

Workshop Manual Audi A8 2010 ➤

8-speed automatic gearbox 0BW hybrid, front-wheel drive

Edition 11.2013



Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

List of Workshop Manual Repair Groups



Repair Group

- 00 - Technical data
- 32 - Torque converter
- 37 - Controls, housing
- 38 - Gears, control
- 39 - Final drive - differential

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

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.

All rights reserved.
No reproduction without prior agreement from publisher.

Contents

00 - Technical data	1
1 Identification	1
1.1 Gearbox identification	1
2 Safety precautions	2
2.1 Safety precautions when working on high-voltage vehicles	2
2.2 Safety precautions when working on vehicle	6
2.3 Safety precautions when working on vehicles with start/stop system	7
2.4 Safety precautions when using testers and measuring instruments during a road test	7
2.5 Safety precautions when working on subframe	8
2.6 Notes on tow-starting and towing	8
3 Repair instructions	9
3.1 Rules for cleanliness	9
3.2 General notes	9
3.3 General repair instructions	10
3.4 Contact corrosion	12
3.5 Routing and attaching pipes/hoses and wiring	13
4 Technical data	14
4.1 Capacities	14
4.2 Allocation of gearbox to engine	14
32 - Torque converter	16
1 Torque converter	16
37 - Controls, housing	17
1 Selector mechanism	17
1.1 Exploded view - selector mechanism	17
1.2 Exploded view - manual release mechanism for parking lock	19
1.3 Checking selector mechanism	20
1.4 Manual release from position P	24
1.5 Removing and installing selector lever handle	26
1.6 Removing and installing selector mechanism	28
1.7 Dismantling and assembling selector mechanism	29
1.8 Removing and installing manual release cable for parking lock	34
1.9 Renewing selector shaft oil seal	39
2 Removing and installing gearbox	42
2.1 Removing gearbox	42
2.2 Installing gearbox	54
2.3 Tightening torques for gearbox	61
3 Assembly mountings	63
3.1 Exploded view - assembly mountings	63
3.2 Removing and installing tunnel cross member	64
4 Transporting gearbox	66
5 Securing to engine and gearbox support	68
6 ATF circuit	69
6.1 Exploded view - ATF circuit	69
6.2 Removing and installing ATF cooler	74
6.3 Removing and installing ATF filter	75
6.4 Removing and installing ATF lines	77
7 ATF	79
7.1 Checking ATF level	79
7.2 Draining and filling ATF	82



38 - Gears, control	87
1 ATF system	87
1.1 Exploded view - ATF system	87
1.2 Removing and installing auxiliary hydraulic pump for gearbox oil	89
1.3 Removing and installing oil pan	93
2 Mechatronic unit	96
2.1 Removing and installing mechatronic unit	96
39 - Final drive - differential	102
1 Final drive	102
1.1 Exploded view - final drive	102
1.2 Removing and installing gearbox end cover	105
2 Gear oil	106
2.1 Checking gear oil level	106
2.2 Draining and filling gear oil	109
3 Oil seals	119
3.1 Renewing oil seal (left-side)	119
3.2 Renewing oil seal (right-side)	122
3.3 Renewing O-ring on cover for front final drive	123
4 Differential	125
4.1 Removing and installing flange shaft (left-side)	125
4.2 Removing and installing flange shaft (right-side)	126
4.3 Renewing ball bearing and mounting bracket for flange shaft (left-side)	129
5 Gearbox control system	132
5.1 Overview of fitting locations - gearbox control system	132



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the prior written authorisation by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

00 – Technical data

1 Identification

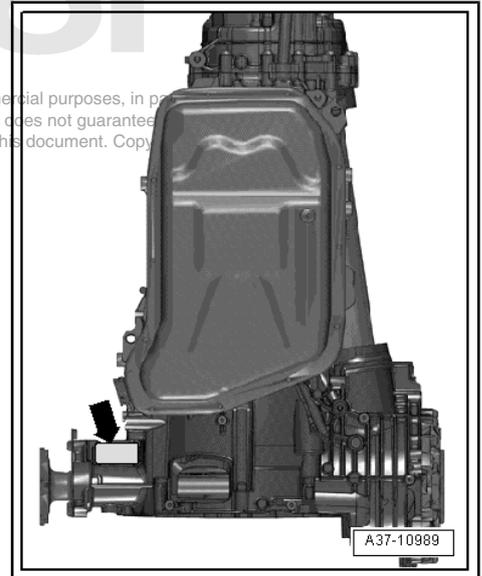
(ARL003531; Edition 11.2013)

⇒ [“1.1 Gearbox identification”, page 1](#)

1.1 Gearbox identification

Location of code letters on gearbox

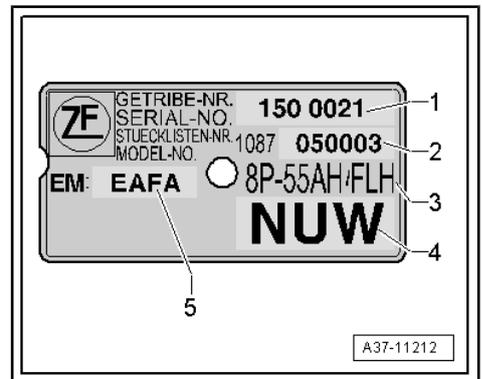
- ◆ The gearbox code letters are located on the identification plate on the underside of the gearbox. **Fitting location of identification plate -arrow-**.



Code letters and gearbox serial number

Example:

- 1 - Serial number of gearbox
- 2 - Model number
- 3 - Manufacturer's gearbox designation: 8P-55AH/FLH
- 4 - Gearbox code, in this example: NUW
- 5 - Code letters of electric drive motor - V141- , in this example: EAFA



Note

- ◆ *The code letters for the gearbox are also given on the vehicle data stickers.*
- ◆ *Location of vehicle data stickers ⇒ Maintenance ; Booklet 410 .*



2 Safety precautions

⇒ [“2.1 Safety precautions when working on high-voltage vehicles”, page 2](#)

⇒ [“2.2 Safety precautions when working on vehicle”, page 6](#)

⇒ [“2.3 Safety precautions when working on vehicles with start/stop system”, page 7](#)

⇒ [“2.4 Safety precautions when using testers and measuring instruments during a road test”, page 7](#)

⇒ [“2.5 Safety precautions when working on subframe”, page 8](#)

⇒ [“2.6 Notes on tow-starting and towing”, page 8](#)

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

2.1 Safety precautions when working on high-voltage vehicles

⇒ [“2.1.1 Safety precautions for de-energising high-voltage system”, page 2](#)

⇒ [“2.1.2 Safety precautions for re-energising high-voltage system”, page 3](#)

⇒ [“2.1.3 General safety precautions and repair instructions”, page 4](#)

2.1.1 Safety precautions for de-energising high-voltage system

- The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician). For a definition and explanation of the relevant qualifications, please refer to ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .
- The system must first be de-energised before any work is done on the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .
- The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information on the procedure for de-energising the high-voltage system please refer to ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .
- Read and observe all additional warnings and descriptions for work on the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



Note

In the event of queries or uncertainty regarding the terms “electrically instructed person”, “Audi high-voltage technician”, “Audi specialist for work on high-voltage systems” or the high-voltage system itself, the relevant importer must be contacted prior to the start of all work.

For work that requires de-energising of the high-voltage system, please note:

The high-voltage system must be de-energised according to the Guided Fault Finding routine in the vehicle diagnostic tester , and ONLY by this method.



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) confirms that the system is de-energised and uses the locking cap - T40262- to ensure that it cannot be re-energised. The ignition key and the maintenance connector for high-voltage system - TW - are then stored in a safe place by the qualified person.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted. AUDI AG does not guarantee or accept any liability for the information in this document. Copyright by AUDI AG.

2.1.2 Safety precautions for re-energising high-voltage system

- The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician). For a definition and explanation of the relevant qualifications, please refer to ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .
- Re-energising the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; Re-energising high-voltage system .
- Read and observe all additional warnings and descriptions for work on the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



Note

In the event of queries or uncertainty regarding the terms "electrically instructed person", "Audi high-voltage technician", "Audi specialist for work on high-voltage systems" or the high-voltage system itself, the relevant importer must be contacted prior to the start of all work.

The high-voltage system must be re-energised according to the Guided Fault Finding routine in the vehicle diagnostic tester , and ONLY by this method.

**DANGER!**

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

2.1.3 General safety precautions and repair instructions

- Read and observe all additional warnings and descriptions for work on the high-voltage system → Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

**Note**

In the event of queries or uncertainty regarding the terms "electrically instructed person", "Audi high-voltage technician", "Audi specialist for work on high-voltage systems" or the high-voltage system itself, the relevant importer must be contacted prior to the start of all work.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

For work in the vicinity of high-voltage components and when visually inspecting the high-voltage components:

 **DANGER!**

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electro-box with the maintenance connector for high-voltage system - TW - .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

For work that requires the ignition to be switched on, please note:

 **DANGER!**

When working on a vehicle with the ignition switched on or while the drive system is active, the engine can start unexpectedly and exhaust fumes can cause a health hazard in closed rooms. Moving parts can trap or draw in parts of the body and/or clothing (safety hazard).

Before switching on the ignition, perform the following steps:

- ◆ *Move selector lever to position P*
- ◆ *Activate parking brake*
- ◆ *Switch off ignition.*
- ◆ *Open bonnet*
- ◆ *Connect battery charger (e.g. - VAS 5095A-) to jump-start connections of 12 V electrical system.*
- ◆ *Switch on ignition*



General safety precautions and safety precautions for work that requires the ignition to be switched off

**WARNING**

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.

**WARNING**

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*

2.2 Safety precautions when working on 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 performing any work with the engine running, set the gearbox to position "P" and pull up the parking brake button to apply the electromechanical parking brake.*

Danger from toxic exhaust gases when engine is running.

- ◆ *When the engine is running, the exhaust system must always be connected to the exhaust gas extractor.*

The radiator fans can start running by themselves – risk of injury.

- ◆ *Unplug electrical connectors before working in vicinity of radiator cowl.*

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 serious damage to electronic components:

- ◆ *Observe the correct procedure for disconnecting the battery.*
- ◆ *Always switch off the ignition before disconnecting the battery → Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .*

2.3 Safety precautions 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 (this is indicated by a message in the instrument cluster display), the engine may start automatically on demand.*
- ◆ *Therefore it is important to ensure that the start/stop system is deactivated when performing repairs (switch off ignition, if required switch on ignition again).*

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

2.4 Safety precautions when using testers and measuring instruments during a road test

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.*



2.5 Safety precautions when working on subframe

Note the following when working on the subframe:



Caution

Risk of damage to parts of the running gear.

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

2.6 Notes on tow-starting and towing



Caution

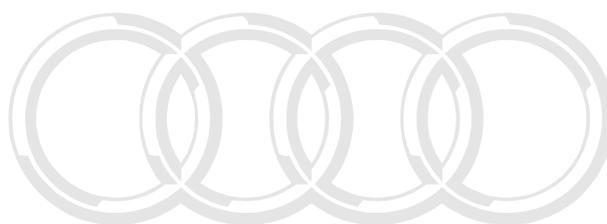
Risk of irreparable damage to gearbox.

- ◆ *When the vehicle is towed, the gearbox must be set to position "N" or the parking lock must be manually released ([=> page 24](#)).*
- ◆ *The vehicle must not be towed further than 50 km or faster than 50 km/h.*



Note

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.



Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

3 Repair instructions

⇒ [“3.1 Rules for cleanliness”, page 9](#)

⇒ [“3.2 General notes”, page 9](#)

⇒ [“3.3 General repair instructions”, page 10](#)

⇒ [“3.4 Contact corrosion”, page 12](#)

⇒ [“3.5 Routing and attaching pipes/hoses and wiring”, page 13](#)

3.1 Rules for cleanliness

- ◆ Thoroughly clean all joints and connections and the surrounding areas before dismantling.
- ◆ Use cleaning fluid - D 009 401 04- to clean the gearbox and its components.
- ◆ Use commercially available 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 protective caps from engine bung set - VAS 6122- .
- ◆ Place removed parts on a clean surface and cover them over. Use sheeting or lint-free cloths.
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately.
- ◆ Only install clean components: do not remove replacement parts from packaging until just before installation.
- ◆ Protect unplugged electrical connectors against dirt and moisture and make sure connections are dry when attaching.

3.2 General notes

Gearbox

- ◆ The 8-speed automatic gearbox 0BW hybrid has eight hydraulically actuated forward gears.
- ◆ The 8-speed automatic gearbox 0BW hybrid has NO torque converter. The electric drive motor - V141- is installed in its place.
- ◆ Driving off in 1st gear is controlled by clutch B in the gearbox (also referred to as “drive-away clutch B”).
- ◆ The disengagement clutch in the electric drive motor - V141- disengages the engine from the electric drive motor - V141- . The disengagement clutch is also designated “disengagement clutch F”, or just “clutch F”.

Mechatronic unit

The mechatronic unit incorporates the following components as a complete synchronised unit:

- ◆ Hydraulic control system, automatic gearbox control unit - J217-
- ◆ Sensors and actuators

The mechatronic unit is installed inside the gearbox in the ATF oil pan.

Automatic gearbox control unit - J217-

The control unit is part of the mechatronic unit in the gearbox.



The gear change points are calculated automatically (depending on the driving situation and the resistance to motion).

Advantages:

- ◆ Gear change points controlled for enhanced fuel economy
- ◆ Maximum engine output is always available
- ◆ Gear-change points are adapted individually in all driving situations
- ◆ Gear-change points are infinitely variable

Variation of gear-change points for gradients

An additional gear change map automatically selects gear changes for gradients. The gear changes are selected according to accelerator pedal position and road 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.
- ◆ The driver can achieve an increased engine braking effect by directly selecting a specific gear via the tiptronic function, e.g. when towing a trailer on downhill gradients.

Selector mechanism



Note

- ◆ *With the new "shift-by-wire" concept there is no mechanical connection between the selector lever and the gearbox.*
- ◆ *The gearbox is operated entirely according to the detected driver inputs, and there are no further mechanical controls.*
- ◆ *Shift-by-wire employs a new gear selector control arrangement. The selector lever no longer follows a selector gate as it is moved from one gear to the next, but always returns to its original position, much like a joystick. That means that the selector lever position is no longer identical with the currently engaged gear or selected function.*
- ◆ *The operation of the selector mechanism is described in the Owner's Manual for the vehicle and in [Self-study programme No. 457](#); Audi A8 '10, Power transmission.*
- ◆ *Before testing, ensure that any problems are not caused by incorrect operation by the driver.*
- ◆ *The actuation of the parking lock is electro-hydraulic; a manual release mechanism is provided so that the vehicle can be moved in the event of malfunction or failure [⇒ page 24](#).*

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted. Audi AG does not guarantee or accept any liability for the content of this document. Copyright by AUDI AG.

3.3 General repair instructions

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

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 must be determined using the functions [Guided Fault Find-](#)

ing, Vehicle Self-diagnosis and Test Instruments
 ⇒ Vehicle diagnostic tester.

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.

Special tools

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

Gearbox

- ◆ Observe rules for cleanliness when working on gearbox
 ⇒ [page 9](#) .
- ◆ The engine must not be run and the vehicle must not be towed with the gearbox end cover removed or without ATF in the gearbox.
- ◆ After installing, the following fluid levels must be checked and topped up if necessary: ATF in gearbox ⇒ [page 79](#) and gear oil in gearbox ⇒ [page 106](#) . Capacities ⇒ [page 14](#) , specifications ⇒ Electronic parts catalogue .
- ◆ The manual release mechanism for the parking lock must be checked after removing and installing the gearbox, or if work has been carried out on the manual release mechanism
 ⇒ [page 24](#) .

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with regard to the correctness of information in this document. Copyright by AUDI AG.

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.
- ◆ Lightly lubricate the outer circumference and sealing lip of oil seals with ATF before installing.
- ◆ Lightly lubricate O-rings with ATF before installation to prevent them from being crushed during assembly.
- ◆ Use only ATF for parts running in ATF. Other lubricants will cause malfunction of 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).
- ◆ After installing, the following fluid levels must be checked and topped up if necessary: ATF in gearbox ⇒ [page 79](#) and gear oil in gearbox ⇒ [page 106](#) . Capacities ⇒ [page 14](#) , specifications ⇒ Electronic parts catalogue .

Nuts, bolts

- ◆ Loosen bolts in reverse sequence to the specified tightening sequence.



- ◆ Bolts and nuts used to secure covers and housings must be tightened in steps according to the specified tightening sequence and method.
- ◆ 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 and bolts.
- ◆ Use a wire brush to clean the threads of bolts which are secured with locking fluid. Then apply locking fluid - AMV 185 101 A1- to bolt threads before installing.
- ◆ Threaded holes which take self-locking bolts or bolts coated with locking fluid must be cleaned (using a tap or similar). Otherwise there is a danger of the bolts shearing off the next time they are removed.
- ◆ The tightening torques stated apply to non-oiled nuts and bolts.

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.

Bearings

- ◆ Install needle bearings so the lettering (side with thicker metal) faces towards the installing tool.
- ◆ Lubricate bearings with gear oil or ATF, depending on fitting location.
- ◆ Do not interchange inner or outer races of bearings of the same size.
- ◆ Always renew the tapered roller bearings on one shaft together and use new bearings from a single manufacturer.

Shims

- ◆ Use a micrometer to measure the shims at several points. Different shim thicknesses make it possible to obtain the exact shim thickness required; if necessary, fit 2 shims.
- ◆ Check for burrs and damage. Install only shims which are in perfect condition.

3.4 Contact corrosion

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

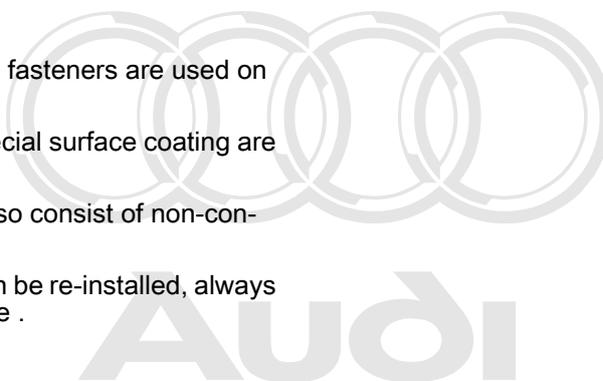
For this reason, only fasteners with a special surface coating are fitted.

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 resulting from contact corrosion is not covered by the warranty.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for the accuracy of the information in this document. Copyright by AUDI AG.

3.5 Routing and attaching pipes/hoses and wiring

- ◆ Mark fuel lines, vacuum lines, pipes/hoses for activated charcoal filter system and electrical wiring etc. before removal so they can be re-installed in the original positions and correctly connected. If necessary, make sketches or take photographs.
- ◆ To prevent damaging pipes, hoses and wiring, ensure sufficient clearance from all moving or hot components in engine compartment (little space in engine compartment).

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



4 Technical data

⇒ ["4.1 Capacities", page 14](#)

⇒ ["4.2 Allocation of gearbox to engine", page 14](#)

4.1 Capacities

ATF section in gearbox

Capacities	ATF section 8-speed automatic gearbox 0BW hybrid
Initial filling by manufacturer	Approx. 8.6 ltr.
Fluid filling after gearbox has been drained in workshop	Approx. 4.0 ltr.
Fluid change	◆ Change interval for ATF ⇒ Maintenance tables
Lubricant	ATF for 8-speed automatic gearbox 0BW hybrid ⇒ Electronic parts catalogue



Caution

Risk of malfunction or gearbox failure.

- ◆ *Use only the ATF supplied as a replacement part for the 8-speed automatic gearbox 0BW hybrid ⇒ Electronic parts catalogue .*

◆ ⇒ ["7.1 Checking ATF level", page 79](#)

◆ ⇒ ["7.2 Draining and filling ATF", page 82](#)

Gear oil in front final drive and transfer box

Capacities	Gear oil in front final drive and transfer box 8-speed automatic gearbox 0BW hybrid
Initial filling	2.0 ltr.
Oil filling after oil has been drained in workshop	Approx. 1.8 ltr.
Oil change	◆ No change required ◆ Lifetime filling; change only after repairs, e.g. if cover for front final drive has been removed
Lubricant	Gear oil for automatic gearbox 0BW ⇒ Electronic parts catalogue

◆ ⇒ ["2.1 Checking gear oil level", page 106](#)

◆ ⇒ ["2.2 Draining and filling gear oil", page 109](#)

4.2 Allocation of gearbox to engine

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

- ◆ Date of manufacture
- ◆ Allocation of mechatronic unit and software for automatic gearbox control unit - J217-
- ◆ Correct type of electric drive motor - V141-

◆ Correct type of flange shafts

Designation			8-speed automatic gearbox 0BW hybrid, front-wheel drive		
Gearbox	Code letters		NYW	PJP	NWY
	Manufactured from to		02.2012 09.2012	09.2012 09.2013	09.2013
Allocation	Model		Audi A8 2010 ►	Audi A8 2010 ►	Audi A8 2010 ►
	Engine		2.0 ltr. TFSI - 155 kW	2.0 ltr. TFSI - 155 kW	2.0 ltr. TFSI - 155 kW
Electric drive motor - V141-	Code letters		EAFA	EAFA	EAFA
Primary drive			38 : 39 = 0.974	38 : 39 = 0.974	38 : 39 = 0.974
Spur gear drive to front axle			37 : 35 = 1.057	37 : 35 = 1.057	37 : 35 = 1.057
Front axle bevel gearing			40 : 13 = 3.169	40 : 13 = 3.169	40 : 13 = 3.169
Overall front drive ratio = Primary drive x spur gear drive x bevel gearing			3.015	3.015	3.015
Gear oil filling in front final drive/ transfer box			Common	Common	Common



32 – Torque converter

1 Torque converter

The 8-speed automatic gearbox 0BW hybrid has NO torque converter. The electric drive motor - V141- is fitted in its place ⇒
Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

37 – Controls, housing

1 Selector mechanism

- ⇒ [“1.1 Exploded view - selector mechanism”, page 17](#)
- ⇒ [“1.2 Exploded view - manual release mechanism for parking lock”, page 19](#)
- ⇒ [“1.3 Checking selector mechanism”, page 20](#)
- ⇒ [“1.4 Manual release from position P”, page 24](#)
- ⇒ [“1.5 Removing and installing selector lever handle”, page 26](#)
- ⇒ [“1.6 Removing and installing selector mechanism”, page 28](#)
- ⇒ [“1.7 Dismantling and assembling selector mechanism”, page 29](#)
- ⇒ [“1.8 Removing and installing manual release cable for parking lock”, page 34](#)
- ⇒ [“1.9 Renewing selector shaft oil seal”, page 39](#)

1.1 Exploded view - selector mechanism

Check selector mechanism before dismantling ⇒ [page 20](#) .



Caution

Electrical components of selector mechanism can be irreparably damaged by electrostatic discharge.



Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

**1 - Cover**

- Clipped into selector lever handle (top section)
- Removing and installing ⇒ ["1.7.1 Removing and installing button for selector lever release E681 and selector lever position display Y26"](#), page 29

2 - Selector lever handle (top section)

- Removing and installing ⇒ [page 26](#)

3 - Button for selector lever release - E681- and selector lever position display - Y26-

- Can only be renewed as one unit
- Removing and installing ⇒ [page 29](#)
- The selector lever is released electrically by the button for selector lever release - E681-
- The selector lever position display - Y26- shows the gear that is currently engaged

4 - Bolt

- 3x
- 0.25 Nm

5 - Bolt

- Special bolt: this bolt does not have a standard thread, and may only be replaced with the correct genuine part (same as original equipment)
- 7 Nm

6 - Selector lever handle (bottom section)

- Removing and installing ⇒ [page 26](#)

7 - Bolt

- 4x
- Special bolts: these bolts do not have a standard thread, and may only be replaced with the correct genuine parts (same as original equipment)
- 8 Nm

8 - Selector lever sensors control unit - J587- with selector lever position sender - G727-

- Use ESD workplace - VAS 6613- when removing
- Removing and installing ⇒ [page 31](#)

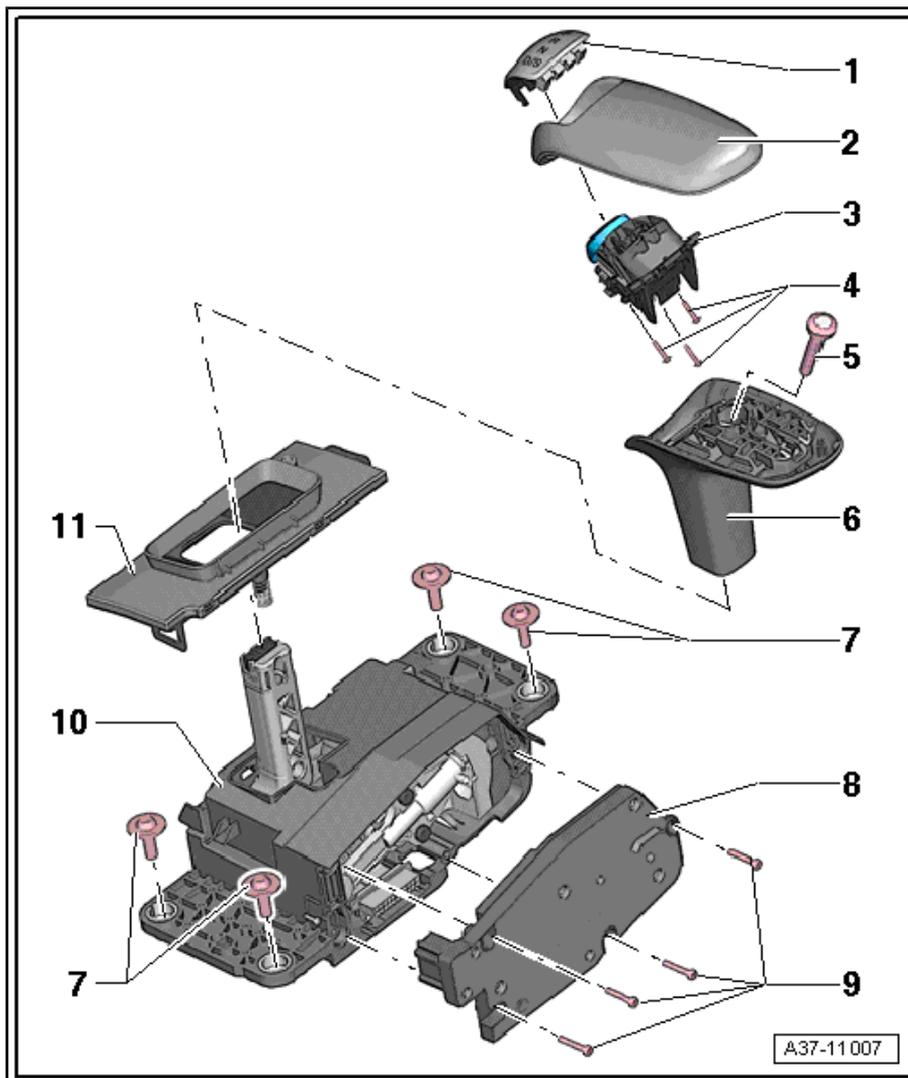
9 - Bolt

- 4x

- Tightening torque and sequence ⇒ [page 19](#)

10 - Shift unit

- Can only be renewed as a complete unit
- With selector lever - E313- , solenoid 1 for selector lever lock - N496- , solenoid 2 for selector lever lock - N497- , solenoid 3 for selector lever lock - N498- , solenoid 4 for selector lever lock - N499- , solenoid 5 for selector lever lock - N500-



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

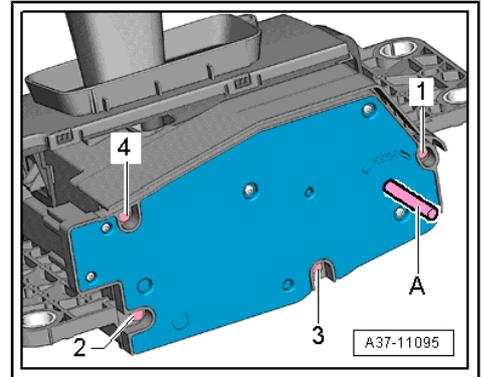
11 - Sliding cover

Tightening torque and sequence for selector lever sensors control unit - J587-

- Tighten bolts to 1.1 Nm in sequence -1 ... 4-

Note

It is important to keep exactly to the specified installation procedure => [page 31](#).



1.2 Exploded view - manual release mechanism for parking lock

1 - Manual release lever

- ❑ For parking lock

2 - Nut

- ❑ 2x
- ❑ 2.5 Nm

3 - Bolt

- ❑ 9 Nm

4 - Manual release cable (front)

- ❑ For parking lock
- ❑ Do not bend or kink
- ❑ Removing and installing => [page 34](#)

5 - Bolt

- ❑ 2x
- ❑ 9 Nm

6 - Gearbox selector lever

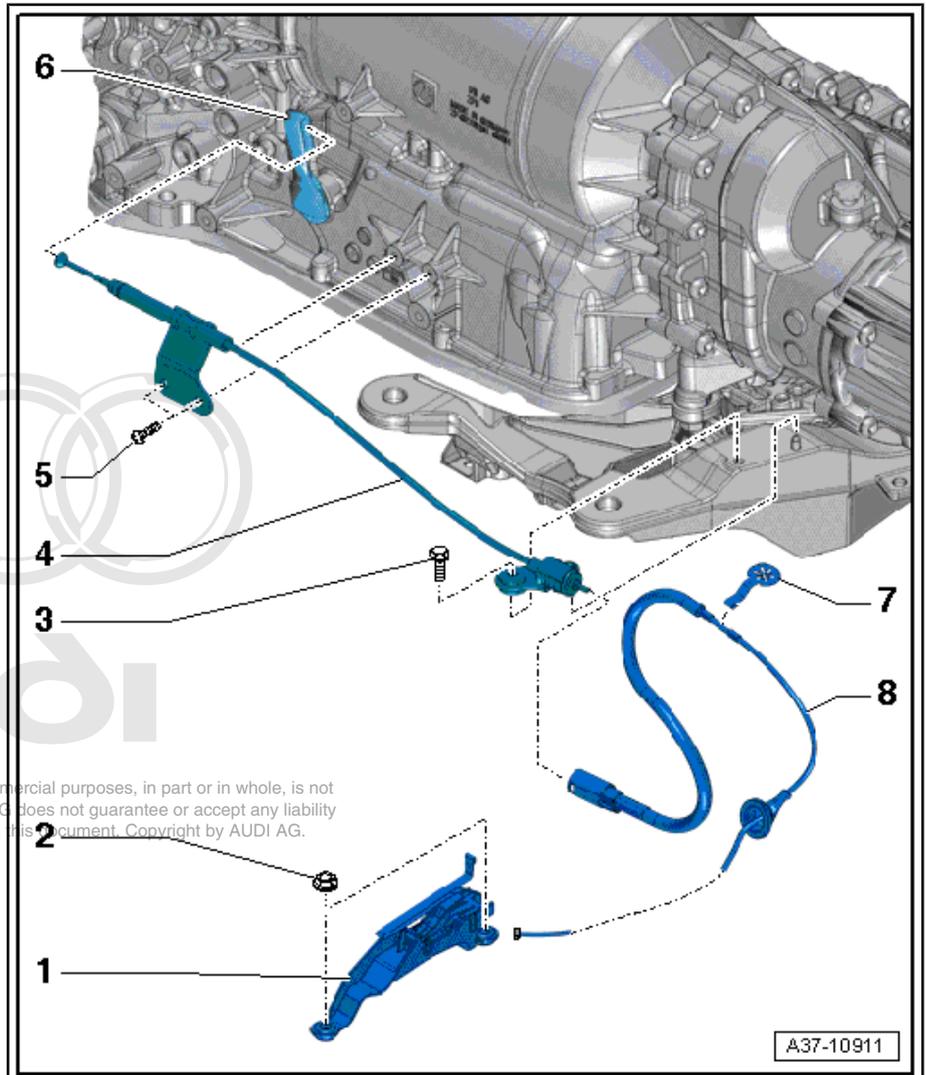
- ❑ For manual release of parking lock

7 - Retaining clip

- ❑ For selector lever cable

8 - Manual release cable (rear)

- ❑ For parking lock
- ❑ Do not bend or kink
- ❑ Removing and installing => [page 35](#)



Protected by Renew. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for the content of this document. Copyright by AUDI AG.

1.3 Checking selector mechanism



WARNING

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

- ◆ *Before performing any work with the engine running, set the gearbox to position "P" and pull up the parking brake button to apply the electromechanical parking brake.*
- ◆ *Observe safety precautions when the vehicle is moving ⇒ [page 6](#).*
- ◆ *You must work through all the tests listed. If the specified results are not obtained, perform "Guided Fault Finding" using vehicle diagnostic tester.*

Overview:

- ◆ 1. Checking locking functions / button for selector lever release - E681- ⇒ [page 21](#)
- ◆ 2. Checking operation of selector mechanism ⇒ [page 23](#)
- ◆ 3. Checking displays in instrument cluster ⇒ [page 24](#)



Note

To ensure that it functions correctly, it is important to perform a complete check of the selector mechanism.

Check 1: Checking locking functions / button for selector lever release - E681-

- Electromechanical parking brake applied
- Start engine and run at idling speed.

Check 1, step 1:

- Shift gearbox into “P”.

Specifications:

- Position “P” should be displayed in the instrument cluster and on the selector lever position display - Y26- , -2-.

Check 1, step 2:

- Do not depress brake pedal.
- Press button for selector lever release - E681- , -1- and pull selector lever towards rear.

Specifications:

- It should not be possible to move the selector lever towards the rear (lever is locked).
- The gearbox should remain in position “P”.
- The following message should appear in the instrument cluster: “To select gear press brake pedal”.

Check 1, step 3:

- Do not press button for selector lever release - E681- -1-.
- Press brake pedal and pull selector lever towards rear.

Specifications:

- It should not be possible to move the selector lever towards the rear (lever is locked).
- The gearbox should remain in position “P”.

Check 1, step 4:

- Press and hold brake pedal.
- Press button for selector lever release - E681- , -1-.
- Pull selector lever towards rear and select position “D/S”.

Specifications:

- Position “D” should be displayed in the instrument cluster.

Check 1, step 5:

- Press and hold brake pedal.
- Do not press button for selector lever release - E681- -1-.
- Push selector lever forwards.

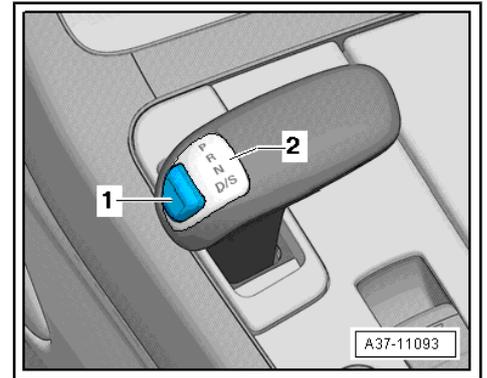
Specifications:

- It should not be possible to move the selector lever forwards (lever is locked).
- The gearbox should remain in position “D”.
- Pull selector lever towards rear and select position “S”.

Specifications:

- Position “S” should be displayed in the instrument cluster.

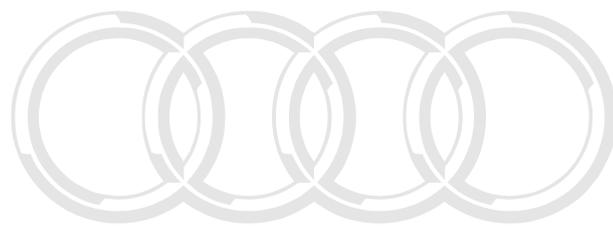
If results do not match specifications:



Copyright © Audi AG. All rights reserved. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



- Check whether selector lever handle is correctly installed
⇒ [page 26](#) .
- Perform "Guided Fault Finding" ⇒ Vehicle diagnostic tester.



Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Check 2: Checking operation of selector mechanism

- Start engine.

Check 2, step 1:

- Shift gearbox into “D/S”.
- Shift gearbox into “N”.
- Do not press button for selector lever release - E681- -1- and do not press brake pedal.
- Pull selector lever towards rear and select position “D/S”.

Specifications:

- When you shift into selector lever position “N” with the vehicle moving at a speed above 5 km/h, the selector lever lock must not engage and block the selector lever. It should be possible to shift the selector lever into position “D/S”.
- When you shift into selector lever position “N” with the vehicle moving at a speed below 2 km/h (almost stationary), the solenoids for the selector lever lock should only engage after about 1 second. The selector lever can then only be shifted into position “D/S” when the brake pedal is pressed.

Check 2, step 2:

- Shift gearbox into “N”.
- Do not press button for selector lever release - E681- -1-.
- Depress brake pedal.

Specifications:

- It should not be possible to move the selector lever forwards; it should not be possible to select position “R”.
- The gearbox should remain in position “N”.

Check 2, step 3:

- Shift gearbox into “D/S”.
- Shift gearbox into “N”.
- Shift gearbox into “R”.
- Shift gearbox into “P”.

Specifications:

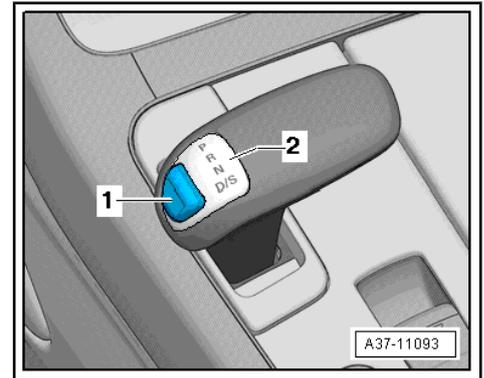
- The selected positions should be displayed correctly in the instrument cluster and on the selector lever position display - Y26- -2-. The displays should match.
- Do not depress brake pedal.

Specifications:

- The selector lever should be locked; even when the button for selector lever release - E681- , -1- is pressed, it should not be possible to move the selector lever out of position “P”.

If results do not match specifications:

- Check whether selector lever handle is correctly installed [⇒ page 26](#) .
- Perform “Guided Fault Finding” ⇒ Vehicle diagnostic tester.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

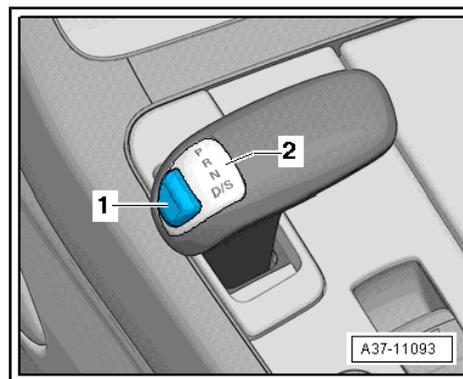
Check 3: Checking displays in instrument cluster

- Start engine.

Check 3, step 1:

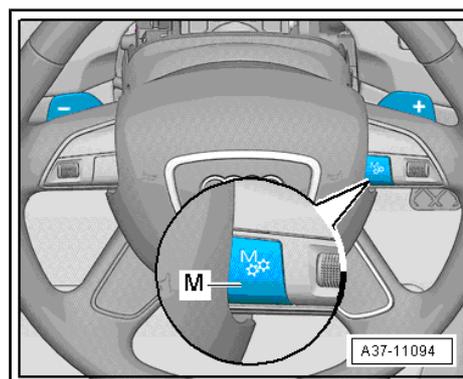
Specifications:

- When you press the button for selector lever release - E681- -1- or move the selector lever to a new position, the complete display of the gearbox positions should appear in the instrument cluster for 5 seconds in addition to the display showing the current position.



Check 3, step 2:

- With position "D/S" selected, press button -M- on steering wheel to select manual mode "M" (tiptronic).
- Mode "M" should be displayed in the instrument cluster.
- With the vehicle moving, and mode "M" (tiptronic) selected, operate the steering wheel paddles -(+)- and -(-)-.
- The selector lever position display in the instrument cluster should change one gear up (+) or down (-).



Check 3, step 3:

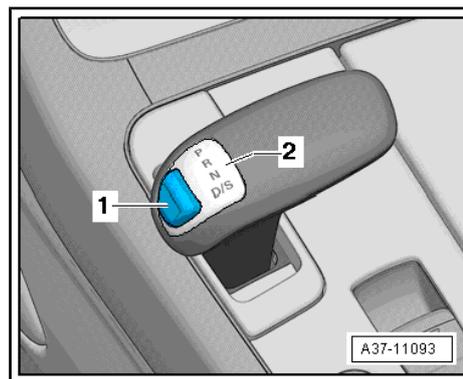
- Shift gearbox into "P".
- Switch off engine.
- Switch on ignition.
- Do not depress brake pedal.
- Press button for selector lever release - E681- , -1-.

Specifications:

- The following message should appear in the instrument cluster: "To select R, N, D press brake pedal and start engine".

If results do not match specifications:

- Check whether selector lever handle is correctly installed
⇒ [page 26](#) .
- Perform "Guided Fault Finding" ⇒ Vehicle diagnostic tester.



1.4 Manual release from position P



Note

The manual release mechanism for the parking lock must be checked after removing and installing the gearbox, or if work has been carried out on the manual release mechanism.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Releasing



WARNING

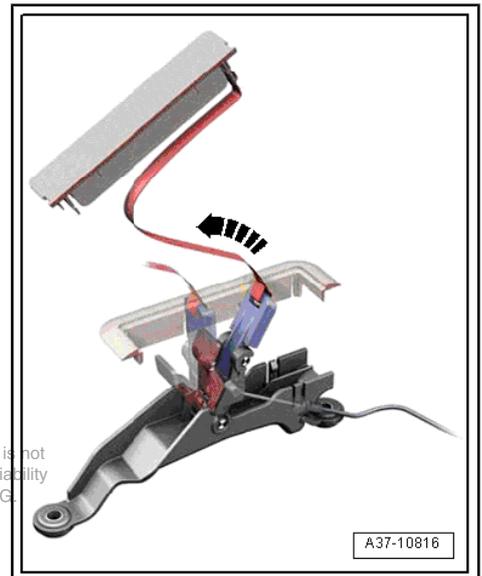
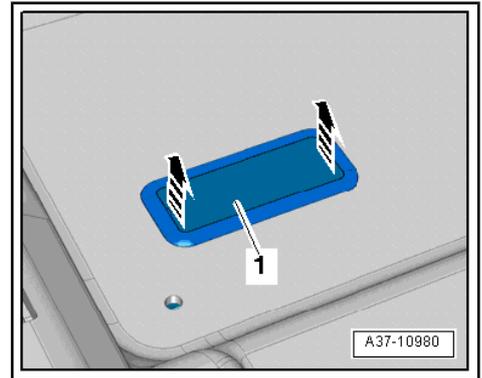
Accident risk; vehicle can start rolling.

