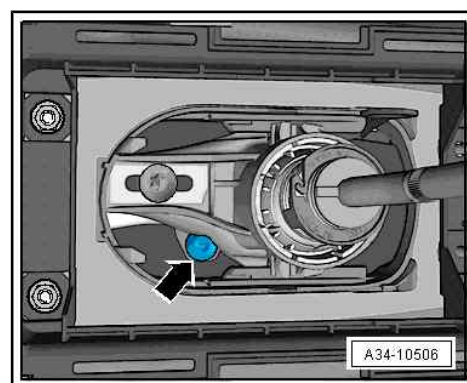


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- Check adjustment of push rod: dimension -x-.
- Specification: distance -x- = 25 mm
- If distance measured is not correct, adjust dimension -x- as follows:
- Loosen bolt -arrow- for push rod.
- The gear lever bearing should move freely in both directions on slide
- Set dimension -x- by moving gear lever bearing.
- Tighten bolt for push rod -arrow- in that position. Tightening torque ⇒ [Item 7 \(page 34\)](#)

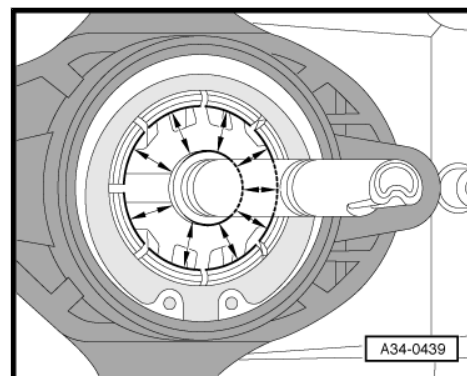


- Loosen bolt -arrow- for selector rod
- Connection between selector rod and selector mechanism should move freely.

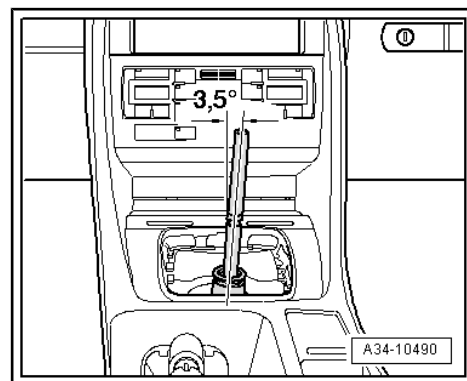


Adjust gear lever as follows:

- 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.



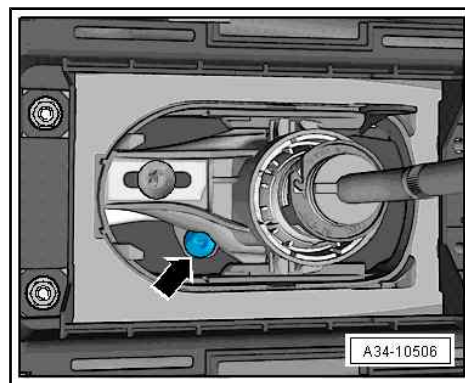
- Tighten bolt for selector rod -arrow-. Tightening torque
⇒ [Item 14 \(page 34\)](#)



Note

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

- Check gear lever setting ⇒ [page 46](#) .
- Install noise insulation above selector mechanism
⇒ [page 36](#) .
- Install front ashtray/storage compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .
- Install multimedia system operating unit - E380- ⇒ Communication; Rep. gr. 91 ; Infotainment system; Removing and installing multimedia system operating unit - E380- .
- Install air conditioner operating and display unit ⇒ Heating, air conditioning; Rep. gr. 87 ; Operating and display unit; Removing and installing operating and display unit .
- Assemble gear knob with cover ⇒ [page 35](#) .



1.8 Checking selector mechanism

- Start 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.

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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 45](#) .
- Move gear lever out of reverse.
- 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 45](#) .



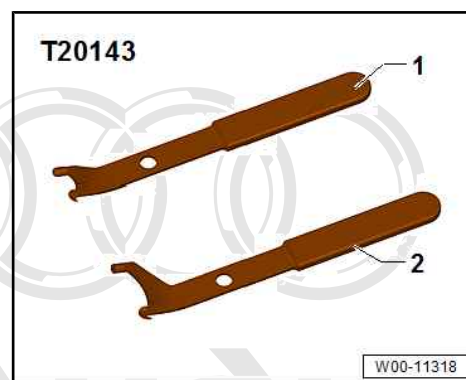
Note

- ◆ *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 45](#).*

1.9 Renewing selector shaft oil seal

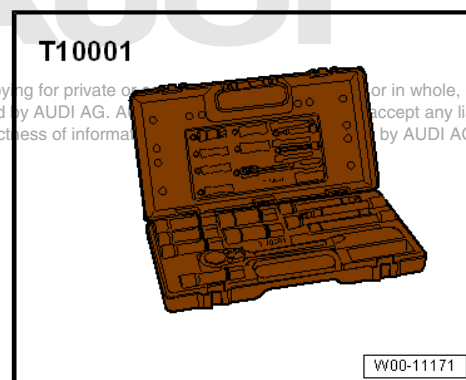
Special tools and workshop equipment required

- ◆ Extractor tool - T20143/1-

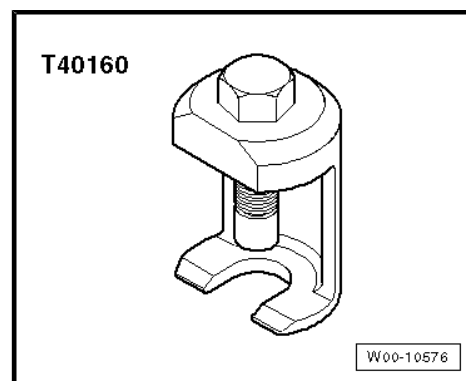


- ◆ Shock absorber set - T10001-

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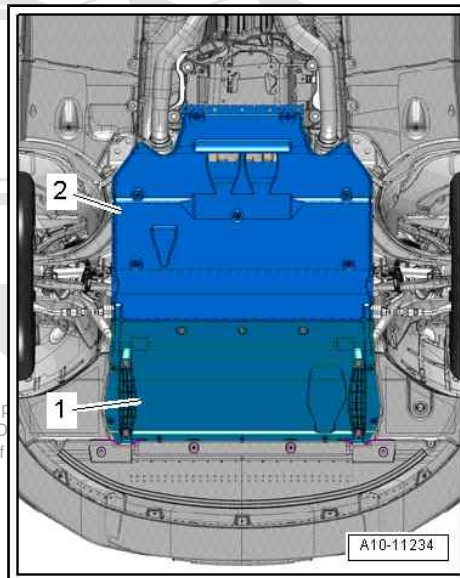
- ◆ Puller - T40160-



- ◆ Sealing grease - G 052 128 A1-

Removing

- Gearbox in vehicle
- Engage 1st gear.
- Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

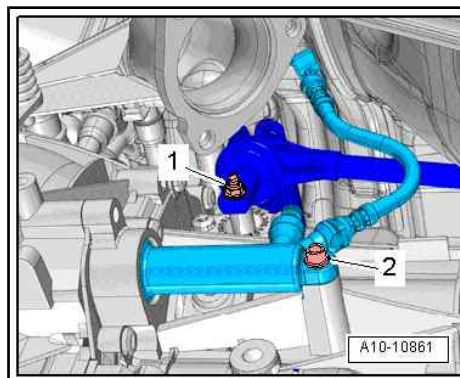


- Remove nut -1-.



Note

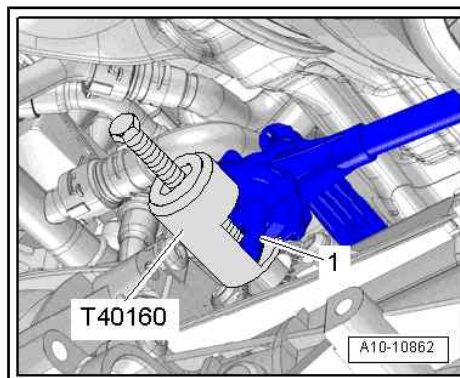
-Item 2- can be disregarded.



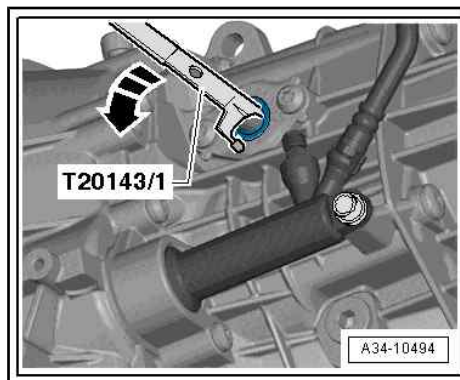
Caution

Risk of damage to selector shaft in gearbox.

- ◆ **Do not prise off or knock off the gearbox selector lever -1- with a lever or hammer.**
- ◆ **Always use puller - T40160- when removing the gearbox selector lever.**

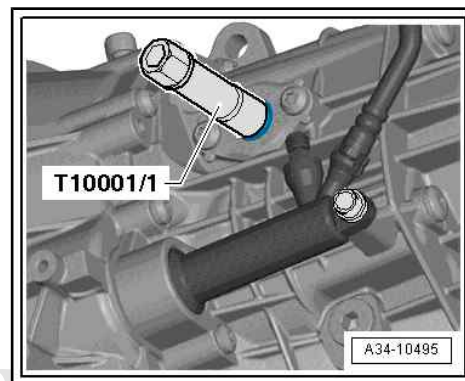


- Apply puller - T40160- and pull off gearbox selector lever -1-.
- Prise out oil seal with extractor tool - T20143/1- .
- Check selector shaft for damage.



Installing

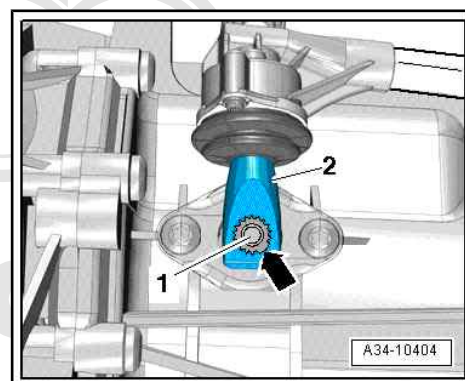
- Lightly oil outer circumference of oil seal.
- Pack space between sealing lip and dust lip half-full with sealing grease - G 052 128 A1- .
- Drive in oil seal with -T10001/1- .
- Installation depth: 2 mm below outer edge of housing



- 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-).

Tightening torques

- ◆ Gearbox selector lever ⇒ [Item 18 \(page 35\)](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation



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1.10 Removing and installing gear detector switch - F208-

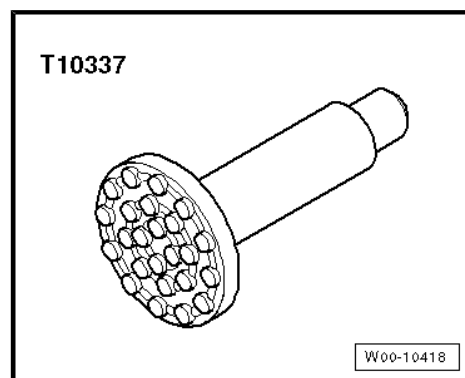
- Gearbox installed
- Only fitted on vehicles up to model year 2012

Special tools and workshop equipment required

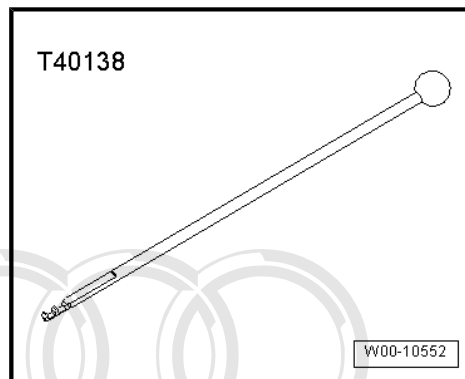
- ◆ Engine and gearbox jack - V.A.G 1383 A-



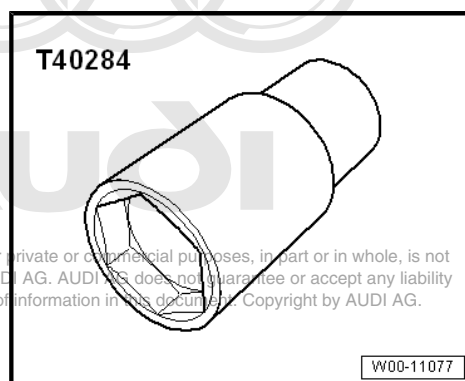
- ◆ Gearbox support - T10337-



◆ Release tool - T40138-



◆ Socket (24 mm) - T40284-



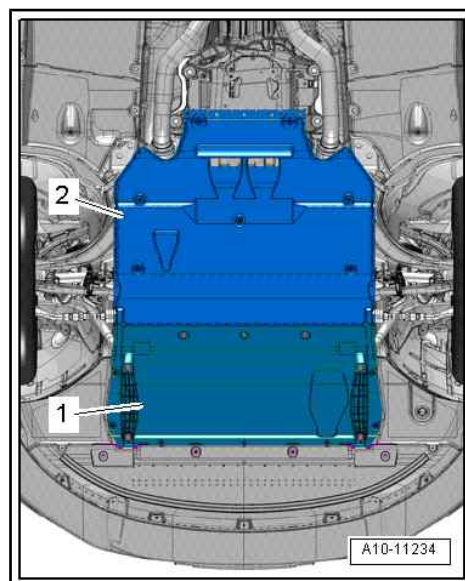
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Removing

- Gearbox in vehicle
- Remove rear noise insulation -2- ➔ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

Vehicles with diesel engine and torque reaction support

- Also remove front noise insulation -1- ➔ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

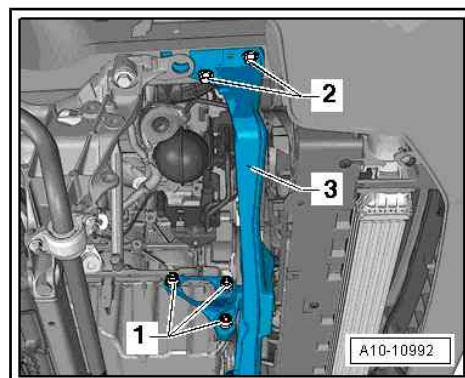


- Remove bolts -1- and detach torque reaction support from engine.



Note

Items marked -2- and -3- can be disregarded.



Continued for all vehicles



Note

The flexible pipe connection (de-coupling element) in the front exhaust pipe must not be bent more than 10° - otherwise it can be damaged.

- Disconnect exhaust system at clamp -arrows-.
- Using suitable wire, tie up front exhaust pipe to one side of rear section of exhaust system (at clamp).
- Apply lifting column of engine and gearbox jack -V.A.G 1383 A- to gearbox from below (with gearbox support - T10337- attached).
- Slightly lift gearbox with engine and gearbox jack - V.A.G 1383 A- .

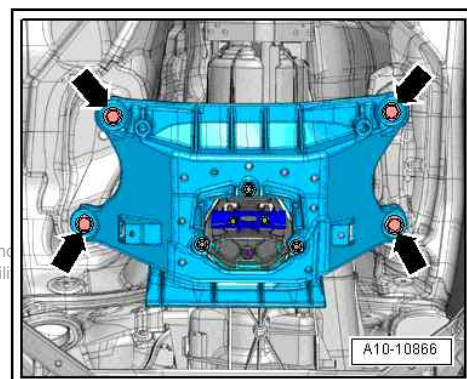
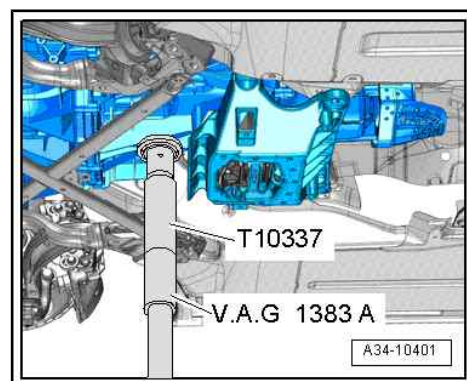
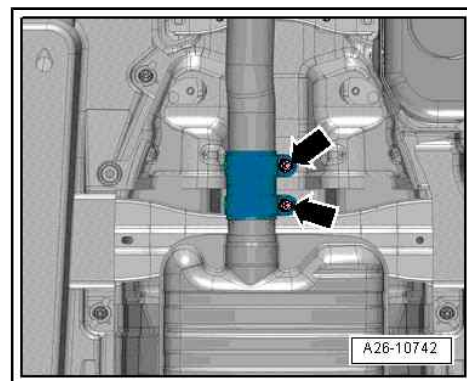


WARNING

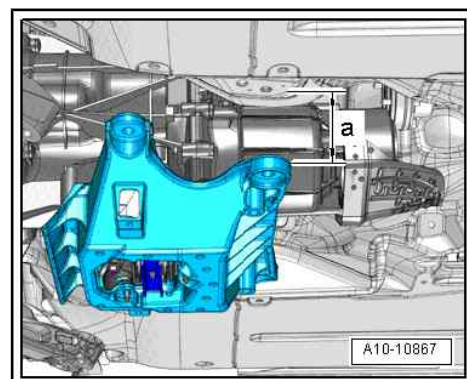
Risk of accident.

- ◆ **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.**

- Remove bolts -arrows- for tunnel cross member.

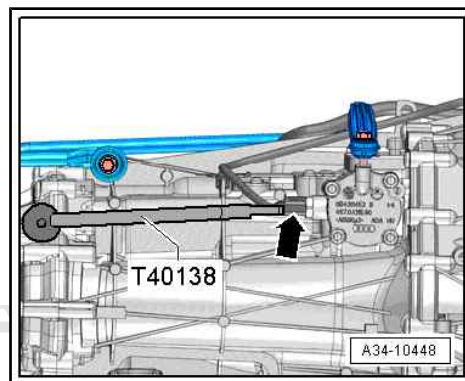


- Lower gearbox by dimension -a- using engine and gearbox jack - V.A.G 1383 A- .
- Dimension -a- = 80 mm (maximum)



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- Use release tool - T40138- to unplug electrical connector -arrow- and move clear.
- Use socket (24 mm) - T40284- to unscrew gear detector switch - F208- .



Installing

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

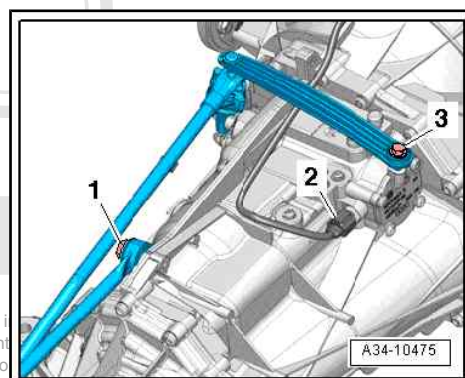
- Use socket (24 mm) - T40284- to screw in gear detector switch - F208- . Tightening torque ⇒ [page 53](#)
- Attach connector -2- at gear detector switch - F208- .



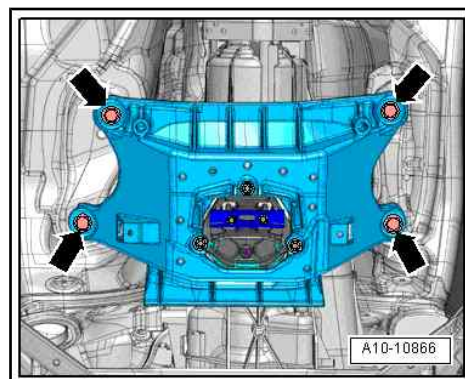
Note

-Item 1- and -item 3- can be disregarded.

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- Secure tunnel cross member -arrows- ⇒ [Item 2 \(page 120\)](#) .



Vehicles with diesel engine and torque reaction support

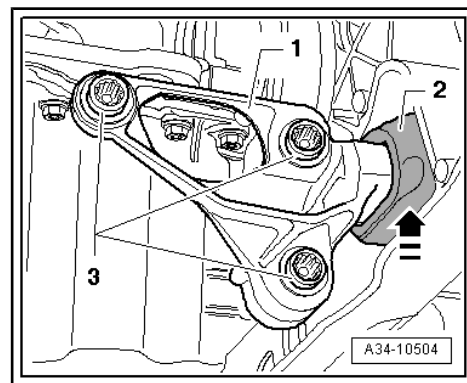
- Push torque reaction support -1- upwards in direction indicated by -arrow- until it makes contact with cross member.



Note

Bump stop -2- must be in contact with cross member without play, but must not be under tension.

- Then tighten bolts -3- to specified torque ⇒ Rep. gr. 10 ; Assembly mountings; Exploded view - assembly mountings .



Continued for all vehicles

- Assemble exhaust system and perform stress-free alignment ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .
- Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .

Tightening torque

Component	Nm
Gear detector switch - F208-	20

1.11 Removing and installing gear detection sensor - G604-

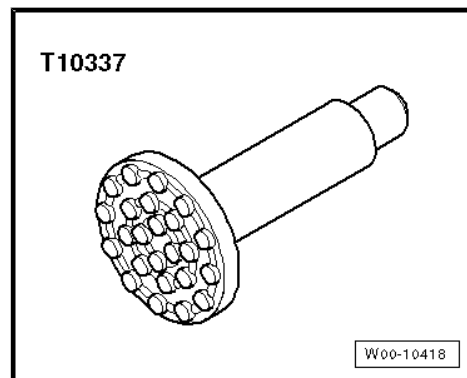
Special tools and workshop equipment required

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

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- ◆ Gearbox support - T10337-



Removing

- Gearbox in vehicle
- Fitted on vehicles from model year 2013 onwards
- Remove rear noise insulation -2- ➔ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

Vehicles with 4-cylinder TDI engine:

- Also remove front noise insulation -1- ➔ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation

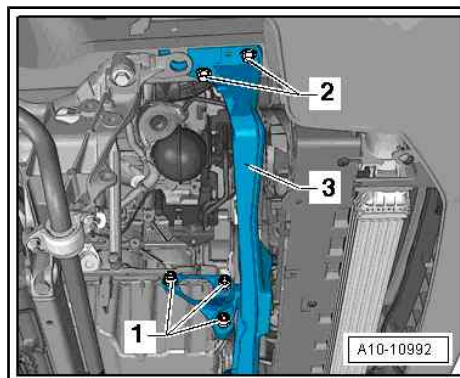
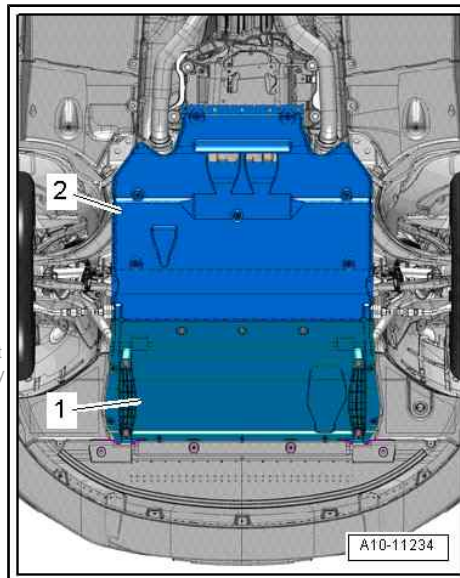
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- Remove bolts -1- and detach torque reaction support from engine.



Note

Items marked -2- and -3- can be disregarded.



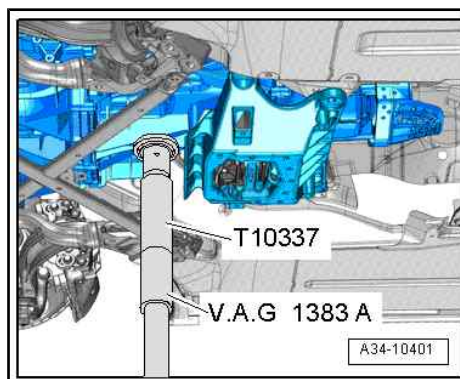
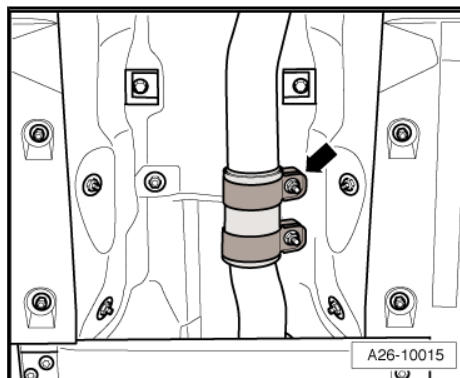
Continued for all vehicles:



Note

The flexible pipe connection (de-coupling element) in the front exhaust pipe must not be bent more than 10° - otherwise it can be damaged.

- Disconnect exhaust system at clamp -arrow-.
- Using suitable wire, tie up front exhaust pipe to one side of rear section of exhaust system (at clamp).
- Apply lifting column of engine and gearbox jack -V.A.G 1383 A- to gearbox from below (with gearbox support - T10337- attached).
- Slightly lift gearbox with engine and gearbox jack - V.A.G 1383 A- .

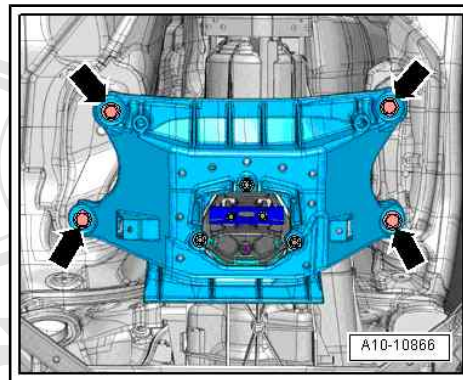


WARNING

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.

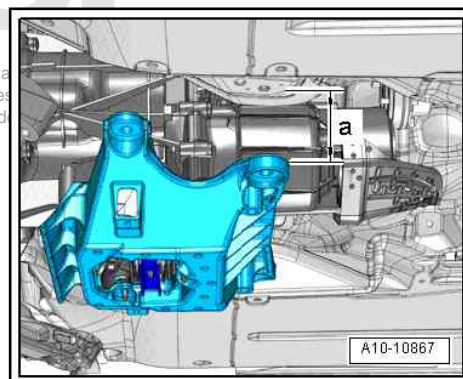
- Remove bolts -arrows- for tunnel cross member.



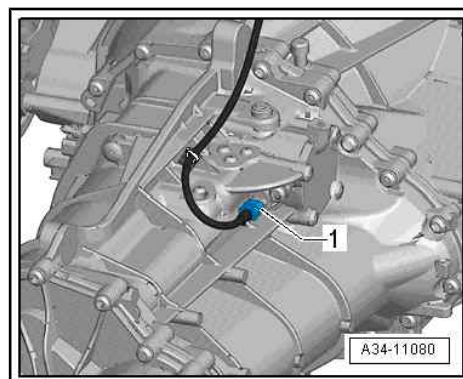
- Lower gearbox by dimension -a- using engine and gearbox jack - V.A.G 1383 A- .

- Dimension -a- = 80 mm (maximum)

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- Unplug electrical connector on gear detection sensor - G604-1-.



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

Installing

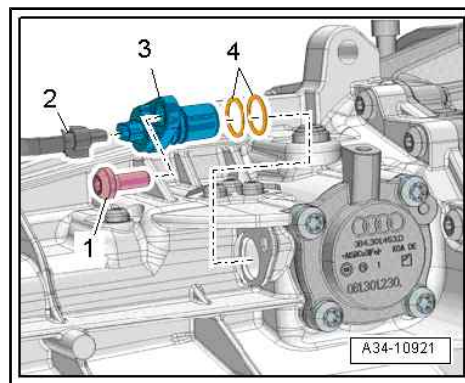
Installation is carried out in reverse sequence; note the following:



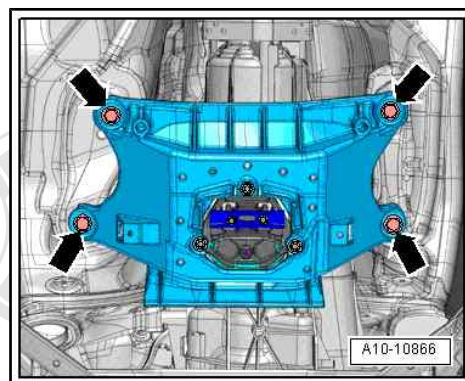
Caution

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 ➔ [page 57](#) .
- Plug in connector at gear detection sensor - G604- -2-.
- Secure tunnel cross member -arrows- ➔ [Item 2 \(page 120\)](#) .



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Vehicles with 4-cylinder TDI engine:

- Push torque reaction support -1- upwards in direction indicated by -arrow- until it makes contact with cross member.



Note

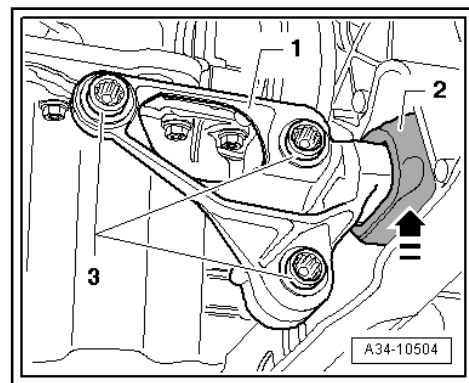
Bump stop -2- must be in contact with cross member without play, but must not be under tension.

- Then tighten bolts -3- to specified torque.

