



Workshop Manual

Audi A3 2004 ➤

Audi A3 Sportback 2005 ➤

7-speed dual clutch gearbox 0BH (S tronic)

Edition 12.2016

List of Workshop Manual Repair Groups

Repair Group

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



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

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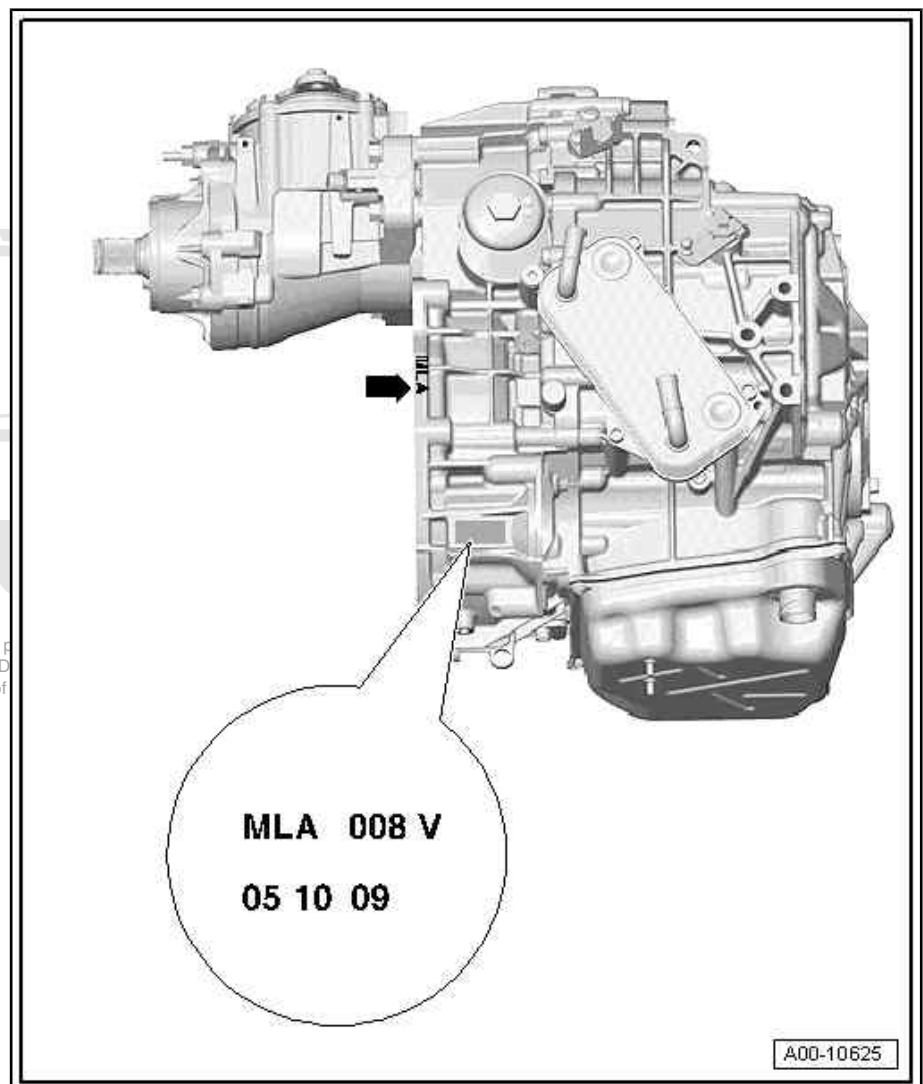
00 – Technical data

1 Gearbox identification

(ARL005064; Edition 12.2016)

The “7-speed dual clutch gearbox 0BH (S tronic)” is installed in the Audi A3 2004 ►. Allocation ⇒ [page 3](#).

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The gearbox code letters are located on the top of the gearbox near the starter and on the gearbox flange -arrow-.

Example

- ◆ MLA = gearbox code
- ◆ 05/10/2009 = date of production: 05 October 2009.
- ◆ The other figures are production-related.



Note

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



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2 Code letters, gearbox allocation, transmission ratios, equipment

Dual clutch gearbox			0BH four-wheel drive		
Gearbox	Code letters		MYD	NFA	
	Manufactured from to		09.10 05.11	05.11	
Allocation	Model		Audi A3 2004 ►	Audi A3 2004 ►	
	Engine		2.5 ltr. - 250 kW 5-cyl. TFSI	2.5 ltr. - 250 kW 5-cyl. TFSI	
Ratios	Final drive I for 1st, 4th, 5th and reverse gears		69 : 17 = 4.059	69 : 17 = 4.059	
Z ₂ : Z ₁	Final drive II for 2nd, 3rd, 6th and 7th gears		69 : 20 = 3.450	69 : 20 = 3.450	
	1st gear		57 : 16 = 3.562	57 : 16 = 3.562	
	2nd gear		48 : 19 = 2.526	48 : 19 = 2.526	
	3rd gear		47 : 28 = 1.678	47 : 28 = 1.678	
	4th gear		47 : 46 = 1.022	47 : 46 = 1.022	
	5th gear		41 : 52 = 0.788	41 : 52 = 0.788	
	6th gear		35 : 46 = 0.761	35 : 46 = 0.761	
	7th gear		33 : 52 = 0.635	33 : 52 = 0.635	
	Reverse gear		48 : 19 x 53 : 48 = 2.789	48 : 19 x 53 : 48 = 2.789	
Overall ratio i _{ov} in top gear			2.191	2.191	
Allocation: rear final drive Designation			Rear final drive 0BY		

2.1 Calculating ratio "i"

Example:

	7th gear	Final drive
Driving gear	ZG ₁ = 52	ZA ₁ = 20
Driven gear	ZG ₂ = 33	ZA ₂ = 69

$i = Z_2 : Z_1$ (Z₁ = number of teeth on driving gear, Z₂ = number of teeth on driven gear)

$i_G = \text{gear ratio} = ZG_2 : ZG_1 = 33 : 52 = 0.635$

$i_A = \text{axle ratio} = ZA_2 : ZA_1 = 69 : 20 = 3.450$

$i_{ov} = \text{overall ratio} = i_G \times i_A = 0.635 \times 3.450 = 2.191$



3 Capacities

Gearbox capacity

Capacities	Dual clutch gearbox 0BH, four-wheel drive
Initial filling	7.0 ltr. + 0.1 ltr.
Oil change	Approx. 5.5 ltr.
Change interval	⇒ Maintenance tables
Lubricant	Gear oil for dual-clutch gearbox ⇒ Electronic parts catalogue



Caution

Risk of damage to gearbox

- ◆ *Use only the gear oil available as a replacement part for the 7-speed dual clutch gearbox 0BH ⇒ Electronic parts catalogue .*
- ◆ *Other types of oil cause malfunctions and/or failure of the gearbox.*

- Check gear oil level and top up as required ⇒ [page 81](#) .
- Fill up with gear oil after repair ⇒ [page 87](#) .

Bevel box capacity

Capacities	Bevel box
Initial filling	0.9 ltr.
Oil change	Filled for life, no change
Lubricant	Gear oil ⇒ Electronic parts catalogue



Caution

Risk of damage to the bevel box.

- ◆ *Only the gear oil available as a replacement part may be used for the bevel box ⇒ Electronic parts catalogue .*
- ◆ *Other oils cause faults and/or failure of the bevel box.*

- Check gear oil level and top up as required ⇒ [page 133](#) .
- Fill up with gear oil after repair ⇒ [page 137](#) .

4 Safety precautions

4.1 When working on the vehicle

Observe the following precautions to avoid possible injury and/or damage to the vehicle:



WARNING

Accidents and injury can be caused if a gear is inadvertently engaged while the engine is running.

- ◆ *Before working on the vehicle while the engine is running, shift the selector lever into position "P" and apply the handbrake.*

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Observe the following precautions to avoid possible injury and/or irreparable damage to electrical and electronic components:

- ◆ Switch off ignition before disconnecting and connecting test equipment.



Caution

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

- ◆ *Observe notes on procedure for disconnecting the battery.*
- ◆ *Always switch off the ignition before disconnecting the battery.*

– Disconnect battery ⇒ Electrical system; Rep. gr. 27 .

4.2 When working on vehicles with start/stop system

Please note the following when working on vehicles with start/stop system:



WARNING

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

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

4.3 When using test equipment while road-testing the vehicle

Observe the following precautions if test equipment has to be used when road-testing the vehicle.



WARNING

Accidents can be caused if the driver is distracted by test equipment or if test equipment is not secured.

Injuries can be caused if the passenger's airbag is triggered in a collision.

- *The use of test equipment while driving causes distraction.*
- *There is an increased risk of injury if test equipment is not secured.*
- ◆ *Always secure test equipment to the rear seat with a strap and have it operated from there by a second person.*

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5 Notes on dual clutch gearbox 0BH

5.1 General notes

Gearbox

The layout of the dual clutch gearbox 0BH "S tronic" is similar to that of a 7-speed manual gearbox. The engine torque is transferred to the gearbox via the dual-mass flywheel. The two multi-plate clutches are controlled hydraulically and actuated alternately so that the gearbox is operated like an automatic gearbox, in other words the gears are engaged automatically (but can also be selected manually via the tiptronic function). There is no clutch pedal. For further information please refer to ⇒ Self-study programme No. 454 ; 7-speed dual clutch gearbox 0BT .

Selector mechanism

In selector lever position "P" the selector lever cable is used to engage the parking lock mechanically. All other gearshift commands and selector lever positions are transmitted via the CAN data bus from the selector lever - J743- (selector mechanism) to the mechatronic unit for dual clutch gearbox - E313- .

Gear oil (gearbox and bevel box)

The dual clutch gearbox "0BH" has a common oil system.

This oil system lubricates the gears and shafts, the final drive, the clutches and the mechatronic unit for dual clutch gearbox - J743- .



Caution

Risk of damage to gearbox

- ◆ *Use only the gear oil available as a replacement part for the 7-speed dual clutch gearbox 0BH ⇒ Electronic parts catalogue .*
- ◆ *Other types of oil cause malfunctions and/or failure of the gearbox.*

The bevel box has a separate oil filling ⇒ [page 133](#) .



Caution

Risk of damage to the bevel box.

- ◆ *Only the gear oil available as a replacement part may be used for the bevel box ⇒ Electronic parts catalogue .*
- ◆ *Other oils cause faults and/or failure of the bevel box.*

When does the gear oil filter have to be changed?



Note

The gear oil filter does not always require replacement.

Do not change the filter if:

- ◆ The gear oil cooler or its O-rings have been renewed and no coolant has entered the oil system.

- ◆ Oil seals or O-rings have been renewed in the gearbox.
- ◆ The oil pan or mechatronic unit have been renewed.
- ◆ The maintenance interval has been reached.

The filter must be changed if:

- ◆ Metal particles are found in the oil.
- ◆ The clutch is burnt out or mechanically defective.

Variation of gear-change points for gradients

An additional gear change map automatically selects gear changes for gradients depending on accelerator pedal position and driving speed.

- Gear change map for extreme uphill gradients is matched to engine output.
- Gear change map for extreme downhill gradients is matched to the braking effect of the engine.
- Increased engine braking effect can also be obtained by directly selecting a specific gear via the tiptronic function, e.g. when towing a trailer on downhill gradients

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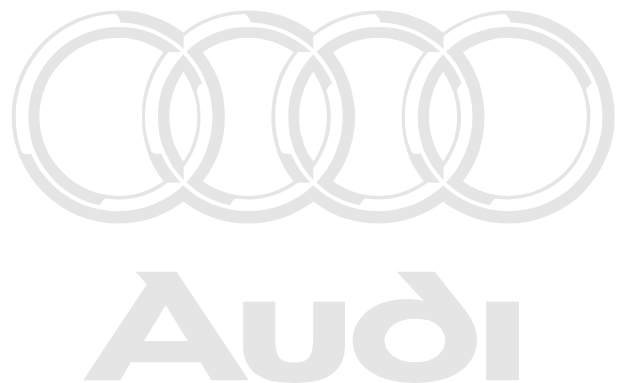
5.2 Safety functions of gearbox control unit

In the event of a failure of one or more components/sensors, the gearbox control unit will activate appropriate backup functions. This ensures that the gearbox will not be damaged, however, the function and quality of the gear shifts will be impaired.

Faults detected by the gearbox are classified in four different categories.

- ◆ 1) The fault is stored and a backup programme enables the vehicle to drive on (in some cases with restrictions). The driver will not be made aware of the problem, as it is not critical to driving safety or to the gearbox itself. The selector lever position display in the instrument cluster will continue to show the selector lever position currently engaged in the normal way. If at all, the driver will only notice the fault if he experiences driveability problems, and will then automatically contact an Audi Service Partner to identify the cause.
- ◆ 2) Certain positions on the selector lever position display in the instrument cluster start to flash. This is to inform the driver that this particular selector lever position is currently not available. Example: position "D" is not available when the selector lever is in position "R" and the vehicle is still rolling backwards. In this case, selector lever position "D" will start to flash on the selector lever position display in the instrument cluster. The gearbox control unit prevents 1st gear from being engaged in order to avoid damage to the gearbox. 1st gear will be engaged once the vehicle has come to a standstill.
- ◆ 3) The complete selector lever position display in the instrument cluster is lit up and flashing. The current selector lever position is indicated in the instrument cluster (e.g. "D" is highlighted). This is an indication that the gearbox has been overloaded or the maximum temperature in the gearbox has been exceeded (overheating), e.g. towing a load that was too heavy.
- ◆ 4) If the complete selector lever position display in the instrument cluster is lit up and flashing, this means that a serious fault in the gearbox has been identified. The display in the instrument cluster no longer shows the current selector lever position. The defect is critical with regard to driving safety or the gearbox itself. It may no longer be possible to use all gears. The driver is made aware by the flashing gear selection indi-

cator that he should immediately contact an Audi Service Partner.



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6 Notes on tow-starting and towing



Caution

When the vehicle is towed, the selector lever must be set to position "N" and the vehicle must not be towed for a distance of more than 50 km or at a speed in excess of 50 km/h, as the gearbox would otherwise be seriously damaged.



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It is not possible to start the engine by means of tow-starting, for instance in the case of insufficient battery charge or if the starter is not working.

7 Repair instructions

7.1 Contact corrosion

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

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

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.

7.2 General notes

- ◆ Proper tools and the maximum possible care and cleanliness are essential for satisfactory repairs to the transmission units. The usual basic safety precautions also naturally apply when carrying out repair work.
- ◆ To avoid repetition, a number of generally applicable instructions for the various repair procedures are summarised here. They apply to the work described in this Manual.

Guided Fault Finding, Vehicle self-diagnosis and Test Instruments

- ◆ Before servicing the gearbox, the exact cause of the failure should be identified using Guided Fault Finding, Vehicle Self-diagnosis and Test Instruments ⇒ Vehicle diagnostic tester.

Special tools

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

Environmental and waste disposal regulations for oil

- ◆ ATF, gear oil and any other type of oil must be handled with care.
- ◆ Dispose of drained oil properly.
- ◆ Always adhere to statutory environmental and waste disposal regulations.
- ◆ Observe the information shown on the packaging of the oil.

Gearbox

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- ◆ Do not run the engine or tow the vehicle with the oil pan removed or when there is no gear oil in the gearbox.
- ◆ Thoroughly clean all joints and connections and the surrounding areas before disconnecting.
- ◆ When installing gearbox, ensure that dowel sleeves are fitted correctly.



O-rings, oil seals and gaskets

- ◆ Always renew O-rings, oil seals and gaskets.
- ◆ After removing gaskets and seals, always inspect the contact surface on the housing or shaft for burrs resulting from removal or for other signs of damage.
- ◆ Thoroughly clean housing joint surfaces before assembling.
- ◆ Always replace paper gaskets. Completely remove old gasket and clean sealing surfaces thoroughly.
- ◆ Lightly lubricate the outer circumference and sealing lip of oil seals with gear oil before installing.
- ◆ Lightly lubricate O-rings with gear oil or vaseline before installation to prevent them from getting crushed during assembly.
- ◆ Do not use any other lubricants where gear oil is specified. Otherwise, there is a risk of problems occurring in the gearbox hydraulics.
- ◆ The open side of the oil seal should face the side containing the fluid.
- ◆ When installing a new oil seal, position the seal such that the sealing lip does not contact the shaft in the same place as the old seal (make use of installation depth tolerances).
- ◆ Observe rules for cleanliness ➔ [page 13](#) .

Locking elements

- ◆ Do not over-stretch circlips.
- ◆ Renew circlips which have been damaged or over-tensioned.
- ◆ Circlips must be properly seated in the base of the groove.

Nuts, bolts

- ◆ Loosen 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.
- ◆ Renew self-locking nuts.
- ◆ Use a wire brush to clean the threads of bolts which are secured with locking fluid. Then apply locking fluid - AMV 185 101 A1- to bolt threads before installing.
- ◆ The tightening torques stated apply to non-oiled nuts and bolts.

8 Rules for cleanliness when working on the gearbox

- ◆ Carefully clean connection points and the surrounding area with engine cleaner or brake cleaner and dry thoroughly before opening.
- ◆ Use cleaning fluid - D 009 401 04- to clean the gearbox and its components.
- ◆ Use lint-free cloths for cleaning, such as the "WYPALL X70 / WORKHORSE" cloth from Kimberly-Clark Professional.
- ◆ Seal off open lines and connections immediately with clean plugs or sealing caps from engine bung set - VAS 6122- immediately.
- ◆ After removal, place parts on a clean surface and cover them. Use sheeting and paper. Use lint-free cloths.
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately.
- ◆ Only install clean components; replacement parts should only be unpacked immediately prior to installation.
- ◆ Protect unplugged electrical connectors against dirt and moisture and make sure connections are dry when attaching.



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9 Exploded view - dual clutch gearbox

1 - Circlip

- ☐ For cover for multiple clutch
- ☐ Renew

2 - Cover for multiple clutch

- ☐ There is currently no provision for repairs to the clutch

3 - Circlip

- ☐ Renew

4 - Shim

- ☐ There is currently no provision for repairs to the clutch

5 - Tapered ring

- ☐ There is currently no provision for repairs to the clutch

6 - Multiple clutch

- ☐ There is currently no provision for repairs to the clutch

7 - Oil seal

- ☐ Installed in dual clutch gearbox (right-side), facing bevel box
- ☐ Renewing ⇒ [page 116](#)

8 - Breather pipe

- ☐ Pressed into gearbox
- ☐ Must be renewed if removed

9 - Breather cap

- ☐ Fitted onto breather pipe

10 - Plug

11 - O-ring

- ☐ Always renew

12 - Gear oil cooler

- ☐ Removing and installing ⇒ [page 91](#)

13 - Bolt

- ☐ Tightening torque ⇒ [Item 13 \(page 91\)](#)

14 - Filter housing

- ☐ Tightening torque ⇒ [Item 14 \(page 91\)](#)

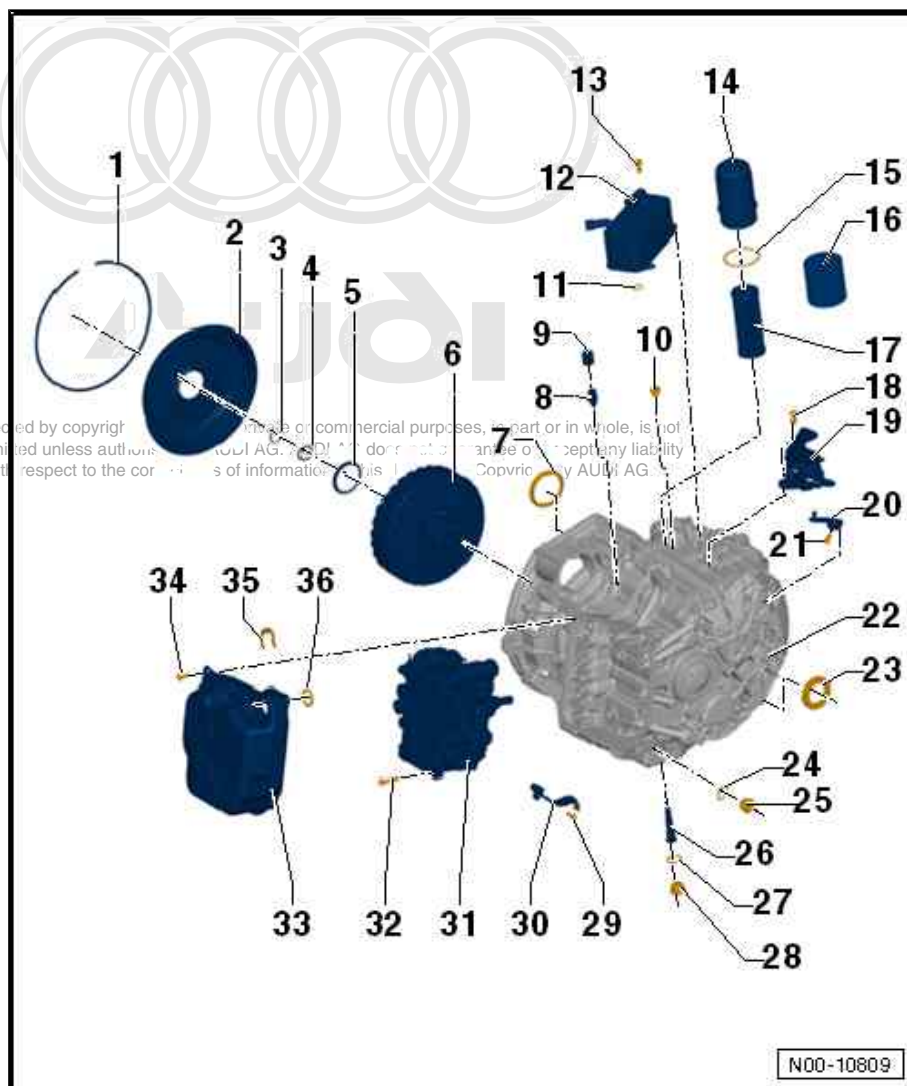
15 - O-ring

- ☐ Renew

16 - Heat shield

17 - Gear oil filter

- ☐ Notes on oil filling and filter change ⇒ [page 7](#)



- ☐ Removing and installing ⇒ [page 94](#)

18 - Bolt

- ☐ Renew
- ☐ 10 Nm +45°

19 - Cable support bracket

- ☐ Secures selector lever cable to gearbox

20 - Gearbox selector lever

21 - Bolt

- ☐ Renew
- ☐ 10 Nm +90°

22 - Gearbox

23 - Oil seal

- ☐ For drive shaft (left-side)
- ☐ Renewing ⇒ [page 112](#)

24 - Seal

- ☐ Renew

25 - Oil drain plug

- ☐ For mechatronic unit
- ☐ Tightening torque ⇒ [Item 25 \(page 81\)](#)

26 - Overflow pipe

- ☐ Tightening torque ⇒ [Item 26 \(page 81\)](#)
- ☐ Draining and filling oil ⇒ [page 87](#)

27 - Seal

- ☐ Renew

28 - Inspection plug

- ☐ For gear oil
- ☐ Tightening torque ⇒ [Item 28 \(page 81\)](#)

29 - Bolt

- ☐ Tightening torque ⇒ [Item 29 \(page 102\)](#)

30 - Gearbox input speed sender - G182- / clutch temperature sender - G509-

- ☐ The two senders are combined in one component and can only be renewed together
- ☐ Removing and installing ⇒ [page 110](#)

31 - Mechatronic unit for dual clutch gearbox - J743-

- ☐ Removing and installing ⇒ [page 107](#)

32 - Bolt

- ☐ Tightening torque and sequence ⇒ [page 103](#)

33 - Oil pan

- ☐ With gasket
- ☐ Removing and installing ⇒ [page 103](#)
- ☐ Renew

34 - Bolt

- ☐ Tightening torque ⇒ [Item 34 \(page 102\)](#)

35 - Securing clip

- ☐ Renew



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36 - O-ring

☐ Renew



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10 Electrical components

⇒ [“10.1 Overview of fitting locations - electrical components”,
page 17](#)

10.1 Overview of fitting locations - electrical components

Refer to

⇒ [“1 Electrical/electronic components and fitting locations”, page
34](#)



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30 – Clutch

1 Clutch

⇒ [“1.1 Exploded view - dual clutch”, page 18](#)

⇒ [“1.2 Removing and installing clutch end cover”, page 19](#)

⇒ [“1.3 Removing dual clutch”, page 23](#)

⇒ [“1.4 Installing dual clutch”, page 26](#)

1.1 Exploded view - dual clutch

Replacement parts

1 - Circlip for dual clutch end cover

- ☐ Always renew after removal

2 - Circlip for dual clutch

3 - Circlip for drive plate

4 - Dual clutch



Caution

The drive plate must remain engaged between the splines of the outer plate carrier.

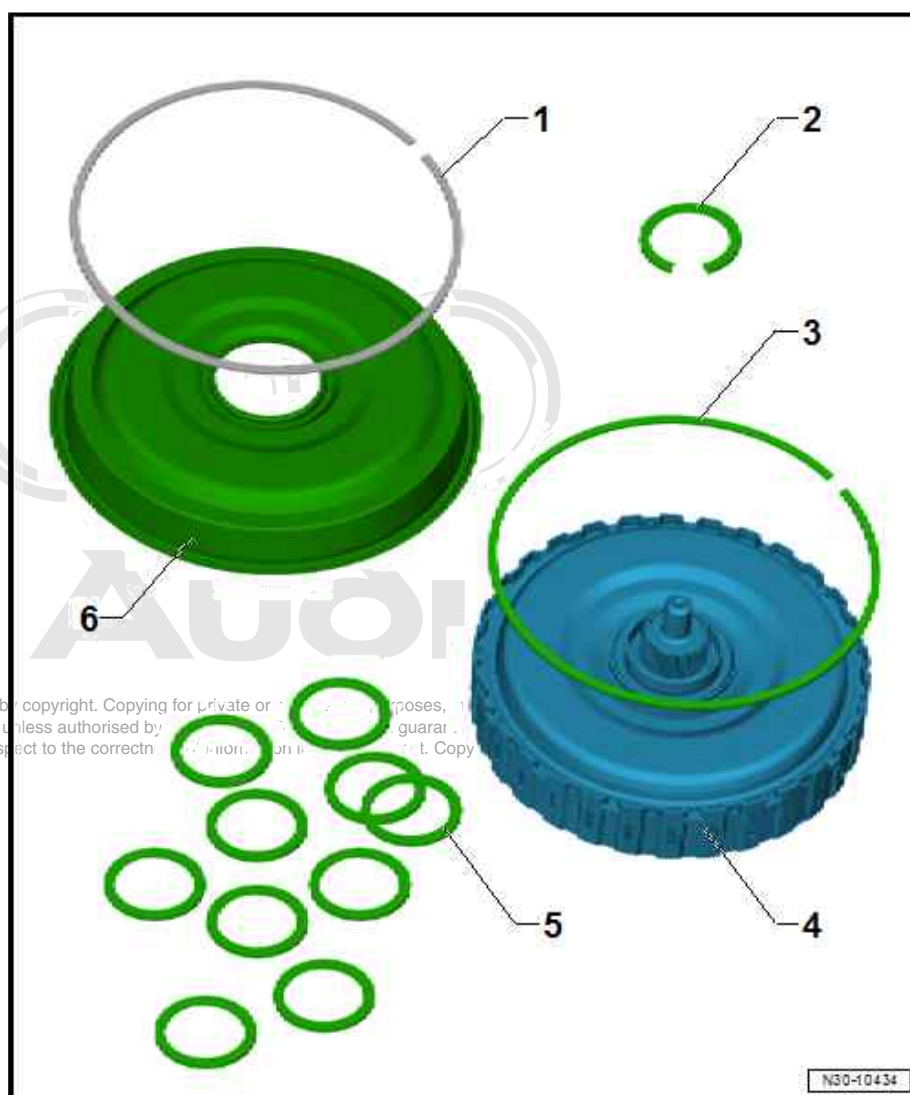
If the drive plate comes loose, the clutch plates can slip out of position inside the dual clutch unit. If this happens, it may not be possible to adjust the dual clutch correctly during installation.

5 - Spacer rings

- ☐ 10 spacer rings of different thicknesses (graduated in steps of 0.05 millimetres)
- ☐ The thickness of the required spacer ring must be determined when installing the dual clutch.

6 - Dual clutch end cover

- ☐ Always renew after removal
- ☐ ⇒ [“1.2 Removing and installing clutch end cover”, page 19](#)





Caution

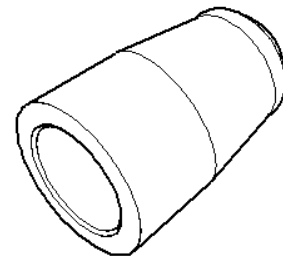
- ◆ *This illustration serves only as an overview of the components. The dual clutch unit must NOT be dismantled, as all plates were matched and balanced before being installed.*
- ◆ *If the drive plate is loosened, the plates can slip out of position inside the dual clutch unit, and it may then not be possible to adjust the dual clutch correctly during installation.*

1.2 Removing and installing clutch end cover

Special tools and workshop equipment required

- ◆ Assembly sleeve - T10459-

T10459



W00-10938

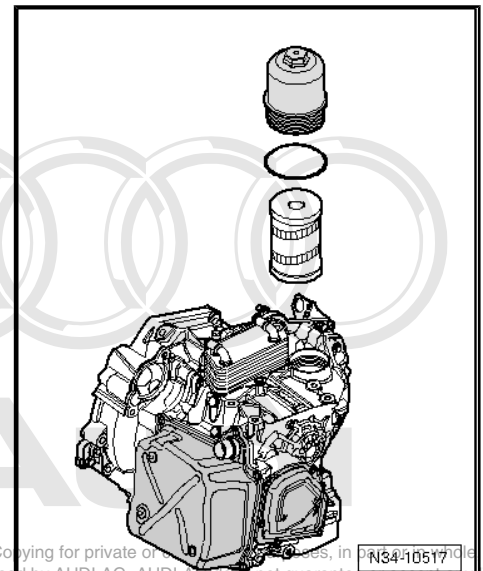
Removing



Note

The cover and circlip must always be renewed.

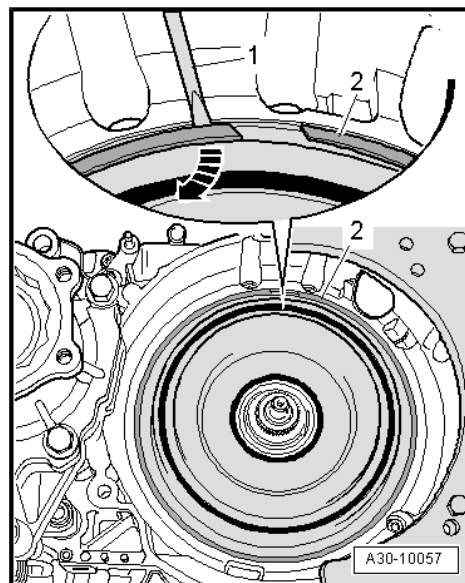
- Drain off gear oil ➔ [page 87](#) .
- Remove gearbox ➔ [page 53](#) .
- Secure gearbox in a vertical position on engine and gearbox support ➔ [page 73](#) .
- Renew gear oil filter ➔ [page 94](#) .



N34-10517

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- Lever out and remove circlip -2- for clutch end cover using a screwdriver -1- -arrow-.

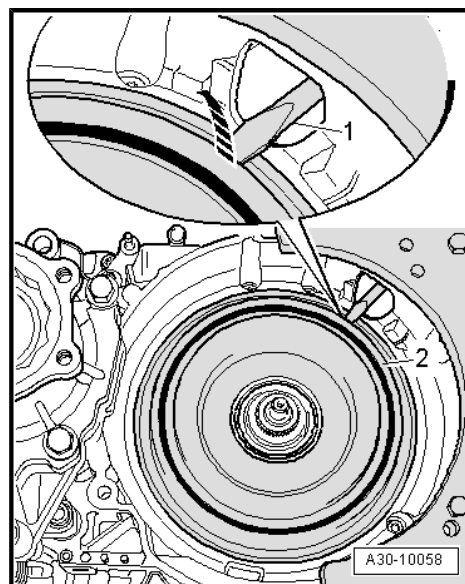


- Working through side opening in housing, pry off clutch end cover -2- using a screwdriver -1- or suitable lever -arrow- and take off clutch end cover.



Note

The original clutch end cover and circlip must not be re-installed after removal.



Installing



Note

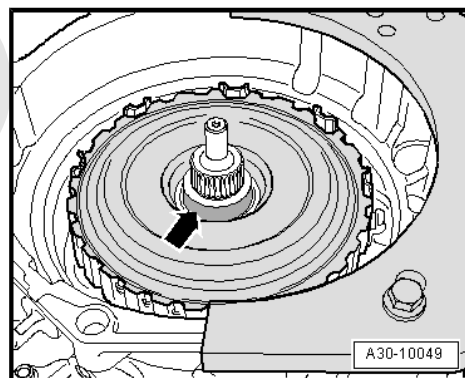
Renew clutch end cover and circlip.

- Thoroughly degrease running surface for seal of clutch end cover -arrow-.



Caution

The contact surfaces of the clutch end cover must be cleaned very thoroughly, otherwise leaks can occur.



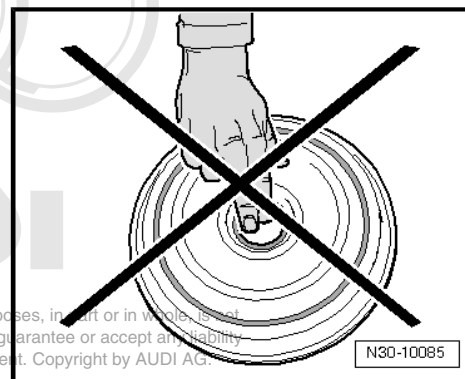
- Clean contact surface for outer seal of clutch end cover.



Caution

Risk of leaks.

- ◆ *Do not touch the seal inside the opening in the clutch end cover. This seal will only seal properly if the running surface is absolutely free of grease when installed.*
- ◆ *Do not apply hammer blows directly to the clutch end cover. Any force applied to the inner part of the clutch end cover will cause malfunctions.*

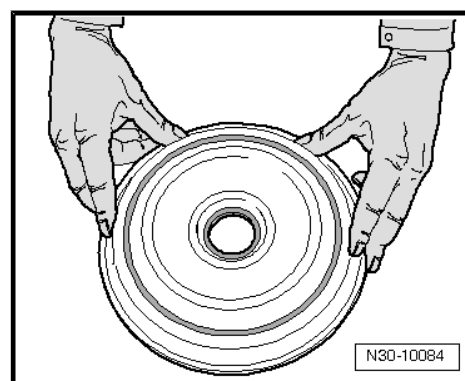


- Hold clutch end cover only as shown in -illustration-.



Note

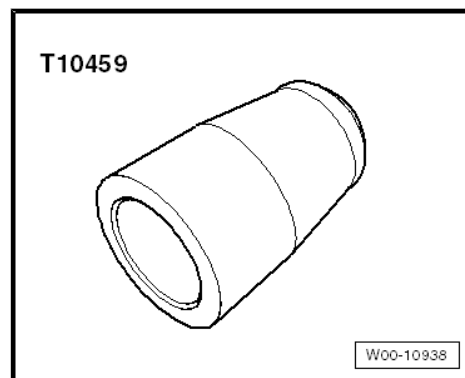
- ◆ *There should be no stickers on the inside of the clutch end cover. If there are stickers, please remove them carefully.*
- ◆ *Never lubricate or touch the centre seal. It will only seal properly if the running surface is absolutely dry and free of oil.*



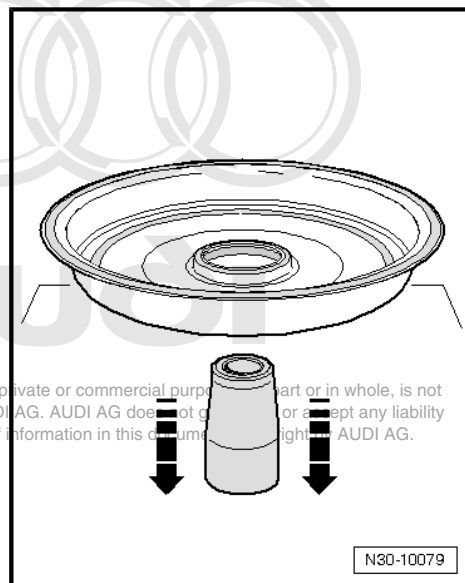
WARNING

The seal in the centre of the new clutch end cover must be »pre-formed« before installation:

- Assembly sleeve - T10459- must be degreased and cleaned before use; do not use an assembly sleeve if it is scratched.



- Place assembly sleeve - T10459- on a flat surface.
- Hold clutch end cover horizontally as shown in -illustration- and guide it down evenly over complete length of assembly sleeve - T10459- . This will bring the sealing lip into its installation position.



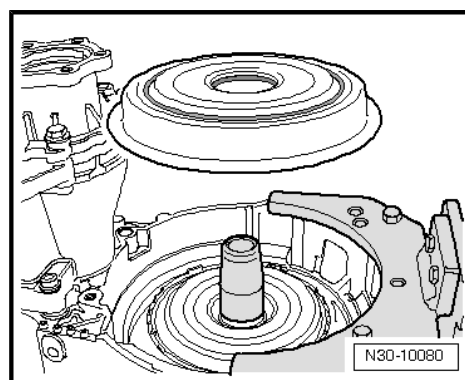
- Lift assembly sleeve - T10459- vertically out of cover and fit assembly sleeve onto end of clutch shaft.
- Lightly lubricate outer seal of cover with oil.



Caution

Risk of leaks.

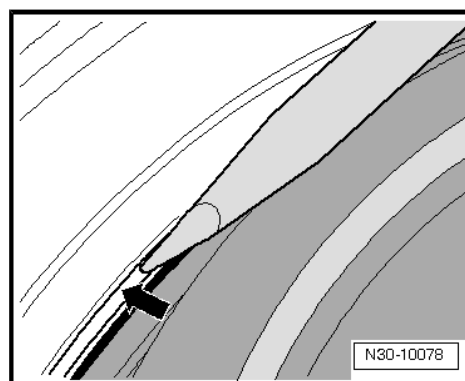
- ◆ *Do not apply hammer blows directly to the clutch end cover. Any force applied to the inner part of the clutch end cover will cause malfunctions.*



- Guide cover horizontally over assembly sleeve - T10459- and press cover down evenly onto its seat.

It is possible to lever the cover carefully into its seat using a -screwdriver- until the »new« circlip can be fitted.

- Fit new circlip.



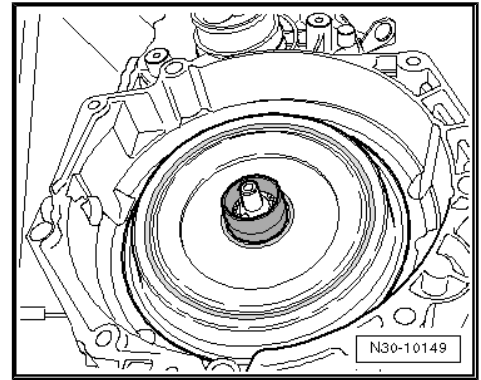
- Do not remove assembly sleeve - T10459- until circlip has been fitted.
- Install gearbox ➔ [page 53](#) .
- Fill up with gear oil ➔ [page 87](#) .



WARNING

The engine must not be started when there is no oil in the gearbox.

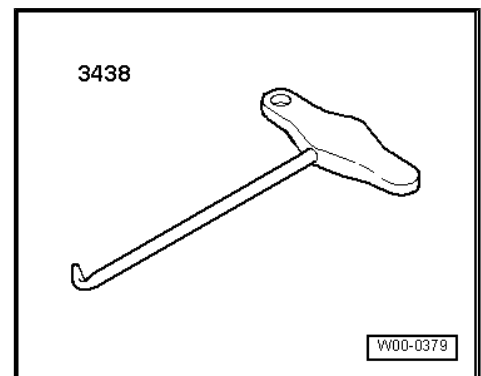
- After installing the gearbox, run the **Basic setting** function in **Guided Functions** ➔ vehicle diagnostic tester .



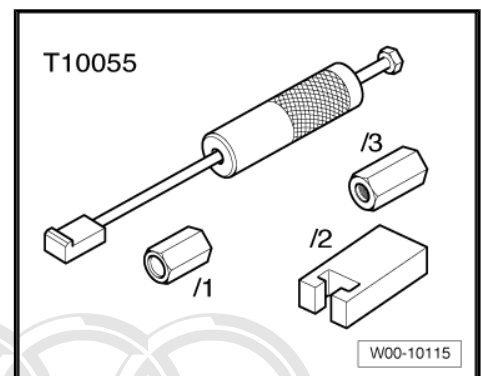
1.3 Removing dual clutch

Special tools and workshop equipment required

- ◆ 2x hooks - 3438-



- ◆ Puller - T10055-



- ◆ Retaining pin - T10524-



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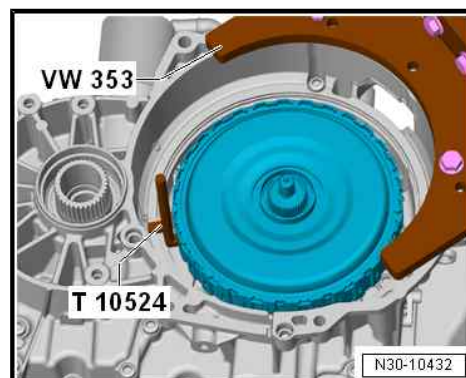
◆ Puller - T10525-



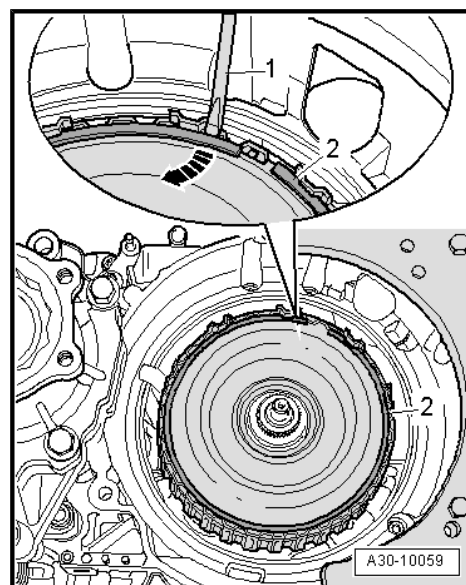
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Removing

- Secure gearbox in a vertical position on engine and gearbox support ➔ [page 73](#) .
- Remove clutch end cover ➔ [page 19](#) .
- Fit retaining pin - T10524- .



- Pry out circlip -2- for drive plate using a screwdriver -1- -arrow-.



Important! Installation position of drive plate

- Check if the marking on the drive plate -arrow- is aligned with the marking on the outer plate carrier.

If no markings are provided:

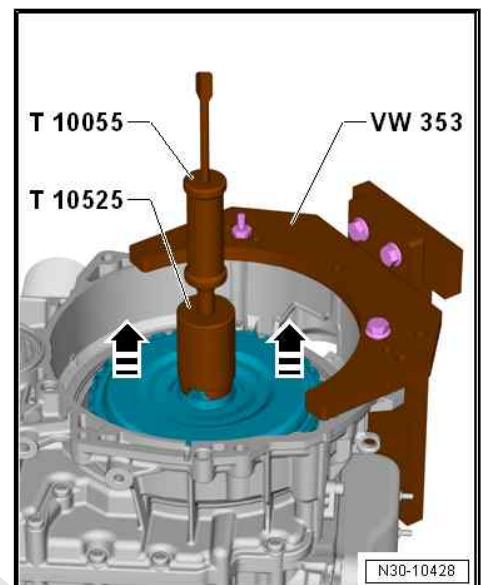
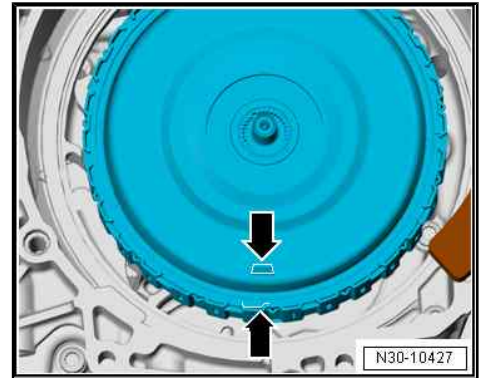
- Mark installation position of drive plate in relation to outer rim of outer plate carrier with waterproof pen as illustrated.
- When re-assembling, the drive plate must be located again at this marked position.

- Place puller - T10525- with puller - T10055- onto spline and carefully drive out drive plate from its seating position -arrows-.



Caution

Secure circlip so it cannot spring off. The circlip could otherwise fall through an opening into the inside of the gearbox.

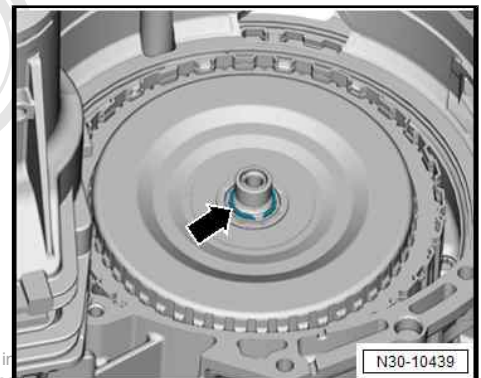


- Remove circlip -arrow- and retain it for the time being.