- ◆ *Pull up parking brake button to apply electromechanical parking brake.*

- Remove floor mat.
- Lever off cover -1- for manual release mechanism using a screwdriver and detach -arrows-.
- Pull strap in direction of -arrow- until release lever engages.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

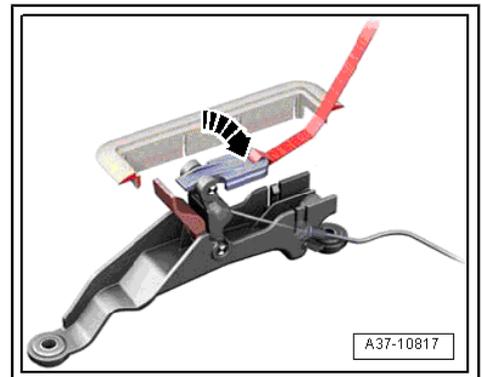


- Fold back top part of release lever -arrow- to avoid damage to components of release mechanism.



Note

- ◆ *When the parking lock has been released manually, a warning lamp (yellow gear symbol) and selector lever position **N** will light up in the instrument cluster.*
- ◆ *The following message will also appear: Vehicle may roll! Cannot shift to P. Please apply parking brake.*





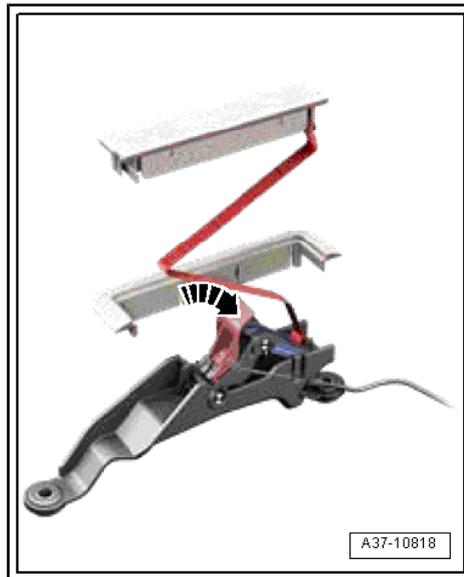
Reactivating parking lock

- Fold up top part of release lever again.
- Operate catch and push release lever back to its original position -arrow- until it engages audibly.
- Refit cover.



Note

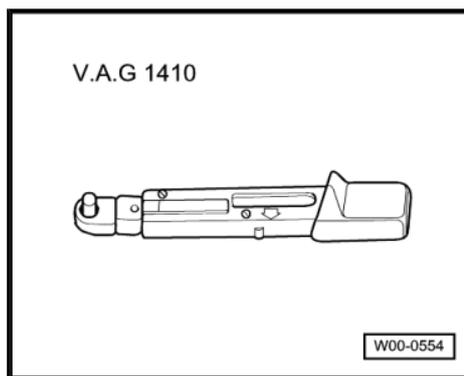
When the parking lock is engaged, the instrument cluster and the selector lever position display - Y26- should show the position .



1.5 Removing and installing selector lever handle

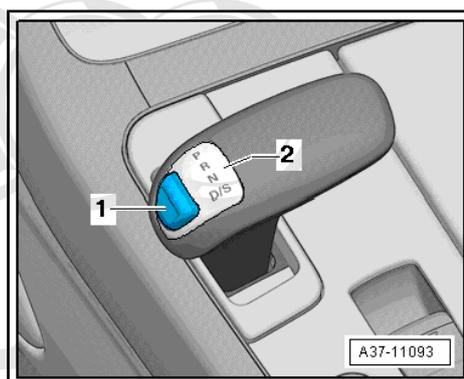
Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1410-



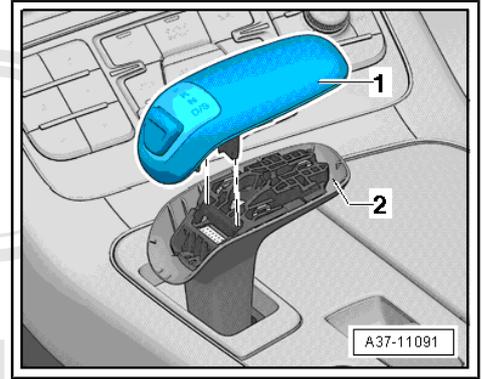
Removing

- Ignition switched off.
- Wait until illumination of selector lever position display - Y26- , -2- goes out.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Pull off selector lever handle (top section) -1- upwards.



- Remove bolt -1-.
- Pull off selector lever handle (bottom section) -2- upwards.

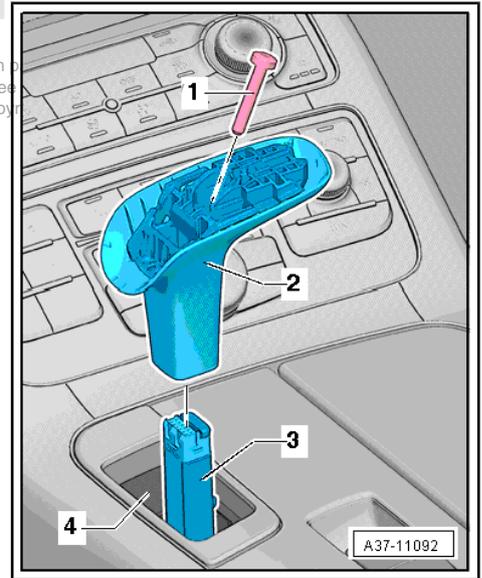
Installing

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

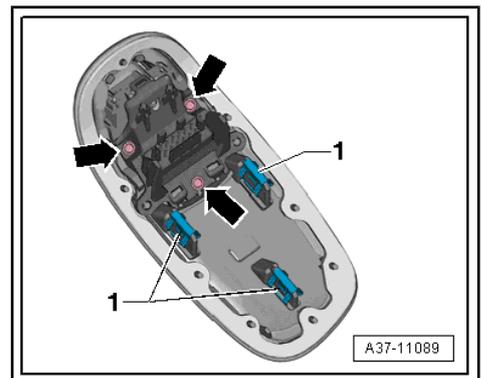
- Fit selector lever handle (bottom section) -2- onto selector lever -3-.

Note

- ◆ Take care not to damage sliding cover -4-.
- ◆ If the selector lever handle (bottom section) -2- cannot be fitted fully onto the selector lever -3-, it may be necessary to realign the sliding cover -4- slightly. When doing this, do not move the selector lever.
- ◆ Bolt -1- cannot be installed if the selector lever handle (bottom section) -2- is not fully fitted.



- Screw in bolt -1- (=> [Item 5 \(page 18\)](#)).
- Check that the 3 retaining clips -1- on the underside of the selector lever handle (top section) are correctly seated; press down further if necessary.

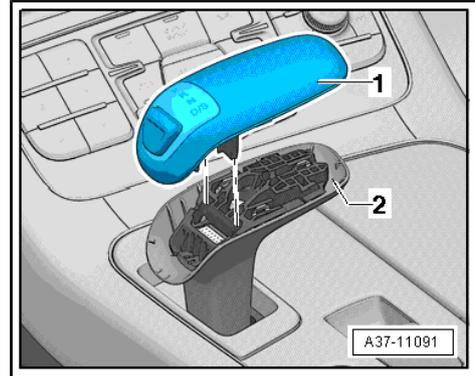




- Press selector lever handle (top section) -1- onto selector lever handle (bottom section) -2-.
- Check selector mechanism => [page 20](#) .

Tightening torques

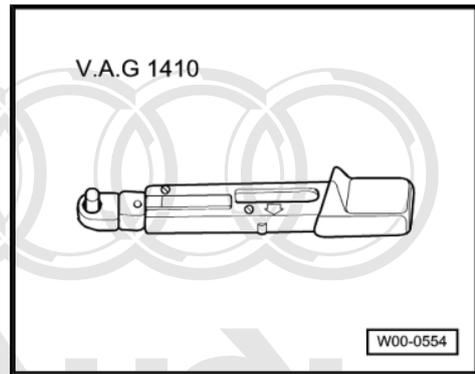
- ◆ => ["1.1 Exploded view - selector mechanism", page 17](#)



1.6 Removing and installing selector mechanism

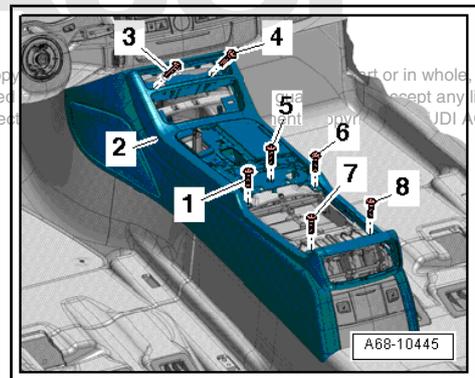
Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1410-



Removing

- Remove centre console => General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .



- Unplug electrical connector -1-.
- Remove bolts -arrows- and detach selector mechanism.

Installing

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

- Fit the two centring pins on rear side of shift unit in holes in base plate of centre consoles.

Note

- ◆ *The two centring pins are located between the bolt holes at the front and rear.*
- ◆ *The centring pins align the shift unit, and thus the selector lever handle, correctly in relation to the centre console.*

- Tighten bolts -arrows-.
- Attach electrical connector -1-.
- Install centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Check selector mechanism ⇒ [page 20](#) .

Tightening torques

- ◆ ⇒ [“1.1 Exploded view - selector mechanism”, page 17](#)

1.7 Dismantling and assembling selector mechanism

⇒ [“1.7.1 Removing and installing button for selector lever release E681 and selector lever position display Y26”, page 29](#)

⇒ [“1.7.2 Removing and installing selector lever sensors control unit J587 with selector lever position sender G727”, page 31](#)

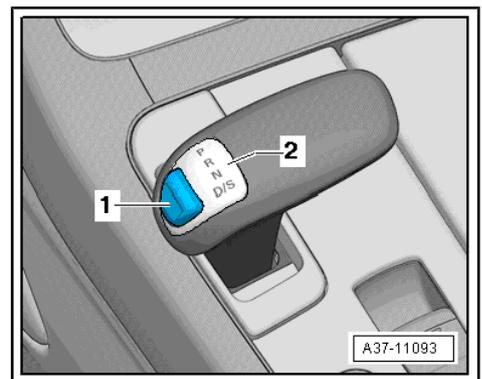
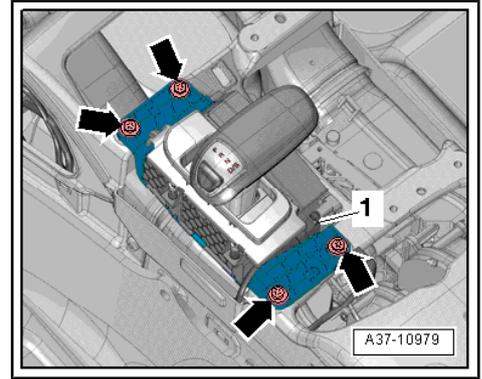
1.7.1 Removing and installing button for selector lever release - E681- and selector lever position display - Y26-

Special tools and workshop equipment required

- ◆ TORX® bit, size T6
- ◆ Commercially available torque wrench for a torque of 0.25 Nm, e.g. Stahlwille, No. 775/12 (torque range 0.2 - 1.2 Nm)

Removing

- Ignition switched off.
- Wait until illumination of selector lever position display - Y26- , -2- goes out.

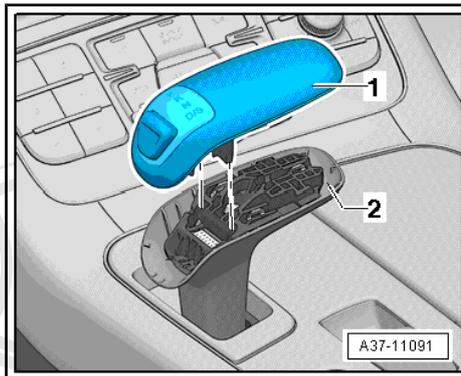




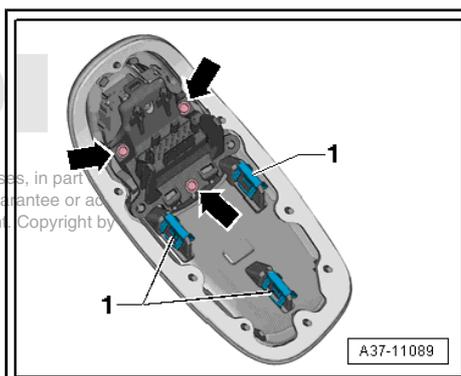
Note

The button for selector lever release - E681- and the selector lever position display - Y26- form a single unit -1- and can only be renewed together.

- Pull off selector lever handle (top section) -1- upwards.



- Remove 3 bolts -arrows- on underside of selector lever handle (top section).



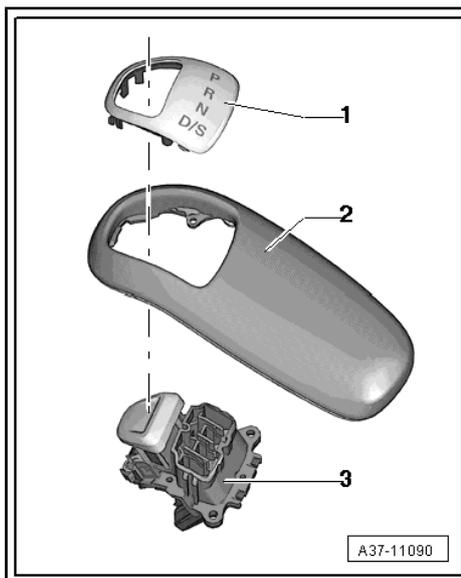
- Carefully release retaining lugs and detach button for selector lever release - E681- and selector lever position display - Y26- -3-.

- Carefully release retaining lugs and detach cover -1-.

Installing

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

- Clip button for selector lever release - E681- and selector lever position display - Y26- -3- into selector lever handle (top section) -2-.
- Clip on cover -1-.



- Carefully screw in 3 bolts -arrows-.

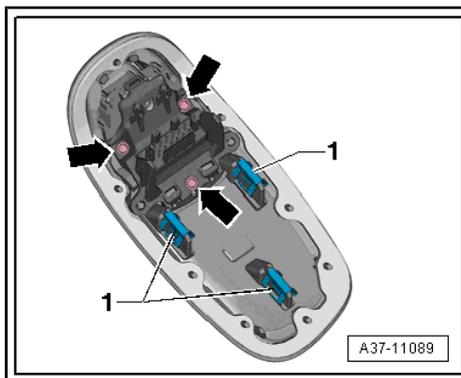


Caution

Risk of damage to components.

- The 3 bolts have a very low tightening torque (=> Item 4 (page 18)).

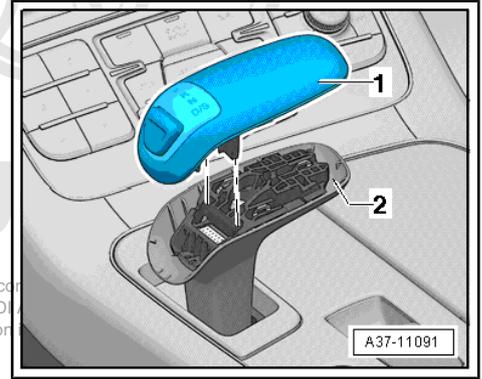
- Check that the 3 retaining clips -1- on the underside of the selector lever handle (top section) are correctly seated; press down further if necessary.



- Press selector lever handle (top section) -1- onto selector lever handle (bottom section) -2-.
- Check selector mechanism ⇒ [page 20](#) .

Tightening torques

- ◆ ⇒ [“1.1 Exploded view - selector mechanism”, page 17](#)

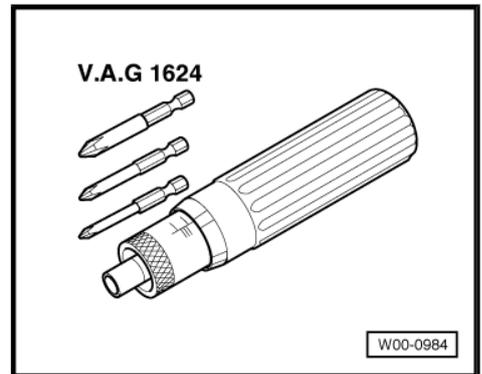


Protected by copyright. Copying for private or commercial use is not permitted unless authorised by AUDI AG. AUDI AG is not liable with respect to the correctness of information.

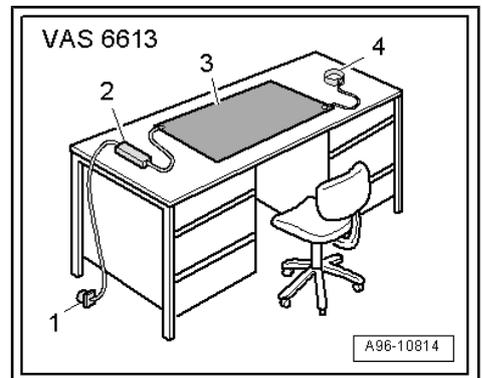
1.7.2 Removing and installing selector lever sensors control unit - J587- with selector lever position sender - G727-

Special tools and workshop equipment required

- ◆ Torque screwdriver - V.A.G 1624-



- ◆ ESD workplace - VAS 6613-



- ◆ Locating pin : is supplied with replacement selector lever sensors control unit - J587-
- ◆ Drill bit (Ø 3 mm) if locating pin is not available
- ◆ Silicone lubricant - G 052 547 A2-

Removing

- Remove shift unit ⇒ [page 28](#) .

**Caution**

Electrical components of selector mechanism can be irreparably damaged by electrostatic discharge.

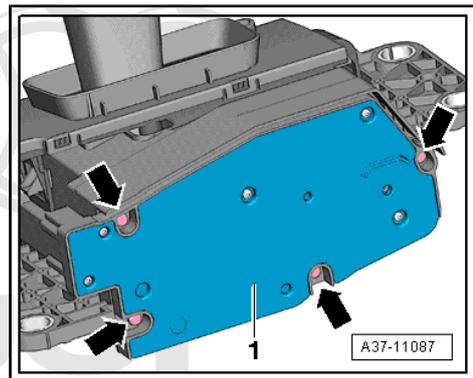
- *Do not touch connector contacts with bare hands.*
- *After removal, the selector mechanism must be dismantled on an ESD workplace - VAS 6613- .*
- *Observe instructions for ESD workplace - VAS 6613- → Electrical system; General information; Rep. gr. 97 .*

- Place shift unit on ESD workplace - VAS 6613- .

**Note**

The selector lever sensors control unit - J587- and the selector lever position sender - G727- form a single unit -1- and can only be renewed together.

- Remove bolts -arrows-.
- Detach selector lever sensors control unit - J587- -1-

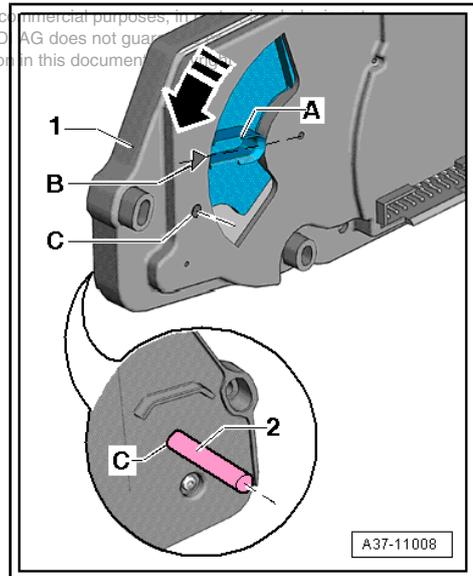
**Installing**

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

- Position guide plate -A- of sender segment on rear of selector lever sensors control unit - J587- by hand so it is in line with arrow -B-.
- In this position, insert locating pin -2- in aperture -C- on front of selector lever sensors control unit - J587- .

**Note**

- ◆ *If the locating pin -2- is not available, a drill bit (\varnothing 3 mm) can be used in its place. Insert the shank of the drill bit (\varnothing 3 mm) in aperture -C-.*
- ◆ *The sender segment for the selector lever position sender - G727- will always be pressed against the stop under spring pressure.*



i Note

The locating pin -2- holds guide plate -B- of the sender segment in position at actuator -A- of the detent lever when installing the selector lever sensors control unit - J587- .

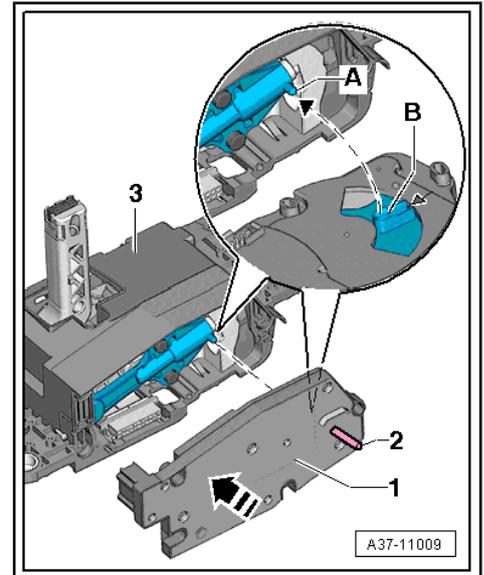
- Lightly grease actuator -A- of detent lever and guide plate -B- of sender segment with silicone lubricant - G 052 547 A2- .
- Fit selector lever sensors control unit - J587- -1-, with locating pin -2- inserted, onto shift unit.
- The actuator -A- of the detent lever must engage in the guide plate -B- of the sender segment.



WARNING

Risk of malfunction of selector mechanism.

- ◆ *If the guide plate -B- is damaged, the selector lever sensors control unit - J587- must be renewed together with the selector lever position sender - G727- .*
- ◆ *If the actuator -A- of the detent lever is damaged, the shift unit must be renewed.*



Caution

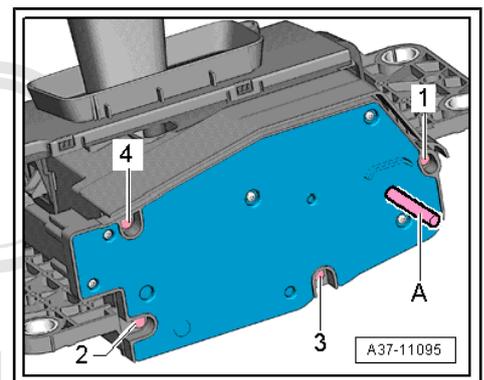
Risk of malfunction of selector mechanism.

- *It is important to keep exactly to the specified tightening sequence and tightening torque for the four bolts ⇒ [page 19](#) .*
- *The bolts can come loose if they are not installed exactly according to instructions. This will result in malfunctions of the selector lever sensors control unit - J587- .*

- Screw in bolts in the sequence -1 to 4-.
- Remove locating pin -A-.
- Install shift unit ⇒ [page 28](#) .
- Check selector mechanism ⇒ [page 20](#) .

Tightening torques

- ◆ ⇒ [“1.1 Exploded view - selector mechanism”, page 17](#)



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1.8 Removing and installing manual release cable for parking lock

⇒ ["1.8.1 Removing and installing manual release cable \(front\) for parking lock", page 34](#)

⇒ ["1.8.2 Removing and installing manual release cable \(rear\) for parking lock", page 35](#)

1.8.1 Removing and installing manual release cable (front) for parking lock

Removing



WARNING

Accident risk; vehicle can start rolling.

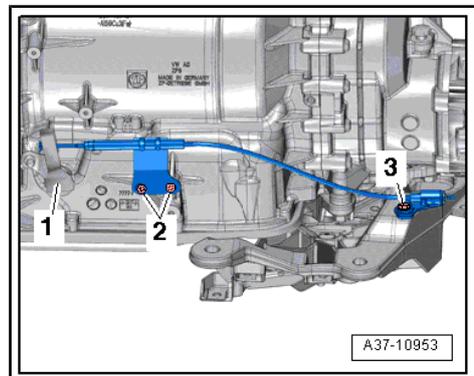
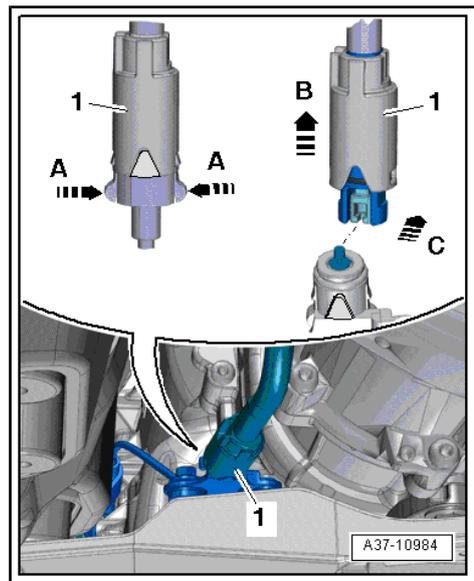
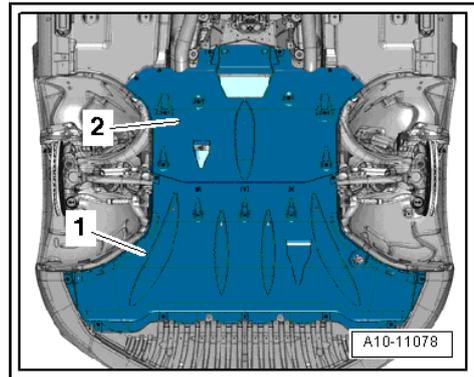
- ◆ *Pull up parking brake button to apply electromechanical parking brake.*

- Remove rear noise insulation -2- → General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Release catches -arrows A- and move sleeve -1- on manual release cable in direction of -arrow B-.
- Disengage manual release cable (rear) from manual release cable (front) -arrow C-.



- Remove bolts -2- and -3-, guide manual release cable (front) out of gearbox selector lever -1- for manual release mechanism and detach cable.

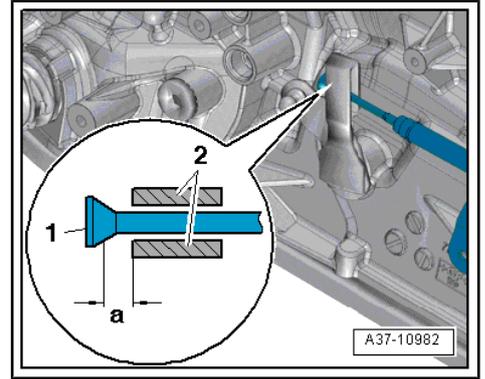
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Installing

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

- When installing, make sure that distance -a- is maintained between manual release cable -1- and lever -2-.
- Dimension -a- = 2 mm (minimum)

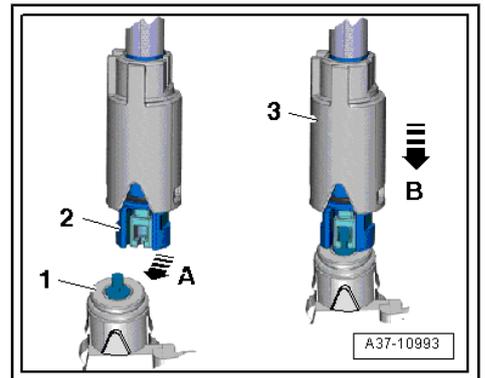


- Engage manual release cable (rear) -2- from above on manual release cable (front) -1- -arrow A-
- Push on sleeve -3- until it engages -arrow B-.



Caution

Check that sleeve is seated securely.



- Check manual release mechanism for parking lock
⇒ [page 24](#) .

Tightening torques

- ◆ ⇒ [“1.2 Exploded view - manual release mechanism for parking lock”, page 19](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

1.8.2 Removing and installing manual release cable (rear) for parking lock

Removing



WARNING

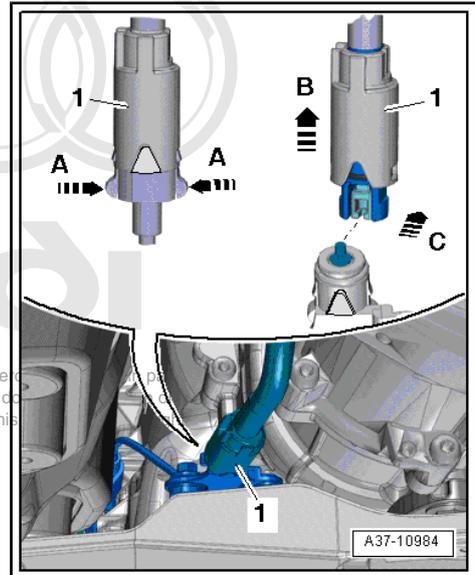
Accident risk; vehicle can start rolling.

- ◆ *Pull up parking brake button to apply electromechanical parking brake.*

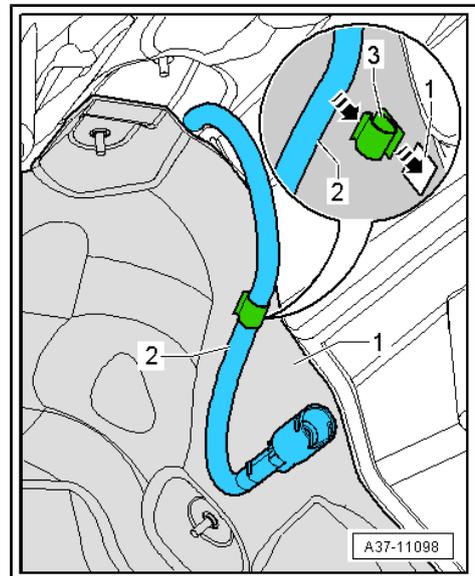
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



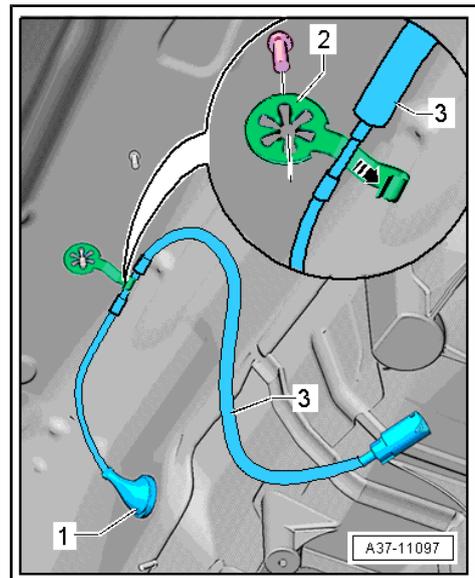
- Release catches -arrows A- and move sleeve -1- on manual release cable in direction of -arrow B-.
- Disengage manual release cable (rear) from manual release cable (front) -arrow C-.



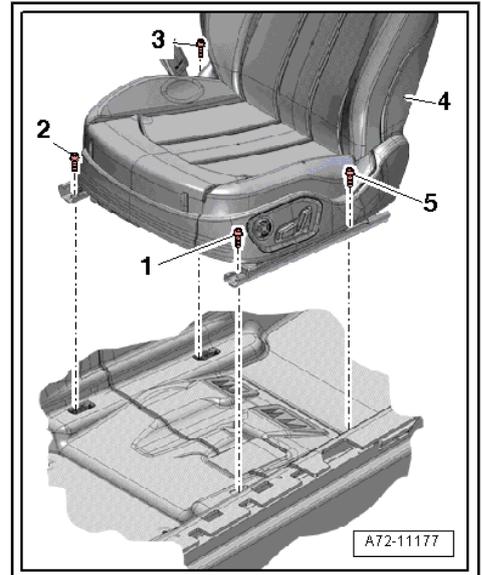
- Disengage manual release cable (rear) -2- from retainer -3-.
- Remove heat shield -1- for centre tunnel => General body repairs, exterior; Rep. gr. 66 ; Strips / trim panels / extensions; Exploded view - heat shield .



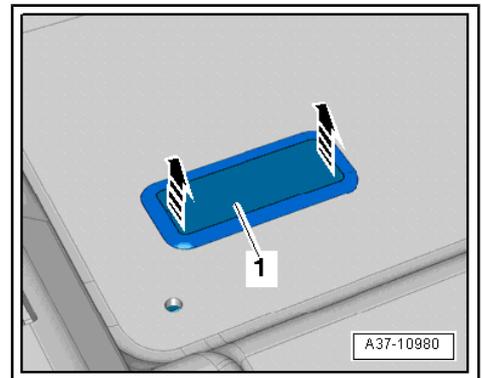
- Disengage manual release cable (rear) -3- from retainer -2-.



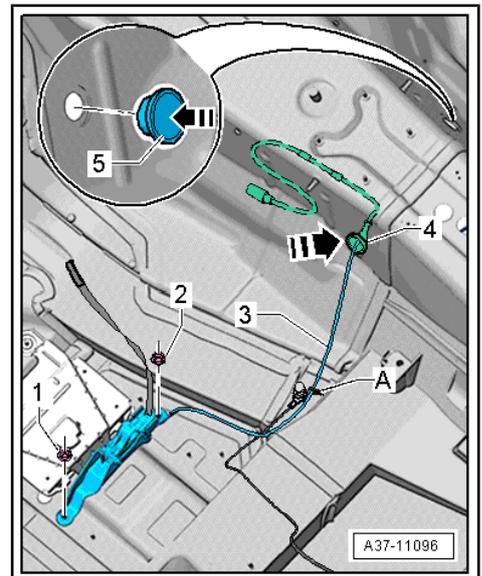
- Remove driver's seat ⇒ General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Remove floor mat.
- Remove front sill panel trim on driver's side ⇒ General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing sill panel trim .



- Lever off cover -1- for manual release mechanism using a screwdriver and detach -arrows-.
- Push floor covering at front of driver's footwell to one side, and guide cover -1- for manual release mechanism through opening in floor covering.



- Remove nuts -1- and -2-.
- Remove cable tie -A-.
- Pull out rubber grommet -4- inwards.
- Guide manual release cable (rear) -3- into interior through hole in centre tunnel (in opposite direction to arrow) and detach cable.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Installing

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

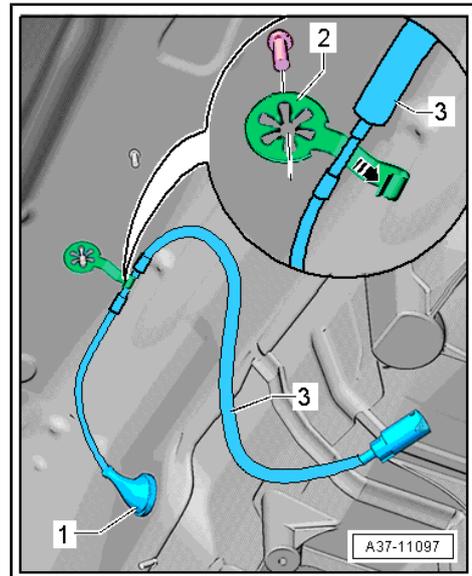
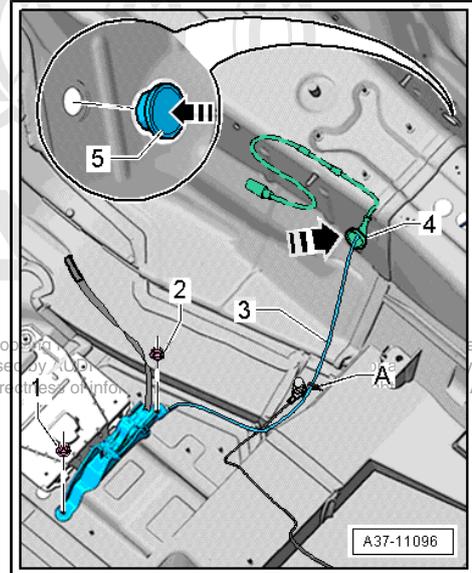
- Guide manual release cable (rear) -3- in direction of arrow through hole in centre tunnel and route cable as shown in illustration.
- Secure manual release cable (rear) to earth point with cable tie -A-.
- Tighten nuts -1- and -2-.



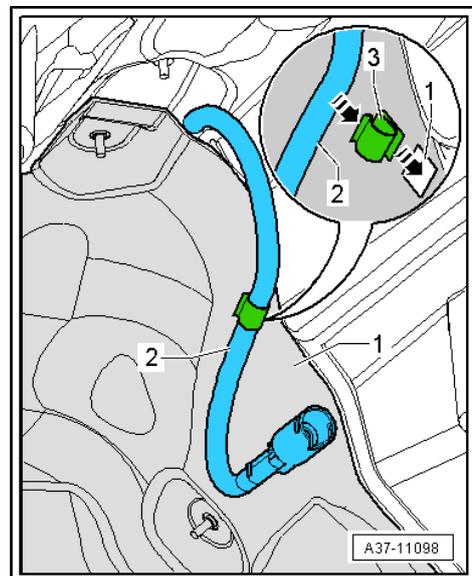
Note

Note the correct tightening torque, otherwise the studs can break off.

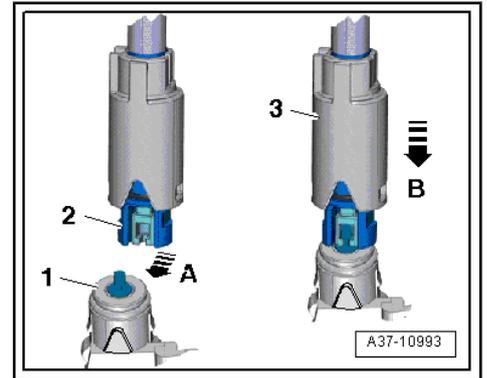
- Push rubber grommet -4- into hole in centre tunnel.
- The rubber grommet -4- and the rubber plug -5- on the opposite side of the centre tunnel must be installed correctly, otherwise water can enter the passenger compartment.
- Engage manual release cable (rear) -3- in retainer -2- -arrow-.
- The sealing lip of rubber grommet -1- must seal all round in the hole in the centre tunnel.



- Install heat shield -1- for centre tunnel => General body repairs, exterior; Rep. gr. 66 ; Strips / trim panels / extensions; Exploded view - heat shield .
- Engage manual release cable (rear) -2- in retainer -3- on heat shield -1- -arrow-, if necessary, attach retainer -3- to heat shield.



- Engage manual release cable (rear) -2- from above on manual release cable (front) -1- -arrow A-
- Push on sleeve -3- until it engages -arrow B- and check that it is securely seated.
- Install front sill panel trim => General body repairs, interior; Rep. gr. 70 ; Passenger compartment trim panels; Removing and installing sill panel trim .
- Install driver's seat => General body repairs, interior; Rep. gr. 72 ; Front seats; Removing and installing front seat .
- Check manual release mechanism for parking lock => [page 24](#) .



Tightening torques

- ◆ => ["1.2 Exploded view - manual release mechanism for parking lock", page 19](#)

1.9 Renewing selector shaft oil seal

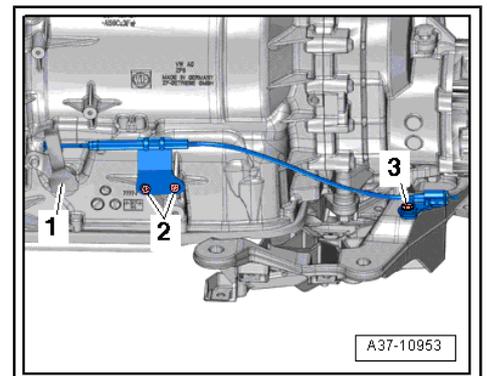
Procedure

- Remove ATF oil pan => [page 93](#) .
- Remove ATF filter => [page 75](#) .
- Remove mechatronic unit => [page 96](#) .
- Remove bolts -2- and guide manual release cable (front) out of gearbox selector lever for manual release of parking lock.



Note

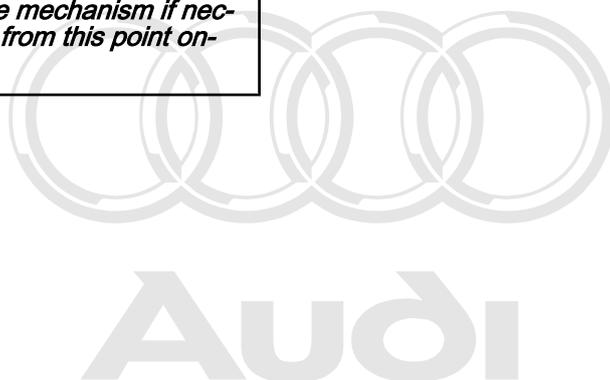
-Item 3- can be disregarded.



Caution

Installation will be more difficult if the parking lock is engaged.

- ◆ *The parking lock must not be engaged during the next steps. Turn the front wheels to check whether the parking lock is engaged.*
- ◆ *Turn the rear splined shaft so that the parking lock gear is not engaged (operate manual release mechanism if necessary). Do not turn the front wheels from this point onwards.*



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



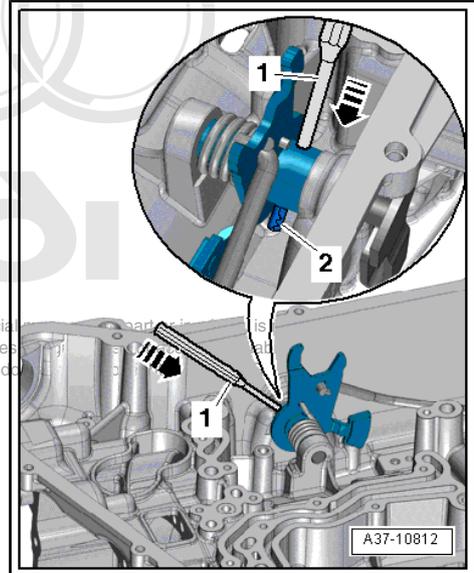
- Knock roll pin -2- out of shaft of gearbox selector lever using a suitable punch -1-.