Tightening torques

Component	Nm
Gear detection sensor - G604-	10 + 45°
• Renew bolt	

- ◆ ⇒ Rep. gr. 10 ; Assembly mountings; Exploded view - assembly mountings
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation
- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers



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2 Removing and installing gearbox

⇒ ["2.1 Removing gearbox", page 58](#)

⇒ ["2.2 Installing gearbox", page 96](#)

⇒ ["2.3 Tightening torques for gearbox", page 117](#)

2.1 Removing gearbox

⇒ ["2.1.1 Removing gearbox - vehicles with 4-cylinder TFSI engine", page 58](#)

⇒ ["2.1.2 Removing gearbox - vehicles with 4-cylinder TDI engine", page 66](#)

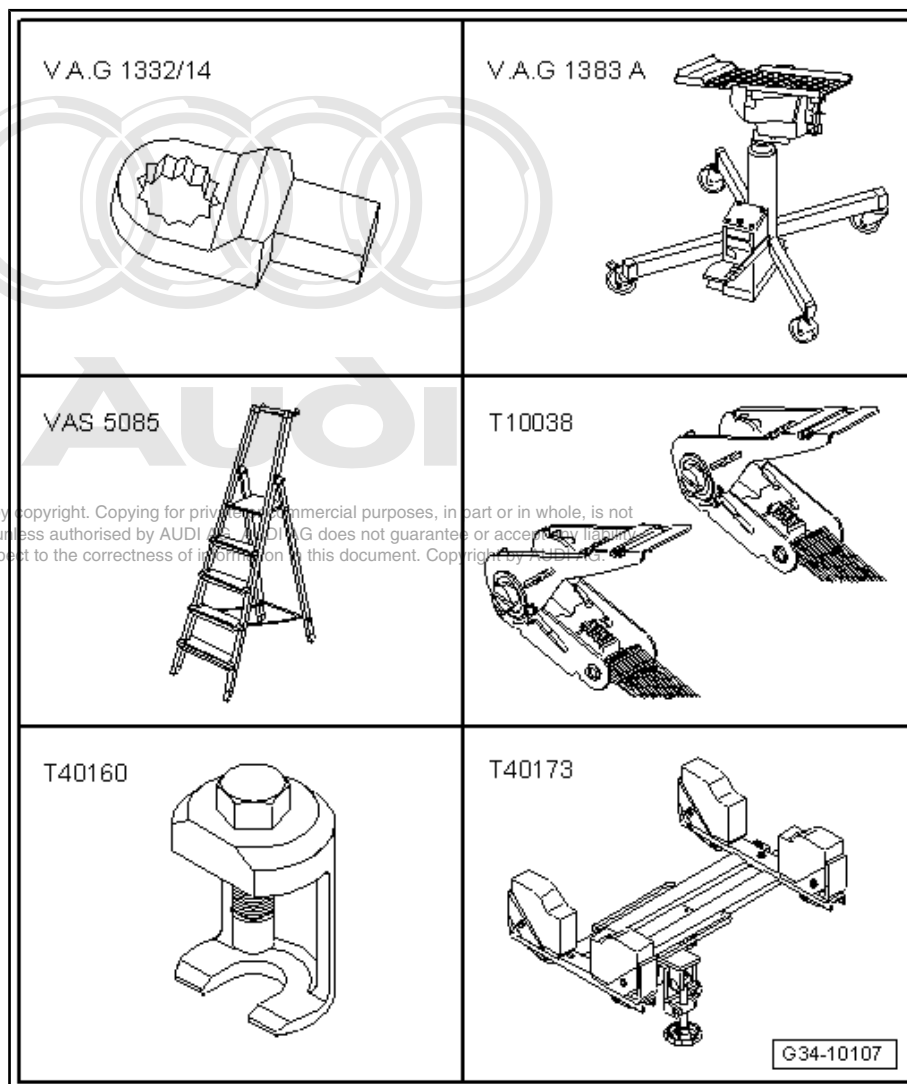
⇒ ["2.1.3 Removing gearbox - vehicles with 6-cylinder FSI engine", page 77](#)

⇒ ["2.1.4 Removing gearbox - vehicles with 6-cylinder TDI engine", page 86](#)

2.1.1 Removing gearbox - vehicles with 4-cylinder TFSI engine

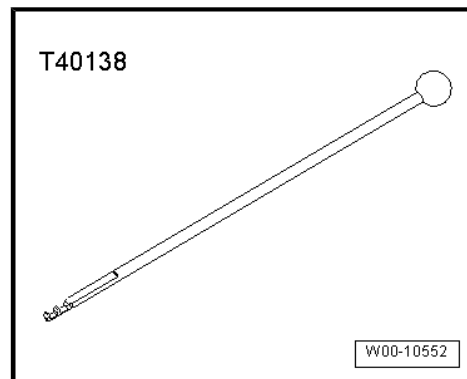
Special tools and workshop equipment required

- ◆ Ring spanner insert, 16 mm - V.A.G 1332/14-
- ◆ Engine and gearbox jack - V.A.G 1383 A-
- ◆ Stepladder - VAS 5085-
- ◆ Tensioning strap - T10038-
- ◆ Puller - T40160-
- ◆ Gearbox support - T40173-



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◆ Release tool - T40138-



Removing

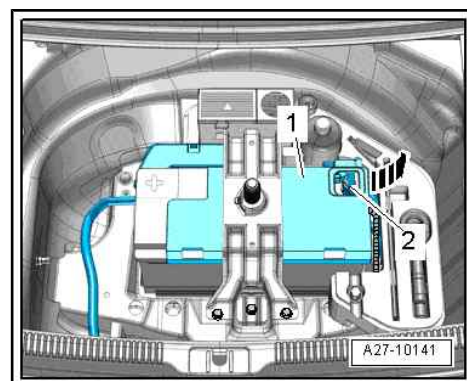
- Bring front wheels into straight-ahead position.
- Switch off ignition and take out ignition key.



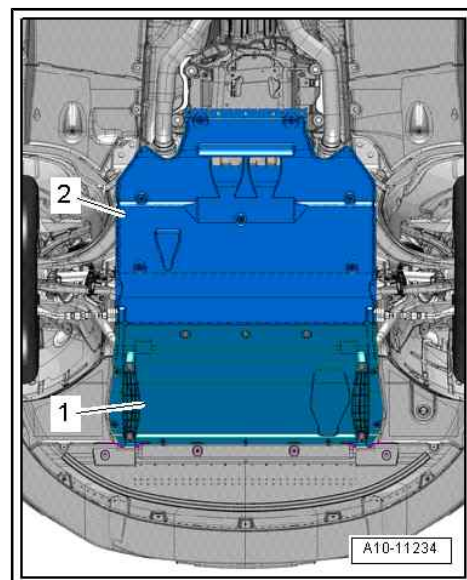
Caution

When disconnecting the battery there is a risk of serious damage to electronic components:

- ◆ *Observe the correct procedure for disconnecting the battery.*

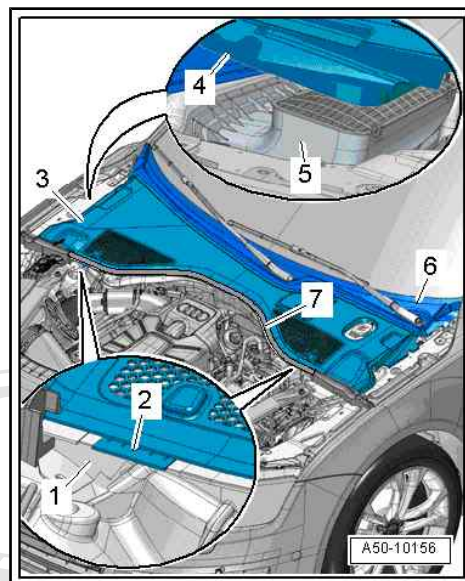


- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove noise insulation -1- and -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove front silencer(s) ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Removing and installing front silencer .

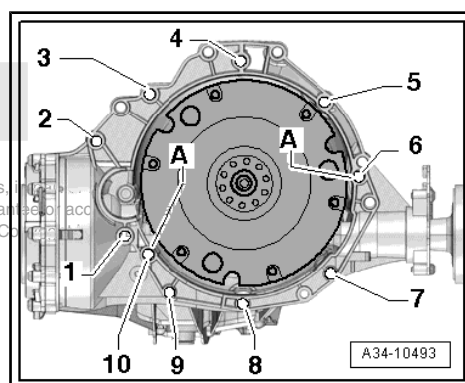


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- Remove plenum chamber cover -3- ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .
- Remove body brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Suspension strut, upper links; Removing and installing body brace .
- Detach vacuum line connection leading to brake servo at plenum chamber partition panel and remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - bulkhead .

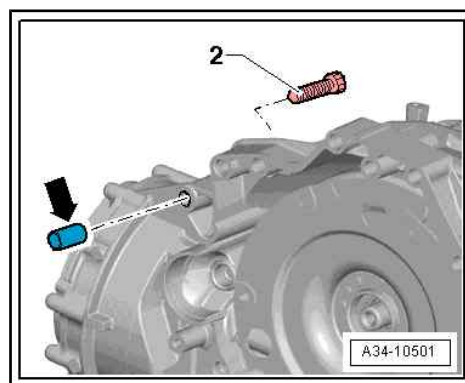


- Remove bolts -2 ... 5- securing gearbox to engine (accessible from above).



Note

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

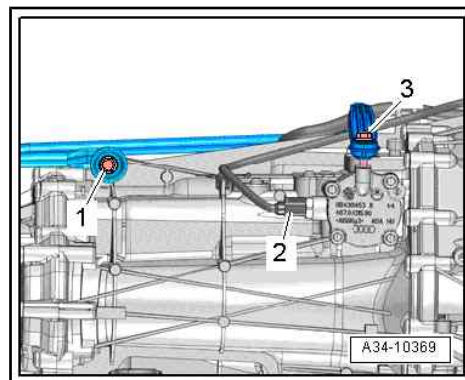


- Working from plenum chamber cover, remove bolt -3- for connecting rod.

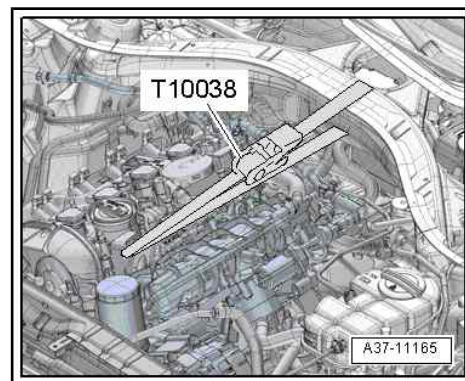


Note

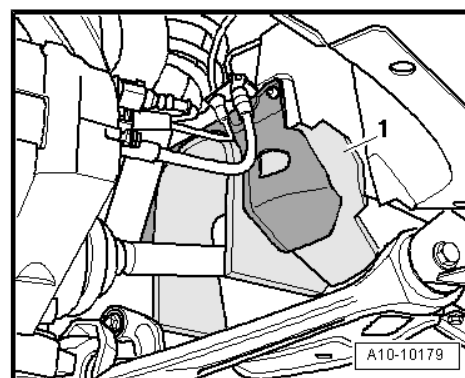
-Items 1 and 2- can be disregarded.



- Fit body brace in installation position and screw in bolts hand-tight.
- Secure engine with tensioning strap - T10038- as shown in illustration.
- Remove front wheels ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .



- Remove noise insulation - 1- from wheel housing (both sides)
⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .

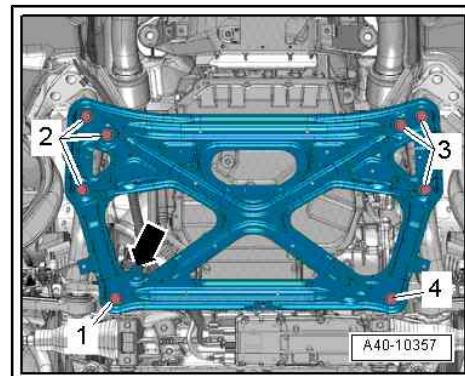


Caution

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 cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .

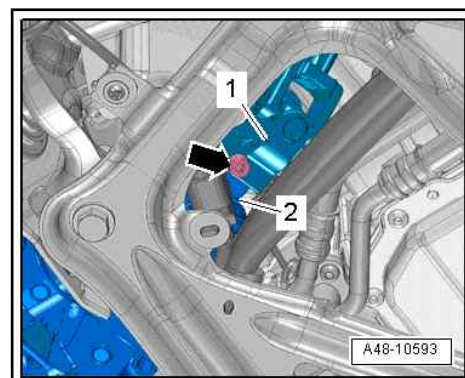


Caution

Risk of damage to coil connector for airbag.

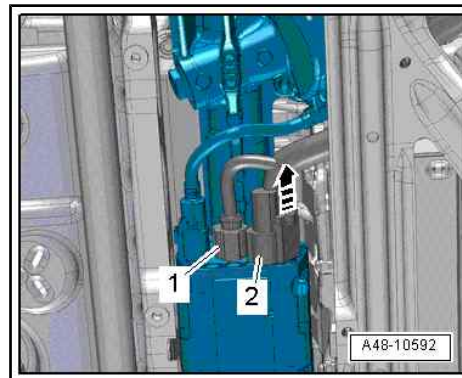
◆ **Front wheels must be in straight-ahead position when universal joint is detached from steering rack.**

◆ **Do not change position of steering wheel or steering rack after this step (if necessary, fix steering wheel in position with adhesive tape).**

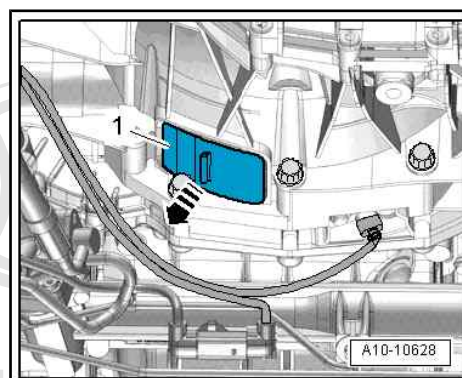


- Detach intermediate steering shaft from steering rack and telescope splines upwards ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing intermediate steering shaft .

- Unplug electrical connector -1- on power steering control unit - J500- .
- Unplug electrical connector -2- from power steering control unit - J500- (to do this, push retainer towards rear -arrow- and press down release catch).



- Pull cover -1- off bottom of gearbox -arrow-.



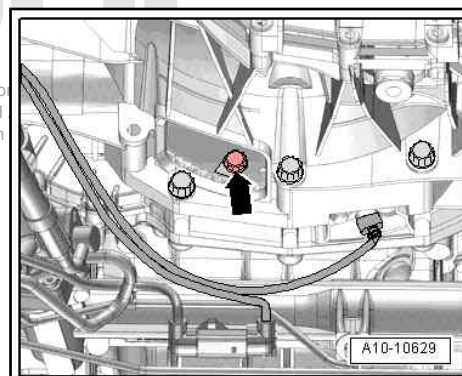
- Remove 3 bolts -arrow- securing clutch module to drive plate (turn crankshaft 120° in direction of engine rotation each time).



Note

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If necessary, counterhold crankshaft with angled ring spanner in order to slacken bolts for drive plate.



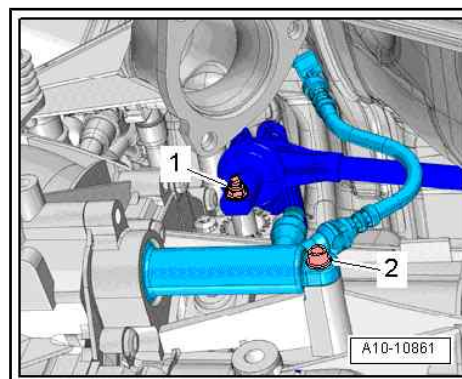
- Move clear hydraulic line for clutch slave cylinder at gearbox.
- Remove bolt -2- and tie up clutch slave cylinder to side in engine compartment.



Caution

Risk of damage to clutch slave cylinder.

◆ **Do not depress clutch pedal after removing slave cylinder.**



- Detach pipe/hose assembly for clutch slave cylinder from bracket on gearbox.
- Remove nut -1-.



Caution

Risk of damage to selector shaft in gearbox.

- ◆ *Do not prise off or knock off the gearbox selector lever -1- with a lever or hammer.*

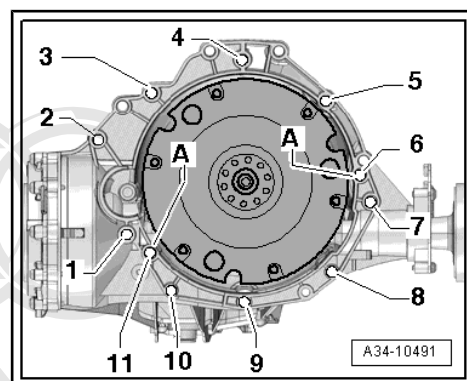
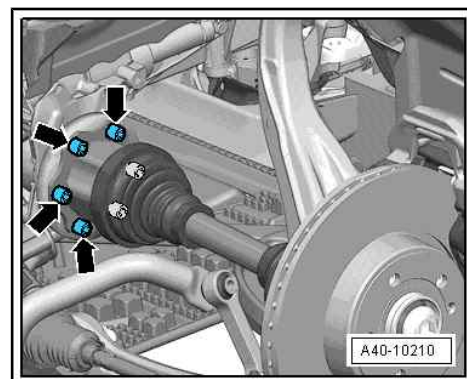
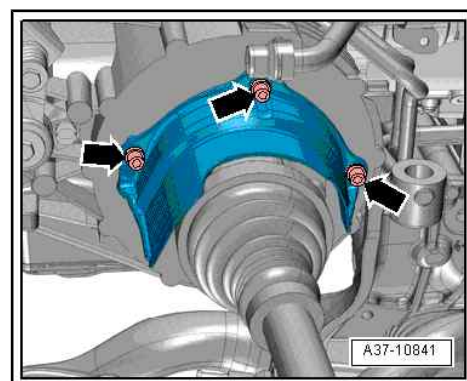
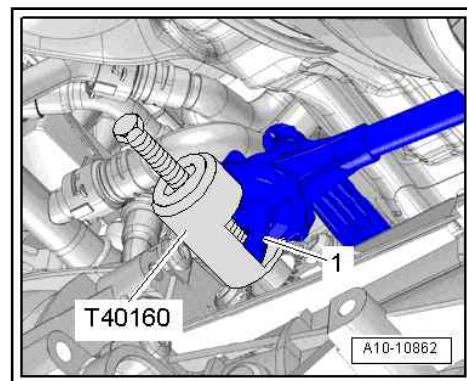
- Apply puller - T40160- and pull off gearbox selector lever.
- Remove bolts -arrows- and detach heat shield for drive shaft (right-side).



Note

The installation position is shown with the gearbox removed.

- Unbolt drive shafts (left and right) from flange shafts of gearbox ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .
- Remove engine/gearbox securing bolts -7 ... 10-.

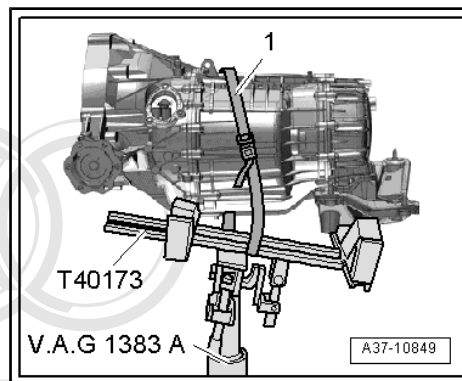


- Position engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- underneath gearbox and secure with tensioning strap -1- as shown in illustration.



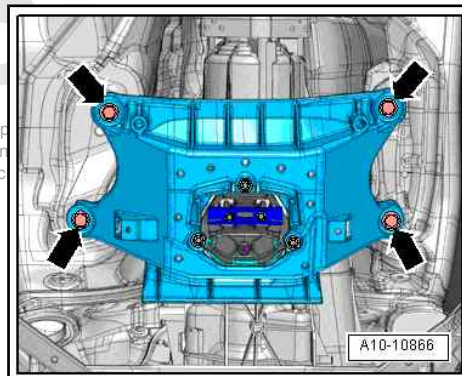
Note

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



- Remove bolts -arrows- for tunnel cross member.

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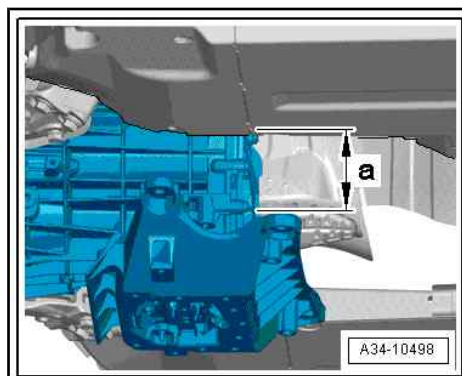


- Lower gearbox initially only by dimension -a- using engine and gearbox jack - V.A.G 1383 A- .
- Dimension -a- = 80 mm (maximum)
- Tighten tensioning strap - T10038- slightly.



Note

Use stepladder - VAS 5085- for access to tensioning strap while vehicle is raised.



- Remove bolt -2- for push rod.

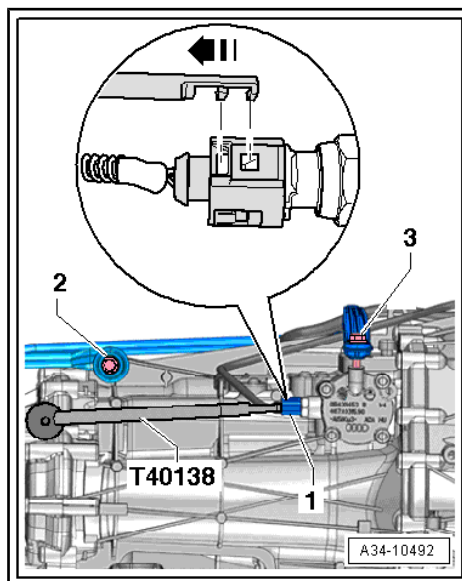


Note

Bolt -3- was removed at an earlier stage.

Vehicles up to model year 2012

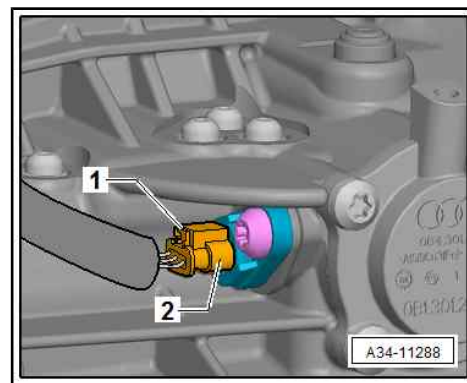
- Disconnect electrical connector -1- for gear detector switch - F208- using release tool -T40138- and move electrical wiring clear.



Vehicles with gear detection sensor - G604- from model year 2013 onwards

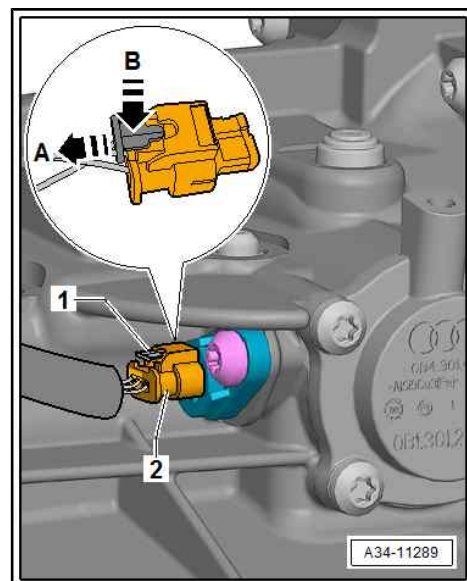
Different connectors for gear detection sensor - G604- ! Unplug electrical connector as follows:

- Push catch -1- downwards, unplug connector -2- and move electrical wiring clear.



or

- Use screwdriver to pry out catch -1- approx. 3 mm in direction of -arrow A-.
- Push catch -1- downwards in direction of -arrow B-, unplug connector -2- and move electrical wiring clear.



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Continued for all vehicles

- Remove bolt -1- for starter from engine side.
- Detach starter from gearbox but do not remove starter.



Note

Starter cables do not need to be disconnected.

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



Note

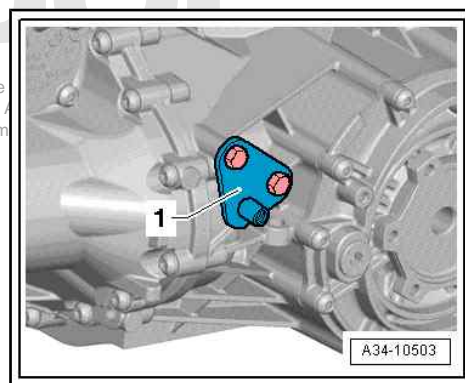
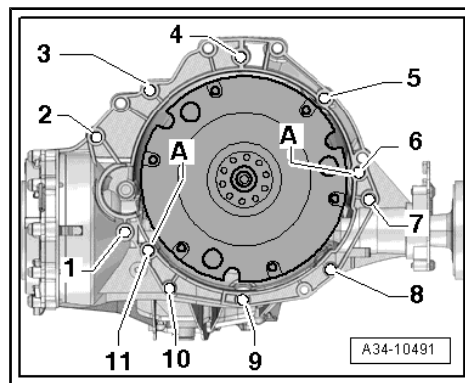
Bolt -11- is fitted from the engine side.

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

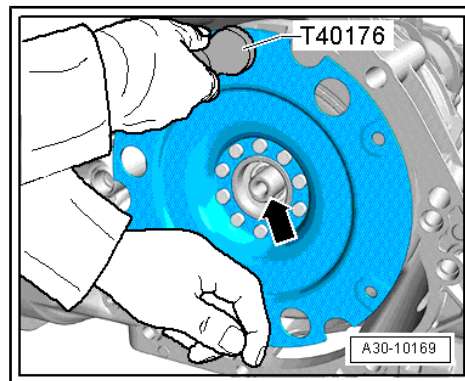


Note

- ◆ When lowering gearbox, make sure that all wires are disconnected on the top of the gearbox.
- ◆ When lowering gearbox, make sure there is sufficient clearance from drive shafts.
- If the removed gearbox is being replaced, the following components must be transferred to the replacement gearbox:
- ◆ Tunnel cross member with gearbox mounting and gearbox support ➔ [page 120](#)



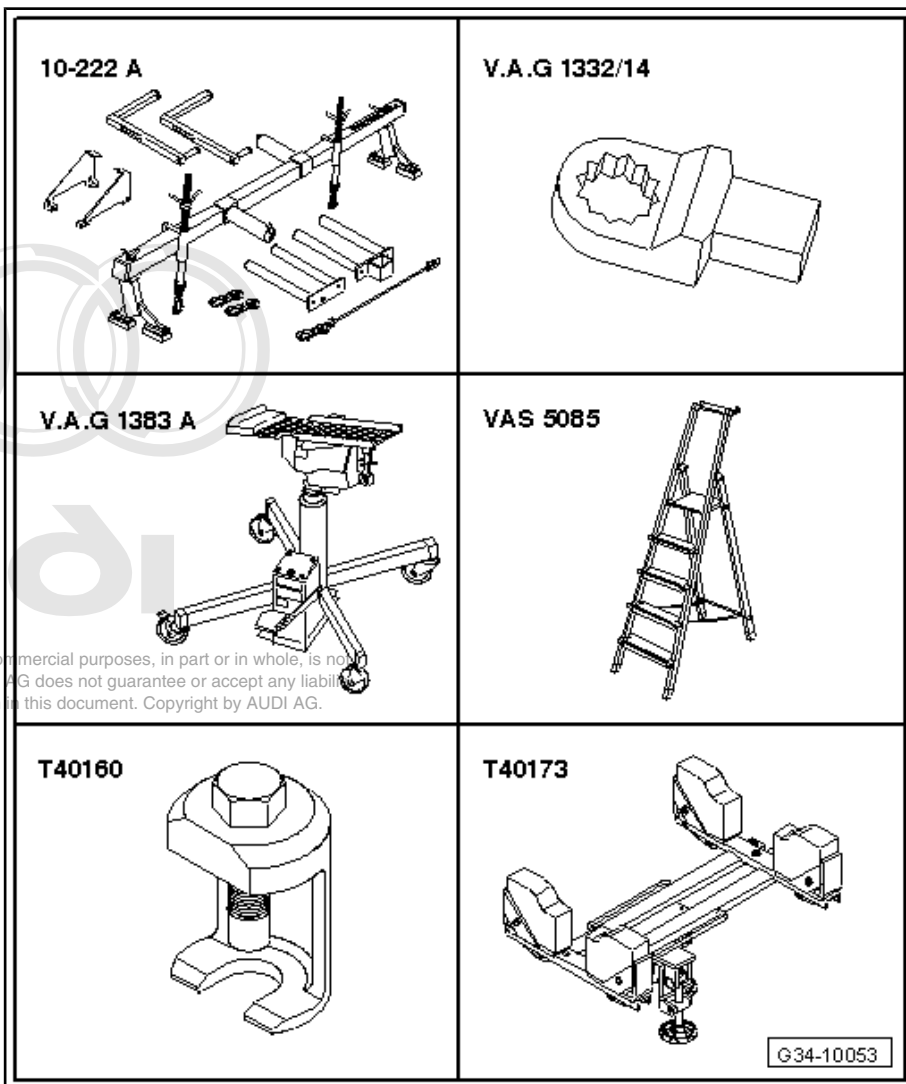
- ◆ Remove clutch module if necessary ➔ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 30 ; Removing and installing clutch module .



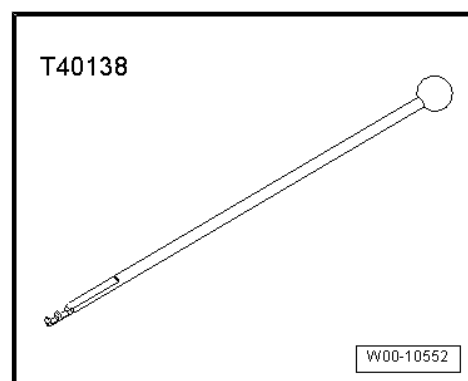
2.1.2 Removing gearbox - vehicles with 4-cylinder TDI engine

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 - VAS 5085-
- ◆ Puller - T40160-
- ◆ Gearbox support - T40173-



- ◆ Release tool - T40138-



Removing

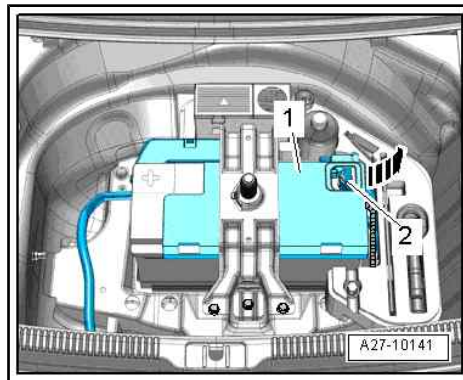
- Bring front wheels into straight-ahead position.
- Switch off ignition and take out ignition key.



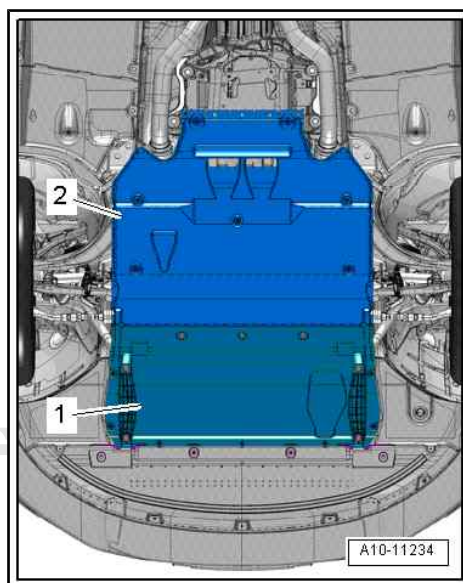
Caution

When disconnecting the battery there is a risk of serious damage to electronic components:

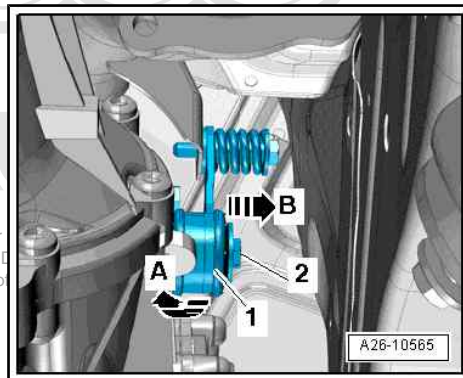
- ◆ *Observe the correct procedure for disconnecting the battery.*



- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove noise insulation -1- and -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove front exhaust pipe ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Removing and installing front silencer .

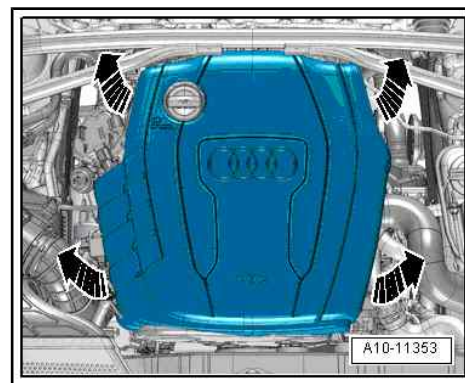


- Remove bolt -2- securing retaining bracket to gearbox.
- Push retaining bracket -1- in direction of -arrow B- and pivot to the rear -arrow A-.