Note

Do not dispose of the circlip yet; it will be needed later to measure the axial play.

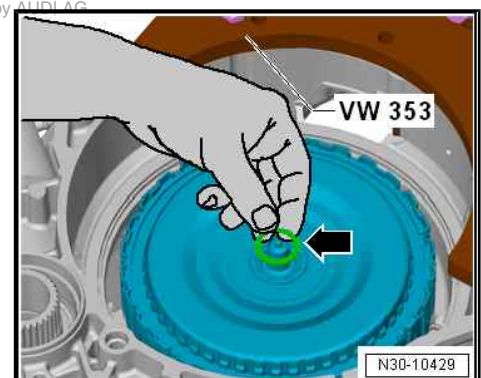


- Remove shim -arrow-.

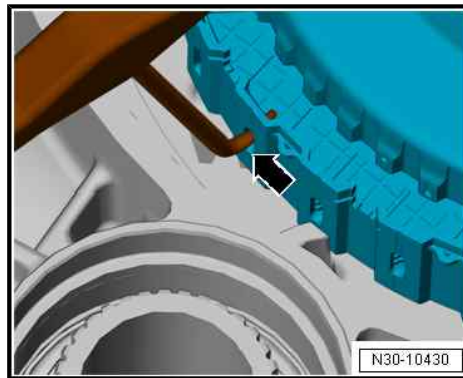


Caution

Remove dual clutch carefully. Make sure that no parts fall out; you should not turn the clutch over under any circumstances.



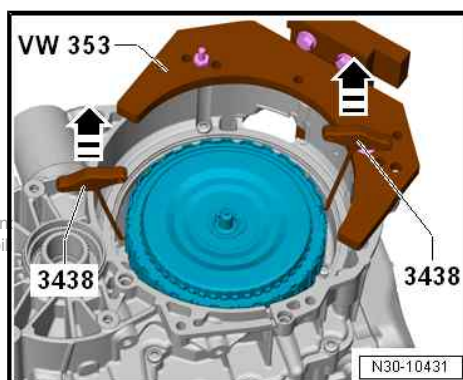
- Hook two hooks - 3438- into clutch -arrow- on opposite sides.



- Remove dual clutch using hooks - 3438- .

Installing

- Install dual clutch ⇒ [page 26](#) .



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1.4 Installing dual clutch

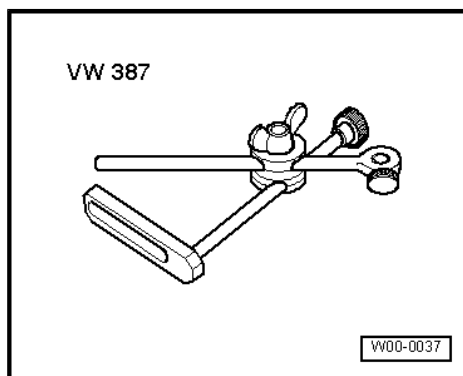


Caution

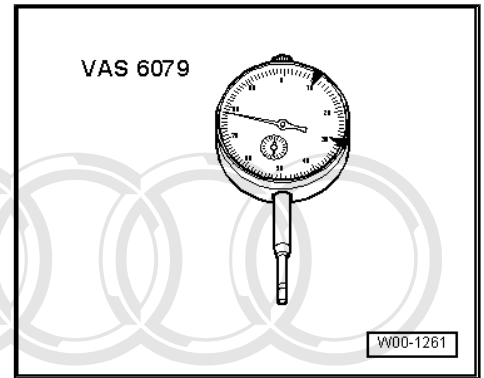
- ◆ *The drive plate must remain engaged between the splines of the outer plate carrier.*
- ◆ *If the drive plate comes loose, the clutch plates can slip out of position inside the dual clutch unit. If this happens, it may not be possible to adjust the dual clutch correctly during installation.*

Special tools and workshop equipment required

- ◆ Universal dial gauge bracket - VW 387-



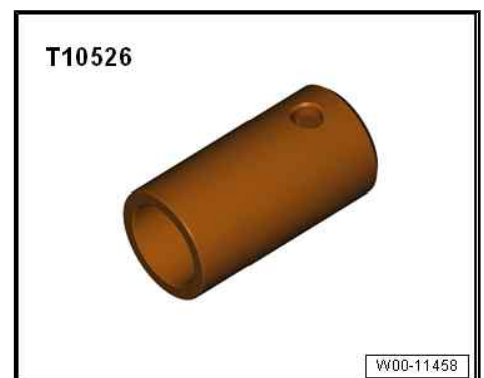
◆ Dial gauge - VAS 6079-



◆ Retaining pin - T10524-



◆ Thrust piece - T10526-



Caution

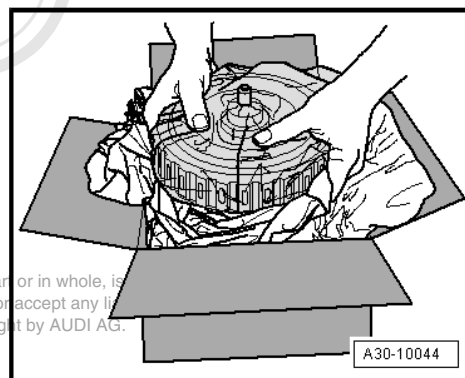
DO NOT remove or even slightly lift up the plate carrier as this could cause the plates to rotate.

Brief description

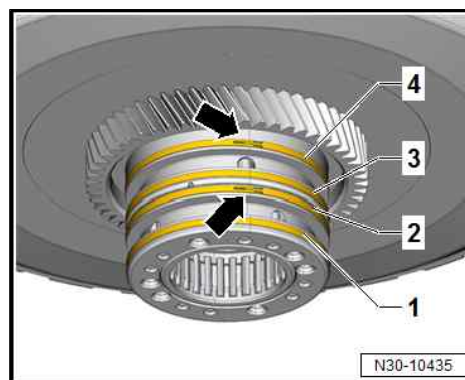
- The gearbox must be fixed in a vertical position on the assembly stand to remove and install the clutch.
- In the dual clutch unit, the large plate carrier is in contact with all the plates. It must not slide out of the lowest plate.

Installing

- Be especially careful when taking dual clutch out of packaging.

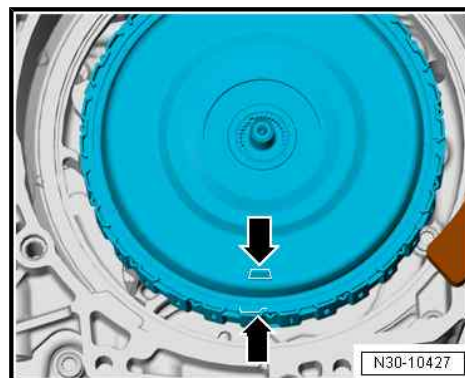


- Turn piston rings by hand. They must move freely and not get stuck.
- Ensure the piston rings -1, 2, 3, 4- are properly seated. The gaps -arrows- of piston rings -1- and -3- must be aligned.
- The gaps -arrows- of piston rings -2- and -4- should be aligned and offset to the gaps of piston rings -1- and -3- by 180°.



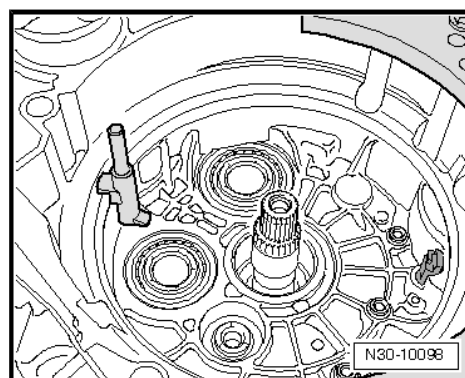
Important! Position of drive plate

- Before installing, check if a marking -arrow- has been made on the dual clutch.
- If no marking is present, make a coloured marking on the drive plate and on the outer plate carrier with a waterproof pen.



- Fit retaining pin - T10524- .

The retaining pin - T10524- must be held in place by a second mechanic while the dual clutch is being inserted.



- Insert -dual clutch- carefully, making sure it does not fall in.
- If necessary, rotate clutch slightly when inserting.



The dual clutch is in the correct installation position when the retaining pin - T10524- has hardly any play.

 Note

- ♦ *The retaining pin remains in position until the clutch end cover is installed.*
- ♦ *The dual clutch must not be rotated from this point onwards, as this would move the retaining pin - T10524- out of position.*

- Pry off circlip for drive plate.
- Place puller - T10525- with puller - T10055- onto spline and carefully drive out drive plate from its seating position -arrows-.

 Note

Retaining pin - T10524- must be held in place by a second mechanic while driving out procedure is being performed.

- Carefully remove drive plate from dual clutch -arrows- and move to side.



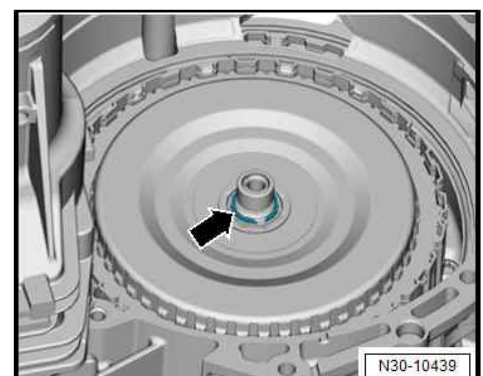
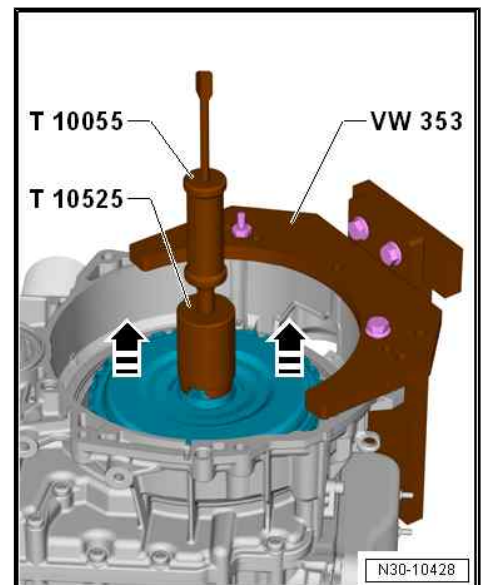
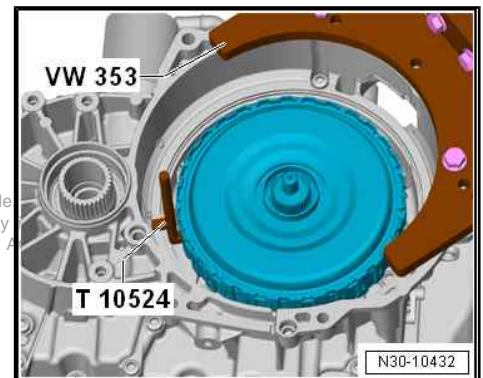
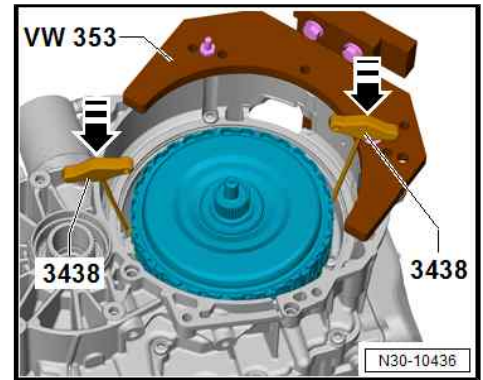
Caution

DO NOT remove or even slightly lift up the plate carrier as this could cause the plates to rotate.

Determining shim for dual clutch

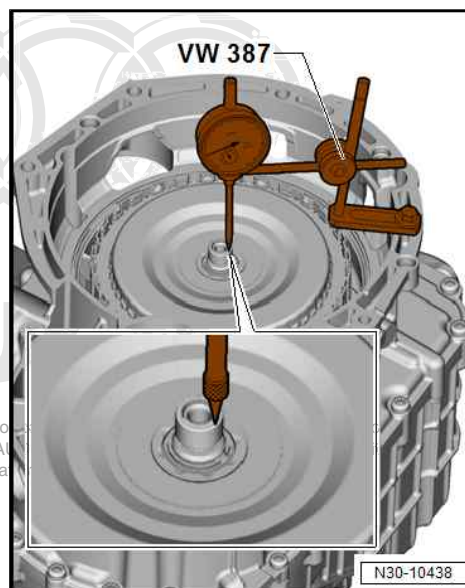
- Retaining pin - T10524- remains inserted.
- Temporarily fit OLD circlip -arrow-.

Two measurements must be made before this ring is removed again.



First measurement (axial play of shaft)

- Secure universal dial gauge bracket - VW 387- to gearbox flange.
- Place -tip of dial gauge- on input shaft.
- Preload -dial gauge- and set to 0.



- Using hooks - 3438- , lift dual clutch upwards significantly in direction of -arrow- as far as it will go and note measurement.
- This value should be noted as value "A".

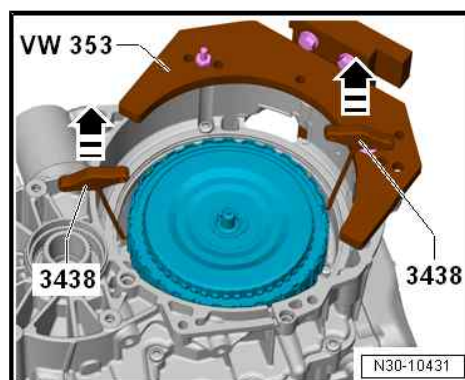


Note

This value will be required later for the measurement check. You should therefore retain value "A" until the last measurement.

Second measurement

- Retaining pin - T10524- remains inserted.



- Place tip of dial gauge -onto hub of large plate carrier-.



The tip of the dial gauge must not contact the circlip.

- Preload -dial gauge- and set to 0 again.
- Lift dual clutch upwards significantly in direction of arrow as far as it will go and note measurement.
- This value should be noted as value “B”.

Calculating which shim is to be installed

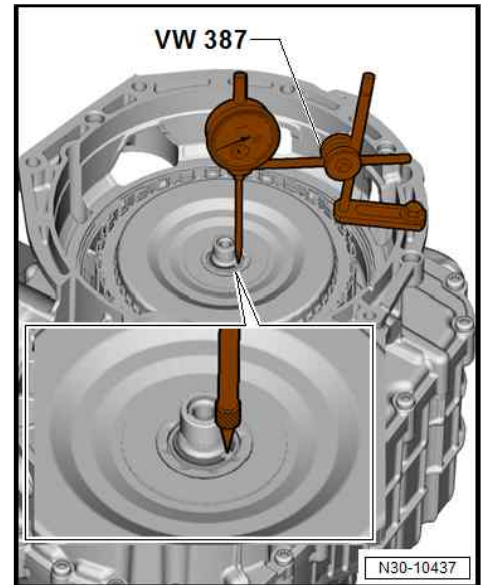
- Use the following formula:

Measured value “B” – measured value “A” – 0.11 = thickness of the shim to install

- Note measurement.

The thickness of the shims is graduated in steps of 0.05 mm.

- Measure the shims and ascertain which shim is closest to the result.



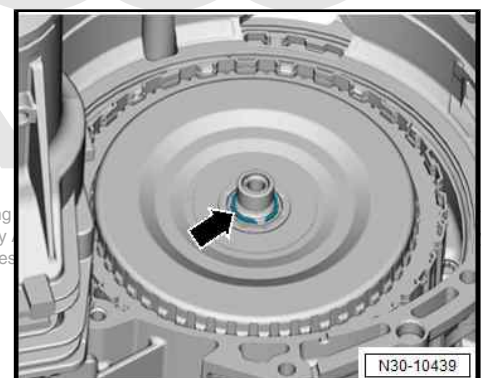
WARNING

Always use the next biggest shim, never fit a smaller shim.

Example:

Calculated thickness of shim	New shim
1.28 mm	1.3 mm
1.26 mm	1.3 mm

- Remove old circlip -arrow-.

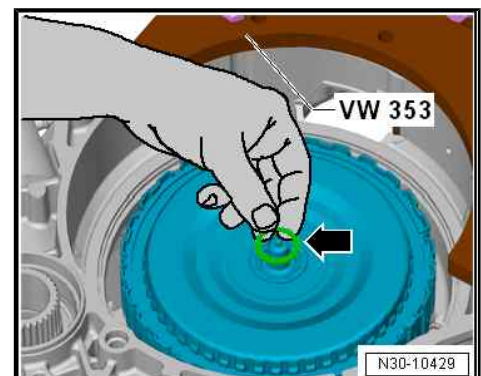


- Install appropriate shim (as measured earlier).

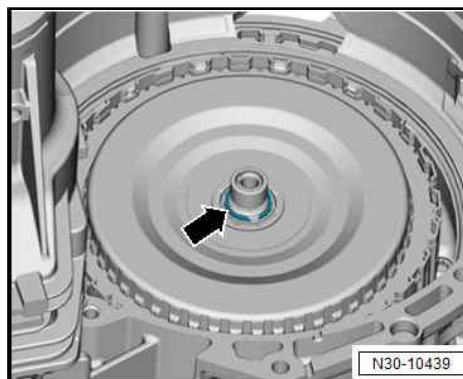
Checking adjustment

Another measurement check must be performed to ensure that the correct shim is fitted. The check is performed as follows:

- Retaining pin - T10524- remains inserted.



- Re-install old circlip -arrow-.



- Place tip of dial gauge -onto hub of large plate carrier-.



Note

Tip of dial gauge must make contact with shim -1-.

- Preload -dial gauge- and set to 0 again.
- Lift dual clutch upwards significantly in direction of arrow as far as it will go and note measurement.
- This value should be noted as value "C".

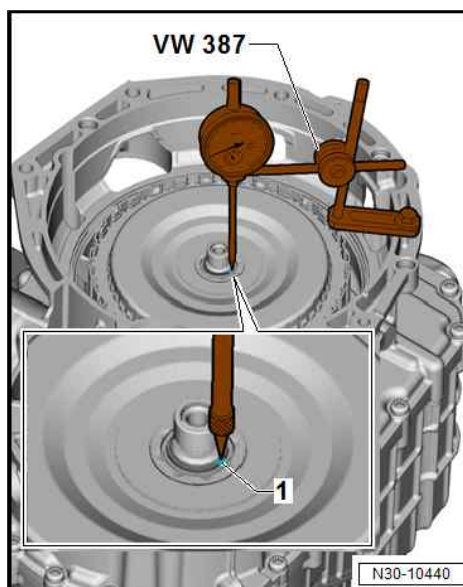
Calculating which shim is to be installed

- Use the following formula:

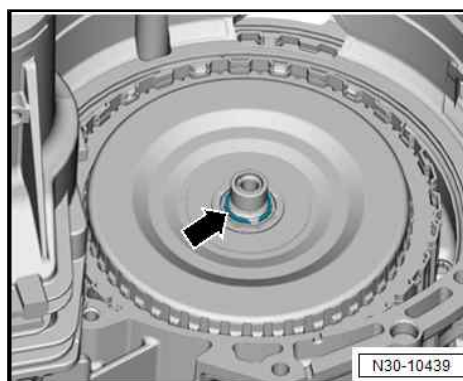
Measured value "C" - measured value "A" = specified value

This specified value must be between 0.05 ... 0.12 mm.

If measurement does not match specified value, install a thicker/ thinner shim to obtain specified value.

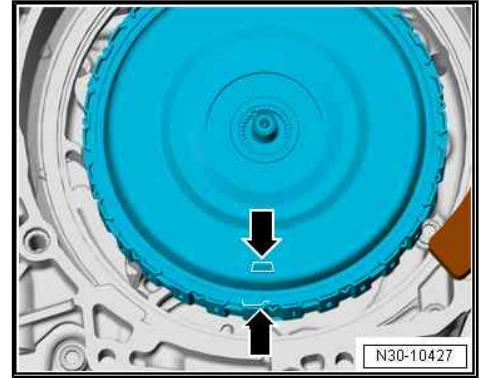


- Install new circlip -arrow-.



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- Install drive plate in dual clutch.
- When installing, make sure that the marking on the drive plate is aligned with the marking on the outer plate carrier -arrows-. Alternatively, align the new markings made earlier in this procedure.
- Have a second mechanic hold retaining pin - T10524- in position and press outwards slightly.
- Carefully drive in drive plate to its seating position using thrust piece - T10526- and plastic hammer.
- Fit new circlip for drive plate.
- Press circlip into its end position clockwise, beginning at opening.
- The circlip must be fully engaged all round.
- Use a screwdriver to check that the circlip is properly seated and fully engaged.
- Now take out retaining pin - T10524- between dual clutch and housing.
- Install clutch end cover ➔ [page 19](#) .



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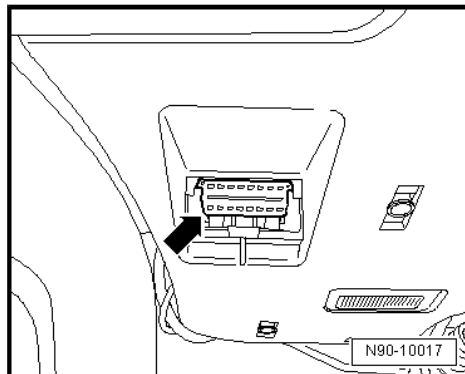
34 – Controls, housing

1 Electrical/electronic components and fitting locations

Diagnostic connection

- ◆ Fitting location: The diagnostic connection is located below the knee padding to the left of the steering wheel.

The components listed below can be tested with the **Guided Fault Finding** function in the vehicle diagnostic tester .



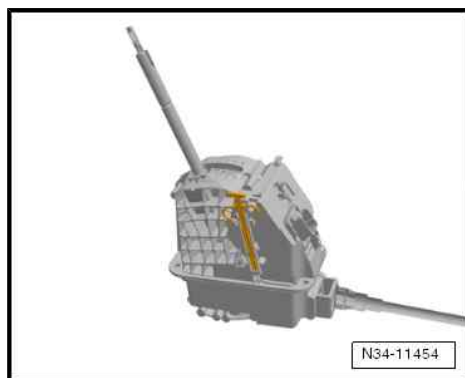
Selector lever lock solenoid - N110-

- ◆ Fitting location: The selector lever lock solenoid - N110- is a component part of the shift unit.



Note

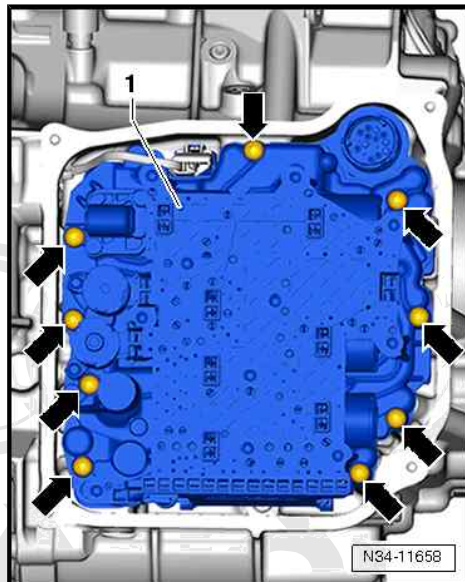
If the selector lever lock solenoid - N110- is defective the entire shift unit has to be renewed ⇒ [page 48](#) .



Mechatronic unit for dual clutch gearbox - J743-

- ◆ Fitting location: The mechatronic unit for dual clutch gearbox - J743- -item 1- is bolted to the front of the gearbox housing -arrows- and covered by the gearbox oil pan.
- ◆ The control unit is an integrated component of the mechatronic unit for dual clutch gearbox - J743- .

⇒ ["1.2 Removing and installing mechatronic unit for dual clutch gearbox J743", page 107](#)



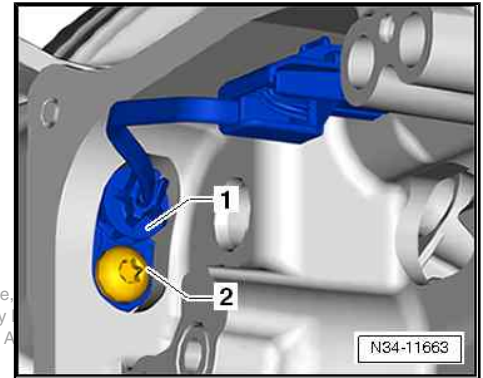
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Gearbox input speed sender - G182- / clutch temperature sender - G509-

- ◆ Fitting location: The gearbox input speed sender - G182- / clutch temperature sender - G509- -1- is secured to the gearbox housing with bolt -2-.

⇒ ["1.3 Removing and installing gearbox input speed sender G182 / clutch temperature sender G509", page 110](#)

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Selector lever sensors control unit - J587- with selector lever - E313- , tiptronic switch - F189- , selector lever locked in position P switch - F319-

- ◆ Fitting location: The components are integrated in the printed circuit of the shift unit; they cannot be renewed separately.



Note

The shift unit must be renewed if one of the components is defective ⇒ [page 48](#) .



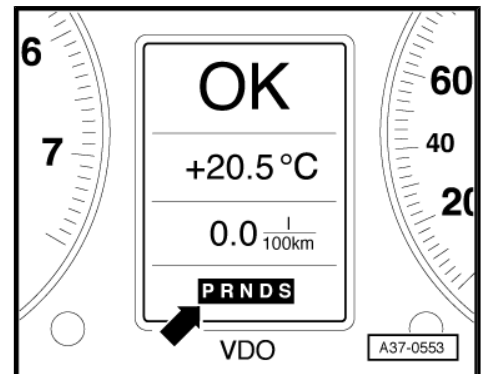
Selector lever position display - Y6-

- ◆ Fitting location: The selector lever position display - Y6- -arrow- is integrated in the instrument cluster and cannot be renewed separately.



Note

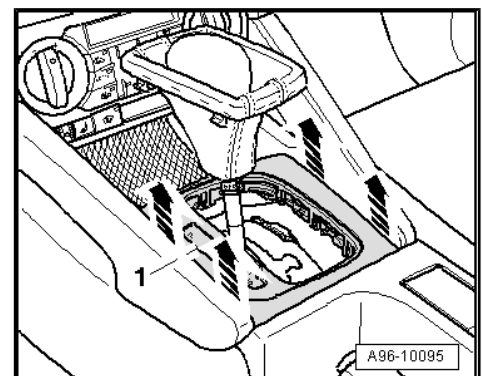
- ◆ If the selector lever position display flashes or lights up, please refer to safety functions of gearbox control unit ⇒ [page 8](#) .
- ◆ If the selector lever position display - Y6- is defective, the instrument cluster must be renewed ⇒ *Electrical system; Rep. gr. 90* .



Selector lever display illumination bulb - L101- with selector lever position display - Y26-

- ◆ Fitting location: in trim frame -1-

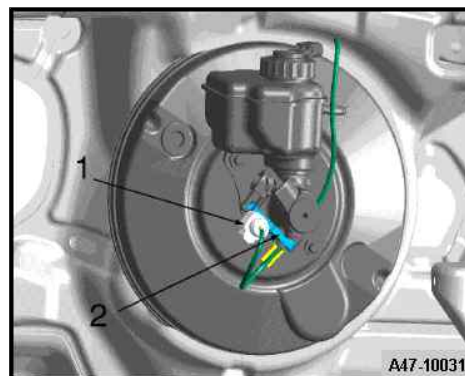
⇒ ["2.4 Removing and installing selector lever display illumination bulb L101 with selector lever position display Y26", page 43](#)



Brake light switch - F-

- ◆ Fitting location: The brake light switch -2- is located on the brake master cylinder.

Removing and installing brake light switch ⇒ Brake system; Rep. gr. 45 .



Kickdown switch - F8-

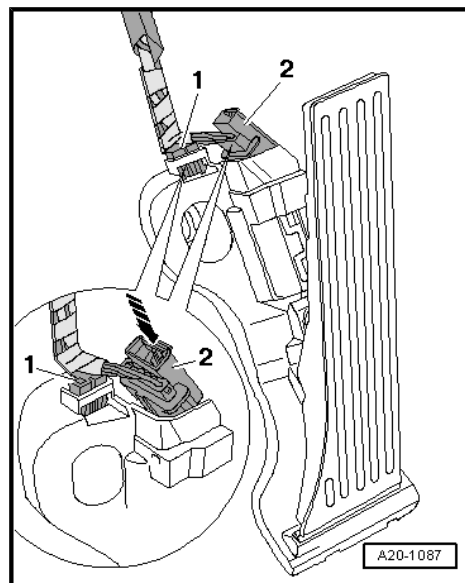
A programmed value from accelerator position sender - G79- / accelerator position sender 2 - G185- (integrated in accelerator pedal module) is stored in the engine control unit as the kickdown signal. The accelerator position senders cannot be renewed separately.

- ◆ Signal is transmitted from engine control unit to gearbox control unit via CAN bus.



Note

The accelerator pedal module must be renewed if one of the accelerator position senders is defective ⇒ Fuel supply system, petrol engines; Rep. gr. 20 .



1.1 Overview of fitting locations - mechatronic unit senders



A - Gear selector movement sensor 4 - G490- for reverse gear and 4th gear

B - Gear selector movement sensor 1 - G487- for 5th and 1st gear

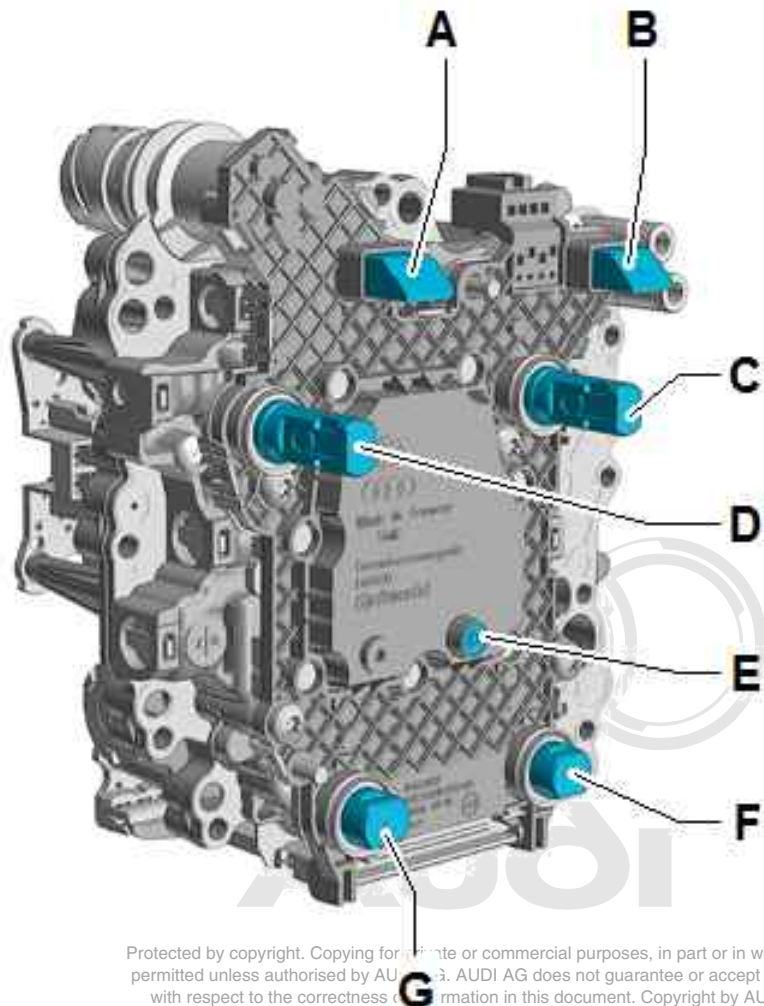
C - Gearbox input speed sender 2 - G612-

D - Gearbox input speed sender 1 - G632-

E - Gearbox oil temperature sender - G93-

F - Gear selector movement sensor 2 - G488- for 2nd and 6th gear

G - Gear selector movement sensor 3 - G489- for 3rd and 7th gear



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A34-11655

2 Exploded view - selector lever handle, selector lever display illumination bulb - L101- and selector lever position display - Y26-

1 - Trim frame

- ❑ With selector lever display illumination bulb - L101- and selector lever position display - Y26-
- ❑ ⇒ [“2.4 Removing and installing selector lever display illumination bulb L101 with selector lever position display Y26”](#), page 43

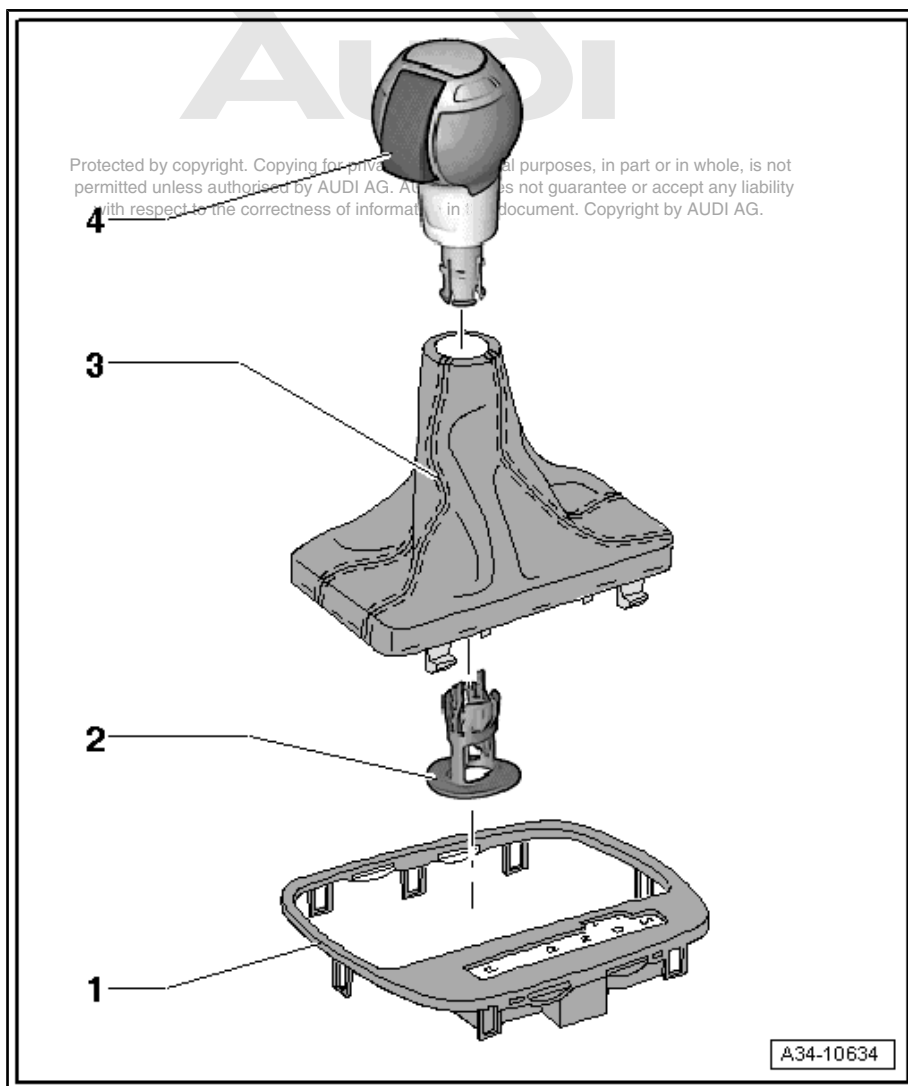
2 - Guide

3 - Selector lever boot

- ❑ ⇒ [“2.2 Detaching and attaching selector lever boot on selector lever handle”](#), page 40

4 - Selector lever handle

- ❑ ⇒ [“2.1 Removing and installing selector lever handle”](#), page 38
- ❑ ⇒ [“2.3 Moving interlock button on selector lever handle into installation position”](#), page 42



2.1 Removing and installing selector lever handle

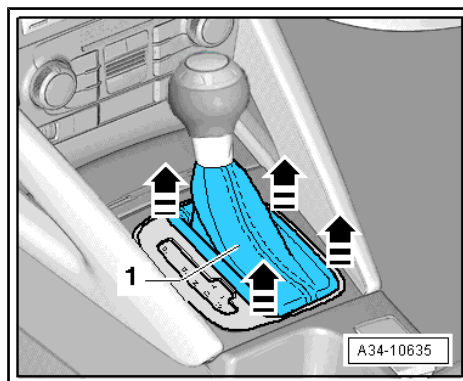
Removing



Note

The selector lever handle is removed together with the selector lever boot.

- Apply handbrake.
- Shift selector lever into position “N”.
- Unclip selector lever boot on both sides and lift it off -arrows-.



- Turn selector lever boot -2- inside out over selector lever handle -3-.
- Turn locking ring in direction of -arrow- as far as stop.
- Raised lug -b- on locking ring is moved away from lug -a-.

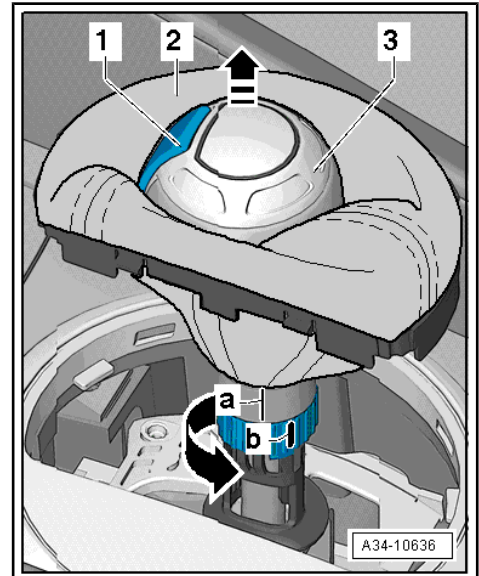


Caution

Risk of damage to the selector mechanism.

- ◆ **Do not touch the interlock button -1- on the selector lever handle when pulling off the handle.**
- ◆ **Otherwise the selector lever handle or the pull rod of the selector mechanism will be damaged when the handle is pulled off.**

- Pull off selector lever handle together with selector lever boot upwards -arrow-, taking care not to touch interlock button -1-.



Installing

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

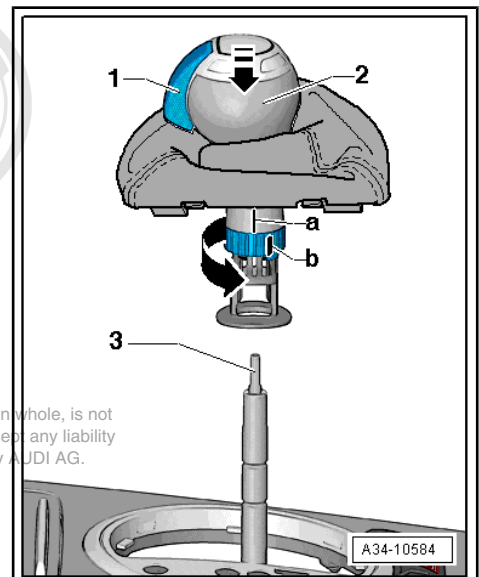
- Turn locking ring in direction of -arrow- as far as stop.
- Raised lug -b- on locking ring is moved away from lug -a-.
- Interlock button faces direction of travel.



Caution

Risk of damage to the selector mechanism.

- ◆ **The interlock button -1- must protrude from the selector lever handle during installation. If the interlock button was pressed in by mistake when the handle was removed, the interlock button must be moved back to its installation position ➔ [page 42](#) .**
- ◆ **If the interlock button has been pressed in and the handle is installed with the interlock button in this position, the handle and the pull rod of the selector mechanism -3- will be damaged irreparably.**



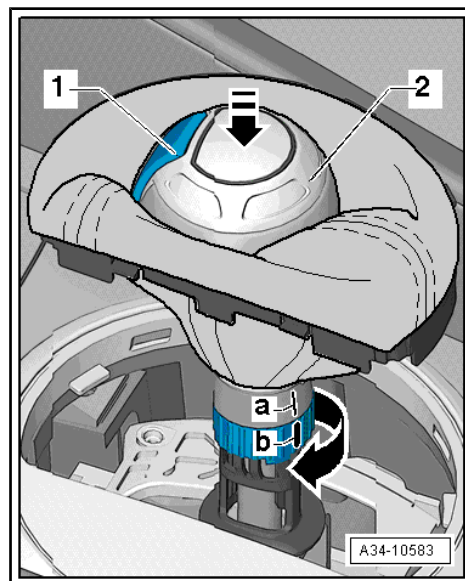
- Carefully press selector lever handle fully onto selector lever, taking care not to touch interlock button -1-.
- The handle must engage in the annular groove on the selector lever.

- Turn locking ring in direction of -arrow- as far as stop.
- It must be possible to turn the locking ring; press handle if necessary.
- Lug -a- must align with raised lug -b- on locking ring.



Note

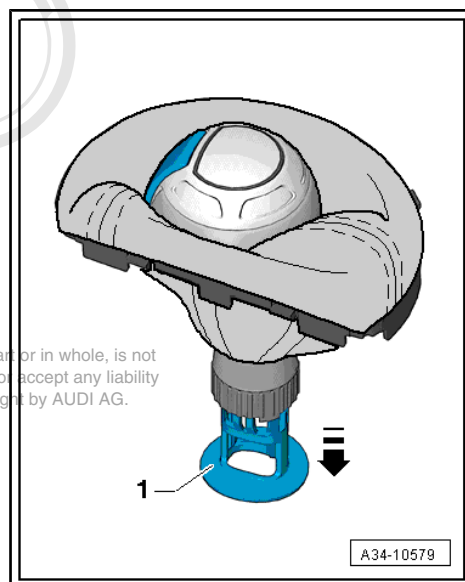
- ◆ *The handle is not locked until the locking ring has been turned. Only then should you press the interlock button on the handle.*
- ◆ *There may be increased resistance when you press the interlock button for the first time after installation.*
- Press interlock button -1- on selector lever handle.
- Fold selector lever boot down and clip it in.
- Check selector mechanism ⇒ [page 47](#) .



2.2 Detaching and attaching selector lever boot on selector lever handle

Detaching

- Remove selector lever handle ⇒ [page 38](#) .
- Pull guide -1- off in direction of -arrow-.



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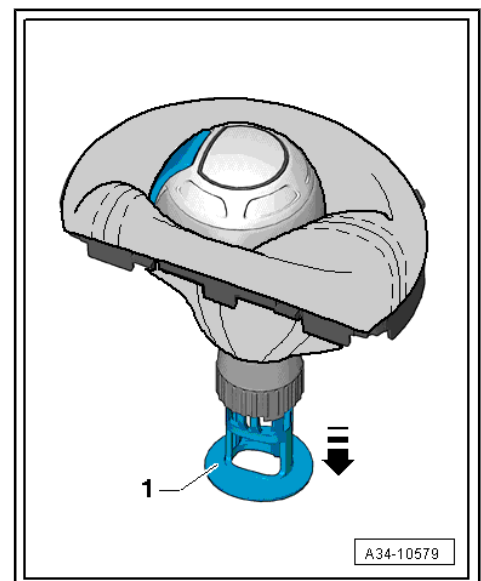
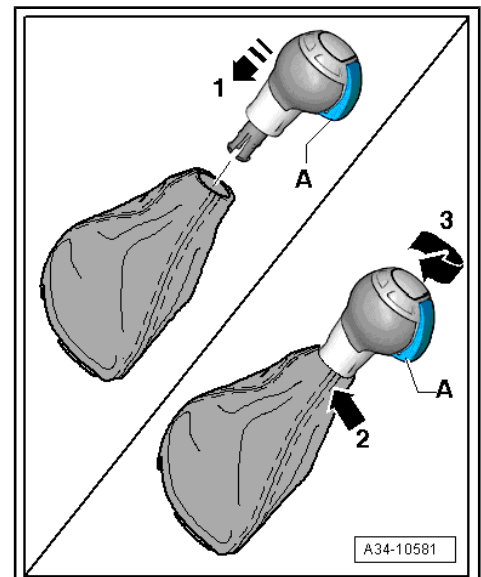
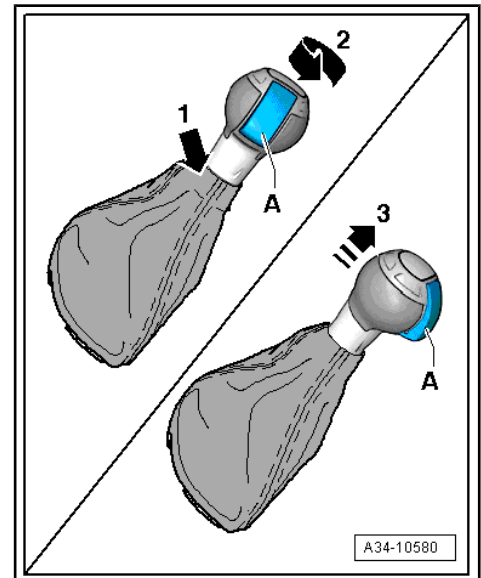
- Do not touch interlock button -A- when selector lever handle has been removed.
- Hold upper end of selector lever boot -arrow 1-.
- Turn selector lever handle in direction of -arrow 2- and pull it off -arrow 3-.

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Attaching

- Do not touch interlock button -A- when selector lever handle has been removed.
- Insert selector lever handle in selector lever boot -arrow 1- (with interlock button turned 90° out of position towards left).
- Hold upper end of selector lever boot -arrow 2-.
- Turn selector lever handle in direction of -arrow 3-.

- Clip guide -1- upwards into handle in opposite direction of -arrow-.
- Install selector lever handle ⇒ [page 38](#) .