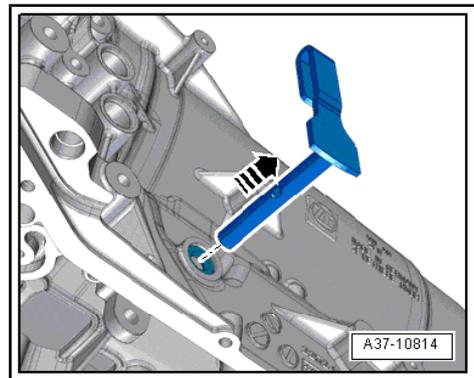
Note

The return spring is slackened when the gearbox selector lever for the parking lock manual release is removed.

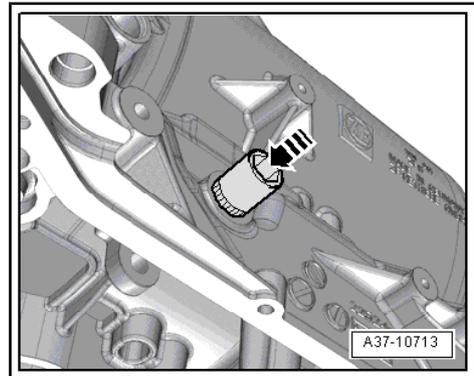
Protected by copyright. Copying for private or commercial use is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document.



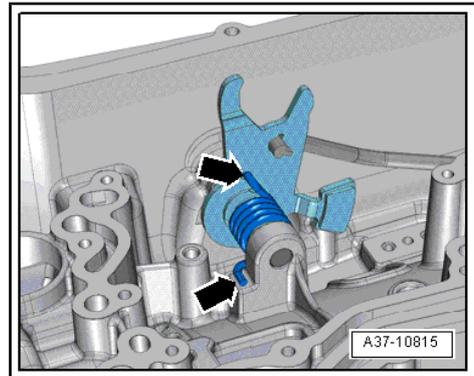
- Pull off gearbox selector lever with shaft -arrow-.
- Pry out oil seal with small screwdriver.
- Lubricate outer circumference and space between sealing lips of new oil seal with ATF.
- Installation position: open side of oil seal points towards gearbox



- Fit oil seal on gearbox housing and press in as far as stop -arrow- using a suitable socket.



- Insert gearbox selector lever with shaft and at the same time engage return spring on stop lever and on gearbox housing -arrows-.

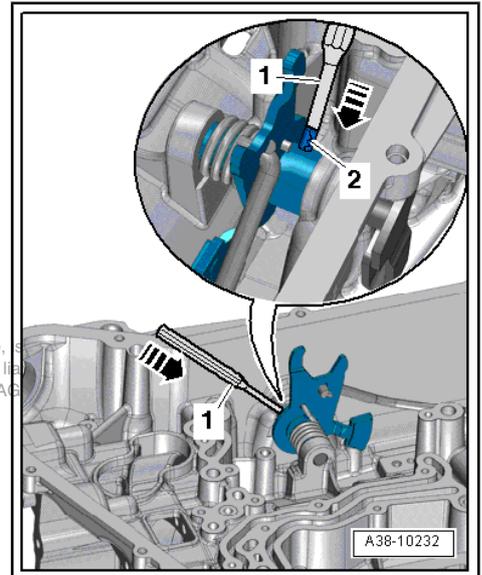
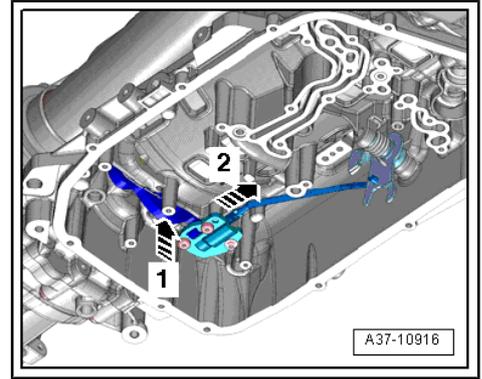


i Note

If the operating rod for the locking pawl has slipped too far towards the rear, it can only be pulled forward again -arrow 1- if the locking pawl is pressed at the same time -arrow 2-.

- Drive roll pin -2- into shaft of gearbox selector lever until flush using a suitable punch -1- .
- Install mechatronic unit ⇒ [page 96](#) .
- Install ATF filter ⇒ [page 75](#) .
- Install ATF oil pan ⇒ [page 93](#) .
- Fill up with ATF ⇒ "7.2 Draining and filling ATF", [page 82](#) .
- Check manual release mechanism for parking lock ⇒ [page 24](#) .

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG





2 Removing and installing gearbox

⇒ "2.1 Removing gearbox", page 42

⇒ "2.2 Installing gearbox", page 54

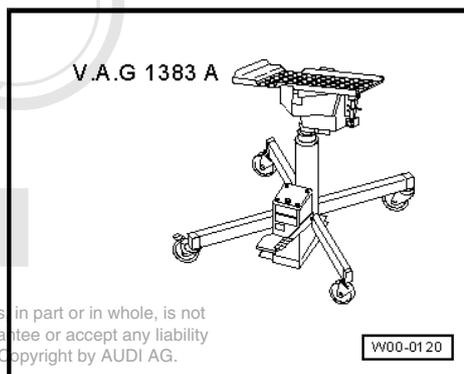
⇒ "2.3 Tightening torques for gearbox", page 61

2.1 Removing gearbox

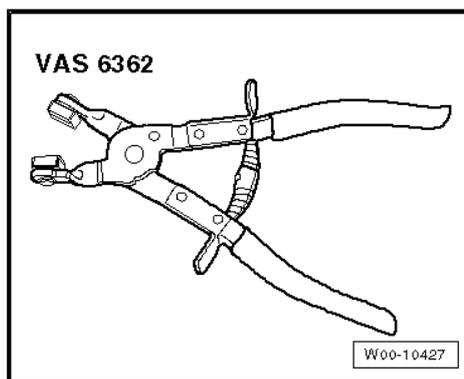
Special tools and workshop equipment required

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

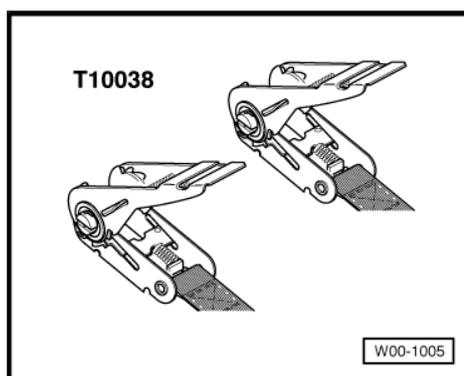
Protected by copyright. Copying for private or commercial purposes in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



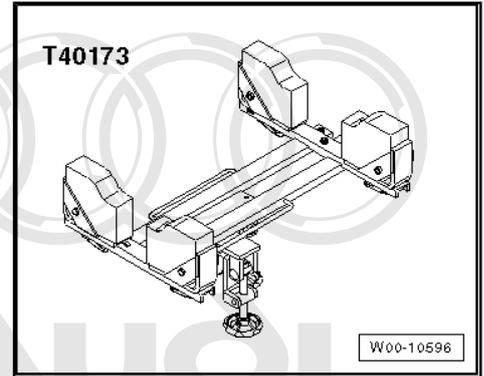
- ◆ Hose clip pliers - VAS 6362-



- ◆ Tensioning strap - T10038-



◆ Gearbox support - T40173-



WARNING

Before using the gearbox support - T40173- it is important to check that you have the correct version of this tool.

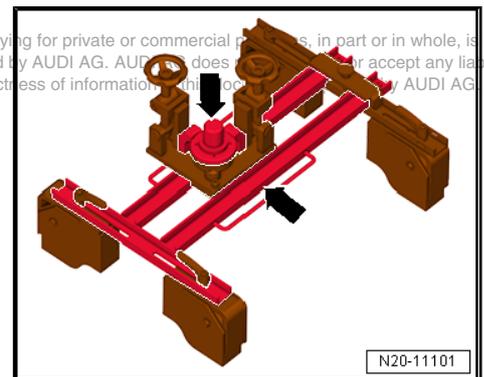
Older versions of this tool must not be used and must be replaced with the latest version.

Distinguishing features of latest version:

On the latest version of this tool, the parts shown in -red- in the illustration -arrows- have a yellow chromated finish.

If the support does not meet the specifications, proceed as follows:

- ◆ *Germany: Contact Matra to have the tool replaced.*
- ◆ *All countries except Germany: Contact your Importer to have the tool replaced.*



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document. © AUDI AG

**Preparing gearbox support - T40173- :**

- Mounting block attached at -position 1- must be rotated so that the shorter side faces upwards.
- Mounting block attached at -position 2- must be rotated so that the longer side faces upwards.
- Mounting blocks attached at -position 3- must be rotated so that the shorter side faces upwards.

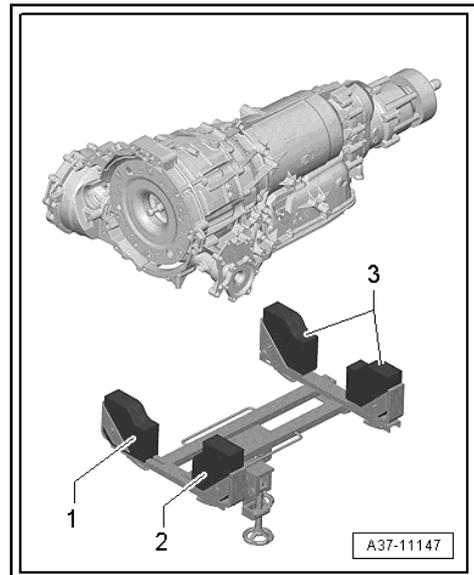
Removing gearbox

Observe safety precautions ⇒ [page 2](#) .

- Electromechanical parking brake is released.
- Shift gearbox into "D/S".
- Bring front wheels into straight-ahead position.

De-energising high-voltage system**WARNING**

Observe general warning instructions for work on the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



The high-voltage system must be de-energised according to the Guided Fault Finding routine in the ⇒ vehicle diagnostic tester , and ONLY by this method.

**DANGER!**

High voltage can cause fatal injury.

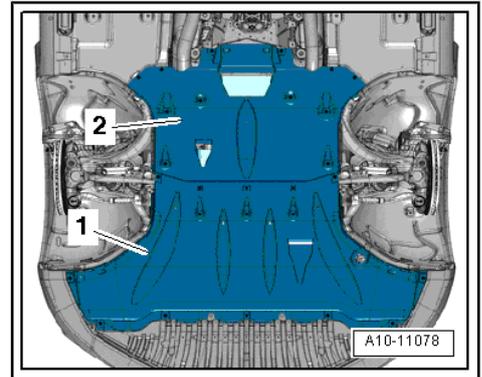
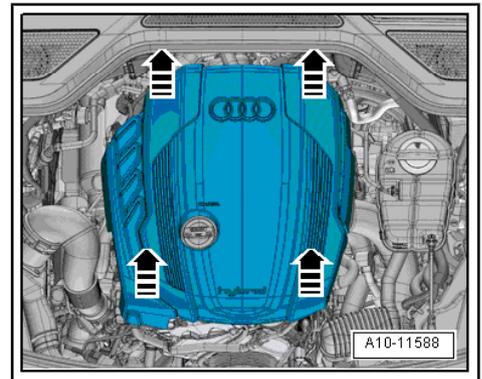
Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) confirms that the system is de-energised and uses the locking cap - T40262- to ensure that it cannot be re-energised. The ignition key and the maintenance connector for high-voltage system - TW - are then stored in a safe place by the qualified person.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

 **Note**

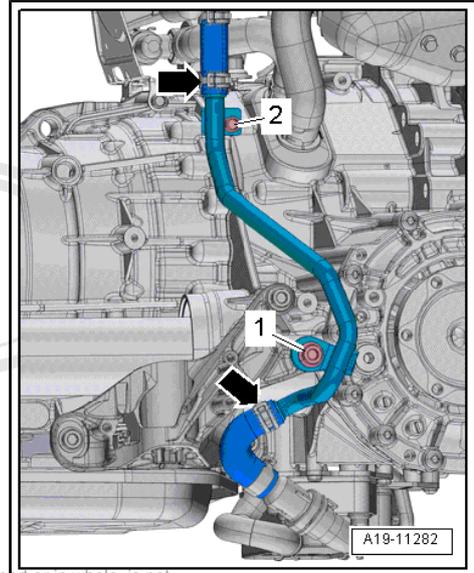
- ◆ *De-energising high-voltage system:*
- ◆ *Connect vehicle diagnostic tester.*
- ◆ *Select Guided Fault Finding mode.*
- ◆ *Using the GoTo button, select the following menu options in succession.*
- ◆ Function/Component Selection
- ◆ Body
- ◆ Electrical system
- ◆ Self-diagnosis-compatible systems
- ◆ 8C - Hybrid battery management -J840
- ◆ 8C - Hybrid battery management, functions
- ◆ 51 - De-energise high-voltage system (Rep. Gr. 93)

- Remove engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .
- Remove rear section of wheel housing liner (front) on both sides ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Removing and installing wheel housing liner (front) .
- Remove noise insulation -1, 2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

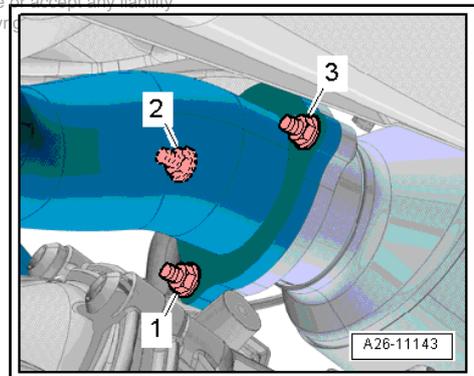




- Remove coolant pipe on gearbox (right-side) => Rep. gr. 19 ; Coolant pipes; Removing and installing coolant pipes .



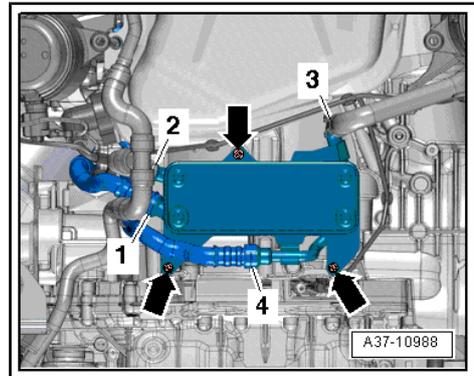
- Remove front silencer => Rep. gr. 26; Exhaust pipes/silencers; Exploded view - silencers .
- Remove gearbox mounting (both sides) => Rep. gr. 10 ; Assembly mountings; Removing and installing gearbox mounting .



Note

Place a cloth below to catch escaping coolant.

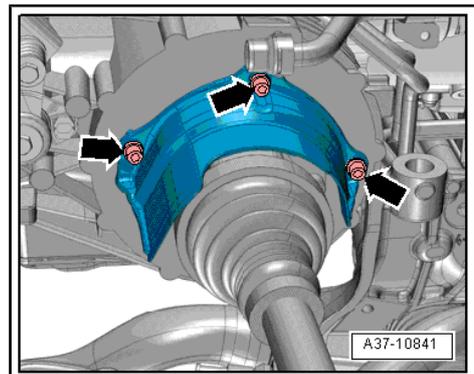
- Release hose clip -3- and detach coolant hose.
- Remove bolts -arrows- and press ATF cooler slightly to side.



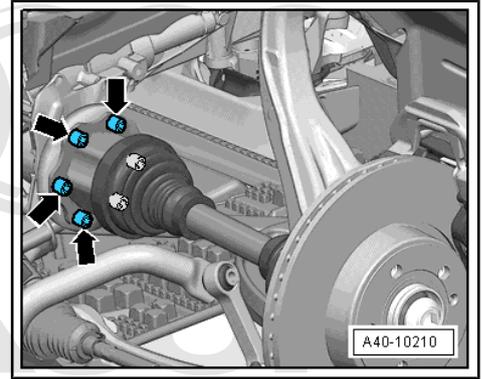
Note

-Items 1, 2, and 4- can be disregarded.

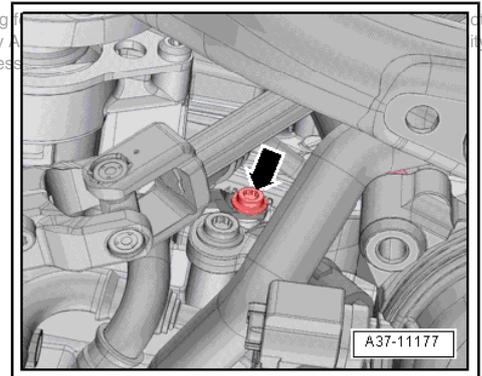
- Remove bolts -arrows- and detach heat shield for drive shaft (right-side).



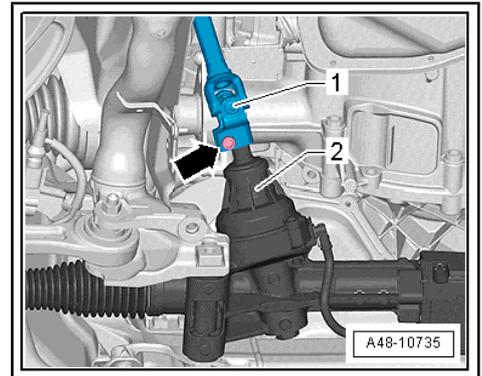
- Unbolt drive shafts (left and right) from flange shafts of gearbox ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .



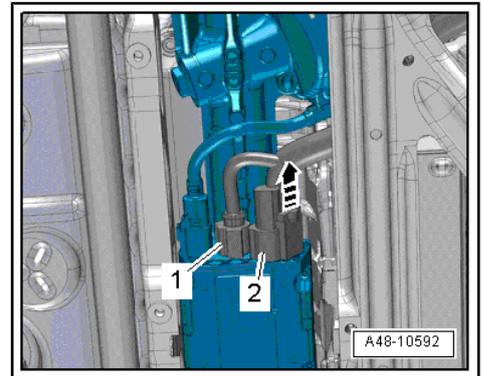
- Remove bolt -arrow- and move potential equalisation line clear on gearbox.



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

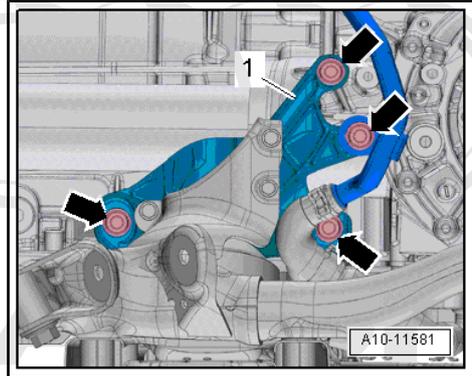


- Unplug electrical connector -1- for vehicle signals (CAN bus and terminal 15) from power steering control unit - J500- (to do this, release retainer and press down release catch).
- Unplug electrical connector -2- for supply voltage (terminal 30) from power steering control unit - J500- (to do this, release retainer -arrow- and press down release catch).

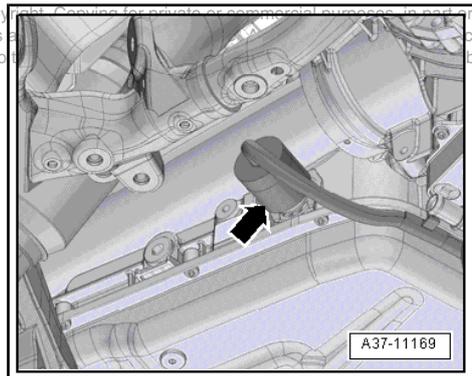




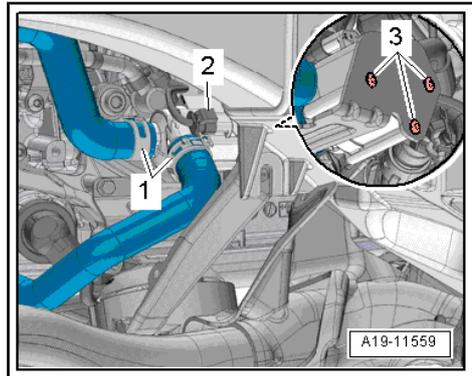
- Remove bolts -arrows- and detach gearbox support (right-side) -1-.



- Fold back heat insulation sleeve.
- Unplug electrical connector -arrow- for auxiliary hydraulic pump 1 for gearbox oil - V475- at right of gearbox.
- Move electrical wiring clear.



- Unplug electrical connector -2-.
- Release hose clips -1- and detach coolant hoses.

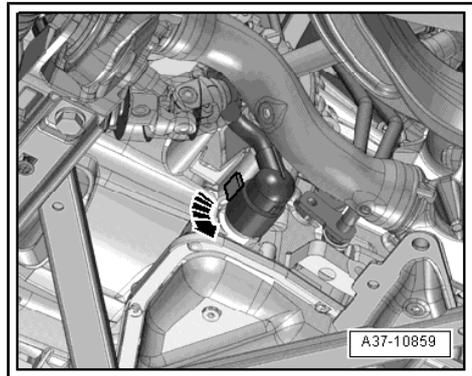


 **Caution**

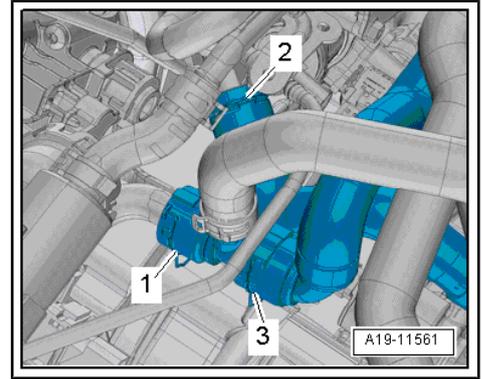
The gearbox control unit (mechatronic unit) can be damaged by electrostatic discharge.

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

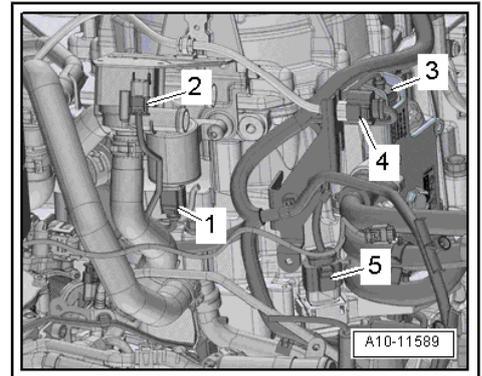
- Touch gearbox housing with your hand (without gloves) to discharge any static electricity.
- Turn fastener anti-clockwise -arrow- and unplug electrical connector on gearbox.
- Move electrical wiring harness clear on gearbox.



- Lift retaining clips -1, 2, 3- and detach coolant hoses.



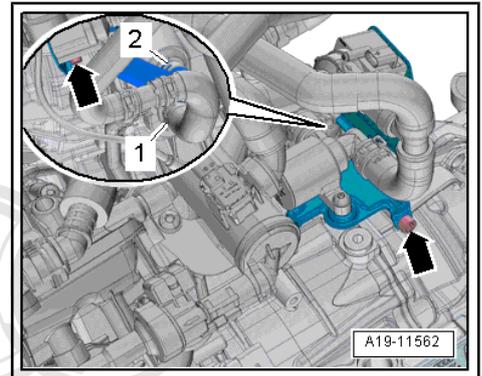
- Unplug electrical connectors and move wiring clear:
 - 1 - For gearbox oil cooling valve - N509-
 - 2 - For coolant circulation pump - V50-
 - 3 - For high-voltage wiring harness for drive motor - PX2-
 - 4 - For Lambda probe after catalytic converter - G130-
 - 5 - For drive motor rotor position sender 1 - G713-



- Release hose clips -1 and 2- and disconnect coolant hoses.
- Remove bolts -arrows- and detach pump unit.

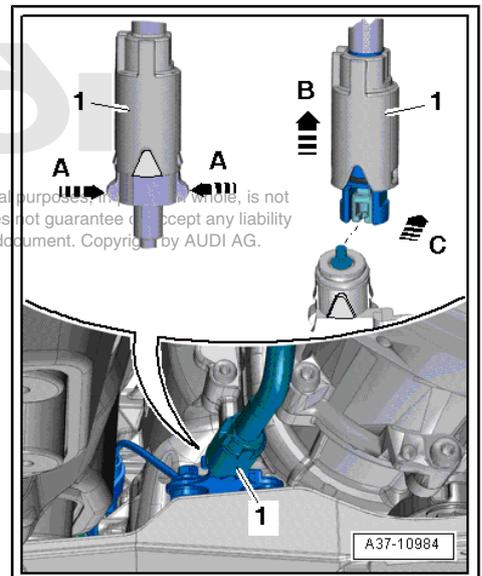
 **Note**

-Item 1- can be disregarded.



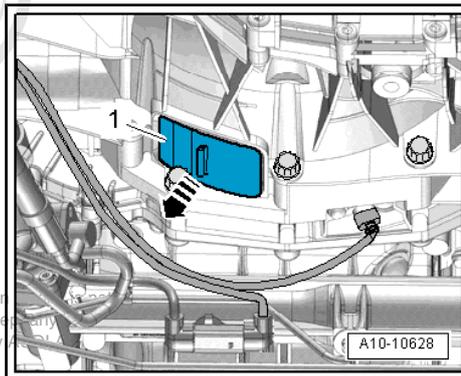
- Release catches -arrows A- and move sleeve -1- on manual release cable in direction of -arrow B-.
- Disengage manual release cable (rear) from manual release cable (front) -arrow C-.

Protected by copyright. Copying for private or commercial purposes, in whole or in part, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.





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



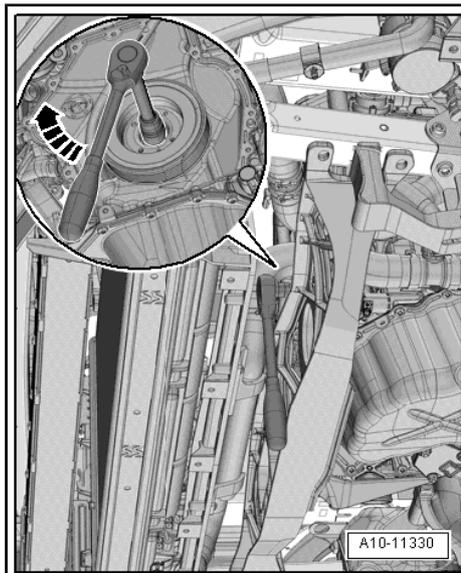
Protected by copyright. Copying for private or commercial purposes, in part or in full, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by Audi AG

- To slacken bolts for electric drive motor - V141- , counterhold crankshaft at central bolt on vibration damper, as shown in illustration.

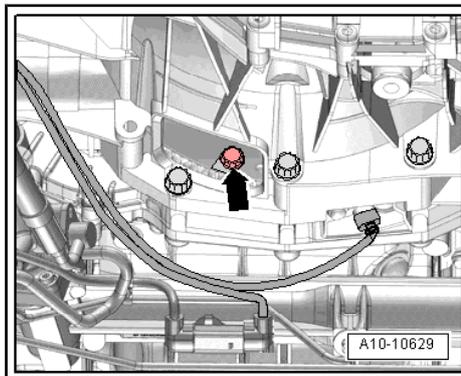


Note

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



- Remove 3 bolts -arrow- securing electric drive motor - V141- to drive plate (turn crankshaft 120° in direction of engine rotation each time).



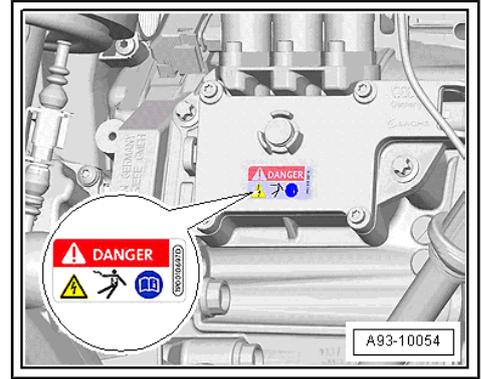
Detach high-voltage wiring harness for drive motor - PX2- from electric drive motor - V141- on gearbox as follows:

- Take care not to damage red warning label.

 **WARNING**

Working on vehicles with high-voltage wiring:

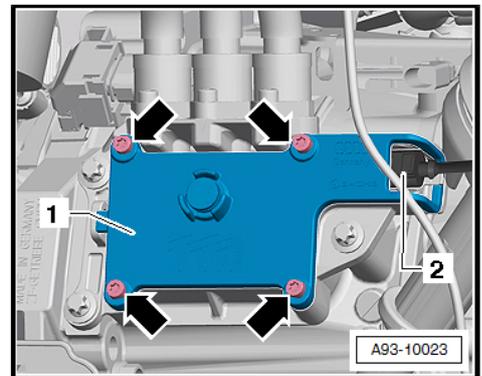
- *Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*



- Remove bolts -arrows- and detach cover -1- from connection box.

 **Note**

Connector -2- has already been removed.



- Remove bolts -2-.

 **Note**

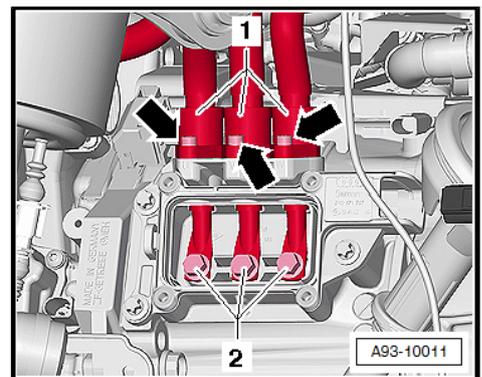
Bolts -2- secure the high-voltage wiring harness for drive motor - PX2- to the electric drive motor - V141- .

- Unscrew bolts -arrows- securing wiring retainer -1-

 **Caution**

Risk of damage to high-voltage wiring.

- *The high-voltage wires must always be pulled off upwards.*
- *Do NOT rotate or tilt the wiring; otherwise this can damage the mechanical coding of the high-voltage wires.*



- Pull high-voltage wires -1- upwards out of connection box one after the other and tie up.

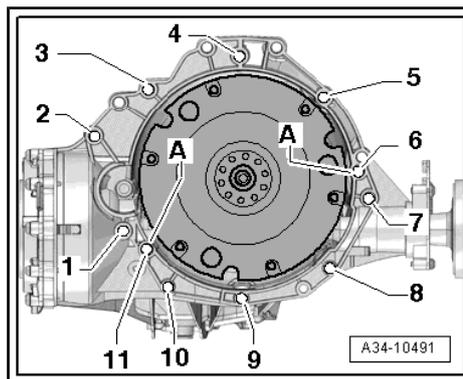


- Remove bolts -2 ... 5- securing engine to gearbox from gearbox side.



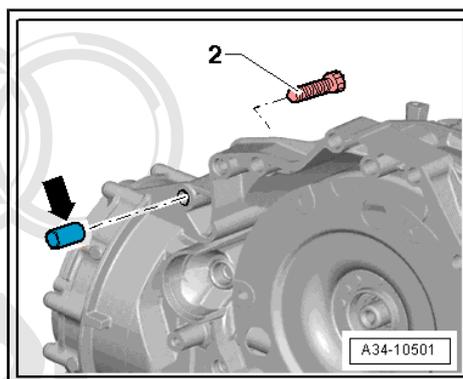
Note

Bolts -3, 5- also secure wiring retainer on gearbox.

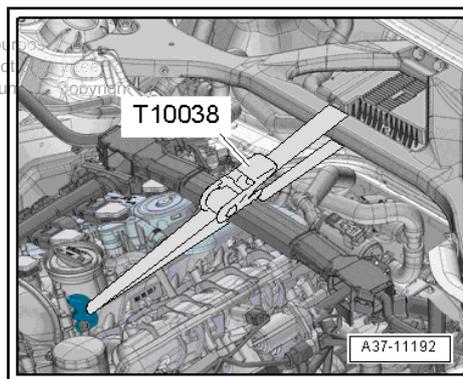


Note

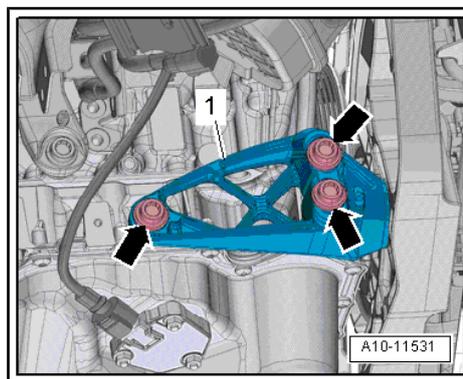
- ◆ Bolt -2- secures the starter to the gearbox and has an additional spacer sleeve -arrow-.
- ◆ Take off this sleeve when pulling out the top securing bolt for the starter.



- Fit body brace in installation position and screw in bolts hand-tight.
- Secure engine with tensioning strap - T10038- as shown in illustration.



- Remove bolts -arrows- and detach torque reaction support -1-.



- Remove bolts -1, 7 ... 11- securing engine to gearbox.

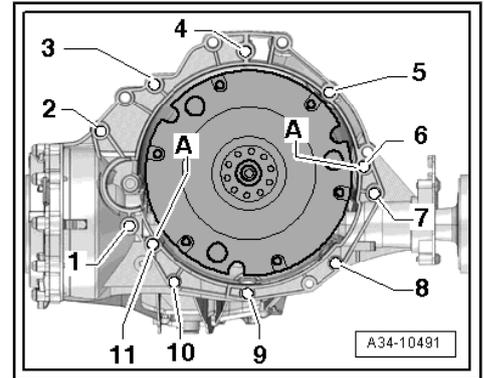
 **Note**

Do not remove bolt -6- at this stage.

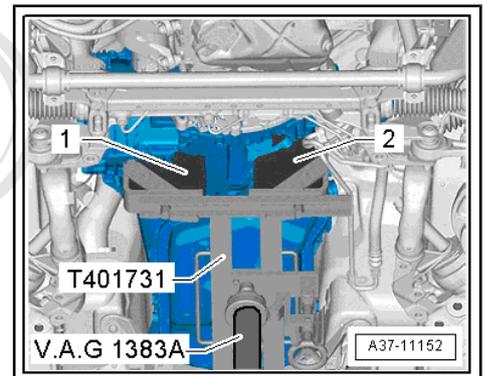
 **Caution**

Risk of leaks on ATF oil pan.

◆ *Do not apply gearbox support - T40173- at ATF oil pan.*

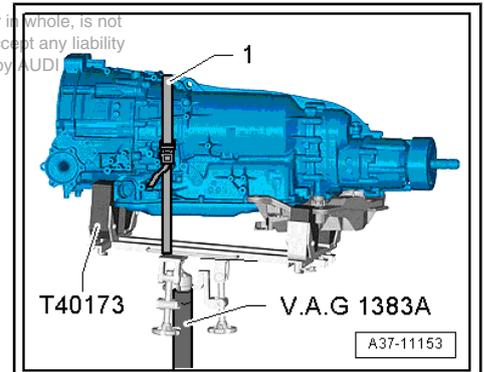


- Position engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- (already prepared => [page 44](#)) underneath gearbox.
- Gearbox support must be positioned as follows at front of gearbox:
 - On left side of gearbox, mounting block -2- must be positioned against gearbox housing behind aperture for electric drive motor - V141- .
 - On right side of gearbox, mounting block -1- is positioned against front final drive.



- Use tensioning strap -1- to secure gearbox

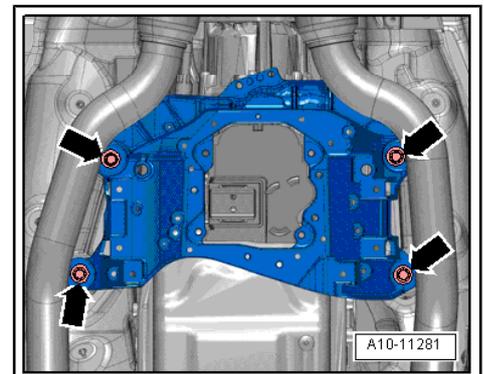
... for commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG



 **Note**

For illustration purposes, the gearbox support - T40173- is not shown.

- Remove bolts -arrows- for tunnel cross member.
- Remove last bolt securing engine to gearbox.



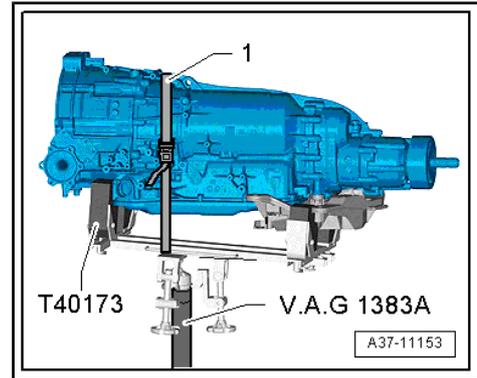


- Separate gearbox from engine and carefully push gearbox slightly towards the rear.
- When doing so, pay attention to steering pinion/steering rack on left side of gearbox.
- When lowering gearbox, adjust position of gearbox using spindles on gearbox support - T40173- .



Note

- ◆ *When lowering the gearbox, make sure that no wires or hoses are trapped on the top of the gearbox.*
- ◆ *For further repairs, secure gearbox to engine and gearbox support - VAS 6095- => [page 68](#) .*
- ◆ *Removing and installing electric drive motor - V141- => [Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor; Removing and installing electric drive motor](#) .*



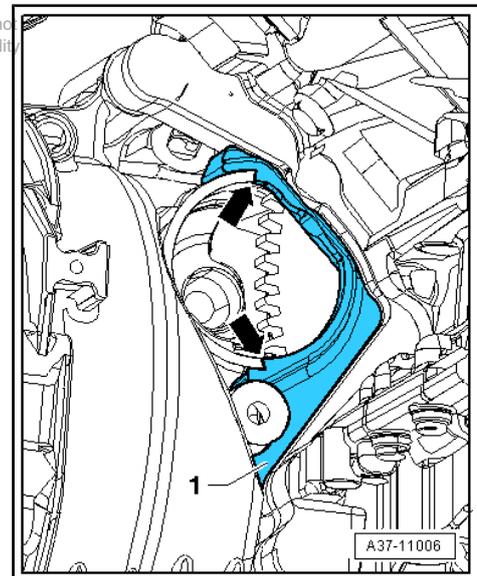
- Remove end seal -1-

Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Note

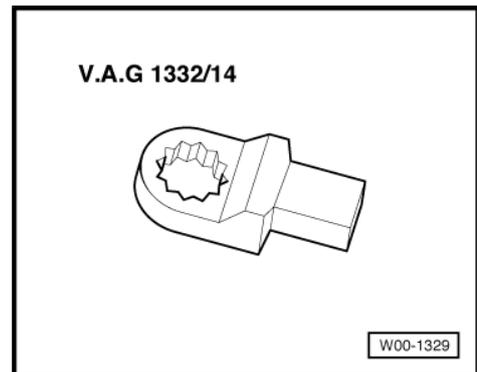
-Arrows- can be disregarded.



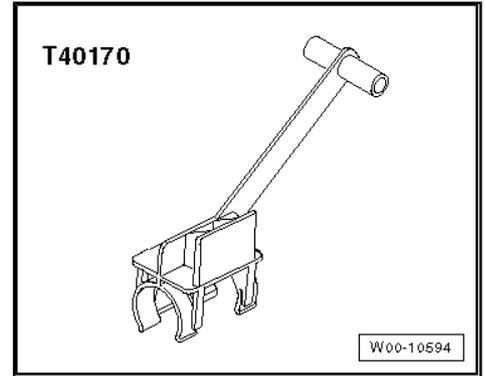
2.2 Installing gearbox

Special tools and workshop equipment required

- ◆ All special tools and workshop equipment already required for gearbox removal, plus the following additional tools.
- ◆ Vehicle diagnostic tester
- ◆ Ring spanner insert, 16 mm - V.A.G 1332/14-



◆ Transportation lock - T40170-



Procedure



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *All work on the de-energised high-voltage system must be performed by an "electrically instructed person (EIP)" → Electrical system, hybrid; Rep. gr. 93 .*
- ◆ *Work on the de-energised high-voltage system may only be performed when the vehicle is clearly identified with signs to confirm that it has been de-energised, and safety measures have been taken to prevent re-energisation.*



WARNING

Observe general warning instructions for work on the high-voltage system → Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



Note

- ◆ *Renew bolts which are tightened by turning through a specified angle. The aluminium bolts securing the engine to the gearbox can be re-used once → [page 62](#) .*
- ◆ *Renew self-locking nuts and bolts, and seals, O-rings and gaskets.*
- ◆ *Secure all hose connections with the correct hose clips (as original equipment); refer to → *Electronic parts catalogue* .*
- ◆ *Re-attach all cable ties at the same locations when re-installing.*

Tightening torques for installing gearbox: → [page 61](#)

- Before fitting a replacement gearbox, always blow through the ATF cooler and ATF lines with compressed air (not more than 10 bar) → [page 78](#) .
- Before installing gearbox, clean residue from threads for engine/gearbox connection in cylinder block using a thread tap

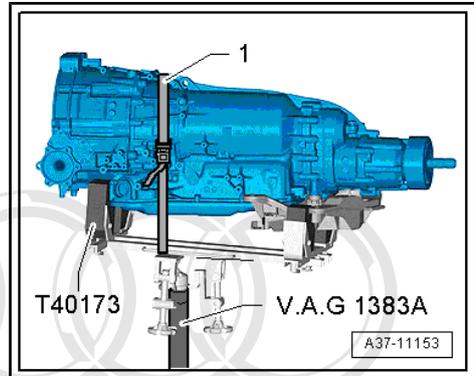
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted. The publisher, the author and the editor assume no liability for any damage or loss of any kind. © Audi AG.



- When fitting a replacement gearbox: attach gearbox support, gearbox mounting and tunnel cross member to new gearbox => [page 63](#) .
- If not already fitted, install cable support bracket on replacement gearbox => [page 19](#) .

 **Caution**
Risk of leaks on ATF oil pan.
 ♦ *Do not apply gearbox support - T40173- at ATF oil pan.*

- Position gearbox on gearbox support - T40173- (already prepared => [page 44](#)) and secure with tensioning strap -1-, as shown in illustration.