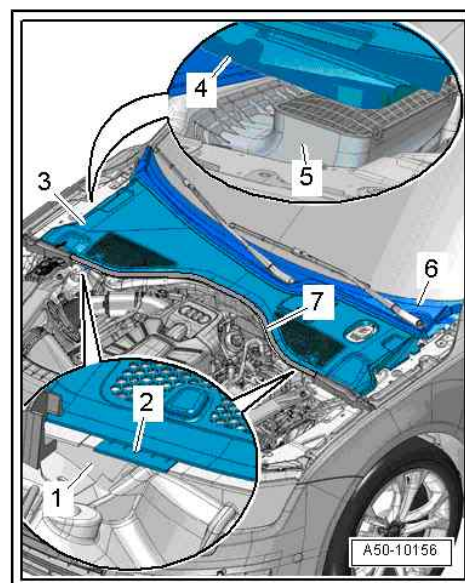


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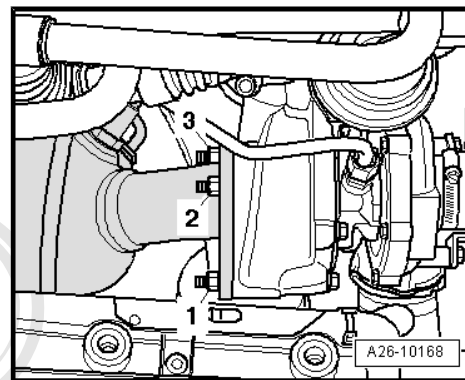
- Carefully detach engine cover panel from retaining studs in direction of -arrow-. Pull out engine cover panel evenly, without jerking.



- Remove plenum chamber cover -3- ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .
- Remove body brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Suspension strut, upper links; Removing and installing body brace .
- Detach vacuum line connection leading to brake servo at plenum chamber partition panel and remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - bulkhead .



- Unscrew nuts -1 ... 3- securing particulate filter to turbocharger.
- Detach particulate filter from studs on turbocharger and place to one side.

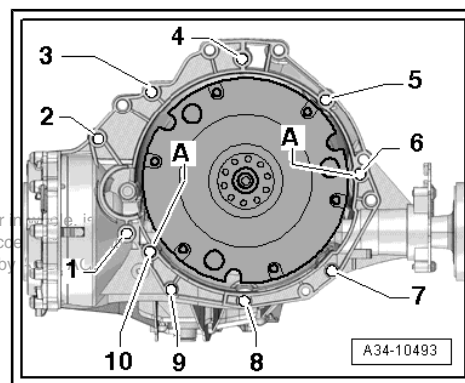


- Remove bolts -2 ... 5- securing gearbox to engine (accessible from above).



Note

- ◆ Bolts -3- and -5- also secure brackets for pipes and/or wiring. Tie these brackets onto the engine.
- ◆ To loosen bolt -2-, push particulate filter slightly to the side.

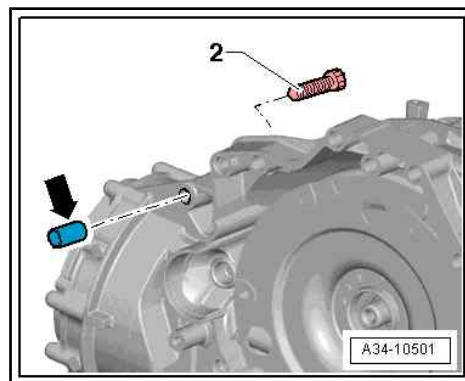




Note

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

- Slide particulate filter back onto studs on turbocharger and secure with one nut.

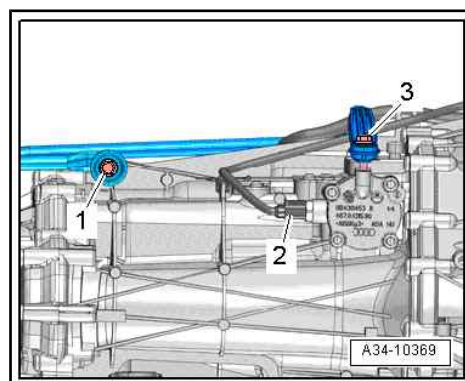


- Working from plenum chamber cover, remove bolt -3- for connecting rod.

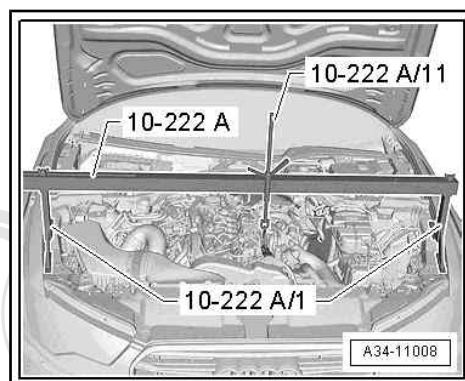


Note

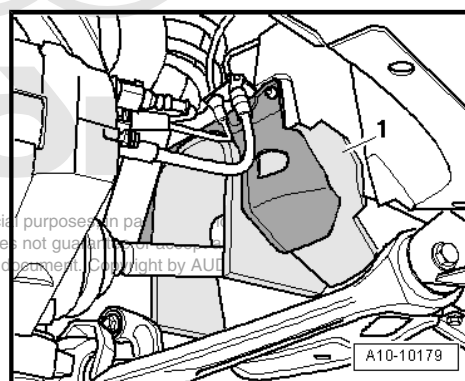
-Items 1 and 2- can be disregarded.



- If there are hoses and wire connections in the vicinity of the engine lifting eye for support bracket - 10 - 222 A- , remove these now.
- Attach support bracket - 10 - 222 A- with -10 - 222 A /1- as shown in illustration.
- Hook spindle -10 - 222 A /11- onto engine lifting eye (front left).
- Remove front wheels ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .



- Remove noise insulation -1- from wheel housing (both sides) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .



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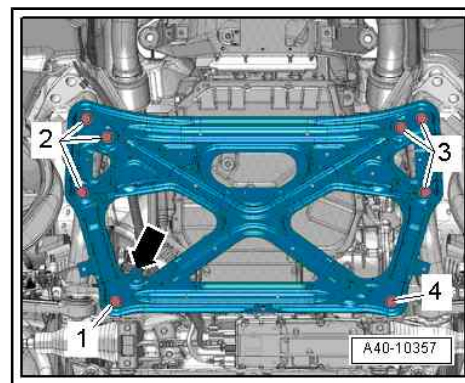
Caution

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 cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .

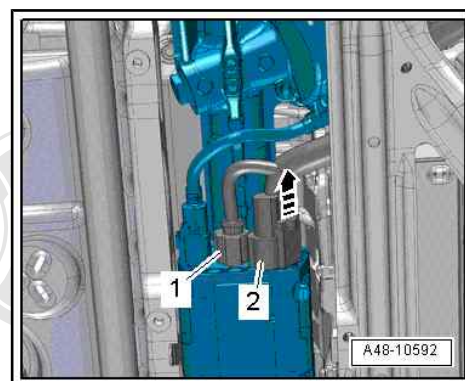
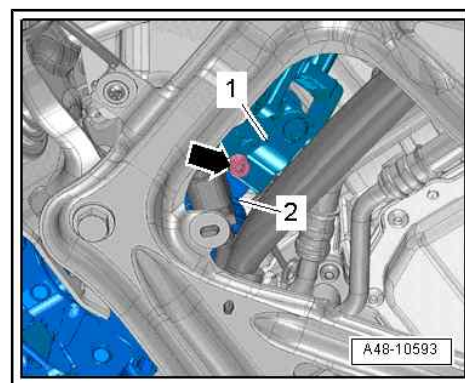


Caution

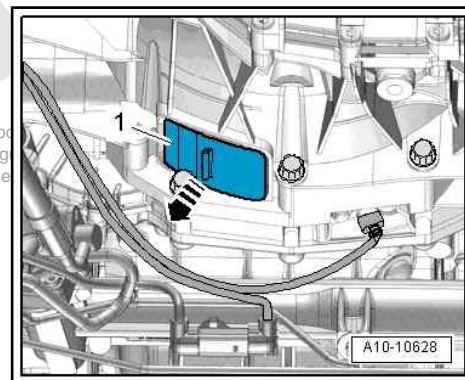
Risk of damage to coil connector for airbag.

- ◆ **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).**

- Detach intermediate steering shaft from steering rack and telescope splines upwards ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing intermediate steering shaft .
- Unplug electrical connector -1- on power steering control unit - J500- .
- Unplug electrical connector -2- from power steering control unit - J500- (to do this, push retainer towards rear -arrow- and press down release catch).



- Pull cover -1- off bottom of gearbox -arrow-.



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Vehicles with 3 bolts -arrow-

- Remove 3 bolts -arrow- securing clutch module to drive plate (turn crankshaft 120° in direction of engine rotation each time).

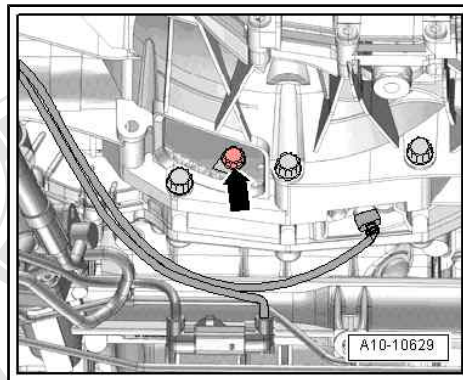
Vehicles with 6 bolts -arrow-

- Remove 6 bolts -arrow- securing clutch module to drive plate (rotate clutch module/drive plate 60° further each time by turning both front wheels).



Note

If necessary, counterhold crankshaft with angled ring spanner in order to slacken bolts for drive plate.



Continued for all vehicles

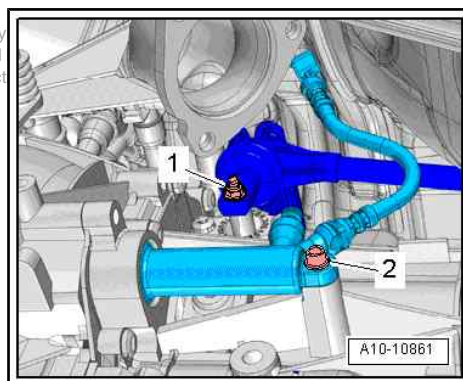
- Remove bolt -2- and tie up clutch slave cylinder to side in engine compartment.



Caution

Risk of damage to clutch slave cylinder.

- Do not depress clutch pedal after removing slave cylinder.



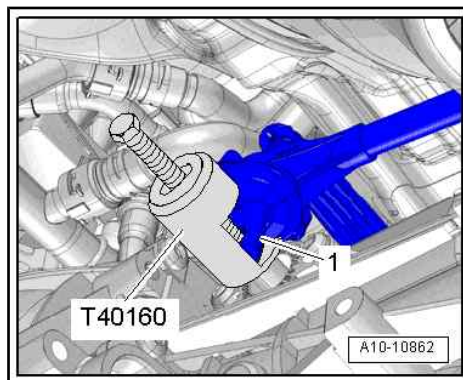
- Detach pipe/hose assembly for clutch slave cylinder from bracket on gearbox.
- Remove nut -1-.



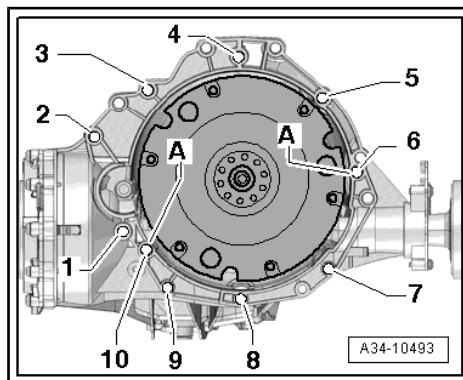
Caution

Risk of damage to selector shaft in gearbox.

- Do not prise off or knock off the gearbox selector lever -1- 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-.
- Remove engine/gearbox securing bolts -7 ... 9-.

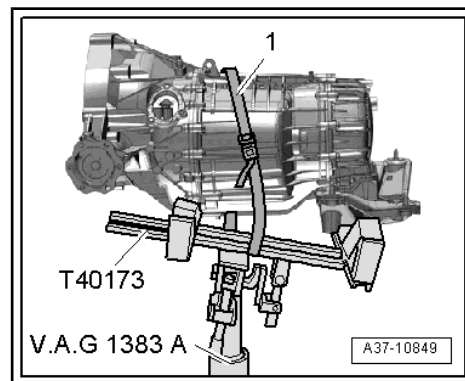


- Position engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- underneath gearbox and secure with tensioning strap -1- as shown in illustration.



Note

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

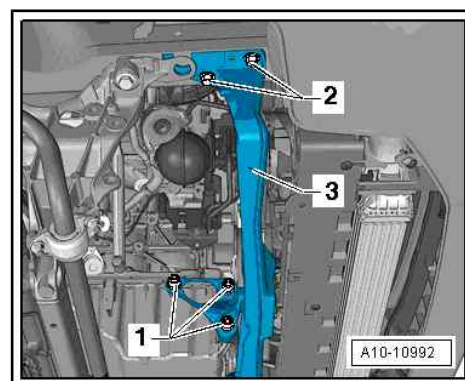


- Remove bolts -1- and detach torque reaction support from engine.



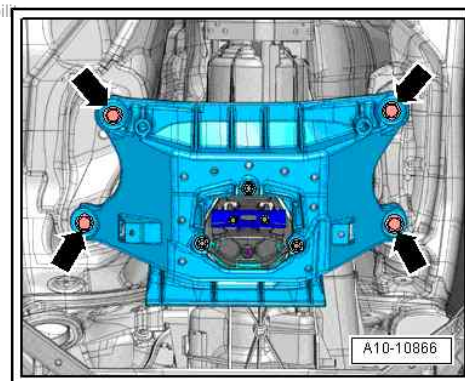
Note

Items marked -2- and -3- can be disregarded.



- Remove bolts -arrows- for tunnel cross member

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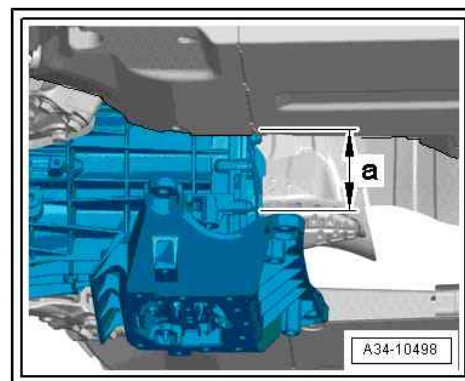


- Lower gearbox initially only by dimension -a- using engine and gearbox jack - V.A.G 1383 A- .
- Dimension -a- = 80 mm (maximum)
- Pre-tension threaded spindle on support bracket - 10 - 222 A- slightly.



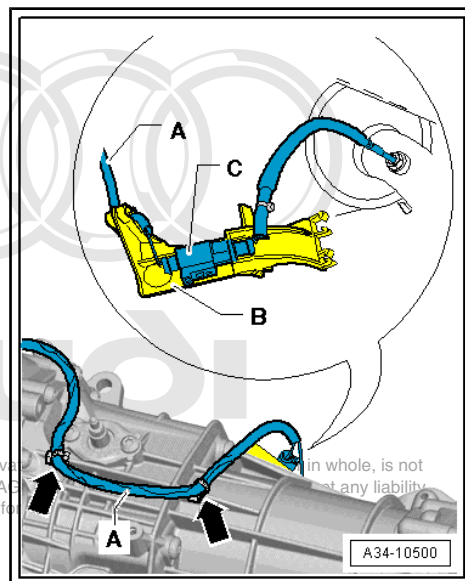
Note

Use stepladder - VAS 5085- for access to threaded spindle while vehicle is raised.



- Unclip electrical wire -A- from gearbox -arrows-.
- Unclip bracket -B- with electrical connector -C- for exhaust gas temperature sender 4 - G648- from gearbox and tie up.

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- Remove bolt -2- for push rod.

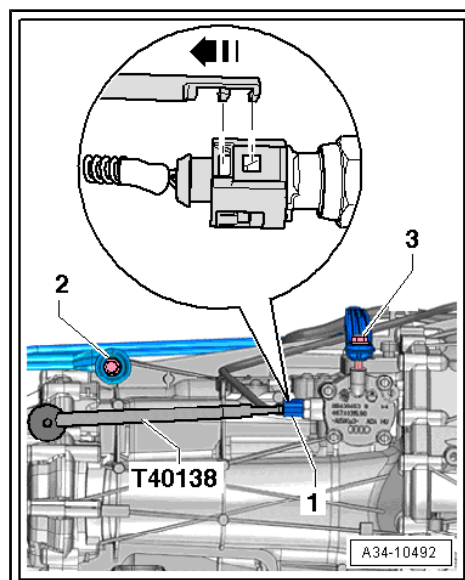


Note

Bolt -3- was removed at an earlier stage.

Vehicles up to model year 2012

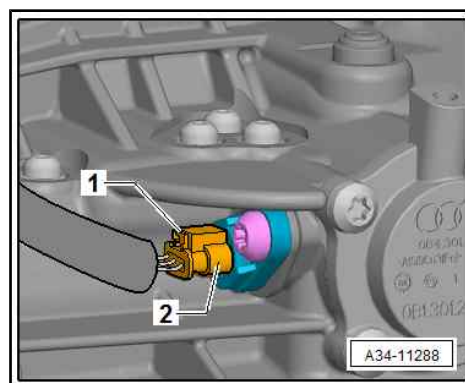
- Disconnect electrical connector -1- for gear detector switch - F208- using release tool -T40138- and move electrical wiring clear.



Vehicles with gear detection sensor - G604- from model year 2013 onwards

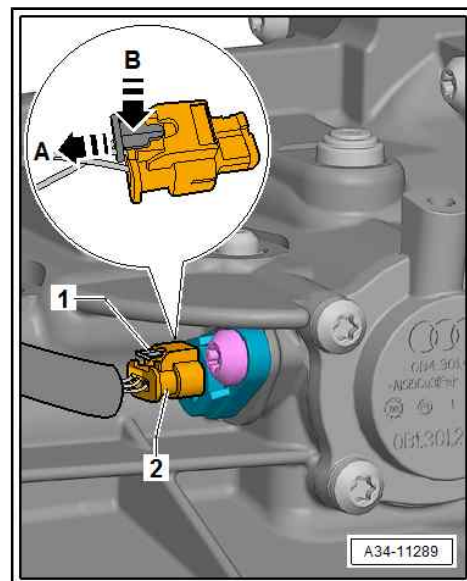
Different connectors for gear detection sensor - G604- ! Unplug electrical connector as follows:

- Push catch -1- downwards, unplug connector -2- and move electrical wiring clear.



or

- Use screwdriver to pry out catch -1- approx. 3 mm in direction of -arrow A-.
- Push catch -1- downwards in direction of -arrow B-, unplug connector -2- and move electrical wiring clear.



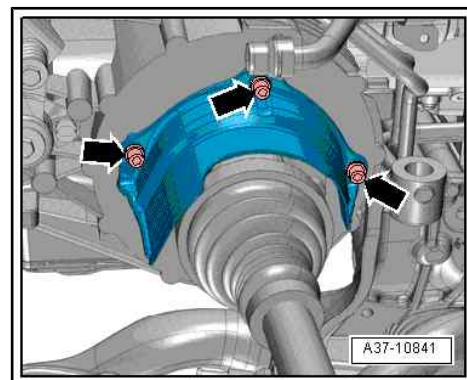
Continued for all vehicles

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

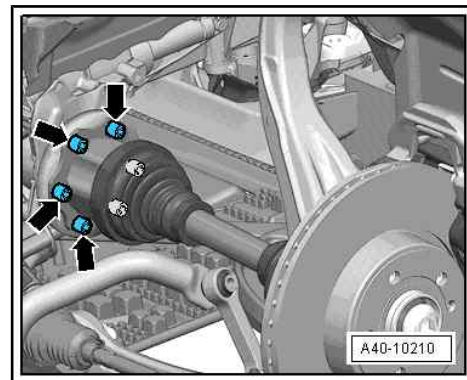


Note

The installation position is shown with the gearbox removed.



- Unbolt drive shafts (left and right) from flange shafts of gearbox ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .



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- Remove bolt -1- for starter from engine side.
- Detach starter from gearbox but do not remove starter.



Note

Starter cables do not need to be disconnected.

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



Note

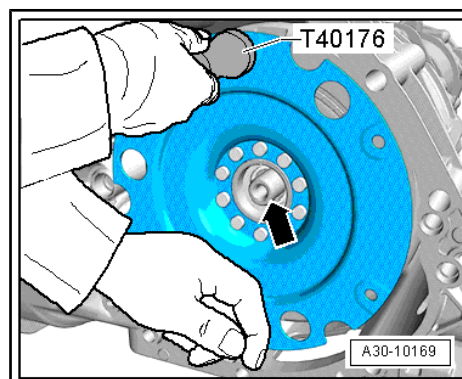
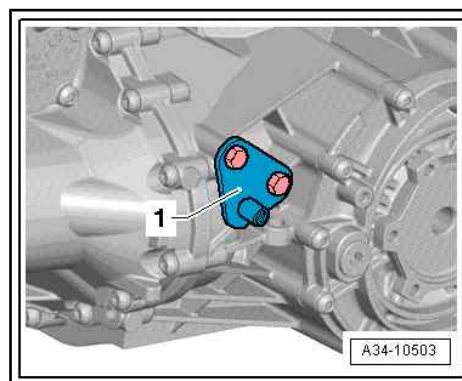
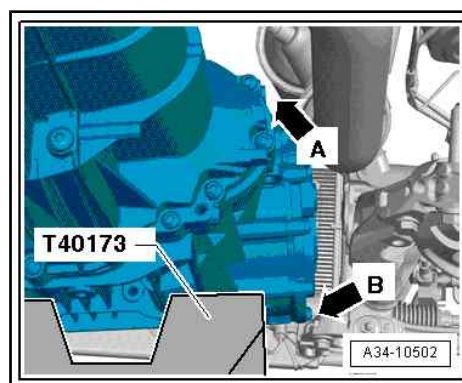
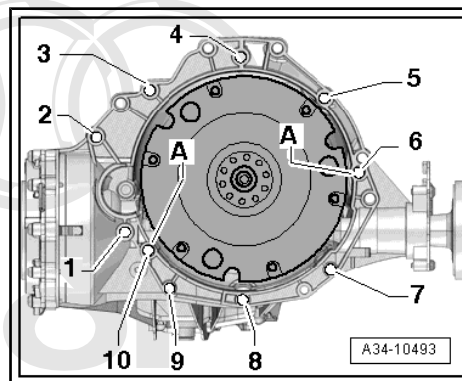
Bolt -10- is fitted from the engine side.

- Press gearbox off engine (approx. 20 mm).
- Using left-hand spindle of gearbox support - T40173- , tilt gearbox downwards towards the right and guide past diesel particulate filter -arrow A-. At the same time push gearbox slightly to the left.
- Then lower gearbox carefully, guiding gearbox housing past steering pinion/steering rack and cover for final drive past sub-frame -arrow B-.



Note

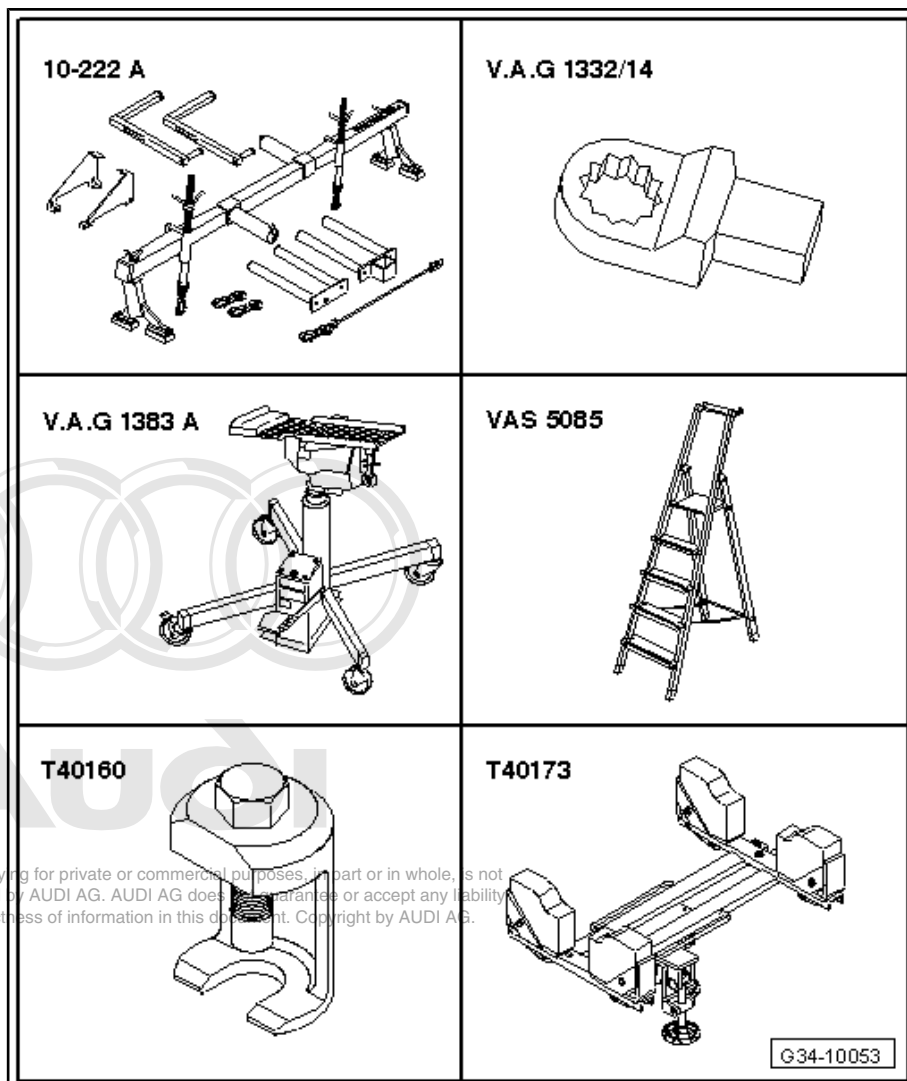
- ♦ *When lowering gearbox, make sure that all wires are disconnected on the top of the gearbox.*
- ♦ *When lowering gearbox, make sure there is sufficient clearance from drive shafts.*
- If the removed gearbox is being replaced, the following components must be transferred to the replacement gearbox:
 - ♦ Bracket -1- for exhaust system mounting ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .
 - ♦ Tunnel cross member with gearbox mounting and gearbox support ⇒ [page 120](#)
- ♦ Remove clutch module if necessary ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 30 ; Removing and installing clutch module .



2.1.3 Removing gearbox - vehicles with 6-cylinder FSI engine

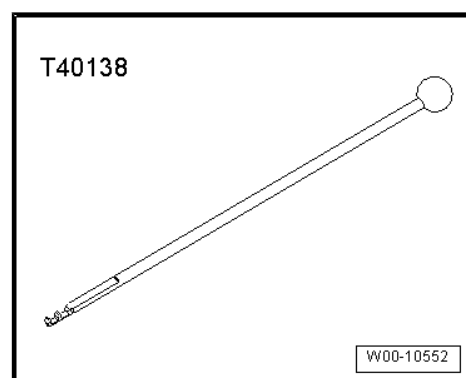
Special tools and workshop equipment required

- ◆ 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 - VAS 5085-
- ◆ Puller - T40160-
- ◆ Gearbox support - T40173-

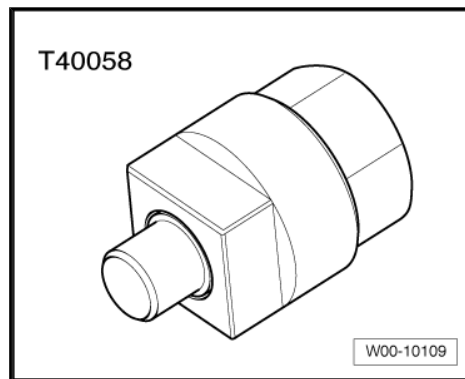


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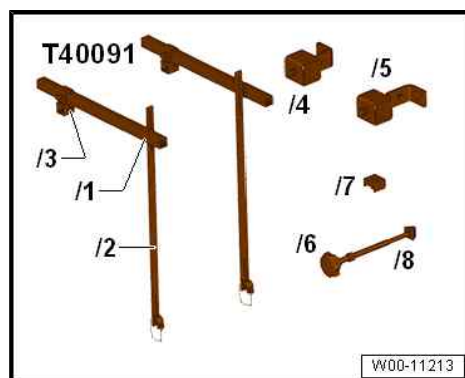
- ◆ Release tool - T40138-



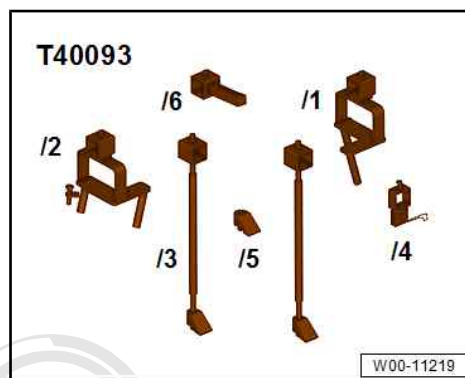
◆ Adapter - T40058-



◆ -T40091/3- from engine support basic set - T40091-



◆ -T40093/3- from engine support supplement set - T40093-



Removing

- Bring front wheels into straight-ahead position.
- Switch off ignition and take out ignition key.

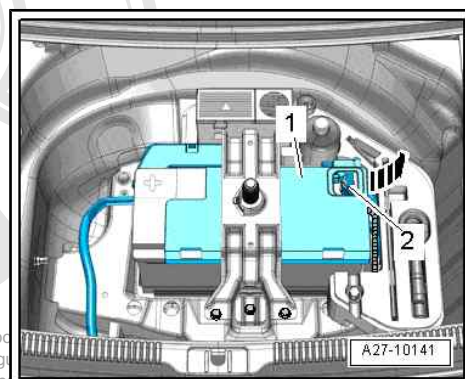


Caution

When disconnecting the battery there is a risk of serious damage to electronic components:

- ◆ **Observe the correct procedure for disconnecting the battery.**

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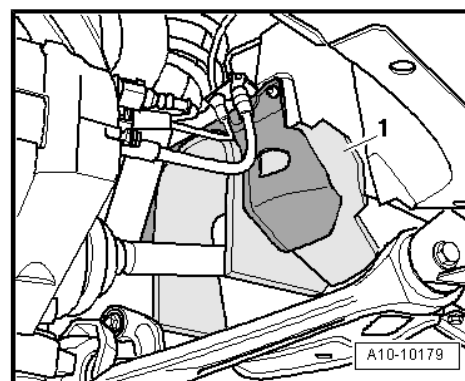
- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

- Remove engine cover panel (rear) -top arrows-.
- Remove front wheels ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .

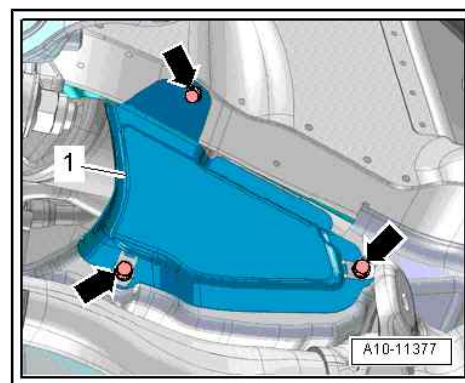


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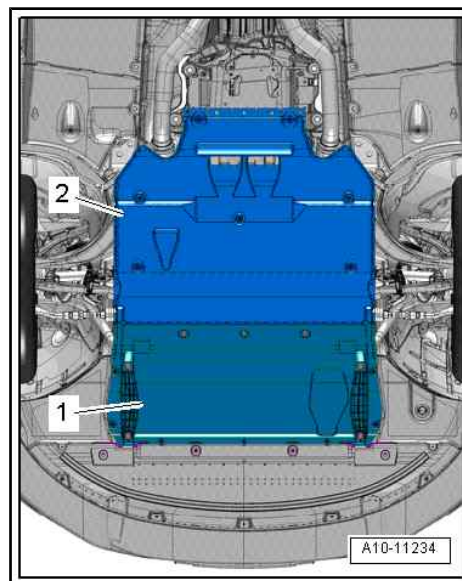
- Remove noise insulation -1- from wheel housing (both sides)
⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .



- Remove bolts (left and right) -arrows- and detach heat shield -1-.



- Remove noise insulation -1- and -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove front silencers (left and right) ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Removing and installing front silencer .
- Remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .

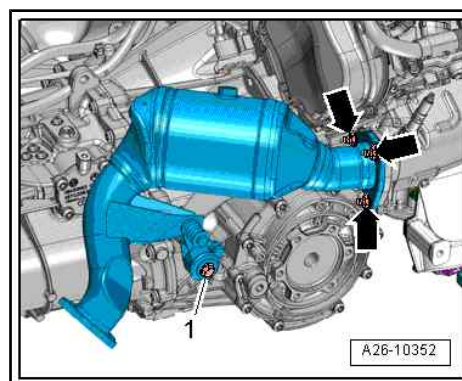


- Remove nuts -arrows- and bolt -1- and press catalytic converter to right side.



Note

For illustration purposes, the installation position is shown with the engine removed.

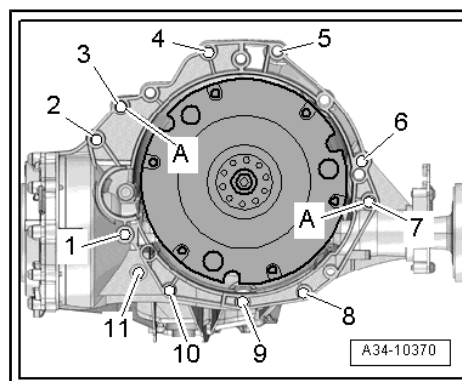


- Remove bolts -2 ... 6- securing gearbox to engine (accessible from above).



Note

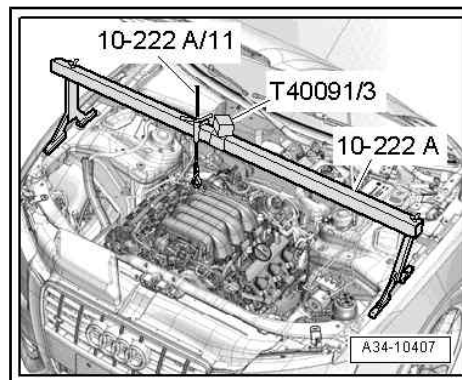
Item -A- can be disregarded.



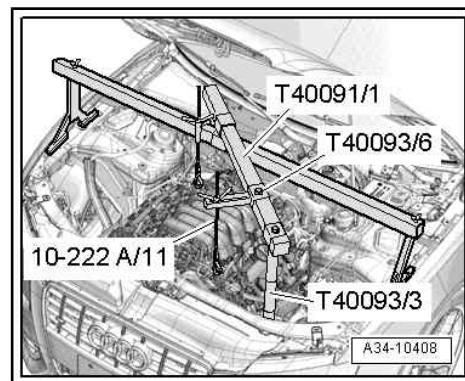
- Set up support bracket - 10 - 222 A- with connecting piece - T40091/3- on suspension turrets (left and right), as shown in illustration.

- Hook spindle - 10 - 222 A /11- onto engine lifting eye (right-side).

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- Attach remaining parts of support bracket - 10 - 222 A- as shown in illustration. Set up support -T40093/3- on metal flange of longitudinal member.
- Hook spindle - 10 - 222 A /11- onto engine lifting eye (front left).

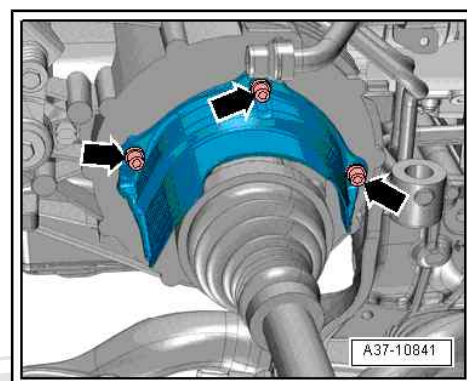


- Remove bolts -arrows- and detach heat shield for drive shaft (right-side).



Note

The installation position is shown with the gearbox removed.

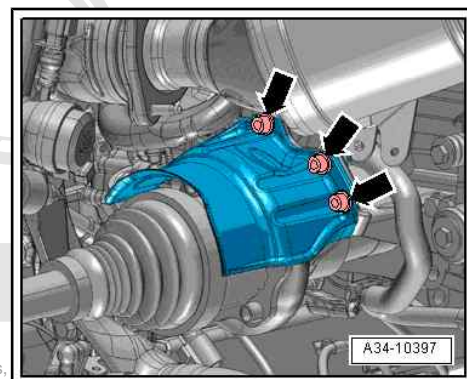


- Remove bolts -arrows- and detach heat shield for drive shaft (left-side).

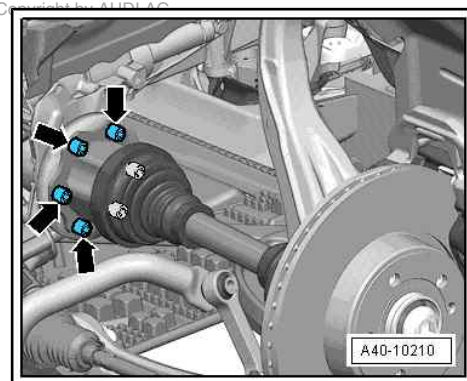


Note

The installation position is shown with the gearbox removed.



- Unbolt drive shafts (left and right) from flange shafts of gearbox ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .



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- Remove bolt -2- and tie up clutch slave cylinder to side in engine compartment.

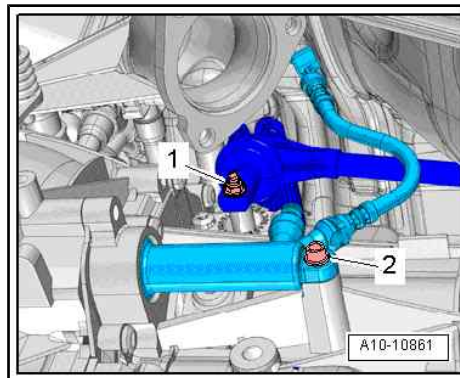


Caution

Risk of damage to clutch slave cylinder.

- ◆ *Do not depress clutch pedal after removing slave cylinder.*

- Remove nut -1-.

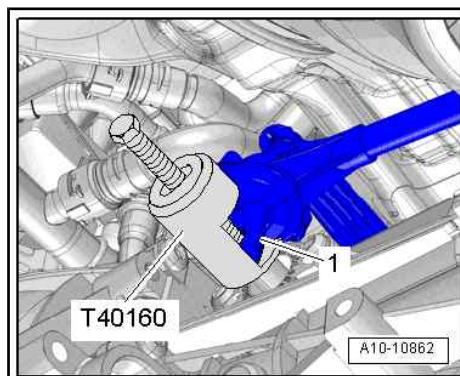


Caution

Risk of damage to selector shaft in gearbox.

- ◆ *Do not prise off or knock off the gearbox selector lever -1- 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-.

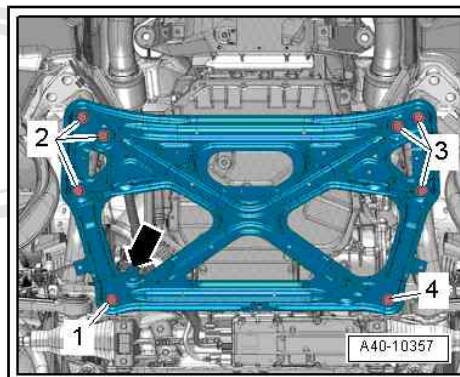


Caution

Risk of damage to parts of the running gear.

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

- Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .



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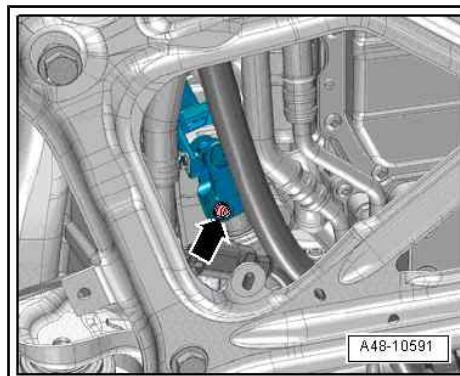


Caution

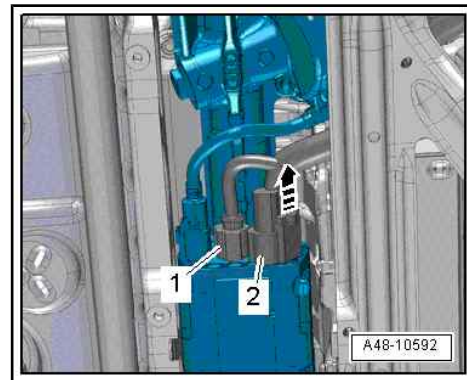
Risk of damage to coil connector for airbag.

- ◆ *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).*

- Detach intermediate steering shaft from steering rack and telescope splines upwards ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing intermediate steering shaft .



- Unplug electrical connector -1- on power steering control unit - J500- .
- Unplug electrical connector -2- from power steering control unit - J500- (to do this, push retainer towards rear -arrow- and press down release catch).

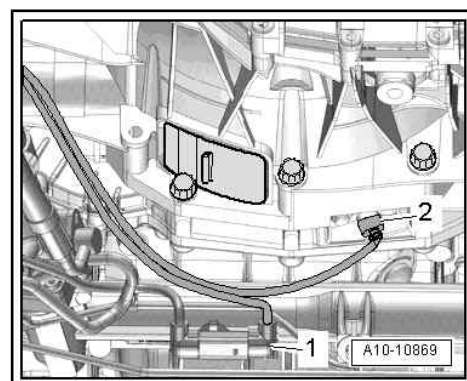


- Unplug electrical connector -2- for engine speed sender - G28- and move wiring clear.

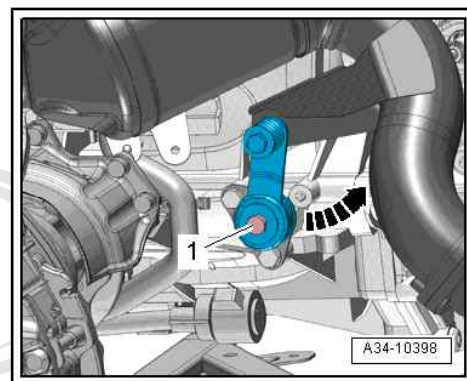


Note

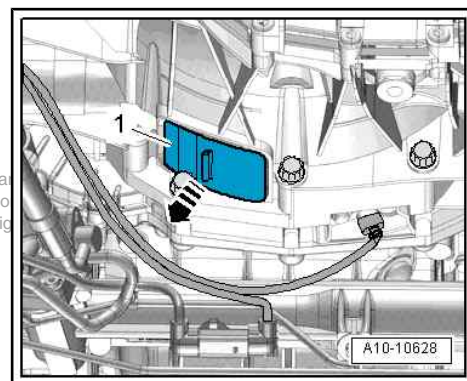
-Item 1- can be disregarded.



- Remove bolt -1-, press retainer off gearbox and swivel back towards rear -arrow-.

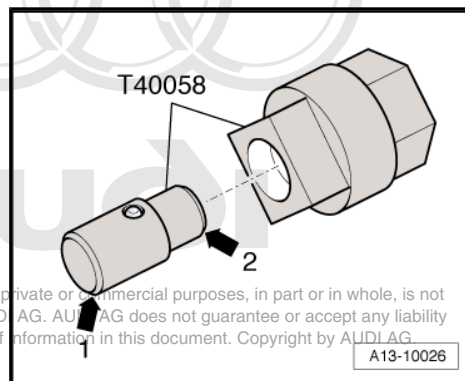


- Pull cover -1- off bottom of gearbox -arrow-.



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- Insert guide stud of adapter -T40058- as follows:
- The larger diameter -arrow 1- faces engine.
- The smaller diameter -arrow 2- faces adapter.

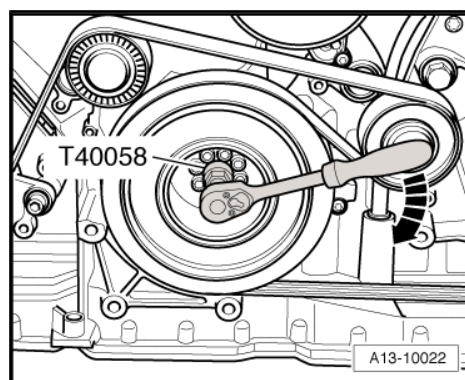


- To slacken bolts for drive plate, counterhold crankshaft with adapter - T40058- .

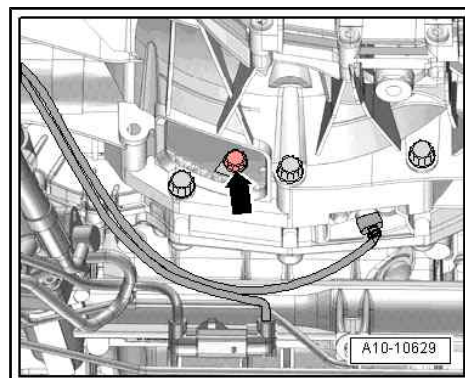


Note

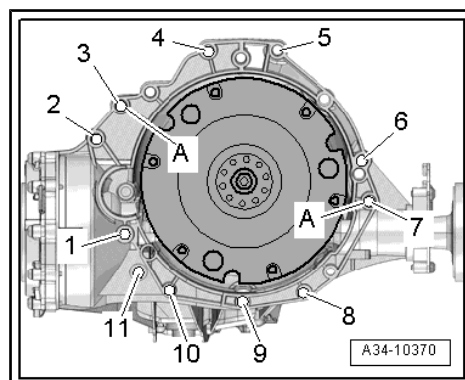
When you then turn the crankshaft, only turn crankshaft in direction of engine rotation -arrow-.



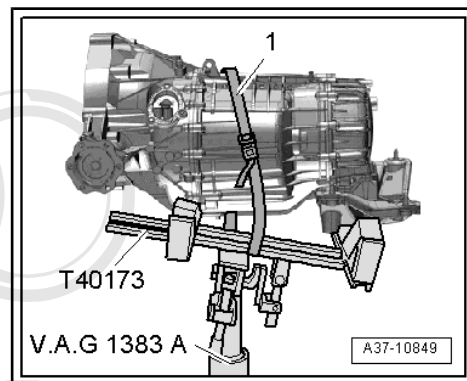
- Remove 6 bolts -arrow- for drive plate (turn crankshaft 60° in direction of engine rotation each time).



- Remove bolt -1- for starter.
- Detach starter from gearbox but do not remove starter.
- Remove remaining engine/gearbox securing bolts -7 ... 11-.

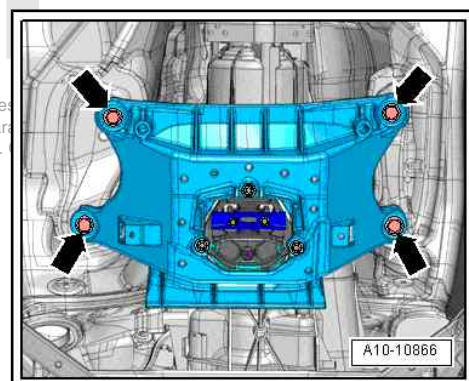


- Position engine and gearbox jack - V.A.G 1383 A- with gear-box support - T40173- underneath gearbox and secure with tensioning strap -1- as shown in illustration.

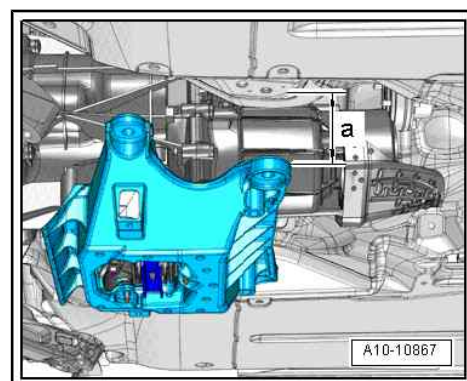


- Remove bolts -arrows- for tunnel cross member.

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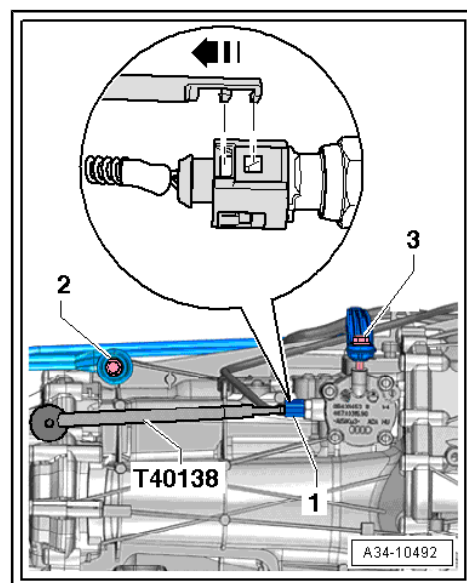
- Lower gearbox initially only by dimension -a- using engine and gearbox jack - V.A.G 1383 A- .
- Dimension -a- = 100 mm (maximum)
- Pre-tension threaded spindles on support bracket - 10 - 222 A- slightly.



- Remove bolt -2- for push rod.
- Remove bolt -3- for connecting rod.

Vehicles up to model year 2012

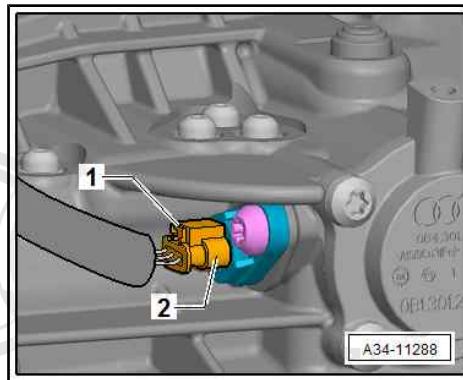
- Disconnect electrical connector -1- for gear detector switch - F208- using release tool -T40138- and move electrical wiring clear.



Vehicles with gear detection sensor - G604- from model year 2013 onwards

Different connectors for gear detection sensor - G604- ! Unplug electrical connector as follows:

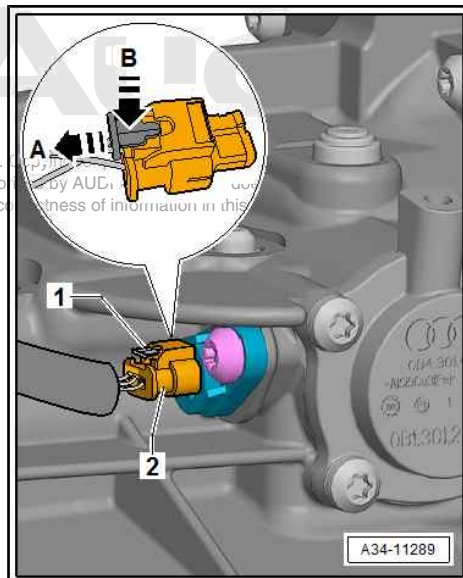
- Push catch -1- downwards, unplug connector -2- and move electrical wiring clear.



or

- Use screwdriver to pry out catch -1- approx. 3 mm in direction of -arrow A-.
- Push catch -1- downwards in direction of -arrow B-, unplug connector -2- and move electrical wiring clear.

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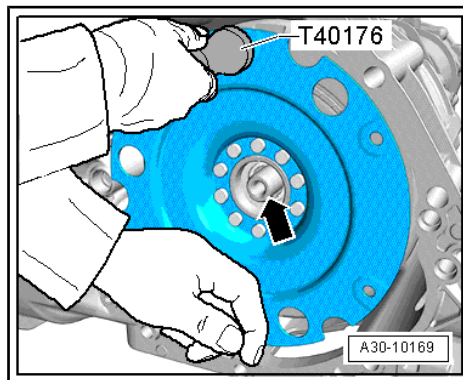
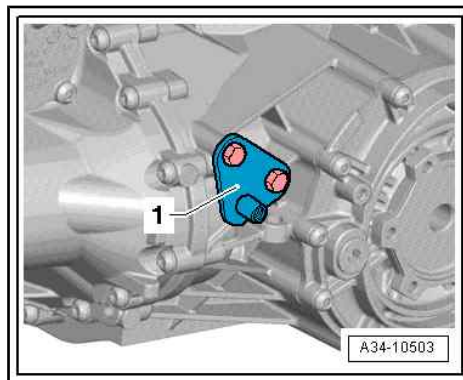
Continued for all vehicles

- Detach gearbox from engine and lower carefully using engine and gearbox jack - V.A.G 1383 A- .



Note

- ♦ When lowering gearbox, make sure that all wires are disconnected on the top of the gearbox.
- ♦ When lowering gearbox, make sure there is sufficient clearance from drive shafts.
- If the removed gearbox is being replaced, the following components must be transferred to the replacement gearbox:
 - ♦ Bracket -1- for exhaust system mounting ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .
 - ♦ Tunnel cross member with gearbox mounting and gearbox support ⇒ [page 120](#)
- ♦ Remove clutch module if necessary ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 30 ; Removing and installing clutch module .
- Installing gearbox ⇒ [page 110](#)

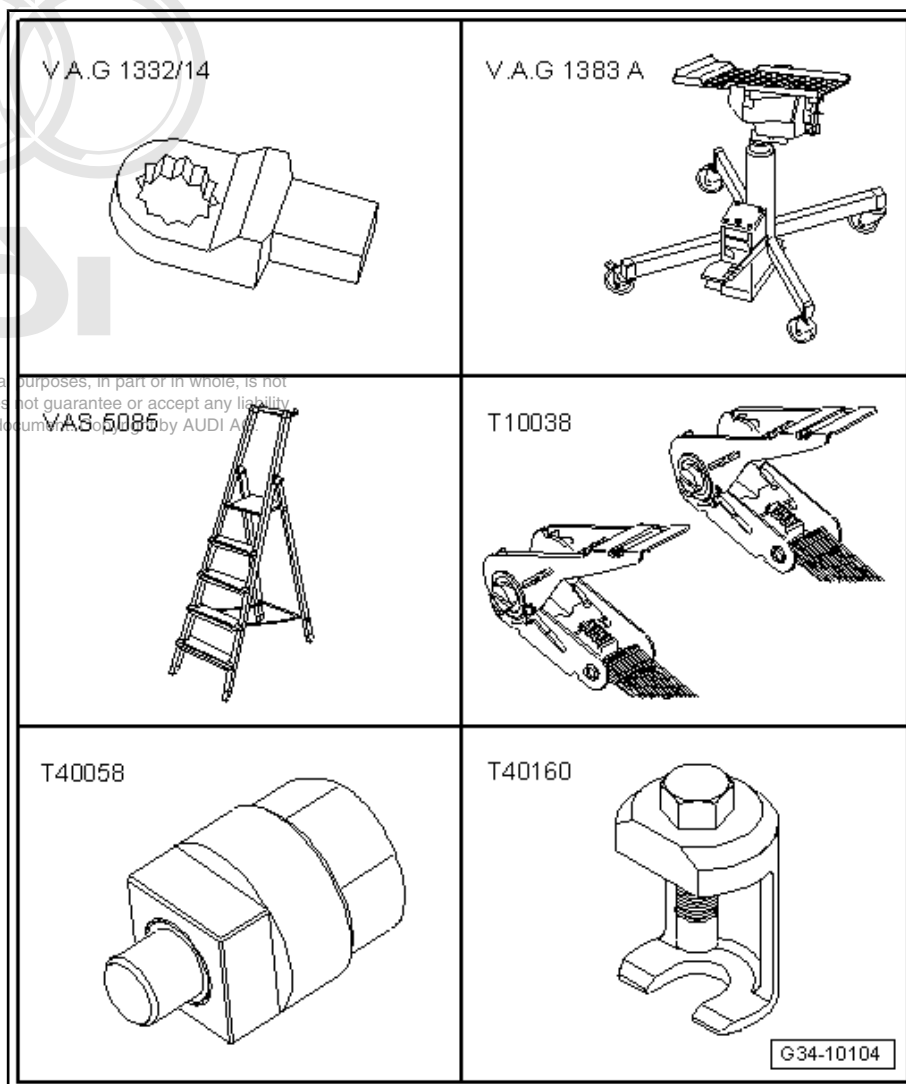


2.1.4 Removing gearbox - vehicles with 6-cylinder TDI engine

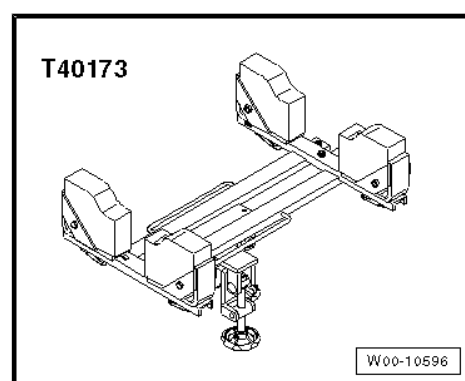
Special tools and workshop equipment required

- ◆ Ring spanner insert, 16 mm - V.A.G 1332/14-
- ◆ Engine and gearbox jack - V.A.G 1383 A-
- ◆ Stepladder - VAS 5085-
- ◆ Tensioning strap - T10038-
- ◆ Adapter - T40058-
- ◆ Puller - T40160-

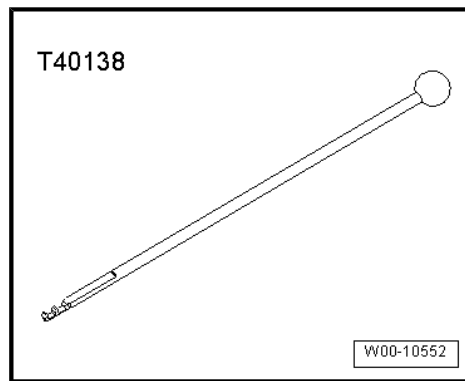
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- ◆ Gearbox support - T40173-



◆ Release tool - T40138-



Removing

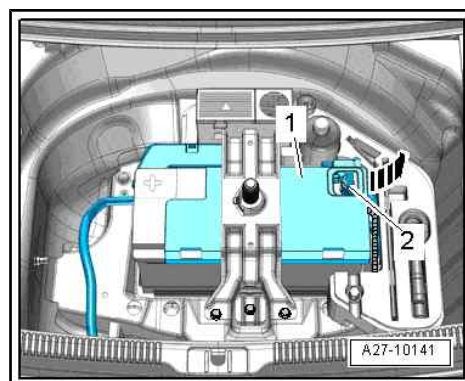
- Bring front wheels into straight-ahead position.
- Switch off ignition and take out ignition key.



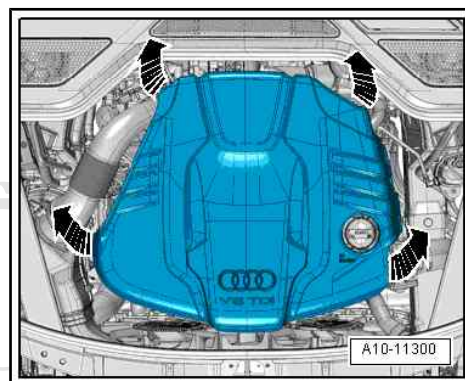
Caution

When disconnecting the battery there is a risk of serious damage to electronic components:

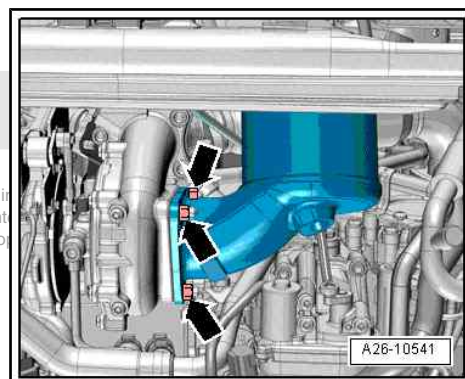
- ◆ *Observe the correct procedure for disconnecting the battery.*



- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Carefully detach engine cover panel from retaining studs in direction of -arrow-. Pull out engine cover panel evenly, without jerking.



- Remove particulate filter and front exhaust pipe ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .



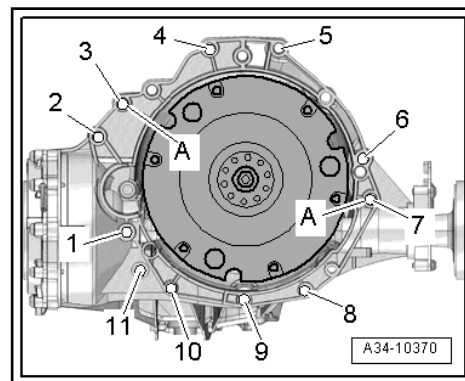
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- Remove bolts -2 ... 5- securing gearbox to engine (accessible from above).



Note

Item -A- can be disregarded.

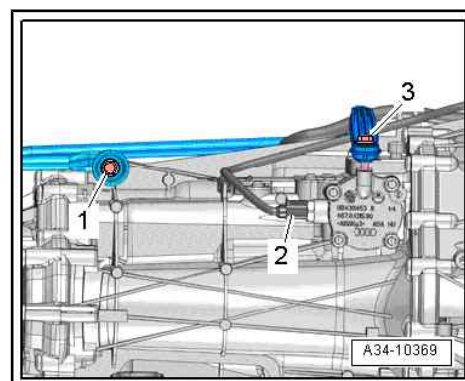


- Working from plenum chamber cover, remove bolt -3- for connecting rod.



Note

-Items 1 and 2- can be disregarded.



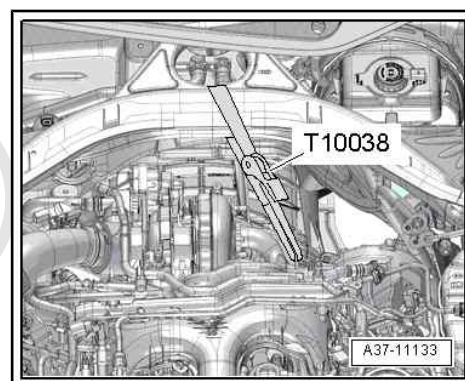
- Fit body brace in installation position and screw in bolts hand-tight.



Note

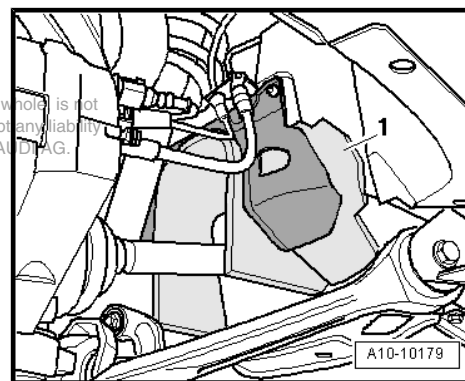
Tensioning strap - T10038- can be disregarded. This will be required later.

- Remove front wheels ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .

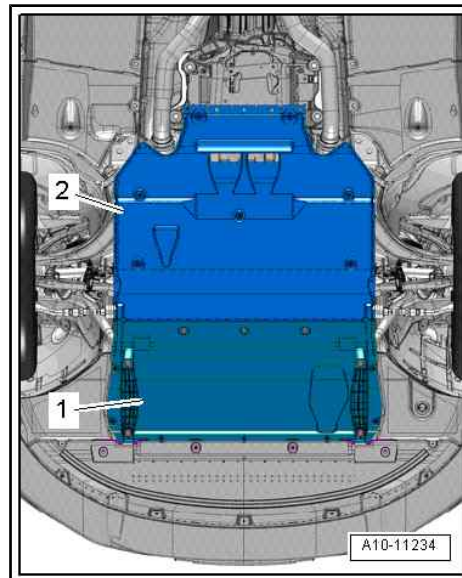


- Remove noise insulation -1- from wheel housing (both sides) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .

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- Remove noise insulation -1- and -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

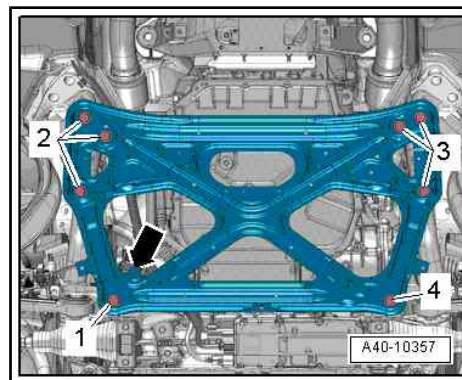


Caution

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 cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .

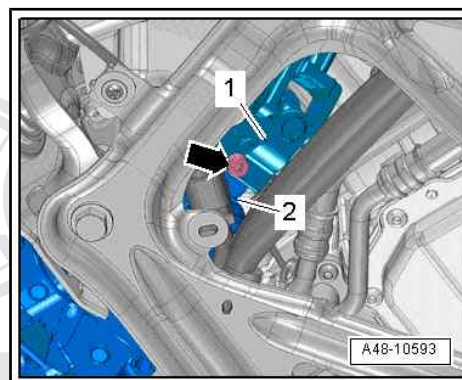


Caution

Risk of damage to coil connector for airbag.

◆ **Front wheels must be in straight-ahead position when universal joint is detached from steering rack.**

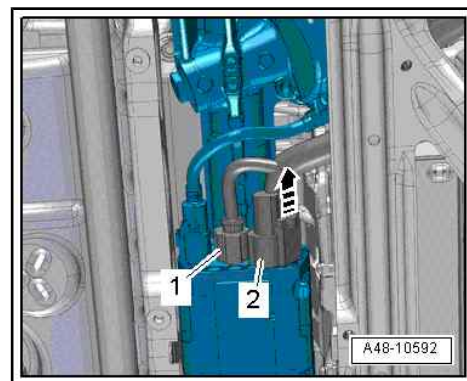
◆ **Do not change position of steering wheel or steering rack after this step (if necessary, fix steering wheel in position with adhesive tape).**



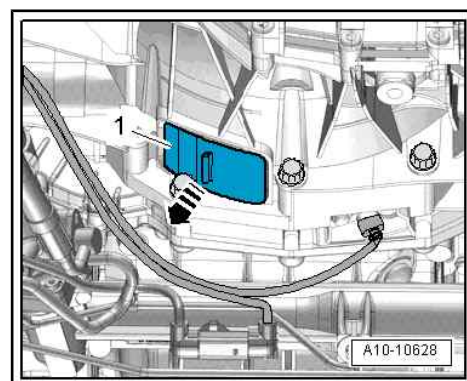
- Detach intermediate steering shaft from steering rack and telescope splines upwards ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing intermediate steering shaft .

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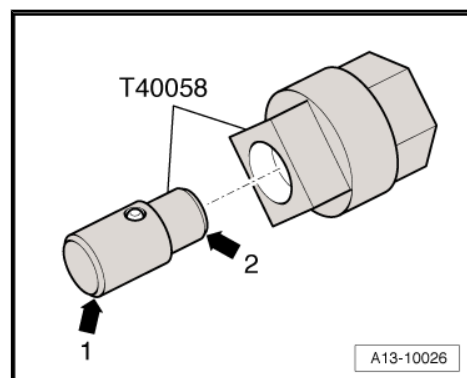
- Unplug electrical connector -1- on power steering control unit - J500- .
- Unplug electrical connector -2- from power steering control unit - J500- (to do this, push retainer towards rear -arrow- and press down release catch).



- Pull cover -1- off bottom of gearbox -arrow-.



- Insert guide stud of adapter -T40058- as follows:
 - The larger diameter -arrow 1- faces engine.
 - The smaller diameter -arrow 2- faces adapter.

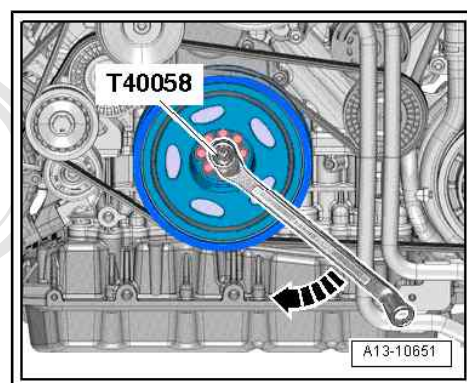


- To slacken bolts for drive plate, counterhold crankshaft with adapter - T40058- and angled ring spanner.



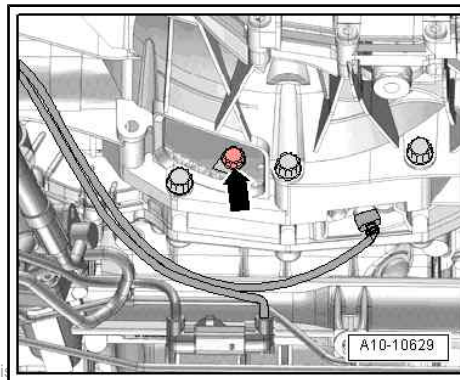
Note

When you then turn the crankshaft, only turn crankshaft in direction of engine rotation -arrow-.



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- Remove 6 bolts -arrow- securing clutch module to drive plate (turn crankshaft 60° in direction of engine rotation each time).



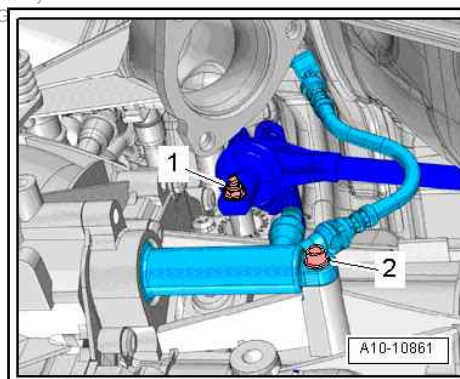
- Remove bolt -2- and tie up clutch slave cylinder to side in engine compartment.



Caution

Risk of damage to clutch slave cylinder.

- ◆ **Do not depress clutch pedal after removing slave cylinder.**



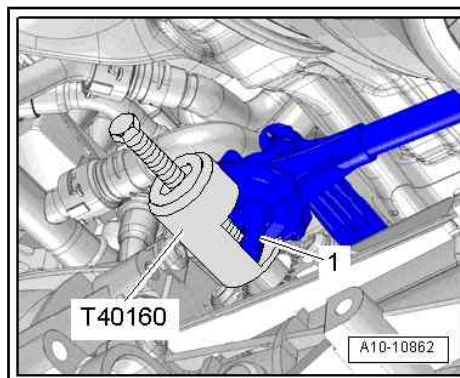
- Detach pipe/hose assembly for clutch slave cylinder from bracket on gearbox.
- Remove nut -1-.



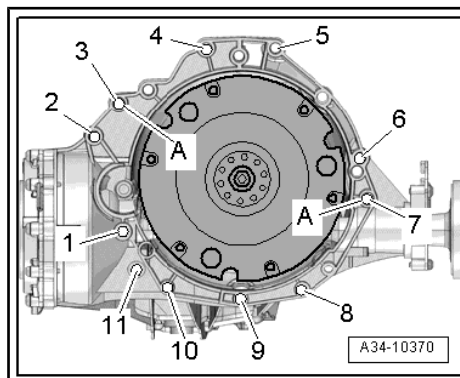
Caution

Risk of damage to selector shaft in gearbox.

- ◆ **Do not prise off or knock off the gearbox selector lever -1- 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-.
- Remove engine/gearbox securing bolts -7 ... 10-.

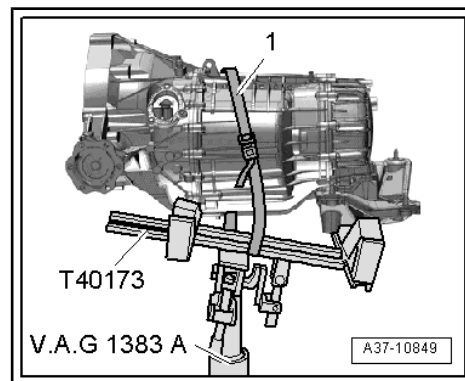


- Position engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- underneath gearbox and secure with tensioning strap -1- as shown in illustration.

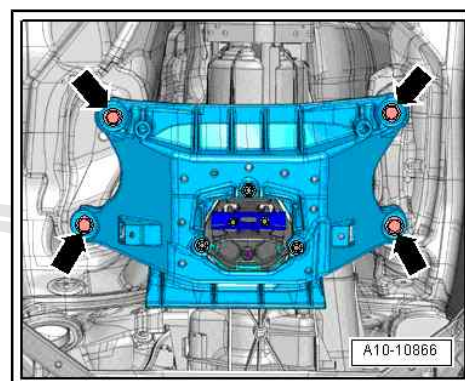


Note

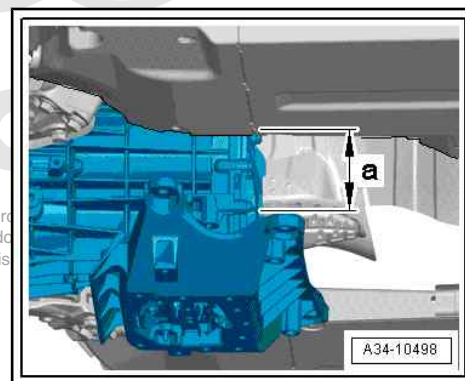
Make sure no electrical wiring is trapped when attaching tensioning strap.



- Remove bolts -arrows- for tunnel cross member.



- Lower gearbox initially only by dimension -a- using engine and gearbox jack - V.A.G 1383 A- .
- Dimension -a- = 80 mm (maximum)

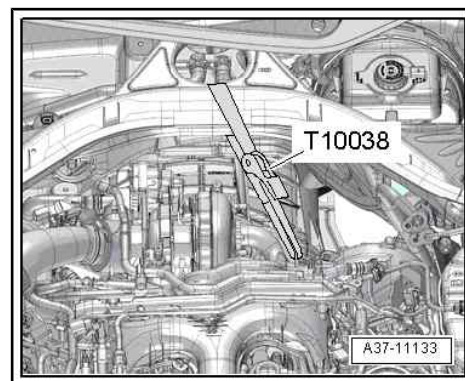


- Support engine in this position with tensioning strap - T10038- .



Note

Use stepladder - VAS 5085- for access to tensioning strap while vehicle is raised.



- Remove bolt -2- for push rod.

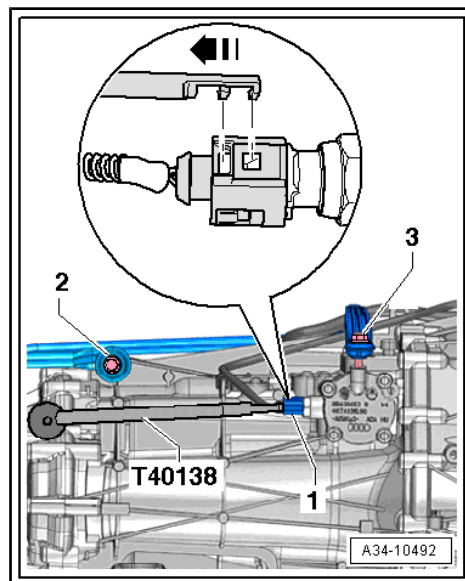


Note

Bolt -3- was removed at an earlier stage.

Vehicles up to model year 2012

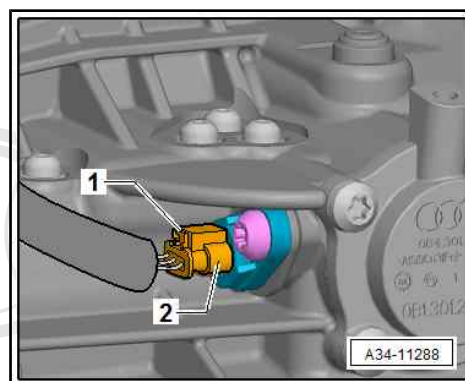
- Disconnect electrical connector -1- for gear detector switch - F208- using release tool -T40138- and move electrical wiring clear.



Vehicles with gear detection sensor - G604- from model year 2013 onwards

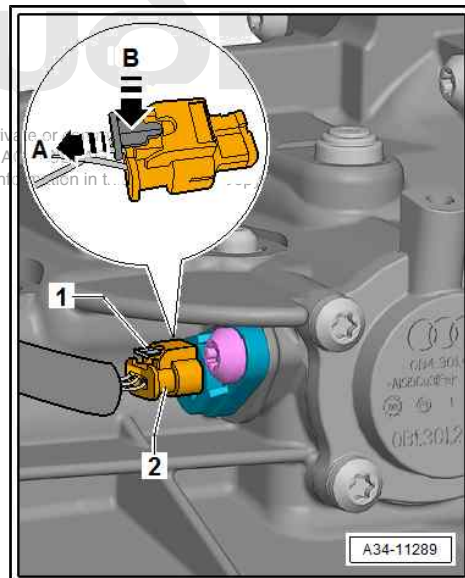
Different connectors for gear detection sensor - G604- ! Unplug electrical connector as follows:

- Push catch -1- downwards, unplug connector -2- and move electrical wiring clear.



or

- Use screwdriver to pry out catch -1- approx. 3 mm in direction of -arrow A-.
- Push catch -1- downwards in direction of -arrow B-, unplug connector -2- and move electrical wiring clear.



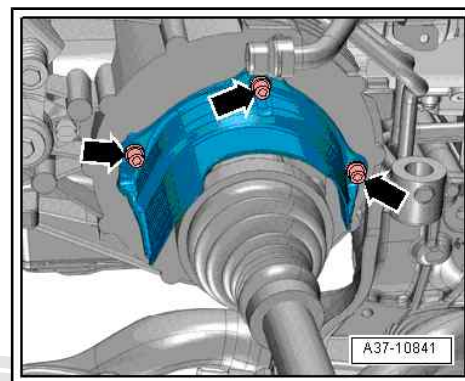
Continued for all vehicles

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

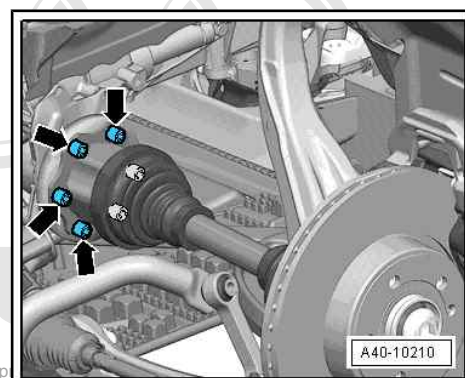


Note

The installation position is shown with the gearbox removed.



- Unbolt drive shafts (left and right) from flange shafts of gearbox ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .



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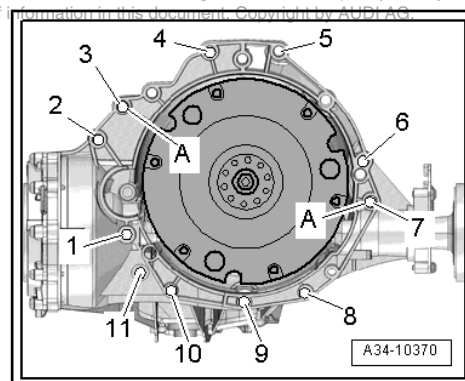
- Remove bolt -1- for starter from engine side.
- Detach starter from gearbox but do not remove starter.



Note

Starter cables do not need to be disconnected.

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



Note

Bolt -11- is fitted from the engine side.

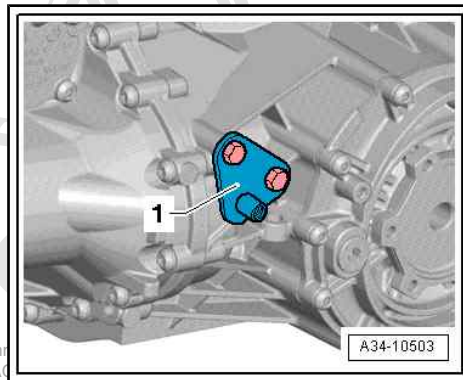
- Press gearbox off engine (approx. 20 mm).
- Then lower gearbox carefully, guiding gearbox housing past steering pinion/steering rack and cover for final drive past sub-frame.



Note

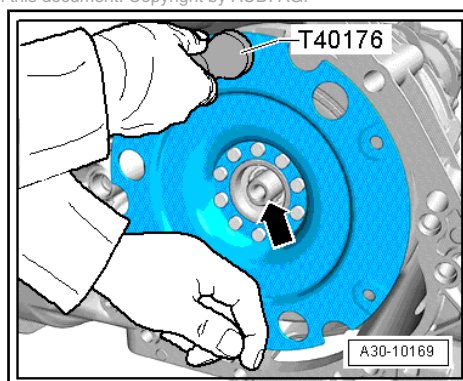
- ◆ *When lowering gearbox, make sure that all wires are disconnected on the top of the gearbox.*
- ◆ *When lowering gearbox, make sure there is sufficient clearance from drive shafts.*

- If the removed gearbox is being replaced, the following components must be transferred to the replacement gearbox:
- ◆ Bracket -1- for exhaust system mounting ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .
- ◆ Tunnel cross member with gearbox mounting and gearbox support ⇒ [page 120](#)



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- ◆ Remove clutch module if necessary ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 30 ; Removing and installing clutch module .
- Installing gearbox ⇒ [page 110](#)



2.2 Installing gearbox

⇒ [“2.2.1 Installing gearbox - vehicles with 4-cylinder TFSI engine”, page 96](#)

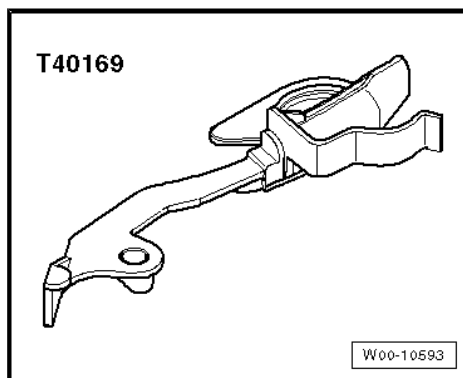
⇒ [“2.2.2 Installing gearbox - vehicles with 4-cylinder TDI engine”, page 103](#)

⇒ [“2.2.3 Installing gearbox - all vehicles with 6-cylinder engine”, page 110](#)

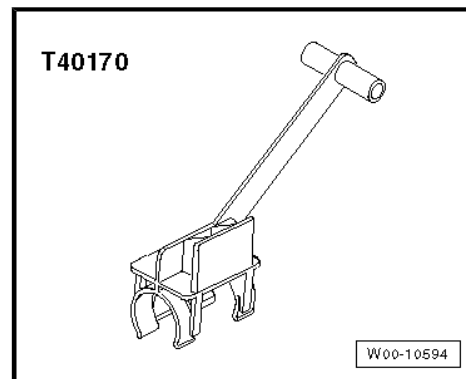
2.2.1 Installing gearbox - vehicles with 4-cylinder TFSI engine

Special tools and workshop equipment required

- ◆ Assembly aid - T40169-



◆ Transportation lock - T40170-



Procedure



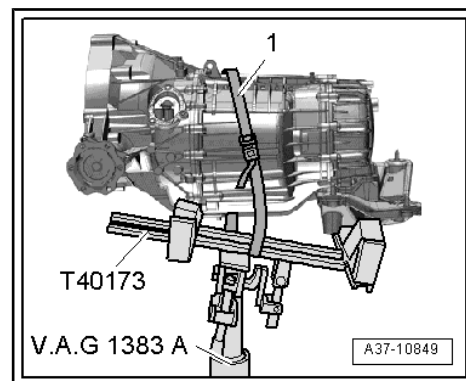
Note

- ◆ *Renew 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.*

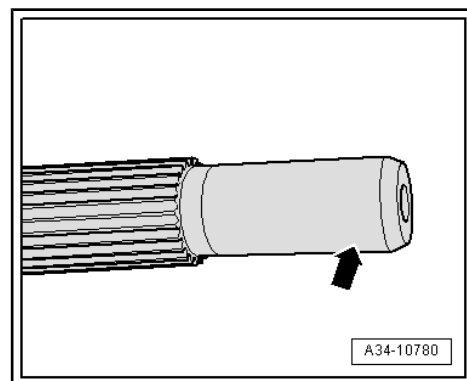
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Tightening torques for installing gearbox ⇒ [page 117](#)

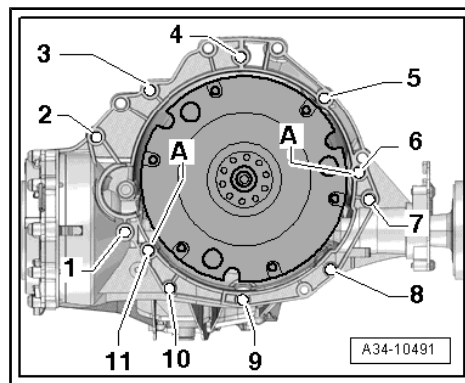
- Position gearbox on gearbox support - T40173- and secure with tensioning strap -1-, as shown in illustration.



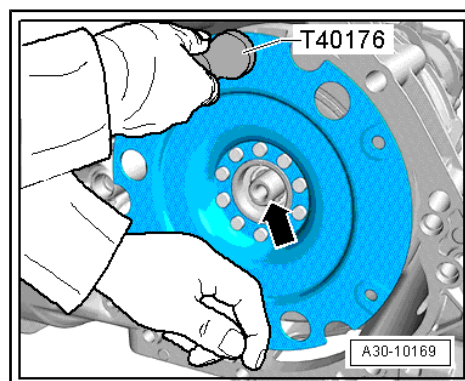
- Check input shaft for scoring around bearing in drive plate -arrow-. Renew needle bearing in drive plate if necessary ⇒ Rep. gr. 13 ; Cylinder block (gearbox end); Renewing needle bearing in drive plate .



- Check that dowel sleeves -A- for centralising engine/gearbox are in the cylinder block; install any missing dowel sleeves.
- Check whether aluminium bolts -2 ... 11- can be reused for engine/gearbox connection and mark bolts if necessary
⇒ [page 119](#) .



- Install clutch module if previously removed ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 30 ; Removing and installing clutch module .



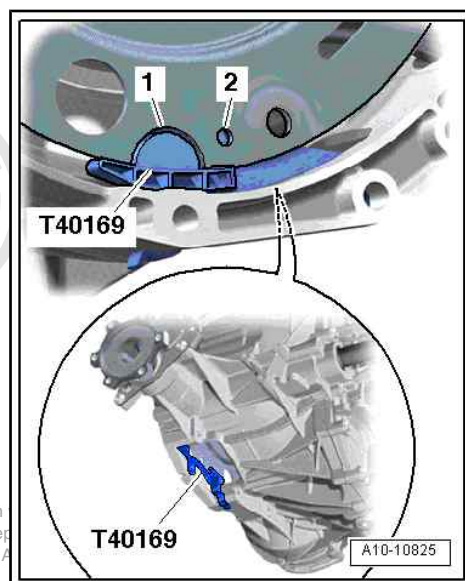
- The following preparations must be made before joining the engine and gearbox:
- Insert assembly aid - T40169- into gearbox housing and clutch module from below, as shown in illustration.
- The assembly aid - T40169- must engage in the semi-circular recess -1- and in the inspection hole -2-.



Note

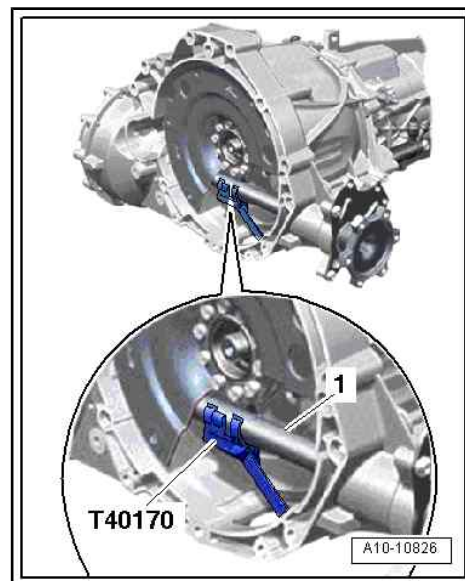
There is only one inspection hole at the periphery; turn the clutch module accordingly.

- Insert pin of assembly aid into hole on gearbox housing.

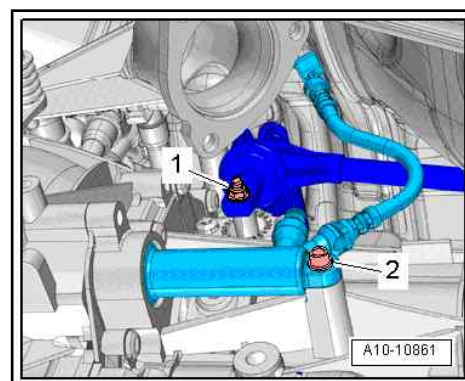


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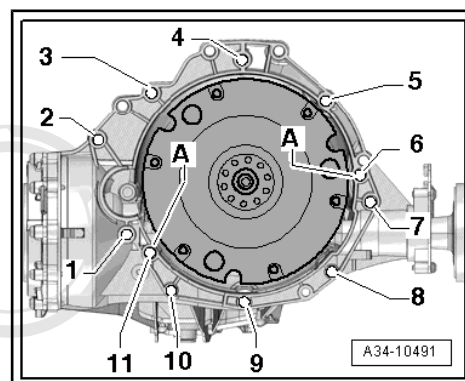
- Insert transportation lock - T40170- into gearbox housing from below and clamp onto flange shaft -1-.



- Raise gearbox just far enough to be able to insert clutch slave cylinder.
- Tighten bolt -2-. Tightening torque ⇒ [Item 16 \(page 15\)](#)
- Clip pipe/hose assembly into bracket on gearbox.



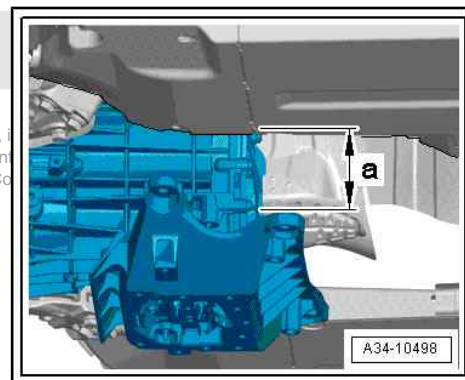
- Join gearbox with engine and tighten bolts -6 ... 11-. Tightening torques ⇒ [page 117](#)
- Fit starter and install bolt -1- from engine side hand-tight.



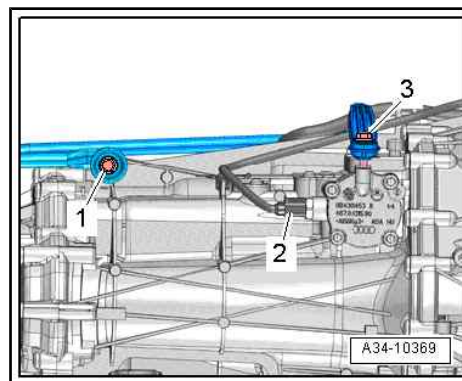
- Raise gearbox using engine and gearbox jack - V.A.G 1383 A- initially only until dimension -a- is reached between tunnel cross member and body.

- Dimension -a- = 80 mm (minimum)

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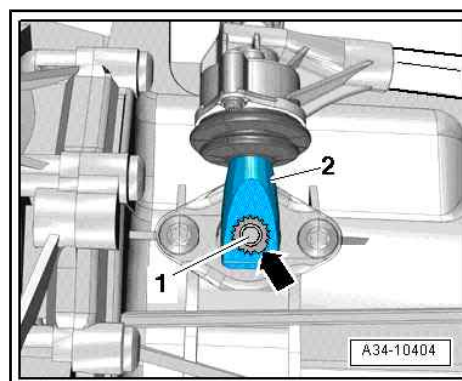


- Secure push rod -1- ⇒ [Item 27 \(page 35\)](#) .
- Plug in electrical connector -2- at gear detector switch - F208- or gear detection sensor - G604- .

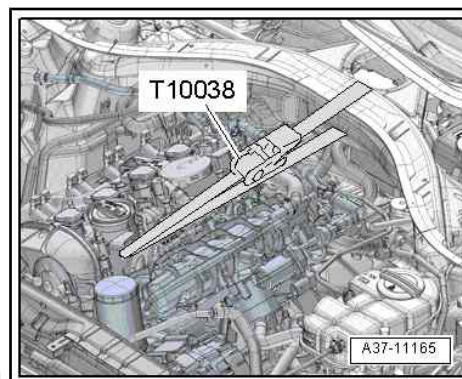


Install gearbox selector lever as follows:

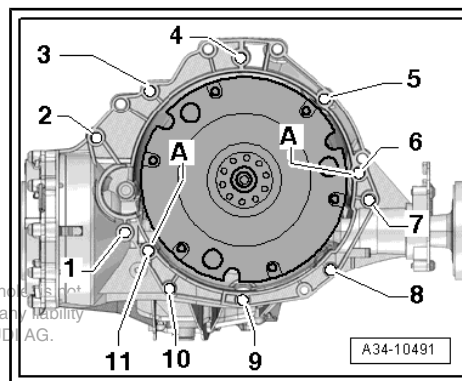
- Gearbox selector lever -2- can only be fitted onto selector shaft -1- in one position (gap in splines -arrow-).
- Secure gearbox selector lever. Tightening torque ⇒ [Item 18 \(page 35\)](#)



- Detach tensioning strap - T10038- .
- Raise gearbox further and tighten bolts for tunnel cross member ⇒ [page 120](#) .
- Detach engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- from gearbox.

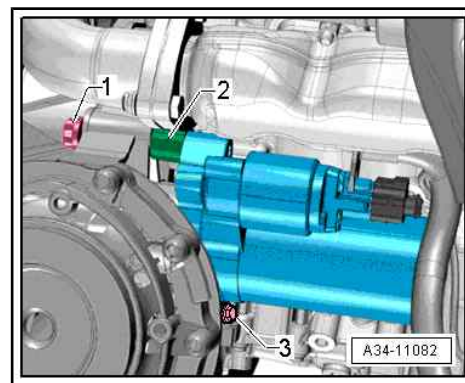


- Screw in and tighten engine/gearbox securing bolts -3 ... 5-. Tightening torques ⇒ [page 118](#)



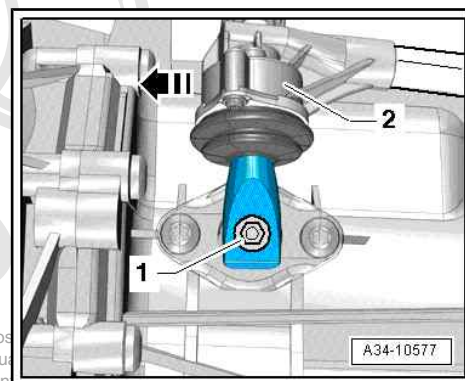
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- Fit spacer sleeve -2- between starter and gearbox, push through bolt -1- and screw in.
- Tighten starter bolts -1- and -3- to specified torque
⇒ [page 118](#) .
- Install drive shafts and heat shield for drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Exploded view - drive shaft .
- Install noise insulation in wheel housing (both sides) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .
- Assemble complete exhaust system and perform stress-free alignment ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .



Tightening sequence – clutch module to drive plate

- Remove assembly aid - T40169- and transportation lock - T40170- .
- Engage 6th gear by pulling out selector shaft -1- and shifting gear selector lever -2- forwards in direction of -arrow-.
- Fit both front wheels but do not torque down wheel bolts.



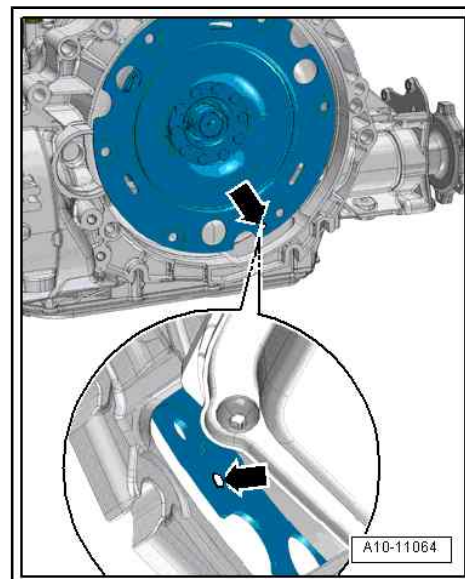
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Note

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

- Turn both front wheels together in one direction until the clutch module has turned through one complete revolution (360°).
- The inspection hole -arrow- should be visible again in the recess on the gearbox housing.

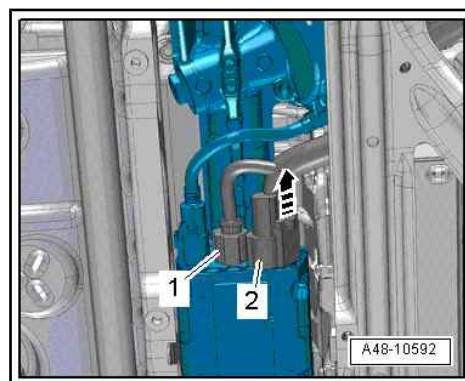
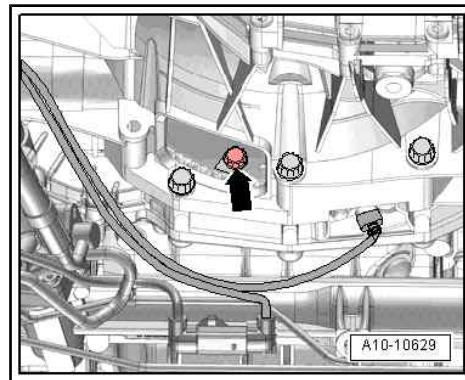


Secure clutch module to drive plate as follows:

- Use new bolts.
- Tightening torque ⇒ [Item 3 \(page 28\)](#)
- Tighten bolts using ring spanner insert, 16 mm - V.A.G 1332/14- .
- Install first bolt -arrow- and tighten hand-tight (2 Nm).
- Turn both front wheels so that clutch module turns 120° further in direction of engine rotation and install second bolt hand-tight (2 Nm).
- Turn clutch module 120° further in direction of engine rotation.
- Then screw in and tighten third bolt. Tightening torque ⇒ [Item 3 \(page 28\)](#)
- Now tighten the remaining two bolts to specified torque.

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

- Secure intermediate steering shaft to steering rack ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing intermediate steering shaft .
- Attach electrical connectors -1- and -2- on power steering control unit - J500- .
- Install subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe .



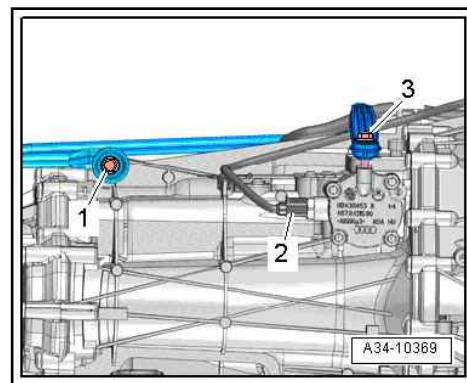
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- Secure connecting rod -3- from above, from where plenum chamber partition panel was previously removed ➔ [page 34](#) .

 Note

Items marked -2- and -3- can be disregarded.

- Install plenum chamber partition panel ➔ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .
- Install body brace ➔ Running gear, axles, steering; Rep. gr. 40 ; Suspension strut, upper links; Exploded view - suspension strut, upper links .
- Check gear oil level in gearbox ➔ [page 125](#) .
- Install noise insulation ➔ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .
- Fit front wheels ➔ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Observe measures required after connecting battery ➔ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .



Caution

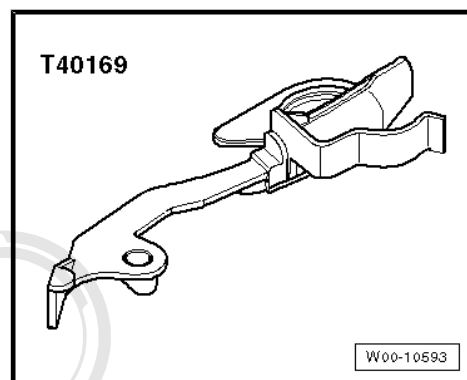
Overvoltage can cause irreparable damage to control units.

◆ *Do not use charger for boost starting.*

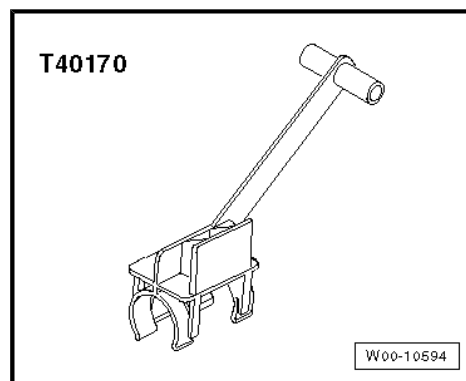
2.2.2 Installing gearbox - vehicles with 4-cylinder TDI engine

Special tools and workshop equipment required

- ◆ Assembly aid - T40169-



♦ Transportation lock - T40170-



Procedure

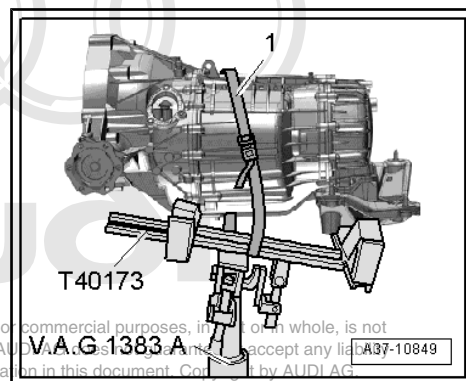


Note

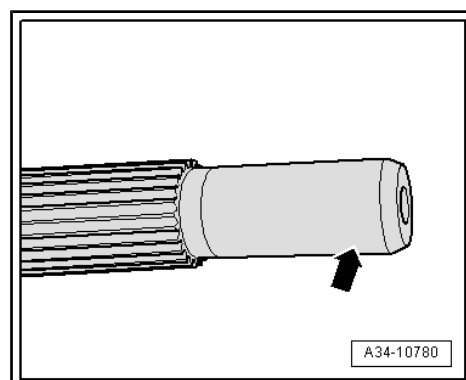
- ♦ *Renew bolts which are tightened by turning through a specified angle. The aluminium bolts securing the engine to the gearbox can be used twice only.*
- ♦ *Renew self-locking nuts and bolts, and seals, O-rings and gaskets.*
- ♦ *Secure all hose connections with the correct hose clips (as original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

Tightening torques for installing gearbox ➔ [page 119](#)

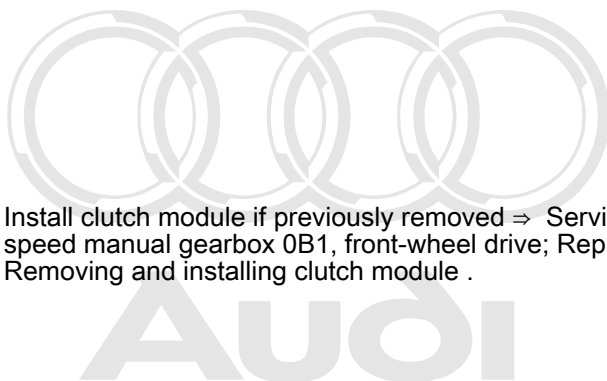
- Position gearbox on gearbox support - T40173- and secure with tensioning strap -1-, as shown in illustration.



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

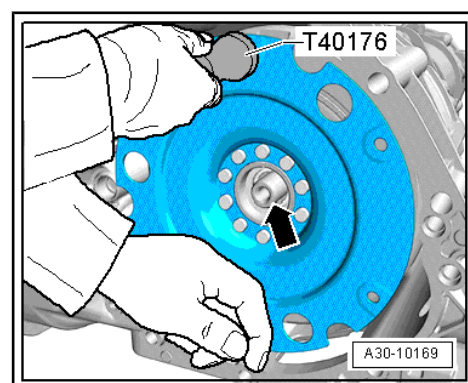
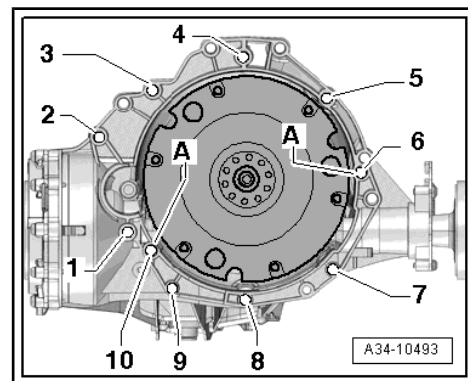


- Check that dowel sleeves -A- for centralising engine/gearbox are in the cylinder block; install any missing dowel sleeves.
- Check whether aluminium bolts -2 ... 10- can be reused for engine/gearbox connection and mark bolts if necessary
⇒ [page 119](#) .



- Install clutch module if previously removed ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 30 ; Removing and installing clutch module .

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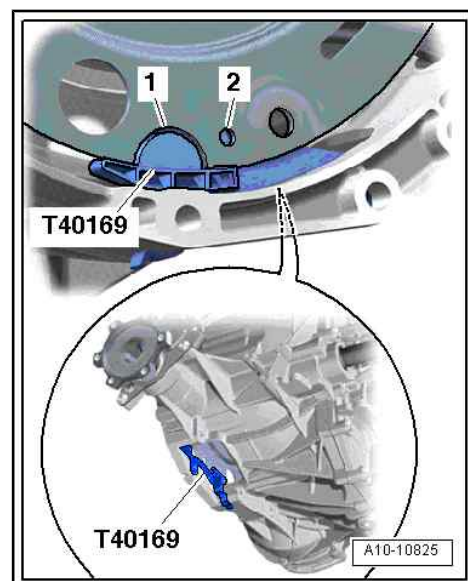
- The following preparations must be made before joining the engine and gearbox:
- Insert assembly aid - T40169- into gearbox housing and clutch module from below, as shown in illustration.
- The assembly aid - T40169- must engage in the semi-circular recess -1- and in the inspection hole -2-.



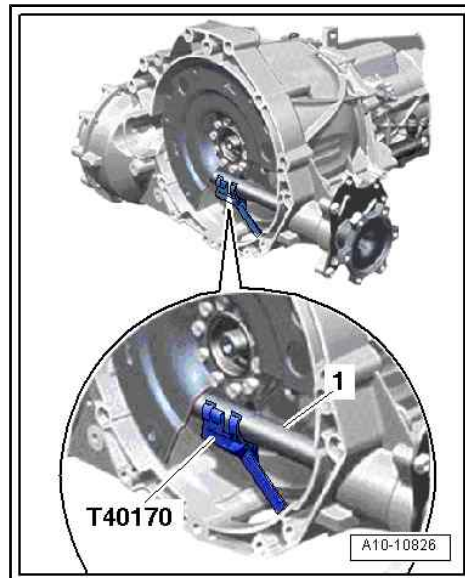
Note

There is only one inspection hole at the periphery; turn the clutch module accordingly.

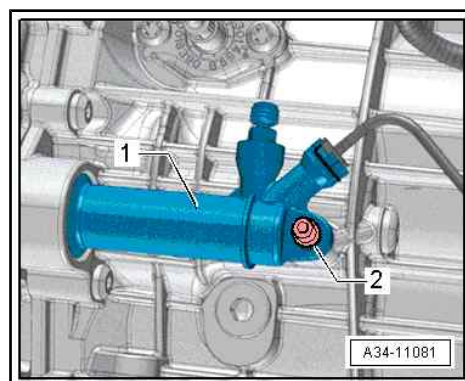
- Insert pin of assembly aid into hole on gearbox housing.



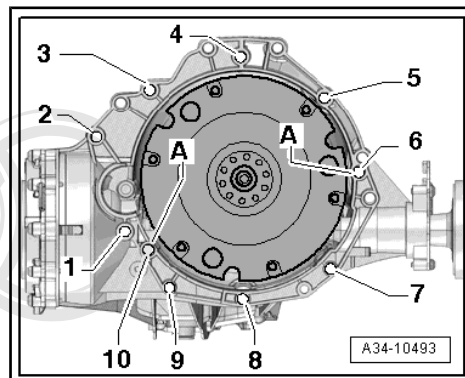
- Insert transportation lock - T40170- into gearbox housing from below and clamp onto flange shaft -1-.



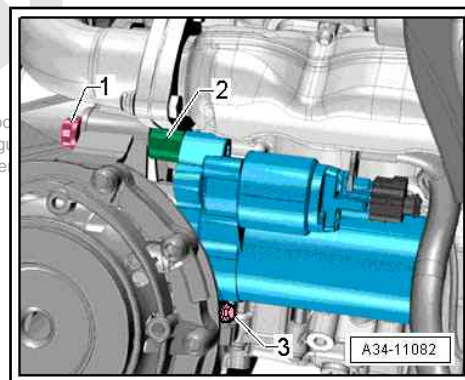
- Raise gearbox just far enough to be able to insert clutch slave cylinder -1-.
- Tighten bolt -2-. Tightening torque ➤ [Item 16 \(page 15\)](#)
- Clip pipe/hose assembly into bracket on gearbox.



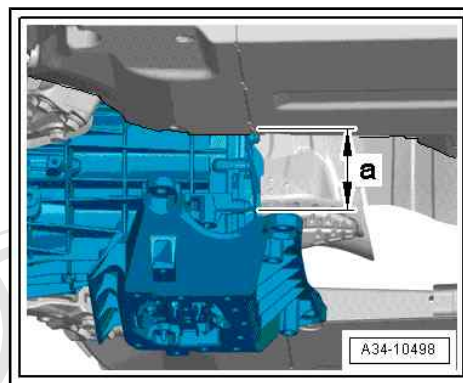
- Join gearbox with engine and tighten bolts -6 ... 10-. Tightening torques ➤ [page 118](#)



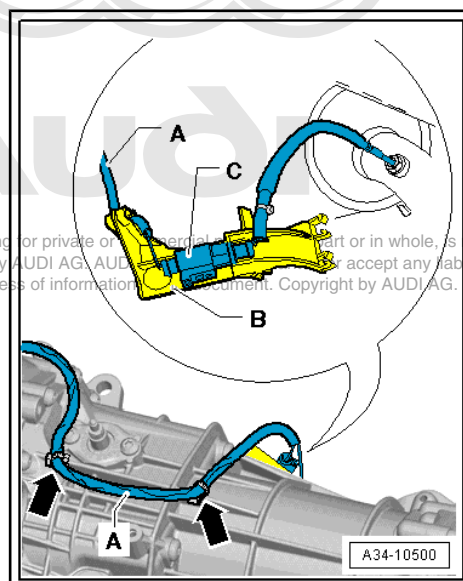
- Fit starter and install bolt -3- from engine side hand-tight.
- Fit spacer sleeve -2- between starter and gearbox, push through bolt -1- and screw in.
- Tighten starter bolts -1- and -3-. Tightening torques ➤ [page 118](#)



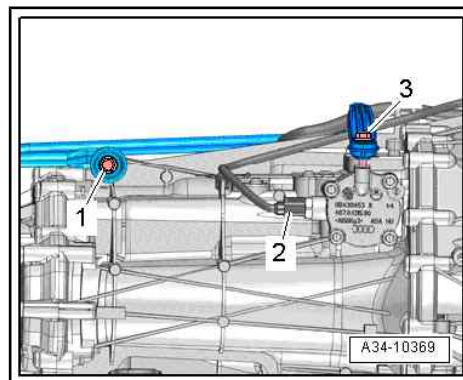
- Raise gearbox using engine and gearbox jack - V.A.G 1383 A- initially only until dimension -a- is reached between tunnel cross member and body.
- Dimension -a- = 80 mm (minimum)



- Clip bracket -B- with electrical connector -C- for exhaust gas temperature sender 4 - G648- onto gearbox.
- Secure electrical wire -A- on gearbox -arrows-.

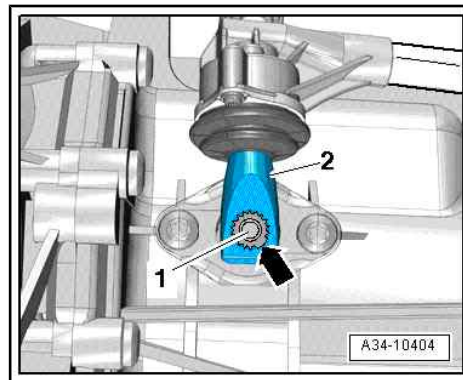


- Secure push rod -1- ⇒ [Item 27 \(page 35\)](#) .
- Plug in electrical connector -2- at gear detector switch - F208- or gear detection sensor - G604- .

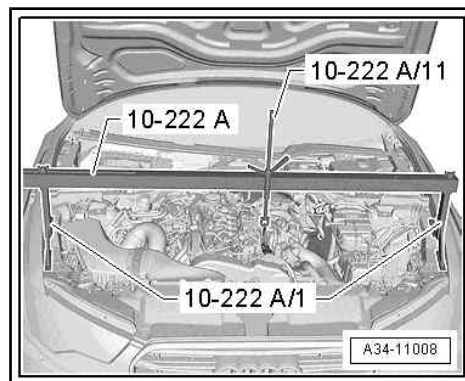


Install gearbox selector lever as follows:

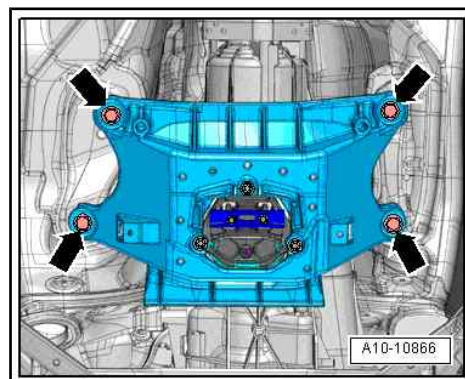
- Gearbox selector lever -2- can only be fitted onto selector shaft -1- in one position (gap in splines -arrow-).
- Secure gearbox selector lever. Tightening torque ⇒ [Item 18 \(page 35\)](#)
- Install drive shafts and heat shield for drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Exploded view - drive shaft .
- Install noise insulation in wheel housing (both sides) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .



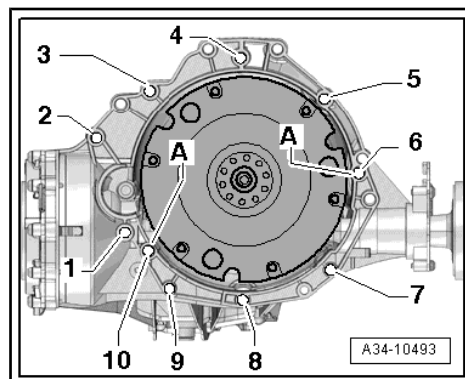
- Release spindle -10 - 222 A /11- .



- Raise gearbox further and tighten bolts -arrows- for tunnel cross member ⇒ [page 120](#) .
- Detach engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- from gearbox.
- Remove support bracket - 10 - 222 A- .



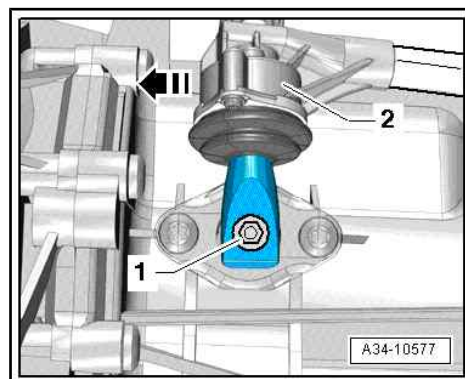
- Screw in and tighten engine/gearbox securing bolts -3 ... 5-. Tightening torques ⇒ [page 118](#)
- Unscrew nut securing particulate filter.
- Detach particulate filter from studs on turbocharger and place to one side.
- Assemble complete exhaust system and perform stress-free alignment ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .



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Tightening sequence – clutch module to drive plate

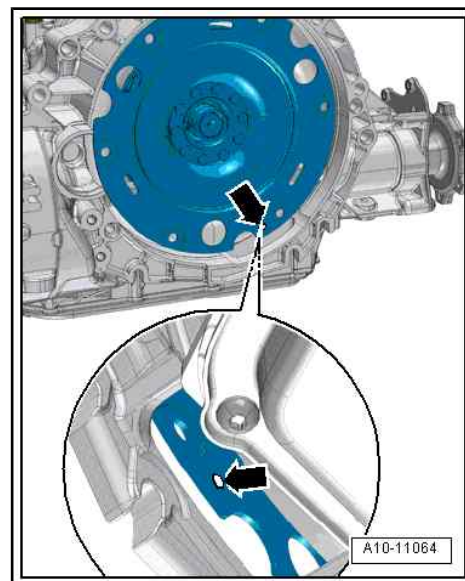
- Remove assembly aid - T40169- and transportation lock - T40170- .
- Engage 6th gear by pulling out selector shaft -1- and shifting gearbox selector lever -2- forwards in direction of -arrow-.
- Fit both front wheels but do not torque down wheel bolts.



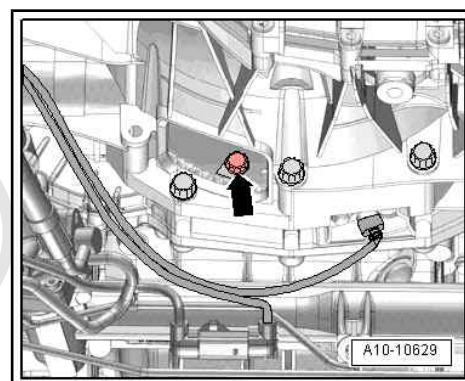
 Note

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

- Turn both front wheels together in one direction until the clutch module has turned through one complete revolution (360°).
- The inspection hole -arrow- should be visible again in the recess on the gearbox housing.



- Secure clutch module to drive plate according to tightening sequence
⇒ ["2.2 Tightening sequence - clutch module to drive plate", page 29](#).
- Use new bolts -arrow-.
- Tightening torque ⇒ [Item 3 \(page 28\)](#)
- Tighten bolts using ring spanner insert, 16 mm - V.A.G 1332/14-.



- Push torque reaction support -1- upwards in direction indicated by -arrow- until it makes contact with cross member.

 Note

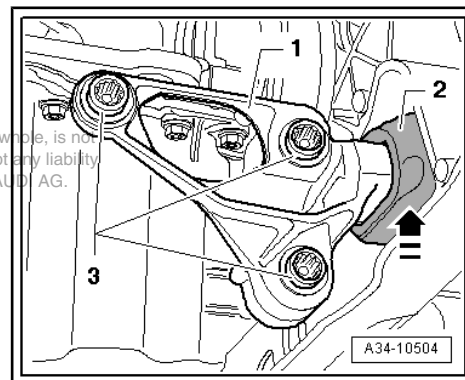
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Bump stop -2- must be in contact with cross member without play, but must not be under tension.

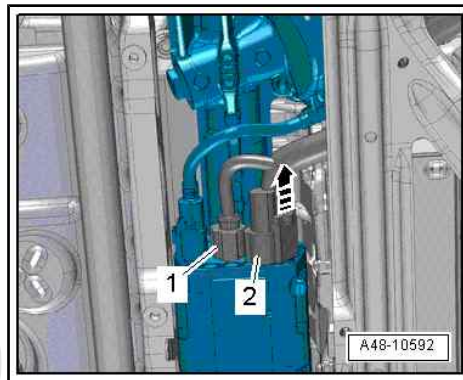
- Then tighten bolts -3- to specified torque ⇒ Rep. gr. 10 ; Assembly mountings; Exploded view - assembly mountings .

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

- Secure intermediate steering shaft to steering rack ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing intermediate steering shaft .



- Attach electrical connectors -1- and -2- on power steering control unit - J500- .
- Install subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe .



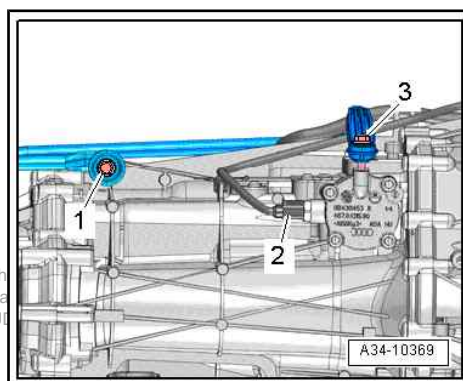
- Secure connecting rod -3- from above, from where plenum chamber partition panel was previously removed ⇒ [page 34](#) .



Note

Items marked -2- and -3- can be disregarded.

- Install plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50; Bulkhead; Exploded view - plenum chamber partition panel .
- Install body brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Suspension strut, upper links; Exploded view - suspension strut, upper links .
- Check gear oil level in gearbox ⇒ [page 125](#) .
- Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .
- Fit front wheels ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- Observe measures required after connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .



Caution

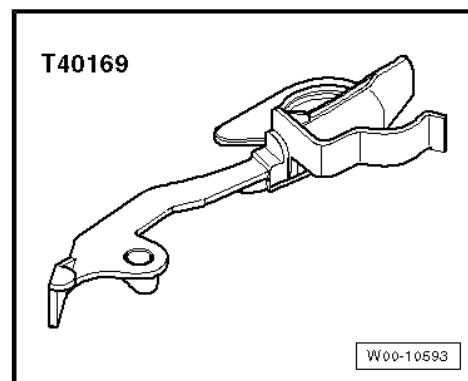
Overvoltage can cause irreparable damage to control units.

- ◆ **Do not use charger for boost starting.**

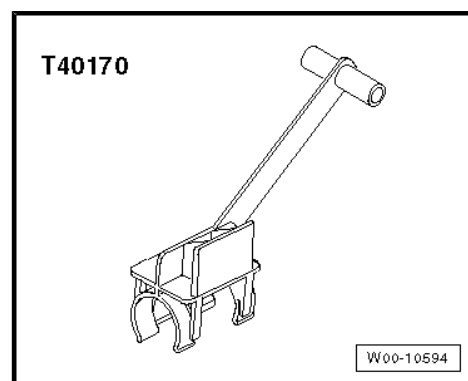
2.2.3 Installing gearbox - all vehicles with 6-cylinder engine

Special tools and workshop equipment required

◆ Assembly aid - T40169-



◆ Transportation lock - T40170-



Procedure

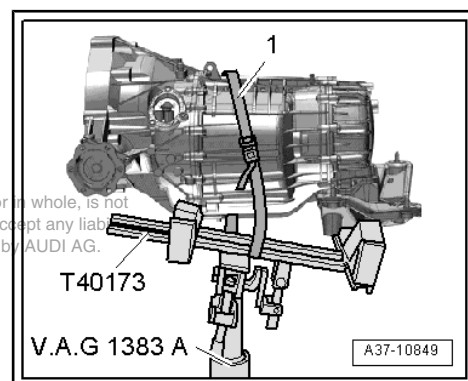


Note

- ◆ *Renew 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.*

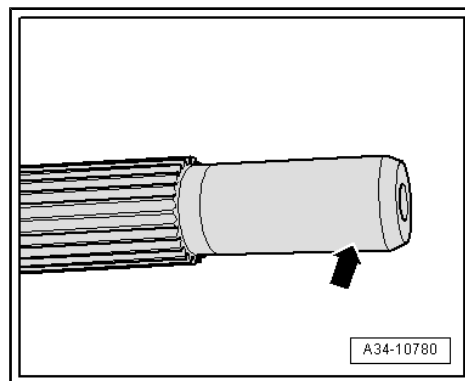
Tightening torques for installing gearbox ⇒ [page 117](#)

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

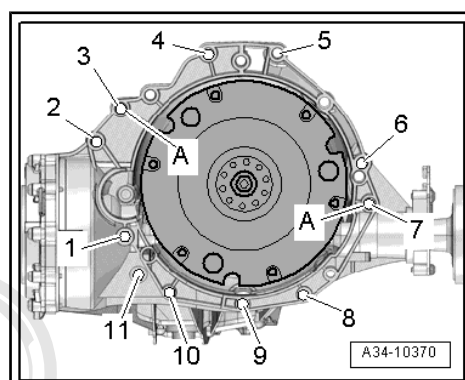


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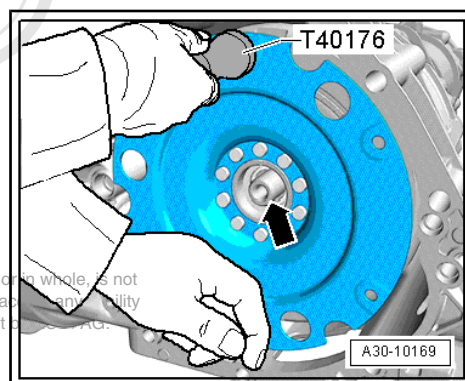
- Check input shaft for scoring around bearing in drive plate -arrow-. Renew needle bearing in drive plate if necessary ⇒ Rep. gr. 13 ; Cylinder block (gearbox end); Renewing needle bearing in drive plate .



- Check that dowel sleeves -A- for centralising engine/gearbox are in the cylinder block; install any missing dowel sleeves.
- Check whether aluminium bolts -2 ... 11- can be reused for engine/gearbox connection and mark bolts if necessary ⇒ [page 119](#) .



- Install clutch module if previously removed ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 30 ; Removing and installing clutch module .



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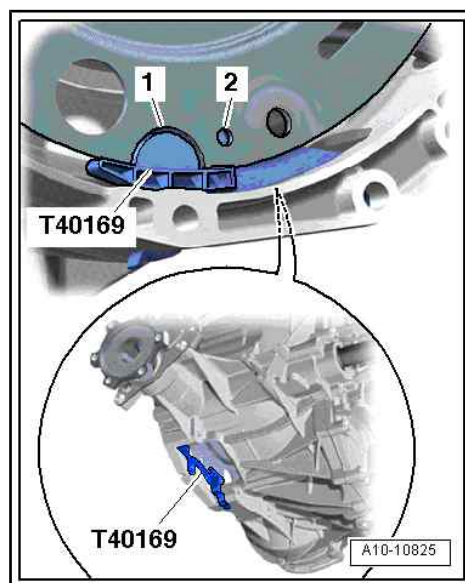
- The following preparations must be made before joining the engine and gearbox:
- Insert assembly aid - T40169- into gearbox housing and clutch module from below, as shown in illustration.
- The assembly aid - T40169- must engage in the semi-circular recess -1- and in the inspection hole -2-.



