Workshop Manual

Octavia III 2013 ➤
Octavia III 2014 ➤

Gearbox 0D9-DSG

Edition 03.2015

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

Contents

00 – Technical data

1 Technical Data for the Gearbox

(SRL000800; Edition 03.2015)

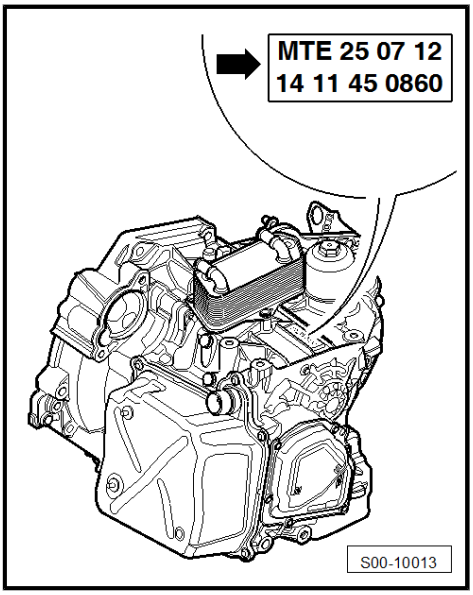
1.1 Identification of the gearbox

The “6-speed double clutch gearbox DSG - 0D9” is installed in combination with 4-cylinder engines.

Location of identification code letters on the gearbox

Example for a gearbox:

The gearbox identification character is located at the top of the gearbox, close to the gearbox oil cooler.



- MTE = Identification characters
- 25.07.12 = Production date 25th July 2012
- 14 = factory code
- 11:45 = time
- 0860 = serial number

The gearbox identification characters also appear on the vehicle data sticker.

Note

If these vehicle data stickers are not present or you have no other possibility to identify the installed gearbox in case of doubt, then read off the identification characters directly from the gearbox.

Read off the gearbox identification characters
⇒ “1.2 Read off the gearbox identification characters”, page 1 .

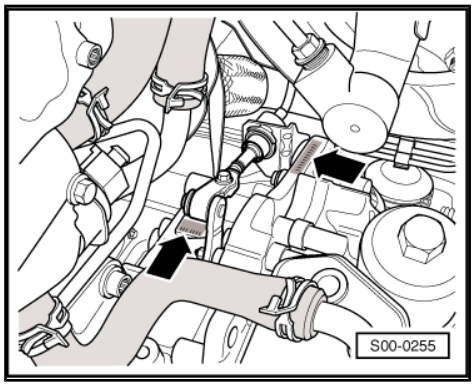
1.2 Read off the gearbox identification characters

Special tools and workshop equipment required

- Supporting device - T30099-
- Surface - T30119-
- Hook for MP9-200 and T30099 - MP9-200/10 (10-222A/10)-
- Support - 10-222A/31-3-
- Connecting stud - T40091/3-

Description

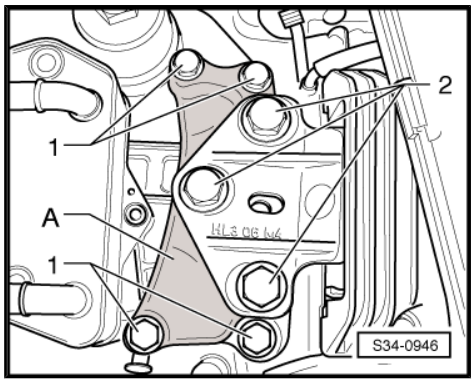
On certain gearboxes the additional identification characters are located at the top of the gearbox close to the selector lever control cable -arrows-.



In order to read off the identification characters below the console directly from the gearbox, the engine must be supported with the gearbox and the console -A- must be removed on the left unit mounting.

When doing this, it is important to lower the engine with gearbox sufficiently until the console can be pushed to the rear. If they are lowered further, the pendulum support will be damaged.

After the installation of the console, the selector lever control cable must be set
⇒ “8.2 Inspecting and adjusting the selector lever control cable”, page 60 .



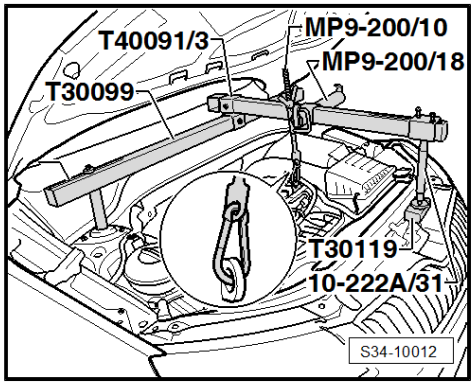
– Remove air filter ⇒ Engine; Rep. gr. 23 or ⇒ Engine; Rep. gr. 24 .

Note

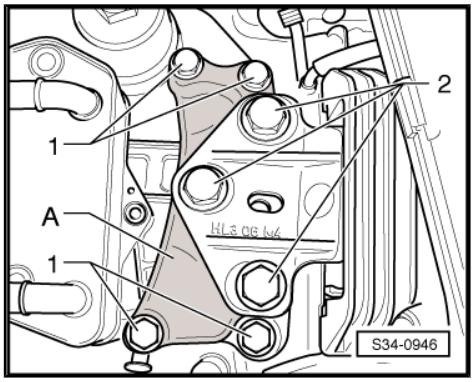
If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .

– Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .

– Support engine with gearbox using supporting device -T30099- . Do not raise.

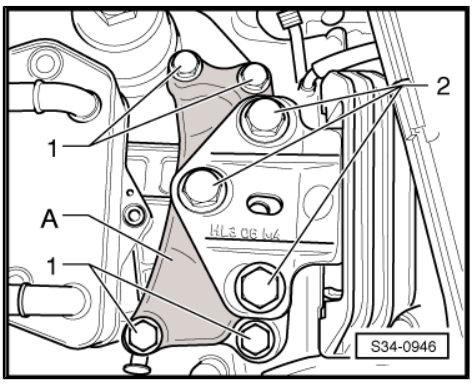


– Unscrew all screws -1- and -2- of the console -A-.
– Lower the engine and gearbox with the hook of the supporting device - MP9-200 (10-222 A)- until the console can be removed.



Maximum 4 turns is sufficient, in order to take out the console -A-.

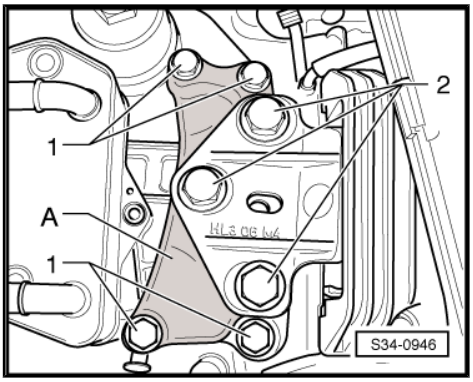
After the gearbox identification characters have been read off, the installation of the console occurs in reverse order.



Note

- *Pay attention to the following instructions.*
- *Replace all screws of the left unit mounting.*
- *First screw in all the new screws by hand.*

– Screw console -A- onto the gearbox with the screws -1- and -2- ⇒ “9.2 Installing the gearbox”, page 85 .
– Setting selector lever control cable ⇒ “8.2 Inspecting and adjusting the selector lever control cable”, page 60 .



1.3 Identification characters, aggregate assignment, ratios

⇒ “1.3.1 Identification characters, aggregate assignment, ratios - vehicles with front-wheel drive”, page 3

⇒ “1.3.2 Identification characters, aggregate assignment, ratios - vehicles with four-wheel drive”, page 4

1.3.1 Identification characters, aggregate assignment, ratios - vehicles with front-wheel drive

Automatic Gearbox DSG - 0D9		0D9 “Front-wheel drive”			
Gearbox	**Identification characters**	**MTF**	**PPN**	**PUL**	**QSJ**
	Manufac- from tured through	11.2012 05.2013	05.2013 10.2013	11.2013 05.2014	05.2014
Assignment	Engine	2.0 ltr./162 kW TSI			
Drive shaft flange		⇒ Electronic Catalogue of Original Parts			

Automatic Gearbox DSG - 0D9		0D9 “Front-wheel drive”			
Gearbox	**Identification characters**	**MTE**	**PPM**	**PUH**	**QSE**
	Manufac- from tured through	11.2012 05.2013	05.2013 10.2013	11.2013 05.2014	05.2014
Assignment	Engine	2.0 l/110 kW TDI CR	2.0 ltr./105 kW TDI CR 2.0 ltr./110 kW TDI CR		
Drive shaft flange		⇒ Electronic Catalogue of Original Parts			

Automatic Gearbox DSG - 0D9		0D9 “Front-wheel drive”			
Gearbox	**Identification characters**	**PDZ**	**PPR**	**PUJ**	**QSF**
	Manufac- from tured through	05.2013 05.2013	05.2013 11.2013	11.2013 05.2014	05.2014
Assignment	Engine	2.0 ltr./135 kW TDI CR			
Drive shaft flange		⇒ Electronic Catalogue of Original Parts			

1.3.2 Identification characters, aggregate assignment, ratios - vehicles with four-wheel drive

Automatic Gearbox DSG - 0D9		0D9	
Identification characters		**NUT**	**PPP**
Manufac- from tured through		05.2013 05.2013	05.2013 11.2013
Assignment:	Engine	1.8 ltr./132 kW TFSI	
Drive shaft flange		⇒ Electronic Catalogue of Original Parts	

Automatic Gearbox DSG - 0D9		0D9	
Identification characters		**PUP**	**QSM**
Manufac- from tured through		11.2013 05.2014	05.2014
Assignment:	Engine	1.8 ltr./132 kW TFSI	
Drive shaft flange ∅		⇒ Electronic Catalogue of Original Parts	

Automatic Gearbox DSG - 0D9		0D9	
Identification characters		**PUN**	**QSL**
Manufac- from tured through		11.2013 05.2014	05.2014
Assignment:	Engine	2.0 l/135 kW TDI CR	
Drive shaft flange ∅		⇒ Electronic Catalogue of Original Parts	

1.4 Filling capacity

Caution

Risk of damage to gearbox.

- *Only spare part gear oil should be used for the 6-speed double clutch gearbox 0D9 ⇒ Electronic Catalogue of Original Parts .*
- *Only spare part gear oil should be used for the angle gearbox and rear final drive ⇒ Electronic Catalogue of Original Parts .*
- *Only the high-performance oil available as a spare part for Haldex couplings should be used for the Haldex coupling of the rear final drive 0CQ ⇒ Electronic Catalogue of Original Parts .*
- *Other lubricants can lead to functional problems or to failure of the gearbox.*
- *An insufficient quantity and overfilling the oil also impacts the function of individual gear ratios.*

Caution

Be careful when handling oil. Dispose of used oils properly.

- Shake oil bottle before opening.
- Do not mix any additives in the oil, also do not fill in other oil.
- Drained oil must not be refilled.

Content - gearbox

Filling capacity	Automatic Gearbox DSG - 0D9
New filling	6.9 ltr.
Change in customer service	approx. 5.2 ltr.
Replacing after removal and installation of the mechatronics on an installed gearbox	3 … 4 l
Change interval	⇒ Maintenance ; Booklet Octavia III
Transmission oil specification for automatic Gearbox DSG - 0D9	⇒ Electronic Catalogue of Original Parts

When changing the gear oil, the gearbox oil filter must not always be replaced. Therefore comply with the instructions, when the gearbox oil filter must be replaced and when not
⇒ “2.2 General repair instructions”, page 7 .

Check transmission oil level and top up with transmission oil if necessary
⇒ “11 Change the gearbox oil and filter of the automatic gearbox DSG and at the same time check the oil level”, page 93 .

Filling capacity - angle gearbox

Filling capacity	Angle gearbox
New filling	0.9 l

Filling capacity	Angle gearbox
Top-up	Filled for life, no top-up
Oil specification for final drives for angle gearbox	⇒ Electronic Catalogue of Original Parts

Checking the oil level ⇒ “4.1 Checking the oil level”, page 127 .

Drain and fill oil ⇒ “4.2 Drain and fill oil”, page 129 .

- Check the oil level in the rear final drive or top up with oil ⇒ Propshaft and rear final drive; Rep. gr. 39 .
- Check the high-performance oil in the Haldex coupling or top up with high-performance oil ⇒ Propshaft and rear final drive; Rep. gr. 39 .

2 Notes on 6-speed automatic gearbox DSG - 0D9

Note

- *The automatic gearbox DSG - 0D9 is also designated as double clutch gearbox. The gearbox is built like a 6-speed gearbox.*
- *Information on structure and function of the gearbox ⇒ Self-study programme No. 56 ; automatic gearbox DSG - 02E .*

2.1 Notes on tow starting and towing

Caution

When towing the vehicle, the selector lever must be in position “N” and it must not be towed further than 50 km and faster than 50 km/h, otherwise the gearbox will be destroyed.

Note

It is not possible to tow start an engine, e.g. if the battery is weak or the starter does not operate.

2.2 General repair instructions

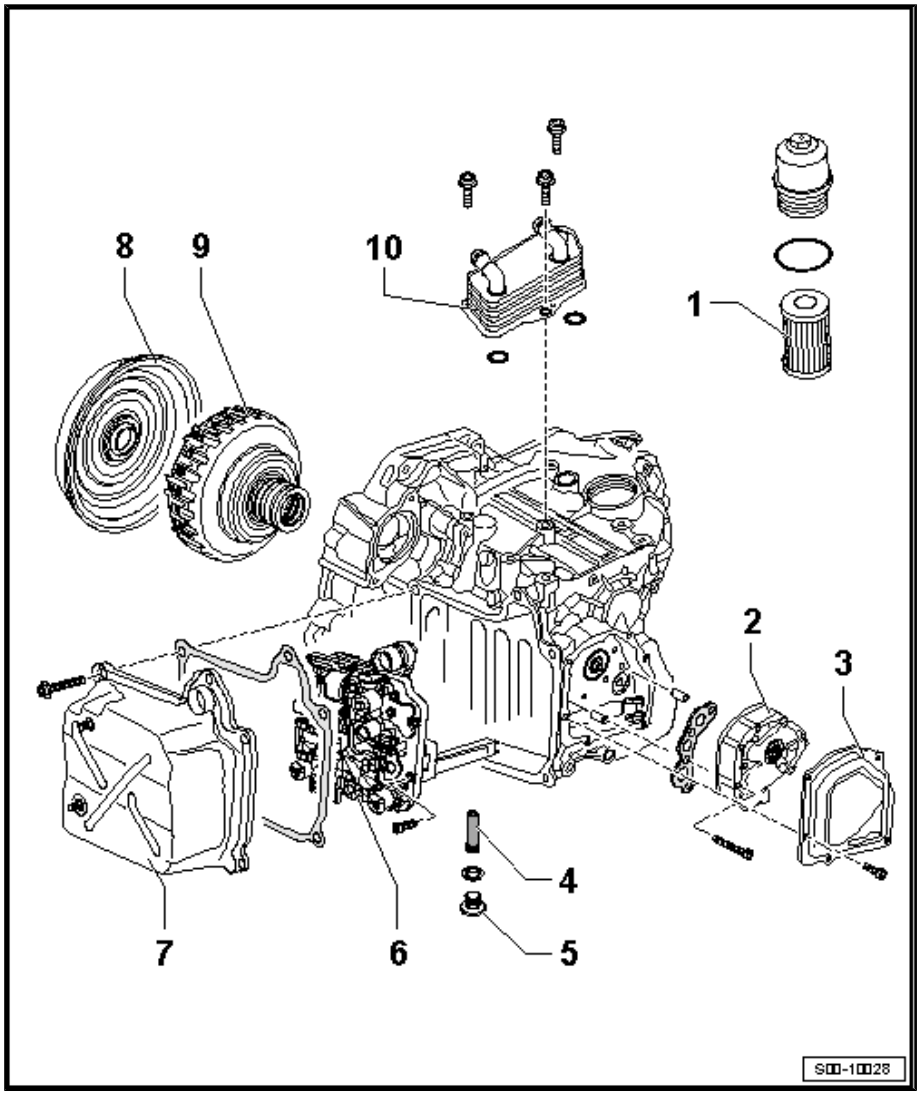
A number of general notes on the individual repair procedures, which are valid for this particular workshop manual, are summarised here.

To ensure flawless and successful gearbox repairs, the greatest care and cleanliness as well as the use of good and proper tools are essential. Also note the basic rules on safety when performing repair procedures.

Special tools

A list of the special tools used in the workshop manual is detailed in the individual repair descriptions.

Summary of components of gearbox



1 - Filter

- ❑ removing and installing ⇒ “11 Change the gearbox oil and filter of the automatic gearbox DSG and at the same time check the oil level”, page 93
- ❑ Instructions, when the gearbox oil filter must be replaced and when not ⇒ page 9

2 - Gearbox oil pump

- ❑ removing and installing ⇒ “6 Removing and installing gearbox oil pump”, page 54

3 - Cover for gearbox oil pump

- ❑ removing and installing ⇒ “6 Removing and installing gearbox oil pump”, page 54

4 - Overflow tube

- ❑ with hexagon socket 8 mm
- ❑ unscrew the inspection plug -Pos. 6- and overflow tube in order to drain the gearbox oil

5 - Check screw
⇒ “11 Change the gearbox oil and filter of the automatic gearbox DSG and at the same time check the oil level”, page 93

- ❑ Drain the gearbox oil via the inspection plug and the removed overflow tube -Pos. 5-

6 - Mechatronics for double clutch gearbox - J743-
⇒ “1 Electric/electronic components, fitting locations for the automatic gearbox DSG - 0D9”, page 33

7 - Oil pan

- ❑ removing and installing ⇒ “3 Removing and installing oil pan”, page 39

8 - Clutch cover

- ❑ removing and installing ⇒ “2 Removing and installing clutch”, page 20

9 - Clutch

- ❑ removing and installing ⇒ “1 Components of the clutch”, page 18

10 - Gearbox oil cooler

- ❑ removing and installing ⇒ “5 Removing and installing gearbox oil cooler”, page 51

Gearbox

Make sure no dirt gets into the gearbox when the gearbox is »opened«. Penetrated dirt, especially for »exposed« mechatronics for double clutch gearbox -J743- and/or oil pump, can lead to the failure of the gearbox.

- ♦ If the covers are unscrewed from the gearbox or the gearbox is without oil, do not let the engine run and do not tow the vehicle.

- Thoroughly clean the connection points and their surroundings and then release.
- When installing the gearbox, ensure the dowel sleeves are correctly located between the engine and gearbox.
- Place removed parts on a clean surface and cover, in order to avoid contamination. Do not use fluffy cloths!
- Only install clean components: Remove original parts from their wrapping immediately before fitting.
- Carefully cover or close opened components if the repair is not completed immediately.
- If the gearbox is replaced, the oil level must be checked ⇒ “11 Change the gearbox oil and filter of the automatic gearbox DSG and at the same time check the oil level”, page 93 .

Mechatronics

- The mechatronics is allocated according to the gearbox code letters ⇒ electronic catalogue of original parts .

Gaskets and seals

- After removing all seals, inspect the contact faces on housings and shafts for burrs and damage and remove all which are found.
- Before a radial shaft seal is installed, coat the sealing lips and the space in-between with sealing grease ⇒ Electronic catalogue of original parts and the outer circumference with gear oil for double clutch gearbox.
- The open side of the sealing rings is turned towards the oil.
- Replace O-rings, gasket rings and gaskets.
- Before inserting the O-rings coat with DSG oil to prevent the rings being damaged during installation.
- Only use DSG oil in the oil area. Other types of lubricant will cause the gearbox hydraulic control system to malfunction.
- After installing, check oil level ⇒ “11 Change the gearbox oil and filter of the automatic gearbox DSG and at the same time check the oil level”, page 93 .

Transmission oil and transmission filter with front final drive

The oil quality influences in a decisive way the function of the gearbox.

Oil not only lubricates the gearbox but also transports minor abrasion particles from the differential gear to both filters and also ensures that the grease film on the tooth flanks of the differential gear is not damaged and at the same time, by means of exerting pressure, it enables the operating switches of the gears to carry out their function. In addition, it seals the pistons and helps the synchronizer rings when shifting gears, it collects and transports heat energy, minimises noise - the tasks of the oil are very different. In order to maintain this performance, the oil as well as the oil filter of the gearbox must be changed during maintenance (instructions, when the gearbox oil filter must be replaced and when not ⇒ page 9).

Replace oil filter - “yes or no”

The filter must be replaced, if:

- the service interval was reached ⇒ Maintenance ; Booklet Octavia III .

- Coolant has got into the oil.
- Metallic swarfs were found in the oil.
- the clutch is blown or mechanically damaged.

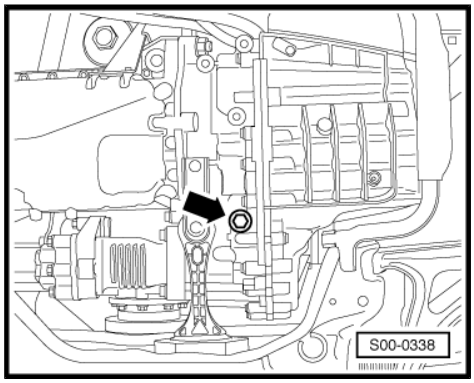
Do not replace; if:

- the gearbox oil cooler was replaced and no coolant has got into the oil.
- the gasket ring of the gearshift shaft was replaced.
- the gasket ring for flange or rigid shaft was replaced.
- the leaky cover of the mechatronics, the clutch or the oil pump was replaced.

Drain-, inspection- and filler plug for gearbox oil

The 6-speed double clutch gearbox and the front final drive has a common gearbox oil opening and they are filled at the same time.

Oil is checked and replaced via the inspection plug -arrow- ⇒ “11 Change the gearbox oil and filter of the automatic gearbox DSG and at the same time check the oil level”, page 93 .



Note

A plastic overflow tube with an 8 mm hexagon socket and a tightening torque of 3 Nm is located behind this screw. The length of the overflow tube determines the oil level in the gearbox, when replacing assign via part number ⇒ Electronic Catalogue of Original Parts .

Oil for angle gearbox

The angle gearbox has an automatic oil filling for final drives.

Caution

Risk of damage to angle gearbox.

- ***Only spare part gear oil should be used for final drives ⇒ Electronic Catalogue of Original Parts .***
- ***Other oils can lead to functional problems or to failure of the angle gearbox.***

- Checking the oil level in the angle gearbox or topping up with oil ⇒ “4 Oil for angle gearbox”, page 127 .

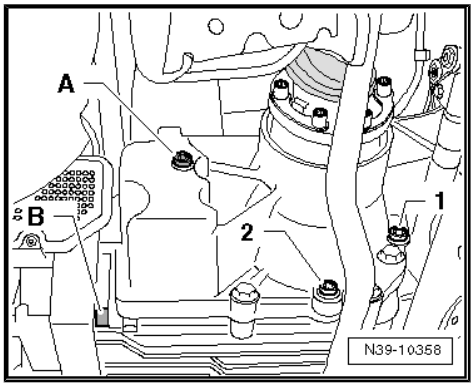
High-performance oil for Haldex coupling and oil for rear final drive

Caution

The rear final drive and the Haldex coupling have separate »oil circulation systems«.

- ***The Haldex coupling is filled with high-performance oil for Haldex couplings part number ⇒ Electronic Catalogue of Original Parts .***
- ***The rear final drive is filled with “oil for final drives” part number ⇒ Electronic Catalogue of Original Parts .***

Assigning oil filler plug or oil drain plug for rear final drive with Haldex coupling



A - Oil filler plug for high efficiency oil for Haldex coupling

B - Oil drain plug for high efficiency oil for Haldex coupling

1 - Oil filler plug for oils for final drive

2 - Oil drain plug for oils for final drive

- Check the oil level in the rear final drive or top up with oil ⇒ Propshaft and rear final drive; Rep. gr. 39 .
- Check the oil level in the Haldex coupling or top up with oil if necessary ⇒ Propshaft and rear final drive; Rep. gr. 39 .

Circlips

- Do not over-tension the circlips.
- Renew retaining rings which have been damaged or over-stretched.
- Circlips must be positioned in the base of the groove.

Nuts and bolts

- Slacken and tighten securing bolts and nuts for covers and housings diagonally across in stages.
- Specified torques given are for unlubricated nuts, bolts and screws.
- Clean the thread of the screws that are inserted with a locking agent with a wire brush. Insert bolts with locking agent - AMV 185 101 A1- .
- Clean all threaded holes into which bolts are screwed in with locking agent, using a thread tap to remove hardened locking agent residues. Otherwise there is a risk that the bolts will shear at the next disassembling.
- Replace screws which have been tightened to a torqueing angle as well as self-locking nuts.

Bearings

- Position needle bearing with the lettered side (thicker end) towards the drift pin.
- Moisten all bearings with oil before inserting.

Shims

- Gauge shims at several points with a micrometer. Different tolerances allow to select the required thickness for each washer very precisely.
- Inspect for possible burrs and damage.
- Install only adjusting washers which are in perfect condition (undamaged).

Electrical components

If you touch objects out of metal, it can happen that this can lead to an electrostatic discharge. This is due to the electrostatic charge accumulated by the human body. This electrostatic charge can lead to operational problems when touching the electrical components of the gearbox and the shift mechanism.

– Touch an earthed object, e. g. a metal water pipe or a lift platform, before working on the electrical components.

– Do not grab directly at the plug contacts.

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

Targeted fault-finding

Before repairing the gearbox try to determine the origin of the damage as accurately as possible using “targeted fault finding”.

The “targeted fault finding” is performed with the ⇒ Vehicle diagnostic tester.

Rules of cleanliness

- Thoroughly clean the connection points and their surroundings before releasing.
- Only install clean components: Remove spare parts from their wrapping immediately before fitting.
- Replace paper seals. Completely remove old gasket and thoroughly clean sealing surfaces.
- Place removed parts on a clean surface and cover them to prevent them from getting dirty. Use sheeting and paper for this purpose. Do not use fuzzy cloths!
- Carefully cover or close opened components if the repair is not completed immediately.
- Protect disconnected electrical plug connections from dirt and moisture and only connect them when dry.

2.3 Contact corrosion

The use of unsuitable connection elements causes contact corrosion (screws, nuts, washers, ...).

This is why only connection elements with a special surface coatings are fitted.

Therefore, the rubber or plastic parts and the adhesives are made from electrically non-conductive materials.

Use new parts in case of doubt regarding the suitability of the parts ⇒ Electronic catalogue of original parts .

- It is recommended to use only original replacement parts which are tested and compatible with aluminum.
- It is recommended to use only Škoda accessories.
- Any damage resulting from contact corrosion is not covered by the terms of the warranty.

2.4 Safety functions of the gearbox control unit

If a component in the gearbox fails, the control unit activates a backup function. Because the gearbox must be well protected, 4 error responses can be distinguished:

1 - If the error is minor, the continuation of the journey is made possible by a replacement program and the driving safety is ensured. This condition is not indicated to the driver with the selector lever position indicator - Y6- . The display indicates the selector lever position as usual. A change in the driveability can hardly be noticed.

2 - The individual selector lever positions flash in the selector lever position indicator - Y6- . The driver is notified that choosing this gear is presently not possible. Example: Reversing, selector lever in “R” and vehicle drives backwards. If “D” is selected at this moment, the letter “D” begins to flash in the selector lever position indicator - Y6- . In this case, the control unit prevents that the 1st gear is engaged so that the gearbox is not damaged. The gear is engaged only if the

vehicle is in idle. Be careful when testing the above mentioned!

3 - The selector lever position indicator - Y6- lights up completely and flashes. The selector lever position can be recognised if it is emphasized. Example: The gearbox oil temperature is too high. The following may be one of the reasons for this: The trailer towing is heavily loaded, different attachment parts on the upper part of the vehicle »Lack of air in the cooling system«.

4 - The selector lever position cannot be recognised, the selector lever position indicator - Y6- flashes, a change in the driveability and gearshift are noticeable and it is not possible to drive the vehicle backwards. A »severe error« has occurred, one part of the gearbox is switched off, a gearbox repair is unavoidable.

2.5 General safety instructions

Observe the following points to prevent injury to persons and/or damage to the vehicle:

WARNING

Risk of accident and injuries when unintentionally engaging a driving position while the engine is running.

- *Before the working on the vehicle while the engine is running, activate the electromechanical handbrake.*

Observe the following points to prevent injury to persons and/or permanent damage to electrical and electronic components:

- Disconnect and connect the measurement and test equipment with the ignition off.

Caution

Risk of damage to the electronic components when disconnecting the battery.

- *Observe measures when disconnecting the battery.*
- *Only disconnect the battery-with the ignition off.*

2.6 Safety precautions when working on vehicles with a start/stop system

When working on vehicles with start-stop system, observe the following:

WARNING

Risk of injury as a result of automatic engine start in vehicles with start/stop system.

- *On vehicles with activated start-stop system (recognizable by a message in the dash panel insert), the engine can start automatically if required.*
- *It is necessary to ensure that the start-stop system is deactivated when carrying out work on the vehicle (switch ignition off and if required switch ignition on again).*

2.7 Safety precautions during road tests in which testing and measuring equipment is used

If test and measuring devices are required during test drives, observe the following information:

WARNING

There is a risk of accident from unintended motion and insufficient securing of testers and measuring instruments.

There is a risk of injury from the release of the passenger airbag in the event of an accident.

- *Operation of test and measuring instruments by the driver while driving may result in deviating from the direction of travel.*
- *There is an increased risk of injury or accident from unsecured testers and measuring instruments.*

♦ *Fasten test and measurement equipment with a strap on the rear seat and secure their operation by another person sitting on the rear seat.*

2.8 Explanation of the terms used in this workshop manual

The following explanations are related to automatic Gearbox DSG only. They do not claim to be valid in all cases.

CAN bus - cable

Data transfer. Before transmission, electrical signals are put into certain forms (BUS). Further information on this can be found in ⇒ Self-study programme No. 24 ; Škoda OCTAVIA; CAN databus; Structure and Function .

DSG

Automatic gearbox DSG. Further information on this can be found in ⇒ Self-study programme No. 56 ; Automatic gearbox DSG - 02E .

Self-diagnosis

The capability of the control unit to:

recognize faults,

react to faults,

store faults,

Determine measured values and to display them in the measured value block.

Gearbox

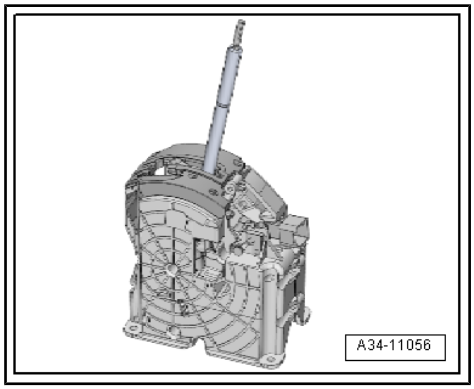
♦ The engine torque is transferred onto the double clutch via the flywheel. The flywheel and the double clutch are interconnected via a serration. Both together have the function of the two-mass flywheel.

♦ The gearbox is built like a 6-speed manual gearbox. Due to the alternative hydraulic activation of the two multi-plate dry clutches, it is operated like an automatic gearbox. This means that the gears are automatically or manually engaged via the Tiptronic mode. A clutch pedal is not present.

- Both clutches are open when the ignition is switched off. Part transmission 1 engages the 1st gear and part transmission 2 engages the reverse gear.

Shift mechanism

The selector lever position is no longer communicated mechanically, as for automatic gearboxes, via the selector lever control cable and the multi-function switch (sensor for driving position) to the gearbox. The selector lever positions or shifting gears are transmitted via a separate control unit in the functional unit or with the aid of the selector mechanism via a CAN databus to the gearbox control unit. The shifting of the gears is then performed without the control cable. Only in the selector lever position “P” is the parking position engaged mechanically with the selector lever control cable.



Gear oil

Automatic gearbox DSG and front final drive have a common oil filler.

- Only spare part gear oil should be used for automatic gearbox DSG - 0D9 ⇒ Electronic Catalogue of Original Parts .

Oil for final drives

- Only spare part oil should be used for the angle gearbox and rear final drive ⇒ Electronic Catalogue of Original Parts .

High-performance oil for Haldex couplings

- Only high-performance oil for Haldex couplings should be used for Haldex couplings ⇒ Electronic Catalogue of Original Parts .

Kick-down switch - F8-

The kick-down switch is no longer available. The diesel direct injection system control unit - J248- takes over the function of the switch.

If the accelerator pedal is pressed down to the stop, the transmission shifts down and turns faster.

Selector lever lock solenoid - N110-

The selector lever lock solenoid is integrated into the shift mechanism. Prevents the (unintentional) shifting of the selector lever from positions “P” and “N”, as long as the brake pedal is not pressed.

Emergency running mode

If individual or several components or sensors fail, the gearbox control unit activates the corresponding backup functions or emergency running programmes. This ensures a nondestructive operation of the gearbox with the respective effect on the function and quality of the shifting. Further information on this can be found in ⇒ Self-study programme No. 56 ; Automatic gearbox DSG - 02E .

The emergency running mode is a “status of the control unit”, which, if a fault of the control unit is detected, maintains driving safety, protects the gearbox from damage, and ensures that vehicle running will be affected as little as possible.

Parking position

When the vehicle is parked, the selector lever mechanically locks the parking gear thereby preventing the vehicle from moving off (unintentionally).

Shift mechanism

The selector lever position is no longer communicated mechanically, as for the other automatic gearboxes, via the selector lever control cable and the multi-function switch (sensor for driving position) to the gearbox. The selector lever positions or shifting gears are transmitted via a separate control unit in the shift mechanism via the CAN databus to the mechatronics. The shifting of the gears is then performed without control cable. Only in the selector lever position “P” is the parking position engaged mechanically via the selector lever control cable.

Gear-change points change on upward and downward gradients

On upward or downward gradients, gear-changes are selected automatically by additional gear-change mapping, according to accelerator position and driving speed.

- On steep gradients, gear-change mapping is adapted to engine power output.
- On steep gradients, gear-change mapping is adapted to the braking effect of the engine.
- By directly selecting a gear via the Tiptronic, also with a concrete gear, e.g. for a slope during trailer operation, the motor braking effect is also used.

Tiptronic

By means of an extra selector lever gate to the right of the normal selector lever gate, the selector lever can be tipped towards the Plus sign (+) to change up the gears manually and towards the Minus sign (-) to change down the gears manually.

30 – Clutch

1 Components of the clutch

⇒ “1.1 Summary of components”, page 18 .

Notes

The clutches of the automatic gearbox DSG - 0D9 always contain at least two plate packages, therefore one speaks here of a “double clutch”.

The outer, larger plate package is called “K1” (clutch 1). The reverse gear and the gears »1«, »3« and »5« are shifted via the “K1”.

The gears »2«, »4« and »6« are shifted via the inner, smaller plate package “K2” (clutch 2).

Assemblies of the clutch require special care, because all components were balanced with each other during manufacturing. If the parts are turned to each other during assembly, this can result in imbalances which affect the shifting comfort and the mileage.

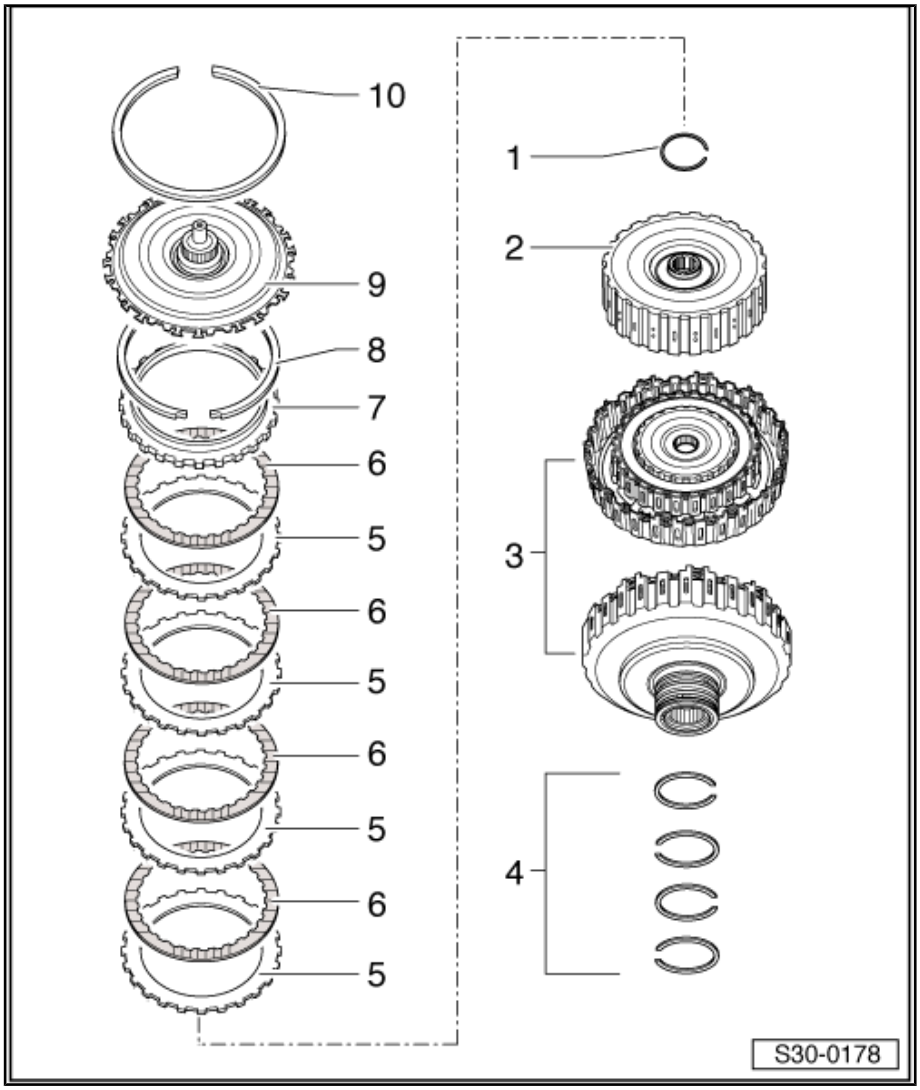
This is also the reason why the clutches are delivered as an original part with installed circlip.

So that there is no risk of the parts turning opposite each other, it is shown how the clutch is assembled and installed in the gearbox housing ⇒ “1.1 Summary of components”, page 18 .

1.1 Summary of components

Note

- *If parts of the clutch slipped out or the plate supports were raised, then the large - and if necessary also the small - plate support can be inserted by hand with slight rotary movement into all interior plates.*
- *In particular the clutch cover must always be installed in the same position, as it was the case when delivering the »new« clutch ⇒ “2 Removing and installing clutch”, page 20 .*



1 - Circlip

- ❑ Determine new thickness
  ⇒ “2.5 Installing and adjusting the clutch”, page 28

2 - Large plate support

- ❑ do not remove

> **Caution**
> *Try to avoid removing or raising the plate support. Not even a little bit! The plates can turn.*

3 - Housing of the double clutch

- ❑ with mounted clutch “K2”

4 - Sealing ring

- ❑ 4 pieces

5 - Outer plate

- ❑ 4 pieces

6 - Inner plate

- ❑ 4 pieces

7 - Thrust washer

8 - Circlip

- ❑ if the circlip was removed in order to newly insert the plates, it is replaced by a new ring with the same thickness

9 - Clutch cover

10 - Circlip

- ❑ replace ⇒ Electronic Catalogue of Original Parts
- ❑ do not install corrugated circlips

2 Removing and installing clutch

Note

Before the clutch can be removed, the clutch cover must be removed ⇒ “2.1 Removing the clutch cover”, page 20 .