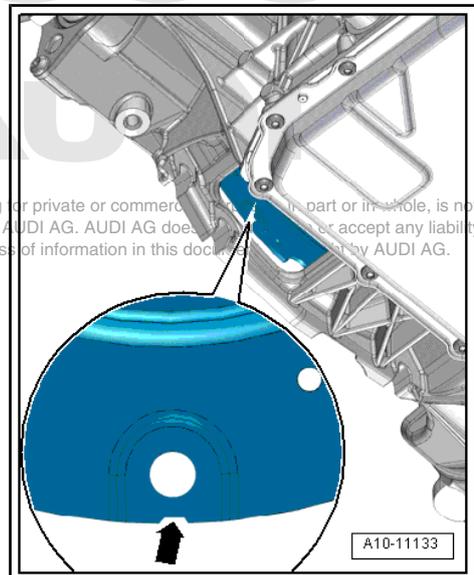


- The following preparations must be made before joining the engine and gearbox:
- Rotate electric drive motor - V141- so that hole next to notch -arrow- is visible in recess at bottom of gearbox housing, as shown in illustration.

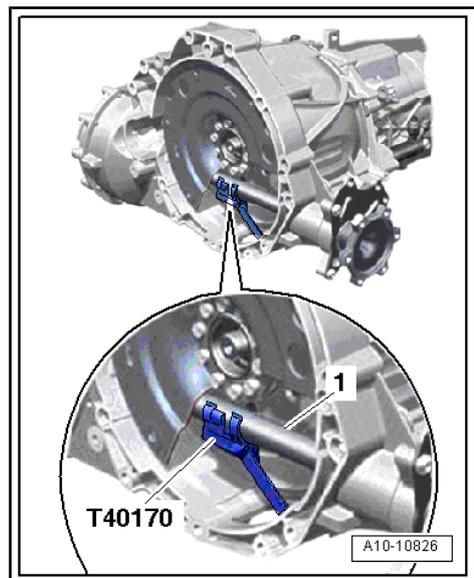
 **Note**

There is only one notch on the circumference; turn the electric drive motor - V141- accordingly.

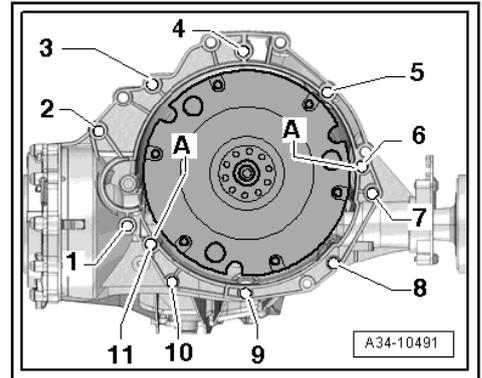
Protected by copyright. Copying for private or commercial use, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document. © Audi AG.



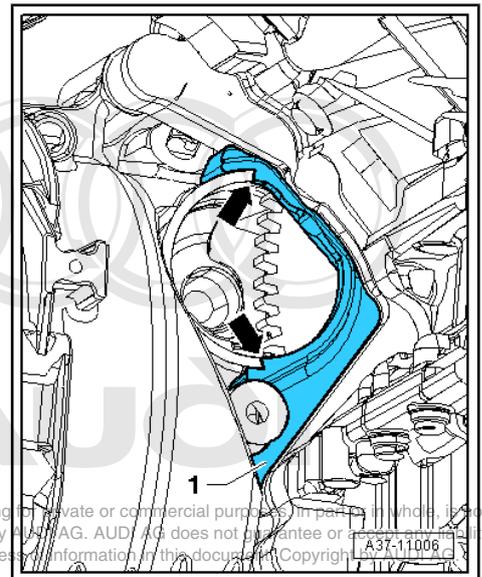
- Insert transportation lock - T40170- into gearbox housing from below and clamp onto flange shaft -1-.



- Check that dowel sleeves -A- for centralising engine/gearbox are in the cylinder block; install any missing dowel sleeves.
- Check whether aluminium bolts for engine/gearbox connection can be reused and mark bolts if necessary ⇒ [page 62](#).



- Coat end seal -1- with lubricant before fitting.

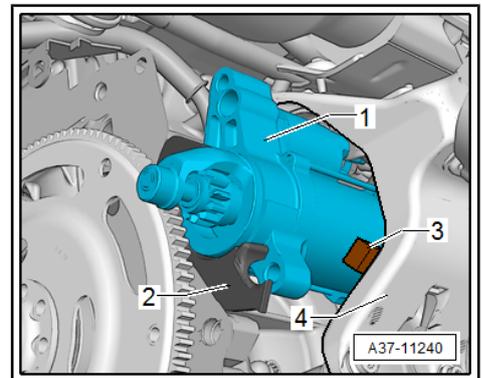


Protected by copyright. Copying for private or commercial purposes in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright © Audi AG 2013

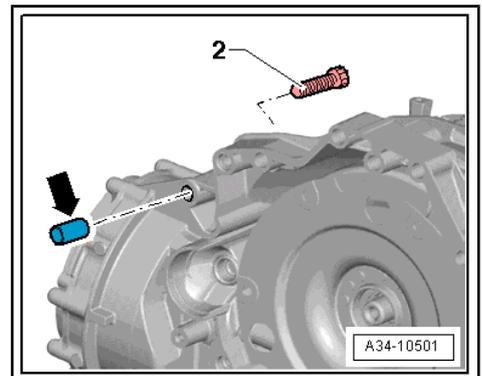
- Bring starter -2- and end seal -1- into installation position. To do so, use plastic/rubber wedge -4- to position starter in installation position while supporting starter on engine support -3-.

i Note

It is important to ensure that the end seal is in the correct installation position relative to the starter, as otherwise the securing bolts for the starter would be difficult to fit and the sealing function of the end seal would not be assured.

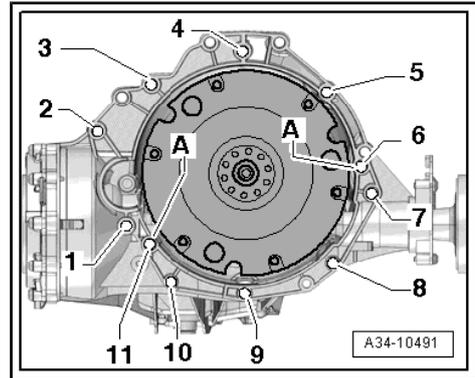


- Insert top starter bolt -2- in gearbox.
- Fit spacer sleeve -arrow- onto bolt -2-.

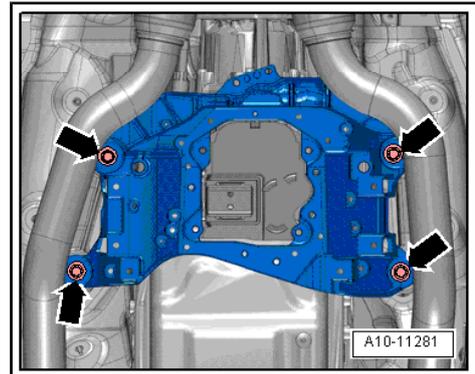




- Join gearbox with engine and tighten bolts -6 ... 11-.
- Tighten starter using bolts -1- and -2-, making sure that end seal is in correct position.
- Remove transportation lock - T40170- .



- Raise gearbox and tighten bolts -arrows- for tunnel cross member => [page 63](#) .
- Slacken tensioning strap and move engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- out from underneath gearbox.



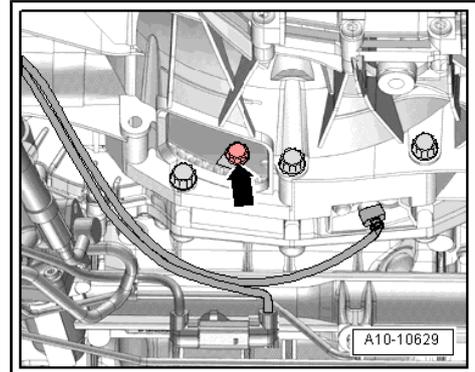
- Press electric drive motor - V141- slightly against drive plate on engine.
- Secure electric drive motor - V141- to drive plate as follows:



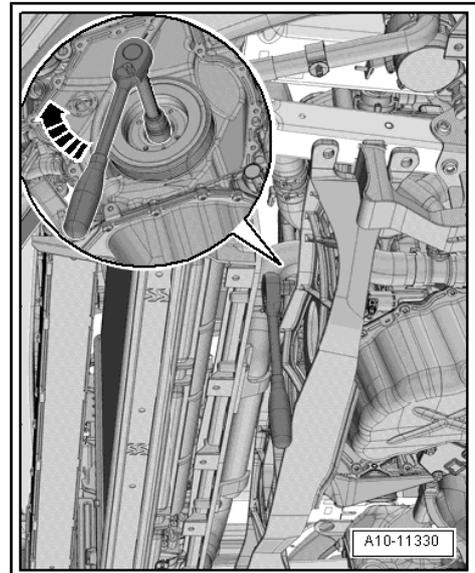
Note

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

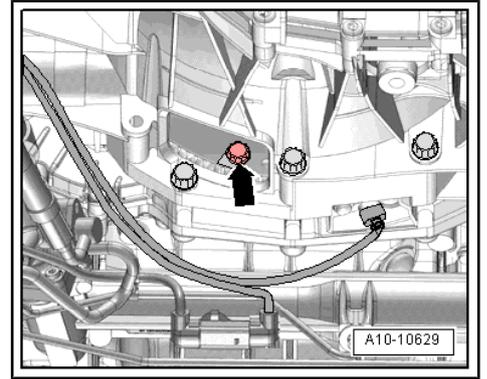
- Install first bolt -arrow- and tighten hand-tight (2 Nm).
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



- Turn crankshaft at vibration damper 240° in direction of engine rotation -arrow-, as shown in illustration.



- Tighten bolt -arrow- accessible in this crankshaft position to specified torque ⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor; Exploded view - electric drive motor .
- Turn crankshaft 120° further each time and tighten remaining 2 bolts to specified torque.



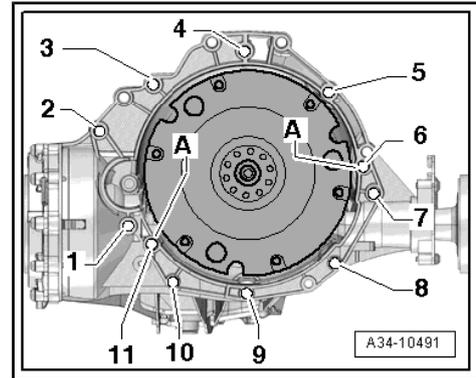
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



- Tighten remaining gearbox/engine securing bolts -3 ... 5-

**WARNING****Working on vehicles with high-voltage wiring:**

- *Do not support yourself or tools on high-voltage wiring or associated components → this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked → this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors, otherwise the connectors can be damaged.*



- Connect high-voltage wiring harness for drive motor - PX2- ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage wires; Removing and installing high-voltage wiring harness for drive motor .
- Electrical connections and routing ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

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

- Install torque reaction support and gearbox mounting ⇒ Rep. gr. 10 ; Assembly mountings; Exploded view - assembly mountings .
- Install manual release cable for parking lock ⇒ [page 34](#) .
- Secure intermediate steering shaft to steering rack ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing intermediate steering shaft .
- Install drive shafts and heat shield ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Exploded view - drive shaft .
- Install plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .

Re-energising high-voltage system

The high-voltage system must be re-energised according to the Guided Fault Finding routine in the vehicle diagnostic tester , and ONLY by this method.

**DANGER!**

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

 **Note**

- ◆ *Re-energising high-voltage system:*
 - ◆ *Connect vehicle diagnostic tester.*
 - ◆ *Select **Guided Fault Finding** mode.*
 - ◆ *Using the **GoTo** button, select the following menu options in succession.*
 - ◆ **Function/Component Selection**
 - ◆ **Body**
 - ◆ **Electrical system**
 - ◆ **Self-diagnosis-compatible systems**
 - ◆ **8C - Hybrid battery management -J840**
 - ◆ **8C - Hybrid battery management, functions**
 - ◆ **51 - Re-energise high-voltage system (Rep. Gr. 93)**
- Observe measures required after connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .



Caution

Overvoltage can cause irreparable damage to control units.

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

- Check manual release mechanism for parking lock ⇒ [page 24](#) .
- Check ATF level and top up as required ⇒ [page 79](#) .
- Connect coolant hoses with plug-in connector ⇒ Rep. gr. 19 ; Radiator/radiator fans; Exploded view - radiator/radiator fans .
- Check coolant level and fill up coolant if necessary ⇒ Engine, mechanics; Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .
- Check whether basic setting for electric drive motor - V141- is required and perform basic setting if necessary ⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor .

2.3 Tightening torques for gearbox

 **Note**

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

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



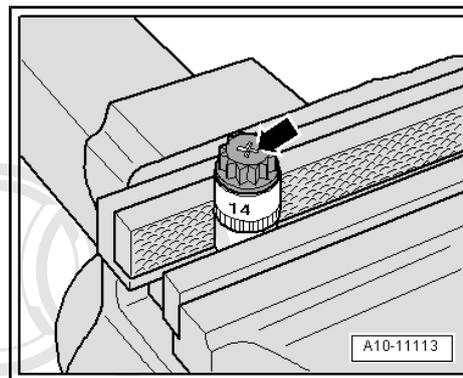
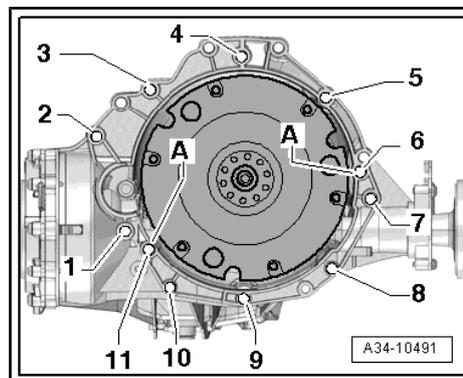
Component		Nm
Bolts and nuts	M6	9
	M7	15
	M8	20
	M10	40
	M12	65

Engine/gearbox securing bolts

Item	Bolt	Nm
1 ¹⁾	M10 x 50 ²⁾	65
2 ¹⁾ , 7	M12 x 100 ³⁾	30 + 90°
3 ⁴⁾ , 6	M12 x 75 ³⁾	30 + 90°
4, 5 ⁴⁾	M12 x 120 ³⁾	15 + 90°
8, 10	M10 x 75 ³⁾	15 + 90°
9	M10 x 60 ³⁾	15 + 90°
11 ⁵⁾	M12 x 50 ³⁾	30 + 90°
A	Dowel sleeves for centralising	

- 1) Also secures starter.
- 2) Property class 10.9; the steel bolt can be re-used any number of times.
- 3) Aluminium bolts can be used twice only ⇒ [page 62](#) .
- 4) With bracket for wiring
- 5) Installed from engine side.

- ◆ Aluminium bolts -2 ... 11- can be used twice only. After they have been used once, an "X" -arrow- must therefore be chiselled onto the bolts.
- ◆ To prevent damage to the bolts, they must not be clamped in a vice when marking them. Clamp a 14 mm socket with 1/2" drive in the vice instead, and insert the bolt into the socket, as shown in illustration.
- ◆ Bolts marked with an "X" must not be used again.



Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

3 Assembly mountings

⇒ ["3.1 Exploded view - assembly mountings", page 63](#)

⇒ ["3.2 Removing and installing tunnel cross member", page 64](#)

3.1 Exploded view - assembly mountings

1 - Gearbox mounting (right-side)

- With gearbox mounting valve 1 - N262-
- Removing and installing ⇒ Rep. gr. 10 ; Assembly mountings; Removing and installing gearbox mounting

2 - Bolt

- 20 Nm

3 - Brace

4 - Bolt

- 20 Nm

5 - Gearbox support (right-side)

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

6 - Bolt

- 20 Nm

7 - Bolt

- 20 Nm

8 - Heat shield

9 - Bolt

- 10 Nm

10 - Not fitted

11 - Not fitted

12 - Tunnel cross member

- Removing and installing ⇒ [page 64](#)

13 - Gearbox support (rear)

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

14 - Nut

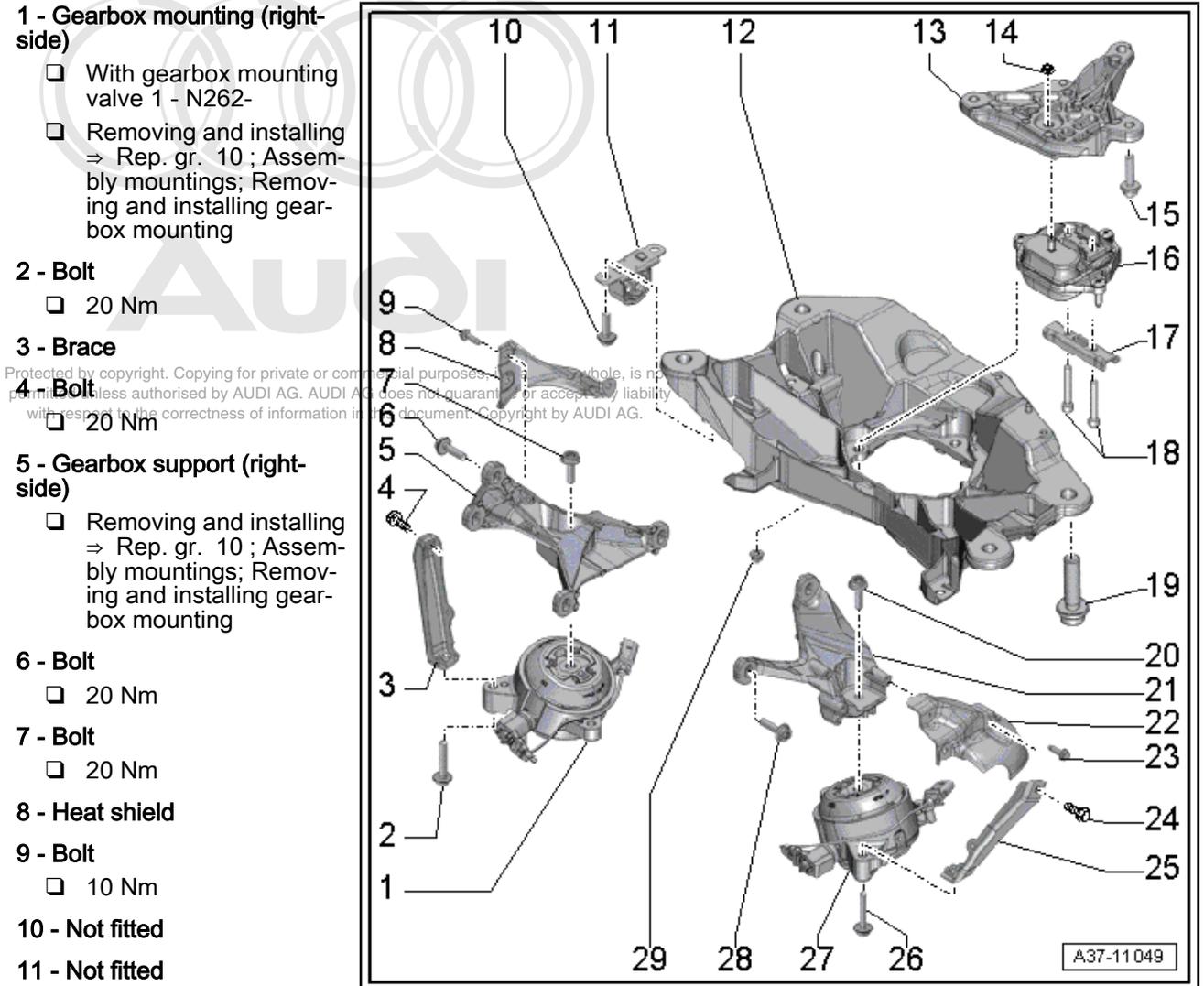
- Only remove if gearbox mounting has to be detached from gearbox support
- 20 Nm

15 - Bolt

- 40 Nm

16 - Gearbox mounting (rear)

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





17 - Stop (bottom)

- For gearbox mounting (rear)

18 - Bolts

- Only remove if gearbox mounting has to be detached from gearbox support
- Renew
- 20 Nm +90°

19 - Bolt

- M10x55 8.8: 40 Nm
- M10x40 10.9: 70 Nm

20 - Bolt

- 40 Nm

21 - Gearbox support (left-side):

22 - Heat shield

23 - Bolt

- 10 Nm

24 - Bolt

- 20 Nm

25 - Brace

26 - Bolt

- 20 Nm

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

27 - Gearbox mounting (left-side)

- With gearbox mounting valve 2 - N263-
- Removing and installing ⇒ Rep. gr. 10 ; Assembly mountings; Removing and installing gearbox mounting

28 - Bolt

- 20 Nm

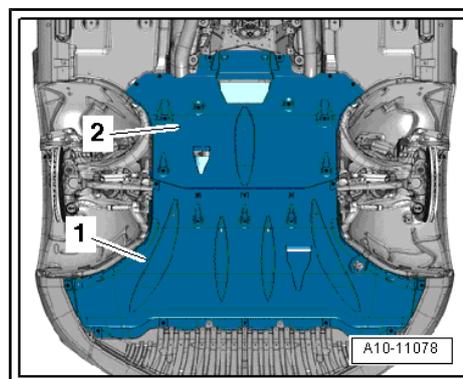
29 - Nut

- 20 Nm

3.2 Removing and installing tunnel cross member

Removing

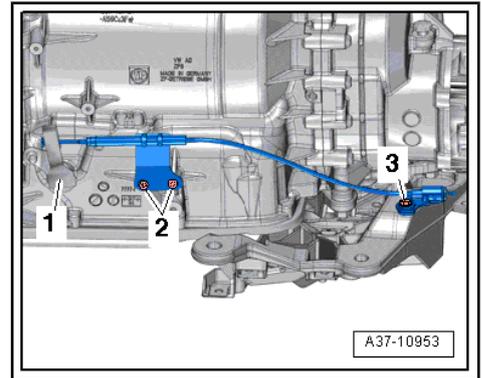
- Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



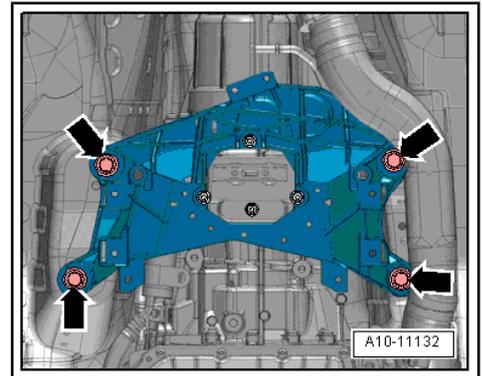
- Remove bolt -3- and move manual release cable (front) clear of tunnel cross member.

i Note

-Items 1 and 2- can be disregarded.



- Remove bolts -arrows- for tunnel cross member.



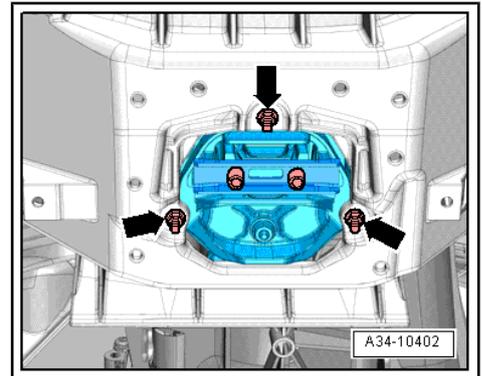
- Unscrew nuts -arrows- and remove tunnel cross member.

Installing

Perform installation in reverse sequence of removal.

Tightening torques

- ◆ ⇒ [“3.1 Exploded view - assembly mountings”, page 63](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation



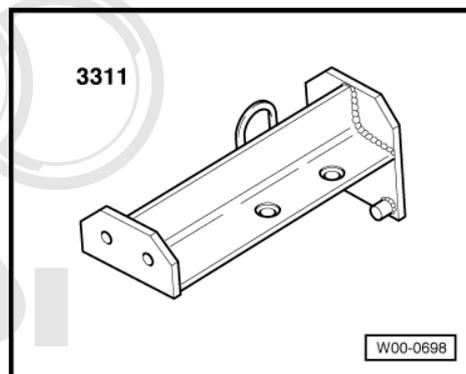
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



4 Transporting gearbox

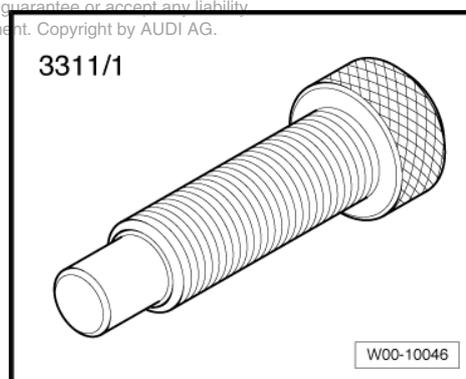
Special tools and workshop equipment required

- ◆ Hook and support tool - 3311-

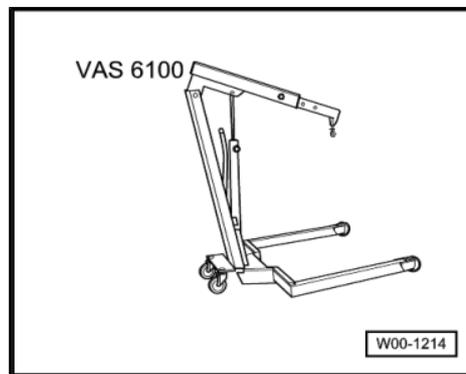


- ◆ Bolt -3311/1-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



- ◆ Workshop hoist - VAS 6100-



Procedure

- Gearbox removed



Caution

Risk of damage to gearbox components if gearbox is not supported correctly when removed.

- ◆ *Do not set down the gearbox on its ATF oil pan.*

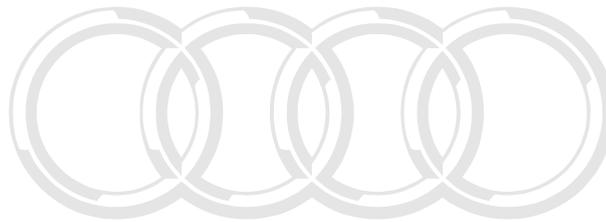
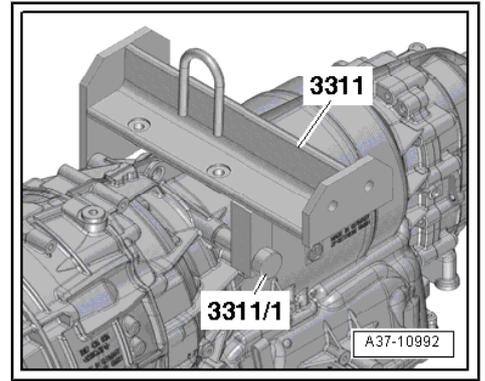


WARNING

Risk of accident if gearbox is not secured sufficiently.

- ◆ *Replace bolt of hook and support tool - 3311- with new, longer bolt -3311/1- .*
- ◆ *Otherwise the gearbox is not secured properly.*

- Secure hook and support tool - 3311- to gearbox (using new, longer bolt -3311/1-).
- The workshop hoist - VAS 6100- can be used to lift and move the gearbox.



Audi

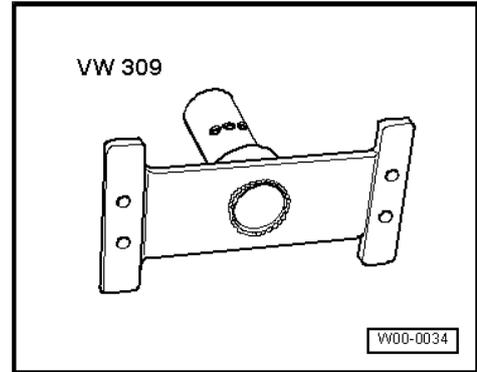
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



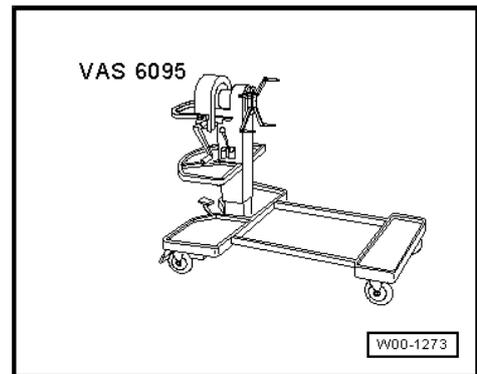
5 Securing to engine and gearbox support

Special tools and workshop equipment required

- ◆ Support plate - VW 309-



- ◆ Engine and gearbox support - VAS 6095-



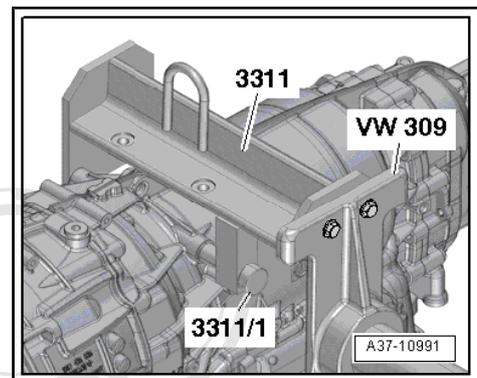
Procedure

- Gearbox is on workshop hoist - VAS 6100- ⇒ [page 66](#) .
- Secure support plate - VW 309- to hook and support tool - 3311- .
- Using workshop hoist - VAS 6100- , insert gearbox into engine and gearbox support - VAS 6095- .



Note

If the filled gearbox with ATF oil pan is to be turned upside-down on the engine and gearbox support, the breathers for the gearbox housing and final drive must be sealed.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

6 ATF circuit

⇒ [“6.1 Exploded view - ATF circuit”, page 69](#)

⇒ [“6.2 Removing and installing ATF cooler”, page 74](#)

⇒ [“6.3 Removing and installing ATF filter”, page 75](#)

⇒ [“6.4 Removing and installing ATF lines”, page 77](#)

6.1 Exploded view - ATF circuit



Caution
Risk of damage to gearbox

ATF cooler and ATF lines

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by Audi AG. All rights reserved. Audi AG is not liable for any errors or omissions with respect to the correctness of information in this document. Copyright © Audi AG 2013.

1 - Retaining clip

- Renew retaining clips which have been bent or over-stretched

2 - ATF cooler

- Removing and installing
 ⇒ [page 74](#)

3 - Bolt

- 8 Nm

4 - Retaining clip

- Renew retaining clips which have been bent or over-stretched

5 - O-ring

- Renew
- Lightly lubricate with ATF before inserting

6 - ATF line

- Cleaning ⇒ [page 78](#)
- Push in by hand with new O-ring as far as stop

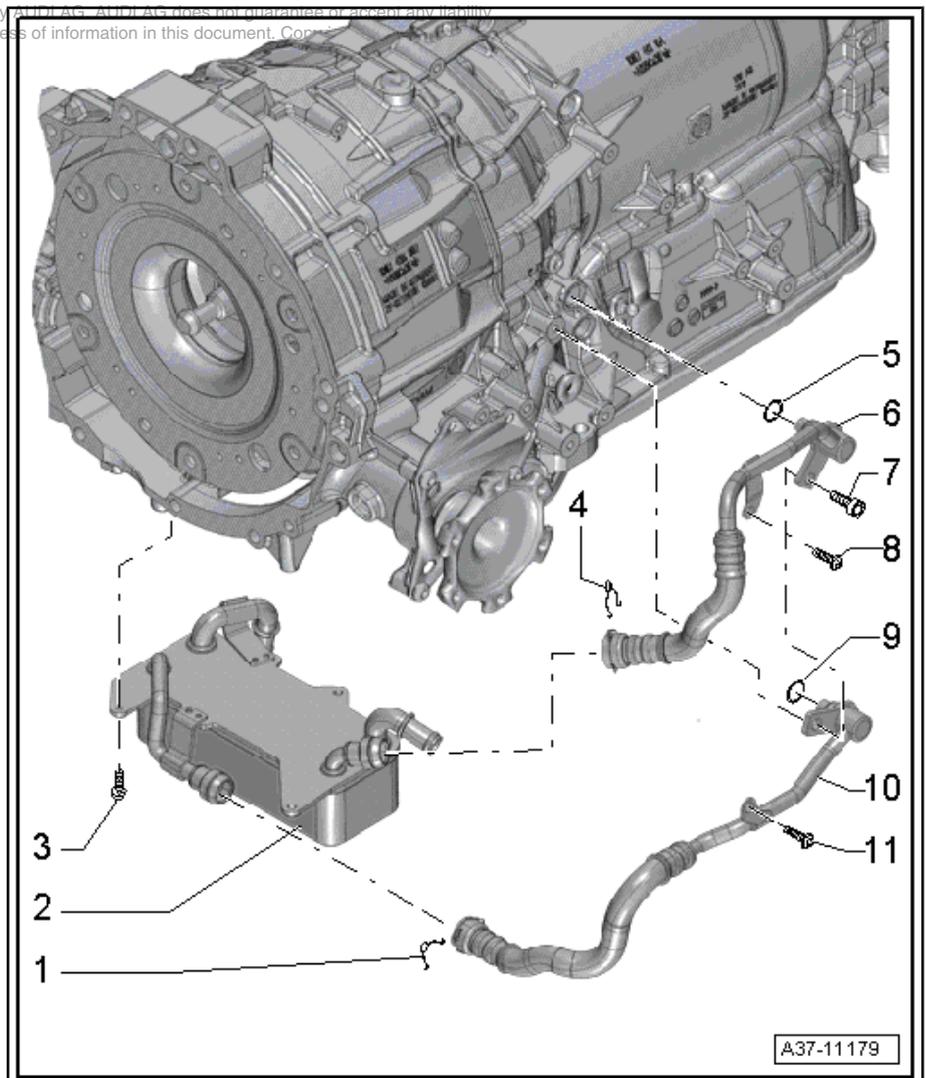
7 - Bolt

- First push in ATF lines with new O-rings by hand as far as stop
- Retaining tab on bottom ATF line should rest on thread of gearbox
- Retaining tab on top ATF line should rest on retaining tab on bottom ATF line

- 20 Nm

8 - Bolt

- 8 Nm





9 - O-ring

- Renew
- Lightly lubricate with ATF before inserting

10 - ATF line

- Cleaning ⇒ [page 78](#)
- Push in by hand with new O-ring as far as stop

11 - Bolt

- 8 Nm

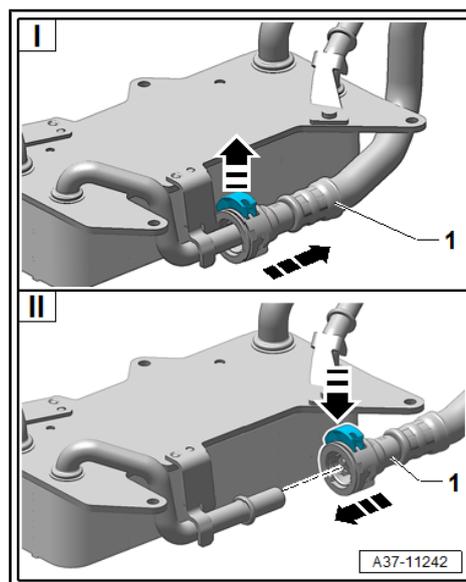
Fitting ATF lines on ATF cooler from approx. model year 2014 onwards

Removing

- Press ATF line -1- all the way onto ATF connection until retainers are disengaged and release retaining clip.
- Detach ATF line.

Installing

- Lightly lubricate ATF connection with ATF.
- Press ATF line -1- all the way onto ATF connection until retainers are disengaged.
- Holding in this position, press down retaining clip of quick-release coupling.



Drain plugs and screw plugs



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - ATF drain plug

- Renew
- 12 Nm

2 - Drain plug

- For gear oil in transfer box
- Renew
- 12 Nm

3 - Screw plug

- For inspection and filler hole
- For gear oil in transfer box
- Renew
- 27 Nm

4 - Screw plug

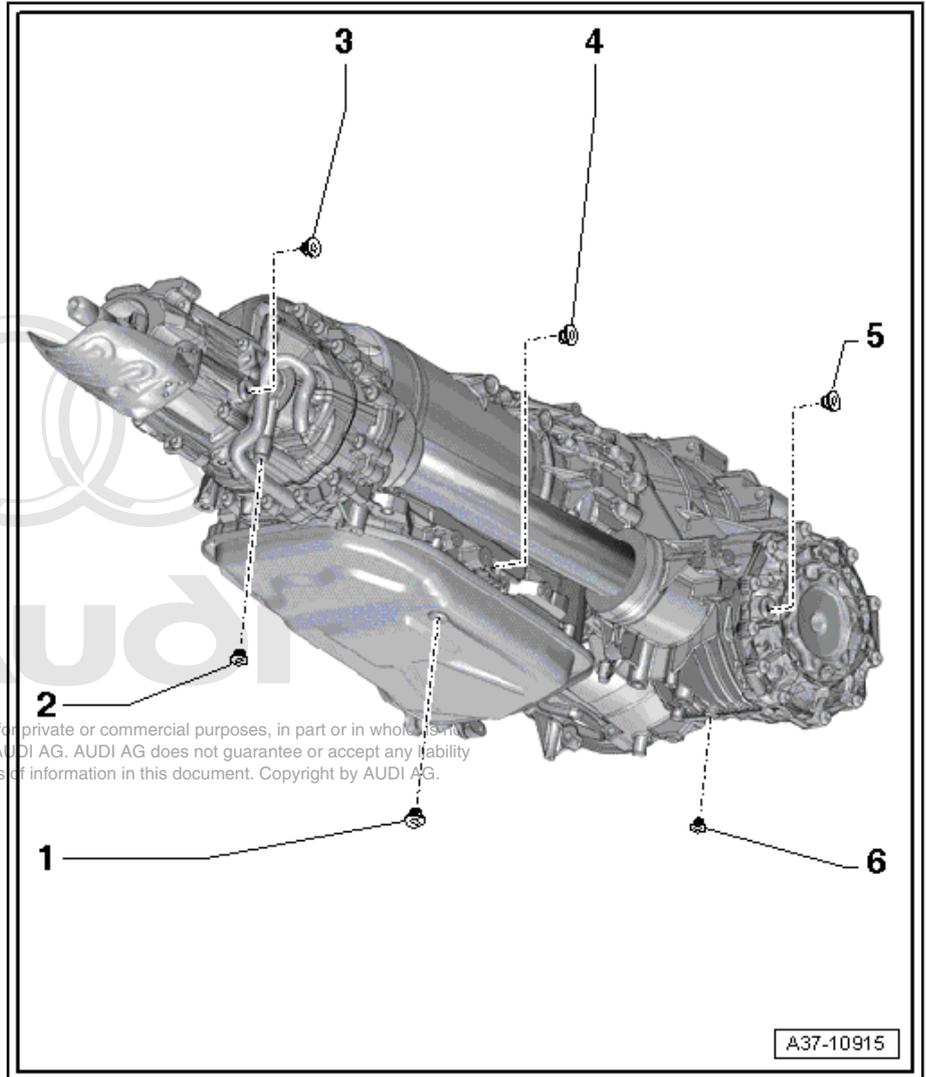
- For ATF inspection and filler hole
- Renew
- Different versions possible
- 30 Nm

5 - Screw plug

- For inspection and filler hole
- For gear oil in front final drive
- 27 Nm

6 - Drain plug

- For gear oil in front final drive
- 10 Nm



6.1.1 Exploded view - ATF circuit

	<p>Caution</p> <p><i>Risk of damage to gearbox</i></p>
---	---



ATF cooler and ATF lines

1 - Retaining clip

- Renew retaining clips which have been bent or over-stretched

2 - ATF cooler

- Removing and installing ⇒ [page 74](#)

3 - Bolt

- 8 Nm

4 - Retaining clip

- Renew retaining clips which have been bent or over-stretched

5 - O-ring

- Renew
- Lightly lubricate with ATF before inserting

6 - ATF line

- Cleaning ⇒ [page 78](#)
- Push in by hand with new O-ring as far as stop

7 - Bolt

- First push in ATF lines with new O-rings by hand as far as stop
- Retaining tab on bottom ATF line should rest on thread of gearbox
- Retaining tab on top ATF line should rest on retaining tab on bottom ATF line

- 20 Nm

8 - Bolt

- 8 Nm

9 - O-ring

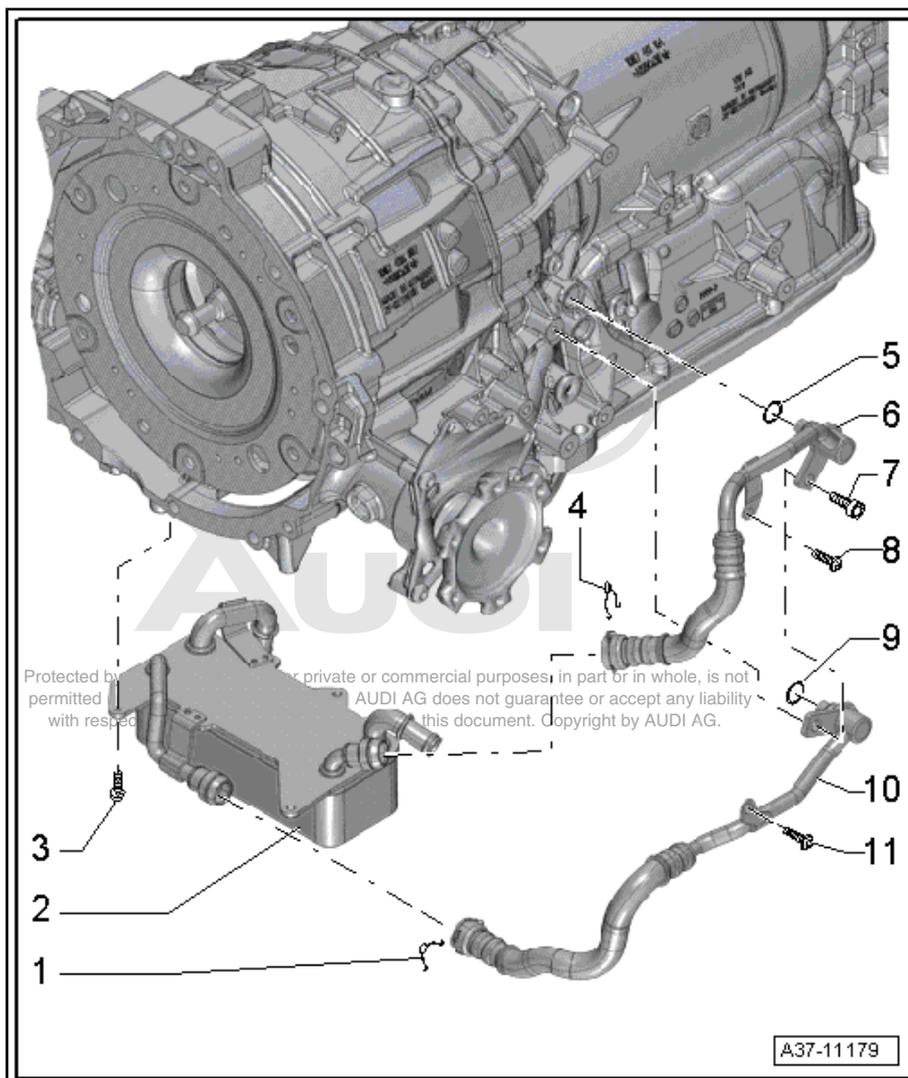
- Renew
- Lightly lubricate with ATF before inserting

10 - ATF line

- Cleaning ⇒ [page 78](#)
- Push in by hand with new O-ring as far as stop

11 - Bolt

- 8 Nm



Drain plugs and screw plugs

1 - ATF drain plug

- Renew
- 12 Nm

2 - Drain plug

- For gear oil in transfer box
- Renew
- 12 Nm

3 - Screw plug

- For inspection and filler hole
- For gear oil in transfer box
- Renew
- 27 Nm

4 - Screw plug

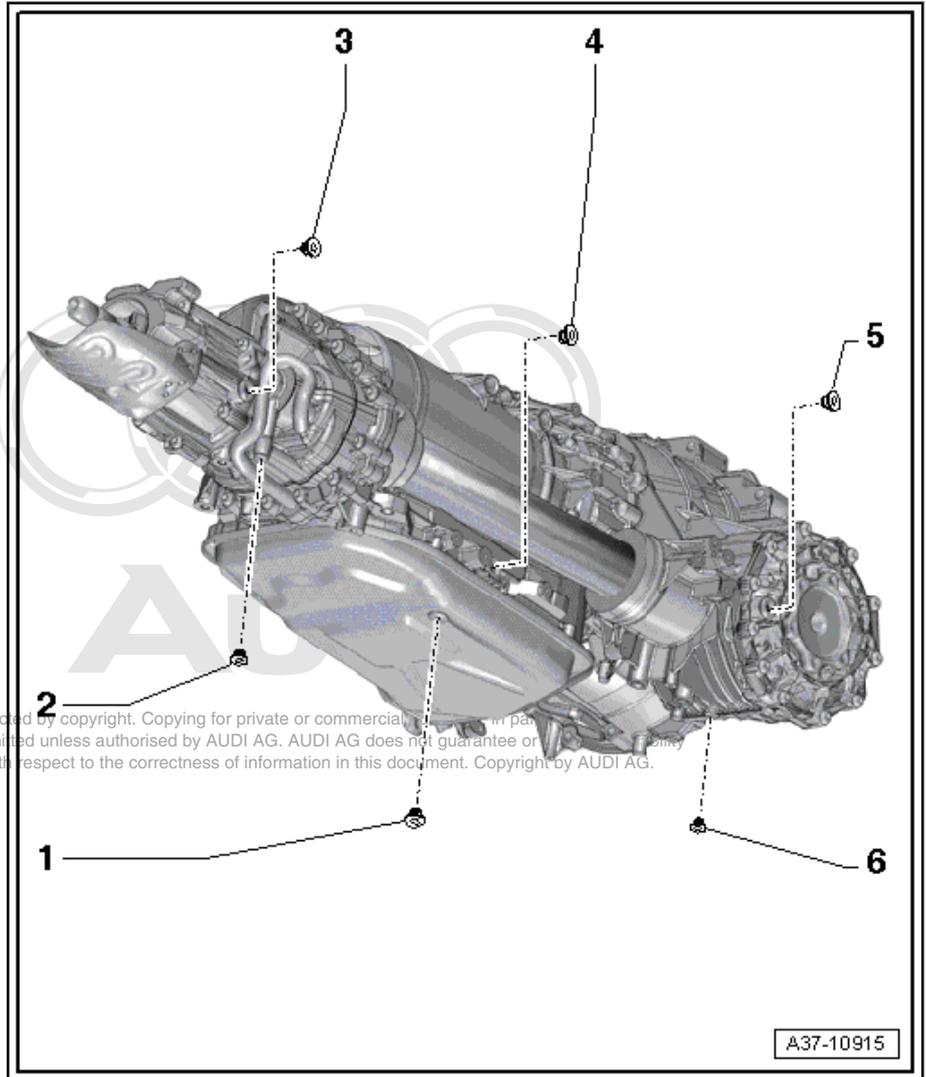
- For ATF inspection and filler hole
- Renew
- Different versions possible
- 30 Nm

5 - Screw plug

- For inspection and filler hole
- For gear oil in front final drive
- 27 Nm

6 - Drain plug

- For gear oil in front final drive
- 10 Nm



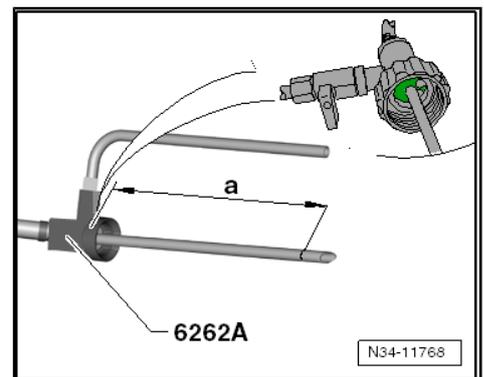
Measure length of breather pipe on adapter for oil filling - VAS 6262 A- and shorten if necessary.