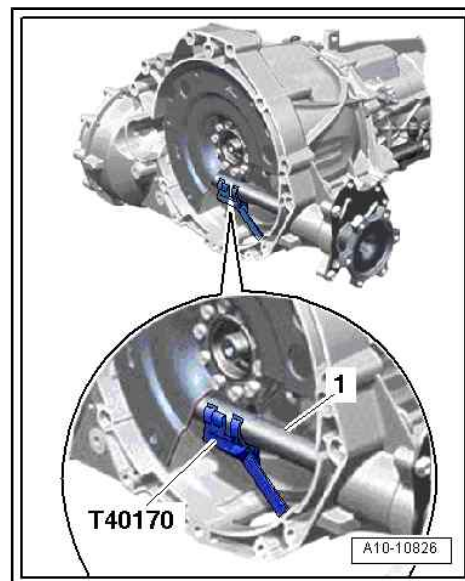
Note

There is only one inspection hole at the periphery; turn the clutch module accordingly.

- Insert pin of assembly aid into hole on gearbox housing.

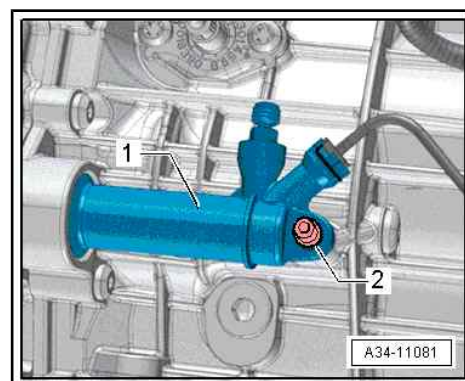


- Insert transportation lock - T40170- into gearbox housing from below and clamp onto flange shaft -1-.

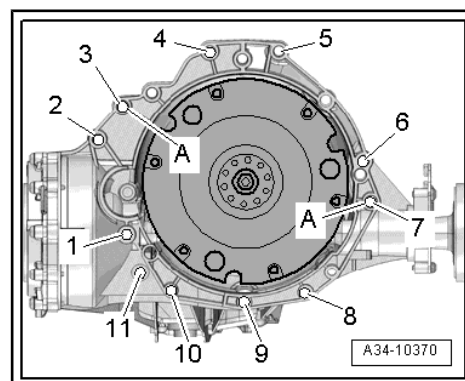


- Raise gearbox just far enough to be able to insert clutch slave cylinder -1-.
- Tighten bolt -2-. Tightening torque ⇒ [Item 16 \(page 15\)](#)
- Clip pipe/hose assembly into bracket on gearbox.

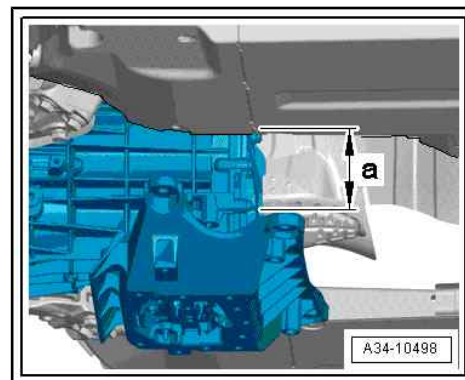
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- Join gearbox with engine and tighten bolts -6 ... 11-. Tightening torques ⇒ [page 119](#)



- 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- = 80 mm (minimum)

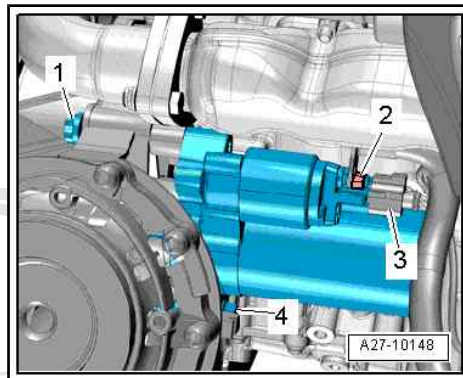


- Fit starter and tighten bolts -1- and -4-. Tightening torques
⇒ [page 119](#)
- Install bolt -1- from above, from where plenum chamber partition panel was previously removed.

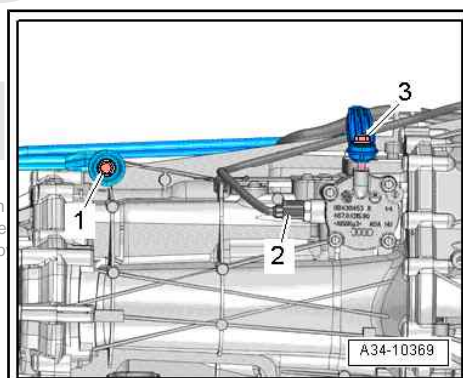


Note

-Items 2 and 3- can be disregarded.



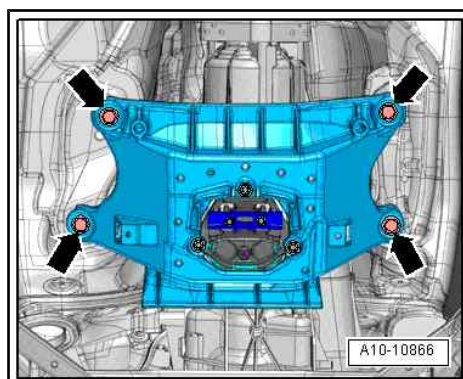
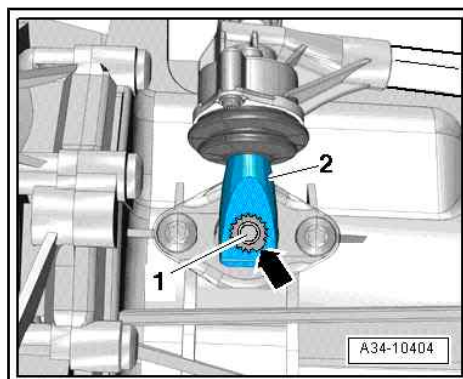
- Secure push rod -1- ⇒ [Item 27 \(page 35\)](#) .
- Plug in electrical connector -2- at gear detector switch - F208- or gear detection sensor - G604- .



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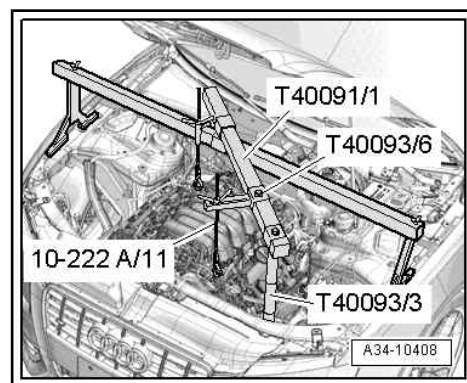
Install gearbox selector lever as follows:

- Gearbox selector lever -2- can only be fitted onto selector shaft -1- in one position (gap in splines -arrow-).
- Secure gearbox selector lever -2-. Tightening torque
⇒ [Item 18 \(page 35\)](#)
- Install drive shafts and heat shield for drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Exploded view - drive shaft .
- Install noise insulation in wheel housing (both sides) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .
- Raise gearbox further and tighten bolts -arrows- for tunnel cross member ⇒ [page 120](#) .
- Detach engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- from gearbox.



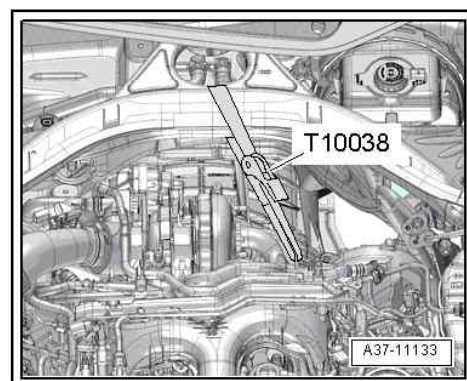
Vehicles with 6-cylinder FSI engine:

- Remove support bracket - 10 - 222 A- .



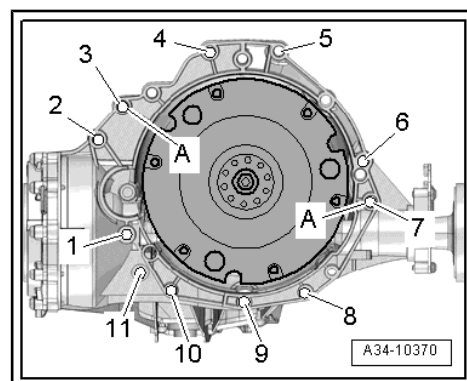
Vehicles with 6-cylinder TDI engine:

- Remove tensioning strap - T10038- from engine/body brace.



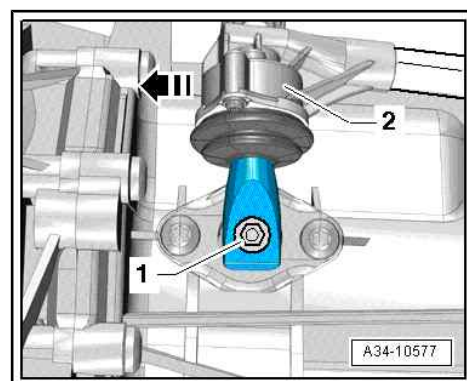
Continued for all vehicles

- Tighten remaining engine/gearbox securing bolts -3 ... 5-.
Tightening torques ➔ [page 119](#)



Tightening sequence – clutch module to drive plate

- Remove transportation lock - T40170- and assembly aid - T40169- .
- Engage 6th gear by pulling out selector shaft -1- and shifting gear selector lever -2- forwards in direction of -arrow-.
- Fit both front wheels but do not torque down wheel bolts.



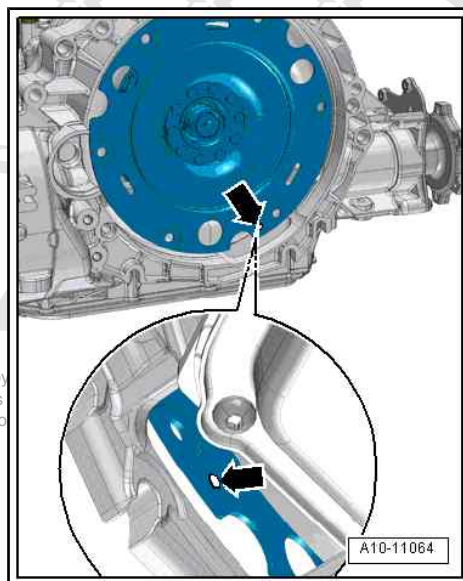


Note

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

- Turn both front wheels together in one direction until the clutch module has turned through one complete revolution (360°).
- The inspection hole -arrow- should be visible again in the recess on the gearbox housing.

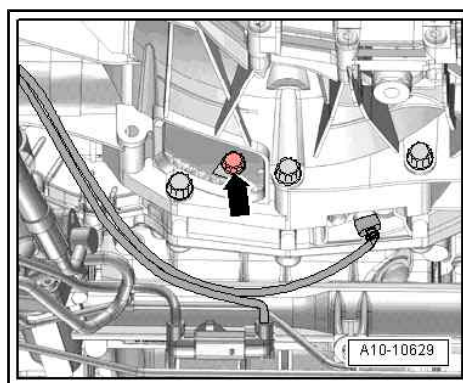
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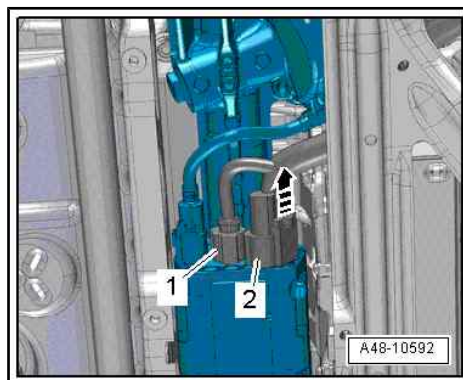
Secure clutch module to drive plate as follows:

- Use new bolts.
- Tightening torque ⇒ [Item 3 \(page 28\)](#)
- Tighten bolts using ring spanner insert, 16 mm - V.A.G 1332/14- .
- Install first bolt -arrow- and tighten hand-tight (2 Nm).
- Turn both front wheels so that clutch module turns 180° further in direction of engine rotation.
- Install second bolt and tighten to specified torque ⇒ [Item 3 \(page 28\)](#) .
- Tighten remaining five bolts (including first bolt installed), turning crankshaft 60° further each time. Tightening torque ⇒ [Item 3 \(page 28\)](#)



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

- Secure intermediate steering shaft to steering rack ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing intermediate steering shaft .
- Attach electrical connectors -1- and -2- on power steering control unit - J500- .
- Install subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe .

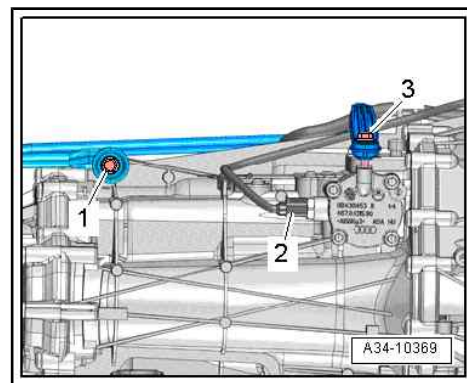


- Secure connecting rod -3- from above, from where plenum chamber partition panel was previously removed ⇒ [page 34](#) .

 Note

Items marked -2- and -3- can be disregarded.

- Assemble exhaust system and perform stress-free alignment ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .
- Install plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .
- Install body brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Suspension strut, upper links; Exploded view - suspension strut, upper links .
- Check gear oil level in gearbox ⇒ [page 125](#) .
- Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .
- Fit front wheels ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
- 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.***

2.3 Tightening torques for gearbox

Tightening torques

 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 $\pm 15\%$.*

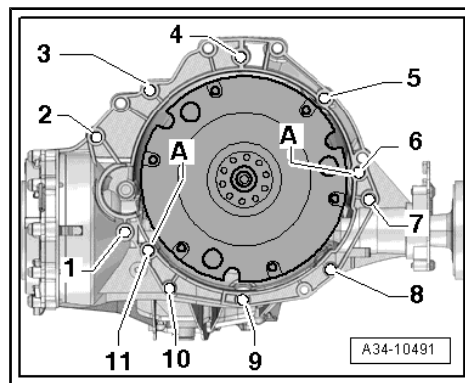
Component		Nm
Bolts and nuts	M6	9
	M7	15
	M8	20
	M10	40
	M12	65

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Engine/gearbox attachment (TFSI engine)

Item	Bolt	Nm
1 ¹⁾	M10x50 ²⁾	65
2 ¹⁾ , 7	M12x100 ³⁾	30 + 90°
3 ⁴⁾ , 6	M12x75 ³⁾	30 + 90°
4, 5 ⁴⁾	M12x120 ³⁾	30 + 90°
8 ... 10	M10x75 ³⁾	15 + 90°
11	M12x50 ³⁾	30 + 90°
A	Dowel sleeves for centralising	

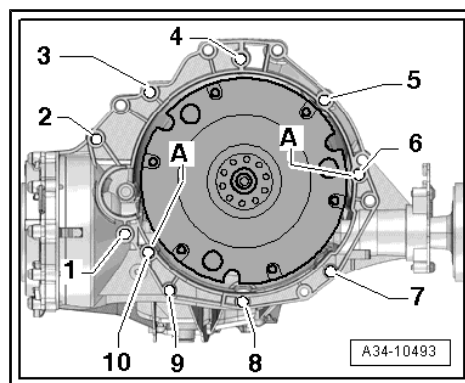
- 1) Also secures starter.
- 2) Property class 10.9; the steel bolt can be re-used any number of times.
- 3) Aluminium bolts must not be used more than twice
⇒ [page 119](#) .
- 4) Also secures bracket for electrical wiring.



Engine/gearbox securing bolts

Item	Bolt	Nm
1 ¹⁾	M10x50 ²⁾	65
2 ¹⁾	M12x100 ³⁾	30 + 90°
3 ⁴⁾ , 6	M12x75 ³⁾	30 + 90°
4, 5 ⁴⁾	M12x120 ³⁾	30 + 90°
7 ... 9	M10x75 ³⁾	15 + 90°
10	M12x50 ³⁾	30 + 90°
A	Dowel sleeves for centralising	

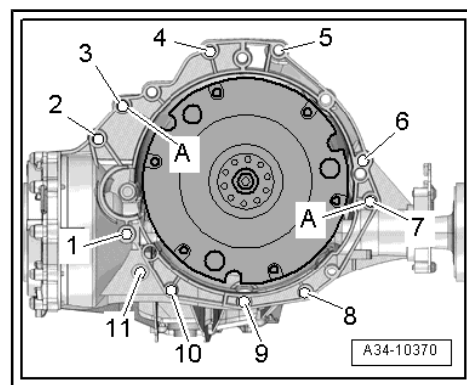
- 1) Also secures starter.
- 2) Property class 10.9; the steel bolt can be re-used any number of times.
- 3) Aluminium bolts must not be used more than twice
⇒ [page 119](#) .
- 4) Also secures bracket for electrical wiring.



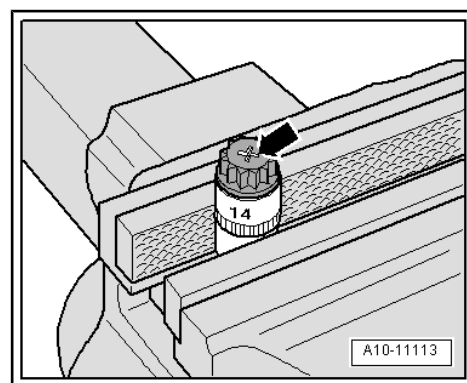
Engine/gearbox attachment (6-cylinder engine)

Item	Bolt	Nm
1 ¹⁾	M10x50 ²⁾	65
2 ¹⁾	M12x100 ³⁾	30 + 90°
3 ... 6	M12x100 ³⁾	30 + 90°
7	M12x125 ³⁾	30 + 90°
8, 11	M10x60 ³⁾	15 + 90°
9, 10	M10x95 ³⁾	15 + 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 119](#).



- ◆ Aluminium bolts must not be used more than 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 $\frac{1}{2}$ " 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.



3 Assembly mountings

⇒ "3.1 Exploded view - assembly mountings", page 120

⇒ "3.2 Removing and installing tunnel cross member", page 120

3.1 Exploded view - assembly mountings

1 - Nut

- ☐ 20 Nm

2 - Bolt

- ☐ 70 Nm

3 - Bolt

- ☐ 40 Nm

4 - Nut

- ☐ 20 Nm

5 - Gearbox support

- ☐ Removing and installing
⇒ Rep. gr. 10 ; Assembly mountings; Removing and installing gearbox mounting

6 - Gearbox mounting

- ☐ Removing and installing
⇒ Rep. gr. 10 ; Assembly mountings; Removing and installing gearbox mounting

7 - Stop (bottom)

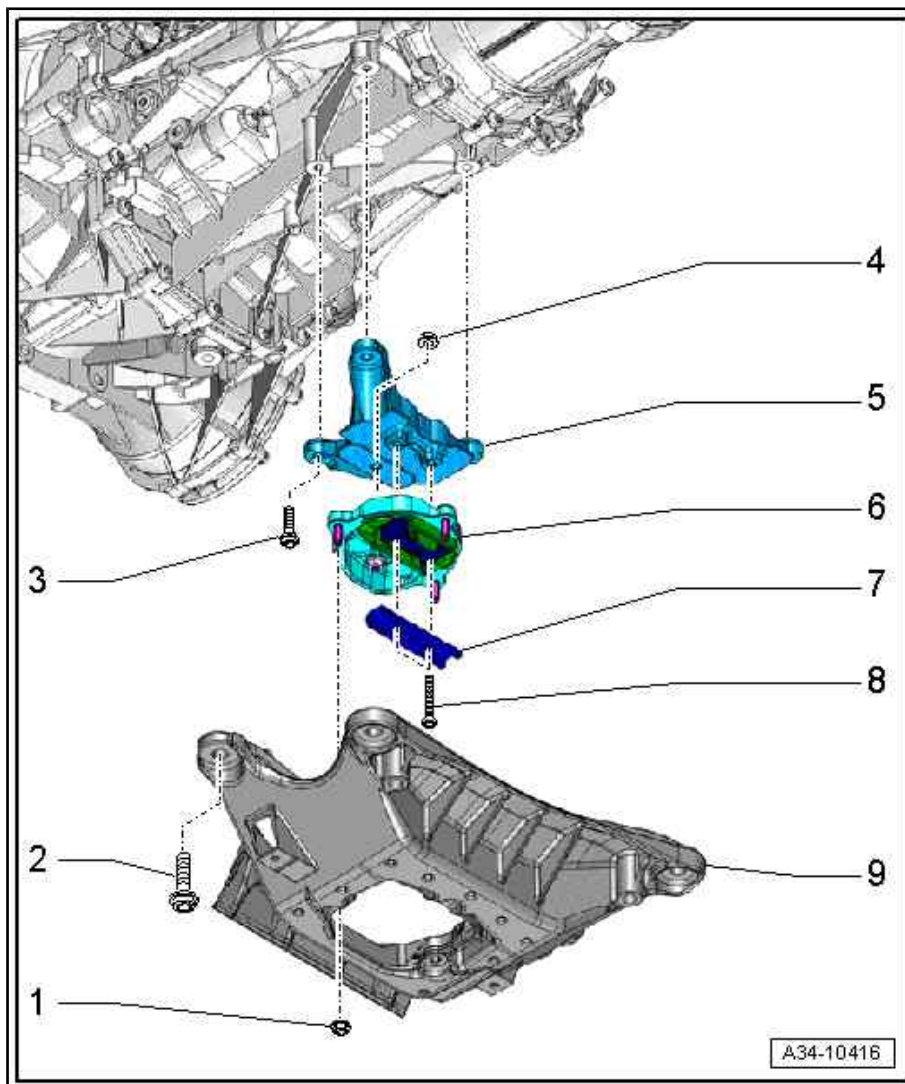
- ☐ For gearbox mounting

8 - Bolt

- ☐ Renew
- ☐ 20 Nm and then turn 90° further

9 - Tunnel cross member

- ☐ Removing and installing
⇒ page 120



3.2 Removing and installing tunnel cross member

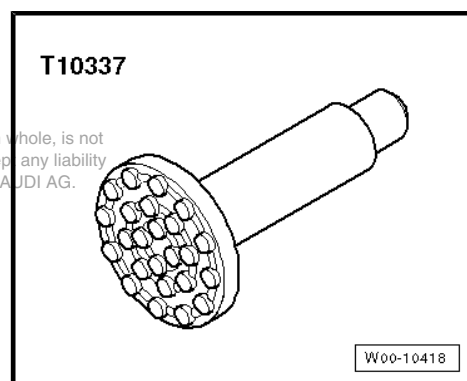
Special tools and workshop equipment required

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



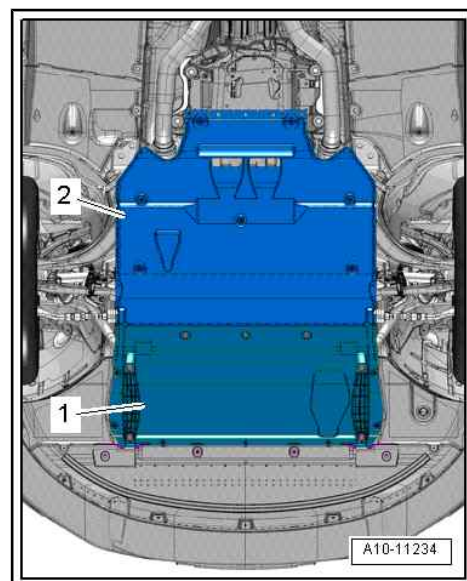
◆ Gearbox support - T10337-

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Removing

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



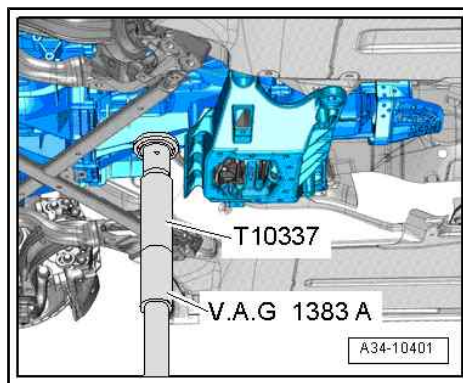
- Apply lifting column of engine and gearbox jack -V.A.G 1383 A- to gearbox from below (with gearbox support - T10337- attached).
- Slightly lift gearbox with engine and gearbox jack - V.A.G 1383 A- .



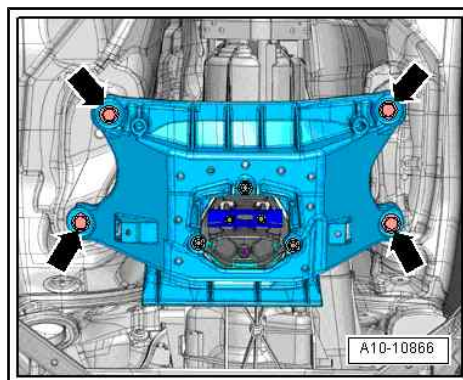
WARNING

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.*



- Remove bolts -arrows- for tunnel cross member.



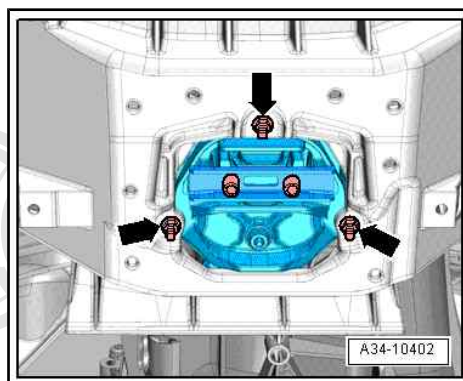
- Unscrew nuts -arrows- and remove tunnel cross member.

Installing

Perform installation in reverse sequence of removal.

Tightening torques

- ◆ ⇒ [“3.1 Exploded view - assembly mountings”, page 120](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation



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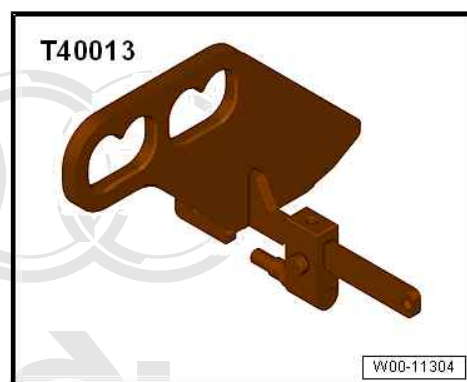
4 Transporting gearbox

Special tools and workshop equipment required

- ◆ Workshop hoist - VAS 6100-

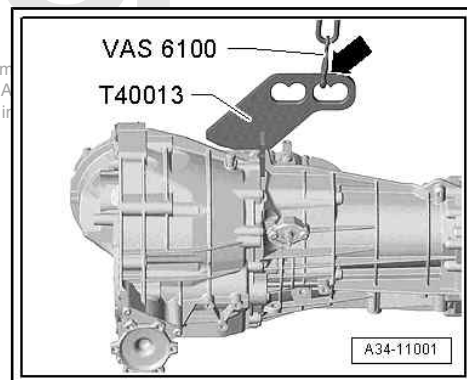


- ◆ Lifting aid - T40013-



Procedure

- Insert lifting aid - T40013- in lifting eye on gearbox and secure
- Engage hook of workshop hoist - VAS 6100- in 3rd notch -arrow- on lifting aid .
- Lift gearbox with workshop hoist - VAS 6100- and lifting aid - T40013- .





5 Dismantling and assembling gearbox

For a detailed description please refer to the Workshop Manual
⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive;
Rep. gr. 34 ; Dismantling and assembling gearbox .



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6 Gear oil

⇒ ["6.1 Checking gear oil level", page 125](#)

6.1 Checking gear oil level

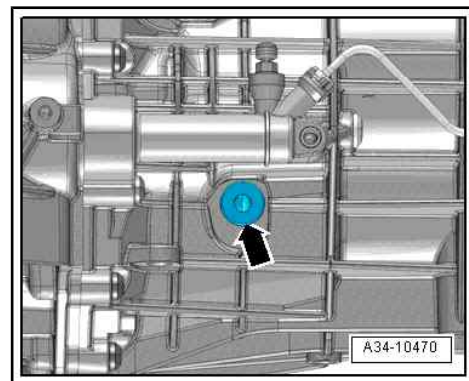
Procedure



Note

The vehicle must be horizontal when checking gear oil level.

- To check gear oil level, unscrew oil filler plug -arrow-.
- Specification: Oil level is correct when gearbox oil is up to lower edge of filler hole.
- Top up with gear oil if necessary. Specification ⇒ [page 2](#) .
- Screw in oil filler plug.



Tightening torques

Component	Nm
Oil filler plug	45

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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 0B1, front-wheel drive;
Rep. gr. 35 ; Dismantling and assembling gears and shafts .



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39 – Final drive - front differential

1 Final drive

⇒ [“1.1 Renewing cover for final drive”, page 127](#)

1.1 Renewing cover for final drive

- When renewing cover for final drive, determine thickness of new shim to adjust preload of tapered roller bearings for differential.