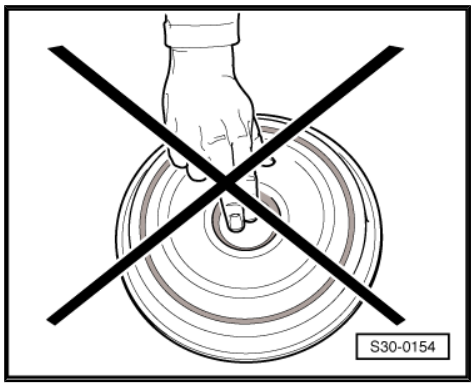
2.1 Removing the clutch cover

Special tools and workshop equipment required

- Catch pan

Note

- *The cover is held in its position by a circlip. After the circlip is removed, the cover can be lifted from its position.*
- *Cover and circlip must be replaced ⇒ Electronic Catalogue of Original Parts .*
- *Never install new covers using a hammer and never oil the middle gasket or touch it with the hand!*



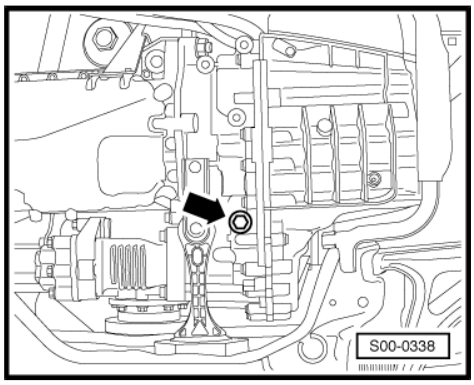
The gearbox must be removed before carrying out work on the cover.

– Removing the gearbox
⇒ “9.1 Removing the gearbox”, page 77 .

Note

Oil is drained and replaced via the check screw -arrow-.

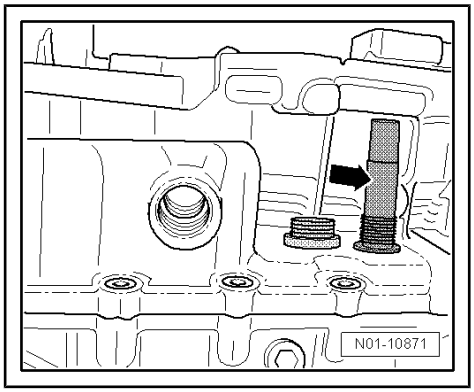
– Unscrew check screw.



Note

A plastic overflow tube with an 8 mm hexagon socket and a tightening torque of 3 Nm is located behind this screw. The length of the overflow tube determines the oil level in the gearbox, when replacing the tube assign via part number ⇒ Electronic Catalogue of Original Parts .

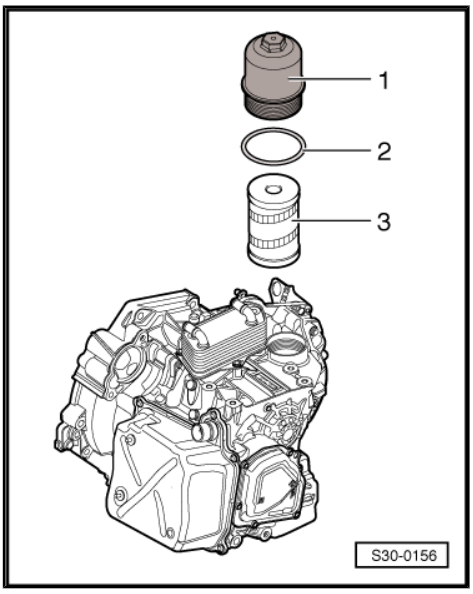
– Remove overflow tube -arrow-.



Approx. 5.0 ltr of oil flows out. Furthermore, the catch pan remains under the gearbox.

– Screw in overflow tube and tighten to tightening torque ⇒ “2.1 Summary of components - Tightening torques”, page 36 .

– Unscrew oil filter housing -1- from gearbox.



Before removing, the oil filter housing must be slightly inclined, so that the oil can flow back into the gearbox.

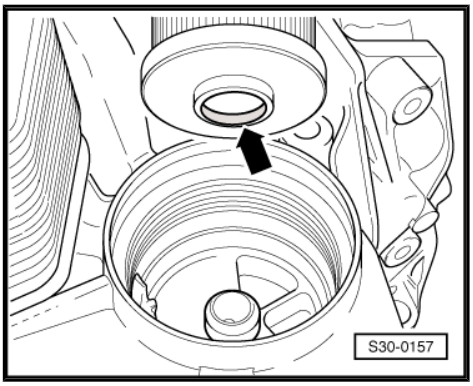
– Always replace O-ring -2- ⇒ Electronic Catalogue of Original Parts .

– Remove filter -3-.

– Moisten new O-ring -2- with gear oil.

When changing the gear oil, the gearbox oil filter must not always be replaced. Therefore comply with the instructions, when the gearbox oil filter must be replaced and when not ⇒ “2.2 General repair instructions”, page 7 .

– Moisten the O-ring in the intake collar -arrow- of the new oil filter with gear oil.



– Insert new oil filter with the intake collar -arrow- downwards and tighten the filter housing to tightening torque ⇒ “2.1 Summary of components - Tightening torques”, page 36 .

After the repair, top up with oil ⇒ “11 Change the gearbox oil and filter of the automatic gearbox DSG and at the same time check the oil level”, page 93 but do not change the filter again.

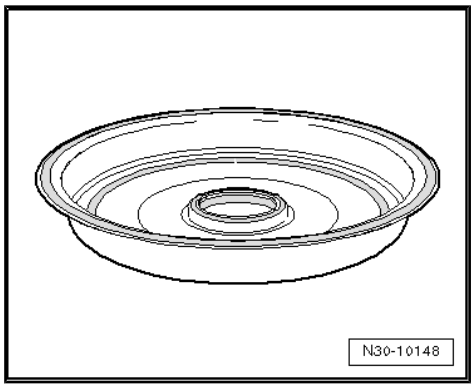
– Remove circlip from cover.

The cover can be lifted out with a screwdriver.

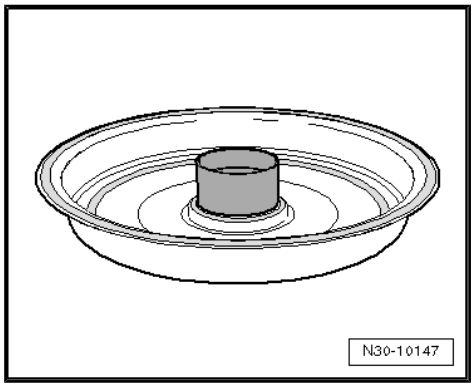
Only install »new« cover ⇒ “2.2 Installing the clutch cover”, page 22 .

2.2 Installing the clutch cover

There are two types of clutch covers:



- Clutch covers which are delivered without a bush ⇒ “2.2.1 Clutch cover without bush”, page 22 .
- Clutch covers which are delivered with a white bush ⇒ “2.2.2 Clutch cover with bush”, page 24 .



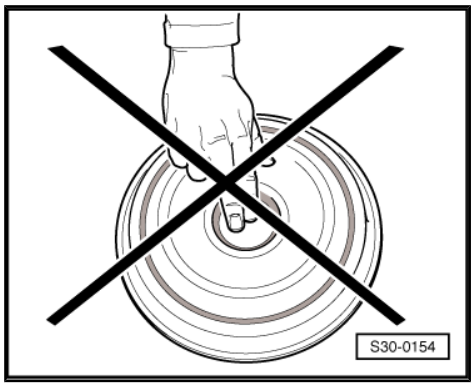
2.2.1 Clutch cover without bush

Special tools and workshop equipment required

- Clean the assembly sleeve - T10302- before use, do not use any assembly sleeves with scratches.

Note

- *Cover and circlip must be replaced ⇒ Electronic Catalogue of Original Parts .*
- *Never install new covers using a hammer and never oil the middle gasket or touch it with the hand!*



Caution

Do not grab a new cover in the center hole. The cover must not be touched and oiled there or come into contact with other materials. This could result in a leakage.

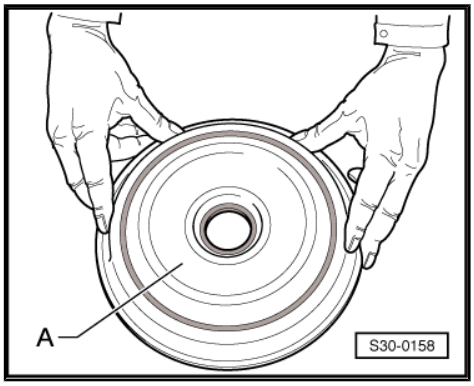
– The cover -A- must only be taken in the hand as shown in the illustration!

The new cover must be free from oil and dry in the area of the middle gasket!

– If required, clean the shaft end of the clutch cover of the gearbox.

Only the gasket on the outer edge must be moistened with DSG oil.

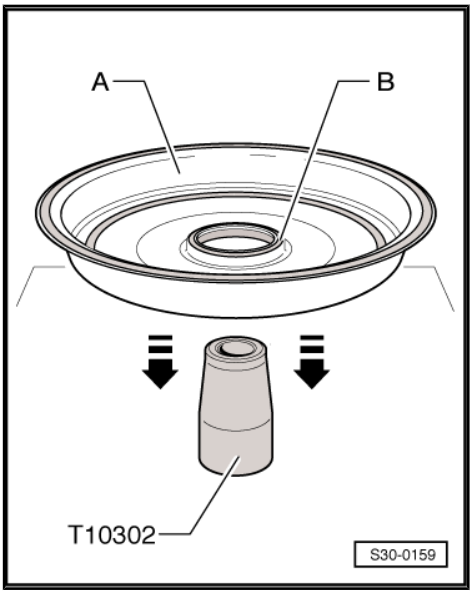
– Position the assembly sleeve - T10302- on an even surface.



The middle gasket -B- of the new cover -A- must now be »deformed«:

– Guide the cover horizontally and uniformly via the entire assembly sleeve - T10302- . For this step the sealing lip is put into the installation position.

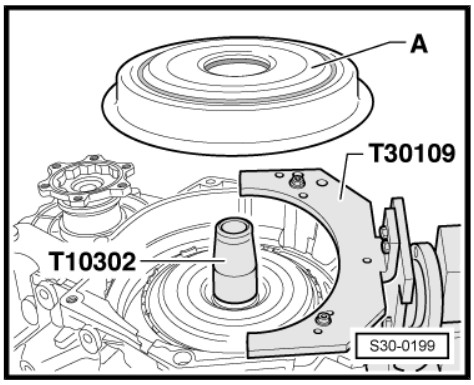
– Remove the assembly sleeve - T10302- from the cover upwards and fit the assembly sleeve onto the shaft end of the clutch cover of the gearbox.



– Guide the cover -A- via the assembly sleeve - T10302- and uniformly press it onto its position.

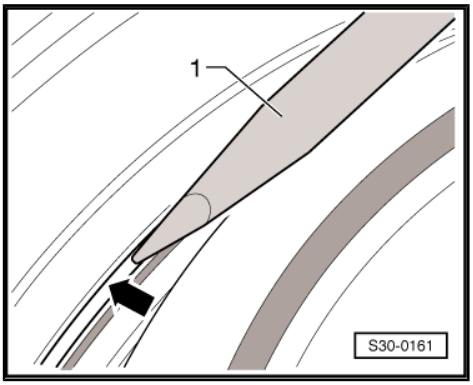
Caution

Handle with care. Any type of blows - even the slightest one - on the cover can easily lead to leaks.



It is possible to carefully lever the cover with a screwdriver -1- in its position -arrow-, until the »new« circlip can be installed.

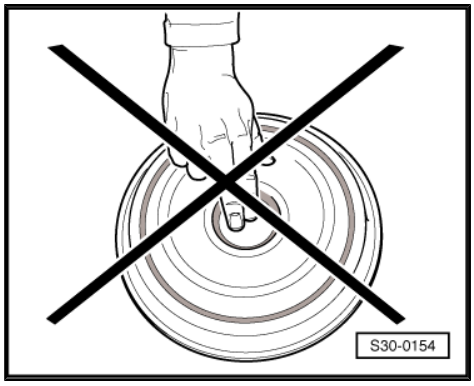
– Install »new« circlip.



2.2.2 Clutch cover with bush

Note

- *Cover and circlip must be replaced ⇒ Electronic Catalogue of Original Parts .*
- *Never install new covers using a hammer and never oil the middle gasket or touch it with the hand!*



Caution

Do not grab a new cover in the center hole. The cover must not be touched and oiled there or come into contact with other materials. This could result in a leakage.

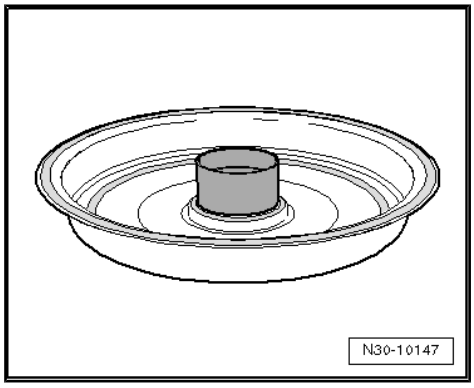
Do not remove the bush!

The new cover must be free from oil and dry in the area of the middle gasket!

– If required, clean the shaft end of the clutch cover of the gearbox.

Stickers must not be affixed to the inside of the clutch cover. If this is the case, please remove them carefully!

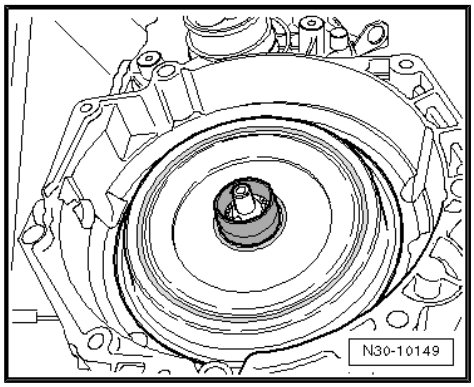
Only the gasket on the outer edge must be moistened with DSG oil.



– Insert the cover with the bush.

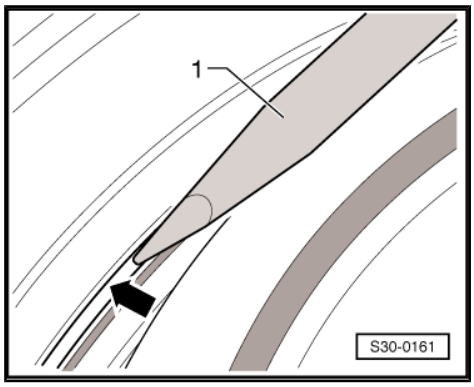
Caution

Handle with care. Any type of blows - even the slightest one - on the cover can easily lead to leaks.

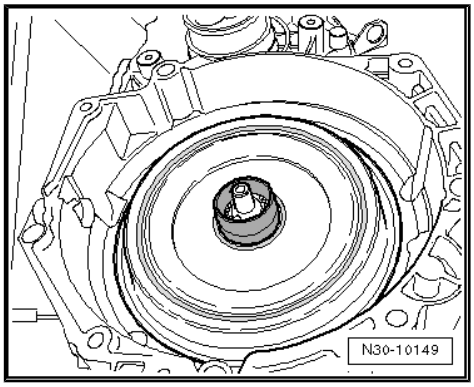


It is possible to carefully lever the cover with a screwdriver -1- in its position -arrow-, until the »new« circlip can be installed.

– Install »new« circlip.



– Only remove the bush after installing the circlip.



2.3 Removing clutch

Special tools and workshop equipment required

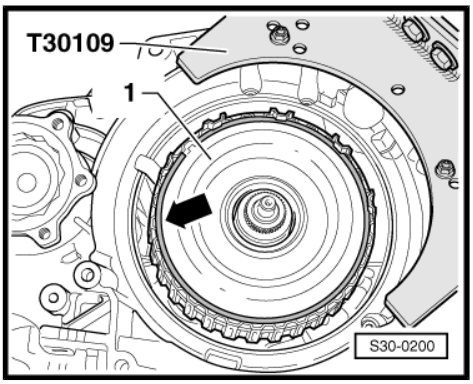
- Gearbox mount - T30109 (VW 353)-
- Gearbox mount - T30108-
- Assembly stand - MP9-101-

In order to remove and install the clutch, the gearbox must be tightened securely in the vertical position at the assembly stand ⇒ “10.2 Attaching gearbox to assembly stand”, page 92 .

– Remove clutch cover ⇒ “2.1 Removing the clutch cover”, page 20 .

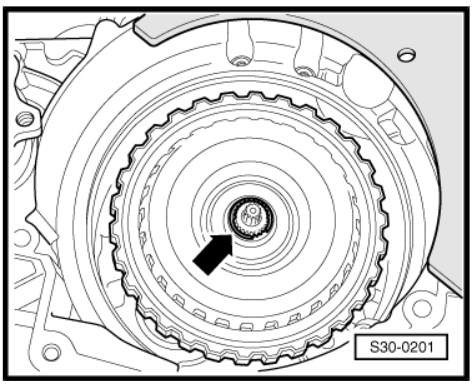
– Remove circlip -arrow- of clutch cover -1-.

– Take clutch cover off the clutch.



– Removing the circlip -arrow-.

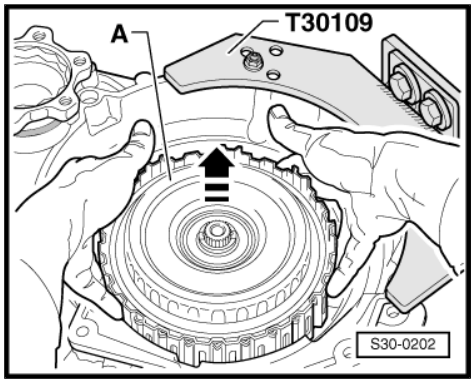
When installing at a later stage, this circlip -arrow- must be measured again and replaced ⇒ “2.5 Installing and adjusting the clutch”, page 28 .



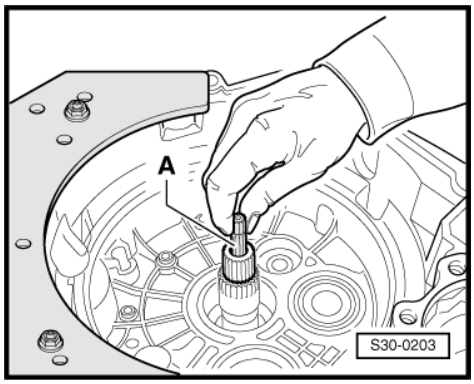
Note

- *Carefully remove the clutch. Make sure that the plate support or any other parts of the clutch do not fall out, therefore never turn the clutch!*
- *If this should occur, the components can be mounted again according to the overview of the plate clutch* *⇒ “1.1 Summary of components”, page 18* .

– Remove the complete clutch -A- in -direction of arrow-.



– Pull out drive shaft -A- of gearbox oil pump.



Note

The drive shaft of the gearbox oil pump is inserted only after the installation of the new clutch. Place down the shaft until then.

2.4 Preparing the installation of the clutch

Clutch as spare part

1 - Clutch

- ❑ The clutch cover of a new clutch is not secured with a circlip Pos. 5. It sits a little »tight« in the clutch. This should prevent that parts of the clutch fall out when transporting. It can be carefully removed.

2 - Ten circlips

- ❑ the rings have different thicknesses, they are classified in 0.1 mm jumps
- ❑ to this end comply with the instructions in ⇒ “2.5 Installing and adjusting the clutch”, page 28

3 - Clutch cover

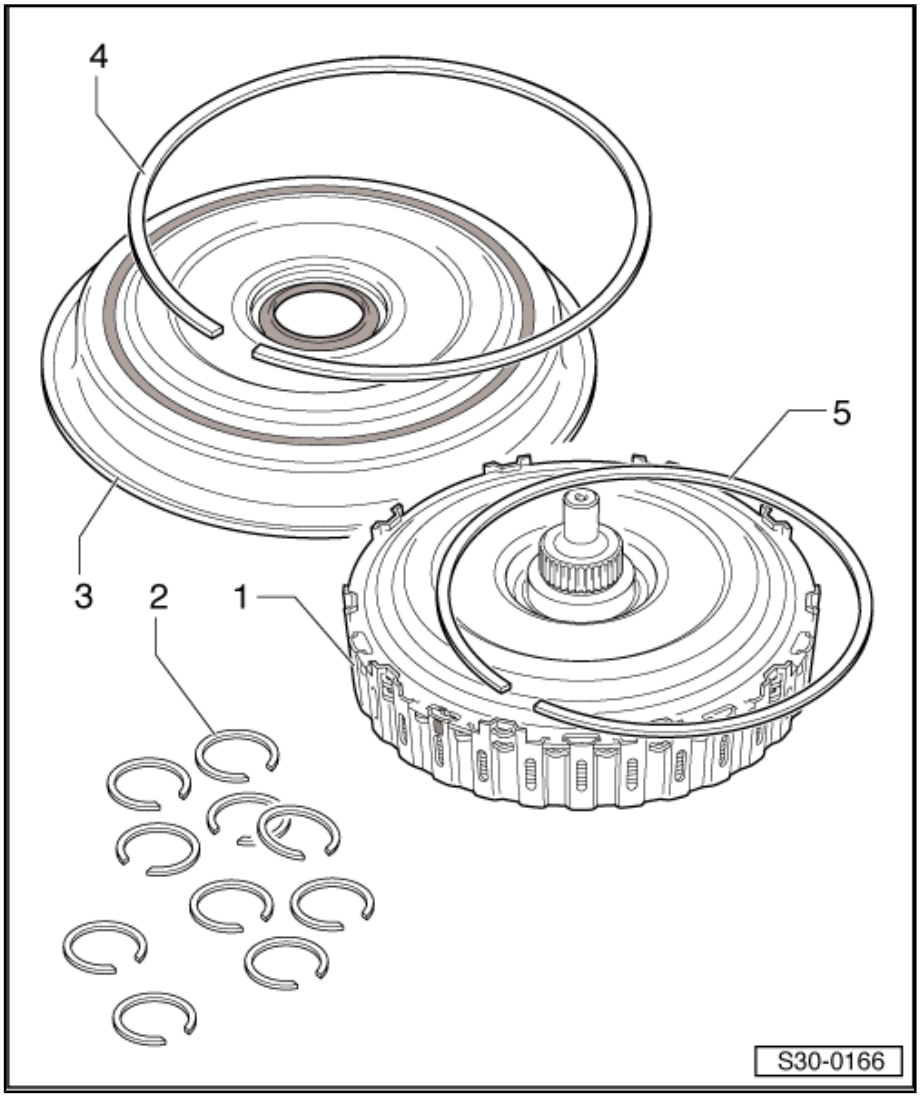
- ❑ make sure that the inner sealing lip is not damaged ⇒ “2.2 Installing the clutch cover”, page 22
- ❑ in order to protect the sealing lip, a bush has already been inserted at the manufacturer; please leave this bush in the cover

4 - Circlip

- ❑ for clutch cover

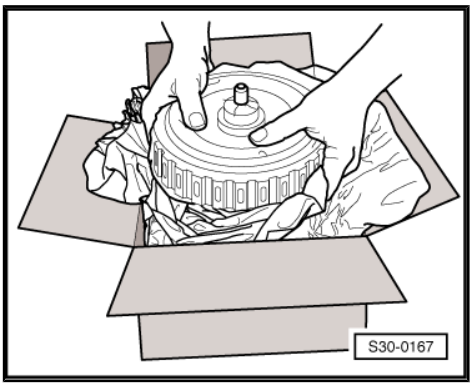
5 - Circlip

- ❑ for clutch cover
- ❑ do not install corrugated circlips
- ❑ replace ⇒ Electronic Catalogue of Original Parts

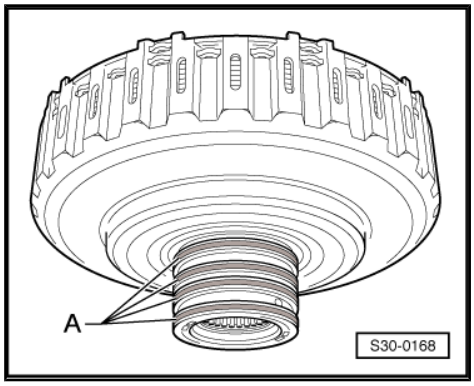


– Already when taking the clutch out of the package press on the clutch cover.

This should prevent that the clutch cover and the plate support located underneath slip out of the inner plates.



– Pay attention to the correct fit of the four piston rings -A-.



Note

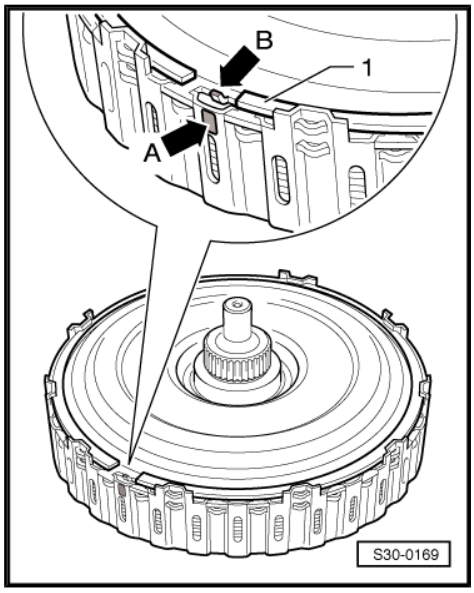
- *The ring joints must not be positioned »above one another«.*
- *Slowly turn the rings once, they must operate freely and must not clamp.*

Important! Location of the clutch cover on the clutch

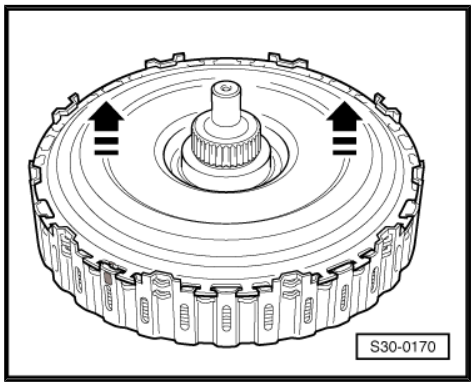
– Before removing the clutch cover, check if a marking is located on the clutch -arrow A-.

– If no marking is present, please make a colour coding. At a later stage the »peg« of the clutch cover -arrow B- must be placed again onto this marked point -arrow A-.

– In case it is installed on a new clutch, remove the circlip -1-.



– Carefully remove the clutch cover from the clutch -arrows- and place it to the side.



Caution

Try to avoid removing or raising the plate support. Not even a little bit! The plates can turn.

Lay aside the clutch in such a way that it cannot fall.

Thus the clutch is prepared for installation
⇒ “2.5 Installing and adjusting the clutch”, page 28 .

2.5 Installing and adjusting the clutch

Caution

Try to avoid removing or raising the plate support. Not even a little bit! The plates can turn.

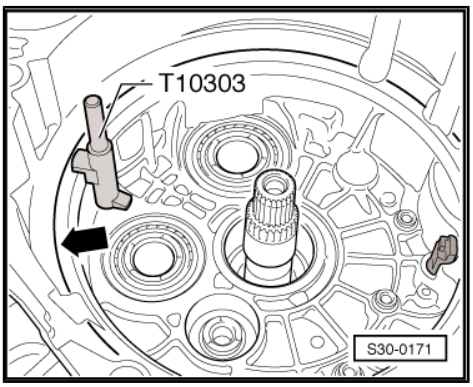
Note

- *The gearbox must be turned vertically in the assembly stand and the opening for the clutch must point upwards. Only in this way is it possible later on for the setting of the axial play of the clutch to be error-free.*
- *It is important that the gearbox is clamped firmly in the assembly stand - MP9-101- ⇒ "10.2 Attaching gearbox to assembly stand", page 92 , it must not be turned.*
- *In the clutch the large plate support must be inserted in all plates, it must not have slipped out of the lowest plate.*
- *The drive shaft of the gearbox oil pump is removed.*
- *Do not install corrugated circlips.*

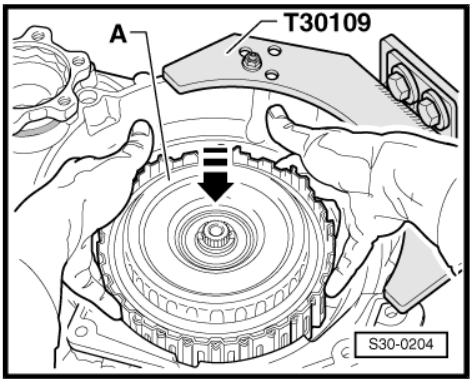
Special tools and workshop equipment required

- Universal dial gauge holder - MP3-447 (VW 387)-
- Retaining bolt - T10303-
- Gearbox mount - T30109 (VW 353)-
- Gearbox mount - T30108-
- Assembly stand - MP9-101-
- Dial gauge

– First put the retaining bolt - T10303- on the seat -arrow- of the clutch cover.

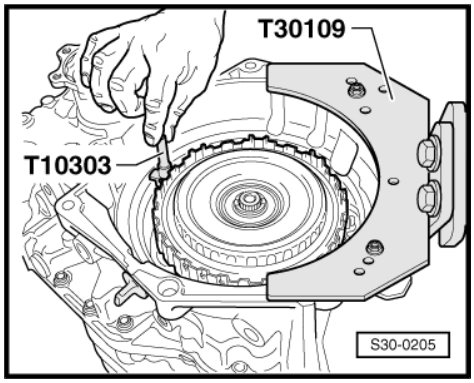


– Then carefully insert the clutch -A- in -direction of arrow-; do not let it fall in.



The retaining bolt - T10303- must be held at the same time by a second mechanic.

The retaining bolt - T10303- remains there, until the clutch cover is installed.



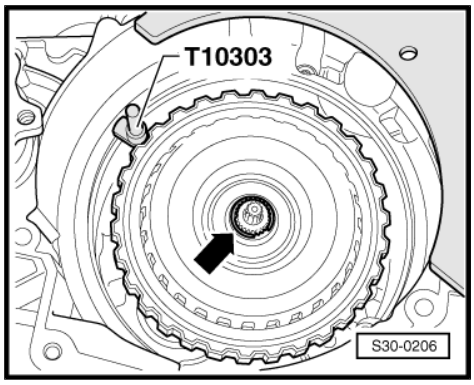
– Determine from all supplied circlips the circlip with a thickness -arrow- of 2 mm and install it temporarily.

Before this circlip is removed again, two measurements must be carried out beforehand.

First measurement

- The retaining bolt - T10303- remains installed!

– Screw the universal dial gauge holder - MP3-447 (VW 387)- onto the gearbox flange.



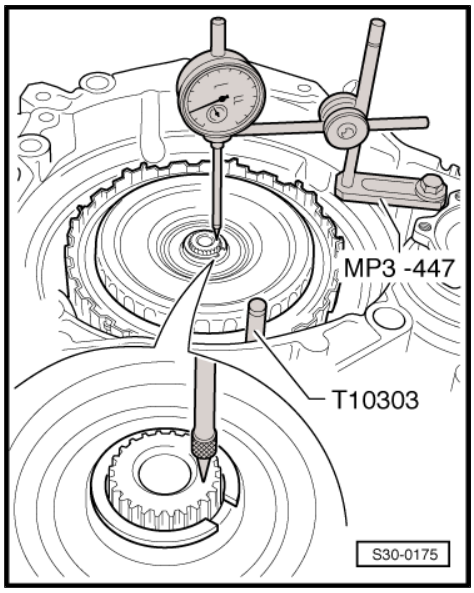
– Position the push-button of the dial gauge on the drive shaft of the gearbox.

– Set the dial gauge to 0 with 1 mm bias.

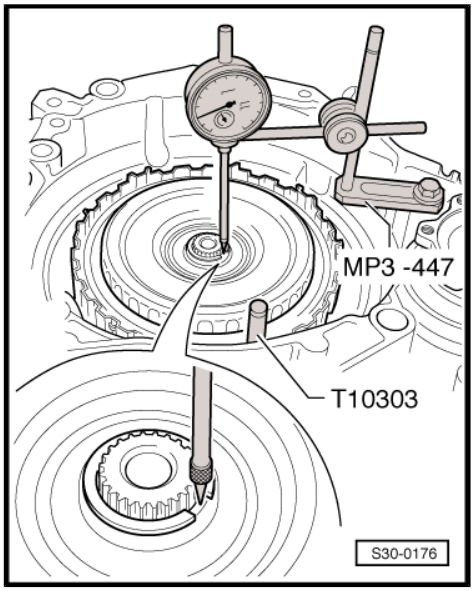
– Lift the clutch upwards up to the stop and note the measuring result.

Second measurement

- The retaining bolt - T10303- remains installed!



– Position the push-button of the dial gauge on the hub of the large plate support of the clutch.



Note

Push-button must not be positioned on the circlip.

– Set the dial gauge to 0 with 1 mm bias.

– Lift the clutch upwards up to the stop and note the measuring result.

Now it is calculated, which one from all nine circlips will finally be installed

– For this purpose use this formula:

Second measurement minus first measurement plus 1.85 mm = thickness of the circlip to be installed.

Example:

	0.12 mm	second measurement
–	0.04 mm	first measurement
+	1.85 mm	constant value
=	1.93 mm	Measuring result
	Thickness of the circlip 1.9 mm	

– Please note this result.

The remaining nine circlips are classified in 0.1 mm jumps.

– Measure all the circlips and determine the circlip, which corresponds the closest to the result.

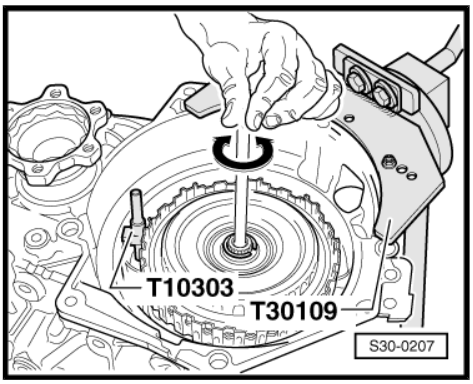
– Remove the 2 mm thick circlip and replace with measured circlip.

– Dispose of all the remaining rings.

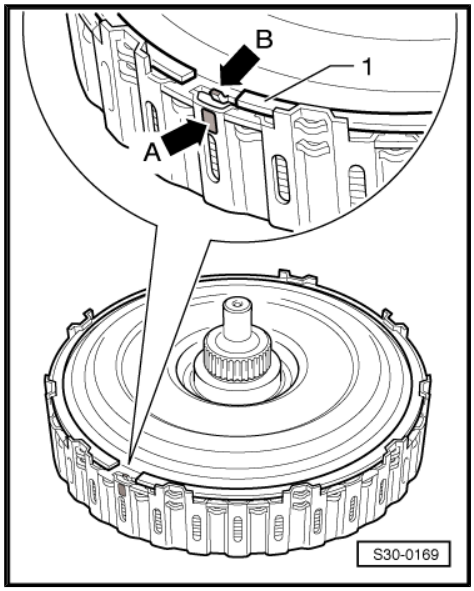
Note

Circlips must only be installed once.

– Insert the drive shaft of the gearbox oil pump and to do so turn slightly -in direction of arrow-.



– Insert the clutch cover in such a way that the peg -arrow B- is aligned with the marking -arrow A-.
– Insert new circlip -1- into the clutch.
– Remove retaining bolt - T10303- .
– Install clutch cover
⇒ “2.2 Installing the clutch cover”, page 22 .



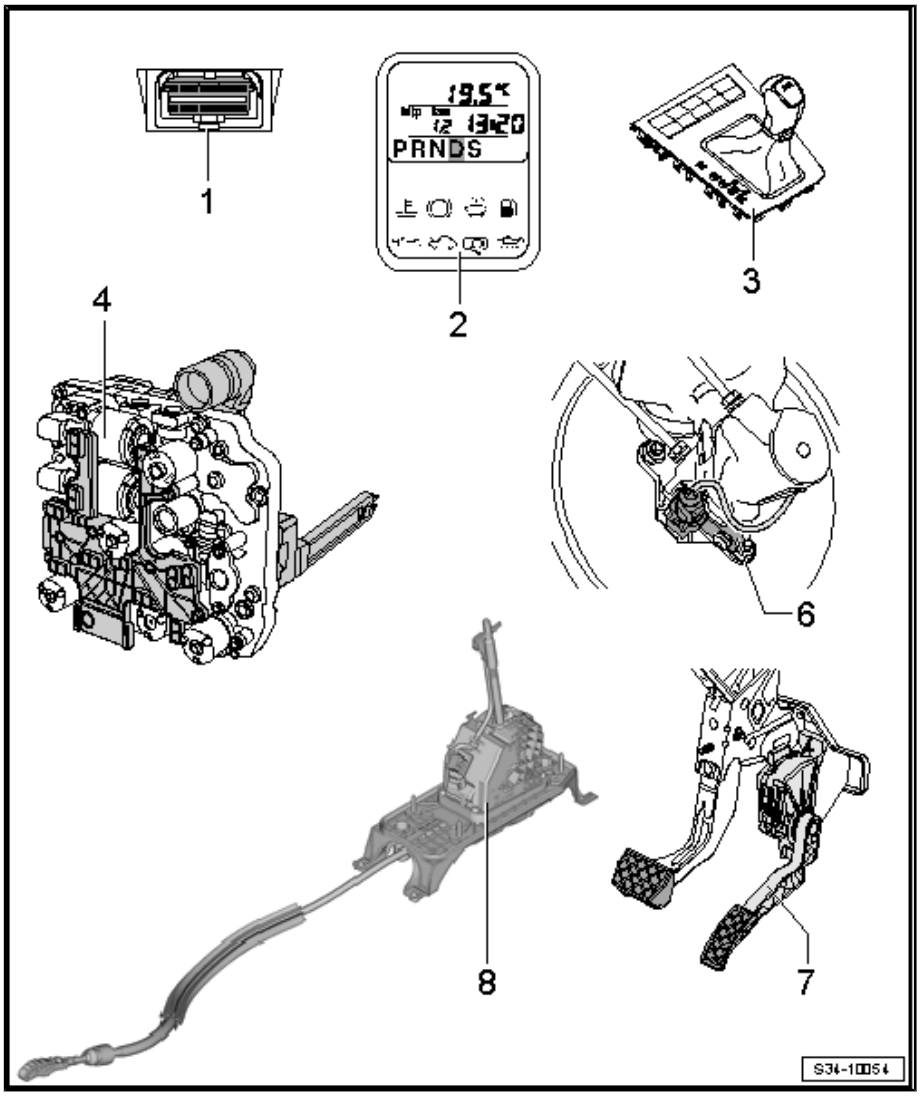
The installation is completed, the clutch is correctly set.

After installing the gearbox

– Carry out the basic measurement of the mechatronics for double clutch gearbox - J743- using the ⇒ Vehicle diagnostic tester.

34 – Controls, housing

1 Electric/electronic components, fitting locations for the automatic gearbox DSG - 0D9



1 - Diagnostic connection

- ❑ Fitting location: Cover in driver's footwell

2 - Selector lever position indicator - Y6-

- ❑ Fitting location: Integrated in the dash panel insert
- ❑ a switched off gear display points to an emergency operation with deactivated gearbox control unit
- ❑ a fully lit gear display points to an emergency operation with activated gearbox control unit
- ❑ can only be replaced together with the dash panel insert ⇒ Electrical System; Rep. gr. 90

3 - Cover for shift mechanism with lamp for selector lever scale illumination - L101-

- ❑ the lamp for selector lever scale illumination - L101- is integrated in the cover for gearshift mechanism
- ❑ the lamp for selector lever scale illumination - L101- is checked by self-diagnosis
- ❑ removing and installing ⇒ “8.5 Removing and Installing the cover for the shift mechanism”, page 66

4 - Mechatronics for double clutch gearbox - J743-

- ❑ Fitting location ⇒ page 34
- ❑ is checked by self-diagnosis
- ❑ removing and installing ⇒ “4.1 Removing mechatronics for double clutch gearbox J743 ”, page 43 or ⇒ “4.2 Installing mechatronics for double clutch gearbox J743 ”, page 48 .