2.3 Moving interlock button on selector lever handle into installation position

Special tools and workshop equipment required

- ◆ Release tool - T40203-

Procedure

- Installation position: The interlock button -1- must protrude from the selector lever handle.



Note

If the interlock button has been pressed in, it must be moved back into its installation position so that the selector lever handle can be installed.

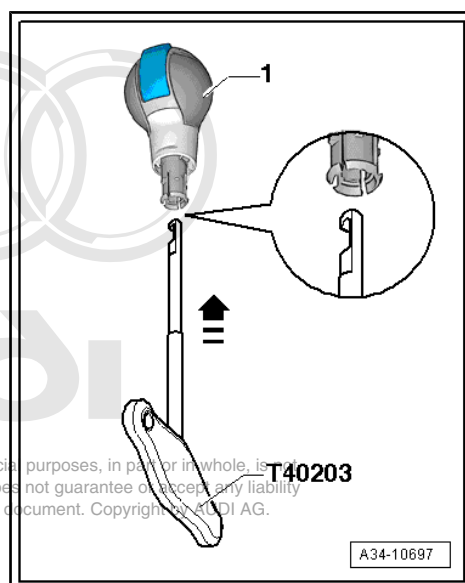
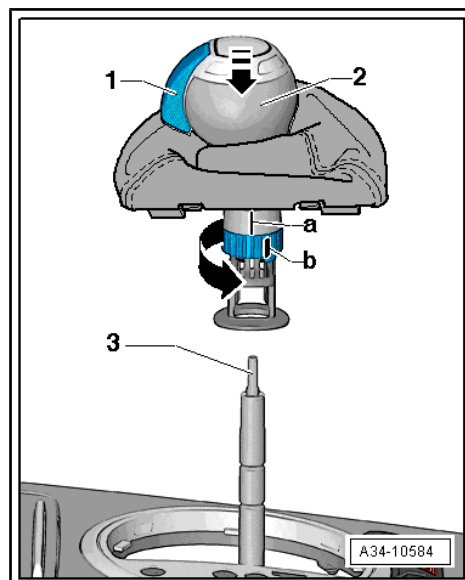
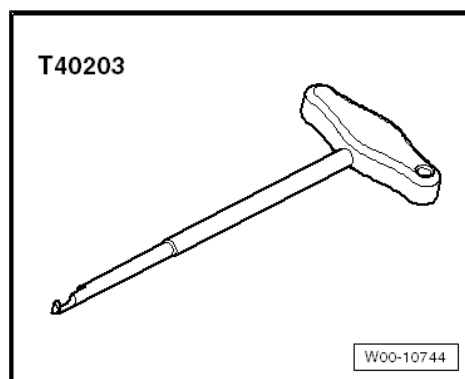
- Carefully insert release tool - T40203- into selector lever handle -1- as far as stop.



Note

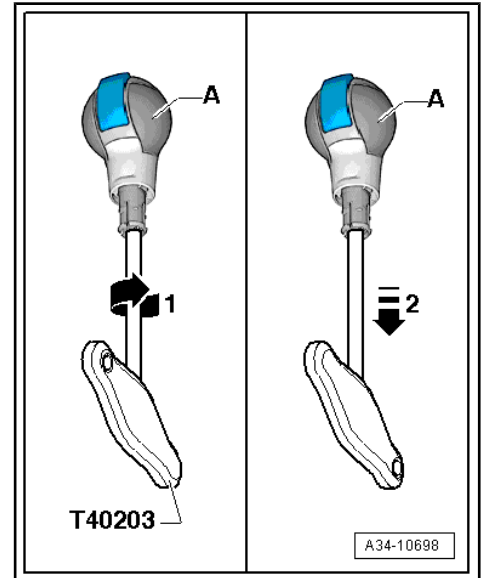
For illustration purposes, the handle is shown without selector lever boot.

- Recess on release tool - T40203- should face interlock button, hook should point towards left.

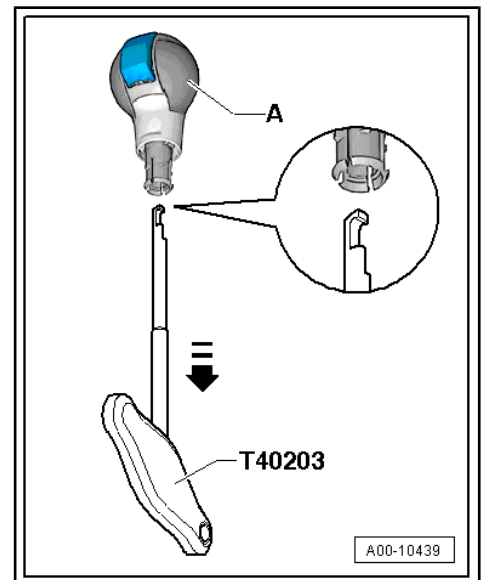


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- Hold selector lever handle -A- and turn release tool - T40203- 180° in direction of -arrow 1-.
- Hold handle and carefully pull out release tool - T40203- -arrow 2-.



- When pulling out release tool - T40203- , interlock button -A- on selector lever handle is pressed out and locked in position.
- Do not touch interlock button on selector lever handle before installing handle so that interlock button is not pressed in again.



2.4 Removing and installing selector lever display illumination bulb - L101- with selector lever position display - Y26-

Removing



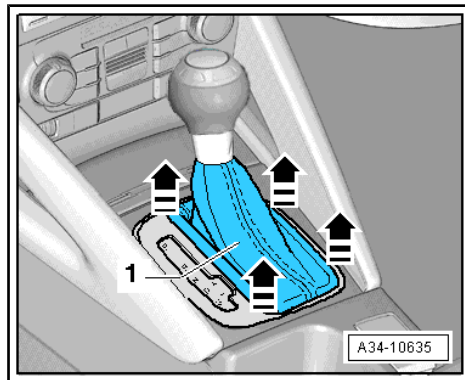
Note

The selector lever display illumination bulb - L101- with selector lever position display - Y26- can only be renewed together with the trim frame as one unit.

- Apply handbrake.
- Shift selector lever into position "N".
- Switch off ignition.

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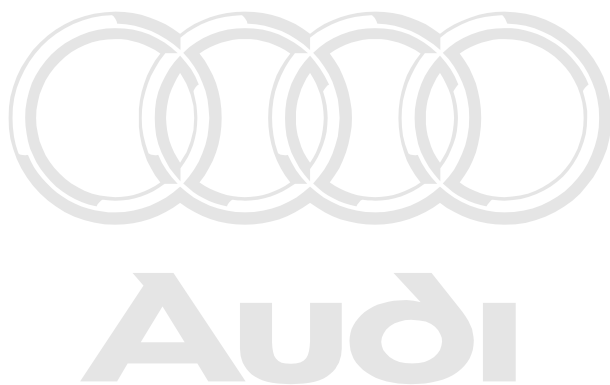
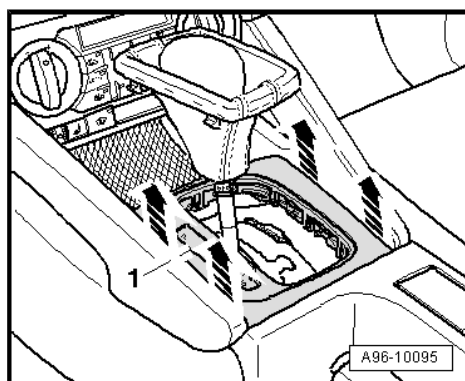
- Unclip selector lever boot on both sides and lift it off -arrows-.
- Pull selector lever boot up and over handle.



- Carefully unclip trim frame -1- at fasteners and lift out -arrows-.
- Unplug electrical connector.

Installing

Install in reverse sequence.



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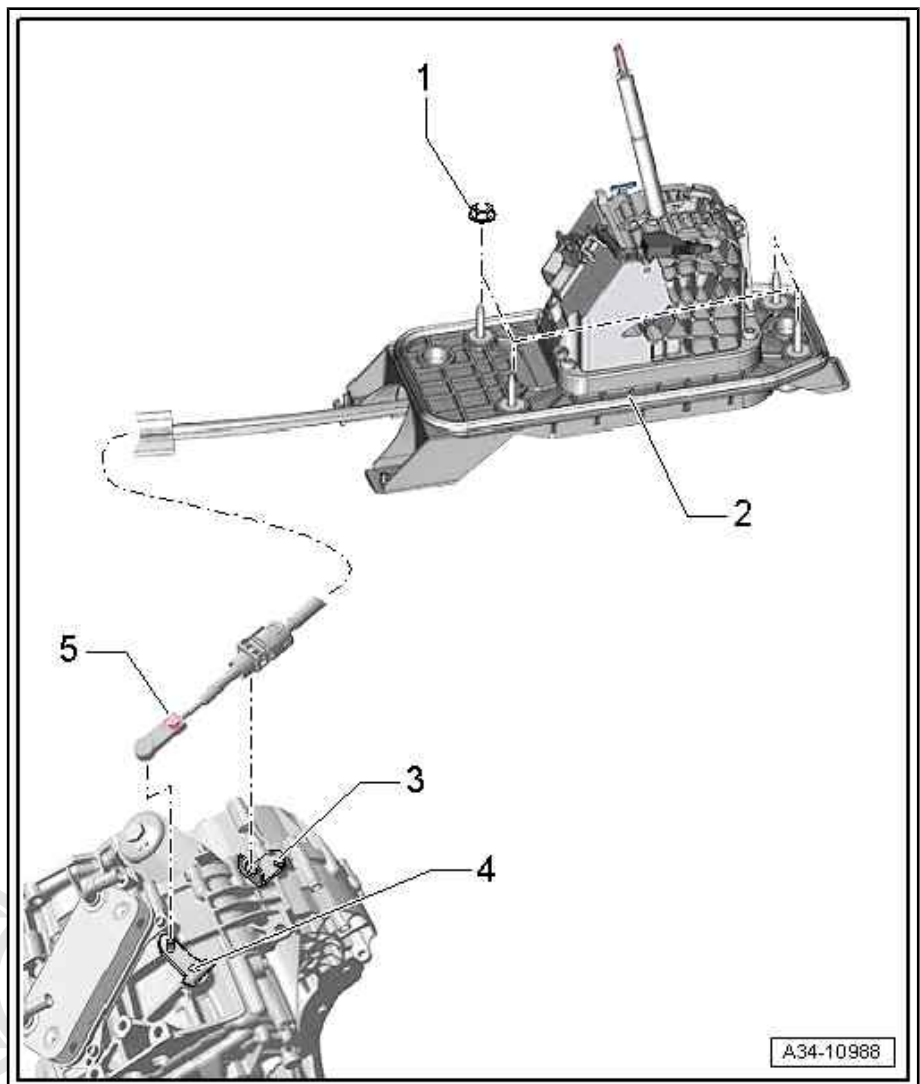
3 Exploded view - selector mechanism

1 - Nut

- ☐ 4x
- ☐ Secures selector mechanism to body
- ☐ 8 Nm

2 - Shift unit

- ☐ Incorporates the following components: selector lever sensors control unit - J587- with selector lever - E313- , tiptronic switch - F189- , selector lever locked in position P switch - F319- and selector lever lock solenoid - N110-
- ☐ Can be checked via Guided Fault Finding function ⇒ Vehicle diagnostic tester
- ☐ Selector lever sensors control unit - J587- with selector lever - E313- , tiptronic switch - F189- , selector lever locked in position P switch - F319- and selector lever lock solenoid - N110- can only be renewed together with shift unit as a complete unit ⇒ [page 48](#)
- ☐ Selector lever cable can only be renewed together with complete shift unit ⇒ [page 48](#)
- ☐ Do not grease selector lever cable



- ☐ ⇒ [“3.1 Operating manual release of selector mechanism from position P”](#), page 45
- ☐ ⇒ [“3.3 Removing and installing selector mechanism”](#), page 48

3 - Cable support bracket

- ☐ For selector lever cable

4 - Gearbox selector lever

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5 - Bolt

- ☐ Adjuster screw for selector lever cable
- ☐ 15 Nm

3.1 Operating manual release of selector mechanism from position “P”

- ◆ The selector lever lock solenoid - N110- locks the selector lever in position “P”. The selector lever can then only be shifted out of position “P” when the ignition is on / the engine is running, the brake pedal is depressed and the button on the selector lever handle is pressed in ⇒ [page 47](#) .

- ◆ In the event of malfunctions in the supply voltage to the selector lever lock solenoid (discharged battery or defective fuse) or if the solenoid is defective, the selector lever cannot be shifted out of position "P", i.e. the vehicle cannot be moved since the parking lock is engaged.

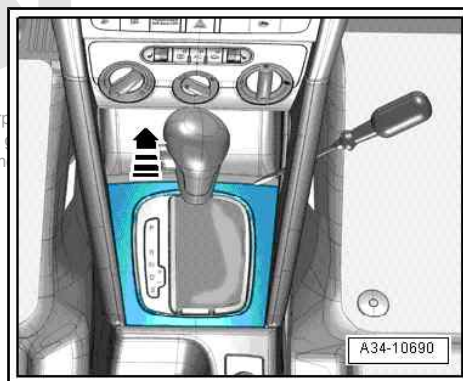
In this case:

- Check fuses ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Check battery voltage ⇒ Electrical system; General information; Rep. gr. 27 .

If fault finding has not been successful and selector lever can still not be shifted from "P" the solenoid can be released manually. However, if the selector lever is then moved back to "P" it will remain locked in position "P" once again.

Procedure

- Using a flat-bladed screwdriver, or alternatively removal wedge - 3409- , lift out retaining frame -1- for selector lever boot and pull it upwards -arrow- towards selector lever handle. To release, insert removal wedge - 3409- under bottom edge of retaining frame.
- Turn up selector lever boot.



- Release selector lever lock solenoid -arrow- using screwdriver from vehicle tool kit.



Caution

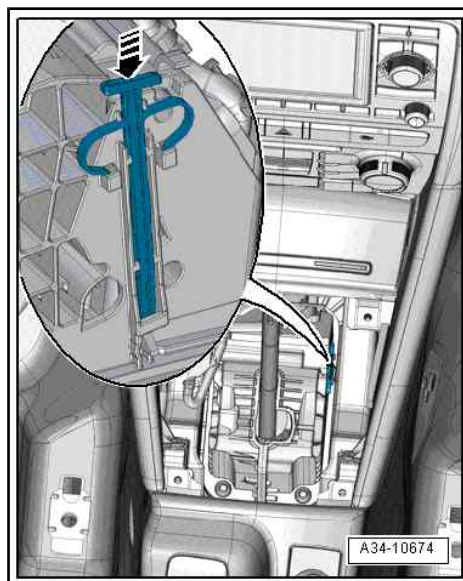
If component parts of the shift unit are damaged, the shift unit has to be renewed as a complete unit.



Note

The selector mechanism is shown without the selector lever handle for ease of illustration. However, it is not necessary to remove the selector lever handle to operate the manual release mechanism.

- Now press button on selector lever handle (with solenoid released) and shift selector lever out of "P".



Note

However, if the selector lever is now moved back to "P" the selector lever lock solenoid will once again mechanically lock it in position "P". The solenoid must be released once again.

3.2 Checking selector mechanism and ignition key removal lock

- ◆ It should not be possible to operate the starter while the selector lever is in position "S", "D" or "R" or in the tiptronic position.
- ◆ When travelling at speeds above 5 km/h and shifting into selector lever position "N", the solenoid for the selector lever lock must not engage and block the selector lever. The selector lever can be shifted into a driving gear.
- ◆ When travelling at speeds below 5 km/h (almost stationary) and shifting into selector lever position "N", the solenoid for the selector lever lock should only engage after about 1 second. Selector lever cannot be shifted out of position "N" until brake pedal is depressed.

Selector lever in position "P" and ignition switched off:

The ignition key can be removed.

Selector lever in any position other than "P" and ignition switched off:

The ignition key cannot be removed.

Selector lever in position "P", button on selector lever pressed in and ignition switched on:

- Brake pedal not applied:

When button is pressed in, selector lever is locked and cannot be shifted out of position "P". The solenoid for selector lever lock blocks the selector lever.

- Brake pedal applied:

Selector lever lock solenoid releases selector lever. It is possible to shift into a driving gear. Shift selector lever slowly from position "P" through "R, N, D and S" and check whether the selector lever position display in the instrument cluster shows the correct selector lever position in each case.

Selector lever in position "N", button on selector lever pressed in and ignition switched on:

- Brake pedal not applied:

Selector lever is locked and cannot be shifted out of position "N". The solenoid for selector lever lock blocks the selector lever.

- Brake pedal applied:

Selector lever lock solenoid releases selector lever. It is possible to shift into a driving gear.



Note

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When brake pedal is depressed, it is also possible to shift from position "N" to "D" without pressing the button on the selector lever. However, to shift from "N" to "R" you do have to additionally press the button on the selector lever.

Selector lever in position "D", ignition switched on:

The selector lever is locked and cannot be shifted from position "D" to "S".

- Press button on selector lever:

The selector lever is released and can be shifted from position "D" to "S".

Selector lever in position "D", ignition and lights switched on:

- Shift selector lever into tiptronic gate:

The illuminated "D" symbol in the selector lever position display on the shift unit should go out and the "+" and "-" symbols should light up.

The selector lever position display in the instrument cluster should switch from "PRNDS" to "7654321" when the selector lever is moved into the tiptronic gate.

- Move the selector lever in the tiptronic gate to "+" and "-".

When you move the selector lever to "+" or "-", the display "7654321" in the instrument cluster should move one gear up or down accordingly.

- If the selector mechanism or the ignition key removal lock does not function as described:

♦ ➔ ["3.4 Adjusting and checking selector lever cable"](#), page 50

- ♦ Check vehicle via [Guided Fault Finding](#) function using vehicle diagnostic tester .

3.3 Removing and installing selector mechanism

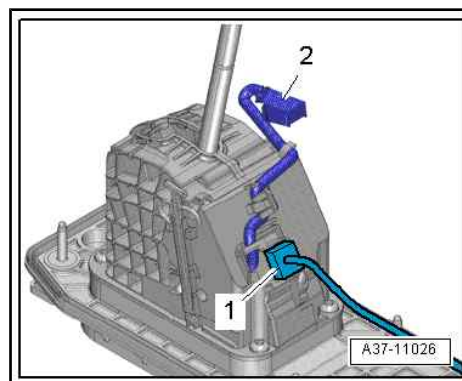
Removing

- Remove selector lever handle ➔ [page 38](#) .
- Switch off ignition.
- Remove trim frame with selector lever display illumination bulb - L101- and selector lever position display - Y26- ➔ [page 43](#) .
- Remove ashtray or storage compartment in front of selector mechanism ➔ General body repairs, interior; Rep. gr. 68 .
- Unplug electrical connector -1- between shift unit and vehicle wiring harness.

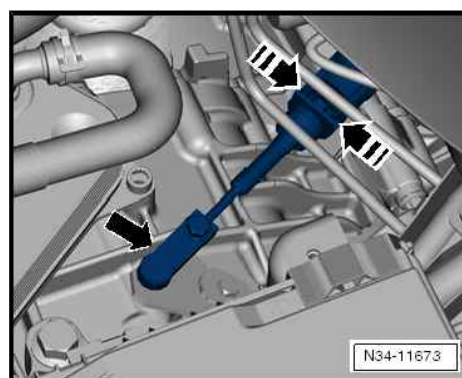


Note

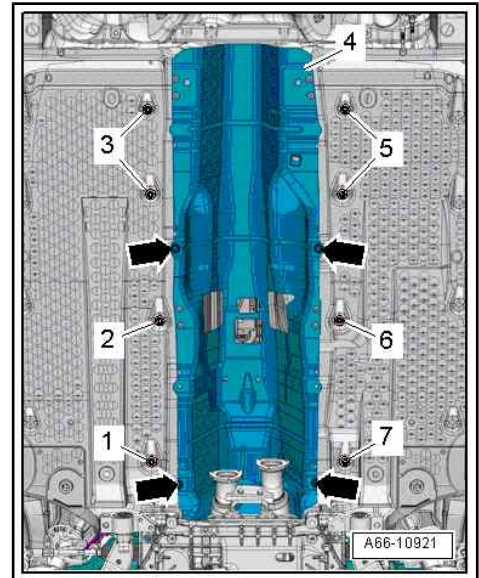
Disregard -item 2-.



- Prise selector lever cable -arrow- off gearbox selector lever using an open-end spanner or similar.
- Compress locking mechanism on selector lever cable -arrows- and lift cable out of cable support bracket.
- Remove exhaust system ➔ Engine, mechanics; Rep. gr. 26 .
- Remove propshaft ➔ Rear final drive 02D, 0AV, 0BR and 0BY; Rep. gr. 39 .



- Remove heat shield for centre tunnel ⇒ General body repairs, exterior; Rep. gr. 66 .



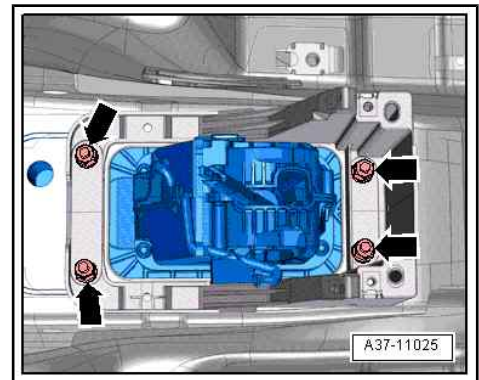
 Note

The assistance of a second mechanic is required to detach the shift unit from below.

- Remove nuts -arrows- in vehicle interior.
- Detach shift unit together with selector lever cable by pulling them off downwards.

 Note

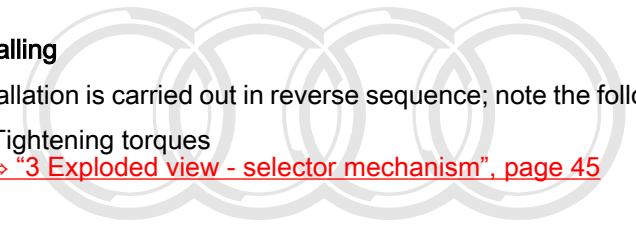
Do not bend or kink the selector lever cable.



Installing

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

- Tightening torques
⇒ ["3 Exploded view - selector mechanism", page 45](#)


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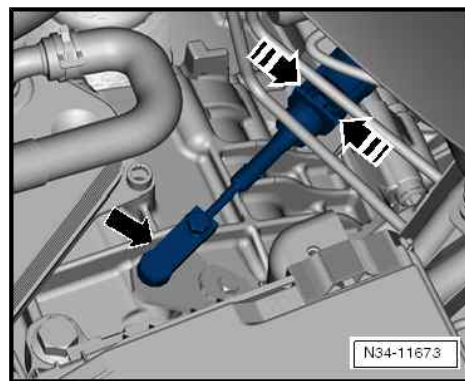
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- Fit selector lever cable in cable support bracket -arrows-.
- Then carefully press ball socket of selector lever cable -arrow- onto gearbox selector lever.



Note

- ◆ *Do not bend or kink the selector lever cable.*
- ◆ *Do not grease the selector lever cable.*
- Install heat shield for centre tunnel ⇒ General body repairs, exterior; Rep. gr. 66 .
- Install propshaft ⇒ Rear final drive 02D, 0AV, 0BR and 0BY; Rep. gr. 39 .
- Install exhaust system so it is free of stress ⇒ Engine, mechanics; Rep. gr. 26 .
- Install ashtray or storage compartment in front of selector mechanism ⇒ General body repairs, interior; Rep. gr. 68 .
- Install trim frame with selector lever display illumination bulb - L101- and selector lever position display - Y26- ⇒ [page 43](#) .
- Install selector lever handle ⇒ [page 38](#) .
- Adjust selector lever cable ⇒ [page 50](#) .
- Check selector mechanism and ignition key removal lock ⇒ [page 47](#) .



3.4 Adjusting and checking selector lever cable

Adjusting selector lever cable

- Selector mechanism and selector lever cable operate smoothly when changing gears.
- Sleeve on selector lever cable is undamaged.
- Tightening torque
⇒ ["3 Exploded view - selector mechanism", page 45](#)

The selector lever cable must be adjusted if:

- ◆ The selector lever cable has been detached from the gearbox.
- ◆ The engine and/or gearbox have been removed and installed.
- ◆ The selector lever cable has been removed and installed with the selector mechanism.
- ◆ The position of the engine/gearbox assembly has been altered, e.g. installed so it is free of stress.

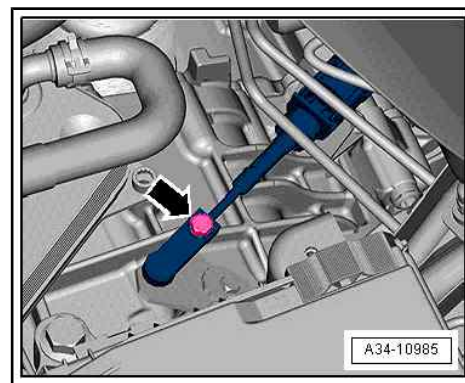
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- Move selector lever to position “P”.
- Loosen bolt -arrow- for adjustment of selector lever cable.
- Move gearbox selector lever into position “P” on gearbox. To check this position, press gearbox selector lever towards rear of vehicle as far as stop.



Note

To be sure that the gearbox is in “P” (parking lock engaged), lift vehicle. It should not be possible to turn both front wheels simultaneously in the same direction.



- To release tension in selector lever cable, carefully move selector lever slightly forwards and backwards, without shifting into a different position.
- Tighten adjuster screw -arrow-, taking care not to alter position of selector lever cable.

Checking adjustment of selector lever cable

- Keep button pressed, while pulling selector lever approx. 5 mm to the rear out of position “P”. Then keep lever in this position, do not move it into “R”.
- Release selector lever.
- The selector lever should spring back into position “P” by itself.
- Shift selector lever into position “N”.
- Keep button pressed, while pulling selector lever approx. 5 mm to the rear out of position “N”. Then keep lever in this position, do not move it into “D”.
- Release selector lever.
- The selector lever should spring back into position “N” by itself.
- Keep button pressed, while pushing selector lever approx. 5 mm to the front out of position “N”. Then keep lever in this position, do not move it into “R”.
- Release selector lever.
- The selector lever should spring back into position “N” by itself.
- Repeat the adjustment if the selector lever does not react as described.
- Check selector mechanism ➤ [page 47](#) .

3.5 Removing and installing selector lever sensors control unit - J587- with selector lever - E313- , tiptronic switch - F189- and selector lever locked in position P switch - F319-

The components are integrated in the shift unit; they cannot be renewed separately. The shift unit must be renewed in the event of a fault ➤ [page 48](#) .

3.6 Removing and installing selector lever lock solenoid - N110-

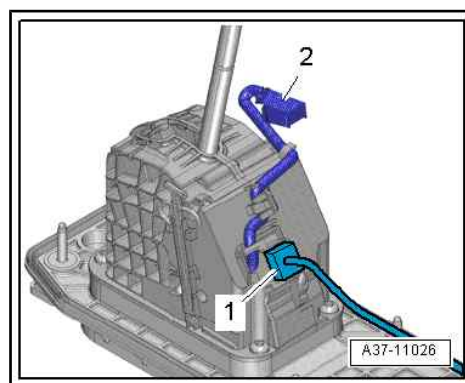
The selector lever lock solenoid - N110- is integrated in the shift unit and cannot be renewed separately. The shift unit must be renewed in the event of a fault ⇒ [page 48](#) .

3.7 Checking connectors on selector mechanism

Before servicing or checking the connectors, the cause of the fault should be identified via Guided Fault Finding using the vehicle diagnostic tester .

Before checking the connectors, all the control units in the vehicle should be checked for entries in the event memory using the vehicle diagnostic tester ; repair faults as necessary.

- Check connectors according to ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- 1 - Electrical connector for wiring from shift unit to gearbox (with CAN bus wire) and to selector lever lock solenoid - N110- and selector lever locked in position P switch - F319-
- 2 - Electrical connector for trim frame with selector lever display illumination bulb - L101- and selector lever position display - Y26-



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4 Removing and installing gearbox

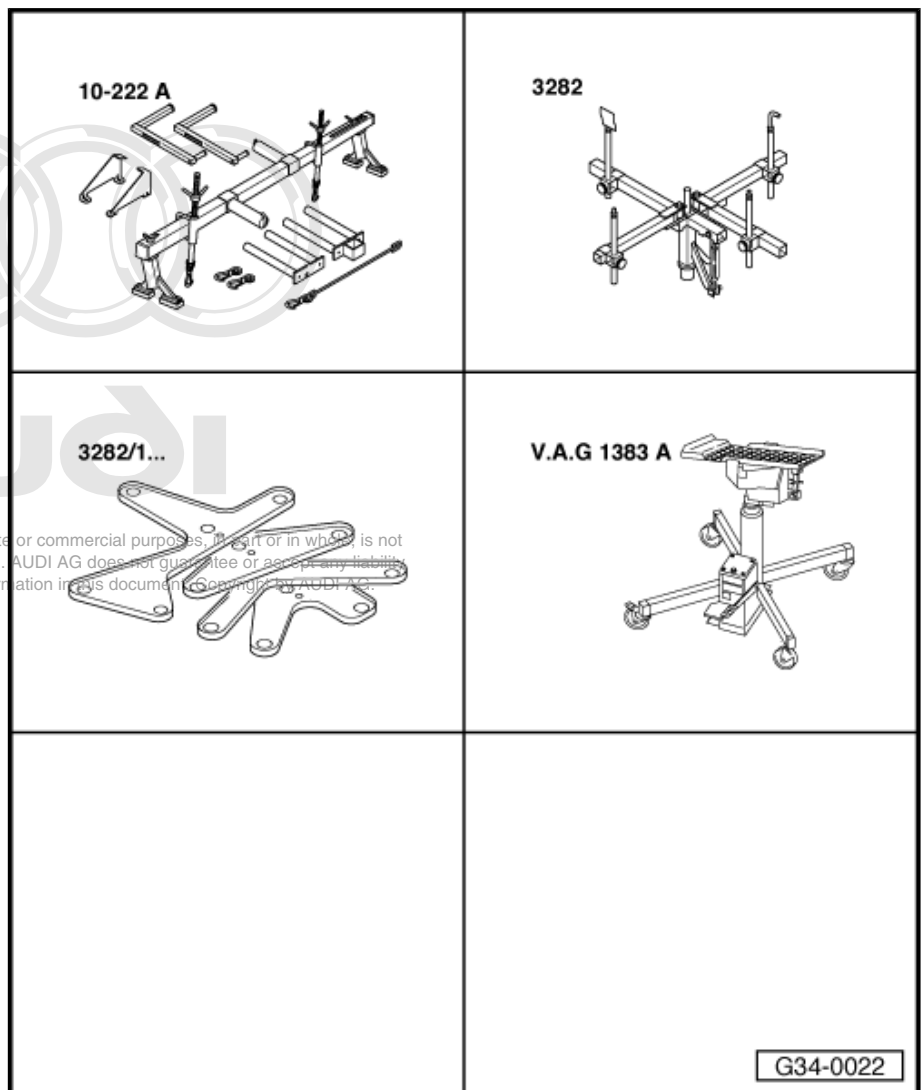
Overview:

- ◆ ⇒ [“4.1 Removing gearbox”, page 53](#)
- ◆ ⇒ [“4.2 Installing gearbox”, page 66](#)

4.1 Removing gearbox

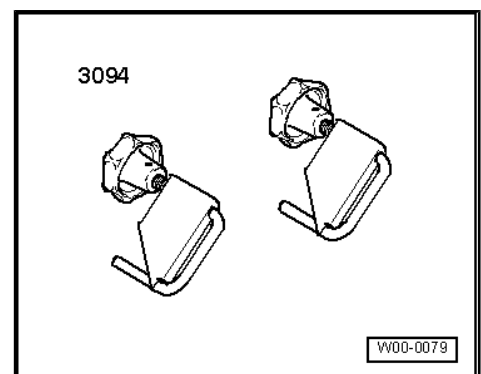
Special tools and workshop equipment required

- ◆ Support bracket - 10 - 222 A- , shackle - 10 - 222 A / 12- , hook - 10 - 222 A / 20-
- ◆ Gearbox support - 3282-
- ◆ Adjustment plate - 3282/61-
- ◆ Engine and gearbox jack - V.A.G 1383 A-

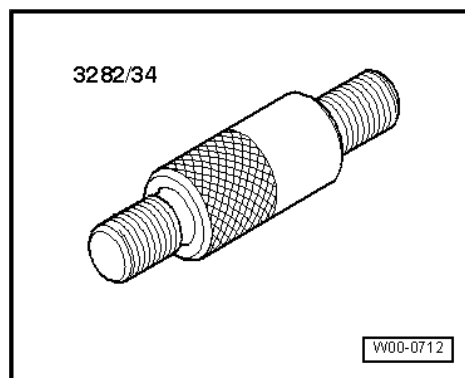


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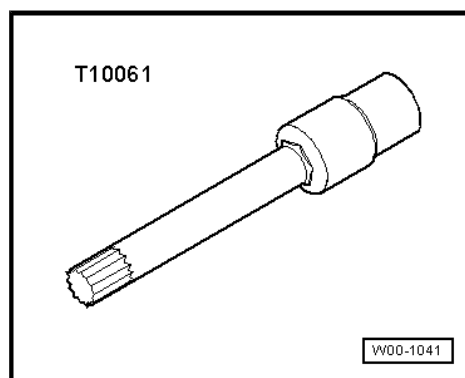
- ◆ Hose clamps, up to 25 mm - 3094-



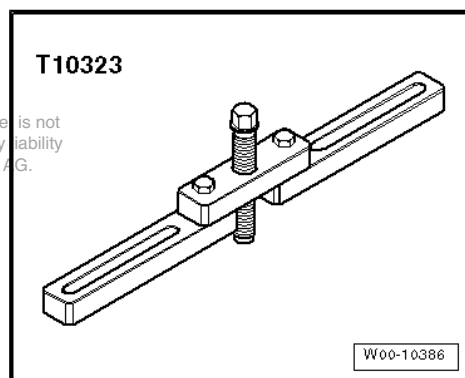
◆ Pin - 3282/34-



◆ Socket - T10061-



◆ Support bridge - T10323-



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◆ High-temperature grease - G 052 133 A2-

◆ Bracket - T40299-

◆ M6x25 bolts (2x) and M6x20 bolt (1x)

Procedure



Note

- ◆ Please refer to ⇒ *"7 Repair instructions", page 11* .
- ◆ Please refer to ⇒ *"8 Rules for cleanliness when working on the gearbox", page 13* .
- ◆ Observe notes on dual clutch gearbox 0BH ⇒ *page 7* .
- ◆ All cable ties which are released or cut open during removal must be fitted in the same position when installing.

- Move selector lever to position "P".

- Bring front wheels into straight-ahead position.
- Switch off ignition.

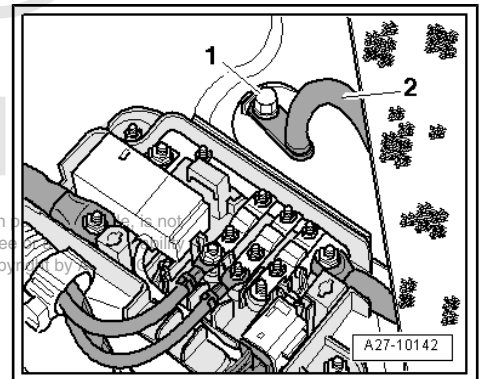


Caution

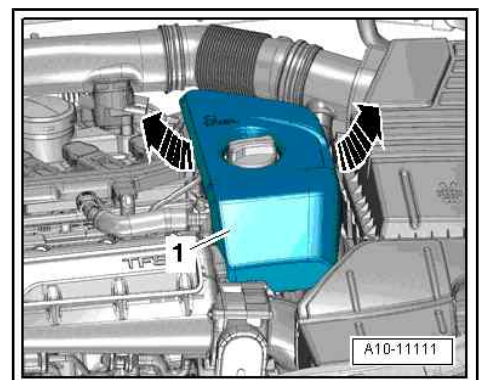
When disconnecting the battery there is a risk of irreparable damage to electronic components.

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

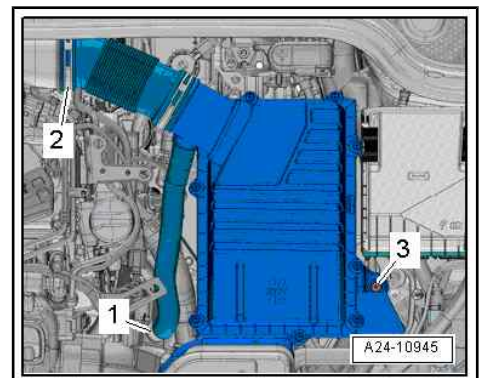
- With ignition switched off, disconnect earth wire -arrow- from battery ➔ Electrical system; Rep. gr. 27 .



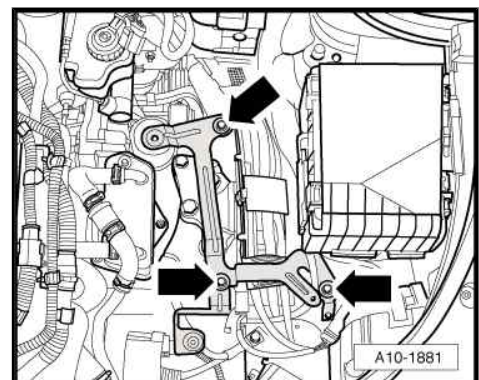
- Lift off engine cover panel -1-.



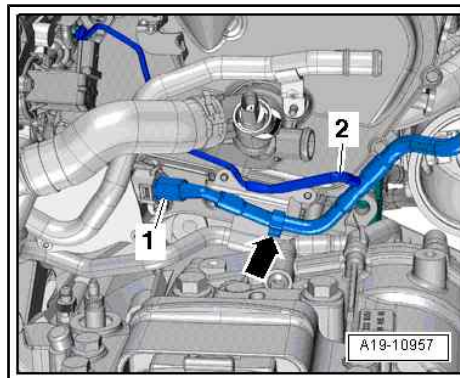
- Remove air cleaner housing ➔ Injection and ignition system; Rep. gr. 24 .



- Move electrical wiring harness clear at bracket for air cleaner housing.
- Remove bolts -arrows- and detach bracket for air cleaner housing.



- Disconnect vacuum hose -2-.
- Release vacuum hose -1- from retainer -arrow- and disconnect from vacuum pump.

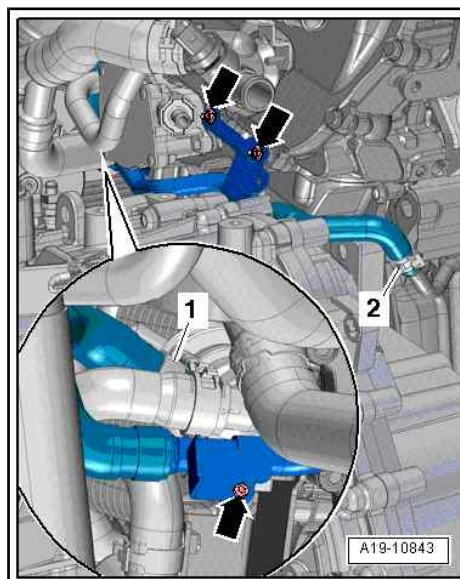


- Remove nuts and bolt -arrows- securing coolant pipe (left-side).
- Carefully tie up coolant pipe (left-side).



Note

The coolant hoses -1- and -2- remain attached to the coolant pipe.



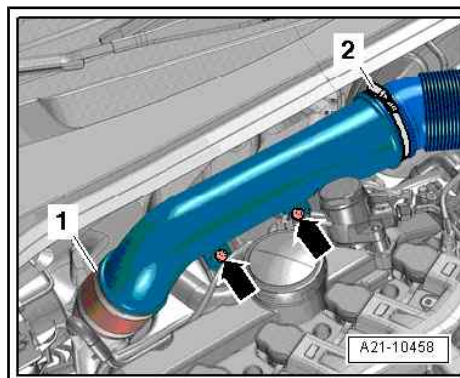
- Remove bolts -arrows-.

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Note

Disregard -item 2-.

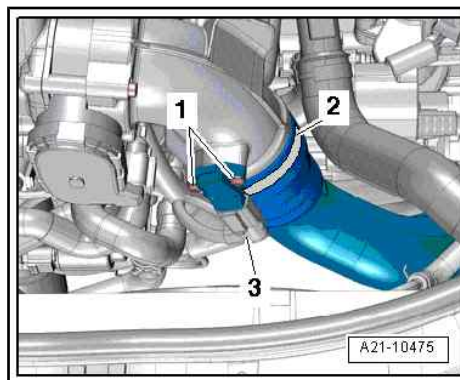


- Release hose clip -2- securing air pipe (left-side).



Note

Disregard items -1 and 3-.

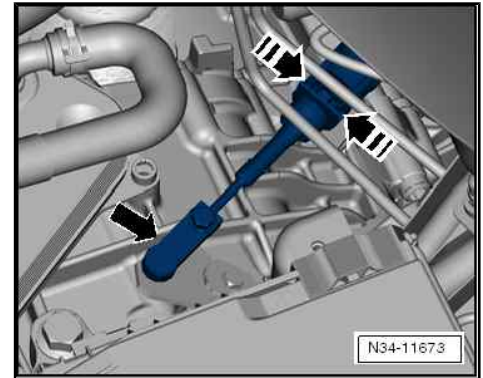


- Prise selector lever cable off gearbox selector lever -arrow- using an open-end spanner or similar.
- Compress locking mechanism on selector lever cable -arrows- and lift cable out of cable support bracket.

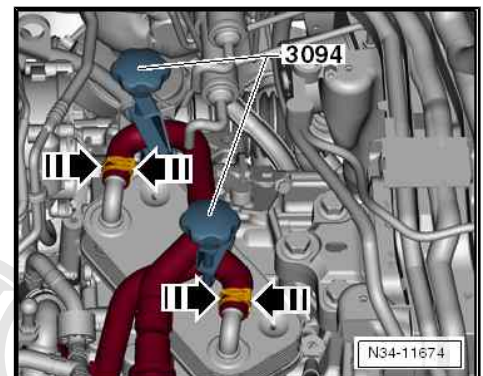


Note

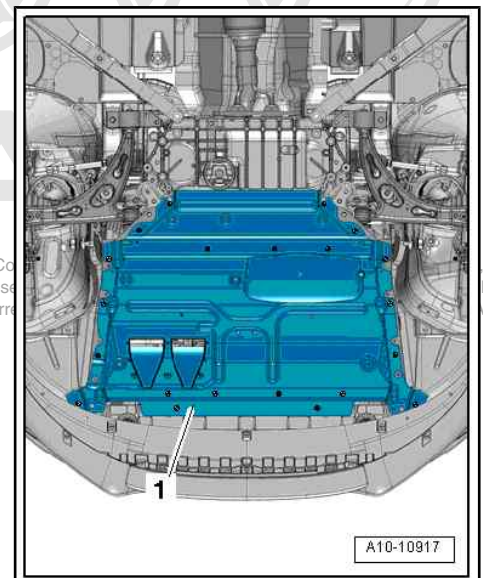
Do not bend or kink the selector lever cable.



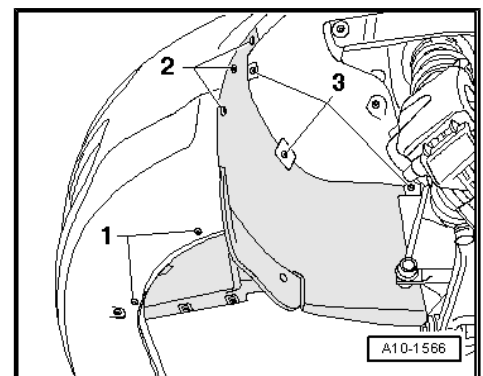
- Clamp off coolant hoses leading to gear oil cooler using hose clamps -3094-. Then release hose clips -arrows- and disconnect hoses.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



- Remove front wheels (both sides) ⇒ Wheels and tyres; Rep. gr. 44 .
- Remove noise insulation -1- ⇒ General body repairs, exterior; Rep. gr. 50 .



- Remove front section of front wheel housing liner on both sides ⇒ General body repairs, exterior; Rep. gr. 66 .

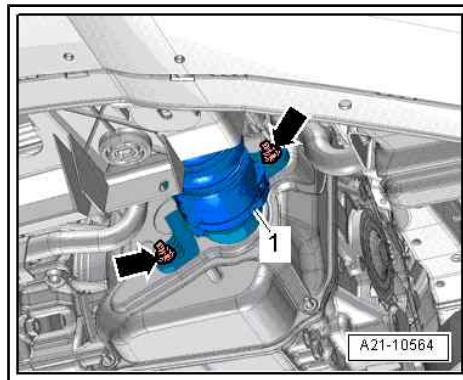


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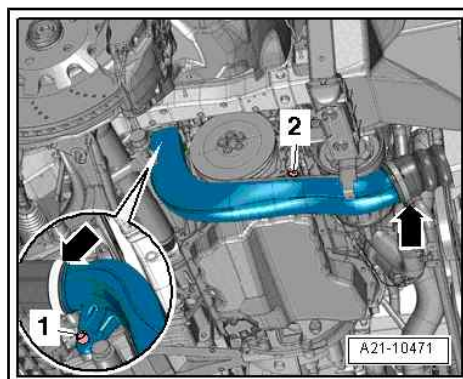
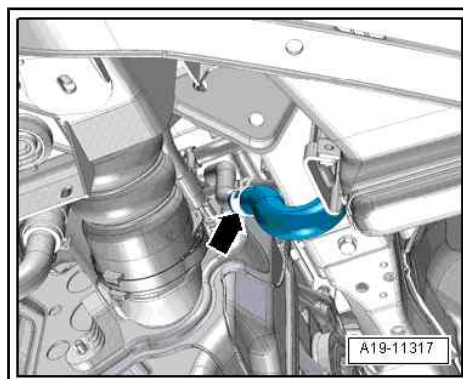
- Remove nuts -arrows-.
- Release hose clip -1- and detach air pipe.