To ensure that breather pipe of adapter for oil filling -VAS 6262 A- does not make contact with bottom of oil container, breather pipe must be shortened to dimension -a-.

- Dimension -a- = 210 mm

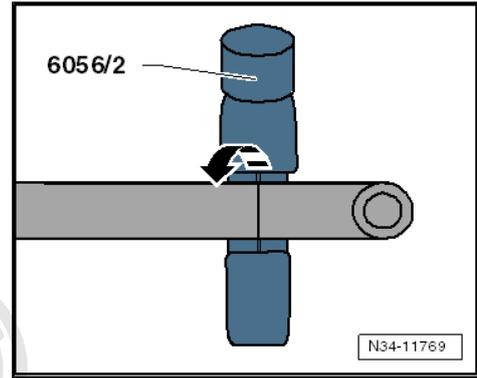
 **Note**

Dimension -a- is measured from stem (green area in magnified view) of adapter for oil filling -VAS 6262 A-.





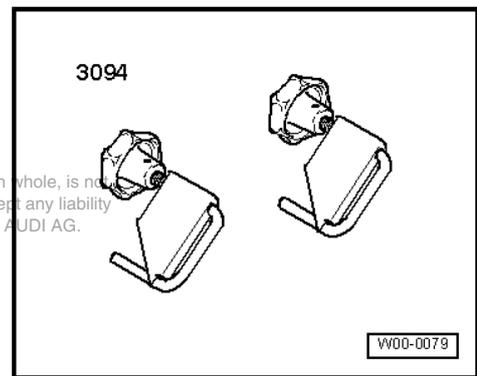
- Mark length on breather pipe and shorten breather pipe using pipe cutter -6056/2- .
- Clean adapter for oil filling - VAS 6262 A- .



6.2 Removing and installing ATF cooler

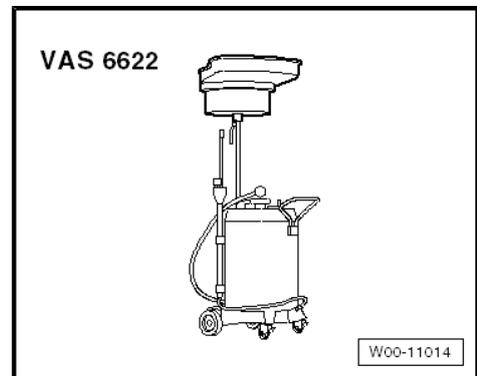
Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

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



Removing

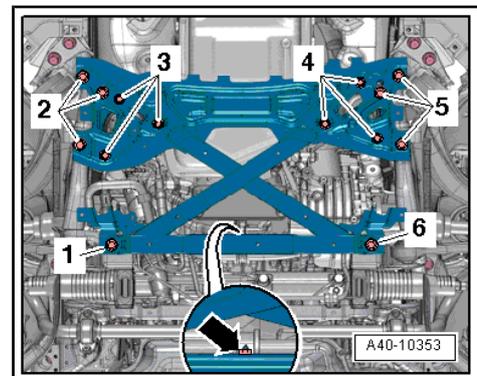
- Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40; Subframe; Removing and installing subframe cross brace .



Caution

Risk of damage to parts of the running gear.

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

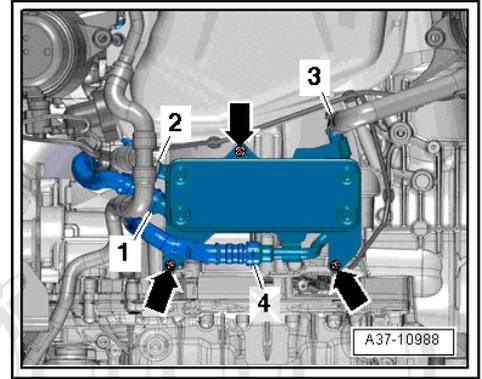


- Place used oil collection and extraction unit - VAS 6622- below gearbox.
- Pull off retaining clips -1- and -4- and disconnect ATF lines.

 **Note**

Place a cloth below the connection to catch escaping coolant.

- Clamp off coolant hoses using hose clamps up to 25 mm - 3094- and disconnect hoses (release hose clips -2- and -3-).
- Remove bolts -arrows- and detach ATF cooler.



Installing

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

- Push on ATF lines as far as stop and fit retaining clips -1- and -4-.
- The retaining clips must be fitted securely.
- Renew retaining clips which have been bent or over-stretched.
- Leaking ATF lines must be renewed.
- Check ATF level ⇒ [page 79](#) .

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

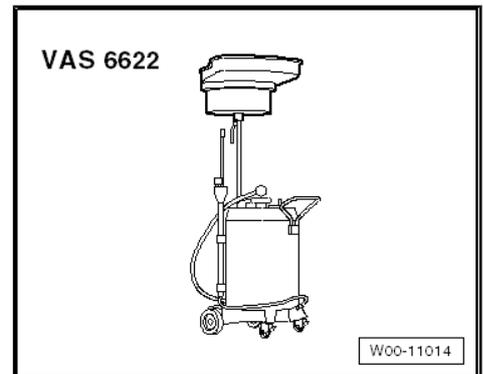
Tightening torques

- ◆ ⇒ ["6.1 Exploded view - ATF circuit", page 69](#)
- ◆ Subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe

6.3 Removing and installing ATF filter

Special tools and workshop equipment required

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



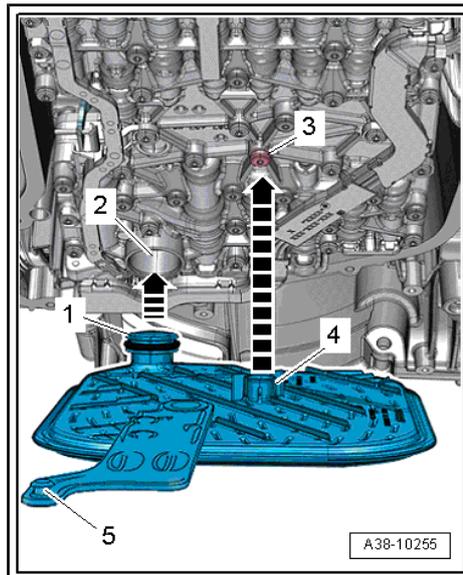


Removing



Note

- ◆ Note ⇒ ["3.3 General repair instructions", page 10](#) .
- ◆ Note ⇒ ["3.1 Rules for cleanliness", page 9](#) .
- Remove ATF oil pan ⇒ [page 93](#) .
- Place used oil collection and extraction unit - VAS 6622- below gearbox.
- Carefully pull ATF filter downwards off mechatronic unit and auxiliary hydraulic pump 1 for gearbox oil - V475- in opposite direction to -arrows-.



Installing

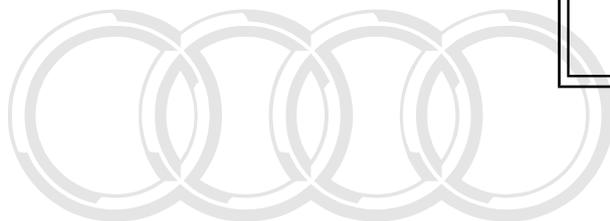
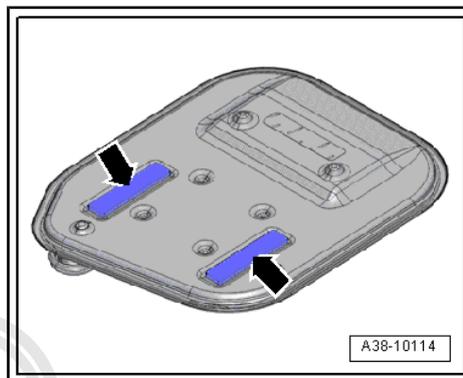
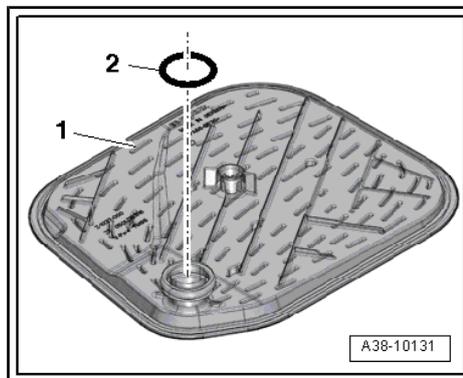
Installation is carried out in reverse sequence; note the following:



Note

Renew O-ring.

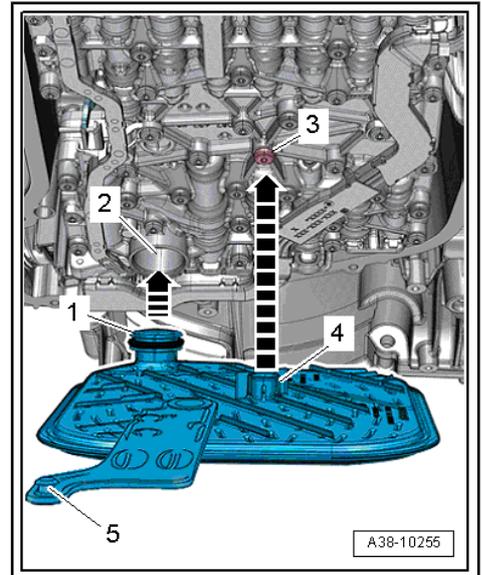
- Fit O-ring -2- on ATF filter -1- and lubricate lightly with ATF.
- Clean both magnets -arrows-. Ensure that magnets make full contact with recesses in ATF filter.



Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

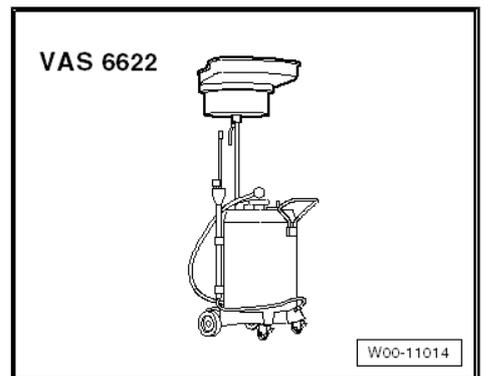
- Fit ATF filter on mechatronic unit as follows.
- ◆ The intake neck -1- of the ATF filter must be inserted as far as the stop in aperture -2- of the mechatronic unit.
- ◆ The retainer -4- on the reverse side must engage on the bolt -3- located opposite on the mechatronic unit.
- ◆ The intake neck -5- of the ATF filter must be inserted as far as the stop in the aperture of the auxiliary hydraulic pump 1 for gearbox oil - V475- .
- Install ATF oil pan ⇒ [page 93](#) .
- Fill up with ATF ⇒ [page 79](#) .



6.4 Removing and installing ATF lines

Special tools and workshop equipment required

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



- ◆ Hose, approx. 18 mm dia.
- ◆ Compressed-air gun (commercially available)
- ◆ Safety goggles

Removing and installing



Note

- ◆ ⇒ ["3.3 General repair instructions", page 10](#)
- ◆ ⇒ ["3.1 Rules for cleanliness", page 9](#)
- ◆ Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .
- ◆ Check ATF level after renewing ATF lines ⇒ [page 79](#) .

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Caution

Risk of damage to gearbox

- ◆ *All plugs inserted in ATF lines and gearbox when dismantling must be removed.*
- ◆ *If you forget to remove the plugs, the ATF cooling will be ineffective and the gearbox will be damaged.*

Cleaning



Note

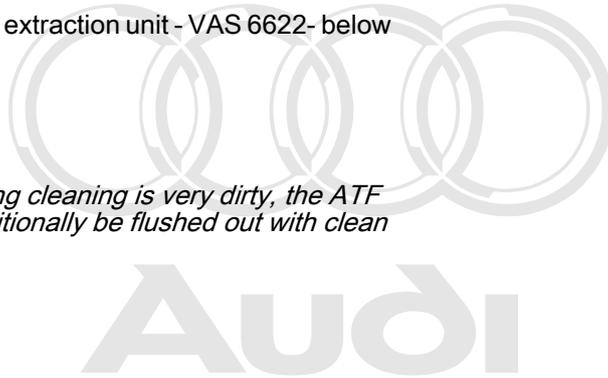
⇒ *["3.1 Rules for cleanliness", page 9](#)*

- Before fitting a replacement gearbox, always blow through the ATF cooler and ATF lines with compressed air (not more than 10 bar).
- Place used oil collection and extraction unit - VAS 6622- below gearbox.



Note

If the ATF which emerges during cleaning is very dirty, the ATF cooler and ATF lines must additionally be flushed out with clean ATF.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

7 ATF

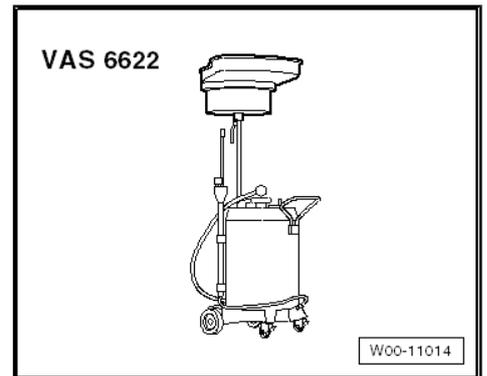
⇒ [“7.1 Checking ATF level”, page 79](#)

⇒ [“7.2 Draining and filling ATF”, page 82](#)

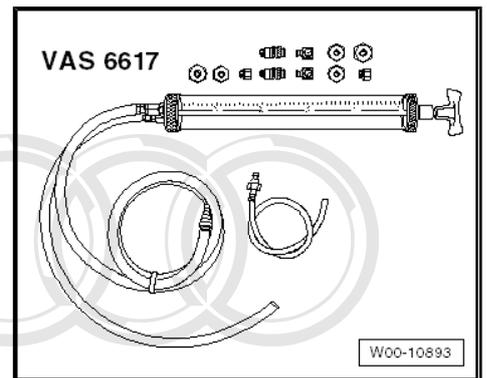
7.1 Checking ATF level

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester
- ◆ Used oil collection and extraction unit - VAS 6622-



- ◆ Hand pump for filling gearbox - VAS 6617-



- ◆ 1 litre ATF container (genuine replacement part) ⇒ Electronic parts catalogue
- ◆ Safety goggles
- ◆ Protective gloves (acid resistant)

Test conditions

- Gearbox must not be in emergency running (backup) mode.
- Vehicle must be absolutely horizontal (drive it onto a four-pillar lifting platform or over an inspection pit).
- Gearbox is in position “P”.
- Parking brake button must be pulled up to apply the electro-mechanical parking brake.
- Extraction hose(s) of an exhaust gas extractor connected and extractor switched on.
- Air conditioner and heating system switched off.
- Vehicle diagnostic tester is connected.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

**Note**

The ATF temperature should not be higher than 30° C - 35° C at the beginning of the test (the temperature will rise during the test). This is because the oil level measurement value is only correct if measured between 35° and 45° (maximum 50° C in hot climates).

**Caution****Risk of damage to gearbox**

- ◆ Use only the ATF supplied as a replacement part for automatic gearbox 0BW. For allocation see ⇒ *Electronic parts catalogue*.
- ◆ Other types of oil cause malfunctions and/or failure of the gearbox.
- ◆ The tools for filling ATF oil must be clean and the ATF must not be mixed with other types of ATF!
- ◆ The engine must not be started if only a little or no ATF remains in gearbox after repair work or after excessive ATF leakage.

Procedure

- Using the diagnostic tester in Guided Fault Finding mode, go to **Function/Component Selection** and select the following menu items:

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ **Drive system**
- ◆ **0BL gearbox**
- ◆ **01 - Self-diagnosis-compatible systems**
- ◆ **02 - Gearbox electronics**
- ◆ **02 - Gearbox electronics, Functions**
- ◆ **02 - Measured values**
- Select the value for **Gearbox oil temperature** (ATF) from the menu.
- Read off ATF temperature.

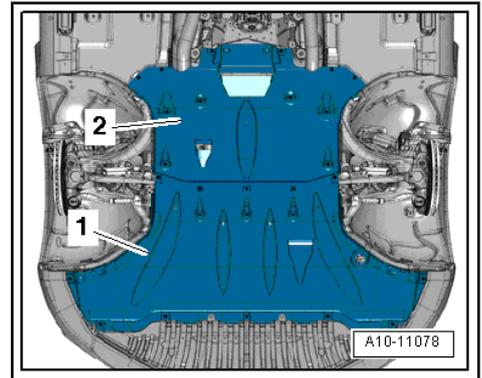
Checking and correcting ATF level**Caution****Risk of damage to gearbox**

- ◆ Automatic gearbox 0BW is overfilled with a small amount of ATF during production.
- ◆ This drains out when ATF inspection and filler plug is opened and must be refilled.

- Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Start engine with selector lever in position "P".

i Note

- ◆ *Only start the engine when all the necessary items have been prepared. The ATF temperature increases very quickly; this may make it impossible to perform the ATF level check.*
 - ◆ *This is a hybrid drive vehicle! The engine must be running when performing the ATF level check. To start the engine, open the bonnet or operate the kickdown function on the accelerator pedal module.*
- With brake pedal still depressed, select all gear positions ("P", "R", "N", "D/S") one after the other at idling speed, maintaining each position for at least 10 seconds.
 - Shift gearbox into "P".
 - Allow engine to continue running at idling speed.
 - Place used oil collection and extraction unit - VAS 6622- below gearbox.



! WARNING

Risk of injury

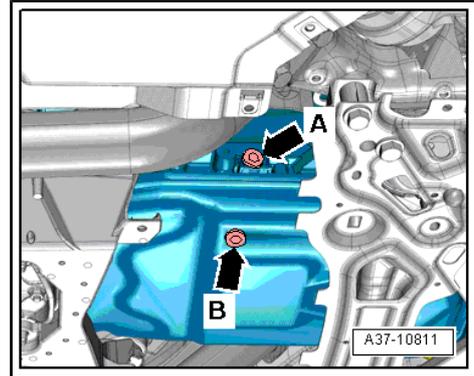
- ◆ *Wear safety goggles.*
- ◆ *Wear protective gloves (acid resistant).*



- When an ATF temperature of 35 °C is reached, unscrew plug for ATF inspection and filler hole -arrow A- and drain off any surplus ATF.
- A small amount of fluid should come out at the ATF inspection and filler hole -arrow A- when the ATF temperature is between 35 °C and 45 °C (maximum 50 °C in hot climates) (the fluid level rises due to expansion as it warms up).
- If no ATF comes out, fill up with ATF
⇒ ["7.2 Draining and filling ATF", page 82](#) .

**Note**

- ◆ *You should add some ATF at a temperature of about 40° C; doing so will decrease the likelihood that the check will have to be performed again because the ATF level is too low (this would mean cooling the gearbox to the test temperature).*
 - ◆ *The ATF inspection and filler hole must be sealed again before the ATF temperature reaches 45 °C (or a maximum of 50 °C in hot climates).*
 - ◆ *Renew plug for ATF inspection and filler hole.*
- Tighten new plug -A- for ATF inspection and filler hole.

**Caution****Risk of damage to gearbox**

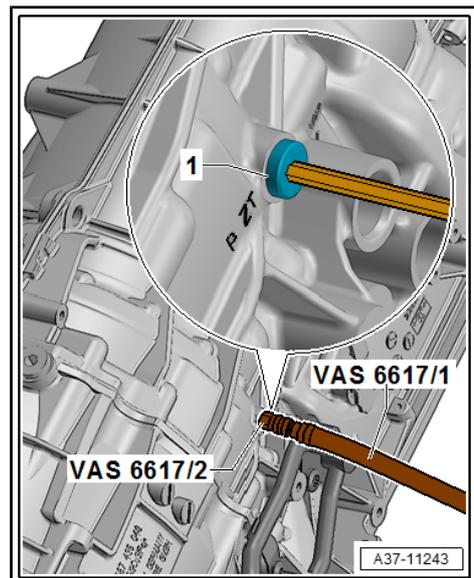
- ◆ *Automatic gearbox 0BW is overfilled with a small amount of ATF during production.*
- ◆ *This drains out when ATF inspection and filler plug is opened and must be refilled.*

- Switch off engine.
- Unscrew plug for filler hole -1- and put in 360 ml ± 10 ml ATF using hand pump for gear oil - VAS 6617- .
- Screw plug -1- back in and tighten to 8 Nm.

Tightening torques

- ◆ ⇒ [page 70](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

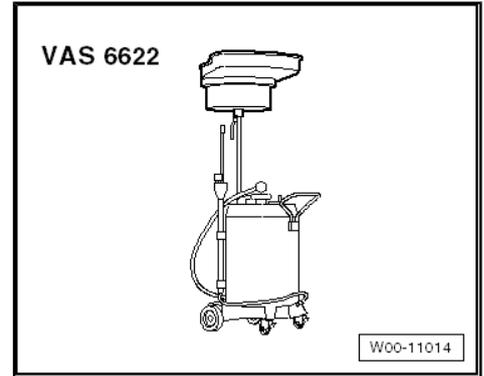
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



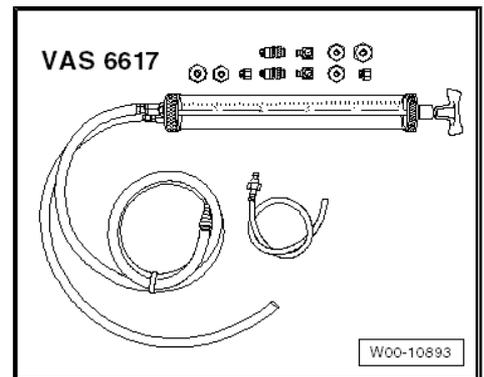
7.2 Draining and filling ATF

Special tools and workshop equipment required

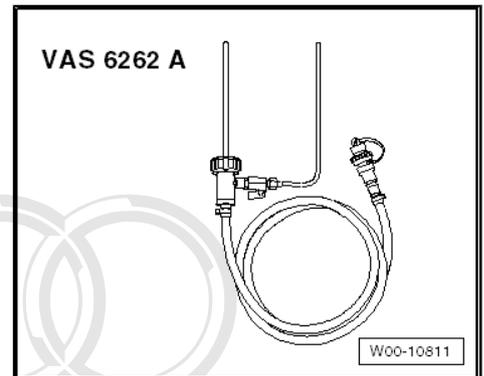
- ◆ Used oil collection and extraction unit - VAS 6622-



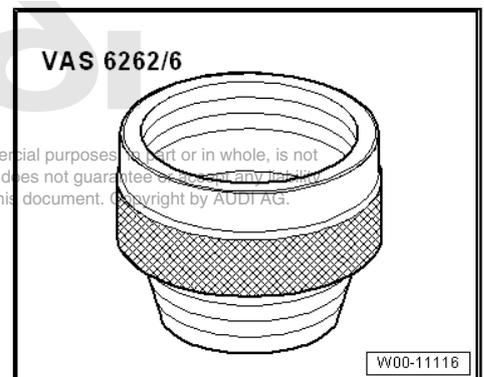
- ◆ Hand pump for filling gearbox - VAS 6617-



- ◆ Adapter for oil filling - VAS 6262 A-



- ◆ Flexible hose adapter - VAS 6262/5-
- ◆ If necessary, adapter - VAS 6262/6-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee the accuracy of any information with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ 1 litre ATF container (genuine replacement part) ⇒ Electronic parts catalogue
- ◆ Safety goggles
- ◆ Protective gloves (acid resistant)



Draining

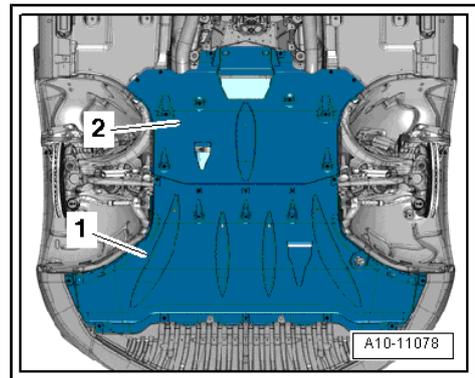


Note

When draining the ATF the gearbox should be warm (operating temperature). However, the engine must not be started when there is no ATF in the gearbox or if the level is too low.

- Engine not running.
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Gearbox is in position "P".
- Parking brake button must be pulled up to apply the electro-mechanical parking brake.
- Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

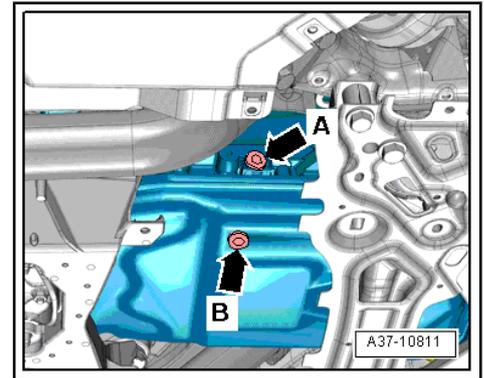


- Place used oil collection and extraction unit - VAS 6622- below gearbox.

 **WARNING**

Risk of injury

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



- Remove ATF drain plug -arrow B- and allow ATF to drain off.

 **Note**

- ◆ *Always adhere to waste disposal regulations.*
- ◆ *Renew ATF drain plug with seal.*
- ◆ *Renew plug for ATF inspection and filler hole.*

- Tighten new drain plug -arrow B-.

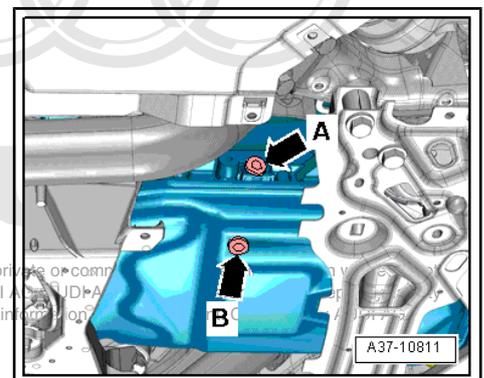
 **Caution**

Risk of damage to gearbox

- ◆ *Only the ATF available as a replacement part may be used for the automatic gearbox 0BW.*
- ◆ *For correct version, refer to ⇒ Electronic parts catalogue*
- ◆ *Other types of oil cause malfunctions and/or failure of the gearbox.*
- ◆ *The tools for filling ATF oil must be clean and the ATF must not be mixed with other types of ATF!*
- ◆ *The engine must not be started if only a little or no ATF remains in gearbox after repair work or after excessive ATF leakage.*

Filling up ATF

- Unscrew plug for ATF inspection and filler hole -arrow A-.



Protected by copyright. Copying for private or commercial use is not permitted unless authorised by AUDI AG. All rights reserved. In particular with respect to the correctness of information.

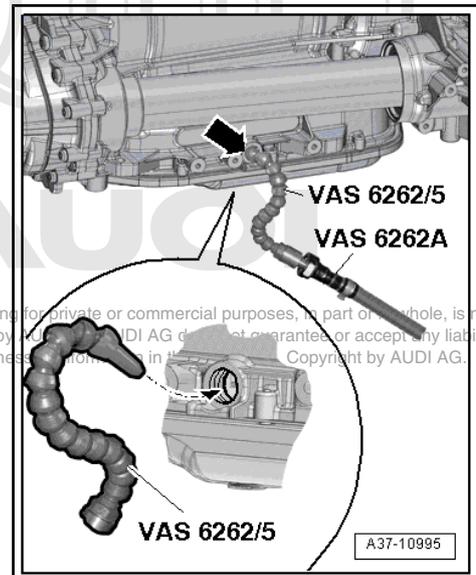
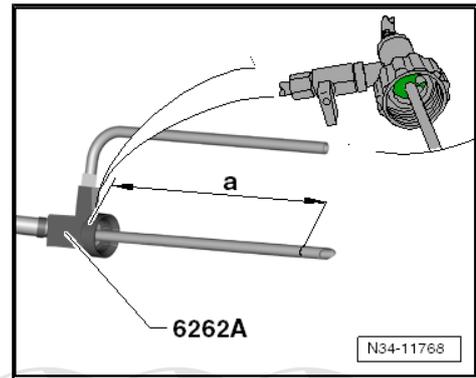


- Measure length of breather pipe on adapter for oil filling - VAS 6262 A- and shorten if necessary ⇒ [page 73](#) .
- Shake ATF container before opening.
- Screw 1 litre ATF container onto adapter for oil filling - VAS 6262 A- ; for part number refer to ⇒ Electronic parts catalogue .

**Note**

If thread on ATF container does not fit onto adapter for oil filling - VAS 6262 A- , use adapter - VAS 6262/6- .

- Secure ATF container with adapter for oil filling - VAS 6262 A- as high as possible on vehicle.
- Insert adapter for filling ATF oil - VAS 6262/5- into ATF inspection and filler hole -arrow-.
- Fill up with ATF via adapter until ATF comes out of inspection and filler hole.
- Shift gearbox into "P".
- Start engine and turn off after 20 seconds.
- Continue filling with ATF using adapter until ATF comes out of inspection hole.
- Start engine.
- Continue filling with ATF via adapter until ATF comes out of inspection and filler hole.
- Tighten old plug for ATF inspection and filler hole.
- With brake pedal depressed, select all gear positions ("P", "R", "N", "D/S") one after the other at idling speed, maintaining each position for at least 3 seconds.
- Shift gearbox into "P".
- Switch off engine.
- Check ATF level and top up as required ⇒ [page 79](#) .

**Note**

Observe all notes and test requirements for "Checking and correcting ATF level".

Tightening torques

- ◆ ⇒ [page 70](#)

38 – Gears, control

1 ATF system

⇒ [“1.1 Exploded view - ATF system”, page 87](#)

⇒ [“1.2 Removing and installing auxiliary hydraulic pump for gearbox oil”, page 89](#)

1.1 Exploded view - ATF system

1 - ATF oil pan

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

2 - Gasket

- Renew

3 - ATF filter

- Removing and installing
 ⇒ [page 75](#)

4 - O-ring

- Renew

5 - Bolt

- Tightening torque and
 sequence ⇒ [page 88](#)

6 - Mechatronic unit

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

7 - O-ring

- Renew

8 - O-rings

- Renew

9 - Seals

- Renew
- Insert in connector
 housing
 ⇒ [Item 10 \(page 87\)](#)

10 - Connector housing

11 - Bolt

- 5.5 Nm

12 - ATF pipe

13 - Bolt

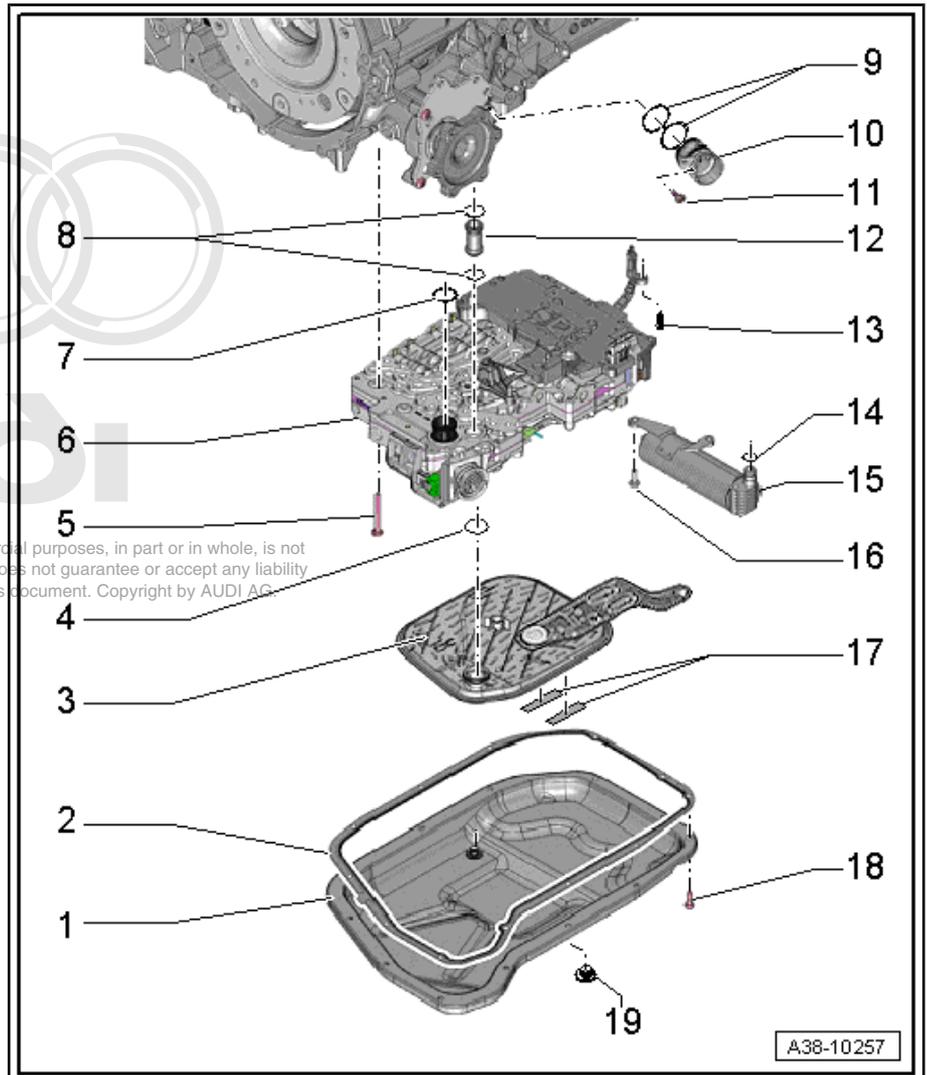
- Secures gearbox output speed sender - G195- to gearbox housing
- 10 Nm

14 - O-ring

- Renew
- On connection of auxiliary hydraulic pump 1 for gearbox oil - V475-

15 - Auxiliary hydraulic pump 1 for gearbox oil - V475-

- Removing and installing ⇒ [page 89](#)



Protected by copyright. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of Audi AG. Audi AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by Audi AG.

**16 - Bolt**

- 3x
- Secures auxiliary hydraulic pump 1 for gearbox oil - V475- to gearbox housing
- 10 Nm

17 - Magnets

- Ensure full contact with ATF filter
- Clean before installing

18 - Bolt

- Renew
- Tightening torque and sequence => [page 88](#)

19 - Drain plug

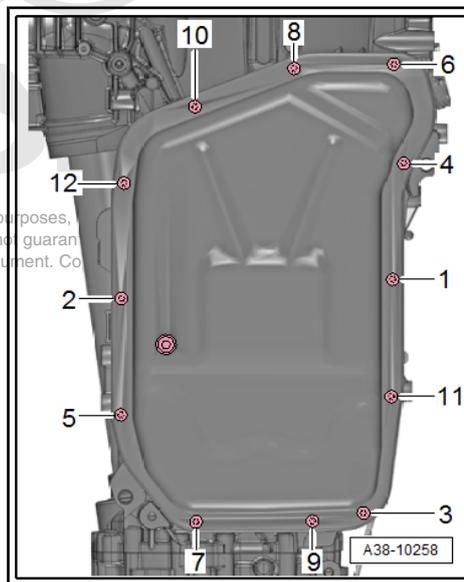
- For ATF in gearbox
- Tightening torque => [page 70](#)

ATF oil pan - tightening torque and sequence**Note**

- ◆ *Renew bolts for ATF oil pan.*
- ◆ *Note assembly instructions* => ["1.3 Removing and installing oil pan", page 93](#)

- Tighten bolts in 3 stages in the sequence shown:

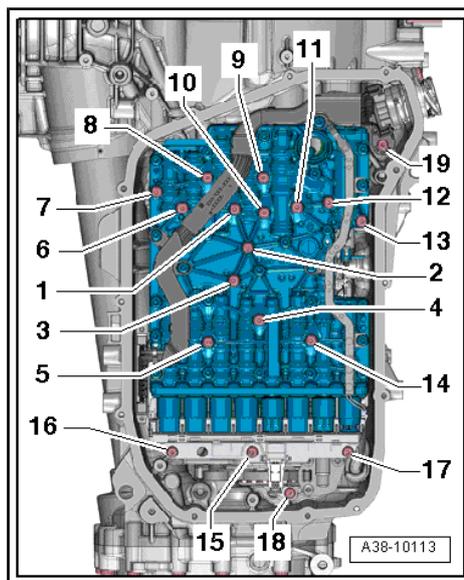
Stage	Bolts	Tightening torque/tightening angle
1.	-1 ... 12-	Screw in new bolts by hand until bolt heads make contact
2.	-1 ... 12-	4 Nm
3.	-1 ... 12-	Turn 45° further

**Tightening torque and sequence for mechatronic unit**

- Tighten bolts to 10 Nm in sequence -1 ... 19-

**Note**

- ◆ *Bolts -18- and -19- are shorter.*
- ◆ *Bolt -18- secures gearbox output speed sender - G195- to gearbox housing.*
- ◆ *Bolt -19- (if fitted) secures connector for mechatronic unit to gearbox housing.*



1.2 Removing and installing auxiliary hydraulic pump for gearbox oil

⇒ ["1.2.1 Removing and installing auxiliary hydraulic pump for gearbox oil", page 89](#)

⇒ ["1.2.2 Removing and installing electrical wiring harness for auxiliary hydraulic pump 1 for gearbox oil", page 91](#)

1.2.1 Removing and installing auxiliary hydraulic pump for gearbox oil

Removing

- Gearbox in vehicle



Note

- ◆ Note ⇒ ["3.3 General repair instructions", page 10](#).
- ◆ Note ⇒ ["3.1 Rules for cleanliness", page 9](#).