5 - Brake light switch - F-

- ❑ Fitting location ⇒ page 35
- ❑ Signal transfer from engine to gearbox control unit via CAN databus
- ❑ is checked by self-diagnosis
- ❑ removing and installing ⇒ Chassis; Rep. gr. 46

6 - Kick-down switch - F8-

- ❑ Fitting location ⇒ page 35

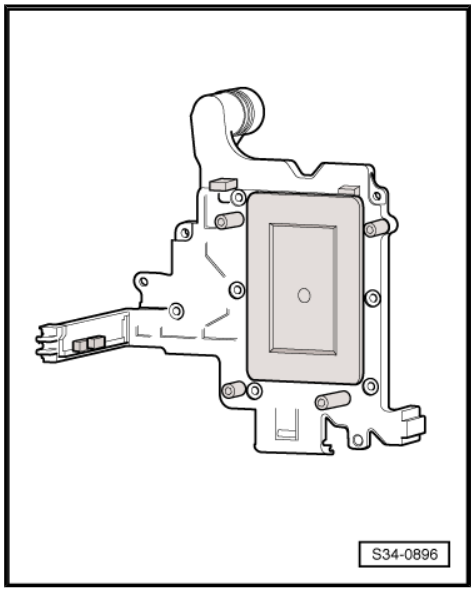
- ❑ Signal transfer from engine control unit to gearbox control unit via CAN databus
- ❑ is checked by self-diagnosis
- ❑ Removing and Installing ⇒ Engine; Rep. gr. 20

7 - Shift mechanism

Selector lever - E313- with Tiptronic switch - F189- , selector lever sensor control unit - J587- , selector lever switch locked in P - F319- and selector lever lock solenoid - N110-

- ❑ are checked by self-diagnosis
- ❑ these components cannot be replaced separately, the removal and installation procedure is only possible together with the gearshift mechanism
  ⇒ “8.4 Summary of components - Gearshift mechanism”, page 65

Mechatronics for double clutch gearbox - J743-



Fitting location: The mechatronics for double clutch gearbox - J743- is bolted to the front of the gearbox housing and covered with the gearbox oil pan.

The control unit is firmly integrated in the mechatronics for double clutch gearbox - J743- .

- ♦ is checked by self-diagnosis

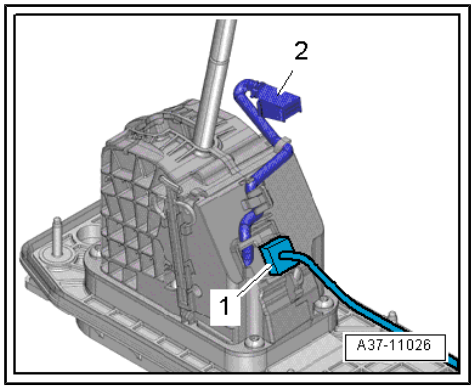
In the mechatronics the solenoid valves -N88- , -N89- , -N90- , -N91- , -N92- and the pressure regulating valves for automatic gearbox 1 -N215- , 2 -N216- , 3 -N217- , 4 -N218- , 5 -N233- and 6 -N371- are secured.

The following senders and sensors are located in the control unit:

- ♦ Hydraulic pressure sender 1 for automatic gearbox - G193- and hydraulic pressure sender 2 for automatic gearbox - G194-
- ♦ Gearbox oil temperature sender - G93- and temperature sender in control unit - G510-
- ♦ Gearbox output rpm sender - G195- and gearbox output rpm sender 2 - G196-
- ♦ Drive shaft rpm sender 1 - G501- and Drive shaft rpm sender 2 - G502-
- ♦ Path sensor for gear actuator 1 - G487- , Path sensor for gear actuator 2 - G488- , Path sensor for gear actuator 3 - G489- and Path sensor for gear actuator 4 - G490-

Removing and installing the mechatronics for double clutch gearbox - J743-
⇒ “4.1 Removing mechatronics for double clutch gearbox J743 ”, page 43 .

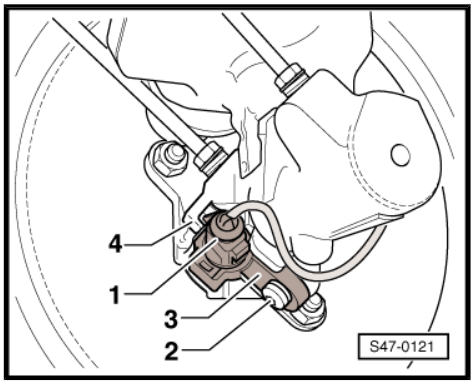
Selector lever - E313- with Tiptronic switch - F189- , selector lever sensor control unit - J587- , selector lever switch locked in P - F319- and selector lever lock solenoid - N110-



These components cannot be replaced separately, the removal and installation procedure is only possible together with the gearshift mechanism
⇒ “8.4 Summary of components - Gearshift mechanism”, page 65 .

Brake light switch - F-

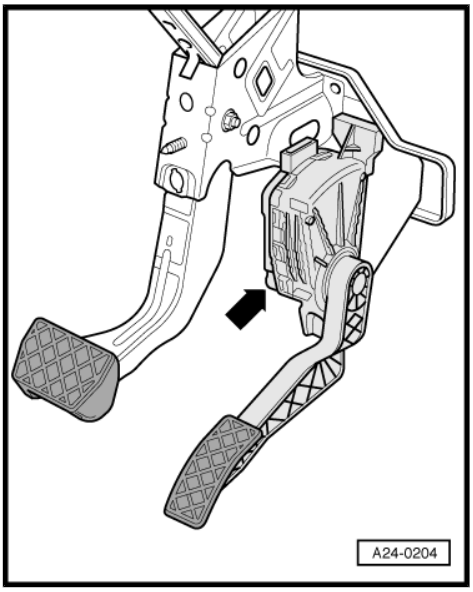
Fitting location: Brake light switch - F- and brake pedal switch - F47- Pos. 3 are located on the master brake cylinder -Pos. 4-.



Kick-down switch - F8-

An initialised value of the accelerator pedal position sender - G79- / accelerator pedal position sender 2 - G185- (integrated in the accelerator pedal module) is stored as a kick-down signal in the engine control unit.

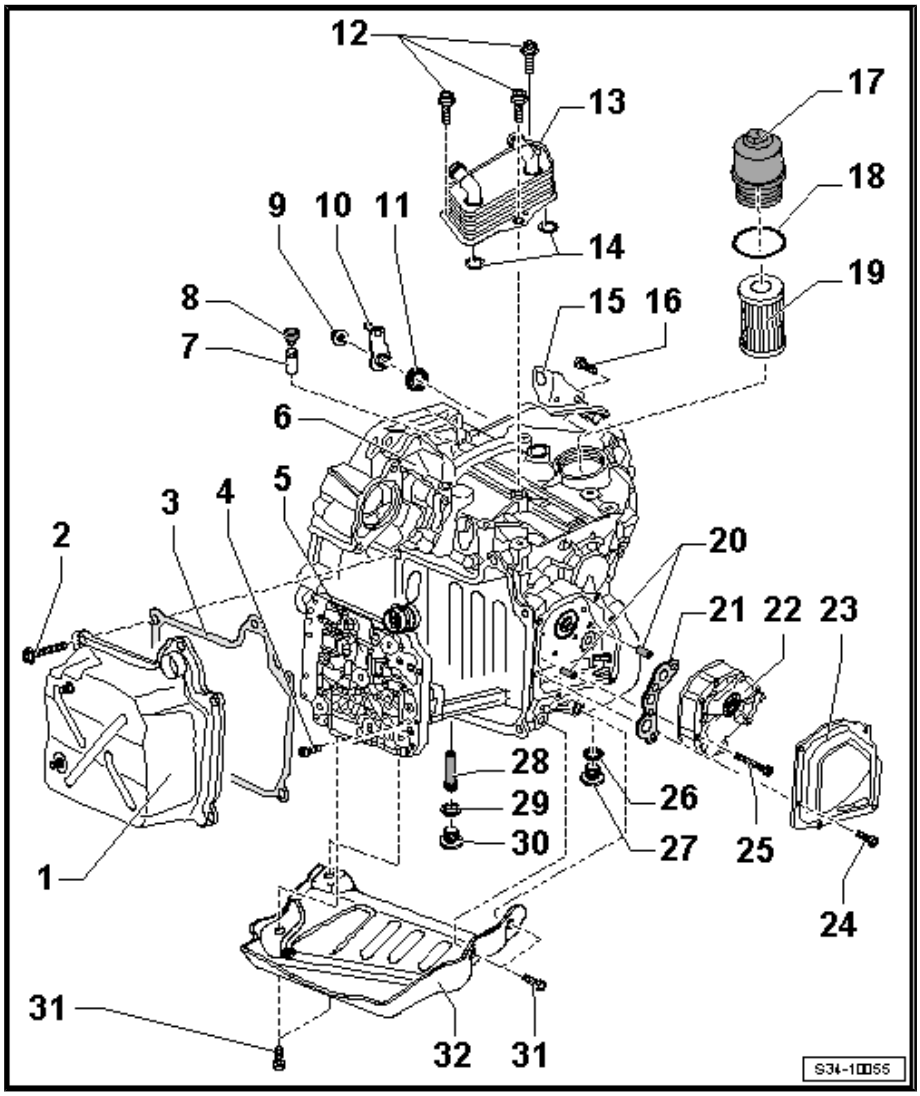
Fitting location: The accelerator pedal position sender - G79- / accelerator pedal position sender 2 - G185- -arrow- are located on the foot controls.



2 Oil pan, mechatronics, gearbox oil pump

⇒ “2.1 Summary of components - Tightening torques”, page 36

2.1 Summary of components - Tightening torques



1 - Oil pan

- ❑ removing and installing ⇒ “3 Removing and installing oil pan”, page 39

2 - Screw, 16 Nm

- ❑ replace ⇒ Electronic Catalogue of Original Parts
- ❑ 5 pieces
- ❑ for attaching the oil pan with the oil pan gasket to the gearbox housing

3 - Gasket

- ❑ replace ⇒ Electronic Catalogue of Original Parts

4 - Screw, 5 Nm + torque a further 90° (1/4 turn)

- ❑ 10 pieces
- ❑ replace ⇒ Electronic Catalogue of Original Parts
- ❑ for attaching the mechatronics for double clutch gearbox - J743- at gearbox housing
- ❑ pay attention to sequence for loosening and tightening ⇒ “4 Mechatronics for double clutch gearbox J743 ”, page 43

5 - Mechatronics for double clutch gearbox - J743-

- ❑ The mechatronics is allocated according to the gearbox code letters ⇒ electronic catalogue of original parts .
- ❑ with O-rings at connector
- ❑ Replace O-rings ⇒ Electronic Catalogue of Original Parts
- ❑ removing and installing ⇒ “4 Mechatronics for double clutch gearbox J743 ”, page 43

6 - Automatic gearbox DSG

7 - Ventilation tube

- ❑ pressed into the gearbox
- ❑ replace

8 - Ventilation cap

- ❑ positioned on the ventilation tube

9 - Nut, 20 Nm

- ❑ replace ⇒ Electronic Catalogue of Original Parts

10 - Gearshift lever

- ❑ insert in such a way that the interrupted spacing of the teeth matches the gearshift shaft

11 - Gasket for gearshift shaft

- ❑ Fitting position: Inscription must point outwards to the lever/gearshift shaft
- ❑ Renew ⇒ “7 Replace the gasket ring of the gearshift shaft”, page 58 .

12 - Screw, 20 Nm + torque a further 90° (1/4 turn)

- ❑ for attaching gearbox oil cooler at gearbox housing
- ❑ replace ⇒ Electronic Catalogue of Original Parts

13 - Gearbox oil cooler

- ❑ removing and installing ⇒ “5 Removing and installing gearbox oil cooler”, page 51

14 - O-rings

- ❑ replace ⇒ Electronic Catalogue of Original Parts

15 - Cable support

- ❑ for selector lever control cable

16 - Screw, 20 Nm + torque a further 90° (1/4 turn)

- ❑ replace ⇒ Electronic Catalogue of Original Parts
- ❑ 2 pieces
- ❑ for attaching cable support at gearbox housing

17 - Filter housing, 20 Nm

18 - O-ring

- ❑ replace ⇒ Electronic Catalogue of Original Parts

19 - Gearbox oil filter

- ❑ Replace whenever the oil is changed
- ❑ Check fitting position
- ❑ removing and installing
  ⇒ “11 Change the gearbox oil and filter of the automatic gearbox DSG and at the same time check the oil level”, page 93

20 - Screw, 10 Nm

- ❑ replace ⇒ Electronic Catalogue of Original Parts

21 - Fit pin

- ❑ 2 pieces
- ❑ for attaching gearbox oil pump to gearbox housing

22 - Gasket

- ❑ replace ⇒ Electronic Catalogue of Original Parts

23 - Gearbox oil pump

- ❑ removing and installing ⇒ “6 Removing and installing gearbox oil pump”, page 54

24 - Cover for gearbox oil pump

- ❑ with vulcanized gasket
- ❑ replace ⇒ Electronic Catalogue of Original Parts
- ❑ removing and installing ⇒ “6 Removing and installing gearbox oil pump”, page 54

25 - Screw, 8 Nm

- ❑ replace ⇒ Electronic Catalogue of Original Parts
- ❑ 4 pieces
- ❑ for attaching cover to gearbox housing

26 - Screw

- ❑ different screws for gearbox oil pump ⇒ “6.2 Install”, page 56
- ❑ replace ⇒ Electronic Catalogue of Original Parts
- ❑ 4 pieces
- ❑ for attaching gearbox oil pump to gearbox housing
- ❑ Loosen crosswise and tighten

27 - Sealing ring

- ❑ Not available.

28 - Drain plug, 45 Nm

- ❑ Not available, oil is drained via inspection plug -Pos. 32-

29 - Overflow tube, 3 Nm

- ❑ out of plastic
- ❑ the length of the overflow tube determines the oil level in the gearbox, when replacing assign via part number ⇒ Electronic Catalogue of Original Parts .

30 - Sealing ring

- ❑ replace ⇒ Electronic Catalogue of Original Parts

31 - Inspection plug, 45 Nm

- ❑ an overflow tube with an 8 mm hexagon socket pos. 30 is located behind this screw

32 - Screw, 32 Nm

- ❑ 4 pieces
- ❑ for attaching protective plate to gearbox housing

33 - Heat shield

- ❑ is installed on certain gearboxes

3 Removing and installing oil pan

⇒ "3.1 Removing the oil pan", page 39

⇒ "3.2 Installing the oil pan", page 41

Special tools and workshop equipment required

- Catch pan - VAS 6208-
- Protective goggles

Caution

Do not run the engine or tow the vehicle when the oil pan has been removed or without filling with gearbox oil.

Note

- *Observe instructions for automatic gearbox DSG - 0D9 ⇒ "2 Notes on 6-speed automatic gearbox DSG - 0D9", page 7 .*
- *General repair information ⇒ "2.2 General repair instructions", page 7 .*
- *Regulations concerning cleanliness when working on the gearbox ⇒ "2.2 General repair instructions", page 7 .*
- *Pay attention to the subject "dirty oil" as well as to the instructions for oil filter change.*
- *When changing the gear oil, the gearbox oil filter must not always be replaced. Therefore comply with the instructions, when the gearbox oil filter must be replaced and when not ⇒ "2.2 General repair instructions", page 7 .*
- *Moisten O-rings and gasket rings with gear oil. Other types of lubricant will cause the gearbox hydraulic control system to malfunction.*
- *If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .*

3.1 Removing the oil pan

- Engine switched off.

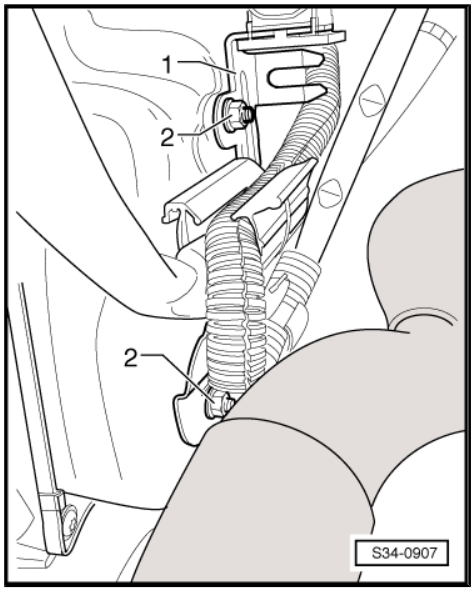
Note

If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .

– Disconnect the battery-earth strap with the ignition off ⇒ Electrical System; Rep. gr. 27 .

– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .

– Unscrew nuts -2- from bracket -1- on the oil pan and remove bracket from the threaded bores at the oil pan.

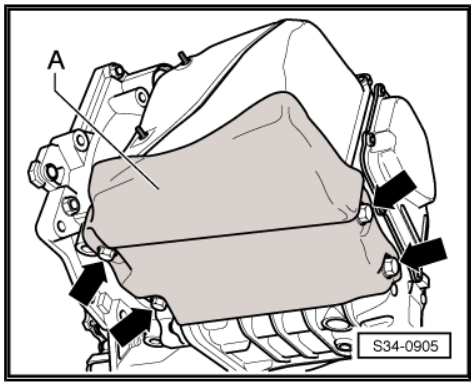


Note

The threaded bores are welded at the front of the gearbox to the oil pan.

– Remove protection plate -A- at the bottom of the gearbox -arrows-; if applicable.

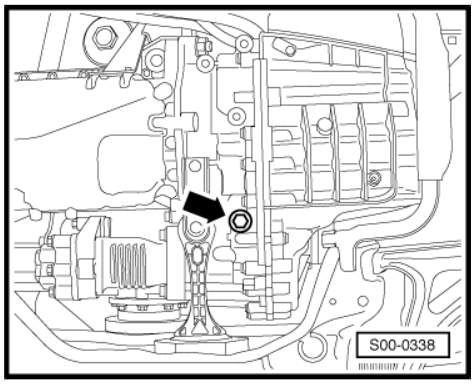
– Position the catch pan under the gearbox.



WARNING

Wear safety goggles.

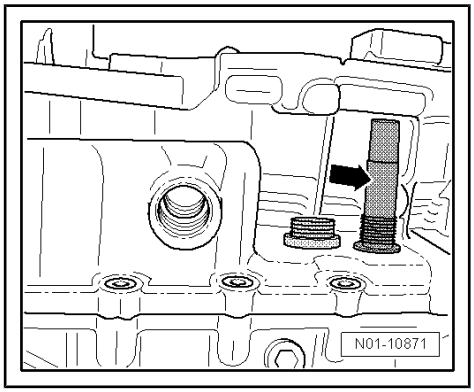
– Unscrew the inspection plug -arrow- close to the pendulum support.



Note

A plastic overflow tube with an 8 mm hexagon socket and a tightening torque of 3 Nm is located behind this screw. The length of the overflow tube determines the oil level in the gearbox, when replacing assign via part number ⇒ Electronic Catalogue of Original Parts .

– Remove overflow tube.



Approx. 5.0 ltr of oil flows out. Furthermore, the catch pan remains under the gearbox.

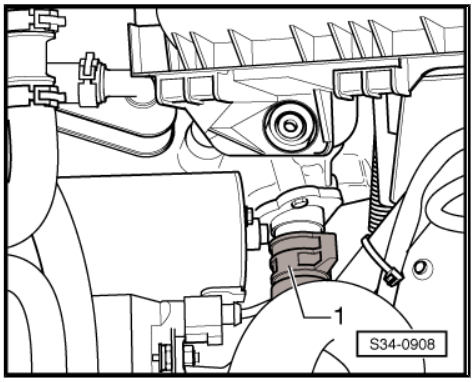
– Screw in overflow tube and tighten to tightening torque ⇒ “2.1 Summary of components - Tightening torques”, page 36 .

– Grab with the hand (without gloves) at the mass, in order to discharge yourself electrostatically.

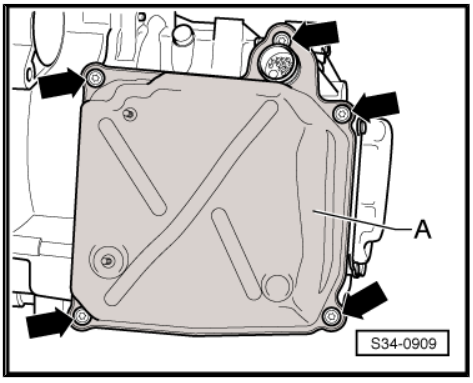
Caution

- *Only then touch or remove the mechatronics for double clutch gearbox - J743- , after you have discharged yourself electrostatically at an earthed object beforehand, e.g. skin contact with mass.*
- *Under no circumstances must the plug contacts in the plug of the gearbox be touched with the hands, because the control unit can be destroyed through static discharge as well as the mechatronics.*

– Turn the bayonet catch -1- of the plug to the left and disconnect plug from gearbox.



– Loosen screws -arrows- of the oil pan -A- crosswise and unscrew.



Note

There is still gearbox oil in the oil pan, because not all of it can be drained off.

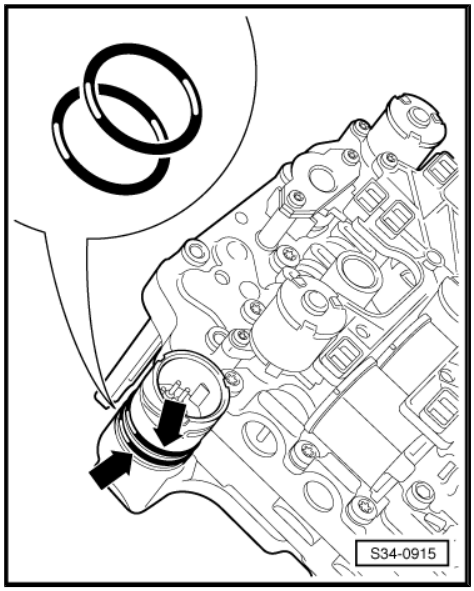
– Remove oil pan with the oil pan gasket.

Replace oil pan gasket ⇒ Electronic Catalogue of Original Parts .

3.2 Installing the oil pan

Installation is carried out in the reverse order. Pay attention to the following:

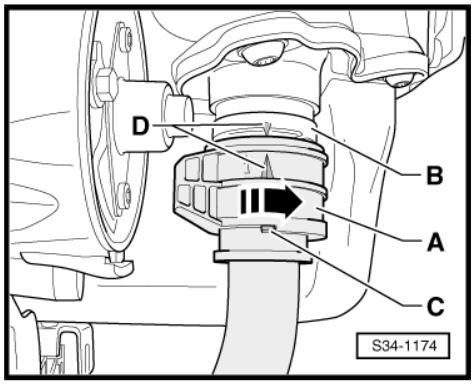
– Replace both O-rings -arrows- at the connection of the mechatronics ⇒ Electronic Catalogue of Original Parts .
– Moisten O-rings with DSG oil.
– Clean sealing surfaces and eliminate residues of oil.
– Pay attention to correct fitting of new oil pan gasket.
– Position oil pan. At the same time do not get the cables trapped.
– Insert new screws for the oil pan and tighten crosswise in several stages to tightening torque
⇒ “2.1 Summary of components - Tightening torques”, page 36 .



Mount the plug -A- of the mechatronics as follows:

• The arrows -D- on the mechatronics -B- and on the plug -A- as well as the peg -C- must be on the same line and point upwards.
• Then mount the plug -A- carefully up to the stop and lock the cap by turning it to the right in -direction of arrow-.

– Replace gearbox oil filter (instructions, when the gearbox oil filter must be replaced and when not
⇒ “2.2 General repair instructions”, page 7).
– Pour in gear oil
⇒ “11 Change the gearbox oil and filter of the automatic gearbox DSG and at the same time check the oil level”, page 93 .



Note

If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .

– Connect earth strap of battery ⇒ Electrical System; Rep. gr. 27 .

4 Mechatronics for double clutch gearbox - J743-

⇒ “4.1 Removing mechatronics for double clutch gearbox J743 ”, page 43

⇒ “4.2 Installing mechatronics for double clutch gearbox J743 ”, page 48

Special tools and workshop equipment required

- Catch pan - VAS 6208-
- Release tool - T10465-

Caution

Do not run the engine or tow the vehicle when the oil pan has been removed or without filling with gearbox oil.

Note

- *Observe instructions for automatic gearbox DSG - 0D9 ⇒ “2 Notes on 6-speed automatic gearbox DSG - 0D9”, page 7 .*
- *General repair information ⇒ “2.2 General repair instructions”, page 7 .*
- *Regulations concerning cleanliness when working on the gearbox, in particular the dirt on open mechatronics or gearbox oil pump can lead to the failure of the gearbox function ⇒ “2.2 General repair instructions”, page 7 .*
- *The mechatronics is allocated according to the gearbox code letters ⇒ electronic catalogue of original parts .*
- *Pay attention to the subject “dirty oil” as well as to the instructions for oil filter change.*
- *When changing the gear oil, the gearbox oil filter must not always be replaced. Therefore comply with the instructions, when the gearbox oil filter must be replaced and when not ⇒ “2.2 General repair instructions”, page 7 .*
- *If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .*
- *If the mechatronics is replaced when the gearbox is removed, the gearbox has to be attached to the assembly stand ⇒ “10.2 Attaching gearbox to assembly stand”, page 92 .*

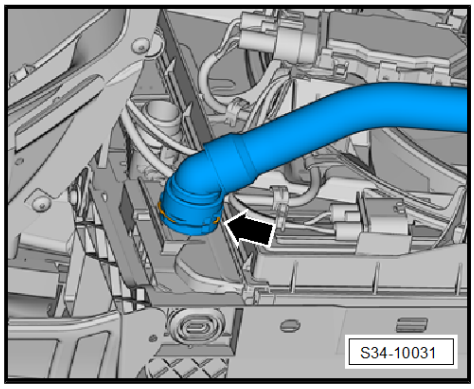
4.1 Removing mechatronics for double clutch gearbox - J743-

– Shift selector lever into position “P”.

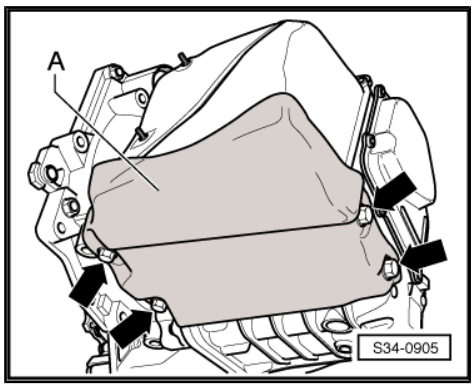
Note

If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .

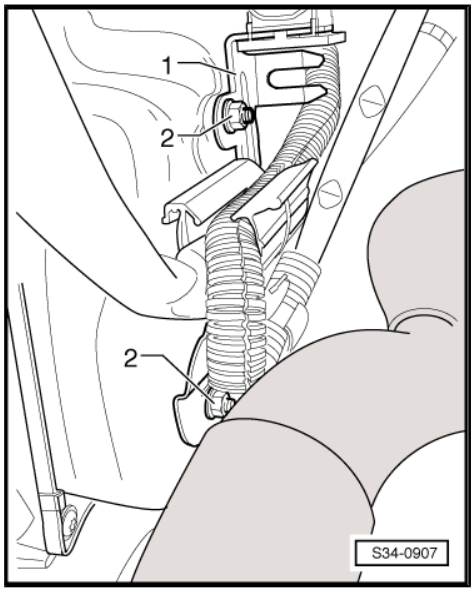
– Disconnect the battery-earth strap with the ignition off ⇒ Electrical System; Rep. gr. 27 .
– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
– Remove the front left wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
– Drain coolant ⇒ Engine; Rep. gr. 19 .
– Raise the retaining clip -arrow- and remove the bottom left coolant hose from the radiator.



– Remove protection plate -A- at the bottom of the gearbox -arrows-; if applicable.



– Unscrew nuts -2- from bracket -1- on the oil pan and remove bracket from the threaded bores at the oil pan.



Note

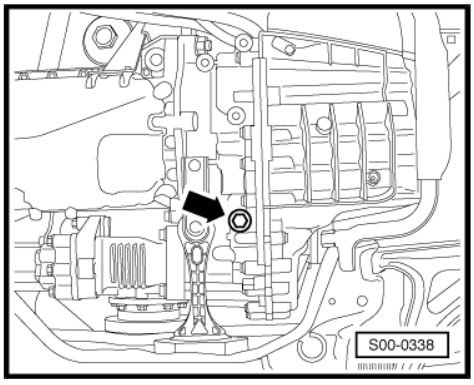
The threaded bores are welded at the front of the gearbox to the oil pan.

– Raise the cables in the area of the oil pan and attach.
– Position the catch pan under the gearbox.

WARNING

Wear safety goggles.

– Unscrew check screw -arrow-.



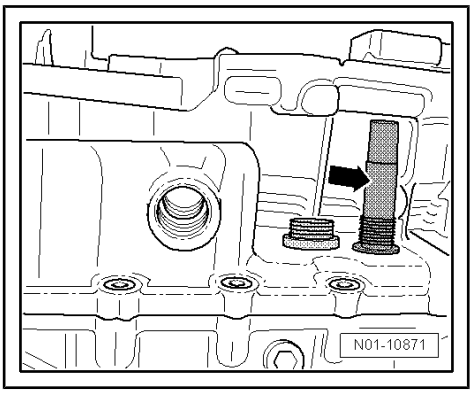
Note

A plastic overflow tube with an 8 mm hexagon socket and a tightening torque of 3 Nm is located behind this screw. The length of the overflow tube determines the oil level in the gearbox, when replacing the tube assign via part number ⇒ Electronic Catalogue of Original Parts .

– Remove overflow tube.

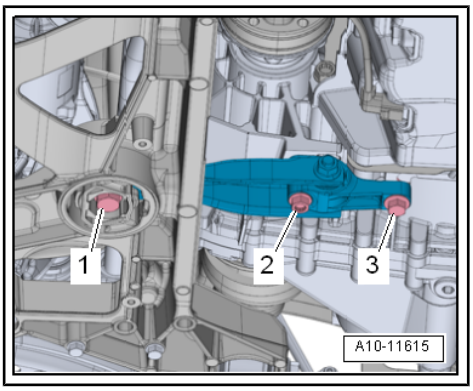
Approx. 5.0 ltr of oil flows out. Furthermore, the catch pan remains under the gearbox.

– Screw in overflow tube and tighten to tightening torque ⇒ “2.1 Summary of components - Tightening torques”, page 36 .



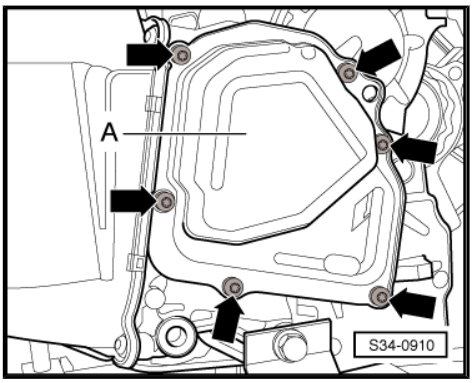
– Remove pendulum support, to do so unscrew screws -1, 2 and 3-.

Afterwards the gearbox can be pressed slightly “towards the rear” to the assembly carrier in order to gain sufficient space for removing the mechatronics.



– Release screws -arrows- and remove cover for gearbox oil pump -A-.

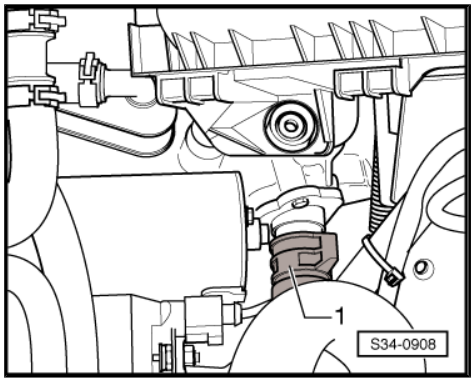
– Grab with the hand (without gloves) at the mass, in order to discharge yourself electrostatically.



Caution

- *Only then touch or remove the mechatronics for double clutch gearbox - J743- , after you have discharged yourself electrostatically at an earthed object beforehand, e.g. skin contact with mass.*
- *Under no circumstances must the plug contacts in the plug of the gearbox be touched with the hands, because the control unit can be destroyed through static discharge as well as the mechatronics.*

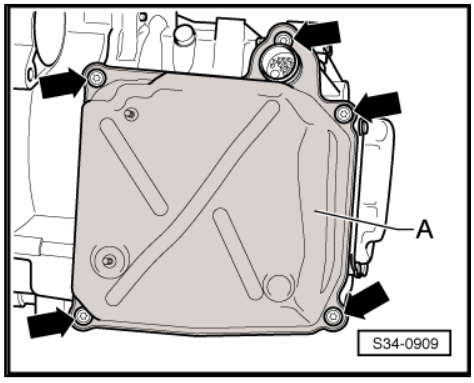
– Unlock the cap of the plug -1- on the mechatronics by turning it to the left and disconnect the plug from the gearbox.



– Loosen screws -arrows- of the oil pan -A- crosswise and unscrew.

Note

There is still gearbox oil in the oil pan, because not all of it can be drained off.

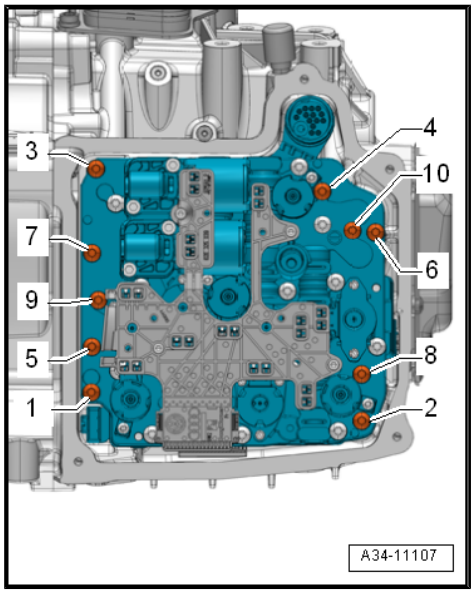


– Remove oil pan with the oil pan gasket.

Replace oil pan gasket ⇒ Electronic Catalogue of Original Parts .

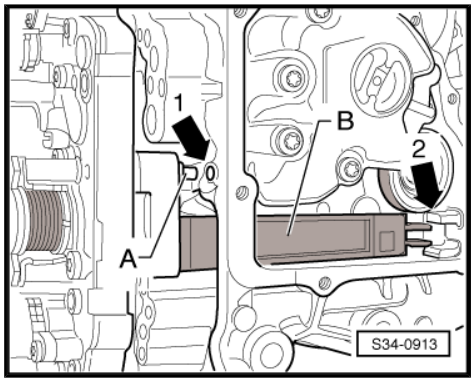
The cover for the gearbox oil pump and the screws of the oil pan must always be replaced ⇒ Electronic Catalogue of Original Parts .

– Loosen fixing screws -1- to -10- in the prescribed sequence and unscrew.



– Pull the mechatronics out of the gearbox housing so far until the arm of the gearbox output rpm sender - G195- and -G196--B- on the reverse side is no longer located in the gearbox housing.

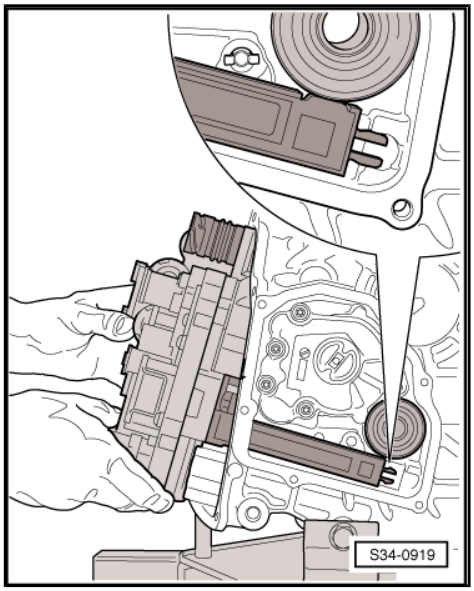
– Carefully swivel out the mechatronics for double clutch gearbox - J743- to the bottom.



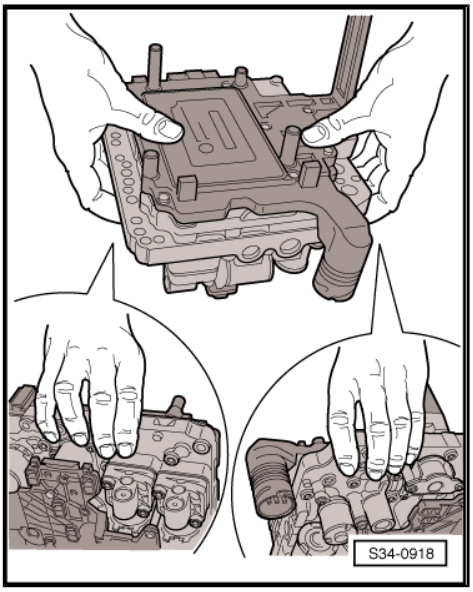
– Removing mechatronics for double clutch gearbox - J743- .

Caution

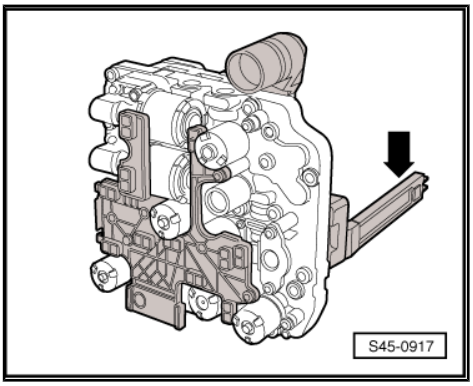
Never raise the mechatronics at the arm of the gearbox output rpm sender - G195- and -G196- or place it down on it.



– Transport and place down the mechatronics, as illustrated in the fig.

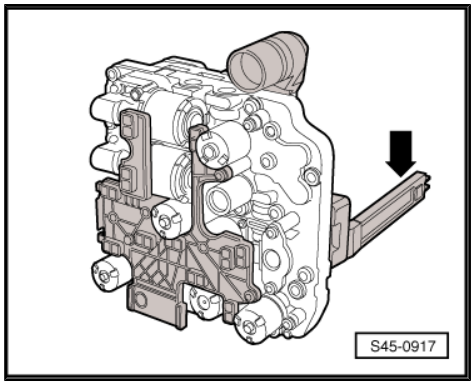


Pay particular attention to the long arm of the gearbox output rpm sender - G195- and -G196- -arrow- when handling the mechatronics (if the »arm« is damaged, the mechatronics must be replaced).



4.2 Installing mechatronics for double clutch gearbox - J743-

If the arm of the gearbox output rpm sender - G195- and -G196- -arrow- is damaged, the complete mechatronics must be replaced.

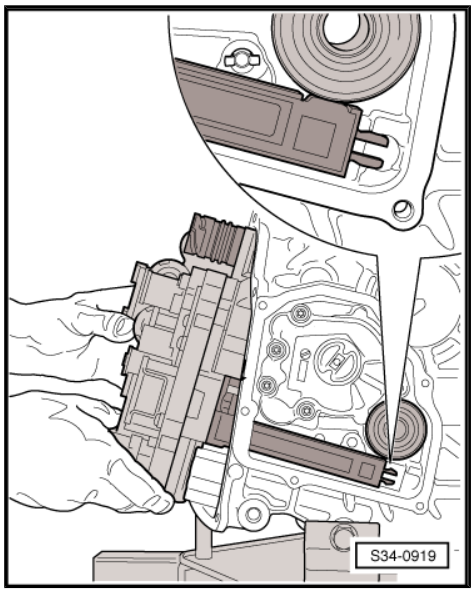


– Grab with the hand (without gloves) at the mass, in order to discharge yourself electrostatically before seizing the mechatronics.

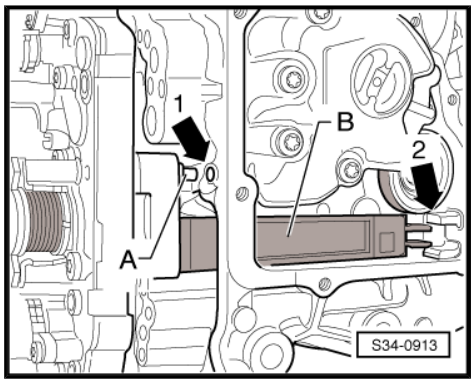
Caution

- *Only then touch or remove the mechatronics for double clutch gearbox - J743- , after you have discharged yourself electrostatically at an earthed object beforehand, e.g. skin contact with mass.*
- *Under no circumstances must the plug contacts in the plug of the gearbox be touched with the hands, because the control unit can be destroyed through static discharge as well as the mechatronics.*

– Carefully insert the mechatronics for double clutch gearbox - J743- into the gearbox housing.