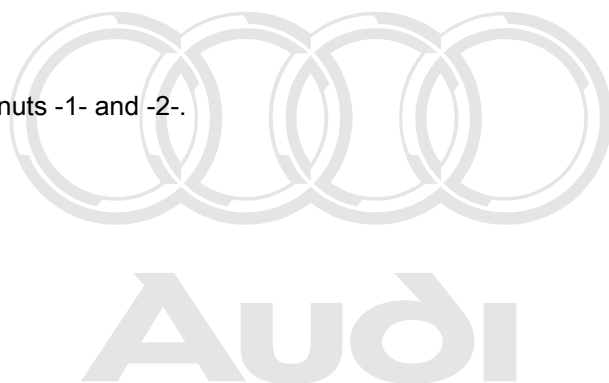
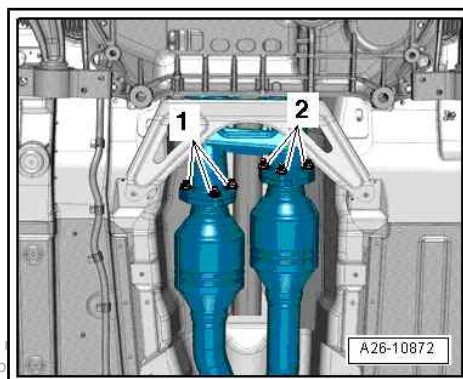
Note

Place a cloth underneath to catch escaping coolant and engine oil.

- Clamp off coolant hose (bottom left) using hose clamp -3094- . Then release hose clip -arrow- and disconnect hose from radiator.
- Remove bolts -1- and -2-. Loosen hose clips -arrows- and detach air pipe (right-side).

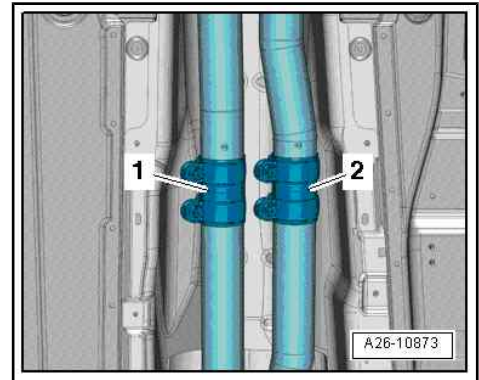


- Remove nuts -1- and -2-.

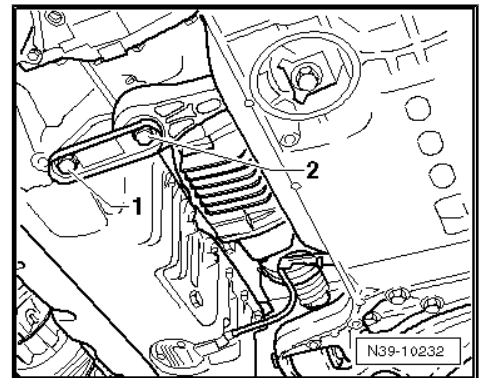


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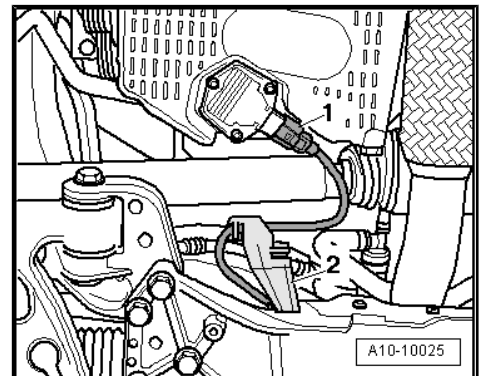
- Unfasten clamps -1- and -2- and remove both catalytic converters.



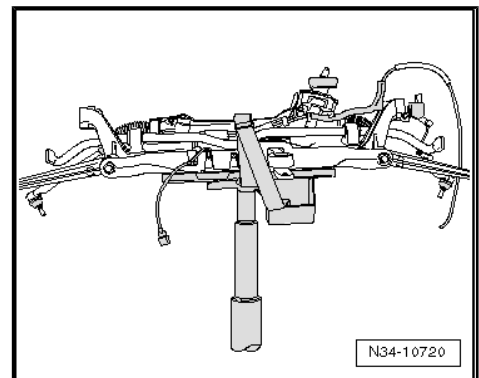
- Remove bolts -1- and -2- securing pendulum support to gearbox.



- Unplug electrical connector -1- at oil level and oil temperature sender - G266- .

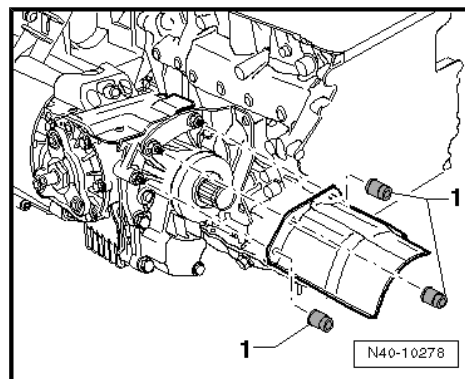


- Remove subframe with steering rack (fit locating pins - T10096-) ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 .

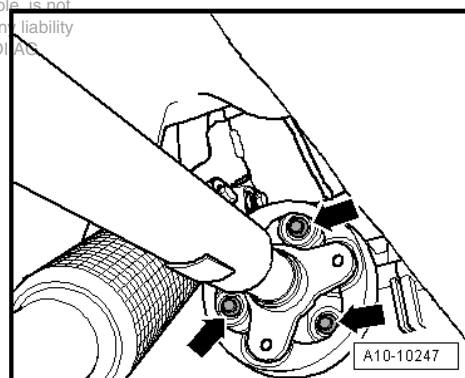


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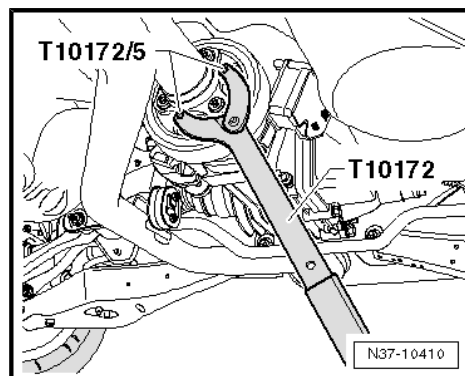
- Remove nuts -1- and detach heat shield for drive shaft (right-side).
- Unbolt drive shafts (left and right) from gearbox and tie up ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 .



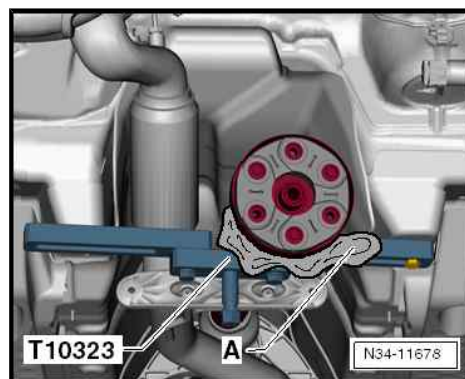
- Mark position of flexible coupling relative to bevel box flange for re-installation.
- Unbolt propshaft from bevel box -arrows-.



- If necessary, counterhold at rear final drive when loosening and tightening propshaft bolts.



- Secure support bridge - T10323- to inner rear threaded hole for subframe with one bolt.
- This can be done with the subframe securing bolt.
- Lay a cloth -A- on support bridge and place propshaft on cloth.





Caution

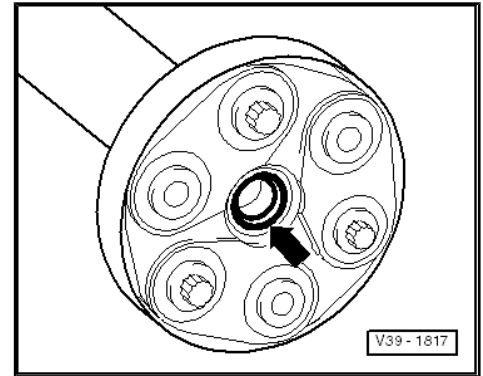
Risk of damage to oil seal -arrow- in propshaft flange.

- ◆ *Push propshaft as far back as possible, keeping it horizontal.*



Note

If seal is damaged propshaft must be renewed.

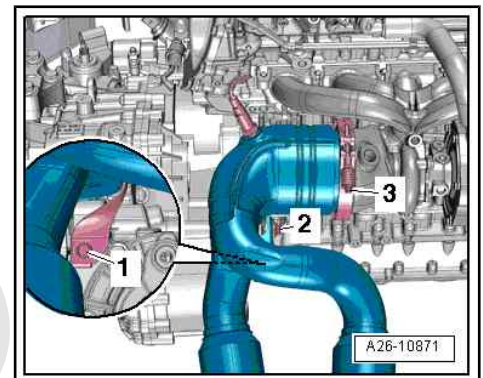


- Remove bolts -1- and -2- and detach bracket for starter catalytic converter.

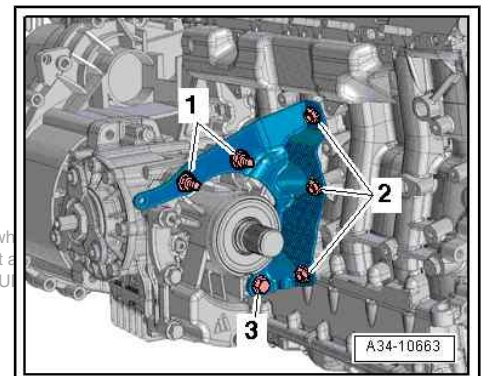


Note

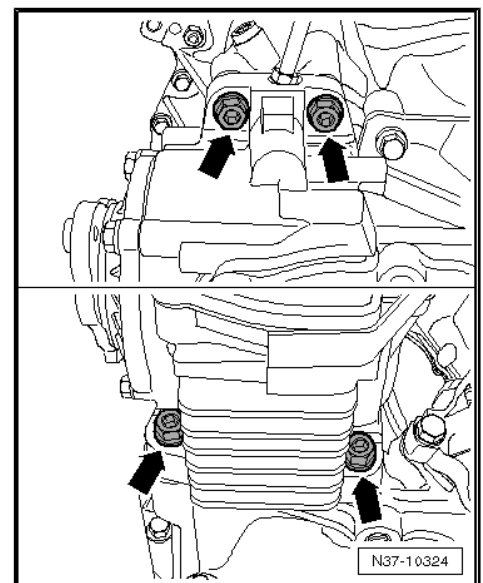
Disregard -item 3-.



- Remove bolts -1, 2, 3- and detach bracket for bevel box.

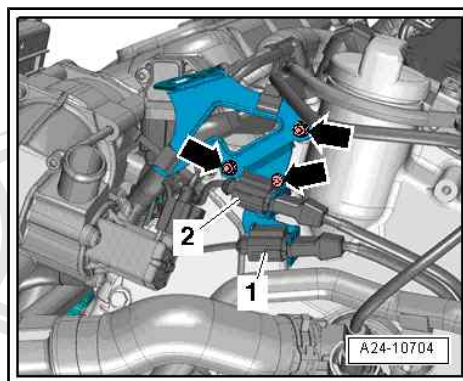


- Remove bolts -arrows- securing bevel box to gearbox.
- Carefully press bevel box off gearbox using a suitable lever and take out from below.
- Detach profiled bonnet seals from top edges of body flanges.

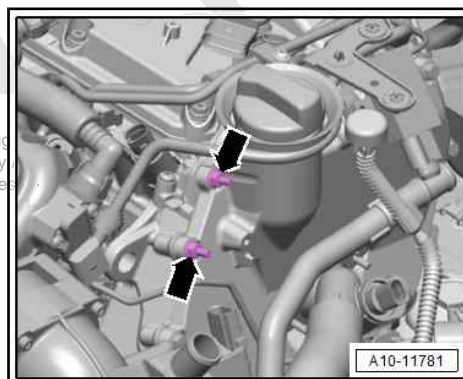


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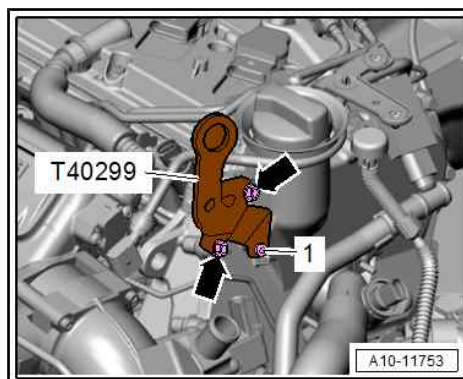
- Take electrical connectors -1, 2- out of bracket.
- Remove nuts and bolt -arrows- and detach bracket.



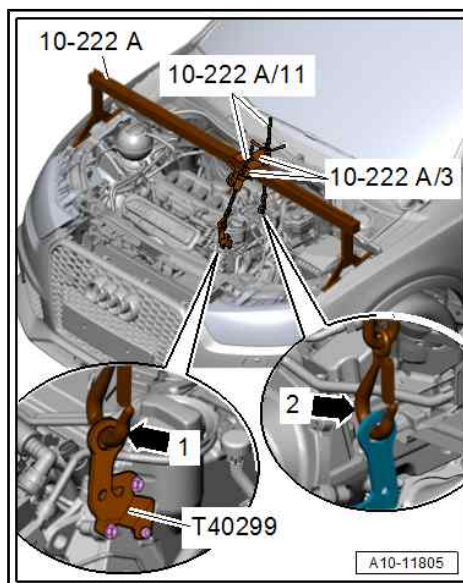
- Remove centre hex studs -arrows-.



- Secure bracket -T40299- with M6x25 bolts -arrows- and M6x20 bolt -1-, as shown in illustration.



- Set up support bracket - 10 - 222 A- with spindles -10 - 222 A /11- on wing mounting flanges, as shown in illustration.
- Engage rear hook of spindle - 10 - 222 A /11- in engine lifting eye.
- Engage front hook of spindle - 10 - 222 A /11- in bracket - T40299- .
- Take up weight of engine/gearbox assembly evenly with both spindles; do not lift.



- Detach wiring from bracket -A- at front of gearbox.
- Then unscrew nuts -arrow- from oil pan securing bolts and detach bracket -A-.
- Unscrew earth wire -B- from bottom starter securing bolt -C-.
- Remove starter ⇒ Electrical system; Rep. gr. 27 .



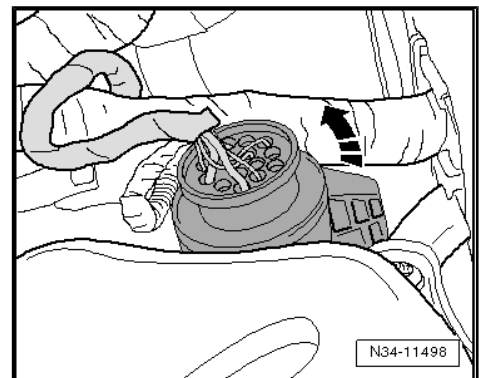
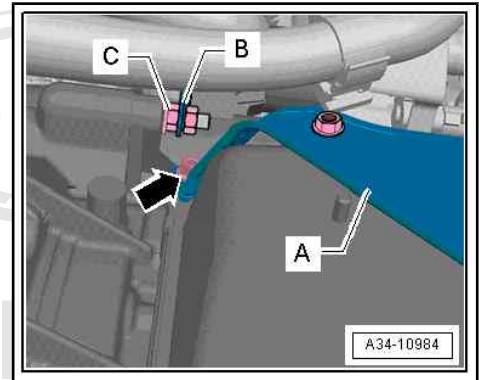
Caution

Mechatronic unit for dual clutch gearbox - J743- can be irreparably damaged by electrostatic discharge.

- ◆ ***Do not touch contact pins in connector for mechatronic unit for dual clutch gearbox - J743- with bare hands.***

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- Touch an earthed metal object, such as a heater radiator or lifting platform with your hand (without gloves) to discharge static electricity.
- Turn fastener anti-clockwise -arrow- and unplug and detach electrical connector on gearbox.

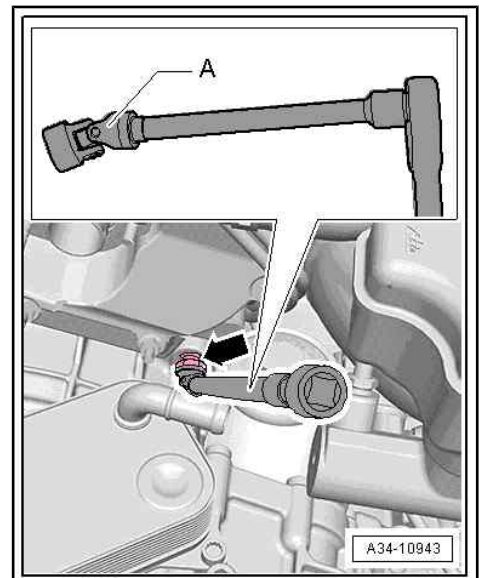


- Remove all engine/gearbox securing bolts which are accessible from above. Use 12-point jointed socket attachment -A- or similar to loosen bolt -arrow- near gear oil filter.



Note

- ◆ *This bolt -arrow- can only be removed from the engine.*
- ◆ *To renew, drive out bolt from flange side with gearbox removed.*





Note

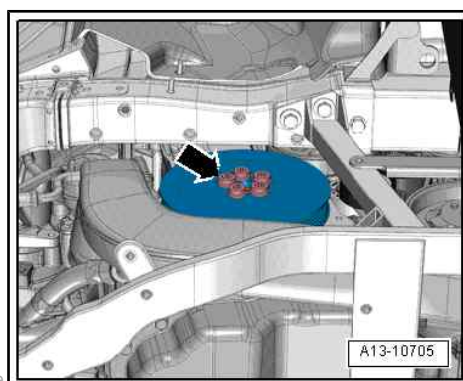
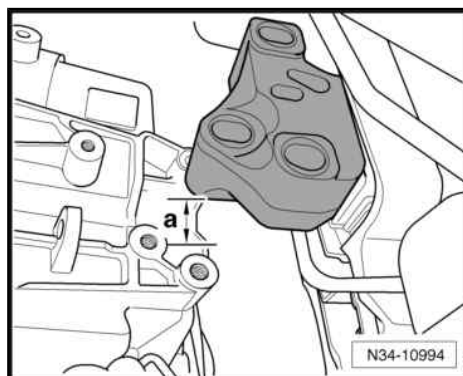
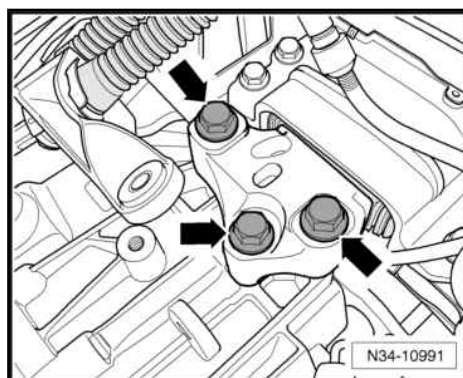
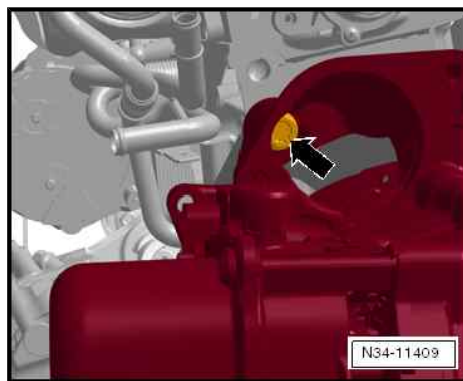
To remove the bolt located in the opening for the starter -arrow- use socket, multi-point bit - T10061- .

- Remove bolts -arrows- from gearbox mounting.

- Lower engine/gearbox assembly using spindles of support bracket - 10 - 222 A- until distance -a- is obtained between gearbox housing and gearbox mounting.

- Dimension -a- = 100 ... 110 mm

- Vibration damper -C- must not make contact with longitudinal member.



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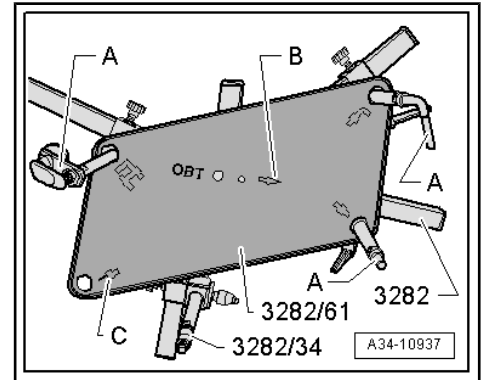
To remove dual clutch gearbox 0BH, set up gearbox support - 3282- with adjustment plate - 3282/61- and fit onto engine and gearbox jack - V.A.G 1383 A- .

- Align arms of gearbox support according to holes in adjustment plate .
- Screw in support elements -A-, as illustrated on adjustment plate . However, use pin - 3282/34- as support element on right side (rear). This support element is outside the adjustment plate .

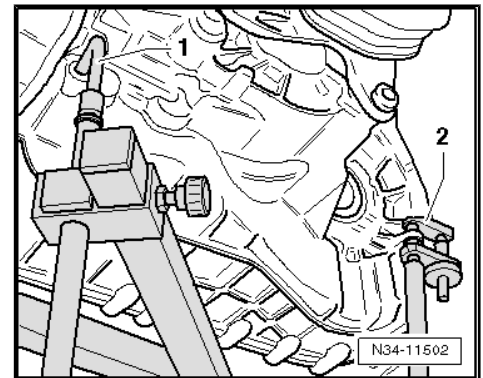
 Note

The support element -C- on the adjustment plate is not used.

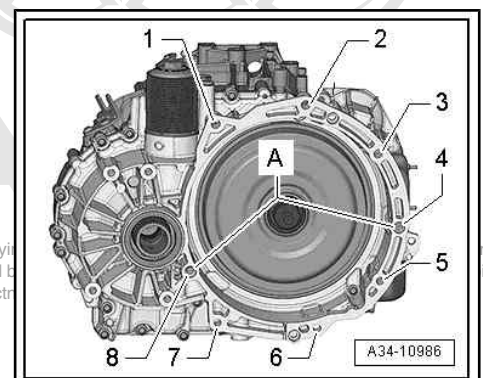
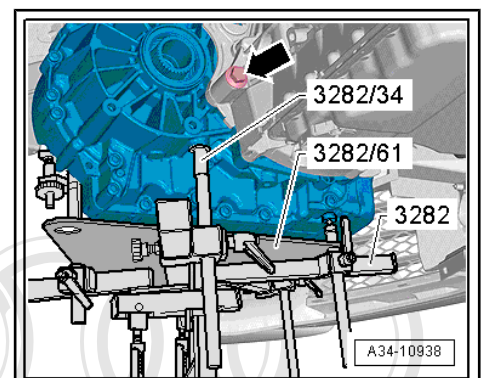
- Place engine and gearbox jack - V.A.G 1383 A- underneath vehicle.
- The arrow symbol -B- on the adjustment plate points in the direction of travel.
- Align gearbox support - 3282- parallel with gearbox.
- Insert hook -1- in mounting on dual clutch gearbox.
- Secure safety support -2- in mounting on dual clutch gearbox.



- Screw pin - 3282/34- into gearbox.
- Support gearbox by lifting from underneath with engine and gearbox jack - V.A.G 1383 A- .
- Remove engine/gearbox securing bolt -arrow-.



- Remove last securing bolt -4- between engine and gearbox.
- Press gearbox off dowel sleeves on engine.
- Carefully lower gearbox using engine and gearbox jack - V.A.G 1383 A- , taking care not to trap wiring or other connections.
- While lowering gearbox, adjust position of gearbox using spindles on gearbox support - 3282- .



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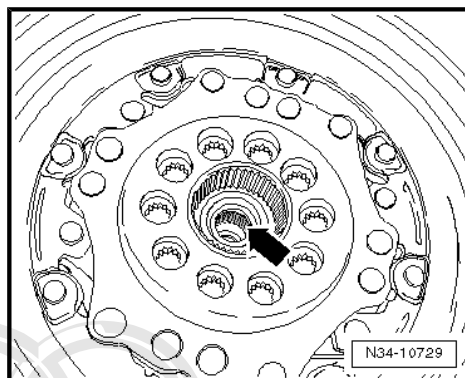
4.2 Installing gearbox

Procedure



Note

- ◆ *The special tools required are listed in the procedure for "Removing gearbox" ⇒ [page 53](#).*
- ◆ *Renew bolts which are tightened by turning through a specified angle.*
- ◆ *Renew self-locking nuts and bolts, and O-rings, seals, and gaskets.*
- ◆ *Hose connections and air pipes and hoses must be free from oil and grease before fitting.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue*.*
- ◆ *The screw sections of used screw-type clips must be sprayed with rust remover prior to fitting so that the air hoses can be attached securely to the hose connections.*
- ◆ *Re-attach all cable ties at the same locations when re-installing.*
- Tightening torques ⇒ [page 69](#)
- Check needle bearing -arrow- in crankshaft. If it is damaged or has visible blue discolouration, it must be renewed ⇒ Engine, mechanics; Rep. gr. 13.
- If it is not damaged, lubricate lightly with high-temperature grease - G 052 133 A2-.
- The end of the gearbox shaft (not the splines) should also be greased lightly.

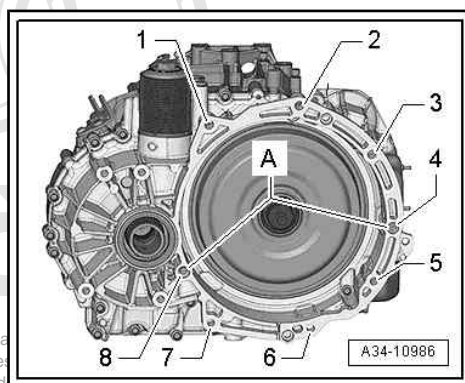


- If not already fitted, install dowel sleeves -A- for centralising engine/gearbox in cylinder block.



Note

If the dowel sleeves are not fitted, the resulting misalignment of the engine and gearbox will destroy the needle bearing in the crankshaft.



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- The bevel box must be detached if a new or exchange gearbox is being installed.
- Do do this, remove bolts -arrows- and carefully press bevel box off gearbox using a suitable lever.
- Carefully raise gearbox using engine and gearbox jack - V.A.G 1383 A- and position correctly using gearbox support - 3282- .
- Join gearbox to engine, taking care not to trap wiring or other connections.

 Note

- ◆ *It should be possible to bring the engine and gearbox together by hand so that the two flanges make contact all round.*
- ◆ *If this is not the case, readjust the gearbox support so that the engine and gearbox are fully in line.*

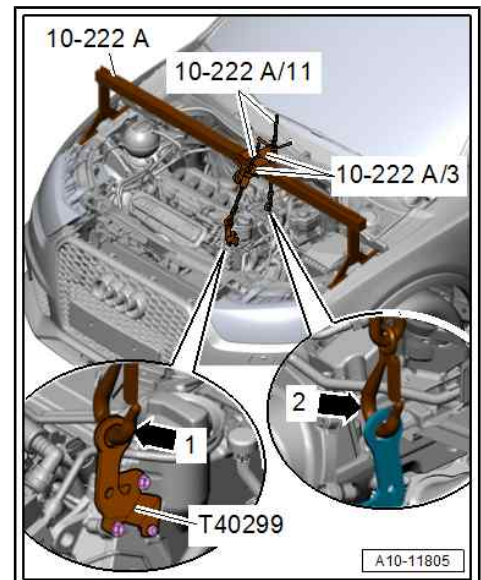
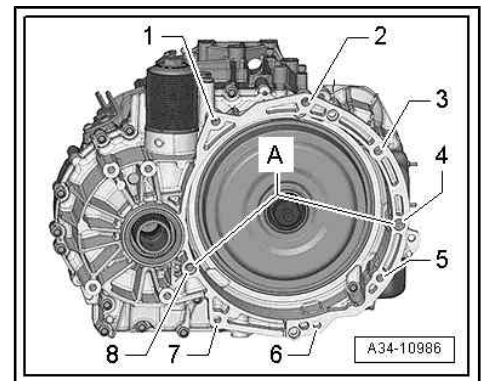
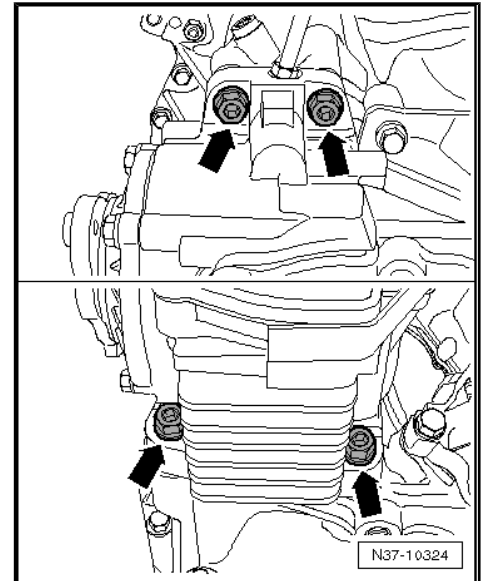
- Secure gearbox to engine.

 Note

The bolt -3- is only accessible through the opening where the starter has been removed.

- Detach gearbox support - 3282- from gearbox.

- Raise engine/gearbox assembly via spindles of support bracket - 10 - 222 A- .
- Align engine/gearbox assembly in installation position. To do so, raise engine/gearbox assembly until gearbox makes full contact with gearbox mounting.



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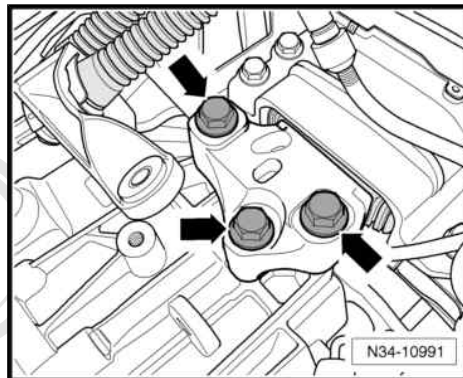


Caution

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

- ◆ *Before fitting the bolts -arrows-, the gearbox and the gear-box mounting must be aligned so they are parallel. If necessary, press gearbox up with engine and gearbox jack .*

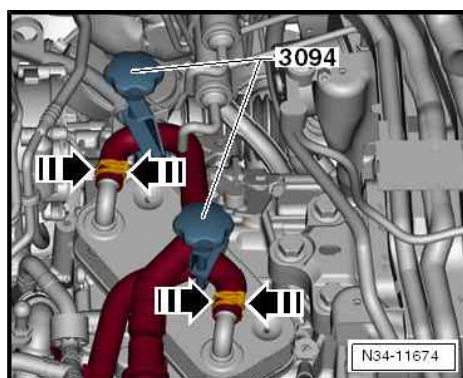
- Check adjustment of assembly mountings. Adjust if necessary
⇒ Engine, mechanics; Rep. gr. 10 .
- Tighten new bolts -arrows- securing gearbox mounting to gearbox to specified torque ⇒ [page 74](#) .



WARNING

Do not remove support bracket - 10-222 A- until all bolts for the assembly mounting have been tightened to specified torque and the subframe is installed.

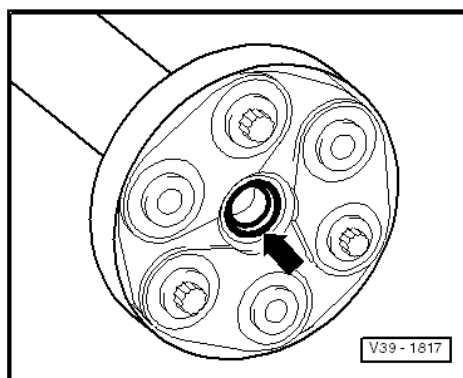
- Install starter ⇒ Electrical system; Rep. gr. 27 .
- Connect coolant hoses to gear oil cooler -arrows- and take off hose clamps -3094- .
- Install bevel box and bracket for bevel box ⇒ [page 96](#) .
- Secure drive shafts (left and right) to gearbox ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 .
- Install heat shield for drive shaft (right-side) ⇒ [page 70](#) .



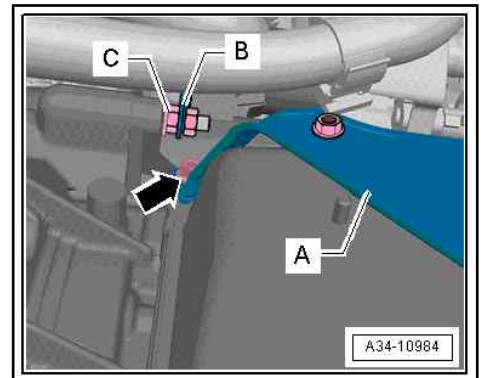
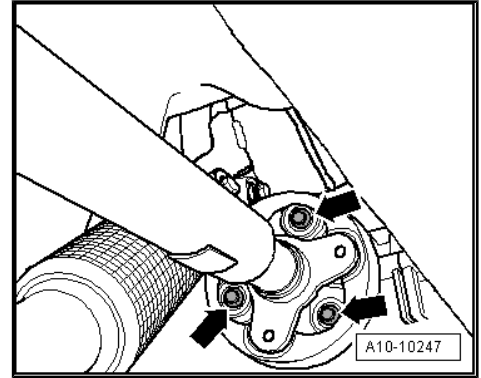
Caution

Risk of damage to oil seal -arrow- in propshaft flange.

- ◆ *Press engine/gearbox assembly towards plenum chamber partition panel; at the same time carefully inserting guide pin on bevel box into propshaft flange.*



- Bolt flexible coupling on propshaft onto output flange of bevel box -arrows- ➔ Rear final drive 02D, 0AV, 0BR and 0BY; Rep. gr. 39 .
 - Install subframe ➔ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 .
 - Tighten bolts securing pendulum support to gearbox
➔ [page 74](#) .
 - Install exhaust system so it is free of stress ➔ Engine, mechanics; Rep. gr. 26 .
 - Detach support bracket - 10 - 222 A- from engine.
 - Plug in connector for mechatronic unit on gearbox and lock connector.
 - Then install bracket -A- on gearbox -arrow-.
 - Attach pipes/wiring to bracket -A- at front of gearbox.
 - Then connect earth wire -B- at bottom starter securing bolt -C-.
 - Install air pipes ➔ Engine, mechanics; Rep. gr. 21 .
 - Observe measures which have to be taken after connecting the battery ➔ Electrical system; Rep. gr. 27 .
 - Connect selector lever cable to dual clutch gearbox
➔ [page 48](#) .
 - Adjust selector lever cable ➔ [page 50](#) .
 - Install coolant pipe (left-side) ➔ Engine, mechanics; Rep. gr. 19 .
 - Install bracket for air cleaner housing and air cleaner housing
➔ Injection and ignition system; Rep. gr. 24 .
- The remaining installation steps are carried out in the reverse sequence.
- Check gear oil level and top up as required ➔ [page 81](#) .
 - Install front wheel housing liners (front section) ➔ General body repairs, exterior; Rep. gr. 66 .
 - Fit front wheels ➔ Wheels and tyres; Rep. gr. 44 .



Tightening torques



Note

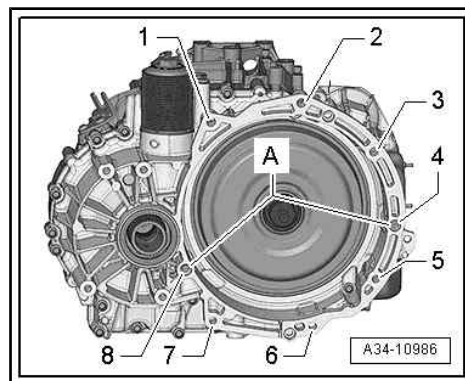
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- ◆ ***Tightening torques apply only to lightly greased, oiled, phosphated or black-finished nuts and bolts.***
- ◆ ***Additional lubricant such as engine or gear oil may be used, but do not use graphite lubricant.***
- ◆ ***Do not use parts which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

Gearbox to engine:

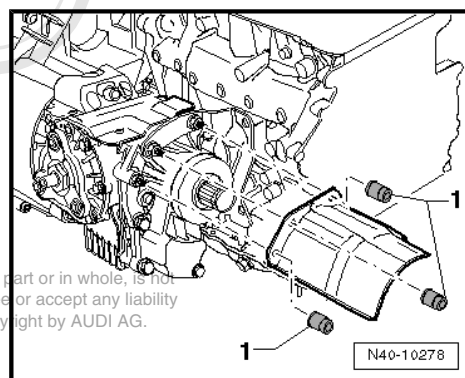
Item	Bolt	Nm
1	M12 x 65	80
2	M12 x 70	80
3 ¹⁾	M12 x 70	80
4	M12 x 70	80
5	M10 x 60	40
6	M10 x 60	40
7	M10 x 60	40
8 ²⁾	M12 x 95	80
A	Dowel sleeves for centralising	

- ¹⁾ Bolt is only accessible through opening of removed starter.
- ²⁾ Bolt is installed from engine side.



Heat shield for drive shaft (right-side) - tightening torque

- Tighten nuts -1- to 25 Nm.
- Additional tightening torques
⇒ ["7 Exploded view - assembly mountings", page 74](#) and
⇒ [page 96](#)

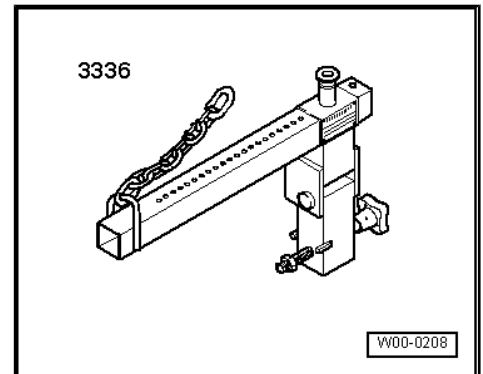


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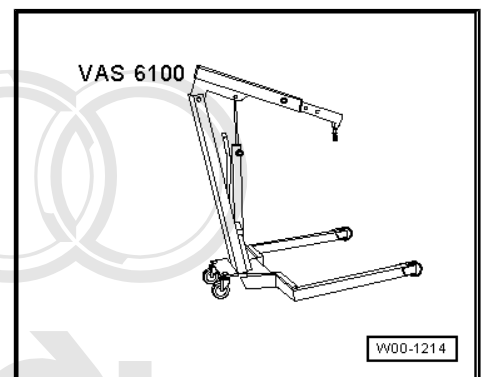
5 Transporting dual clutch gearbox

Special tools and workshop equipment required

- ◆ Gearbox lifting tackle - 3336-

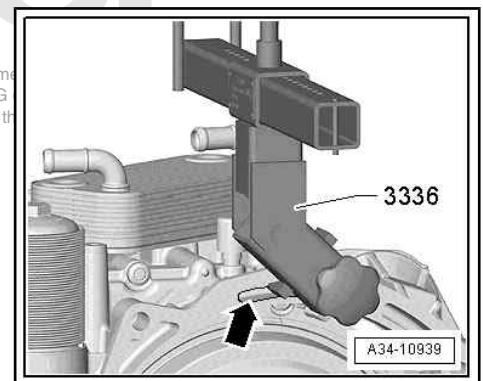


- ◆ Workshop hoist - VAS 6100-



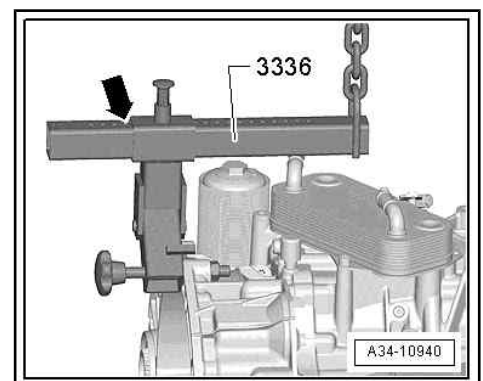
Procedure

- Bolt gearbox lifting tackle - 3336- to gearbox. Engage in recess in housing -arrow-.



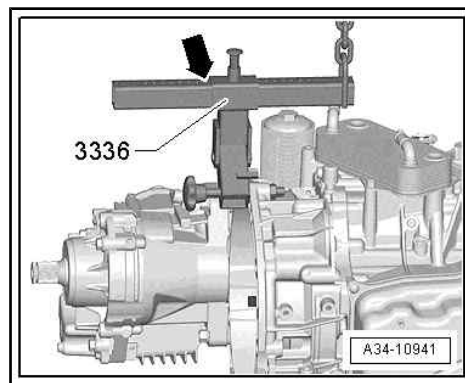
A - Bevel box detached:

- Set support arm on sliding bracket by means of locking pin -arrow-.
- Number of holes visible = 4



B - Bevel box attached:

- Set support arm on sliding bracket by means of locking pin -arrow-.
- Number of holes visible = 8
- With gearbox lifting tackle - 3336- attached, take up gearbox using workshop hoist - VAS 6100- .

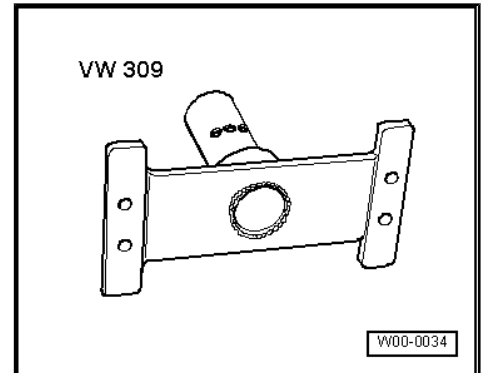


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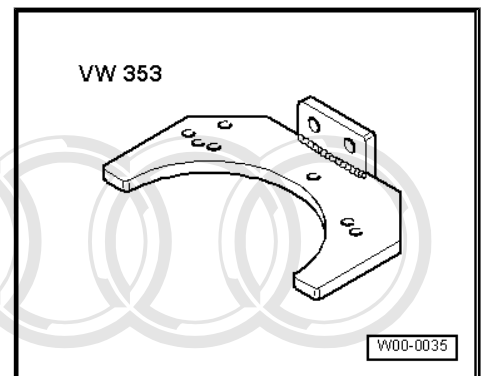
6 Securing gearbox to engine and gearbox support

Special tools and workshop equipment required

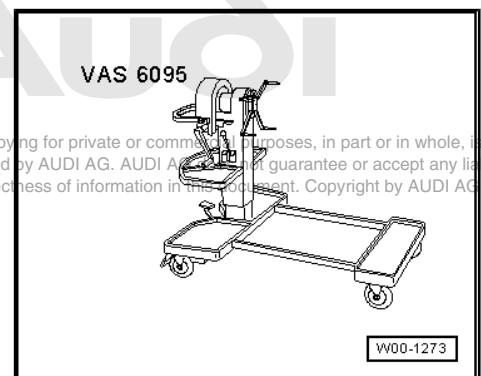
- ◆ Retaining plate - VW 309-



- ◆ Gearbox support - VW 353-



- ◆ Engine and gearbox support - VAS 6095-



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Securing gearbox to engine and gearbox support

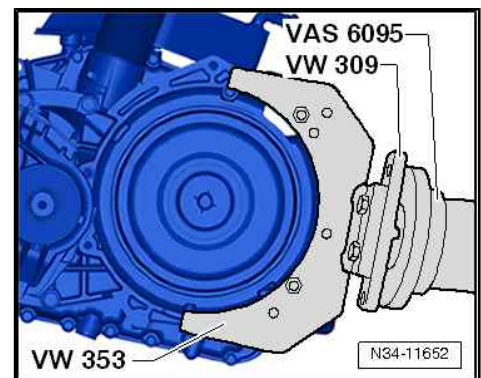
- Secure gearbox to gearbox support - VW 353- and fit into engine and gearbox support - VW 309- using support plate - VAS 6095- .



WARNING

Oil can escape when the gearbox is rotated in the support clamp.