Caution

Risk of damage to gearbox

- ◆ *The engine must not be started when there is no more ATF in the gearbox and the mechatronic unit has been removed.*

- Shift gearbox into position "P".
- Switch off ignition.
- Remove ATF oil pan ⇒ [page 93](#).
- Remove ATF filter ⇒ [page 75](#).

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Caution

The gearbox control unit (mechatronic unit) can be damaged by electrostatic discharge.

- ◆ *Before handling electrical connectors, mechanic must discharge static. To do so, touch an earthed metal object, such as a heater radiator or lifting platform, with your hand.*
- ◆ *Do not touch contact pins in gearbox connector with bare hands.*

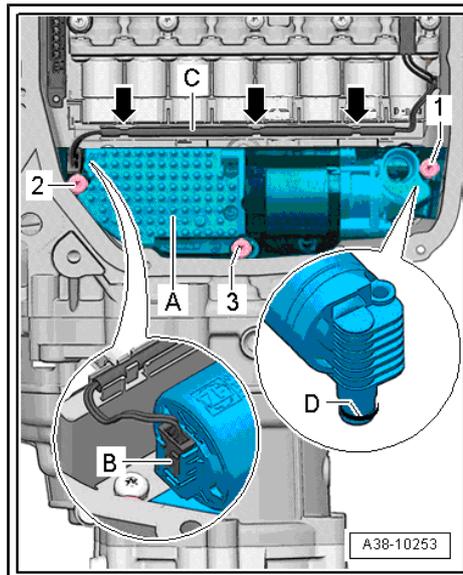


- Carefully unplug electrical connector -B- for auxiliary hydraulic pump 1 for gearbox oil - V475- -A-.
- Remove securing bolts in the sequence -3 ... 1-.
- Detach auxiliary hydraulic pump 1 for gearbox oil - V475- -A- from gearbox housing.



Note

Due to O-ring -D-, the auxiliary hydraulic pump 1 for gearbox oil - V475- fits tightly in the gearbox housing.



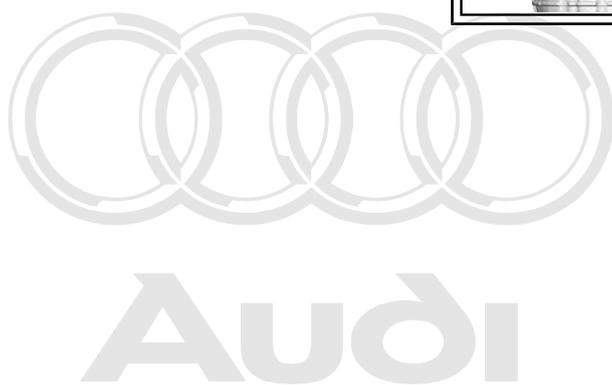
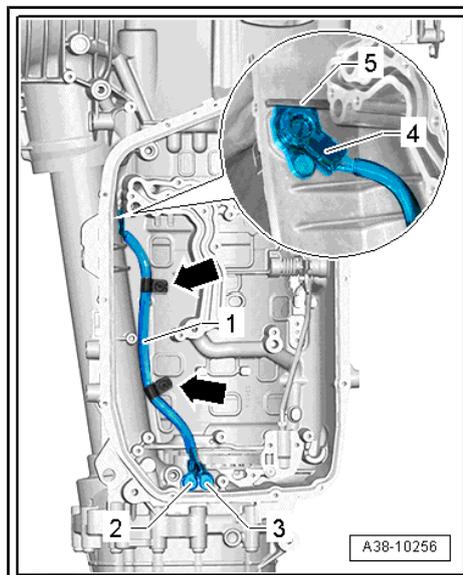
Installing

- The connector contacts -2- and -3- of electrical wire -1- must be pressed properly into the gearbox housing.



Note

- ◆ *The connector contacts must not be interchanged.*
- ◆ *The illustration shows the electrical wire -1- with the mecha-tronic unit removed; the items marked -4, 5- and -arrows- can therefore be disregarded.*



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Carefully renew O-ring -D- on auxiliary hydraulic pump 1 for gearbox oil - V475- by hand, without using tools.

i Note

If the seat of the O-ring is damaged or scratched, the auxiliary hydraulic pump 1 for gearbox oil - V475- must be renewed.

- Fit auxiliary hydraulic pump 1 for gearbox oil - V475- with new O-ring -D-.
- Tighten securing bolts in the sequence -1 ... 3-.
- Plug in electrical connector -B- for auxiliary hydraulic pump 1 for gearbox oil - V475- -A-.

i Note

Make sure that electrical connector is properly engaged and secured.

- Route electrical wiring -C- as shown in illustration and secure -arrows-.
- Install ATF filter ⇒ [page 75](#) .
- Install ATF oil pan ⇒ [page 93](#) .
- Fill up with ATF ⇒ [page 79](#) .

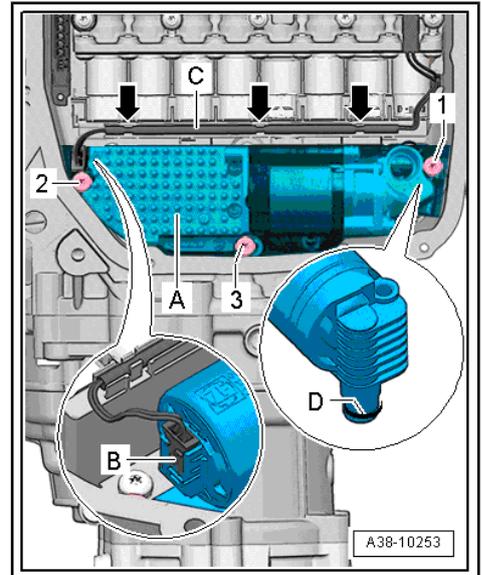
Tightening torques

- ◆ ⇒ [“1.1 Exploded view - ATF system”, page 87](#)

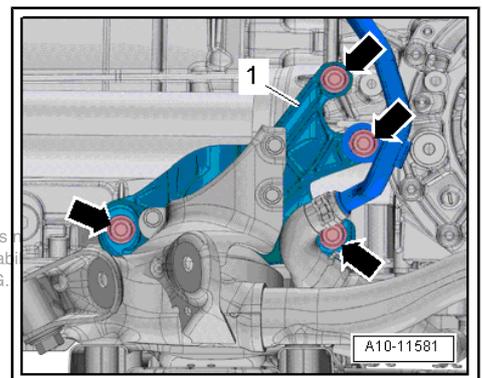
1.2.2 Removing and installing electrical wiring harness for auxiliary hydraulic pump 1 for gearbox oil

Removing

- Remove ATF oil pan ⇒ [page 93](#) .
- Remove ATF filter ⇒ [page 75](#) .
- Remove mechatronic unit ⇒ [page 96](#) .
- Remove bolts -arrows- and remove gearbox support (right-side) -1- with gearbox mounting.

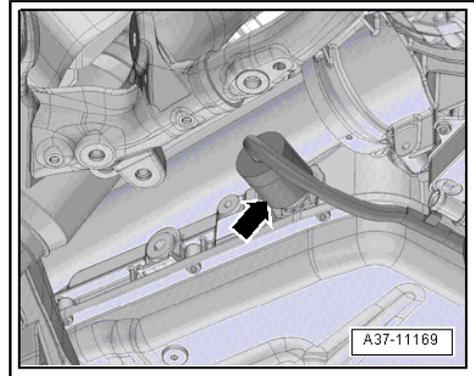


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

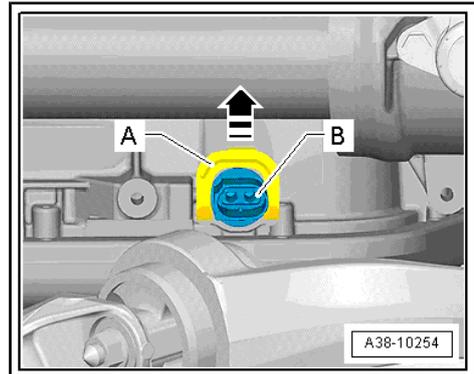




- Unplug electrical connector -arrow- for auxiliary hydraulic pump 1 for gearbox oil - V475- at right of gearbox.
- Move electrical wiring clear.



- Detach securing clip -A- from connector -B- for wiring harness for auxiliary hydraulic pump 1 for gearbox oil - V475- in direction of -arrow-.



Note

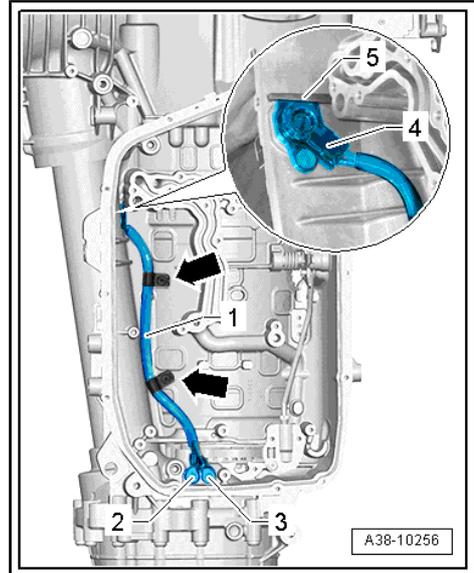
- ◆ Before removal, mark connector contacts -2- and -3- in relation to holes in gearbox housing.
- ◆ Transfer these markings to the new wiring harness -1- when installing.



Caution

Risk of damage to auxiliary hydraulic pump 1 for gearbox oil - V475-

- ◆ The auxiliary hydraulic pump 1 for gearbox oil - V475- will be damaged if the connector contacts -2- and -3- are interchanged on re-installation.



- Disconnect connector contacts -2- and -3- from gearbox housing.
- Detach wiring harness -1- from retainers -arrows-.
- Then unplug connector -4- from gearbox housing -5-.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

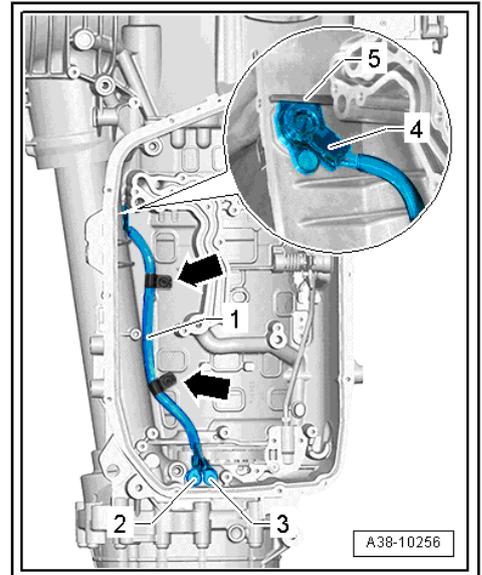
Installing

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

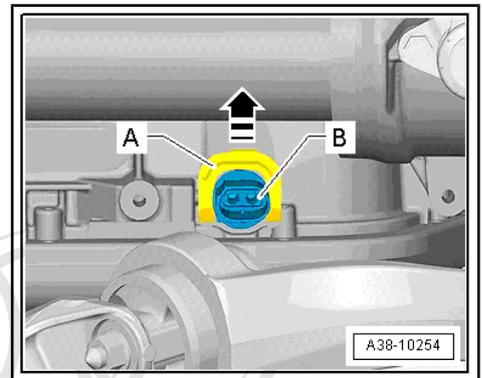
Note

If the existing wiring harness -1- is being re-installed, renew O-rings on connector -4-.

- Installation position of connector -4-: flat surface fits against rib -5- on housing, as shown in illustration.



- Press securing clip -A- onto connector -B- for wiring harness for auxiliary hydraulic pump 1 for gearbox oil - V475- in opposite direction of -arrow- and secure connector.
- Press connector contacts -2- and -3- into holes in gearbox housing according to marks made upon removal.
- Install mechatronic unit ⇒ [page 96](#) .
- Install auxiliary hydraulic pump 1 for gearbox oil - V475- ⇒ [page 89](#) .
- Install ATF filter ⇒ [page 75](#) .
- Install ATF oil pan ⇒ [page 93](#) .
- Fill up with ATF ⇒ [page 79](#) .



Tightening torques

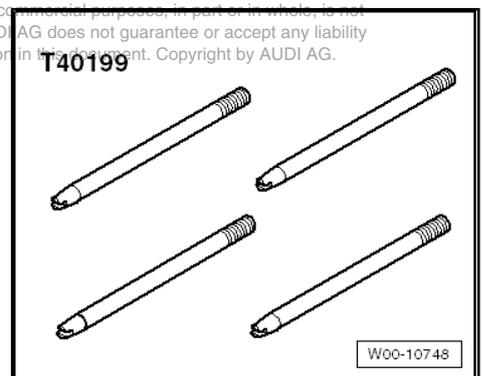
- ◆ ⇒ [“3.1 Exploded view - assembly mountings”, page 63](#)

1.3 Removing and installing oil pan

Special tools and workshop equipment required

- ◆ Guide pin - T40199-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Removing



Note

- ◆ ⇒ ["3.3 General repair instructions", page 10](#)
- ◆ ⇒ ["3.1 Rules for cleanliness", page 9](#)
- Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .



Caution

Risk of damage to parts of the running gear.

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

- Remove gearbox support with gearbox mounting (rear) ⇒ Rep. gr. 10 ; Assembly mountings; Removing and installing gearbox mounting .
- Drain ATF ⇒ [page 79](#) .
- Remove bolts for ATF oil pan in the sequence -12 ... 1-.
- Remove ATF oil pan.

Installing

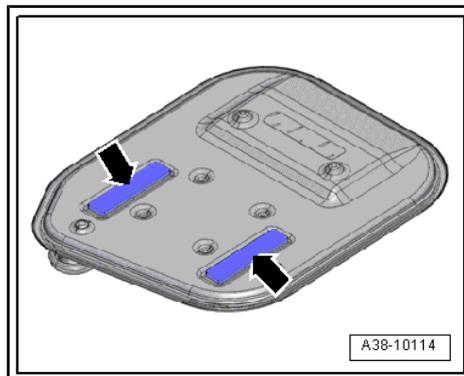
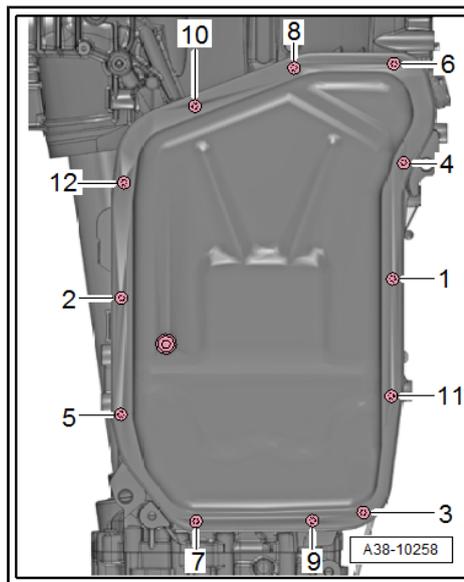
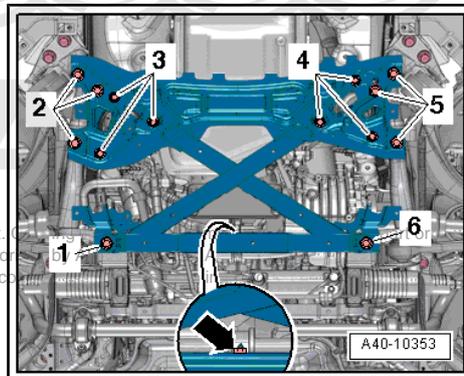
Installation is carried out in reverse sequence; note the following:



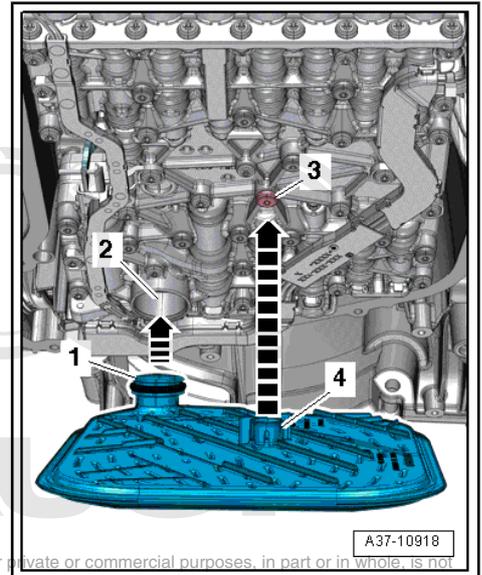
Note

- ◆ *Renew gasket and bolts for ATF oil pan.*
- ◆ *On high-mileage vehicles, it is recommended to renew the ATF filter if the ATF oil pan is removed ⇒ [page 75](#) . Otherwise the ATF filter only has to be renewed if it has been damaged.*

- Clean both magnets -arrows-. Ensure that magnets make full contact with recesses in ATF filter.
- Clean sealing surface thoroughly; remaining material from the previous gasket must be removed completely.

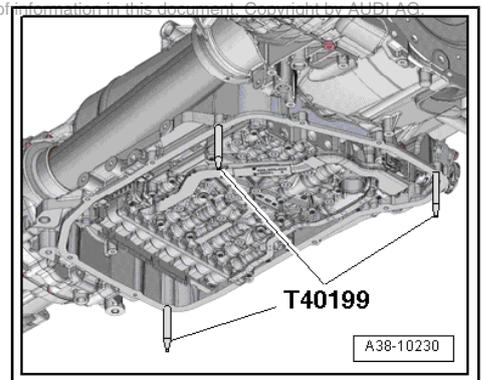


- Make sure that the ATF filter is fitted correctly on the mechatronic unit, otherwise the ATF oil pan cannot be seated properly on the entire surface.
- ◆ The intake neck -1- of the ATF filter must be inserted as far as the stop in aperture -2- of the mechatronic unit.
- ◆ The retainer -4- on the reverse side must engage on the bolt -3- located opposite on the mechatronic unit.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

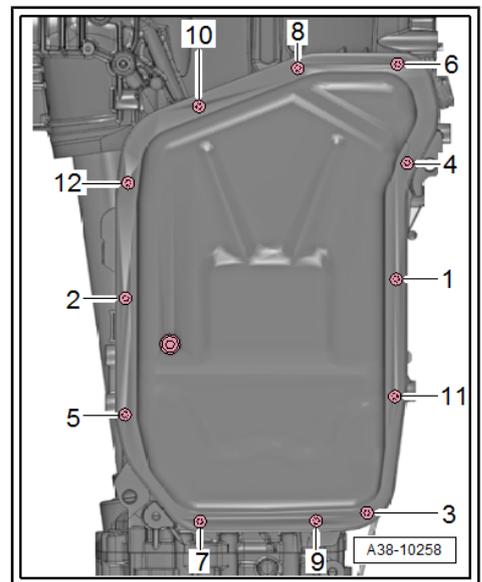
- 3 Screw in guide pins - T40199- hand-tight, as shown in illustration.
- Fit ATF oil pan with new gasket over guide pins - T40199- and onto gearbox.



- Screw in bolts -1 and 2- by hand until bolt heads make contact.
- Remove guide pins - T40199- and tighten bolts in specified sequence.
- Fill up with ATF ⇒ [page 79](#) .

Tightening torques

- ◆ ⇒ Fig. ““ATF oil pan - tightening torque and sequence””, page 88
- ◆ ⇒ “3.1 Exploded view - assembly mountings”, page 63
- ◆ Subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe



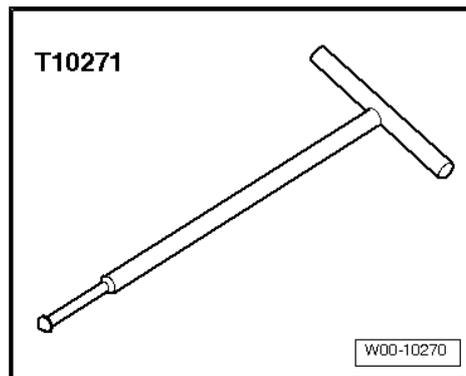
2 Mechatronic unit

⇒ ["2.1 Removing and installing mechatronic unit", page 96](#)

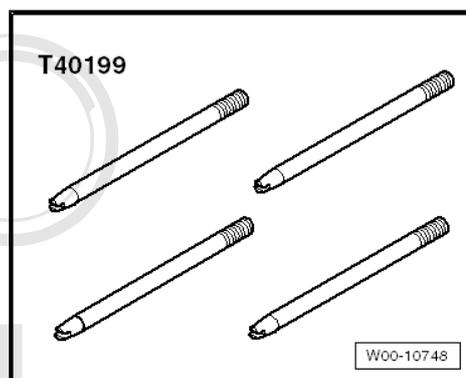
2.1 Removing and installing mechatronic unit

Special tools and workshop equipment required

- ◆ Extractor tool - T10271-



- ◆ Guide pin - T40199-



Removing

- Gearbox in vehicle

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Note

- ◆ Note ⇒ ["3.3 General repair instructions", page 10](#) .
- ◆ Note ⇒ ["3.1 Rules for cleanliness", page 9](#) .
- ◆ Always renew mechatronic unit if contaminated or defective.



Caution

Risk of damage to gearbox

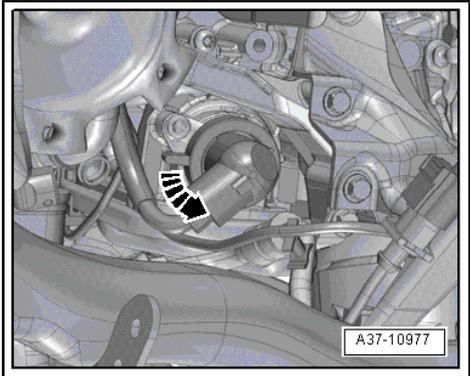
- ◆ *The engine must not be started when there is no more ATF in the gearbox and the mechatronic unit has been removed.*

- Shift gearbox into "P".
- Remove ATF oil pan ⇒ [page 93](#) .
- Remove ATF filter ⇒ [page 75](#) .

Caution

The gearbox control unit (mechatronic unit) can be damaged by electrostatic discharge.

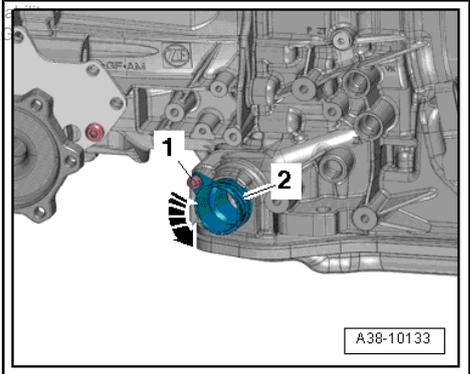
- ◆ *Before handling electrical connectors, mechanic must discharge static. To do so, touch an earthed metal object, such as a heater radiator or lifting platform, with your hand.*
- ◆ *Do not touch contact pins in gearbox connector with bare hands.*



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

– **Remove bolt -1-**

– Turn connector housing -2- anti-clockwise -arrow- and detach.



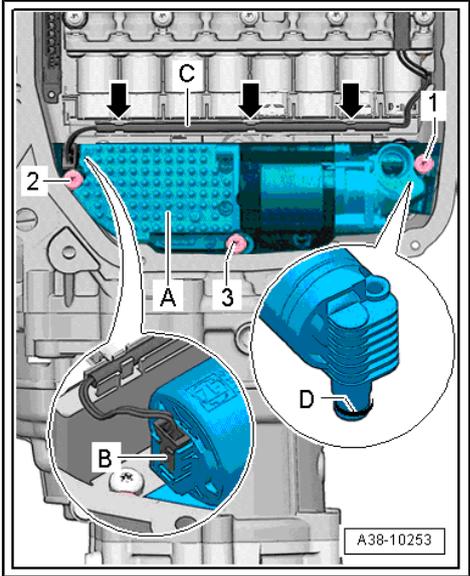
– Carefully unplug electrical connector -B- for auxiliary hydraulic pump 1 for gearbox oil - V475- -A-.

– Remove securing bolts in the sequence -3 ... 1-.

– Detach auxiliary hydraulic pump 1 for gearbox oil - V475- -A- from gearbox housing.

Note

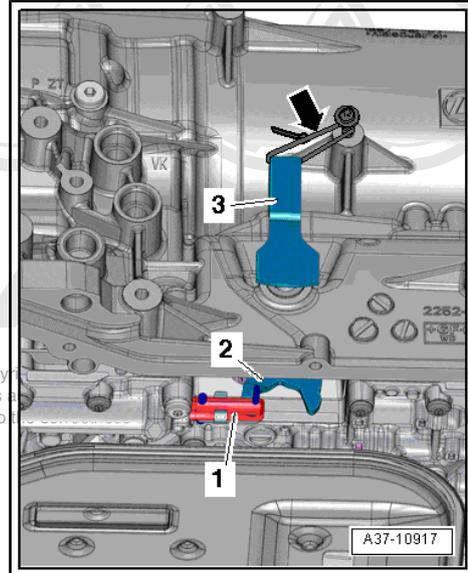
Due to O-ring -D-, the auxiliary hydraulic pump 1 for gearbox oil - V475- fits tightly in the gearbox housing.





Note

The next steps are easier if you first move the gearbox selector lever -3- for the parking lock manual release mechanism to a vertical position and secure it with a cable tie -arrow-. The selector slide -1- can then be engaged more easily in the jaw -2- of the manual release mechanism.



Protected by copy
permitted unless s
with respect to

in whole, is not
cept any liability
by AUDI AG.



Caution

Risk of damage to mechatronic unit.

- ◆ Loosen only the bolts with Torx T40 head.
- ◆ If other bolts are loosened, this may affect the operation of the mechatronic unit or the mechatronic unit could come apart.

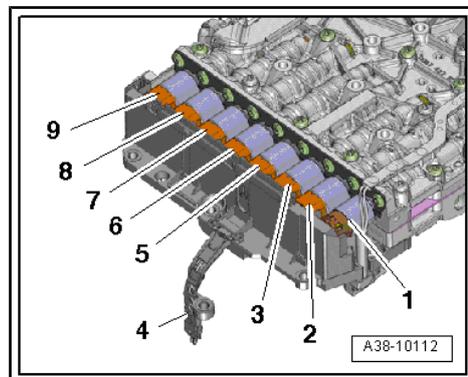
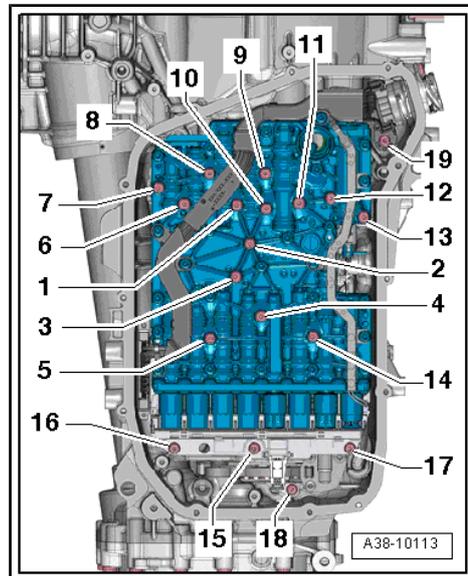
- Remove bolts in the sequence -19 ... 2-.



Note

Do not remove bolts -1- at this stage.

- Screw four guide pins - T40199- hand-tight into bolt holes -5, 7, 12, 14-.
- Remove bolts -1-.
- Before detaching mechatronic unit, pull gearbox output speed sender - G195- -4- out of gearbox housing.

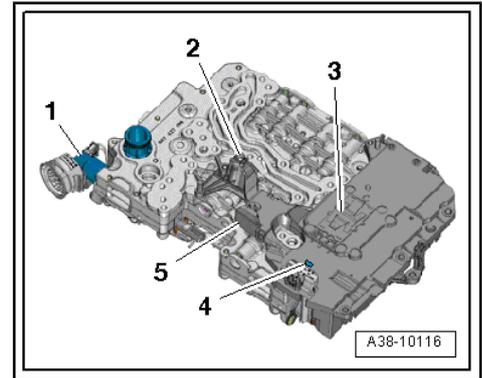


- Detach mechatronic unit.

Caution

Risk of damage to senders on rear side of mechatronic unit.

◆ *When setting down the mechatronic unit, the side with the bolt heads must be facing downwards.*

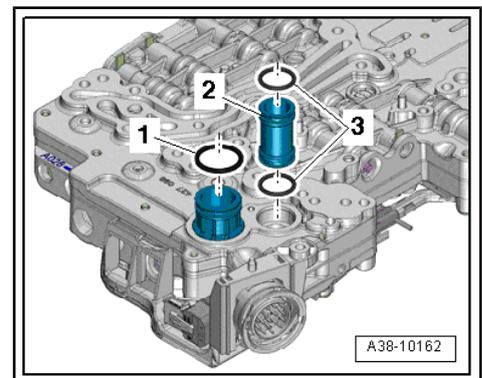


Installing

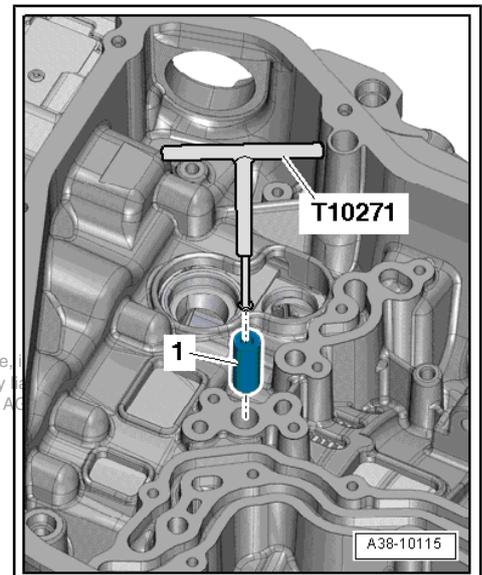
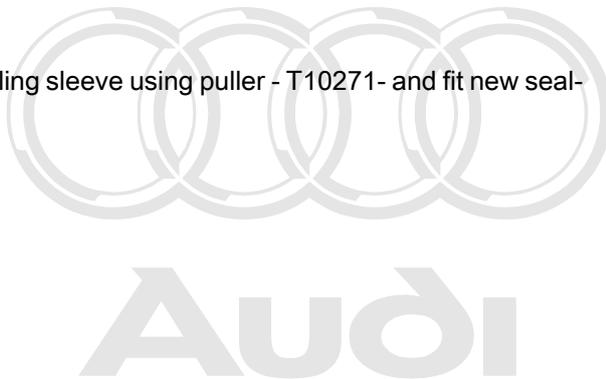
Note

Renew O-rings and bolts for mechatronic unit.

- Fit new O-rings -1- and -3- in grooves on ATF pipes.
- Fit ATF pipe -2- in mechatronic unit.
- Check ATF pipes for damage and make sure they are firmly seated in mechatronic unit.



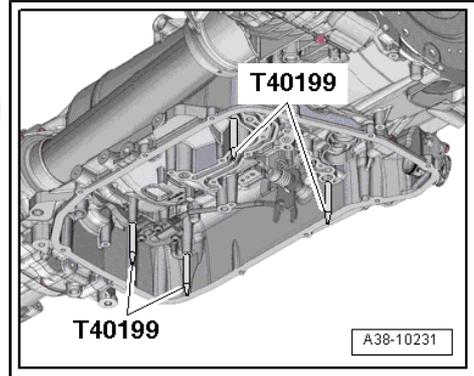
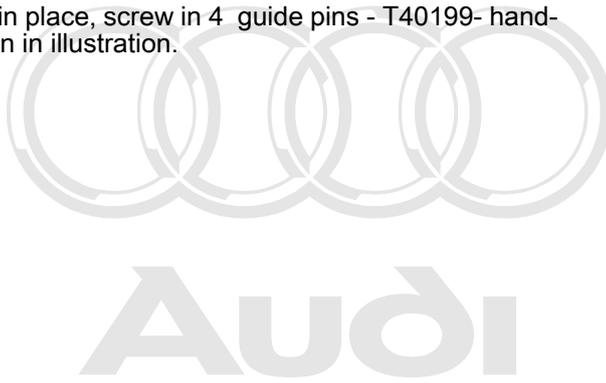
- Pull out sealing sleeve using puller - T10271- and fit new sealing sleeve.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG



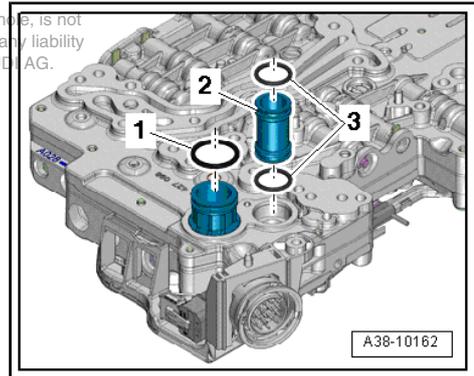
- If not already in place, screw in 4 guide pins - T40199- hand-tight, as shown in illustration.



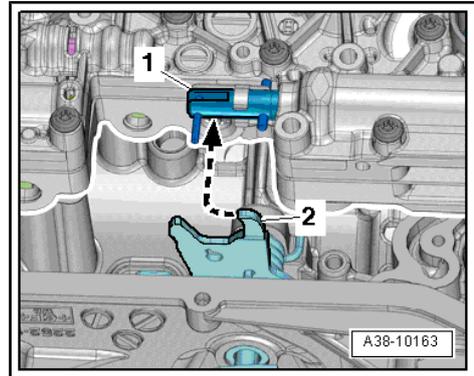
Note

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ *The guide pins - T40199- ensure that the mechatronic unit is kept straight while it is being installed. This prevents damage to the ATF pipes on the reverse side of the mechatronic unit.*
- ◆ *Because of the spring clip on its reverse side, the mechatronic unit cannot initially be brought into full contact with the gearbox housing.*
- ◆ *For this reason, it is advisable to have the assistance of a second mechanic when installing the mechatronic unit with the gearbox in the vehicle.*



- Fit mechatronic unit onto gearbox housing.
- The jaw -2- of the manual release mechanism must engage behind the pin in the selector slide -1- -arrow-.



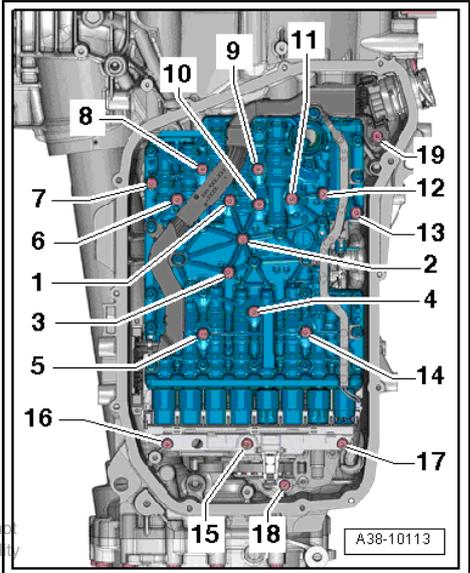
- Screw in bolts -1 ... 4- by hand until bolt heads make contact.
- Remove the 4 guide pins - T40199- .
- Tighten bolts for mechatronic unit in specified sequence.
- Install auxiliary hydraulic pump 1 for gearbox oil - V475-
⇒ [page 89](#) .

Further assembly is carried out in reverse sequence; note the following:

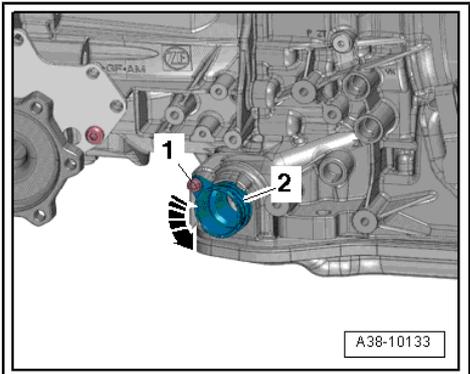
 **Caution**

The gearbox control unit (mechatronic unit) can be damaged by electrostatic discharge.

- ◆ *Before handling electrical connectors, mechanic must discharge static. To do so, touch an earthed metal object, such as a heater radiator or lifting platform, with your hand.*
- ◆ *Do not touch contact pins in gearbox connector with bare hands.*



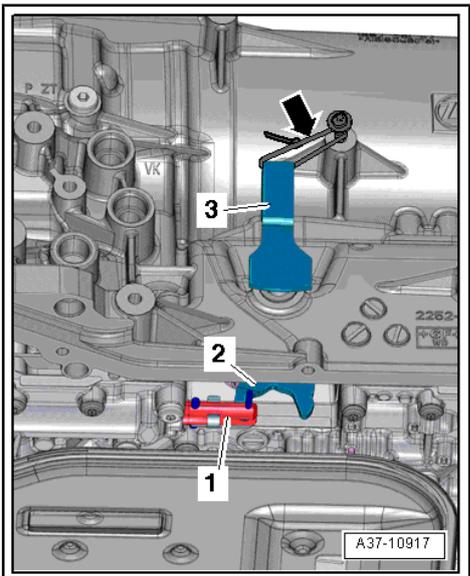
- Fit new connector housing -2- with lug pointing downwards and insert by turning clockwise (in opposite direction to arrow).
- Make sure that electrical connector is properly engaged and secured.
- Tighten bolt -1-.



- Remove cable tie -arrow-.
- Install ATF filter ⇒ [page 75](#) .
- Install ATF oil pan ⇒ [page 93](#) .
- Fill up with ATF ⇒ [page 79](#) .

Tightening torques

- ◆ ⇒ [Fig. ““Tightening torque and sequence for mechatronic unit””, page 88](#)
- ◆ ⇒ [“1.1 Exploded view - ATF system”, page 87](#)



39 – Final drive - differential

1 Final drive

⇒ [“1.1 Exploded view - final drive”, page 102](#)

⇒ [“1.2 Removing and installing gearbox end cover”, page 105](#)

1.1 Exploded view - final drive

⇒ [“1.1.1 Exploded view - final drive”, page 102](#)

⇒ [“1.1.2 Exploded view - final drive, gearbox end cover”, page 104](#)

1.1.1 Exploded view - final drive

1 - Electric drive motor - V141-

- Exploded view ⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor; Exploded view - electric drive motor

2 - O-ring

- For input shaft
- Renew

3 - Oil seal

- For electric drive motor - V141-
- Renewing ⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor; Exploded view - electric drive motor

4 - Oil seal

- For flange shaft (left-side)
- Between final drive and gearbox housing
- Renewing ⇒ [page 119](#)

5 - Shim

- Behind tapered roller bearing outer race

6 - Tapered roller bearing outer race

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

7 - Bolt

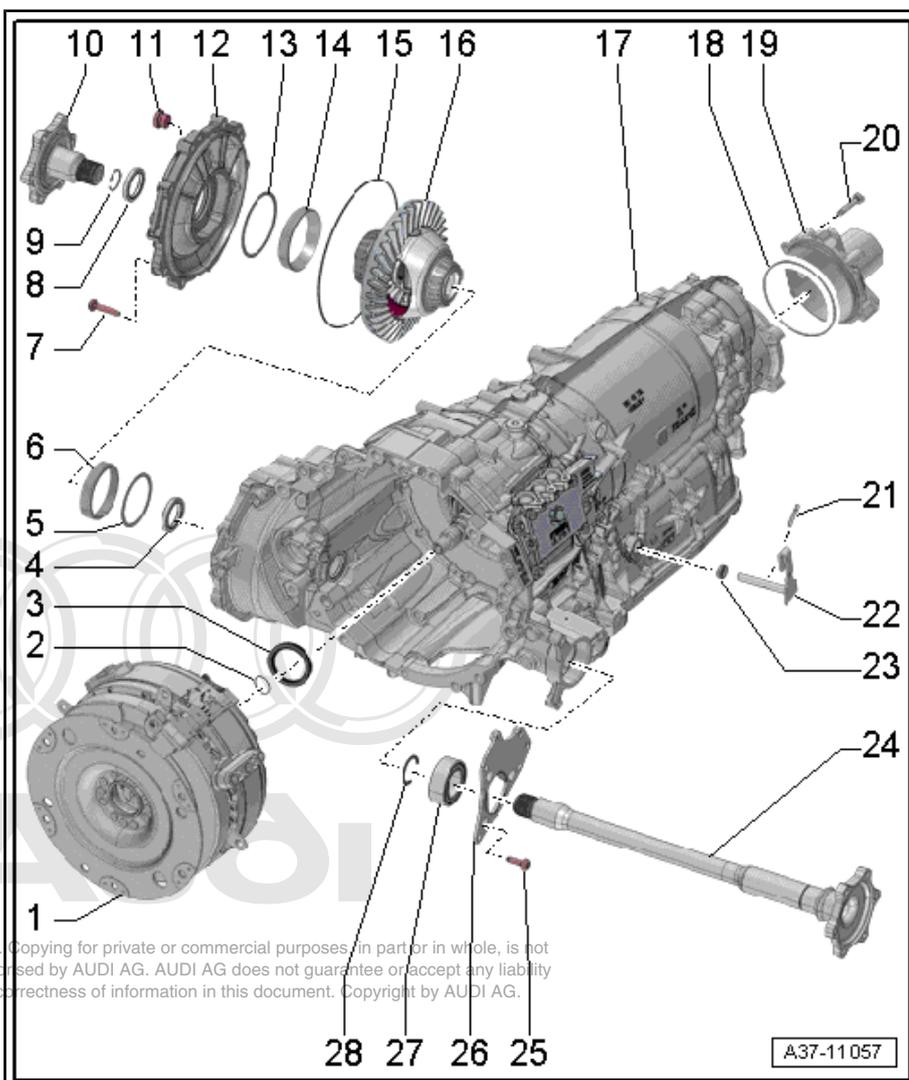
- 11x
- Tightening torque and sequence ⇒ [page 104](#)

8 - Oil seal

- For flange shaft (right-side)
- Renewing ⇒ [page 122](#)

9 - Circlip

- Renew



10 - Flange shaft (right-side)

- Removing and installing ⇒ [page 126](#)

11 - Screw plug

- For inspection and filler hole
- For gear oil in front final drive
- Tightening torque ⇒ [page 70](#)

12 - Cover

- For front final drive
- Pay attention to dowel sleeves
- Removing and installing ⇒ [page 123](#)

13 - Shim

- Behind tapered roller bearing outer race

14 - Tapered roller bearing outer race

15 - O-ring

- On cover for front final drive
- Renewing ⇒ [page 123](#)

16 - Differential

17 - Gearbox

18 - O-ring

- Renew
- Lubricate with gear oil

19 - Gearbox end cover

- Removing and installing ⇒ [page 105](#)

20 - Bolt

- Renew
- Tightening torque and sequence ⇒ [page 105](#)

21 - Roll pin

- Removing and installing ⇒ [“1.9 Renewing selector shaft oil seal”, page 39](#)

22 - Gearbox selector lever

- Removing and installing ⇒ [“1.9 Renewing selector shaft oil seal”, page 39](#)

23 - Oil seal

- For gearbox selector lever
- Renewing ⇒ [page 39](#)

24 - Flange shaft (left-side)

- Removing and installing ⇒ [page 125](#)

25 - Bolt

- Renew
- 9 Nm + 60°

26 - Mounting bracket for flange shaft (left-side)

- Secured to flange shaft together with bearing ⇒ [Item 27 \(page 103\)](#) via retaining clip ⇒ [Item 28 \(page 104\)](#)
- If wear is visible, renew mounting bracket and ball bearing for flange shaft (left-side).

