

Workshop Manual
Audi A3 2004 ➤
Audi A3 Cabriolet 2008 ➤
6-speed manual gearbox 0AJ

Edition 03.2017

List of Workshop Manual Repair Groups

Repair Group

- 00 - Technical data
- 30 - Clutch
- 34 - Controls, housing
- 35 - Gears, shafts
- 39 - Final drive - 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 Gearbox identification

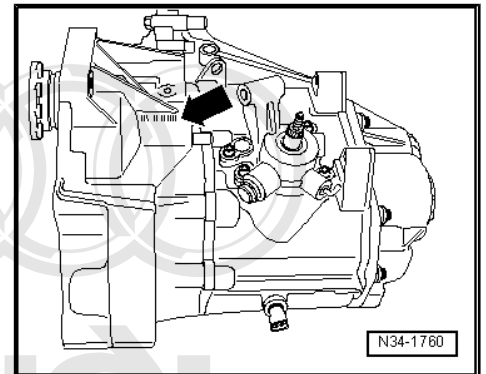
(ARL005180; Edition 03.2017)

The 6-speed manual gearbox 0AJ is fitted in conjunction with the 1.2 ltr. and 1.4 ltr. turbocharged engine in the Audi A3 2004 ➤.

Allocation ➔ [page 1](#) .

Location on gearbox

Code letters and production date of gearbox -arrow-



Code letters and production date of gearbox -arrow-

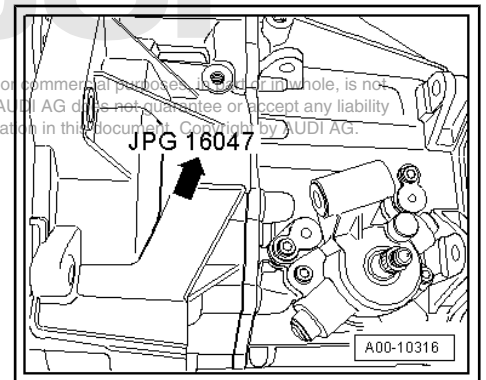
Example:	JPG	16	04	7
	Code letters	Day	Month	Year (2003) of manufacture

Additional data identify the factory where the unit was built.



Note

The code letters for the gearbox are also given on the vehicle data stickers.



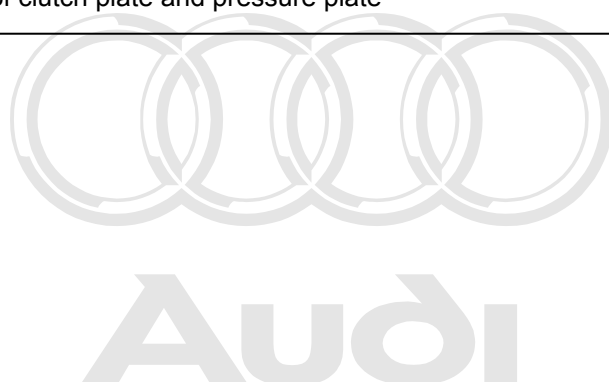
1.1 Code letters, allocation, capacities

Manual gearbox		0AJ			
Code letters		JPG	KRG	LHY	LNy
Allocation	Model	Audi A3 2004 ➤	Audi A3 2004 ➤	Audi A3 2004 ➤	Audi A3 2004 ➤
	Engine	1.4 ltr. - 92 kW	1.4 ltr. - 92 kW	1.2 ltr. - 77 kW 1.4 ltr. - 92 kW	1.2 ltr. - 77 kW 1.4 ltr. - 92 kW
Ratio $Z_2 : Z_1 = i$	Final drive	74 : 17 = 4.353	73 : 18 = 4.055	73 : 18 = 4.055	73 : 18 = 4.055
	1st gear	47 : 13 = 3.615	47 : 13 = 3.615	47 : 13 = 3.615	47 : 13 = 3.615
	2nd gear	43 : 22 = 1.955	43 : 22 = 1.955	43 : 22 = 1.955	43 : 22 = 1.955
	3rd gear	41 : 32 = 1.281	41 : 32 = 1.281	41 : 32 = 1.281	41 : 32 = 1.281
	4th gear	36 : 37 = 0.973	36 : 37 = 0.973	36 : 37 = 0.973	36 : 37 = 0.973
	5th gear	35 : 45 = 0.778	35 : 45 = 0.778	35 : 45 = 0.778	35 : 45 = 0.778
	6th gear	31 : 48 = 0.646	31 : 48 = 0.646	31 : 48 = 0.646	31 : 48 = 0.646
	Reverse gear	35 : 24 x 24 : 11 = 3.182	35 : 24 x 24 : 11 = 3.182	35 : 24 x 24 : 11 = 3.182	35 : 24 x 24 : 11 = 3.182
i_{ov} in top gear		2.811	2.620	2.620	2.620



Manual gearbox	0AJ			
Code letters	JPG	KRG	LHY	LNy
Capacity of manual gearbox	2.2 ltr.			
The following data can be found in the ⇒ Electronic parts catalogue .				
◆ Gear oil specification				
◆ Allocation of flange shafts				
◆ Allocation and diameter of clutch plate and pressure plate				

Manual gearbox		0AJ			
Code letters		NBW	NBX		
Allocation	Model	Audi A3 2004 ►	Audi A3 2004 ►		
	Engine	1.2 ltr. - 77 kW 1.4 ltr. - 92 kW	1.2 ltr. - 77 kW 1.4 ltr. - 92 kW		
Ratio $Z_2 : Z_1 = i$	Final drive	73 : 18 = 4.055	73 : 18 = 4.055		
	1st gear	47 : 13 = 3.615	47 : 13 = 3.615		
	2nd gear	37 : 19 = 1.947	37 : 19 = 1.947		
	3rd gear	41 : 32 = 1.281	41 : 32 = 1.281		
	4th gear	36 : 37 = 0.973	36 : 37 = 0.973		
	5th gear	35 : 45 = 0.778	35 : 45 = 0.778		
	6th gear	31 : 48 = 0.646	31 : 48 = 0.646		
	Reverse gear	35 : 24 x 24 : 11 = 3.182	35 : 24 x 24 : 11 = 3.182		
i_{ov} in top gear		2.620	2.620		
Capacity of manual gearbox		2.2 ltr.			
The following data can be found in the ⇒ Electronic parts catalogue .					
◆ Gear oil specification					
◆ Allocation of flange shafts					
◆ Allocation and diameter of clutch plate and pressure plate					



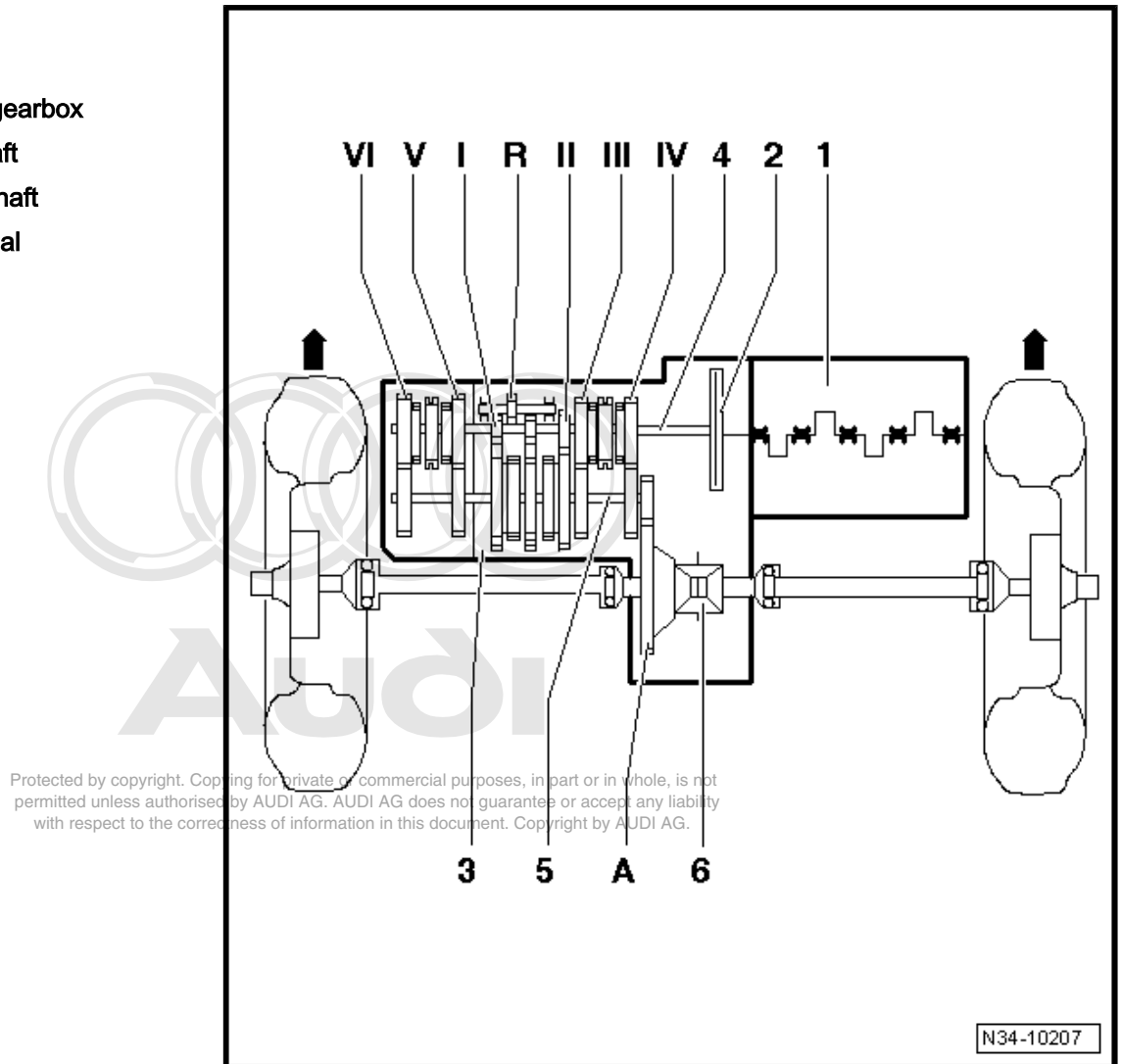
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2 Transmission layout

Identification

-Arrows- point in direction of travel

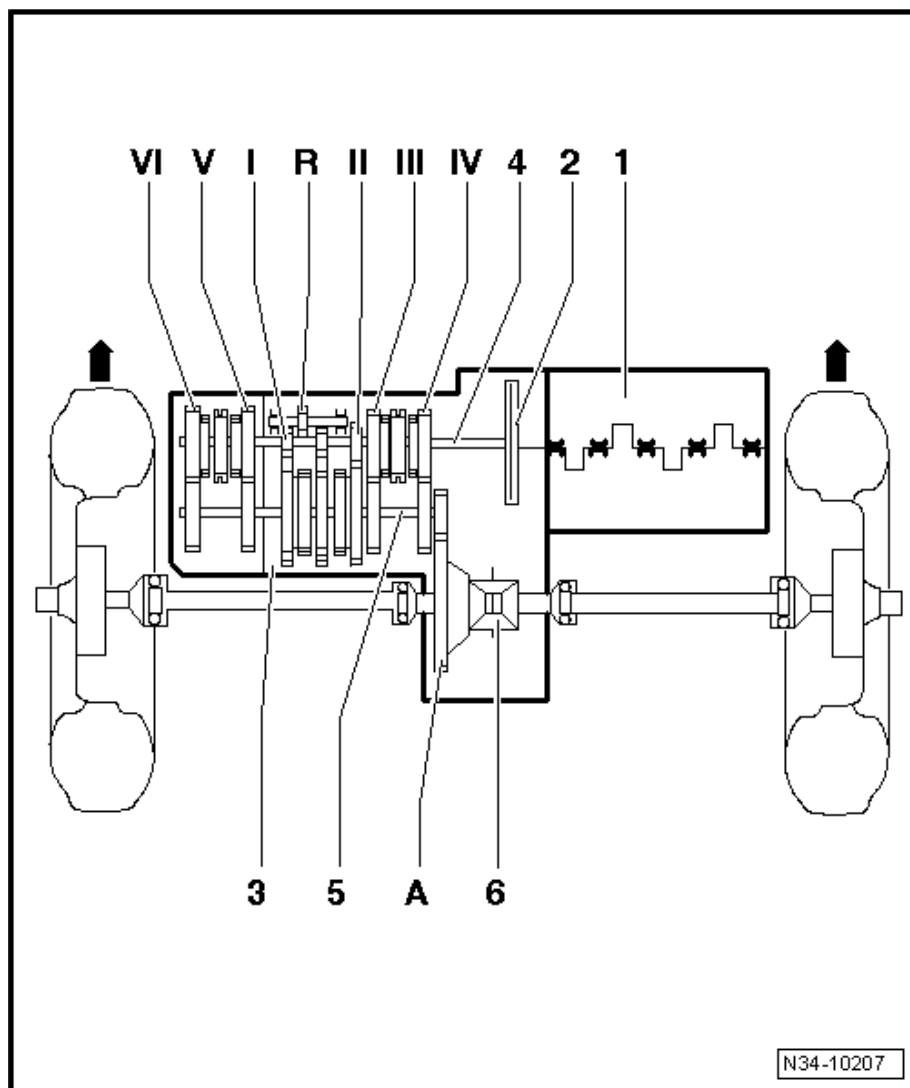
- 1 - Engine
- 2 - Clutch
- 3 - Manual gearbox
- 4 - Input shaft
- 5 - Output shaft
- 6 - Differential



Ratio

-Arrows- point in direction of travel

- I - 1st gear
- II - 2nd gear
- III - 3rd gear
- IV - 4th gear
- V - 5th gear
- VI - 6th gear
- R - Reverse gear
- A - Final drive



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3 Calculating ratio "i"

Example:

	6th gear	Final drive
Driving gear	$ZG_1 = 48$	$ZA_1 = 17$
Driven gear	$ZG_2 = 31$	$ZA_2 = 74$

$$i = Z_2 : Z_1 \text{ } ^{1)}$$

$$i_G = \text{gear ratio} = ZG_2 : ZG_1 = 31 : 48 = 0.646$$

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$$i_A = \text{axle ratio} = ZA_2 : ZA_1 = 74 : 17 = 4.353$$

$$i_{ov} = \text{overall ratio} = i_G \times i_A = 0.646 \times 4.353 = 2.811$$

1) Z_1 = number of teeth on driving gear, Z_2 = number of teeth on driven gear

4 General repair instructions

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

A number of generally applicable instructions for the various repair procedures 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

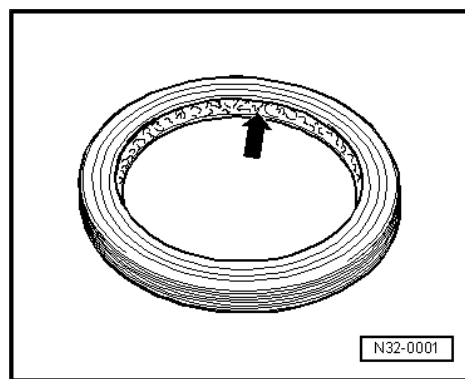
- ◆ When installing the gearbox, ensure that the dowel sleeves between the engine and the gearbox are correctly located.
- ◆ Thoroughly clean all joints and connections and the surrounding areas before disconnecting.
- ◆ When installing mounting brackets as well as other waxed components, the contact surfaces must be cleaned. The contact surfaces must be free of wax and grease.
- ◆ Allocate bolts and other components according to ⇒ Electronic parts catalogue .
- ◆ When installing a replacement gearbox, check the gear oil level and top up as required ⇒ [page 98](#) : capacities ⇒ [page 1](#) ; specification ⇒ Electronic parts catalogue .

Sealant

- ◆ Thoroughly clean joint surfaces on gearbox housing etc. before applying sealing paste.
- ◆ Apply sealing paste - AMV 188 200 03- evenly and not too thick.
- ◆ Breather holes must remain free of sealing paste.

Oil seals, seals, O-rings and gaskets

- ◆ Always renew oil seals, O-rings 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.
- ◆ 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 in the housing so 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 with oil before installation to prevent them being trapped during assembly.
- ◆ Check oil level after installing new gaskets, O-rings and oil seals ⇒ [page 98](#) .

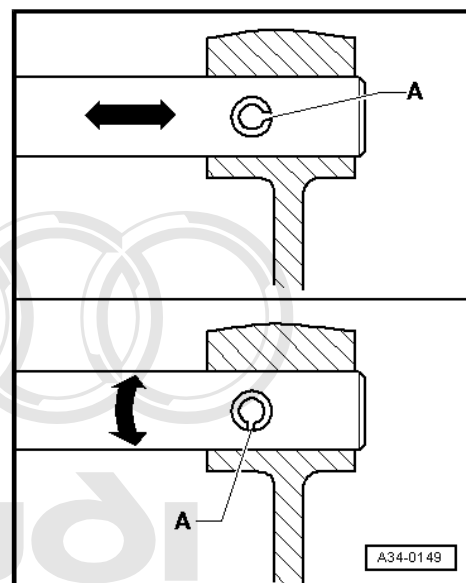


Locking elements

- ◆ 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-.

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.
- ◆ Parts which are particularly sensitive (e.g. clutch pressure plate) must be kept straight. Loosen and tighten bolts and nuts in stages and in diagonal sequence.
- ◆ Always renew self-locking nuts and bolts.
- ◆ The tightening torques stated apply to **non-oiled nuts and bolts**.
- ◆ 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.
- ◆ For all threaded connections, ensure that (where applicable) the contact surfaces and the nuts and bolts are not coated with wax until after assembly is completed.



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Bearings

- ◆ Install new tapered roller bearings as supplied; do not lubricate additionally with oil.
- ◆ Lubricate all bearings (except tapered roller bearings) with gear oil before installing in gearbox.
- ◆ Use inductive heater - VAS 6414- to heat inner races of tapered roller bearings to approx. 100°C before installing. Press home onto stop when installing so there is no axial clearance.
- ◆ Do not interchange inner or outer races of bearings of the same size.
- ◆ Always renew the tapered roller bearings on one shaft together and use new bearings from a single manufacturer.
- ◆ Install needle bearings so the lettering (side with thicker metal) faces towards the installing tool.

Shims

- ◆ Use a micrometer to measure the shims at several points. Different shim thicknesses make it possible to obtain the exact thickness required.
- ◆ Check for burrs and damage. Install only shims which are in perfect condition.
- ◆ Install only shims which are in perfect condition.

Synchro-rings

- ◆ Do not interchange synchro-rings. When reusing always fit to the same selector gear.
- ◆ Check for wear; renew if necessary.
- ◆ Check the grooves -arrow 1- on synchro-ring -A- and on inner ring for wear (flattened sections in grooves).
- ◆ Make sure that the coating of coated synchro-rings is not damaged.
- ◆ If an intermediate ring -B- is fitted, check the outer contact surface -arrow 2- and inner contact surface -arrow 3- of the intermediate ring for »scoring«, »visible traces of wear« and »blue discolouration (caused by overheating)«.
- ◆ Check cone on selector gear for scoring and visible traces of wear.
- ◆ Lubricate synchro-rings with gear oil before installing.

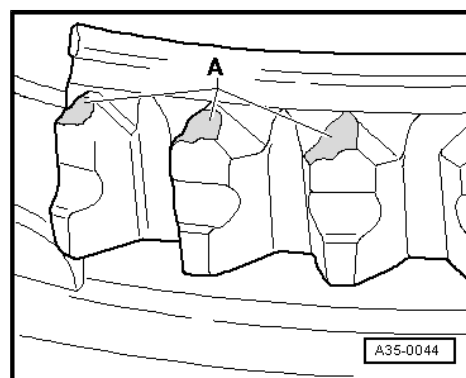
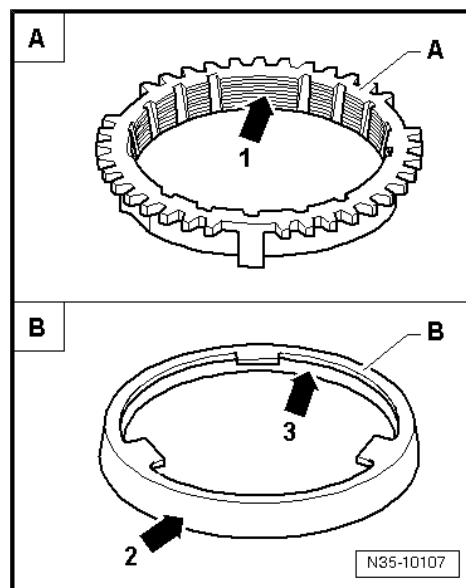
Gear wheels

- ◆ Clean before pressing on.
- ◆ Use inductive heater - VAS 6414- to heat to approx. 100°C before installing. Press home onto stop when installing so there is no axial clearance.

Selector gears and locking collars

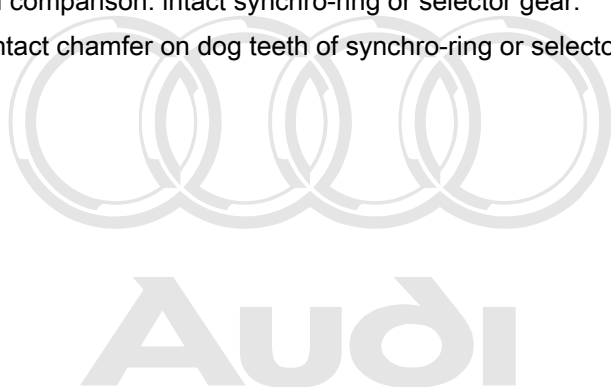
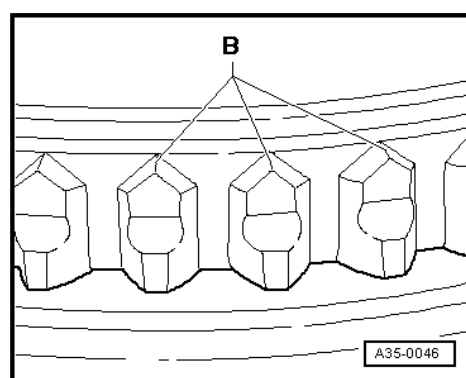
- ◆ After installing, check 1st to 5th selector gears for minimal axial play and freedom of movement.
- ◆ Abnormal wear on synchro-ring or selector gear:

A - Worn chamfer on dog teeth of synchro-ring or selector gear.



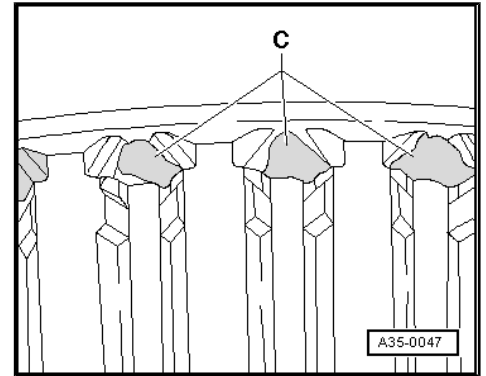
- ◆ In comparison: intact synchro-ring or selector gear:

B - Intact chamfer on dog teeth of synchro-ring or selector gear.



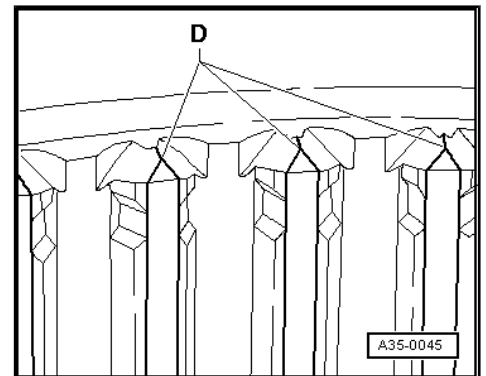
- ◆ Abnormal wear on locking collar:

C - Worn chamfer on internal splines of locking collar.



- ◆ In comparison: intact locking collar:

D - Intact chamfer on internal splines of locking collar.



Clutch mechanism

- ◆ 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.
- ◆ 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 (further measures ➔ [page 10](#)).
- ◆ Ensure that the pressure plate is kept straight: loosen and tighten bolts in a diagonal sequence and in several gradual stages.
- ◆ If the clutch has burnt out, thoroughly clean the clutch housing, flywheel and parts of the engine facing the gearbox in order to prevent odour.
- ◆ Only blow out dual-mass flywheel with compressed air.

4.1 Contact corrosion

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

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

Rubber or plastic parts and adhesives also consist of non-conductive materials.

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 caused by contact corrosion is not covered by warranty.

30 – Clutch

1 Overview - clutch mechanism



Note

If you suspect a defective clutch master cylinder or clutch slave cylinder, pay attention to

⇒ “1.1 Notes on removing and installing clutch master cylinder and slave cylinder”, page 10 and perform
⇒ “1.2 Function check for clutch master cylinder and slave cylinder”, page 11 prior to renewing.

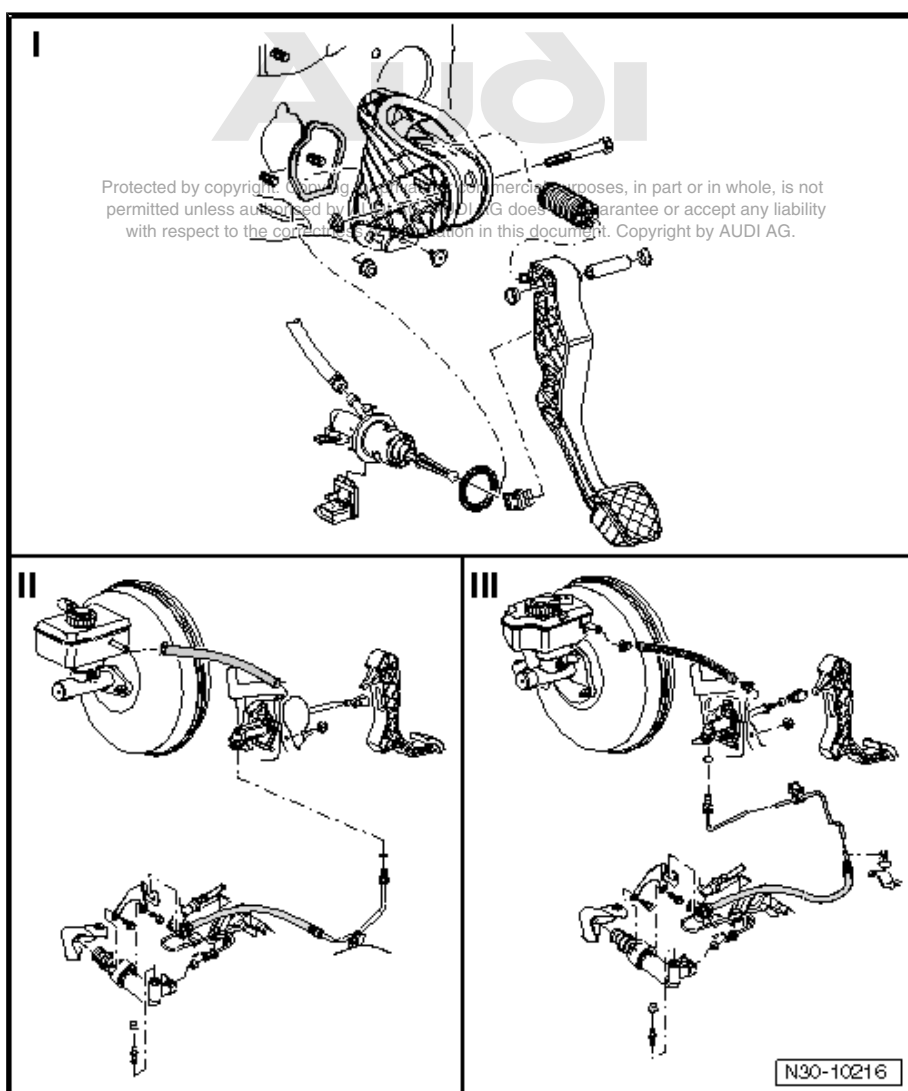
I - ⇒ “2 Exploded view - pedal cluster, clutch master cylinder”, page 13

- ⇒ “2.1 Removing and installing over-centre spring”, page 14
- ⇒ “2.2 Removing and installing clutch pedal”, page 16
- ⇒ “2.3 Removing and installing mounting bracket”, page 18
- ⇒ “2.4 Removing and installing clutch position sender G476”, page 21
- ⇒ “2.5 Removing and installing clutch master cylinder”, page 22

II - ⇒ “3 Exploded view - hydraulics, left-hand drive vehicles”, page 25

- ⇒ “3.2 Removing and installing clutch slave cylinder”, page 28
- ⇒ “3.3 Removing and installing pipe/hose assembly or plastic pipe”, page 30
- ⇒ “3.4 Bleeding clutch system”, page 32

III - ⇒ “3.1 Exploded view - hydraulics, right-hand drive vehicles”, page 27



1.1 Notes on removing and installing clutch master cylinder and slave cylinder

- ◆ 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

⇒ ["1.2 Function check for clutch master cylinder and slave cylinder", page 11](#) .

- ◆ If the slave cylinder is removed from gearbox with the pipe/hose assembly still attached, make sure you do not press the clutch pedal. Otherwise, the piston will be pressed out of the slave cylinder and be destroyed.
- ◆ After installing the slave cylinder, carefully press the clutch pedal. If you feel an unusually strong point of resistance when pressing 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.

1.2 Function check for clutch master cylinder and 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 pressed / does not return to its initial position.

- ◆ Check whether the clutch pedal returns all the way to its initial position, thereby uncovering the vent opening in the master cylinder.
- ◆ The vent opening is integrated in the clutch master cylinder. It is not visible from the outside.
- ◆ The vent opening must be uncovered, otherwise the permanent self-bleeding function for the hydraulic clutch system will no longer be effective.
- ◆ 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 master cylinder can no longer function.
- ◆ The self-bleeding function of the clutch system can be impaired if the footwell trim or floor mats get trapped, if the clutch pedal switch jams or if the driver rests his foot on the clutch pedal for long periods of time.

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 32](#) .

Pedal forces:

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



High pedal force:

- ◆ Mechanically defective pressure plate/clutch plate
⇒ [page 37](#) .

Clutch does not disengage or does not disengage fully:

- ◆ Air in hydraulic system: bleed clutch system ⇒ [page 32](#) and check hydraulic system for external and internal leaks.
- ◆ Clutch plate does not move smoothly on input shaft splines (due to corrosion or dirt, etc.)
- ◆ Foreign body in clutch system
- ◆ Mechanically defective pressure plate/clutch plate
⇒ [page 37](#) .
- ◆ Wrong components used or components forgotten when carrying out repair work (e.g. intermediate plate or dowel sleeves).



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2 Exploded view - pedal cluster, clutch master cylinder



Note

Lubricate all bearings and moving surfaces with grease - G 000 450 02-.

1 - Pipe/hose assembly or plastic pipe

- ☐ For correct version, refer to ⇒ Electronic parts catalogue
- ☐ Disconnecting from clutch master cylinder and clutch slave cylinder ⇒ [page 26](#)
- ☐ Removing and installing ⇒ [page 30](#)

2 - Seal or O-ring

- ☐ Matched to type of connection ⇒ [page 26](#)
- ☐ For correct version, refer to ⇒ Electronic parts catalogue
- ☐ Renew damaged seals or O-rings
- ☐ Push onto pipe connection
- ☐ Lubricate with brake fluid before installing

3 - Clip

4 - Supply hose

- ☐ To brake fluid reservoir
- ☐ With seal ⇒ [Item 2 \(page 25\)](#)

5 - Nut

- ☐ 25 Nm
- ☐ 3x
- ☐ Self-locking
- ☐ Renew

6 - Gasket

- ☐ Renew

7 - Mounting bracket

- ☐ For clutch pedal
- ☐ Removing and installing ⇒ [page 18](#)

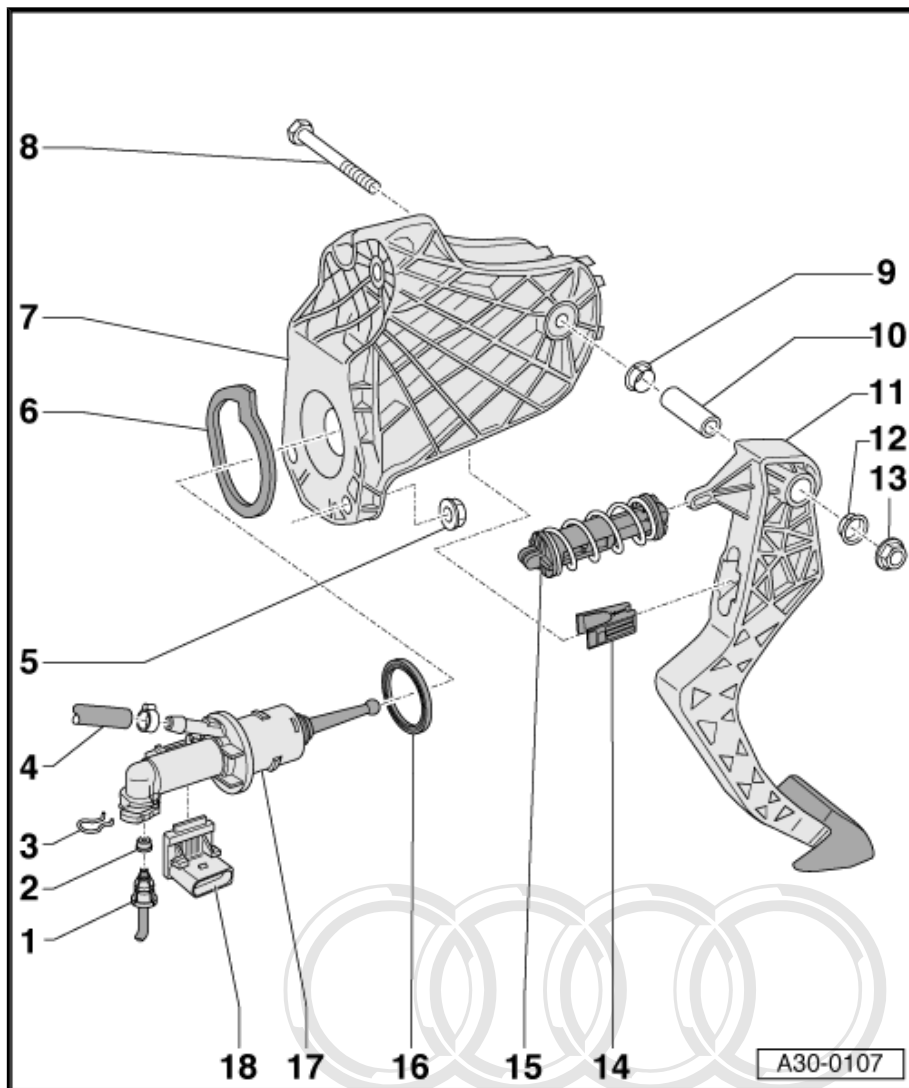
8 - Bolt

9 - Bearing bush

10 - Pivot pin

11 - Clutch pedal

- ☐ Removing and installing ⇒ [page 16](#)





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12 - Bearing bush

13 - Nut

- ☐ 25 Nm
- ☐ Self-locking
- ☐ Renew

14 - Retaining clip

- ☐ For operating rod on clutch master cylinder

15 - Over-centre spring

- ☐ Removing and installing ⇒ [page 14](#)

16 - Seal

- ☐ Renew

17 - Clutch master cylinder

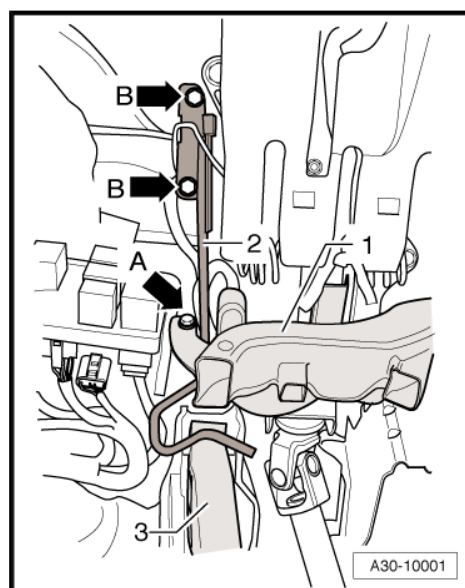
- ☐ Removing and installing ⇒ [page 22](#)

18 - Clutch position sender - G476-

- ☐ Removing and installing ⇒ [page 21](#)
- ☐ Checking in "Guided Fault Finding" ⇒ Vehicle diagnostic tester

Crash bar - tightening torque

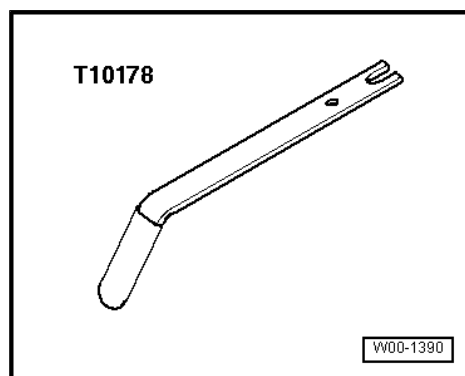
- Fit crash bar -2- and tighten 1 or 2 bolts (depending on version) -arrows B-.
- M6 - 10 Nm
- M8 - 20 Nm



2.1 Removing and installing over-centre spring

Special tools and workshop equipment required

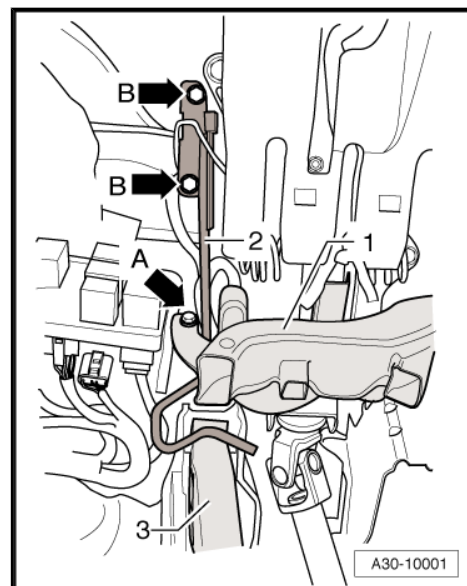
- ◆ Assembly tool - T10178-



◆ Grease - G 000 450 02-

Removing

- Clutch pedal mounting bracket fitted in vehicle
- Move driver's seat away from pedals.
- Remove storage compartment on driver's side ⇒ Rep. gr. 68 .
- Unscrew bolt -arrow A- and remove footwell vent (front left) -1-.
- Unclip wiring harness at rear of footwell vent -1- and move clear to one side.
- Unbolt crash bar -2- (secured by one or two bolts -arrows B-, depending on version).



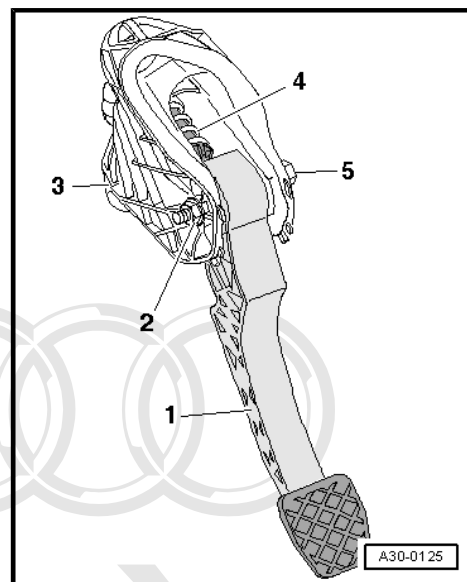
- Unbolt clutch pedal -1- from mounting bracket -3-. To do this, remove nut -2- and pull out bolt -5-.



Note

The clutch pedal does not have to be detached from the operating rod on the clutch master cylinder.

- Pivot clutch pedal down slightly and take over-centre spring -4- out of mounting bracket.



Installing

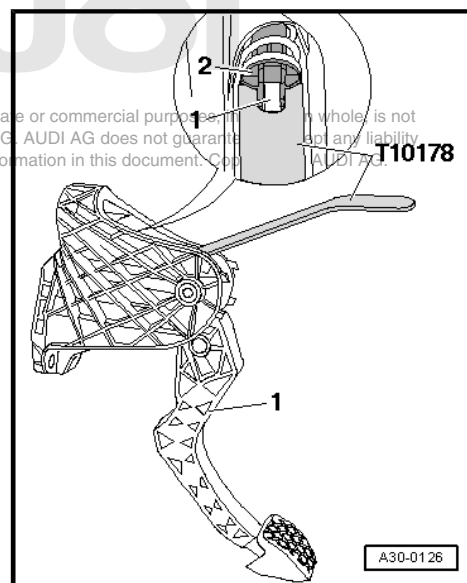
Installation is carried out in reverse sequence; note the following:



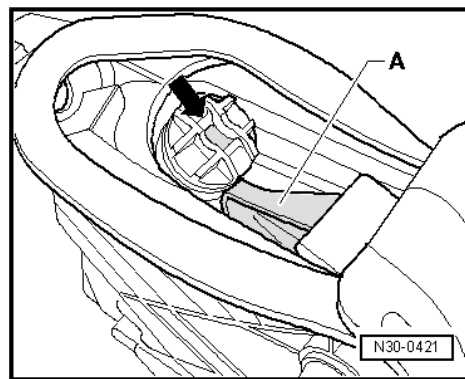
Note

- ◆ *Renew self-locking nut.*
- ◆ *Lubricate all bearings and contact surfaces with grease - G 000 450 02- .*
- Fit over-centre spring -2- into mounting bracket from above while holding end of spring in correct position with assembly tool - T10178- .

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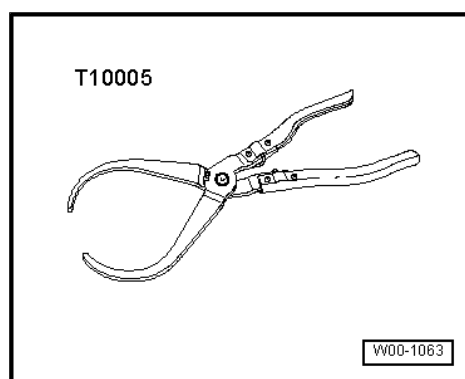
- Socket -arrow- of over-centre spring must be in vertical position.
- Fit actuator on clutch pedal -A- into corresponding socket in over-centre spring -arrow-.
- Press clutch pedal slightly, push bolt through and tighten self-locking nut. Tightening torque ⇒ [Item 13 \(page 14\)](#)
- Install crash bar ⇒ [page 14](#) .
- Install footwell vent (front left) ⇒ Rep. gr. 80 .
- Install storage compartment on driver's side ⇒ Rep. gr. 68 .



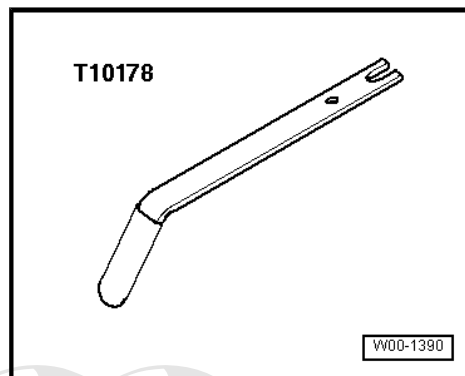
2.2 Removing and installing clutch pedal

Special tools and workshop equipment required

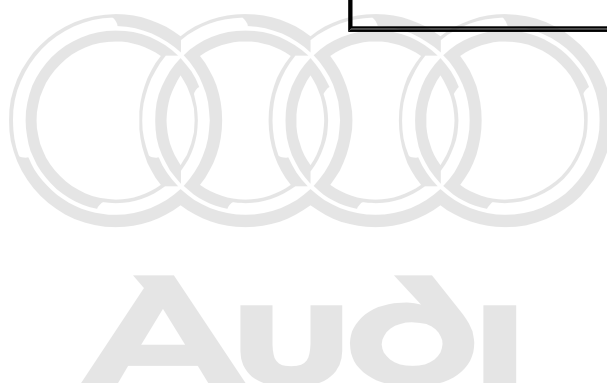
- ◆ Pliers - T10005-



- ◆ Assembly lever - T10178-



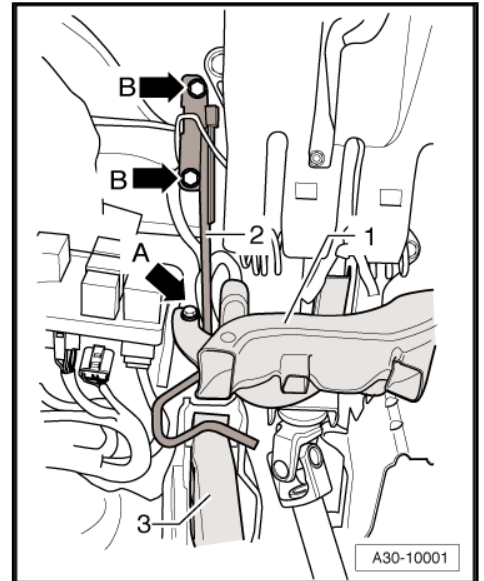
- ◆ Grease - G 000 450 02-



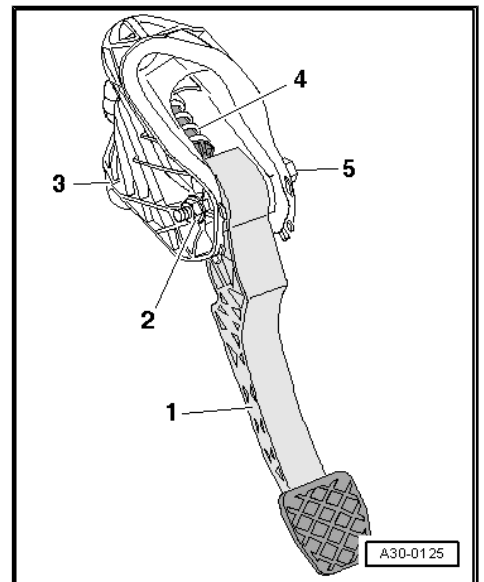
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Removing

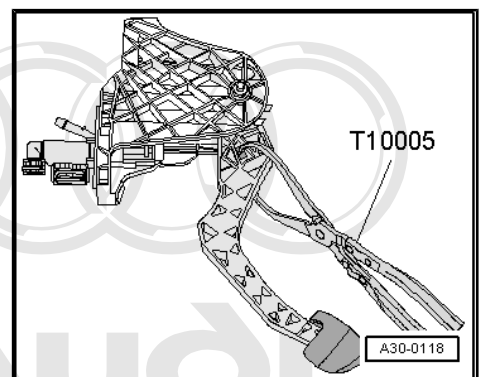
- Clutch pedal mounting bracket fitted in vehicle
- Move driver's seat away from pedals.
- Remove storage compartment on driver's side ⇒ Rep. gr. 68 .
- Unscrew bolt -arrow A- and remove footwell vent (front left) -1-.
- Unclip wiring harness at rear of footwell vent -1- and move clear to one side.
- Unbolt crash bar -2- (secured by one or two bolts -arrows B-, depending on version).



- Unbolt clutch pedal -1- from mounting bracket -3-. To do this, remove nut -2- and pull out bolt -5-.
- Pivot clutch pedal down slightly and take over-centre spring -4- out of mounting bracket.



- Release retaining clip for operating rod on clutch master cylinder using pliers - T10005- .
- Remove clutch pedal.



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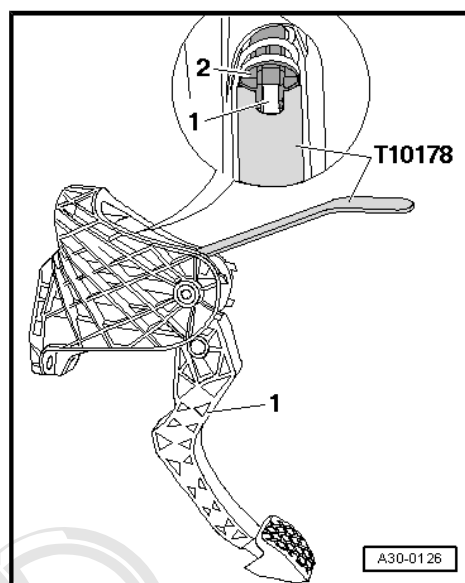
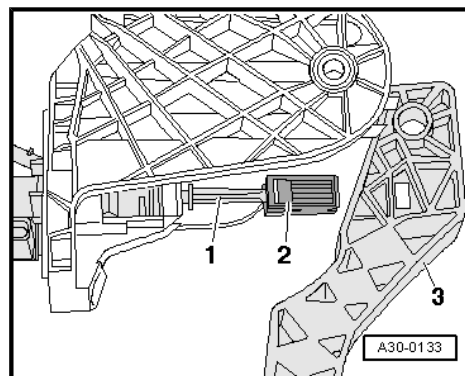
Installing

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

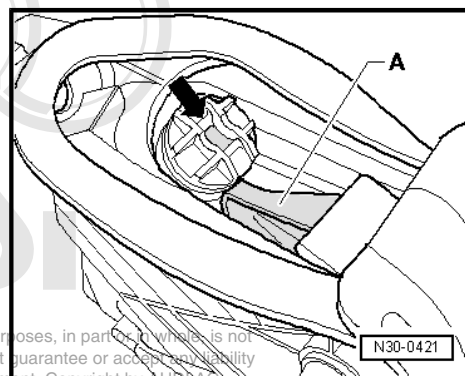


Note

- ◆ *Renew self-locking nut.*
- ◆ *Lubricate all bearings and contact surfaces with grease - G 000 450 02- .*
- Install retaining clip -2- on operating rod -1- for clutch master cylinder.
- Press retaining clip into mounting on clutch pedal so that it snaps into place.
- Fit over-centre spring -2- into mounting bracket from above while holding end of spring in correct position with assembly tool - T10178- .



- Socket -arrow- of over-centre spring must be in vertical position.
- Fit actuator on clutch pedal -A- into corresponding socket in over-centre spring -arrow-.
- Press top of clutch pedal forwards against spring pressure of over-centre spring, push through bolt and tighten self-locking nut. Tightening torque ➔ [Item 13 \(page 14\)](#)



Note

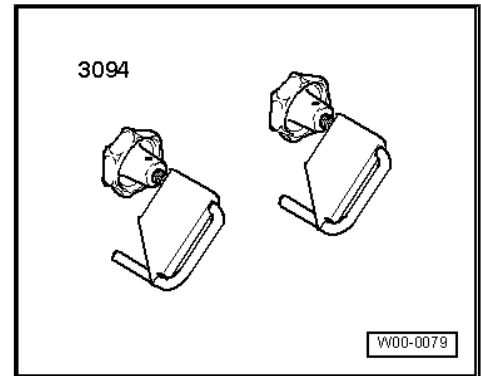
It is easier to press the clutch pedal against the spring if you pull back the bottom of the pedal carefully as you bring the top of the pedal into installation position.

- Install crash bar ➔ [page 14](#) .
- Install footwell vent (front left) ➔ Rep. gr. 80 .
- Install storage compartment on driver's side ➔ Rep. gr. 68 .

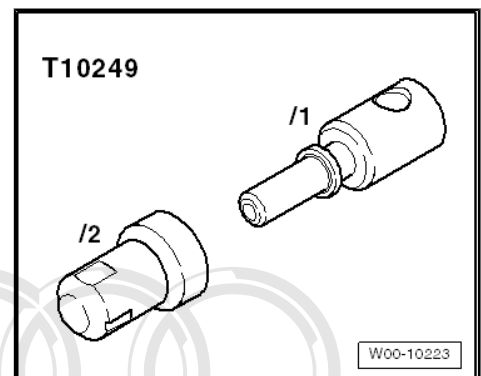
2.3 Removing and installing mounting bracket

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Sealing tool - T10249-



Removing

- Move driver's seat away from pedals.



Caution

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

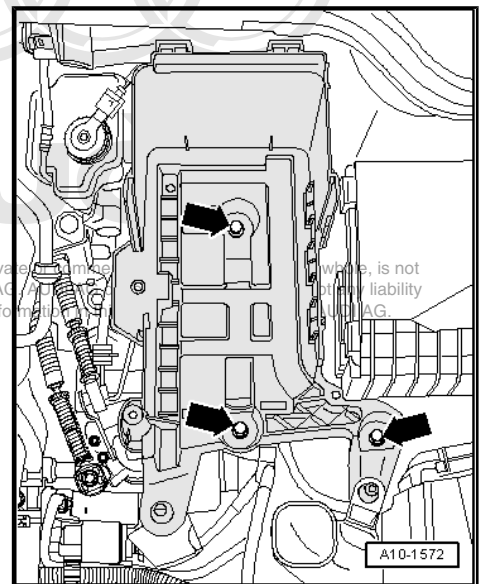
- ◆ *Observe notes on procedure for disconnecting the battery.*

- Remove battery ⇒ Rep. gr. 27 .
- Remove air cleaner housing ⇒ Rep. gr. 24 .
- Remove battery tray -arrows- (detach front of battery tray from air duct if applicable).

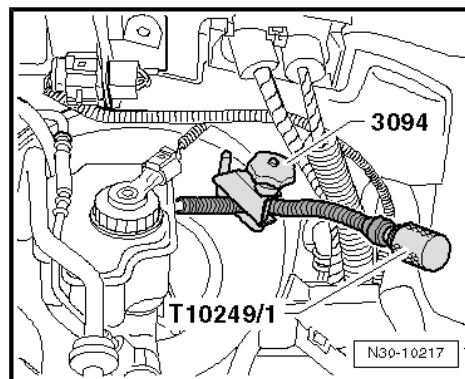


Note

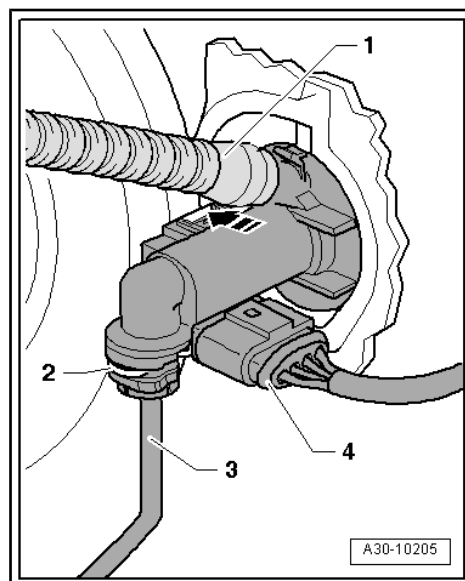
- ◆ *In the following steps make sure that no brake fluid escapes onto the longitudinal member or onto the gearbox below. If this does happen, clean the affected area thoroughly.*
- ◆ *Place a lint-free cloth under the master cylinder.*



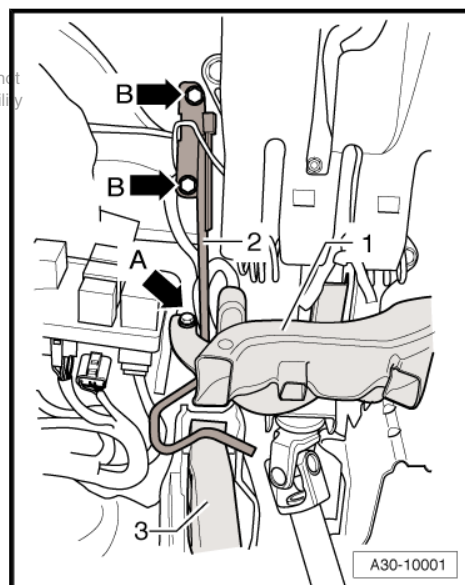
- Use hose clamp - 3094- to clamp off supply hose to clutch master cylinder.



- Pull supply hose -1- off clutch master cylinder.
- Additionally seal off supply hose -1- using sealing tool - T10249/1- (⇒ illustration above).
- Release securing clip -2- and disconnect pipe -3-.
- Unclip and detach clutch position sender - G476- from clutch master cylinder -arrow-. Electrical connector -4- can remain connected.



- Remove storage compartment on driver's side ⇒ Rep. gr. 68 .
- Unscrew bolt -arrow A- and remove footwell vent (front left) -1-.
- Unclip wiring harness at rear of footwell vent -1- and move clear to one side.
- Unbolt crash bar -2- (secured by one or two bolts -arrows B-, depending on version).



Note

When performing work in the footwell, put cloths on the carpet to protect it from possible brake fluid spills.

- Remove nuts -2-.
- Take out mounting bracket -1-.

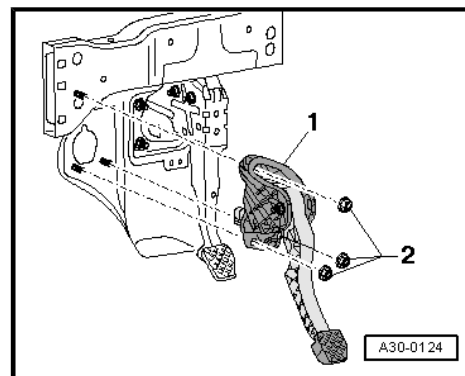
Installing

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

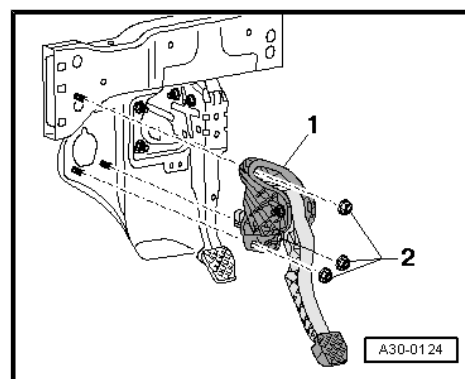


Note

- ◆ *Renew self-locking nuts.*
- ◆ *Renew damaged O-rings.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*



- Fit mounting bracket -1- and tighten nuts -2-. Tightening torque ⇒ [Item 5 \(page 13\)](#)
- Connect pipe/hose assembly or plastic pipe ⇒ [page 26](#) .
- Bleed clutch system ⇒ [page 32](#) .
- Install crash bar ⇒ [page 14](#) .
- Install footwell vent (front left) ⇒ Rep. gr. 80 .
- Install storage compartment on driver's side ⇒ Rep. gr. 68 .
- Install battery tray and battery ⇒ Rep. gr. 27 .
- Install air cleaner housing ⇒ Rep. gr. 24 .



2.4 Removing and installing clutch position sender - G476-

Removing

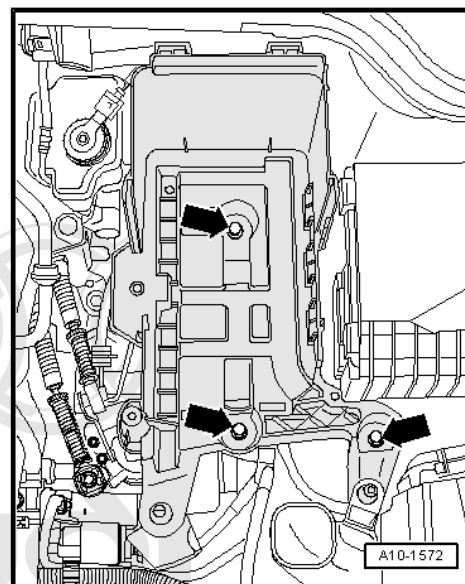


Caution

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

- ◆ *Observe notes on procedure for disconnecting the battery.*

- Remove battery ⇒ Rep. gr. 27 .
- Remove air cleaner housing ⇒ Rep. gr. 24 .
- Remove battery tray -arrows- (detach front of battery tray from air duct if applicable).



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- Unclip clutch position sender - G476- at clutch master cylinder in direction of -arrow- and remove.
- Unplug electrical connector -4-.



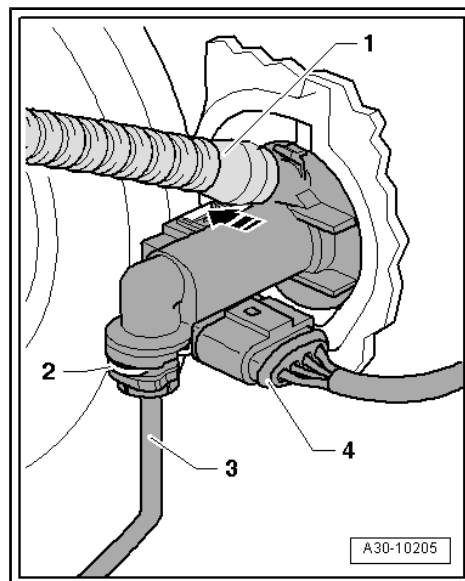
Note

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

Installing

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

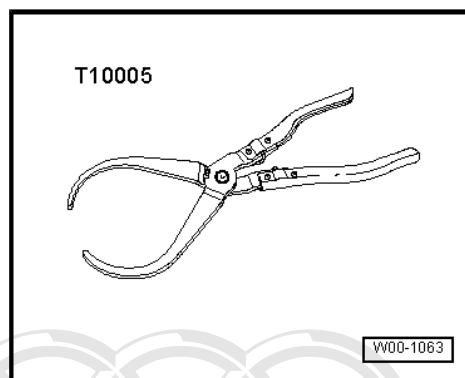
- Fit clutch position sender - G476- at clutch master cylinder and engage -arrow-.
- Attach electrical connector -4-.
- Install battery tray and battery ⇒ Rep. gr. 27 .
- Install air cleaner housing ⇒ Rep. gr. 24 .



2.5 Removing and installing clutch master cylinder

Special tools and workshop equipment required

- ◆ Pliers - T10005-



Removing

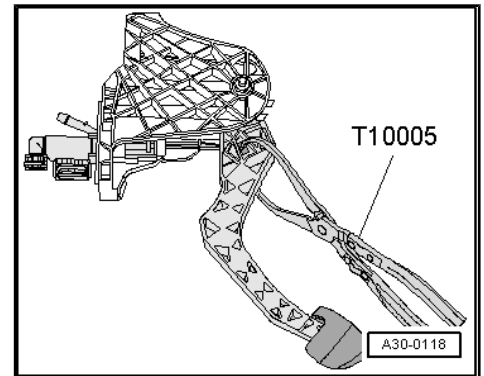


Note

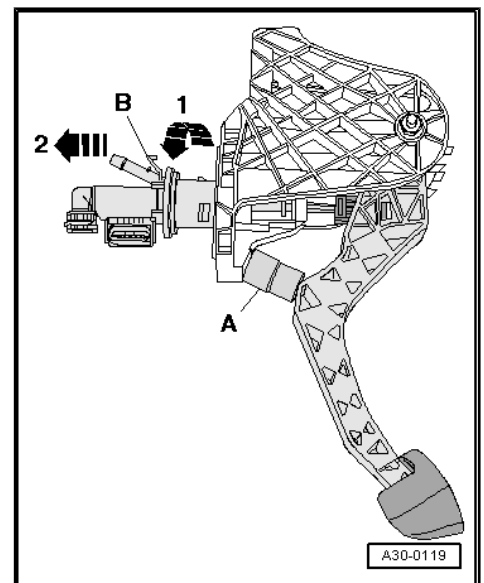
- ◆ If you suspect a defective clutch master cylinder, perform function test prior to renewing
⇒ ["1.1 Notes on removing and installing clutch master cylinder and slave cylinder", page 10](#) .
- ◆ When performing work in the footwell, put cloths on the carpet to protect it from possible brake fluid spills.
- Remove mounting bracket ⇒ [page 18](#) .

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- Release retaining clip for operating rod on clutch master cylinder using pliers - T10005- .

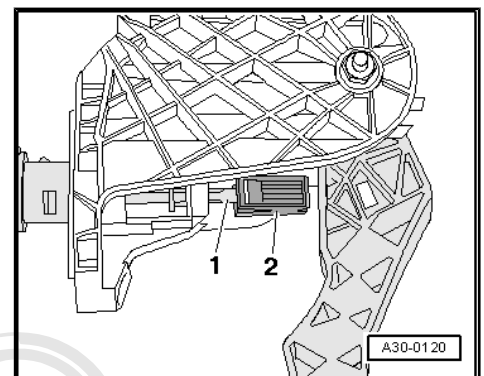


- Insert a spacer -A- between clutch pedal and stop, and press clutch pedal forward.
- ◆ Length of spacer = approx. 40 mm (e.g. $\frac{1}{2}$ " socket).
- Release retainer clip -B- and pull master cylinder out of mounting bracket -arrow 1- and -arrow 2-.