- ◆ *The breather on the gearbox housing must be sealed off if the gearbox (with oil filling) is turned on the engine and gearbox support so that the breather faces downwards.*



7 Exploded view - assembly mountings

1 - Bolt

- ☐ Engine mounting to engine
- ☐ Tightening torque ⇒ Engine, mechanics; Rep. gr. 10

2 - Bolt

- ☐ Engine mounting to engine
- ☐ Tightening torque ⇒ Engine, mechanics; Rep. gr. 10

3 - Bolt

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

4 - Bracket

- ☐ For activated charcoal filter

5 - Bolt

- ☐ Tightening torque ⇒ Engine, mechanics; Rep. gr. 10

6 - Nut

- ☐ Tightening torque ⇒ Engine, mechanics; Rep. gr. 10

7 - Engine mounting

- ☐ Checking adjustment ⇒ Engine, mechanics; Rep. gr. 10
- ☐ Adjusting ⇒ Engine, mechanics; Rep. gr. 10
- ☐ Removing and installing ⇒ Engine, mechanics; Rep. gr. 10

8 - Connecting bracket

9 - Bolt

- ☐ Connecting bracket to body
- ☐ Tightening torque ⇒ Engine, mechanics; Rep. gr. 10

10 - Bolt

- ☐ Connecting bracket to engine mounting
- ☐ Tightening torque ⇒ Engine, mechanics; Rep. gr. 10

11 - Bolt

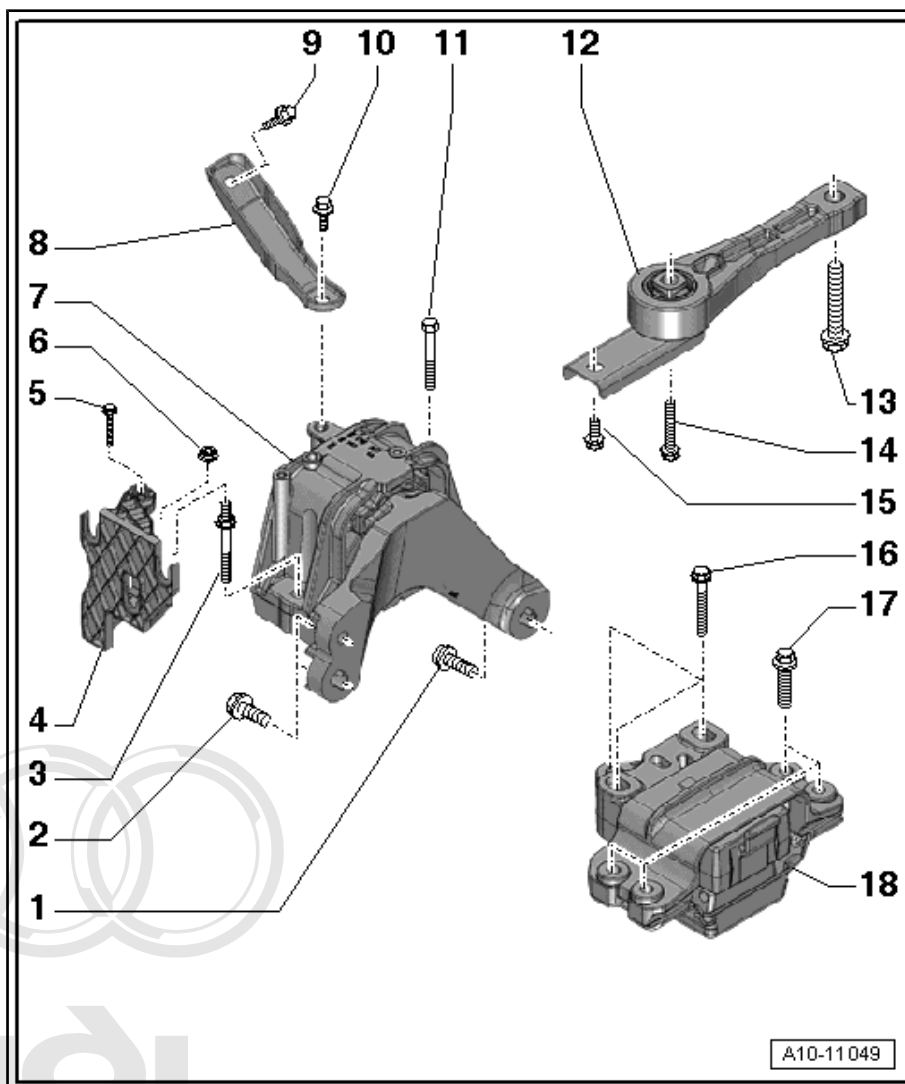
- ☐ Engine mounting to body
- ☐ Tightening torque ⇒ Engine, mechanics; Rep. gr. 10

12 - Pendulum support

- ☐ Removing and installing ⇒ [page 80](#)

13 - Bolt

- ☐ Pendulum support to subframe



- ☐ 100 Nm +90°
- ☐ Do not tighten until pendulum support has been bolted to gearbox
- ☐ Always renew

14 - Bolt

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

15 - Bolt

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

16 - Bolt

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

17 - Bolt

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

18 - Gearbox mounting

- ☐ Checking adjustment ⇒ Engine, mechanics; Rep. gr. 10
- ☐ Adjusting ⇒ Engine, mechanics; Rep. gr. 10
- ☐ Removing and installing ⇒ [page 75](#)
- ☐ Tightening torque and sequence ⇒ [page 75](#)

Assembly mounting on gearbox side: tightening sequence

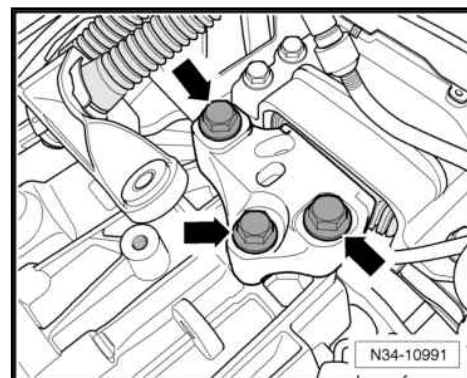
- Pull gearbox up to support arm of gearbox mounting using spindles of support bracket - 10 - 222 A- ⇒ [page 67](#) .
- Hand-tighten bolts -arrows- initially.



Caution

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

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

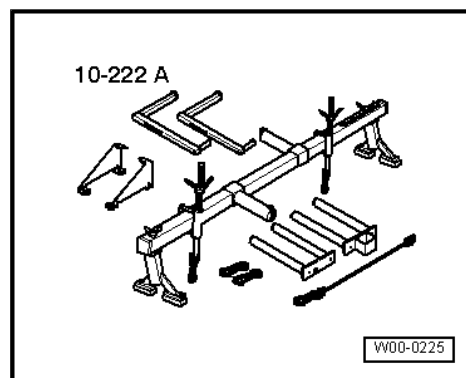


- Only tighten bolts after subframe has been installed ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 and assembly mountings have been aligned ⇒ Engine, mechanics; Rep. gr. 10 .

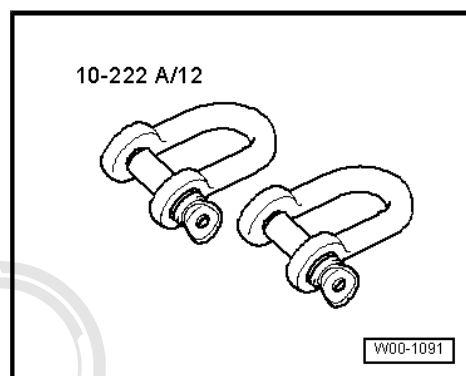
7.1 Removing and installing gearbox mounting

Special tools and workshop equipment required

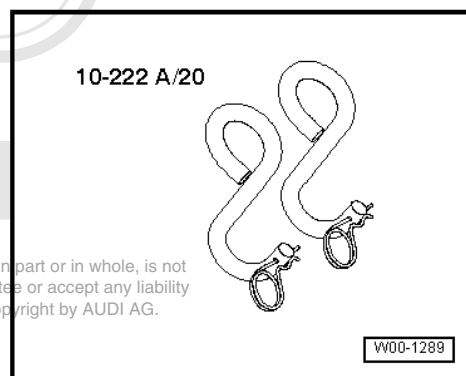
- ◆ Support bracket - 10 - 222 A-



- ◆ Shackle - 10 - 222 A /12-



- ◆ Hook - 10 - 222 A /20-

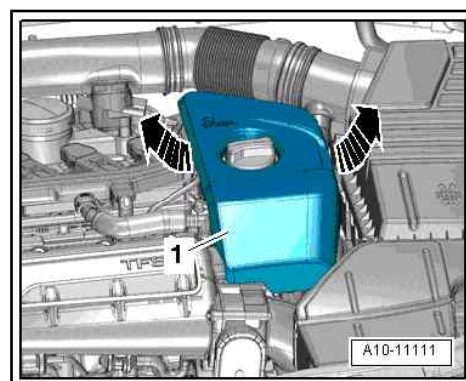


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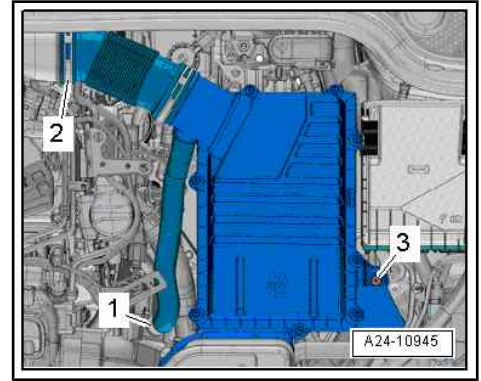
- ◆ Bracket - T40299-
- ◆ M6x25 bolts (2x) and M6x20 bolt (1x)

Procedure

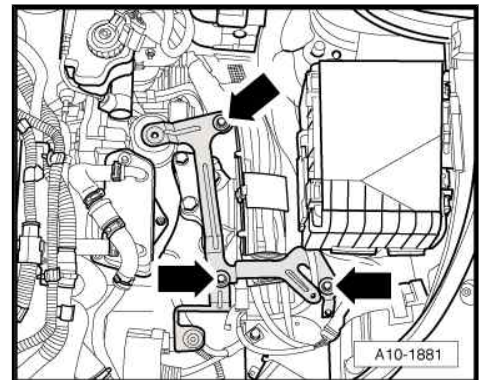
- Lift off engine cover panel -1-.



- Remove air cleaner housing ⇒ Injection and ignition system;
Rep. gr. 24 .



- Move electrical wiring harness clear at bracket for air cleaner housing.
- Remove bolts -arrows- and detach bracket for air cleaner housing.

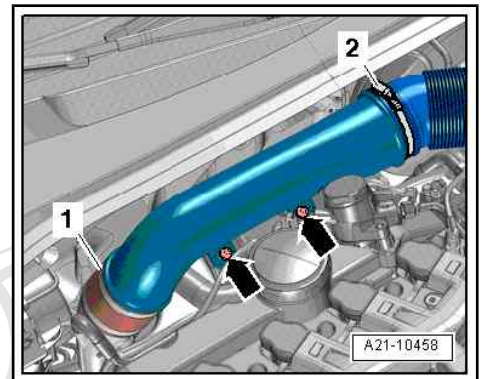


- Remove bolts -arrows-.
- Release hose clip -1- and detach air pipe.

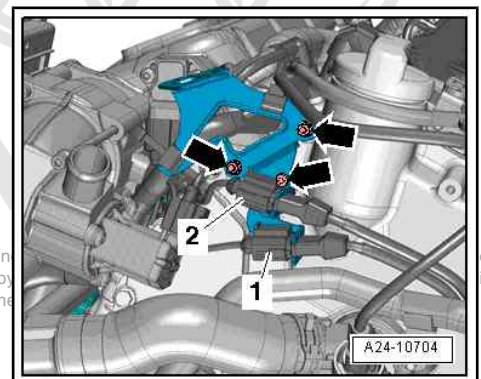
 Note

Disregard -item 2-.

- Detach profiled bonnet seals from top edges of body flanges.

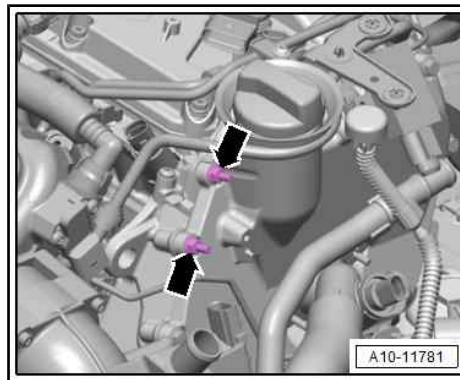


- Take electrical connectors -1, 2- out of bracket.
- Remove nuts and bolt -arrows- and detach bracket.

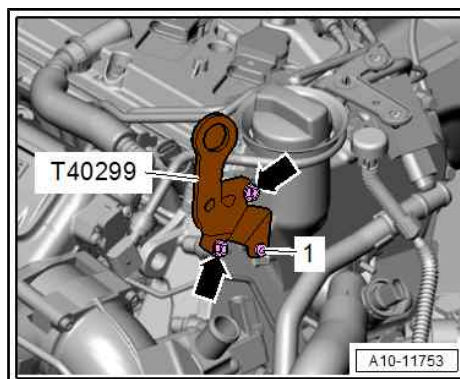


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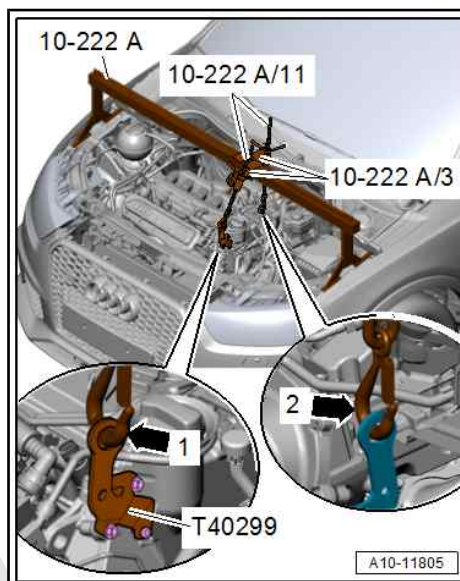
- Remove centre hex studs -arrows-.



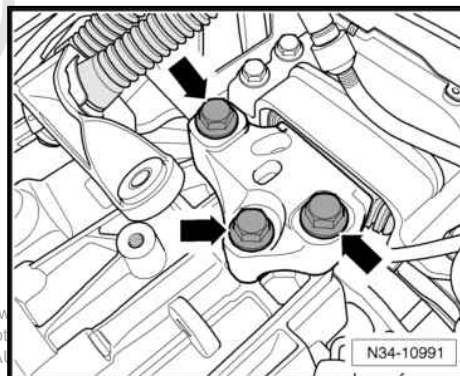
- Secure bracket -T40299- with M6x25 bolts -arrows- and M6x20 bolt -1-, as shown in illustration.



- Set up support bracket - 10 - 222 A- with spindles -10 - 222 A /11- on wing mounting flanges, as shown in illustration.
- Engage rear hook of spindle - 10 - 222 A /11- in engine lifting eye.
- Engage front hook of spindle - 10 - 222 A /11- in bracket - T40299- .
- Take up weight of engine/gearbox assembly evenly with both spindles; do not lift.



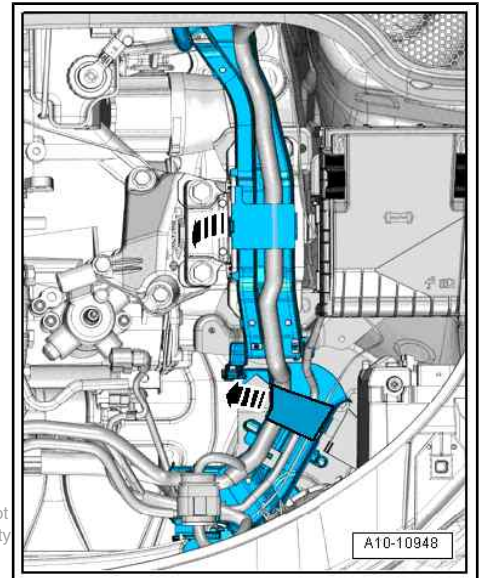
- Remove bolts -arrows- from gearbox mounting.



- Open retainers for wiring duct -arrows- and press electrical wiring to the side.
- Unclip wiring duct.



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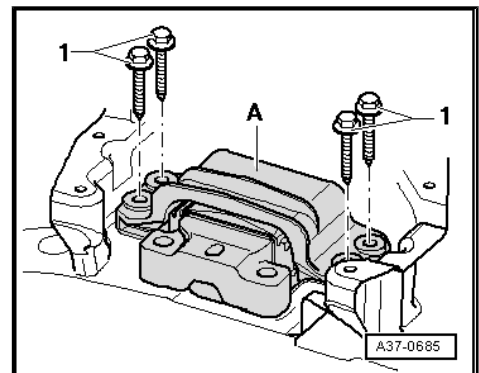


- Remove bolts -1- and detach gearbox mounting -A-.

Installing

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

- Tightening torques
⇒ ["7 Exploded view - assembly mountings", page 74](#)



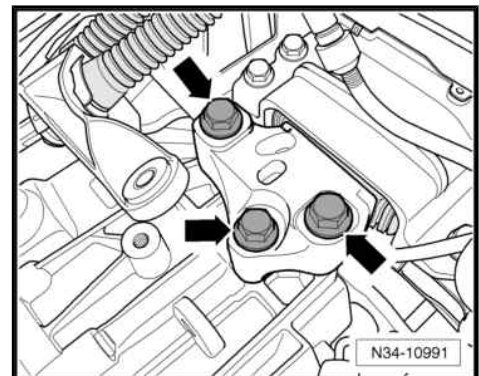
- Hand-tighten bolts -arrows- initially.



Caution

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

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

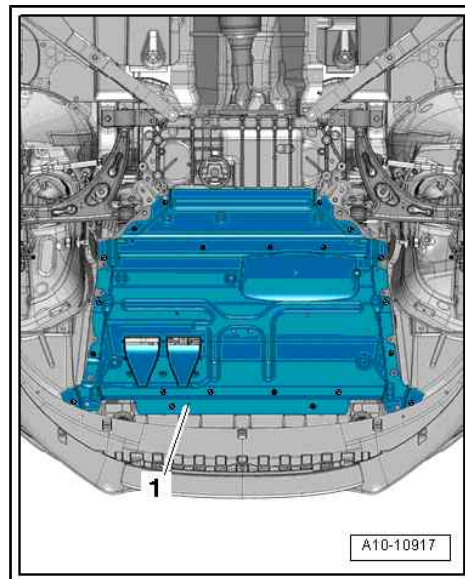


- Adjust assembly mountings ⇒ Engine, mechanics; Rep. gr. 10 .
- Secure support arm of gearbox mounting to gearbox.
- Detach support bracket - 10 - 222 A- from engine.
- Install air pipe ⇒ Engine, mechanics; Rep. gr. 21 .
- Install bracket for air cleaner housing and air cleaner housing
⇒ Injection and ignition system; Rep. gr. 24 .

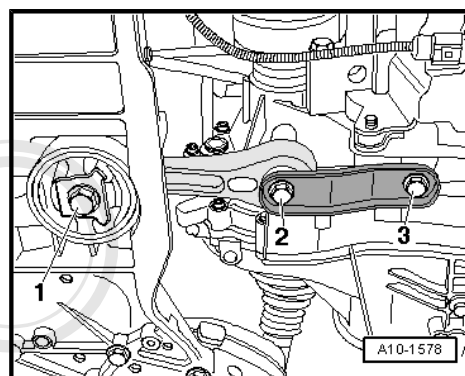
7.2 Removing and installing pendulum support

Removing

- Remove noise insulation -1- ⇒ General body repairs, exterior; Rep. gr. 50 .



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



Installing

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

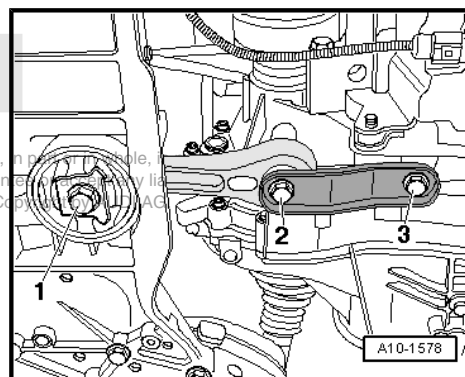
- Tightening torques
⇒ ["7 Exploded view - assembly mountings", page 74](#)



Note

Renew bolts which are tightened by turning through a specified angle.

- First secure pendulum support to gearbox (bolts -2 and 3-), then on subframe (bolt -1-).
- Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 .



8 Gear oil in dual clutch gearbox - overview

Note

-Items 1 ... 23- and -29 ... 36- can be disregarded here.

24 - Seal

- ☐ Renew

25 - Oil drain plug

- ☐ For mechatronic unit
- ☐ 10 Nm +30°

26 - Overflow pipe

- ☐ 3 Nm



Caution

Keep exactly to specified torque.

The overflow pipe can break between the thread and the collar.

Note

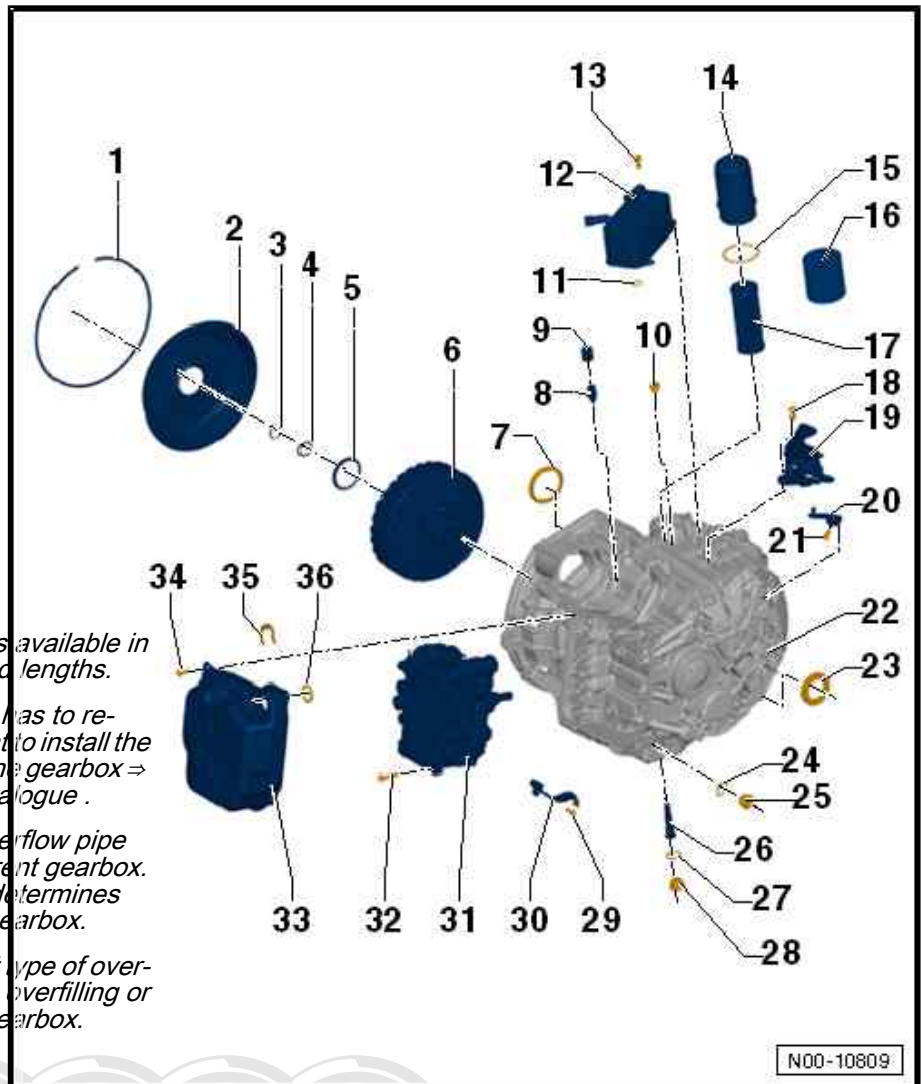
- ◆ The overflow pipe is available in different colours and lengths.
- ◆ If the overflow pipe has to be renewed it is important to install the correct version for the gearbox ⇒ Electronic parts catalogue .
- ◆ Do not install an overflow pipe intended for a different gearbox. The overflow pipe determines the oil level in the gearbox.
- ◆ Installing a different type of overflow pipe will cause overfilling or underfilling of the gearbox.

27 - Seal

- ☐ Renew

28 - Inspection plug

- ☐ For gear oil
- ☐ 45 Nm



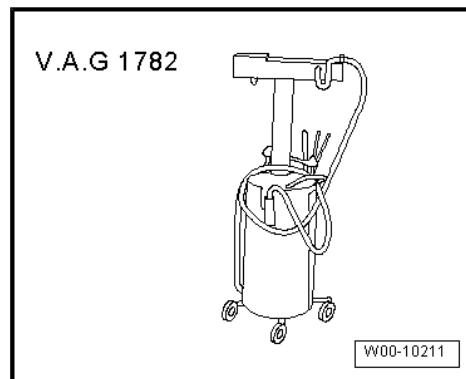
8.1 Checking gear oil level and topping up

Special tools and workshop equipment required

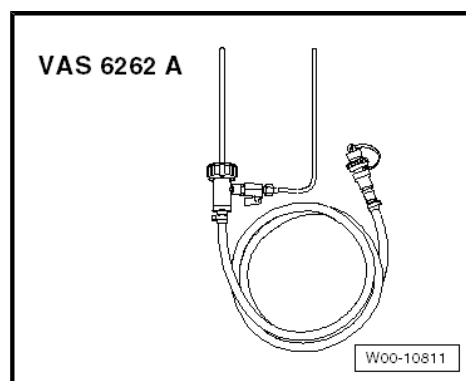
- ◆ Vehicle diagnostic tester

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- ◆ Used oil collection and extraction unit - V.A.G 1782-



- ◆ Adapter for oil filling - VAS 6262 A-



- ◆ Safety goggles
- ◆ Protective gloves (acid resistant)
- ◆ Gear oil for dual clutch gearbox; for part number refer to ➔ Electronic parts catalogue



Procedure



Note

- ◆ Please refer to ➔ ["7 Repair instructions", page 11](#) .
- ◆ Please refer to ➔ ["8 Rules for cleanliness when working on the gearbox", page 13](#) .
- ◆ Please refer to general notes on ["Environmental and waste disposal regulations for oil"](#) ➔ [page 11](#)

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WARNING

Hot gearbox oil can cause burns.

- ◆ *Put on safety goggles.*
- ◆ *Wear protective gloves (acid resistant).*

Accidents can be caused if a gear is inadvertently engaged while the engine is running.

- ◆ *Before working on vehicle while engine is running, shift selector lever into position "P" and apply handbrake.*



Caution

Risk of damage to the gearbox.

- ◆ *The engine must NOT be started if there is only little or no oil left in the gearbox after repair work or after excessive loss of oil.*

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- ◆ *After repair work or after excessive loss of oil, put in a suitable amount of gear oil before proceeding.*

Risk of damage to gearbox

- ◆ *Use only the gear oil available as a replacement part for the 7-speed dual clutch gearbox 0BH ➔ Electronic parts catalogue .*
- ◆ *Other types of oil cause malfunctions and/or failure of the gearbox.*

- Gearbox not in backup mode (emergency running mode)
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Selector lever in position "P", handbrake applied.
- Extraction hoses of an exhaust gas extractor connected and extractor switched on.
- Engine idling.
- Air conditioner and heating switched off.

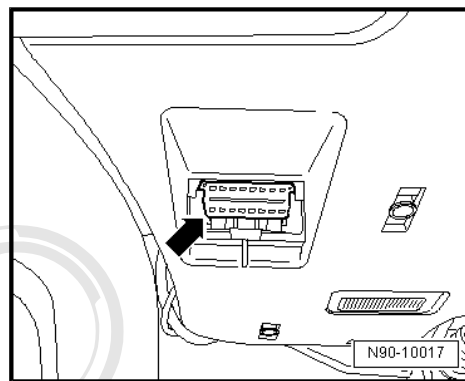
Reading off gear oil temperature



Note

- ◆ *The gear oil level varies according to the oil temperature: if the oil temperature is too low, this will result in overfilling; if it is too high this will result in underfilling.*
- ◆ *An incorrect gear oil level will impair the function of the gearbox.*
- ◆ *The oil temperature must not be higher than 45 °C at the beginning of the test.*
- ◆ *Test temperature: 35 - 45 °C*

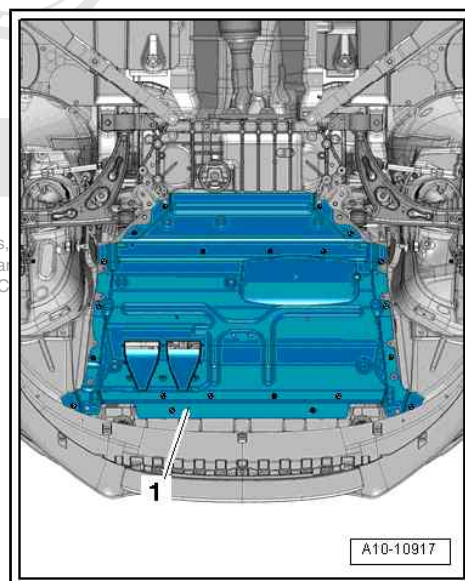
- Connect vehicle diagnostic tester and identify vehicle in Guided Functions.
- Select Dual clutch gearbox.
- Select Check oil level.
- Specification at beginning of test: Not higher than 45 °C, otherwise allow gearbox to cool down.



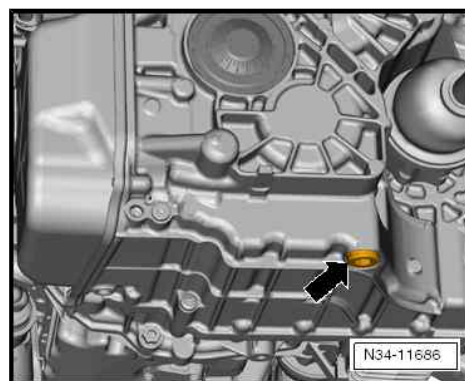
Checking gear oil level

- Remove noise insulation -1- ⇒ General body repairs, exterior; Rep. gr. 50 .
- Place used oil collection and extraction unit - V.A.G 1782- below gearbox.

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- Engine running at idling speed and selector lever in "P".
- Unscrew inspection plug -arrow-.



- The gear oil that has collected in the overflow pipe -arrow 2- will drain off first.

 Note

Regardless of the gear oil level itself, a certain amount of gear oil will always drain off when inspection plug -arrow 1- is opened.

- Check that overflow pipe is securely screwed into inspection plug opening.

 Note

The gear oil level cannot be checked reliably if the overflow pipe is loose.

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- The gear oil level is correct if a small amount of oil drains out when the oil temperature is between 35 and 45 °C (the oil level rises as the oil temperature continues to increase).

 Note

- ◆ *Every 30 seconds a small surge of oil will come out of the overflow pipe, regardless of the oil level (this is caused by the intermittent supply of cooling oil to the multiple clutch). This surge of oil is not relevant when checking the gear oil level and can be disregarded.*

- ◆ *Do not re-use drained-off gear oil.*

- If gear oil level is OK ⇒ [page 86](#) .

Filling up with gear oil

- If no gear oil drains out when the oil temperature is between 35°C and 45°C, top up gear oil as follows.

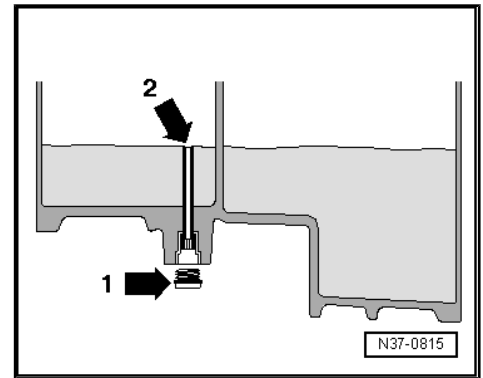


Caution

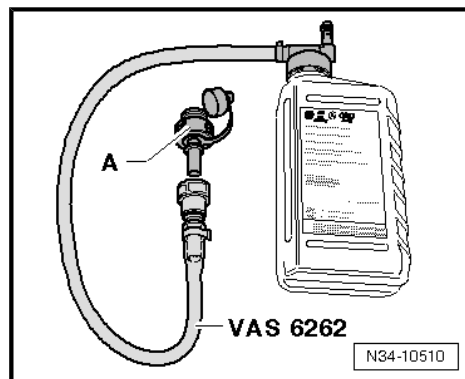
Risk of damage to gearbox

- ◆ *Use only the gear oil available as a replacement part for the 7-speed dual clutch gearbox 0BH ⇒ Electronic parts catalogue .*
- ◆ *Other types of oil cause malfunctions and/or failure of the gearbox.*
- ◆ *Check that the adapter for oil filling - VAS 6262 A- is clean. The gear oil for the dual clutch gearbox must not be mixed with other types of oil.*

- Shake container before opening.



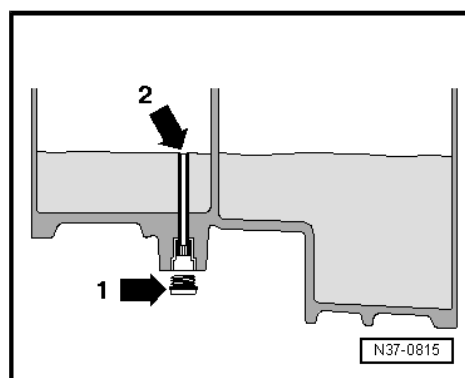
- Screw container of dual clutch gearbox oil onto adapter for oil filling - VAS 6262 A- .
- Screw adapter for oil filling - VAS 6262 A- -item A- hand-tight into opening for inspection plug.
- Hold container with adapter for oil filling - VAS 6262 A- as high as possible over dual clutch gearbox and let gear oil run into gearbox.
- To check whether enough oil has run into dual clutch gearbox, detach quick-release coupling on adapter for oil filling - VAS 6262 A- at regular intervals and plug the connection with a finger or a clean plug.
- The gear oil that has collected in the overflow pipe -arrow 2- will drain off first.



Note

Regardless of the gear oil level, a certain amount of gear oil will always drain off.

- The gear oil level is correct if a small amount of oil drains out when the oil temperature is between 35 and 45 °C (the oil level rises as the oil temperature continues to increase).



Note

- ◆ *Every 30 seconds a small surge of oil will come out of the overflow pipe, regardless of the oil level (this is caused by the intermittent supply of cooling oil to the multiple clutch). This surge of oil is not relevant when checking the gear oil level and can be disregarded.*
- ◆ *Do not re-use drained-off gear oil.*
- ◆ *Check the gear oil temperature on the vehicle diagnostic tester while filling the gearbox with oil. Stop filling and allow the gearbox to cool down if the temperature exceeds 45 °C.*
- If gear oil level is OK ➔ [page 86](#) .

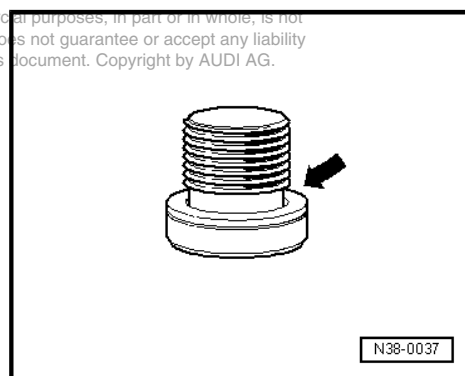
Final steps

- Tightening torques
➔ ["8 Gear oil in dual clutch gearbox - overview", page 81](#)

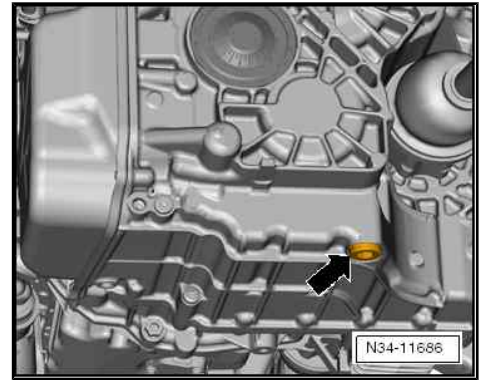
Note

Renew seal -arrow- for inspection plug.

- Unscrew adapter for oil filling - VAS 6262 A- from gearbox.



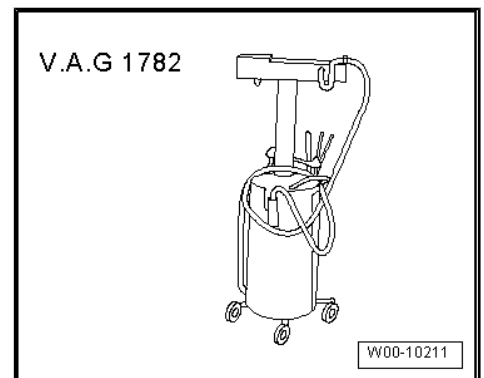
- Tighten inspection plug -arrow-.
- Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 .
- Switch off ignition and unplug diagnostic connector.



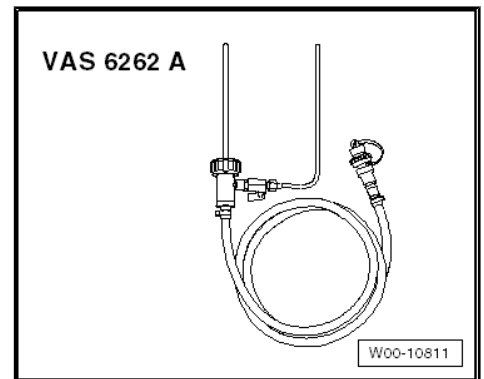
8.2 Draining and filling gear oil

Special tools and workshop equipment required

- ◆ Used oil collection and extraction unit - V.A.G 1782-



- ◆ Adapter for oil filling - VAS 6262 A-



- ◆ Safety goggles
- ◆ Protective gloves (acid resistant)
- ◆ Gear oil for dual clutch gearbox; for part number refer to ⇒ Electronic parts catalogue



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Procedure

- Tightening torques
⇒ ["8 Gear oil in dual clutch gearbox - overview", page 81](#)



Note

- ◆ Please refer to ⇒ ["7 Repair instructions", page 11](#) .
- ◆ Please refer to
⇒ ["8 Rules for cleanliness when working on the gearbox", page 13](#) .
- ◆ Please refer to general notes on "Environmental and waste disposal regulations for oil" ⇒ [page 11](#) .



WARNING

Hot gearbox oil can cause burns.

- ◆ Put on safety goggles.
- ◆ Wear protective gloves (acid resistant).



Caution

Risk of damage to gearbox

- ◆ The engine must not be started when there is no oil in the gearbox.
- ◆ Use only the gear oil available as a replacement part for the 7-speed dual clutch gearbox 0BH ⇒ *Electronic parts catalogue* .
- ◆ Other types of oil cause malfunctions and/or failure of the gearbox.

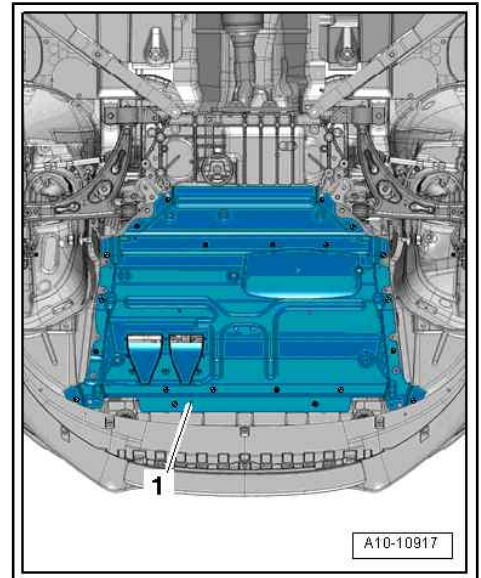
- Gearbox not in backup mode (emergency running mode)
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Selector lever in position "P", handbrake applied.
- Engine not running.



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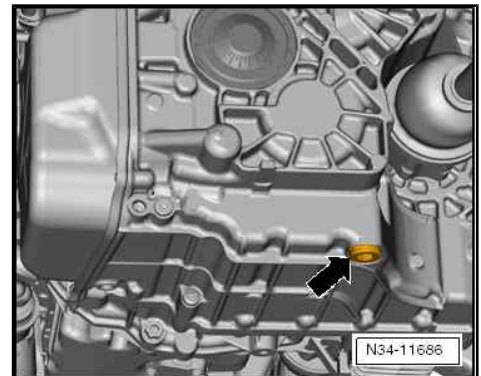
Draining off gear oil

- Remove noise insulation -1- ➔ General body repairs, exterior; Rep. gr. 50 .



- Place used oil collection and extraction unit - V.A.G 1782- below gearbox.
- Unscrew inspection plug -arrow-.
- The gear oil that has collected in the overflow pipe will drain off first.
- Unscrew overflow pipe and allow gear oil to drain.

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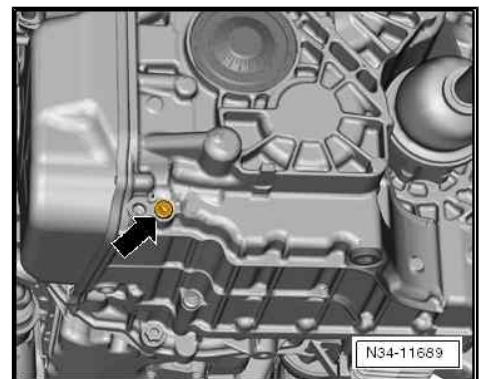


- Unscrew oil drain plug -arrow- from mechatronic unit.



Note

- ◆ *Use a suitable strip of metal or similar to catch the gear oil as it comes out and allow it to run into the used oil collection and extraction unit .*
- ◆ *Approx. 1.2 ltr. of oil will now drain out.*
- Fit new seal on oil drain plug of mechatronic unit and tighten plug.



Filling up with gear oil

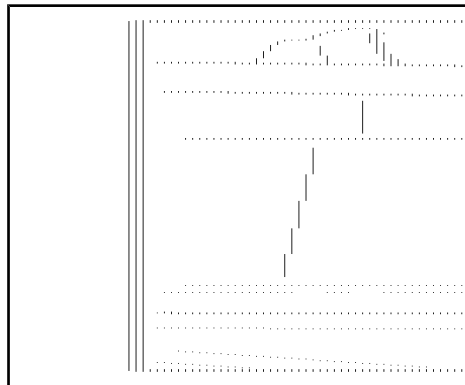
- Screw in overflow pipe -arrow- again as far as stop and tighten.



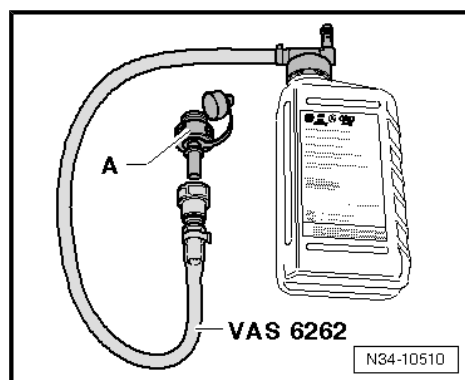
Caution

Risk of damage to gearbox

- ◆ *Use only the gear oil available as a replacement part for the 7-speed dual clutch gearbox 0BH ➔ Electronic parts catalogue .*
- ◆ *Other types of oil cause malfunctions and/or failure of the gearbox.*
- ◆ *Check that the adapter for oil filling - VAS 6262 A- is clean. The gear oil for the dual clutch gearbox must not be mixed with other types of oil.*



- Shake container before opening.
- Screw container of gear oil for dual clutch gearbox onto adapter for oil filling - VAS 6262 A- .
- Screw adapter for oil filling - VAS 6262 A- -item A- hand-tight into opening for inspection plug.
- Hold container with adapter for oil filling - VAS 6262 A- as high as possible over dual clutch gearbox and let 5.5 ltr. gear oil run into gearbox.
- Start engine and run at idling speed.
- Depress brake pedal and select all gear positions “P, R, N, D, S” one after the other at idling speed, maintaining each position for at least 3 seconds.
- Move selector lever to position “P”.
- Do not switch off engine
- Check gearbox oil level and top up if necessary ➔ [page 81](#) .



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Note

This diagram illustrates the exploded view of a mechanical assembly, with components numbered 1 through 36. The parts include:

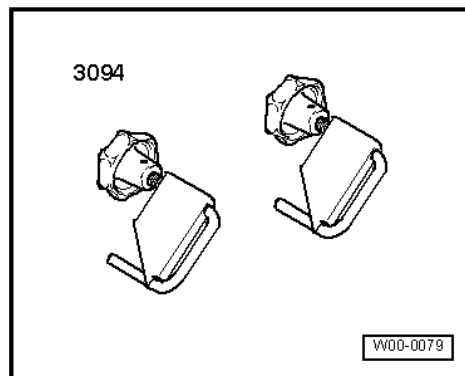
- 1:** A circular end plate or cover.
- 2:** A dark blue circular disc or washer.
- 3, 4, 5:** Small circular spacers or washers.
- 6:** A dark blue circular disc or washer.
- 7:** A yellow O-ring.
- 8, 9, 10, 11:** Small pins or fasteners.
- 12:** A dark blue component, possibly a valve or actuator.
- 13, 14, 15, 16, 17:** Various cylindrical components, likely pistons or rods.
- 18, 19, 20:** Small pins or fasteners.
- 21:** A dark blue component, possibly a valve or actuator.
- 22:** A large, complex grey component, likely the main body or housing.
- 23:** A yellow O-ring.
- 24, 25, 26, 27, 28:** Small pins or fasteners.
- 29, 30, 31, 32:** Small pins or fasteners.
- 33:** A dark blue component, possibly a valve or actuator.
- 34, 35, 36:** Small pins or fasteners.

The diagram shows the relative positions and assembly sequence of these components, with dashed lines indicating the path of assembly.