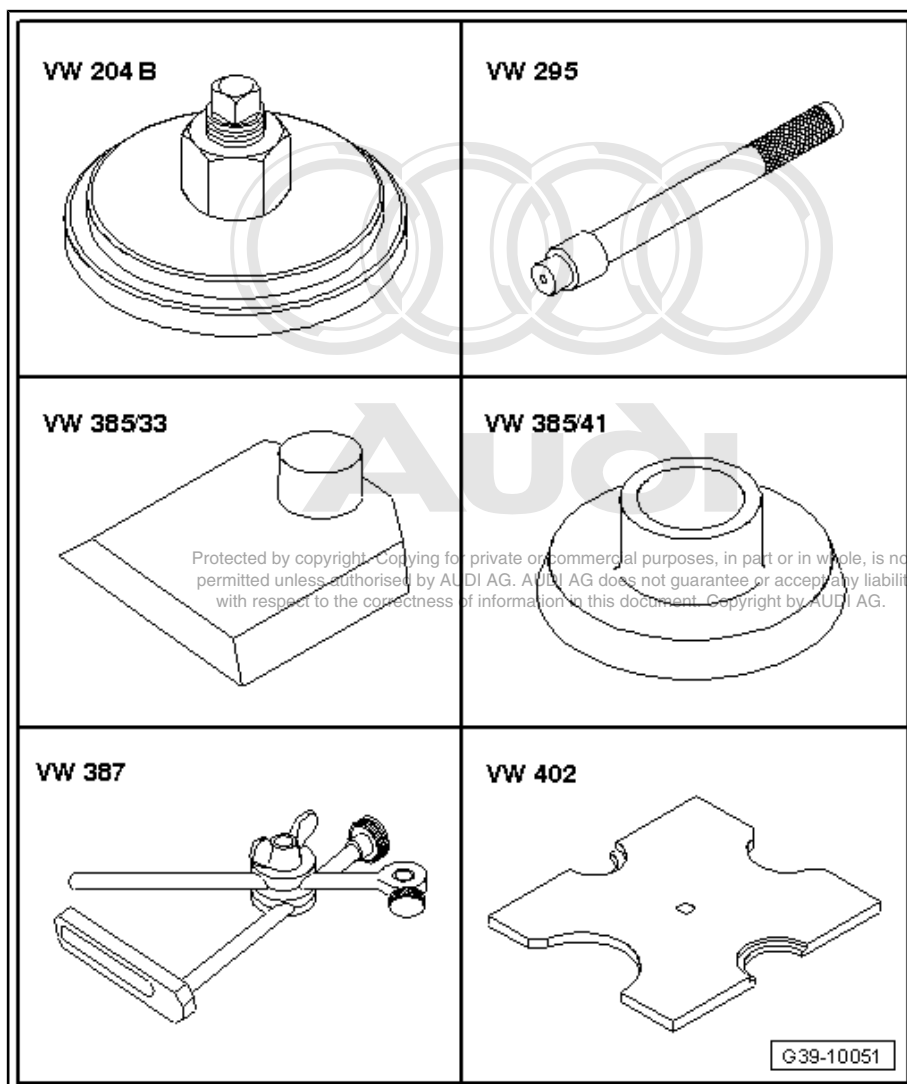


Note

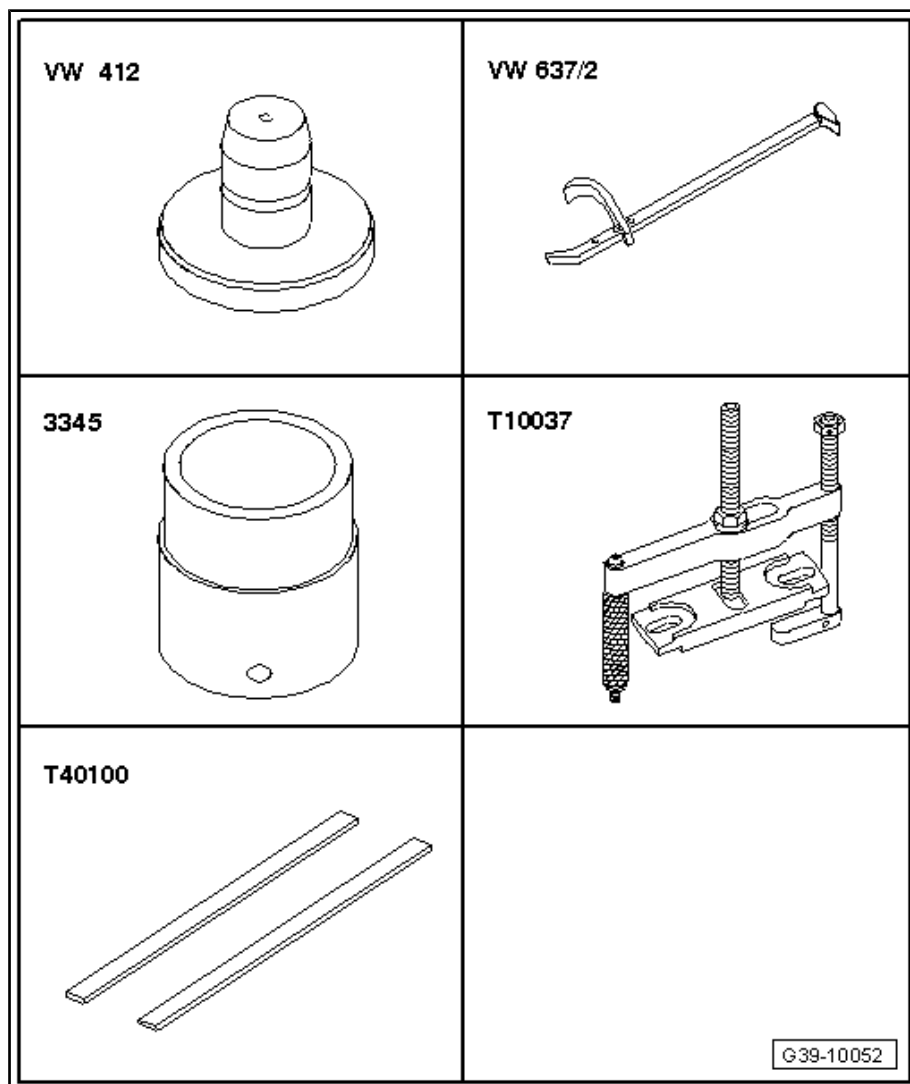
- ◆ General repair instructions ⇒ [page 5](#).
- ◆ This shim is located behind the tapered roller bearing outer race in the cover for the final drive.

Special tools and workshop equipment required

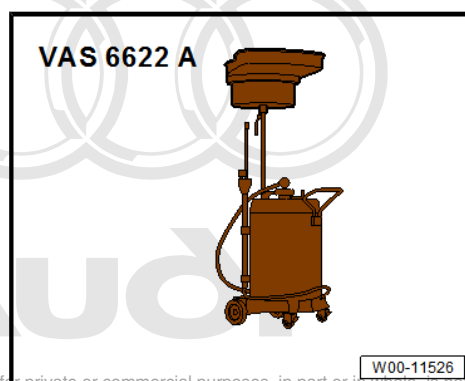
- ◆ Crankshaft seal installing tool - VW 204 B-
- ◆ Drift - VW 295-
- ◆ Measuring plate - VW 385/33-
- ◆ Centring disc - VW 385/41-
- ◆ Universal dial gauge bracket - VW 387-
- ◆ Thrust plate - VW 402-



- ◆ Press tool - VW 412-
- ◆ Hub grease cap puller - VW 637/2-
- ◆ Wheel bearing tube - 3345-
- ◆ Puller - T10037-
- ◆ Ruler - T40100-



- ◆ Used oil collection and extraction unit - VAS 6622A-



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Procedure

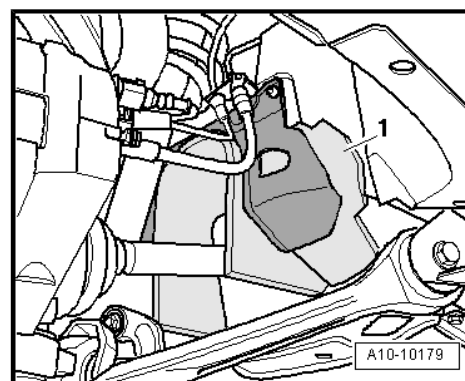
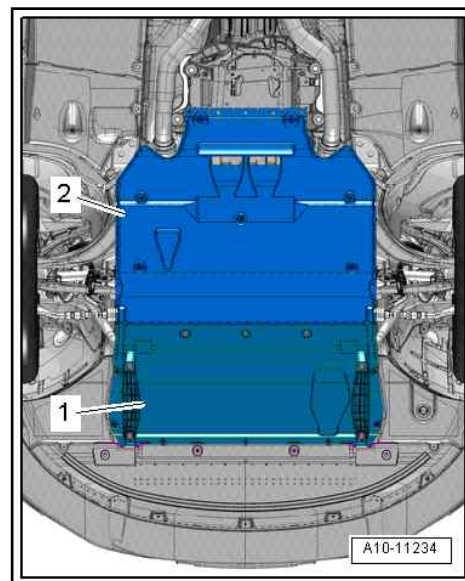
- Gearbox is installed.
- Refer to general repair instructions ⇒ [page 5](#) .
- Remove front wheel (right-side) ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .

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

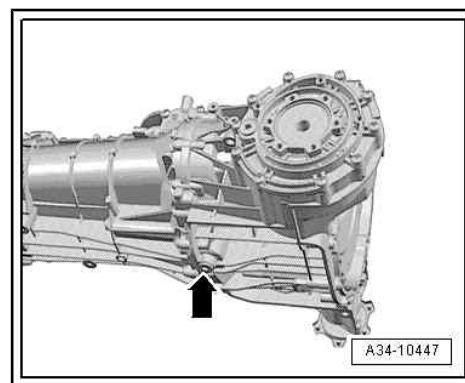


- If fitted, remove noise insulation -1- from wheel housing (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .

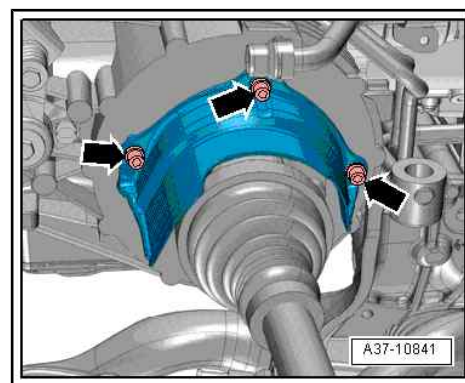
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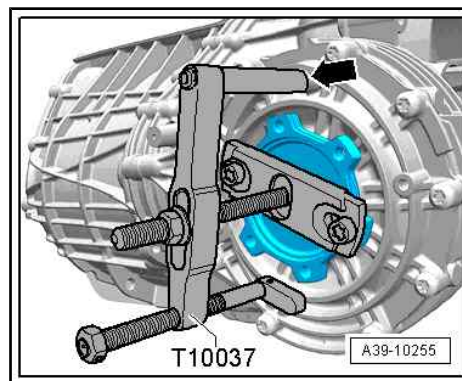
- Place used oil collection and extraction unit - VAS 6622A- below gearbox.
- Unscrew plug -arrow- and drain off gear oil.
- Screw plug -arrow- back in and tighten to 40 Nm.



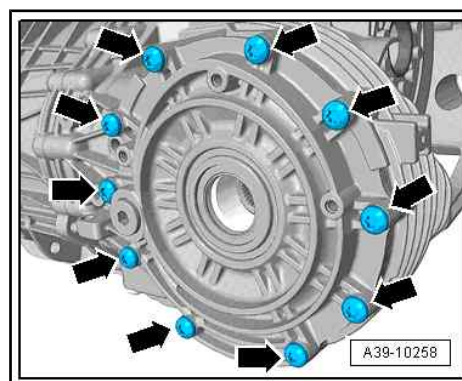
- Remove bolts -arrows- and detach heat shield for drive shaft (right-side).
- Unbolt drive shaft (right-side) from gearbox and place to one side ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .
- Place used oil collection and extraction unit - VAS 6622A- underneath gearbox below differential.



- Remove flange shaft (right-side); to do so, secure puller - T10037- to cover for final drive -arrow-.



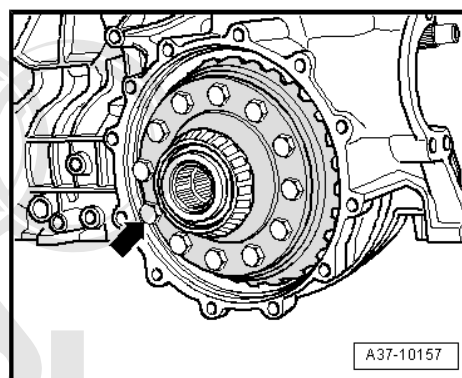
Unscrew bolts -arrows- and detach cover for final drive.



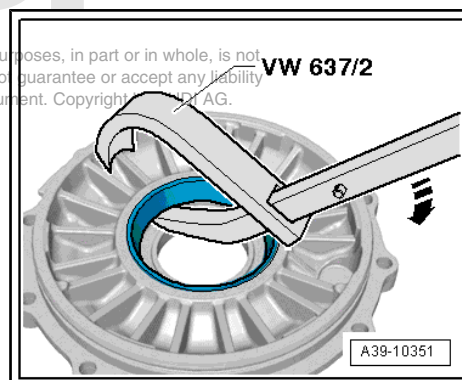
Caution

Take care not to damage differential.

- ◆ *Make sure differential -arrow- does not drop out when cover for final drive is removed.*
- ◆ *A differential which has fallen to the ground can no longer be installed. Renew gearbox if differential has fallen to the ground.*



- Carefully prise tapered roller bearing outer race out of old cover for final drive; to do so apply hub grease cap puller - VW 637/2- on alternate sides and press in direction of arrow-





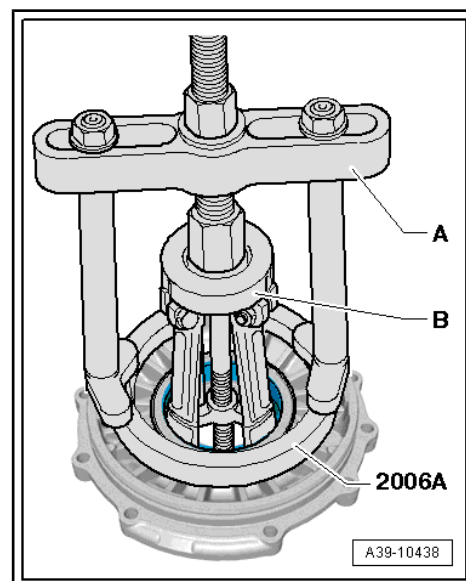
Note

If the tapered roller bearing outer race cannot be removed with the hub grease cap puller - VW 637/2- , use internal puller 56 ... 110 mm -B- and counter-support -A-.

A - Counter-support , e.g. -Kukko 22/4-

B - Internal puller 56 ... 110 mm , e.g. -Kukko 21/89-

- Remove existing shim.



Determining thickness of shim

- Measure dimension -a- on old cover and new cover as follows:
- Insert centring disc - VW 385/41- in bearing seat for tapered roller bearing outer race.
- Using digital depth gauge (e.g. digital depth gauge - VAS 6087-), measure down to joint flange.

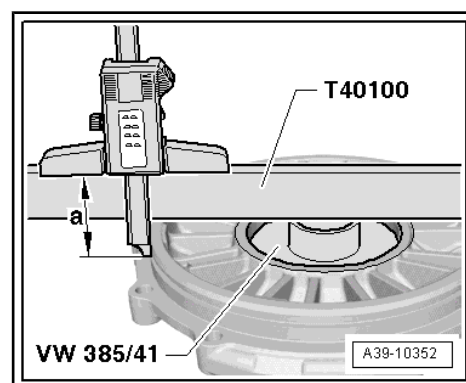
Example:

Dimension -a- on old cover for final drive	58.40 mm
Dimension -a- on new cover for final drive	58.65 mm
Difference	= 0.25 mm

- Install thicker shim if dimension -a- is smaller on new cover.
- Install thinner shim if dimension -a- is greater on new cover.

Example:

Existing shim	1.50 mm
Difference	– 0.25 mm
New shim	= 1.25 mm



Note

Select correct shim from ► Electronic parts catalogue .

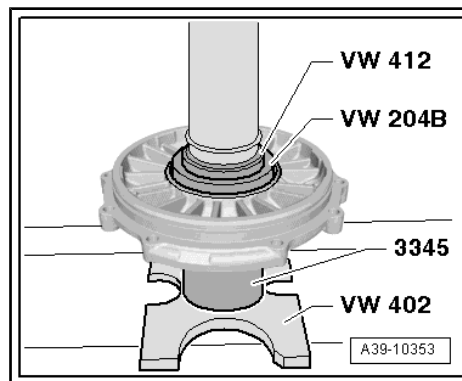
- The shim thickness in this example is 1.25 mm.
- Install new shim of required thickness in new cover for final drive.

- Press in tapered roller bearing outer race as far as stop; smaller $\varnothing$ of -VW 204 B- goes towards tapered roller bearing outer race.



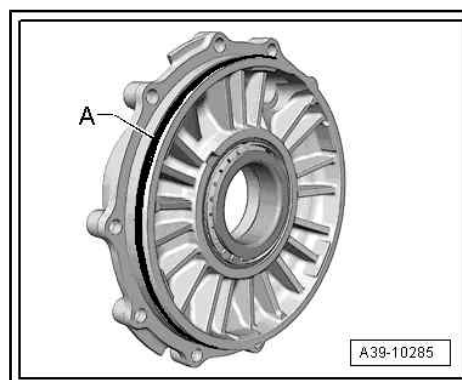
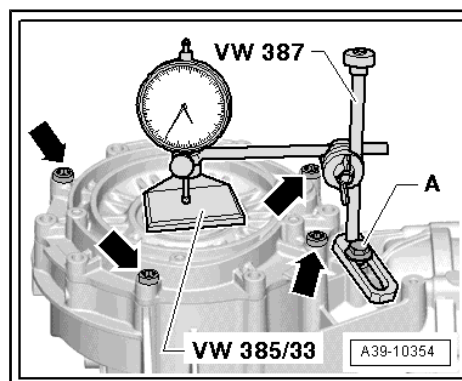
Note

Support cover for final drive with -3345- directly below bearing seat.



Check adjustment of preload of tapered roller bearings for differential as follows:

- Fit cover for final drive without O-ring and tighten 4 bolts -arrows-.
- Attach measuring equipment.
- Secure universal dial gauge bracket - VW 387- to threaded hole in gearbox housing with bolt -A-.
- Apply dial gauge extension to centre of measuring plate - VW 385/33- .
- Set dial gauge (3 mm measuring range) to »0« with 1 mm preload.
- Slacken 4 bolts -arrows- by one turn in diagonal sequence.
- Check reading on dial gauge.
- It should be 0.10 - 0.15 mm.
- Renew O-ring -A-.

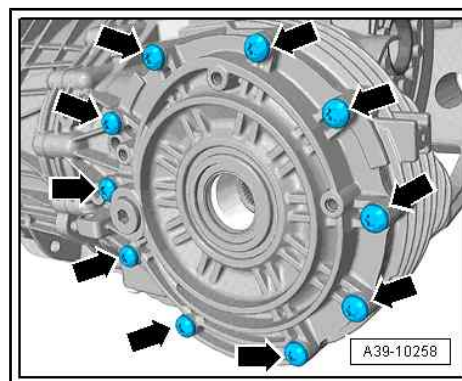


- Then install cover for final drive with new O-ring and tighten bolts -arrows-; tightening torque ➔ [Item 8 \(page 135\)](#) .



Note

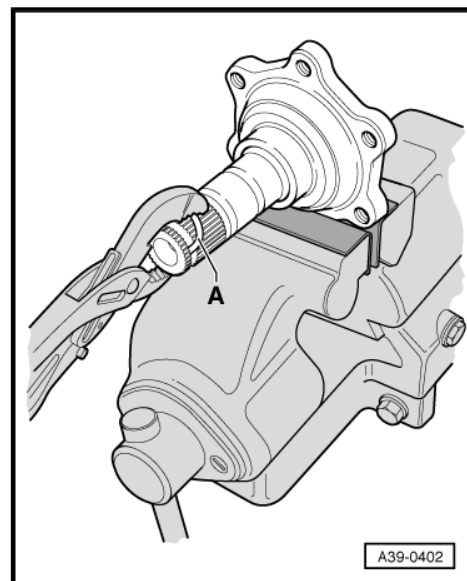
Installing new flange shaft oil seal (right-side) ➔ [page 135](#)



- Always renew circlip -A- for flange shaft (right-side).
- Clamp flange shaft in vice, using jaw protectors. Use new circlip -A- to press old circlip out of groove in flange shaft.
- Drive in flange shaft (right-side) with drift - VW 295- .
- Fill up with gear oil and check gear oil level ➔ [page 125](#) .

Tightening torques

- ◆ ➔ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Exploded view - drive shaft
- ◆ ➔ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation
- ◆ ➔ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres



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2 Oil seals

⇒ "2.1 Overview of fitting locations - oil seals", page 134

⇒ "2.2 Renewing oil seal (right-side)", page 135

2.1 Overview of fitting locations - oil seals

The oil seals -A- and -B- can only be renewed with the gearbox removed from the vehicle ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 39 ; Overview of fitting locations - oil seals .

The oil seals -C-, and -D- can be renewed with the gearbox installed in the vehicle.



Note

If you are renewing the cover for the final drive -item 2-, you must adjust the preload of the tapered roller bearings for the differential ⇒ [page 127](#) .

A - Oil seal

- ☐ For input shaft
- ☐ Renewing ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 39 ; Overview of fitting locations - oil seals

B - Oil seal

- ☐ For flange shaft (left-side)
- ☐ Renewing ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 39 ; Overview of fitting locations - oil seals

C - Oil seal

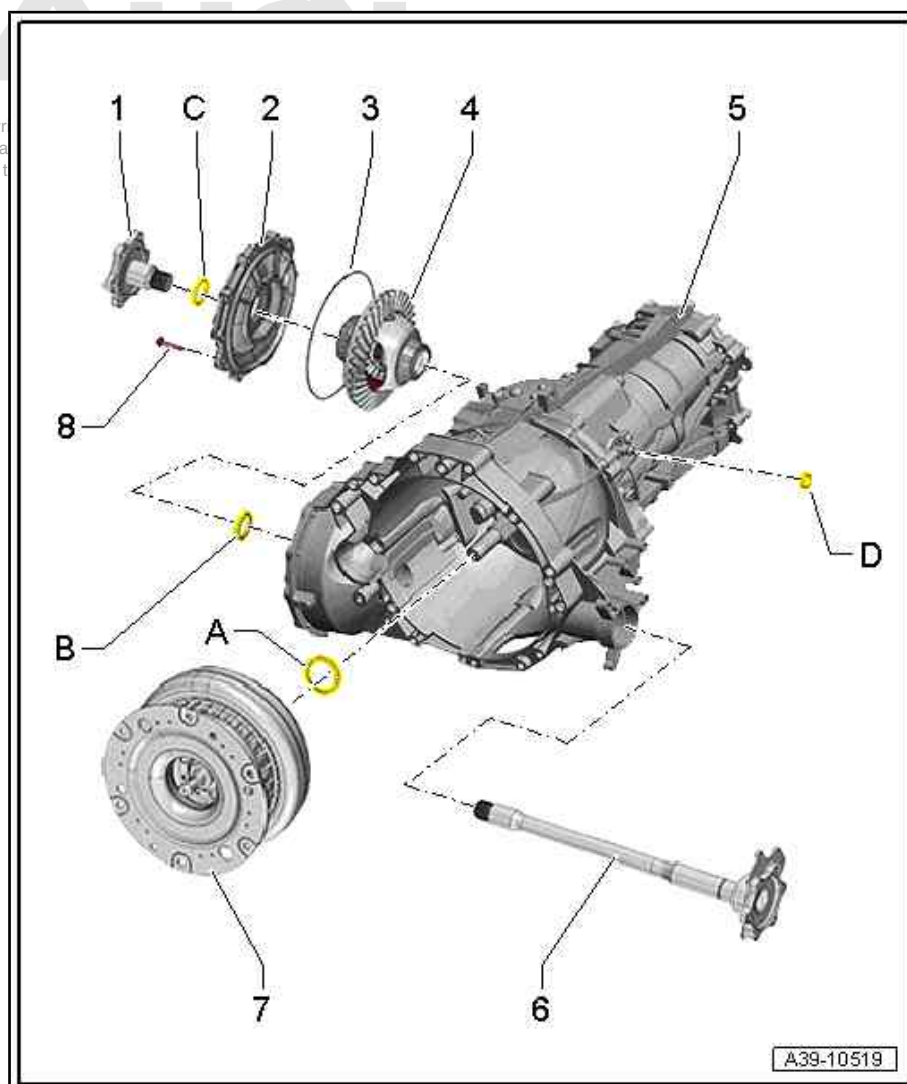
- ☐ For flange shaft (right-side)
- ☐ Renewing ⇒ [page 135](#)

D - Oil seal

- ☐ For selector shaft
- ☐ Renewing ⇒ [page 47](#)

1 - Flange shaft (right-side)

- ☐ Removing and installing



⇒ [page 137](#)

2 - Cover for final drive

- ☐ Renewing ⇒ [page 127](#)

3 - O-ring

- ☐ On cover for final drive
- ☐ Renewing
⇒ [“1.1 Renewing cover for final drive”, page 127](#)

4 - Differential

5 - Gearbox

- ☐ Removing and installing ⇒ [page 58](#)

6 - Flange shaft (left-side)

- ☐ Removing and installing ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 39 ;
Exploded view - differential

7 - Clutch module

- ☐ Removing and installing ⇒ Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 30 ;
Removing and installing clutch module

8 - Bolt

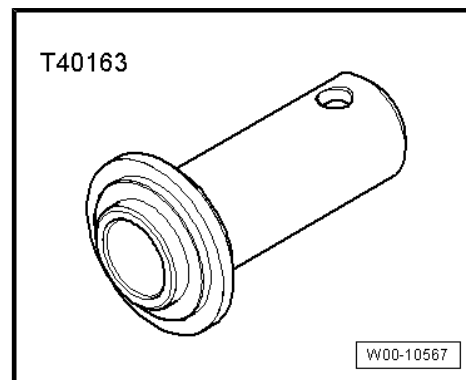
- ☐ 20 Nm and then turn 90° further
- ☐ Steel bolts (M8; 38 mm long)
- ☐ 10x

2.2 Renewing oil seal (right-side)

Special tools and workshop equipment required

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◆ Thrust piece - T40163

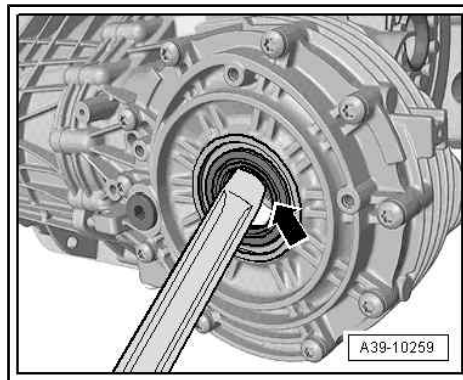


- ◆ Sealing grease - G 052 128 A1-

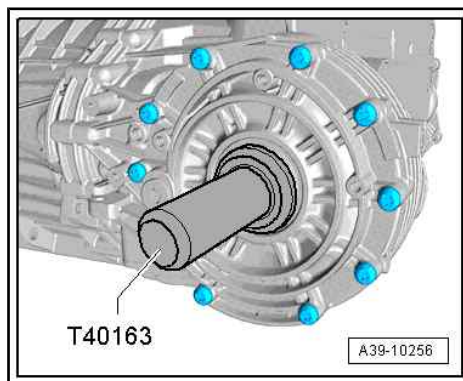
Procedure

- Gearbox in vehicle
- Remove flange shaft (right-side) ⇒ [page 137](#) .

- Lever out flange shaft oil seal.



- Lightly oil outer circumference of new oil seal.
- Drive in new flange shaft oil seal (right-side) as far as stop; keep seal straight when installing.
- Pack space between sealing lip and dust lip half-full with sealing grease - G 052 128 A1- .
- Install flange shaft (right-side) ⇒ [page 137](#) .



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3 Differential

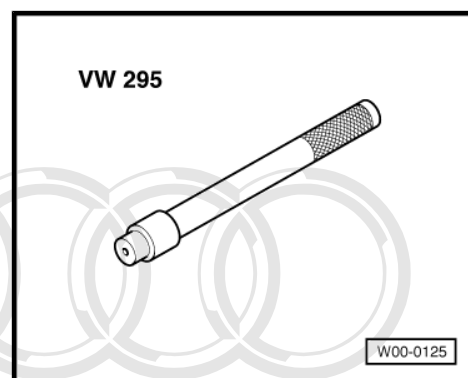
⇒ [“3.1 Removing and installing flange shaft \(right-side\)”, page 137](#)

Dismantling and assembling differential: For a detailed description please refer to the Workshop Manual ⇒ **Servicing 6-speed manual gearbox 0B1, front-wheel drive; Rep. gr. 39 ; Exploded view - differential .**

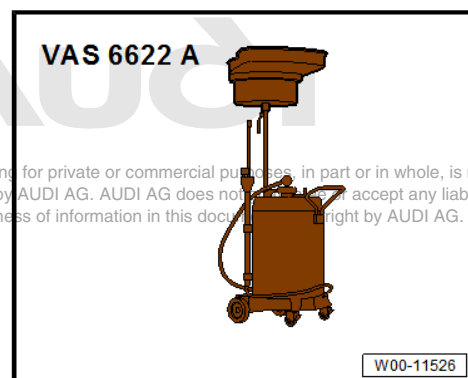
3.1 Removing and installing flange shaft (right-side)

Special tools and workshop equipment required

- ◆ Drift - VW 295-



- ◆ Used oil collection and extraction unit - VAS 6622A-



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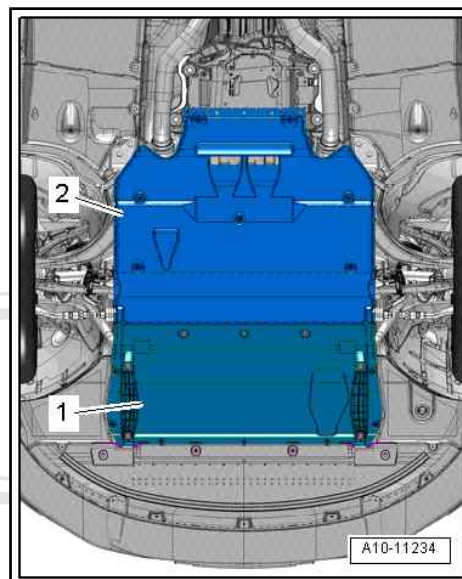
- ◆ Puller - T10037-



Removing

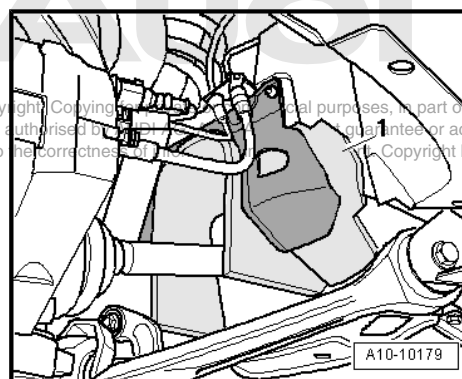
- Gearbox is installed.
- Refer to general repair instructions ⇒ [page 5](#) .
- Remove front wheel (right-side) ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .

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

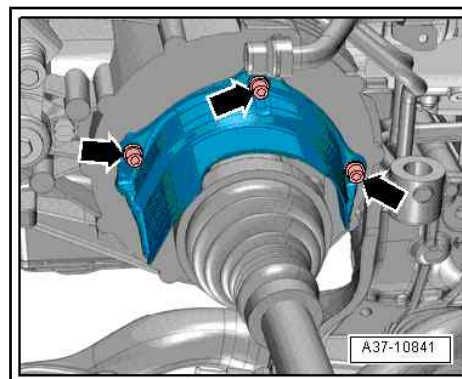


- If fitted, remove noise insulation -1- from wheel housing (right-side) ➔ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .

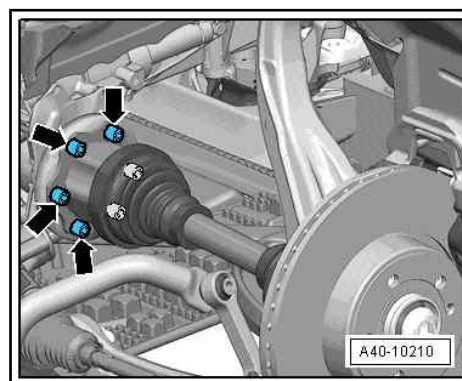
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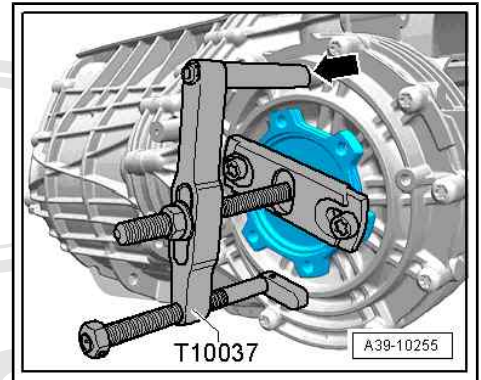
- Remove bolts -arrows- and detach heat shield for drive shaft (right-side).



- Unbolt drive shaft (right-side) from gearbox and place to one side ➔ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .



- Place used oil collection and extraction unit - VAS 6622A- below gearbox.
- Remove flange shaft (right-side); to do so, secure puller - T10037- to gearbox housing -arrow-.



Installing

Installation is carried out in reverse sequence; 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.
- Knock flange shaft in with drift - VW 295- .
- Fill up oil in gearbox and check oil level ⇒ [page 125](#) .

Tightening torque

- ◆ ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Exploded view - drive shaft
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation
- ◆ ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres