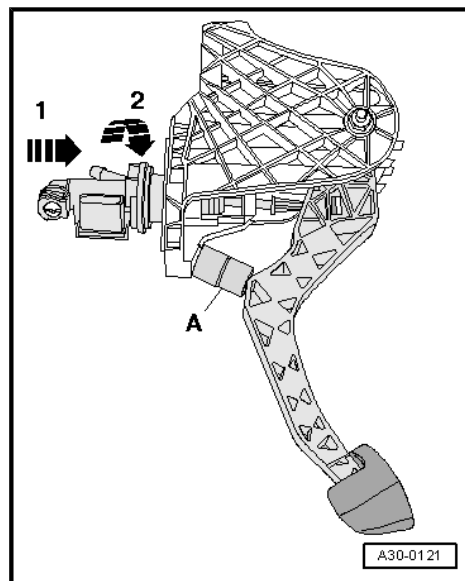
Installing

- Move clutch pedal back as far as stop until it is in normal position.
- Install retaining clip -2- on operating rod -1- for clutch master cylinder.

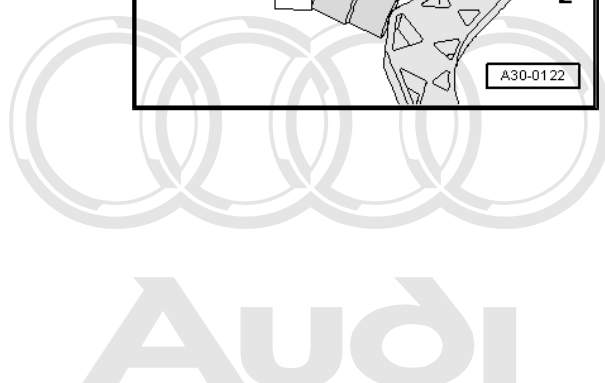
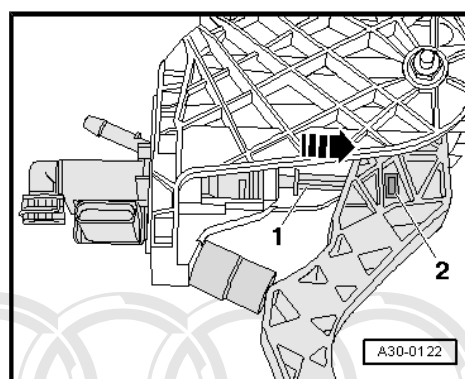


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- Insert a spacer -A- between clutch pedal and stop, and press clutch pedal forward.
- ◆ Length of spacer = approx. 40 mm (e.g. 1/2" socket).
- Secure clutch master cylinder on mounting bracket -arrows 1 and 2-.



- Press operating rod -1- for clutch master cylinder in direction indicated (arrow) so that retaining clip -2- snaps into place in clutch pedal.
- Install mounting bracket ➔ [page 18](#) .



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3 Exploded view - hydraulics, left-hand drive vehicles

1 - Brake fluid reservoir

2 - Seal

- ☐ 2x
- ☐ Seals must be fitted in supply hose when assembling
⇒ [Item 3 \(page 25\)](#)

3 - Supply hose

- ☐ Made of plastic

4 - Retaining clip

- ☐ To remove and install retaining clip first detach clutch master cylinder from clutch pedal
⇒ [page 16](#)

5 - Clutch pedal

- ☐ Removing and installing
⇒ [page 16](#)

6 - Clip

- ☐ To remove and install pipe, pull out clip as far as it will go

7 - Clutch master cylinder

- ☐ Removing and installing
⇒ [page 22](#)

8 - O-ring

- ☐ Matched to type of connection ⇒ [page 26](#)
- ☐ For correct version, refer to ⇒ Electronic parts catalogue
- ☐ Renew damaged O-rings
- ☐ Push onto pipe connection
- ☐ Lubricate with brake fluid before installing

9 - Seal

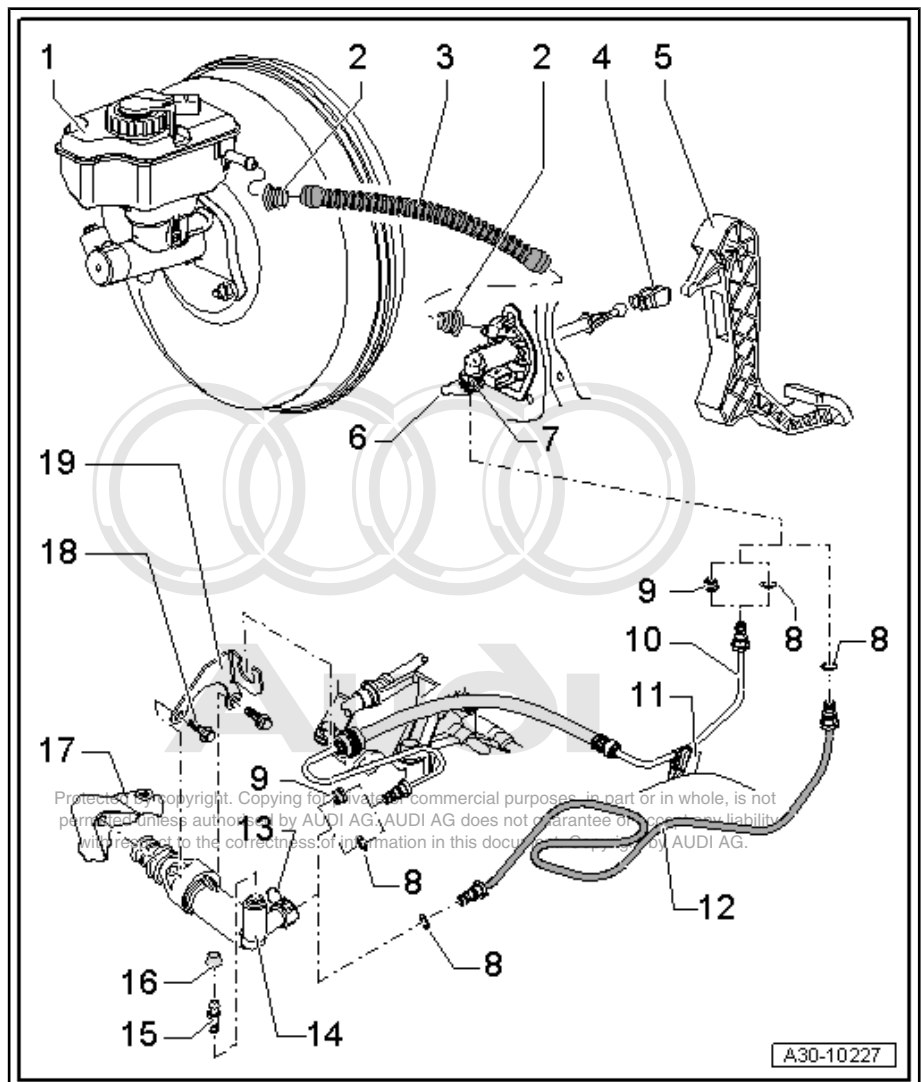
- ☐ Matched to type of connection ⇒ [page 26](#)
- ☐ For correct version, refer to ⇒ Electronic parts catalogue
- ☐ Renew damaged seals
- ☐ Push onto pipe connection
- ☐ Lubricate with brake fluid before installing

10 - Pipe/hose assembly

- ☐ For correct version, refer to ⇒ Electronic parts catalogue
- ☐ Removing and installing ⇒ [page 30](#)
- ☐ Disconnecting from clutch master cylinder and clutch slave cylinder ⇒ [page 26](#)
- ☐ To remove, remove battery and battery tray ⇒ Electrical system; Rep. gr. 27 ; Removing and installing battery

11 - Bracket

- ☐ Secured on body



12 - Plastic pipe

- ❑ For correct version, refer to ⇒ Electronic parts catalogue
- ❑ Removing and installing ⇒ [page 30](#)
- ❑ Disconnecting from clutch master cylinder and clutch slave cylinder ⇒ [page 26](#)
- ❑ To remove, remove battery and battery tray ⇒ Electrical system; Rep. gr. 27 ; Removing and installing battery

13 - Clip

- ❑ To remove and install pipe, pull out clip as far as it will go

14 - Clutch slave cylinder

- ❑ Removing and installing ⇒ [page 28](#)

15 - Dust cap

16 - Bleeder screw

- ❑ 6 Nm
- ❑ Bleeding clutch system ⇒ [page 32](#)

17 - Gearbox

18 - Bolt

- ❑ 20 Nm
- ❑ 2x

19 - Bracket

- ❑ For pipe/hose assembly ⇒ [Item 10 \(page 25\)](#)

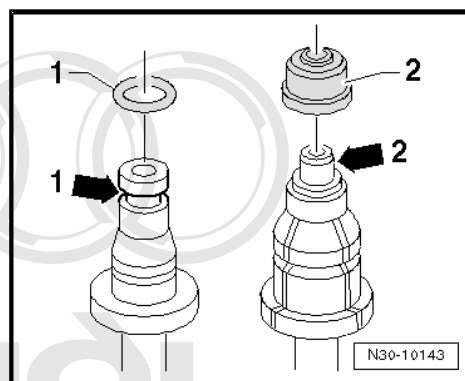
Seals or O-rings for pipe/hose assembly or plastic pipe

1 - O-ring

- ◆ Connection with annular groove -arrow 1-
- ◆ Check O-ring for damage and renew if necessary

2 - Seal

- ◆ Connection with shoulder -arrow 2-
- ◆ Position seal -2- onto connection -arrow 2- before fitting



Disconnecting and connecting hose/pipe assembly or plastic pipe at clutch master cylinder or clutch slave cylinder

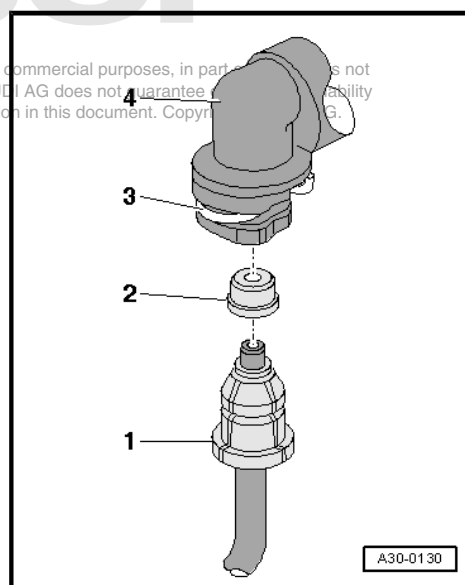
- Release clip -3- with a screwdriver and disconnect pipe/hose assembly -1- or plastic pipe from connection -4-.

Installing



Note

- ◆ *Observe distinction between seals -2- and O-rings*
⇒ [page 26](#) .
- ◆ *Renew damaged seals or O-rings.*
- Press pipe/hose assembly or plastic pipe -1- onto connection on clutch slave cylinder and clutch master cylinder -4- so that clip -3- snaps into place.
- Pull on pipe to check that it is secure.



3.1 Exploded view - hydraulics, right-hand drive vehicles

1 - Brake fluid reservoir

2 - Seal

- ☐ For plastic supply hose
- ☐ Seals must be fitted in supply hose

3 - Supply hose

- ☐ Made of plastic
- ☐ With additional seals
⇒ [Item 2 \(page 27\)](#)

4 - Clutch master cylinder

- ☐ Removing and installing
⇒ [page 22](#)

5 - Clip

- ☐ To remove and install pipe, pull out clip as far as it will go

6 - Seal or O-ring

- ☐ Matched to type of connection ⇒ [page 26](#)
- ☐ For correct version, refer to ⇒ Electronic parts catalogue
- ☐ Renew damaged seals or O-rings
- ☐ Push onto pipe connection
- ☐ Lubricate with brake fluid before installing

7 - Retaining clip

- ☐ To remove and install retaining clip first detach clutch master cylinder from clutch pedal ⇒ [page 16](#)

8 - Clutch pedal

9 - Nut

- ☐ For securing mounting bracket to bulkhead
- ☐ 25 Nm

10 - Bracket

- ☐ Secured on body

11 - Pipe/hose assembly

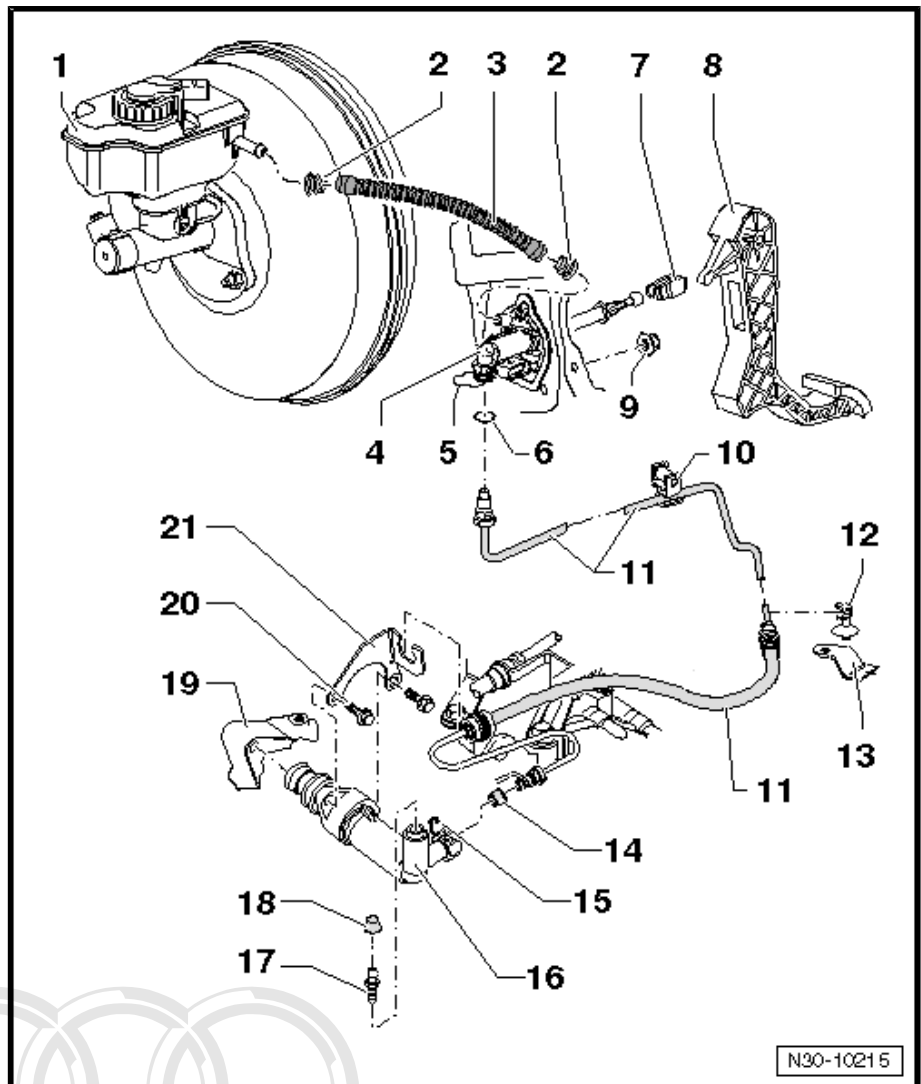
- ☐ For correct version, refer to ⇒ Electronic parts catalogue
- ☐ Prior to removal, remove battery and battery tray ⇒ Rep. gr. 27

12 - Bracket

- ☐ Secured to bracket for ABS/EDL
- ☐ Not fitted in all vehicles

13 - Bracket

- ☐ For ABS/EDL
- ☐ Not fitted in all vehicles



14 - Seal or O-ring

- ☐ Matched to type of connection ⇒ [page 26](#)
- ☐ For correct version, refer to ⇒ Electronic parts catalogue
- ☐ Renew damaged seals or O-rings
- ☐ Push onto pipe connection
- ☐ Lubricate with brake fluid before installing

15 - Clip

- ☐ To remove and install pipe/hose assembly, pull out clip as far as it will go

16 - Clutch slave cylinder

- ☐ Removing and installing ⇒ [page 28](#)

17 - Bleeder screw

- ☐ Bleeding clutch system ⇒ [page 32](#)
- ☐ 6 Nm

18 - Dust cap

19 - Gearbox

20 - Bolt

- ☐ 2x
- ☐ 20 Nm

21 - Bracket

3.2 Removing and installing clutch slave cylinder

Removing



Note

- ♦ If you suspect a defective clutch slave cylinder, perform function test prior to renewing
⇒ ["1.1 Notes on removing and installing clutch master cylinder and slave cylinder", page 10](#).
- ♦ If the slave cylinder is removed from gearbox with the pipe/hose assembly still attached, make sure you do not press the clutch pedal. Otherwise, the piston will be pressed out of the slave cylinder and be destroyed.

- With ignition switched off, disconnect battery earth strap -arrow-.

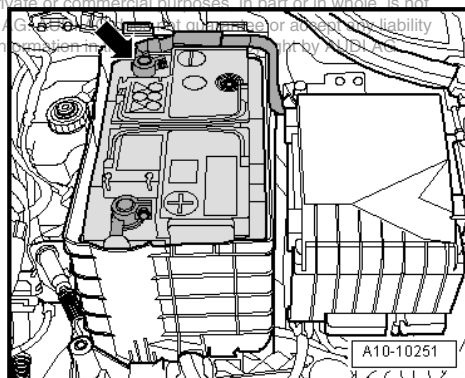


Caution

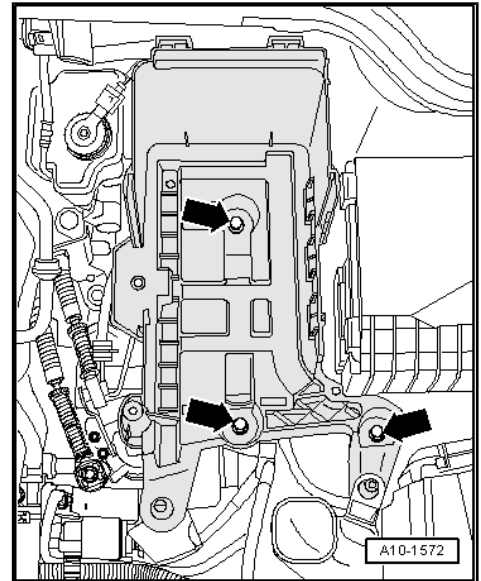
When disconnecting the battery there is a risk of irreparable damage to electronic components.

- ♦ Observe notes on procedure for disconnecting the battery.

- Remove air cleaner housing ⇒ Rep. gr. 24 .
- Remove battery ⇒ Electrical system; Rep. gr. 27. .

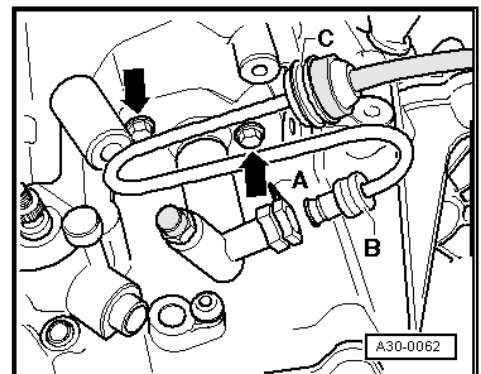


- Remove battery tray -arrows- (detach front of battery tray from air duct if applicable).



 Note

- ◆ *In the following steps make sure that no brake fluid escapes onto the longitudinal member or onto the gearbox below. If this does happen, clean the affected area thoroughly.*
- ◆ *Place a cloth underneath to catch escaping brake fluid.*
- Pull clip -A- for pipe/hose assembly out of slave cylinder until stop.
- Pull pipe/hose assembly out of mounting -C-.
- Pull pipe/hose assembly -B- out of slave cylinder and seal opening.
- Unbolt slave cylinder -arrows- and remove.



Caution

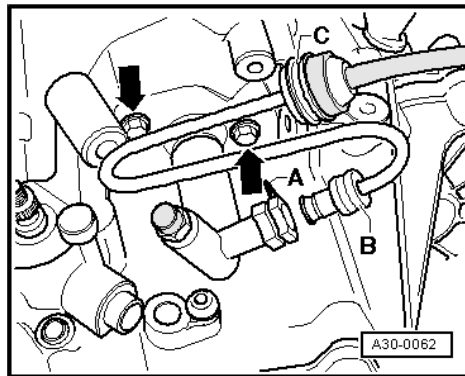
Do not operate clutch pedal after removing clutch slave cylinder.

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Installing

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

- Lubricate head of plunger on clutch slave cylinder with grease - G 000 100-
- Install clutch slave cylinder and tighten bolts -arrows-. Tightening torque ➔ [Item 18 \(page 26\)](#)
- Connect pipe/hose assembly or plastic pipe -B- to clutch slave cylinder -A- ➔ [page 26](#) .
- Pull on pipe/hose assembly to check it is secure.
- Engage pipe/hose assembly in bracket -C-.
- Bleed clutch system ➔ [page 32](#) .
- Install battery tray and battery ➔ Electrical system; Rep. gr. 27. .
- Install air cleaner housing ➔ Rep. gr. 24 .

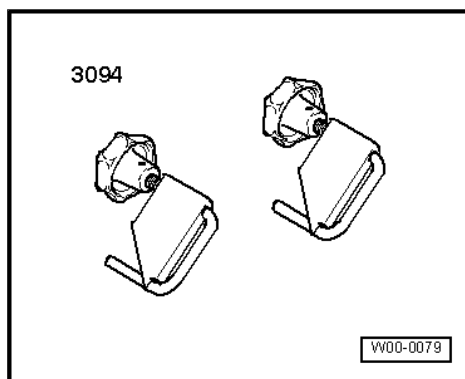


3.3 Removing and installing pipe/hose assembly or plastic pipe

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Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



Removing

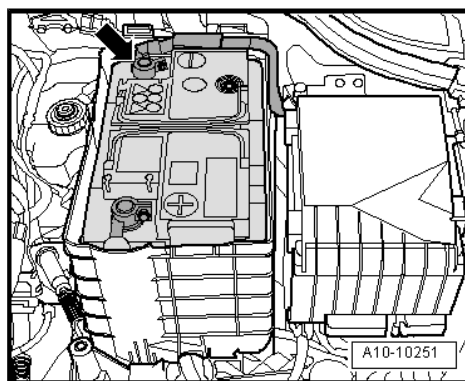
- With ignition switched off, disconnect battery earth strap -arrow-.



Caution

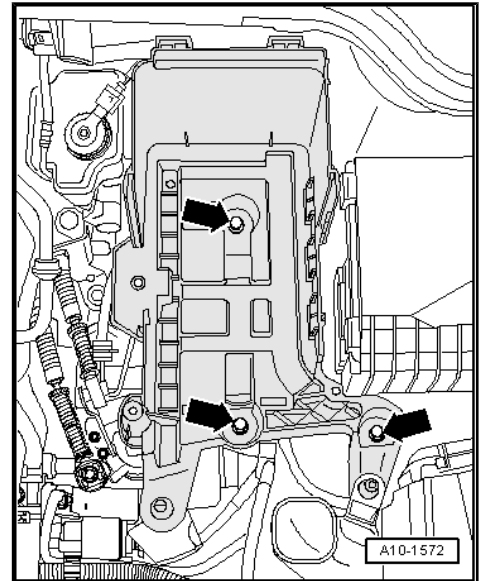
When disconnecting the battery there is a risk of irreparable damage to electronic components.

- ◆ *Observe notes on procedure for disconnecting the battery.*

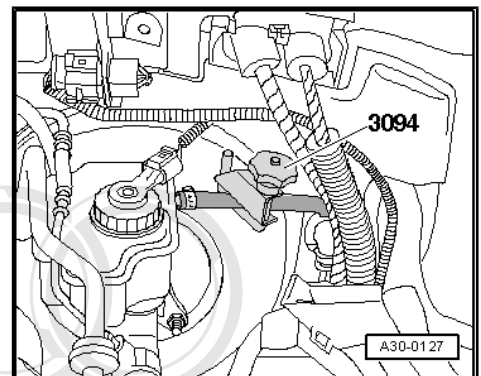


- Remove air cleaner housing ➔ Rep. gr. 24 .
- Remove battery ➔ Electrical system; Rep. gr. 27. .

- Remove battery tray -arrows-.

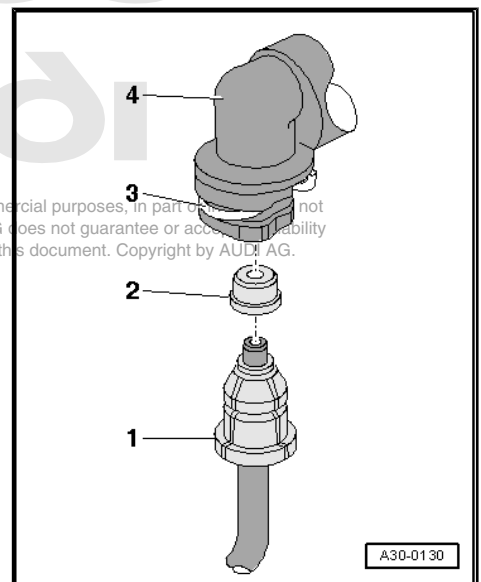


- Use hose clamp -3094- to clamp off supply hose to clutch master cylinder.



 Note

- ◆ *In the following steps make sure that no brake fluid escapes onto the longitudinal member or onto the gearbox below. If this does happen, clean the affected area thoroughly.*
- ◆ *Place a cloth underneath to catch escaping brake fluid.*
- Release clip -3- at clutch master cylinder with a screwdriver and disconnect pipe/hose assembly -1- or plastic pipe from connection -4-.



- Disengage pipe/hose assembly from bracket -C-.
- Release clip -A- at clutch slave cylinder with a screwdriver and disconnect pipe/hose assembly -B- or plastic pipe from connection.

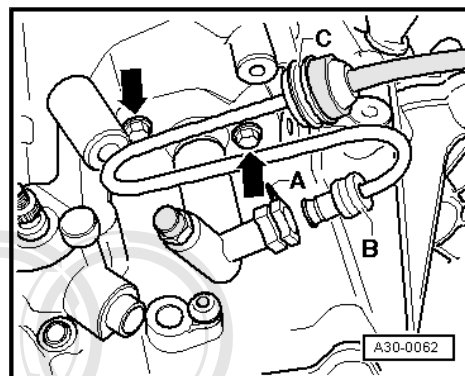
Installing

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



Note

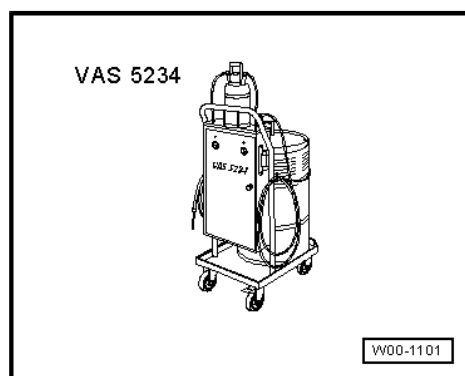
- ◆ *Observe distinction between seals -2- and O-rings*
⇒ [page 26](#) .
- ◆ *Renew damaged seals or O-rings.*
- Connect pipe/hose assembly or plastic pipe to clutch slave cylinder and master cylinder ⇒ [page 26](#) .
- Clip pipe/hose assembly into bracket.
- Bleed clutch system ⇒ [page 32](#) .
- Install battery tray and battery ⇒ [Electrical system; Rep. gr. 27.](#) .
- Install air cleaner housing ⇒ [Rep. gr. 24](#) .



3.4 Bleeding clutch system

Special tools and workshop equipment required

- ◆ Brake filling and bleeding equipment - VAS 5234-



- ◆ Brake fluid specification ⇒ [Brake system; Rep. gr. 47.](#) .

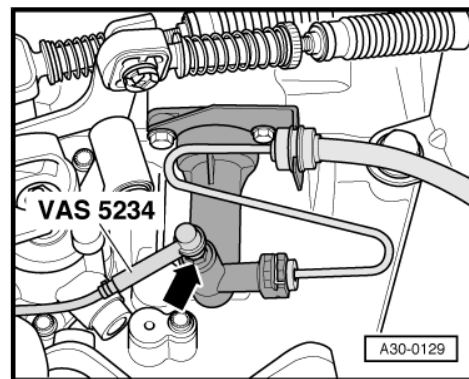


Note

- ◆ *The clutch system must be bled after performing work on the hydraulic clutch mechanism.*
- ◆ *In the following steps make sure that no brake fluid escapes onto the longitudinal member or onto the gearbox below.*
- ◆ *Prefilling the system is not necessary.*

Procedure

- Pull clutch pedal back to its initial position.
- Connect brake filling and bleeding equipment - VAS 5234- to brake fluid reservoir.
- Remove protective cap from bleeder screw -arrow- on slave cylinder and connect hose from bleeder bottle to bleeder screw.
- Switch on bleeding equipment.
 - Operating pressure 2.0 bar
- Now open bleeder screw approx $\frac{1}{4}$ turn and allow 100 cm³ of brake fluid to run out.
- Close bleeder screw.
- Rapidly operate clutch pedal from stop to stop 15 times.
- Bleed off an additional 50 cm³ of brake fluid.
- Close bleeder screw.
- Switch off brake filling and bleeding equipment - VAS 5234- and release operating pressure (2.0 bar).
- Press clutch pedal slowly down with your foot 10 times and check that clutch system is functioning properly.
- Bleed system once again if necessary.
- Disconnect bleeder hose and fit protective cap.
- Detach brake filling and bleeding equipment - VAS 5234- from brake fluid reservoir.



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4 Exploded view - servicing clutch release mechanism

1 - Release bearing

- ☐ Remove and install together with release lever ➔ [Item 2 \(page 34\)](#) and guide sleeve ➔ [Item 5 \(page 34\)](#) ➔ [page 34](#)
- ☐ Do not wash out; wipe clean only
- ☐ Renew bearing if noisy

2 - Clutch release lever

- ☐ Remove and install together with release bearing ➔ [Item 1 \(page 34\)](#) and guide sleeve ➔ [Item 5 \(page 34\)](#) ➔ [page 34](#)
- ☐ Remove existing grease
- ☐ Lubricate surface which contacts ball-head pin with grease - G 000 100-

3 - Retaining spring

- ☐ Secure to clutch release lever

4 - Bolt

- ☐ 5 Nm + 90°
- ☐ Always renew

5 - Guide sleeve

- ☐ Remove and install together with release bearing ➔ [Item 1 \(page 34\)](#) and release lever ➔ [Item 2 \(page 34\)](#) ➔ [page 34](#)

6 - Ball-head pin, 20 Nm

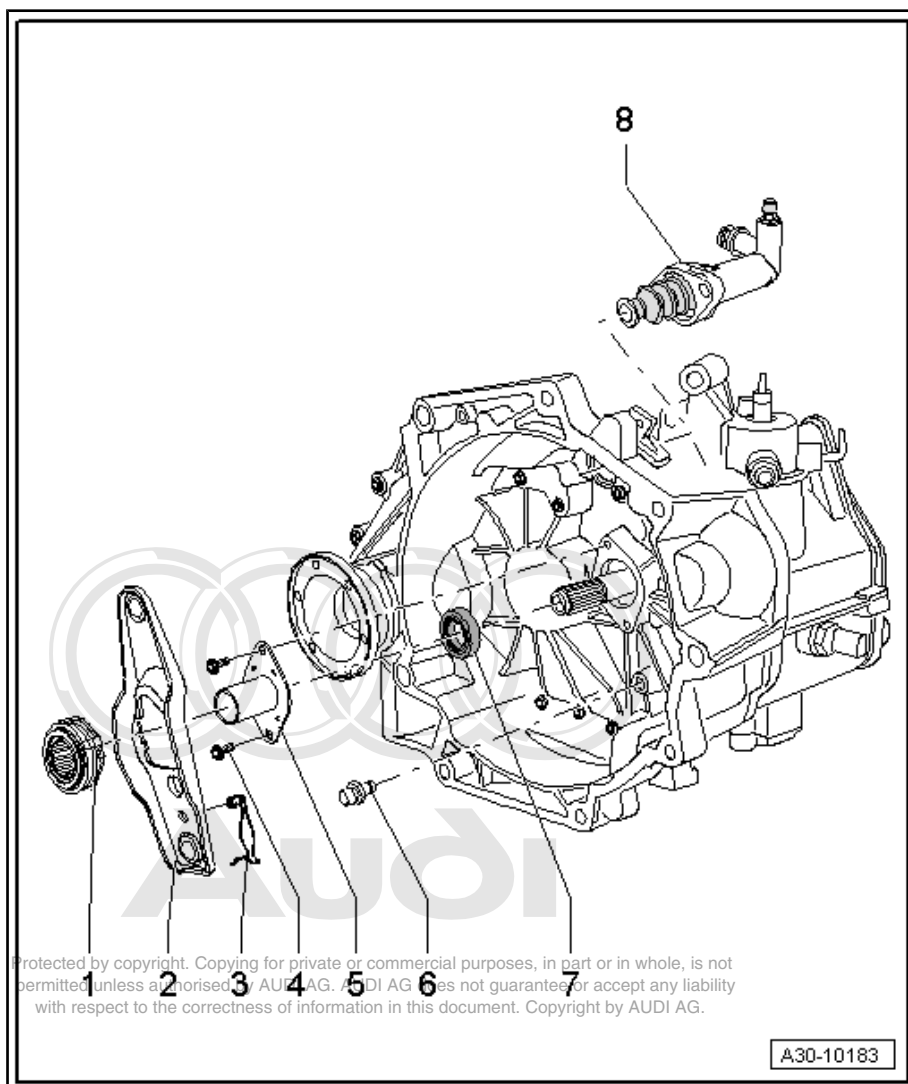
- ☐ Remove existing grease
- ☐ Lubricate with grease - G 000 100-

7 - Input shaft oil seal

- ☐ Renewing ➔ [page 127](#)

8 - Clutch slave cylinder

- ☐ Removing and installing ➔ [page 28](#)



4.1 Removing and installing clutch release bearing with release lever and guide sleeve

Removing

- Gearbox removed ➔ [page 69](#)

- Unhook spring -arrow- from clutch release lever.
- Remove bolts -1- and -2-.
- Remove release lever with release bearing and guide sleeve.



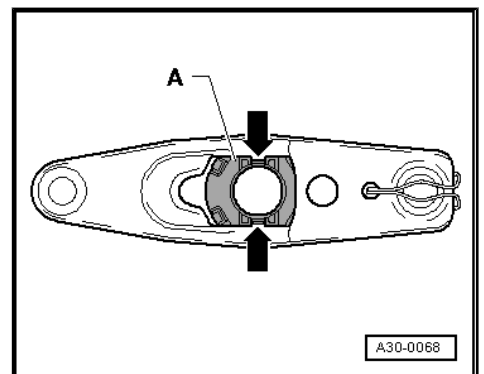
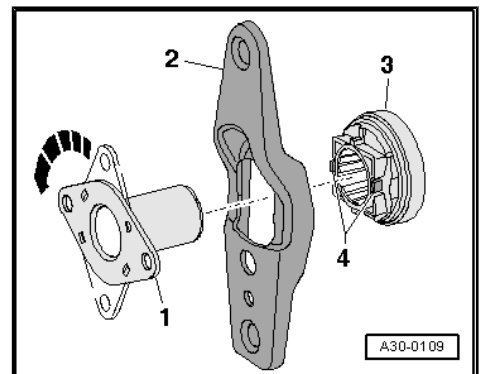
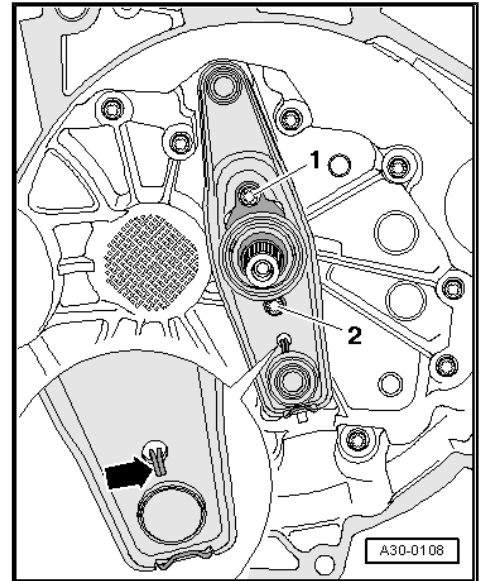
- Rotate guide sleeve -1- approx. 90° in -direction of arrow-.
- Pull guide sleeve -1- out of release bearing -3-.
- Press the two retaining tabs -4- together and pull release bearing -3- off release lever -2-.

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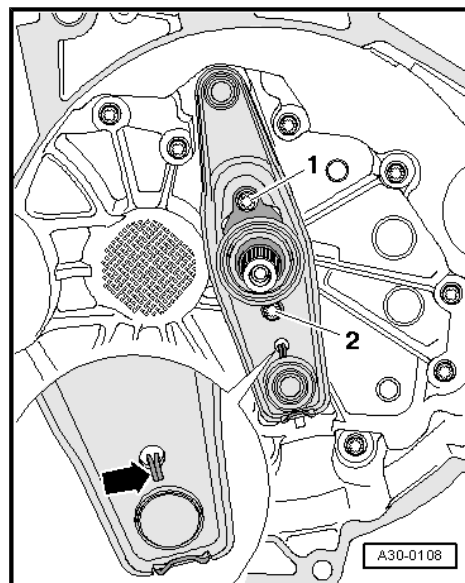
Installing

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

- Press release bearing -A- into clutch release lever until both retaining tabs -arrows- engage.



- Lubricate surface on release lever which contacts ball-head pin with grease - G 000 100- .
- Attach retaining spring to clutch release lever -arrow-.
- Insert clutch release lever together with release bearing and guide sleeve.
- Engage retaining spring -arrow- on ball-head pin.
- Tighten bolts -1- and -2-. Tightening torque
⇒ [Item 4 \(page 34\)](#)



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5 Exploded view - servicing clutch

1 - Flywheel

- ☐ Removing and installing
⇒ Engine, mechanics;
Rep. gr. 13
- ☐ Ensure that dowel pins
fit tightly

2 - Clutch plate

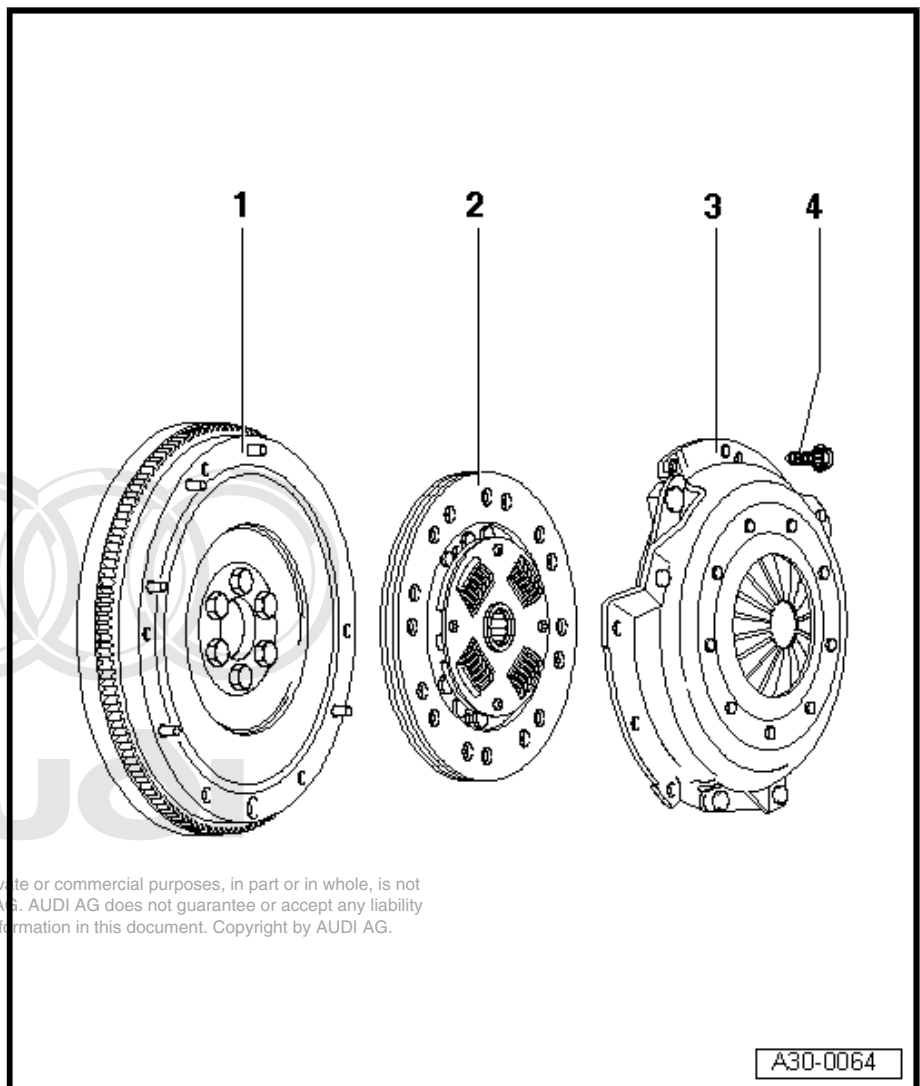
- ☐ For correct version, refer to ⇒ Electronic parts catalogue
- ☐ Removing and installing
⇒ [page 38](#)
- ☐ Centralising clutch plate
on engines with smaller-
diameter crankshaft or
engines with needle
bearing in crankshaft
⇒ [page 40](#)
- ☐ Installation position:
marking
"Getriebeseite" (gear-
box side) faces towards
pressure plate

3 - Pressure plate

- ☐ Removing and installing
⇒ [page 38](#)
- ☐ Checking ends of dia-
phragm spring
⇒ [page 37](#)
- ☐ Checking spring con-
nection and rivets
⇒ [page 38](#)
- ☐ Contact surface for
clutch lining must be
free of scoring, oil and
grease

4 - Bolt

- ☐ M6 - 13 Nm
- ☐ M7 - 20 Nm
- ☐ For correct version, refer to ⇒ Electronic parts catalogue
- ☐ Loosen and tighten gradually in diagonal sequence and in small steps



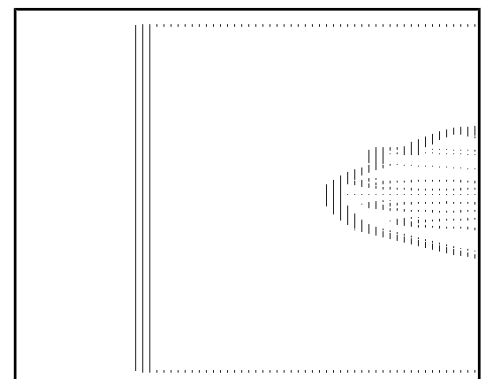
Checking ends of diaphragm spring

- Wear up to half the thickness of the diaphragm spring
-arrows- is permissible.



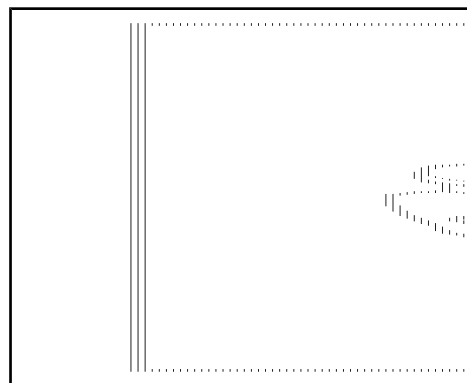
Note

When performing repairs always match up pressure plate and clutch plate by checking engine code ⇒ Electronic parts catalogue .



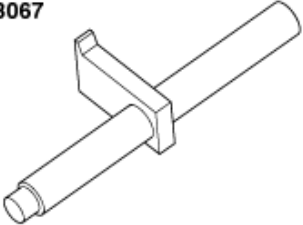
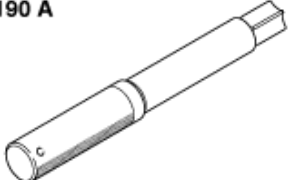
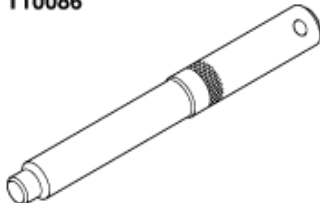
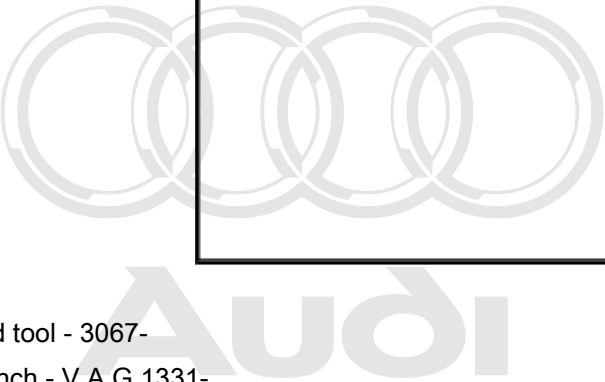
Checking spring connection and rivets

- Check spring connection between pressure plate and cover for cracks and make sure riveted fastenings are seated tightly.
- Renew pressure plate if springs are damaged or rivets are loose -arrows-.



5.1 Removing and installing clutch

Special tools and workshop equipment required

3067 	3190 A 
V.A.G 1331 	T10086 
	W30-0027

- ◆ Counterhold tool - 3067-
- ◆ Torque wrench - V.A.G 1331-
- ◆ Centring mandrel 3190 A-
- ◆ For engines with smaller-diameter crankshaft or engines with needle bearing in crankshaft ⇒ [page 40](#) : centring mandrel - T10086-

- ◆ Grease for clutch plate splines - G 000 100-

Removing

- Gearbox removed ⇒ [page 69](#) .
- Apply counter-hold tool - 3067- in order to loosen bolts.
- Loosen bolts in small steps and in diagonal sequence.



Note

Centring mandrel - 3190 A- can be disregarded.

- Take off pressure plate and clutch plate.

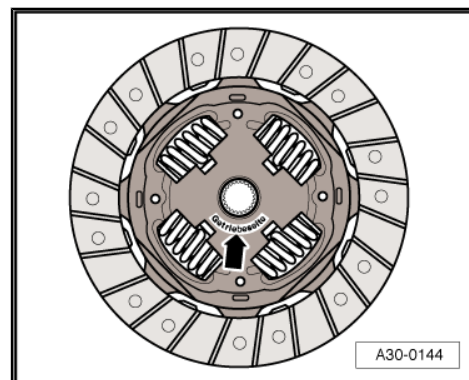
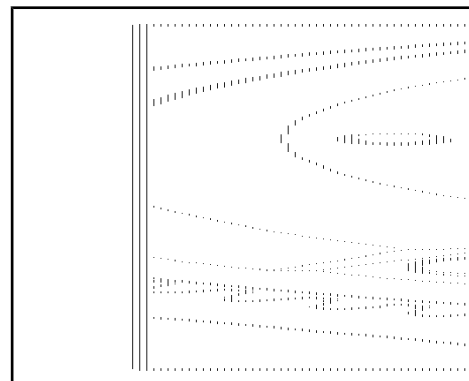
Installing

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

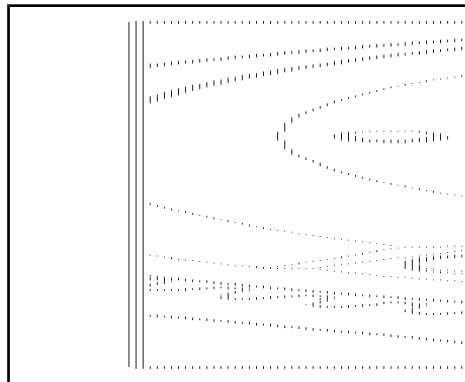


Note

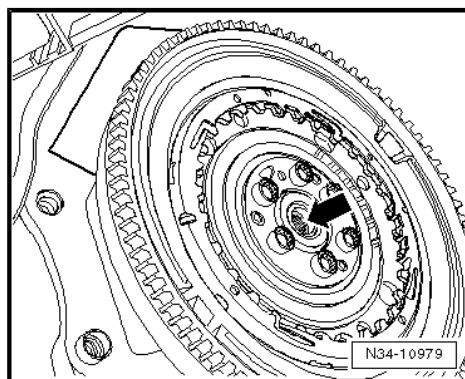
- ◆ *Renew clutch plate and pressure plate if riveted joints are damaged or loose.*
- ◆ *If the clutch has burnt out, thoroughly clean the clutch housing, flywheel and parts of the engine facing the gearbox in order to reduce the smell of burnt linings.*
- ◆ *Select the correct clutch plate and pressure plate according to the engine code ⇒ Electronic parts catalogue .*
- ◆ *Clean input shaft splines and (in the case of a used clutch plate) the hub splines. Remove corrosion and apply only a very thin coating of grease - G 000 100- to the splines. Then move clutch plate backwards and forwards on input shaft until hub moves freely on shaft. It is important to remove excess grease.*
- ◆ *Pressure plates have an anti-corrosion coating and are greased. Only the contact surface may be cleaned, otherwise the service life of the clutch will be considerably reduced.*
- ◆ *Pressure plate contact surface and clutch plate lining must make full contact with flywheel. Only then insert bolts.*
- ◆ *Check that dowel sleeves for centralising engine/gearbox are in the cylinder block; install if necessary.*
- ◆ *If the dowel sleeves are not fitted, this will lead to gear-change problems, clutch malfunction and in some cases gearbox noise (gears will make rattling noises).*
- Installation position of clutch plate: marking "Getriebeseite" (gearbox side) faces towards pressure plate



- Reverse position of counter-hold tool - 3067- when installing.
- Use centring mandrel - 3190 A- to centralise clutch plate.
- Tighten bolts in small steps and in diagonal sequence to avoid damaging centring holes in pressure plate and dowel pins on flywheel. Tightening torque ⇒ [Item 4 \(page 37\)](#)



For engines with smaller-diameter crankshaft -arrow- or engines with needle bearing -arrow- in crankshaft

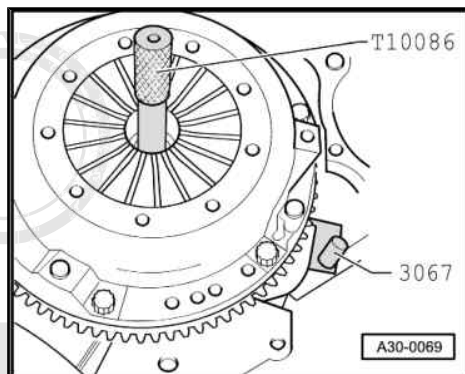


Centralising clutch plate and removing and installing pressure plate on engines with smaller-diameter crankshaft or engines with needle bearing in crankshaft -arrow-

- Use centring mandrel - T10086- to centralise clutch plate.
- Tighten bolts in small steps and in diagonal sequence to avoid damaging centring holes in pressure plate and dowel pins on flywheel. Tightening torque ⇒ [Item 4 \(page 37\)](#)

Continued for all vehicles:

- Install gearbox ⇒ [page 85](#) .



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34 – Controls, housing

1 Selector mechanism - overview

- ◆ Gear selection movement -black arrow-
- ◆ Gate selection movement -white arrow-

A - Gear selector cable (gear selection movement)

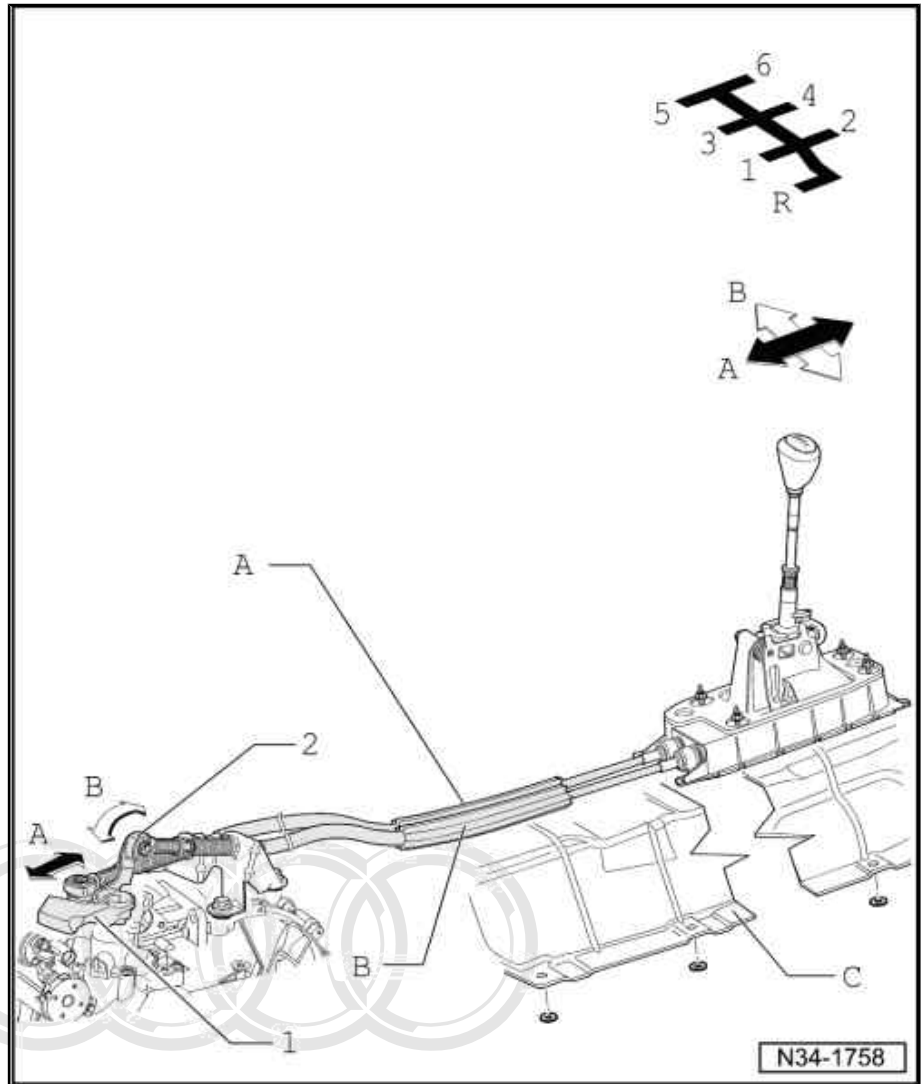
B - Gate selector cable (gate selection movement)

C - Heat shield

- ☐ Remove before removing selector mechanism

1 - Gearbox selector lever

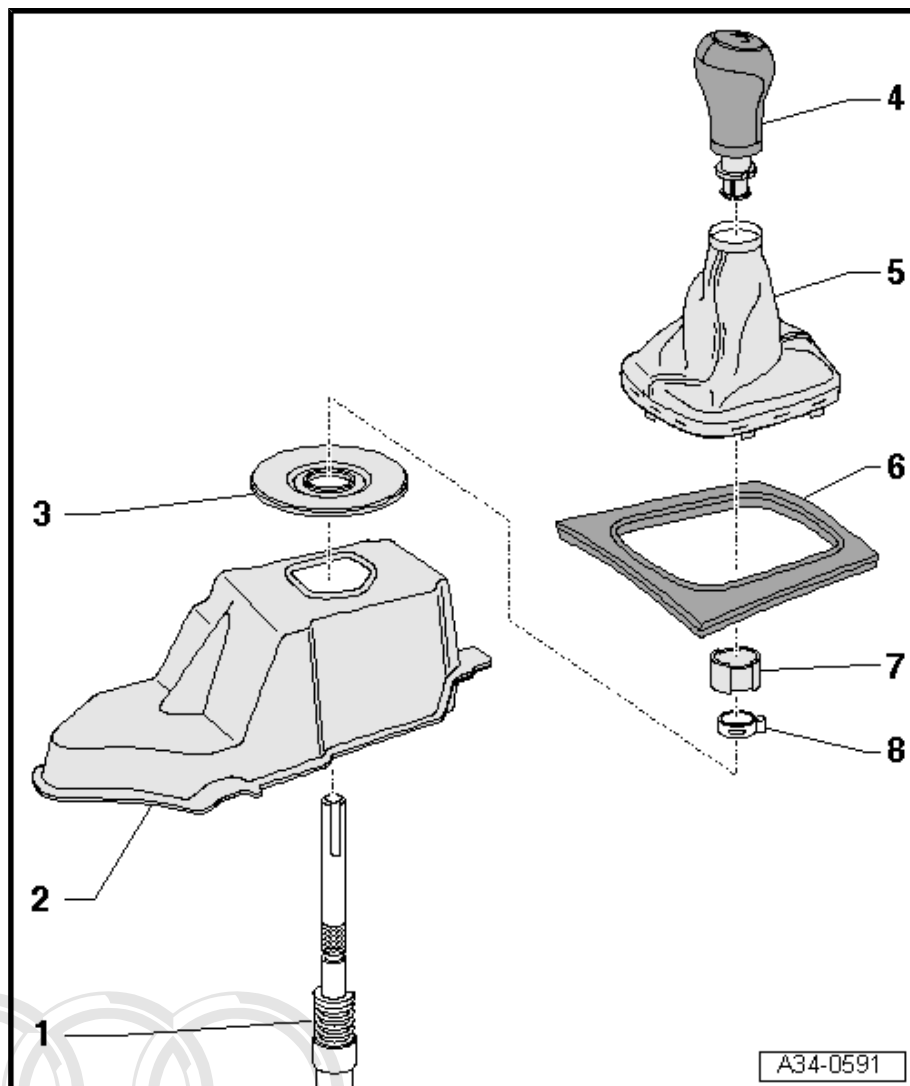
2 - Gate relay lever



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1.1 Exploded view - gear knob with gear lever boot

- 1 - Gearbox selector lever
- 2 - Noise insulation cover (lower)
- 3 - Noise insulation cover (upper)
- 4 - Gear knob
 - ❑ Remove and install together with gear lever boot ➔ [page 42](#)
- 5 - Gear lever boot
 - ❑ Remove and install together with gear knob ➔ [page 42](#)
- 6 - Cover for centre console
 - ❑ Remove and install together with gear knob and gear lever boot ➔ [page 42](#)
- 7 - Connecting piece
 - ❑ Connects gear lever boot and gear knob
- 8 - Clip
 - ❑ Secures gear knob to gear lever
 - ❑ Secure with hose clip pliers - V.A.G 1275-

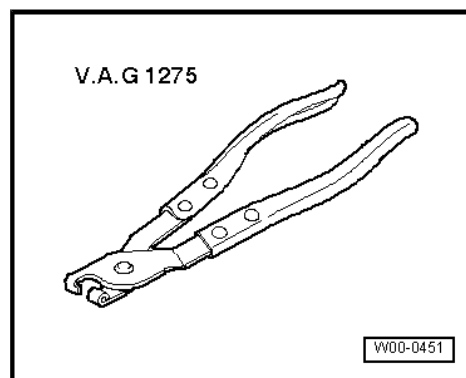


1.2 Removing and installing gear knob with gear lever boot

Special tools and workshop equipment required

- ◆ Hose clip pliers - V.A.G 1275-

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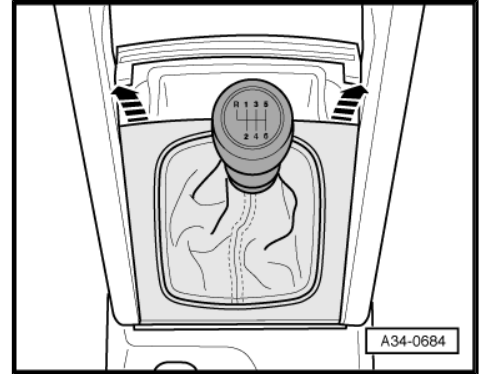
Removing



Note

The gear knob is removed together with the gear lever boot and the cover for the centre console.

- Open ashtray (if fitted).
- Carefully pry gear lever boot off centre console -arrows-.
- Pull boot up and over gear knob.

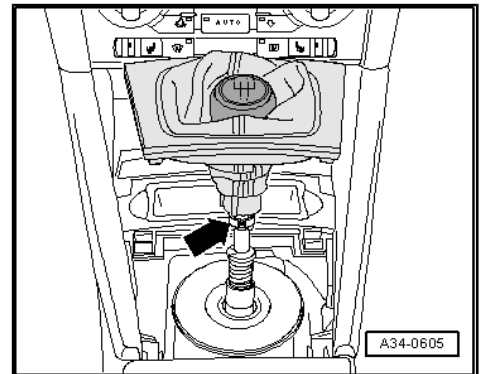


- Open clip -arrow- and pull off gear knob together with boot.

Installing

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

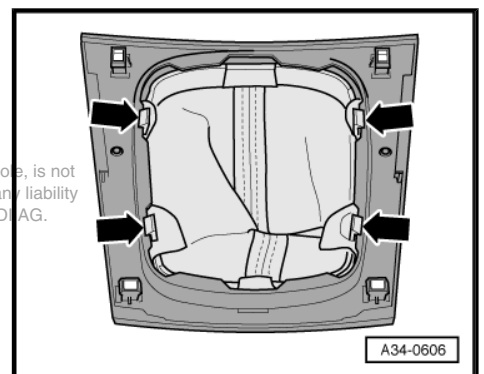
- Push gear knob together with boot onto gear lever as far as stop.
- Secure gear knob to gear lever with clip -arrow-, using hose clip pliers - V.A.G 1275- .



1.3 Separating gear lever boot from gear knob

Detaching

- Remove gear knob together with gear lever boot ➔ [page 42](#) .
- Unclip frame of gear lever boot from centre console cover -arrows-.



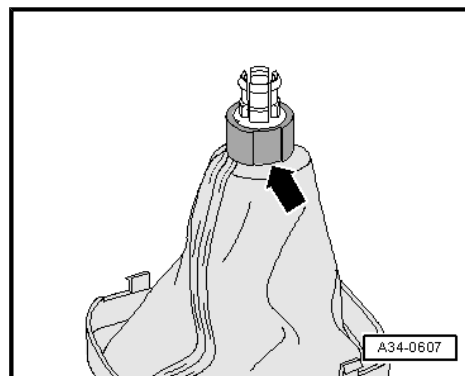
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- Cut through the connecting piece with a sharp knife at the point marked -arrow-. Take care not to damage gear lever boot.
- Then bend out the connecting piece, open it apart and remove.

Attaching

Assembly is carried out in the reverse order to removal; note the following:

- Fit gear lever boot on gear knob, using a new connecting piece -arrow-.
- Install gear knob together with boot ⇒ [page 42](#) .



1.4 Exploded view - gear lever and selector housing on vehicles up to model year 2007



Note

Lubricate all bearings and moving surfaces with grease - G 000 450 02- .

1 - Floor plate

- ☐ Bend tabs open to remove
- ☐ Renew

2 - Gasket

- ☐ Renew if damaged

3 - Gearbox selector lever

4 - O-ring

- ☐ Renew if damaged

5 - Retaining clip

- ☐ Renew

6 - Gate selector cable

- ☐ Removing and installing ⇒ [page 65](#)
- ☐ Adjusting ⇒ [page 66](#)

7 - Gear selector cable

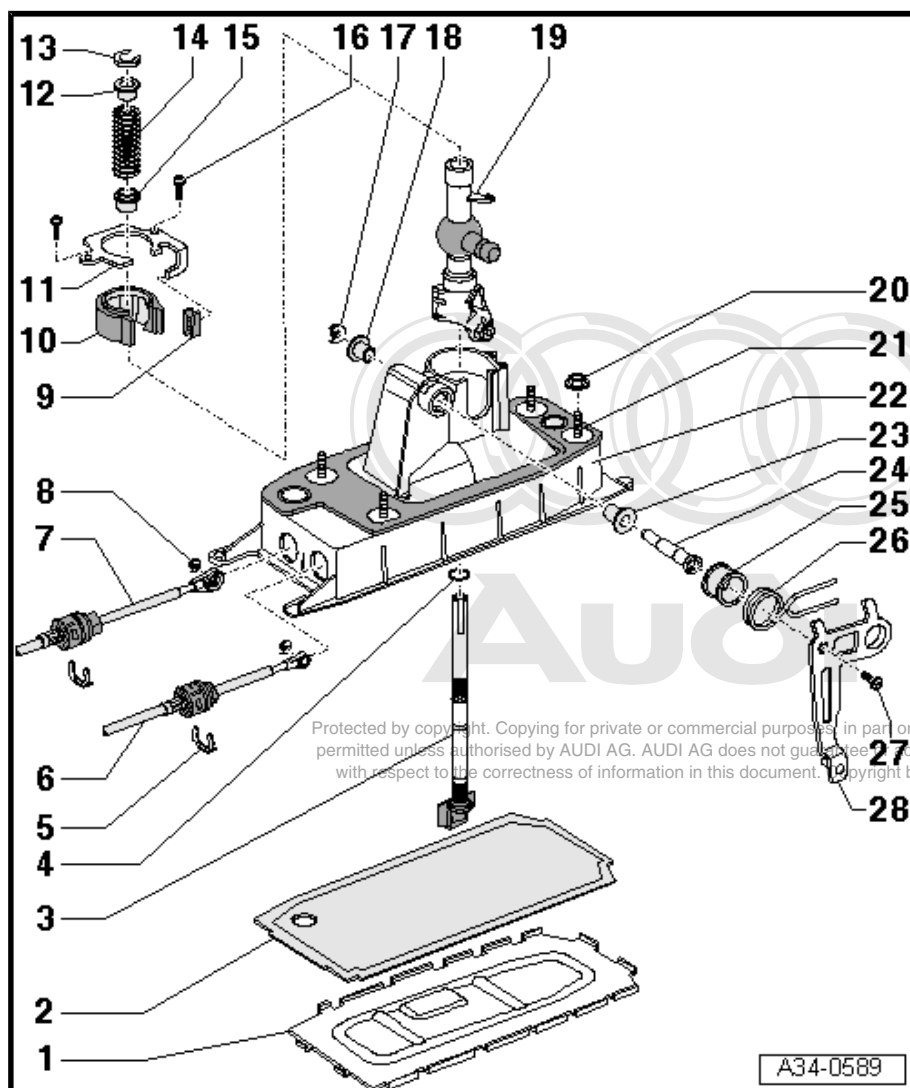
- ☐ Removing and installing ⇒ [page 65](#)
- ☐ Adjusting ⇒ [page 66](#)

8 - Securing clip

- ☐ Renew

9 - Guide

- ☐ For spring ⇒ [Item 26 \(page 45\)](#)



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10 - Ball socket with damper

11 - Cover

12 - Bush

13 - Securing clip

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

14 - Spring

15 - Bush

16 - Bolt

- ❑ 6 Nm

17 - Securing clip

18 - Bearing bush

19 - Gear lever guide

20 - Nut

- ❑ 10 Nm

21 - Gasket

- ❑ Between selector housing and floor
- ❑ Self-adhesive

22 - Selector housing

23 - Bearing bush

24 - Pivot pin

25 - Guide bush

- ❑ Press onto selector housing

26 - Spring

- ❑ Installing ⇒ [page 46](#)

27 - Bolt

- ❑ 5 Nm

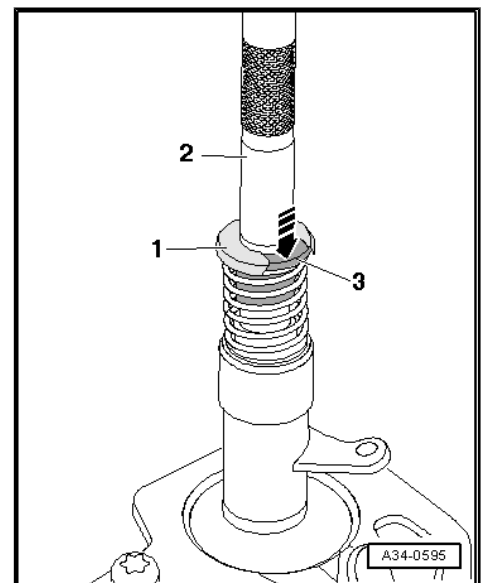
28 - Gate selector lever



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Removing and installing securing clip

- Hold gear lever -2- in position.
- Press spacer bush -3- in direction indicated -arrow-.
- Take off securing clip -1-.



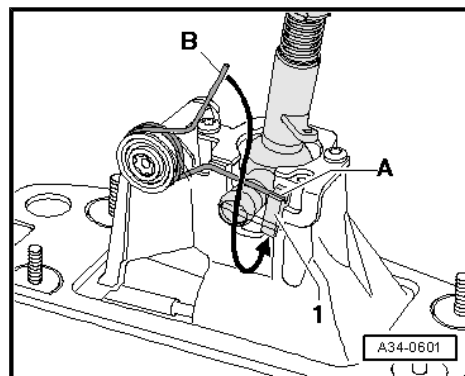
Installing spring

- Insert arm -A- of spring in guide -1- from above.
- Pull down arm -B- of spring and insert it in the guide from below.



Note

Shown in illustration with gate selector lever removed.



1.5 Exploded view - selector mechanism, vehicles from model year 2008 onwards



Note

Lubricate bearings and moving surfaces with grease - G 000 450 02-.

1 - Floor plate

- ☐ Bend tabs open to remove
- ☐ Always renew

2 - Gasket

- ☐ Renew

3 - Gearbox selector lever

- ☐ Can be removed and installed without removing gear lever guide
⇒ [Item 15 \(page 47\)](#)

4 - Damping washer

- ☐ Push onto gear lever as far as stop -arrow-

5 - Retaining clip

- ☐ Renew

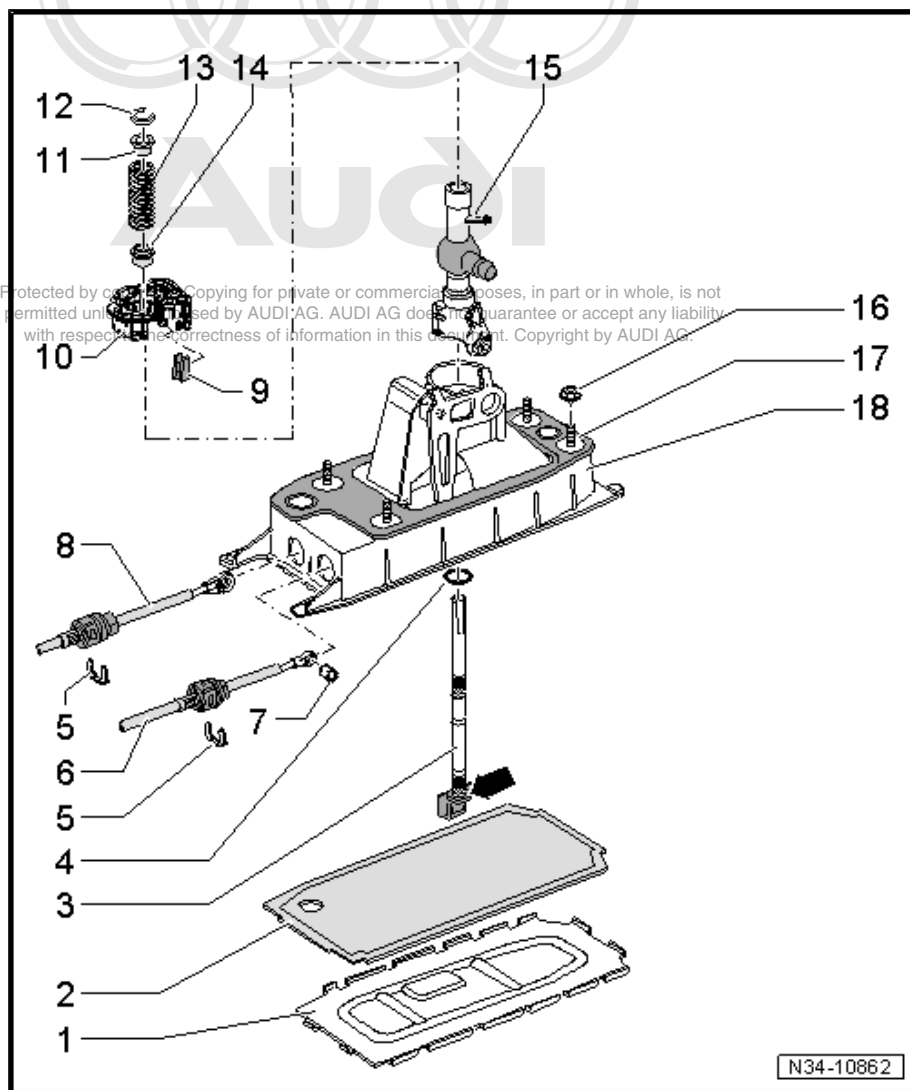
6 - Gate selector cable

- ☐ Lever off gate selector lever
- ☐ Press onto gate selector lever inside selector mechanism
- ☐ Installation position
⇒ [page 41](#)

7 - Bush

8 - Gear selector cable

- ☐ Lever off gear lever guide
- ☐ Press onto gear lever guide inside selector mechanism
- ☐ Installation position
⇒ [page 41](#)



9 - Damper

10 - Ball socket

- ☐ Will be damaged during removal
- ☐ Renew

11 - Bush

12 - Securing clip

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

13 - Spring

14 - Bush

15 - Gear lever guide

16 - Nut

- M6 - 8 Nm
- M8 - 25 Nm
- ☐ 4x

17 - Gasket

- ☐ Between selector housing and floor
- ☐ Self-adhesive
- ☐ Glue onto selector housing

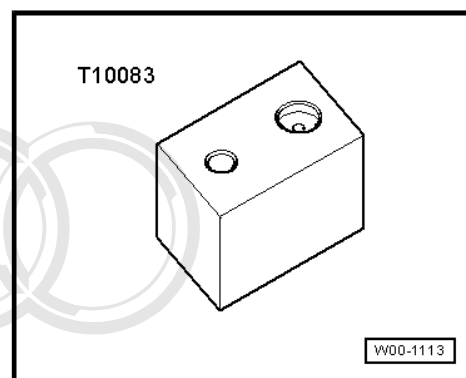
18 - Selector housing

- ☐ With spring and gate selector lever
- ☐ Spring and gate selector lever cannot be removed

1.6 Dismantling and assembling selector mechanism on vehicles from model year 2008 onwards

Special tools and workshop equipment required

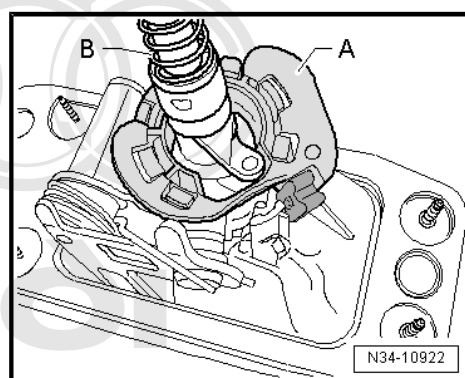
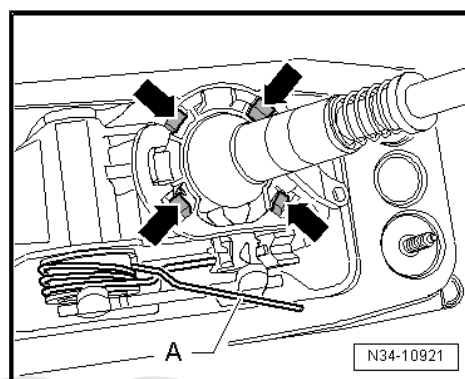
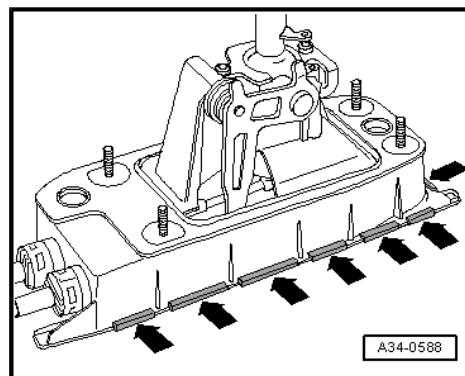
- ◆ Thrust block - T10083-



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Dismantling

- Remove selector mechanism ⇒ [page 51](#)
- Using a screwdriver, bend open tabs -arrows- on all sides of floor plate and remove floor plate.
- Remove gasket from selector housing.
- Remove gear selector cable and gate selector cable from selector housing ⇒ [page 46](#).
- Lift top spring arm -A- over tab on gate selector lever.
- Using a screwdriver, press lugs -arrows- on ball socket towards ball on gear lever guide; if necessary, break off lugs.
- Prise ball socket -A- out of selector housing together with gear lever guide and gear lever -B-.
- Then press ball socket -A- off ball on gear lever guide and remove.



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Note

- ◆ Note guides -A- when performing the following steps.
- ◆ They must not break off.
- Swivel bottom spring arm -arrow 1- onto stop on shoulder of gate selector lever.



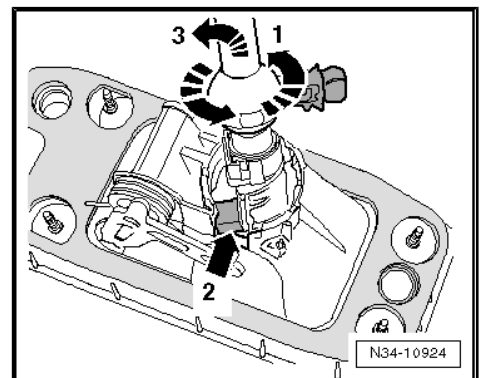
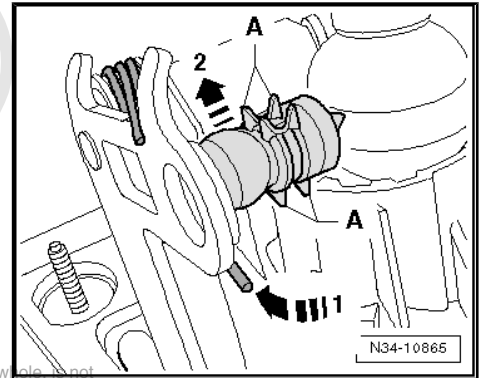
Caution

During the following steps, the bottom spring arm (-arrow 1-) can become dislodged and snap downwards off the shoulder of the gate selector lever.

- Pull gear lever guide upwards as far as stop and at the same time pull ball-head pin -arrow 2- out of gate selector lever.
- Press spring -arrow 1- carefully off the shoulder of the gate selector lever.

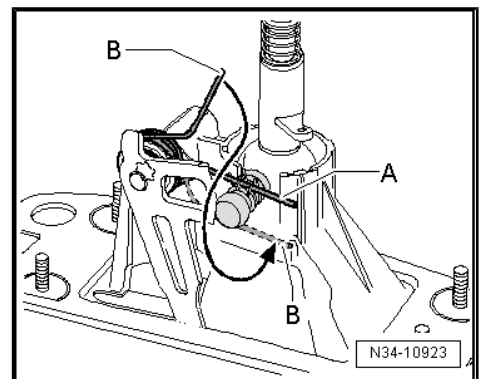
The spring arms will then compress “diagonally”.

- Then turn gear lever guide in direction of -arrow 1-.
- The pin -arrow 2- should be positioned in the recess on the selector housing.
- Next, swivel gear lever guide out in direction of -arrow 3- together with gear lever.

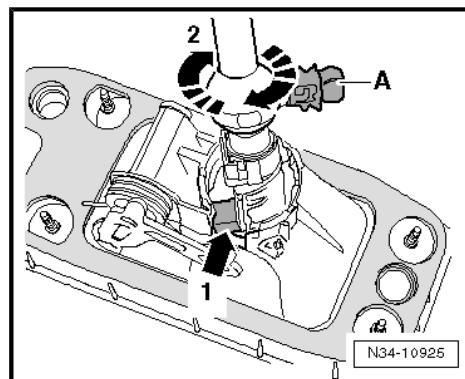


Assembling selector mechanism

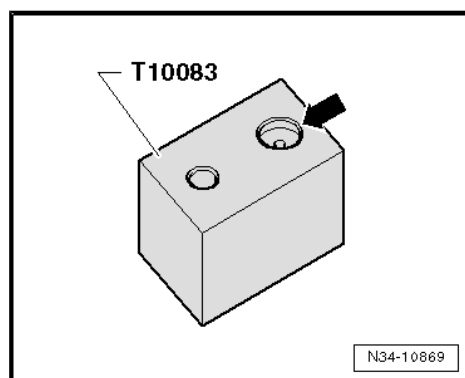
- Release spring arms -A- and -B-.
- Spring arms -A- and -B- must point in opposite directions. (Shown here with gear lever guide installed.)



- Insert gear lever guide into selector housing together with gear lever.
- Pin -arrow 1- should be positioned just inside recess on selector housing.
- Turn gear lever guide in direction of -arrow 2- until ball-head pin -A- is above recess on selector housing.



- Position selector housing with gear lever guide onto thrust block - T10083- .
- The gear lever guide rests in the larger recess -arrow- in the thrust block - T10083- .
- The gear lever guide should protrude out of the selector housing as far as the stop.



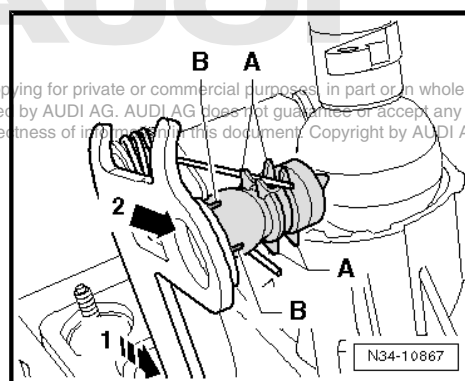
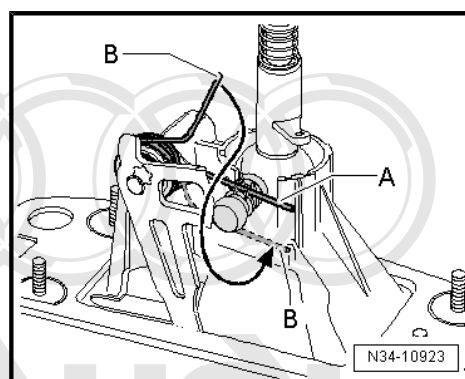
- Insert arm -A- of spring in guide from above.
- Pull arm -B- of spring downwards and insert it next to the guide (towards ball head).



Note

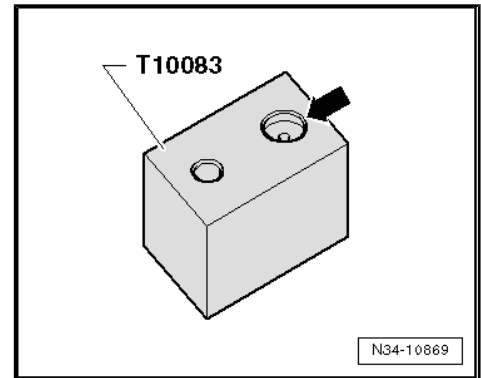
For illustration purposes, only part of the gate selector lever is shown.

- Carefully take selector housing off thrust block - T10083- together with gear lever guide.
- Move gate selector lever rearwards as far as stop in direction of -arrow 1-.
- Grease ball-head pin.
- Press ball-head pin into hole in gate selector lever -arrow 2-.
- Guides -A- and tabs -B- must not be damaged.

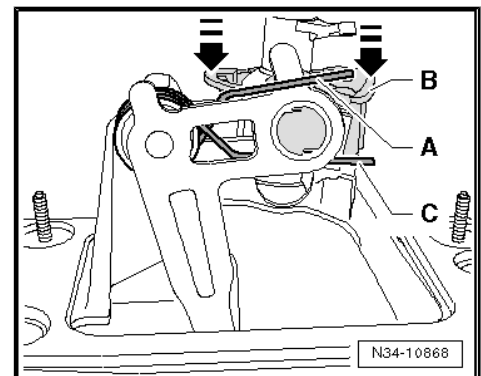


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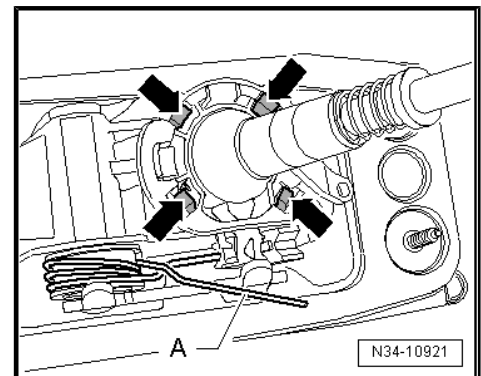
- Now insert gear lever guide (which is now fitted in selector housing) into larger recess -arrow- in thrust block - T10083- again.
- The gear lever guide should now protrude out of the selector housing as far as the stop.



- Lift top spring arm -A- over pin on gate selector lever.
- Use a new ball socket -B-.
- Grease ball socket and ball of gear lever guide.
- Press ball socket onto ball of gear lever guide as far as stop.
- Remove selector housing from thrust block - T10083- .
- Press ball socket into selector housing in direction of -arrows-.



- All four lugs -arrows- must engage.
- Lift top spring arm -A- over pin on gate selector lever into guide.
- Insert bottom spring arm into guide.
- Fit gear lever, gear selector cable, gate selector cable and floor plate.
- Install selector mechanism ➔ [page 55](#) .



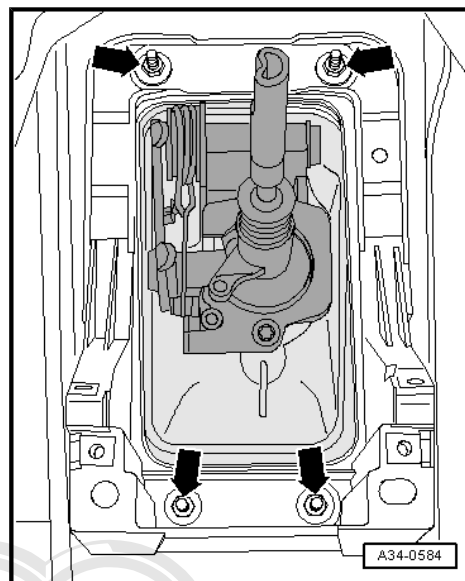
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1.7 Removing and installing selector mechanism

Removing

- Remove gear knob together with gear lever boot ➔ [page 42](#) .
- Remove ashtray or storage compartment in front centre console ➔ Rep. gr. 68 .
- Lift out noise insulation panels above selector mechanism.

- Remove nuts -arrows-.
- Move driver's seat away from pedals.



- Remove air cleaner housing ⇒ Rep. gr. 24 .
- Detach cover above battery (press release tab -arrow-).

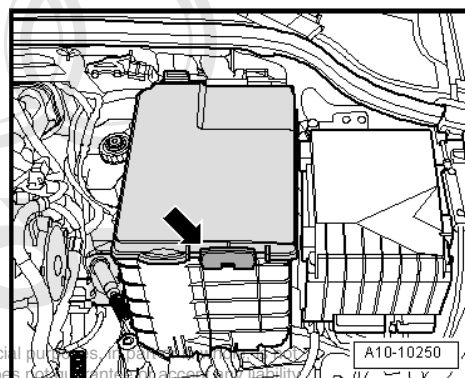


Caution

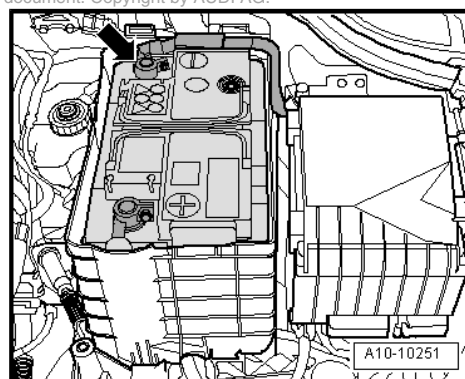
When disconnecting the battery there is a risk of irreparable damage to electronic components.

- ◆ *Observe the correct procedure for disconnecting the battery ⇒ Electrical system; Rep. gr. 27 .*

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- With ignition switched off, disconnect battery earth strap -arrow-.



- Remove battery ⇒ Electrical system; Rep. gr. 27 .
- Remove battery tray -arrows-.

Metal gate relay lever:

- Detach securing clips -1- and -2- on both cables.
- Detach cable end-pieces from gearbox selector lever and gate relay lever.

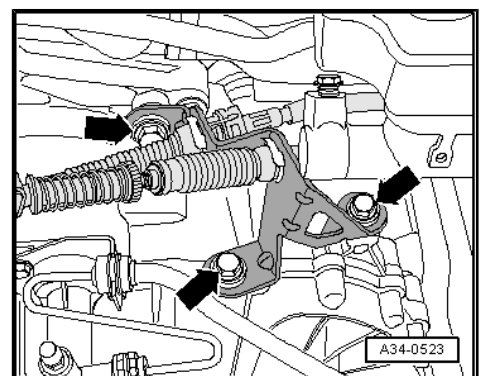
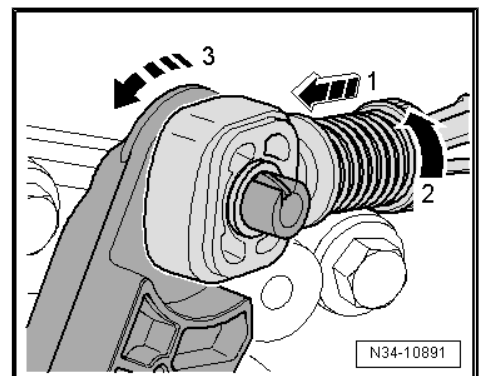
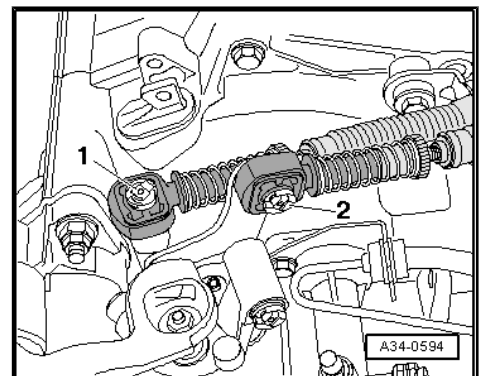
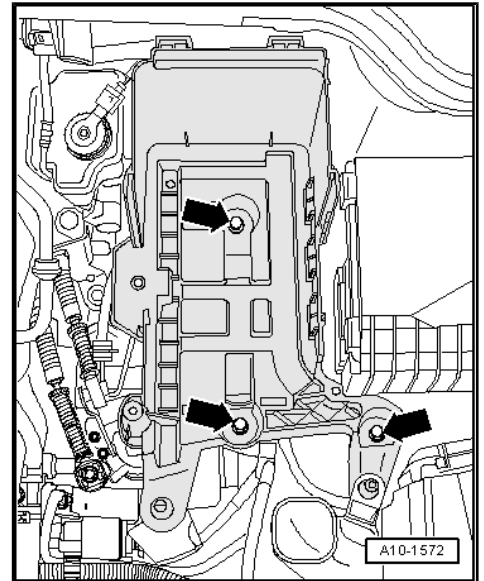
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Plastic gate relay lever:

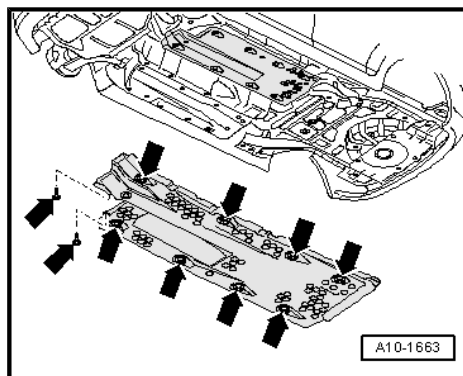
- To prevent damage to gate selector cable, cable end-piece must be detached from gate selector cable before removing relay lever.
- Pull locking mechanism forwards in direction of -arrow 1- onto stop and then turn to left in direction of -arrow 2- to lock.
- Then press gate relay lever forwards (in direction of -arrow 3-).
- Do not detach cable end-piece from gate relay lever until gate relay lever has been removed ⇒ [page 64](#) .

Continued for all vehicles:

- Detach cable support bracket from gearbox -arrows-.



- Remove cover on underbody -arrows- (right-side).
- Loosen inner side of cover on underbody (left-side).



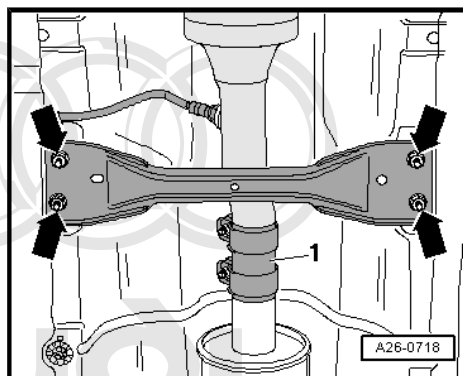
- Remove front cross member on underbody -arrows-.



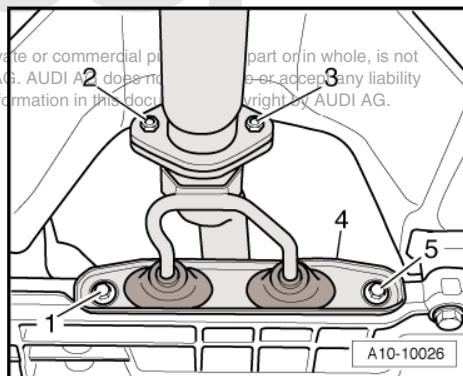
Note

To avoid damage, the flexible joints in the front exhaust pipe must not be bent more than 30°.

- Disconnect bolt connections at clamp -1-.



- Unscrew bolts -1- and -5- of bracket -4- for exhaust system.
- Remove nuts -2- and -3- from exhaust system flange.
- Detach exhaust system at flange and remove exhaust pipe.



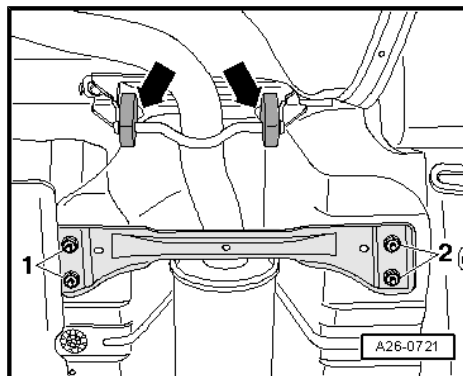
- Remove rear cross member on underbody -nuts 1 and 2-.



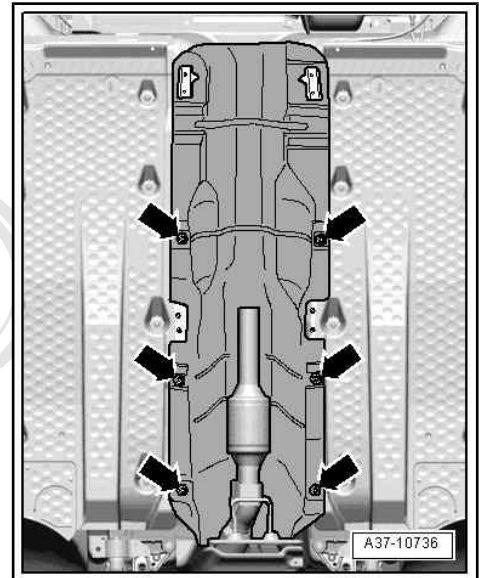
Note

A second mechanic is required for removing the rear section of the exhaust system.

- Detach exhaust system at rubber mountings -arrows-.
- Detach rear silencer at rubber mountings and remove rear section of exhaust system.



- Release clips -arrows- and detach heat shield to rear.
- Swing selector housing down and remove with selector cables.

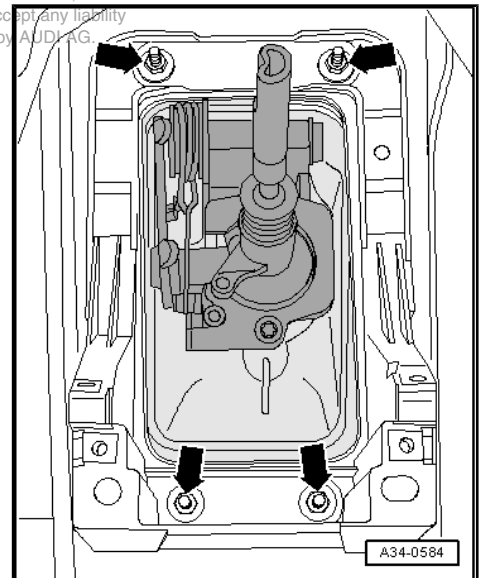


Installing

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

- Align gear selector housing parallel to body and tighten nuts -arrows-. Tightening torque ⇒ [Item 20 \(page 45\)](#)
- Distance to body must then be the same on both sides.

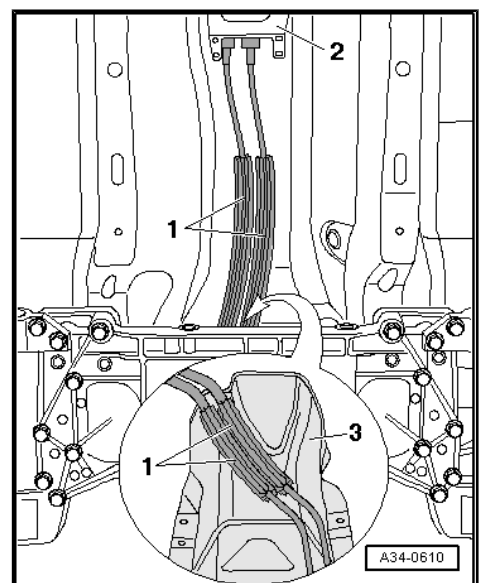


- Route cables -1- from selector mechanism -2- to gearbox as follows:
- The cables must run parallel and must not be crossed.
- The cables must be routed in the slot provided in heat shield -3-.

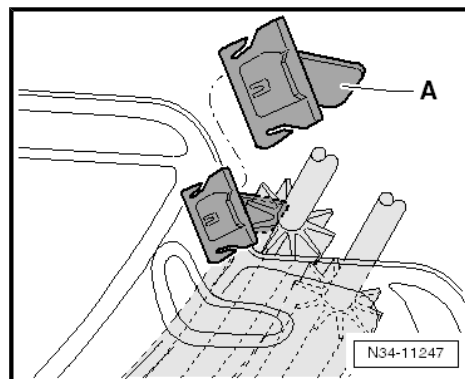


Note

The enlargement shows the heat shield from above.



The cables and heat shield are held in the correct positions by clip -A-.



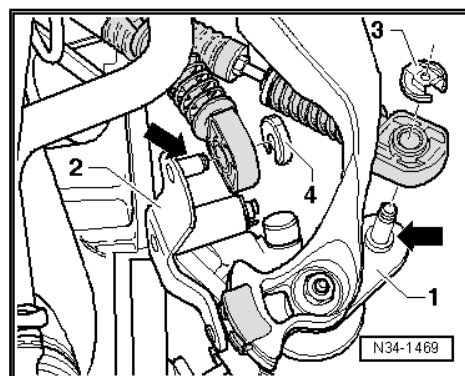
- Apply a small quantity of grease - G 000 450 02- to pins -arrow- of gearbox selector lever -1-.
- Push gear selector cable onto pin and secure with securing clip -3-.

Metal gate relay lever -2-:

- Apply a small quantity of grease - G 000 450 02- to pin of gate relay lever -2-.
- Push gate selector cable onto pin and secure with securing clip -4-.

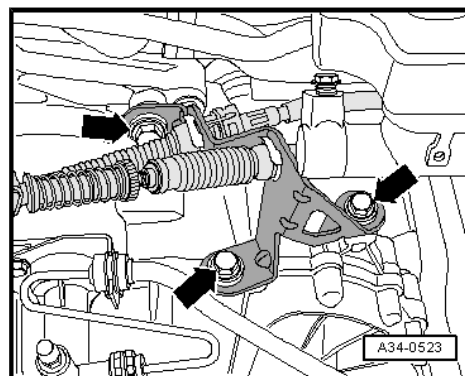
Plastic gate relay lever -2-:

- Insert gate selector cable in cable end-piece.



Continued for all vehicles:

- Secure cable support bracket to gearbox -arrows-. Tightening torque ➔ [Item 6 \(page 57\)](#)
- Adjust selector mechanism ➔ [page 66](#) .
- Install ashtray in front section of centre console ➔ General body repairs, interior; Rep. gr. 68. .
- Install gear knob together with boot ➔ [page 42](#) .
- Install battery tray and battery ➔ Electrical system; Rep. gr. 27. .
- Install complete air cleaner housing ➔ Rep. gr. 24 .
- Install exhaust system and ensure stress-free alignment ➔ Engine, mechanics; Rep. gr. 26. .
- Secure both tunnel cross-pieces on vehicle underside ➔ Rep. gr. 26 .



1.8 Exploded view - gear selector cable and gate selector cable, vehicles up to model year 2007



Note

Lubricate all bearings and moving surfaces with grease G 000 450 02- .

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1 - Gear selector cable

- ☐ Removing and installing
⇒ [page 65](#)
- ☐ Adjusting ⇒ [page 66](#)

2 - Gate selector cable

- ☐ Removing and installing
⇒ [page 65](#)
- ☐ Adjusting ⇒ [page 66](#)

3 - Retaining clips

- ☐ Renew

4 - Selector housing

5 - Retaining clips

- ☐ Renew

6 - Bolt

- ☐ 20 Nm
- ☐ 3x
- ☐ For cable support bracket

7 - Cable support bracket

8 - Grommet

9 - Spacer

10 - Cable end-piece

- ☐ Secures gate selector cable to gate relay lever
- ☐ Release to adjust selector mechanism
⇒ [page 66](#)
- ☐ Allocation ⇒ [page 58](#)

11 - Cable end-piece

- ☐ Secures gear selector cable to gear lever
- ☐ Release to adjust selector mechanism ⇒ [page 66](#)
- ☐ Allocation ⇒ [page 58](#)

12 - Securing clip

- ☐ Renew

13 - Securing clip

- ☐ Renew

14 - Bush

15 - Gate relay lever

- ☐ Installation position ⇒ [page 59](#)

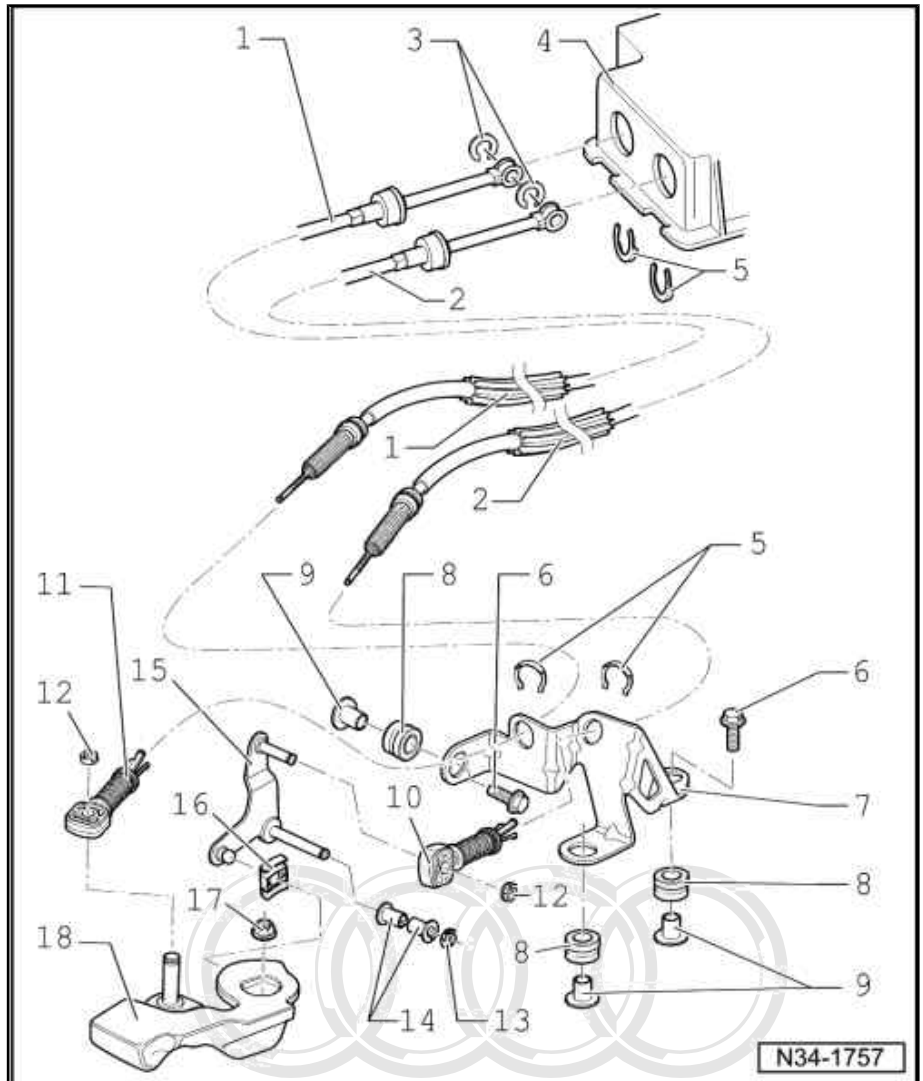
16 - Slide block

17 - Nut

- ☐ Self-locking
- ☐ Renew
- ☐ 23 Nm

18 - Gearbox selector lever

- ☐ With damper weight
- ☐ Install so that gap in splines aligns with selector shaft ⇒ [page 58](#)



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❑ Installation position ➔ [page 59](#)

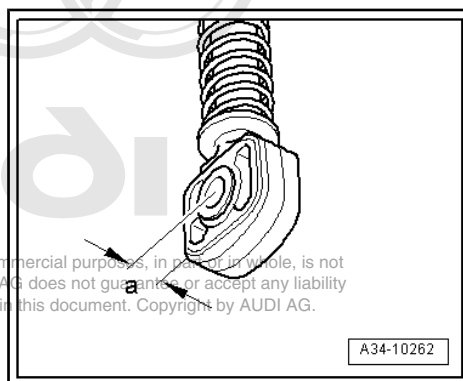
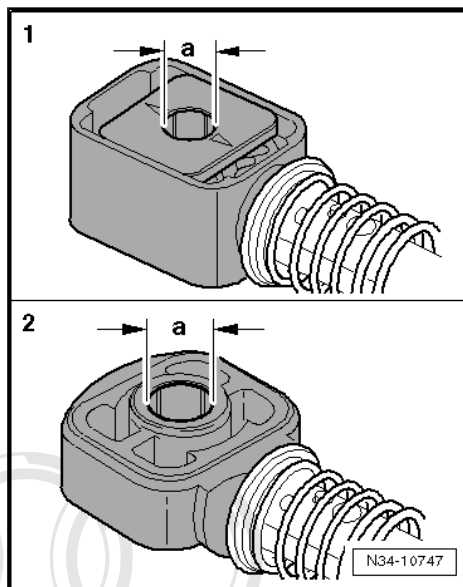
Identification of cable end-pieces

The holes in the cable end-pieces have different diameters.

Cable end-piece for:	Dimension "a"
1. - Gear selector cable to gearbox selector lever	8.5 mm or 10 mm
2. - Gate selector cable to gate relay lever	8 mm

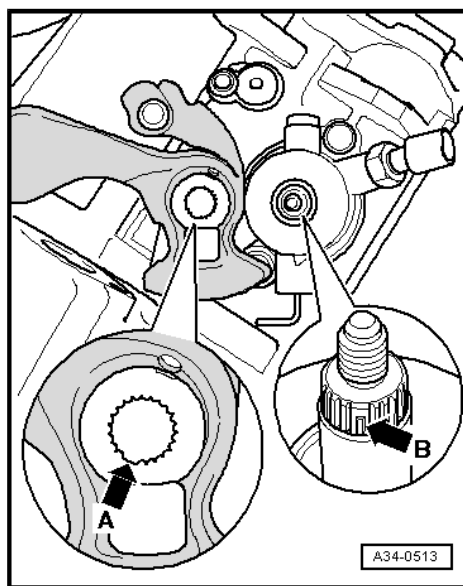
Cable end-piece for:	Dimension "a"
Gear selector cable to gearbox selector lever	20 mm
Gate selector cable to gate relay lever	18.5 mm

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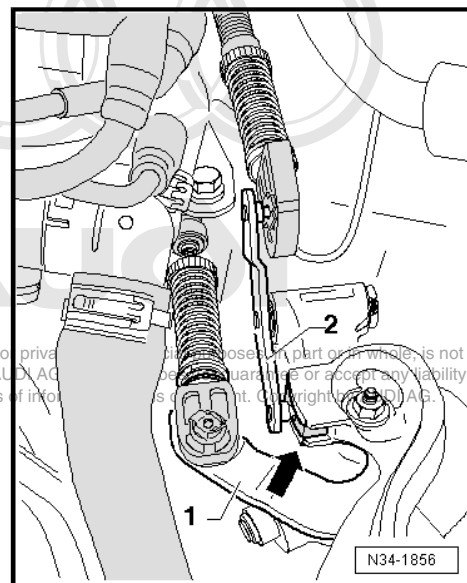
Installing gearbox selector lever

- When installing gearbox selector lever, make sure that the gap in the splines -arrow A- aligns with the wider spline -arrow B- on the selector shaft.



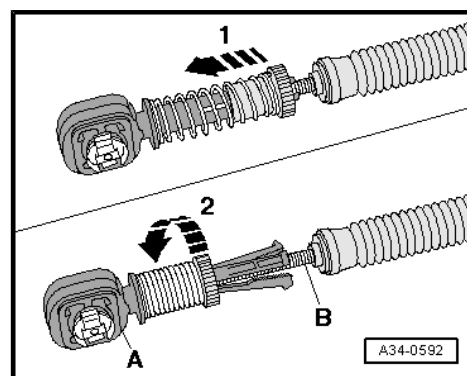
Installation position: gearbox selector lever/gate relay lever

- 1 - Gearbox selector lever with damper weight
- 2 - Gate relay lever locates in guide rail of gearbox selector lever via slide block -arrow-.



Detaching cable end-pieces from gear selector cable and gate selector cable

- Pull locking mechanism forwards -arrow 1- onto stop and then turn to left -arrow 2- to lock.
- Take cable -B- out of cable end-piece -A-.



Detaching and securing gear selector cable and gate selector cable

Detaching

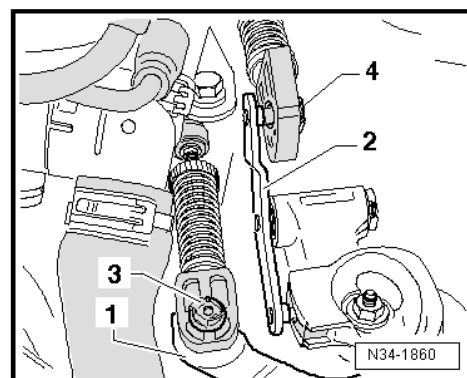
- Lift up tab on securing clip -3- for gear selector cable and detach securing clip from gearbox selector lever -1-. Then pull selector cable off pin.
- Lift up tab and detach securing clip -4- for gate selector cable from gate relay lever -2-. Then pull gate selector cable off pin.

Securing



Note

- ◆ *Renew retaining washers.*
- ◆ *Apply a small quantity of grease - G 000 450 02- to the pin.*
- Push gear selector cable onto gearbox selector lever -1- and secure with securing clip -3-.
- Push gate selector cable onto gate relay lever -2- and secure with securing clip -4-.



1.9 Exploded view - gear selector cable and gate selector cable, vehicles from model year 2008 onwards



Note

Lubricate all bearings and moving surfaces with grease - G 000 450 02- .

1 - Selector mechanism cover

2 - Slide block

3 - Gate relay lever

- ☐ Made of plastic
- ☐ Different versions available; for correct version refer to ➤ Electronic parts catalogue
- ☐ Installation position ➤ [page 62](#)
- ☐ Detaching and securing gate relay lever (with detent catch) at gearbox selector lever ➤ [page 63](#)
- ☐ Detaching and securing gate relay lever (with clip) at gearbox selector lever ➤ [page 64](#)

4 - Cable end-piece

- ☐ Secures gate selector cable to gate relay lever
- ☐ Allocation ➤ [page 61](#)
- ☐ Detaching from gate selector cable ➤ [page 62](#)

5 - Gearbox selector lever

- ☐ With damper weight
- ☐ Fitting ➤ [page 62](#)
- ☐ Installation position ➤ [page 62](#)
- ☐ After installing, adjust selector mechanism ➤ [page 66](#)

6 - Nut

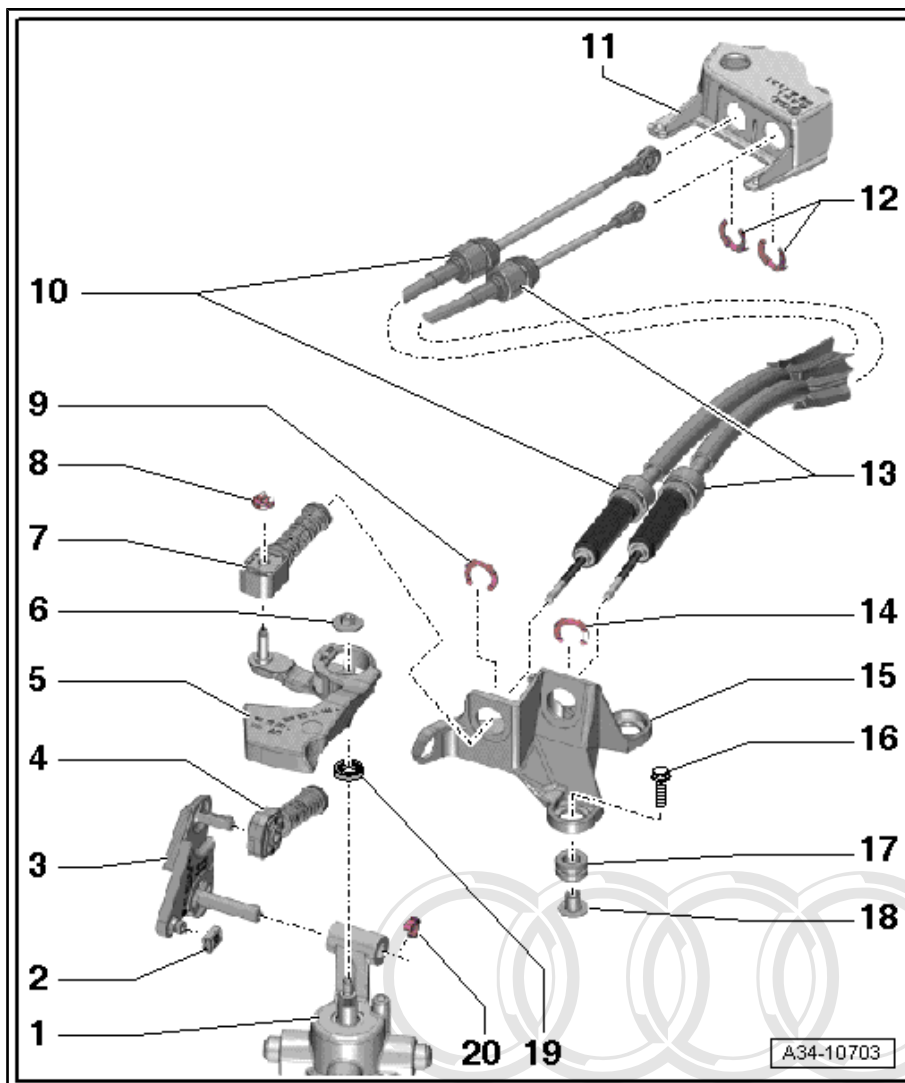
- ☐ Self-locking
- ☐ Renew
- ☐ 23 Nm

7 - Cable end-piece

- ☐ Secures gear selector cable to gearbox selector lever
- ☐ Allocation ➤ [page 61](#)
- ☐ Detaching from gear selector cable ➤ [page 62](#)

8 - Securing clip

- ☐ Removing ➤ [page 63](#)
- ☐ Renew



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9 - Retaining clip

- ☐ Renew

10 - Gear selector cable

- ☐ Detaching and securing at gearbox selector lever ➔ [page 63](#)
- ☐ Removing and installing ➔ [page 65](#)
- ☐ Adjusting ➔ [page 66](#)

11 - Selector housing

12 - Retaining clips

- ☐ Renew

13 - Gate selector cable

- ☐ Removing and installing ➔ [page 65](#)
- ☐ Adjusting ➔ [page 66](#)

14 - Retaining clip

- ☐ Renew

15 - Cable support bracket

16 - Bolt

- ☐ 20 Nm

17 - Grommet

18 - Bush

19 - Oil seal

- ☐ Renewing ➔ [Item 6 \(page 133\)](#)

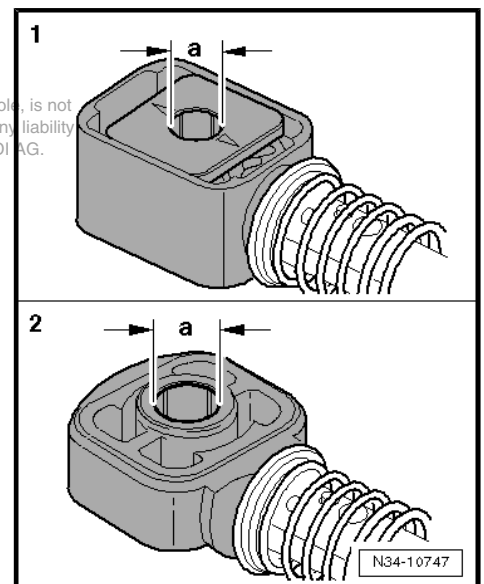
20 - Clip

- ☐ For gate relay lever (only from 08.2008 onwards)

Identification of cable end-pieces

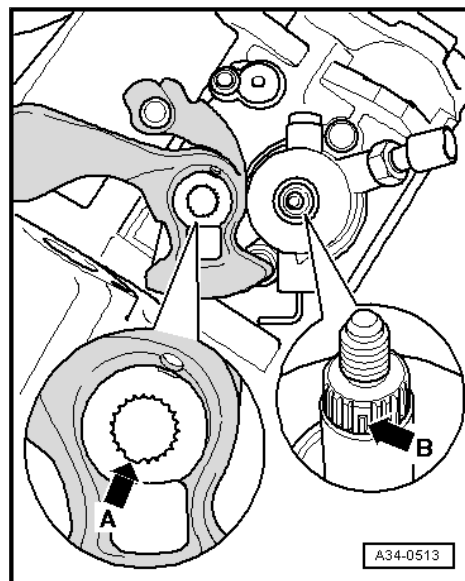
The holes in the cable end-pieces have different diameters.

Cable end-piece for:	Dimension "a"
-1- Gear selector cable to gearbox selector lever	8.5 mm
-2- Gate selector cable to gate relay lever	10 mm



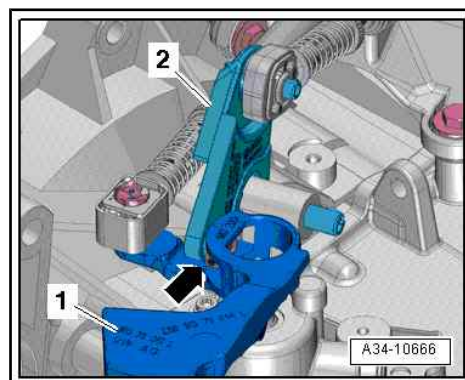
Installing gearbox selector lever

- When installing gearbox selector lever, make sure that the gap in the splines -arrow A- aligns with the wider spline -arrow B- on the selector shaft.



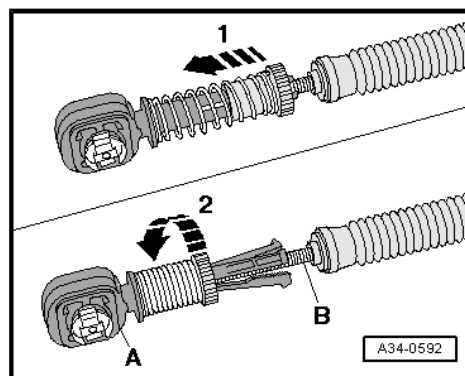
Installation position: gearbox selector lever/gate relay lever

- 1 - Gearbox selector lever with damper weight
- 2 - Gate relay lever locates in guide rail of gearbox selector lever via slide block -arrow-.



Detaching cable end-pieces from gear selector cable and gate selector cable

- Pull locking mechanism forwards -arrow 1- onto stop and then turn to left -arrow 2- to lock.
- Take cable -B- out of cable end-piece -A-.



Detaching and securing gear selector cable at gearbox selector lever

Detaching

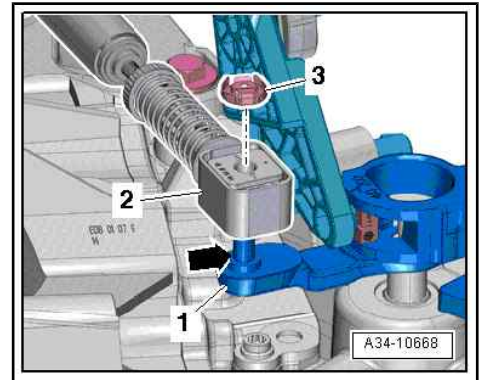
- Lift up tab and detach securing clip -3- for gear selector cable from gearbox selector lever -1-.
- Pull gear selector cable -2- off pin -arrow-.

Securing



Note

- ◆ *Renew securing clip for gear selector cable.*
- ◆ *Apply a small amount of grease - G 000 450 02- to pin -arrow-.*
- Push gear selector cable -2- onto gearbox selector lever -1- and secure with securing clip -3-.



Detaching and securing gate relay lever (with detent catch) at gearbox selector lever

Detaching

- Press detent -arrow 1- down onto stop and remove gate relay lever together with cable end-piece. Move gate relay lever in normal direction of operation.



Note

-Arrow 2- can be disregarded.

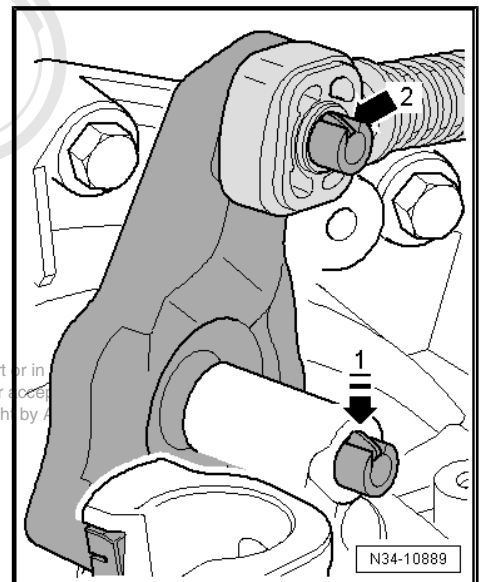
Securing



Note

To install, lubricate bearings and moving surfaces with grease - G 000 450 02- .

- Press cable end-piece onto gate relay lever ⇒ [page 64](#) .
- Insert gate relay lever with cable end-piece as far as stop.
- Gate relay lever is secured by detent -arrow 1-.
- Cable end-piece is secured by detent -arrow 2-.
- Ensure that components engage securely.



Detaching and securing gate relay lever (with clip) at gearbox selector lever

Detaching

- Remove clip -arrow 1- and take off gate relay lever together with cable end-piece.

Securing



Note

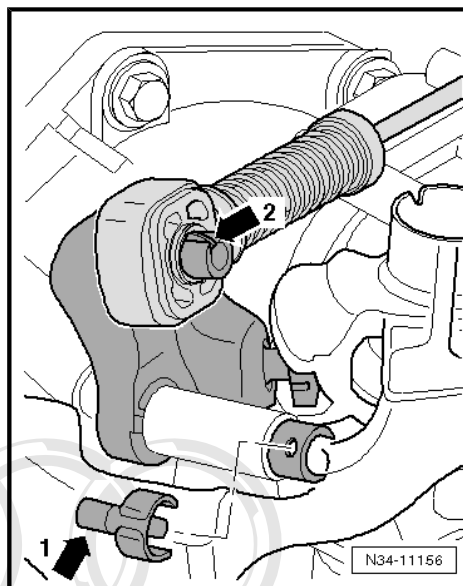
Lubricate all bearings and moving surfaces with grease - G 000 450 02- .

- Insert gate relay lever with cable end-piece as far as stop.
- Press on clip -arrow 1-, making sure it engages securely.



Note

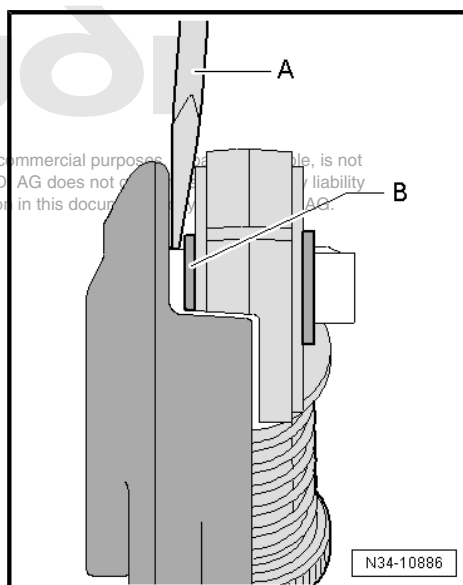
-Arrow 2- can be disregarded.



Levering cable end-piece for gate selector cable off gate relay lever

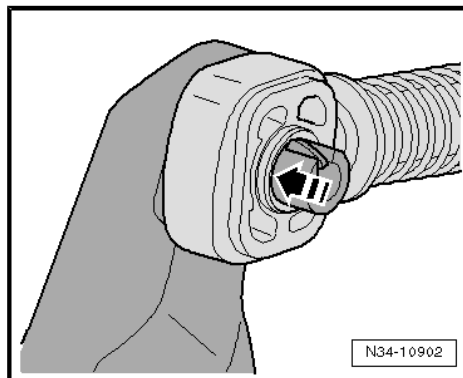
- Gate relay lever removed
- Apply plain slot screwdriver -A- between bush -B- and gate relay lever.

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Pressing cable end-piece for gate selector cable onto gate relay lever

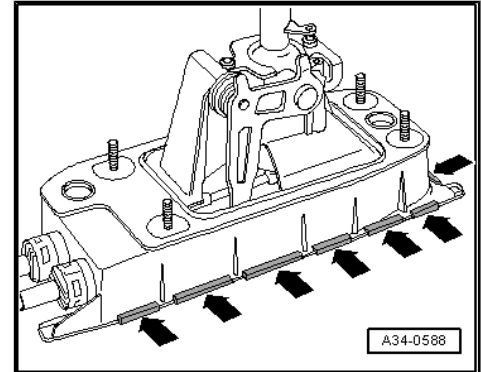
- Gate relay lever removed
- Press on cable end-piece only at bush -arrow-.
- Cable end-piece must move freely on gate relay lever.
- Cable end-piece must be behind detent.
- Ensure that components engage securely.



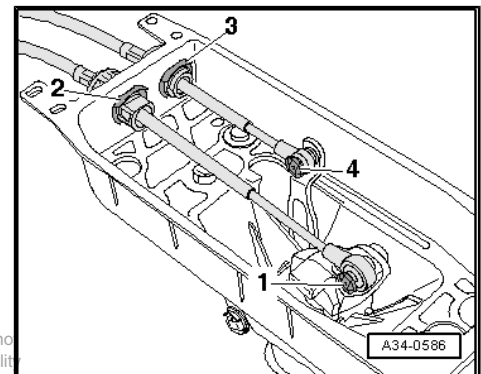
1.10 Removing and installing gear selector cable and gate selector cable

Removing

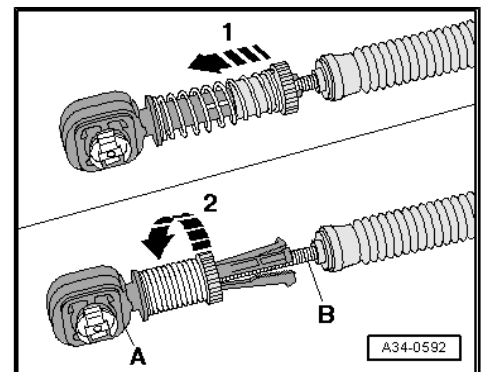
- Remove selector mechanism ⇒ [page 51](#)
- Using a screwdriver, bend open tabs -arrows- for selector mechanism on floor plate and remove floor plate.
- Remove gasket.



- Take off securing clips -1 ... 4- and detach gear selector cable and gate selector cable from selector housing.



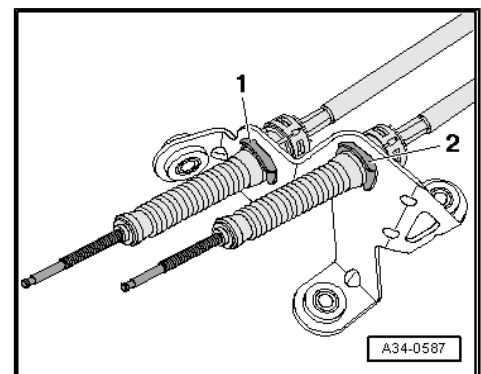
- Release cable end-pieces -A- for gate selector cable and gear selector cable -B- as follows:
- Push locking sleeve forwards as far as stop -arrow 1-.
- Turn locking sleeve clockwise as far as stop -arrow 2- so that it engages.
- Detach cable end-pieces from cables.



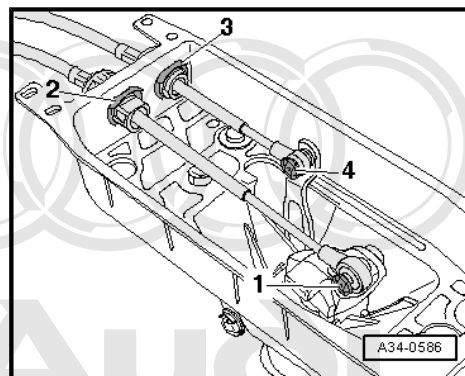
- Pull off securing clips -1- and -2-.
- Detach cable support bracket from cables.

Installing

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

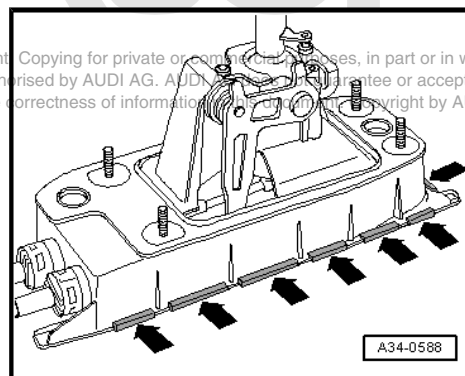


- Secure gear selector cable and gate selector cable to selector housing with securing clips -1 ... 4-.



- Fit gasket and secure floor plate to selector mechanism by bending over tabs -arrows-.
- Install selector mechanism ➔ [page 55](#) .
- Adjust selector mechanism ➔ [page 66](#) .

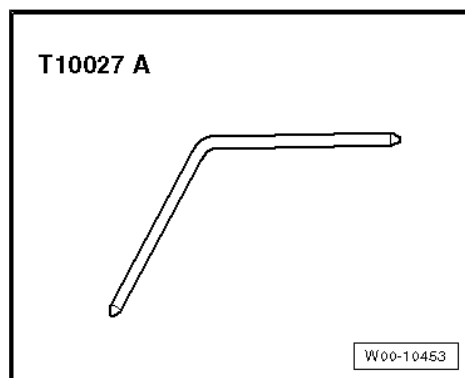
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1.11 Adjusting selector mechanism

Special tools and workshop equipment required

- ♦ Locking pin - T10027 A-

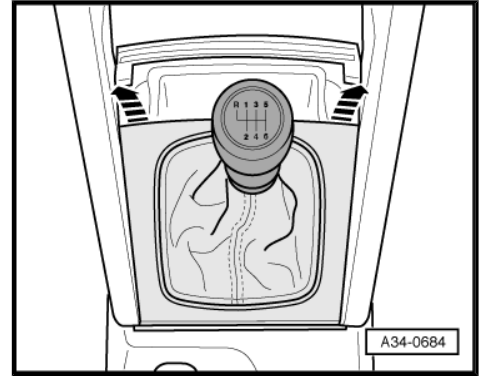


Adjustment conditions

- 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.

Adjusting

- Open ashtray (if fitted).
- Carefully pry gear lever boot off centre console -arrows-.
- Pull boot up and over gear knob.
- With gearbox in neutral, guide gear lever to the left into 1st/2nd gear gate.

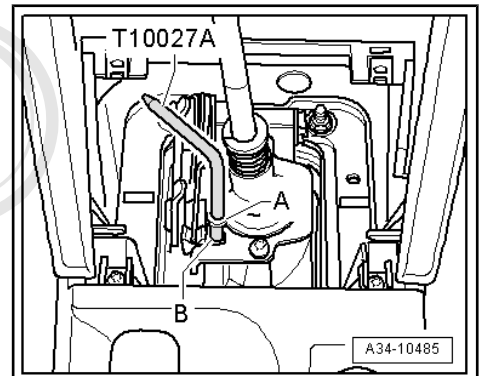


- Pull noise insulation slightly to one side.
- Then guide locking pin - T10027 A- through hole -A- and into hole -B-.



Note

The noise insulation panels are removed to give a better illustration.



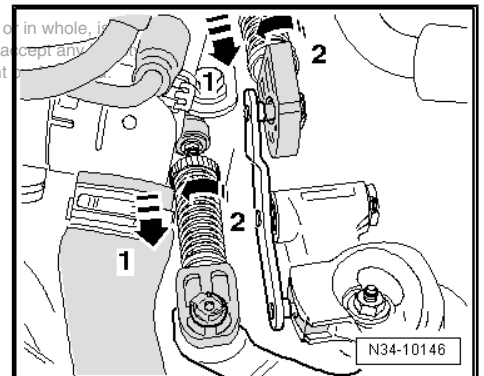
Release cable end-pieces for gate selector cable and gear selector cable as follows:

- Pull locking sleeve forwards as far as stop -arrow 1-.
- Turn locking sleeve anti-clockwise as far as stop -arrow 2- so that it engages.



Note

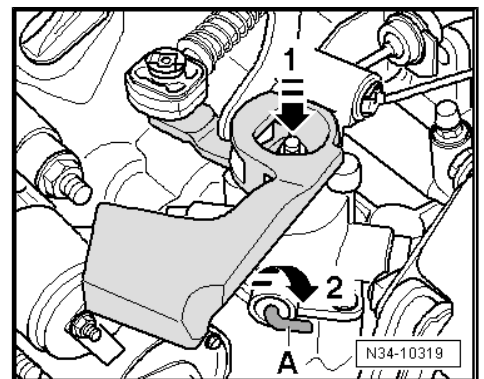
It should now be possible to move the cables in the cable end-pieces.



Lock selector shaft as follows:

- Push gearbox selector lever down into 1st/2nd gear gate in direction of -arrow 1-.
- At the same time, turn locking pin -A- in direction of -arrow 2- and press it in carefully until it engages.

The selector shaft is then locked and can no longer be moved.



- Check that gate selector cable and gear selector cable -B- are located in cable end-pieces -A- without tension.
- Release locking sleeve -arrow 1-.
- Allow locking sleeve to slide onto stop -arrow 2-.



Note

Cable adjustment is now complete.

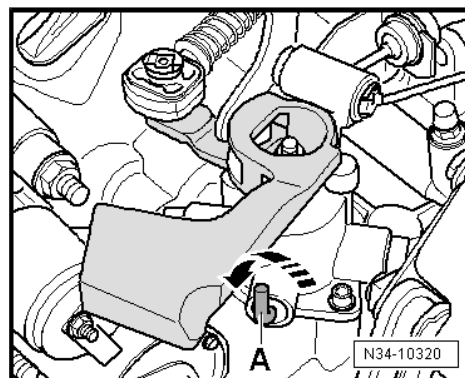
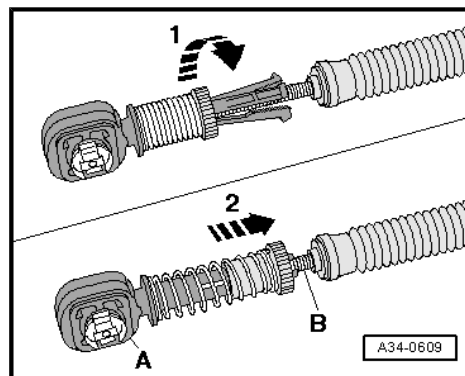
- Now turn locking pin -A- back to original position -direction of arrow-.
- The pin should point vertically upwards.
- Pull locking pin - T10027 A- out of selector mechanism.

Check gear lever setting as follows:

- With the gearbox in neutral, the gear lever should rest in the 3rd/4th gear gate.
- Press clutch pedal.
- Select all gears several times. Pay particular attention to the operation of the reverse gear locking mechanism.
- 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.

- Fit gear lever boot.



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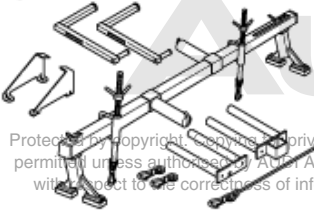
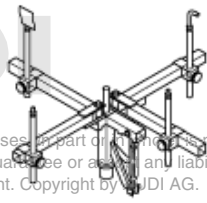
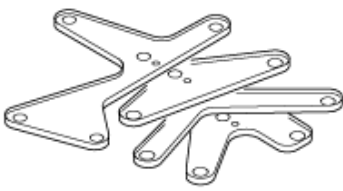
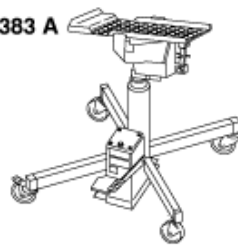
2 Removing and installing gearbox

Overview:

- ◆ ⇒ [“2.1 Removing gearbox - vehicles with 1.2 ltr. TFSI engine”, page 69](#)
- ◆ ⇒ [“2.2 Removing gearbox - vehicles with 1.4 ltr. TFSI engine”, page 75](#)
- ◆ ⇒ [“2.3 Transporting gearbox”, page 84](#)
- ◆ ⇒ [“2.4 Installing gearbox”, page 85](#)

2.1 Removing gearbox - vehicles with 1.2 ltr. TFSI engine

Special tools and workshop equipment required

10-222 A  Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorized by Audi AG. Audi AG does not guarantee or assume any liability with respect to the correctness of information in this document. Copyright by Audi AG.	3282 
3282/1... 	V.A.G 1383 A 
	G34-0022

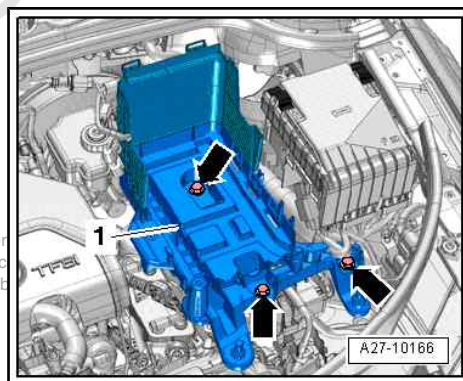
- ◆ Support bracket - 10 - 222 A-
- ◆ Gearbox support - 3282-
- ◆ Adjustment plate - 3282/46-
- ◆ Engine and gearbox jack - V.A.G 1383 A-

 Note

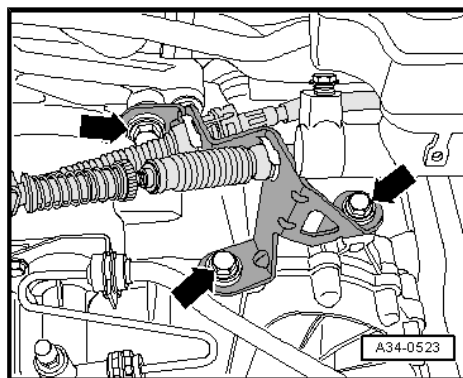
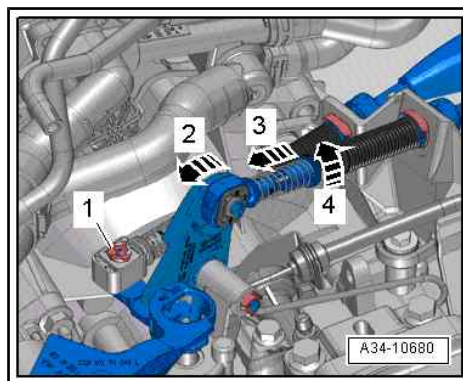
All cable ties which are released or cut open during removal must be fitted in the same position when installing.

- Remove air cleaner housing ⇒ Rep. gr. 24 .
- Remove starter ⇒ Electrical system; Rep. gr. 27 .
- Remove front exhaust pipe ⇒ Rep. gr. 26 .
- Remove battery ⇒ Electrical system; Rep. gr. 27 .
- Remove bolts -arrows- and take out battery mounting -1- .

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- Pull off securing clip -1-.
- Pull gear selector cable off pin.
- To avoid damage to the gate selector cable, the cable end-piece must be separated from the gate selector cable before removal.
- Pull locking mechanism forwards in direction of -arrow 3- onto stop and then turn to left in direction of -arrow 4- to lock.
- Then push gate relay lever forwards in direction of -arrow 2-.
- The gate relay lever must be removed before detaching the cable end-piece.
- Detach cable support bracket from gearbox -arrows- and place to one side.

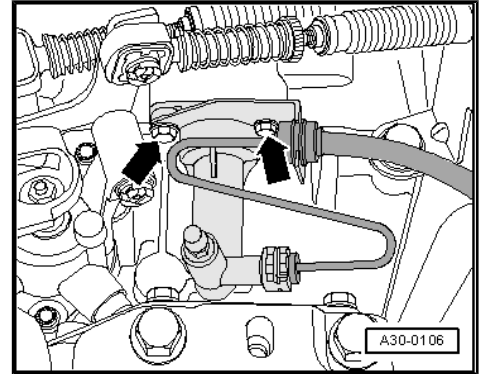


- Remove clutch slave cylinder -arrows- and place to one side; do not disconnect pipe.

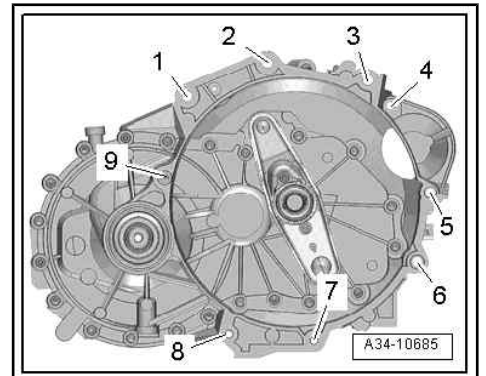


Caution

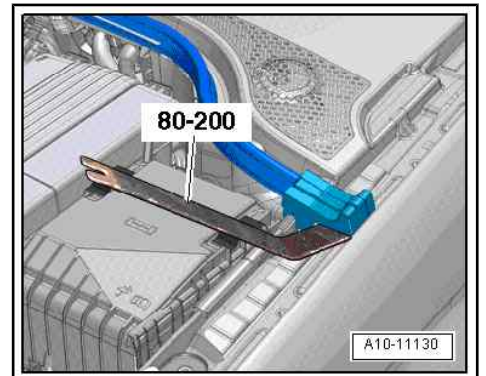
Do not depress clutch pedal after removing slave cylinder.



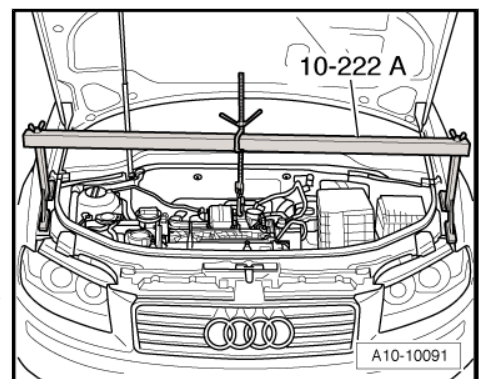
- Remove bolts -1- securing gearbox to engine.



- Lever clip off sealing element using removal lever - 80 - 200- and fold up sealing element.



- Set up support bracket - 10-222 A- on body flanges with adapt-ers - 10 - 222 A /3- .
- Hook spindle of support bracket into engine lifting eye (left-side).
- Partly take up weight of engine with spindle, but do not lift.



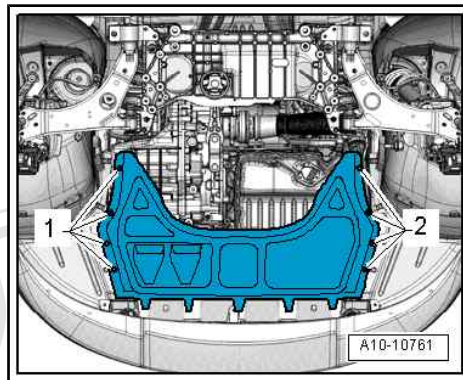
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- Remove front left wheel.
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 .



Note

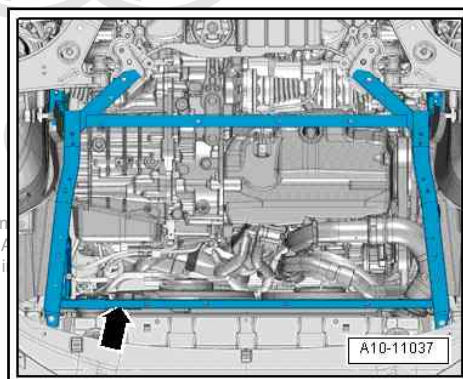
Depending on version, different types of noise insulation may be fitted.



Audi A3 Cabriolet

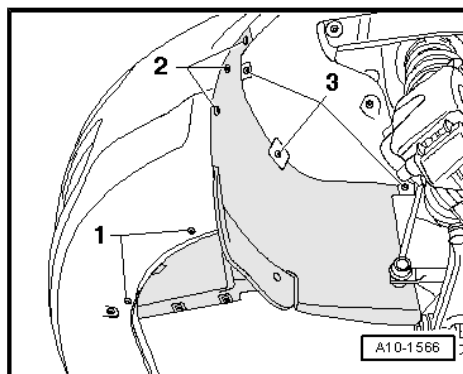
- Remove noise insulation frame -arrow- ⇒ General body repairs, exterior; Rep. gr. 50 .

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Continued for all vehicles

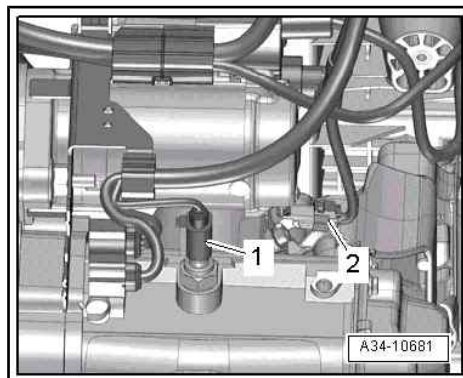
- Remove front section of front wheel housing liner (left-side) ⇒ General body repairs, exterior; Rep. gr. 66 .



- Unplug connector -1- for reversing light switch - F4- .

Vehicles with start/stop system:

- Unplug connector -2- from gearbox neutral position sender - G701- .



Continued for all vehicles:

- Unscrew bolts -1 ... 3- and remove pendulum support.



- Unbolt drive shafts (left and right) from flanges on gearbox.
- Tie up drive shaft (right-side).

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- Remove nuts -arrows- securing swivel joint (left-side).
- If fitted, unscrew nut on bracket for front left vehicle level sender -G78- .
- Disengage swivel joint from wishbone.

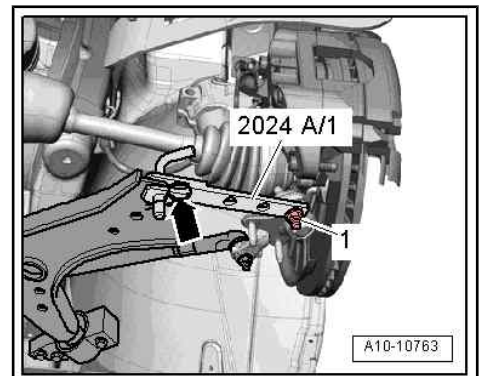
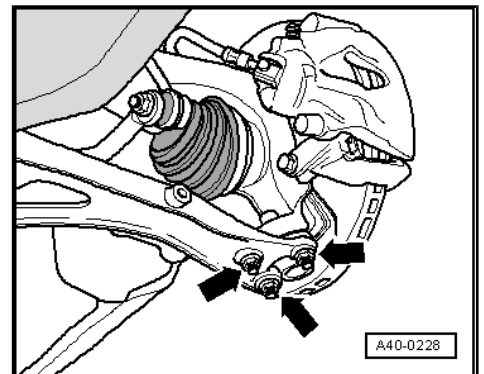
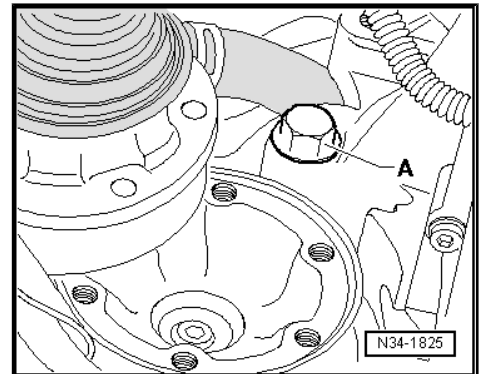
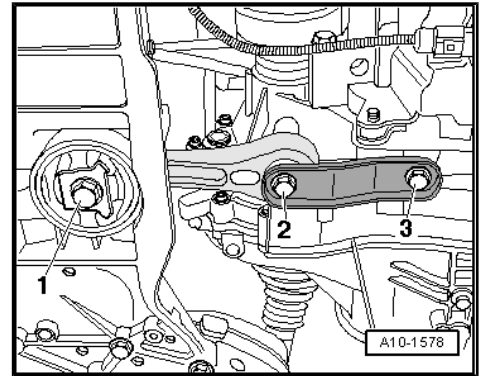
- Swivel suspension strut (left-side) outwards and support with extension -2024 A /1- as shown in illustration.



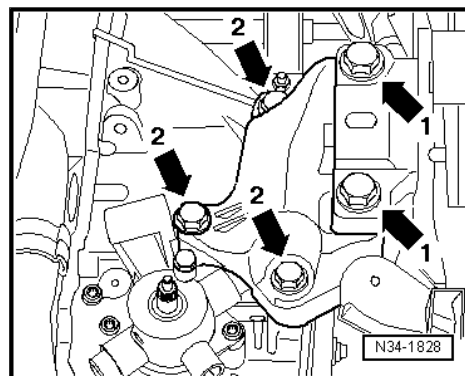
WARNING

Risk of accident if parts of support are not properly secured.

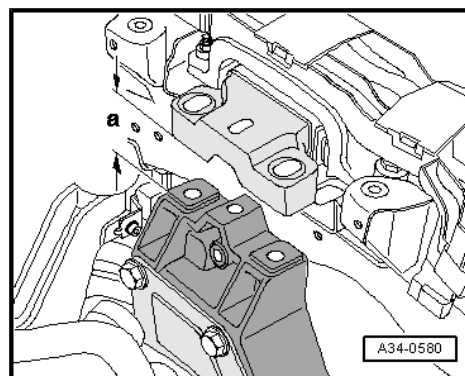
- ◆ *Secure locking pin and wishbone with retaining clip -arrow- and nut -1-.*



- Remove bolts -arrows 1- from gearbox mounting.



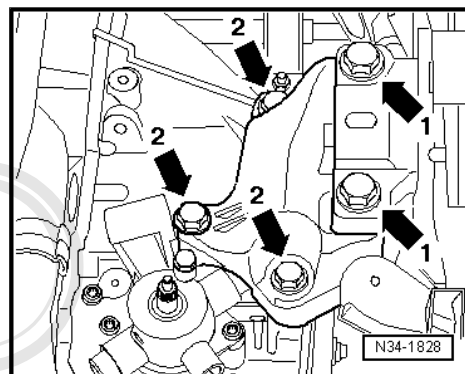
- Adjust spindle of support bracket - 10-222 A- to lower gearbox by distance -a-.
- Distance -a- = 60 mm



- Unbolt gearbox bracket from gearbox -arrows 2-.

To remove gearbox 0AJ, set up gearbox support - 3282- with adjustment plate - 3282/46- .

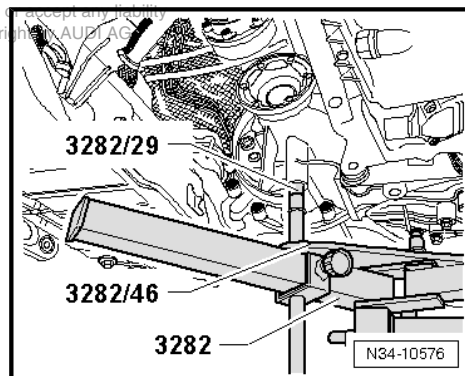
- Insert gearbox support - 3282- in engine and gearbox jack - V.A.G 1383 A- .
- Place adjustment plate - 3282/46- on gearbox support - 3282- (adjustment plate only fits in one position).
- Align arms of gearbox support according to holes in adjustment plate .
- Bolt on support elements as illustrated on adjustment plate .
- Place engine and gearbox jack - V.A.G 1383 A- under vehicle; arrow symbol on adjustment plate points to front of vehicle.
- Align adjustment plate parallel with gearbox.



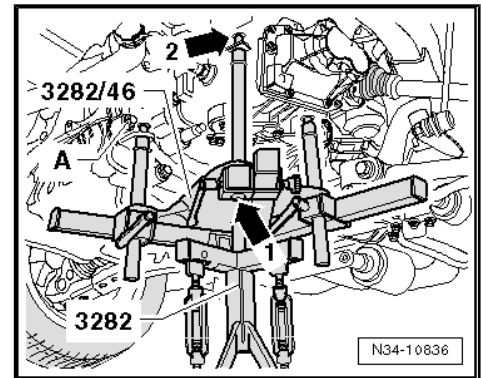
Pin -arrow 1- (illustration 10836) should be flush with guide of gearbox support .

- Screw pin - 3282/29- into hole for bolt securing pendulum support to gearbox.

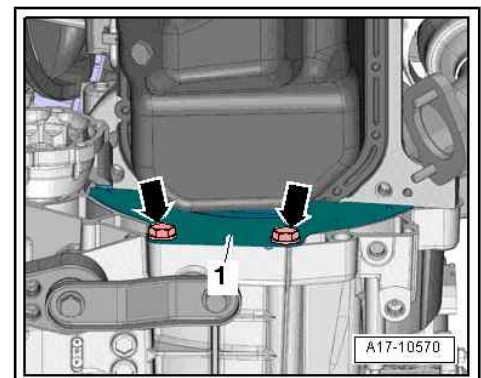
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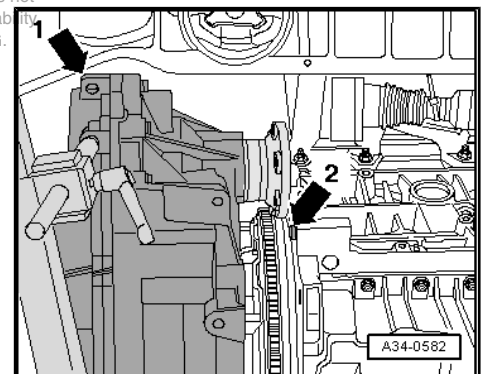
- Secure bolt - 3282/45- with a nut M8 to gearbox -arrow 2-.
- Remove engine/gearbox securing bolt -A-.



- Remove engine/gearbox securing bolts -arrows- in vicinity of sump and detach cover plate -1-.
- Press gearbox off dowel sleeves.
- Take care not to damage intermediate plate on engine.
- Carefully push engine towards front (2nd mechanic required).
- Pivot differential side of gearbox upwards using spindles of gearbox support - 3282- .



- Then carefully guide right-hand flange shaft on gearbox past flywheel/intermediate plate as illustrated -arrow 2-, at the same time pressing engine slightly forwards.
- Lower gearbox, observing subframe at the same time -arrow 1-.
- When lowering gearbox, adjust position of gearbox using spindles on gearbox support - 3282- .

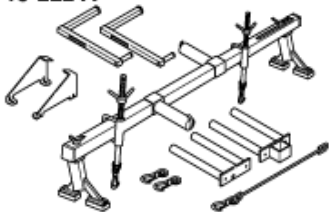
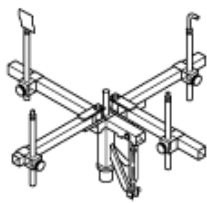
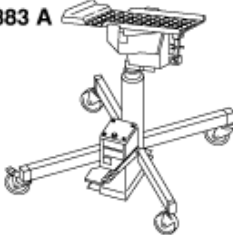


Note

Pay attention to all pipes/hoses/wiring when lowering gearbox.

2.2 Removing gearbox - vehicles with 1.4 ltr. TFSI engine

Special tools and workshop equipment required

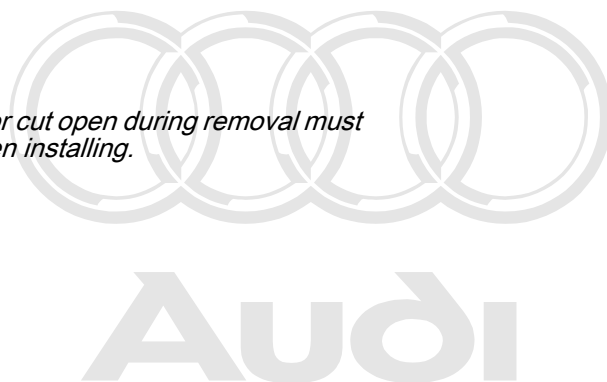
10-222 A 	3282 
3282/1... 	V.A.G 1383 A 
	G34-0022

- ◆ Support bracket - 10 - 222 A-
- ◆ Gearbox support - 3282-
- ◆ Adjustment plate - 3282/46-
- ◆ Engine and gearbox jack - V.A.G 1383 A-



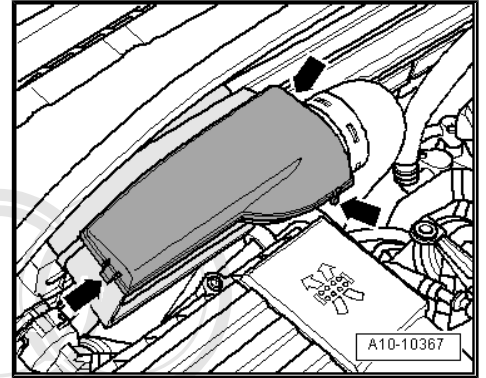
Note

All cable ties which are released or cut open during removal must be fitted in the same position when installing.

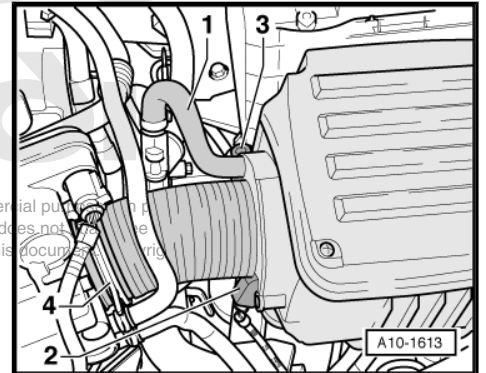


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- Pull off cover for air duct (release retaining clips -arrows- on the sides).



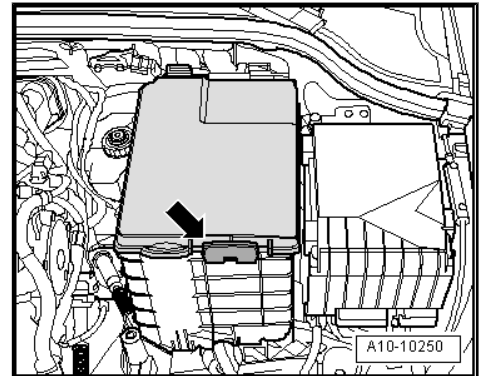
- Disconnect hose -1- at air cleaner housing.
- If fitted, unplug connector -2- at air cleaner housing.
- Release spring clips -4- and detach air intake hose.
- Remove bolt -3-.
- Take out air cleaner housing.



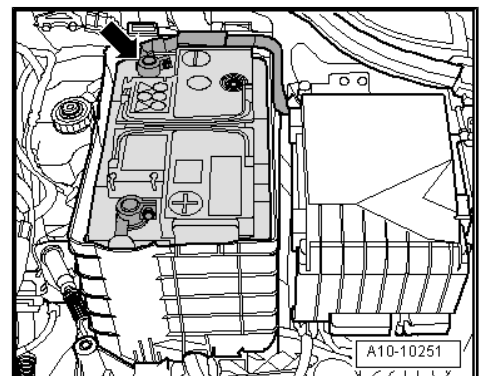
WARNING

Follow steps required when disconnecting battery ➔ Electrical system; Rep. gr. 27.

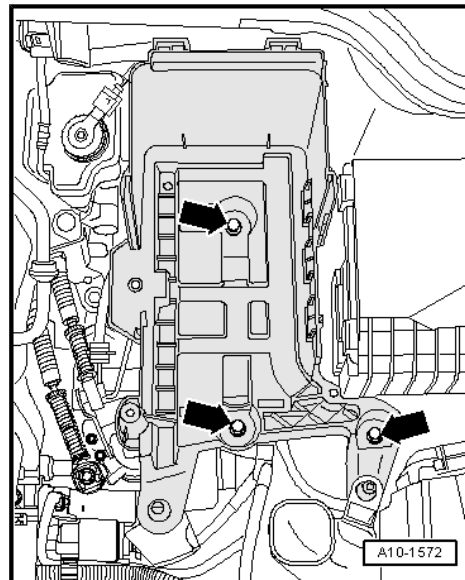
- Detach cover above battery (press release tab -arrow-).



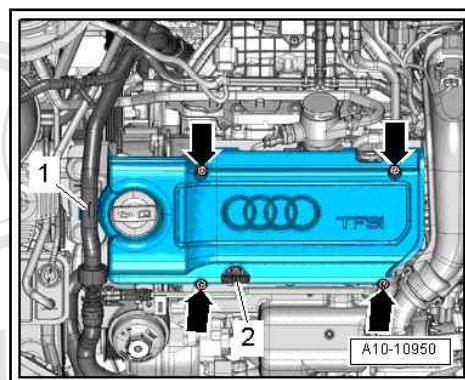
- With ignition switched off, disconnect battery earth strap -arrow-.



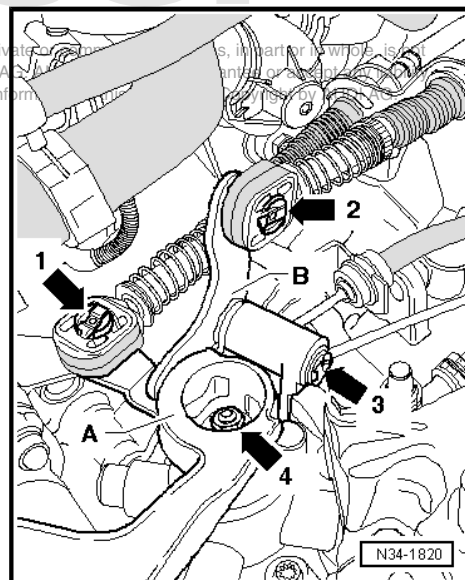
- Remove battery ⇒ Electrical system; Rep. gr. 27 .
- Remove battery tray -arrows-.



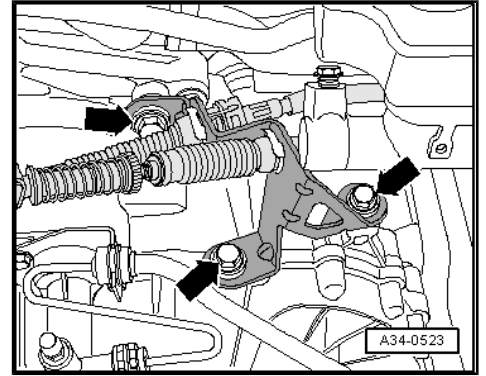
- Detach coolant hose -1- from engine cover panel.
- Pull oil dipstick -2- out of guide tube.
- Remove engine cover panel -arrows-.
- Re-insert dipstick -2- in guide tube.



- Pull off securing clips -arrow 1- and -arrow 2-.
- Pull gate selector cable and gear selector cable off joint pins.
- Pull off securing clip -arrow 3- and remove gate relay lever -B-.
- Remove nut -arrow 4- and detach gearbox selector lever -A-.



- Detach cable support bracket from gearbox -arrows- and place to one side.

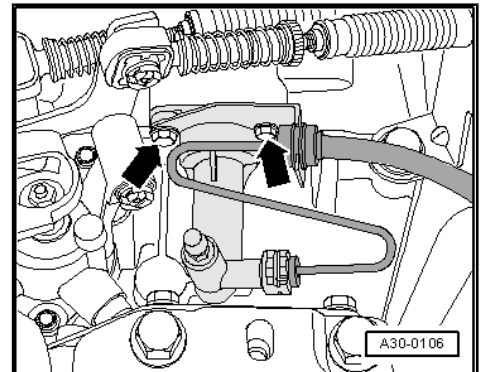


- Remove clutch slave cylinder -arrows- and place to one side; do not disconnect pipe.

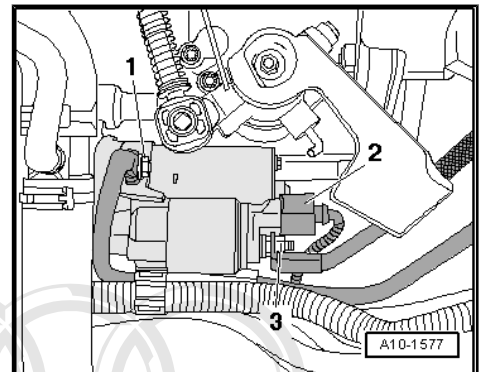


WARNING

Do not depress clutch pedal after removing slave cylinder.

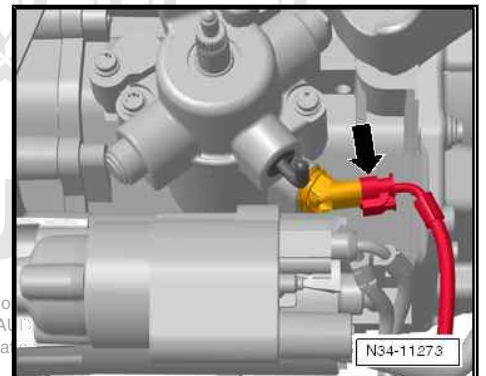


- Unscrew earth wire -1-.
- Disconnect electrical wires -2- and -3- at starter and move them clear.



Vehicles with start/stop system:

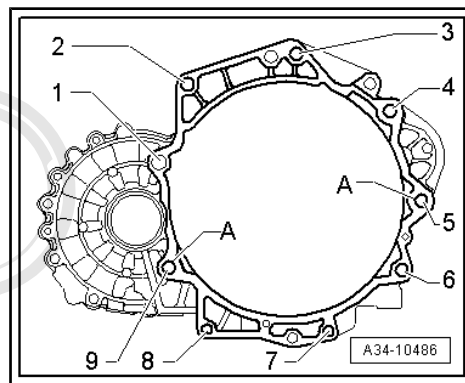
- Unplug connector -arrow- from gearbox neutral position sender - G701- .



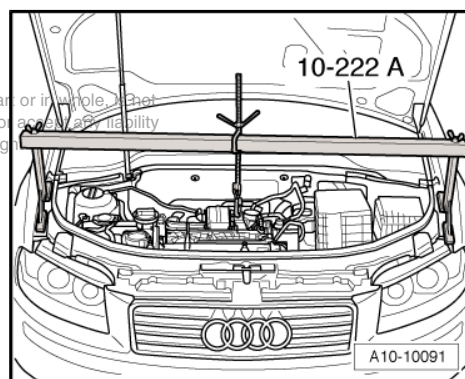
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Continued for all vehicles:

- Remove bolts -1 ... 4- from engine/gearbox flange.



- Set up support bracket - 10-222 A- on wing mounting flanges.
- Hook spindle of support bracket into engine lifting eye (left-side).
- Take up weight of engine with spindle; **do not lift**.

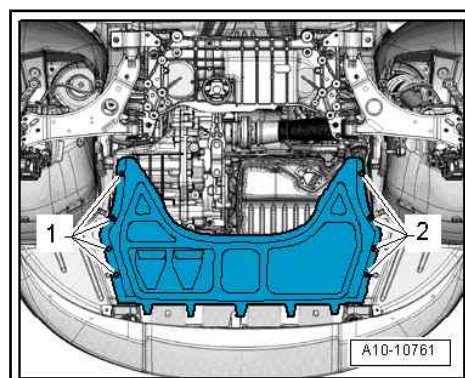


- Remove front left wheel.
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 .



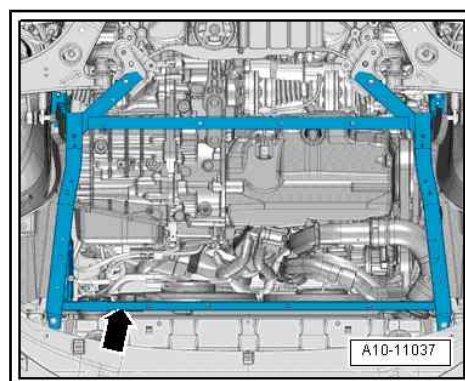
Note

Depending on version, different types of noise insulation may be fitted.



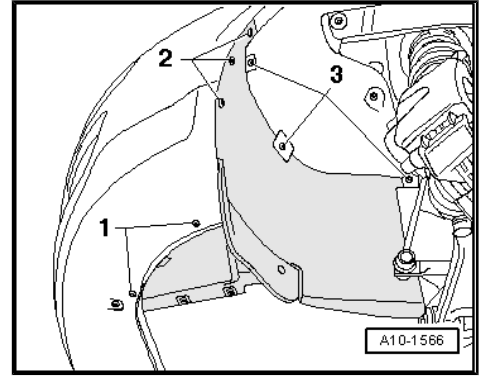
Audi A3 Cabriolet

- Remove noise insulation frame -arrow- ⇒ General body repairs, exterior; Rep. gr. 50 .

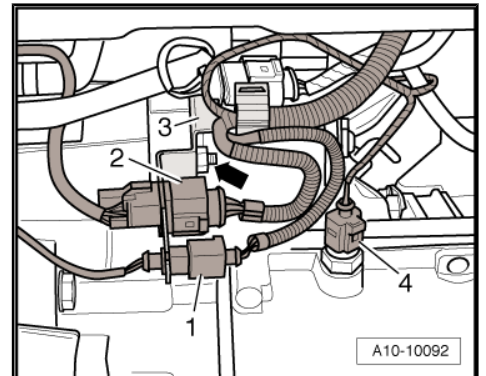


Continued for all vehicles

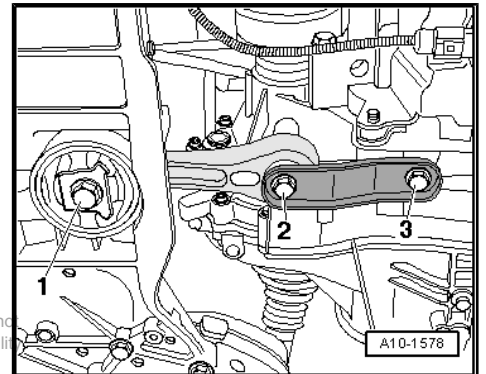
- Remove front section of front wheel housing liner (left-side) ⇒ Rep. gr. 66 .



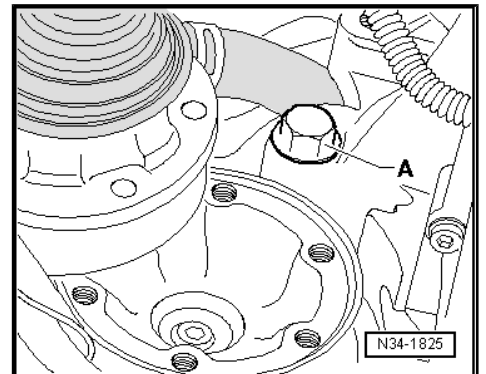
- Unplug electrical connector -4- for reversing light switch - F4- .
- Remove nut -arrow- and detach bracket -3- from stud together with electrical wiring -1- and -2-.
- Remove bolts -arrows- and detach starter.



- Remove bolts -1 ... 3- and detach pendulum support.



- Unbolt drive shafts (left and right) from gearbox flanges.
- Tie up drive shafts.
- Remove engine/gearbox securing bolt -A- above flange shaft (right-side).



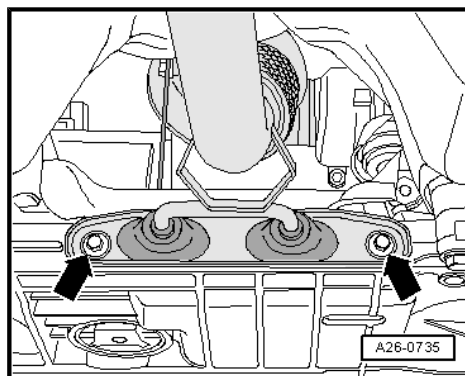
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Note

To avoid damage, the flexible joints in the front exhaust pipe must not be bent more than 30°.

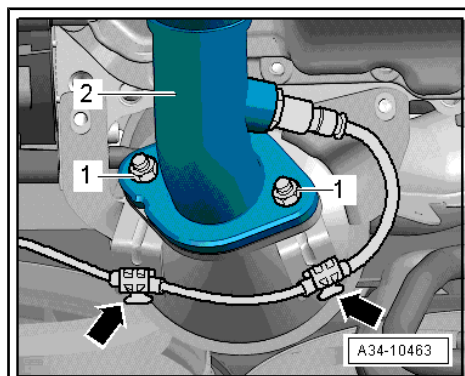
– Remove bolts -arrows-.



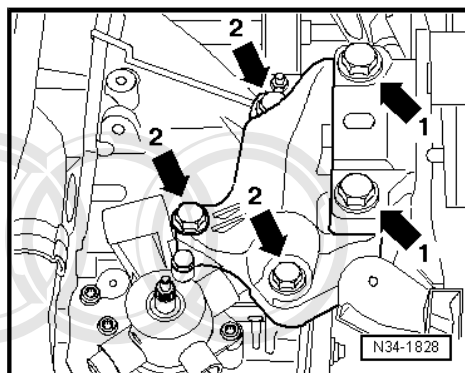
– Remove nuts -1- from exhaust system flange.

– Unclip Lambda probe wire -arrows-.

– Detach front exhaust pipe -2- from catalytic converter.

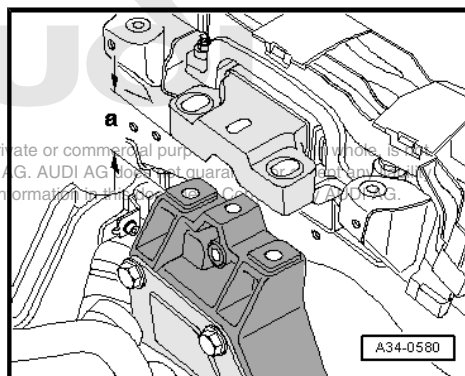


– Remove the two bolts -arrows 1- from gearbox mounting.



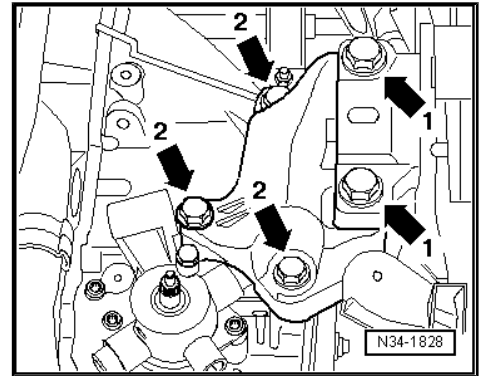
– By adjusting spindle on support bracket - 10-222 A- , lower gearbox by distance -a-.

• Distance -a- = 60 mm



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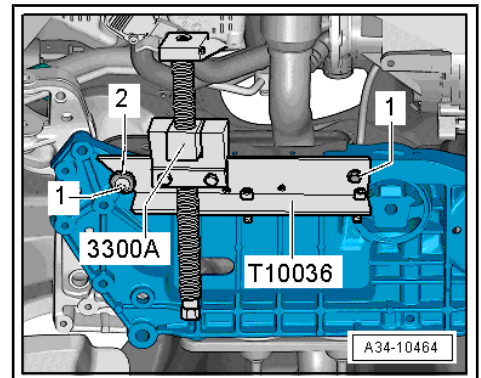
- Unbolt gearbox bracket from gearbox -arrows 2-.



- Secure support - T10036- to subframe, using two M6x20 bolts -1- and one washer -2-.
- Secure engine support - 3300 A- and push engine to the front, ensuring that there still is enough clearance to radiator cowl.

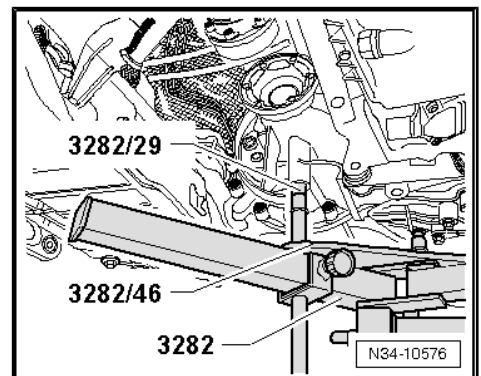
To remove gearbox 0AJ, set up gearbox support - 3282- with adjustment plate - 3282/46- .

- Insert gearbox support - 3282- in engine and gearbox jack - V.A.G 1383 A- .
- Place adjustment plate - 3282/46- on gearbox support - 3282- (adjustment plate only fits in one position).
- Align arms of gearbox support according to holes in adjustment plate .
- Bolt on support elements as illustrated on adjustment plate .
- Place engine and gearbox jack - V.A.G 1383 A- under vehicle; in whole, is not
arrow symbol on adjustment plate points to front of vehicle. accept any liability
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- Align adjustment plate parallel with gearbox.

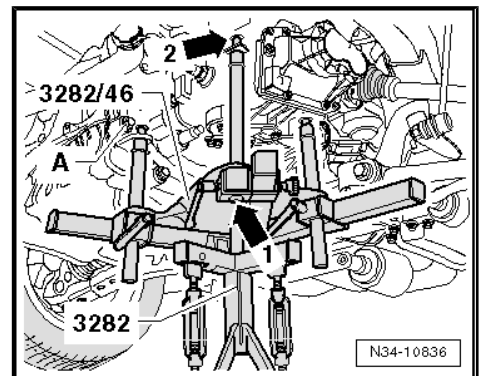


Pin -arrow 1- (illustration 10836) should be flush with guide of gearbox support .

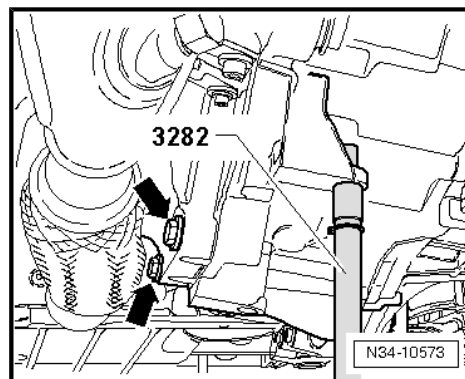
- Screw pin - 3282/29- into hole for bolt securing pendulum support to gearbox.



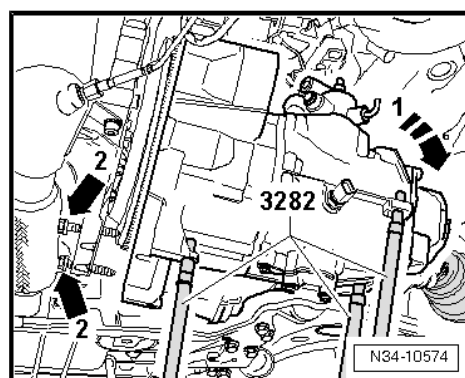
- Secure bolt - 3282/45- with a nut M8 to gearbox -arrow 2-.
- Unscrew engine/gearbox securing bolt -A-.



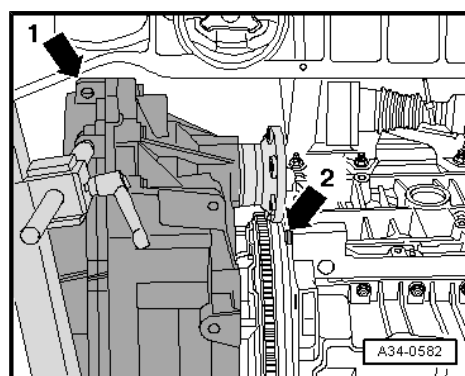
- Remove engine/gearbox securing bolts -arrows- in area of engine sump.
- Press gearbox off dowel sleeves.
- Take care not to damage intermediate plate on engine.
- Carefully push engine towards front (2nd mechanic required).
- Pivot differential side of gearbox upwards using spindles on gearbox support - 3282- .



- Turn gearbox in area of cover for 6th gear downwards as illustrated -arrow 1-.



- Then carefully guide gearbox with right-hand flange shaft past flywheel/intermediate plate as illustrated -arrow 2-.
- Lower gearbox, observing subframe at the same time -arrow 1-.
- When lowering gearbox, adjust position of gearbox using spindles on gearbox support - 3282- .



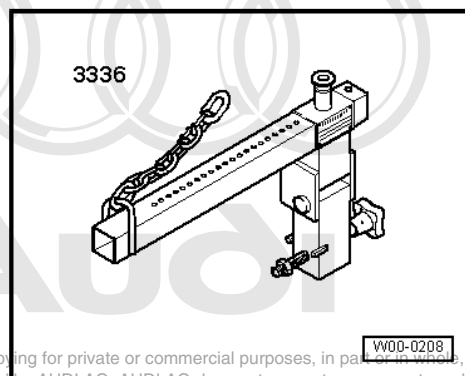
Note

Pay attention to all pipes/hoses/wiring when lowering gearbox.

2.3 Transporting gearbox

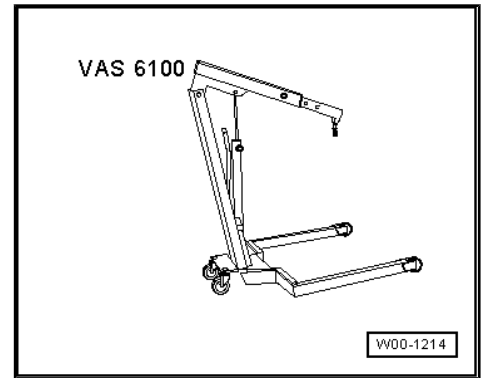
Special tools and workshop equipment required

- ◆ Gearbox lifting tackle - 3336-

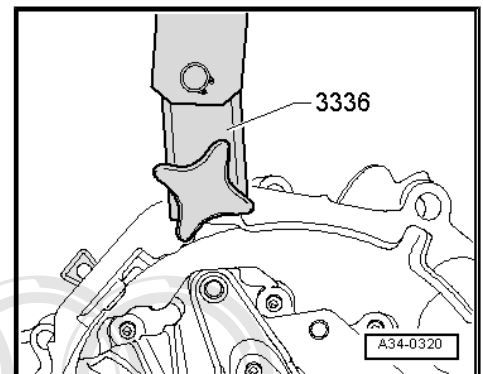


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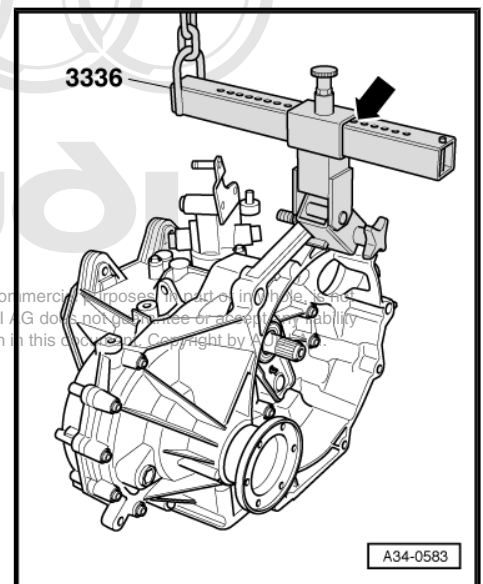
◆ Workshop hoist - VAS 6100-



- Bolt gearbox lifting tackle - 3336- onto clutch housing.



- Set support arm on sliding bracket by means of locking pin -arrow-.
- Number of holes visible = 6
- Lift gearbox with workshop hoist - VAS 6100- and gearbox lifting tackle - 3336- .



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2.4 Installing gearbox

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

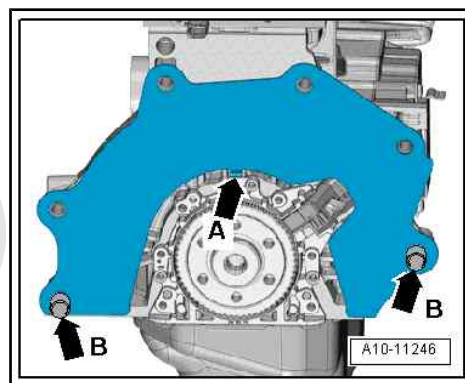
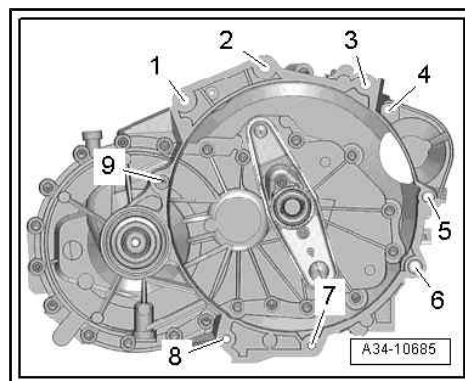


Note

- ◆ *Renew seals, gaskets and self-locking bolts and nuts.*
- ◆ *Renew bolts which are tightened by turning through a specified angle.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
- ◆ *All cable ties which are released or cut open during removal must be fitted in the same position when installing.*
- ◆ *Clean input shaft splines and (in the case of used clutch plates) the hub splines. Remove corrosion and apply only a very thin coating of grease - G 000 100- to the splines. Then move clutch plate backwards and forwards on input shaft until hub moves freely on shaft. It is important to remove excess grease.*
- ◆ *It should be possible to push the clutch plate back and forth slightly on the input shaft.*
- ◆ *If the dowel sleeves are not fitted, this will lead to gear-change problems, clutch malfunction and in some cases gearbox noise (gears will make rattling noises).*

Vehicles with 1.2 ltr. TFSI engine:

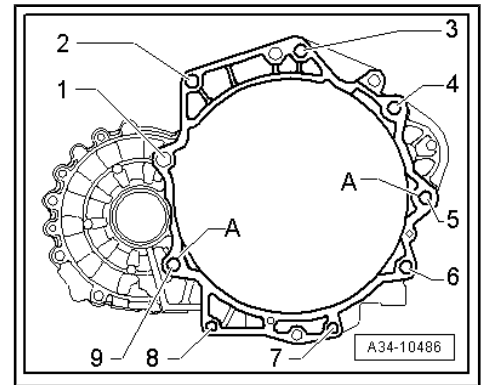
- Check that dowel sleeves -A- for centralising engine/gearbox are in the cylinder block; install any missing dowel sleeves.
- Engage intermediate plate at sealing flange -arrow A- and push onto dowel sleeves -arrows B-.



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Vehicles with 1.4 ltr. TFSI engine:

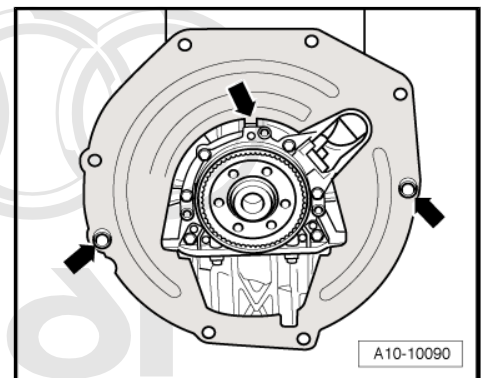
- Check that dowel sleeves -A- for centralising engine/gearbox are in the cylinder block; install any missing dowel sleeves.



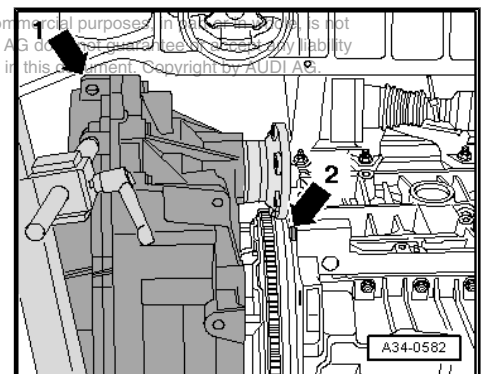
- Make sure that the intermediate plate is engaged on the sealing flange and fitted on the dowel sleeves -arrows-.

Continued for all vehicles:

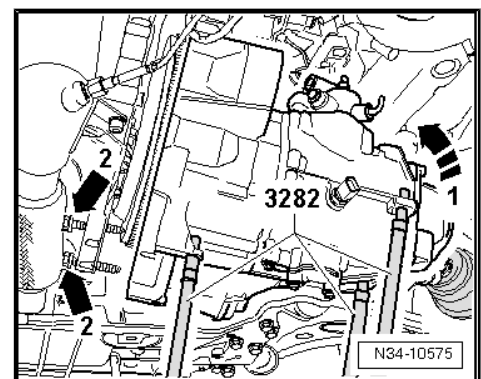
- Check release bearing for wear and renew if necessary.
- Lubricate surface on release lever which contacts ball-head pin with MoS₂ grease.



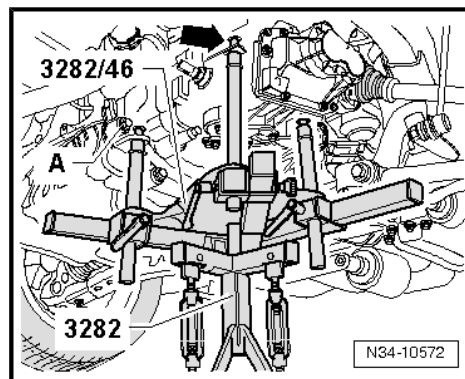
- Raise gearbox carefully and move to installation position using gearbox support - 3282- .
- When doing this, carefully guide gearbox, as illustrated, past flywheel -arrow 2- and subframe -arrow 1-.



- Turn gearbox in area of cover for 6th gear upwards as illustrated -arrow 1-.
- Then pivot differential side of gearbox downwards and move gearbox into installation position.
- Gearbox must be aligned parallel to engine.
- Fit gearbox and tighten bolts -arrows 2-. Tightening torque: vehicles with 1.2 ltr. TFSI engine ➔ [page 88](#) , vehicles with 1.4 ltr. TFSI engine ➔ [page 88](#) .



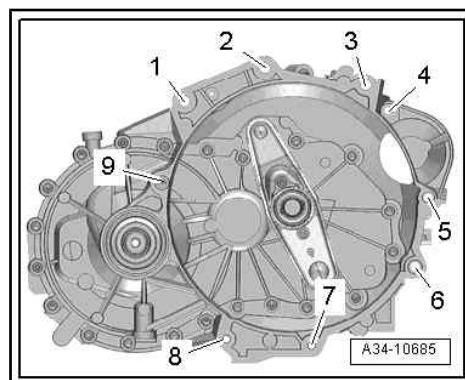
- Screw in and tighten engine/gearbox securing bolt -A-. Tightening torque: vehicles with 1.2 ltr. TFSI engine ➤ [page 88](#) , vehicles with 1.4 ltr. TFSI engine ➤ [page 88](#) .
- Remove gearbox support - 3282- .
- Bolt gearbox onto engine.



Tightening torques for engine/gearbox connection (1.2 ltr. TFSI engine):

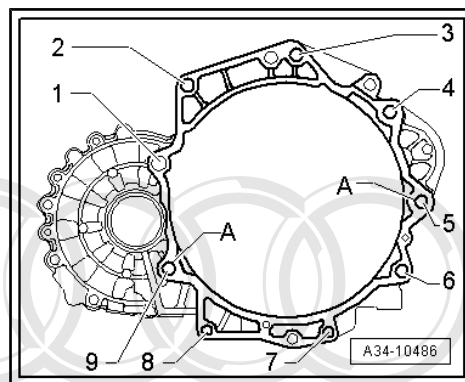
Item	Bolt	Nm
1, 2, 3	M12x60	80
4 ¹⁾	M12x55	80
5 ²⁾	M12x150	80
6	M12x70	80
7, 8	M10x30	40
9	M12x80	80
A	Dowel sleeves for centralising	

- 1) Starter to gearbox
- 2) Also starter to gearbox
- 3) Cover plate to gearbox

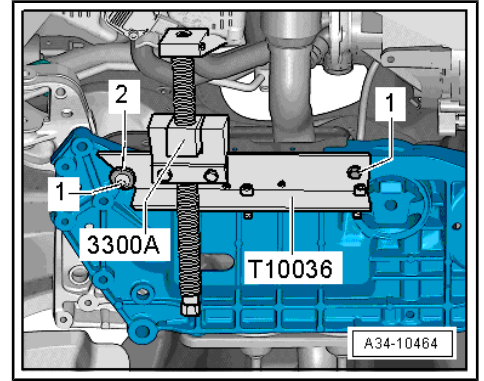


Tightening torques for engine/gearbox connection (1.4 ltr. TFSI engine):

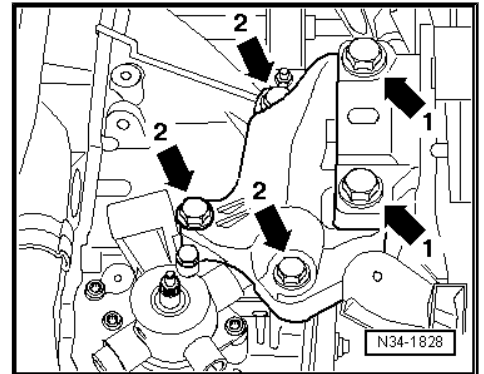
Item	Bolt	Nm
1, 2, 3	M12x50	80
4 Bolt with M8 threaded pin	M12x55	80
5 Bolt with M8 threaded pin	M12x150	80
6, 9	M12x60	80
7, 8	M10x50	40
A	Dowel sleeves for centralising	



- Remove engine support - 3300 A- and support - T10036- .



- Bolt gearbox bracket to gearbox using new bolts -arrows 2-. Tightening torque
⇒ ["2.5 Assembly mountings - exploded view", page 91](#)
- Raise engine and gearbox and secure to gearbox mounting with new bolts -arrows 2-. Follow correct tightening sequence
⇒ [page 93](#) . Tightening torque
⇒ ["2.5 Assembly mountings - exploded view", page 91](#)

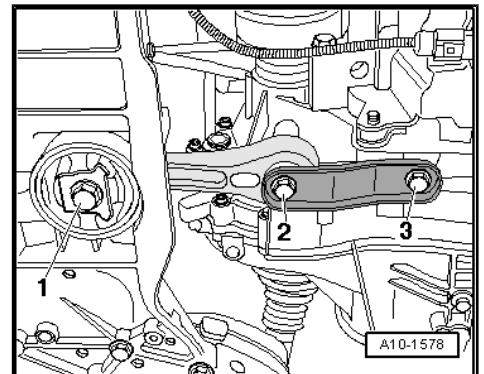


- Bolt pendulum support onto gearbox first, and then secure to subframe -bolts 1 ... 3-.
- Use new bolts. Tightening torque
⇒ ["2.5 Assembly mountings - exploded view", page 91](#)

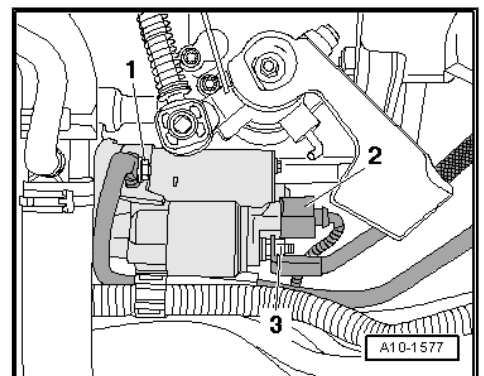


Note

Install engine/gearbox mountings stress-free ⇒ Rep. gr. 10 ; Removing and installing engine .

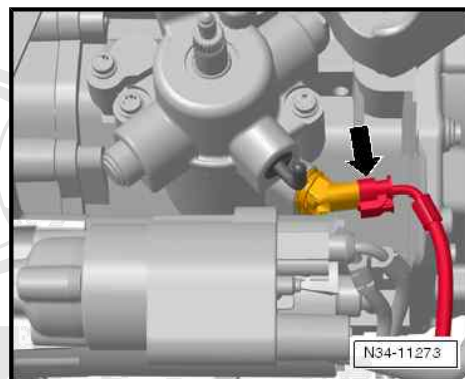


- Install starter ⇒ Electrical system; Rep. gr. 27 .
- Secure earth wire -1- and wiring -2- and -3-.



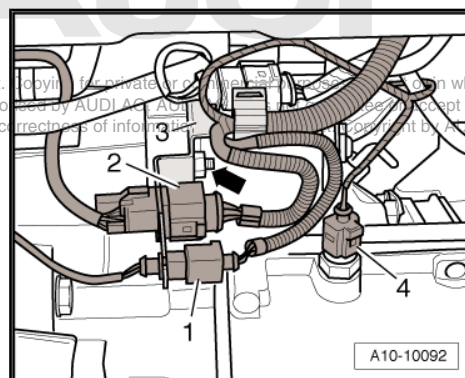
Vehicles with start/stop system:

- Attach connector -arrow- for gearbox neutral position sender - G701- .

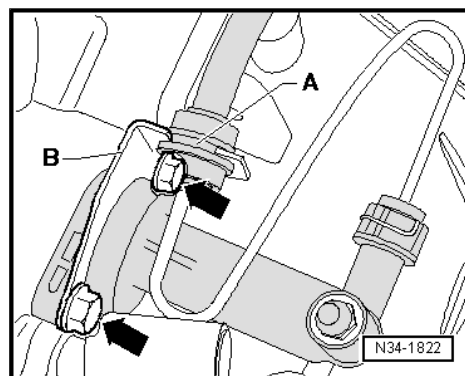


Continued for all vehicles:

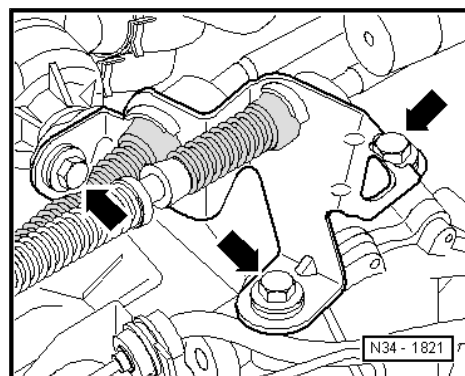
- Secure bracket -3- together with electrical wiring -1- and -2-.
- Attach connector -4- for reversing light switch - F4- .
- Bolt drive shafts to flange shafts ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40. .
- Install exhaust system and ensure stress-free alignment ⇒ Engine, mechanics; Rep. gr. 26. .



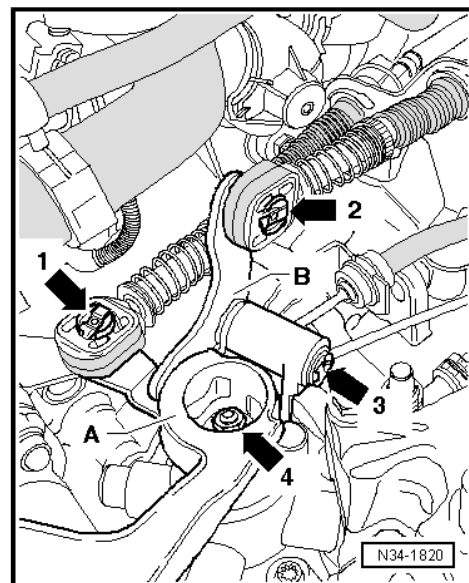
- Install clutch slave cylinder -arrows -. Tightening torque ⇒ [Item 18 \(page 26\)](#)
- Engage hose/pipe assembly -A- on bracket -B-.



- Install cable support bracket on gearbox and tighten bolts -arrows-. Tightening torque ⇒ [Item 6 \(page 57\)](#)



- Install gearbox selector lever -A-. Installation position
⇒ [Item 18 \(page 57\)](#) .
- Tighten new hexagon nut -arrow 4-. Tightening torque
⇒ [Item 17 \(page 57\)](#)
- Fit gate relay lever -B- in bearing on selector mechanism cover.
- When doing so, pivot gate relay lever so that slide block -C- engages in guide on gearbox selector lever.
- Secure gate relay lever with securing clip -arrow 3-.
- Apply a small amount of grease - G 000 450 02- to pins of gearbox selector lever -A- and gate relay lever -B-.
- Secure gear selector cable -arrow 1- and gate selector cable -arrow 2-.
- Adjust selector mechanism ⇒ [page 66](#) .
- Install engine cover panel ⇒ Injection and ignition system; Rep. gr. 24 .
- Fill up oil in gearbox and check oil level ⇒ [page 98](#) .

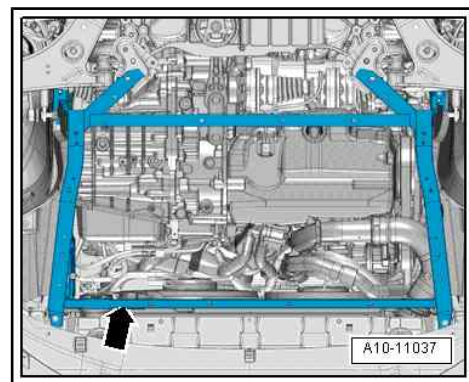


Audi A3 Cabriolet

- Install noise insulation frame -arrow- ⇒ General body repairs, exterior; Rep. gr. 50 .

Continued for all vehicles

- Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 .
- Install battery tray and battery ⇒ Electrical system; Rep. gr. 27. .
- Install air cleaner housing ⇒ Injection and ignition system; Rep. gr. 24 .



2.5 Assembly mountings - exploded view

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1 - Bolt

- ☐ 40 Nm + 90°
- ☐ Gearbox bracket to gearbox
- ☐ Always renew

2 - Bolts

- ☐ 50 Nm + 90°
- ☐ Pendulum support to gearbox
- ☐ Always renew

3 - Engine support

4 - Bolt

- ☐ Engine support to engine
- ☐ Tightening torque ⇒ Rep. gr. 10

5 - Engine mounting

6 - Bolt

- ☐ Engine mounting to body
- ☐ Tightening torque ⇒ Rep. gr. 10

7 - Connecting bracket

8 - Bolt

- ☐ Connecting bracket to engine mounting
- ☐ Tightening torque ⇒ Rep. gr. 10

9 - Bolt

- ☐ Connecting bracket to body
- ☐ Tightening torque ⇒ Rep. gr. 10

10 - Bolt

- ☐ Engine mounting to body
- ☐ Tightening torque ⇒ Rep. gr. 10

11 - Bolts

- ☐ Engine mounting to engine support
- ☐ Tightening torque ⇒ Rep. gr. 10

12 - Pendulum support

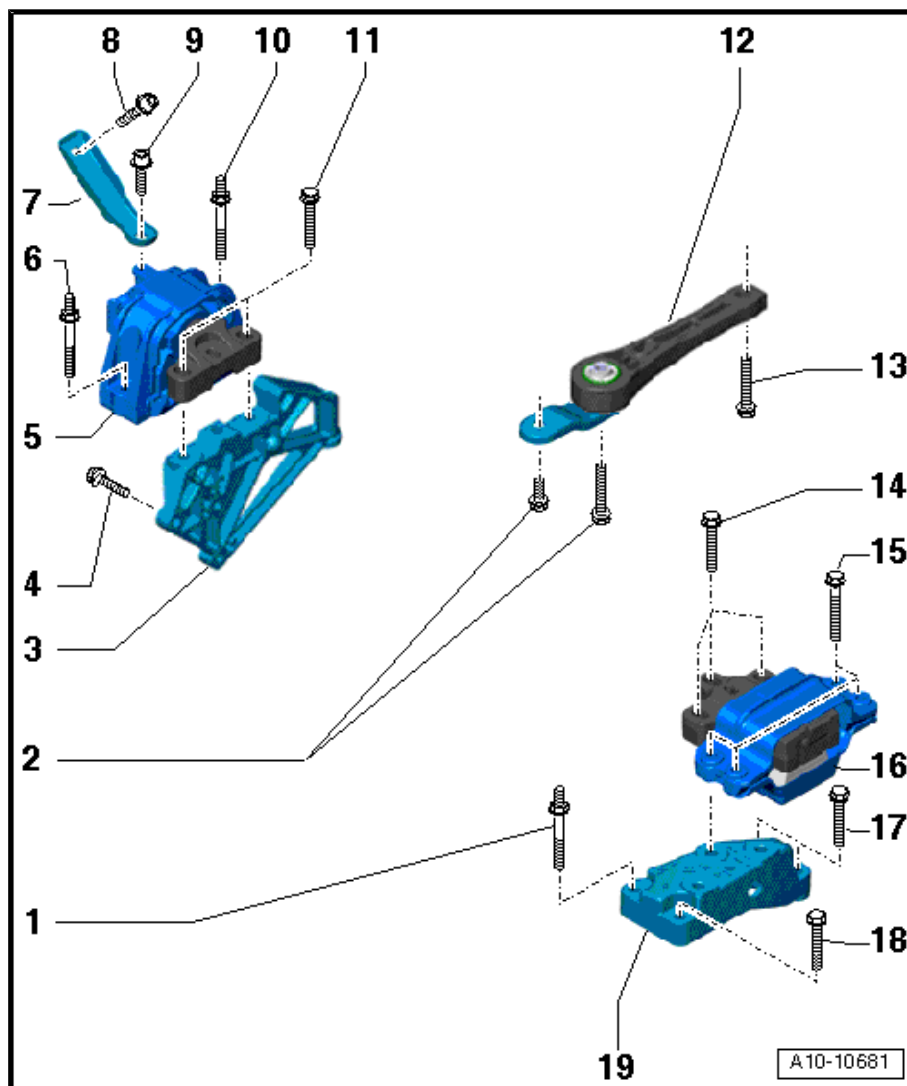
- ☐ Removing and installing ⇒ [page 96](#)

13 - Bolt

- ☐ 100 Nm + 90°
- ☐ Pendulum support to subframe
- ☐ Always renew

14 - Bolt

- ☐ 60 Nm + 90°
- ☐ Gearbox mounting to gearbox bracket
- ☐ Always renew



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15 - Bolt

- ☐ 40 Nm + 90°
- ☐ Gearbox mounting to body
- ☐ Always renew

16 - Gearbox mounting

- ☐ Removing and installing ⇒ [page 93](#)
- ☐ Tightening sequence ⇒ [page 93](#)

17 - Bolt

- ☐ 40 Nm + 90°
- ☐ Gearbox bracket to gearbox
- ☐ Always renew

18 - Bolt

- ☐ 40 Nm + 90°
- ☐ Gearbox bracket to gearbox
- ☐ Always renew

19 - Gearbox bracket

- ☐ Removing and installing ⇒ [page 93](#)
- ☐ Tightening sequence ⇒ [page 93](#)

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Assembly mounting on gearbox side: tightening sequence

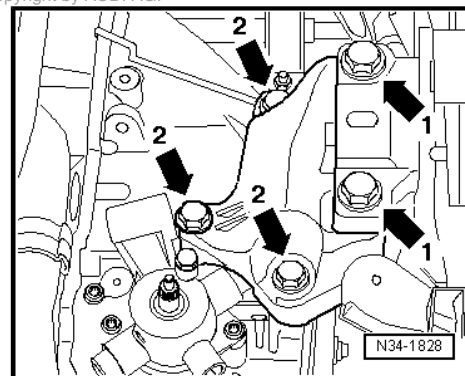
- First secure gearbox bracket to gearbox -arrows 2-.
- Pull gearbox up to support arm of gearbox mounting using spindle of support bracket - 10 - 222 A- .
- Screw in bolts -arrows 1- initially hand-tight.



Caution

The threads in the gearbox bracket can be damaged if the bolts are not inserted straight.

- ◆ *Before fitting the bolts -arrow 1-, the gearbox bracket and the support arm of the gearbox mounting must be aligned absolutely parallel. If necessary, push the gearbox up at the rear with a trolley jack.*
- ◆ *Tighten bolts -arrow 1- only after pendulum support ⇒ [Item 12 \(page 92\)](#) has been installed.*



- Adjust assembly mountings ⇒ Rep. gr. 10 .

2.5.1 Removing and installing gearbox mounting

Removing

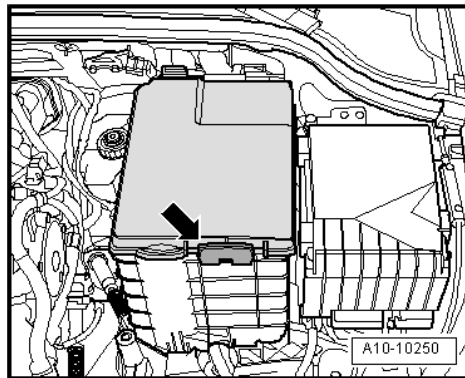
- Remove air cleaner housing ⇒ Rep. gr. 24 .



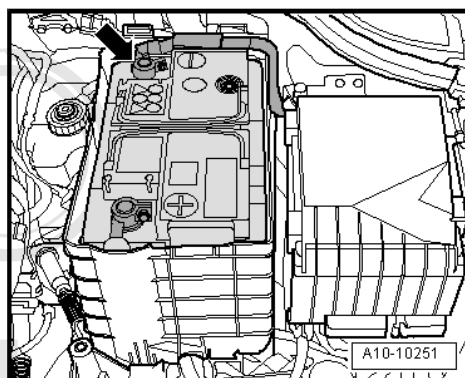
WARNING

Follow steps required when disconnecting battery ⇒ [Electrical system; Rep. gr. 27](#) .

- Detach cover above battery (press release tab -arrow-).



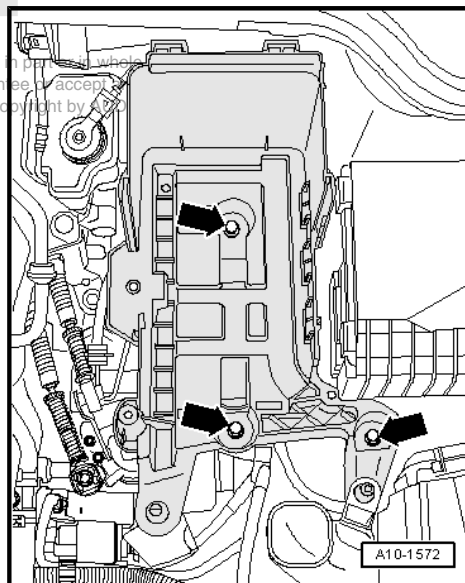
- With ignition switched off, disconnect battery earth strap -arrow-.



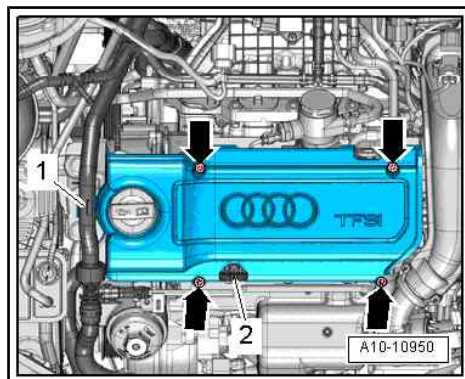
- Remove battery ⇒ Electrical system; Rep. gr. 27 .

- Remove battery tray -arrows-.

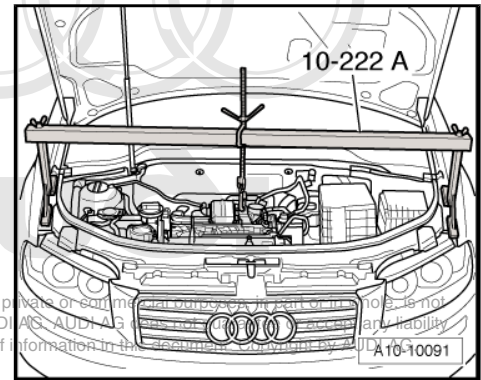
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- Detach coolant hose -1- from engine cover panel.
- Pull oil dipstick -2- out of guide tube.
- Remove engine cover panel -arrows-.
- Re-insert dipstick -2- in guide tube.

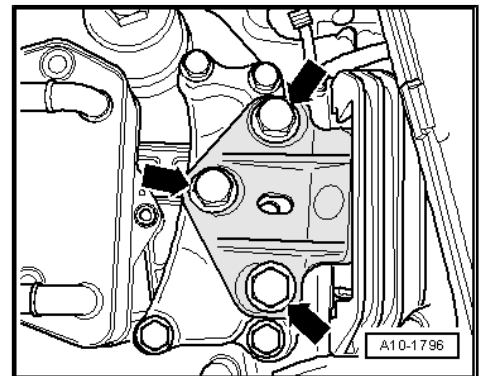


- Set up support bracket - 10-222 A- on wing mounting flanges.
- Hook spindle of support bracket into engine lifting eye (left-side).
- Take up weight of engine with spindle; do not lift.

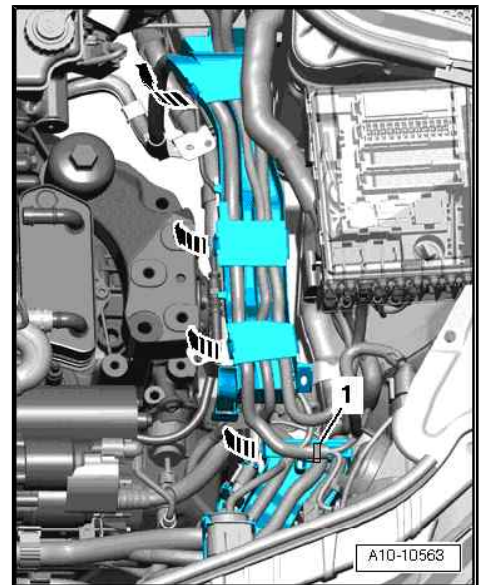


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- Remove bolts -arrows-.



- Open retainers for wiring duct -arrows-.
- Cut open cable tie -1- and push electrical wiring to one side.
- Unclip wiring duct.



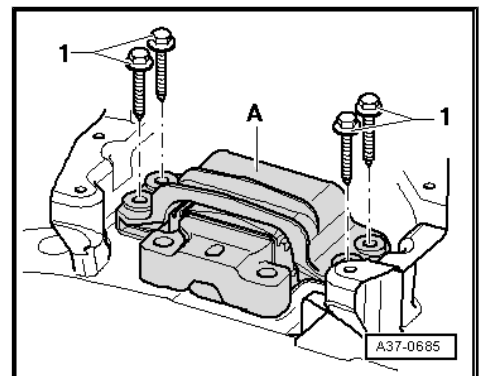
- Remove bolts -1- and detach gearbox mounting -A-.

Installing

- Tightening torques
⇒ ["2.5 Assembly mountings - exploded view", page 91](#)

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

- Secure gearbox mounting -A-.

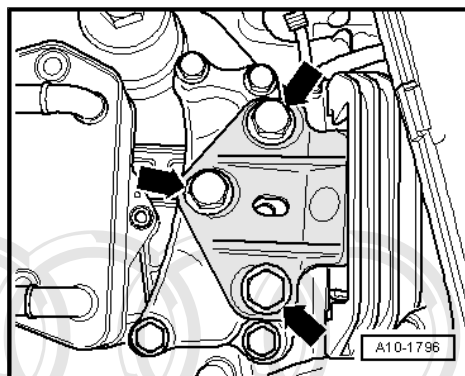




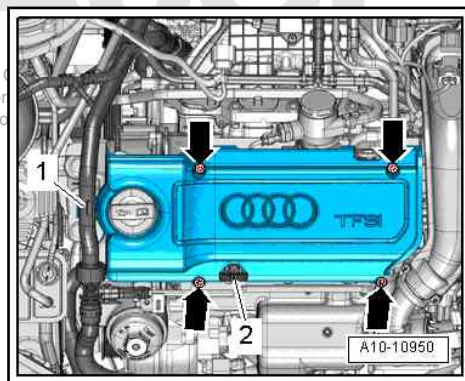
Caution

The threads in the gearbox bracket can be damaged if the bolts are not inserted straight.

- ◆ *Before fitting the bolts -arrows-, the gearbox bracket and the support arm of the gearbox mounting must be aligned absolutely parallel. If necessary, push the gearbox up at the rear with a trolley jack.*



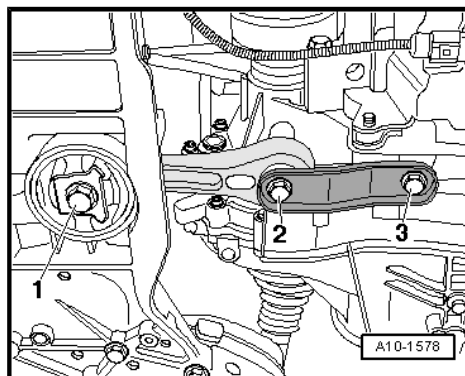
- Pull gearbox up with spindle on support bracket until gearbox bracket contacts support arm of gearbox mounting.
- Adjust assembly mountings ⇒ Rep. gr. 10 .
- Secure support arm of gearbox mounting to gearbox bracket.
- Detach support bracket - 10 - 222 A- from engine.
- Pull oil dipstick -2- out of guide tube.
- Install engine cover panel -arrows- and secure ⇒ Rep. gr. 10.
- Re-insert dipstick -2- in guide tube.
- Engage coolant hose -1- in engine cover panel.
- Install battery tray and battery ⇒ Electrical system; Rep. gr. 27.
- Install air cleaner housing ⇒ Rep. gr. 24 .



2.5.2 Removing and installing pendulum support

Removing

- Remove bolts -1, 2, 3- and detach pendulum support.

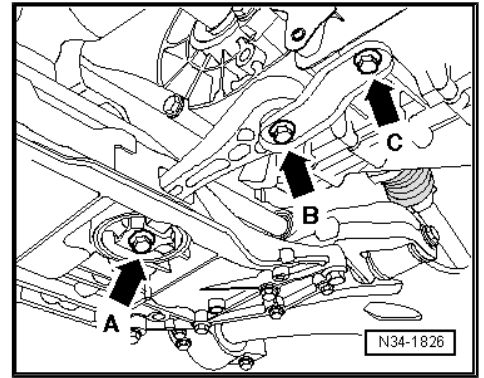


Installing

- Tightening torques ➔ [page 91](#)

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

- First secure pendulum support to gearbox -arrow B- and -arrow C-, then on subframe -arrow A-.

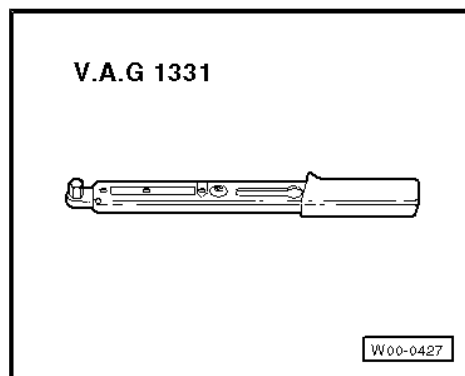


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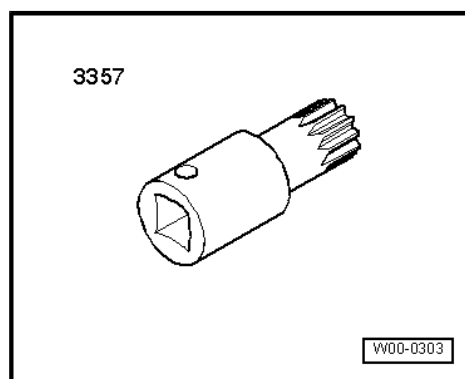
3 Checking gearbox oil

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



- ◆ Socket - 3357-



Or

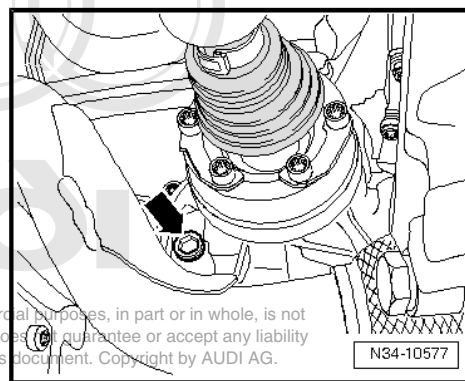
- ◆ 17 mm socket (hexagon key)
- Unscrew oil inspection plug -arrow- on gearbox.

The oil level is correct when the gearbox is filled up to the lower edge of the oil filler hole.

- Top up gear oil if necessary. Gear oil specification ➔ [page 1](#) .
- Tighten oil filler plug -arrow-. Tightening torque ➔ [page 99](#)

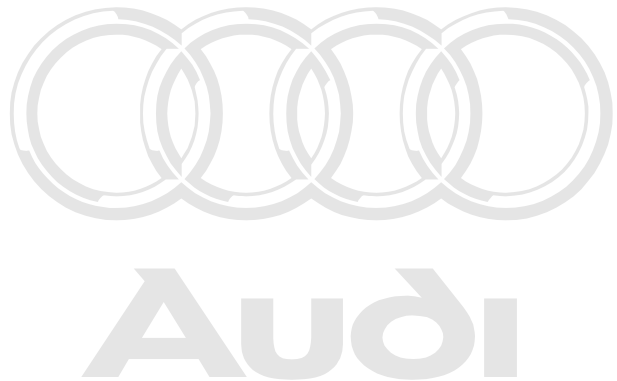
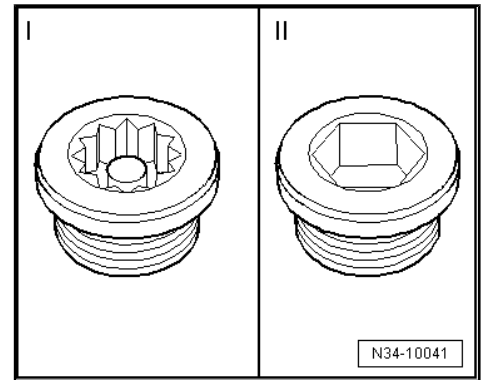
Note the following when filling with new oil:

- Remove plug -arrow-.
- Fill up gear oil to bottom lip of filler hole.
- Fit plug -arrow-.
- Start engine, engage a gear and allow gearbox to turn for approx. 2 minutes.
- Switch off engine and remove plug -arrow-.
- Top up gear oil again to bottom lip of filler hole.
- Tighten oil filler plug to specified torque.
- Install noise insulation below engine/gearbox, if fitted.



Tightening torque

Component	Nm
I - Oil filler/ oil drain plug with multi-point socket	25
II - Oil filler/oil drain plug with hexagon socket	30



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4 Dismantling and assembling gearbox

⇒ "4.1 General layout of gearbox", page 100

⇒ "4.2 Exploded view - dismantling and assembling gearbox", page 101

⇒ "4.3 Exploded view - removing and installing gearbox housing cover and 5th/6th gear", page 102

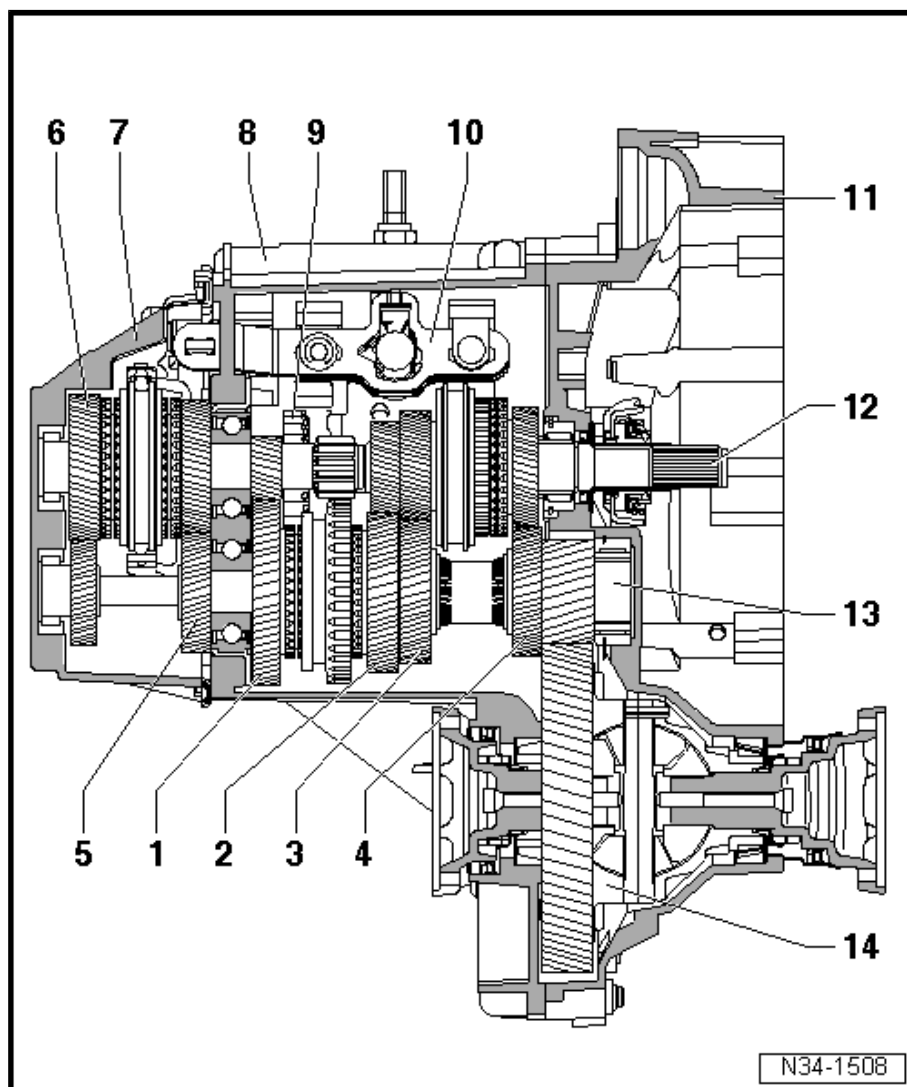
⇒ "4.4 Exploded view - removing and installing clutch housing", page 104

⇒ "4.5 Exploded view - input shaft, output shaft, differential, selector mechanism and selector forks", page 105

⇒ "4.6 Dismantling and assembling gearbox", page 106

4.1 General layout of gearbox

- 1 - 1st gear
- 2 - 2nd gear
- 3 - 3rd gear
- 4 - 4th gear
- 5 - 5th gear
- 6 - 6th gear
- 7 - Gearbox housing cover
- 8 - Gearbox housing
- 9 - Reverse gear wheel
- 10 - Selector mechanism
- (Selector forks)
- 11 - Clutch housing
- 12 - Input shaft
- 13 - Output shaft
- 14 - Differential



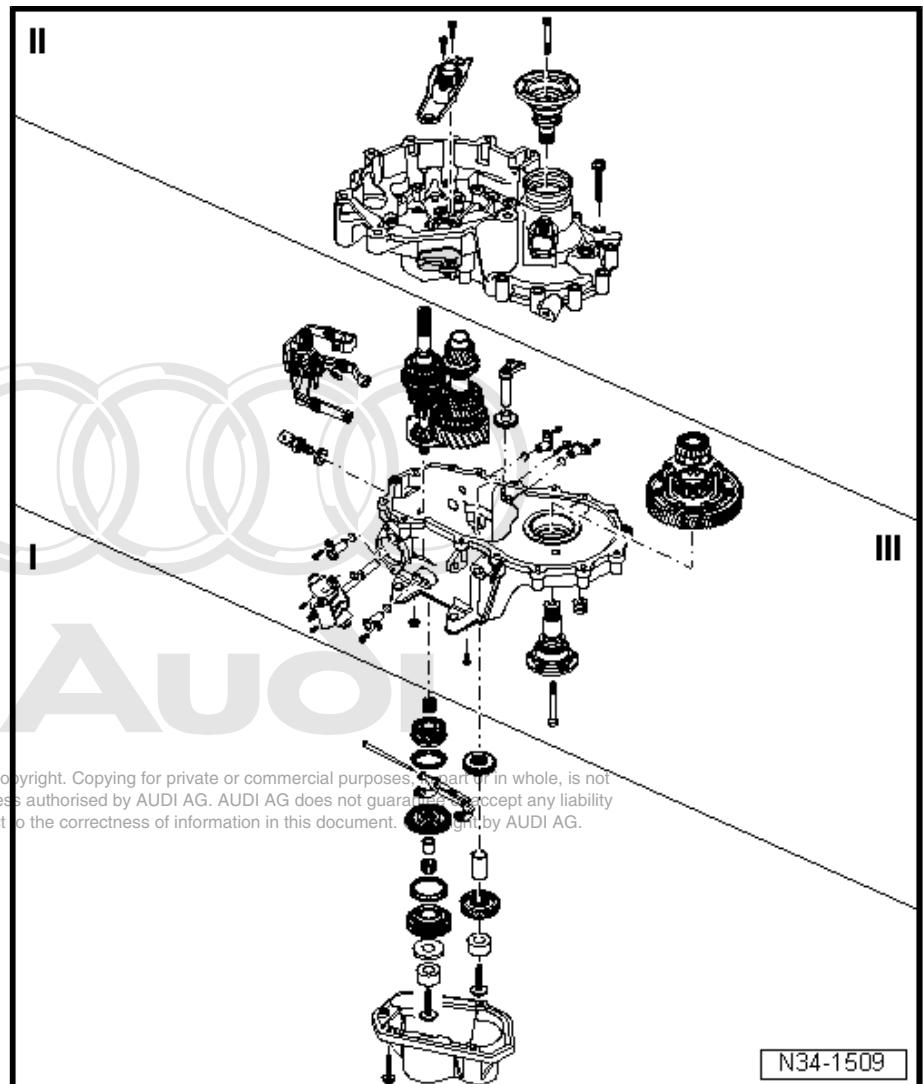
4.2 Exploded view - dismantling and assembling gearbox

I - Removing and installing
gearbox housing cover and
5th/6th gear ➔ [page 102](#)

II - Removing and installing
clutch housing ➔ [page 104](#)

III - Removing and installing in-
put shaft, output shaft, differ-
ential, selector mechanism
and selector forks
➔ [page 105](#)

Sequence for dismantling and
assembling ➔ [page 106](#)



4.3 Exploded view - removing and installing gearbox housing cover and 5th/6th gear

1 - Gearbox housing

- ❑ Servicing ➔ [page 123](#)

2 - 5th gear wheel

- ❑ Installation position
➔ [page 119](#)
- ❑ Pressing off
➔ [page 146](#)
- ❑ Pressing on
➔ [page 119](#)

3 - Sleeve

4 - 6th gear wheel

- ❑ Installation position
➔ [page 120](#)

5 - Roller bearing inner race

- ❑ For output shaft
- ❑ Mark before removing
- ❑ Do not interchange with roller bearing inner race for input shaft
- ❑ Can be renewed individually

6 - Bolt

- ❑ M8: 30 Nm and turn 90° further
- ❑ M10: 75 Nm and turn 45° further
- ❑ For output shaft
- ❑ Self-locking
- ❑ Always renew

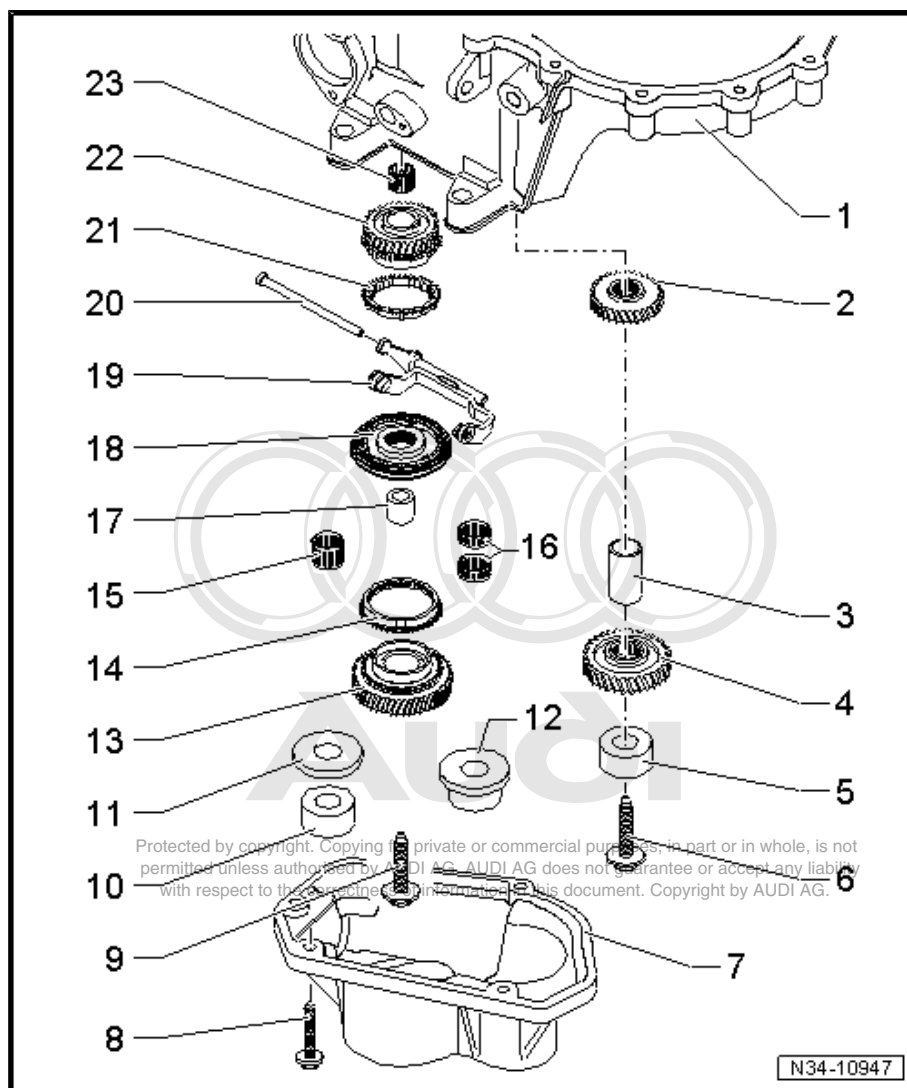
7 - Gearbox housing cover

- ❑ With cylindrical roller bearings for input shaft and output shaft
- ❑ Servicing ➔ [page 129](#)



Note

*If the gearbox housing cover is installed with the gearbox in the vehicle, check and top up oil
➔ [page 98](#) .*



8 - Bolt

- ☐ 5 Nm and turn 90° further
- ☐ Always renew

9 - Bolt

- ☐ M8: 30 Nm and turn 90° further
- ☐ M10: 75 Nm and turn 45° further
- ☐ For input shaft
- ☐ Self-locking
- ☐ Always renew

10 - Roller bearing inner race

- ☐ For input shaft
- ☐ Mark before removing
- ☐ Do not interchange with roller bearing inner race for output shaft
- ☐ Can be renewed individually

11 - Thrust washer

12 - Roller bearing inner race with thrust washer

- ☐ For input shaft
- ☐ Fitted on some gearbox versions
- ☐ Allocate according to ⇒ Electronic parts catalogue

13 - 6th speed selector gear

14 - 6th gear synchro-ring

15 - Needle bearing

- ☐ One-piece
- ☐ For 6th gear
- ☐ Allocate according to ⇒ Electronic parts catalogue
- ☐ Renew together with sleeve

16 - Needle bearing

- ☐ Two-piece
- ☐ For 6th gear
- ☐ Fitted on some gearbox versions
- ☐ Allocate according to ⇒ Electronic parts catalogue
- ☐ Renew together with sleeve

17 - Sleeve

- ☐ For 6th gear needle bearing
- ☐ Renew together with needle bearing

18 - Locking collar with synchro-hub for 5th and 6th gear

- ☐ Dismantling and assembling ⇒ [page 140](#)

19 - 5th/6th gear selector fork

20 - Pivot pin

- ☐ For 5th gear selector fork

21 - 5th gear synchro-ring

- ☐ Will be damaged when removed from input shaft
- ☐ Always renew

22 - 5th speed selector gear

23 - Needle bearing

- ☐ For 5th gear

4.4 Exploded view - removing and installing clutch housing

1 - Countersunk bolt

- ☐ 25 Nm

2 - Flange shaft with spring

- ☐ Removing and installing
⇒ [page 106](#)
- ☐ Assembling
⇒ [page 164](#)

3 - Bolt

- ☐ 5 Nm and turn 90° further
- ☐ Always renew

4 - Clutch housing

- ☐ Servicing

5 - Gearbox housing

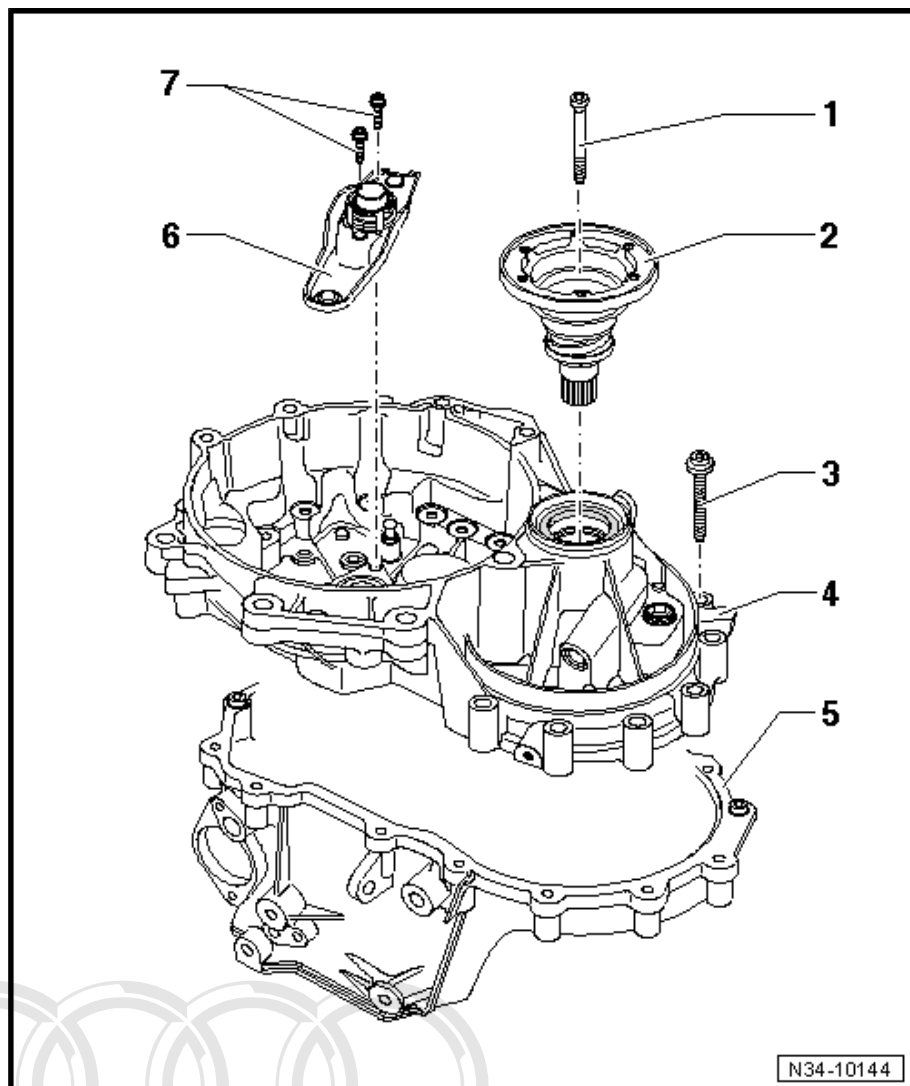
- ☐ Servicing ⇒ [page 123](#)

6 - Clutch release lever

- ☐ With guide sleeve and release bearing
- ☐ Removing and installing
⇒ [page 34](#)

7 - Bolt

- ☐ Removing and installing
⇒ [Item 4 \(page 34\)](#)
- ☐ Always renew



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4.5 Exploded view - input shaft, output shaft, differential, selector mechanism and selector forks

1 - Differential

- ☐ Dismantling and assembling ⇒ [page 164](#)

2 - Gearbox housing

- ☐ Servicing ⇒ [page 123](#)

3 - Oil drain plug

- ☐ Tightening torque
⇒ [page 99](#)

4 - Flange shaft with spring

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- ☐ Removing and installing
⇒ [page 106](#)

- ☐ Assembling
⇒ [page 164](#) onwards.

5 - Countersunk bolt

- ☐ 25 Nm

6 - Bolt

- ☐ 5 Nm and turn 90° further
- ☐ Self-locking
- ☐ Always renew
- ☐ Secures bearing mounting with grooved ball bearings for input and output shafts
⇒ [Item 18 \(page 106\)](#)

7 - Hexagon flange nut

- ☐ 23 Nm
- ☐ For selector mechanism
⇒ [Item 17 \(page 106\)](#)
- ☐ Self-locking
- ☐ Always renew

8 - O-ring

- ☐ Always renew

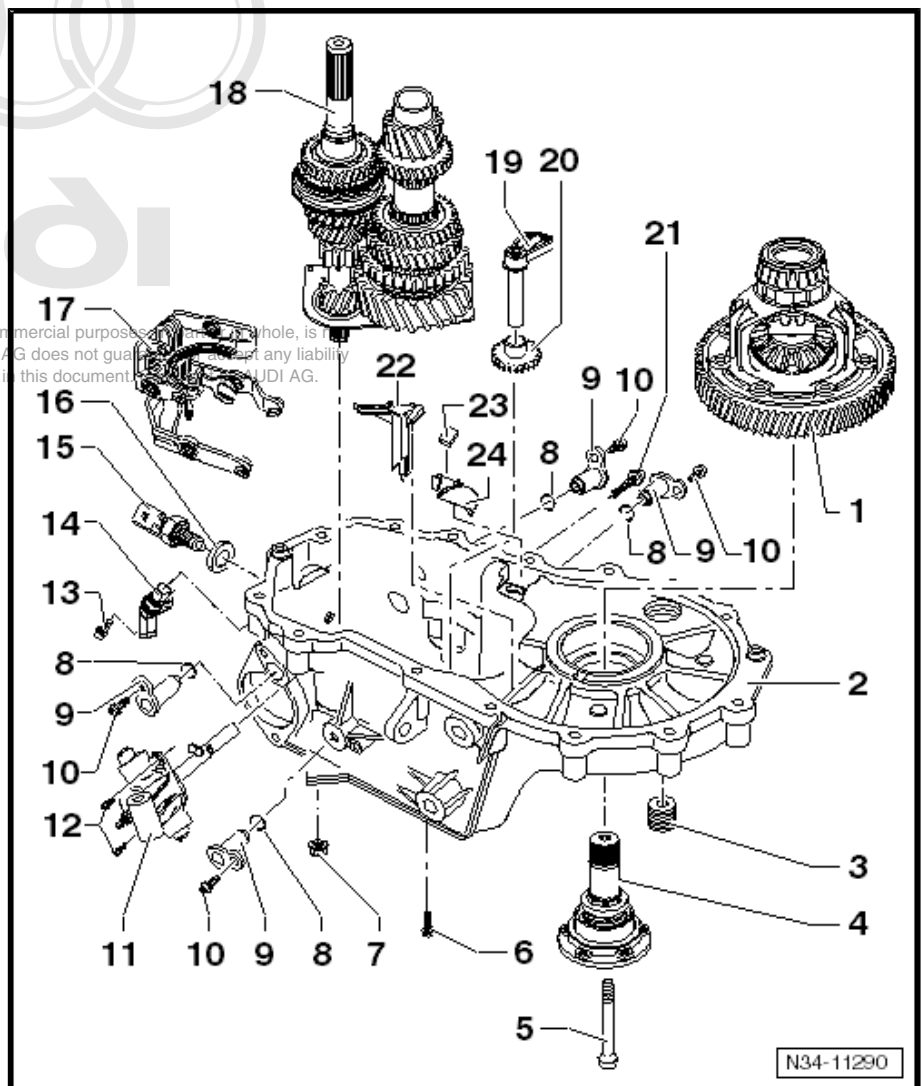
9 - Pivot pin

10 - Bolt

- ☐ 5 Nm and turn 90° further
- ☐ Always renew

11 - Selector shaft with selector mechanism cover

- ☐ (Selector unit)
- ☐ Servicing ⇒ [page 132](#)



12 - Bolt

- ☐ 5 Nm and turn 90° further
- ☐ Always renew

13 - Bolt

- ☐ 6 Nm
- ☐ For vehicles with start/stop system

14 - Gearbox neutral position sender - G701-

- ☐ For vehicles with start/stop system

15 - Reversing light switch - F4-

- ☐ 20 Nm
- ☐ With captive seal (fitted shortly after gearbox was first introduced)

16 - Seal

- ☐ Not fitted on all gearboxes

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17 - Selector mechanism

- ☐ (Selector forks)
- ☐ Servicing ⇒ [page 135](#)

18 - Input and output shafts with bearing mounting/grooved ball bearings

- ☐ If bearing mounting is separated from gearbox housing, it must always be renewed
- ☐ Pressing bearing mounting on and off: Dismantling and assembling input shaft ⇒ [Item 14 \(page 141\)](#)
- ☐ Dismantling and assembling input shaft ⇒ [page 140](#)
- ☐ Dismantling and assembling output shaft ⇒ [page 151](#)

19 - Reverse gear shaft

20 - Reverse gear wheel

21 - Bolt

- ☐ 25 Nm and turn 45° further
- ☐ Always renew
- ☐ For securing reverse gear shaft

22 - Oil collector

23 - Magnet

24 - Oil guide

4.6 Dismantling and assembling gearbox

⇒ ["4.6.1 Dismantling gearbox", page 106](#)

⇒ ["4.6.2 Assembling gearbox", page 115](#)

4.6.1 Dismantling gearbox

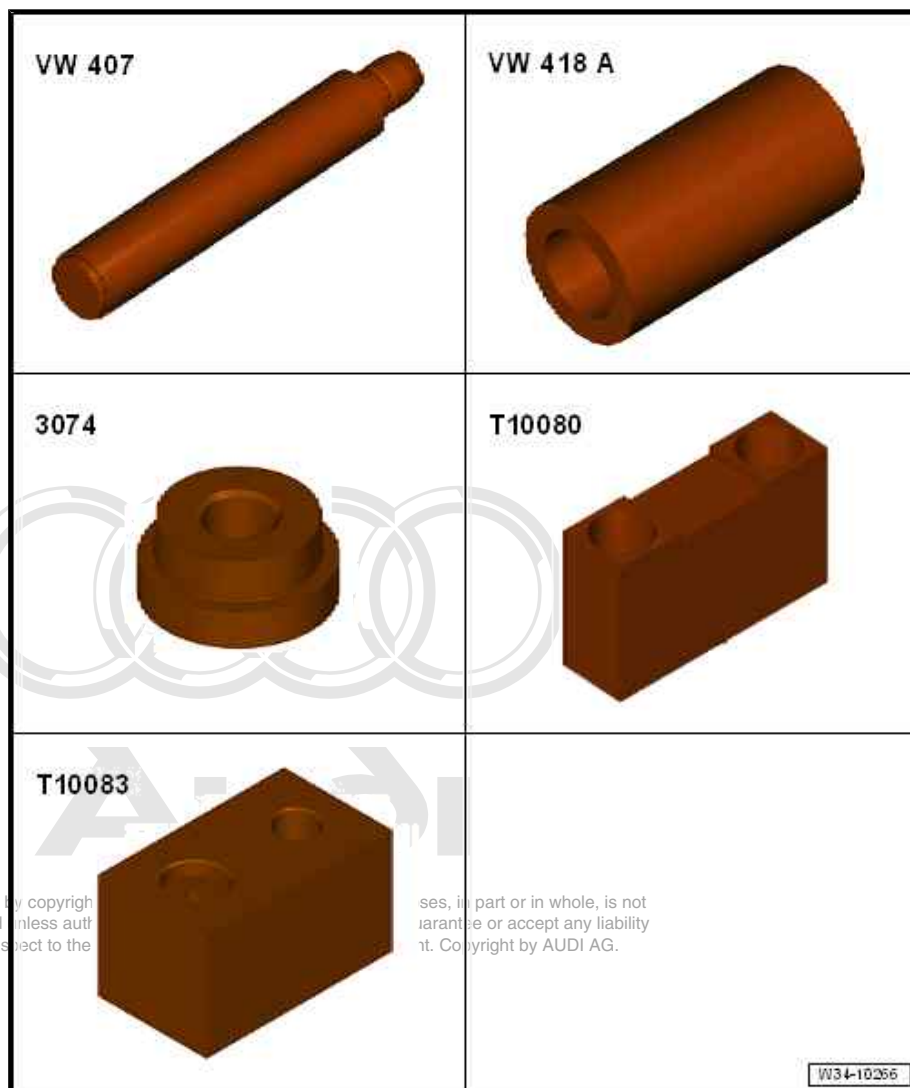
Removing and installing cover for gearbox housing, clutch housing, selector shaft with selector mechanism cover, input shaft, output shaft, differential and selector mechanism

Special tools and workshop equipment required

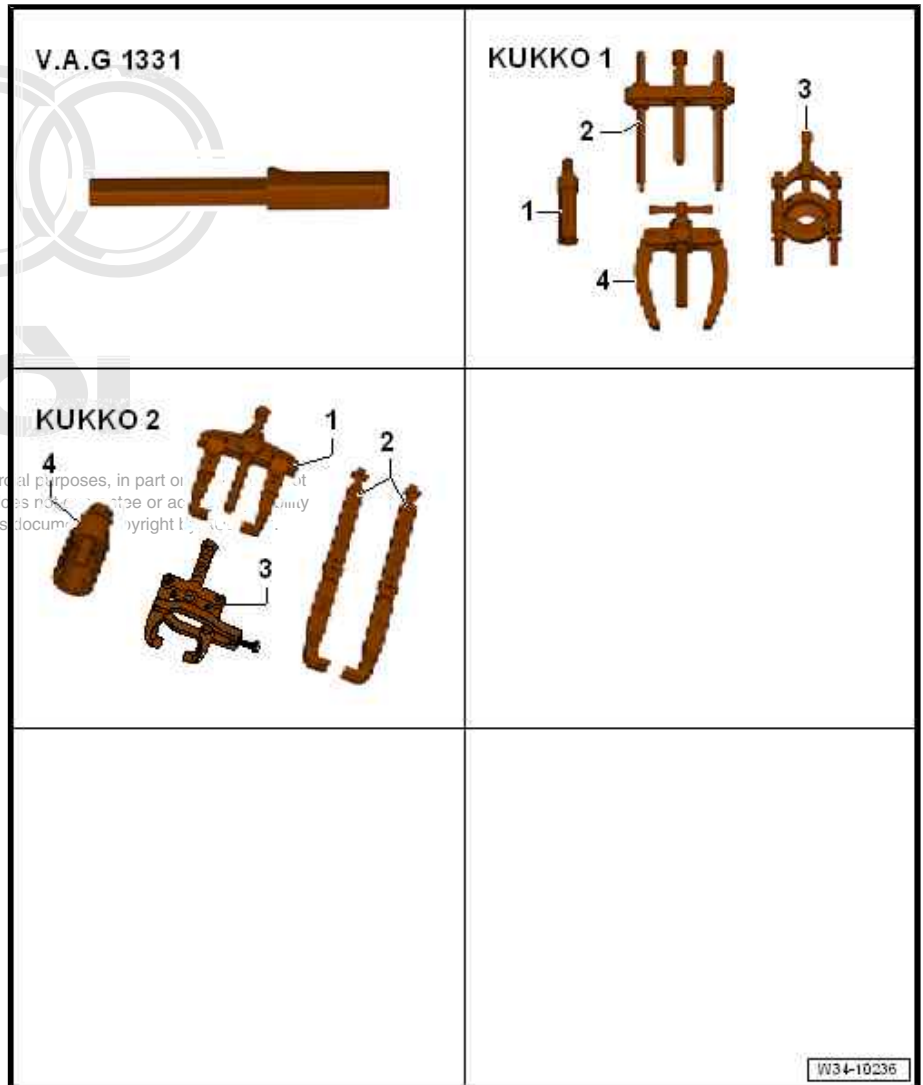


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- ◆ Support clamp - VW 313-
- ◆ Thrust plate - VW 401-
- ◆ Thrust plate - VW 402-
- ◆ Press tool - VW 412-
- ◆ Adapters - T10235-
- ◆ Guide pin - T10079-



- ◆ Press tool - VW 407-
- ◆ Tube - VW 418 A-
- ◆ Thrust plate - 3074-
- ◆ Thrust piece - T10080-
- ◆ Thrust block - T10083-
- ◆ Press piece - T10083/1-



- ◆ Torque wrench - V.A.G 1331-
- ◆ -1- Three-arm puller - Kukko 30/1-
- ◆ -3- Two-arm puller - Kukko 204/2-
- ◆ Engine and gearbox support - VW 540-



◆ Thrust pad - T10375-



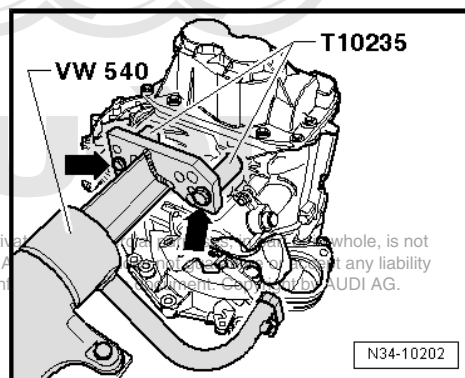
◆ Puller - T10309A-



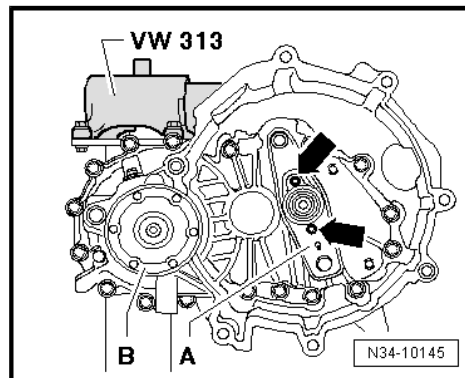
- ◆ Sealant - AMV 188 200 03-
- ◆ Hexagon socket head bolt - M 8 X 15-

Dismantling gearbox

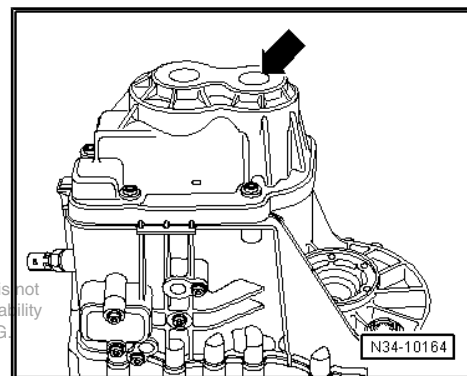
- Secure gearbox to engine and gearbox support - VW 540-
-arrows-.
- Place drip tray - V.A.G 1306- underneath.
- Drain off gear oil.



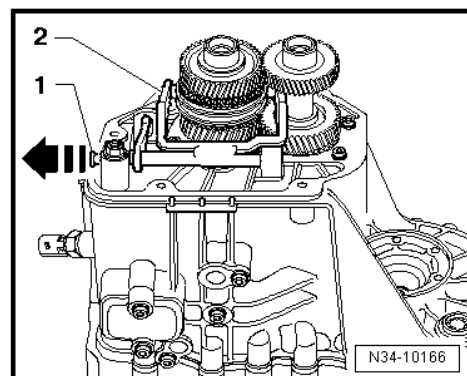
- Remove clutch release lever -A- together with clutch release bearing and guide sleeve -arrows-.
- Remove securing bolt for flange shaft (right-side) -B-.
- To do so, screw two bolts into flange and counterhold flange shaft with tyre iron or other suitable lever.
- Pull out flange shaft together with spring, thrust washer and tapered ring.



- Unbolt gearbox housing cover -arrow- and pull off carefully.



- Pull out pivot pin -1- for 5th/6th gear selector fork -2- and remove selector fork.

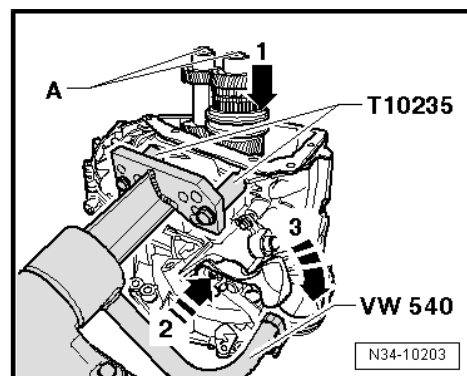


- Remove bolts -A- for inner bearing races on input and output shafts. To do this, engage 5th gear -arrow 1- and 1st gear -arrow 2 - and -arrow 3-.
- The input and output shafts are both locked when these two gears are engaged. The two bolts can now be loosened.



Note

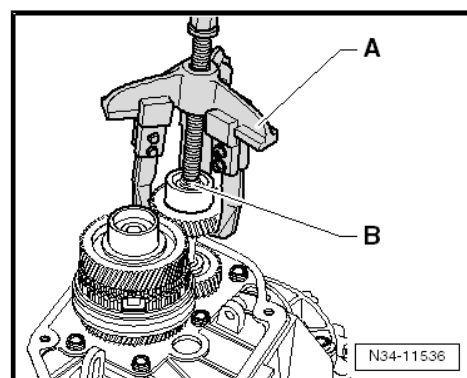
If the shafts are not being renewed, carefully clean residual locking compound out of tapped holes using a thread tap.



- Pull off 6th gear wheel and roller bearing inner race for output shaft.

A - Three-arm puller - Kukko 30/1-

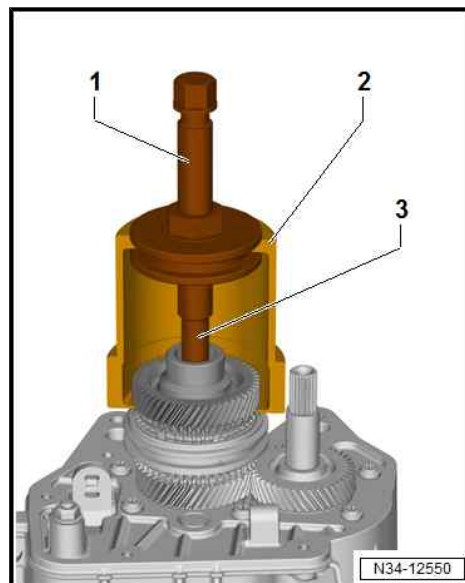
B - Hexagon socket head bolt - M8 x 15-



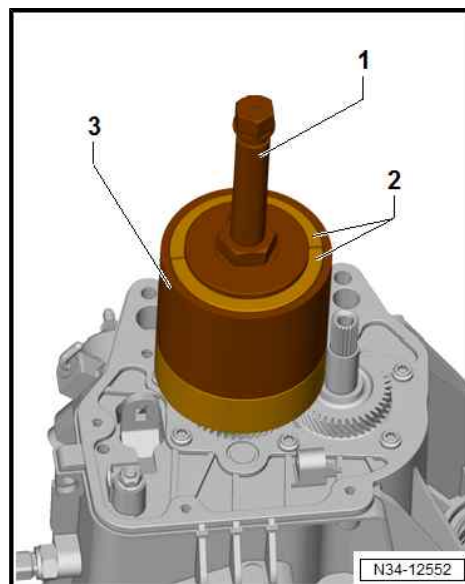
Detach 6th speed selector gear together with roller bearing inner race.

- First insert shell half - T10309/4A- -2-.
- Shell half must be positioned underneath 6th speed selector gear.
- If necessary, press shell half into end position.
- Fit adapter - T10309/5- -3-.
- Introduce thread insert - T10309/3- -1- into shell half and tighten slightly.

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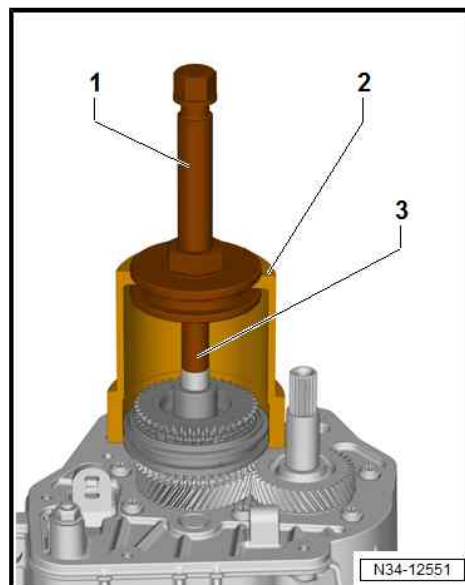


- Now fit second shell half - T10309/4A- -2- and slide tube - T10309/2- -3- onto tool.
- Pull off 6th speed selector gear.
- Remove 6th gear synchro-ring.



Detach 5th/6th gear synchro-hub with inner race for 6th gear needle bearing.

- First insert shell half - T10309/4A- -2-.
- Shell half must be positioned underneath 5th gear synchro-ring.
- If necessary, press shell half into end position.
- Fit adapter - T10309/5- -3-.
- Introduce thread insert - T10309/3- -1- into shell half and tighten slightly.



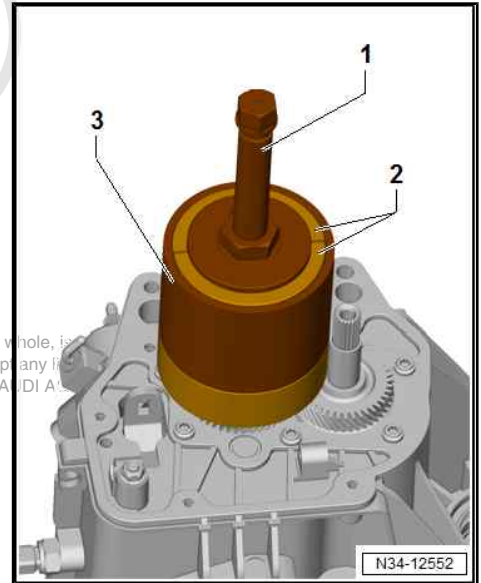
- Now fit second shell half - T10309/4A- -2- and slide tube - T10309/2- -3- onto tool.
- Pull off 5th and 6th gear locking collar/synchro-hub.

 Note

The 5th gear synchro-ring must always be renewed after removal.

- Remove 5th speed selector gear.

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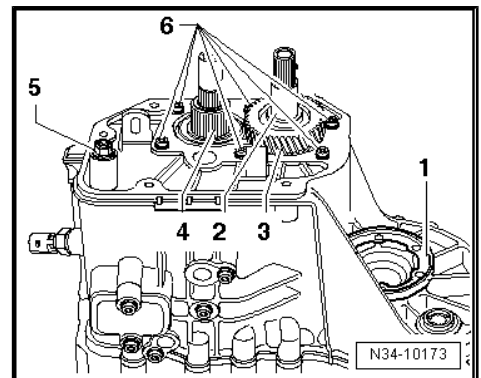
- Detach sleeve -2- and needle bearing -4-.
- Unscrew hexagon flange nut -5- for selector mechanism (reverse gear wheel mounting).
- Unscrew securing bolts -6- for bearing mounting for input and output shafts.

If 5th gear wheel -3- can be removed by hand:

- Detach 5th gear wheel; press it off with 2 assembly levers if necessary.

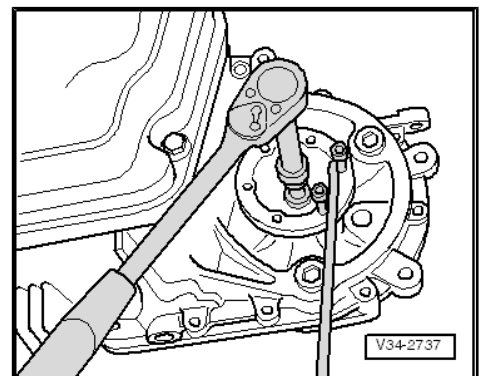
If 5th gear wheel -3- cannot be removed by hand:

- 5th gear wheel is pressed off at a later stage when removing bearing mounting for grooved ball bearings ➔ [page 146](#) .

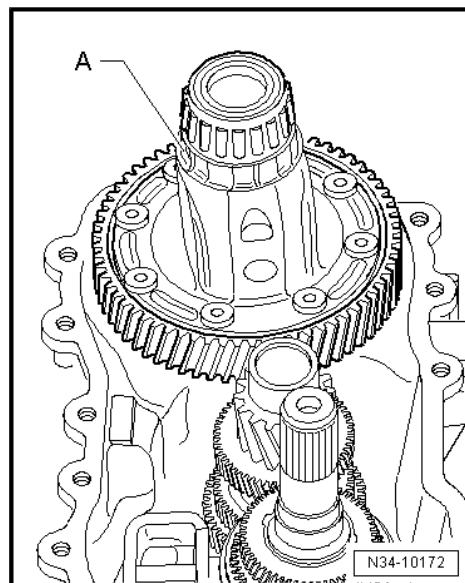


Continued for all vehicles:

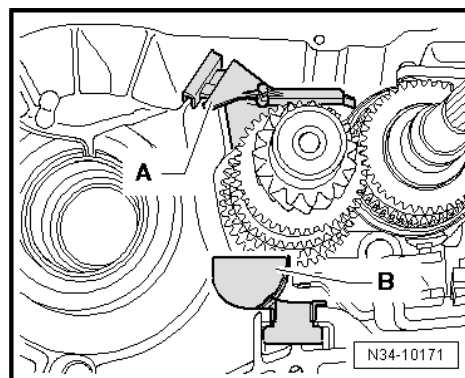
- Remove flange shaft (left-side).
- Turn gearbox in assembly stand so that clutch housing faces upwards.
- Unscrew bolts securing clutch housing to gearbox housing.
- Carefully remove clutch housing by levering alternately at the protruding webs on the housing, taking care not to damage the sealing surfaces.
- Make sure you keep clutch housing straight to avoid damaging roller bearings and bearing seat on input and output shafts.



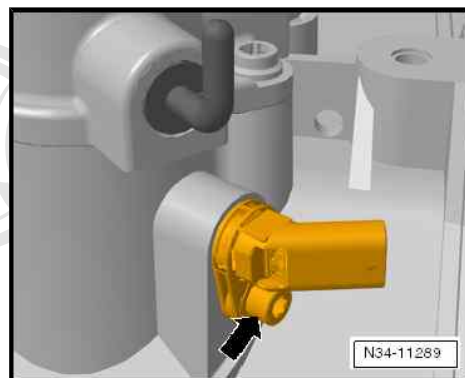
- Remove differential -A- from gearbox housing.



- Then remove oil collector -A- and oil guide -B- with magnet from gearbox housing.

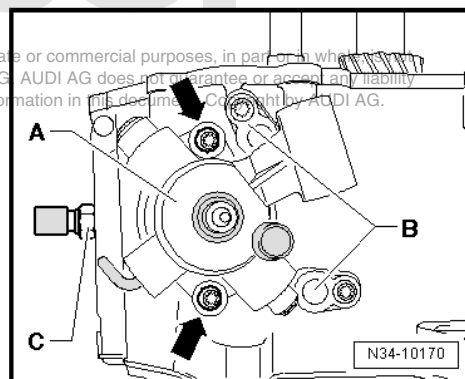


- Gearbox for vehicles with start/stop system: remove gearbox neutral position sender - G701- -arrow-.



- Remove selector shaft with selector mechanism cover -A-. To do so, move selector shaft into neutral position. Then remove bolts -arrows- and pull selector shaft out of gearbox housing.

- Remove pivot pins -B- from top of gearbox.
- Remove reversing light switch - F4- -C-.

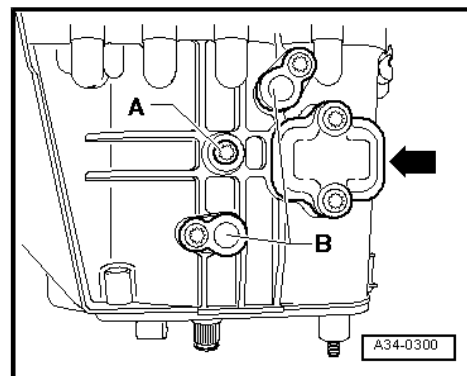


- Remove bolt -A- for securing reverse gear shaft.
- Remove pivot pins -B- from gearbox underside.



Note

Do not remove cover plate -arrow- when dismantling gearbox.



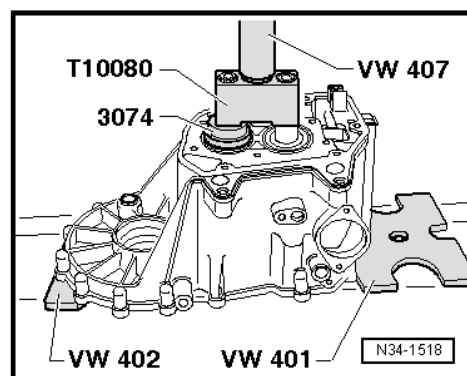
Gearbox with 5th gear wheel removed

- Press out input and output shafts together with bearing mounting, selector mechanism (selector forks) and reverse gear wheel.



Note

- ◆ *Set gearbox housing down in such a way that dowel sleeves in gearbox housing do not become damaged.*
- ◆ *Make sure components do not drop out when being removed (get help from a second person if necessary).*



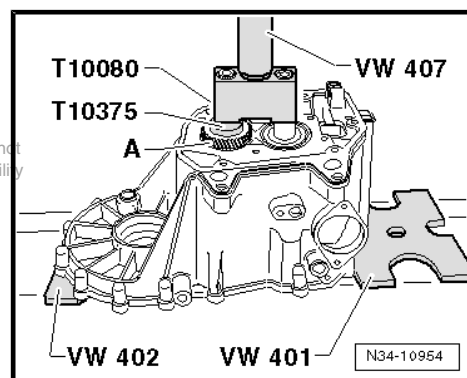
Gearbox with 5th gear wheel installed

- Press out input and output shafts together with 5th gear wheel -A-, bearing mounting, selector mechanism (selector forks) and reverse gear wheel.



Note

- ◆ *Set gearbox housing down in such a way that dowel sleeves in gearbox housing do not become damaged.*
- ◆ *Make sure components do not drop out when being removed (get help from a second person if necessary).*



Continued for all vehicles:

- Press input and output shafts out of bearing mounting and grooved ball bearings, and 5th gear wheel if necessary
⇒ [Item 14 \(page 141\)](#).

4.6.2 Assembling gearbox

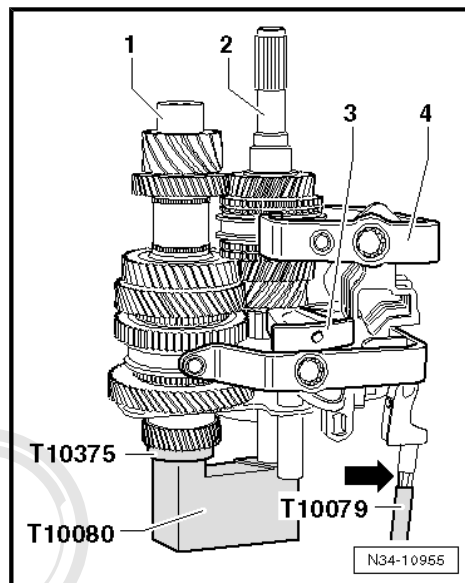


Note

- ◆ *Pressing bearing mounting with grooved ball bearings onto input and output shafts ⇒ [page 149](#).*
- ◆ *Pressing sleeve for 5th speed selector gear needle bearing onto input shaft ⇒ [page 149](#).*

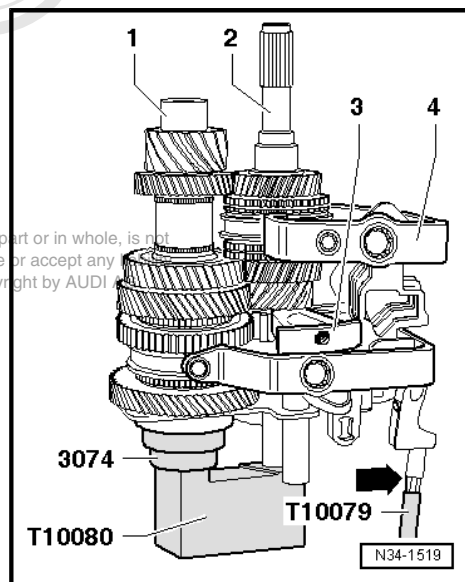
Gearbox with 5th gear wheel fitted

- Place the input shaft -2- and output shaft -1- with bearing mounting/grooved ball bearings in thrust piece - T10080- .
- Insert selector mechanism (selector forks) -4- in locking collars on shafts.
- Fit reverse gear shaft -3- with reverse gear wheel.
- Screw guide pin - T10079- onto threaded pin (reverse gear mounting) -arrow-.



Gearbox with 5th gear wheel detached

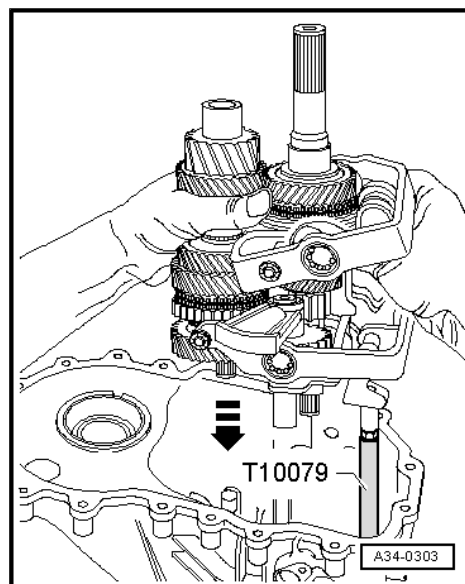
- Place the input shaft -2- and output shaft -1- with bearing mounting/grooved ball bearings in thrust piece - T10080- .
- Insert selector mechanism (selector forks) -4- in locking collars on shafts.
- Fit reverse gear shaft -3- with reverse gear wheel.
- Screw guide pin - T10079- onto threaded pin (reverse gear mounting) -arrow-.



Continued for all vehicles:

- Insert assembled components into gearbox housing, running guide pin - T10079- into gearbox housing through hole for selector mechanism mounting.
- Unscrew guide pin - T10079- .
- Check that selector forks engage correctly in locking collars before pressing in bearing mounting.

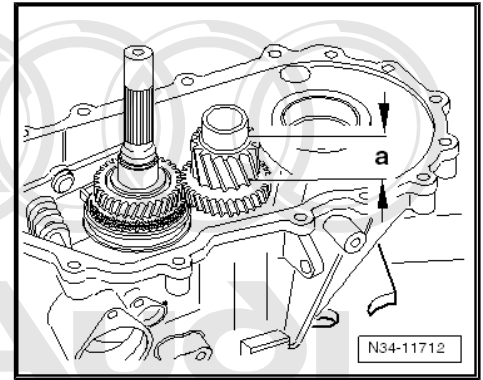
Before installation note the following:



- ◆ Selector forks must engage correctly in locking collars.
- ◆ Check dimension -a- on splines of output shaft.

 Note

- ◆ Due to differences in the height of the teeth (dimension -a-), the output shafts of different gearboxes differ in length.
- ◆ It may be necessary to fit a washer - T10083/1- (3 mm thick) on the input shaft so that output shaft and input shaft can be pressed in evenly.
- ◆ Dimension -a- on teeth of output shaft must therefore be measured.

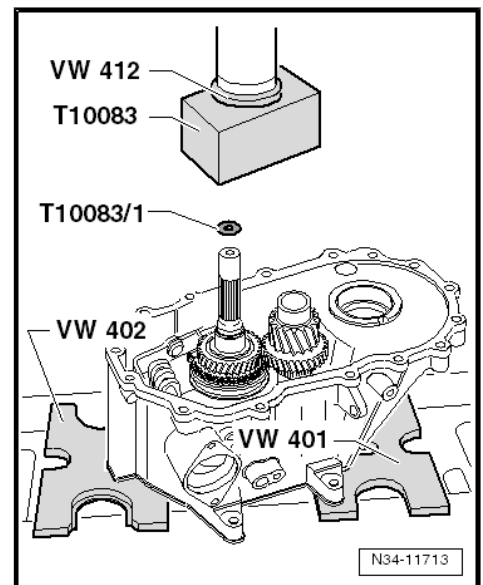


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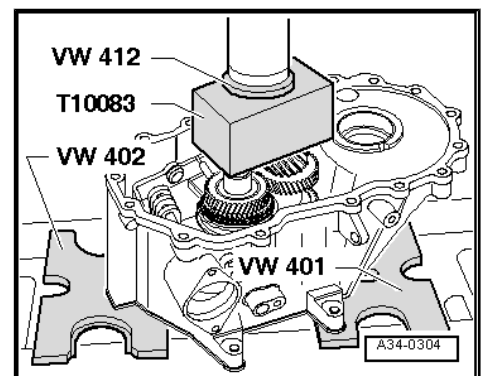
Dimension -a- = 30.6 mm

Place washer - T10083/1- on input shaft ⇒ next illustration.

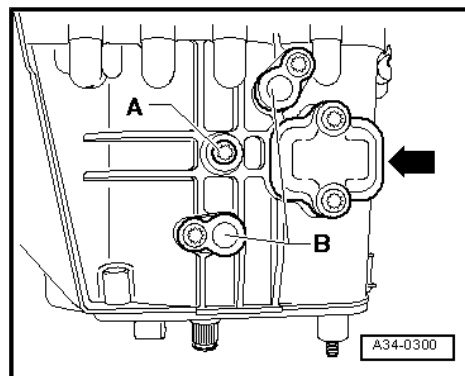
Placing washer - T10083/1- on input shaft, and carefully pressing in bearing mounting together with input and output shafts as far as stop



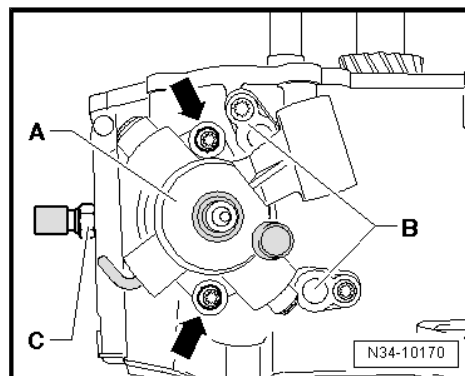
- Carefully press in bearing mounting together with input and output shafts as far as the stop.



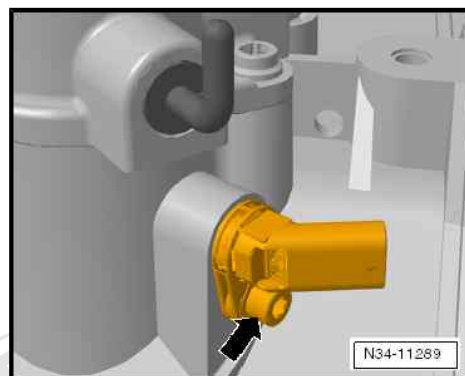
- Screw in bolt -A- for reverse gear shaft.
- Install pivot pins -B- on underside of gearbox.



- Install reversing light switch - F4- -C-.
- Install pivot pins -B- on top of gearbox.
- Set selector plates in neutral position.
- Apply sealant - AMV 188 200 03- evenly to sealing surface of selector mechanism cover.
- Install selector shaft with selector mechanism cover -A-. Then tighten bolts -arrows-.



- Gearbox for vehicles with start/stop system: fit gearbox neutral position sender - G701- -arrow- and tighten securing bolt to specified torque ➔ [Item 13 \(page 106\)](#) .



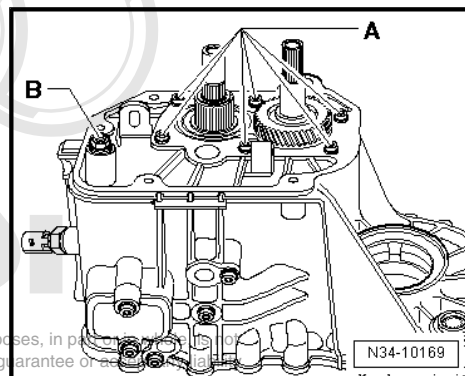
- Using new bolts -A-, secure bearing mounting for input and output shafts.



Note

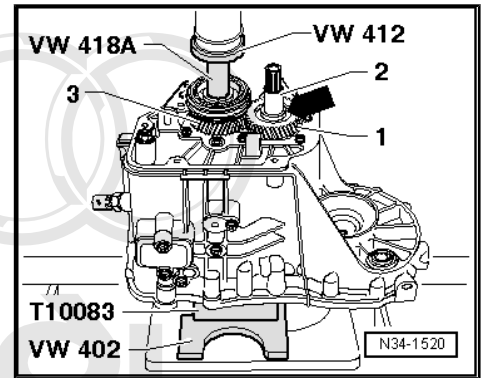
Tighten the bolts in stages to the specified torque in diagonal sequence, starting in the centre ➔ [Item 6 \(page 105\)](#) .

- Tighten hexagon flange nut -B- for selector mechanism (selector forks).
- Fit input and output shafts together with gearbox housing in thrust block - T10083- .



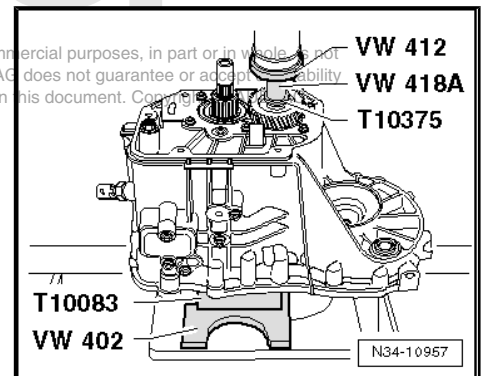
Installation position of 5th gear wheel -1-:

- The large collar on gear wheel -arrow- points to the gearbox housing cover.



Pressing on 5th gear wheel (if previously removed)

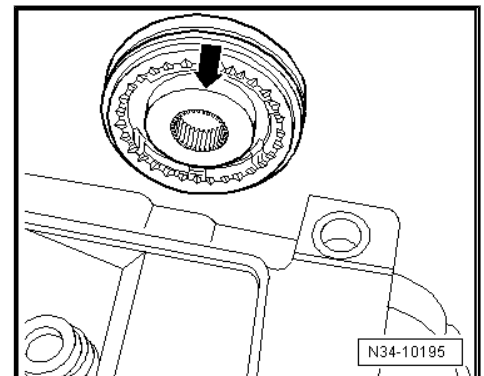
- Fit sleeve onto 5th gear wheel ⇒ [page 119](#) item -2-.
- Install 5th speed selector gear with needle bearing ⇒ [page 119](#) item -3-.
- Fit 5th gear synchro-ring on selector gear.



Installation position of 5th/6th gear synchro-hub/locking collar:

The high collar -arrow- points to 5th gear and the gearbox housing.

- Press on 5th/6th gear synchro-hub/locking collar ⇒ [page 119](#).



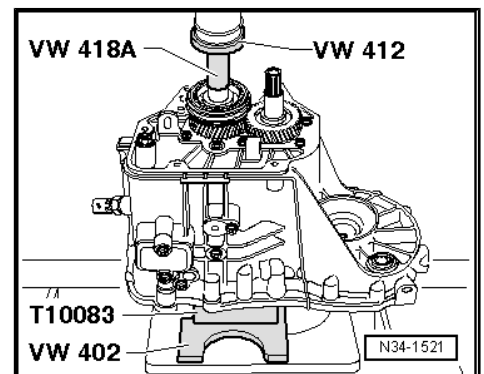
- Heat inner race for 6th speed needle bearing to 100°C (maximum) and press on.



WARNING

Wear protective gloves.

- Install 6th speed selector gear with needle bearing and synchro-ring.



- Fit thrust washer -A-.



Note

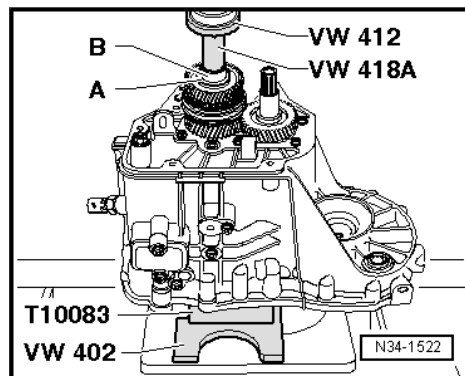
- ◆ *Do not interchange roller bearing inner races of input and output shafts.*
- ◆ *The thrust washer -A- and the roller bearing inner race -B- are one component on some gearbox versions.*
- They can only be pressed on together.
- Heat roller bearing inner race -B- to 100°C (maximum) and press onto input shaft.



WARNING

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Wear protective gloves.



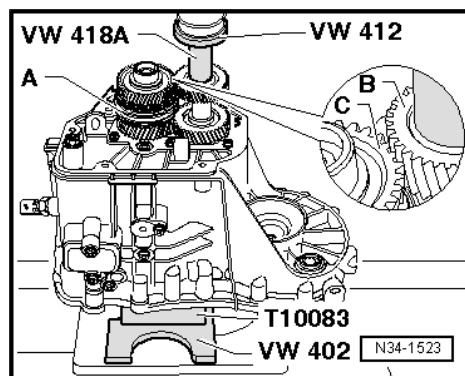
Installation position of 6th gear wheel:

- Large collar points towards sleeve.
- Set locking collar -A- for 5th/6th gear to neutral position to allow 6th speed selector gear to turn while pressing on 6th gear wheel.
- Heat 6th gear wheel to 100°C (maximum).



WARNING

Wear protective gloves.

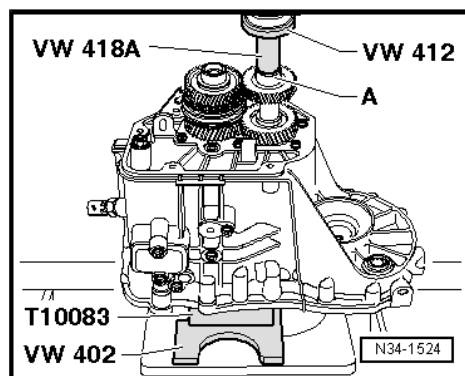


- Press on 6th gear wheel -B-, making sure that it meshes properly with 6th speed selector gear -C-.
- Heat roller bearing inner race -A- to 100°C (maximum) and press onto output shaft.

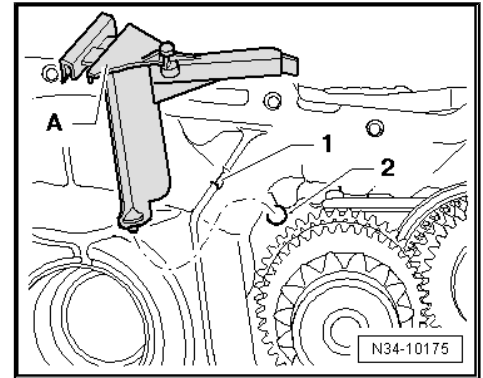


WARNING

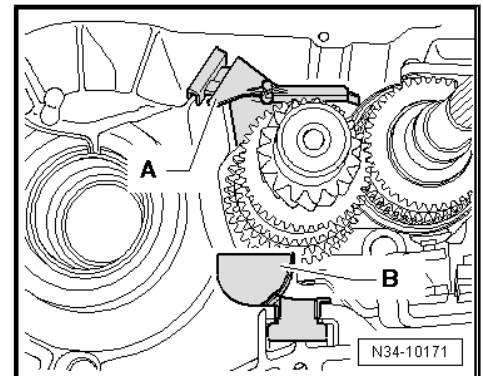
Wear protective gloves.



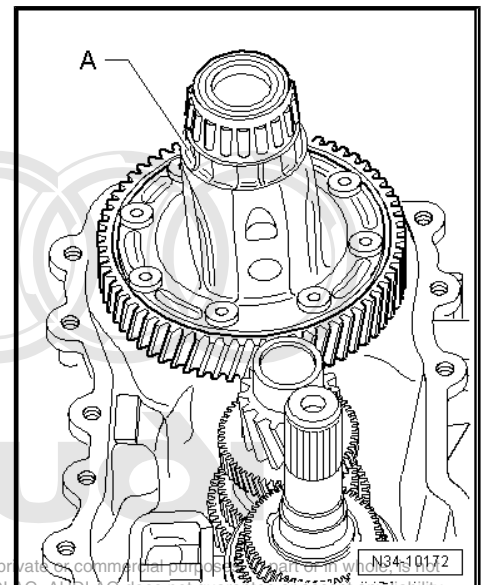
- Then fit oil collector -A- into recess -1- and in hole -2- of gearbox housing.



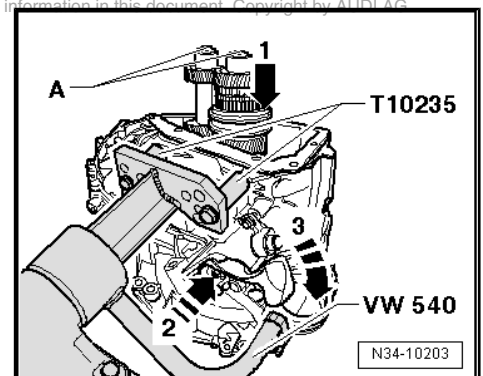
- Now install oil guide -B- in gearbox housing.
- Insert magnet in oil guide -B-.



- Install differential -A-.
- Apply sealant - AMV 188 200 03- evenly to sealing surface.
- Bolt clutch housing to gearbox housing.
- Turn the gearbox in the assembly stand so that the gearbox housing faces upwards.

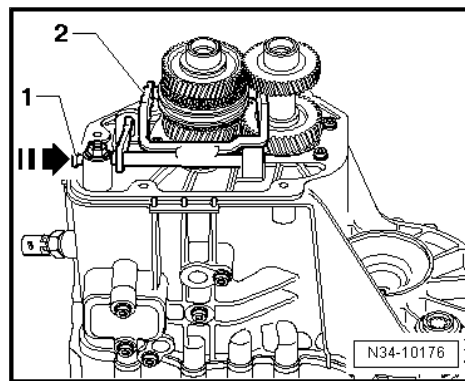


- Engage 2 gears -arrow 1- to -arrow 3- before tightening securing bolts -A-.

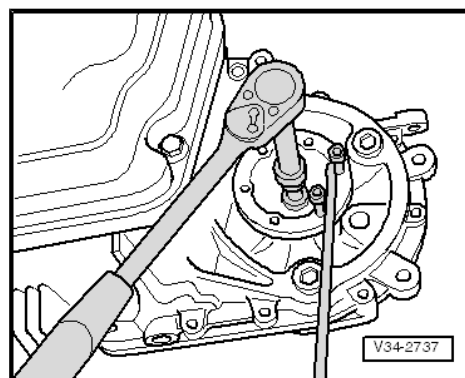


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- Fit 5th/6th gear selector fork -2- and slide pivot pin -1- in onto stop in direction of -arrow-.
- Apply sealant - AMV 188 200 03- evenly to sealing surface.
- Bolt on gearbox housing cover.



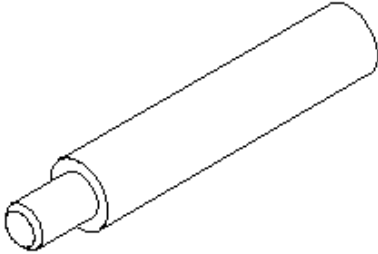
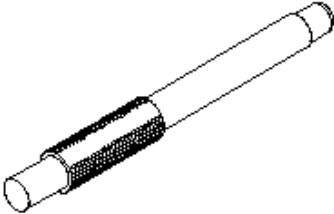
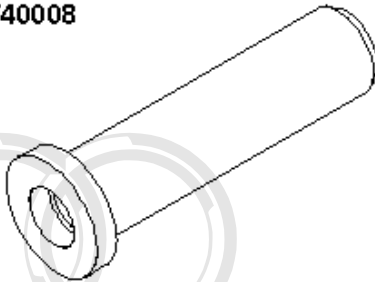
- Install both flange shafts with springs, thrust washers and tapered rings.
- Install clutch release lever together with release bearing and guide sleeve ➔ [page 34](#) .



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5 Servicing gearbox housing and clutch housing

Special tools and workshop
equipment required

12-551 	2026 
T40008 	V.A.G 1331 

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W34-10013

- ◆ Centring mandrel - 12-551-
- ◆ Punch - 2026-
- ◆ Thrust piece - T40008-
- ◆ Torque wrench - V.A.G 1331-
- ◆ Sealant - AMV 188 200 03-

1 - Clutch housing

- ☐ If renewed: adjust differential ➔ [page 171](#)

2 - Input shaft oil seal

- ☐ Renewing when gearbox is not dismantled ➔ [page 127](#)
- ☐ Driving in ➔ [page 125](#)

3 - Ball-head pin

- ☐ 20 Nm
- ☐ Remove existing grease
- ☐ Lubricate with grease - G 000 100-

4 - Flange shaft oil seal (right-side)

- ☐ Renewing with gearbox installed ➔ [page 159](#)

5 - Oil filler plug

- ☐ Tightening torque ➔ [page 99](#)

6 - Shim

- ☐ For differential
- ☐ Determining thickness ➔ [page 171](#)

7 - Tapered roller bearing outer race

- ☐ For differential
- ☐ Pressing in and out of clutch housing ➔ [page 164](#)
- ☐ If renewed: adjust differential ➔ [page 171](#)

8 - Bolt

- ☐ 5 Nm and turn 90° further
- ☐ Always renew

9 - Tapered roller bearing outer race

- ☐ For differential
- ☐ Pulling out of and pressing into gearbox housing ➔ [page 164](#)
- ☐ If renewed: adjust differential ➔ [page 171](#)

10 - Dowel sleeve

- ☐ 2x

11 - Gearbox housing

- ☐ If renewed: adjust differential ➔ [page 171](#)

12 - Oil drain plug

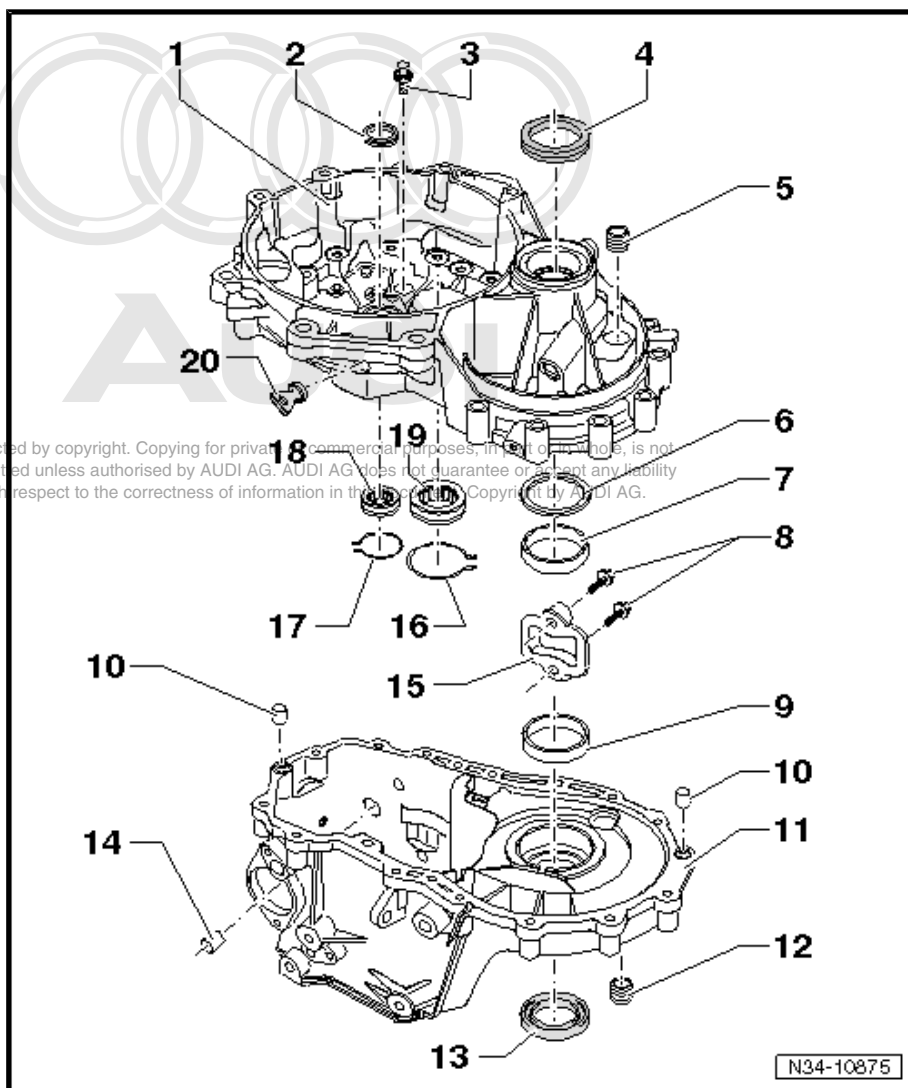
- ☐ Tightening torque ➔ [page 99](#)

13 - Flange shaft oil seal (left-side)

- ☐ Renewing with gearbox installed ➔ [page 159](#)

14 - Sleeve

- ☐ For selector shaft
- ☐ Driving out ➔ [page 125](#)



- ☐ Driving in ⇒ [page 126](#)

15 - Sealing cap

- ☐ Before tightening apply sealant - AMV 188 200 03- to sealing surface

16 - Circlip

- ☐ Fit in groove on roller bearing

17 - Circlip

- ☐ Fit in groove on roller bearing

18 - Roller bearing

- ☐ For input shaft
- ☐ Pulling out and pressing in ⇒ [page 140](#)

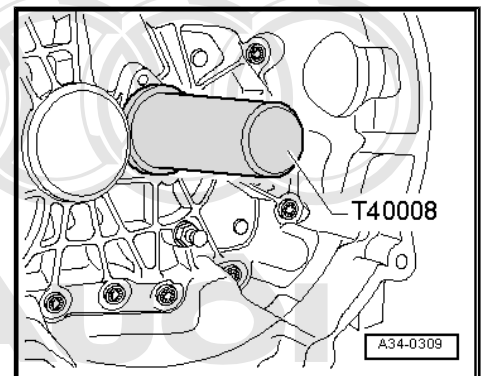
19 - Roller bearing

- ☐ For output shaft
- ☐ Pulling out and pressing in ⇒ [page 151](#)

20 - Plug

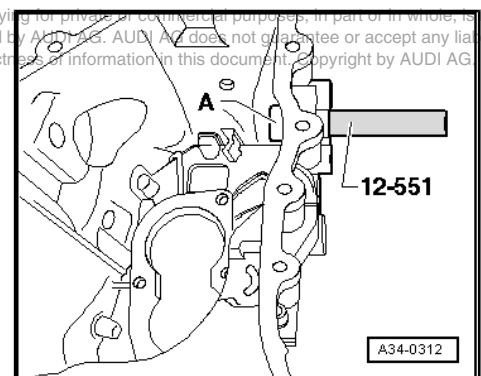
- ☐ Fitted on some gearbox versions
- ☐ Insert into bore of clutch housing

Driving in input shaft oil seal so it is flush

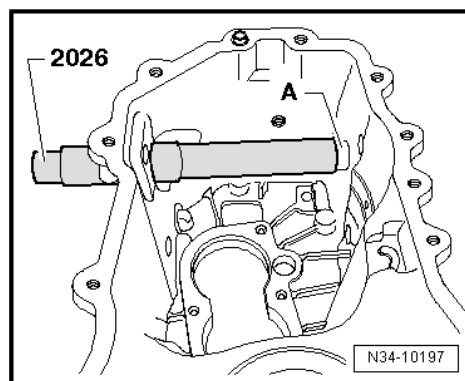


Driving out selector shaft sleeve -A-

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Driving in selector shaft sleeve -A- to stop

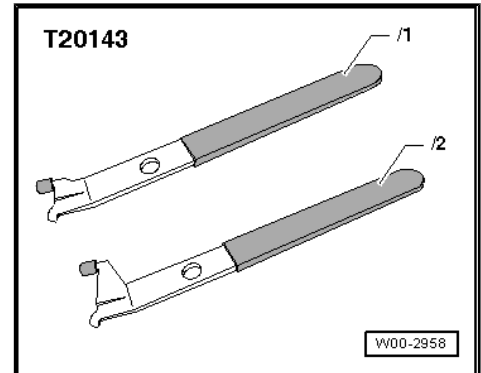


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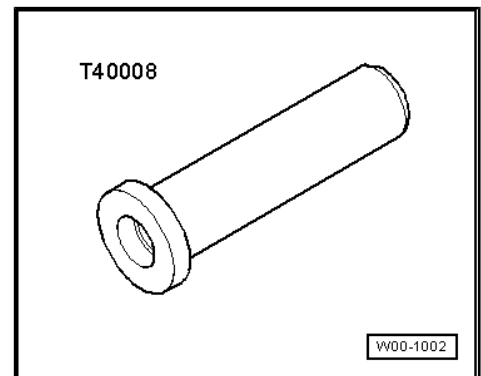
6 Renewing input shaft oil seal when gearbox is not dismantled

Special tools and workshop equipment required

- ◆ Extractor tool - T20143/1-



- ◆ Thrust piece - T40008-

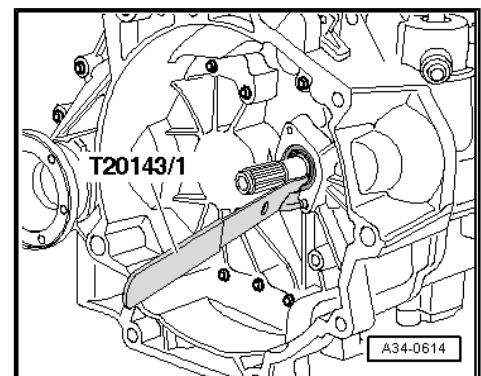


- ◆ Sealing grease - G 052 128 A1-
 - Remove gearbox ➔ [page 69](#) .
 - Remove release bearing ➔ [page 34](#) .
 - Prise out input shaft oil seal using extractor tool - T20143/1- .



Note

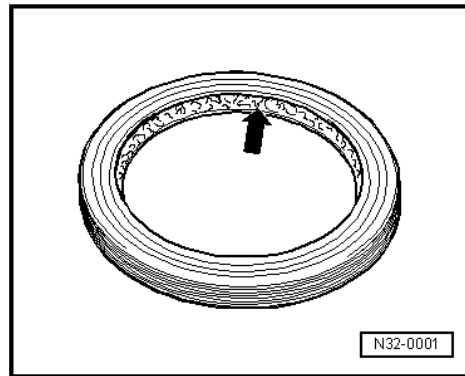
Take care not to damage contact surface for oil seal on input shaft.



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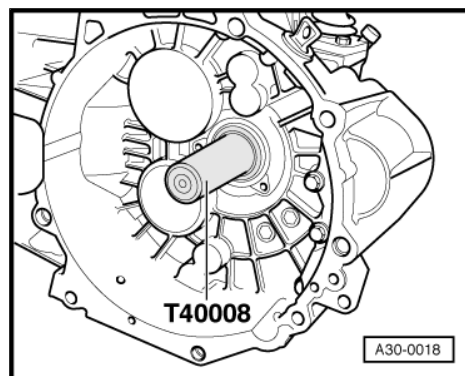


- Pack space between sealing lip and dust lip -arrow- half-full with sealing grease - G 052 128 A1- .

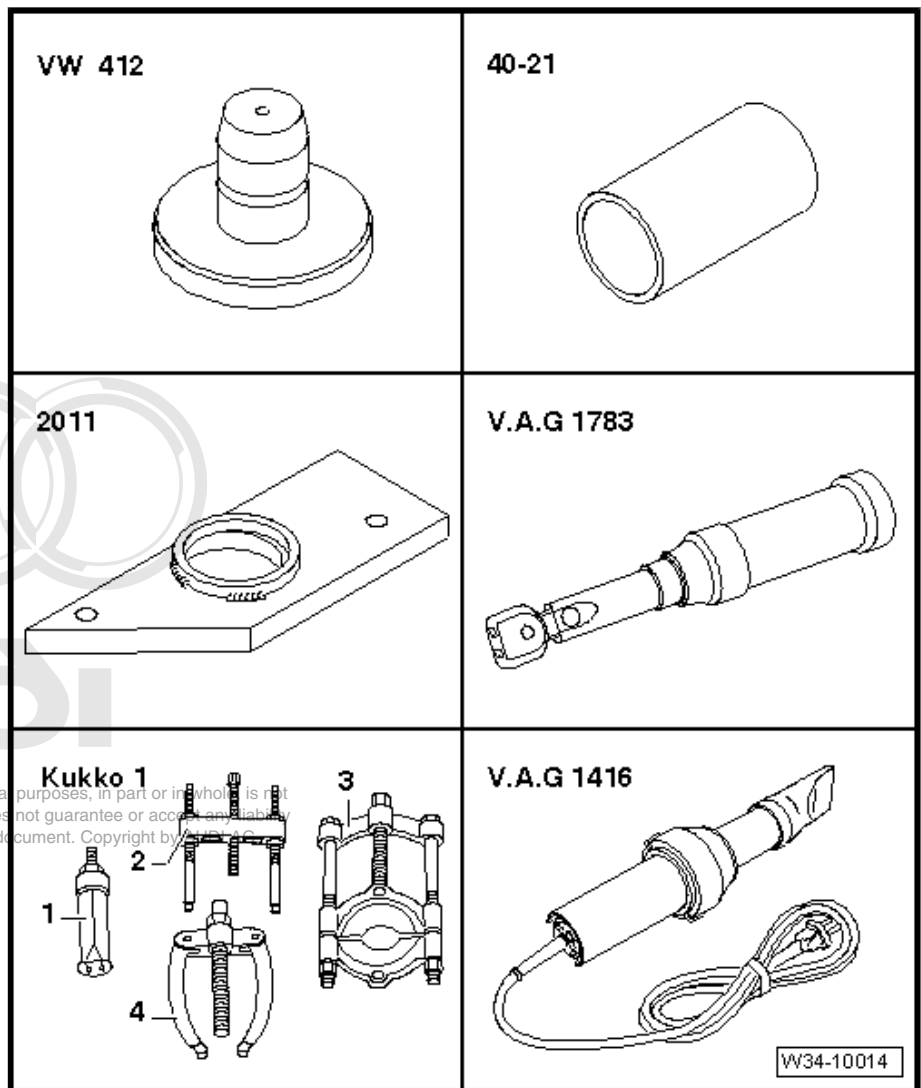


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- Drive oil seal in onto stop using thrust piece - T40008- .
- Install release bearing ⇒ [page 34](#) .
- Install gearbox ⇒ [page 85](#) .



7 Servicing gearbox housing cover



Special tools and workshop equipment required

- ◆ Press tool - VW 412-
- ◆ Drift sleeve - 40 - 21-
- ◆ Support bridge - 2011-
- ◆ -1- Internal puller - Kukko 21/5-
- ◆ -4- Counter-support - Kukko 22/2-
- ◆ Hot air blower - V.A.G 1416-

1 - Countersunk-head bolts

- ☐ 2 Nm
- ☐ Tighten diagonally

2 - Base plate

- ☐ For roller bearings
- ☐ Installation position: indentations for countersunk head bolts point towards gearbox housing

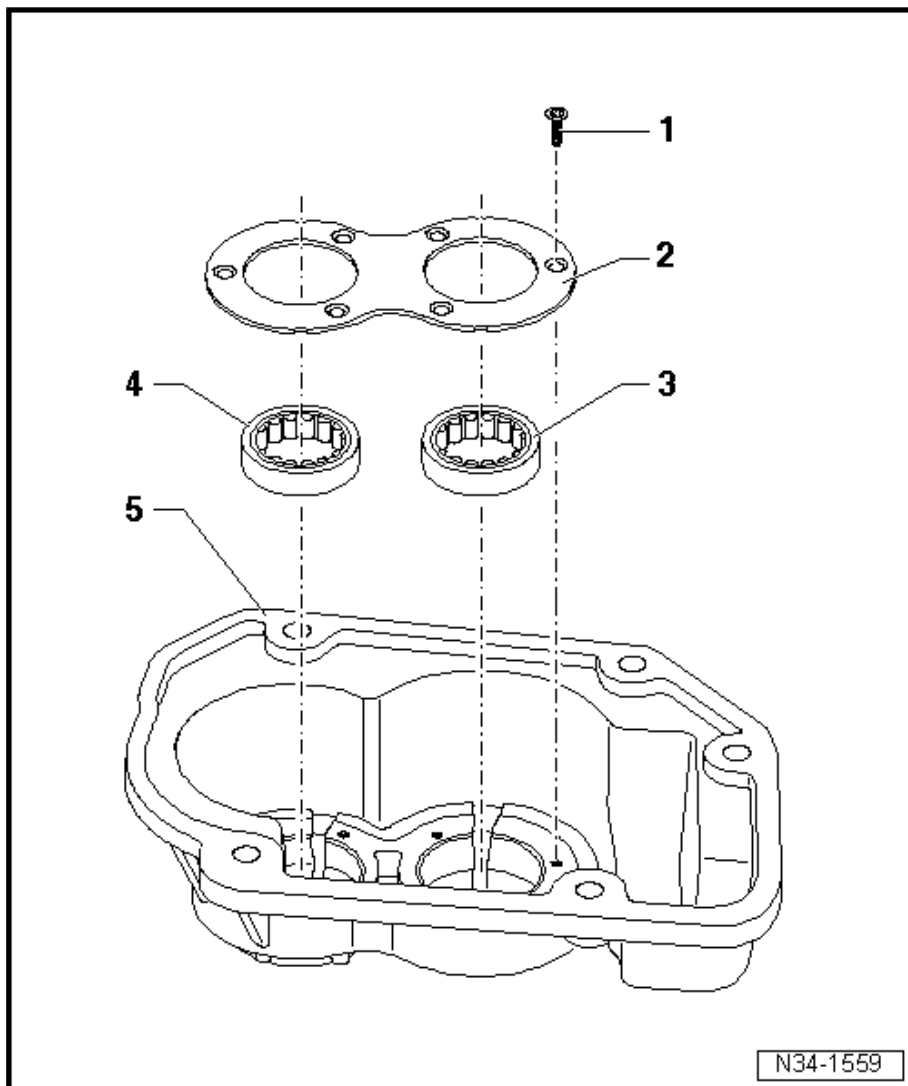
3 - Roller bearing

- ☐ For input shaft
- ☐ Do not interchange with roller bearing for output shaft
- ☐ Can be renewed individually
- ☐ Pulling out ⇒ [page 130](#)
- ☐ Pressing in ⇒ [page 131](#)

4 - Roller bearing

- ☐ For output shaft
- ☐ Do not interchange with roller bearing for input shaft
- ☐ Can be renewed individually
- ☐ Pulling out ⇒ [page 130](#)
- ☐ Pressing in ⇒ [page 131](#)

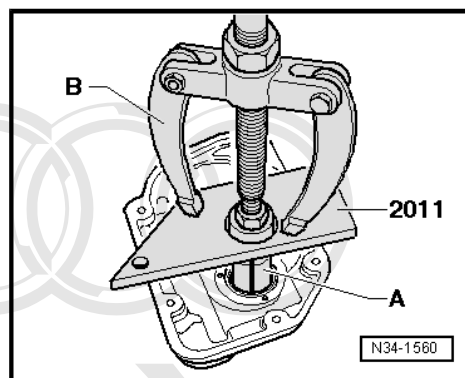
5 - Gearbox housing cover



Pulling roller bearing out of gearbox housing cover

A - Internal puller 28 ... 37 mm , e.g. -Kukko 21/5-

B - Counter-support , e.g. -Kukko 22/1-



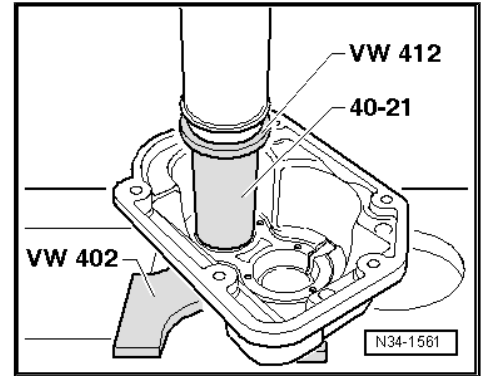
Pressing roller bearing into gearbox housing cover

- Heat area round bearing seats in gearbox housing cover to approx. 100°C using hot air blower - V.A.G 1416- .
- Insert roller bearing after heating housing and push into position under workshop press until heat exchange has taken place.



Note

Roller bearings must be pressed fully home into cover. Do not try to tighten via countersunk head bolts on base plate.

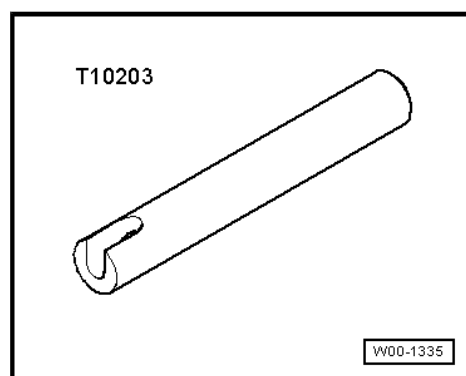


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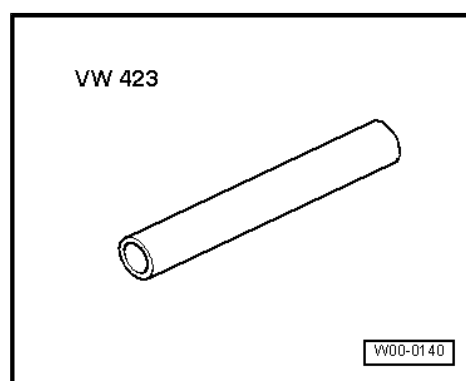
8 Servicing selector unit

Special tools and workshop equipment required

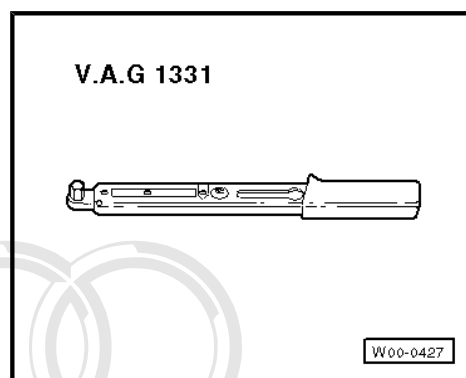
◆ Tube - T10203-



◆ Tube - VW 423-



◆ Torque wrench - V.A.G 1331-



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1 - Sleeve

- ☐ For selector shaft
- ☐ Driving out ⇒ [page 125](#)
- ☐ Driving in ⇒ [page 126](#)

2 - Selector shaft with selector mechanism cover

- ☐ Renew together

3 - Retaining pin

- ☐ For adjusting selector mechanism
- ☐ Removing ⇒ [page 133](#)
- ☐ Driving in ⇒ [page 134](#)

4 - Gate relay lever

- ☐ Installation position ⇒ [page 59](#)
- ☐ Plastic gate relay lever from 05.07 onwards

5 - Bearing bush

6 - Seal

- ☐ Lever out with screwdriver
- ☐ Fitting ⇒ [page 134](#)

7 - Cap

- ☐ For gearbox breather

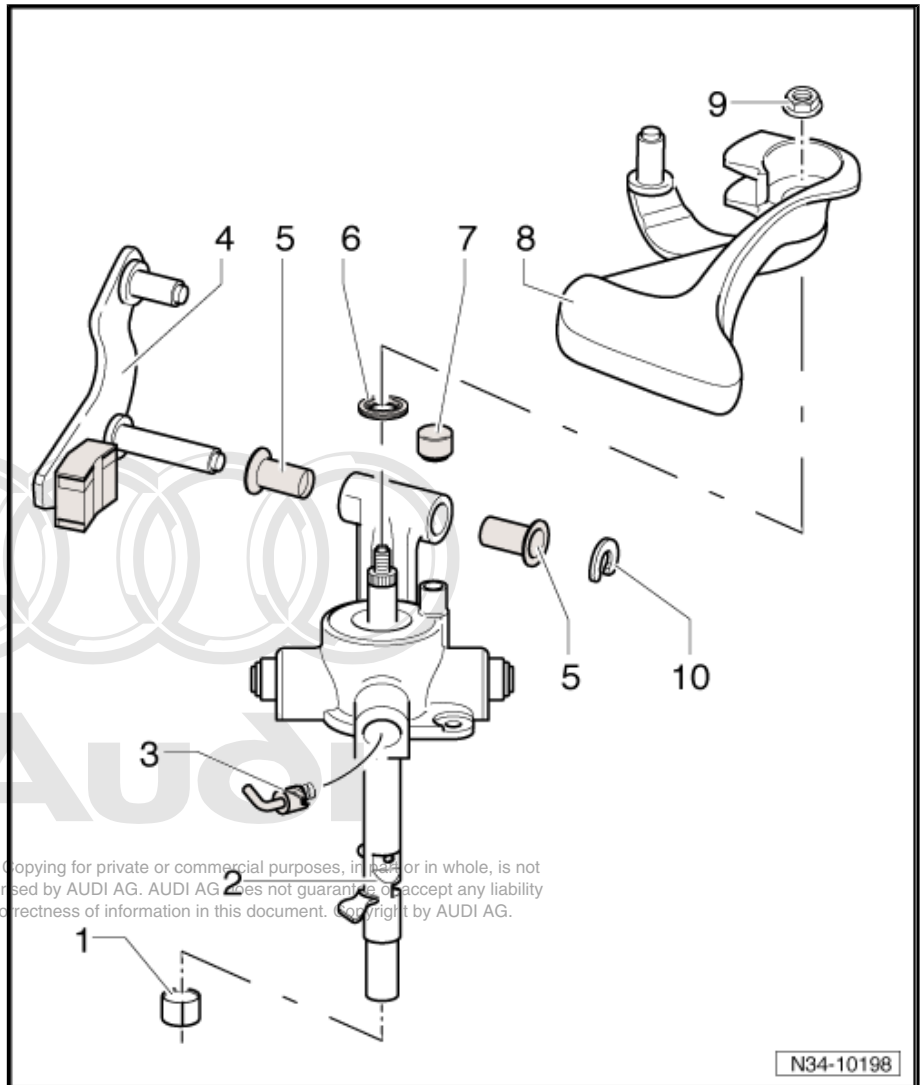
8 - Gearbox selector lever

- ☐ Install so that gap in splines aligns with selector shaft
- ☐ Can be renewed with selector mechanism installed
- ☐ Installation position ⇒ [page 59](#)

9 - Hexagon nut

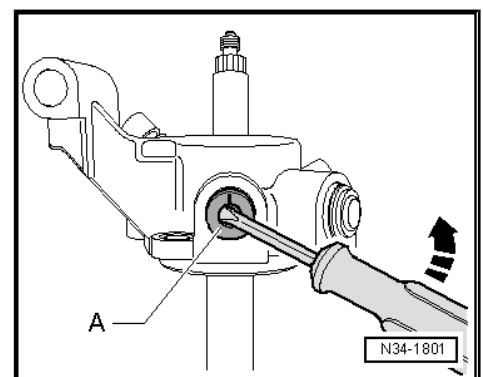
- ☐ 20 Nm
- ☐ Always renew

10 - Securing clip



Removing locking pin -A- from selector mechanism cover

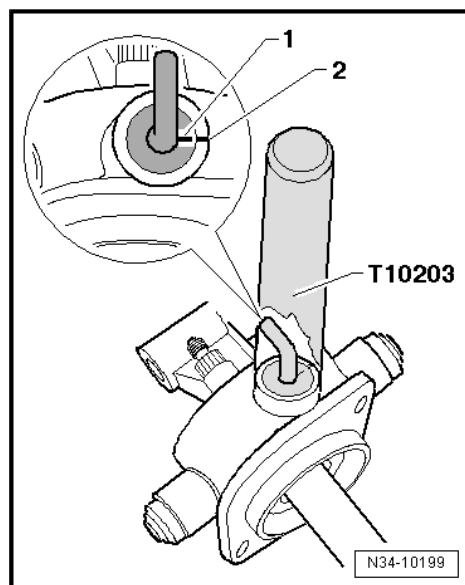
- Remove outer part of retaining pin.
- Then lever out locking pin carefully using a screwdriver.