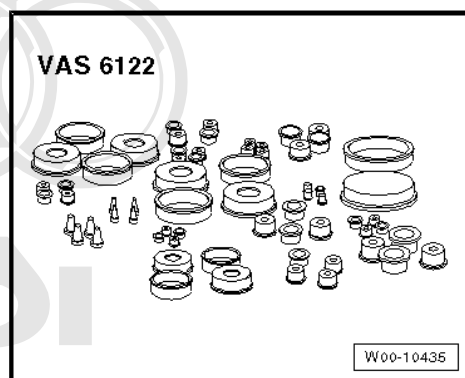
Special tools and workshop equipment required

9. Exploded view - gear oil cooler and gear oil filter 91

- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Engine bung set - VAS 6122-



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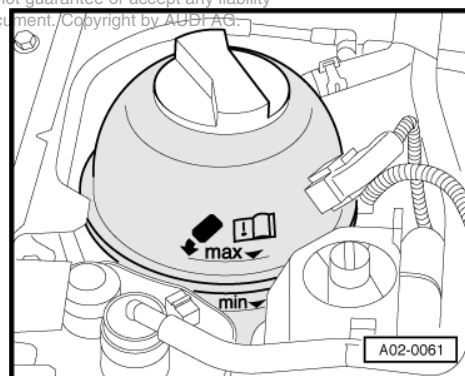
Removing



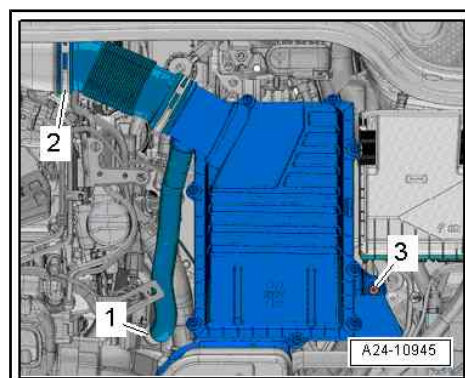
WARNING

Risk of scalding from hot steam and hot coolant.

- ◆ *The cooling system is under pressure when the engine is hot.*
- ◆ *Cover filler cap on expansion tank with a cloth and open carefully to release pressure.*



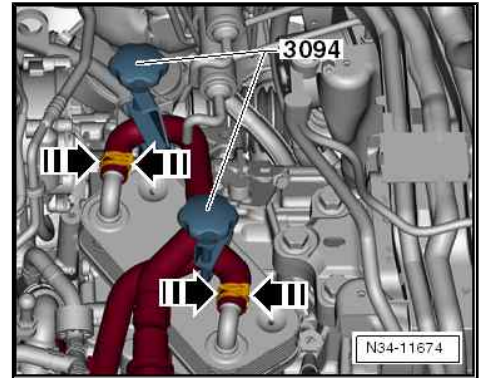
- Open filler cap on expansion tank.
- Remove air cleaner housing ⇒ Injection and ignition system; Rep. gr. 24 .



 Note

Place a cloth on the gear oil cooler and gearbox to catch escaping coolant.

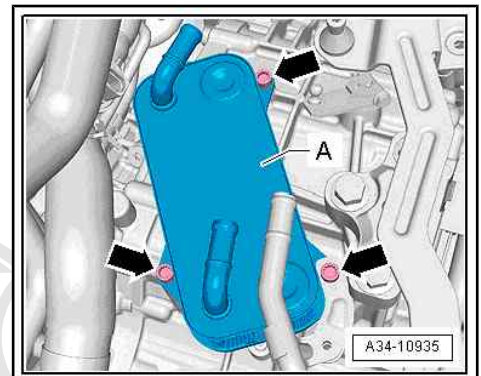
- Clamp off coolant hoses leading to gear oil cooler using hose clamps -3094-. Then release hose clips -arrows- and disconnect hoses.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .
- Remove bolts -arrows- and detach gear oil cooler -A-.



Caution

Risk of contamination of gear oil.

- ◆ *Do not allow coolant to drip into gearbox.*



Installing

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

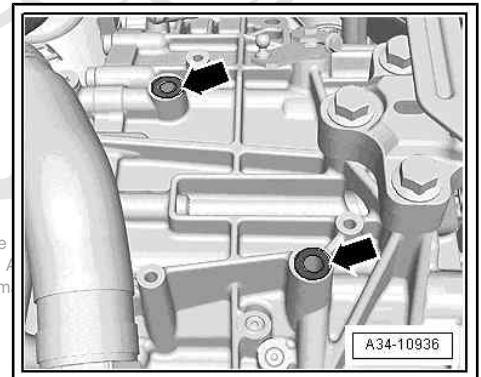
- Tightening torque
⇒ ["9 Exploded view - gear oil cooler and gear oil filter"](#),
[page 91](#)



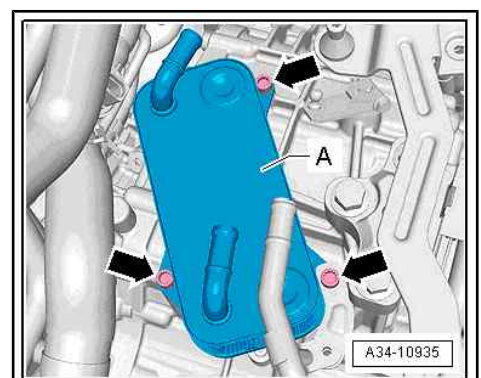
Note

- ◆ *Renew O-rings -arrows-.*
- ◆ *If the sealing surface on the gear oil cooler is damaged, the gear oil cooler must be renewed.*

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- Carefully fit gear oil cooler -A-, paying attention to sealing surface and O-rings.
- Install air cleaner housing ⇒ Injection and ignition system; Rep. gr. 24 .
- Check gear oil level and top up as required ⇒ [page 81](#) .
- Check coolant level ⇒ Engine, mechanics; Rep. gr. 19 .



9.2 Removing and installing gear oil filter

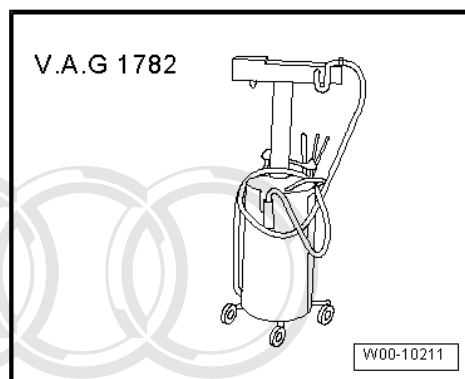


Note

- ◆ *The gear oil filter does not normally have to be renewed.*
- ◆ *When does the gear oil filter have to be changed? ⇒ [page 7](#).*

Special tools and workshop equipment required

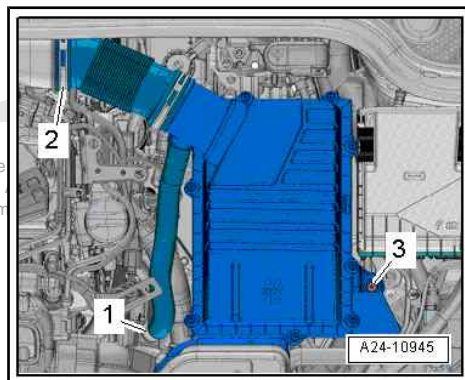
- ◆ Used oil collection and extraction unit - V.A.G 1782-



Removing

- Remove air cleaner housing ⇒ Injection and ignition system;
Rep. gr. 24 .

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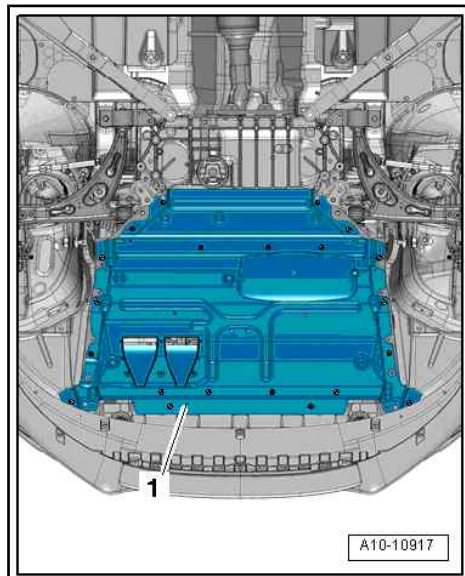


- Remove noise insulation -1- ⇒ General body repairs, exterior;
Rep. gr. 50 .
- Place used oil collection and extraction unit - V.A.G 1782- below gearbox.

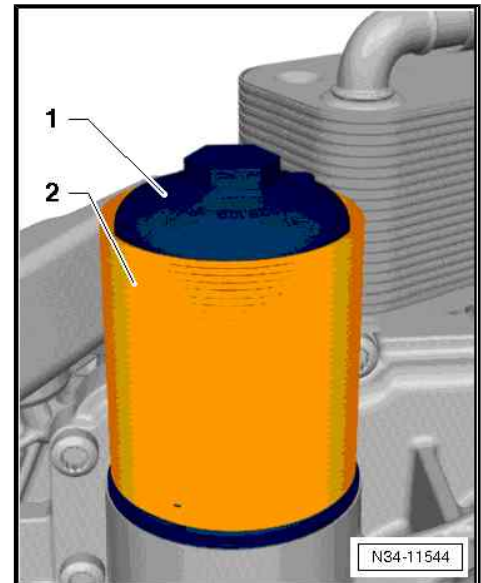


Note

- ◆ *A residual amount of oil remains in the filter. This comes out when the filter housing is unscrewed.*
- ◆ *Before unscrewing the filter housing, cover the area round the oil filter with a sufficient number of cloths.*
- ◆ *To allow the gear oil to drain back into the gearbox from the gear oil filter housing, tilt the housing slightly in its seat before removing it.*



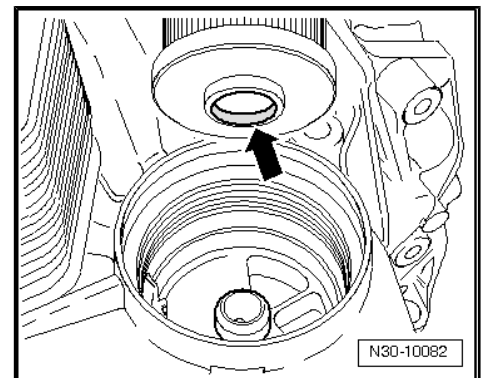
- First unscrew filter housing -1- approx. 7 turns.
- Wait for approx. 10 seconds to allow the oil in the filter housing to drain back into the gearbox.
- Now detach filter housing (but not before).
- Renew heat shield -2- if missing or damaged.



Installing

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

- Tightening torque
⇒ ["9 Exploded view - gear oil cooler and gear oil filter", page 91](#)
- Thoroughly clean off any oil that has spilled on gearbox.
- Install gear oil filter with collar -arrow- facing downwards.
- Screw in and tighten filter housing.
- Install air cleaner housing ⇒ Injection and ignition system; Rep. gr. 24 .
- Check gear oil level and top up as required ⇒ [page 81](#) .



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10 Bevel box

10.1 Overview of tightening torques

Bevel box to dual clutch gearbox - tightening torque

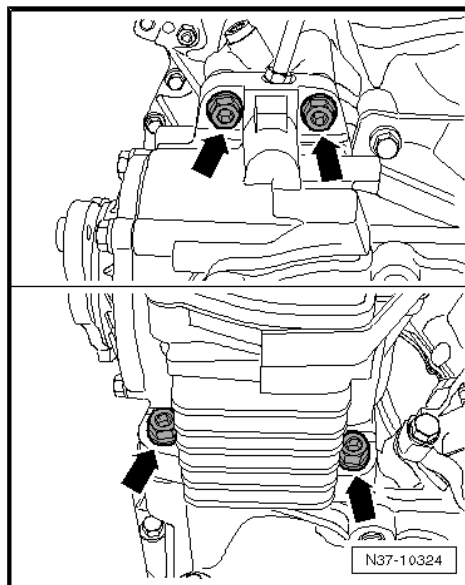


Note

Renew bolts which are tightened by turning through a specified angle.

– Tighten bolts in 3 stages:

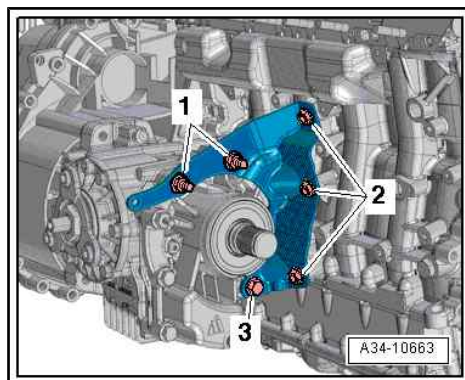
Stage	Bolts	Tightening torque/angle specification
1.	-arrows-	Screw in by hand until contact is made
2.	-arrows-	Tighten to 40 Nm in diagonal sequence
3.	-arrows-	Turn 90° further in diagonal sequence



Bracket for bevel box - tightening torque and sequence

– Tighten bolts in 5 stages as follows:

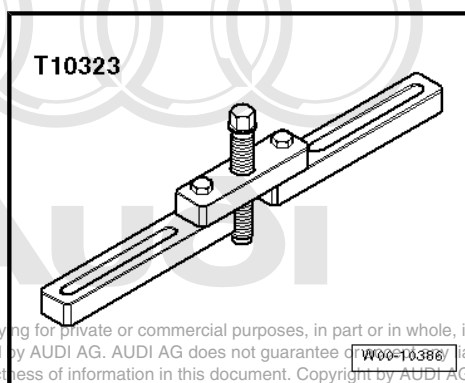
Stage	Bolts	Tightening torque
1.	-1 ... 3-	Screw in by hand until contact is made
2.	-2-	8 Nm
3.	-1- and -3-	8 Nm
4.	-2-	40 Nm
5.	-1- and -3-	40 Nm



10.2 Removing and installing bevel box

Special tools and workshop equipment required

◆ Support bridge - T10323-

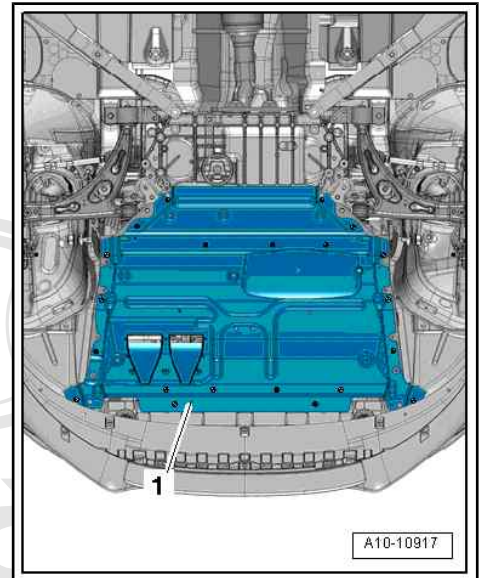


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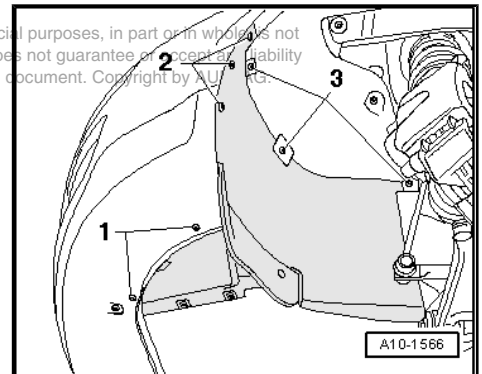
◆ Grease for stub shaft ➔ Electronic parts catalogue

Removing

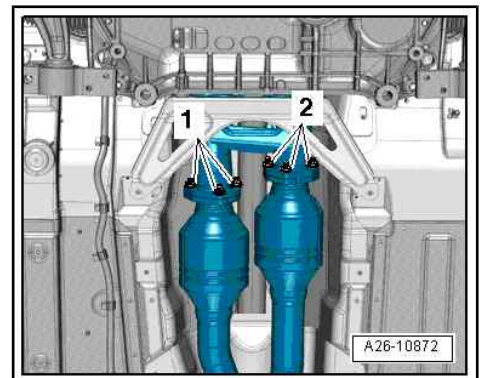
- Remove front wheels (both sides) ⇒ Wheels and tyres; Rep. gr. 44 .
- Remove noise insulation -1- ⇒ General body repairs, exterior; Rep. gr. 50 .



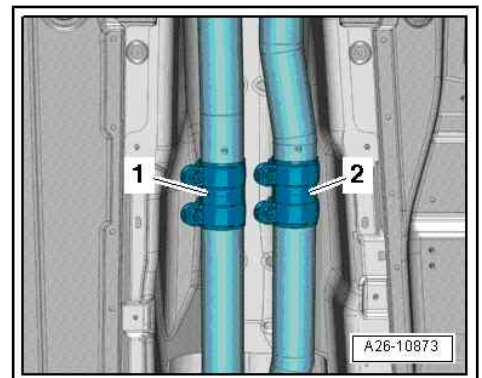
- Remove front section of front wheel housing liner on both sides
⇒ General body repairs, exterior; Rep. gr. 66 .



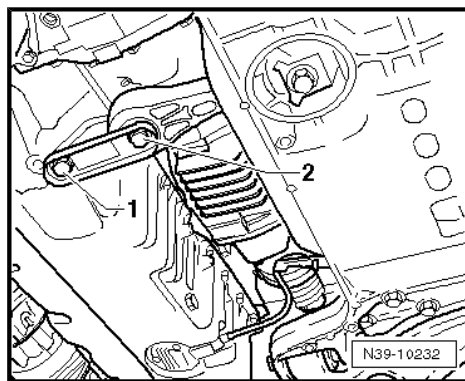
- Remove nuts -1- and -2-.



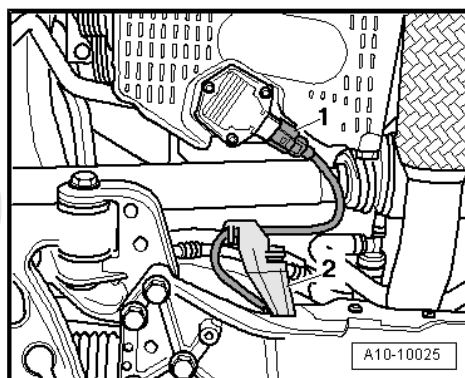
- Unfasten clamps -1- and -2- and remove both catalytic converters.



- Remove bolts -1- and -2- securing pendulum support to gear-box.

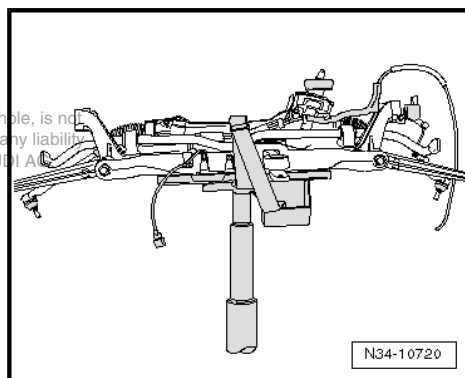


- Unplug electrical connector -1- at oil level and oil temperature sender - G266- .

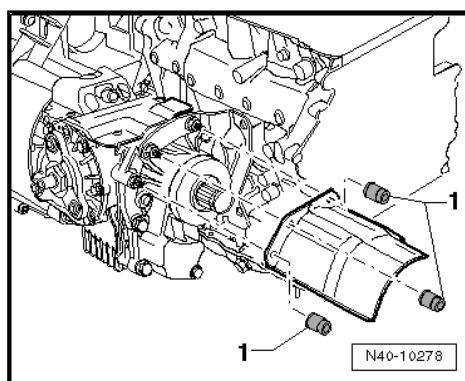


- Remove subframe with steering rack (fit locating pins - T10096-) ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 .

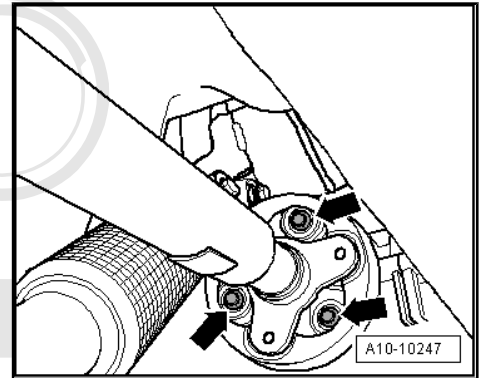
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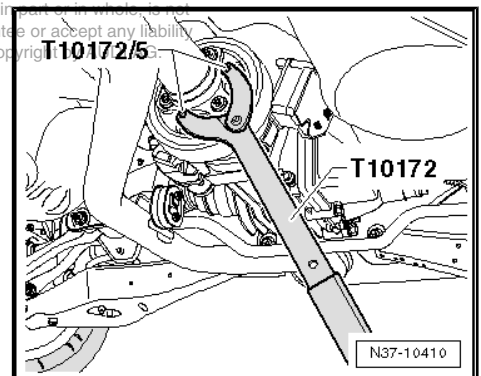
- Remove nuts -1- and detach heat shield for drive shaft (right-side).
- Unbolt drive shaft (right-side) from gearbox and tie up ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 .



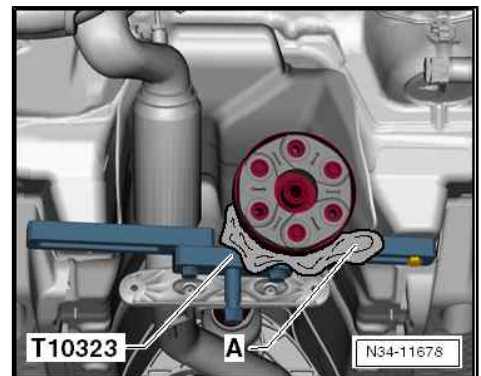
- Mark position of flexible coupling relative to bevel box flange for re-installation.
- Unbolt propshaft from bevel box -arrows-.



- If necessary, counterhold at rear final drive when loosening and tightening propshaft bolts.



- Secure support bridge - T10323- to inner rear threaded hole for subframe with one bolt.
- This can be done with the subframe securing bolt.
- Lay a cloth -A- on support bridge and place propshaft on cloth.



Caution

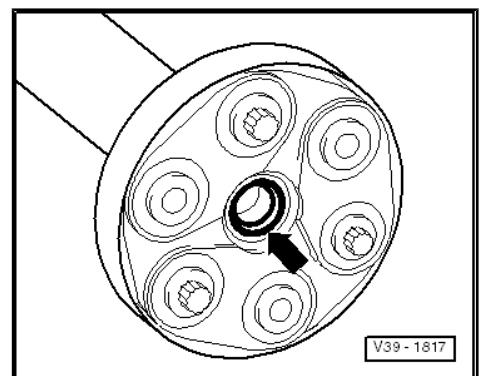
Risk of damage to oil seal -arrow- in propshaft flange.

- ◆ *Push propshaft as far back as possible, keeping it horizontal.*



Note

If seal is damaged propshaft must be renewed.

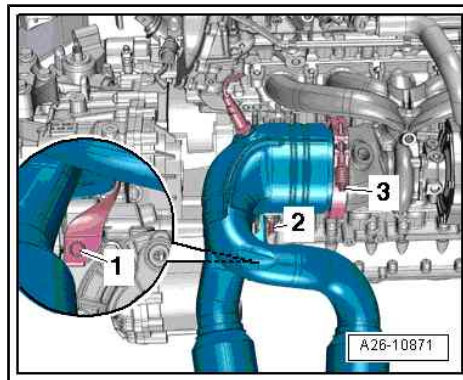


- Remove bolts -1- and -2- and detach bracket for starter catalytic converter.

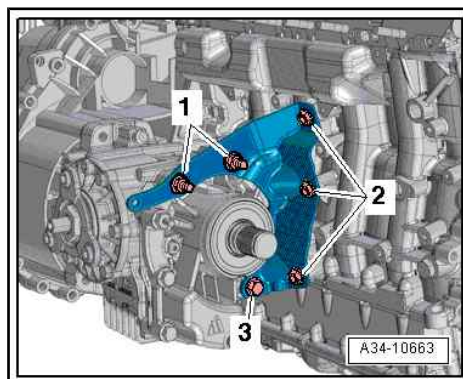


Note

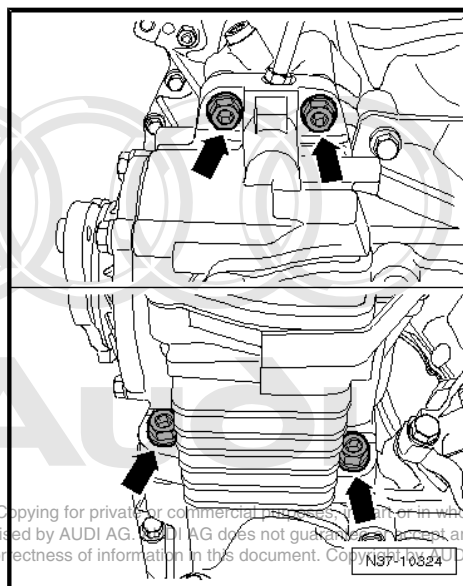
Disregard -item 3-.



- Remove bolts -1, 2, 3- and detach bracket for bevel box.



- Remove bolts -arrows- securing bevel box to gearbox.
- Carefully press bevel box off gearbox using a suitable lever and take out from below.

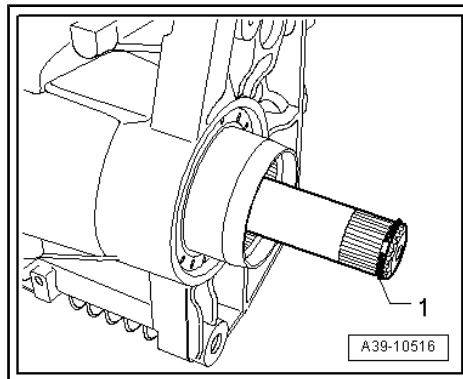


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Installing

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

- Tightening torques
⇒ [“10.1 Overview of tightening torques”, page 96](#)
- Fit new circlip -1- on stub shaft on gearbox side.



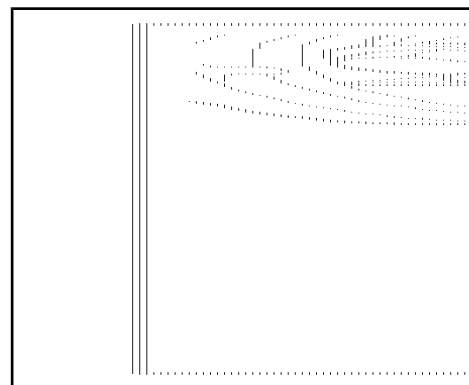
- Grease splines of stub shaft.
- Fit new circlip -arrow A- and new O-ring -arrow B- on stub shaft on drive shaft side.



Caution

Risk of damage to gearbox or bevel box.

- ◆ **To enable the circlip on the stub shaft to engage properly in the differential bevel gear, strike the end face of the stub shaft with a plastic hammer.**
- ◆ **Do not attempt to pull the bevel box onto the gearbox by force by tightening the securing bolts.**



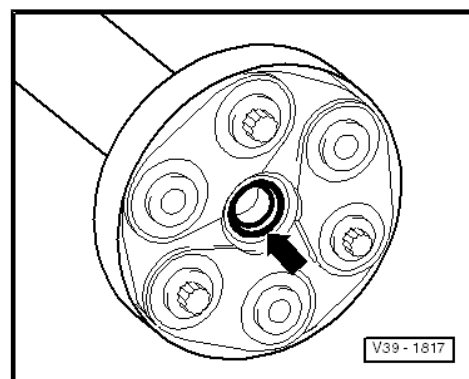
- Push bevel box fully onto gearbox, ensuring that splines of bevel box input shaft and differential are centred when brought together.
- Also bring splines of stub shaft and bevel gear in differential into alignment by turning stub shaft if necessary.
- If the splines are correctly positioned and the components are located centrally, the bevel box will slide against the gearbox onto the stop.
- Secure bevel box ⇒ [page 96](#) .
- Secure bracket for bevel box ⇒ [page 96](#) .
- Install drive shaft (right-side) ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 .
- Install heat shield for drive shaft (right-side) ⇒ [page 70](#) .



Caution

Risk of damage to oil seal -arrow- in propshaft flange.

- ◆ **Press engine/gearbox assembly towards plenum chamber partition panel; at the same time carefully inserting guide pin on bevel box into propshaft flange.**



- Bolt flexible coupling on propshaft onto output flange of bevel box ⇒ Rear final drive 02D, 0AV, 0BR and 0BY; Rep. gr. 39 .
- Install subframe ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 .
- Tighten bolts for pendulum support ⇒ [page 74](#) .
- Install exhaust system so it is free of stress ⇒ Engine, mechanics; Rep. gr. 26 .
- Install front wheel housing liners (front section) ⇒ General body repairs, exterior; Rep. gr. 66 .
- Fit front wheels ⇒ Wheels and tyres; Rep. gr. 44 .
- Check gear oil level in bevel box ⇒ [page 133](#) .

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35 – Gears, shafts

1 Exploded view - oil pan, mechatronic unit for dual clutch gearbox - J743-



Note

-Items 1 ... 28- can be disregarded here.

29 - Bolt

- ☐ 10 Nm

30 - Gearbox input speed sender - G182- / clutch temperature sender - G509-

- ☐ Removing and installing
⇒ [page 110](#)

31 - Mechatronic unit for dual clutch gearbox - J743-

- ☐ With O-ring on connector
- ☐ Renew O-ring
- ☐ Removing and installing
⇒ [page 107](#)

32 - Bolt

- ☐ 9x
- ☐ Renew
- ☐ Tightening torque and sequence ⇒ [page 103](#)

33 - Oil pan

- ☐ With gasket
- ☐ Renew
- ☐ Removing and installing
⇒ [page 103](#)

34 - Bolt

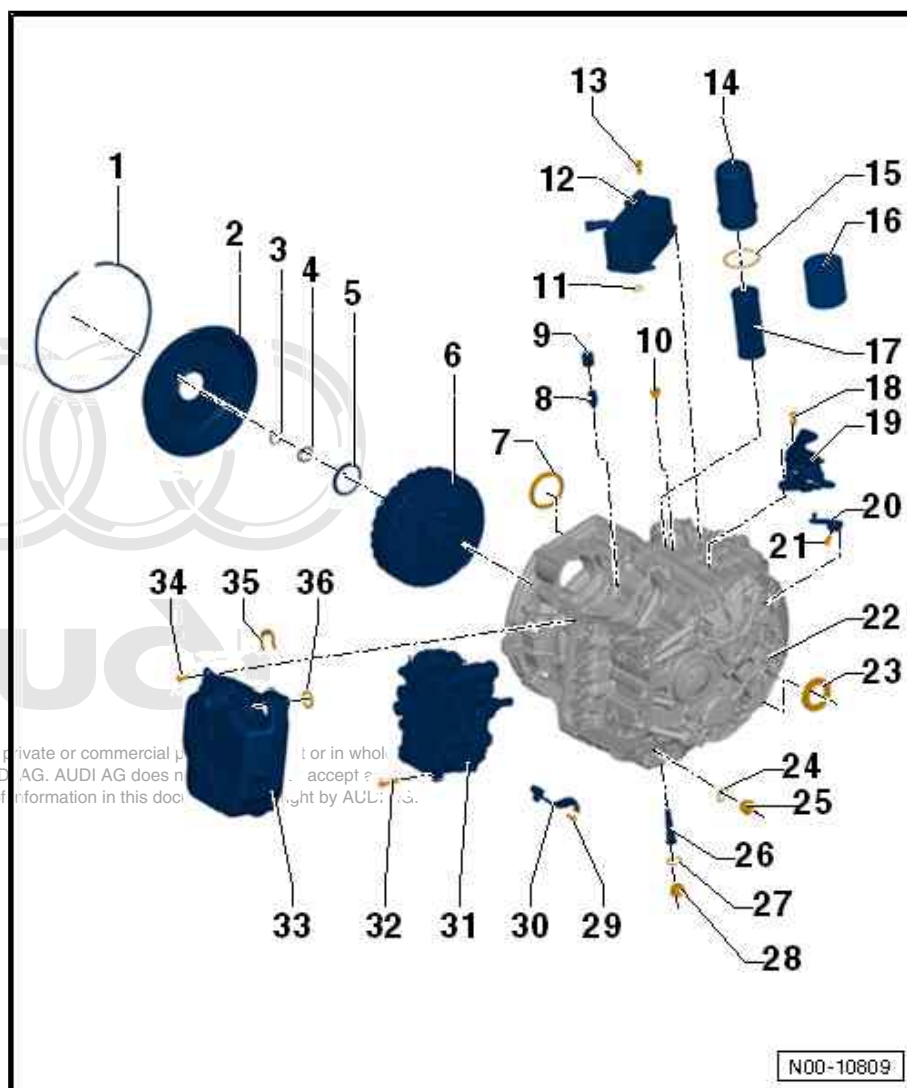
- ☐ Renew
- ☐ 8 Nm +60°

35 - Securing clip

- ☐ Renew

36 - O-ring

- ☐ Renew



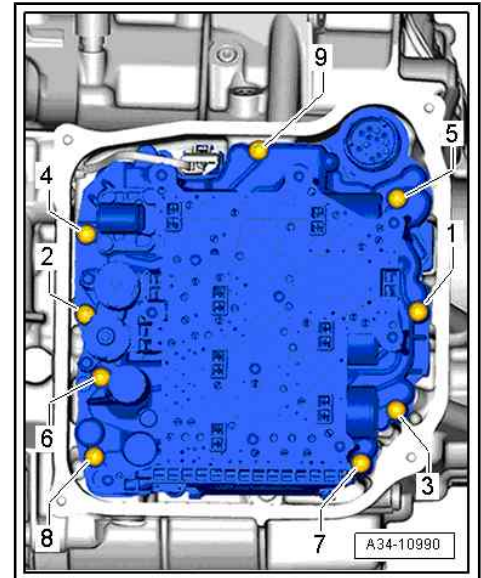
Mechatronic unit for dual clutch gearbox - J743- : tightening torque and sequence

Note

Renew bolts which are tightened by turning through a specified angle.

- Tighten bolts in 3 stages in the sequence shown:

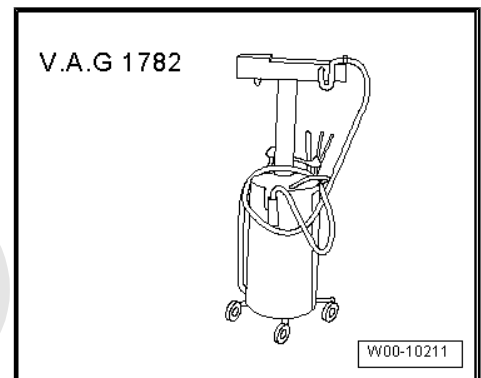
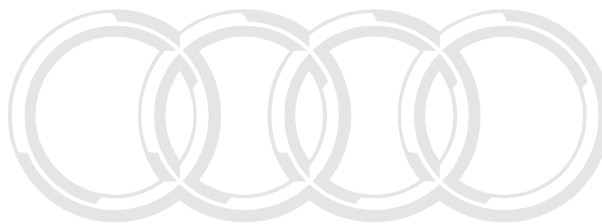
Stage	Bolts	Tightening torque/angle specification
1.	-1 ... 9-	Screw in by hand until contact is made
2.	-1 ... 9-	8 Nm
3.	-1 ... 9-	Turn 45° further



1.1 Removing and installing oil pan

Special tools and workshop equipment required

- ◆ Used oil collection and extraction unit - V.A.G 1782-



Removing

 **Caution**

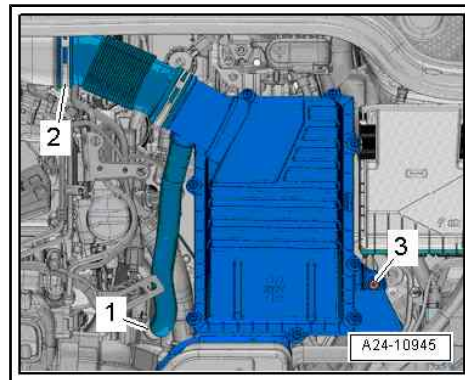
Risk of damage to the gearbox.

◆ **Do not run the engine or tow the vehicle with the oil pan removed or when there is no gear oil in the gearbox.**

Note

- ◆ Please refer to ⇒ "7 Repair instructions", page 11 .
- ◆ Please refer to ⇒ "8 Rules for cleanliness when working on the gearbox", page 13 .

- Remove air cleaner housing ⇒ Injection and ignition system;
Rep. gr. 24 .

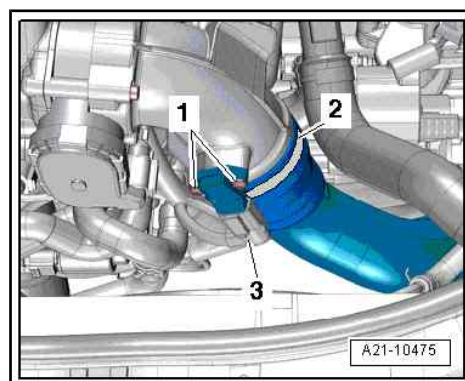


- Release hose clip -2- securing air pipe (left-side).

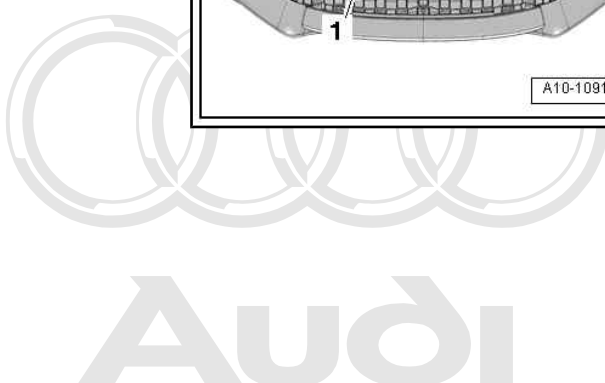
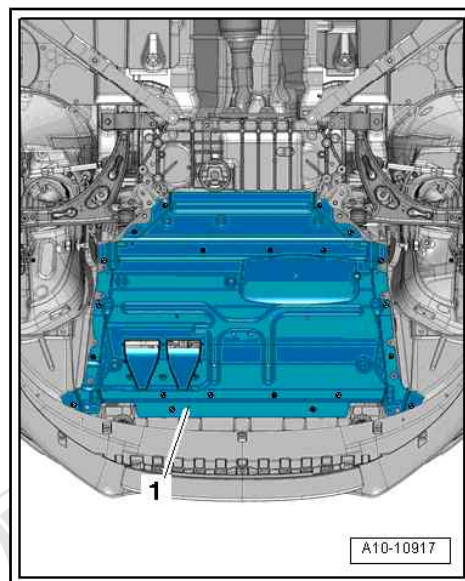


Note

Disregard items -1 and 3-.

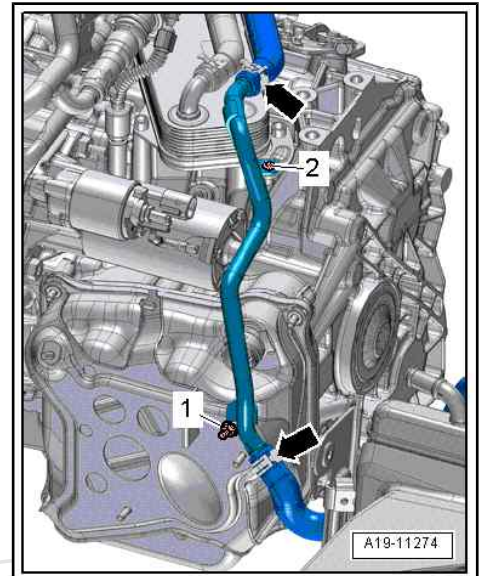


- Remove noise insulation -1- ⇒ General body repairs, exterior;
Rep. gr. 50 .

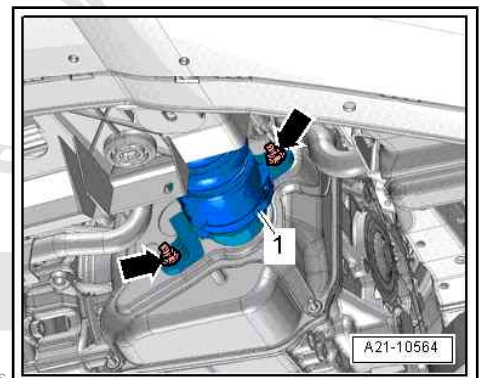


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- Remove nut -1- and bolt -2- and push coolant pipe on gearbox slightly to one side.



- Remove nuts -arrows-.
- Release hose clip -2- and detach air pipe.
- Drain off gear oil ⇒ [page 87](#).

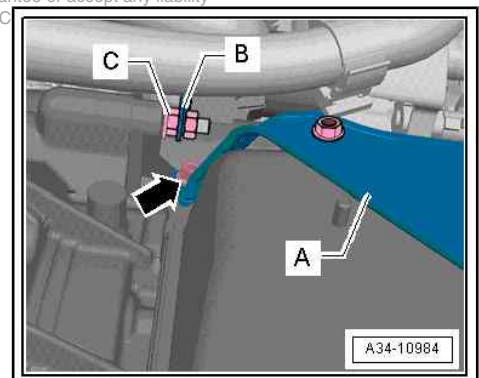


- Detach wiring from bracket -A- at front of gearbox.
- Then unscrew nuts -arrow- from oil pan securing bolts and detach bracket -A-.



Note

-Items B- and -C- can be disregarded.



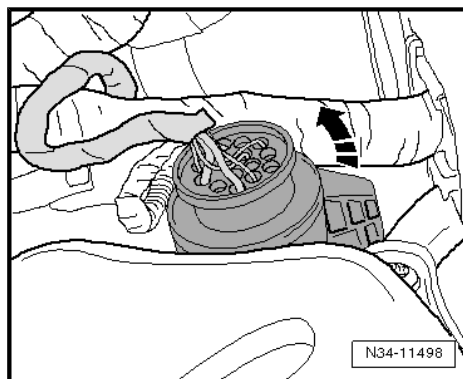
Caution

Mechatronic unit for dual clutch gearbox - J743- can be irreparably damaged by electrostatic discharge.

- ◆ ***Do not touch contact pins in connector for mechatronic unit for dual clutch gearbox - J743- with bare hands.***

- Touch an earthed metal object, such as a heater radiator or lifting platform with your hand (without gloves) to discharge static electricity.

- Turn fastener anti-clockwise -arrow- and unplug and detach electrical connector on gearbox.

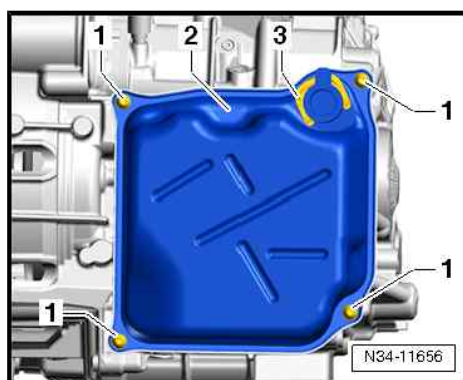


- Place used oil collection and extraction unit - V.A.G 1782- below gearbox.
- Remove securing clip -3-.
- Loosen bolts -1- securing oil pan -2- in diagonal sequence and remove.
- Detach oil pan -2- (if necessary, knock oil pan loose by striking lightly with a rubber-headed hammer).



Note

- ◆ Allow remaining gear oil in oil pan to drain off into used oil collection and extraction unit - V.A.G 1782- .
- ◆ Always renew bolts -1-, oil pan -2- and securing clip -3-.



Installing

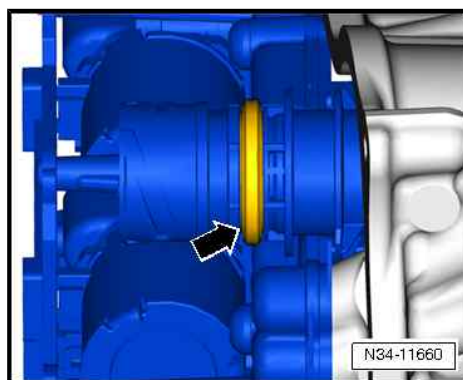
Installation is carried out in reverse sequence; note the following:

- Tightening torques
⇒ ["1 Exploded view - oil pan, mechatronic unit for dual clutch gearbox J743", page 102](#)



Note

- ◆ Renew oil pan and bolts for oil pan.
- ◆ Renew O-ring -arrow- on connector for mechatronic unit for dual clutch gearbox - J743- .
- ◆ The O-ring is supplied with the replacement unit if the mechatronic unit for dual clutch gearbox - J743- is being renewed.
- Clean sealing surface on gearbox housing; it must be free from oil and grease.
- Lightly lubricate O-ring on connector for mechatronic unit for dual clutch gearbox - J743- with gear oil.

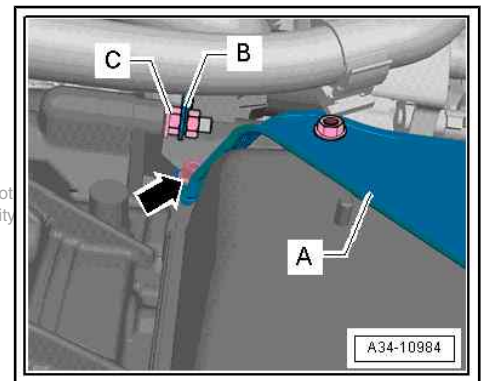
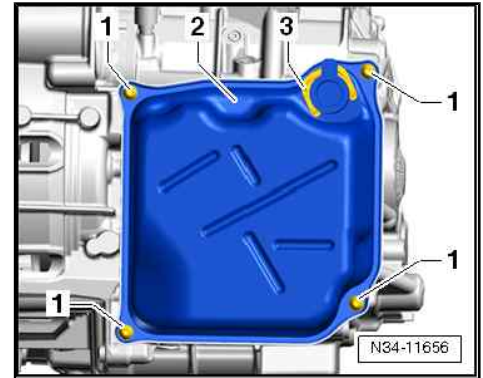


- Fit new oil pan -2- and tighten new bolts -1- in diagonal sequence and in several stages.