27 - Ball bearing

- For flange shaft (left-side)
- Renewing ⇒ [page 129](#)

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



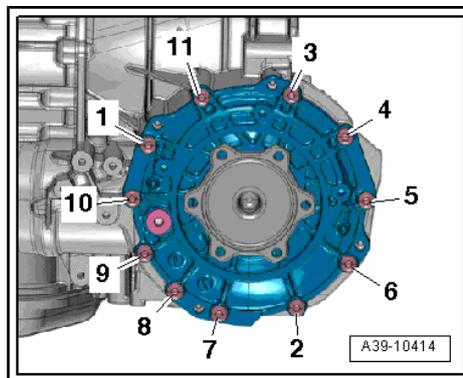
28 - Retaining clip

- For ball bearing on flange shaft (left-side)
- Renew

Cover for front final drive - tightening torque and sequence

- Tighten bolts in 2 stages in the sequence shown:

Stage	Bolts	Tightening torque
1.	-1- and -6-	3 Nm
2.	-1 ... 11-	27 Nm



1.1.2 Exploded view - final drive, gearbox end cover

1 - O-ring

- Renew
- Lubricate with gear oil

2 - Screw plug

- For inspection and filler hole
- For gear oil in transfer box
- Tightening torque
=> [page 70](#)

3 - Gearbox end cover

- Removing and installing
=> [page 105](#)

4 - Vibration damper

- Not fitted on all versions

5 - Bolt

- Not fitted on all versions
- 22 Nm

6 - Retainer

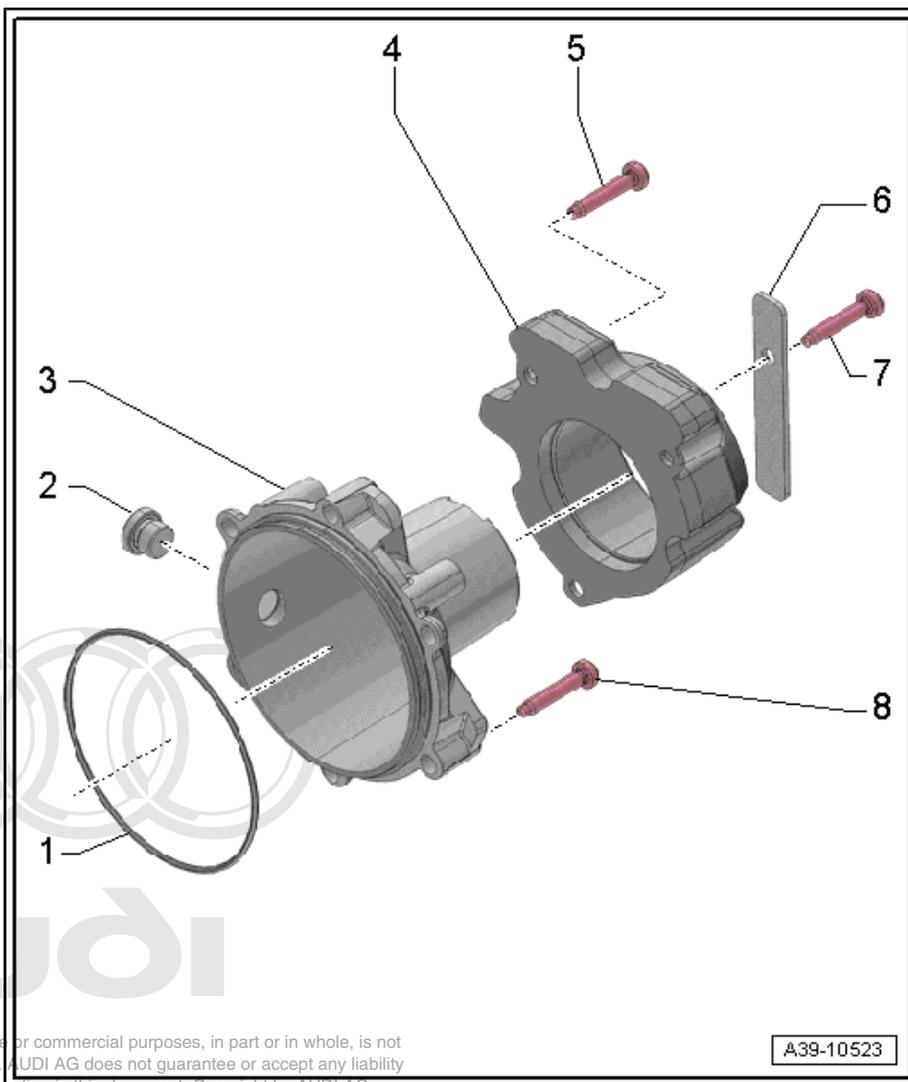
- Not fitted on all versions

7 - Bolt

- Not fitted on all versions
- 22 Nm

8 - Bolt

- Renew
- Tightening torque and sequence => [page 105](#)



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

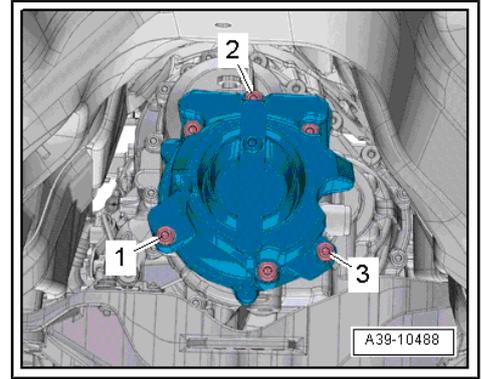
Gearbox end cover - tightening torque and sequence

Note

Renew bolts for gearbox end cover.

- Tighten bolts in 3 stages in the sequence shown:

Stage	Bolts	Tightening torque/tightening angle
1.	-1, 2, 3-	3 Nm
2.	-1, 2, 3-	10 Nm
3.	-1, 2, 3-	Turn 90° further



1.2 Removing and installing gearbox end cover

Removing

Note

- ◆ Note ⇒ [“3.3 General repair instructions”, page 10](#).
- ◆ Note ⇒ [“3.1 Rules for cleanliness”, page 9](#).



Caution

Risk of damage to gearbox

- ◆ **The engine must not be run and the vehicle must not be towed without gear oil.**

- Drain off gear oil in transfer box ⇒ [page 115](#).
- Remove bolts -1, 2, 3- and detach gearbox end cover with vibration damper.

Installing

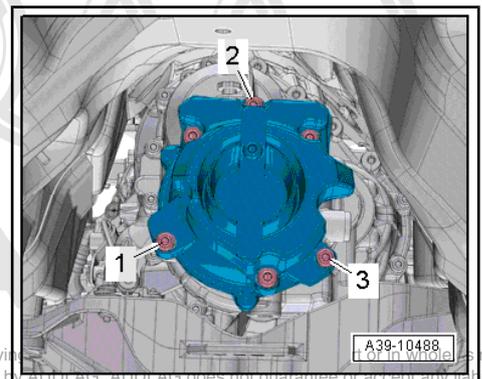
Installation is carried out in reverse sequence; note the following:

Note

- ◆ Renew O-ring for gearbox end cover.
- ◆ Renew bolts for gearbox end cover.
- Tighten bolts for gearbox end cover.
- Fill up gear oil in transfer box ⇒ [page 115](#)

Tightening torques

- ◆ ⇒ [Fig. “Gearbox end cover - tightening torque and sequence”, page 105](#)



Protected by copyright. Copying and distribution of this document is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

2 Gear oil

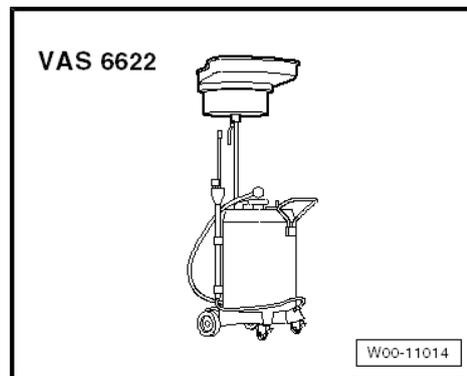
⇒ "2.1 Checking gear oil level", page 106

⇒ "2.2 Draining and filling gear oil", page 109

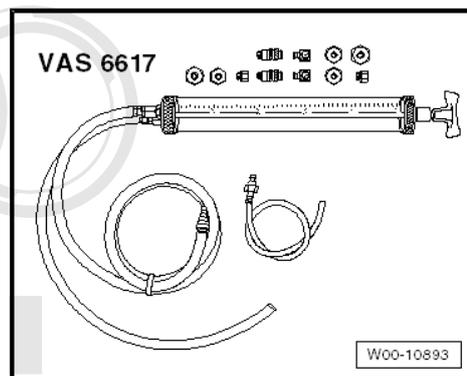
2.1 Checking gear oil level

Special tools and workshop equipment required

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



- ◆ Hand pump for filling gearbox - VAS 6617-



- ◆ Safety goggles

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Test conditions

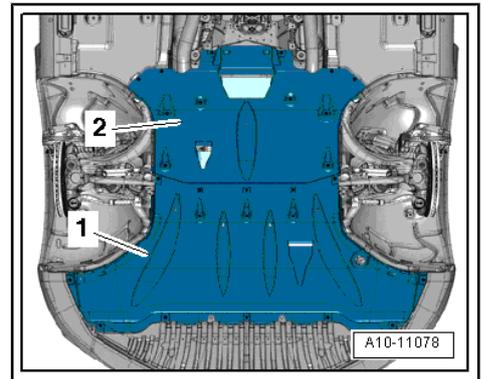
- Gear oil about 20 °C (room temperature)
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- The vehicle must be stationary with the engine switched off for at least 15 minutes to allow the oil level to stabilise.
- Gear oil level in front final drive and transfer box must be checked. Gear oil level has been topped up correctly only when both fill levels are correct.
- Gearbox is in position "P".
- Parking brake button must be pulled up to apply the electro-mechanical parking brake.

Procedure

i Note

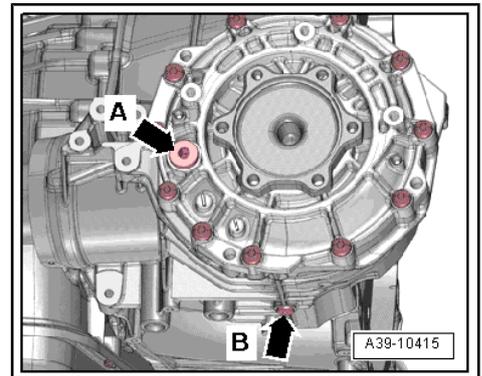
- ◆ => "3.3 General repair instructions", page 10
- ◆ => "3.1 Rules for cleanliness", page 9
- ◆ The prescribed oil level is to be adhered to exactly; the gearbox reacts very sensitively to over-filling.
- ◆ Renew plug for inspection and filler hole.
- ◆ Always adhere to waste disposal regulations.

- Remove rear noise insulation -2- => General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove rear section of wheel housing liner (front right) => General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .



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

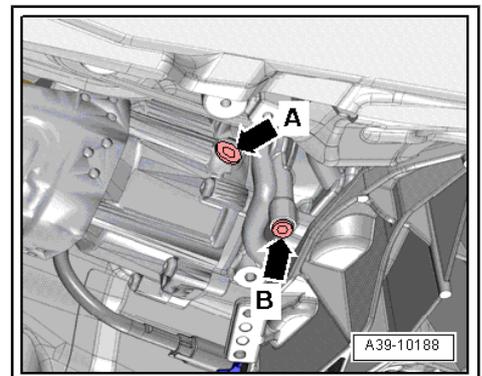
! WARNING
 Risk of eye injury.
 ◆ Wear safety goggles.



- Unscrew plug for inspection and filler hole -arrow A- on front final drive.
- Specification: The oil level is correct when the front final drive is filled up to the bottom lip of the inspection and filler hole.
- Allow excess gear oil to drain off.
- Remove tunnel cross member => page 64 .

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

! WARNING
 Risk of eye injury.
 ◆ Wear safety goggles.



- Unscrew plug for inspection and filler hole -arrow A- on gearbox end cover.
- Specification: Oil level is correct when oil in transfer box is up to lower edge of inspection and filler hole.
- Allow excess gear oil to drain off.

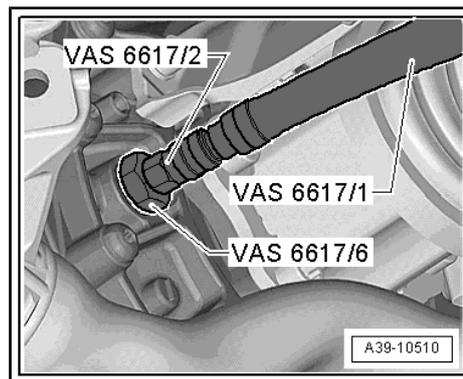
**If oil level in front final drive is not up to bottom lip of filler hole:**

- Screw adapter -VAS 6617/6- with adapter -VAS 6617/2- hand-tight into inspection and filler hole for front final drive.
- Connect hand pump for filling gearbox - VAS 6617- and fill up front final drive with gear oil.
- Gear oil specifications ⇒ Electronic parts catalogue
- Wait for 5 minutes.

**Note**

The fill-up period of at least 5 minutes is necessary so that the internal oil level can be balanced out between the differential and the baffle chamber.

- Then detach adapter - VAS 6617/6- from gearbox and allow excess gear oil to drain off.
- Specification: The oil level is correct when the front final drive is filled up to the bottom lip of the inspection and filler hole. Top up with gear oil once again if necessary.

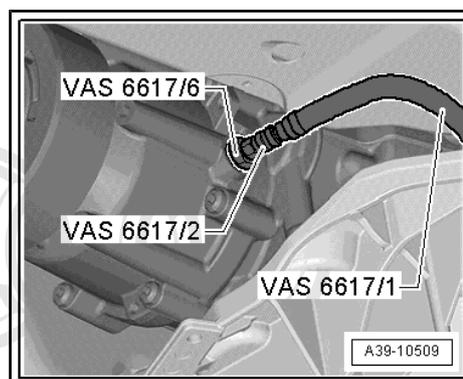
**If oil level in transfer box is not up to bottom lip of filler hole:**

- Screw adapter -VAS 6617/6- with adapter -VAS 6617/2- hand-tight into inspection and filler hole in gearbox end cover.
- Connect hand pump for filling gearbox - VAS 6617- and fill up transfer box with gear oil.
- Gear oil specifications ⇒ Electronic parts catalogue
- Wait for 5 minutes.

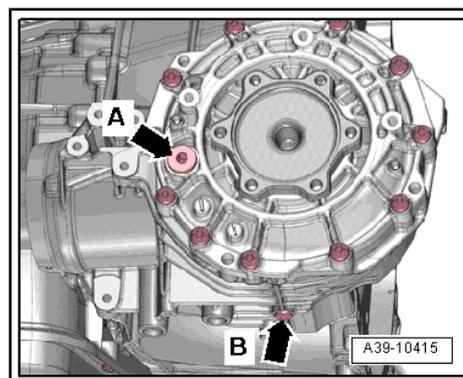
**Note**

- ◆ *The transfer box incorporates a number of internal oil chambers. These must be filled evenly.*
- ◆ *It is important to wait for at least 5 minutes so that the internal oil level in the system has time to equalise.*

- Then detach adapter - VAS 6617/6- from gearbox and allow excess gear oil to drain off.
- Specification: Oil level is correct when oil in transfer box is up to lower edge of filler hole. Top up with gear oil once again if necessary.

**If gear oil level in front final drive and transfer box is correct:**

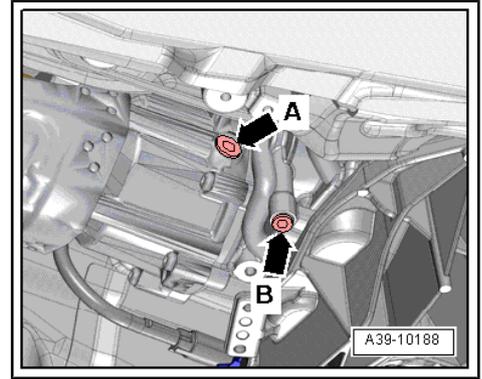
- Tighten new plug -arrow A- on front final drive.



- Tighten new plug -arrow A- on gearbox end cover.
- Install tunnel cross member ⇒ [page 64](#) .

Tightening torques

- ◆ ⇒ [page 70](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Exploded view - wheel housing liner (front)



2.2 Draining and filling gear oil

⇒ [“2.2.1 Draining and filling gear oil, front final drive and transfer box”, page 109](#)

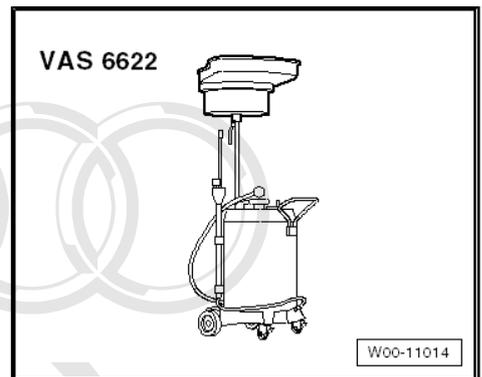
⇒ [“2.2.2 Draining and filling gear oil, front final drive”, page 112](#)

⇒ [“2.2.3 Draining and filling gear oil, transfer box”, page 115](#)

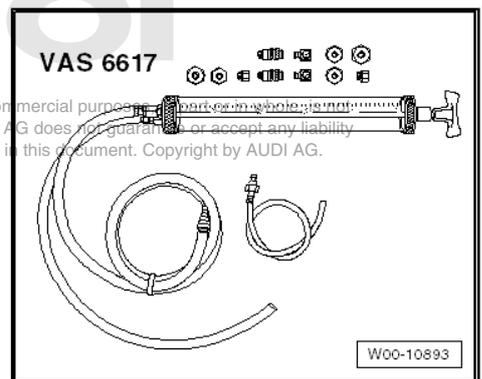
2.2.1 Draining and filling gear oil, front final drive and transfer box

Special tools and workshop equipment required

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



- ◆ Hand pump for filling gearbox - VAS 6617-



Protected by copyright. Copying for private or commercial purposes is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ Safety goggles

Draining

- Engine not running.
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Gearbox is in position “P”.



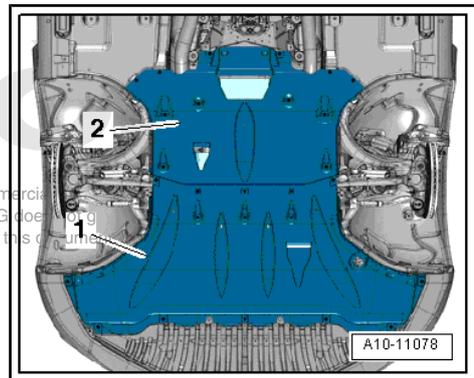
- Parking brake button must be pulled up to apply the electro-mechanical parking brake.



Note

- ◆ ⇒ ["3.3 General repair instructions", page 10](#)
- ◆ ⇒ ["3.1 Rules for cleanliness", page 9](#)
- ◆ Always adhere to waste disposal regulations.
- ◆ Renew drain plugs with seals.
- Remove rear section of wheel housing liner (front right) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .
- Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

Protected by copyright. Copying for private or commercial use is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document.



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



WARNING

Risk of eye injury.

- ◆ Wear safety goggles.

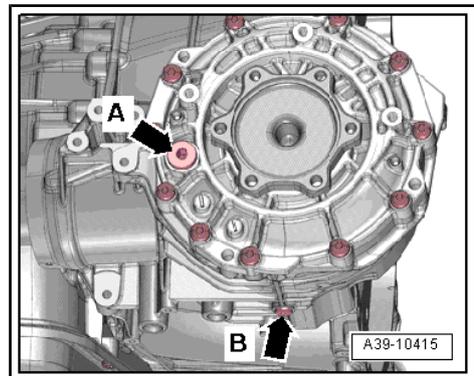
- Unscrew drain plug -arrow B- on front final drive and drain off gear oil.



Caution

Risk of damage to gearbox

- ◆ The engine must not be started when there is no more gear oil in the front final drive.



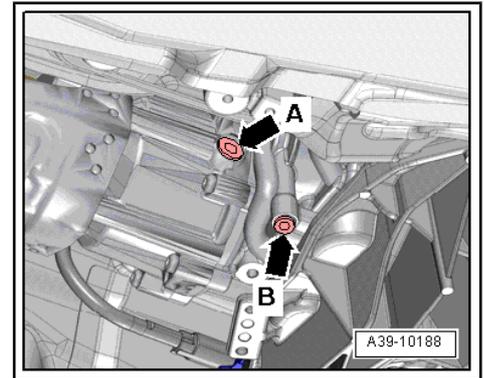
- Tighten new drain plug on front final drive -arrow B-.
- Remove tunnel cross member ⇒ [page 64](#) .

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

 **WARNING**
Risk of eye injury.
 ♦ *Wear safety goggles.*

- Unscrew drain plug -arrow B- on centre differential housing and drain off gear oil.

 **Caution**
Risk of damage to gearbox
 ♦ *The engine must not be started when there is no gear oil in the transfer box.*



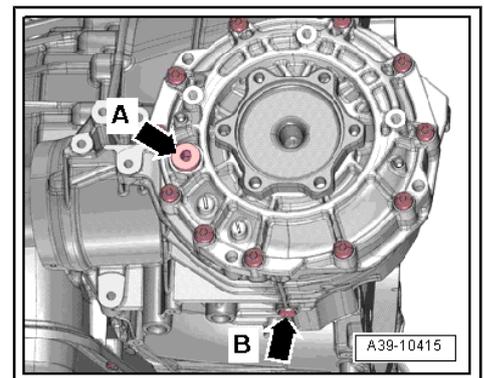
- Tighten new drain plug on centre differential housing -arrow B-.

Filling up and adjusting oil level

- Gear oil about 20 °C (room temperature)
- Place used oil collection and extraction unit - VAS 6622- below gearbox.

 **WARNING**
Risk of eye injury.
 ♦ *Wear safety goggles.*

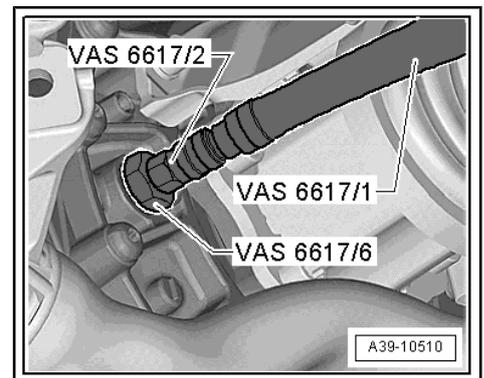
- Remove plug -arrow A- on front final drive.
- Screw adapter -VAS 6617/6- with adapter -VAS 6617/2- hand-tight into inspection and filler hole for front final drive.
- Connect hand pump for filling gearbox - VAS 6617- and fill up front final drive with approx. 1.0 ltr. of gear oil.
- Gear oil specifications ⇒ Electronic parts catalogue
- Wait for 5 minutes.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

 **Note**

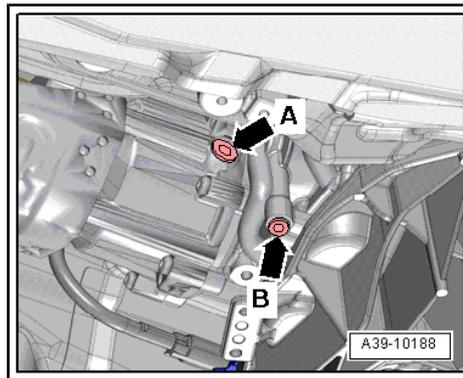
It is necessary to wait for at least 5 minutes to allow the internal oil level to balance out between the differential and the baffle chamber.



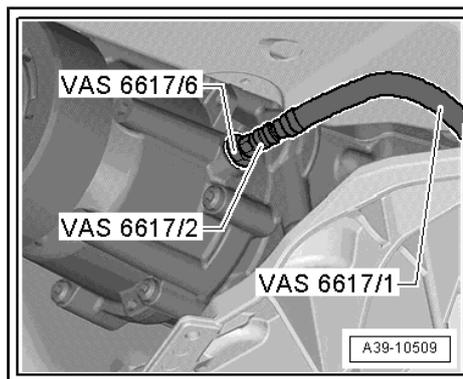
- Then detach -VAS 6617/6- from gearbox and allow excess gear oil to drain off.
- Re-install used screw plug.



- Remove plug -arrow A- on housing for centre differential.

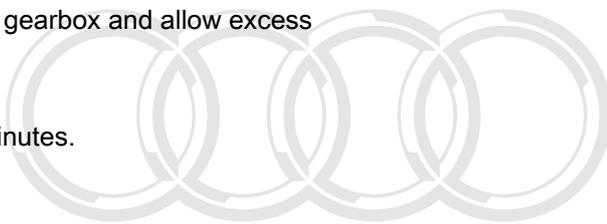


- Screw adapter -VAS 6617/6- with adapter -VAS 6617/2- hand-tight into inspection and filler hole for transfer box.
- Connect hand pump for filling gearbox - VAS 6617- and fill up transfer box with approx. 1.0 ltr. of gear oil.
- Gear oil specifications => Electronic parts catalogue
- Wait for 5 minutes.



Note

- ◆ *The transfer box incorporates a number of internal oil chambers. These must be filled evenly.*
- ◆ *It is necessary to wait for at least 5 minutes to allow the internal oil level to balance out between the centre differential and the baffle chamber.*
- Then detach -VAS 6617/6- from gearbox and allow excess gear oil to drain off.
- Re-install used screw plug.
- Road test vehicle for 10 to 15 minutes.



Note

The oil filling will be distributed evenly when the vehicle is driven.

- Check gear oil level and top up as required => [page 106](#) .
- Install tunnel cross member => [page 64](#) .

Tightening torques

- ◆ => [page 70](#)

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

2.2.2 Draining and filling gear oil, front final drive

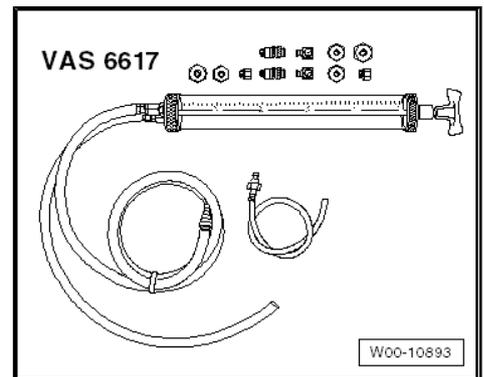
Special tools and workshop equipment required

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



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ Hand pump for filling gearbox - VAS 6617-



- ◆ Safety goggles

Draining

- Engine not running.
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Gear oil about 20 °C (room temperature)

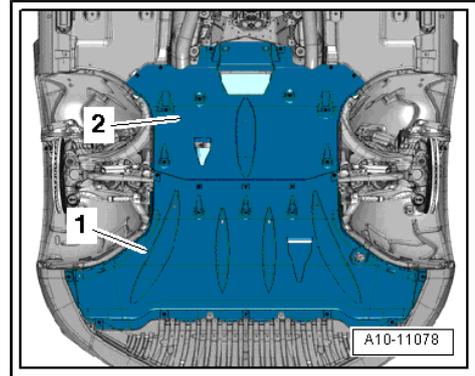


Note

- ◆ Note ⇒ [“3.3 General repair instructions”, page 10](#) .
 - ◆ Note ⇒ [“3.1 Rules for cleanliness”, page 9](#) .
 - ◆ Always adhere to waste disposal regulations.
 - ◆ Renew drain plug with seal.
 - ◆ Renew plug for inspection and filler hole.
- Remove rear section of wheel housing liner (front right) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .

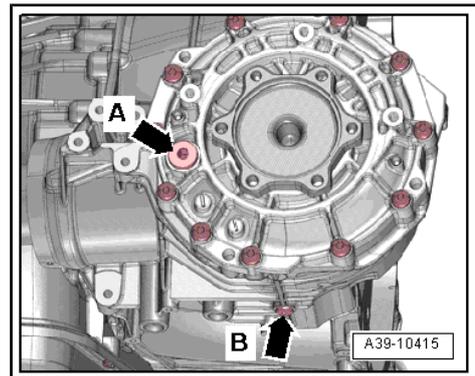


- Remove rear noise insulation -2- => General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



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

! WARNING
Risk of eye injury.
 ♦ *Wear safety goggles.*



- Unscrew drain plug -arrow B- on front final drive and drain off gear oil.

! Caution
Risk of damage to gearbox
 ♦ *The engine must not be started when there is no more gear oil in the front final drive.*

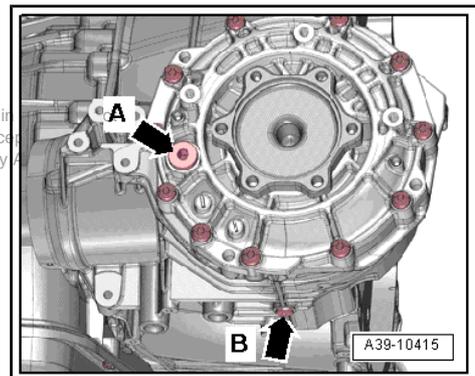
- Tighten new drain plug -arrow B- on front final drive.

Filling

- Gear oil about 20 °C (room temperature)
- Place used oil collection and extraction unit - VAS 6622- below gearbox.

! WARNING
Risk of eye injury.
 ♦ *Wear safety goggles.*

- Unscrew plug for inspection and filler hole -arrow A- on front final drive.



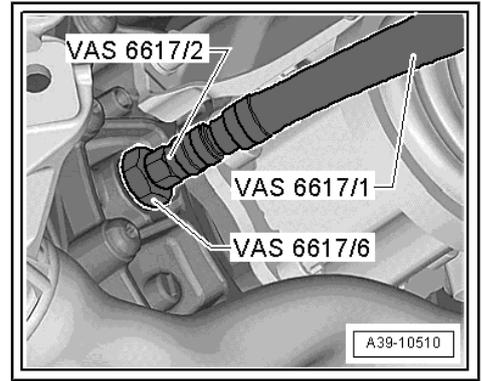
Protected by copyright. Copying for private or commercial purposes, in part or in full, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by Audi AG.

- Screw adapter - VAS 6617/6- with adapter - VAS 6617/2- hand-tight into gearbox.
- Connect hand pump for gear oil - VAS 6617- and fill up front final drive with approx. 0.9 ltr. of gear oil.
- Gear oil specifications ⇒ Electronic parts catalogue
- Wait for 5 minutes.

 **Note**

The fill-up period of at least 5 minutes is necessary so that the internal oil level can be balanced out between the differential and the baffle chamber.

- Then detach adapter - VAS 6617/6- from gearbox and allow excess gear oil to drain off.
- Specification: The oil level is correct when the front final drive is filled up to the bottom lip of the filler hole. Top up with gear oil once again if necessary.



 **Caution**

Risk of damage to gearbox

◆ **After performing repair work, gear oil level in front final drive and transfer box must be checked. Gear oil level has been topped up correctly only when both fill levels are correct.**

- Check gear oil level in transfer box ⇒ [page 106](#) .

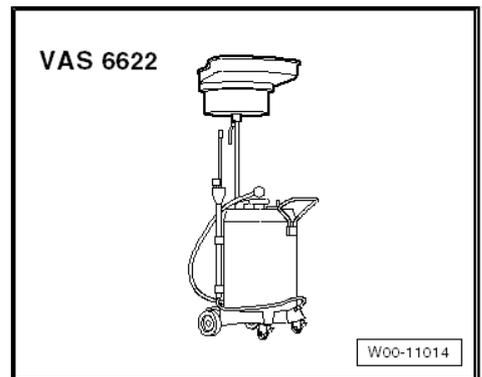
Tightening torques

- ◆ ⇒ [page 70](#)

2.2.3 Draining and filling gear oil, transfer box

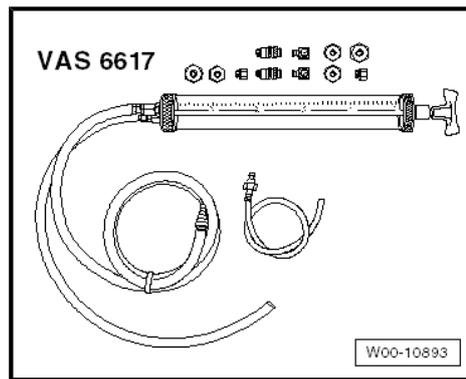
Special tools and workshop equipment required

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





- ◆ Hand pump for filling gearbox - VAS 6617-



- ◆ Safety goggles

Draining

- Engine not running.
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Gear oil about 20 °C (room temperature)



Note

- ◆ Note ⇒ [“3.3 General repair instructions”, page 10](#) .
- ◆ Note ⇒ [“3.1 Rules for cleanliness”, page 9](#) .
- ◆ Always adhere to waste disposal regulations.
- ◆ Renew drain plug with seal.
- ◆ Renew plug for inspection and filler hole.
- Remove tunnel cross member ⇒ [page 64](#) .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

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

 **WARNING**
Risk of eye injury.
◆ *Wear safety goggles.*

- Remove drain plug -arrow B- and allow gear oil to drain off.

 **Caution**
Risk of damage to gearbox
◆ *The engine must not be started when there is no gear oil in the transfer box.*

Protected by copyright for commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

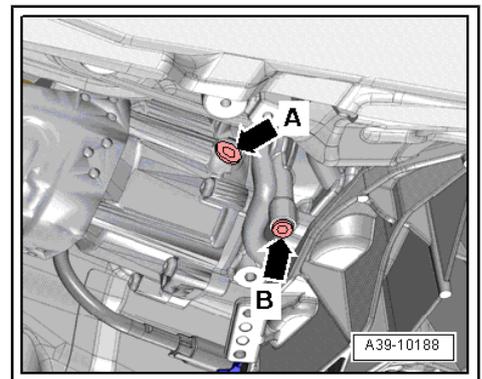
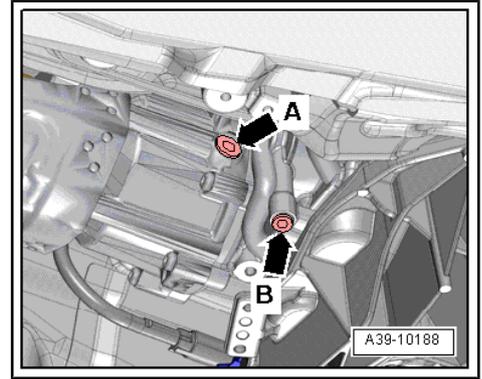
- Tighten new drain plug -arrow B-.

Filling up and adjusting oil level

- Gear oil about 20 °C (room temperature)
- Place used oil collection and extraction unit - VAS 6622- below gearbox.

 **WARNING**
Risk of eye injury.
◆ *Wear safety goggles.*

- Unscrew plug for inspection and filler hole -arrow A- on gearbox end cover.



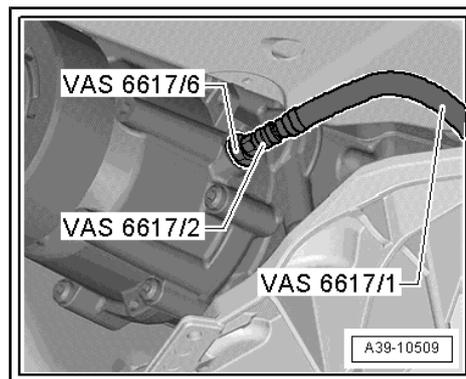


- Screw adapter - VAS 6617/6- with adapter - VAS 6617/2- into inspection and filler hole on gearbox end cover.
- Connect hand pump for gear oil - VAS 6617- and fill up transfer box with approx. 0.8 ltr. of gear oil.
- Gear oil specifications ⇒ Electronic parts catalogue
- Wait for 5 minutes.



Note

- ◆ *The transfer box incorporates a number of internal oil chambers. These must be filled evenly.*
- ◆ *The filling period of at least 5 minutes is necessary so that the internal oil level in the system has time to equalise.*
- Then detach adapter - VAS 6617/6- from gearbox and allow excess gear oil to drain off.
- Specification: Oil level is correct when oil in transfer box is up to lower edge of filler hole. Top up with gear oil once again if necessary.



Caution

Risk of damage to gearbox

- ◆ *After performing repair work, gear oil level in front final drive and transfer box must be checked. Gear oil level has been topped up correctly only when both fill levels are correct.*

- Check gear oil level in front final drive ⇒ [page 106](#) .
- Install tunnel cross member ⇒ [page 64](#) .

Tightening torques

- ◆ ⇒ [page 70](#)

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

3 Oil seals

⇒ [“3.1 Renewing oil seal \(left-side\)”, page 119](#)

⇒ [“3.2 Renewing oil seal \(right-side\)”, page 122](#)

⇒ [“3.3 Renewing O-ring on cover for front final drive”, page 123](#)

3.1 Renewing oil seal (left-side)



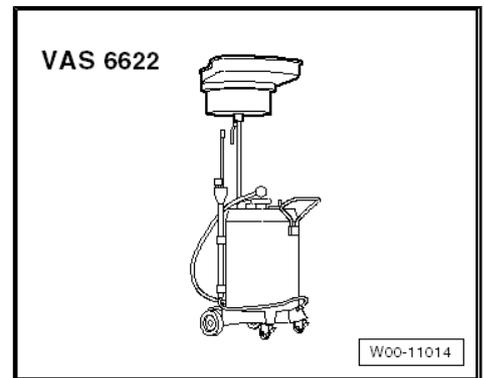
Note

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability

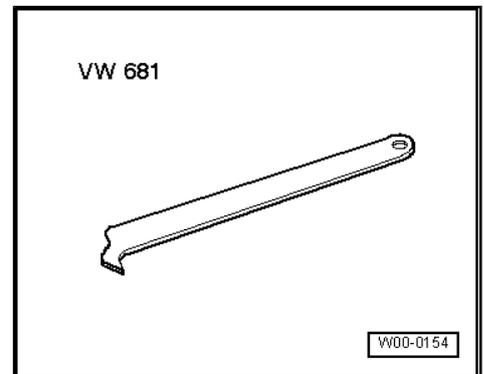
A defective oil seal allows gear oil to enter the torque converter bellhousing.

Special tools and workshop equipment required

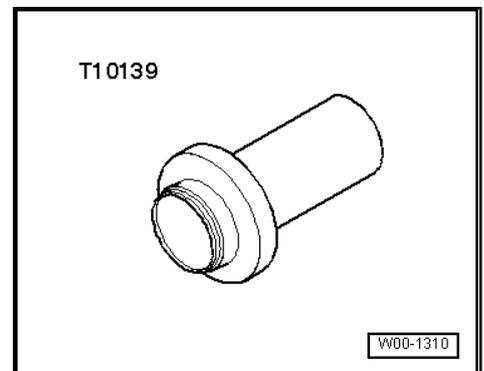
- ◆ Used oil collection and extraction unit - VAS 6622-



- ◆ Oil seal extractor lever - VW 681-



- ◆ Thrust piece - T10139-



Procedure

- Gearbox must be removed and secured to engine/gearbox support ⇒ [page 68](#) .



Note

- ◆ Note ⇒ ["3.3 General repair instructions", page 10](#) .
- ◆ Note ⇒ ["3.1 Rules for cleanliness", page 9](#) .