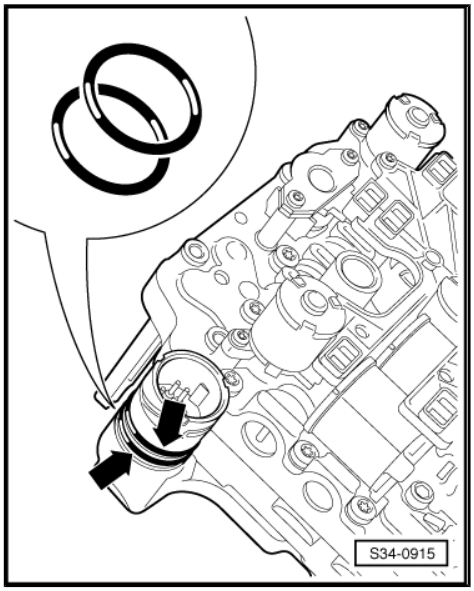


Pay attention to the correct seating of the fit pin -A- in the gearbox housing -arrow 1- and the arm of the gearbox output rpm sender - G195- and -G196- -B- in the guide -arrow 2- at the gearbox housing.

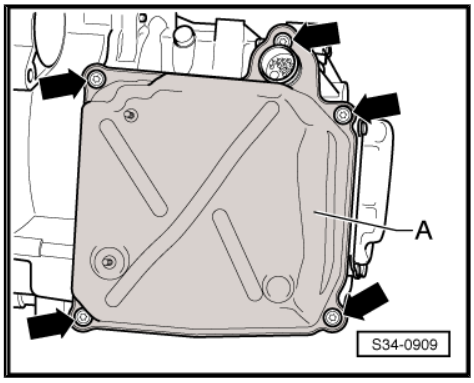


– Screw in new screws -1- to -10- by hand.
– Tighten the screws in the given sequence to 5 Nm + torque a further 90° ($^1/_4$ turn).
– First hang the cable -A- in the upper, then in the lower retaining lug -arrows-.
– Attach connector so that it latches into place.

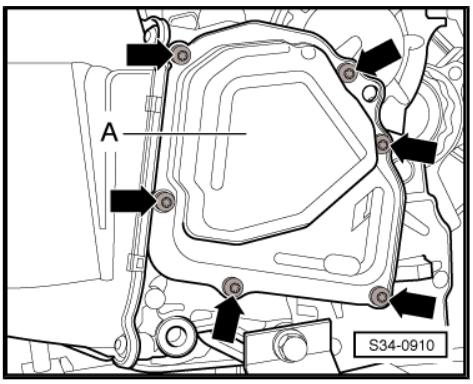
– Replace both O-rings -arrows- at the connection of the mechatronics ⇒ Electronic Catalogue of Original Parts .
– Moisten O-rings with DSG oil.
– Clean sealing surfaces and eliminate residues of oil.
– Pay attention to correct fitting of new oil pan gasket.
– Position oil pan. At the same time do not get the cables trapped.



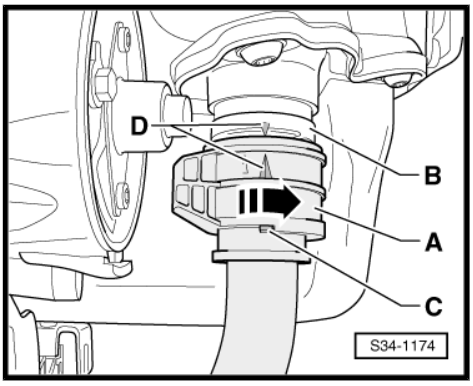
– Insert new screws -arrows- for the oil pan -A- and tighten crosswise in several stages to tightening torque ⇒ “2.1 Summary of components - Tightening torques”, page 36 .



– Fit new cover for gearbox oil pump -A- and tighten screws -arrows- in successive stages to tightening torque ⇒ “2.1 Summary of components - Tightening torques”, page 36 .
– Install cable clip on the oil pan and tighten the nuts to 10 Nm.

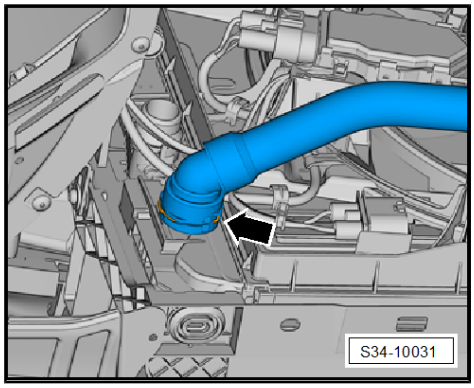


– Mount the plug -A- of the mechatronics as follows:
• The arrows -D- on the mechatronics -B- and on the plug -A- as well as the peg -C- must be on the same line and point upwards.
• Then mount the plug -A- carefully up to the stop and lock the cap by turning it to the right in -direction of arrow-.

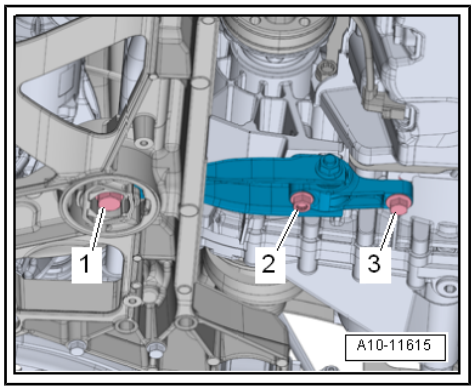


– Connect coolant hose at bottom of radiator -arrow-.

– Top up coolant ⇒ Engine; Rep. gr. 19 .



– Install pendulum support, to do so tighten screws -1, 2 and 3- to tightening torque ⇒ Engine; Rep. gr. 10 .



Note

If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .

– Connect earth strap of battery ⇒ Electrical System; Rep. gr. 27 .

Caution

Do not start the engine and tow the vehicle without filling with oil.

– Replace gearbox oil filter (instructions, when the gearbox oil filter must be replaced and when not ⇒ “2.2 General repair instructions”, page 7).

– Pour in gear oil ⇒ “11 Change the gearbox oil and filter of the automatic gearbox DSG and at the same time check the oil level”, page 93 .

– Install the noise insulation ⇒ Body Work; Rep. gr. 50 .

After the installation of the mechatronics for double clutch gearbox - J743- , a `basic setting` must be performed with the ⇒ Vehicle diagnostic tester.

5 Removing and installing gearbox oil cooler

⇒ “5.1 Removing”, page 51

⇒ “5.2 Install”, page 53

Special tools and workshop equipment required

- Hose clamp - MP7-602 (3094)-
- Pliers for spring strap clips , e.g. -VAS 6340-

Note

- *Observe instructions for automatic gearbox DSG - 0D9 ⇒ “2 Notes on 6-speed automatic gearbox DSG - 0D9”, page 7 .*
- *General repair information ⇒ “2.2 General repair instructions”, page 7 .*
- *Regulations concerning cleanliness when working on the gearbox ⇒ “2.2 General repair instructions”, page 7 .*
- *Pay attention to the subject “dirty oil” as well as to the instructions for oil filter change.*
- *When changing the gear oil, the gearbox oil filter must not always be replaced. Therefore comply with the instructions, when the gearbox oil filter must be replaced and when not ⇒ “2.2 General repair instructions”, page 7 .*
- *If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .*

5.1 Removing

– Shift selector lever into position “P”.

– Remove engine cover ⇒ engine; Rep. gr. 10 .

– Remove air filter ⇒ Engine; Rep. gr. 24 or ⇒ Rep. gr. 23 .

Note

If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .

– Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .

WARNING

Hot steam may escape after the compensation bottle is opened. Cover the cap with a cloth and open carefully.

Note

- *When the engine is warm the cooling system is under pressure. Slowly open the cap of the compensation bottle, in order to first reduce pressure before pulling off the coolant hoses.*
- *Do not place fluffing cloths on the gearbox oil cooler and the gearbox, in order to collect flowing out coolant.*

Vehicles with 2.0 l TFSI engine

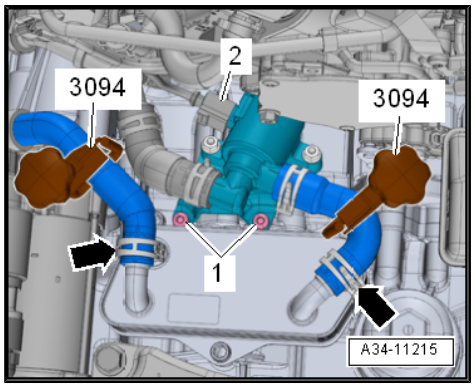
– Pull off plug connection -2-.

– Unscrew screws -1- and loosen coolant valve for gearbox - N488- .

Continued for all vehicles

– Disconnect the coolant hoses from the hose clamps - MP7-602 (3094)- .

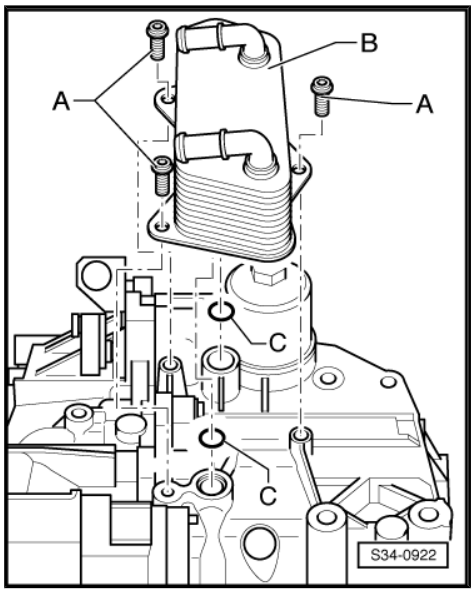
– Slacken hose clamps -arrows- and remove hoses from gearbox oil cooler.



– Unscrew screws -A- and remove the gearbox oil cooler -B-.

Caution

No coolant must drip onto the gearbox or into the oil bores!

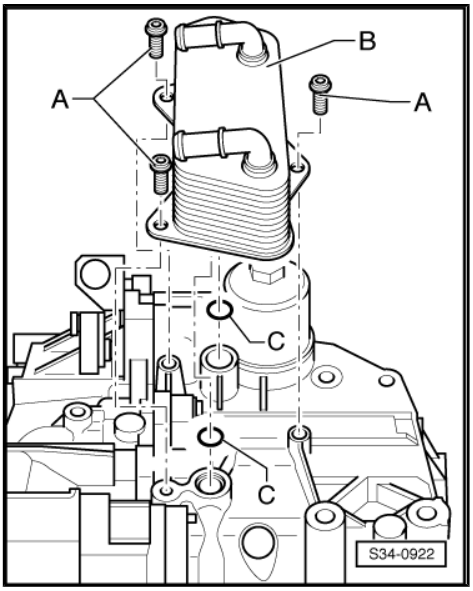


5.2 Install

– Replace O-rings -C- at gearbox oil cooler -B- ⇒ Electronic Catalogue of Original Parts .

– Mount the gearbox oil cooler -B-, pay attention to the O-rings -C-.

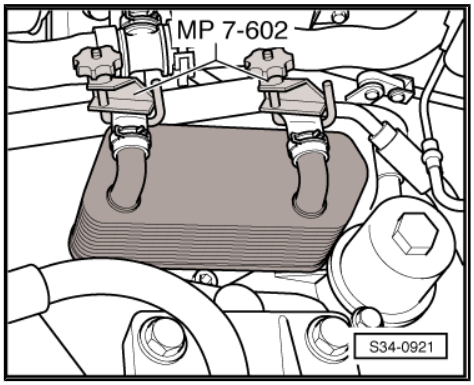
– Insert new screws -A- and tighten to tightening torque ⇒ “2.1 Summary of components - Tightening torques”, page 36 .



– Connect coolant hoses to gearbox oil cooler and remove hose clamps - MP7-602 (3094)- .

Vehicles with 2.0 l TFSI engine

– Screw on coolant valve for gearbox - N488- with screws -1-.

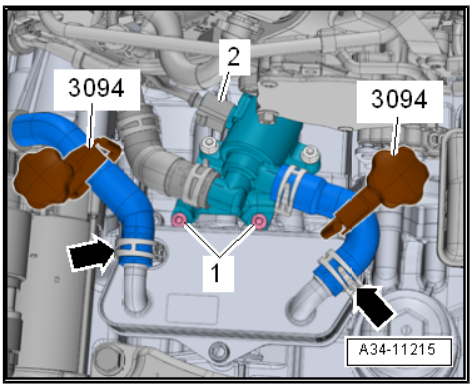


– Reconnect connector -2-.

Continued for all vehicles

– Install the battery tray and battery ⇒ Electrical System; Rep. gr. 27 .

– Install air filter ⇒ Engine; Rep. gr. 23 or ⇒ Engine; Rep. gr. 24 .



Note

If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .

– Inspect coolant level, top up if necessary ⇒ Engine; Rep. gr. 19 .

– Replace gearbox oil filter (instructions, when the gearbox oil filter must be replaced and when not ⇒ “2.2 General repair instructions”, page 7).

– Pour in gear oil ⇒ “11 Change the gearbox oil and filter of the automatic gearbox DSG and at the same time check the oil level”, page 93 .

6 Removing and installing gearbox oil pump

⇒ “6.1 Removing”, page 54

⇒ “6.2 Install”, page 56

Special tools and workshop equipment required

- Catch pan - VAS 6208-

Caution

Do not run the engine or tow the vehicle when the oil pan has been removed or without filling with gearbox oil.

Note

- *Observe instructions for automatic gearbox DSG - 0D9 ⇒ “2 Notes on 6-speed automatic gearbox DSG - 0D9”, page 7 .*
- *General repair information ⇒ “2.2 General repair instructions”, page 7 .*
- *Regulations concerning cleanliness when working on the gearbox, in particular the dirt on open mechatronics or gearbox oil pump can lead to the failure of the gearbox function ⇒ “2.2 General repair instructions”, page 7 .*
- *Pay attention to the subject “dirty oil” as well as to the instructions for oil filter change.*
- *When changing the gear oil, the gearbox oil filter must not always be replaced. Therefore comply with the instructions, when the gearbox oil filter must be replaced and when not ⇒ “2.2 General repair instructions”, page 7 .*

6.1 Removing

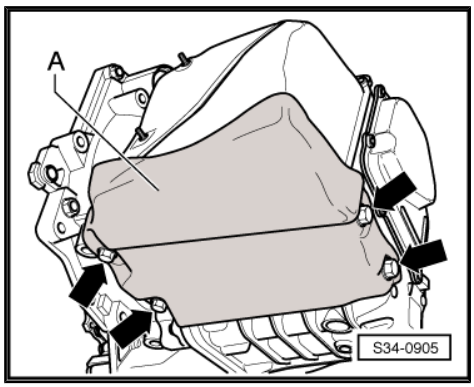
– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .

– Remove front left wheel.

– Remove the front left wheelhouse liner ⇒ Body Work; Rep. gr. 66 .

– Remove protection plate -A- at the bottom of the gearbox -arrows-; if applicable.

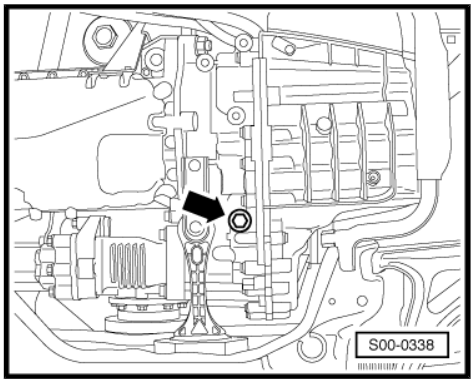
– Position the catch pan under the gearbox.



WARNING

Wear safety goggles.

– Unscrew the inspection plug -arrow- close to the pendulum support.



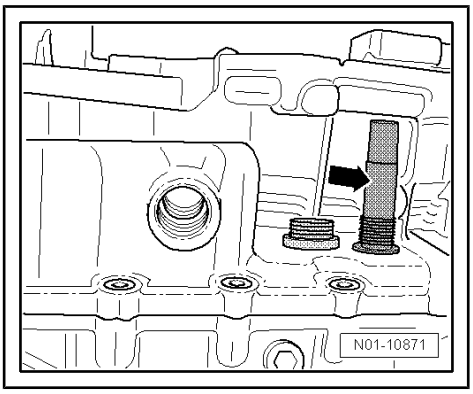
Note

A plastic overflow tube with an 8 mm hexagon socket and a tightening torque of 3 Nm is located behind this screw. The length of the overflow tube determines the oil level in the gearbox, when replacing assign via part number ⇒ Electronic Catalogue of Original Parts .

– Remove overflow tube.

Approx. 5.0 ltr of oil flows out. Furthermore, the catch pan remains under the gearbox.

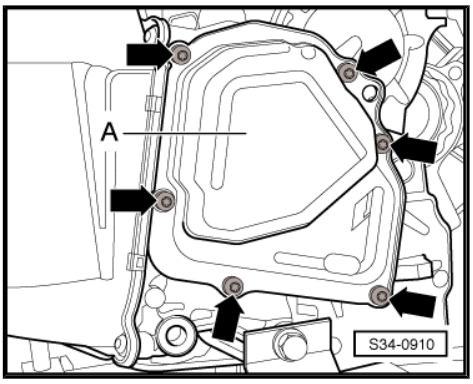
– Screw in overflow tube and tighten to tightening torque ⇒ “2.1 Summary of components - Tightening torques”, page 36 .



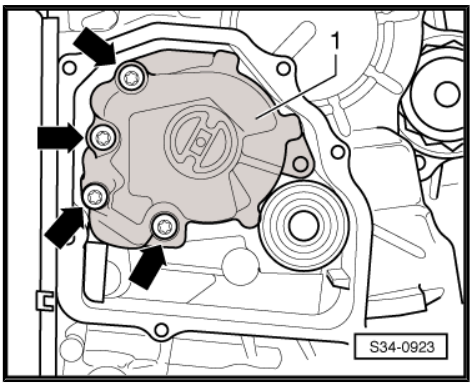
Note

There is still oil in the cover for the gearbox oil pump.

– Release screws -arrows- and remove cover for gearbox oil pump -A-.



– Unscrew the screws -arrows- and pull off the gearbox oil pump -1- from the dowel pins and the drive shaft of the gearbox oil pump.



Note

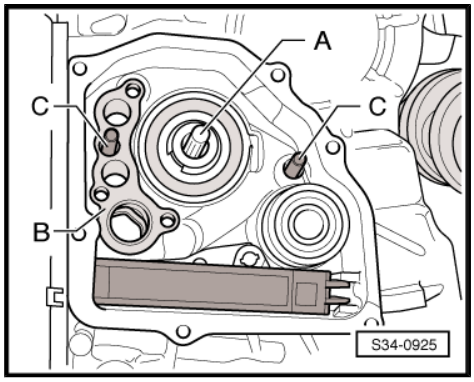
Pay attention to the assignment of the screws -arrows- for reinstalling the gearbox oil pump -1-.

6.2 Install

– Push drive shaft -A- for gearbox oil pump up to the stop into the gearbox. Turn the drive shaft slightly.

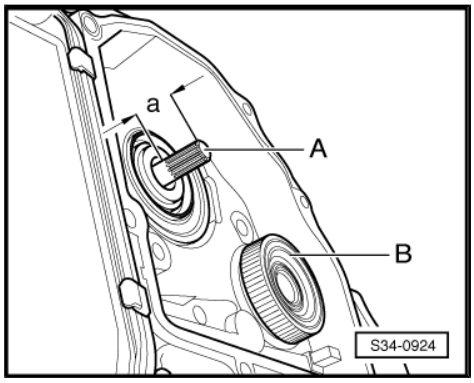
– Replace gasket for gearbox oil pump -B- at gearbox ⇒ Electronic Catalogue of Original Parts .

• Both dowel pins -C- must be located in the gearbox housing.



Note

Pay attention to the installed dimension of the shaft -A- = approx. 23 mm.



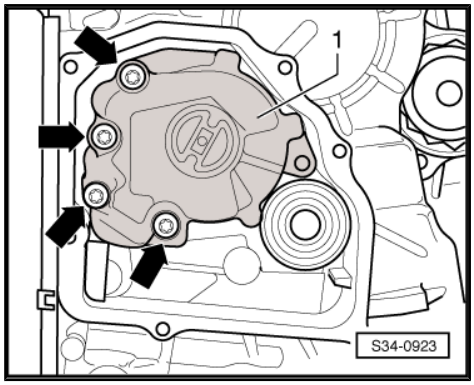
If necessary carefully remove metallic swarf on the rotor -B-, the rotor must not be demagnetized.

– Remove the gasket between the gearbox oil pump and the gearbox.

– Clean the sealing surfaces for the gearbox oil pump and the gearbox.

– Fit new gasket between the gearbox oil pump and the gearbox, if necessary fix with gearbox oil.

– Push the gearbox oil pump -1- onto the drive shaft, pay attention to the serration of the oil pump/drive shaft.



Also pay attention to the correct seating of the gearbox oil pump -1- on the dowel pins of the gearbox housing.

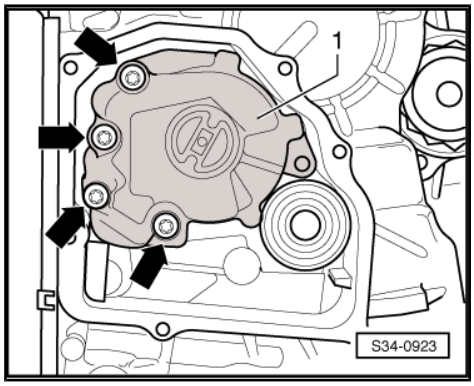
Note

Pay attention to different screws for the gearbox oil pump and tightening process.

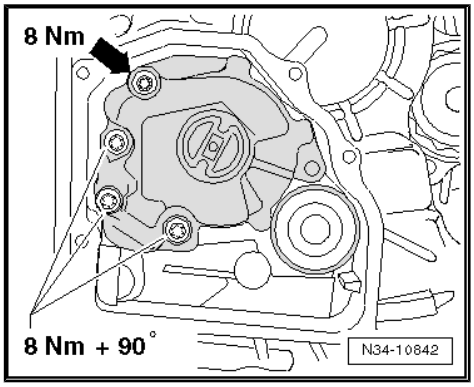
Different screws for the gearbox oil pump and tightening process

All 4 flat head screws -arrows-:

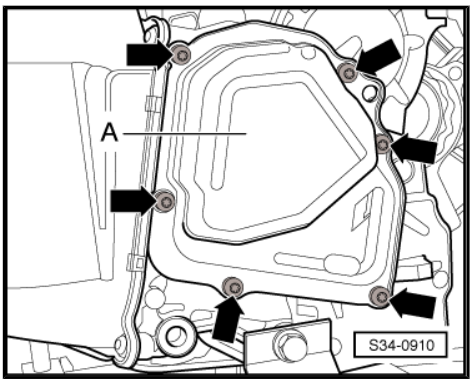
◆ Tightening torque 5 Nm + torque a further 90° ($^1/_4$ turn)



3 flat head screws (bottom), 1 countersunk screw (top) -arrow-:



- ♦ 3 flat head screws (bottom): Tightening torque 8 Nm + torque a further 90° ($^1/_4$ turn)
- ♦ 1 countersunk screw (top) -arrow-: Tightening torque 8 Nm
- – Screw in new screws and then tighten crosswise to the corresponding tightening torque.



- – Fit new cover for gearbox oil pump -A- and tighten the new screws -arrows- in successive stages to tightening torque ⇒ “2.1 Summary of components - Tightening torques”, page 36 .
- – Replace gearbox oil filter (instructions, when the gearbox oil filter must be replaced and when not ⇒ “2.2 General repair instructions”, page 7).
- – Pour in gear oil ⇒ “11 Change the gearbox oil and filter of the automatic gearbox DSG and at the same time check the oil level”, page 93 .
- – Install the complete left cover.
- – Install the front left wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
- – Install the noise insulation ⇒ Body Work; Rep. gr. 50 .

7 Replace the gasket ring of the gear-shift shaft

Special tools and workshop equipment required

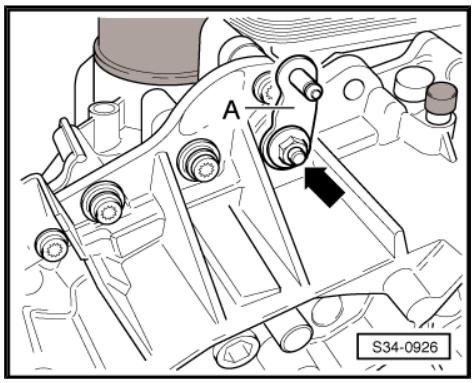
- Pipe section - MP3-479 (VW 423)-
- Extractor tool - T20143/1-

Removing gasket

– Remove the selector lever control cable from the gearbox ⇒ “9.1 Removing the gearbox”, page 77 .

– Unscrew nut -arrow- of the gearshift shaft.

– Carefully lever off the lever -A- from the gearshift shaft.



– Lever out the gasket ring.

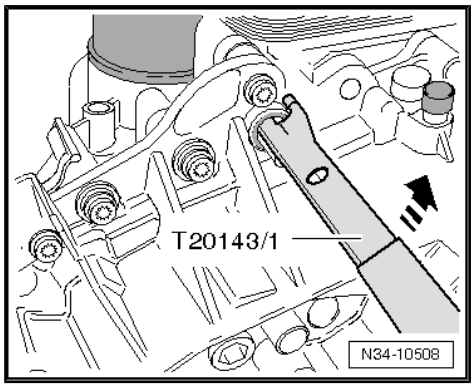
Installing gasket

– Lightly oil new gasket ring at outer surface.

– Fill half the space between the sealing lip and dust lip with sealing grease ⇒ Electronic catalogue of original parts .

Note

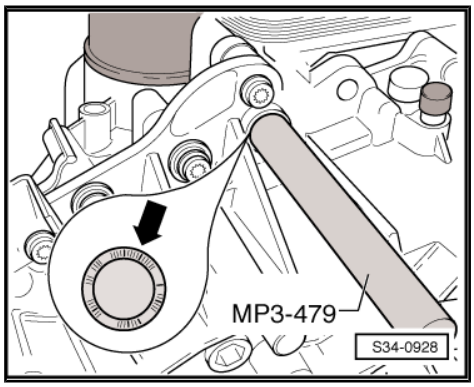
The inscription -arrow- on the gasket ring must point outwards (to the pressing tool).



– Drive in the new gasket ring up to stop. Do not tilt the gasket ring during this process.

Note

The gearbox shift lever only fits in one position on the serration.



– Insert gearbox shift lever and tighten screws to tightening torque ⇒ “2.1 Summary of components - Tightening torques”, page 36 .

– Attach the selector lever control cable to the gearbox ⇒ “8.8 Removing and installing selector mechanism”, page 71 .

– Adjust the selector lever control cable at the gearbox ⇒ “8.2.2 Setting”, page 61 .

8 Shift mechanism

WARNING

Before working on the engine when the engine is running, insert the selector lever in position “P” and apply handbrake.

8.1 Inspecting the gearshift mechanism

- In selector lever positions “S”, “D”, “R” and Tiptronic position it must not be possible to activate the starter.
- At speeds above 5 km/h and shifting in selector lever position “N” the selector lever lock solenoid must not engage and block the selector lever. The selector lever can be shifted in a driving position.
- At speeds below 5 km/h and shifting in selector lever position “N” the selector lever lock solenoid must only engage after approx. 1s. The selector lever can only be moved from position “N” by activating the brake pedal.

Selector lever in position “P”, button on selector lever pressed and ignition switched on

- The brake pedal is not pressed

The selector lever is locked when the button is pressed and cannot be shifted out of position “P”. The selector lever lock solenoid blocks the selector lever.

- The brake pedal is pressed

The selector lever lock solenoid releases the selector lever. It is possible to engage a driving gear position. Slowly shift selector

lever from “P” through “R, N, D, S”; while doing so check whether the selector lever position in the dash panel insert corresponds with the actual selector lever position.

Selector lever in position “N”, button on selector lever pressed and ignition switched on.

- The brake pedal is not pressed

The selector lever is locked and cannot be moved out of position “N”. The selector lever lock solenoid blocks the selector lever.

- The brake pedal is pressed

The selector lever lock solenoid releases the selector lever. It is possible to engage a driving gear position.

Note

Shifting out of the position “N” to “D” by activating the brake pedal is also possible without pressing the button on the selector lever. From position “N” to “R” the button on the selector lever must be additionally pressed.

Selector lever in position “D”, ignition switched on.

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

- Button pressed on selector lever

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

- Selector lever in the Tiptronic gear leads to

The lighting up of the “D” symbol in the selector lever position indicator should go out and the “+” and “–” symbols should light up.

When the gear selector lever is put into the Tiptronic gate, the lever position display in the dash panel insert should change from “P R N D S” to “6 5 4 3 2 1”.

- Move selector lever in the Tiptronic gear to “+” and “–”.

The display of the selector lever position “6 5 4 3 2 1” in the dash panel insert must indicate (change) a higher or a lower gear when shifting the selector lever to “+” or to “–”.

– Inspecting and adjusting the selector lever control cable ⇒ “8.2 Inspecting and adjusting the selector lever control cable”, page 60 .

– Check ignition key anti-removal lock ⇒ “8.3 Check the function of the ignition key removal lock”, page 63 .

Selector lever position indicator.

When all parts of the selector lever position display are lit at the same time, it indicates that the gearbox is in emergency operation mode.

8.2 Inspecting and adjusting the selector lever control cable

Special tools and workshop equipment required

♦ Pliers for spring strap clips , e.g. -VAS 6340-

8.2.1 Checking

– Shift selector lever into position “P”.

– Switch off ignition.

– Remove engine cover ⇒ engine; Rep. gr. 10 .

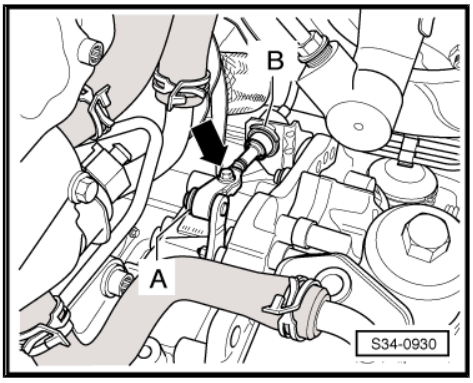
– Remove air filter ⇒ Engine; Rep. gr. 24 or ⇒ Rep. gr. 23 .

– Release lock washer -A- and remove to the top.

– Remove lock washer -B- towards the top.

– Press off the selector lever control cable from the lever/gear-shift shaft and place upwards.

– Lever off selector lever control cable in such a way that the extremity can move freely.



Note

Do not bend or buckle the selector lever control cable.

– Switch on the ignition and actuate the brake pedal.

– Shift selector lever from “P” to “S”.

– Check boot at the front shift mechanism on the selector lever control cable for damage, if necessary replace control cable.

• Gearshift mechanism and selector lever control cable must move smoothly when shifting gears.

• The selector lever control cable must not be removed (separated) from the shift mechanism and it is replaced together with the shift mechanism as one component part
⇒ “8.8 Removing and installing selector mechanism”, page 71 .

Do not grease ball socket of the selector lever control cable and lever/gearshift shaft.

– Carefully press selector lever control cable onto the lever/ gearshift shaft.

– Install the selector lever control cable with new circlips and »released« clamping screw.

– Setting selector lever control cable
⇒ “8.2.2 Setting”, page 61 .

8.2.2 Setting

The selector lever control cable must always be set, if:

♦ the selector lever control cable was removed from the gear-box.

♦ Engine or gearbox was removed and installed.

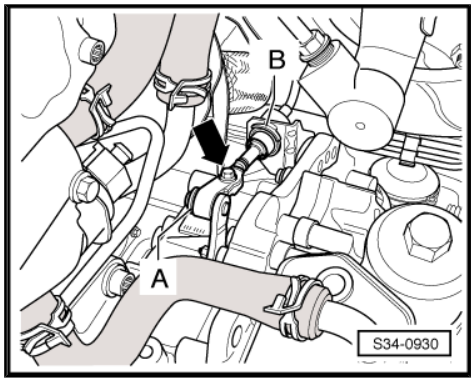
♦ Removed and installed parts of the unit mounting.

♦ The engine/gearbox were changed in their position, for example were installed free of tension.

Adjustment procedure

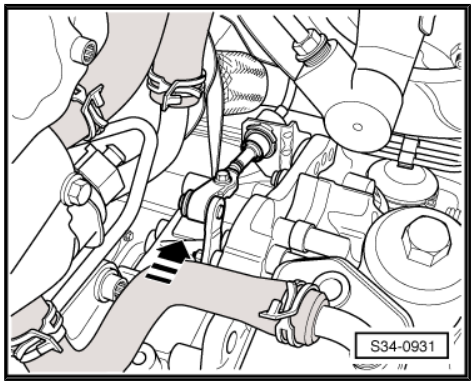
- New lock washers -A- and -B- are installed.
- Clamping screw -arrow- is slackened.

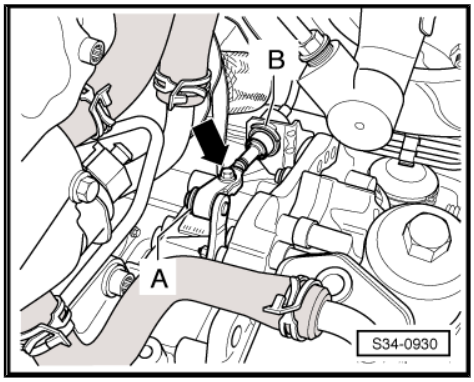
– Shift selector lever in the vehicle into position “P”.



– Press lever at gearbox -in direction of arrow- into the position “P”.

– Turn both front wheels in one direction, e.g. by pushing the vehicle forwards, until the locking lever in the gearbox engages into the parking gear and the wheels are blocked (cannot be simultaneously turned in one direction).





Note

If the clamping screw -arrow- is released, the selector lever must remain in position “P”, otherwise the setting is not correct.

– Slightly move the selector lever towards the front and rear, without shifting into another selector lever position.
– Tighten clamping screw -arrow- at selector lever cable without jolting to 12 Nm.

Note

Pay attention when tightening the clamping screw -arrow- that the selector lever control cable no longer shifts.

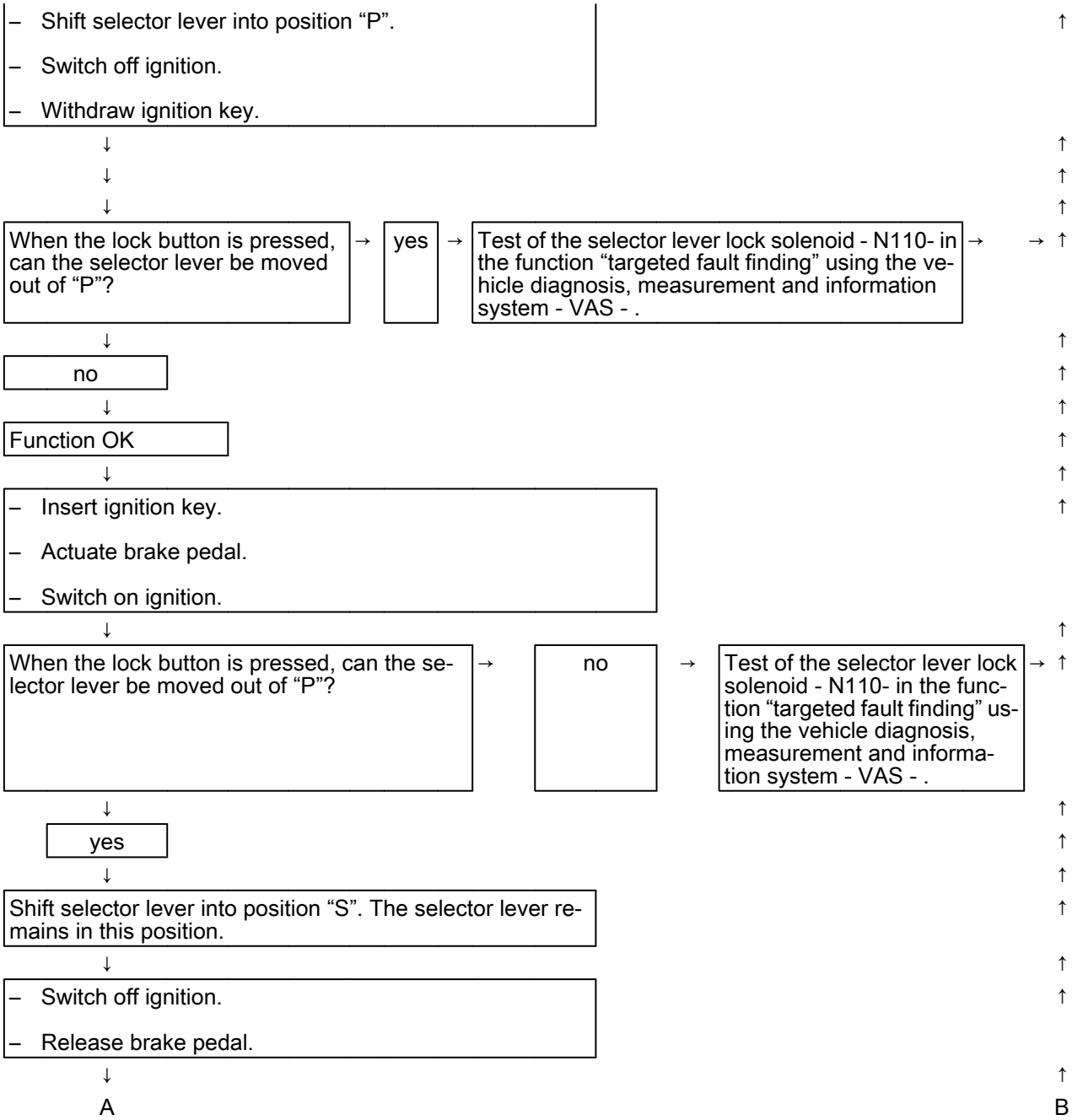
This completes the setting.

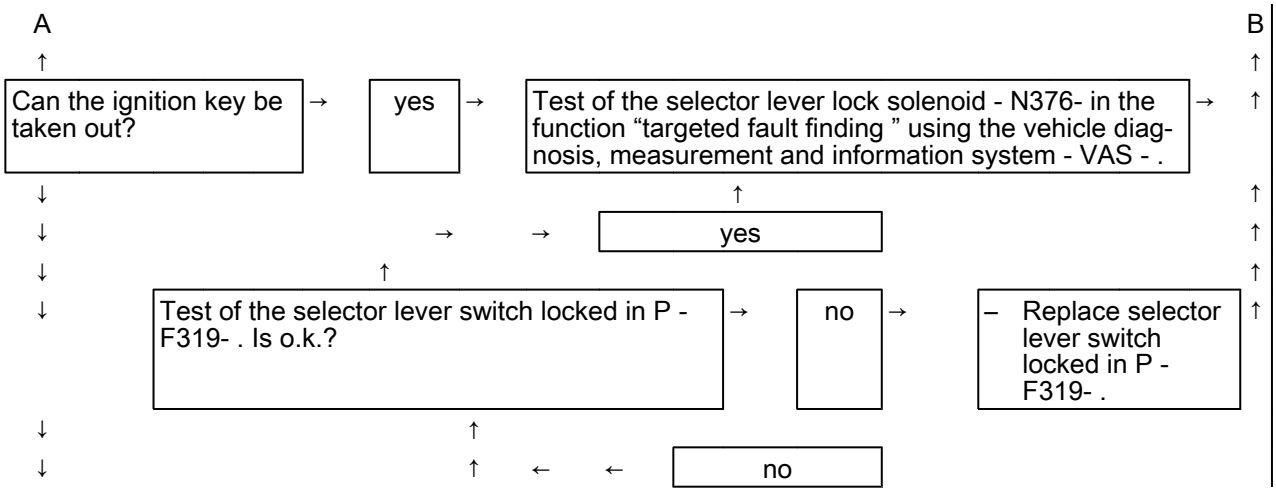
Inspect setting of selector lever control cable

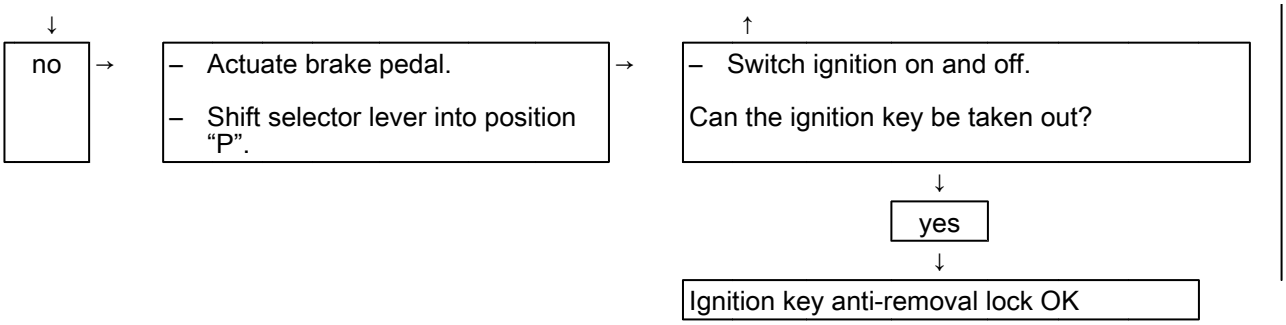
– Pull selector lever out of position “P” with the button pressed, approx. 5 mm to the rear and hold, do not shift into position “R”.
– Release the selector lever.
• The selector lever must automatically jump back again into the position “P”
– If necessary adjust the selector lever ⇒ page 62 .
– Push selector lever into position “N”.
– Pull selector lever out of position “N” with the button pressed, approx. 5 mm to the rear and hold, do not shift into position “D”.
– Release the selector lever.
• The selector lever must automatically jump back again into the position “N”
– If necessary adjust the selector lever ⇒ page 62 .
– Pull selector lever out of position “N” with the button pressed, approx. 5 mm to the front and hold, do not shift into position “R”.
– Release the selector lever.
• The selector lever must automatically jump back again into the position “N”
– If necessary adjust the selector lever ⇒ page 62 .
– Inspect gearshift mechanism
⇒ “8.1 Inspecting the gearshift mechanism”, page 59 .
– Install air filter ⇒ Engine; Rep. gr. 23 or ⇒ Engine; Rep. gr. 24 .
– Install engine cover ⇒ engine; Rep. gr. 10 .