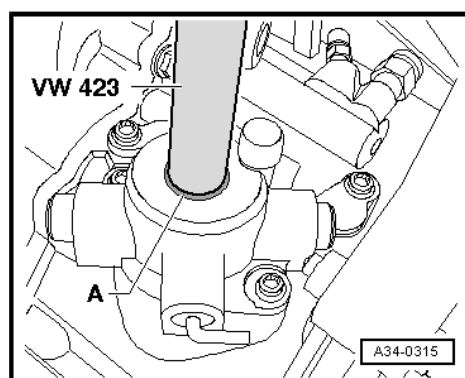
Driving locking pin -A- into selector mechanism cover

Installation position:

Marking -1- points towards marking -2- on selector mechanism cover.



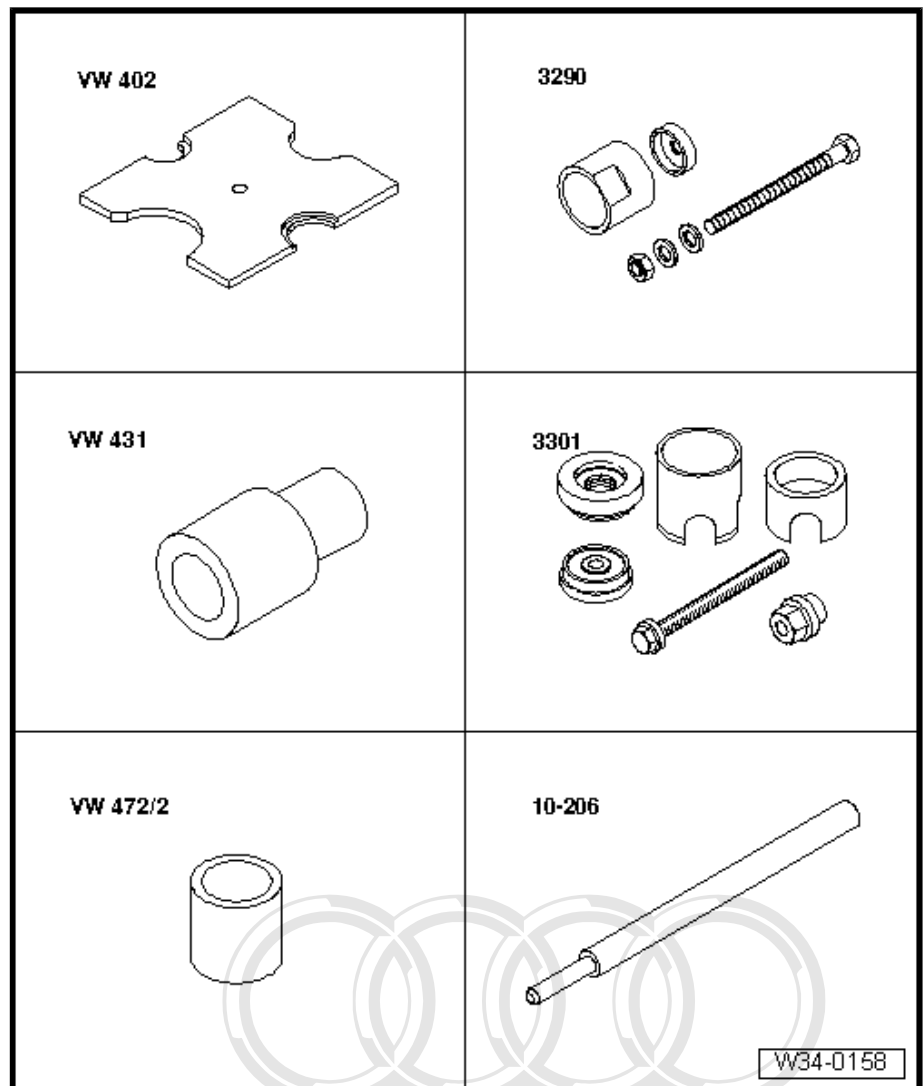
Installing oil seal -A- onto stop



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9 Dismantling and assembling selector forks

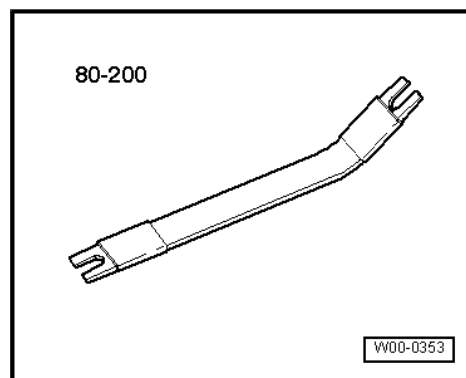
Special tools and workshop
equipment required



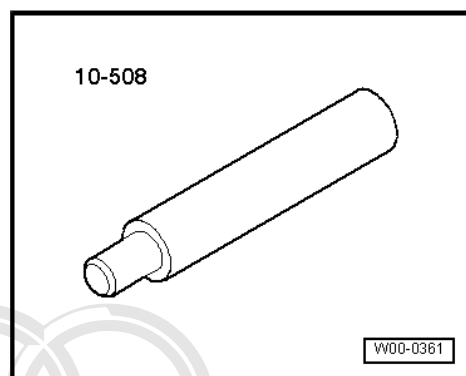
- ◆ Thrust plate - VW 402-
- ◆ Thrust piece - 3290/1-
- ◆ Assembly tool - 3301-
- ◆ Thrust piece - VW 431-
- ◆ Spacer sleeve - VW 472/2-
- ◆ Drift - 10 - 206-

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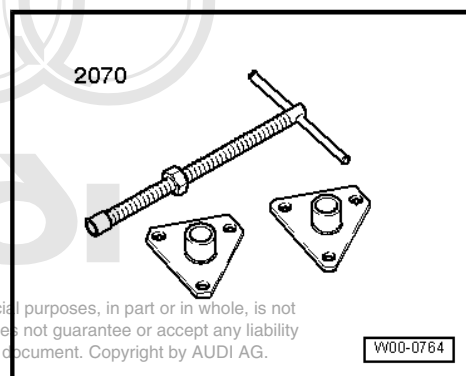
◆ Removal lever - 80-200-



◆ Assembly mandrel - 10 - 508-



◆ Tensioning device - 2070-



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Note

The selector fork cluster ⇒ [Item 1 \(page 137\)](#) does not have to be dismantled in order to remove and install detent segments, clamping washers and angular contact ball bearings.

1 - Selector fork cluster with selector plates

2 - 3rd/4th gear detent segment

- ☐ Identification
⇒ [page 138](#)
- ☐ Detent segment should turn freely after installation.

3 - Angular contact ball bearing

- ☐ 4x
- ☐ Removing ⇒ [page 139](#)
- ☐ Pressing inner race into outer race ⇒ [page 139](#)
- ☐ Installing ⇒ [page 139](#)

4 - Clamping washer

- ☐ Always renew
- ☐ Removing ⇒ [page 138](#)
- ☐ Installing ⇒ [page 138](#)

5 - 1st/2nd gear detent segment

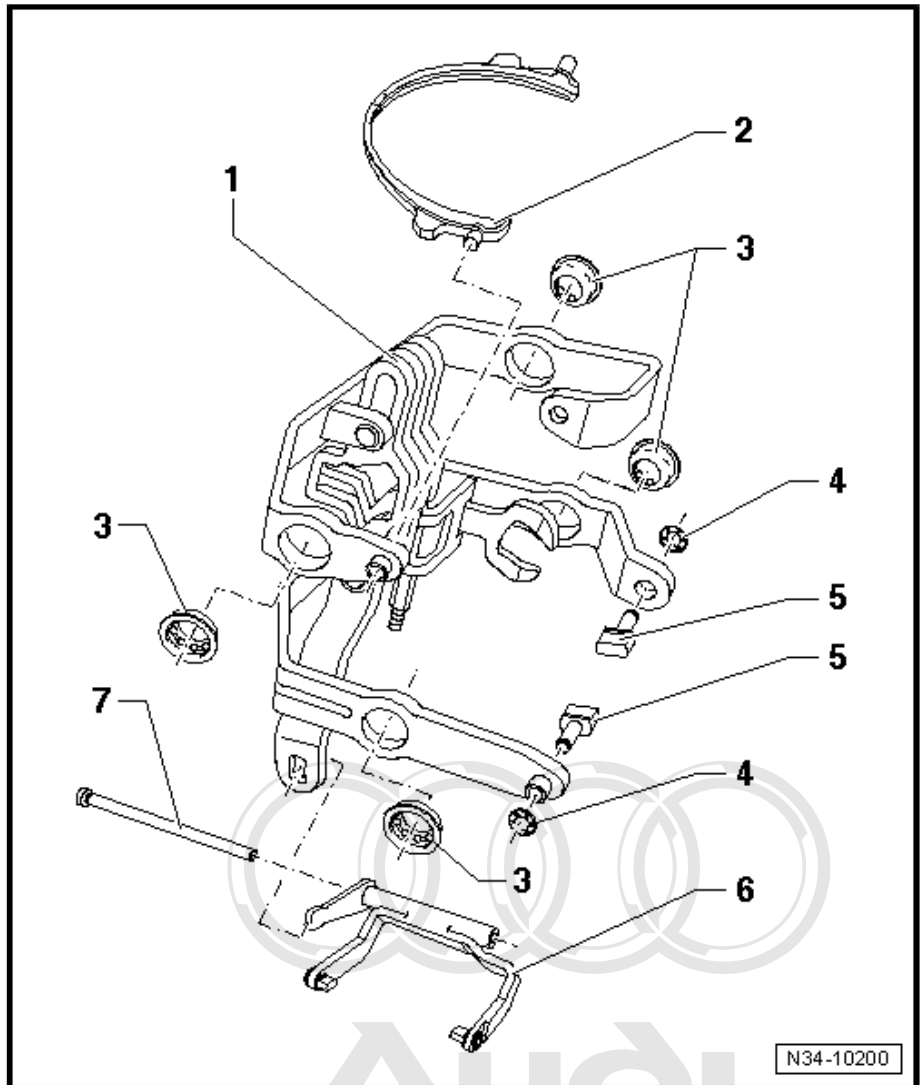
- ☐ Identification
⇒ [page 138](#)
- ☐ The segment must rotate freely after installing the lock washer
- ☐ Selector fork with detent segment

6 - 5th/6th gear selector fork with detent segments

- ☐ Detent segments are inseparably joined with selector fork
- ☐ Identification ⇒ [page 138](#)

7 - Pivot pin

- ☐ for 5th/6th gear selector fork

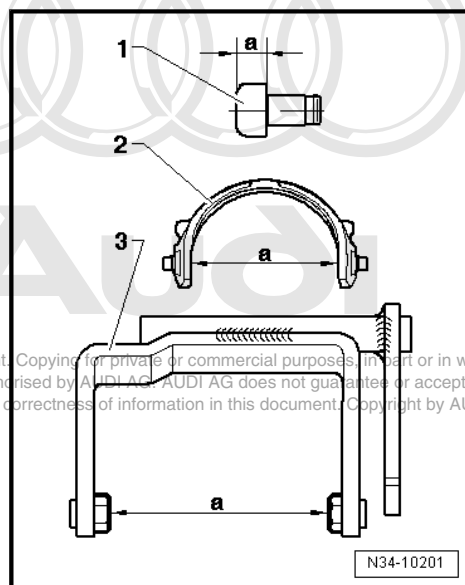


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Identification of detent segments and 5th/6th gear selector fork with detent segments

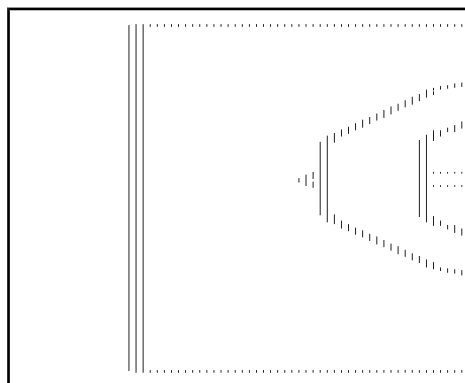
Dimension -a-

- 1 - Detent segments 1st/2nd gear = 10.0 mm
- 2 - Detent segment 3rd/4th gear = 78.6 mm
- 3 - 5th/6th gear selector fork with detent segments = 79.5 mm



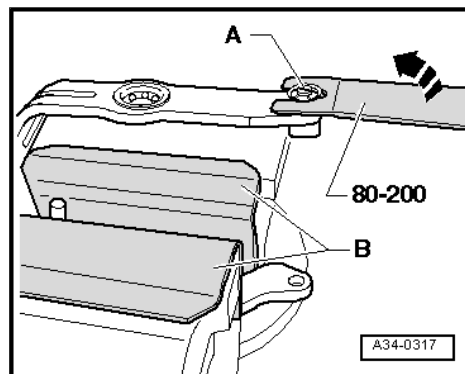
1st/2nd gear selector fork with detent segments

Distance -a- = 78 mm



Removing lock washer

- Secure selector fork in vice with protective jaw covers -B-.
- Lever off lock washer -A- in direction of arrow.



Installing lock washer

- Push lock washer into groove in detent segment using socket driver.

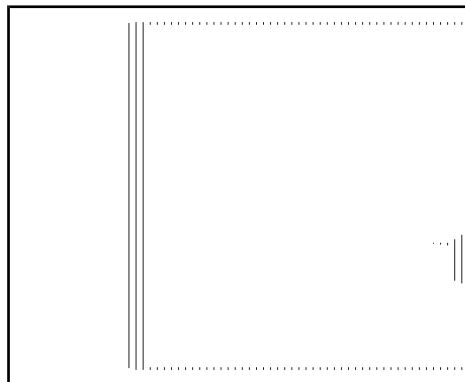


Note

Detent segment should turn freely after lock washer is installed.

A - Socket driver, 10 mm

B - Soft jaws

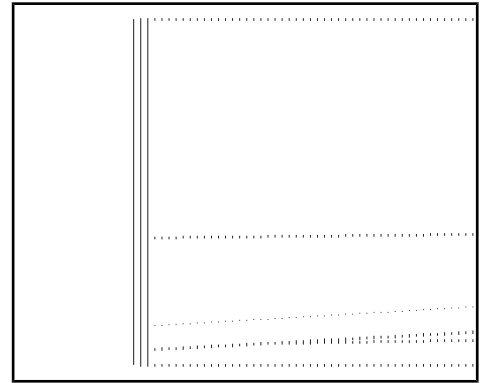


Removing angular contact ball bearing



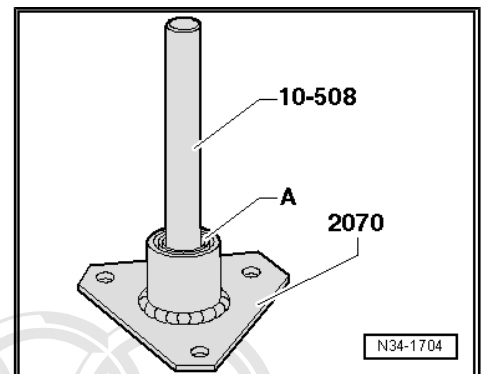
Note

Do not bend selector forks when removing and installing the ball bearing.



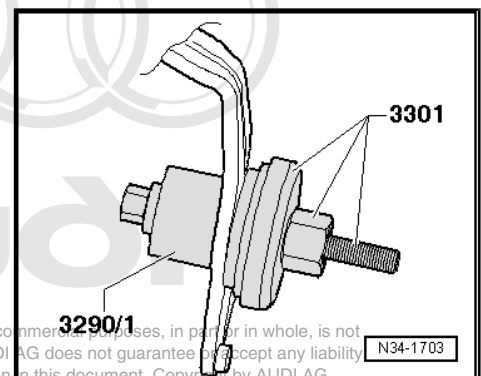
Pressing inner race -A- of angular contact ball bearing into outer race

Inner race must engage positively in outer race.



Pulling angular contact ball bearing into selector fork (insert onto stop)

Recess in thrust piece - 3290/1- points towards ball bearing.



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35 – Gears, shafts

1 Exploded view - input shaft



Note

- ◆ Dismantling and assembling input shaft ➔ [page 143](#)
- ◆ When fitting new gear wheels or input shaft refer to technical data ➔ [page 1](#) and ➔ [Electronic parts catalogue](#) .
Technical data and parts catalogue are not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- ◆ Lubricate all bearings, selector gears and synchro-rings on input shaft with gear oil before installing.
- ◆ Do not interchange synchro-rings. When re-using synchro-rings, always fit on the same selector gear.

1 - Bolt

- ❑ Removing and installing
➔ [page 102](#)

2 - Roller bearing inner race

- ❑ With thrust washer
➔ [Item 3 \(page 140\)](#)
(one component)
➔ [page 102](#)
- ❑ Mark before removing
- ❑ Do not interchange with roller bearing inner race for output shaft
- ❑ Can be renewed individually
- ❑ Removing and installing
➔ [page 106](#)

3 - Thrust washer

- ❑ With roller bearing inner race
➔ [Item 2 \(page 140\)](#)
(one component)
➔ [page 102](#)

4 - 6th speed selector gear

5 - 6th gear synchro-ring

- ❑ Checking for wear
➔ [page 147](#)

6 - Needle bearing

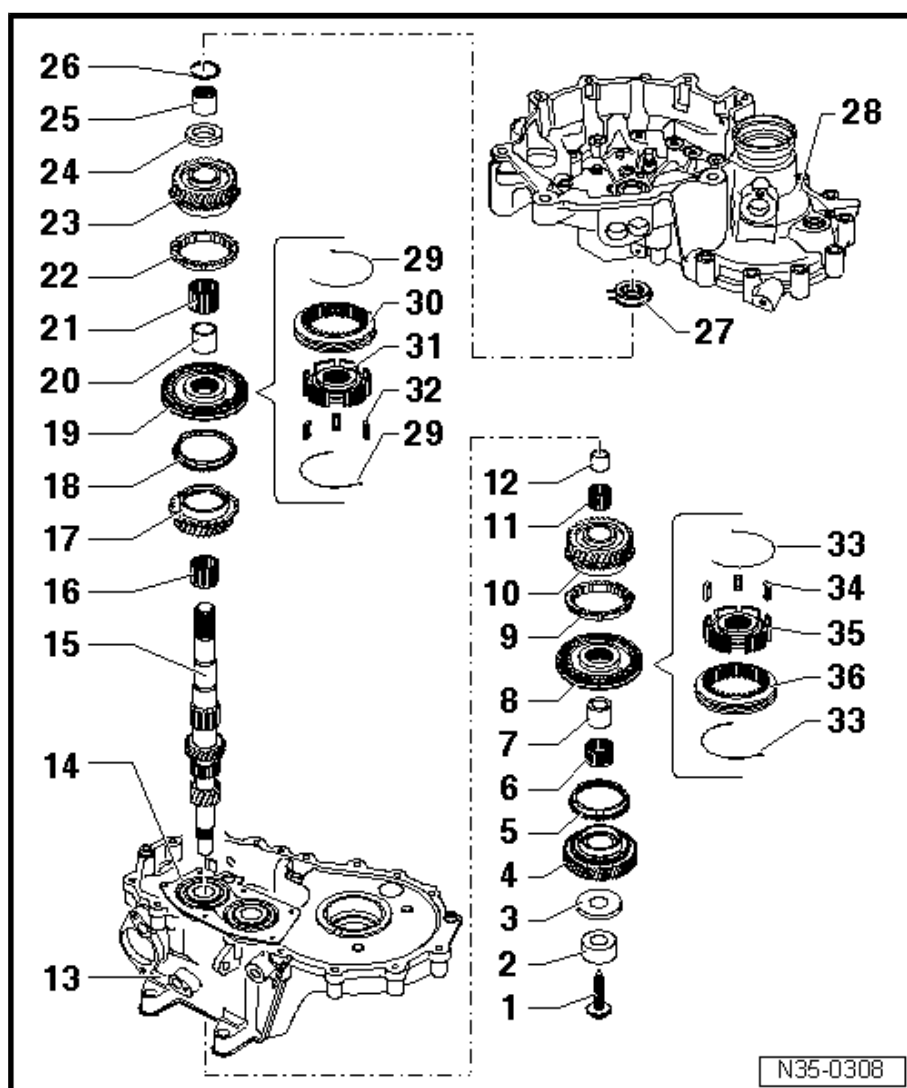
- ❑ For 6th gear
- ❑ Renew together with
➔ [Item 11 \(page 141\)](#)
- ❑ Two-piece ➔ [page 102](#)

7 - Sleeve

- ❑ For 6th gear needle bearing
- ❑ Renew together with ➔ [Item 6 \(page 140\)](#)
- ❑ Removing and installing ➔ [page 106](#)

8 - Locking collar with synchro-hub for 5th and 6th gear

- ❑ Removing and installing ➔ [page 106](#)
- ❑ Dismantling ➔ [page 150](#)



- ☐ Assembling 5th/6th gear locking collar/synchro-hub ⇒ [page 150](#) and ⇒ [page 150](#)
- ☐ Installation position ⇒ [page 150](#)

9 - 5th gear synchro-ring

- ☐ Will be damaged when removed from input shaft
- ☐ Always renew
- ☐ Checking for wear ⇒ [page 147](#)

10 - 5th speed selector gear

11 - Needle bearing

- ☐ For 5th gear
- ☐ Renew together with ⇒ [Item 12 \(page 141\)](#)

12 - Sleeve

- ☐ For 5th gear needle bearing
- ☐ Renew together with ⇒ [Item 11 \(page 141\)](#)
- ☐ Press off with bearing mounting/grooved ball bearing ⇒ [Item 14 \(page 141\)](#)
- ☐ Pressing on ⇒ [page 149](#)

13 - Gearbox housing

- ☐ Servicing ⇒ [page 123](#)

14 - Bearing mounting with grooved ball bearings

- ☐ Only renew grooved ball bearings together with bearing mounting.
- ☐ If bearing mounting is separated from gearbox housing, it must always be renewed
- ☐ Pressing off without 5th gear wheel ⇒ [page 146](#)
- ☐ Pressing off with 5th gear wheel ⇒ [page 146](#)
- ☐ Pressing on ⇒ [page 149](#)

15 - Input shaft

- ☐ Clean residual locking compound out of tapped hole in input shaft using a thread tap.

16 - Needle bearing

- ☐ For 3rd gear

17 - 3rd speed selector gear

18 - 3rd gear synchro-ring

- ☐ Checking for wear ⇒ [page 147](#)

19 - Locking collar with synchro-hub for 3rd and 4th gear

- ☐ Press off with 3rd speed selector gear ⇒ [page 146](#)
- ☐ Dismantling ⇒ [page 147](#)
- ☐ Installation position: Locking collar/synchro-hub ⇒ [page 147](#)
- ☐ Assembling ⇒ [page 147](#)
- ☐ Pressing on ⇒ [page 148](#)

20 - Sleeve

- ☐ For 4th gear needle bearing
- ☐ Renew together with ⇒ [Item 21 \(page 141\)](#)
- ☐ Press off with 3rd speed selector gear ⇒ [page 146](#)
- ☐ Pressing on ⇒ [page 148](#)

21 - Needle bearing

- ☐ For 4th gear
- ☐ Renew together with ⇒ [Item 20 \(page 141\)](#)

22 - 4th gear synchro-ring

- ☐ Checking for wear ⇒ [page 147](#)



23 - 4th speed selector gear

24 - Thrust washer

25 - Roller bearing inner race

- ☐ Pressing off ➔ [page 146](#)
- ☐ Pressing on ➔ [page 148](#)

26 - Circlip

- ☐ Renew
- ☐ Determining thickness ➔ [page 149](#)

27 - Roller bearing

- ☐ With circlip
- ☐ Pulling out ➔ [page 145](#)
- ☐ Pressing in ➔ [page 146](#)
- ☐ Installation position: Circlip in bearing faces towards input shaft

28 - Clutch housing

- ☐ Servicing ➔ [page 123](#)

29 - Spring

- ☐ Installation position ➔ [page 147](#)

30 - Locking collar for 3rd and 4th gear

31 - Synchro-hub for 3rd and 4th gear

32 - Locking pieces (3x)

33 - Spring

- ☐ Installation position ➔ [page 150](#)

34 - Locking pieces (3x)

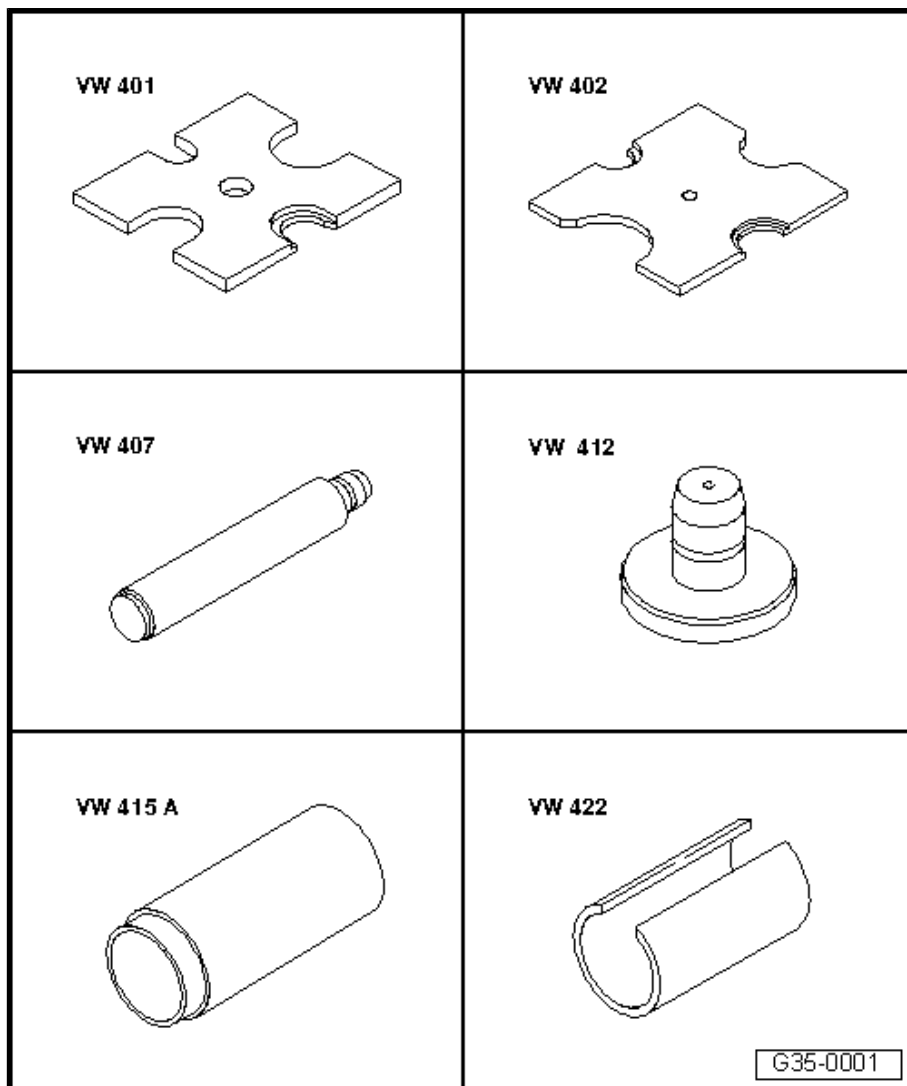
35 - Synchro-hub for 5th and 6th gear

36 - Locking collar for 5th and 6th gear

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1.1 Dismantling and assembling input shaft

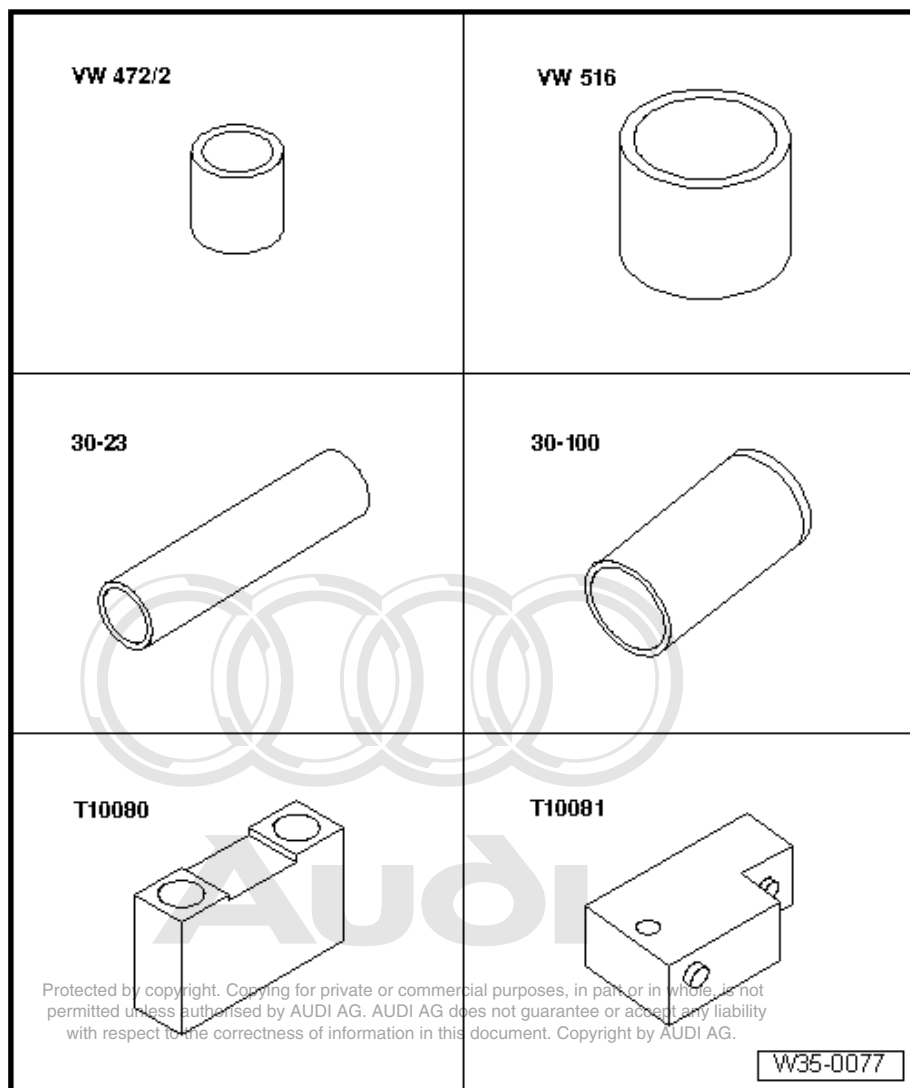
Special tools and workshop
equipment required



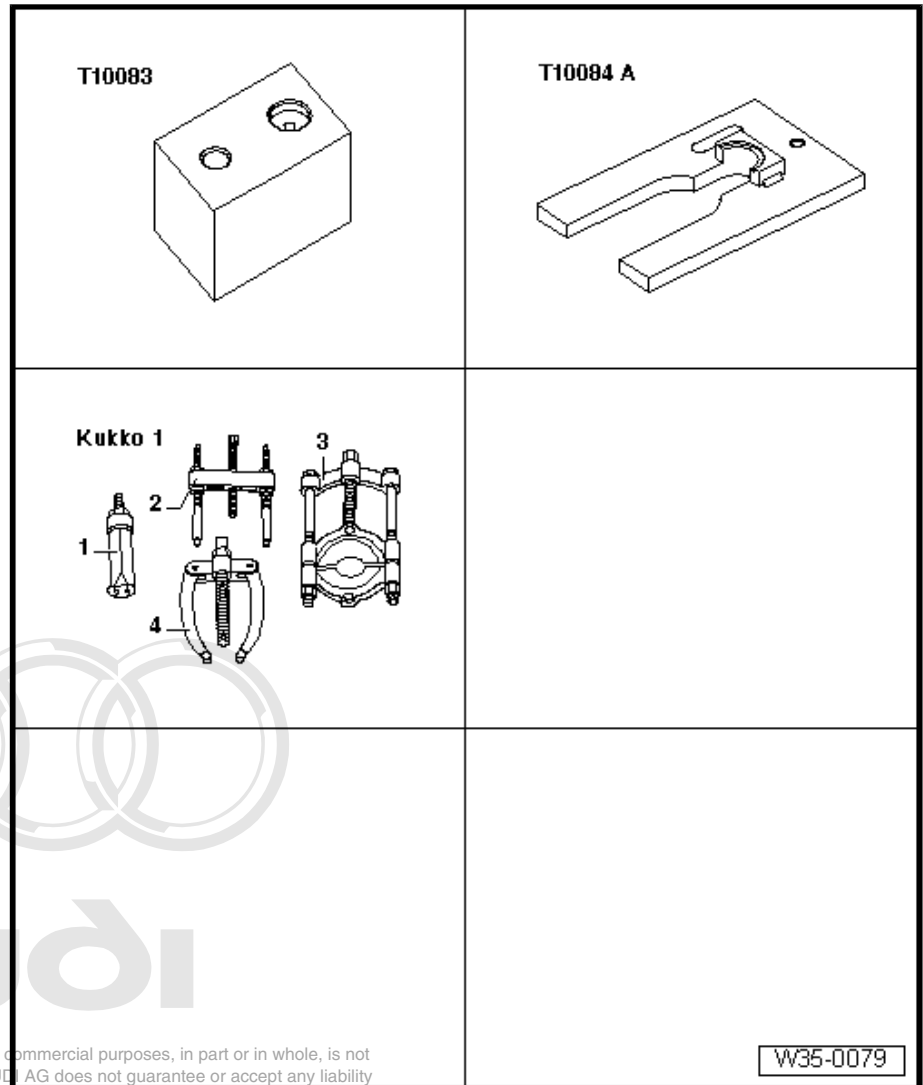
- ◆ Thrust plate - VW 401-
- ◆ Thrust plate - VW 402-
- ◆ Press tool - VW 407-
- ◆ Press tool - VW 412-
- ◆ Tube - VW 415 A-
- ◆ Tube - VW 422-



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- ◆ Spacer sleeve - VW 472/2-
- ◆ Tube - VW 516-
- ◆ Extension - 30-23-
- ◆ Drift sleeve - 30-100-
- ◆ Thrust piece - T10080-
- ◆ Thrust piece - T10081-



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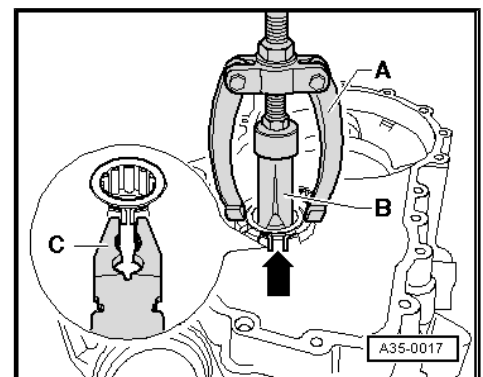
- ◆ Thrust block - T10083-
- ◆ Thrust plate - T10084 A-
- ◆ -1- Internal puller - Kukko 21/5-
- ◆ -4- Counter-support - Kukko 22/2-

Pulling roller bearing out of clutch housing

- When pulling out, compress circlip -arrow- for roller bearing using pliers -C-.

A - Counter-support , e.g. -Kukko 22/1-

B - Internal puller 30 ... 37 mm , e.g. -Kukko 21/5-

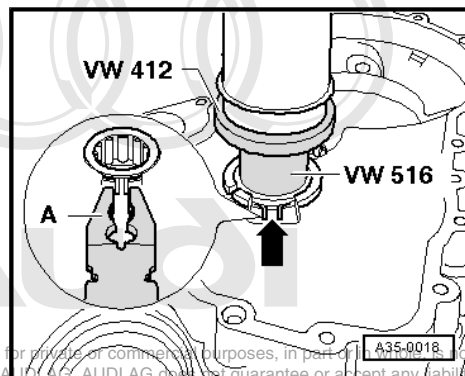


Pressing roller bearing into clutch housing

- Support clutch housing using tube - VW 415 A- (not visible in illustration) directly under bearing mounting.
- When pressing in, compress circlip -arrow- for roller bearing using pliers -A-.
- Remove the pliers before the roller bearing is in its final position. The circlip must engage in the groove in the clutch housing.

Gearbox with 5th gear wheel installed

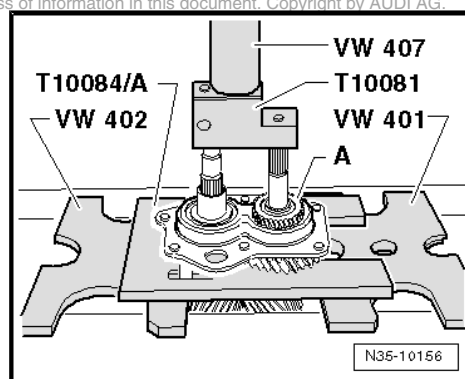
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Pressing off bearing mounting with grooved ball bearings and 5th gear wheel -A-

- Slide locking collar for 1st and 2nd gear onto 2nd gear.
- Slide in thrust plate - T10084 A- from the side until it contacts input shaft.

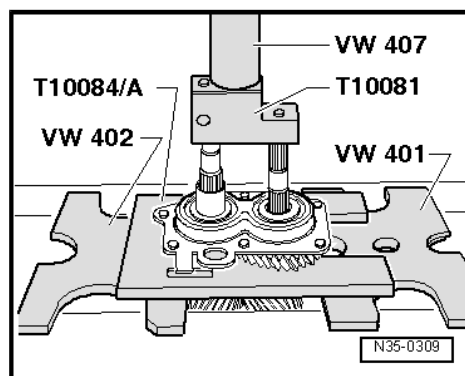
Gearbox with 5th gear wheel already removed



Pressing off bearing mounting and grooved ball bearings

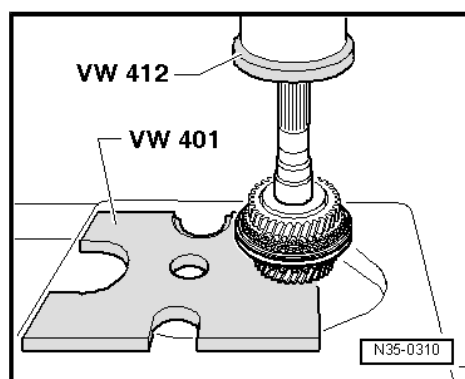
- Slide locking collar for 1st and 2nd gear onto 2nd gear.
- Slide in thrust plate - T10084 A- from the side until it contacts input shaft.

Continued for all vehicles:



Pressing off roller bearing inner race

- Remove circlip.
- Press off roller bearing inner race together with: thrust washer, 4th speed selector gear with needle bearing, locking collar and synchro-hub for 3rd and 4th gear and 3rd speed selector gear.

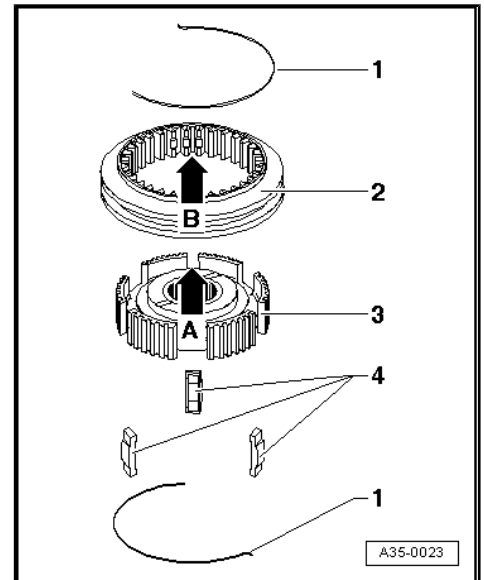


Dismantling and assembling locking collar and synchro-hub for 3rd and 4th gears

- 1 - Spring
- 2 - Locking collar
- 3 - Synchro-hub
- 4 - Locking piece

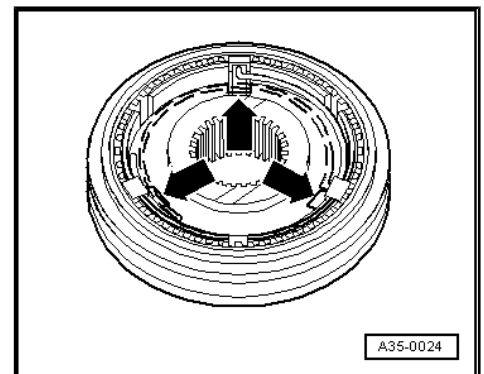
– Slide locking collar over synchro-hub.

The deeper recesses -arrow A- for the locking pieces in the synchro-hub must align with the recesses -arrow B- in the locking collar.



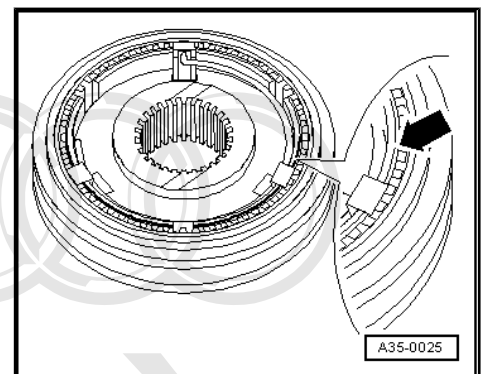
Assembling locking collar with synchro-hub for 3rd and 4th gears

- Locking collar is pushed over synchro-hub.
- Insert locking pieces in the deeper slots -arrows- and install springs off-set by 120°. Angled end of spring must locate in hollow locking piece.



Installation position of 3rd and 4th gear locking collar and synchro-hub

The groove on the top -arrow- points towards 4th gear.

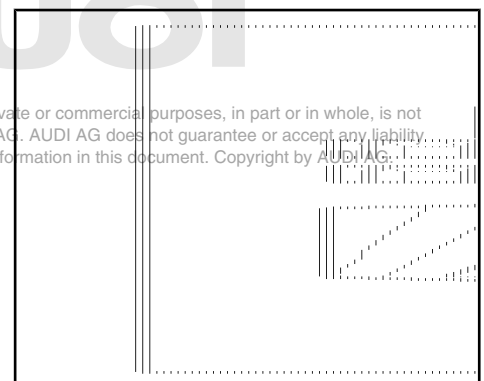


Checking synchro-ring for wear

- Press synchro-ring onto cone on selector gear and measure gap -a- with a feeler gauge.

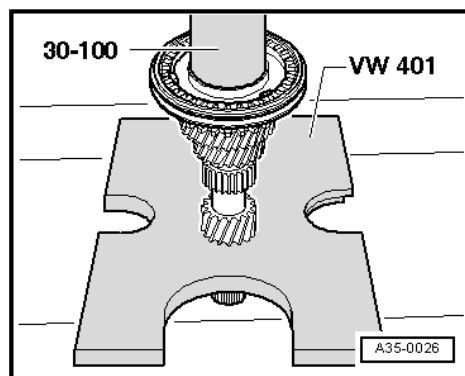
Gap -a-	Installation depth	Wear limit
3rd, 4th, 5th and 6th gear	1.1 ... 1.7 mm	0.5 mm

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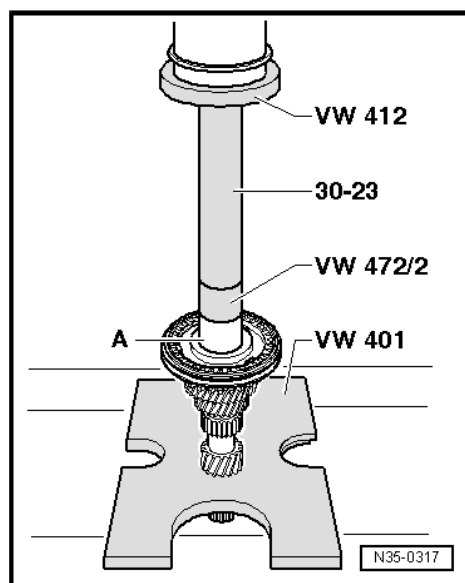
Pressing on 3rd and 4th gear synchro-hub with locking collar

Installation position: Wide shoulder faces 3rd speed selector gear.

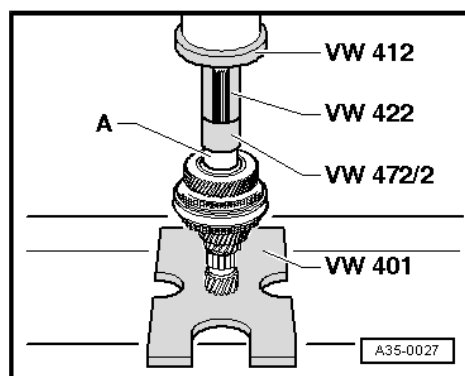


Pressing on sleeve -A- for 4th gear needle bearing

- After pressing on sleeve -A-, install 4th gear needle bearing with 4th speed selector gear and thrust washer.



Pressing on roller bearing inner race -A-



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Determining thickness of circlip

- Insert a 2.0 mm thick circlip -A- in groove on input shaft and press upwards -arrow-.
- Measure gap between inner race -B- and fitted circlip -A- using feeler gauge -C-.
- Remove circlip fitted for measurement.
- Select circlip from table.

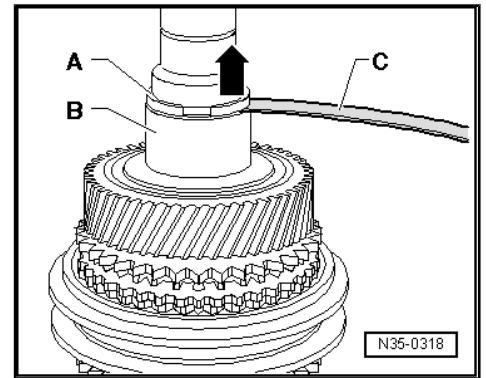


Note

Select correct circlips from ⇒ *Electronic parts catalogue* .

The following circlips are available:

Measured value (mm)	Circlip thickness (mm)	Axial clearance (mm)
0.05 ... 0.10	2.0	0.05 ... 0.15
0.15 ... 0.20	2.1	0.05 ... 0.15
0.25 ... 0.30	2.2	0.05 ... 0.15
0.35 ... 0.40	2.3	0.05 ... 0.15
0.45 ... 0.50	2.4	0.05 ... 0.15



Pressing on bearing mounting with grooved ball bearing

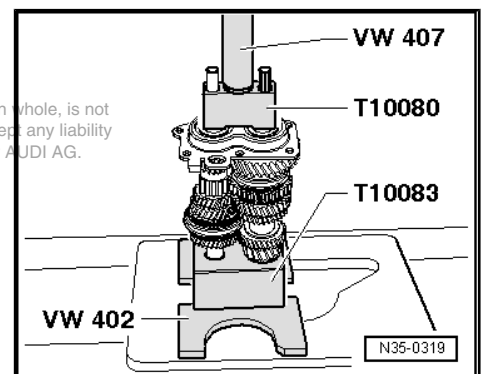
- Heat bearing mounting to 100°C (maximum) before pressing on.



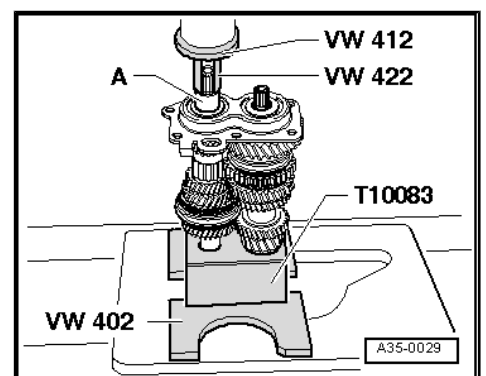
WARNING

Wear protective gloves.

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Pressing on sleeve -A- for 5th gear needle bearing



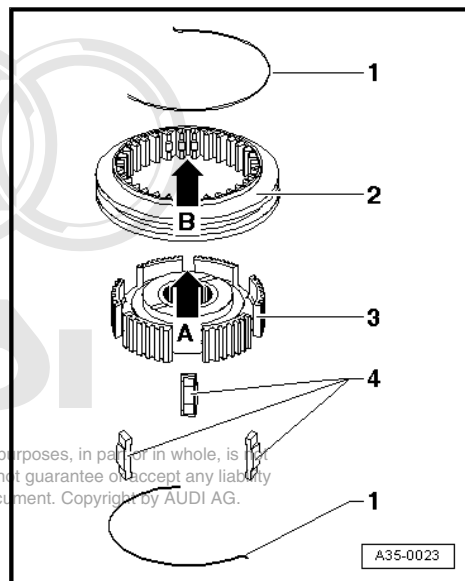
Dismantling and assembling 5th/6th gear locking collar and synchro-hub

- 1 - Spring
- 2 - Locking collar
- 3 - Synchro-hub
- 4 - Locking piece

– Slide locking collar over synchro-hub.

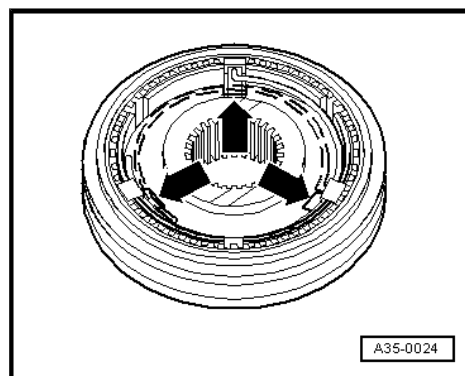
The deeper recesses -arrow A- for the locking pieces in the synchro-hub must align with the recesses -arrow B- in the locking collar.

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Assembling 5th/6th gear locking collar/synchro-hub

- Locking collar is pushed over synchro-hub.
- Insert locking pieces in the deeper recesses -arrows- and install springs 120° off-set.
- Angled end of spring must locate in hollow locking piece.



2 Exploded view - output shaft



Note

- ◆ *Dismantling and assembling output shaft ⇒ [page 153](#)*
- ◆ *When fitting new gear wheels or final drive gear set refer to technical data ⇒ [page 1](#) and ⇒ *Electronic parts catalogue* .*
- ◆ *Lubricate all bearings, selector gears and synchro-rings on output shaft with gear oil before installing.*
- ◆ *Do not interchange synchro-rings. When re-using synchro-rings, always fit on the same selector gear.*

1 - Clutch housing

- ☐ Servicing ⇒ [page 123](#)

2 - Roller bearing

- ☐ With circlip
- ☐ Pulling out ⇒ [page 154](#)
- ☐ Pressing in ⇒ [page 154](#)
- ☐ Installation position: the circlip in the bearing faces the output shaft

3 - Output shaft

- ☐ If an inner race is installed as a bearing seat for the roller bearing ⇒ [Item 2 \(page 151\)](#) , it is not possible to detach it from the output shaft
- ☐ Check bearing seat / bearing inner race for scoring or other damage
- ☐ If you detect scoring or other damage to the bearing seat / inner race, renew both output shaft and roller bearing

4 - 4th gear wheel

- ☐ Installation position: Collar faces 3rd gear ⇒ [page 155](#)

5 - Circlip

6 - Circlip

7 - 3rd gear wheel

- ☐ Installation position: Collar faces 4th gear ⇒ [page 155](#)

8 - Circlip

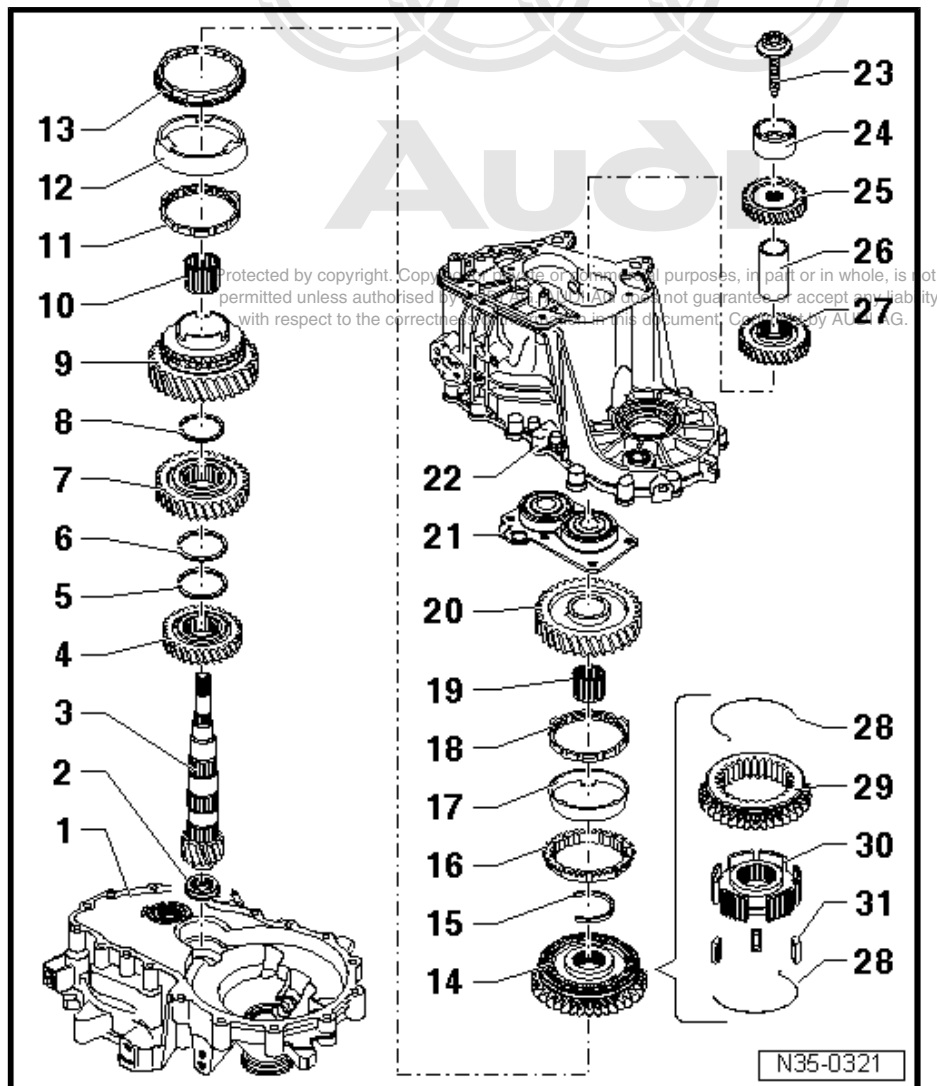
9 - 2nd speed selector gear

10 - Needle bearing

- ☐ For 2nd gear

11 - Inner bearing race for 2nd gear

- ☐ Checking for wear ⇒ [page 155](#)
- ☐ Installation position ⇒ [page 156](#)



12 - Outer ring for 2nd gear

- ☐ Fit on inner ring ⇒ [Item 11 \(page 151\)](#)
- ☐ Renew if scored or if there are visible traces of wear
- ☐ Installation position ⇒ [page 156](#)

13 - 2nd gear synchro-ring

- ☐ Checking for wear ⇒ [page 156](#)
- ☐ Installation position ⇒ [page 156](#)

14 - Locking collar with synchro-hub for 1st and 2nd gear

- ☐ Press off together with 2nd speed selector gear after removing circlip ⇒ [Item 15 \(page 152\)](#) ⇒ [page 155](#)
- ☐ Dismantling ⇒ [page 156](#)
- ☐ Assembling locking collar/synchro-hub ⇒ [page 156](#) and ⇒ [page 157](#)
- ☐ Installation position ⇒ [page 156](#)
- ☐ Pressing on ⇒ [page 157](#)

15 - Circlip

- ☐ Pressing out ⇒ [page 155](#)
- ☐ Fitting ⇒ [page 157](#)

16 - 1st gear synchro-ring

- ☐ Checking for wear ⇒ [page 156](#)
- ☐ Assemble so that the recesses engage on the locking pieces on the locking collar ⇒ [Item 14 \(page 152\)](#)

17 - Outer ring for 1st gear

- ☐ Insert in synchro-ring ⇒ [Item 16 \(page 152\)](#)
- ☐ Installation position ⇒ [page 157](#)
- ☐ Renew if scored or if there are visible traces of wear

18 - Inner ring for 1st gear

- ☐ Checking for wear ⇒ [page 155](#)
- ☐ Check lugs for scoring
- ☐ Installation position ⇒ [page 158](#)

19 - Needle bearing

- ☐ For 1st gear

20 - 1st speed selector gear

- ☐ Installation position ⇒ [page 158](#)

21 - Bearing mounting with grooved ball bearings

- ☐ Only renew grooved ball bearings together with bearing mounting.
- ☐ If bearing mounting is separated from gearbox housing, it must always be renewed
- ☐ Pressing off without 5th gear wheel ⇒ [page 146](#)
- ☐ Pressing off with 5th gear wheel ⇒ [page 146](#)
- ☐ Pressing on ⇒ [page 149](#)

22 - Gearbox housing

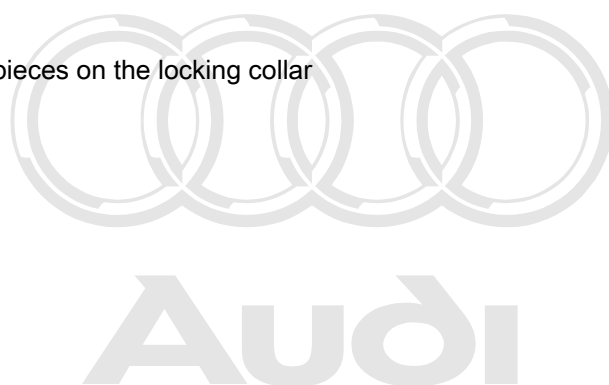
- ☐ Servicing ⇒ [page 123](#)

23 - Bolt

- ☐ Removing and installing ⇒ [page 102](#)

24 - Roller bearing inner race

- ☐ Mark before removing
- ☐ Do not interchange with roller bearing inner race for input shaft
- ☐ Can be renewed individually
- ☐ Removing and installing ⇒ [page 106](#)



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25 - 6th gear wheel

- ☐ Installation position: Collar points towards the sleeve.
- ☐ Removing and installing ⇒ [page 106](#)

26 - Sleeve

- ☐ Removing and installing ⇒ [page 106](#)

27 - 5th gear wheel

- ☐ Installation position ⇒ [page 119](#)
- ☐ Pressing off ⇒ [page 146](#)
- ☐ Pressing on ⇒ [page 119](#)

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28 - Spring

- ☐ Installation position ⇒ [page 157](#)

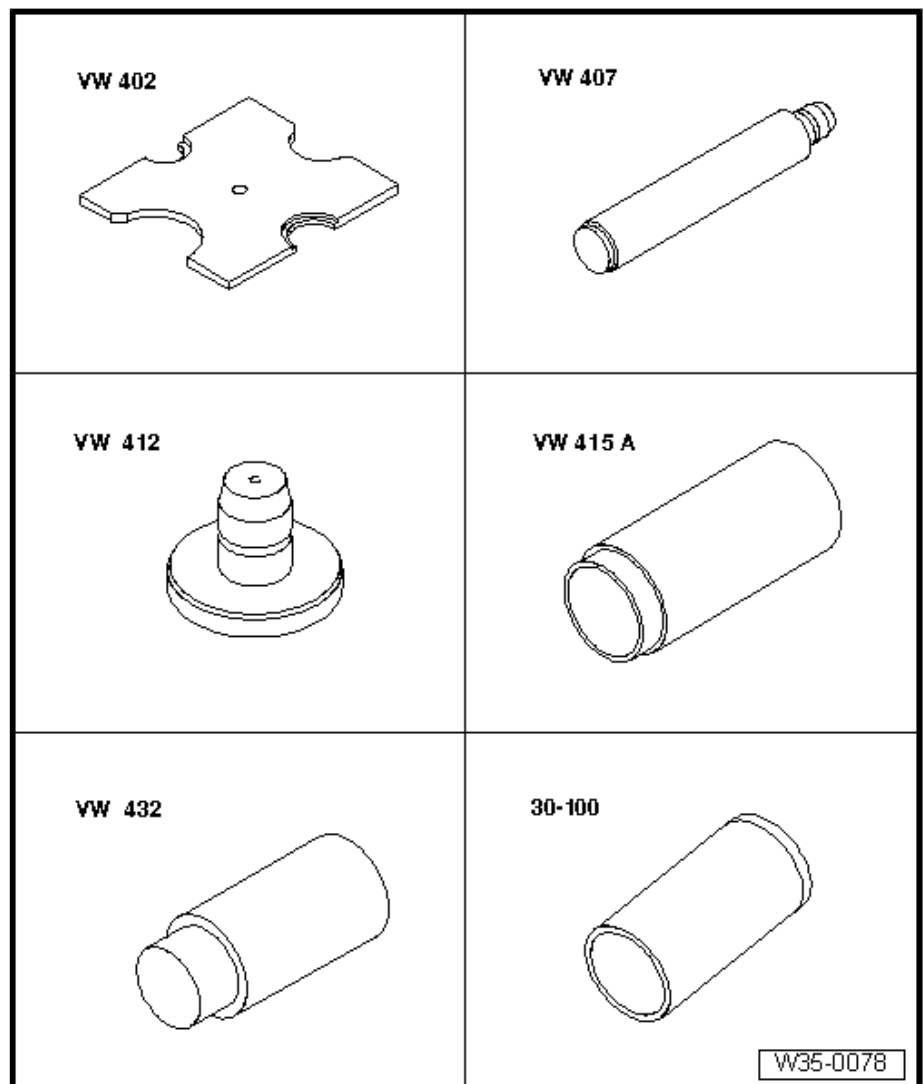
29 - Locking collar

30 - Synchro-hub

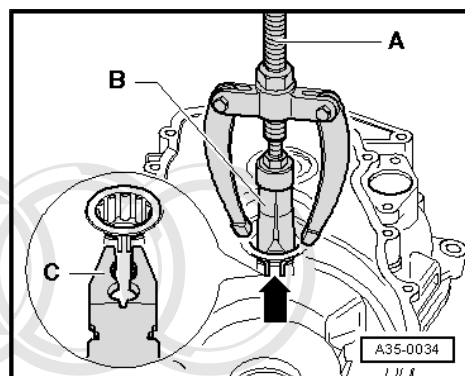
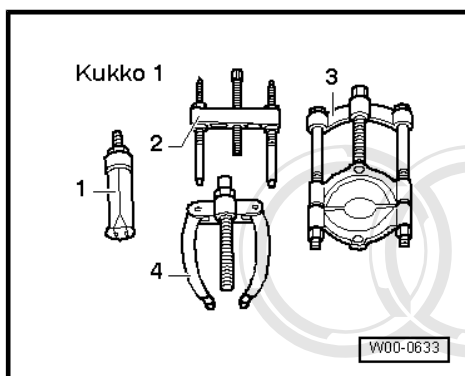
31 - Locking pieces (3x)

2.1 Dismantling and assembling output shaft

Special tools and workshop equipment required



- ◆ Thrust plate - VW 402-
- ◆ Press tool - VW 407-
- ◆ Tube - VW 415 A-
- ◆ Thrust piece - VW 432-
- ◆ Drift sleeve - 30-100-
- ◆ -1- Internal puller -
Kukko 21/5-



- ◆ -4- Counter-support -
Kukko 22/1-

Pulling roller bearing out of clutch housing

- When pulling out,
compress circlip
-arrow- for roller bear-
ing using pliers -C-.

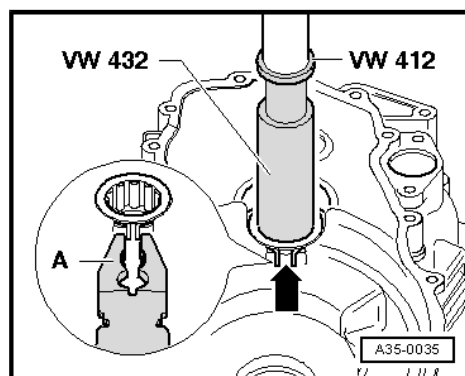
A - Counter-support ,
e.g. -Kukko 22/1-

B - Internal puller 30 ...
37 mm , e.g. -Kukko
21/5-

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Pressing roller bearing into clutch housing

- Support clutch housing using tube - VW 415 A- (not visible in diagram) directly under bearing mounting.
- When pressing in, compress circlip -arrow- for roller bearing using pliers -A-.
- Remove the pliers before the roller bearing is in its final position. The circlip must engage in the groove in the clutch housing.