Caution

Risk of damage to gearbox

... private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability

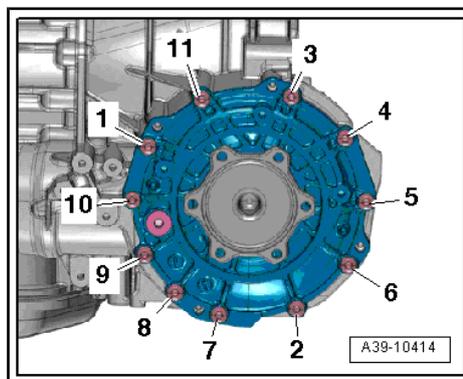
- ◆ **Do not set down the gearbox on the ATF oil pan.**

- Place used oil collection and extraction unit - VAS 6622- below gearbox.
- Drain off gear oil in front final drive ⇒ [page 112](#) .
- Remove flange shaft (right-side) ⇒ [page 126](#) .
- Remove bolts securing cover for front final drive in the sequence -11 ... 1-.
- Remove cover for front final drive together with outer race for tapered roller bearing and shim.

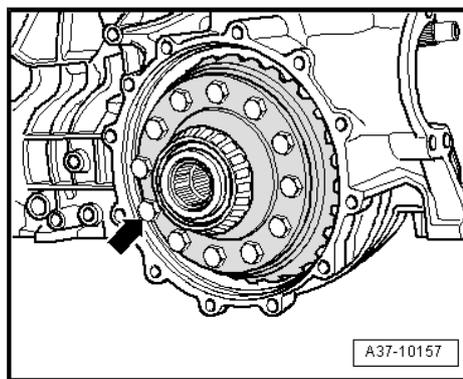


Note

The thickness of the shim has been measured to fit; the shim must not be replaced with another shim of different thickness.



- Remove differential -arrow-.

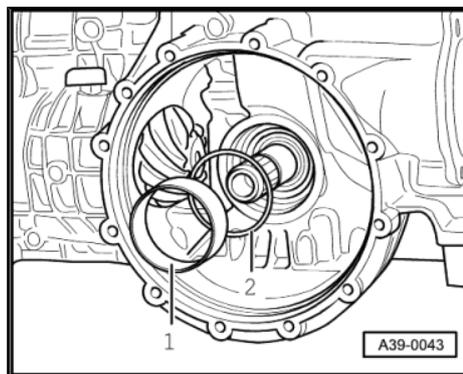


- Remove tapered roller bearing outer race -1- for differential and shim -2- (behind outer race) from gearbox housing by hand.



Note

The thickness of the shim has been measured to fit; the shim must not be replaced with another shim of different thickness.

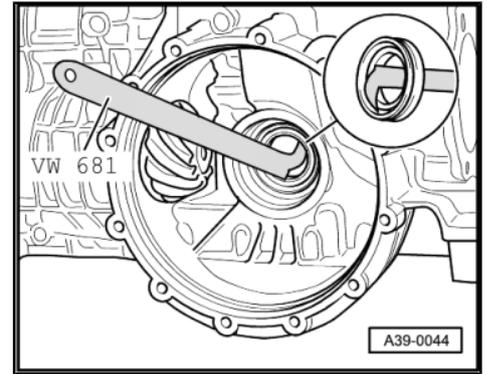


- Remove flange shaft (left-side) ⇒ [page 125](#) .
- Pull out oil seal.

 **Note**

The oil seal extractor lever must be applied behind the two sealing lips of the oil seal. Do not position at outer circumference of oil seal as the contact surface in the gearbox housing could be damaged. Guide the lever carefully when removing the seal.

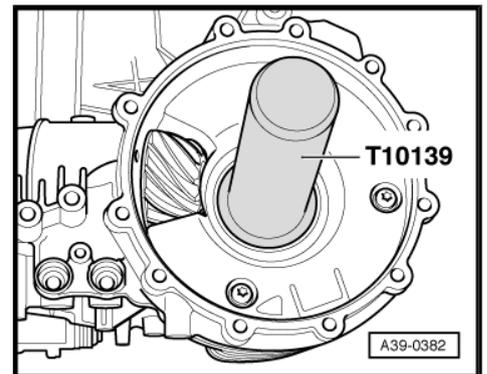
- Examine oil seal seat in gearbox housing for damage; reface surface if necessary.
- Lightly lubricate outer circumference and sealing lip of oil seal with gear oil.



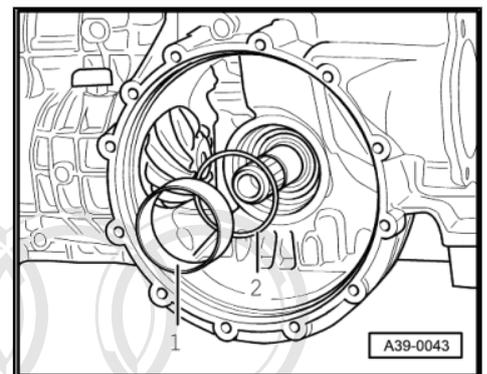
 **Note**

Push oil seal onto thrust piece with the protruding sealing lip on the oil seal facing towards the tool.

- Drive in new oil seal as far as stop.



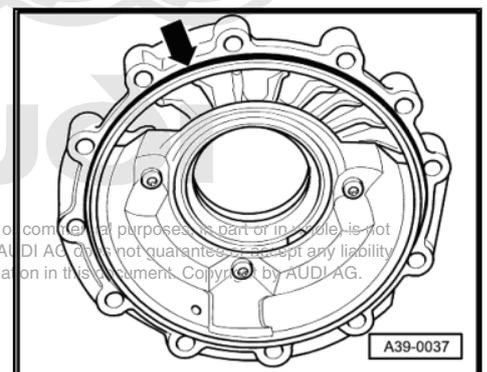
- Insert shim -2- and tapered roller bearing outer race -1- for differential onto stop in gearbox housing by hand.



- Renew O-ring -arrow-.
- Install differential in gearbox housing.

Note the following if the outer race for tapered roller bearing and the shim have dropped out of the front final drive cover:

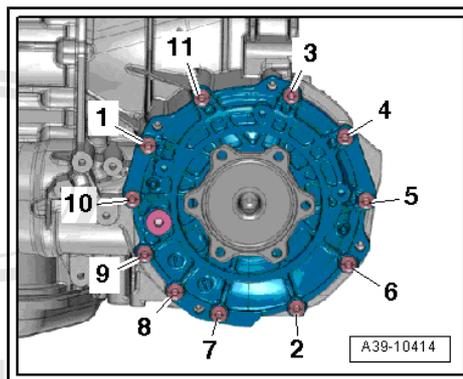
- Lubricate shim and outer race for tapered roller bearing with gear oil and insert in front final drive cover as far as the stop.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



- Tighten bolts for front final drive cover => [page 104](#) .
- Install flange shaft (left-side) => [page 125](#) .
- Install flange shaft (right-side) => [page 126](#) .
- Fill up gear oil in gearbox after repairs => [page 112](#) .



3.2 Renewing oil seal (right-side)

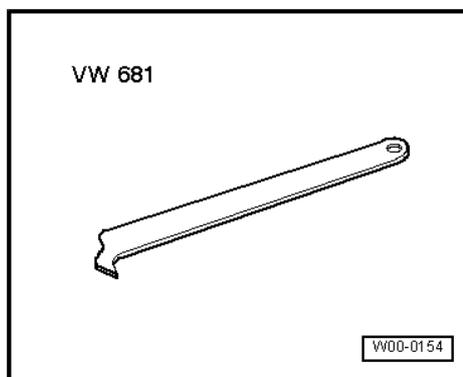
Special tools and workshop equipment required

permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for the use of the information in this document. Copyright by AUDI AG.

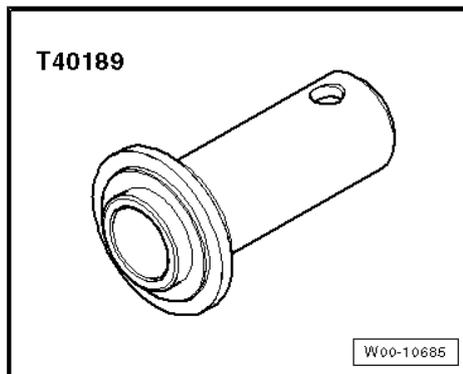
- ◆ Used oil collection and extraction unit - VAS 6622



- ◆ Oil seal extractor lever - VW 681-



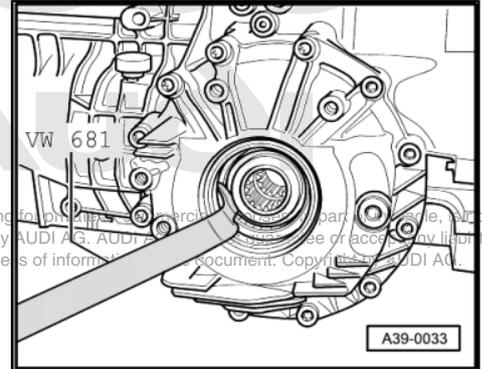
- ◆ Thrust piece - T40189-



Procedure

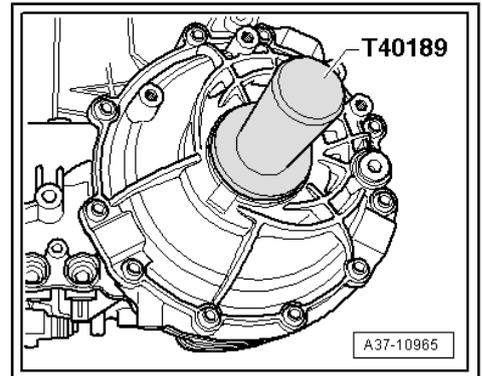
Note

- ◆ Note ⇒ [“3.3 General repair instructions”, page 10](#) .
- ◆ Note ⇒ [“3.1 Rules for cleanliness”, page 9](#) .
- Place used oil collection and extraction unit - VAS 6622- below gearbox.
- Remove flange shaft (right-side) ⇒ [page 126](#) .
- Pull out oil seal for flange shaft (right-side).
- Lubricate outer circumference of new oil seal with gear oil.
- Installation position: the open side of the oil seal should face the gearbox.



Protected by copyright. Copying for private use or for internal or external advertising, promotional purposes, resale, or other distribution is prohibited without the prior written permission of Audi AG. Audi AG is not liable for any damage or loss of data or information resulting from the use of this document. Copyright © Audi AG.

- Drive in new oil seal as far as stop. Make sure that oil seal always remains straight when driving in.
- Install flange shaft (right-side) ⇒ [page 126](#) .
- Fill up gear oil in gearbox after repairs ⇒ [page 112](#) .



3.3 Renewing O-ring on cover for front final drive

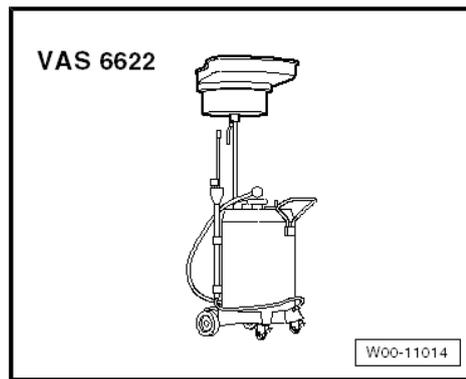
Note

- ◆ Note ⇒ [“3.3 General repair instructions”, page 10](#) .
- ◆ Note ⇒ [“3.1 Rules for cleanliness”, page 9](#) .

Special tools and workshop equipment required



◆ Used oil collection and extraction unit - VAS 6622-



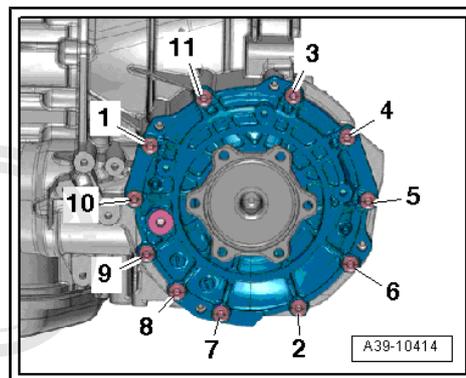
Procedure

- Place used oil collection and extraction unit - VAS 6622- below gearbox.
- Remove flange shaft (right-side) ⇒ [page 126](#) .
- Remove bolts securing cover for front final drive in the sequence -11 ... 1-.
- Remove cover for front final drive together with outer race for tapered roller bearing and shim.



Note

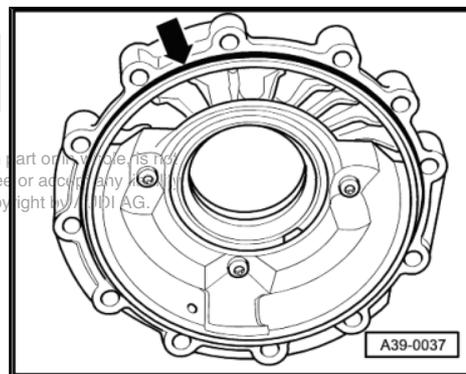
The thickness of the shim has been measured to fit; the shim must not be replaced with another shim of different thickness.



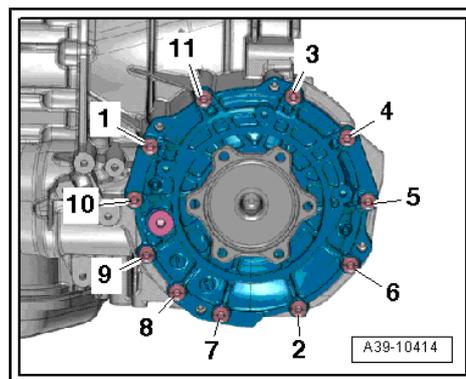
- Renew O-ring -arrow-.
- Install differential in gearbox housing.

Note the following if the outer race for tapered roller bearing and the shim have dropped out of the front final drive cover:

- Lubricate shim and outer race for tapered roller bearing with gear oil and insert in front final drive cover as far as the stop.



- Tighten bolts for front final drive cover ⇒ [page 104](#) .
- Install flange shaft (right-side) ⇒ [page 126](#) .
- Fill up gear oil in gearbox after repairs ⇒ [page 112](#) .



4 Differential

⇒ ["4.1 Removing and installing flange shaft \(left-side\)", page 125](#)

⇒ ["4.2 Removing and installing flange shaft \(right-side\)", page 126](#)

⇒ ["4.3 Renewing ball bearing and mounting bracket for flange shaft \(left-side\)", page 129](#)

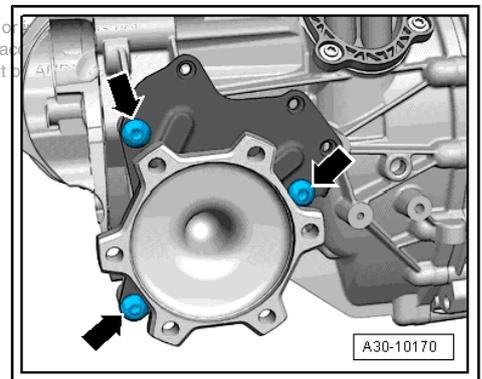
4.1 Removing and installing flange shaft (left-side)

Special tools and workshop equipment required

- ◆ Sealing grease - G 052 128 A1-

Removing

- Gearbox is secured to engine and gearbox support - VAS 6095- ⇒ [page 68](#) .
- Tilt gearbox to rear on engine and gearbox support to prevent gear oil from escaping.
- Unscrew bolts -arrows- on mounting bracket for flange shaft.

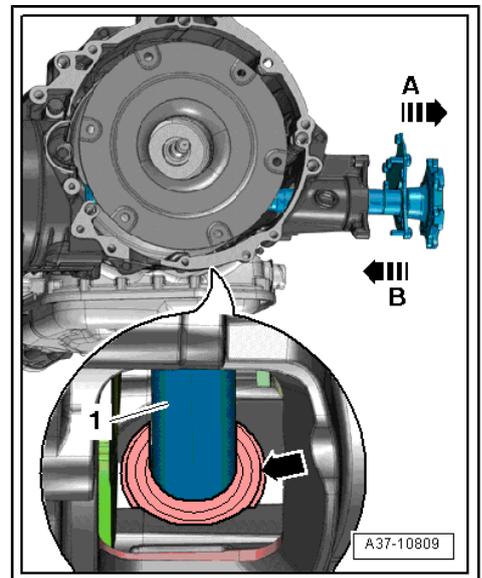


- Remove flange shaft (left-side) -1- from gearbox in direction of -arrow A-.

Note

-Arrow B- can be disregarded.

- Remove electric drive motor - V141- ⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor; Removing and installing electric drive motor .





Installing

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

- Thoroughly clean flange shaft (left-side), area of torque converter bellhousing leading to differential -arrow A-, and oil seal -arrow B-.



Note

If oil seal between differential and gearbox housing -arrow B- is damaged, it must be renewed => [page 102](#) .

- Pack space between sealing lip and dust lip half-full with sealing grease - G 052 128 A1- .
- Install electric drive motor - V141- => [Electrical system, hybrid](#); Rep. gr. 93 ; Electric drive motor; Removing and installing electric drive motor .

- Slide flange shaft (left-side) -1- into gearbox in direction of -arrow B- (keep end of shaft centred while guiding it into oil seal on front final drive -arrow-).



Note

- ◆ The splines -2- on the flange shaft will damage the oil seal between the final drive and the gearbox housing if you do not keep the flange shaft centred.
- ◆ If the oil seal is damaged, it must be renewed.
- ◆ -Arrow A- can be disregarded.

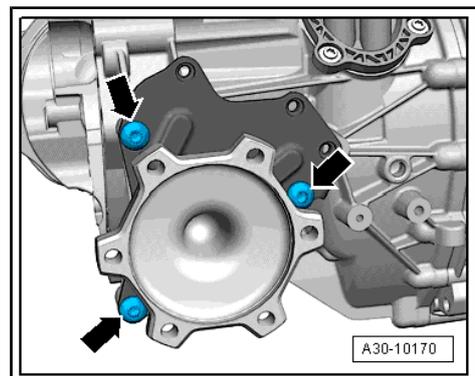
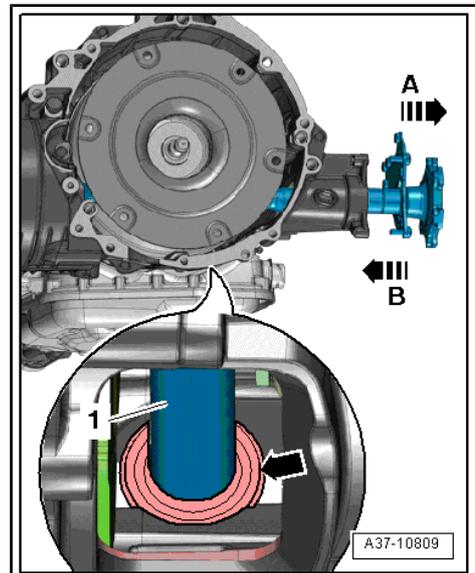
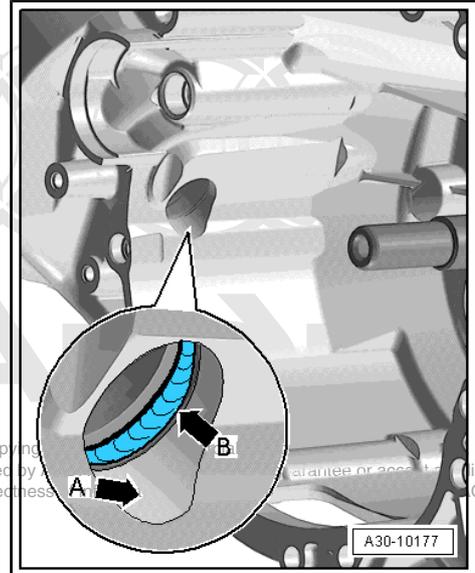
- Tighten flange shaft mounting bracket -arrows-.
- After gearbox has been installed, check gear oil level => [page 106](#) .

Tightening torques

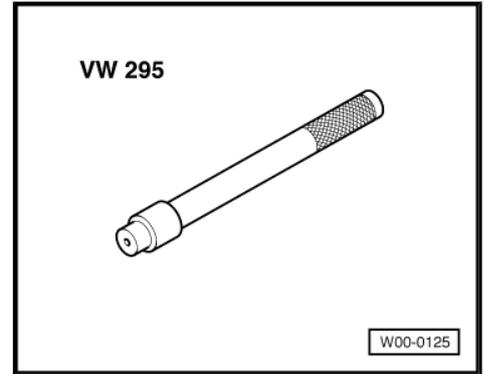
- ◆ => ["1.1.1 Exploded view - final drive", page 102](#)

4.2 Removing and installing flange shaft (right-side)

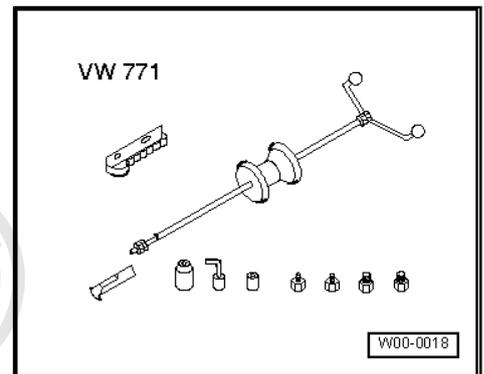
Special tools and workshop equipment required



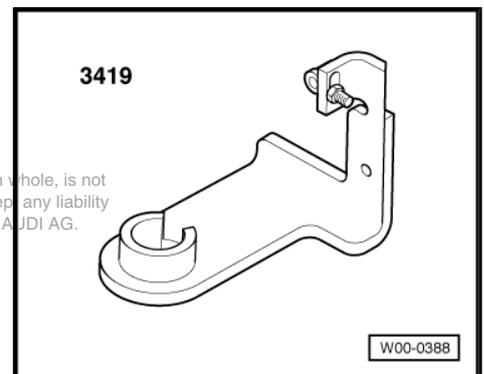
◆ Drift - VW 295-



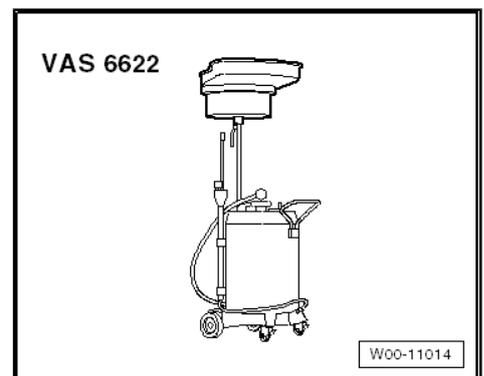
◆ Multi-purpose tool - VW 771-



◆ Counterhold tool - 3419-



◆ Used oil collection and extraction unit - VAS 6622-



◆ Nut M10 (2x)

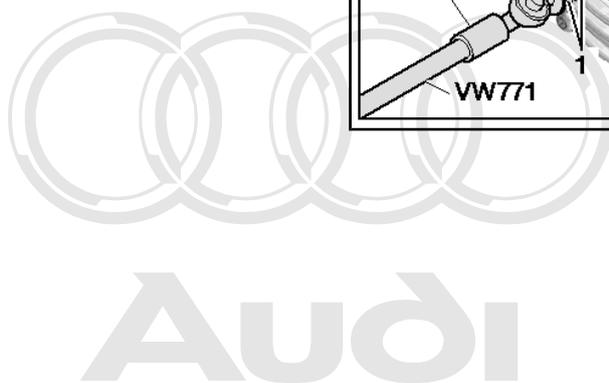
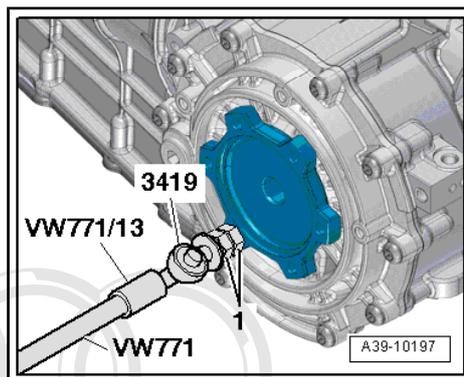
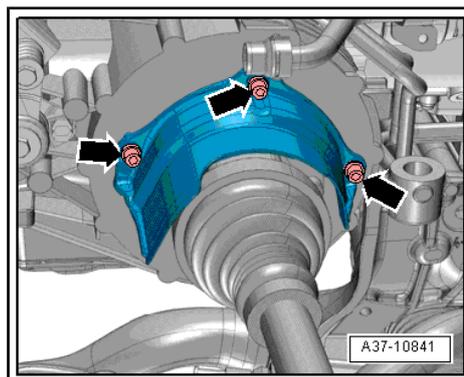
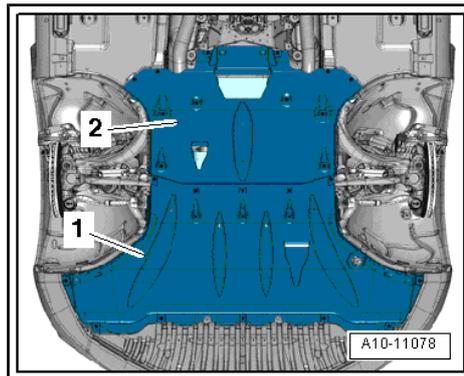
◆ Sealing grease - G 052 128 A1-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Removing

- Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove rear section of wheel housing liner (front right) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .
- Remove bolts -arrows- and detach heat shield for drive shaft (right-side).
- Unbolt drive shaft (right-side) from gearbox flange shaft and move it towards rear ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .
- Place used oil collection and extraction unit - VAS 6622- below gearbox.
- Screw eye bolt from counterhold tool - 3419- into one of the threaded holes on flange shaft (right-side) with 2 nuts M10 -item 1- attached.
- Attach multi-purpose tool - VW 771- with -VW 771/13- to eye bolt and pull flange shaft off gearbox.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Installing

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

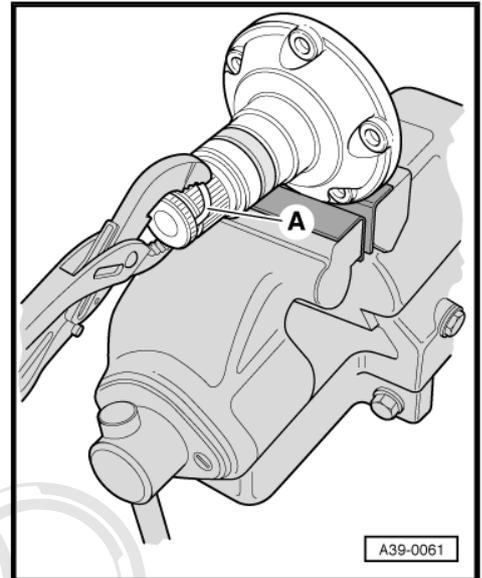
Note

Renew circlip for flange shaft (right-side).

- Clamp flange shaft in vice, using jaw protectors. Use new circlip -A- to press old circlip out of groove in flange shaft.
- Check flange shaft oil seal (right-side) for damage and renew if necessary ⇒ [page 122](#) .
- Pack space between sealing lip and dust lip half-full with sealing grease - G 052 128 A1- .
- Drive in flange shaft (right-side) with drift - VW 295- .
- Check gear oil level and top up as required ⇒ [page 106](#) .

Tightening torques

- ◆ Drive shaft and heat shield ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Exploded view - drive shaft

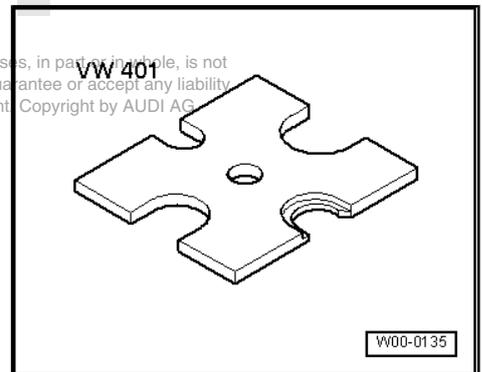


4.3 Renewing ball bearing and mounting bracket for flange shaft (left-side)

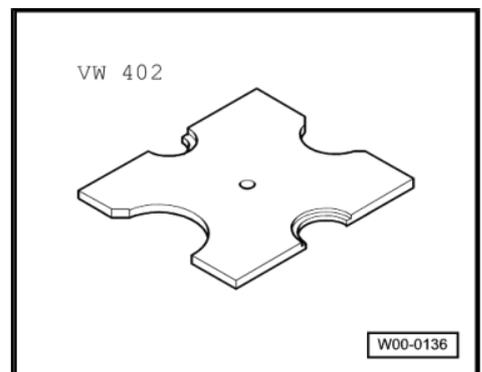
Special tools and workshop equipment required

- ◆ Thrust plate - VW 401-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

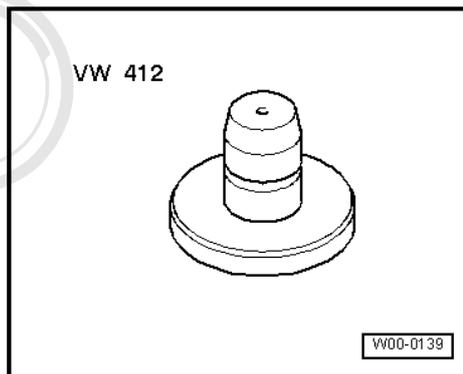


- ◆ Thrust plate - VW 402-



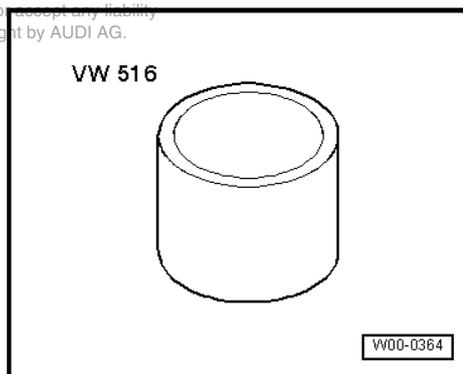


◆ Press tool - VW 412-



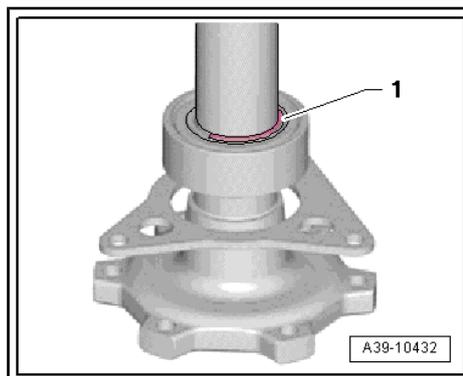
◆ Tube - VW 516-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

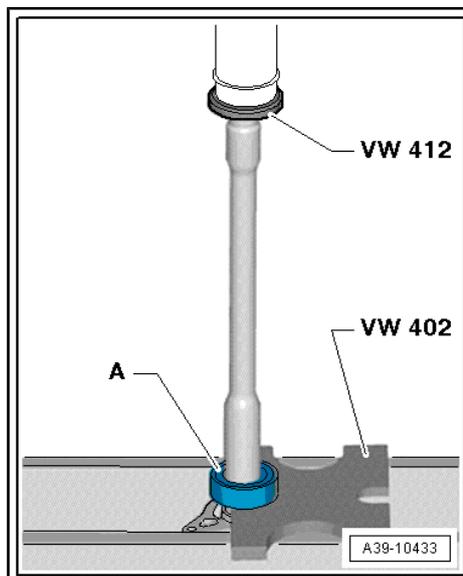


Procedure

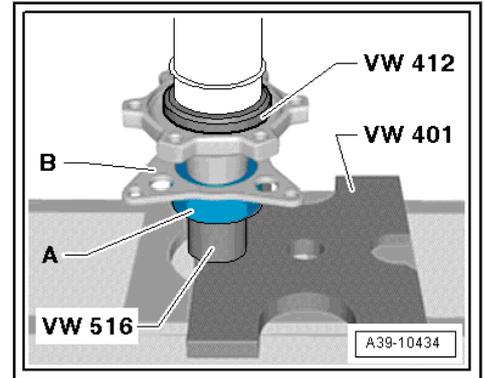
- Remove flange shaft (left-side) ⇒ [page 125](#) .
- Remove circlip -1- from flange shaft.



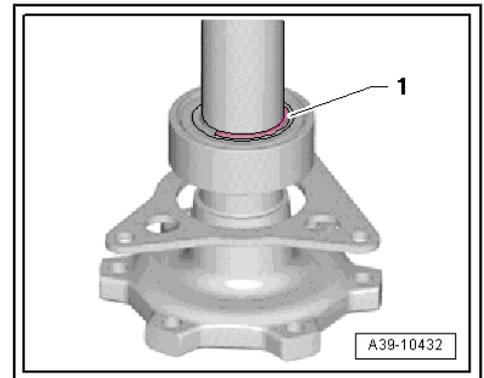
- Press ball bearing -A- off flange shaft.



- Place mounting bracket -B- on ball bearing.
- Installation position of mounting bracket: lettering on mounting bracket faces towards flange.
- Press new ball bearing -A- onto flange shaft as far as stop.



- Fit new circlip -1- in annular groove on flange shaft.
- Install flange shaft (left-side) ⇒ [page 125](#) .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

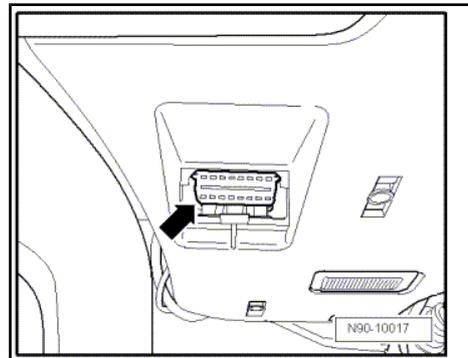
5 Gearbox control system

⇒ ["5.1 Overview of fitting locations - gearbox control system", page 132](#)

5.1 Overview of fitting locations - gearbox control system

Diagnostic connection

- ◆ Fitting location: The diagnostic connection for the vehicle diagnostic tester is located in the driver's footwell.

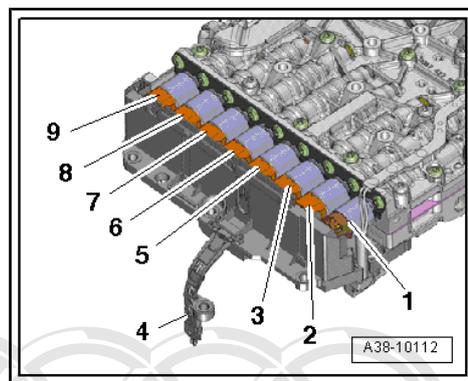


Mechatronic unit, automatic gearbox control unit - J217-, senders and pressure regulating valves - part 1

- ◆ Fitting location: the mechatronic unit is bolted to the underside of the gearbox housing and covered by the ATF oil pan.

The mechatronic unit incorporates the hydraulic control system, the electronic control unit and the sensors and actuators as a complete synchronised unit. This includes:

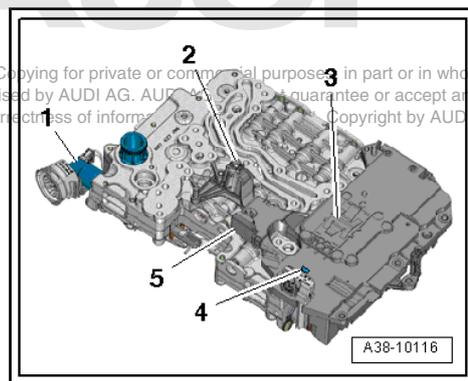
- 1 - Solenoid valve 1 - N88-
- 2 - Automatic gearbox pressure regulating valve 7 - N443-
- 3 - Automatic gearbox pressure regulating valve 6 - N371-
- 4 - Gearbox output speed sender - G195-
- 5 - Automatic gearbox pressure regulating valve 3 - N217-
- 6 - Automatic gearbox pressure regulating valve 5 - N233-
- 7 - Automatic gearbox pressure regulating valve 2 - N216-
- 8 - Automatic gearbox pressure regulating valve 4 - N218-
- 9 - Automatic gearbox pressure regulating valve 1 - N215-



Mechatronic unit, automatic gearbox control unit - J217-, senders and pressure regulating valves - part 2

- 1 - Parking lock solenoid - N486-
- 2 - Gearbox input speed sender - G182-
- 3 - Automatic gearbox control unit - J217-
- 4 - Gearbox oil temperature sender - G93-
- 5 - Parking lock sender - G747-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information. Copyright by AUDI AG.

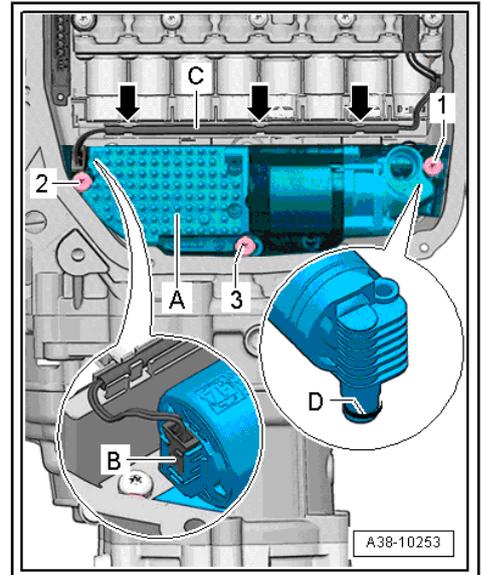


Note

- ◆ All components mentioned are tested via self-diagnosis.
- ◆ The mechatronic unit can only be replaced as a complete unit.

Removing and installing ⇒ [page 96](#) .

Auxiliary hydraulic pump 1 for gearbox oil - V475- -A-
 Removing and installing ⇒ [page 89](#) .

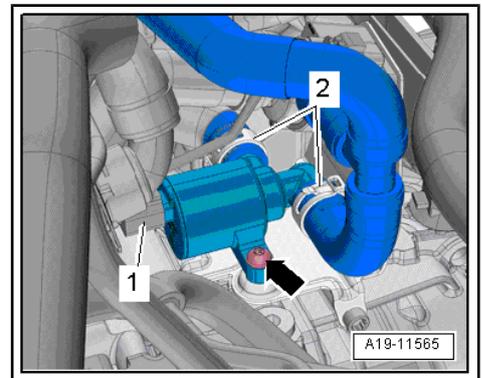


Gearbox oil cooling valve - N509-

◆ Fitting location: on top of gearbox.

1 - Electrical connector for gearbox oil cooling valve - N509-

Removing and installing ⇒ Rep. gr. 19 ; Coolant pump/thermostat assembly; Removing and installing coolant valves

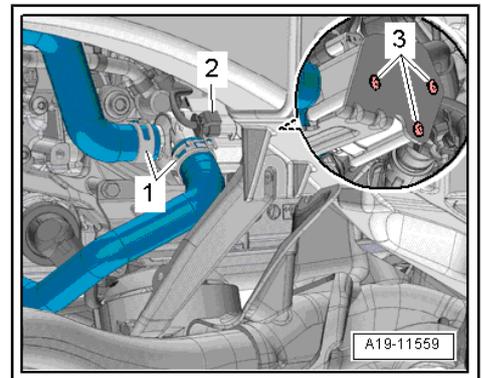


Gearbox oil cooling pump - V478-

◆ Fitting location: on gearbox (left-side).

2 - Electrical connector for gearbox oil cooling pump - V478-

Removing and installing ⇒ Rep. gr. 19 ; Coolant pump/thermostat assembly; Removing and installing electrical coolant pump



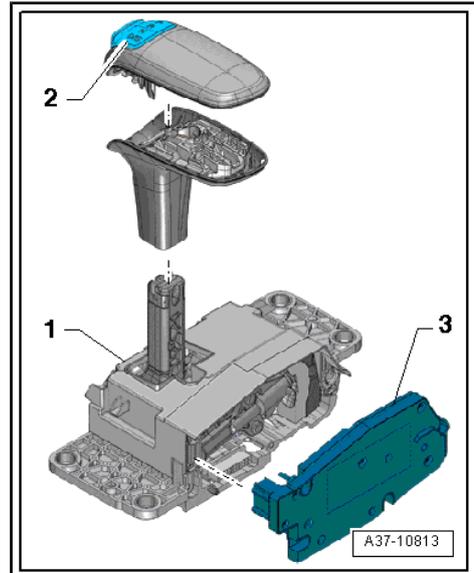
Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Shift unit with selector lever - E313- .

- 1 - Shift unit with selector lever - E313- , solenoid 1 for selector lever lock - N496- , solenoid 2 for selector lever lock - N497- , solenoid 3 for selector lever lock - N498- , solenoid 4 for selector lever lock - N499- , solenoid 5 for selector lever lock - N500-
- 2 - Button for selector lever release - E681- with selector lever position display - Y26-
- 3 - Selector lever sensors control unit - J587- with selector lever position sender - G727-

Removing and installing ⇒ [page 17](#) .



Kickdown switch



Note

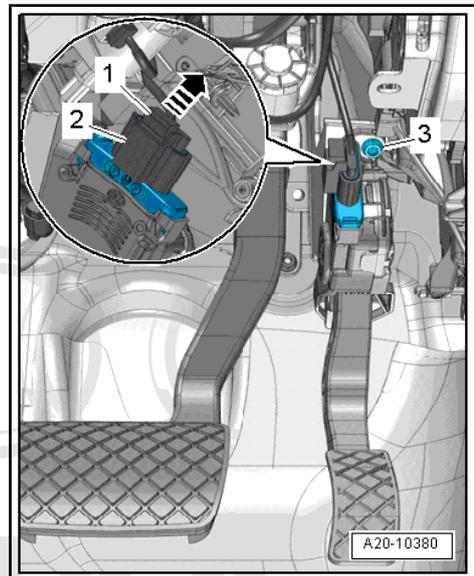
A specific value for the accelerator position sender - G79- and accelerator position sender 2 - G185- is stored in the engine control unit.

- ◆ Fitting location: accelerator position sender - G79- and accelerator position sender 2 - G185- are integrated in the accelerator pedal module and cannot be renewed separately.



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 ; Accelerator mechanism; Removing and installing accelerator pedal module with accelerator position sender -G79- / -G185- .



Electric drive motor - V141-

The disengagement clutch in the electric drive motor - V141- disengages the engine from the electric drive motor - V141- . The disengagement clutch is also designated "disengagement clutch F", or just "clutch F".

- ◆ Fitting location: The electric drive motor - V141- -1- is installed in the gearbox housing in place of the torque converter.

Removing and installing ⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor; Removing and installing electric drive motor .