8.3 Check the function of the ignition key removal lock

START


– Shift selector lever into position “P”.
– Switch off ignition.
– Withdraw ignition key.
When the lock button is pressed, can the selector lever be moved out of “P”?
yes
Test of the selector lever lock solenoid - N110- in the function “targeted fault finding” using the vehicle diagnosis, measurement and information system - VAS - .
no
Function OK
– Insert ignition key.
– Actuate brake pedal.
– Switch on ignition.
When the lock button is pressed, can the selector lever be moved out of “P”?
no
Test of the selector lever lock solenoid - N110- in the function “targeted fault finding” using the vehicle diagnosis, measurement and information system - VAS - .
yes
Shift selector lever into position “S”. The selector lever remains in this position.
– Switch off ignition.
– Release brake pedal.
A
B


A
B
Can the ignition key be taken out?
yes
Test of the selector lever lock solenoid - N376- in the function “targeted fault finding ” using the vehicle diagnosis, measurement and information system - VAS - .
yes
Test of the selector lever switch locked in P - F319- . Is o.k.?
no
– Replace selector lever switch locked in P - F319- .
no

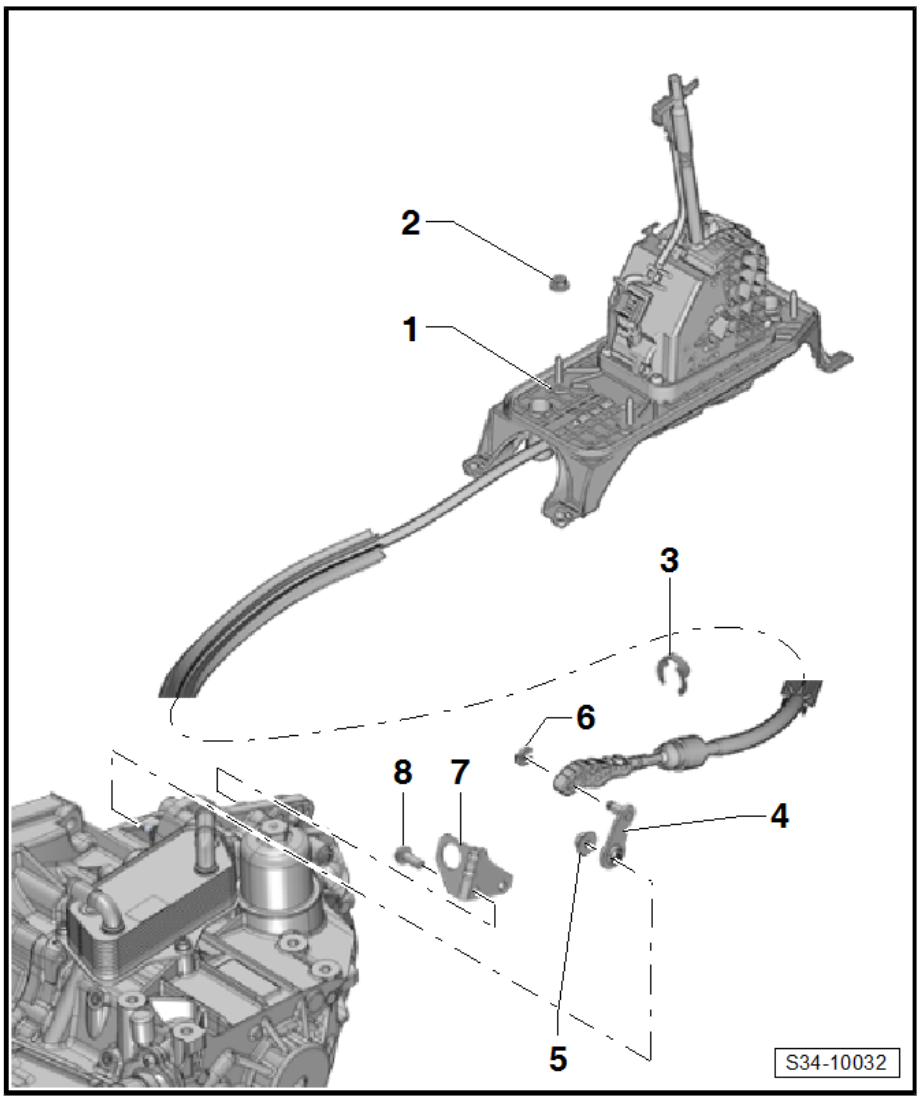


8.4 Summary of components - Gearshift mechanism

1 - Shift mechanism

Selector lever control cable:

- ❑ The selector lever control cable must not be removed from the shift mechanism, it must be replaced together as one component part ⇒ Electronic Catalogue of Original Parts .
- ❑ Do not grease selector lever control cable
- ❑ testing and adjusting ⇒ “8.2 Inspecting and adjusting the selector lever control cable”, page 60



Selector lever and shift mechanism:

- ❑ with firmly integrated circuit board for gearshift mechanism (selector lever - E313-)
- ❑ Tiptronic switch - F189- , selector lever sensor control unit - J587- , selector lever switch locked in P - F319 - and selector lever lock solenoid - N110- are integrated in the shift mechanism and cannot be replaced separately.
- ❑ are checked by self-diagnosis
- ❑ Emergency release ⇒ “8.10 Emergency release of gearshift mechanism out of position P ”, page 74
- ❑ removing and installing ⇒ “8.8 Removing and installing selector mechanism”, page 71
- ❑ after the installation adjust the selector lever control cable ⇒ “8.2 Inspecting and adjusting the selector lever control cable”, page 60

Adjusting screw for selector lever control cable:

- ❑ Tightening torque 12 Nm

2 - Nut, 8 Nm

- ❑ for shift mechanism to body
- ❑ 4 pieces

3 - Lock washer

- ❑ replace ⇒ Electronic Catalogue of Original Parts

4 - Gearshift lever

- ❑ insert in such a way that the interrupted spacing of the teeth matches the gearshift shaft

5 - Nut, 20Nm

6 - Lock washer

- ❑ replace ⇒ Electronic Catalogue of Original Parts

7 - Cable support

- ❑ for selector lever control cable

8 - Screw, 20 Nm + torque a further 90° (1/4 turn)

- ❑ replace ⇒ Electronic Catalogue of Original Parts
- ❑ 2 pieces
- ❑ for attaching cable support at gearbox housing

8.5 Removing and Installing the cover for the shift mechanism

Special tools and workshop equipment required

- ♦ Release tool - T30098-

Removing

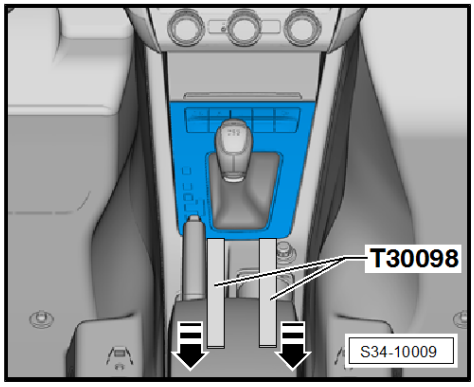
– Apply handbrake.

– Shift selector lever into position “D/S”.

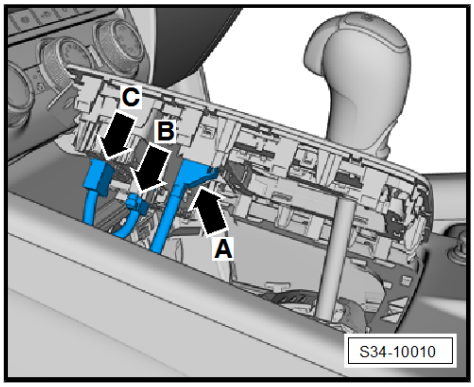
– Switch off ignition.

– Fit the release tool - T30098- under the cover for shift mechanism and loosen the cover by pressing it in -direction of arrow-.

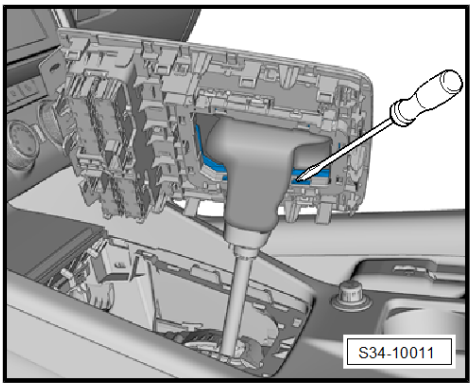
– Swivel the cover for shift mechanism to the side.



– Disconnect the plug of the lamp for selector lever scale illumination - L101- -arrow A- and the plugs for the switches mounted on the cover for the shift mechanism -arrows B and C-.
– Raise cover for shift mechanism.



– Use a screwdriver to press onto the clips of the protective cover for the selector lever and separate the protective cover from the cover for the selector mechanism.
– Remove the cover for the selector mechanism via the loose protective cover and selector lever handle.



Install

Installation is carried out in the reverse order.

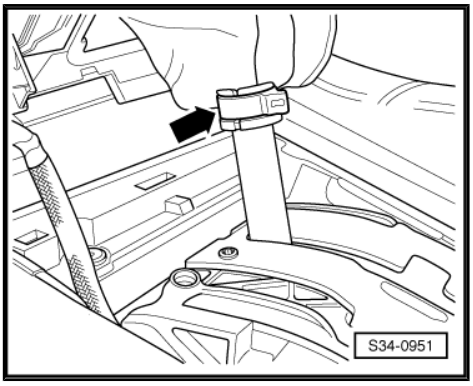
8.6 Removing and installing handle for shift mechanism

Special tools and workshop equipment required

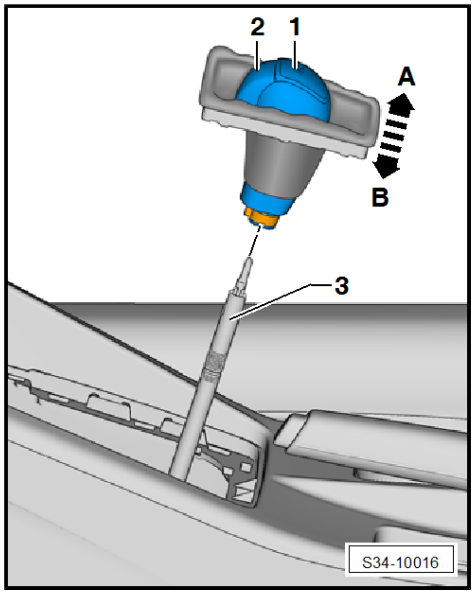
♦ Hose binding claw - V.A.G 1275-

8.6.1 Removing

– Removing the cover for the shift mechanism
⇒ “8.5 Removing and Installing the cover for the shift mechanism”, page 66 .
– Open the warm-type clamp below the handle -arrow-.



– Detach the selector lever handle -1- together with the selector lever collar from the selector lever towards the top -arrow A- so that the lock button -2- is not pressed in.



Note

Ignore -arrow B-.

8.6.2 Install

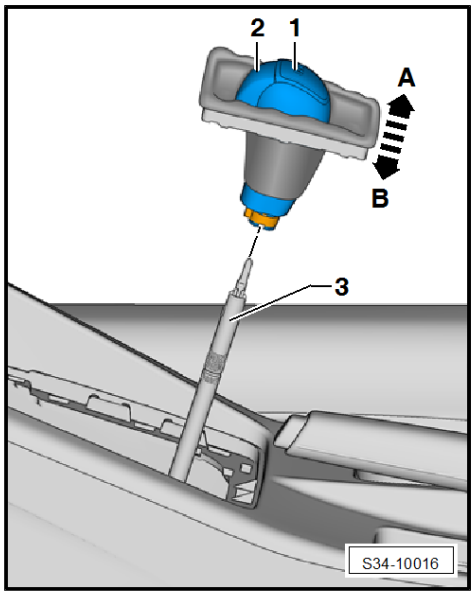
Installation is performed in the reverse order, pay attention to the following points:

- The lock button -2- is located in direction of travel.

Caution

The shift mechanism can be damaged.

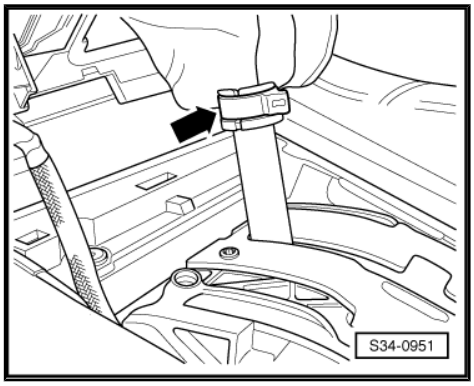
- ***The lock button at the selector lever handle can protrude when installing. If the lock button was inadvertently pressed in when removing the selector lever handle, it must be repositioned***
  ⇒ "8.7 Installing the lock button at the selector lever handle", page 69.
- ***If the selector lever handle is installed with the lock button pressed in, then the selector lever handle as well as the selector lever control cable can be destroyed.***



– Press the selector lever handle -1- onto the selector lever in -direction of arrow B- in such a way that the lock button -2- is not touched.

- The selector lever handle must latch into the round slot of the selector lever.

– Tighten warm-type clamp -arrow- using the hose binding claw .



Note

- *The selector lever handle is correctly locked only if the warm-type clamp is tensioned. Only then the lock button at the handle may be pressed.*
- *The lock button may be slightly sluggish when pressing it for the first time after installing the selector lever handle.*

– Press lock button at selector lever handle.

– Installing the cover for the shift mechanism
⇒ “8.5 Removing and Installing the cover for the shift mechanism”, page 66 .

– Inspect gearshift mechanism
⇒ “8.1 Inspecting the gearshift mechanism”, page 59 .

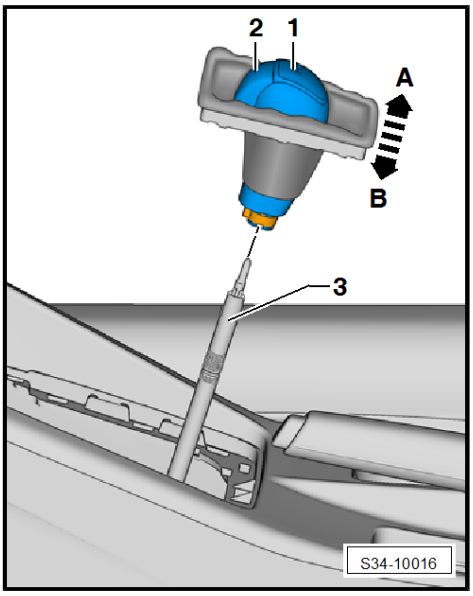
8.7 Installing the lock button at the selector lever handle

Special tools and workshop equipment required

- Release tool - T40203-

Work procedure

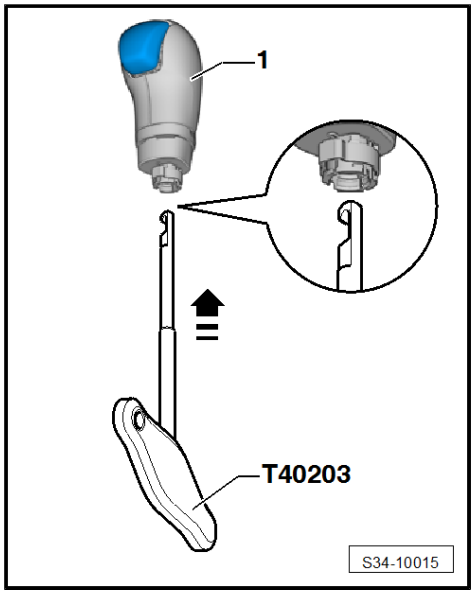
- The lock button -2- at the selector lever handle protrudes in its installed position.



Note

If the lock button is inadvertently pressed, it must be repositioned so that the selector lever handle can be reinstalled.

– Carefully guide the release tool - T40203- fully into the selector lever handle -1- -arrow-.



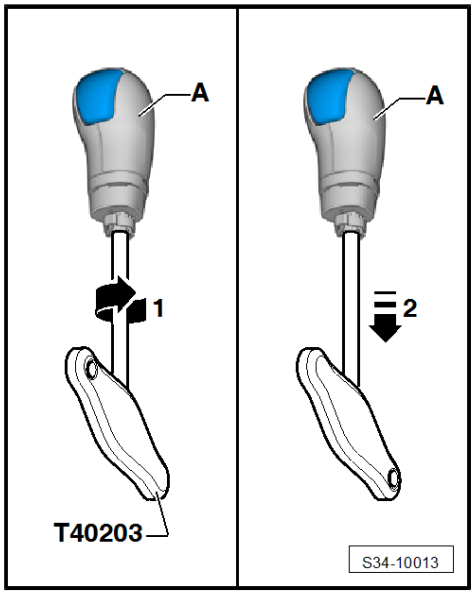
Note

The selector lever handle in the illustration is shown without the selector lever collar. The selector lever collar does not separate from the handle.

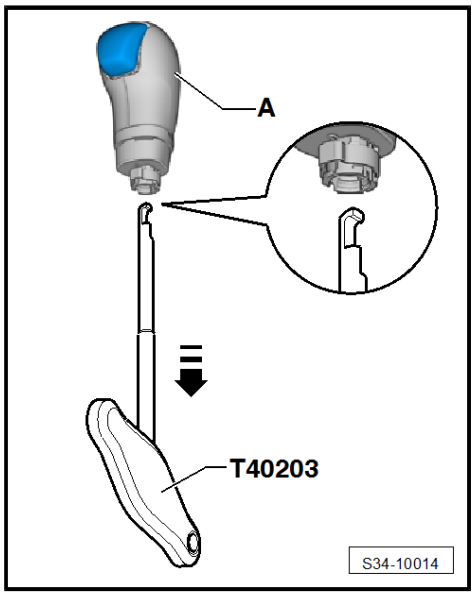
- The recess at the release tool - T40203- points to the lock button and the hook points to the left.

– Hold the selector lever handle -A- and turn the release tool - T40203- by 180° in -direction of arrow 1-.

– Hold the selector lever handle and carefully pull out the release tool - T40203- -arrow 2-.



- When pulling out the release tool - T40203- , the lock button at the selector lever handle -A- is pressed in and locked.
- Do not touch and press in the lock button again before installing the selector lever handle.



8.8 Removing and installing selector mechanism

Special tools and workshop equipment required

- Removal tool for the inner lining of the door panel -MP8-602/1-
- Pliers for spring strap clips , e.g. -VAS 6340-

8.8.1 Removing

– Removing the cover for the shift mechanism ⇒ “8.6 Removing and installing handle for shift mechanism”, page 67 .

– Remove handle for shift mechanism ⇒ “8.6 Removing and installing handle for shift mechanism”, page 67 .

– Shift selector lever into position “P”.

– Switch off ignition.

Note

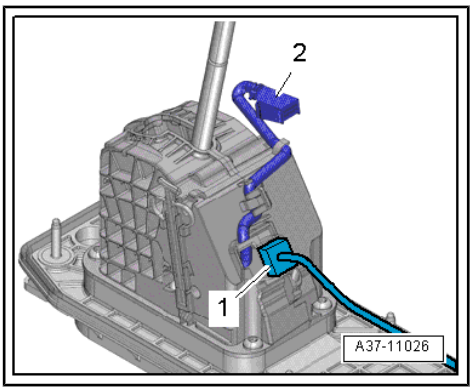
If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .

– Disconnect the battery-earth strap with the ignition off ⇒ Electrical System; Rep. gr. 27 .

– Remove ashtray or storage area in front of the shift mechanism ⇒ Body Work; Rep. gr. 68 .

– Remove the centre console and air guide ⇒ Body Work; Rep. gr. 68 .

– Disconnect plug connection for vehicle wiring harness to selector mechanism -1-.



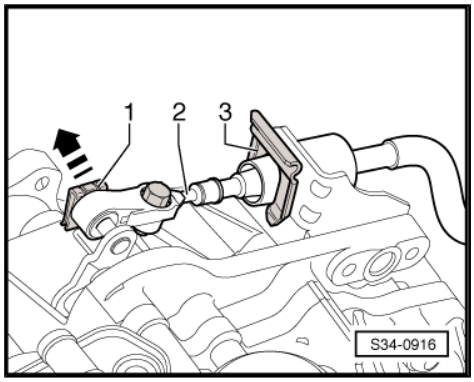
Note

Ignore -position 2-.

– Remove engine cover ⇒ engine; Rep. gr. 10 .

– Remove air filter ⇒ Engine; Rep. gr. 24 or ⇒ Engine; Rep. gr. 23 .

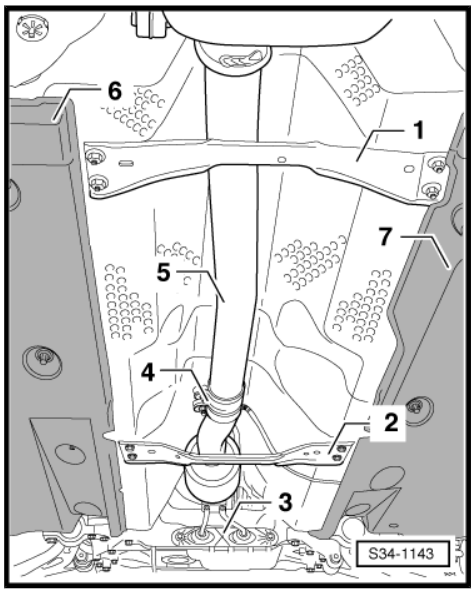
– Release lock washer -1- and remove to the top.
– Remove lock washer -3- towards the top.
– Press off the selector lever control cable -2- from the lever/ gearshift shaft in -direction of arrow- and place on top.



Note

- *The lock washer for the selector lever control cable -3- must always be replaced ⇒ Electronic Catalogue of Original Parts .*
- *Do not bend or buckle selector lever control cable.*
- *Do not press the selector lever control cable out of the cable support towards the rear. The selector lever control cable is only guided out of the cable support when removing the gear-shift mechanism.*

– Raise vehicle.
– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
– Remove the rear tunnel bridge -1- and the front tunnel bridge -2- from the body (if present).
– Detach the bracket -3- for the exhaust system from the assembly carrier.
– Slacken clamping sleeve -4-.

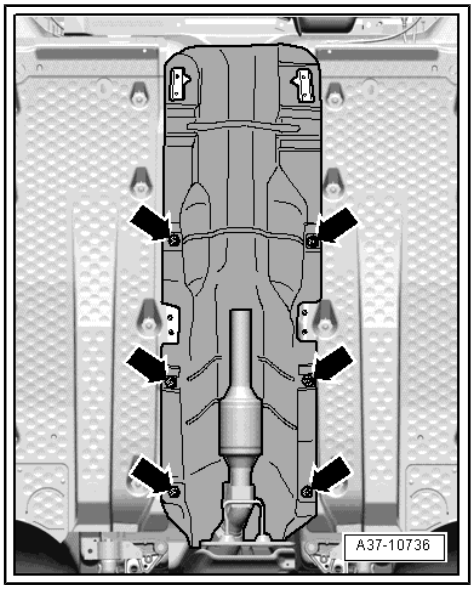


Note

- *The decoupling element in the pre-exhaust pipe should not be bent by more than 10° - risk of damage.*
- *The aid of a 2nd mechanic is required to remove the rear silencer.*

– Remove the rear silencer -5- from the clamping sleeve ⇒ Engine; Rep. gr. 26 .
– Slacken the trim panels for the underfloor on left -6- and right -7- from the body.
– Unclip the cable of the lambda probe at the heat shield.
– Remove the heat shield below the shift mechanism towards the rear, to do so slacken the clips -arrows-.

– Slacken clips -arrows- and remove the heat shield below the shift mechanism towards the rear.

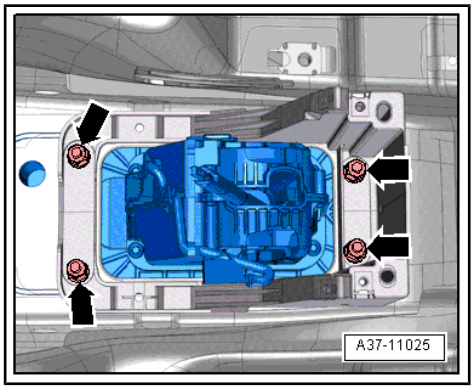


Note

A second mechanic is needed under the vehicle to remove the shift mechanism.

– Unscrew the nuts -arrows- in the vehicle interior.

– Remove the shift mechanism together with the selector lever control cable downwards. Thus, guide the selector lever control cable out of the gearshift mechanism.



Note

Do not bend or buckle selector lever control cable.

8.8.2 Install

Installation is carried out in the reverse order. Pay attention to the following:

Note

Do not bend or buckle the selector lever control cable.

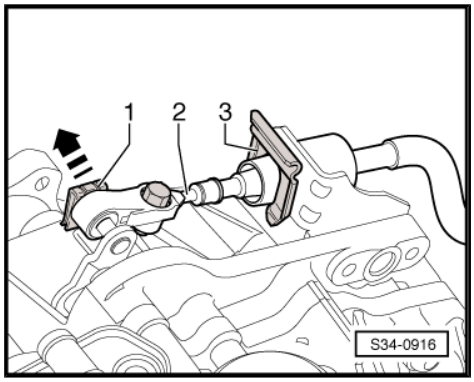
Tightening torques:
⇒ “8.4 Summary of components - Gearshift mechanism”, page 65 .

– Install the air guide and the centre console ⇒ Body Work; Rep. gr. 68 .

– Install ashtray or storage area in front of the shift mechanism ⇒ Body Work; Rep. gr. 68 .

– Installing the handle and cover for the shift mechanism ⇒ “8.6 Removing and installing handle for shift mechanism”, page 67 .

– Install new lock washer -1- and new lock washer for selector lever control cable -3-.



Note

- *The lock washer for the selector lever control cable -3- and the lock washer -1- must always be replaced ⇒ Electronic Catalogue of Original Parts .*
- *Do not bend or buckle selector lever control cable.*

– Connect earth strap of battery ⇒ Electrical System; Rep. gr. 27 .

Note

If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .

– Check the function of the ignition key anti-removal lock ⇒ “8.3 Check the function of the ignition key removal lock”, page 63 .
– Setting selector lever control cable ⇒ “8.2 Inspecting and adjusting the selector lever control cable”, page 60 .
– Install air filter ⇒ Engine; Rep. gr. 23 or ⇒ Engine; Rep. gr. 24 .
– Inspect gearshift mechanism ⇒ “8.1 Inspecting the gearshift mechanism”, page 59 .
– Install the heat shield and the trim panels for the underfloor ⇒ Body Work; Rep. gr. 50 .
– Install exhaust system and align free of stress ⇒ Engine; Rep. gr. 26 .
– Install the tunnel bridges below the exhaust system ⇒ Engine; Rep. gr. 26 .
– Install the noise insulation ⇒ Body Work; Rep. gr. 50 .

8.9 Removing and installing the selector lever control cable

The selector lever control cable must not be removed (separated) from the shift mechanism and it is replaced together with the shift mechanism as one component part
⇒ “8.8 Removing and installing selector mechanism”, page 71 .

8.10 Emergency release of gearshift mechanism out of position “P”

The selector lever lock solenoid - N110- locks the selector lever in position “P”. The selector lever can only be shifted out of “P” when ignition on or starting the engine, the brake pedal is actuated and the button on the selector lever handle is pressed.

If there are faults in the voltage supply to the selector lever lock solenoid (battery discharged or fuse defective) or in case of defective solenoids, the selector lever cannot be moved out of the position “P”; i.e the vehicle cannot be moved because the parking position is engaged.

If this is the case:

– Test fuse ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

– Check the battery voltage ⇒ Electrical System; Rep. gr. 27 .

If the selector lever cannot be moved out of position “P” despite the checks, the emergency release of the solenoids must be performed. If the selector lever is then shifted again into the position “P”, it is blocked again in the position “P”.

8.10.1 Perform emergency release

Special tools and workshop equipment required

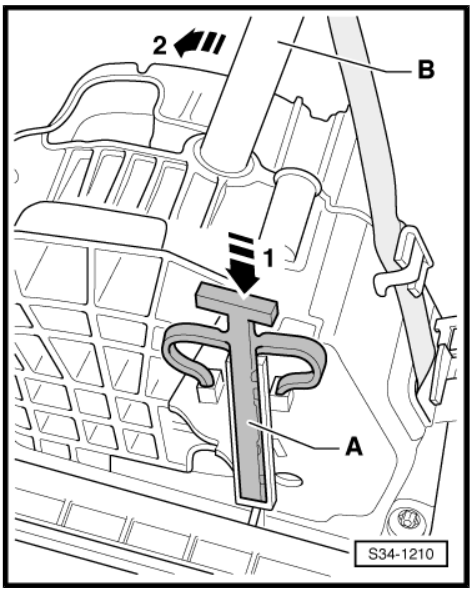
♦ Release tool - T30098-

– Removing the cover for the shift mechanism ⇒ “8.6 Removing and installing handle for shift mechanism”, page 67 .

– Depress the brake pedal or pull on the handbrake.

– Press the yellow plastic wedge -A- in -direction of arrow 1-.

– Now press the button on the selector lever handle and shift the selector lever -B- in -direction of arrow 2- out of the position “P”.



Note

If the selector lever is then shifted into the position “P”, it remains locked in this position.

8.11 Removing and installing the Tiptronic switch - F189-

The Tiptronic switch - F189- is integrated firmly in the gearshift mechanism and cannot be replaced separately. If the Tiptronic switch - F189- is defective, the gearshift mechanism must be replaced
⇒ “8.8 Removing and installing selector mechanism”, page 71 .

8.12 Removing and installing selector lever lock solenoid - N110-

The selector lever lock solenoid - N110- is integrated firmly in the gearshift mechanism and cannot be replaced separately. If the selector lever lock solenoid - N110- is defective, the gearshift mechanism must be replaced
⇒ “8.8 Removing and installing selector mechanism”, page 71 .

8.13 Removing and installing selector lever switch locked in P - F319-

The selector lever switch locked in P - F319- is integrated firmly in the gearshift mechanism and cannot be replaced separately. If the selector lever switch locked in P - F319- is defective, the gearshift mechanism must be replaced
⇒ “8.8 Removing and installing selector mechanism”, page 71 .

8.14 Removing and installing the selector lever sensor control unit - J587-

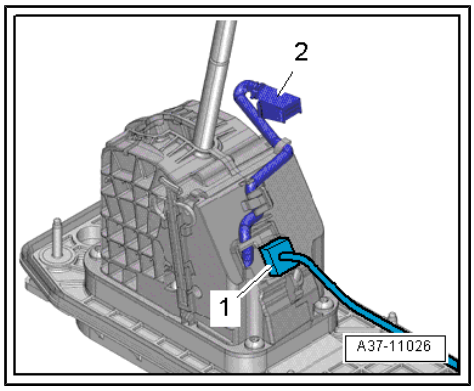
The selector lever sensor control unit - J587- is integrated firmly in the gearshift mechanism and cannot be replaced separately. If the selector lever sensor control unit - J587- is defective, the gearshift mechanism must be replaced
⇒ “8.8 Removing and installing selector mechanism”, page 71 .

8.15 Checking the plug connections at the gearshift mechanism

Before repairing or checking the plug connections, try to determine the origin of the damage via the “targeted fault finding” using the ⇒ Vehicle diagnostic tester.

Before checking the plug connections, all control units in the vehicle should be checked with the ⇒ Vehicle diagnostic tester, if necessary the faults must be rectified.

– Check plug connections ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.



1 - Plug connection for magnet for selector lever lock - N110- and switch for selector locked in P - F319-

2 - Plug connection for selector lever position indicator - L101-

9 Removing and installing the gearbox

Note

- *Observe instructions for automatic gearbox DSG - 0D9 ⇒ “2 Notes on 6-speed automatic gearbox DSG - 0D9”, page 7 .*
- *General repair information ⇒ “2.2 General repair instructions”, page 7 .*
- *Regulations concerning cleanliness when working on the gearbox ⇒ “2.2 General repair instructions”, page 7 .*
- *All cable straps which are detached or cut open when removing, should be fitted on again in the same place when installing.*
- *If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .*

9.1 Removing the gearbox

Special tools and workshop equipment required

- Supporting device - T30099-
- Surface - T30119-
- Hook for MP9-200 and T30099 - MP9-200/10 (10-222A/10)-
- Adapter - MP9-200/18 (10-222A/18)-
- Support - 10-222A/31-3-
- Connecting stud - T40091/3-
- Hose clamp - MP7-602 (3094)-
- Gearbox mount - 3282-
- Bolt - 3282/29-
- Tensioning strap - T10038-
- Adjusting plate - 3282/42A-
- Engine/gearbox jack , e.g. -V.A.G 1383 A-
- Pliers for spring strap clips , e.g. -VAS 6340-
- Socket insert - T10035-
- Socket insert XZN 14 - T10061-

– Shift selector lever into position “P”.

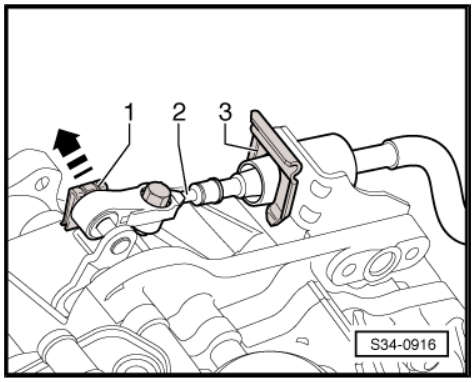
– Remove the cooling water tank cover ⇒ Body Work; Rep. gr. 66 .

– Remove engine cover ⇒ engine; Rep. gr. 10 .

– Remove air filter ⇒ Engine; Rep. gr. 24 or ⇒ Rep. gr. 23 .

– Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .

– Release lock washer -1- and remove to the top.
– Remove lock washer -3- towards the top.
– Press off the selector lever control cable -2- from the lever/ gearshift shaft in -direction of arrow- and slightly press out of the cable support towards the rear.

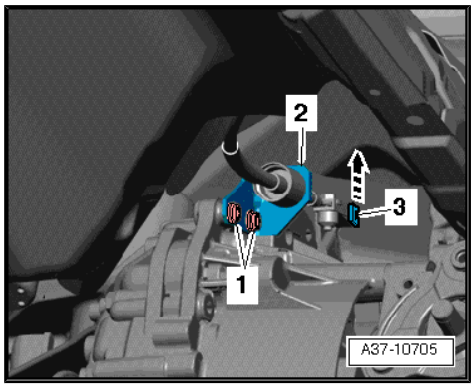


Note

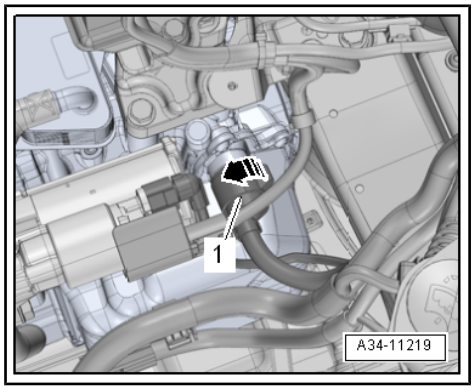
- *The lock washer for the selector lever control cable -3- and the lock washer -1- must always be replaced ⇒ Electronic Catalogue of Original Parts .*
- *Do not bend or buckle the selector lever control cable.*
- *The selector lever control cable is guided out of the cable support when removing the gearbox.*

If the lock washer cannot be removed without damaging the selector lever control cable, it is also possible to remove the cable support -2- (unscrew screws -1-).

– Grab with the hand (without gloves) at the mass, in order to discharge yourself electrostatically.



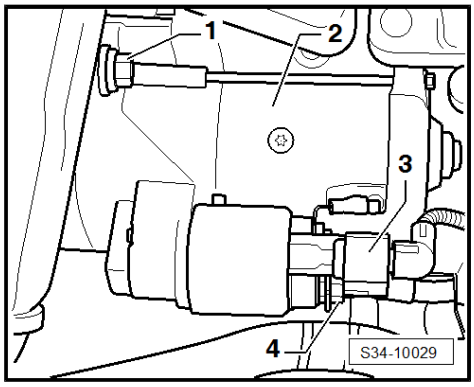
– Unlock the cap of the plug -1- by turning it to the left and disconnect the plug from the mechatronics.



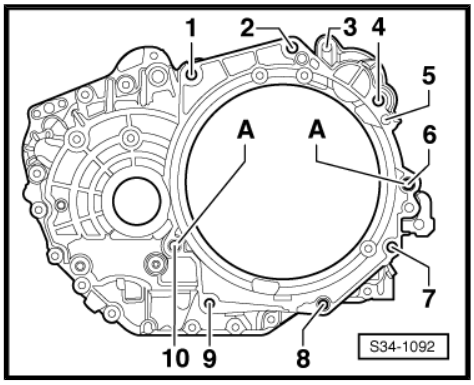
Caution

Under no circumstances must the plug contacts in the plug of the gearbox be touched with the hands, because the control unit can be destroyed through static discharge as well as the mechatronics.

– Unplug connector -3- from starter solenoid switch -2-.
– Pull back the protective collar and unscrew the nut -4- of the connection cable at the solenoid switch.
– Detach the earth strap at the bottom fixing screw for the starter.
– Release screws -1- and remove the starter.

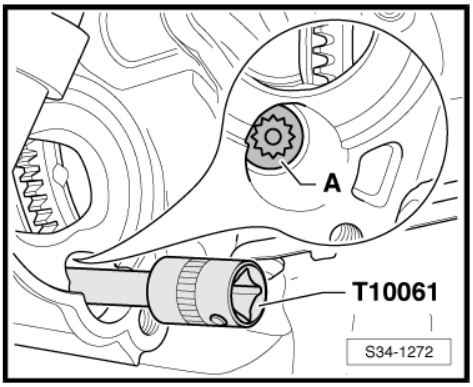


– Unscrew all connecting screws of the engine/gearbox -1, 2 and 4- accessible from the top. To this end, use if necessary the socket insert - T10035- .



Note

- *The screws -3 and 5- attach the starter at the gearbox.*
- *The screw -Pos. 4-, which is marked as -A- in the fig., is located in the starter opening and is only accessible after removing the starter. Screw out this screw using the socket insert XZN 14 - T10061- .*



WARNING

Hot steam may escape after the compensation bottle is opened. Cover the cap with a cloth and open carefully.