 Note

Make sure no electrical wiring is trapped when fitting oil pan.

- Install new securing clip -3-.
- Angled side of securing clip faces gearbox.
- Plug in connector for mechatronic unit on gearbox and lock connector.
- Then install bracket -A- on gearbox -arrow-.
- Attach pipes/wiring to bracket -A- at front of gearbox.
- Install air pipe (left-side) ⇒ Engine, mechanics; Rep. gr. 21 .
- Install coolant pipe on gearbox ⇒ Engine, mechanics; Rep. gr. 19 .
- Fill up with gear oil ⇒ [page 87](#) and check gear oil level ⇒ [page 81](#) .



1.2 Removing and installing mechatronic unit for dual clutch gearbox - J743-

Removing



Caution

Risk of damage to the gearbox.

- ◆ *Do not run the engine or tow the vehicle with the oil pan removed or when there is no gear oil in the gearbox.*

 Note

- ◆ Please refer to ⇒ [“7 Repair instructions”, page 11](#) .
- ◆ Please refer to ⇒ [“8 Rules for cleanliness when working on the gearbox”, page 13](#) .
- Remove oil pan ⇒ [page 103](#) .



Caution

The mechatronic unit can be irreparably damaged by electrostatic discharge.

- ◆ *Do not touch the contact pins in the connector with bare hands.*

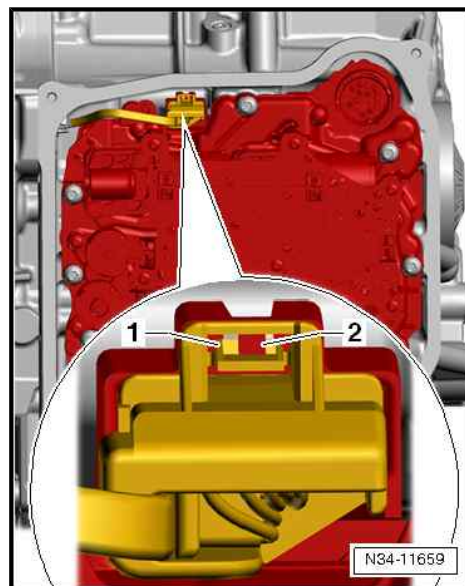
- Touch an earthed metal object, such as a heater radiator or lifting platform with your hand (without gloves) to discharge static electricity.



Caution

The electrical wiring can be damaged.

- ◆ *Do not pull on the electrical wiring.*
- ◆ *Work very carefully and do not use force. The catch on connector -2- can break off. If this happens, the mechatronic unit for dual clutch gearbox - J743- must be renewed.*



- Using a small screwdriver, carefully release connector -1- for gearbox input speed sender - G182- and clutch temperature sender - G509- and unplug connector.



Note

-G182- and -G509- will have to be renewed if the electrical wiring is damaged.

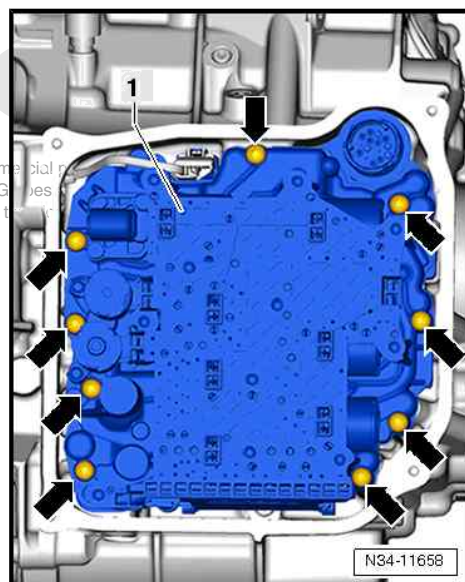
- Remove bolts -arrows-.
- Carefully detach mechatronic unit -1-.



Caution

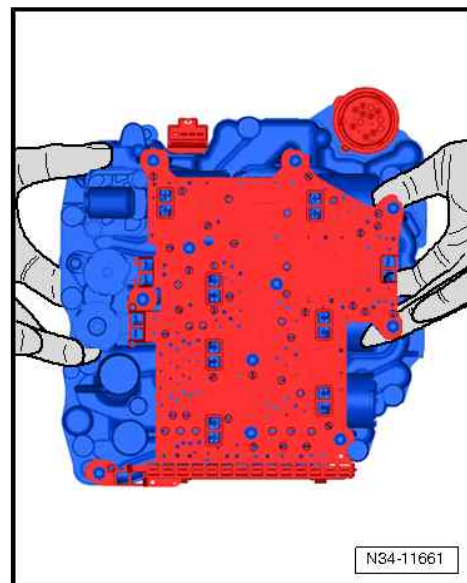
The mechatronic unit can be damaged.

- *When handling the mechatronic unit only take hold of the housing and the solenoid valves; put it down on the housing and the solenoid valves.*



Handling mechatronic unit

- Take out mechatronic unit for dual clutch gearbox - J743- .



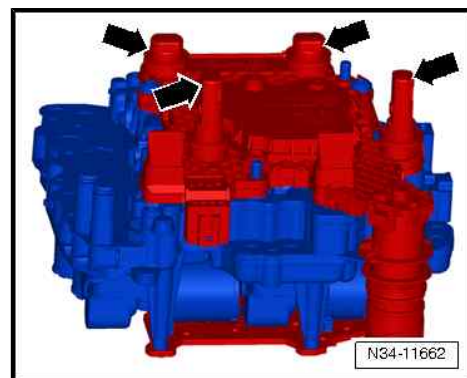
Putting down the mechatronic unit correctly

- Put down the mechatronic unit so that the sensors -arrows- face upwards.

Installing

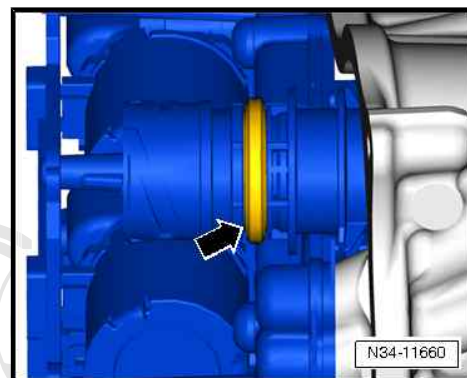
Installation is carried out in reverse sequence; note the following:

- Tightening torques
⇒ ["1 Exploded view - oil pan, mechatronic unit for dual clutch gearbox J743", page 102](#)



Note

- ◆ Renew bolts for mechatronic unit for dual clutch gearbox - J743- .
- ◆ Renew O-ring -arrow- on connector for mechatronic unit for dual clutch gearbox - J743- .
- ◆ The O-ring is supplied with the replacement unit if the mechatronic unit for dual clutch gearbox - J743- is being renewed.



Caution

The mechatronic unit can be damaged.

- When handling the mechatronic unit only take hold of the housing and the solenoid valves; put it down on the housing and the solenoid valves.

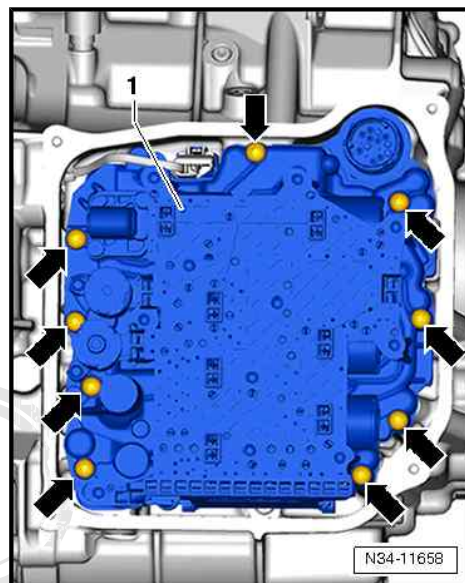
The mechatronic unit can be irreparably damaged by electrostatic discharge.

- ◆ Do not touch the contact pins in the connector with bare hands.

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- Before touching the mechatronic unit, touch an earthed metal object, such as a heater radiator or lifting platform with your hand (without gloves) to discharge static electricity.

- Carefully fit mechatronic unit -1- into gearbox.
- The electrical wiring for -G182- and -G509- must not become trapped.
- Tighten bolts -arrows- for mechatronic unit for dual clutch gearbox - J743- ➔ [page 103](#) .

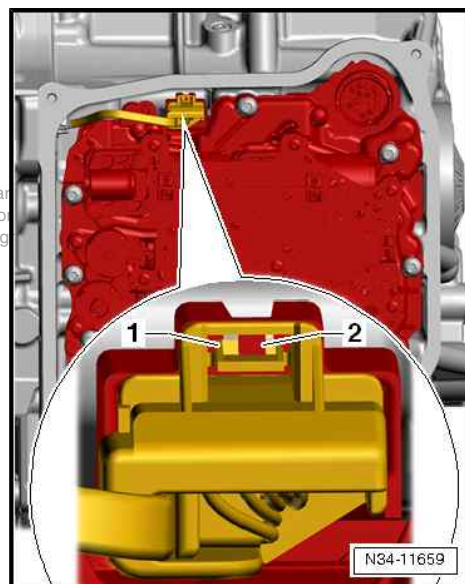


Caution

There is a risk of damage to the catch on the connector.

- *Work very carefully and do not use force. The catch on connector -2- can break off. If this should happen, the connector will not be secure and the mechatronic unit for dual clutch gearbox - J743- must be renewed.*

- Plug in and lock connector -1- on -G182- and -G509- .
- Then check that catch -2- is not damaged.
- Install oil pan ➔ [page 103](#) .
- Fill up with gear oil ➔ [page 87](#) and check gear oil level ➔ [page 81](#) .
- Perform Basic setting ➔ Vehicle diagnostic tester.



1.3 Removing and installing gearbox input speed sender - G182- / clutch temperature sender - G509-

Removing



Caution

Risk of damage to the gearbox.

- ◆ *Do not run the engine or tow the vehicle with the oil pan removed or when there is no gear oil in the gearbox.*



Note

- ◆ Please refer to ⇒ [“7 Repair instructions”, page 11](#) .
- ◆ Please refer to
⇒ [“8 Rules for cleanliness when working on the gearbox”, page 13](#) .
- Remove oil pan ⇒ [page 103](#) .
- Remove mechatronic unit for dual clutch gearbox - J743-
⇒ [page 107](#) .



Caution

The electrical wiring can be damaged.

- ◆ *Do not pull on the electrical wiring.*

- Remove bolt -2- and pull out sender -1-.

Installing

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

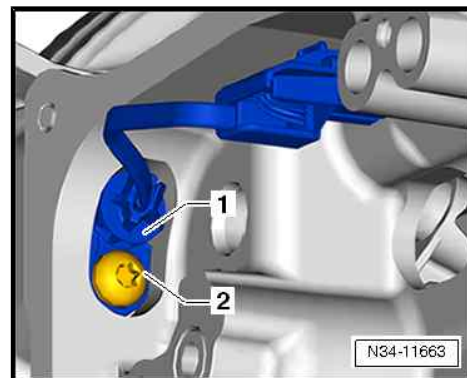
- Tightening torques
⇒ [“1 Exploded view - oil pan, mechatronic unit for dual clutch gearbox J743”, page 102](#)

The old sender should only be re-installed if:

- The sender is in proper working condition.
- The wire was not pulled when removing the sender.

Otherwise install a new sender.

- Lightly lubricate gearbox input speed sender - G182- / clutch temperature sender - G509- with gear oil before installing.
- Install mechatronic unit for dual clutch gearbox - J743-
⇒ [page 107](#) .
- Install oil pan ⇒ [page 103](#) .
- Fill up with gear oil ⇒ [page 87](#) and check gear oil level
⇒ [page 81](#) .
- Perform Basic setting ⇒ Vehicle diagnostic tester.



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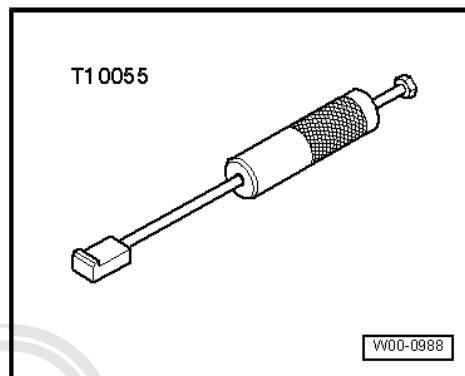
39 – Final drive - front differential

1 Renewing oil seals (with gearbox installed in vehicle)

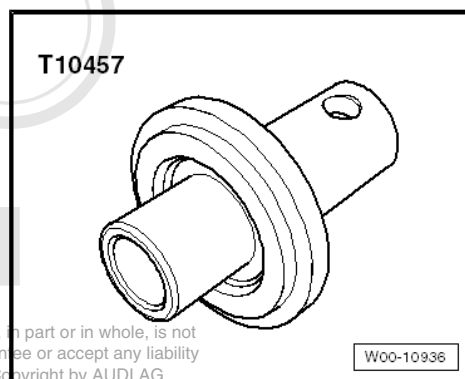
1.1 Renewing oil seal (left-side)

Special tools and workshop equipment required

- ◆ Puller - T10055-



- ◆ Thrust piece - T10457-



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- ◆ Electric drill (commercially available)
- ◆ Metal drill bit $\varnothing$ 2 ... 4 mm, commercially available

Procedure

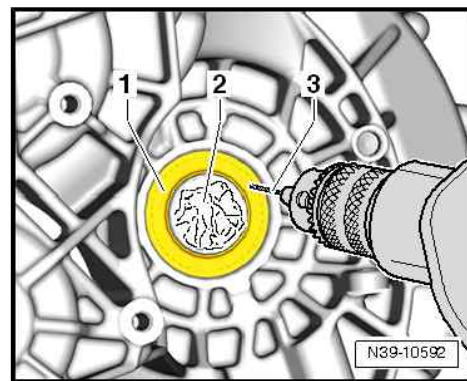
- Remove drive shaft (left-side) ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 .
- Apply grease to drill bit -3- so that drilling swarf adheres to drill bit.



Caution

Risk of damage to bearing behind oil seal.

- ◆ *Take care to drill only through the metal ring of the oil seal.*
- ◆ *Do not screw in the self-tapping screw too far.*



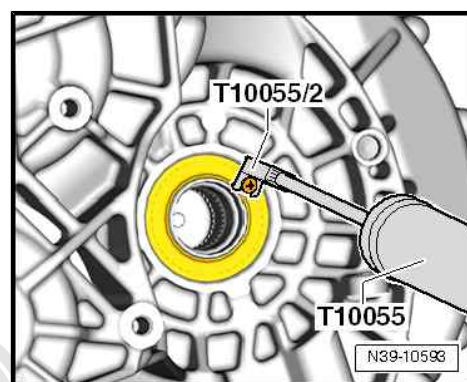
- Seal off opening for drive shaft on gearbox with a clean cloth -2-.
- Using drill bit Ø 2 ... 4 mm, carefully drill hole in outer metal ring -1- of oil seal.
- Screw self-tapping screw (approx. 4 mm Ø) into hole drilled in oil seal.
- Pull out oil seal using puller - T10055- and adapter - T10055/2- .



Caution

Risk of damage to gearbox

- ◆ *No metal particles must be allowed to enter the gearbox or the opening for the drive shaft. If necessary, vacuum out particles before proceeding.*



- Carefully remove cloth, taking care not to let metal particles drop into gearbox.
- Thoroughly clean gearbox and opening for drive shaft.



Note

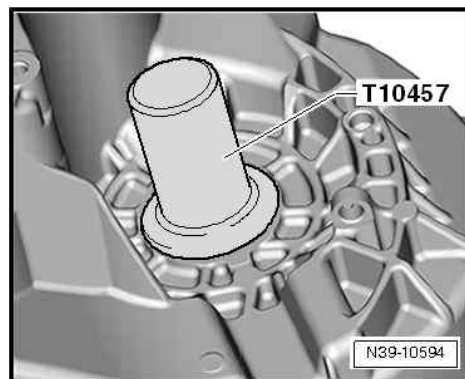
If it was only possible to remove the metal ring, carefully prise out the rest of the oil seal using a screwdriver.

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- Lightly lubricate outer circumference and sealing lips of new oil seal with gear oil.
- Installation position: open side of oil seal points towards gearbox
- Fit oil seal by hand, keeping it straight and pushing it in as far as it will go, so that oil seal is held in gearbox housing.



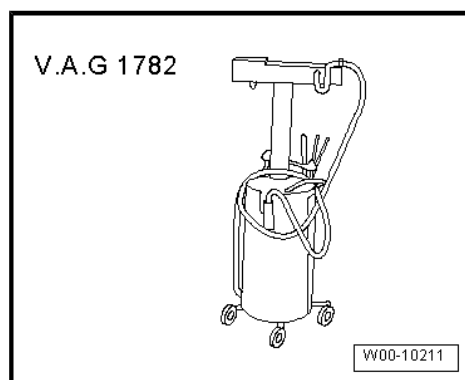
- Drive in oil seal onto stop using thrust piece - T10457- . Take care to keep seal straight when installing.
- Install drive shaft (left-side) ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 .
- Check gear oil level and top up as required ⇒ [page 81](#) .



1.2 Renewing stub shaft oil seal (right-side) with bevel box installed

Special tools and workshop equipment required

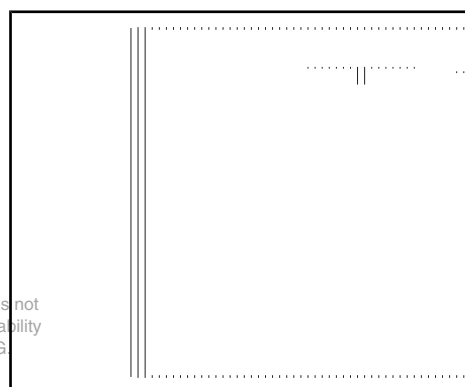
- ◆ Used oil collection and extraction unit - V.A.G 1782-



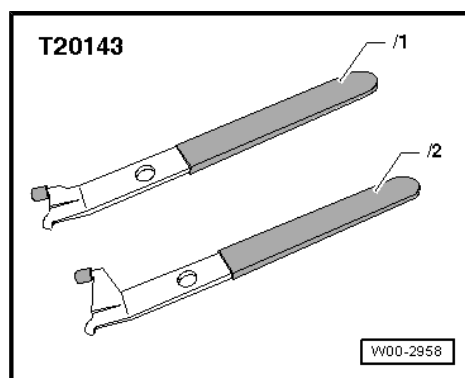
- ◆ Thrust piece - T10143-



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- ◆ Extractor tool - T20143-



- ◆ Sealing grease - G 052 128 A1-
- ◆ Grease for stub shaft splines ⇒ Electronic parts catalogue

Procedure

- Gearbox in vehicle

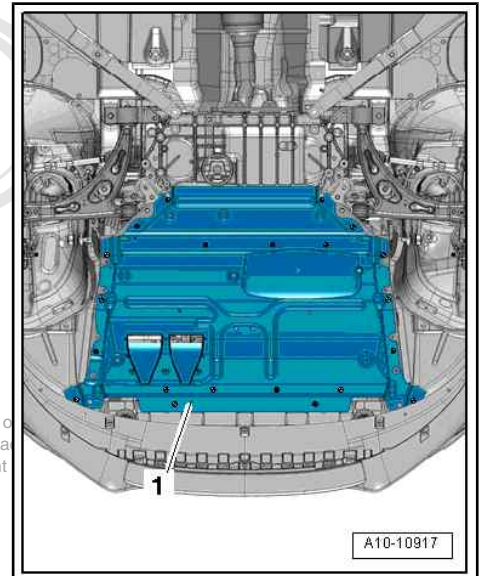


Note

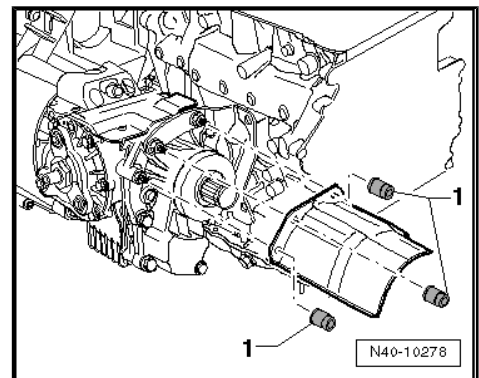
- ◆ Please refer to ⇒ "7 Repair instructions", page 11 .
- ◆ Please refer to
⇒ "8 Rules for cleanliness when working on the gearbox", page 13 .

- Remove noise insulation -1- ⇒ General body repairs, exterior;
Rep. gr. 50 .

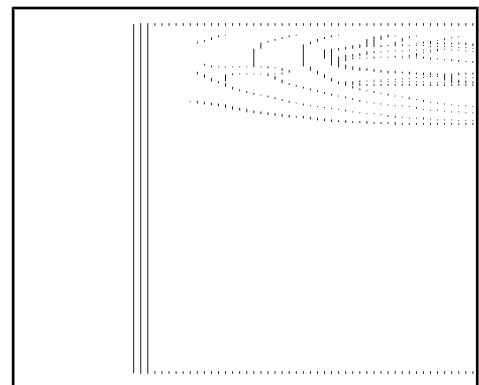
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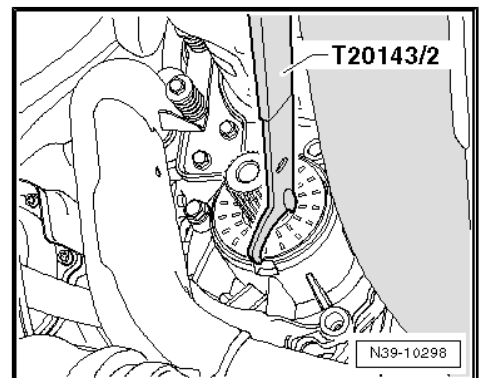
- Remove nuts -1- and detach heat shield for drive shaft (right-side).
- Remove drive shaft (right-side) ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 .



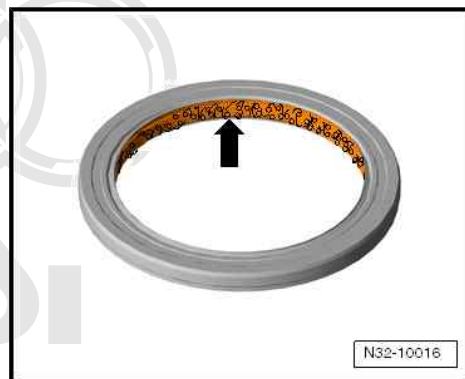
- Remove circlip -arrow A- and O-ring -arrow B- from stub shaft.



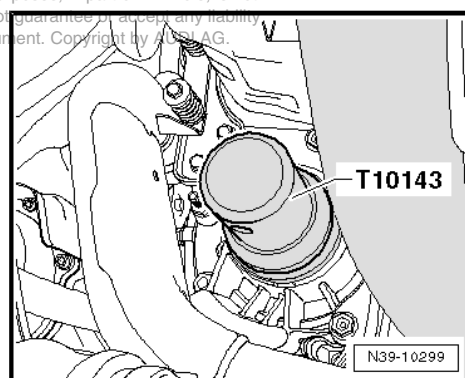
- Place used oil collection and extraction unit - V.A.G 1782- below bevel box.
- Pry out oil seal.



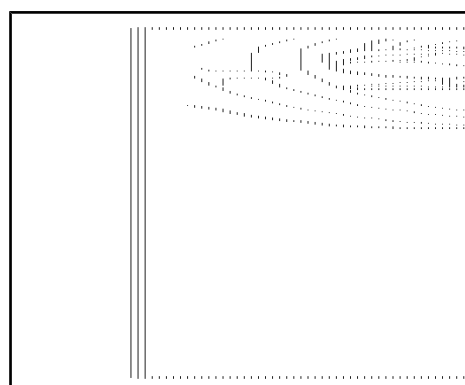
- Lubricate outer circumference of new oil seal with gear oil.
- Pack space between sealing lip and dust lip -arrow- half full with sealing grease - G 052 128 A1- .



- Drive in oil seal onto stop (take care to keep oil seal straight).



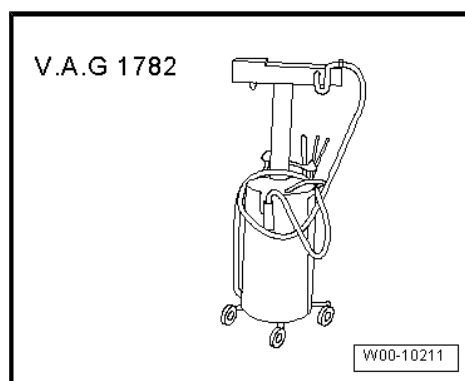
- Install new circlip -arrow A- and new O-ring -arrow B-.
- Grease splines of stub shaft.
- Install drive shaft (right-side) ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 .
- Install heat shield for drive shaft (right-side) ⇒ [page 70](#) .
- Check gear oil level and top up as required ⇒ [page 133](#) .



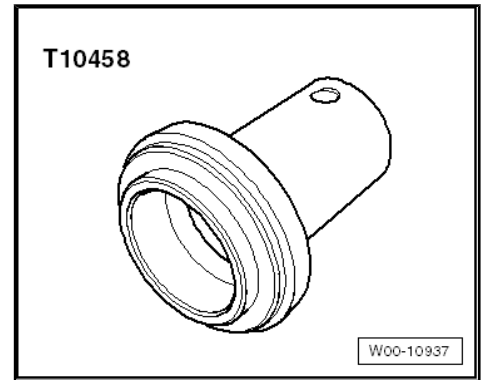
1.3 Renewing oil seal between dual clutch gearbox and bevel box (bevel box removed)

Special tools and workshop equipment required

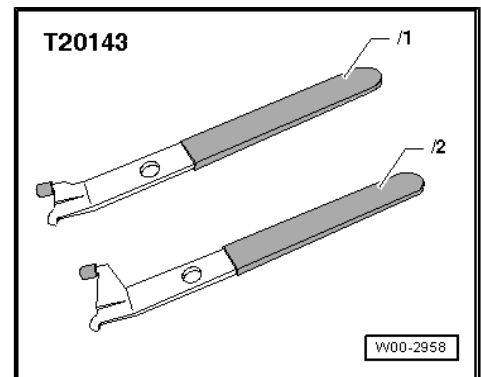
- ◆ Used oil collection and extraction unit - V.A.G 1782-



◆ Thrust piece - T10458-

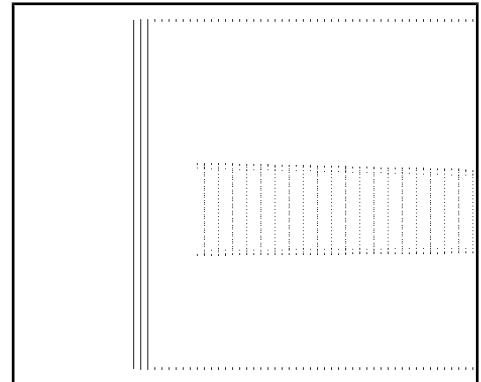


◆ Extractor tool - T20143-

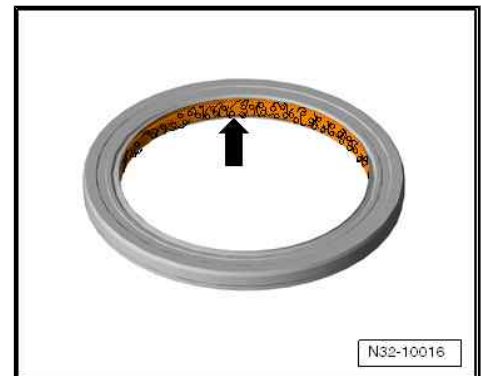


Procedure

- Bevel box removed ⇒ [page 96](#) .
- Place used oil collection and extraction unit - V.A.G 1782- below gearbox.
- Pry out oil seal from dual clutch gearbox using extractor tool - T20143/1- or - T20143/2- .

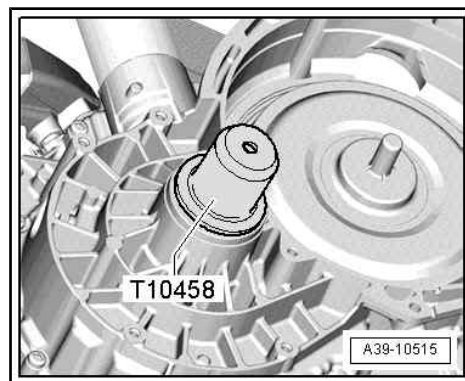


- Lubricate outer circumference of new oil seal with gear oil.
- Pack space between sealing lip and dust lip arrow half full with sealing grease - G 052 128 A1- .





- Carefully drive in oil seal as far as stop using thrust piece - T10458- .



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2 Exploded view - oil seals in bevel box and stub shaft bearings in bevel box

1 - Oil seal

- ☐ Between bevel box and dual clutch gearbox
- ☐ Renewing (with bevel box removed)
⇒ [page 126](#)

2 - Oil seal

- ☐ For stub shaft (right-side), on gearbox side
- ☐ Renewing (with bevel box removed)
⇒ [page 121](#)

3 - Bevel box

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

4 - Oil seal

- ☐ For stub shaft on outside of bevel box
- ☐ Renewing (with bevel box installed)
⇒ [page 114](#)
- ☐ Renewing (with bevel box removed)
⇒ [page 121](#)

5 - Circlip

- ☐ Renew
- ☐ Fit in annular groove in stub shaft

6 - O-ring

- ☐ Renew
- ☐ Fit in annular groove in stub shaft

7 - Stub shaft (right-side)

- ☐ Removing and installing ⇒ [page 123](#)

8 - Needle bearing (polygon bearing)

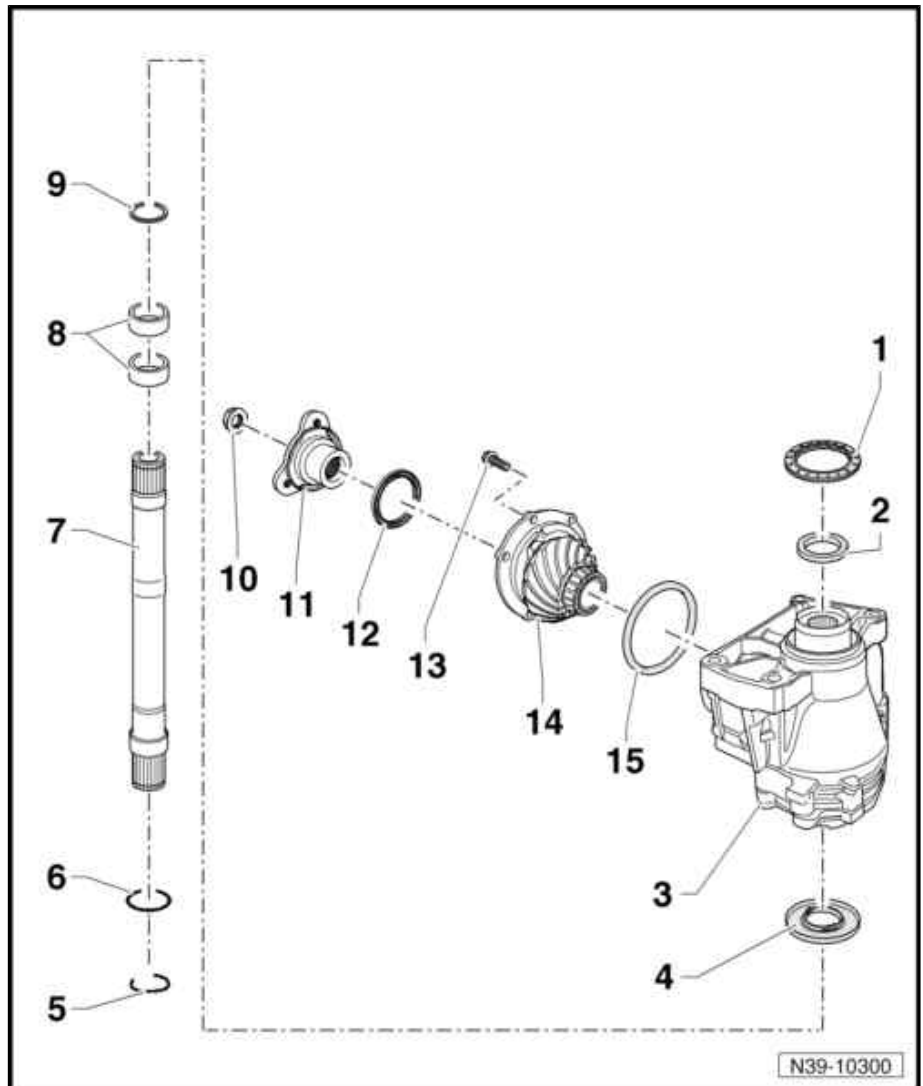
- ☐ Does not turn easily when stub shaft (right-side) is removed; this does not indicate a fault
- ☐ Acoustic check can only be performed when installed
- ☐ Check for damage such as cracking in outer race
- ☐ Renewing ⇒ [page 123](#)

9 - Circlip

- ☐ Renew
- ☐ Fit in annular groove in stub shaft

10 - Nut

- ☐ Removing ⇒ [page 131](#)
- ☐ Renew
- ☐ Install with locking fluid; for locking fluid refer to ⇒ Electronic parts catalogue
- ☐ Installing ⇒ [page 132](#)
- ☐ 480 Nm



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11 - Output flange

- ☐ For bevel box

12 - Oil seal

- ☐ For output flange on bevel box
- ☐ Renewing ⇒ [page 127](#)

13 - Bolt

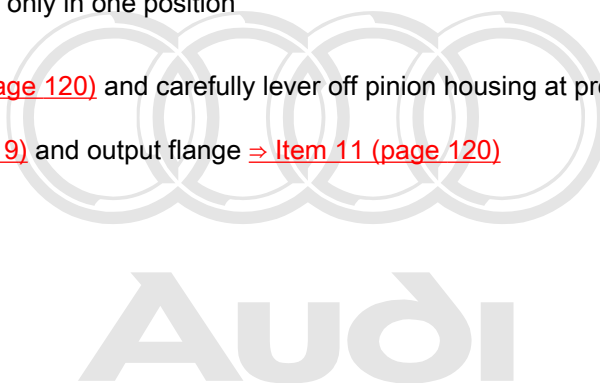
- ☐ Tighten diagonally
- ☐ 25 Nm

14 - Pinion housing

- ☐ With shaft bevel gear
- ☐ Drive in carefully on alternate sides
- ☐ Observe bolt holes; pinion housing fits only in one position

15 - O-ring

- ☐ To renew, unscrew bolts ⇒ [Item 13 \(page 120\)](#) and carefully lever off pinion housing at projecting webs on outside edge
- ☐ Do not remove nut ⇒ [Item 10 \(page 119\)](#) and output flange ⇒ [Item 11 \(page 120\)](#)

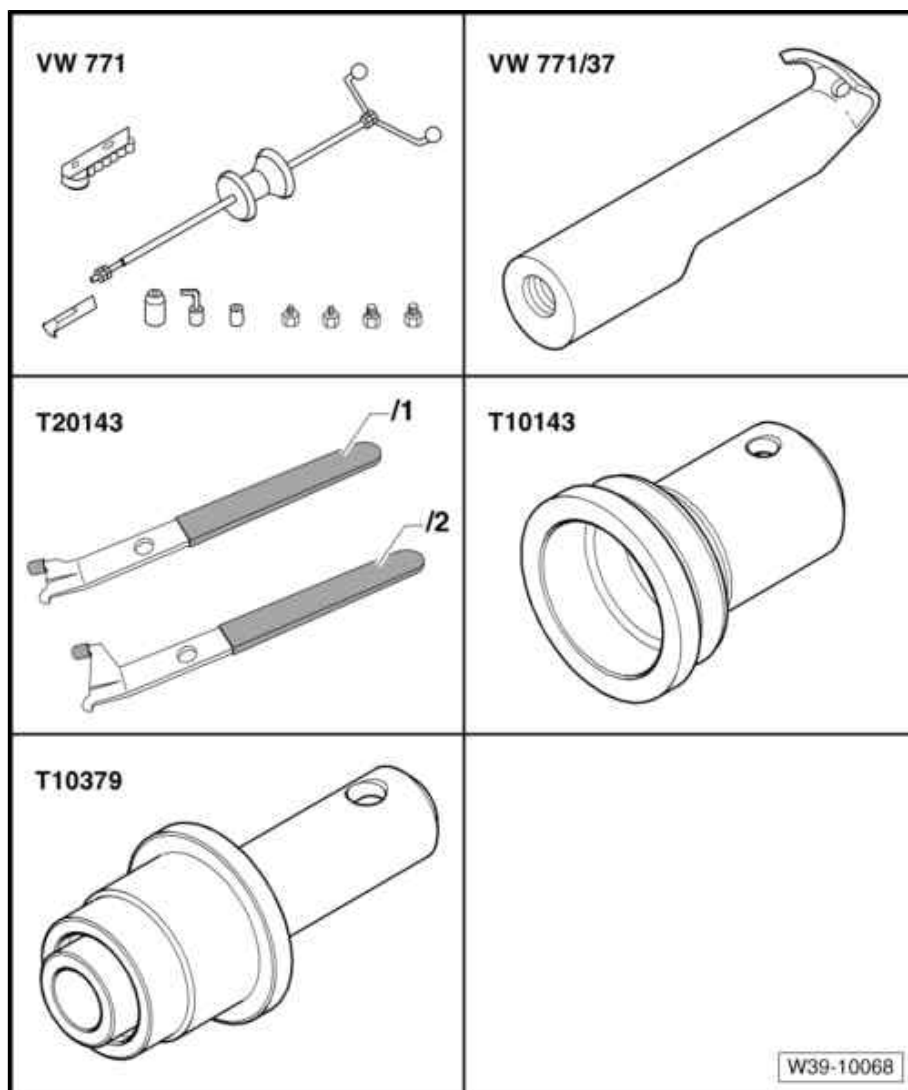


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2.1 Renewing stub shaft oil seal (right-side), on gearbox side (bevel box removed)

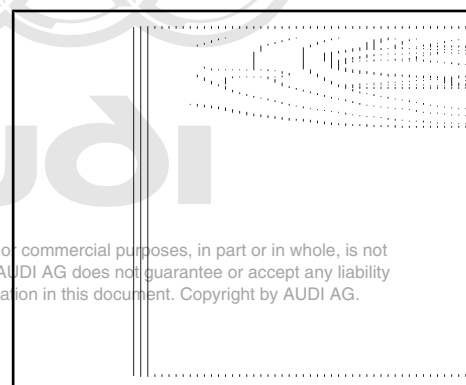
Special tools and workshop equipment required

- ◆ Multi-purpose tool - VW 771-
- ◆ Extractor tool - VW 771/37-
- ◆ Extractor tool - T20143-
- ◆ Thrust piece - T10143-
- ◆ Thrust piece - T10379-
- ◆ Grease for stub shaft ➔ Electronic parts catalogue



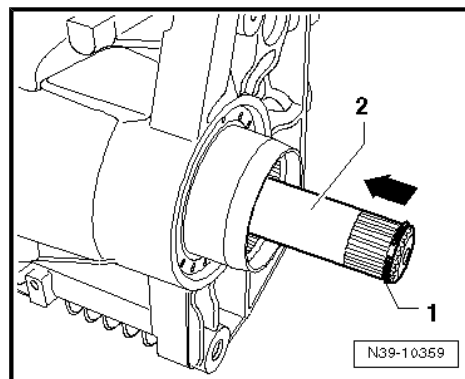
Procedure

- Bevel box removed ➔ [page 96](#) .
- Remove circlip -arrow A- and O-ring -arrow B- from stub shaft.

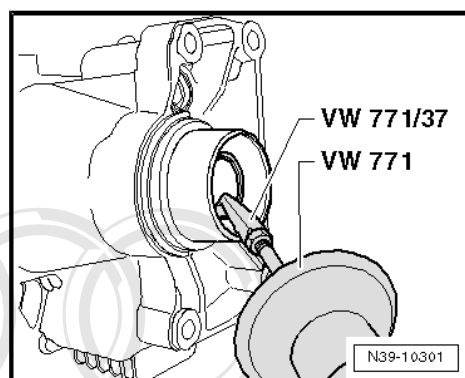


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- Detach circlip -1- from stub shaft -2-.
- Carefully knock out stub shaft -2- in direction of arrow using a plastic hammer.



- Pull out stub shaft oil seal on gearbox side.



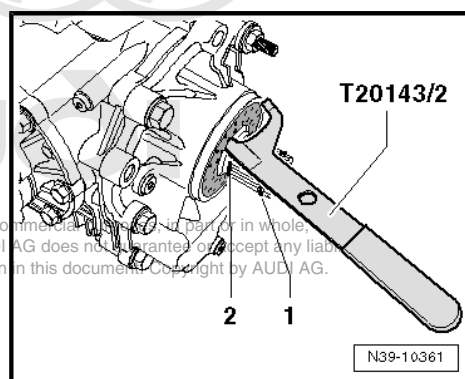
- Lever out stub shaft oil seal on drive shaft side.



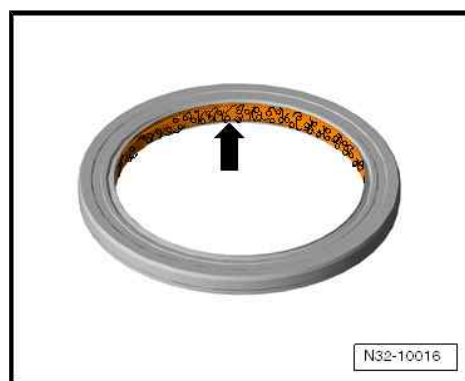
Note

Disregard items -1 and 2-.

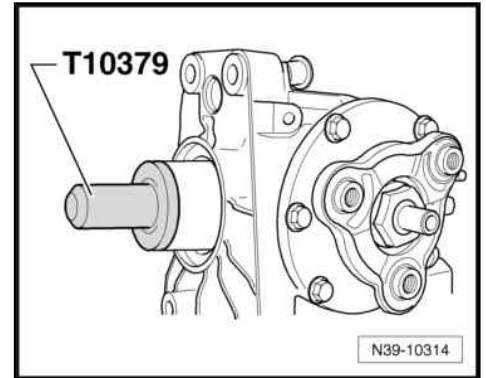
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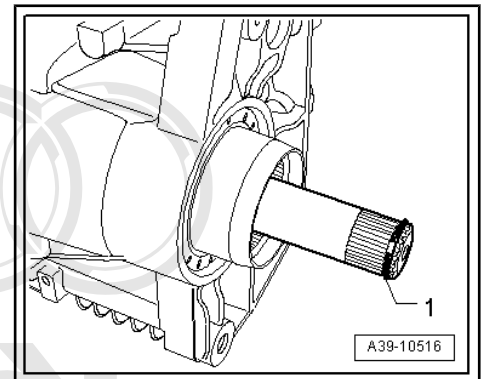
- Lubricate outer circumference of new oil seal with gear oil.
- Pack space between sealing lip and dust lip -arrow- half full with sealing grease - G 052 128 A1- .



- Drive in oil seal on gearbox side as far as stop.

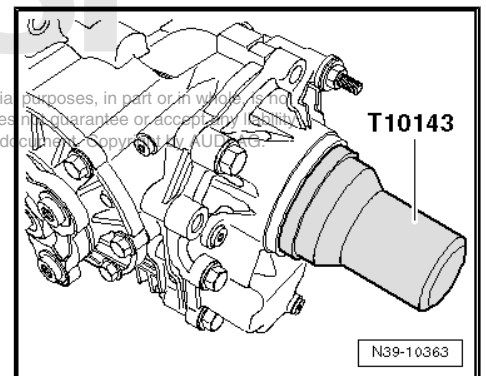


- Carefully drive stub shaft into bevel box as far as stop using plastic hammer.
- Fit new circlip -1- on stub shaft on gearbox side.

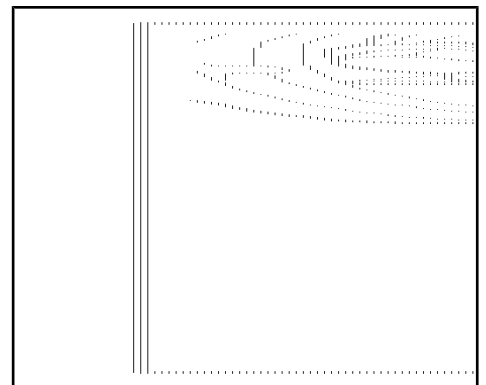


- Drive in oil seal on drive shaft side as far as stop.