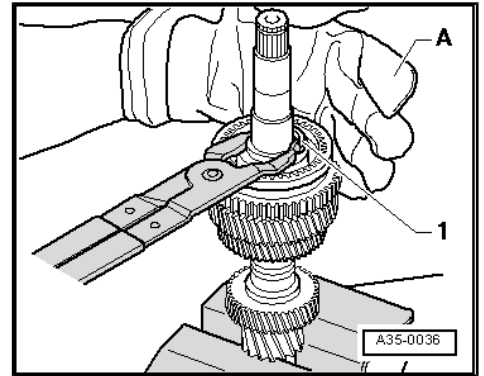
Removing circlip -1- from groove

A - Protective glove



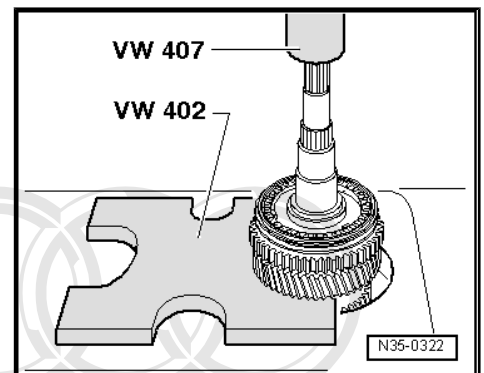
WARNING

Prevent circlip from springing off suddenly.



Pressing off 1st and 2nd gear locking collar/synchro-hub

- After removing the circlip, press off 2nd speed selector gear and locking collar/synchro-hub together.



Installation position of 3rd and 4th gear wheel

- Fit 4th gear wheel -A- onto output shaft.

Installation position:

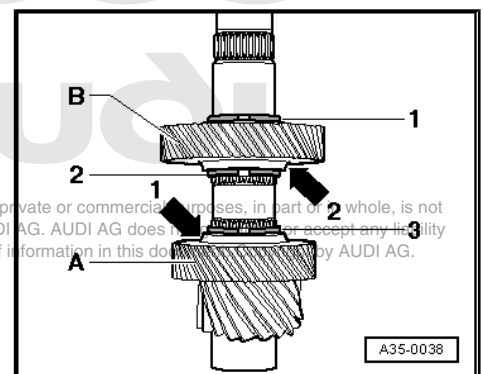
Collar -arrow 1- faces 3rd gear wheel -B-.

- Fit circlips -2- and -3-.
- Fit 3rd gear wheel -B- onto output shaft.

Installation position:

Collar -arrow 2- faces 4th gear wheel -A-.

- Fit circlip -1-.

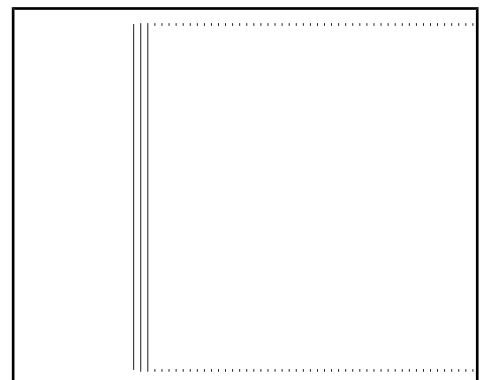


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Checking 1st and 2nd gear inner ring for wear

- Press inner ring onto cone on selector gear and measure gap "a" using a feeler gauge.

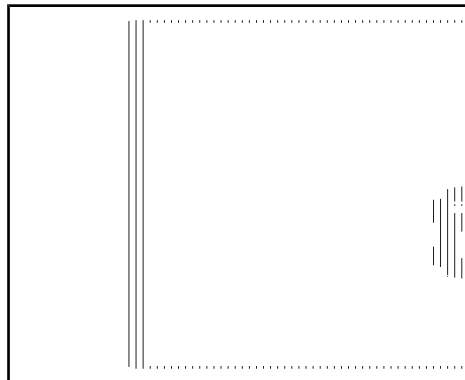
Gap "a"	Installation depth	Wear limit
1st and 2nd gear	0.75 ... 1.25 mm	0.3 mm



Checking 1st and 2nd gear synchro-ring for wear

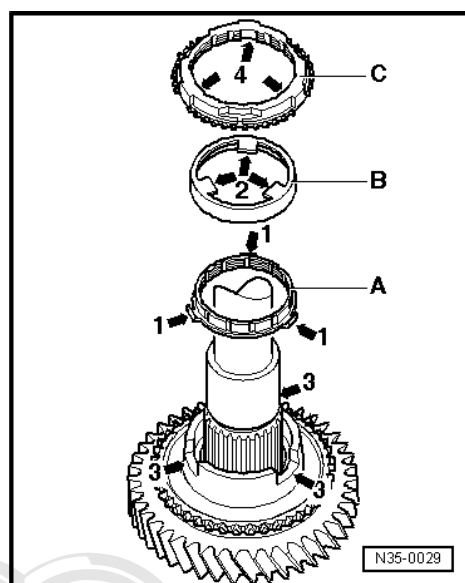
- Press synchro-ring, outer ring and inner ring onto cone on selector gear and measure gap “a” using a feeler gauge.

Gap “a”	Installation depth	Wear limit
1st and 2nd gear	1.2 ... 1.8 mm	0.5 mm



Installation position of outer ring, inner ring and synchro-ring of 2nd gear

- Place inner ring -A- on 2nd speed selector gear.
- The angled tabs -arrow 1- point towards the outer ring -B-.
- Fit outer ring -B-.
- The tabs -arrow 2- lock in the recesses -arrow 3- of the selector gear.
- Fit synchro-ring -C-.
- The recesses -arrow 4- locate on the tabs -arrow 1- of the inner ring -A-.



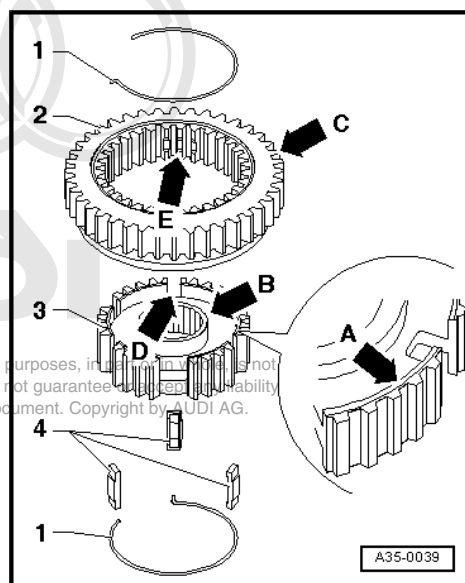
Dismantling and assembling 1st and 2nd gear locking collar and synchro-hub

- 1 - Spring
 - 2 - Locking collar
 - 3 - Synchro-hub
 - 4 - Locking piece
- Slide locking collar over synchro-hub.

Installation position:

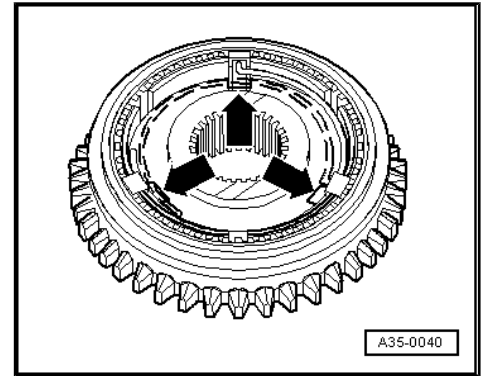
After assembly, the groove on the top -arrow A- and the higher shoulder -arrow B- on the synchro-hub will face towards the external splines on the locking collar -arrow C-.

The deeper recesses -arrow D- for the locking pieces in the synchro-hub must align with the recesses -arrow E- in the locking collar.



Assembling 1st and 2nd gear locking collar/synchro-hub

- Locking collar is pushed over synchro-hub.
- Insert locking pieces in deeper recesses -arrows- and install springs so they are offset 120°. Angled end of spring must locate in hollow locking piece.



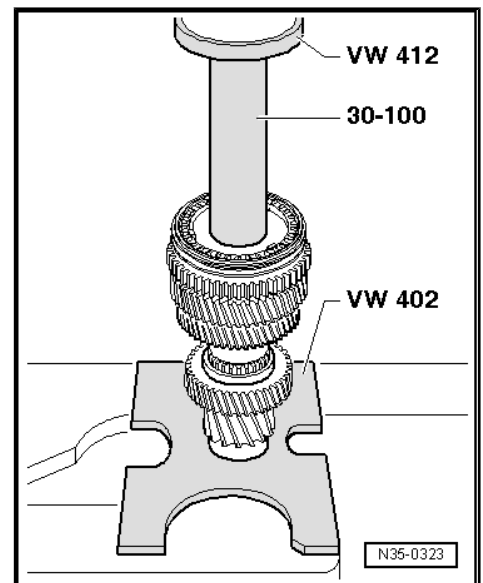
Pressing on 1st and 2nd gear locking collar/synchro-hub

Installation position:

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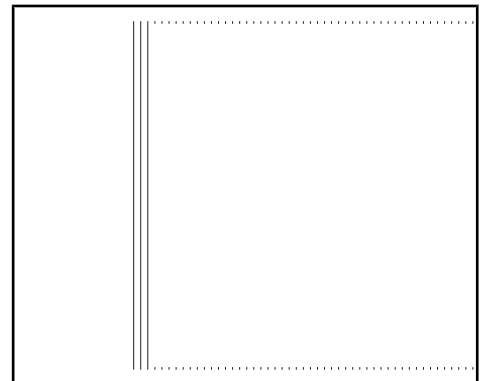
Groove for selector fork in locking collar points towards 1st gear, reverse gear splines point towards 2nd gear.

- Turn synchro-ring so that grooves align with locking pieces.



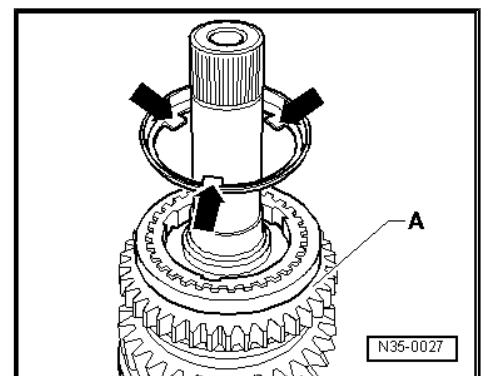
Inserting circlip

- Fit 1st gear synchro-ring in locking collar/synchro-hub.



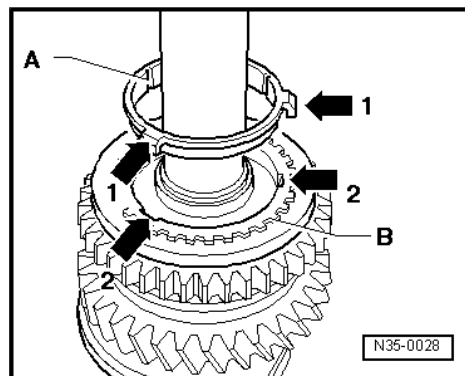
Installation position of outer ring for 1st gear

The lugs -arrows- face the gear teeth of the reverse gear.



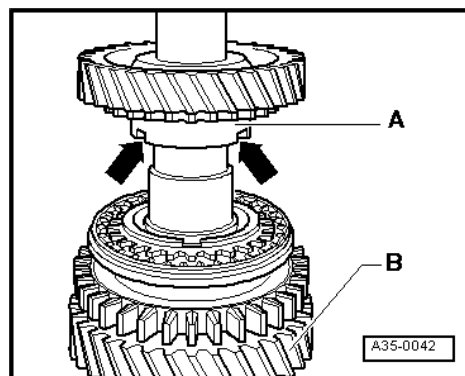
Installation position of 1st gear inner ring -A-

The lugs -arrow 1- locate in the recesses -arrow 2- in the synchro-ring -B-.



Installation position of 1st speed selector gear

The higher shoulder -A- faces towards 2nd gear -B-. The recesses in the shoulder -arrows- engage on the lugs on the outer ring
⇒ [page 157](#) .



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39 – Final drive - differential

1 Oil seals

⇒ ["1.1 Overview of fitting locations - oil seals", page 159](#)

⇒ ["1.2 Renewing flange shaft oil seal \(left-side\)", page 160](#)

⇒ ["1.3 Renewing flange shaft oil seal \(right-side\)", page 161](#)

1.1 Overview of fitting locations - oil seals

1 - Oil seal

- ☐ For input shaft
- ☐ Renewing ⇒ [page 127](#)

2 - Oil seal

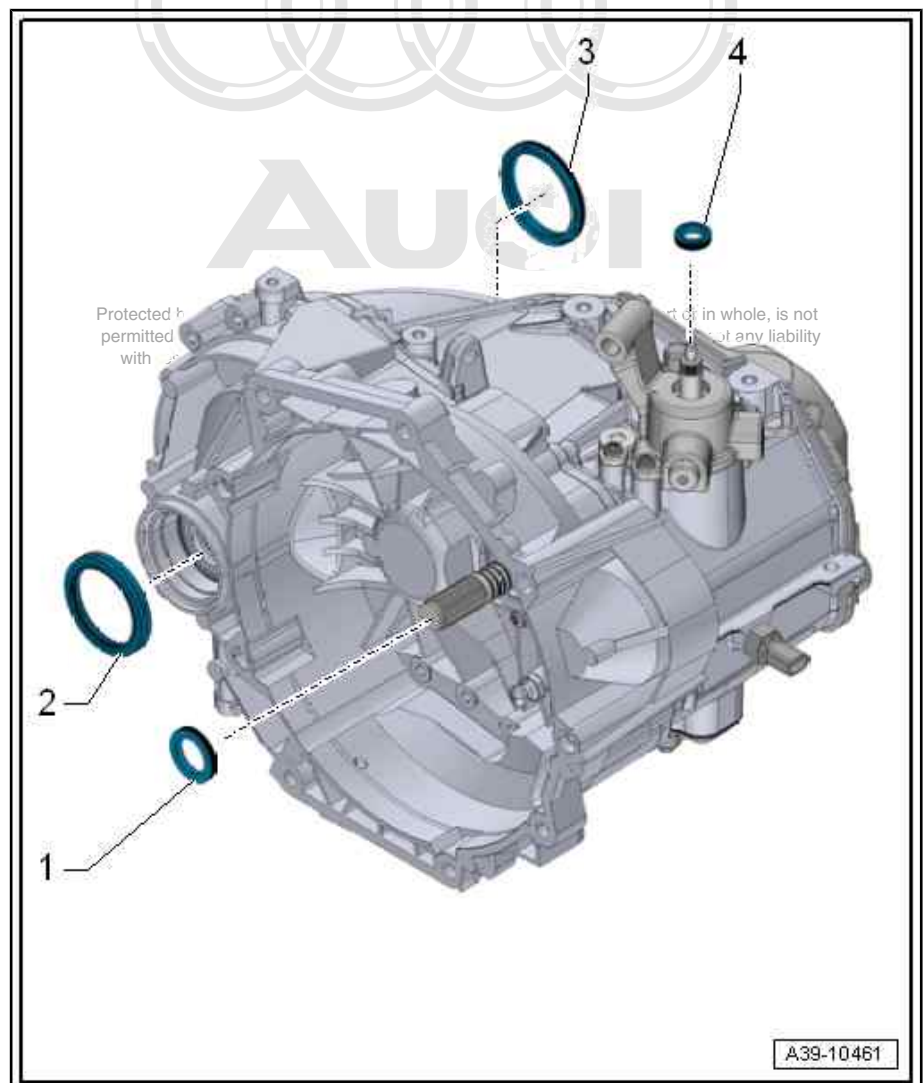
- ☐ For flange shaft (right-side)
- ☐ Renewing ⇒ [page 161](#)

3 - Oil seal

- ☐ For flange shaft (left-side)
- ☐ Renewing ⇒ [page 160](#)

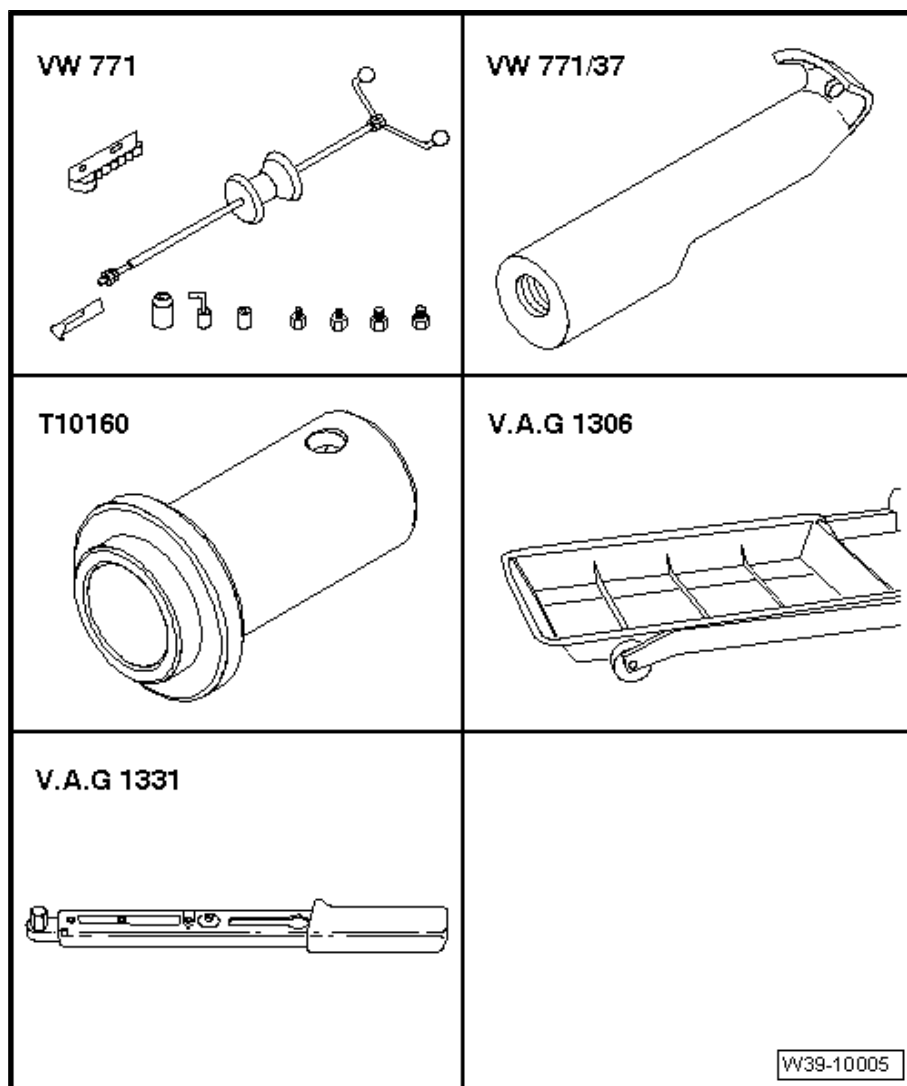
4 - Oil seal

- ☐ For selector shaft
- ☐ Renewing ⇒ [page 132](#)



1.2 Renewing flange shaft oil seal (left-side)

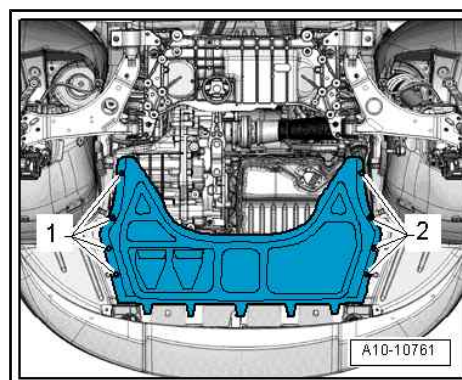
Special tools and workshop equipment required



- ◆ Multi-purpose tool - VW 771-
- ◆ Extractor tool - VW 771/37-
- ◆ Thrust piece - T10160-
- ◆ Torque wrench - V.A.G 1331-

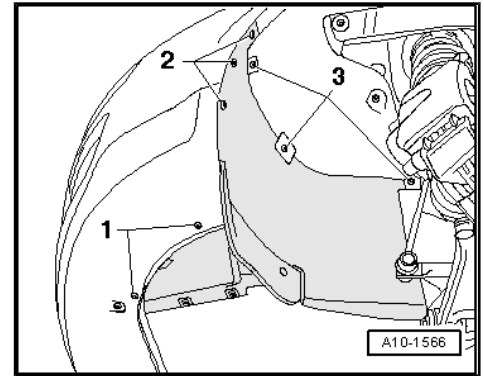
Removing

- Remove left wheel.
- Remove noise insulation (centre) by releasing fasteners -1 ... 3-.

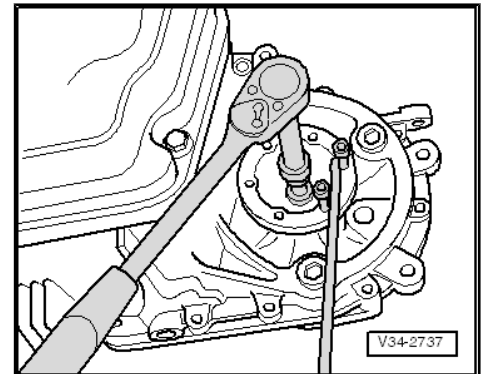


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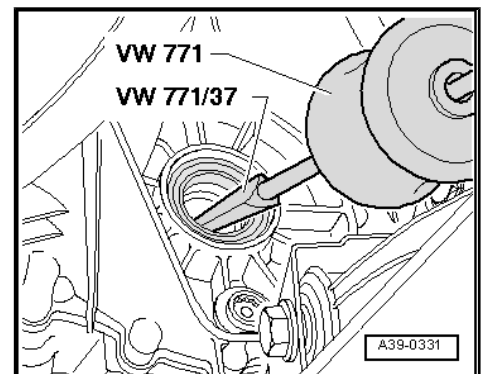
- Remove noise insulation (left-side) -fasteners 1 ... 3-.
- Turn steering to the left.
- Unbolt drive shaft from gearbox flange.
- Tie up drive shaft as high as possible. Do not damage paint on drive shaft.



- Place drip tray below gearbox.
- Remove flange shaft securing bolt. To do this, screw two bolts into flange and counterhold flange shaft with tyre iron or other suitable lever.
- Pull out flange shaft and spring.



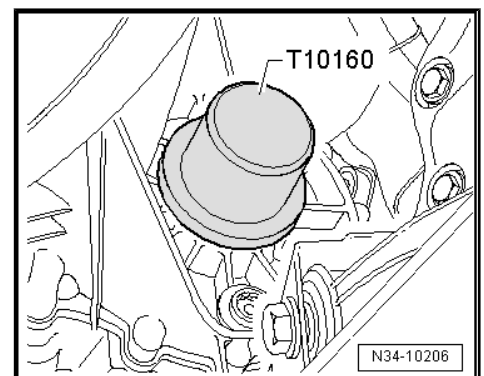
- Pull out flange shaft oil seal using multi-purpose tool - VW 771- and puller hook - VW 771/37- .



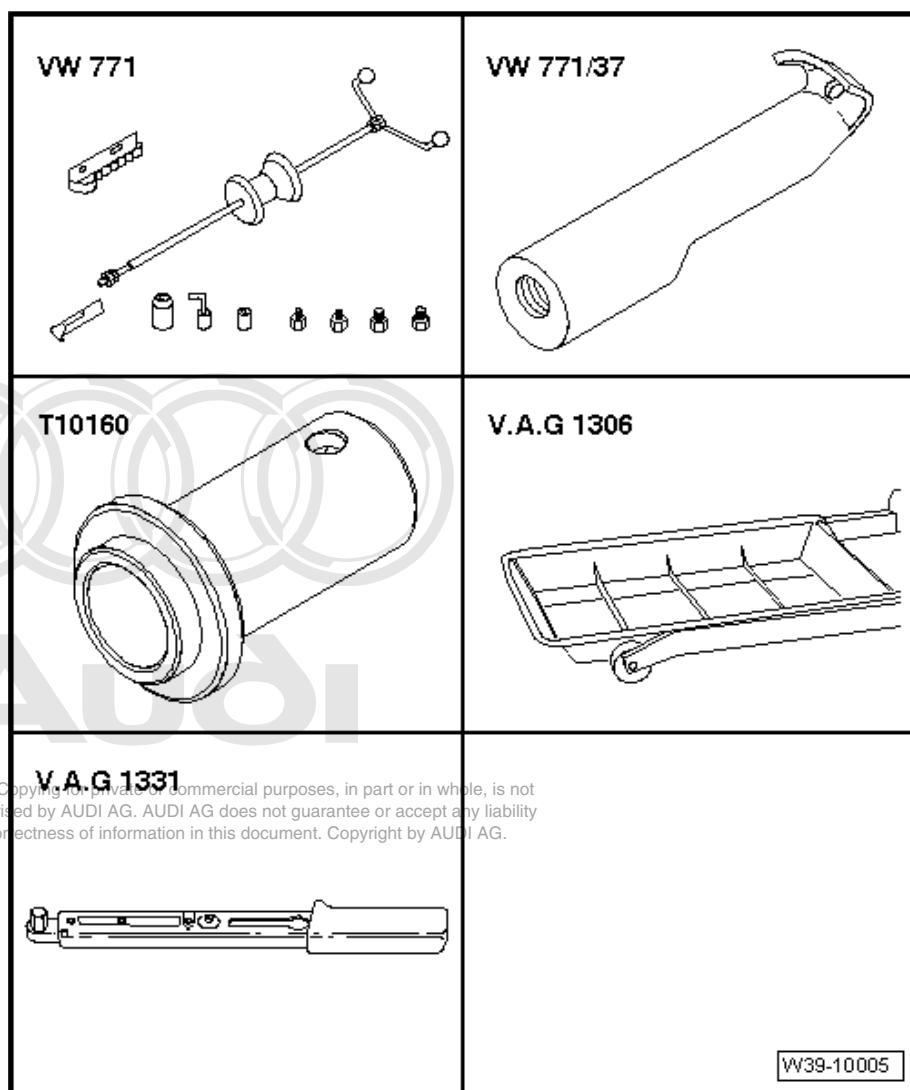
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Installing

- Lightly oil outer circumference of new oil seal.
- Drive in new seal onto stop (take care to keep seal straight).
- Pack space between sealing lip and dust lip half full with sealing grease - G 052 128 A1- .
- Install flange shaft.
- Secure flange shaft with countersunk bolt. Tightening torque ⇒ [Item 1 \(page 164\)](#)
- Bolt drive shaft to flange shaft ⇒ Rep. gr. 40. .
- Check gearbox oil level. If necessary, top up to bottom lip of filler hole ⇒ [page 98](#) .
- Install noise insulation.
- Install wheel and tighten wheel bolts ⇒ Rep. gr. 44 .



1.3 Renewing flange shaft oil seal (right-side)



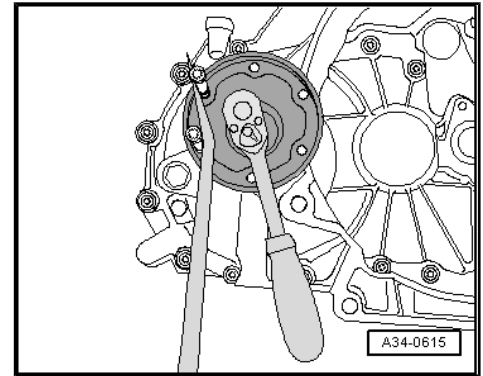
Special tools and workshop equipment required

- ◆ Multi-purpose tool - VW 771-
- ◆ Extractor tool - VW 771/37-
- ◆ Drift sleeve - 3158-
- ◆ Torque wrench - V.A.G 1331-

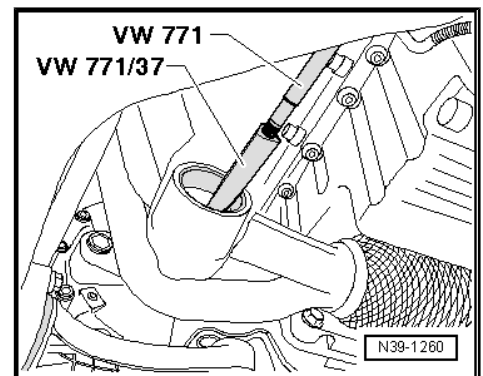
Removing

- Unbolt drive shaft from flange shaft ⇒ Rep. gr. 40. .
- Tie up drive shaft as high as possible. Do not damage paint on drive shaft.
- Place drip tray below gearbox.

- Remove right flange shaft securing bolt; to do so, screw two bolts into flange and counterhold flange shaft with tyre iron or other suitable lever.
- Pull out flange shaft and spring.

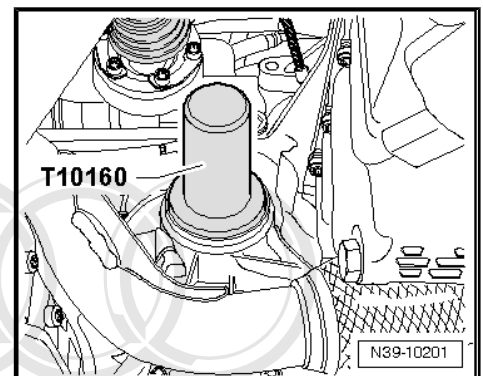


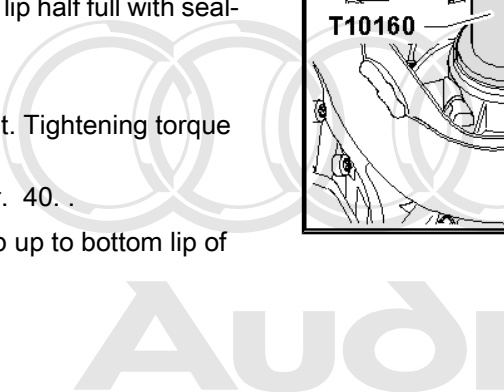
- Pull out flange shaft oil seal using multi-purpose tool - VW 771- and puller hook - VW 771/37- .



Installing

- Lightly oil outer circumference of new oil seal.
- Drive in new seal onto stop (take care to keep seal straight).
- Pack space between sealing lip and dust lip half full with sealing grease - G 052 128 A1- .
- Install flange shaft.
- Secure flange shaft with countersunk bolt. Tightening torque
⇒ [Item 1 \(page 164\)](#)
- Bolt drive shaft to flange shaft ⇒ Rep. gr. 40. .
- Check gearbox oil level. If necessary, top up to bottom lip of filler hole ⇒ [page 98](#) .





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2 Exploded view - differential

⇒ "2.1 Dismantling and assembling differential", page 166

⇒ "2.2 Adjusting differential", page 171



Note

- ◆ Heat tapered roller bearing inner race to 100° C before installing.
- ◆ Always renew both tapered roller bearings together.
- ◆ Adjust differential if tapered roller bearings, differential cage, gearbox housing or clutch housing are renewed
⇒ [page 171](#).

1 - Countersunk bolt

- 25 Nm
- Screws into threaded piece
⇒ [Item 8 \(page 164\)](#)

2 - Flange shaft (right-side)

3 - Spring for flange shaft

- Installed behind flange shafts

4 - Thrust washer

- Installation position: lip faces spring

5 - Tapered ring

- Installation position: Taper towards differential cage

6 - Circlip

- Holds tapered ring, thrust washer and spring in position when flange shaft is removed

7 - Sun wheel

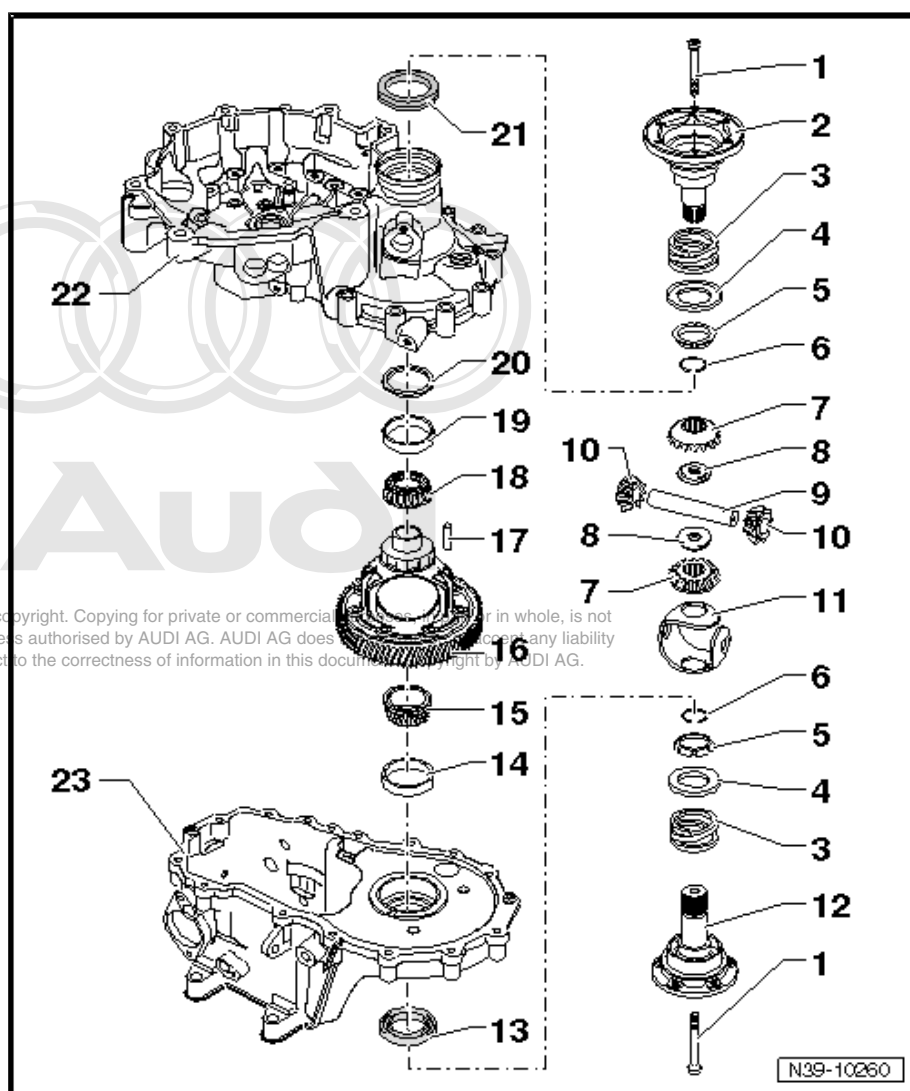
- Installing ⇒ [page 171](#)

8 - Threaded piece

- Installing ⇒ [page 171](#)

9 - Differential pinion pin

- To remove, shear off spring pin
⇒ [Item 17 \(page 165\)](#)



⇒ [page 170](#)

- ☐ Installing ⇒ [page 171](#)

10 - Planet pinion

- ☐ Installing ⇒ [page 171](#)

11 - One-piece thrust washer

- ☐ Lubricate with gear oil before installing

12 - Flange shaft (left-side)

13 - Flange shaft oil seal (left-side)

- ☐ Renewing with manual gearbox installed ⇒ [page 160](#)

14 - Tapered roller bearing outer race

- ☐ Pulling out ⇒ [page 168](#)
- ☐ Pressing in ⇒ [page 169](#)

15 - Tapered roller bearing inner race

- ☐ Pulling off ⇒ [page 169](#)
- ☐ Pressing on ⇒ [page 169](#)

16 - Differential cage

- ☐ With final drive gear

17 - Spring pin

- ☐ Secures differential pinion pin
- ☐ Is sheared off on removal ⇒ [page 170](#)

18 - Tapered roller bearing inner race

- ☐ Pulling off ⇒ [page 169](#)
- ☐ Pressing on ⇒ [page 169](#)

19 - Tapered roller bearing outer race

- ☐ Pressing out ⇒ [page 169](#)
- ☐ Pressing in ⇒ [page 170](#)

20 - Shim

- ☐ For differential
- ☐ Determining thickness ⇒ [page 171](#)

21 - Flange shaft oil seal (right-side)

- ☐ Renewing with manual gearbox installed ⇒ [page 161](#)

22 - Clutch housing

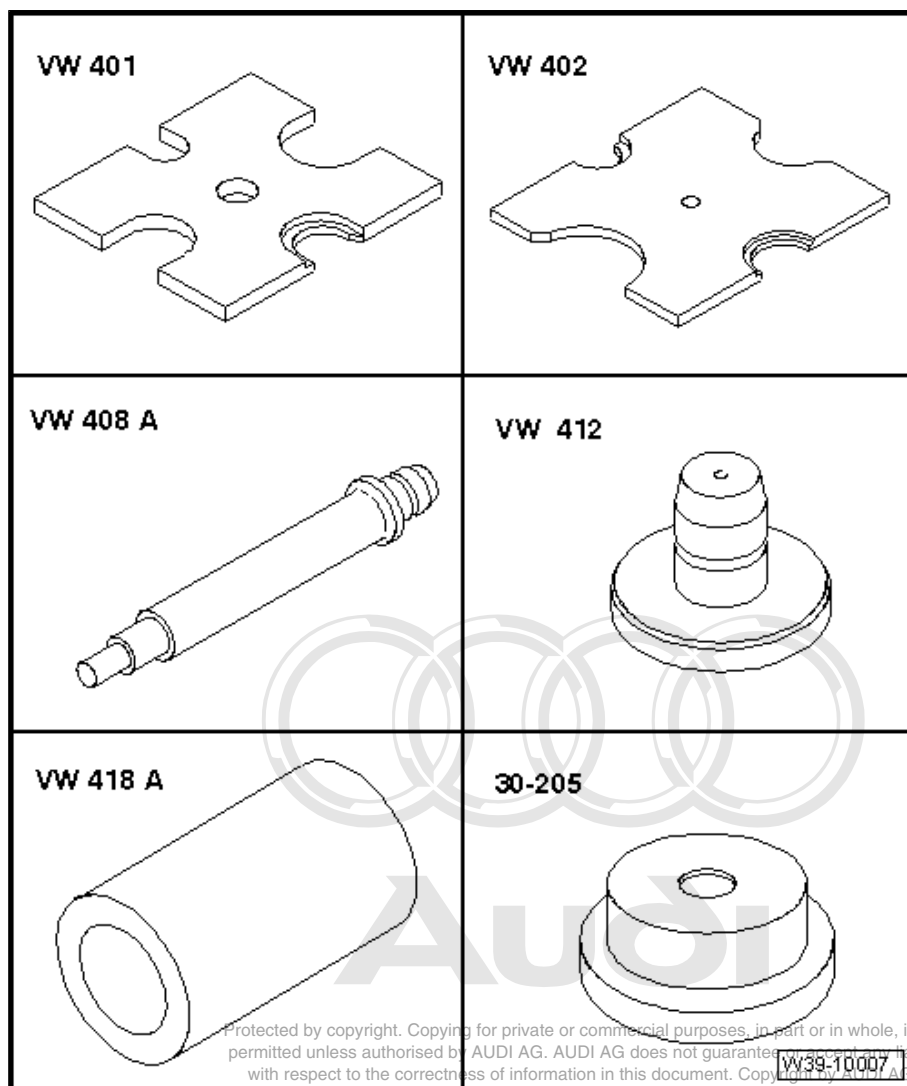
- ☐ Servicing ⇒ [page 123](#)

23 - Gearbox housing

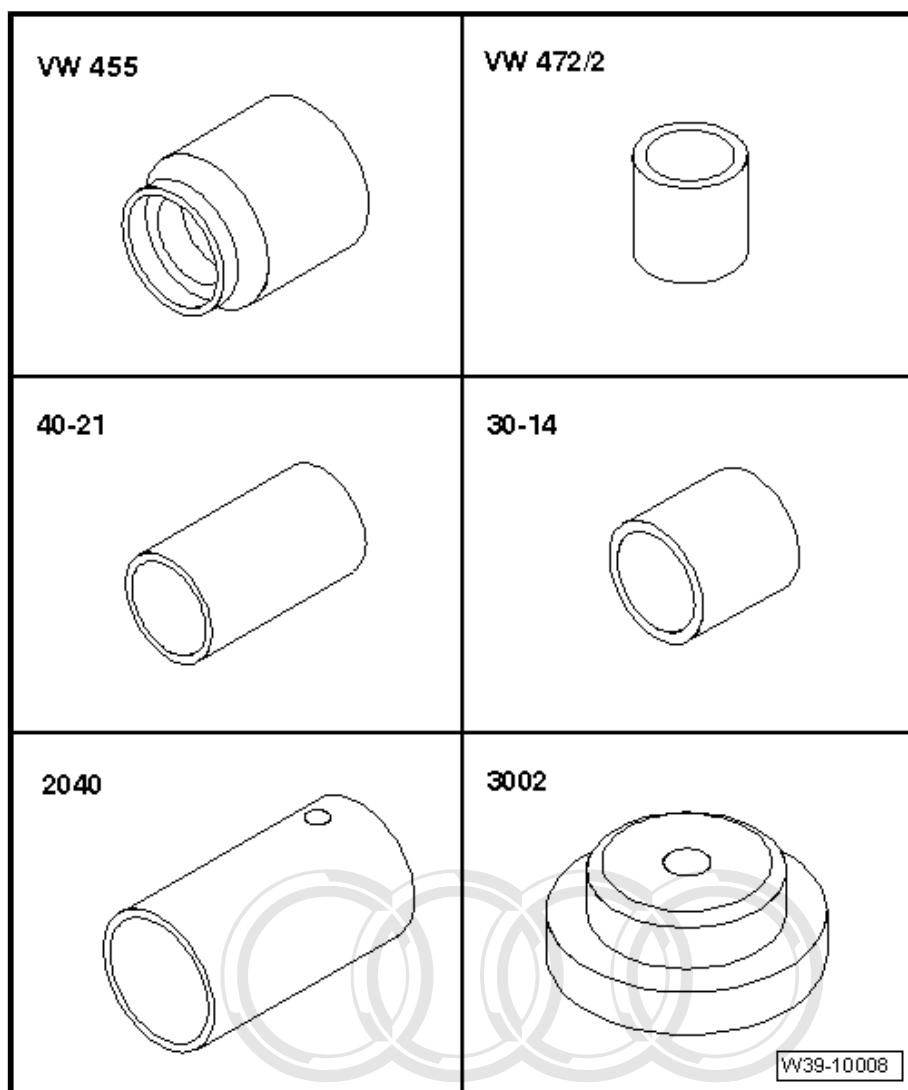
- ☐ Servicing ⇒ [page 123](#)

2.1 Dismantling and assembling differential

Special tools and workshop equipment required



- ◆ Thrust plate - VW 401-
- ◆ Thrust plate - VW 402-
- ◆ Press tool - VW 408 A-
- ◆ Press tool - VW 412-
- ◆ Tube - VW 418 A-
- ◆ Thrust plate - 30 - 205-

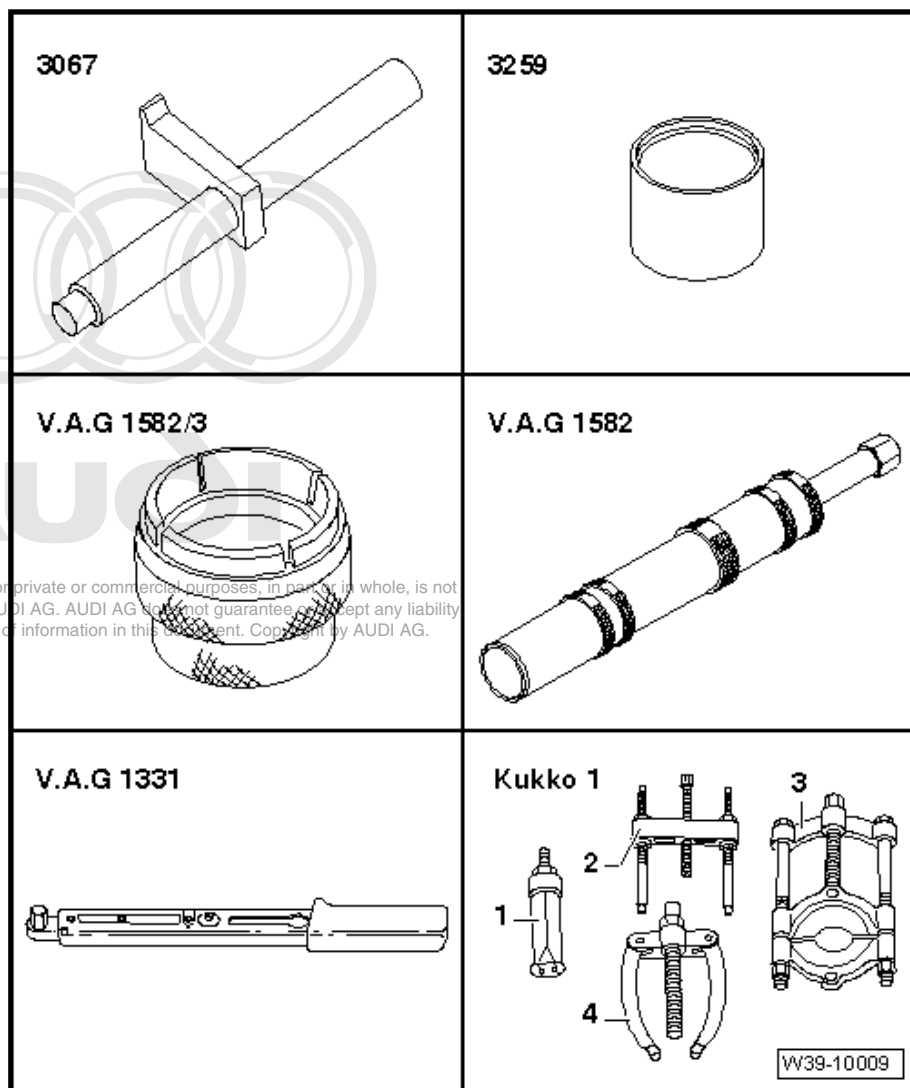


- ◆ Installing sleeve - VW 455-
- ◆ Spacer sleeve - VW 472/2-
- ◆ Drift sleeve - 40 - 21-
- ◆ Tube - 30 - 14-
- ◆ Tube - 2040-
- ◆ Thrust piece - 3002-

Audi

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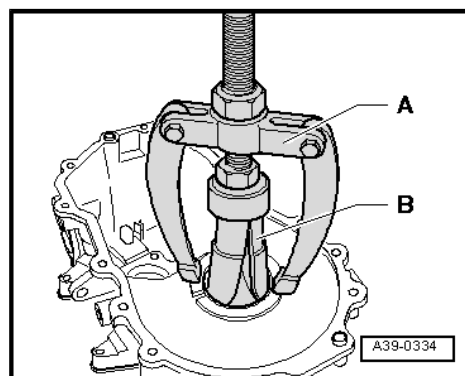


- ◆ Counterhold tool - 3067-
- ◆ Tube - 3259-
- ◆ Adapter - V.A.G 1582/3-
- ◆ Tapered roller bearing puller - V.A.G 1582-
- ◆ Internal puller - 1 - Kukko 21/7-
- ◆ Counter-support - 4 - Kukko 22/2-

Pulling tapered roller bearing outer race out of gearbox housing

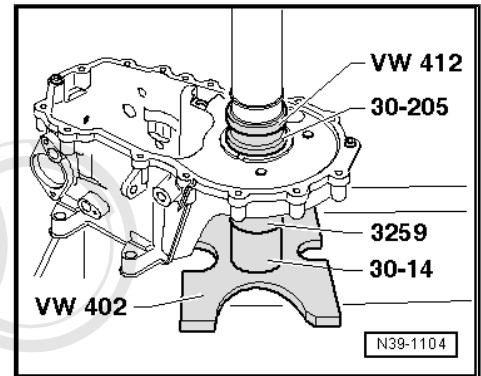
A - Counter-support , e.g. -Kukko 22/2-

B - Internal puller 46 ... 58 mm , e.g. -Kukko 21/7-



Pressing tapered roller bearing outer race into gearbox housing

- Support gearbox housing with tube - 3259- directly below bearing mounting.

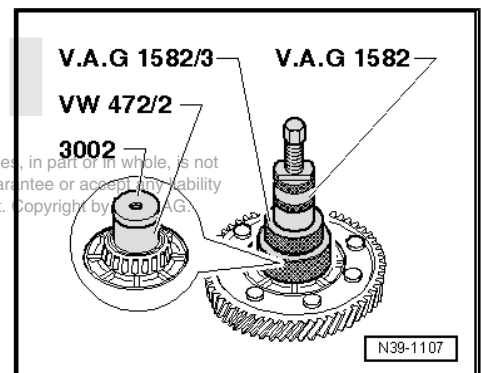


Pulling off tapered roller bearing inner race



Note

The removal procedure is the same for both tapered roller bearing inner races.



Pressing on tapered roller bearing inner race

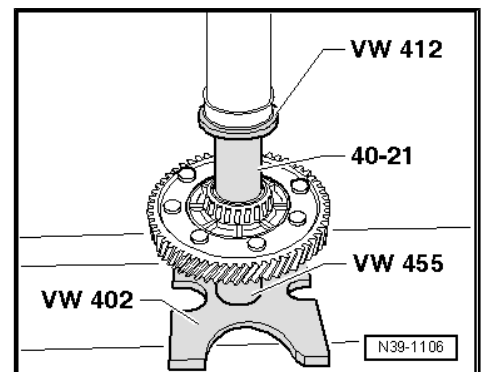
- Support opposite side of inner race using installing sleeve - VW 455- .

Shoulder of installing sleeve - VW 455- points to differential cage.



Note

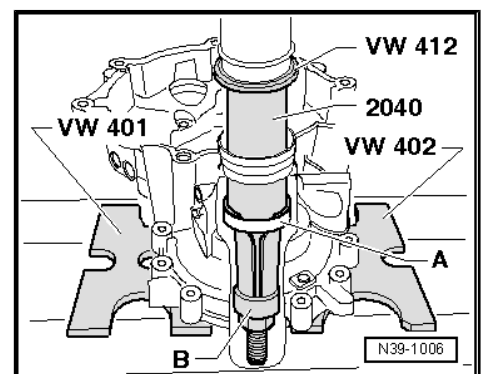
The installation procedure is the same for both tapered roller bearing inner races.



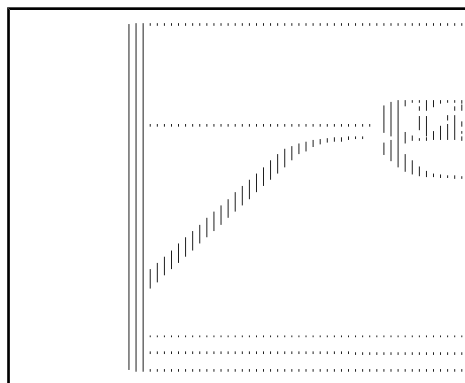
Pressing tapered roller bearing outer race -A- out of clutch housing

B - Internal puller 46 ... 58 mm , e.g. -Kukko 21/7-

- Clamp internal puller firmly under tapered roller bearing outer race.



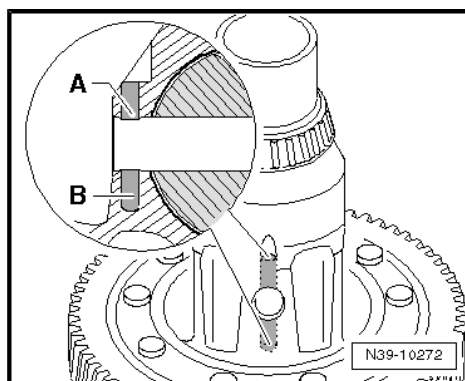
Pressing tapered roller bearing outer race into clutch housing



Allocation of differential cage to correct spring pin removal and installation procedure

- Check hole for spring pin in differential cage.

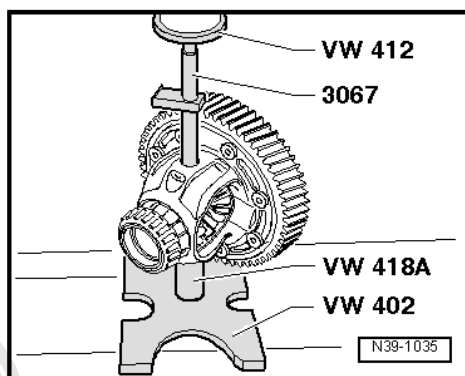
Hole	Length of spring pin (mm)	Spring pin	
-A-	24.0 (short spring pin)	Removing ⇒ page 170	Installing ⇒ page 171
-A- and -B-	36.0 (long spring pin)	Removing ⇒ page 170	Installing ⇒ page 171
Continuous	36.0 (long spring pin)	Removing ⇒ page 170	Installing ⇒ page 171



Pressing out differential pinion pin and shearing off spring pin

The spring pin is sheared off when it is pressed out.

- Drive the remaining part of the spring pin out of the differential cage.



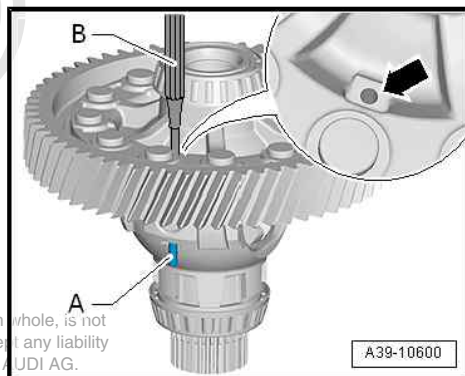
Removing long spring pin to remove differential pinion pin

- Drive spring pin -A- out of hole -arrow- in differential cage using a suitable punch -B- Ø 5 mm.



Note

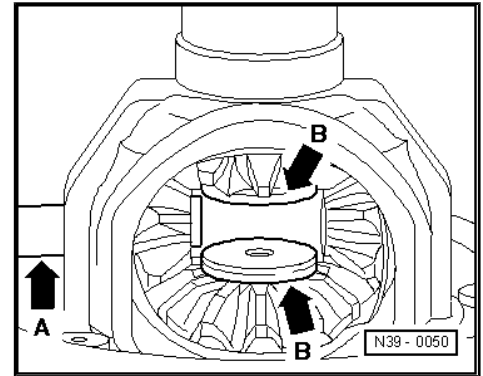
If there is no hole -arrow- in the differential cage, shear off the spring pin ⇒ [page 170](#).



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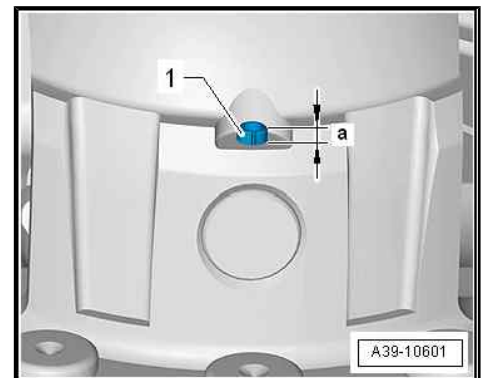
Installing differential bevel gears

- Lubricate one-piece thrust washer with gear oil and install.
- Install both sun wheels and secure (e.g. with flange shaft).
- Fit both planet pinions (180° apart) and pivot into position.
- Push differential pinion pin -arrow A- in as far as first planet pinion.
- Fit threaded pieces -arrows B- in sun wheels.
- Drive differential pinion pin into final position.



Installing spring pin for differential pinion pin

- Align hole in differential pinion pin with drilling in differential cage.
- Use a punch to drive in spring pin -1- to dimension -a- = 2.5 mm.
- Spring pin -1- must not make contact with clutch housing.

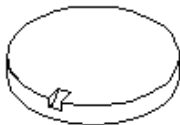
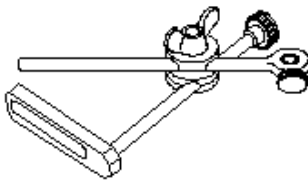
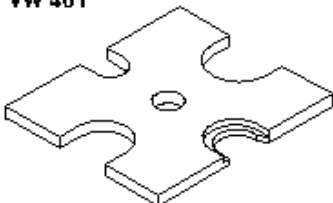
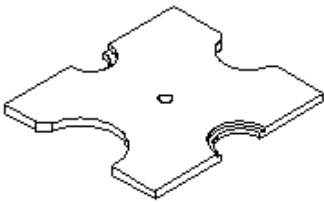
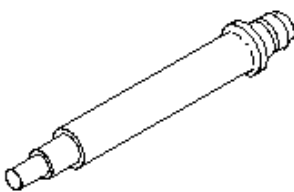
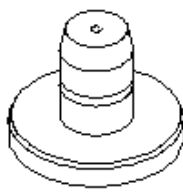


2.2 Adjusting differential



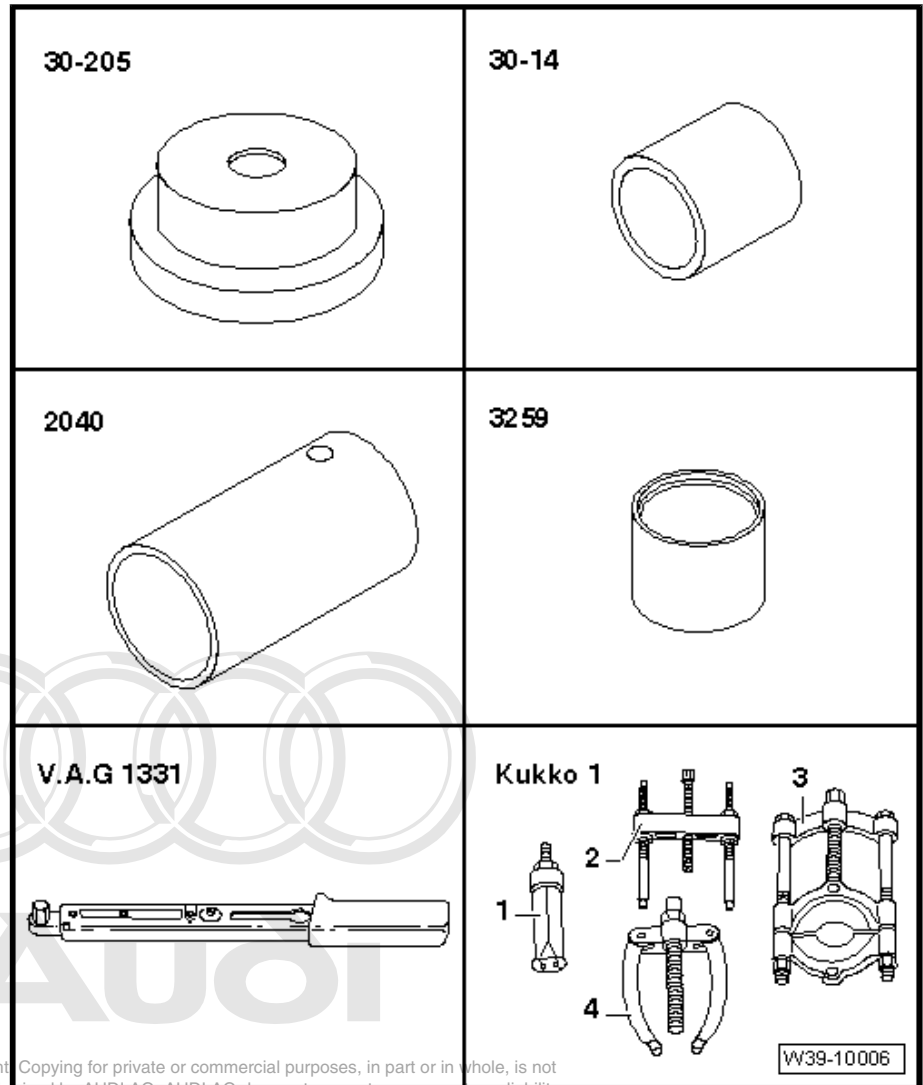
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Special tools and workshop equipment required

VW 385/17 	VW 387 
VW 401 	VW 402 
VW 408 A 	VW 412  G39-0093

- ◆ End measuring plate - VW 385/17-
- ◆ Universal dial gauge bracket - VW 387-
- ◆ Thrust plate - VW 402-
- ◆ Thrust plate - VW 401-
- ◆ Press tool - VW 408 A-
- ◆ Press tool - VW 412-

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- ◆ Thrust plate - 30 - 205-
- ◆ Tube - 30 - 14-
- ◆ Tube - 2040-
- ◆ Tube - 3259-
- ◆ Torque wrench - V.A.G 1331-
- ◆ -1- Internal puller - Kukko 21/7-
- ◆ Dial gauge

◆

The differential has to be readjusted when the following components are renewed:

- ◆ Gearbox housing
- ◆ Clutch housing
- ◆ Differential cage

or the

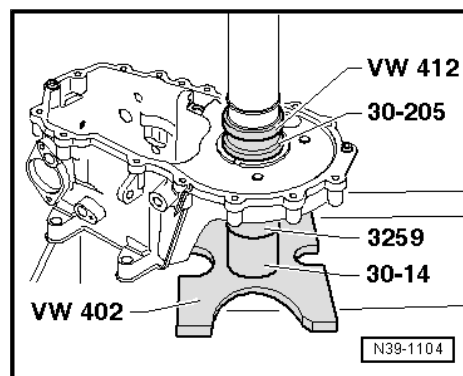
- ◆ Tapered roller bearings for differential

- Press tapered roller bearing outer race (on side adjacent to final drive gear) into gearbox housing.

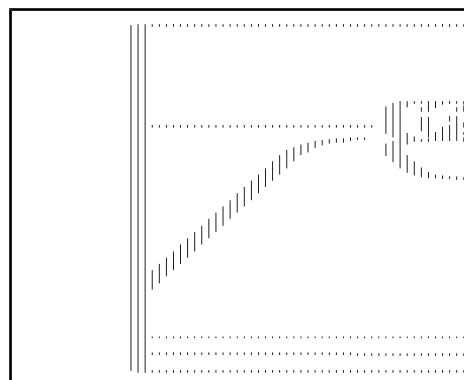


Note

The tapered roller bearing inner and outer races are paired. Do not interchange.



- Press tapered roller bearing outer race (on side opposite final drive gear) without shim into clutch housing.
- Install differential in gearbox housing.
- Fit clutch housing in place and tighten 5 bolts to torque ➔ [page 104](#) .



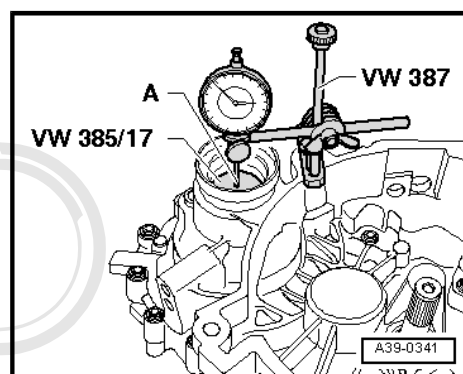
- Attach dial gauge and set to “0” with a preload of 1 mm.
- A - Dial gauge extension, 30 mm
- Preload dial gauge to 1 mm and set to “0”.
- Move differential up and down and read off and note play indicated on dial gauge. (1.50 mm in this example.)

Determining thickness of shim

The specified bearing preload is achieved by adding a constant value (0.35 mm) to the measured value to obtain the required thickness for S2.

Example:

Measured value	1.50 mm
+ Preload (constant value)	0.35 mm
Thickness of shim =	1.85 mm



- Remove clutch housing and press out tapered roller bearing outer race -A-.

B - Internal puller 46 ... 58 mm , e.g. -Kukko 21/7-

- Select correct shims from ➔ Electronic parts catalogue .

Tolerance variations make it possible to obtain the exact shim thickness required.

If the size of the shim required is larger than those listed in ➔ Electronic parts catalogue , install two shims amounting to the correct value.

- Fit shim of thickness determined (in example 1.85 mm) and press tapered roller bearing outer race back into clutch housing.
- Fit clutch housing in place and tighten bolts to torque ➔ [page 104](#) .