When the engine is warm the cooling system is under pressure. Slowly open the cap of the compensation bottle, in order to first reduce pressure before pulling off the coolant hoses.

Do not place fluffing cloths on the gearbox oil cooler and the gearbox, in order to collect flowing out coolant.

– Mark the coolant hoses to the gearbox oil cooler in order to prevent interchanging when installing.

– Pull off plug connection -2-.

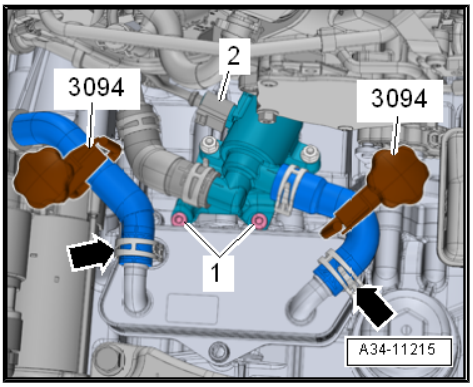
– Unscrew screws -1- and loosen coolant valve for gearbox - N488- .

– Disconnect the coolant hoses from the hose clamps - MP7-602 (3094)- .

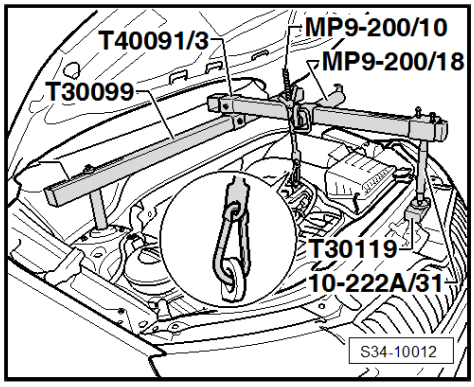
– Slacken hose clamps -arrows- and remove hoses from gearbox oil cooler.

– Close gearbox oil cooler with a clean plug.

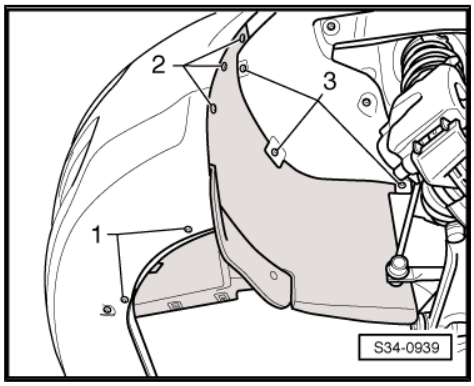
– Remove caps of screwed connections for front suspension strut domes.



– Position the supporting device -T30099- together with the other elements according to the illustration.
– Slightly pre-tension the engine/gearbox unit via the hooks (do not raise).
– Loosen the front wheel bolts.
– Raise vehicle ⇒ Maintenance ; Booklet Octavia III .
– Remove front wheels.
– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .



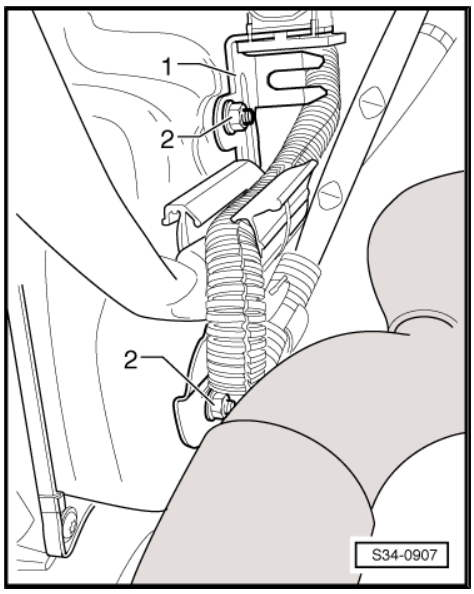
– Release screws -1- to -3- and remove the complete left cover.



– Unscrew nuts -2- from bracket -1- on the oil pan and remove bracket from the threaded bores.

Note

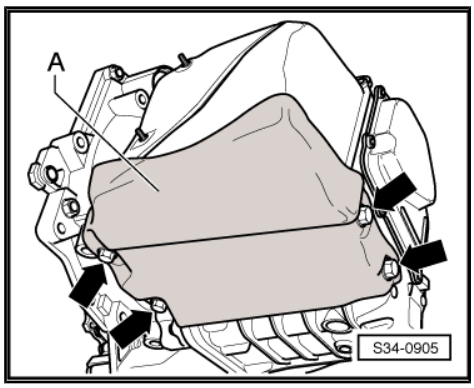
- *The threaded bores are welded at the front of the gearbox to the oil pan.*
- *Unscrew the lower nut from below, after the noise insulation was removed.*



– If fitted, remove protection plate -A- at the gearbox -arrows-.
– Separate exhaust system at the clamping sleeve and remove bracket for the exhaust system from the assembly carrier ⇒ Engine; Rep. gr. 26 .
– Tie up pre-exhaust pipe.

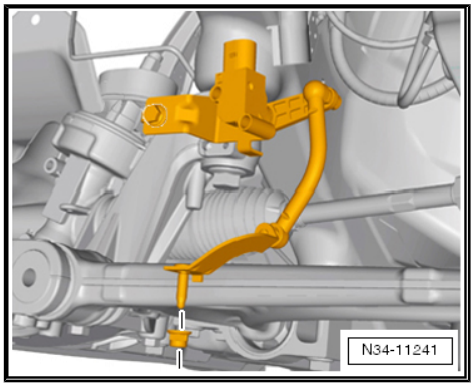
Note

The decoupling element of the front part of the exhaust system should not be bent by more than 10° - risk of damage.



– Separate the plug connections at the wiring between the assembly carrier and the engine and lay aside.

– If present, remove front left vehicle level sensor - G78- .
– Fix the assembly carrier before removing ⇒ Chassis; Rep. gr. 40 .

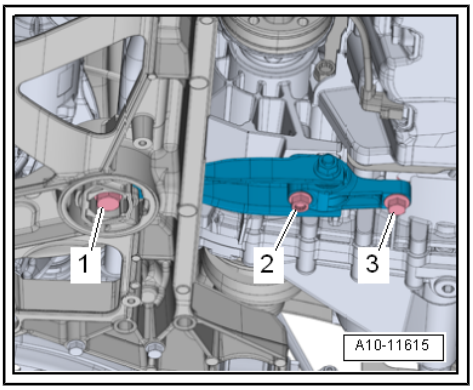


Note

If the assembly carrier is not fixed, an axial measurement must later be carried out.

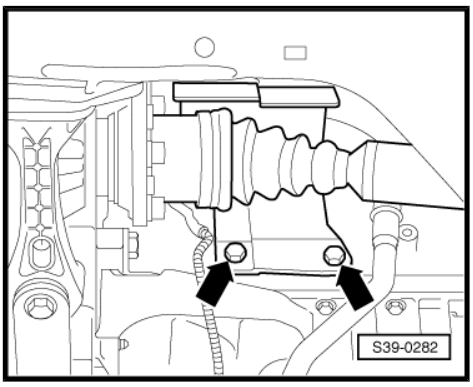
Vehicles with front-wheel-drive

– Remove pendulum support, to do so unscrew screws -1, 2 and 3-.
– Lower the assembly carrier in the service position ⇒ Chassis; Rep. gr. 40 .

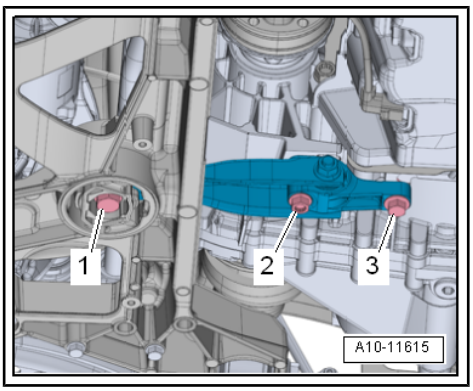


– Remove protection plate for right drive shaft from the engine -arrows- (if present).

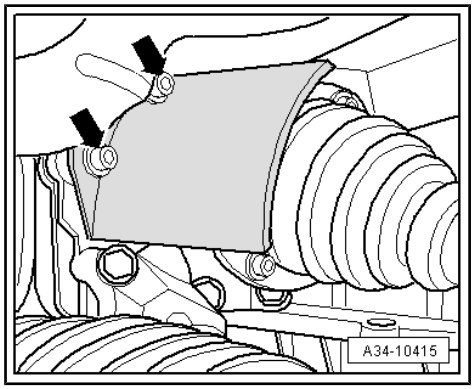
Vehicles with four-wheel drive



– Remove pendulum support from gearbox, to do so undo screws -2 and 3-.
– Remove the assembly carrier ⇒ Chassis; Rep. gr. 40 .



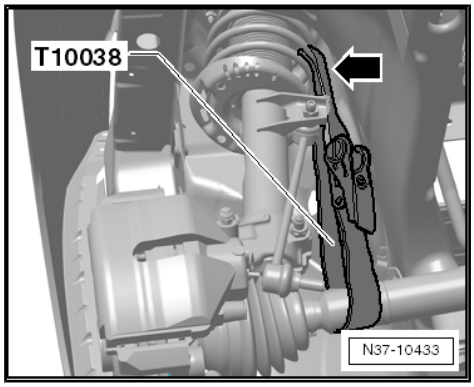
– Unscrew nuts -arrows- and remove heat shield for right drive shaft (if any).



Continued for all vehicles

– Remove the left and right drive shafts from the flange shafts of the gearbox ⇒ Chassis; Rep. gr. 40 .

– Tie up the right drive shaft as far as possible and place the left drive shaft to the rear and secure (while doing so do not damage the surface protection).



Note

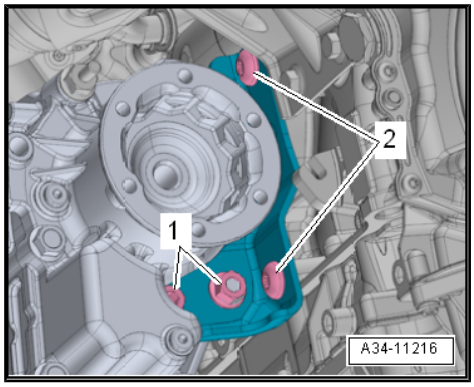
Ensure that the surface protection of the drive shafts is not damaged.

Vehicles with front-wheel-drive

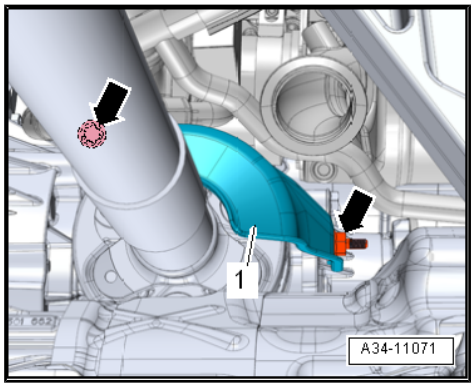
– Remove right flange shaft
⇒ “2.3 Removing and installing right flange shaft”, page 112 .

Vehicles with four-wheel drive

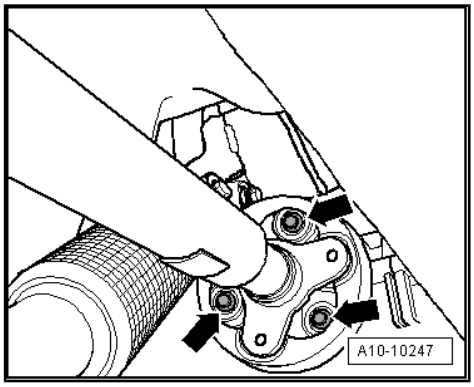
– Unscrew screws -1 and 2- and remove bracket for angle gearbox.



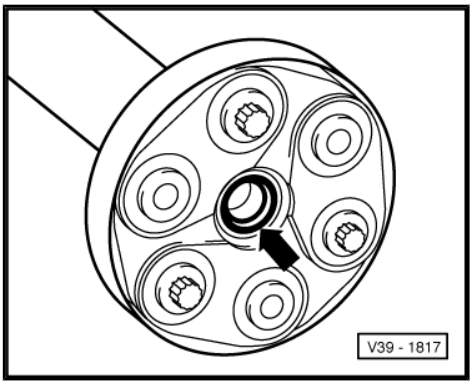
– Release screws -arrows- and remove heat shield -1-.



– To reinstall, mark the position of the flexible disk and the angle gearbox flange to each other.
– Unscrew the propshaft from the angle gearbox -arrows-, while counterholding with a lever on the triangular flange.



– Push engine/gearbox assembly slightly forward (towards the front of the body) and pull off the propshaft from the angle gearbox.



Caution

Risk of damage to the gasket ring -arrow- on the flange of the propshaft.

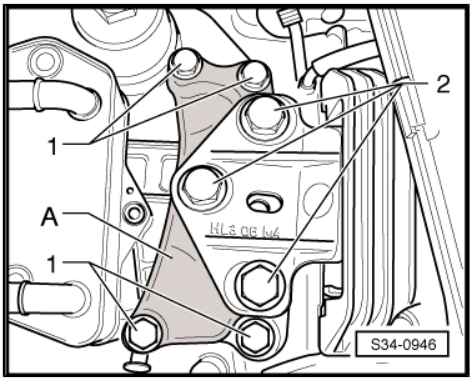
- ***Push propshaft horizontally as far back and towards the right vehicle side as possible.***

Note

In case of damaged gasket ring the propshaft must be replaced.

Continued for all vehicles

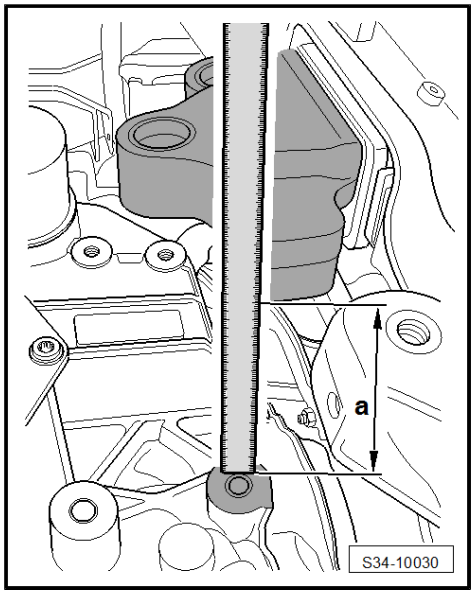
– Unscrew screws -1- and -2-.
– Remove console -A-.



– Then lower the engine and gearbox via the hooks of the supporting device - MP9-200 (10-222 A)- as far as necessary so that there is a gap of dimension -a- between the gearbox console and the gearbox mount.

• Dimension -a- = approx. 70 mm.

– Position gearbox mount - 3282- on the engine/gearbox jack - V.A.G 1383 A- .



– Align arms of the gearbox mount to match the holes in the adjusting plate - 3282/42A- .

– Screw in the mounting elements as shown on adjusting plate - 3282/42A- .

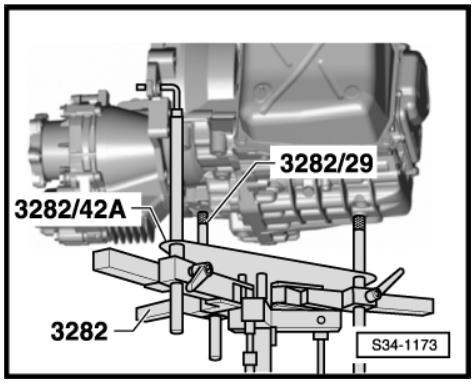
– Position the engine/gearbox jack - V.A.G 1383 A- below the vehicle. The arrow symbol on the top of the adjusting plate - 3282/42- points in the direction of travel.

– Align the gearbox mount - 3282- parallel to the gearbox.

– Screw the bolt - 3282/29- into the gearbox.

– Attach the two other support elements at the gearbox, as shown in the illustration.

– Secure the gearbox with tensioning strap -T10038- on the gearbox mount - 3282- .

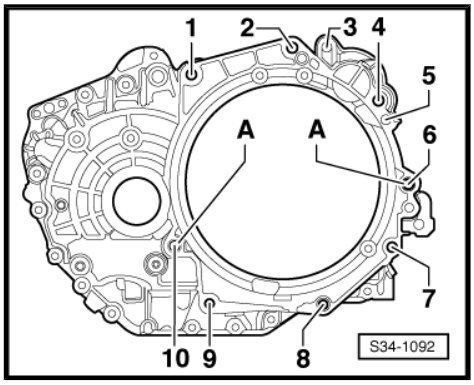


Note

The automatic gearbox DSG - 0D9 is shown in the illustration "four-wheel drive". The support elements are identical at the "front-wheel drive".

– Support the fuel tank using the engine/gearbox jack - V.A.G 1383 A- .

– Unscrew the remaining connecting screws -6...10- of the engine to the gearbox.
– Press the gearbox out of the dowel sleeves -A-.
– Slightly pull off the gearbox from the engine.
– Lower the gearbox carefully and slightly with the engine/gearbox jack - V.A.G 1383 A- .
– Change the gearbox position at the spindles of the gearbox mount - 3282- when lowering.
– When lowering the gearbox, guide the selector lever control cable out of the cable support.



Note

- *Observe all lines and coolant hoses when lowering the gearbox.*
- *Do not bend or buckle the selector lever control cable.*

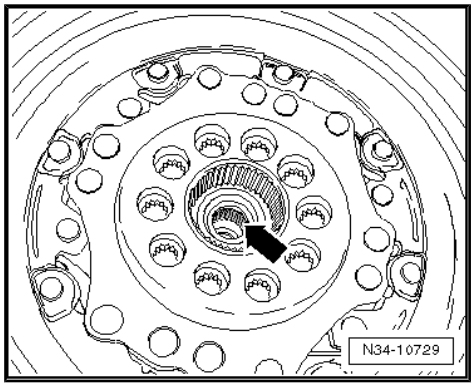
Transport the gearbox and secure it to the assembly stand ⇒ “10 Transporting the gearbox and securing to the assembly stand”, page 91 .

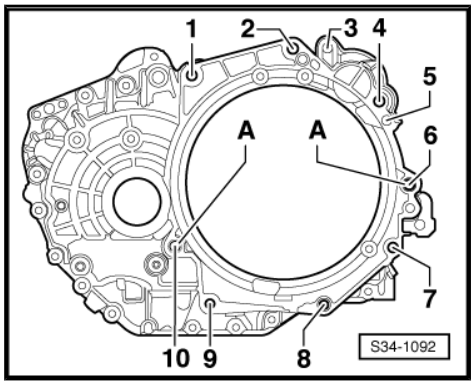
9.2 Installing the gearbox

Special tools and workshop equipment required

- Supporting device - T30099-
- Surface - T30119-
- Hook for MP9-200 and T30099 - MP9-200/10 (10-222A/10)-
- Support - 10-222A/31-3-
- Connecting stud - T40091/3-
- Hose clamp - MP7-602 (3094)-
- Gearbox mount - 3282-
- Bolt - 3282/29-
- Tensioning strap - T10038-
- Adjusting plate - 3282/42A-
- Engine/gearbox jack , e.g. -V.A.G 1383 A-
- Pliers for spring strap clips , e.g. -VAS 6340-
- Socket insert - T10035-
- Socket insert XZN 14 - T10061-
- High-temperature grease
- Grease for plug serration of clutch disc

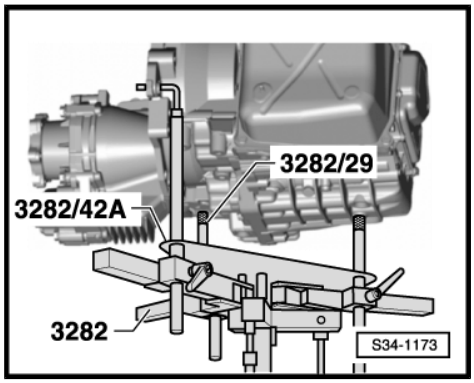
Installation is performed in the reverse order, pay attention to the following points:





Note

- *When performing installation work replace the self-locking nuts and screws.*
- *Use new screws which must be tightened to a torquing angle as well as gasket rings and seals.*
- *Secure all hose connections with hose clamps which comply with the series design ⇒ Electronic Catalogue of Original Parts .*
- *All cable straps which are detached or cut open when removing, should be fitted on again in the same place when installing.*
- *Replace the needle bearing -arrow- in the crankshaft ⇒ Engine; Rep. gr. 13 .*
- *Lightly grease the needle bearing -arrow- and the drive shaft pin (not the serration) with high-temperature grease, assignment ⇒ Electronic catalogue of original parts .*
- *Lubricate the serration lightly with grease, assignment ⇒ Electronic catalogue of original parts .*
- *Check whether the dowel sleeves -A- for centering the gearbox are present in the cylinder block, insert if necessary.*
- *If the gearbox is inserted, ensure the intermediate plate between the engine and gearbox is correctly installed.*



– Carefully raise gearbox with the engine and gearbox jack - V.A.G 1383 A- and put in its installation position with the gearbox mount - 3282- .

• The gearbox is pulled off from the engine by approx. 30 mm.

– Do not get the cables trapped when inserting the gearbox.

– Screw on gearbox to the engine ⇒ “9.2.1 Tightening torques”, page 90 .

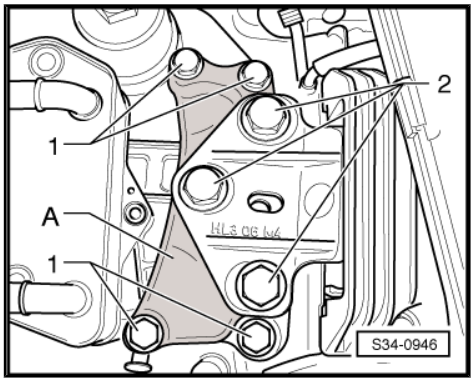
– Attach the selector lever control cable to the gearbox ⇒ “8.8 Removing and installing selector mechanism”, page 71 .

Note

Do not bend or buckle the selector lever control cable.

Install the unit mounting as follows:

– Insert the gearbox console -A- between the gearbox and the supporting arm of the gearbox mount.
– Tighten the gearbox console -A- with new screws -1- at the gearbox.
– Evenly lift up the gearbox via the hooks of the supporting device - MP9-200 (10-222 A)- to the supporting arm of the gearbox mount.
– Insert new screws -2- and tighten by hand.



Caution

Before screwing in the screws -2- the gearbox console and the supporting arm of the gearbox mount must be absolutely parallel to one another, otherwise the thread is damaged.

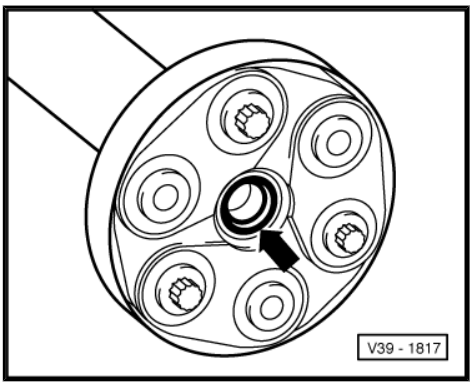
– Remove the gearbox mount - 3282- from the gearbox.

Vehicles with four-wheel drive

Caution

Risk of damage to the gasket ring -arrow- on the flange of the propshaft.

- *Press the engine/gearbox assembly towards the bulkhead plenum chamber; at the same time the stud of the angle gearbox must be carefully inserted into the flange of the prop shaft.*



– Install propshaft ⇒ Propshaft and final drive. rear; Rep. gr. 39
– Install the mounting bracket for angle gearbox and tighten screws
⇒ “12.1 Angle gearbox - Summary of components ”, page 98 .

Vehicles with front-wheel-drive

– Install right flange shaft for gearbox
⇒ “2.3 Removing and installing right flange shaft”, page 112 .

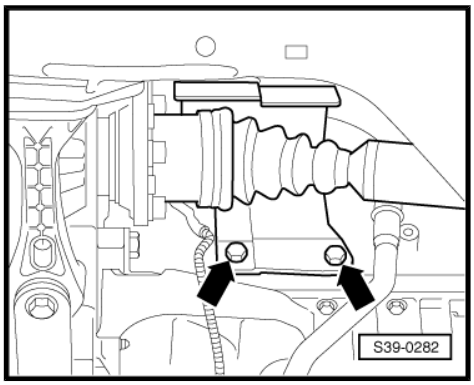
Continued for all vehicles

– Attach the left and right drive shaft to the flange shafts of the gearbox ⇒ Chassis; Rep. gr. 40 .

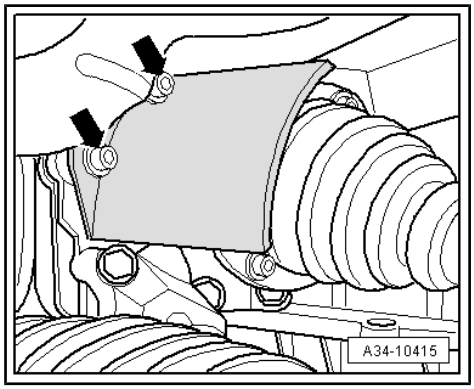
Vehicles with front-wheel-drive

– Install protection plate for right drive shaft on the engine, to do so tighten the screws -arrows- to 35 Nm.

Vehicles with four-wheel drive



– Install right heat shield for drive shaft and tighten the nuts -arrows-.



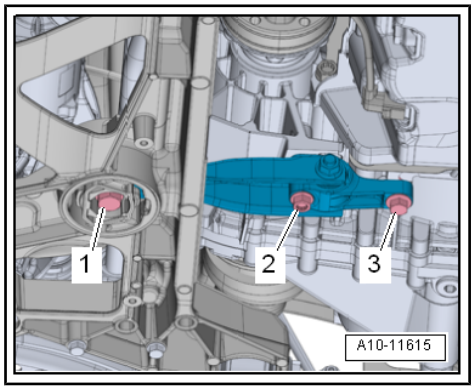
Continued for all vehicles

– Install the assembly carrier ⇒ Chassis; Rep. gr. 40 .

– If present, install the front left vehicle level sensor - G78- ⇒ Chassis; Rep. gr. 40 and check the headlight beam setting ⇒ Electrical System; Rep. gr. 94 .

Vehicles with front-wheel-drive

– Install the pendulum support with new screws -1, 2 and 3- ⇒ Chassis; Rep. gr. 40 .



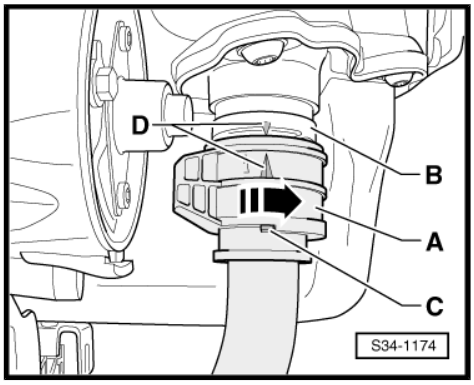
Vehicles with four-wheel drive

– Tighten the pendulum support with new screws -2 and 3- at the gearbox ⇒ Engine; Rep. gr. 10 .

Continued for all vehicles

– Installing starter and cable ⇒ Electrical System; Rep. gr. 27 .

Mount the plug -A- of the mechatronics as follows:



- The arrows -D- on the mechatronics -B- and on the plug -A- as well as the peg -C- must be on the same line and point upwards.
- Then mount the plug -A- carefully up to the stop and lock the cap by turning it to the right in -direction of arrow-.

– Assemble exhaust system free of stress and install bracket for the exhaust system at the assembly carrier ⇒ Engine; Rep. gr. 26 .

– Check the setting of the assembly bearings ⇒ Engine; Rep. gr. 10 .

– Tighten the new screws of the gearbox console at the supporting arm of the gearbox mount to the recommended tightening torque, while doing so observe the tightening sequence ⇒ “9.2.1 Tightening torques”, page 90 .

Note

If the battery earth strap is disconnected and connected, carry out certain additional operations ⇒ Electrical System; Rep. gr. 27 .

– Install the battery tray and battery ⇒ Electrical System; Rep. gr. 27 .

– Inspect setting of selector lever control cable and adjust if necessary ⇒ “8.2 Inspecting and adjusting the selector lever control cable”, page 60 .

– Install air filter ⇒ Engine; Rep. gr. 23 or ⇒ Engine; Rep. gr. 24 .

– Inspect coolant level in the cooling system, top up if necessary ⇒ Engine; Rep. gr. 19 .

– Inspect gear oil level and top up if necessary ⇒ “11 Change the gearbox oil and filter of the automatic gearbox DSG and at the same time check the oil level”, page 93 .

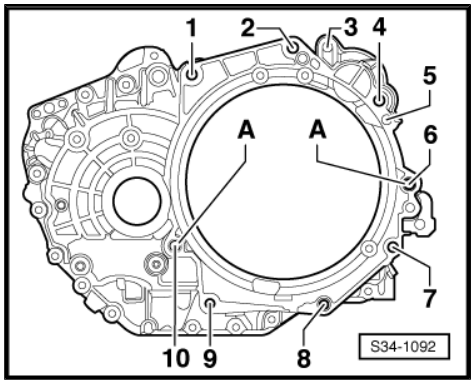
– Install the front left wheelhouse liner ⇒ Body Work; Rep. gr. 66 .

– Install the noise insulation ⇒ Body Work; Rep. gr. 50 .

– Install front wheel ⇒ Chassis; Rep. gr. 44 .

9.2.1 Tightening torques

Attachment of engine/gearbox 0D9 with vehicles with 2.0 l/105; 110; 135 kW TDI CR,1.8 l/ 132 kW TFSI, 2.0 l/162 kW TFSI engines



Pos.	Screw	Nm
1, 2	M12 x 55	80
3[1)]	M10 x 45	40
4[2)]	M12 x 55	80
5[1)]	M10 x 45 M10 x 45 - M8 x 16	40
6	M12 x 65	80
7,8,9	M10 x 50	40
10[3)]	M12 x 65[4)] M12 x 70[5)]	80
A	Dowel sleeves	

[1)] Starter on gearbox ⇒ Electronic Catalogue of Original Parts .

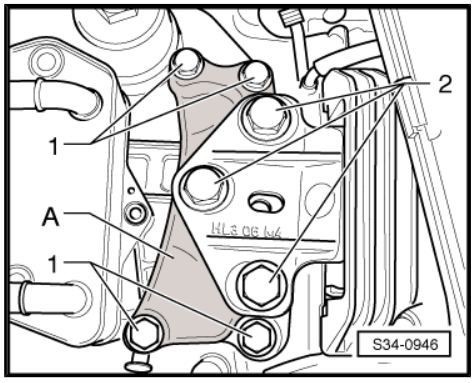
[2)] Screw is only accessible through the opening after removing the starter.

[3)] Installed from the engine side.

[4)] Vehicles with front-wheel drive ⇒ Electronic Catalogue of Original Parts .

[5)] Vehicles with four-wheel drive ⇒ Electronic Catalogue of Original Parts .

Insert gearbox console -A- at gearbox and supporting arm of gearbox mount



Note

Replace screws -1- and -2- ⇒ Electronic Catalogue of Original Parts .

- Screw -1- tightening torque 40 Nm + torque a further 90° (1/4 turn)
- Screw -2- tightening torque 60 Nm + torque a further 90° (1/4 turn)

10 Transporting the gearbox and securing to the assembly stand

⇒ “10.1 Transporting the gearbox”, page 91

⇒ “10.2 Attaching gearbox to assembly stand”, page 92

Special tools and workshop equipment required

- Gearbox mount - 3282-
- Lifting device - MP9-201 (2024 A)-
- Workshop crane , e.g. -VAS 6100-
- Gearbox attachment device - MP3-478 (3336)-
- Assembly stand - MP9-101-
- Gearbox mount - T30109 (VW 353)-
- Gearbox mount - T30108-
- Ring bolt - 3368- (2 pieces)

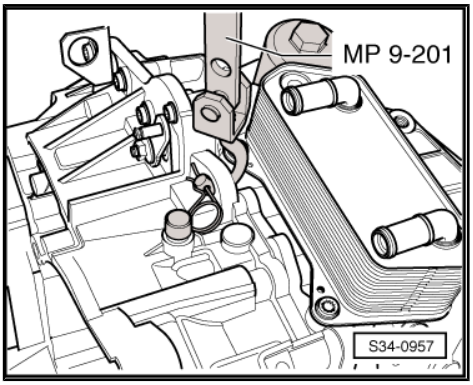
10.1 Transporting the gearbox

Special tools and workshop equipment required

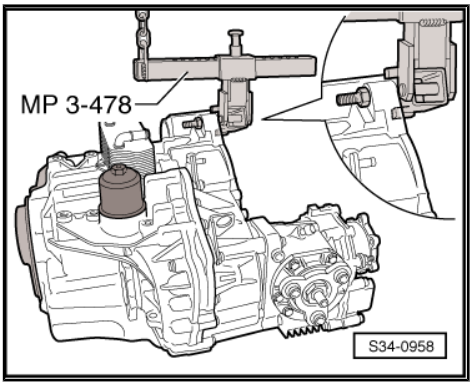
- Gearbox mount - 3282-
- Lifting device - MP9-201 (2024 A)-
- Workshop crane , e.g. -VAS 6100-
- Gearbox attachment device - MP3-478 (3336)-

For transporting the gearbox as well as for alignment of the gearbox mount - 3282- one part of the lifting device - MP9-201 (2024 A)- can be used.

– Hang the workshop crane e.g. -VAS 6100- in combination with a shackle in the lifting device - MP9-201 (2024 A)- .



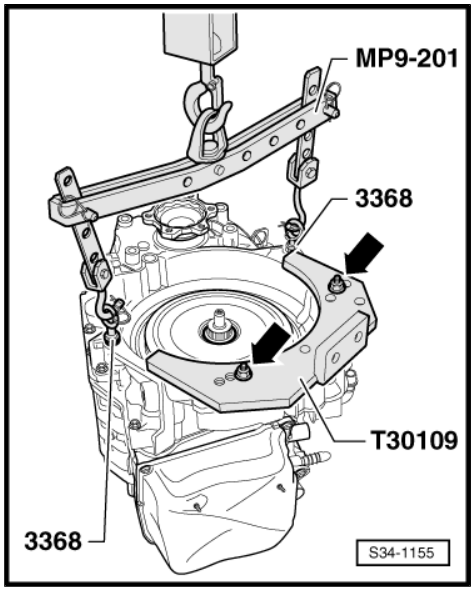
The gearbox can also be transported with the gearbox suspension device - MP3-478 (3336)- .



10.2 Attaching gearbox to assembly stand

Special tools and workshop equipment required

- Assembly stand - MP9-101-
- Gearbox mount - T30109 (VW 353)-
- Gearbox mount - T30108-
- Ring bolt - 3368- (2 pieces)
- Lifting device - MP9-201 (2024 A)-
- Workshop crane , e.g. -VAS 6100-

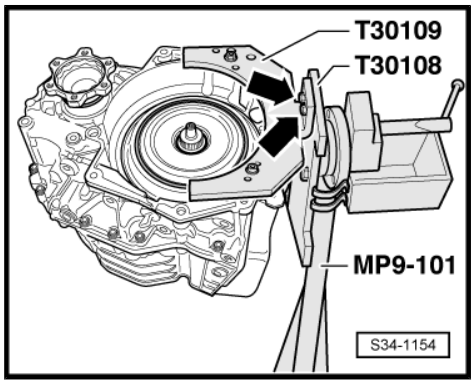


Raise the gearbox on the assembly stand - MP9-101-

– Secure gearbox mount - T30109 (VW 353)- at the gearbox with screws -arrows-.
– Secure the ring bolts - 3368- to the flange of the gearbox housing.
– Hook the lifting device - MP9-201 (2024 A)- into the ring bolts - 3368- .
– Raise the gearbox with a workshop crane , e.g. -VAS 6100- at the assembly stand - MP9-101- .
– Attach gearbox to assembly stand - MP9-101- ⇒ page 92 .

Attach gearbox to assembly stand - MP9-101-

The gearbox mount - T30109 (VW 353)- is screwed on the gearbox mount - T30108- with screws -arrows-.



Note

If the filled gearbox on the assembly stand with the clutch is turned upwards, then the ventilation hole for the gearbox housing must be closed off.

WARNING

The center of gravity of the gearbox is outside the turning center at the assembly stand . For turning the gearbox, a second mechanic must hold the gearbox housing in order to avoid unintended turning.

11 Change the gearbox oil and filter of the automatic gearbox DSG and at the same time check the oil level

Change the gearbox oil, replace the oil filter
⇒ “11.1 Change the gearbox oil, replace the oil filter”, page 94 .

Special tools and workshop equipment required

- Adapter for oil filling - VAS 6262- or -VAS 6262A-
- Adapter for oil filling - VAS 6262/2-
- Pliers for spring strap clips , e.g. -VAS 6340-
- Catch pan - VAS 6208-
- Protective goggles
- Protective gloves

Caution

- *When changing the gear oil, the gearbox oil filter must not always be replaced. Therefore comply with the instructions, when the gearbox oil filter must be replaced and when not ⇒ “2.2 General repair instructions”, page 7 .*
- *The engine must not be started if the repair was carried out and no oil was poured in, or only a small amount of oil is available in the gearbox, or after a major gearbox oil loss.*
- *Only gear oil for the double clutch gearbox must be used, which is indicated as spare part for automatic gearbox DSG - 0D9. Other oils can lead to functional problems or to failure of the gearbox, part number ⇒ Electronic catalogue of original parts .*

Note

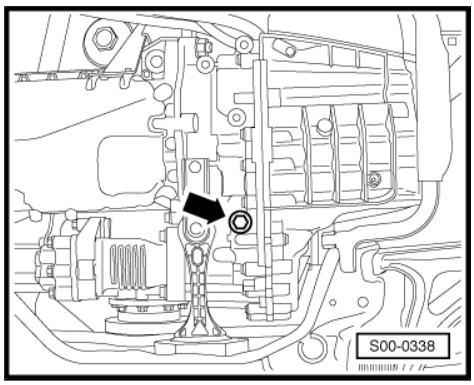
- *Observe instructions for automatic gearbox DSG - 0D9 ⇒ “2 Notes on 6-speed automatic gearbox DSG - 0D9”, page 7 .*
- *General repair information ⇒ “2.2 General repair instructions”, page 7 .*
- *Regulations concerning cleanliness when working on the gearbox ⇒ “2.2 General repair instructions”, page 7 .*
- *The gearbox oil temperature is determined with the ⇒ Vehicle diagnostic tester.*
- *The gear oil level changes with the gearbox oil temperature.*
- *Checking gear oil level when oil temperature is too low may result in over-filling.*
- *Checking gear oil level when oil temperature is too high may result in under-filling.*
- *An over-filling as well as an under-filling impairs the proper working of the gearbox.*
- *Replace gasket ring of drain plug as well as check screw ⇒ Electronic Catalogue of Original Parts .*

Requirements

- Engine switched off
- Vehicle in horizontal position; all supports of the lift platform must be at the same level, so that it is secured in the horizontal position.
- Selector lever in “P”.
- Vehicle diagnosis, measurement and information system VAS is connected.
- The gearbox oil temperature must not exceed 35°C at the start of the test.

Note

Oil is drained and replaced via the check screw -arrow-.



11.1 Change the gearbox oil, replace the oil filter

Special tools and workshop equipment required

- Adapter -VAS 6262A-
- Adapter -VAS 6262/6-
- Catch pan - VAS 6208-

Note

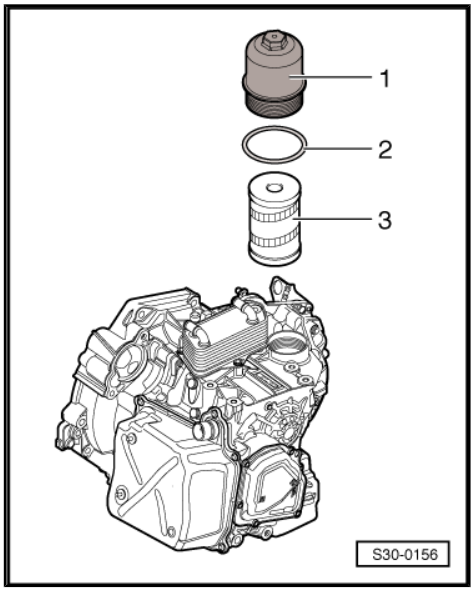
The following instructions must be observed until termination of the gear oil change.

removing and installing oil filter

– Remove engine cover ⇒ engine; Rep. gr. 10 .
– Remove air filter ⇒ Engine; Rep. gr. 24 or ⇒ Rep. gr. 23 .
– Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .
– Raise vehicle.
– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
– Position the catch pan under the gearbox.
– Lower the vehicle.