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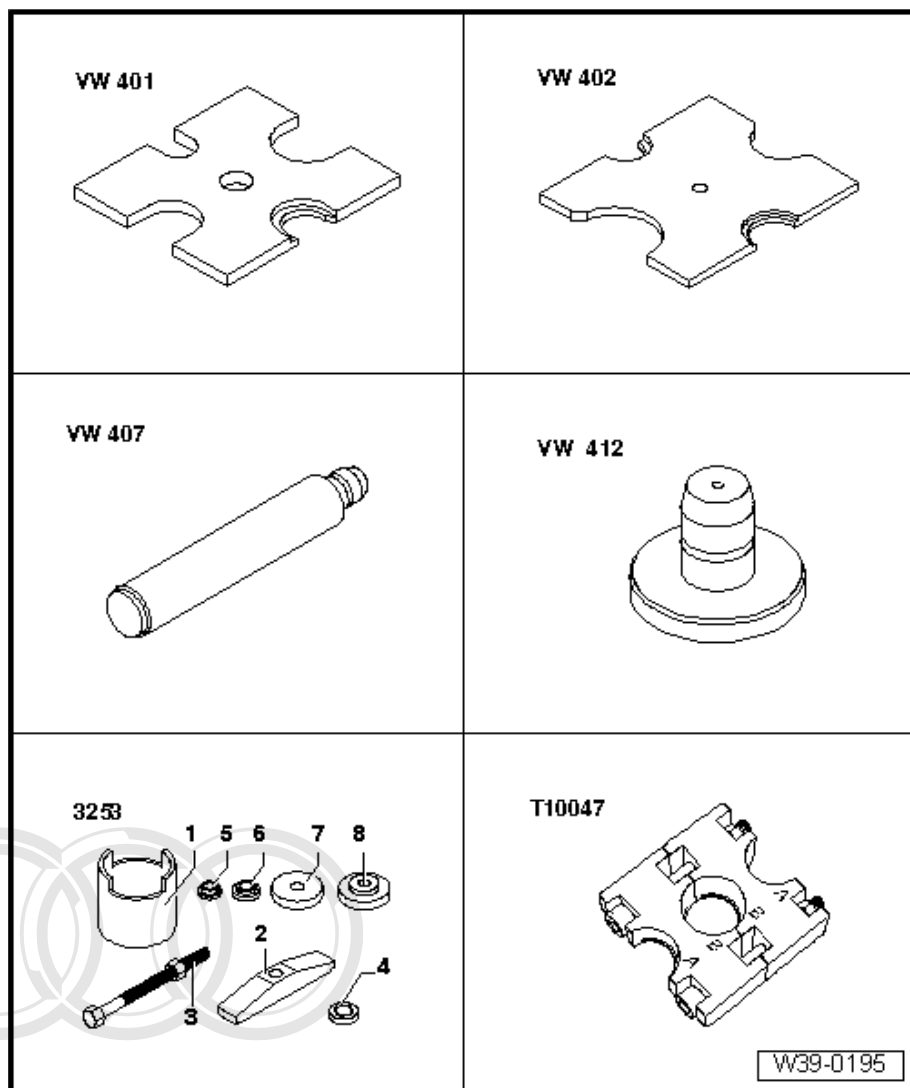
- Install new circlip -arrow A- and new O-ring -arrow B-.
- Grease splines of stub shaft.



2.2 Renewing needle bearing (polygon bearing) on stub shaft of bevel box (bevel box removed)

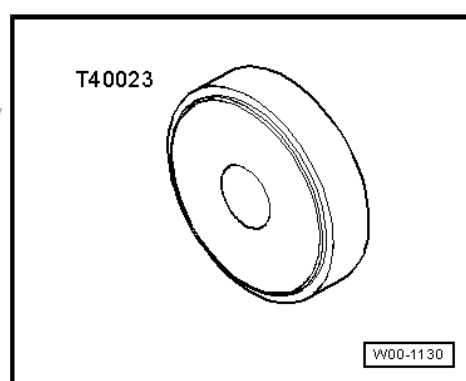
Special tools and workshop equipment required

- ◆ Thrust plate - VW 401-
- ◆ Thrust plate - VW 402-
- ◆ Press tool - VW 407-
- ◆ Press tool - VW 412-
- ◆ -3253/5- from assembly tool - 3253/5-
- ◆ Clamp - T10047-



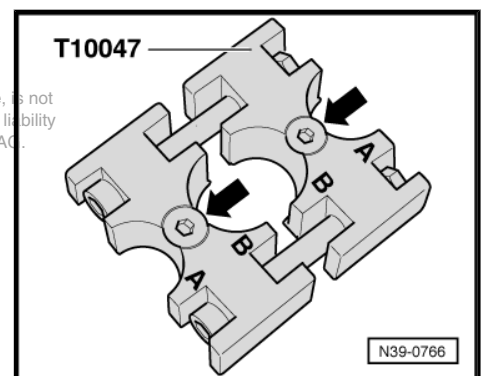
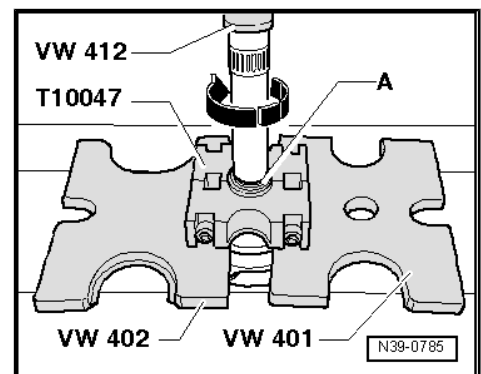
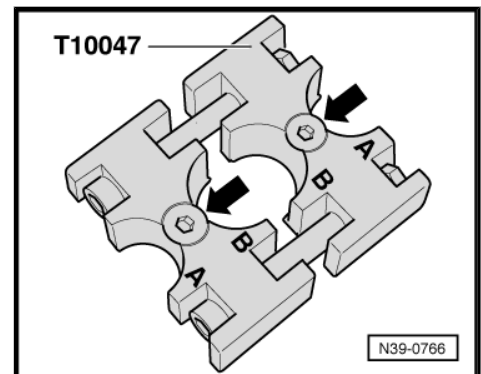
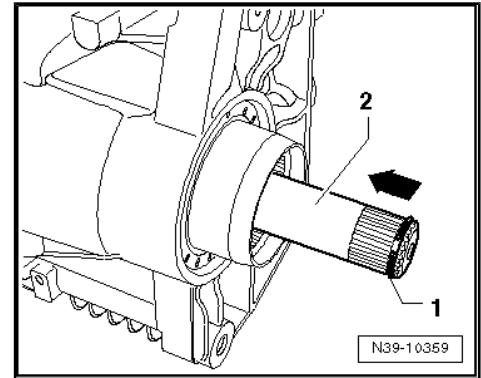
- ◆ Thrust piece - T40023-

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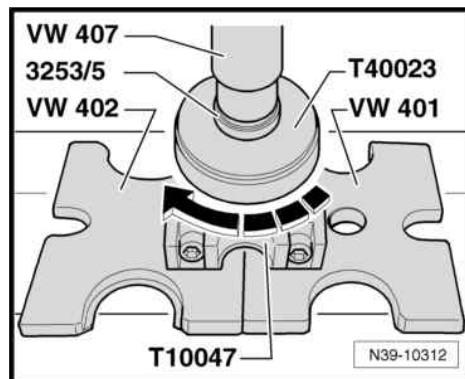
Procedure

- Bevel box removed ⇒ [page 96](#) .
- Detach circlip -1- from stub shaft -2-.
- Carefully knock out stub shaft -2- in direction of arrow using a plastic hammer.
- Assemble assembly tool - T10047- , as shown in illustration.
- Marks “B” on both parts of tool face each other.
- The stepped shoulders -arrows- must then be below the bearing.
- Screw parts together as far as stop.
- Remove circlip -A-.
- Rotate shaft when pressing off -arrow- to prevent contact surface of needle bearings on shaft from being damaged.
- Assemble assembly tool - T10047- , as shown in illustration.

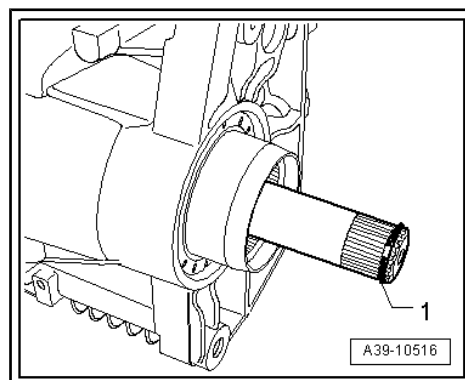


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- Rotate shaft when pressing on -arrow- to prevent contact surface of needle bearings on shaft from being damaged.
- Secure needle bearings in position with new circlip.
- Carefully drive stub shaft into bevel box as far as stop using plastic hammer.



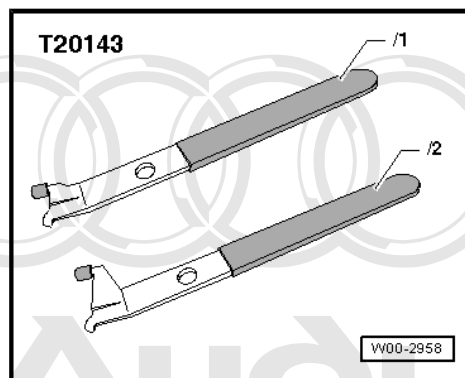
- Fit new circlip -1- on stub shaft.



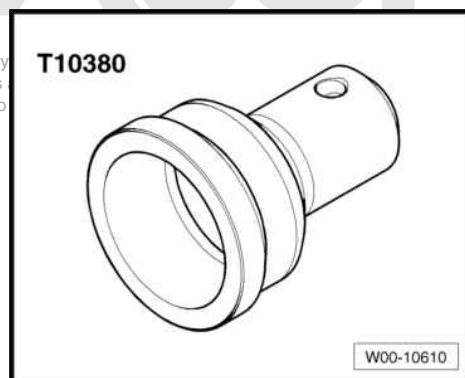
2.3 Renewing oil seal between bevel box and dual clutch gearbox (on bevel box)

Special tools and workshop equipment required

- ◆ Extractor tool - T20143-



- ◆ Thrust piece -T10380-

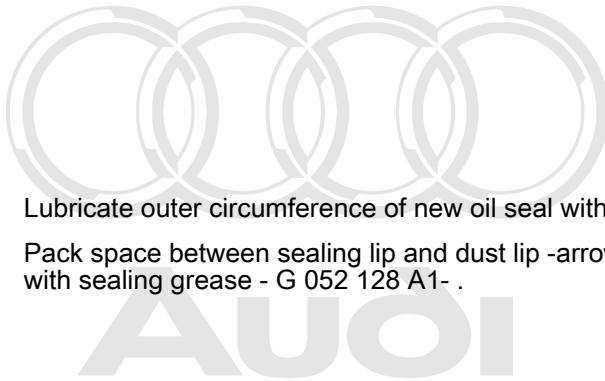


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Procedure

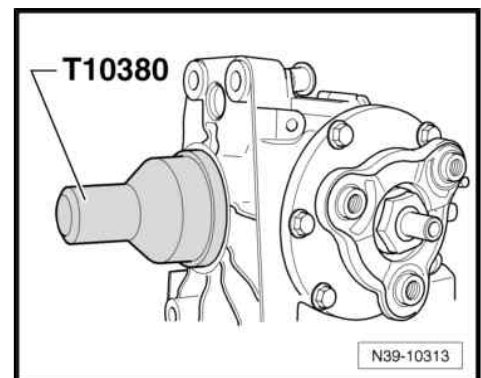
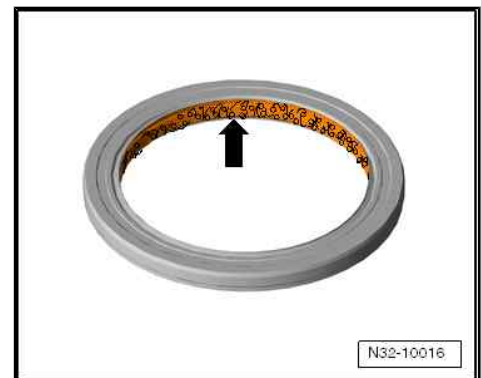
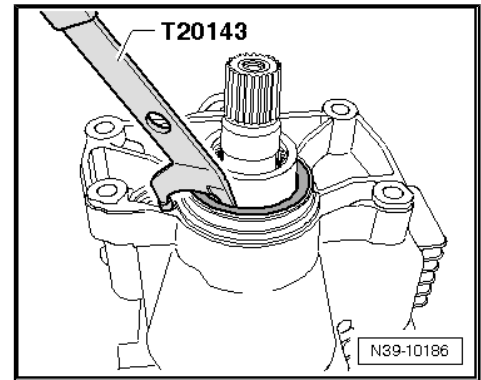
- Bevel box removed ⇒ [page 96](#) .
- Pull oil seal out of bevel box using extractor tool - T20143/1- or - T20143/2- .



- Lubricate outer circumference of new oil seal with gear oil.
- Pack space between sealing lip and dust lip -arrow- half full with sealing grease - G 052 128 A1- .

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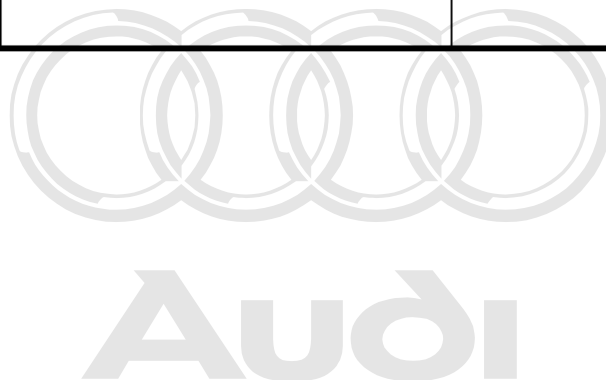
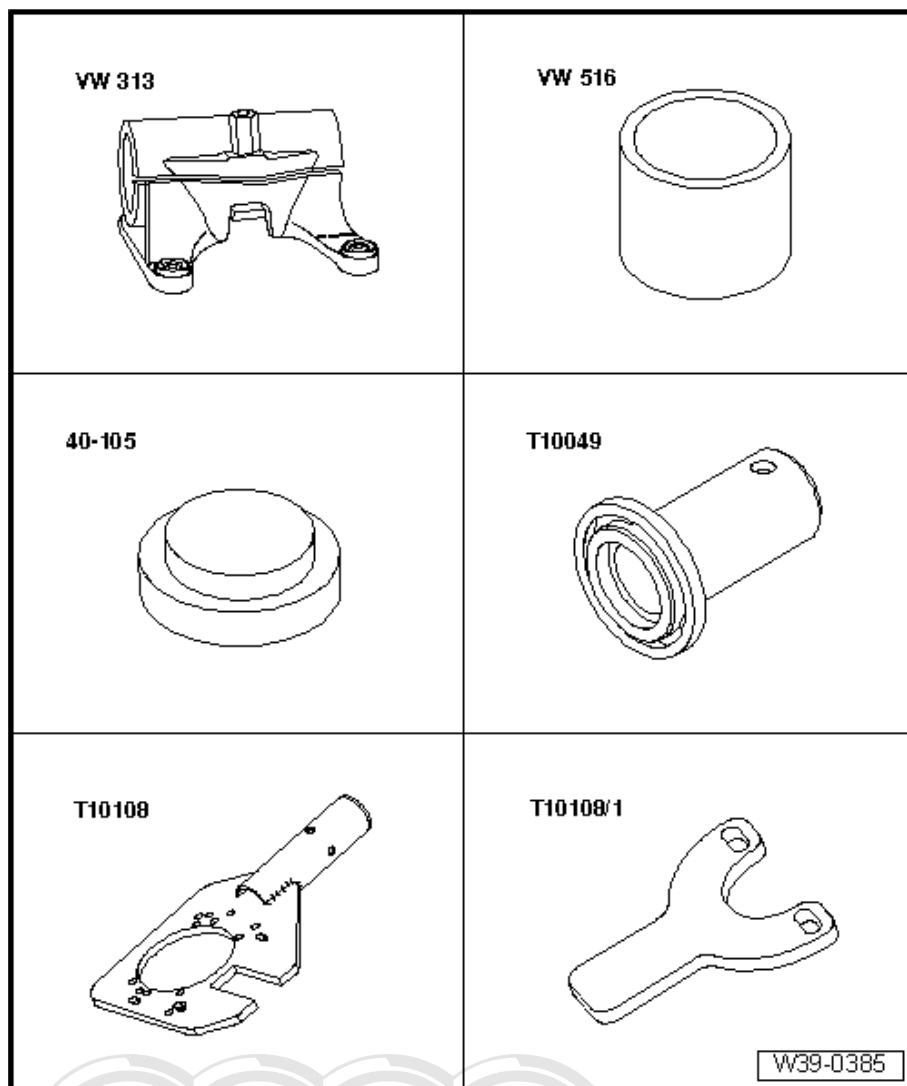
- Drive in oil seal as far as stop using thrust piece - T10380- .



2.4 Renewing oil seal for output flange (bevel box removed)

Special tools and workshop equipment required

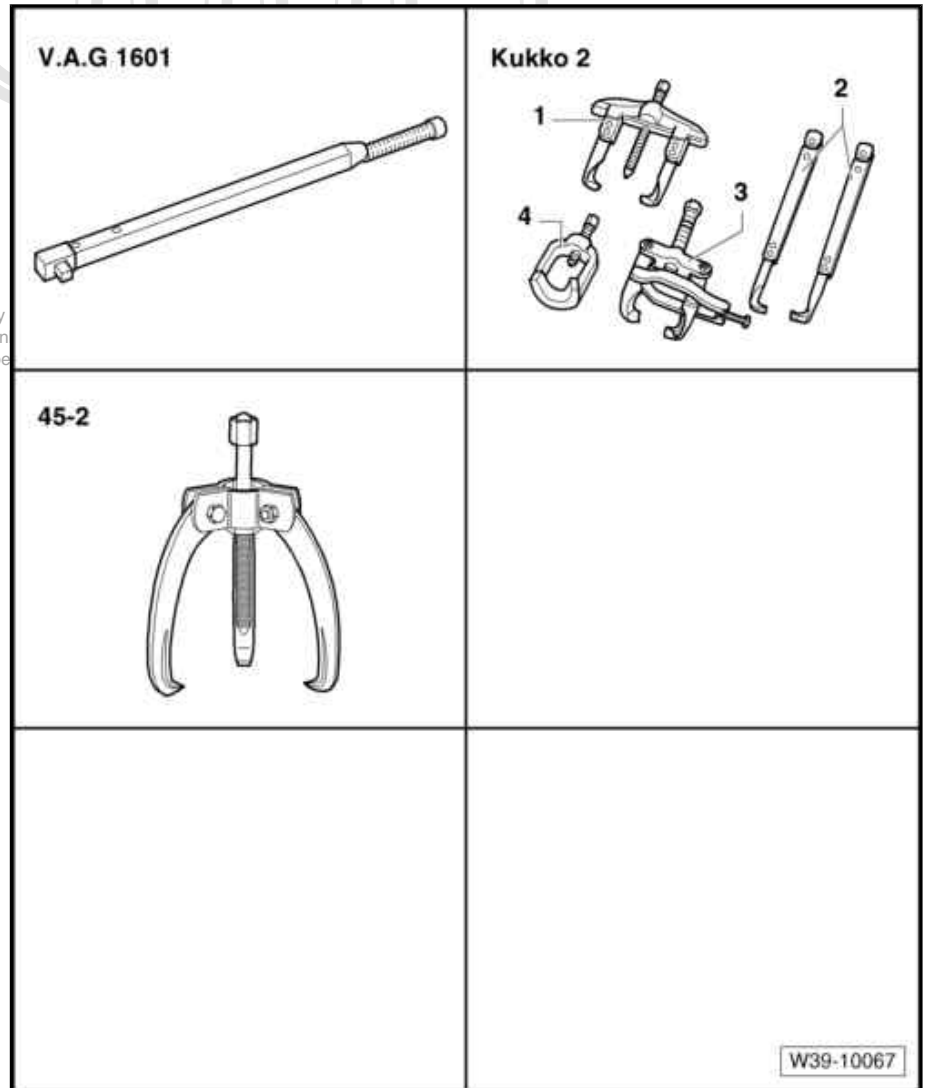
- ◆ Support clamp - VW 313-
- ◆ Tube - VW 516-
- ◆ Thrust plate - 40-105-
- ◆ Thrust piece - T10049-
- ◆ Gearbox support - T10108-
- ◆ Support plate - T10108/1-



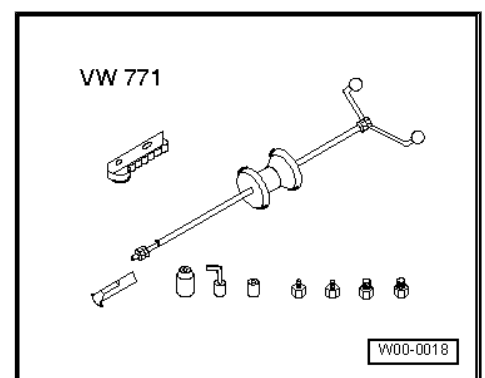
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- ◆ Torque wrench - V.A.G 1601-
- ◆ -1- Two-arm puller - Kukko 20/10-
- ◆ Three-arm puller - Kukko 45-2-

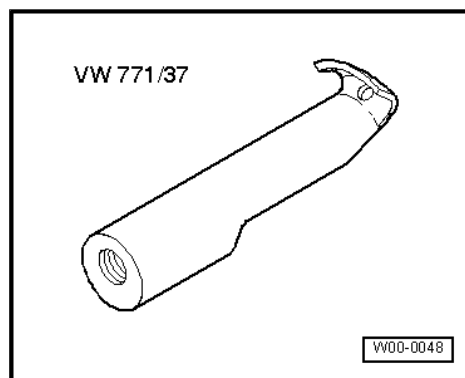
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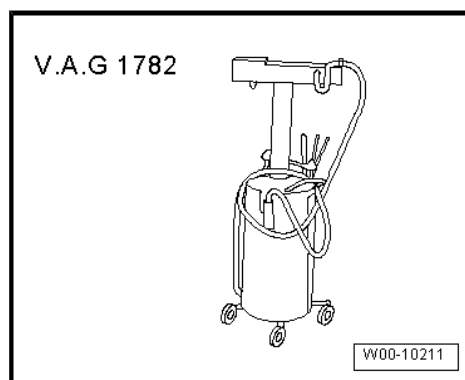
- ◆ Multi-purpose tool - VW 771-



- ◆ Extractor tool - VW 771/37-



- ◆ Used oil collection and extraction unit - V.A.G 1782-



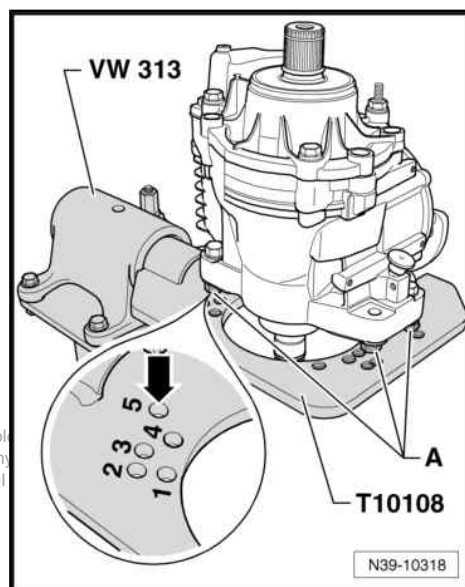
- ◆ Sealing grease - G 052 128 A1-
- ◆ Locking fluid ⇒ Electronic parts catalogue
- ◆ Bolt M10x30 (2x)
- ◆ Nuts M12x10 (4x)

Procedure

- Bevel box removed ⇒ [page 96](#) .
- Locate bevel box on hole marked -5- -arrow- in gearbox support - T10108- .

A - Place nuts M 12 x 10 (4x) between bevel box and gearbox support . Nuts function as spacers.

- Then align bevel box with hole opposite and secure.
- Place used oil collection and extraction unit - V.A.G 1782- below bevel box.
- Drain gear oil out of bevel box.

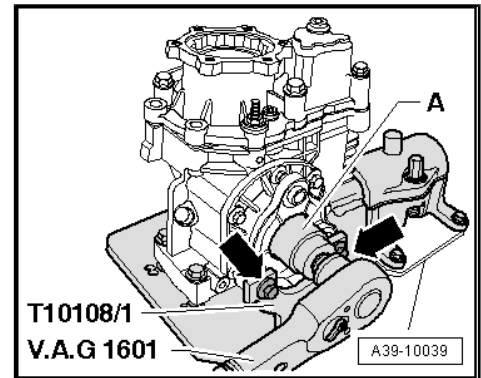


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- Lock output flange for bevel box in position using support plate - T10108/1- and bolts M10x30 (2x) -arrows-.
- Unscrew hexagon nut for output flange.

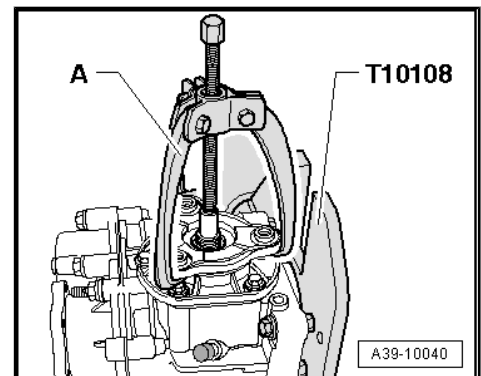
A - 36 mm socket for 3/4" drive

- Swing bevel box so that output flange points upwards.

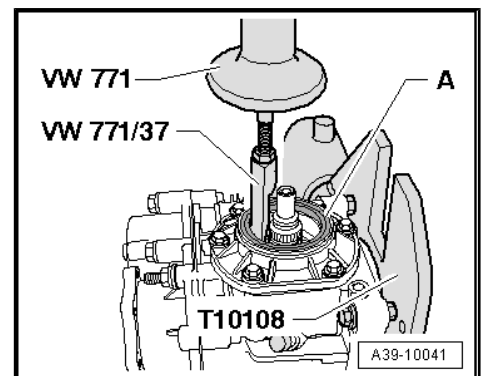


- Pull output flange off shaft bevel gear of bevel box.

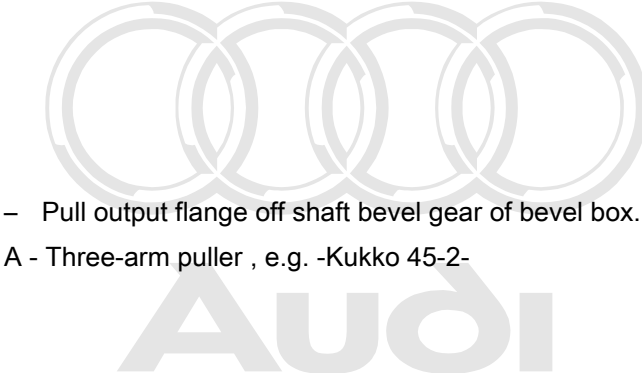
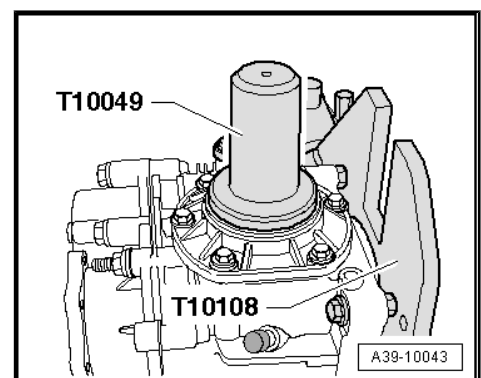
A - Three-arm puller , e.g. -Kukko 45-2-



- Pull out oil seal -A- for output flange.
- Clean residual locking fluid from thread of shaft bevel gear.

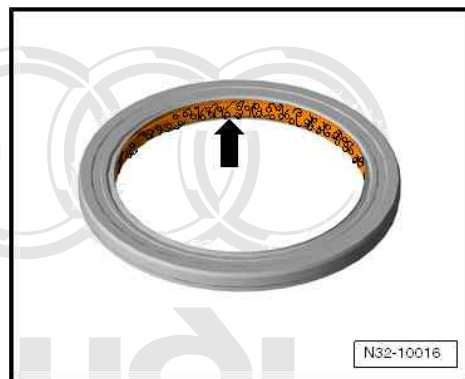


- Lubricate outer circumference of new oil seal with gear oil.
- Drive in oil seal as far as stop using thrust piece - T10049- .



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

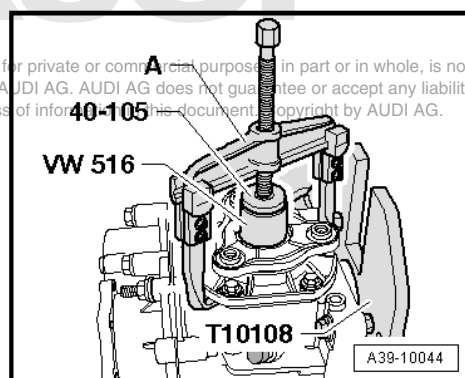


- Apply puller hooks to underside of pinion housing and draw in output flange.

A - Two-arm puller , e.g. -Kukko 20/10-

- Coat thread of new nut for output flange with locking fluid.

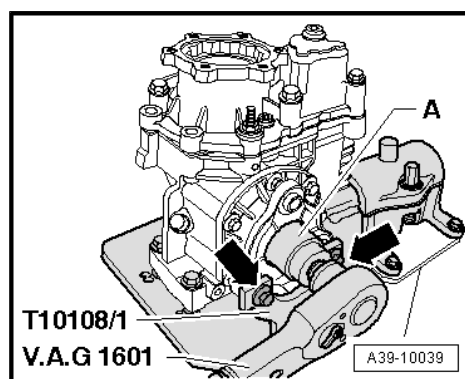
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Tightening new hexagon nut for output flange to specified torque

Tightening torque ➔ [Item 10 \(page 119\)](#)

A - 36 mm socket for 3/4" drive



3 Gear oil in bevel box

The bevel box is secured to the side of the gearbox and has a separate oil filling.

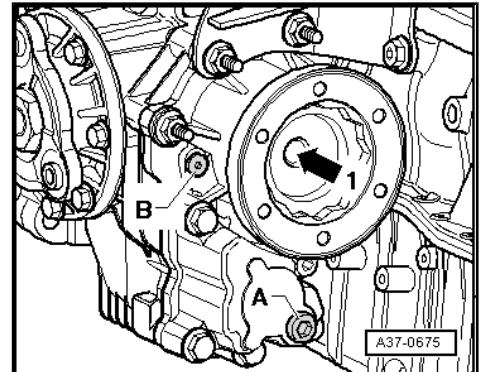
3.1 Overview of tightening torques

A - Oil drain plug

- Renew
- 15 Nm

B - Oil filler plug

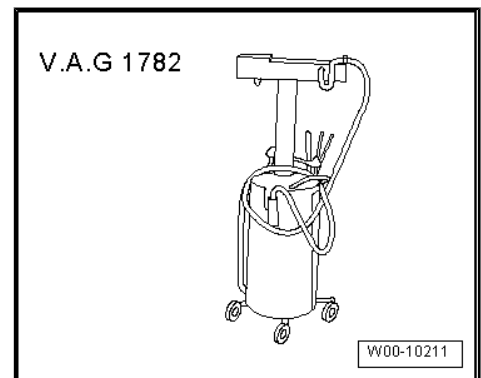
- Renew
- 15 Nm



3.2 Checking gear oil level and topping up

Special tools and workshop equipment required

- ◆ Used oil collection and extraction unit - V.A.G 1782-



- ◆ Safety goggles
- ◆ Protective gloves (acid resistant)

Procedure



Note

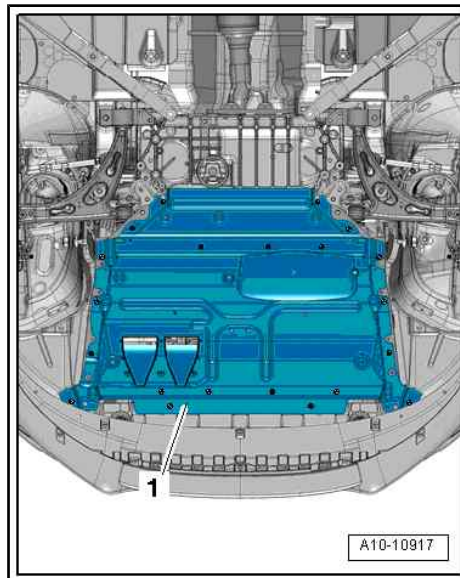
- ◆ Please refer to ⇒ "7 Repair instructions", page 11 .
- ◆ Please refer to ⇒ "8 Rules for cleanliness when working on the gearbox", page 13 .
- ◆ Please refer to general notes on "Environmental and waste disposal regulations for oil" ⇒ page 11 .
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Selector lever in position "P", handbrake applied.
- Engine not running.
- Tightening torques
⇒ "3.1 Overview of tightening torques", page 133

- Remove noise insulation -1- ⇒ General body repairs, exterior; Rep. gr. 50 .
- Place used oil collection and extraction unit - V.A.G 1782- below bevel box.


WARNING

Hot gear oil can cause burns.

- ◆ *Put on safety goggles.*
- ◆ *Wear protective gloves (acid resistant).*

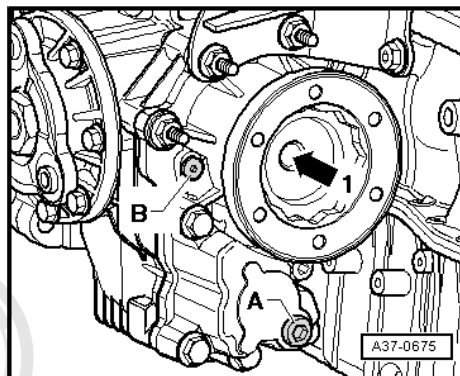


- Remove screw plug from oil filler hole -B-.
- Specification: gear oil level up to bottom lip of filler hole.
- If oil level is too low, put in gear oil for bevel box ⇒ [page 134](#) . For Part No. refer to ⇒ Electronic parts catalogue .


Note

Renew screw plug for oil filler hole.

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



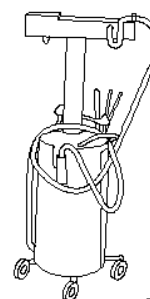
3.3 Topping up gear oil

Special tools and workshop equipment required

- ◆ Used oil collection and extraction unit - V.A.G 1782-

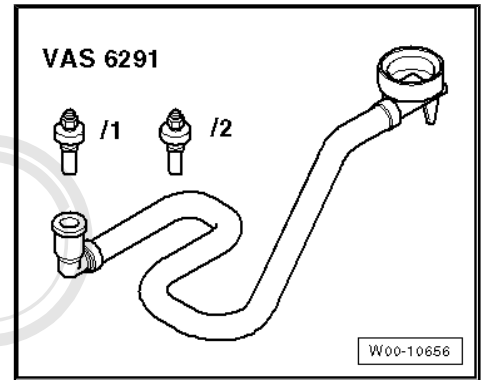
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V.A.G 1782



VV00-10211

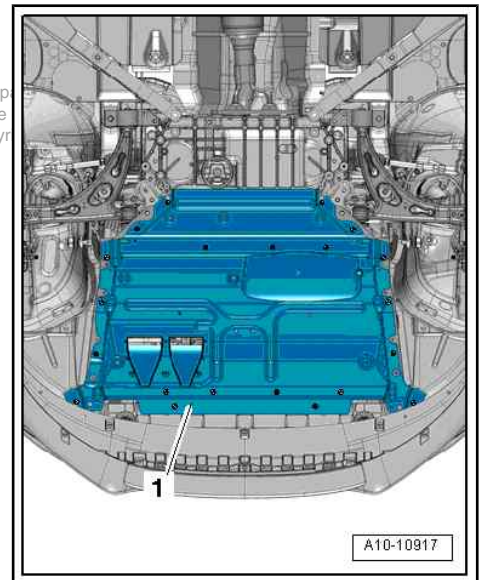
- ◆ Charging device - VAS 6291- with adapter - VAS 6291/2-



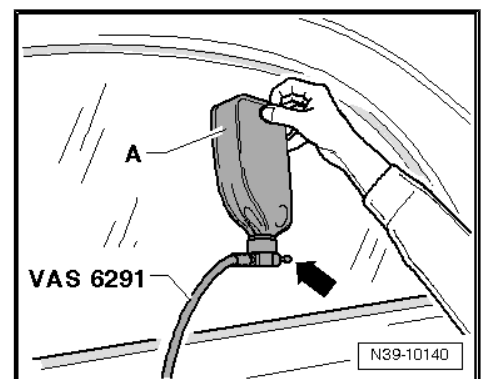
- ◆ Hexagon key, 5 mm, commercially available

Procedure

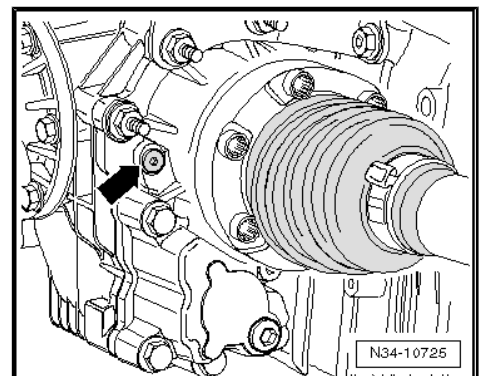
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Selector lever in position **P**, handbrake applied.
- Engine not running.
- Tightening torques
⇒ ["3.1 Overview of tightening torques", page 133](#)
- Remove noise insulation -1- ⇒ General body repairs, exterior; Rep. gr. 50 .



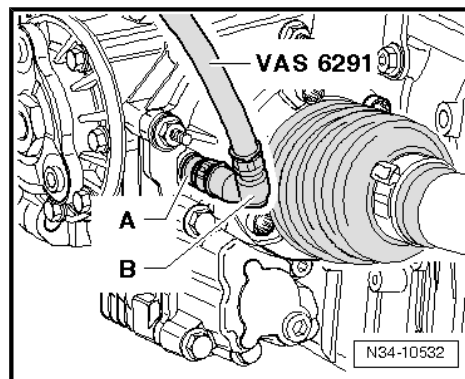
- Run hose of charging device - VAS 6291- behind right drive shaft and through right wheel housing to outside.
- Place used oil collection and extraction unit - V.A.G 1782- below bevel box.



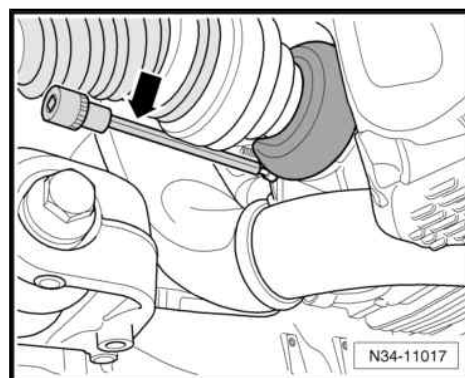
- Remove oil filler plug -arrow- in bevel box.



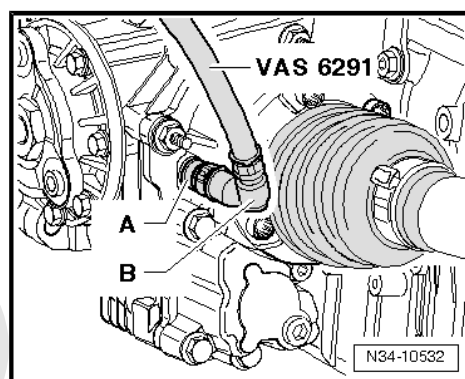
- Screw in adapter - VAS 6291/2- -A- as far as stop.



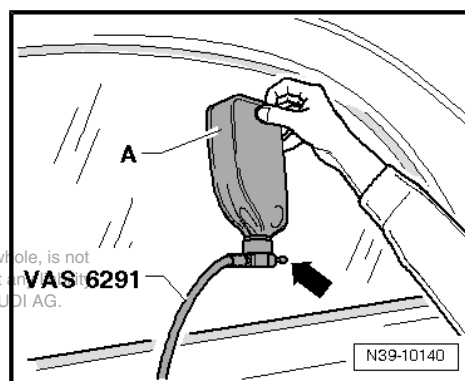
- Use hexagon key, 5 mm -arrow- (commercially available).



- Connect elbow joint -B- onto adapter -A-, making sure it engages.
- The hose must not hang down.



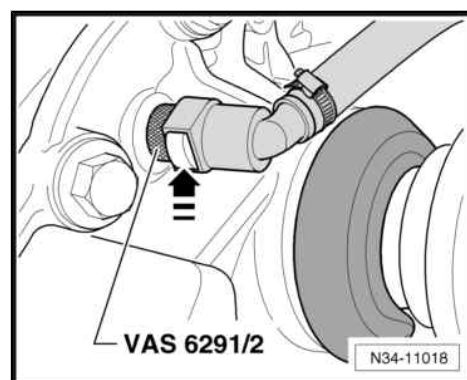
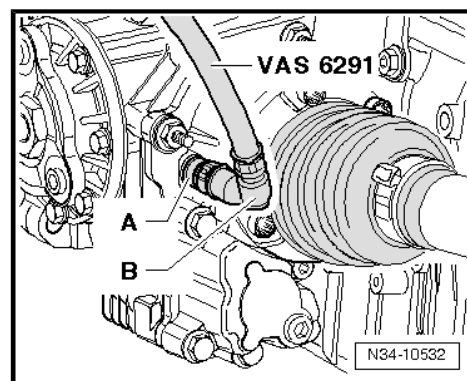
- Make sure that valve -arrow- is closed.
- Screw oil container -A- onto charging device - VAS 6291- .
- Open valve -arrow- and hold up oil container as shown in illustration.
- The bevel box will now be filled.



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 Note

- ◆ *The bevel box is filled correctly when oil starts to emerge at adapter -A-.*
- ◆ *If no oil comes out, continue filling.*
- When oil comes out at adapter -A-, put down oil container so that excess oil can drain back into container.
- As soon as oil stops flowing back into container, remove charging device - VAS 6291- by pressing catch in direction of -arrow-.
- Unscrew adapter - VAS 6291/2- .
- Tighten new oil filler plug.



 Note

Thoroughly clean off any oil that has spilt onto bevel box.

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

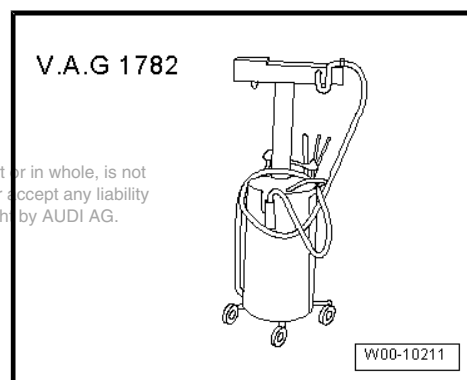
3.4 Draining gear oil and filling up after repairs

 Note

The gear oil in the bevel box only needs to be drained if repairs are required. An oil change is not normally required.

Special tools and workshop equipment required

- ◆ Used oil collection and extraction unit - V.A.G 1782-



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- ◆ Safety goggles
- ◆ Protective gloves (acid resistant)

Procedure

- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Selector lever in position "P", handbrake applied.

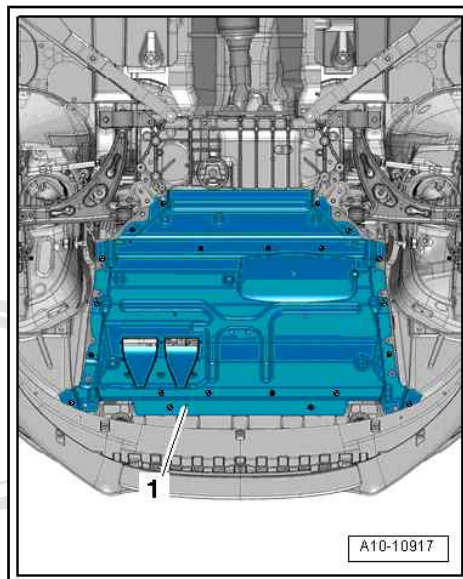
- Engine not running.
- Tightening torques
⇒ ["3.1 Overview of tightening torques", page 133](#)
- Remove noise insulation -1- ⇒ General body repairs, exterior; Rep. gr. 50 .
- Place used oil collection and extraction unit - V.A.G 1782- below gearbox.



WARNING

Hot gear oil can cause burns.

- ◆ *Put on safety goggles.*
- ◆ *Wear protective gloves (acid resistant).*



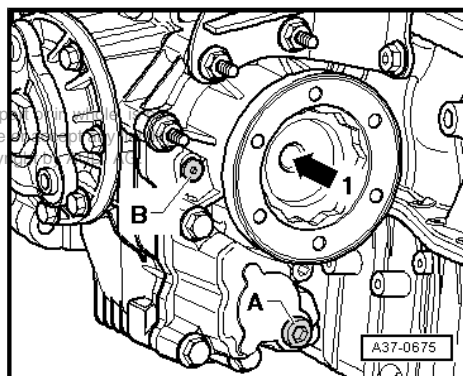
- Remove oil drain plug -A-.
- Drain gear oil.



Note

Renew oil drain plug and oil filler plug.

- Tighten new oil drain plug -A-.
- Remove screw plug from oil filler hole -B-.
- Fill up gear oil in bevel box ⇒ [page 134](#) .



4 Propshaft

Description of propshaft ⇒ Rear final drive 02D, 0AV, 0BR and 0BY; Rep. gr. 39 .



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5 Rear final drive

Description of rear final drive ⇒ Rear final drive 02D, 0AV, 0BR and 0BY; Rep. gr. 39 .



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