– Unscrew oil filter housing -1- from gearbox.

Before removing, the oil filter housing must be slightly inclined, so that the oil can flow back into the gearbox.



Note

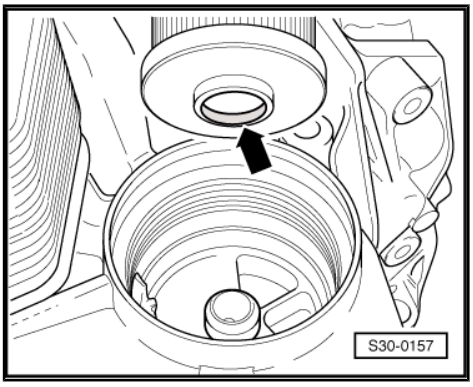
Replace O-ring -2- ⇒ Electronic Catalogue of Original Parts .

– Remove filter -3-.

– Moisten O-ring -2- with gear oil.

– Moisten the O-ring in the intake collar -arrow- of the new oil filter with gear oil.

– Insert new oil filter with the intake collar -arrow- downwards and tighten the filter housing to tightening torque ⇒ “2.1 Summary of components - Tightening torques”, page 36 .



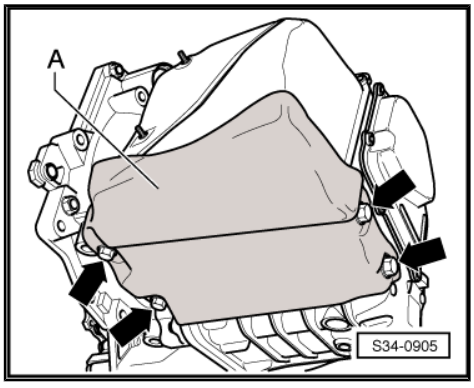
– Install air filter ⇒ Engine; Rep. gr. 23 or ⇒ Engine; Rep. gr. 24 .

– Install the battery tray and battery ⇒ Electrical System; Rep. gr. 27 .

Change gear oil, check oil level

– Raise vehicle.

– Remove protection plate -A- at the bottom of the gearbox -arrows-; if applicable.

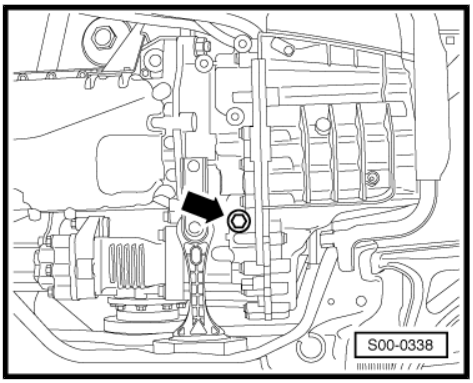


• The catch pan is under the gearbox.

WARNING

- ***Wear safety goggles.***
- ***Wear protective gloves.***

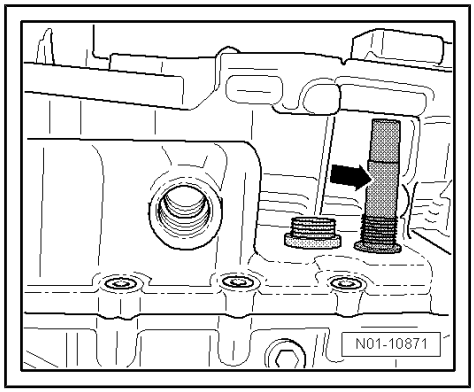
– Unscrew the inspection plug -arrow- close to the pendulum support.



Note

A plastic overflow tube with an 8 mm hexagon socket and a tightening torque of 3 Nm is located behind this screw. The length of the overflow tube determines the oil level in the gearbox, when replacing assign via part number ⇒ Electronic Catalogue of Original Parts .

– Remove overflow tube.



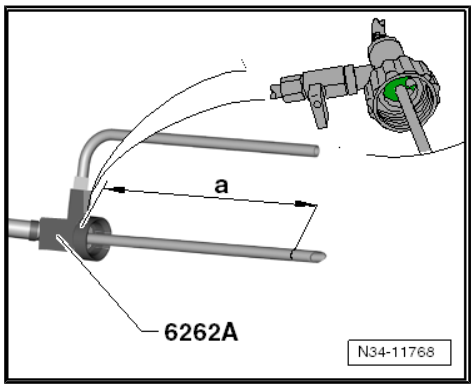
Approx. 5.0 ltr of oil flows out. Furthermore, the catch pan remains under the gearbox.

– Screw in overflow tube and tighten to tightening torque ⇒ “2.1 Summary of components - Tightening torques”, page 36 .

For topping up, use adapter for oil filling , e.g. - VAS 6262A- or - VAS 6262- .

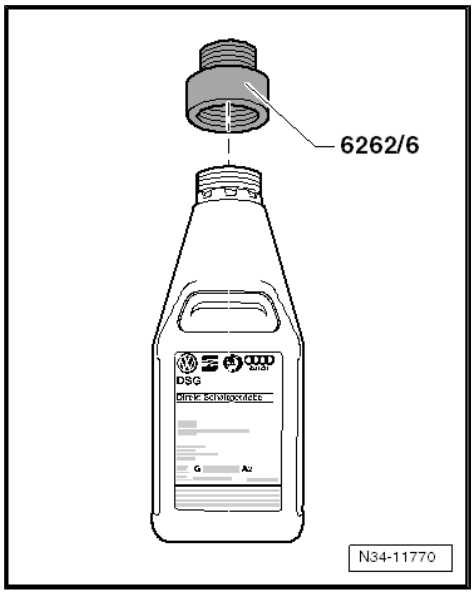
Shake oil bottle before opening.

Before screwing the adapter for oil filling - VAS 6262A- onto the oil bottle, measure the length of the ventilation tube, the dimension -a-, and lengthen off the tube if necessary to the dimension -a-: Lengthen off 210 mm.



Note

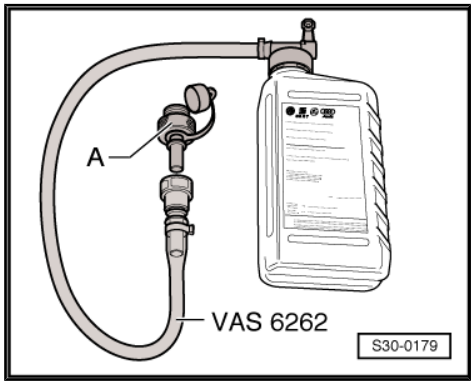
- *The dimension -a- is measured on the shaft (starting with the green area in the magnifying glass) of the adapter for oil filling - VAS 6262A- .*
- *If the thread of the oil bottle does not correspond to the adapter - VAS 6262 A- , the adapter -VAS 6262/6- must be used in addition.*



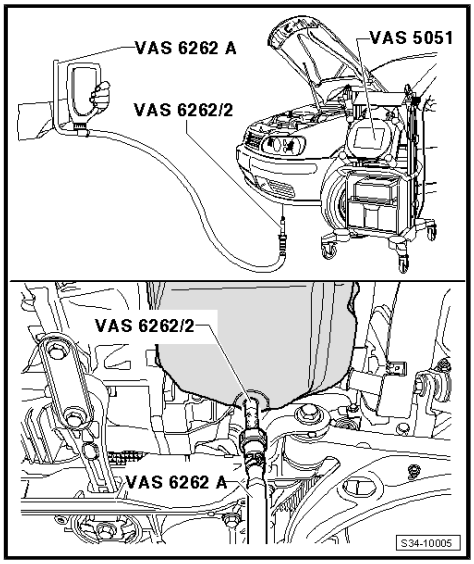
Caution

- ***The filling hose and the adapter - VAS 6262- or - VAS 6262A- must be clean and the gearbox oil must not be mixed with other oils!***

– Screw in adapter for oil filling - VAS 6262/2- -A- by hand into the hole of the check screw.



When changing the bottle the shut-off valve can be closed or the adapter for oil filling - VAS 6262- or - VAS 6262A- can be held higher than the gearbox.



– Pour in 5.5 litres of gear oil for the double clutch gearbox using adapter for oil filling .
– Read off gearbox oil temperature at ⇒ Vehicle diagnostic tester.
– Start engine.
– Press brake pedal and push the selector lever for approx. 3 seconds into all positions. Then push again the selector lever into position »P«.

Do not switch off the engine!

WARNING

- *When working close to the radiator, keep a distance from the fan - risk of injury!*
- *The fan can switch on automatically.*

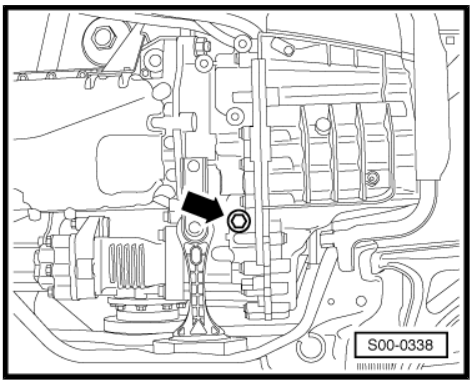
For a gearbox oil temperature of 35°C up to 45°C:

– Separate the quick coupling at the adapter for oil filling when the engine is running.
– Drain off excess oil from the gearbox.

Note

- *A slight amount of oil flows out via the overflow tube every 30 seconds, independent of the oil level; (the cause are pulses of the oil, which cool down the coupling). This oil quantity is no criterion for determining the correct oil level and must therefore not be taken into account when assessing.*
- *The oil drained from the gearbox must no longer be used for topping up the gearbox. Dispose of drained oil appropriately* *⇒ "2.2 General repair instructions", page 7* *.*

As soon as the oil has been drained off (begins to drip), unscrew adapter for oil filling and screw in a new check screw -arrow-.



Tightening torque: 45 Nm

– Switch off engine.

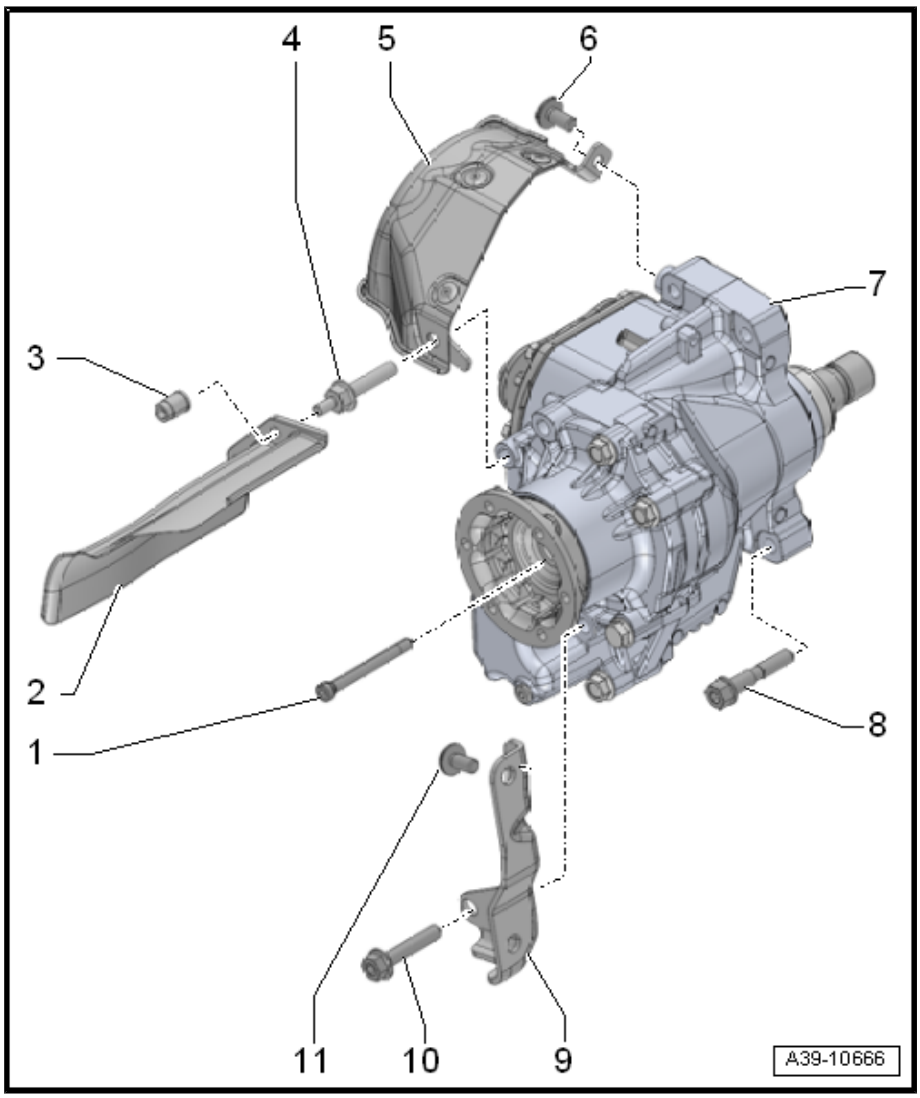
Thus, the gear oil and oil filter change is completed.

The oil level in the gearbox is correct.

– Install the noise insulation ⇒ Body Work; Rep. gr. 50 .

12 Angle gearbox

12.1 Angle gearbox - Summary of components



1 - Screw, 33 Nm

2 - Heat shield

- ❑ for right drive shaft

3 - Screw

- ❑ Tightening torque ⇒ Chassis; Rep. gr. 40

4 - Double screw, 40 Nm

5 - Heat shield

- ❑ for propshaft

6 - Screw, 20 Nm

7 - Angle gearbox

- ❑ removing ⇒ “12.2 Remove angle gearbox”, page 98
- ❑ installing ⇒ “12.3 Install angle gearbox”, page 102

8 - Screw, 40 Nm + torque a further 90° (1/4 turn)

- ❑ replace
- ❑ order of tightening ⇒ page 103

9 - Support

- ❑ for angle gearbox
- ❑ different versions, assignment ⇒ Electronic Catalogue of Original Parts

10 - Screw, 40 Nm

- ❑ order of tightening ⇒ page 103

11 - Screw, 40 Nm

- ❑ order of tightening ⇒ page 103

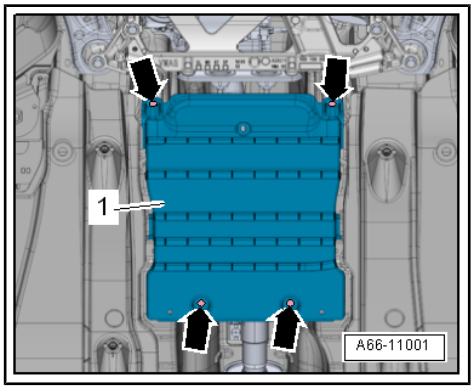
12.2 Remove angle gearbox

Special tools and workshop equipment required

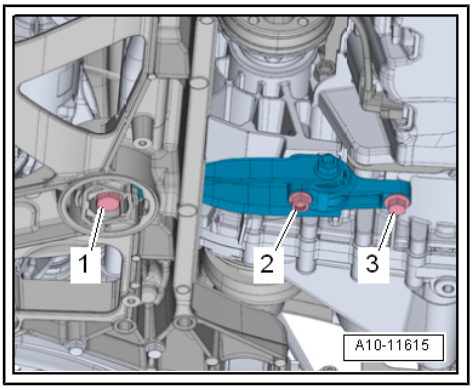
- ♦ Claws - 2024 A /1-
- ♦ Support device for engine - MP3-470 (3300 A)-
- ♦ Socket insert - T10107 A-

Work procedure

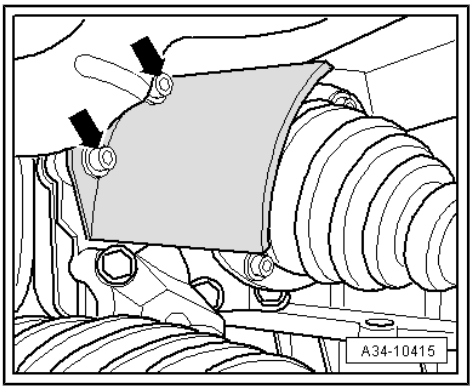
– Remove the rear sound dampening system -1- ⇒ Body Work; Rep. gr. 66 .



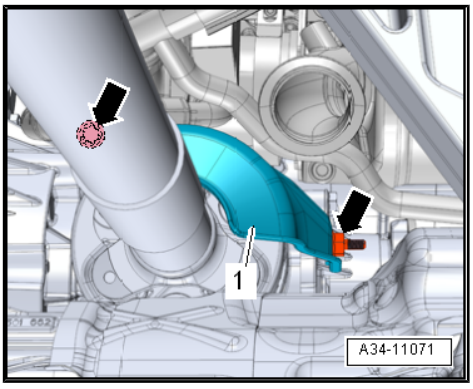
– Remove pendulum support ⇒ Engine ; Rep. gr. 10 .



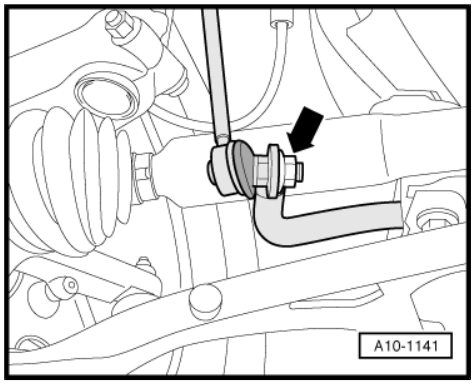
– Unscrew nuts -arrows- and remove heat shield for right drive shaft.



– Release screws -arrows- and remove heat shield -1-.

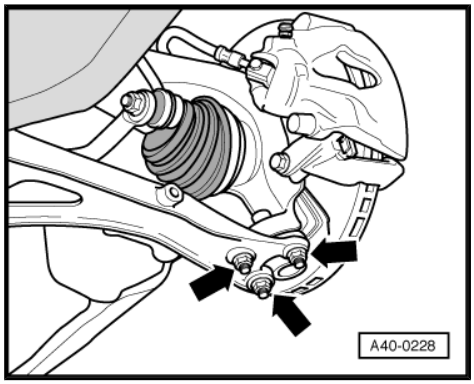


– Unscrew nut -arrow- from coupling rod on stabilizer to the right.



Note

The figure below shows the left front wheel suspension.

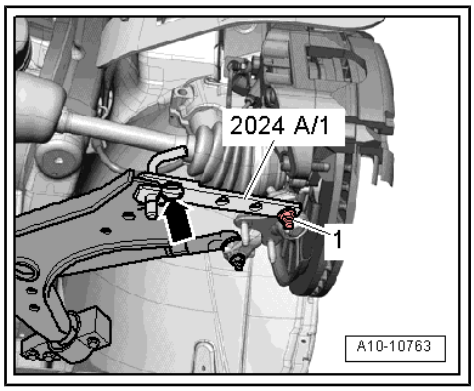


– Mark the position of the nuts -arrows- for right steering joint and unscrew the nuts.
– Unhook steering joint from suspension arm on the right.
– Unscrew drive shaft from the angle gearbox on the right ⇒ Chassis; Rep. gr. 40 .
– Secure drive shaft.

Note

Ensure that the surface protection of the cardan shaft is not damaged.

– Swivel right suspension strut towards the outside and support with claws -2024 A /1- as shown.

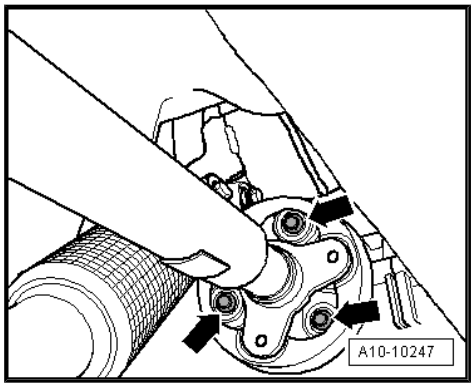


WARNING

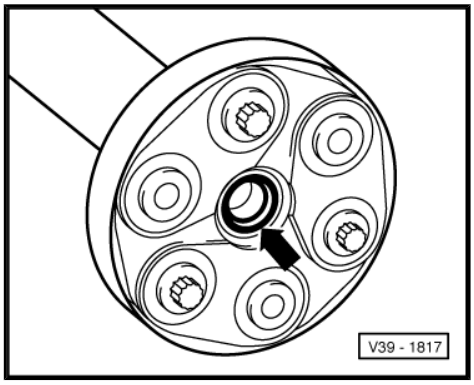
There is a risk of accident from loose parts of the suspension.

- ***Secure straddle pin and suspension arm with plug-in lock -arrow- and screw on steering joint with nut -1-.***

– To reinstall, mark the position of the flexible disk and the angle gearbox flange to each other.
– Unscrew the propshaft from the angle gearbox -arrows-, while counterholding with a lever on the triangular flange.



– Push engine/gearbox assembly slightly forward (towards the front of the body) and pull off the propshaft from the angle gearbox.



Caution

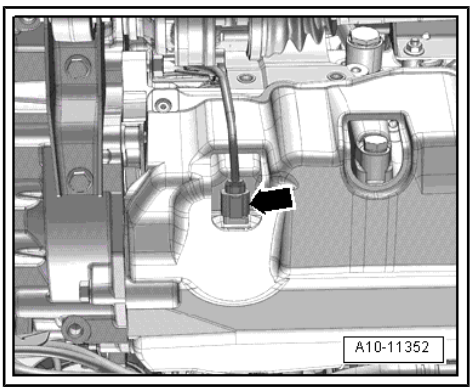
Risk of damage to the gasket ring -arrow- on the flange of the propshaft.

- *Push propshaft horizontally as far back and towards the right vehicle side as possible.*

Note

In case of damaged gasket ring the propshaft must be replaced.

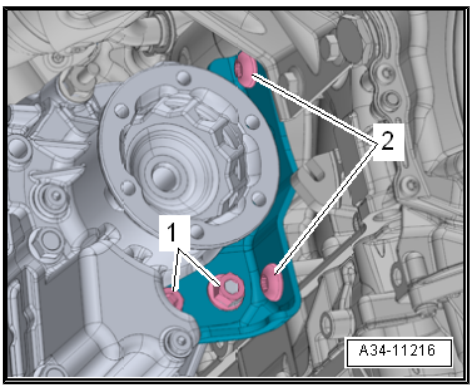
– Pull of the plug -arrow- from the oil level and oil temperature sender - G266- .



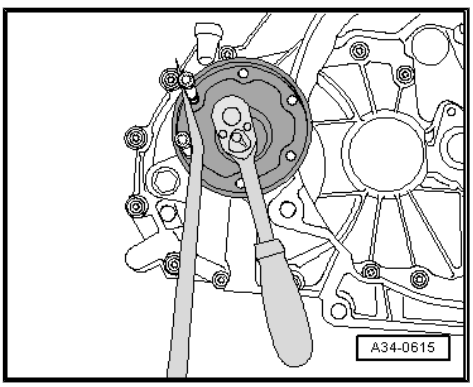
Note

The figure shows the vehicle with a 2.0 l TDI engine.

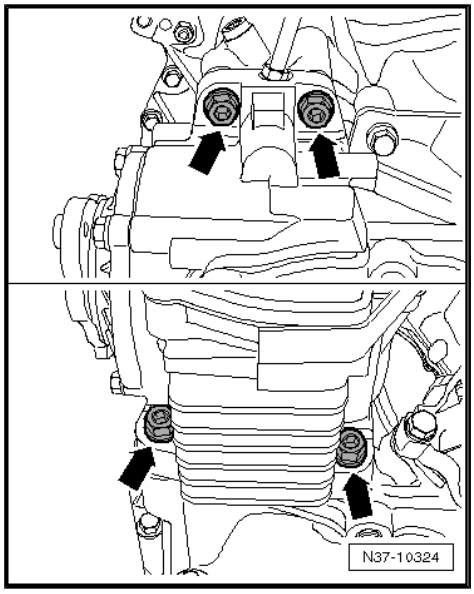
– Unscrew screws -1, 2- and remove bracket for angle gearbox.



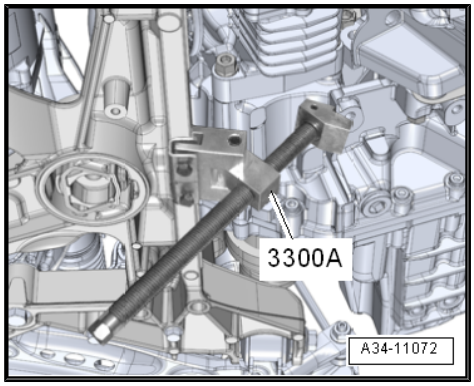
– Unscrew the screw for the right flange shaft with a socket insert - T10107 A- ; to do so, screw in 2 screws into the flange and counterhold the flange shaft using an assembly lever.



– Unscrew connecting screws -arrows- angle gearbox/double clutch gearbox.



– Install alignment rail for engine - MP3-470 (3300 A)- at assembly carrier.
– Attach spindle of support device for engine - MP3-470 (3300 A)- to gearbox as shown.



Caution

Risk of damage to fan shroud.

- *Do not push engine/gearbox unit forward to the stop.*

– Push engine/gearbox unit with the spindle of the support device for engine - MP3-470 (3300 A)- forward only until the angle gear can be removed.
– Carefully push off angle gearbox from double clutch gearbox, while securing it against falling.
– Remove angle gearbox together with right flange shaft.

12.3 Install angle gearbox

Work procedure

Installation is performed in the reverse order, pay attention to the following points:

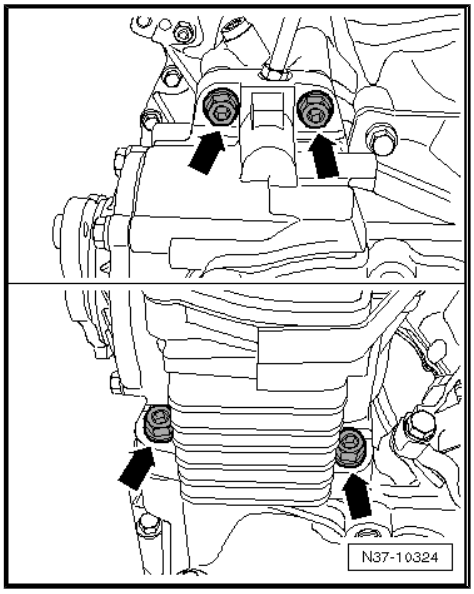
Caution

Risk of damaging the gasket ring between gearbox and angle gearbox.

- *Attach angle gearbox together with right flange shaft to gearbox, while turning flange shaft.*

– Screw on angle gearbox to gearbox .
– Install propshaft ⇒ Propshaft and final drive. rear; Rep. gr. 39
– Check oil level for final drives
⇒ “4.1 Checking the oil level”, page 127 .

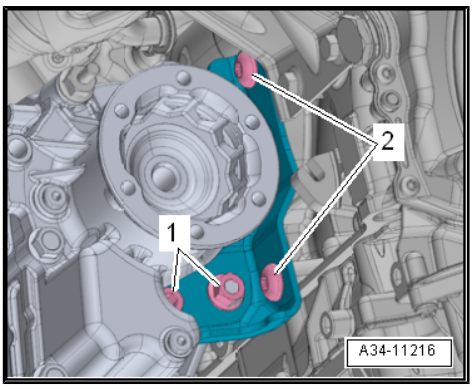
12.4 Tightening torques for angle gearbox



Tightening sequence - angle gearbox to gearbox

– Tighten screws gradually as follows:

Stage	Bolts	Tightening torque/torquing angle
1.	-Arrows-	by hand as far as the stop
2.	-Arrows-	40 Nm
3.	-Arrows-	90° (torque a further 90° ($^1/_4$ turn)



Tightening torque and tightening sequence, mounting bracket for angle gearbox, vehicles with TFSI engines

– Tighten screws gradually as follows:

Stage	Bolts	Tightening torque
1.	-1-	by hand as far as the stop
2.	-2-	40 Nm
3.	-1-	40 Nm

Further tightening torques

- Summary of components - Angle gearbox ⇒ “12.1 Angle gearbox - Summary of components ”, page 98 .
- Summary of components - Differential ⇒ “2.1 Differential gear - Summary of components”, page 110 .
- Summary of components - Assembly mounting ⇒ Engine; Rep. gr. 10 .
- Summary of components - Exhaust gas recirculation ⇒ Engine; Rep. gr. 26 .
- Summary of components - drive shaft ⇒ Chassis; Rep. gr. 40 .
- Summary of components - Lower track control arm, steering joint ⇒ Chassis; Rep. gr. 40 .
- Summary of components - sound damping system ⇒ Body Work; Rep. gr. 66 .

35 – Gears, shafts

1 Pinions and shafts

At present no repairs are carried out on the pinions and shafts.

39 – Final drive - differential

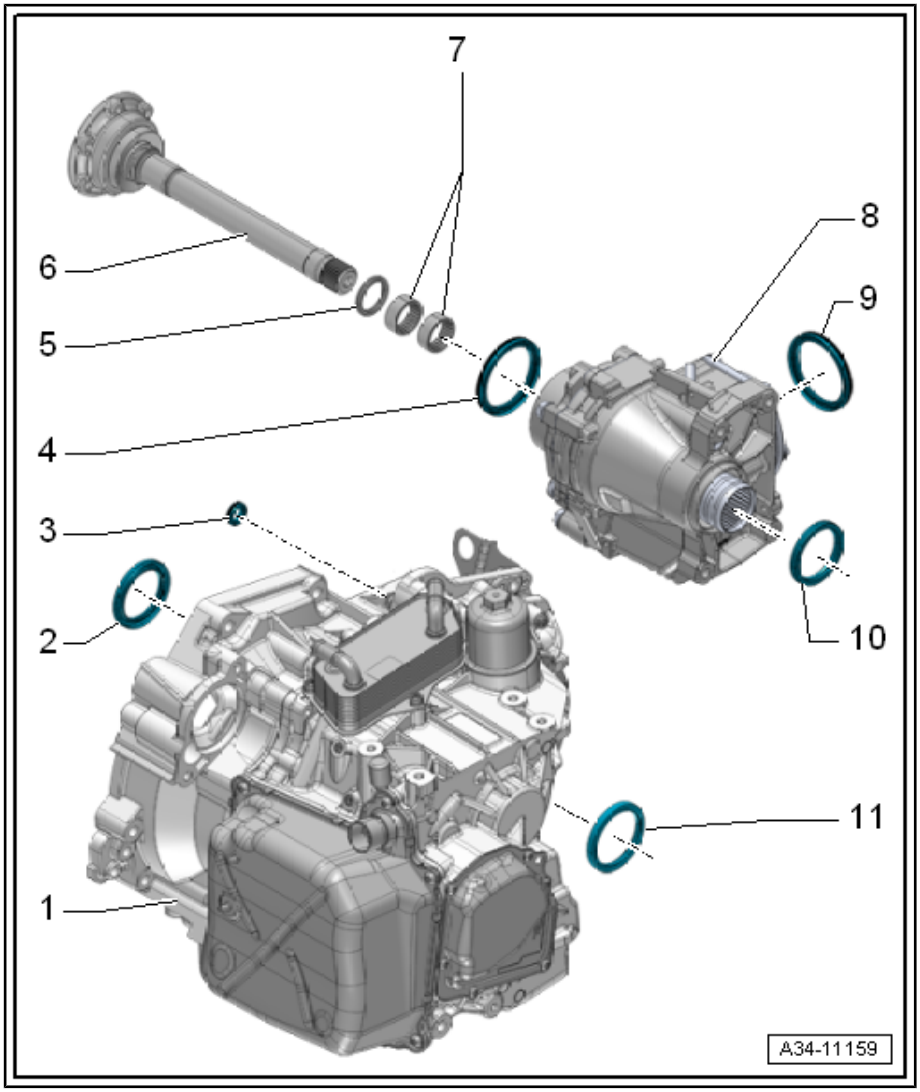
1 Gasket rings

⇒ “1.1 Gasket rings- Summary of components”, page 105

⇒ “1.2 Replacing left sealing ring”, page 106

⇒ “1.3 Replacing right sealing ring”, page 107

1.1 Gasket rings- Summary of components



1 - Gearbox

2 - Right gasket ring

- ❑ Renew ⇒ “1.3 Replacing right sealing ring”, page 107 .

3 - Sealing ring

- ❑ for gearshift shaft
- ❑ Renew ⇒ “7 Replace the gasket ring of the gearshift shaft”, page 58 .

4 - Right gasket ring

- ❑ for vehicles with four-wheel drive
- ❑ Renew ⇒ “3.2.1 Replacing right sealing ring”, page 117 .

5 - Sealing ring

- ❑ replace
- ❑ insert into the round slot of the right flange shaft
- ❑ remove when replacing the needle bearing -Pos. 7- ⇒ “3.2.4 Replacing the right flange shaft needle bearing”, page 125

6 - Right flange shaft

- ❑ for vehicles with four-wheel drive
- ❑ removing and installing ⇒ “2.3.2 Removing and installing right flange shaft, vehicles with four-wheel drive”, page 114

7 - Needle bearing

- ❑ is hard to handle with a removed flange shaft, this does not mean a fault however
- ❑ acoustic check only in the installed state
- ❑ check for damage, e.g. slits on the outer bearing ring
- ❑ Renew. ⇒ “3.2.4 Replacing the right flange shaft needle bearing”, page 125 .

8 - Angle gearbox

9 - Sealing ring

- ❑ for output shaft

- ❑ for vehicles with four-wheel drive
- ❑ Renew ⇒ “3.2.3 Replace gasket ring for output flange”, page 119 .

10 - Sealing ring

- ❑ between gearbox and angle gearbox on the angle gearbox
- ❑ for vehicles with four-wheel drive
- ❑ Renew
  ⇒ “3.2.2 Replacing gasket ring between gearbox and angle gearbox - at angle gearbox”, page 118 .

11 - Left gasket ring

- ❑ for left flange shaft
- ❑ Renew ⇒ “1.2 Replacing left sealing ring”, page 106 .

1.2 Replacing left sealing ring

Special tools and workshop equipment required

- ♦ Thrust piece - T30028 (3305)-
- ♦ Extractor tool - T20143-
- ♦ Sealing grease ⇒ Electronic Catalogue of Original Parts

Work procedure

- The gearbox is installed.

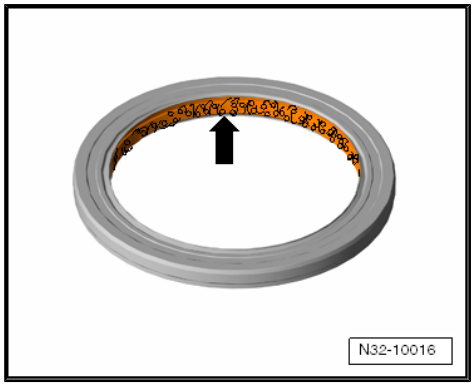
Note

- ♦ *Notes on 6-speed automatic gearbox DSG - 0D9*
  ⇒ “2 Notes on 6-speed automatic gearbox DSG - 0D9”, page 7 .
- ♦ *Observe the general repair instructions*
  ⇒ “2.2 General repair instructions”, page 7 .

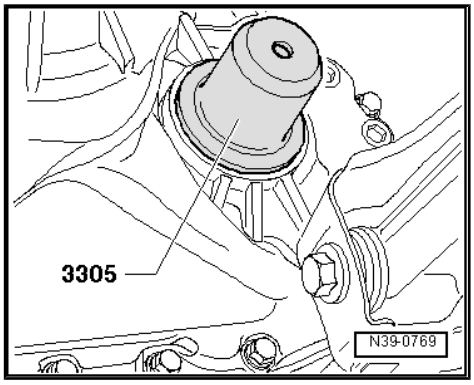
– Remove the left flange shaft
⇒ “2.2 Removing and installing left flange shaft”, page 111 .

– Remove gasket ring with extractor tool - T20143/1- or - T20143/2- .

– Fill half the space between the sealing lip and dust lip -arrow- with sealing grease; sealing grease ⇒ Electronic catalogue of original parts .



– Drive in the new seal ring with pressure plate - T30028 (3305)- up to the stop, do not twist the seal ring.
– Remove the left flange shaft
⇒ “2.2 Removing and installing left flange shaft”, page 111 .



1.3 Replacing right sealing ring

Replace right gasket ring, vehicles with front drive
⇒ “1.3.1 Replace right gasket ring, vehicles with front drive”, page 107 .

Replace the right gasket ring between the angle gearbox and transmission - at the gearbox, vehicles with four-wheel drive
⇒ “1.3.2 Replace the right gasket ring between the angle gearbox and transmission - at the gearbox, vehicles with four-wheel drive”, page 108 .

1.3.1 Replace right gasket ring, vehicles with front drive

Special tools and workshop equipment required

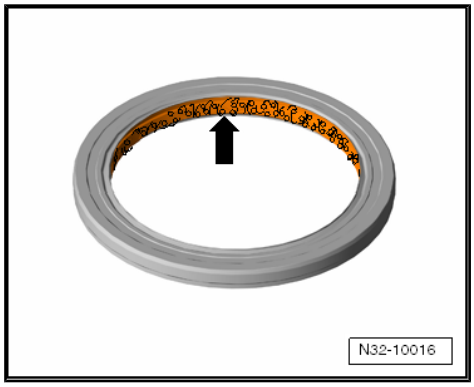
- Extractor tool - T20143-
- Drive bushing - MP3-489 (3158)-
- Sealing grease ⇒ Electronic Catalogue of Original Parts

Note

- *Notes on 6-speed automatic gearbox DSG - 0D9*
⇒ “2 Notes on 6-speed automatic gearbox DSG - 0D9”, page 7 .
- *Observe the general repair instructions*
⇒ “2.2 General repair instructions”, page 7 .

Work procedure

- The gearbox is installed.



Note

- *Notes on 6-speed automatic gearbox DSG - 0D9*
  ⇒ “2 Notes on 6-speed automatic gearbox DSG - 0D9”, page 7 .
- *Observe the general repair instructions*
  ⇒ “2.2 General repair instructions”, page 7 .

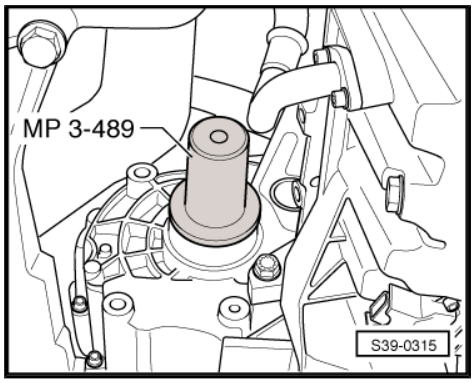
– Remove right flange shaft
⇒ “2.3 Removing and installing right flange shaft”, page 112 .

– Remove gasket ring with extractor tool - T20143/2- .

– Fill half the space between the sealing lip and dust lip -arrow- with sealing grease; sealing grease ⇒ Electronic catalogue of original parts .

– Drive in the new gasket ring with drive bushing - MP3-489 (3158)- as far as it can go, without tilting it.

– Mount the right flange shaft
⇒ “2.3 Removing and installing right flange shaft”, page 112 .



1.3.2 Replace the right gasket ring between the angle gearbox and transmission - at the gearbox, vehicles with four-wheel drive

Special tools and workshop equipment required

- Extractor tool - T20143-
- Used oil collector and extractor - VAS 6622-
- Thrust piece - T10243-
- Sealing grease ⇒ Electronic Catalogue of Original Parts

Work procedure

Note

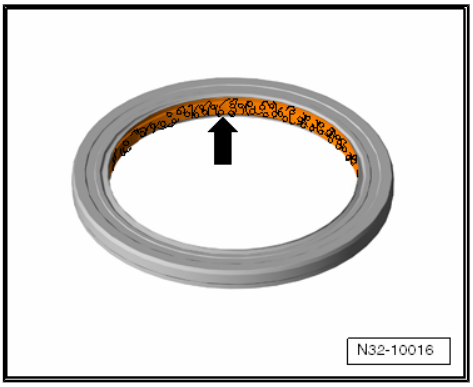
- *Notes on 6-speed automatic gearbox DSG - 0D9*
  ⇒ “2 Notes on 6-speed automatic gearbox DSG - 0D9”, page 7 .
- *Observe the general repair instructions*
  ⇒ “2.2 General repair instructions”, page 7 .

– Remove angle gearbox
⇒ “12.2 Remove angle gearbox”, page 98 .

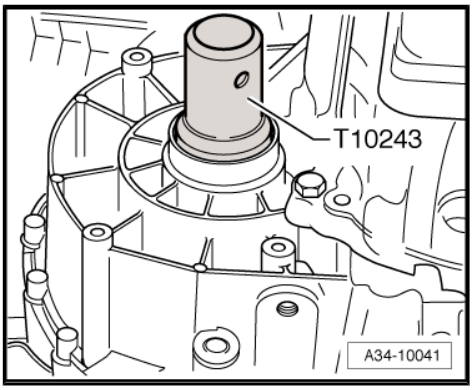
– Place old oil collection and suction device - VAS 6622- underneath the gearbox.

– Prise out the gasket ring on the gearbox with extractor hook - T20143/1- or - T20143/2- .

– Fill half the space between the sealing lip and dust lip -arrow- with sealing grease; sealing grease ⇒ Electronic catalogue of original parts .



– Drive in the new gasket ring with thrust piece - T10243- as far as it can go, without tilting it.

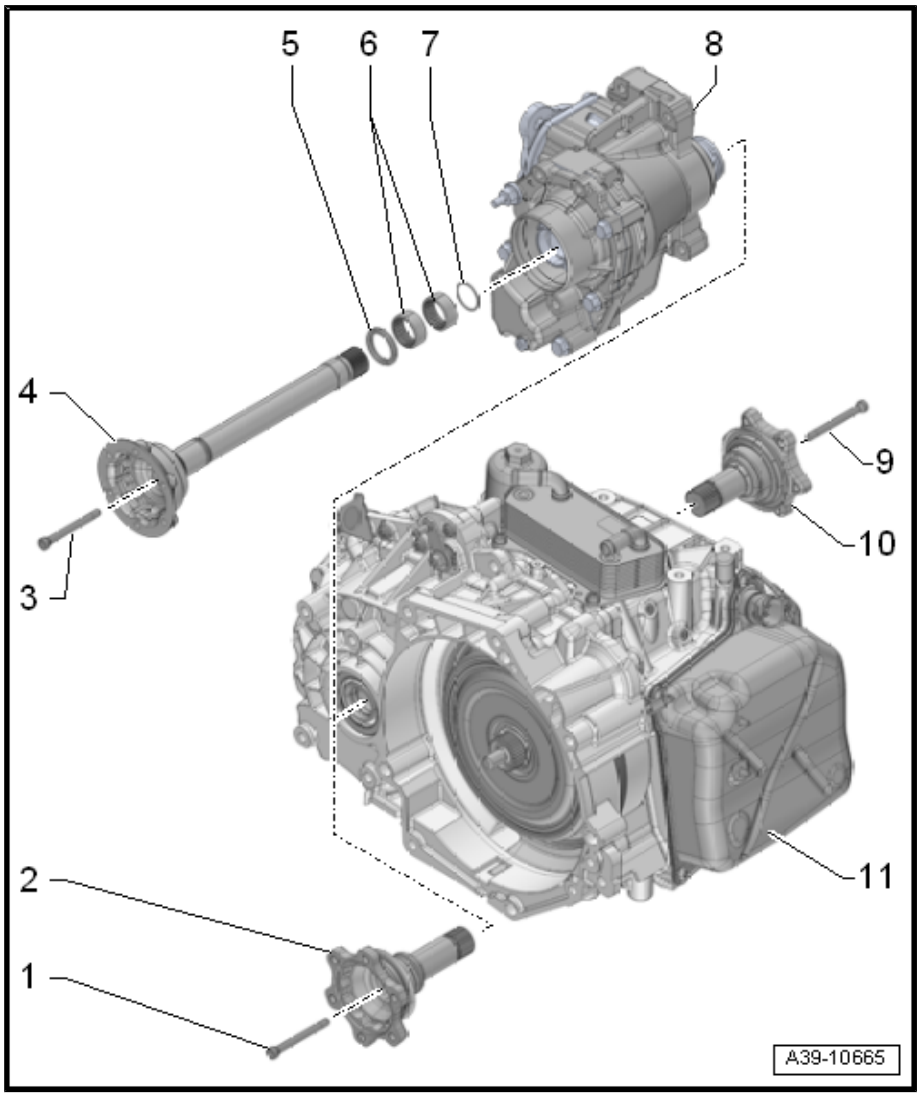


– Install angle gearbox
⇒ “12.3 Install angle gearbox”, page 102 .

– Checking the oil level
⇒ “4.1 Checking the oil level”, page 127 .

2 Differential gear

2.1 Differential gear - Summary of components



1 - Screw, 30 Nm

2 - Right flange shaft

- ❑ for vehicles with front drive
- ❑ removing and installing ⇒ “2.3.1 Removing and installing right flange shaft, vehicles with front-wheel drive”, page 113

3 - Screw, 33 Nm

4 - Right flange shaft

- ❑ for vehicles with four-wheel drive
- ❑ removing and installing ⇒ “2.3.2 Removing and installing right flange shaft, vehicles with four-wheel drive”, page 114

5 - Sealing ring

- ❑ replace
- ❑ insert into the round slot of the right flange shaft
- ❑ remove when replacing the needle bearing -Pos. 6-

6 - Needle bearing

- ❑ is hard to handle with a removed flange shaft, this does not mean a fault however
- ❑ acoustic check only in the installed state
- ❑ check for damage, e.g. slits on the outer bearing ring
- ❑ Renew ⇒ “3.2.4 Replacing the right flange shaft needle bearing”, page 125 .

7 - Circlip

- ❑ replace

8 - Angle gearbox

9 - Screw, 30 Nm

10 - Flange shaft left

- ❑ removing and installing ⇒ “2.2 Removing and installing left flange shaft”, page 111

11 - Gearbox

2.2 Removing and installing left flange shaft

Special tools and workshop equipment required

- Claws -2024A/1-

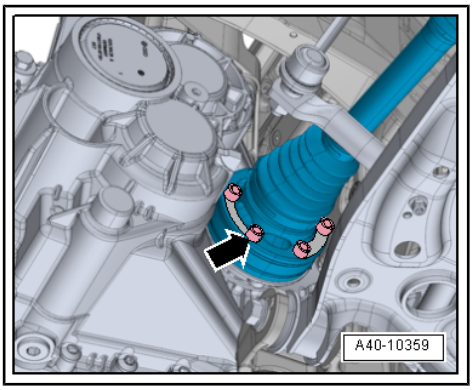
Removing

- The gearbox is installed.

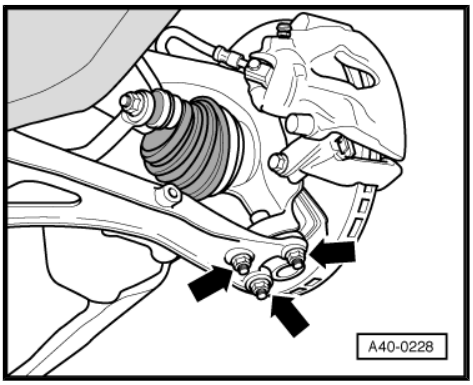
Note

- *Notes on 6-speed automatic gearbox DSG - 0D9*
  ⇒ *"2 Notes on 6-speed automatic gearbox DSG - 0D9", page 7* .
- *Observe the general repair instructions*
  ⇒ *"2.2 General repair instructions", page 7* .

– Unscrew the left drive shaft -arrow- from the gearbox ⇒ Suspension; Rep. gr. 40 .

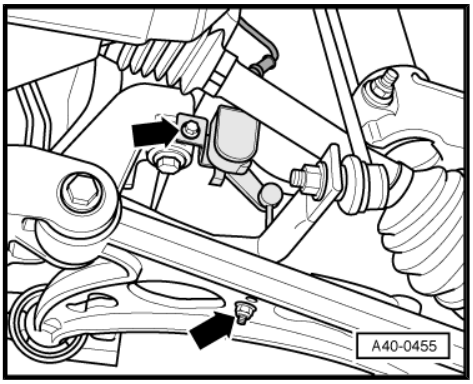


– Mark the position of the nuts -arrows- for left steering joint and unscrew the nuts.

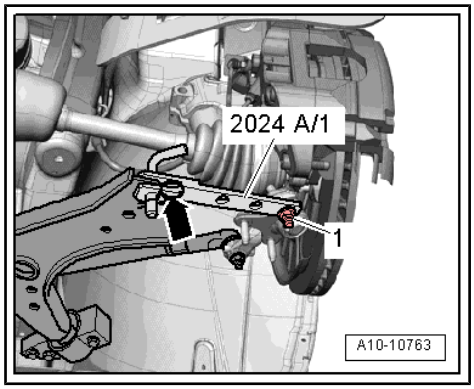


– When installing: Unscrew the nuts -arrows-, remove front left vehicle level senders - G78- .

– Unhook steering joint from suspension arm on the left.



– Swivel left suspension strut towards the outside and support with claws - 2024A/1- as shown.



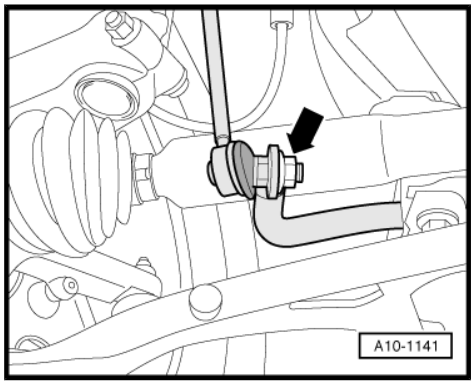
WARNING

There is a risk of accident from loose parts of the suspension.

- *Secure straddle pin and suspension arm with plug-in lock -arrow- and screw on steering joint with nut -1-.*

– Unscrew nut -arrow- on left for coupling rod on anti-roll bar.

– Turn left drive shaft towards the front.

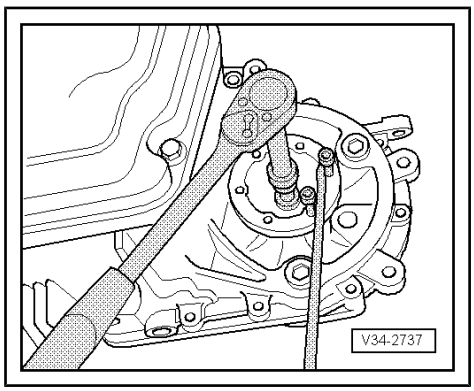


Note

Ensure that the surface protection of the cardan shaft is not damaged.

– Release the screw for the left flange shaft, to this end insert 2 screws in the flange and counterhold the flange shaft using an assembly lever.

– Remove the flange shaft with pressure spring.



Install

Installation is performed in the reverse order, pay attention to the following points:

– Press flange shaft against the spring force, and screw on.

Tightening torques

- Summary of components - Differential
⇒ “2.1 Differential gear - Summary of components”, page 110 .
- Summary of components - Lower track control arm, steering joint ⇒ Chassis; Rep. gr. 40 .
- Summary of components - drive shaft ⇒ Chassis; Rep. gr. 40 .

2.3 Removing and installing right flange shaft

Removing and installing right flange shaft, vehicles with front-wheel drive
⇒ “2.3.1 Removing and installing right flange shaft, vehicles with front-wheel drive”, page 113 .

Removing and installing right flange shaft, vehicles with four-wheel drive
⇒ “2.3.2 Removing and installing right flange shaft, vehicles with four-wheel drive”, page 114 .

2.3.1 Removing and installing right flange shaft, vehicles with front-wheel drive

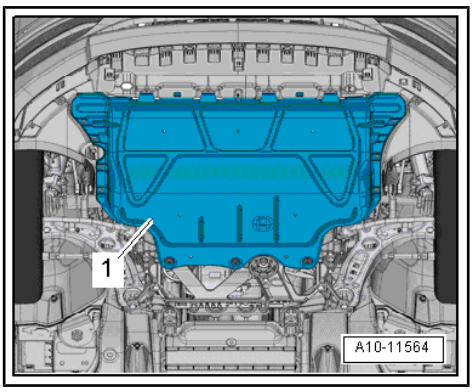
Removing

- The gearbox is installed.

Note

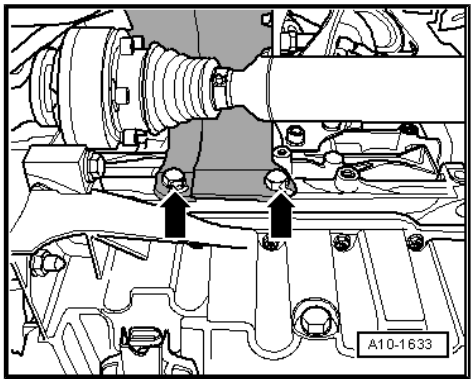
- *Notes on 6-speed automatic gearbox DSG - 0D9 ⇒ "2 Notes on 6-speed automatic gearbox DSG - 0D9", page 7 .*
- *Observe the general repair instructions ⇒ "2.2 General repair instructions", page 7 .*

– Remove the sound dampening system -1- ⇒ Body Work; Rep. gr. 66 .



– If fitted: Release screws -arrows- and remove heat shield for right drive shaft.

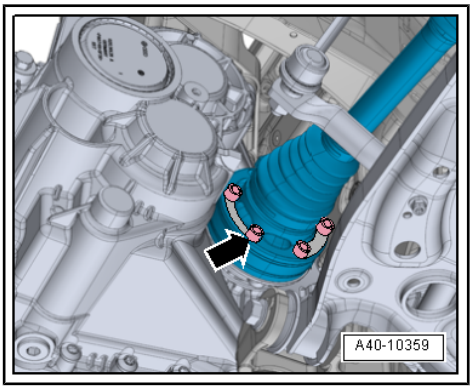
– Turn steering to full right lock.



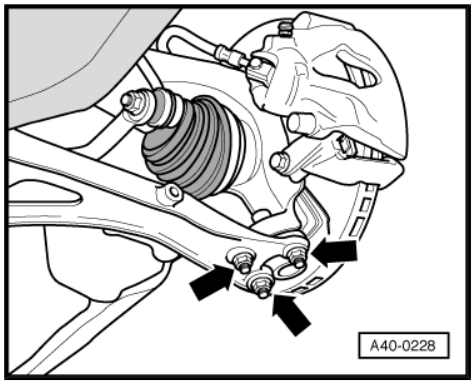
Note

Some of the next work steps are feasible as shown in the example on the left-hand side.

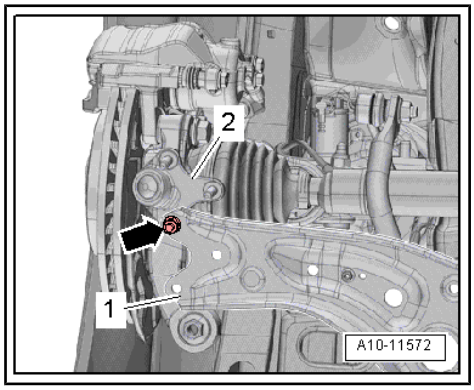
– Unscrew the right drive shaft -arrow- from the gearbox ⇒ Transmission; Rep. gr. 40 .



– Unscrew the nuts -arrows- from the steering joint to the right track control arm.
– If present, unscrew the nuts on the mounting bracket front right vehicle level senders - G289- .
– Unhook steering joint from suspension arm on the right.



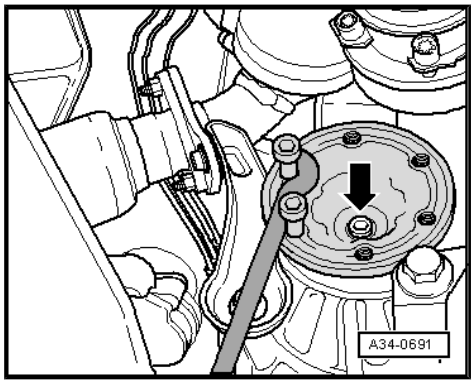
– Screw on the right steering joint -2- to the transverse arm -1- with nuts -arrow- as shown.
– Strap up the right drive shaft towards the rear.



Note

Ensure that the surface protection of the cardan shaft is not damaged.

– Release the screw -arrow- for the right flange shaft, to this end insert 2 screws in the flange and counterhold the flange shaft using an assembly lever.
– Take out the flange shaft.



Install

Installation is performed in the reverse order, pay attention to the following points:

– Press flange shaft against the spring force, and screw on.
– Install the noise insulation ⇒ Body Work; Rep. gr. 66 .

Tightening torques

- Summary of components - Differential ⇒ “2.1 Differential gear - Summary of components”, page 110 .
- Summary of components - Lower track control arm, steering joint ⇒ Chassis; Rep. gr. 40 .
- Summary of components - drive shaft ⇒ Chassis; Rep. gr. 40 .

2.3.2 Removing and installing right flange shaft, vehicles with four-wheel drive

Special tools and workshop equipment required

- Used oil collector and extractor - VAS 6622-
- Extractor - T10037-
- Socket insert - T10107 A-

Removing

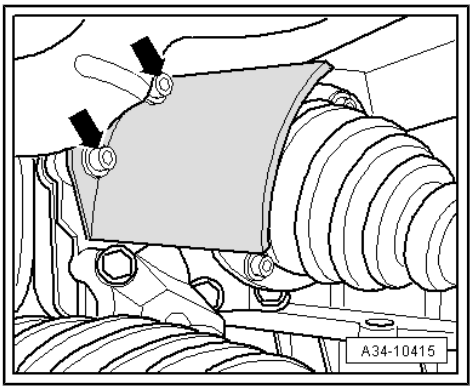
- The gearbox is installed.

Note

- *Notes on 6-speed automatic gearbox DSG - 0D9*
  ⇒ *"2 Notes on 6-speed automatic gearbox DSG - 0D9", page 7* .
- *Observe the general repair instructions*
  ⇒ *"2.2 General repair instructions", page 7* .

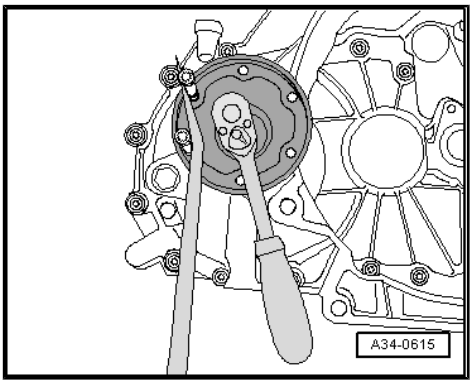
– Unscrew nuts -arrows- and remove heat shield for right drive shaft.

– Remove drive shaft to the right ⇒ Chassis; Rep. gr. 40 .



– Place old oil collection and suction device - VAS 6622- underneath the gearbox.

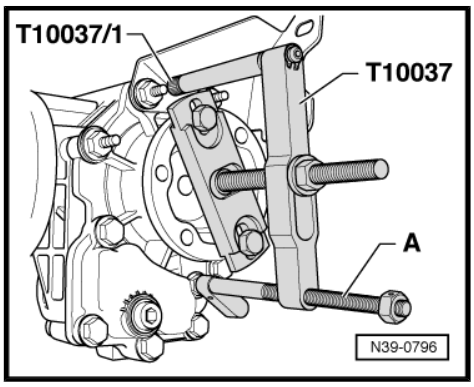
– Unscrew the screw for the right flange shaft with a socket insert - T10107 A- ; screw in 2 screws into the flange and counterhold the flange shaft using an assembly lever.



– Screw on the extractor device - T10037- to the right flange shaft as shown.

– Align the extractor device with knurled nut - T10037/1- and threaded spindle -A- parallel to the flange.

– Take out the flange shaft.



Install

Installation is performed in the reverse order, pay attention to the following points:

– Drive in the flange shaft carefully while rotating at the same time.

– Screw on the flange shaft.

– Check oil level for final drives
⇒ "4.1 Checking the oil level", page 127 .

Tightening torques

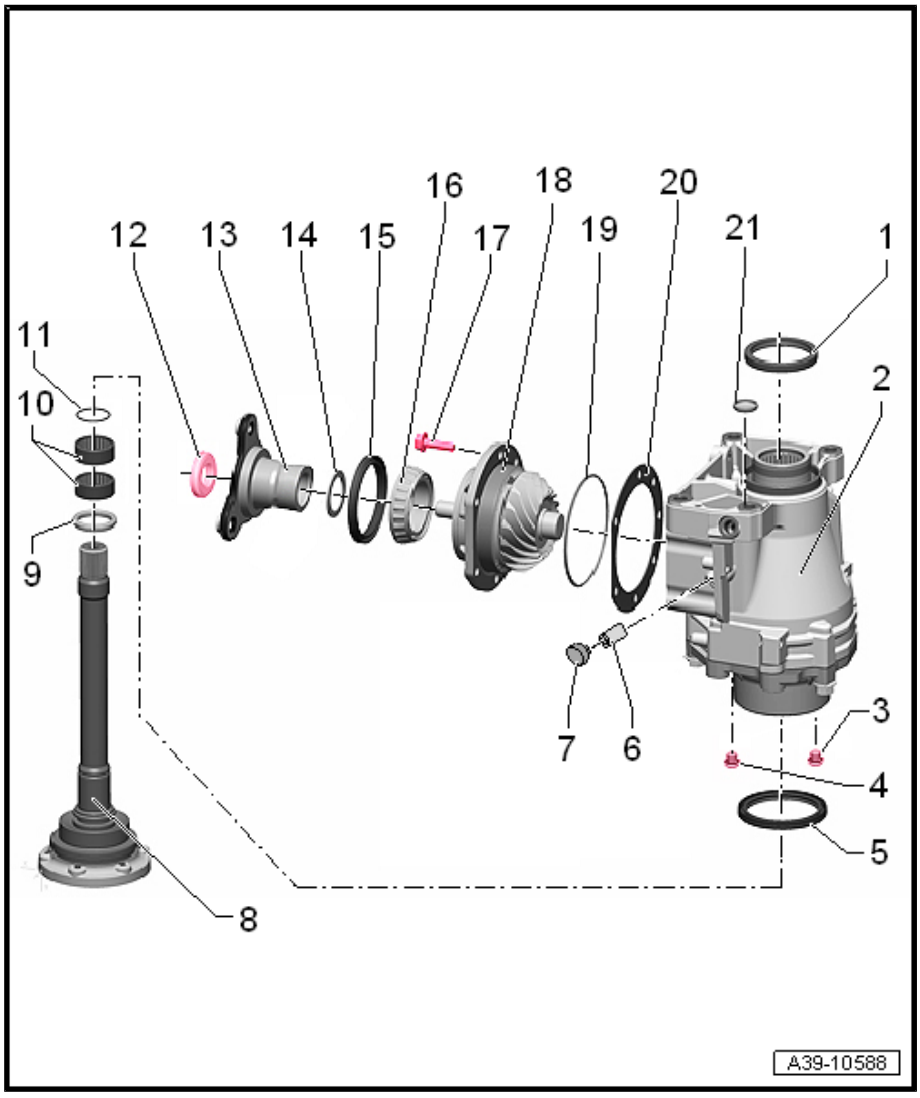
- Summary of components - Differential
  ⇒ "2.1 Differential gear - Summary of components", page 110 .
- Summary of components - drive shaft ⇒ Chassis; Rep. gr. 40 .

3 Parts of angle gearbox

⇒ “3.1 Parts of angle gearbox - assembly overview”, page 116

⇒ “3.2 Replacing gasket rings for angle gearboxes”, page 117

3.1 Parts of angle gearbox - assembly overview



1 - Sealing ring

- ❑ between angle gearbox and gearbox - on angle gearbox
- ❑ Renew ⇒ “3.2.2 Replacing gasket ring between gearbox and angle gearbox - at angle gearbox”, page 118 .

2 - Angle gearbox

- ❑ removing ⇒ “12.2 Remove angle gearbox”, page 98
- ❑ installing ⇒ “12.3 Install angle gearbox”, page 102

3 - Oil drain plug

- ❑ with captive seal
- ❑ replace
- ❑ Tightening torque:
- ♦ oily thread: 11 Nm
- ♦ dry thread: 20 Nm

4 - Oil filler plug

- ❑ with captive seal
- ❑ replace
- ❑ Tightening torque:
- ♦ oily thread: 11 Nm
- ♦ dry thread: 20 Nm

5 - Sealing ring

- ❑ for right flange shaft
- ❑ Renew ⇒ “3.2.1 Replacing right sealing ring”, page 117 .

6 - Ventilation tube

- ❑ for venting the angle gearbox
- ❑ pull in up to stop

7 - Cover

- ❑ for venting the angle gearbox

8 - Right flange shaft

- ❑ removing and installing ⇒ “2.3.2 Removing and installing right flange shaft, vehicles with four-wheel drive”, page 114

9 - Sealing ring

- ❑ insert into the round slot of the right flange shaft
- ❑ remove when replacing the needle bearing -Pos. 10-

10 - Needle bearing
- ❑ replace ⇒ page 125

11 - Circlip
- ❑ replace

12 - 12-point nut, 340 Nm
- ❑ replace
- ❑ secure by caulking after tightening ⇒ page 125

13 - Angle gearbox output flange

14 - Adjusting washer
- ❑ not available as spare part

15 - Sealing ring
- ❑ for angle gearbox output flange
- ❑ Renew ⇒ “3.2.3 Replace gasket ring for output flange”, page 119 .

16 - Inner ring/tapered-roller bearing
- ❑ not available as spare part

17 - Screw, 38 Nm

18 - Pinion housing
- ❑ with shaft bevel gear and outer ring/ tapered-roller bearing
- ❑ not available as spare part
- ❑ carefully lever out alternating on both sides
- ❑ Note screw holes; drive pinion housing will only fit in one position

19 - O-ring
- ❑ to replace, unscrew the screws -Pos. 17- and carefully lever out the drive pinion housing from its recess in the pinion housing
- ❑ Do not remove the 12-point nut -Pos. 12- and the output flange -Pos. 13-

20 - Adjusting washer
- ❑ not available as spare part
- ❑ Note screw holes of the angle gearbox. the adjusting washer will only fit in one position

21 - Screw cap
- ❑ not available as spare part

3.2 Replacing gasket rings for angle gearboxes

Replace right gasket ring
⇒ “3.2.1 Replacing right sealing ring”, page 117 .

Replacing gasket ring between gearbox and angle gearbox - at angle gearbox
⇒ “3.2.2 Replacing gasket ring between gearbox and angle gearbox - at angle gearbox”, page 118 .

Replace gasket ring for output flange
⇒ “3.2.3 Replace gasket ring for output flange”, page 119 .

Replacing the right flange shaft needle bearing
⇒ “3.2.4 Replacing the right flange shaft needle bearing”, page 125 .

3.2.1 Replacing right sealing ring

Special tools and workshop equipment required

- ♦ Thrust piece - T10049-

- Extractor tool - T20143-
- Sealing grease ⇒ Electronic Catalogue of Original Parts

Work procedure

- The gearbox is installed.

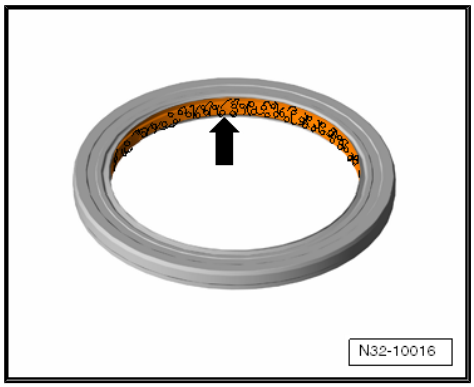
Note

- *Notes on 6-speed automatic gearbox DSG - 0D9*
  ⇒ "2 Notes on 6-speed automatic gearbox DSG - 0D9", page 7 .
- *Observe the general repair instructions*
  ⇒ "2.2 General repair instructions", page 7 .

– Remove right flange shaft
⇒ "2.3.2 Removing and installing right flange shaft, vehicles with four-wheel drive", page 114 .

– Remove right gasket ring with extractor tool -T20143/2- .

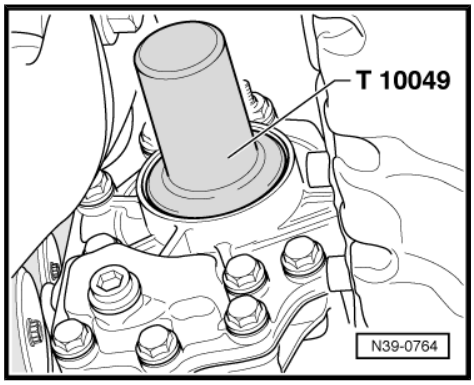
– Fill half the space between the sealing lip and dust lip -arrow- with sealing grease; sealing grease ⇒ Electronic catalogue of original parts .



– Drive in the new gasket ring with thrust piece - T10049- as far as it can go, without tilting it.

– Mount the right flange shaft
⇒ "2.3.2 Removing and installing right flange shaft, vehicles with four-wheel drive", page 114 .

– Checking the oil level
⇒ "4.1 Checking the oil level", page 127 .



3.2.2 Replacing gasket ring between gearbox and angle gearbox - at angle gearbox

Special tools and workshop equipment required

- Extractor tool - T20143-
- Thrust piece - T10298-
- Sealing grease ⇒ Electronic Catalogue of Original Parts

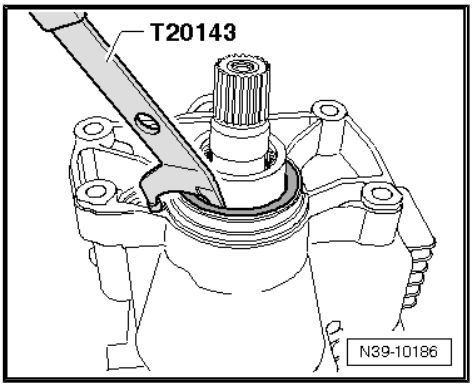
Note

- *Notes on 6-speed automatic gearbox DSG - 0D9*
  ⇒ *"2 Notes on 6-speed automatic gearbox DSG - 0D9", page 7* .
- *Observe the general repair instructions*
  ⇒ *"2.2 General repair instructions", page 7* .

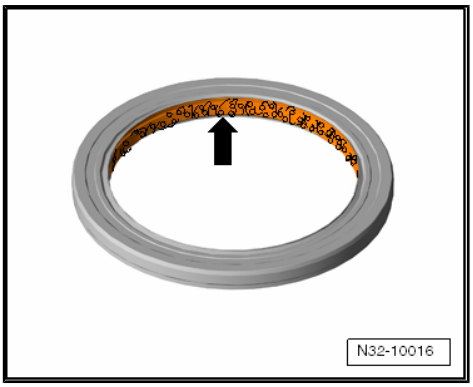
Work procedure

– Remove angle gearbox
⇒ "12.2 Remove angle gearbox", page 98 .

– Prise out the gasket ring on the angle gearbox with extractor hook(s) - T20143/1- or - T20143/2- .

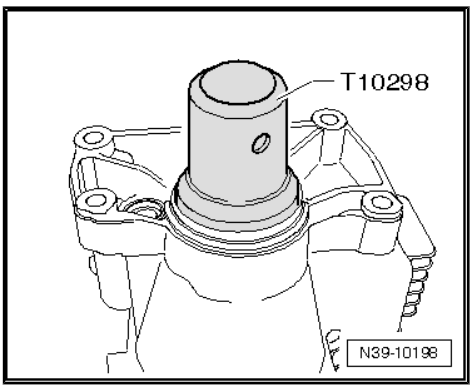


– Fill half the space between the sealing lip and dust lip -arrow- with sealing grease; sealing grease ⇒ Electronic catalogue of original parts .



– Drive in the new gasket ring with thrust piece - T10298- as far as it can go, without tilting it.

– Install angle gearbox
⇒ "12.2 Remove angle gearbox", page 98 .



3.2.3 Replace gasket ring for output flange

Special tools and workshop equipment required

- Pressure plate - MP3-406 (VW 401)-
- Pressure plate - MP3-407 (VW 402)-
- Pressure spindle - VW 407-
- Pressure spindle - MP3-408 (VW 412)-
- Thrust piece - MP3-411 (VW 454)-
- Press-on sleeve - MP3-412 (VW 455)-

- Alignment rails - MP3-457 (VW 457)-
- Pipe - T30055 (3296)-
- Assembly stand - MP9-101- or clamping block - VW 313-
- Gearbox mount - T30097 (T10108)-
- Support - T30097/1 (T10108/1)-
- Tapered-roller bearing extractor - V.A.G 1582-
- Gripper - V.A.G 1582/13-
- Retractor - T30070 (VW 204 B)-
- Universal dial gauge holder - MP3-447 (VW 387)-
- Thrust plate - MP3-467 (40-105)-
- Socket insert SW 34
- Dial gauge - VAS 6080-
- Sealing grease ⇒ Electronic Catalogue of Original Parts
- Screw M10 × 30 - 2 pcs
- Screw M8 x 25 - 1 pc
- Nut M12 x 10 - 4 pcs

Work procedure

Note

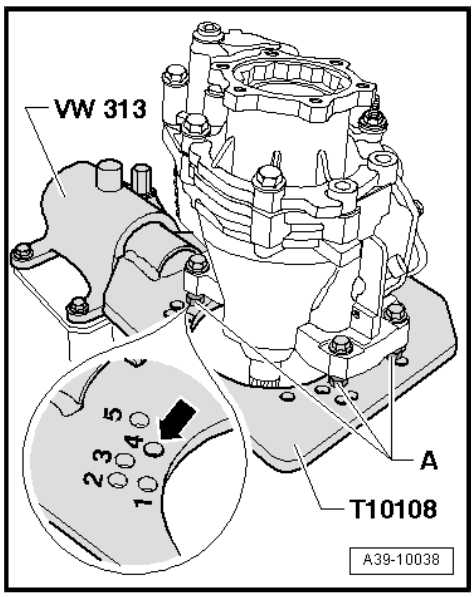
- *The inner ring/tapered-roller bearing is pressed onto the output flange of the angle gearbox.*
- *This will be removed later in the workflow.*
- *Do not replace the tapered-roller bearing for the angle gearbox output flange and the shims!*

– Remove angle gearbox
⇒ “12.2 Remove angle gearbox”, page 98 .

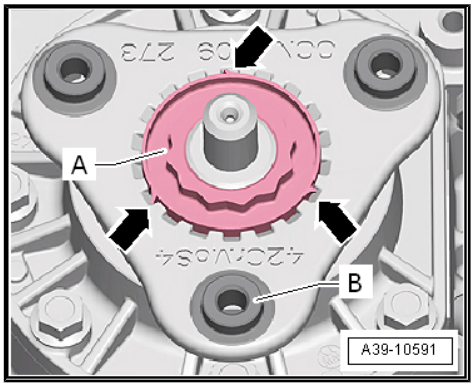
– Position angle gearbox onto the opening -arrow- marked with the number “4” in the gearbox mount - T10108- . Place nut M12 x 10 -Pos. A- between angle gearbox and gearbox mount.

– Then align the angle gearbox with the 3 remaining openings and fasten with inserted nuts -A-.

– Drain for final drive oil from angle gearbox
⇒ “4.2 Drain and fill oil”, page 129 .



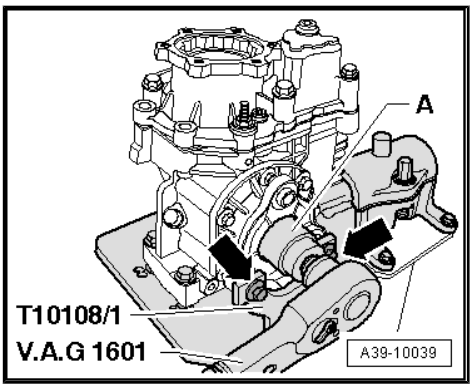
– Drive out caulkings -arrows- of 12-point nut -A- from the grooves of the output flange -B-.



– Lock output flange of angle gearbox with bracket - T10108/1- that is attached with 2 screws M10 x 30 -arrows-.

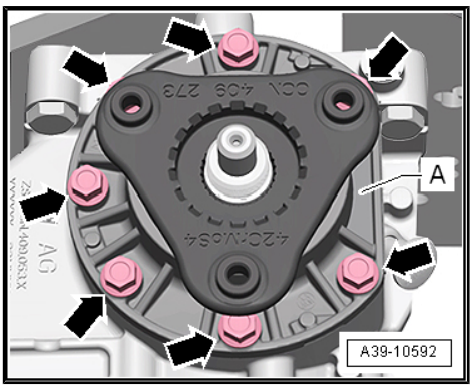
A - Socket insert SW 34

– Unscrew nut for output flange.

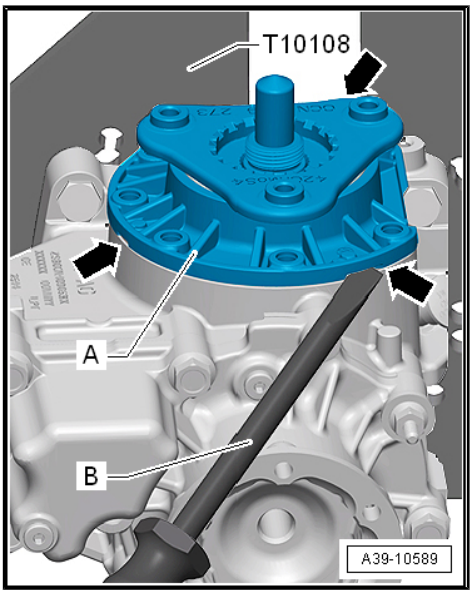


– Turn angle gearbox such that output flange is facing up.

– Unscrew screws -arrows- for drive pinion housing -A-.



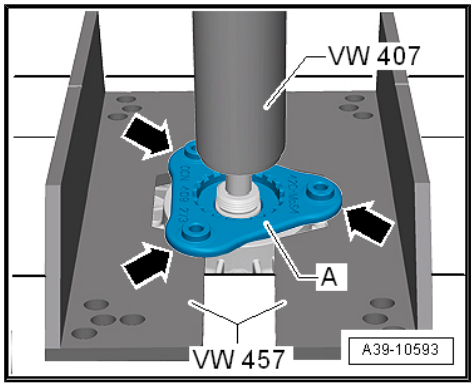
– In three recesses -arrows- of the drive pinion housing -A-, insert a suitable screwdriver -B- and carefully pry out drive pinion housing together with the shaft bevel gear.



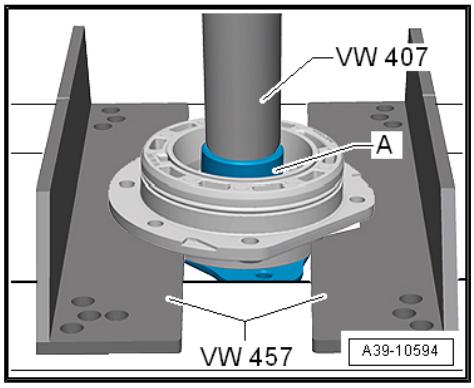
– Place output flange -A- uniformly on the alignment rails - MP3-457 (VW 457)- -arrows-.

– Push shaft bevel gear out from the output flange -A-.

• Secure shaft bevel gear and inner ring/tapered-roller bearing against falling.

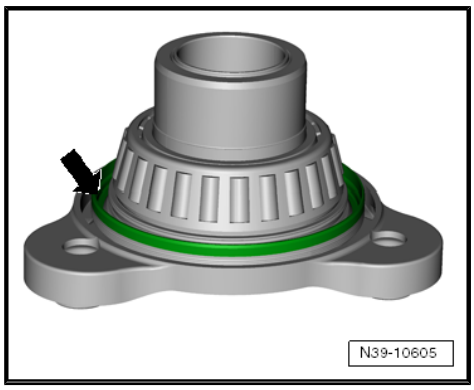


– Push output flange -A- out from the drive pinion housing.



Note

Gasket ring -arrow- is located on the output flange.

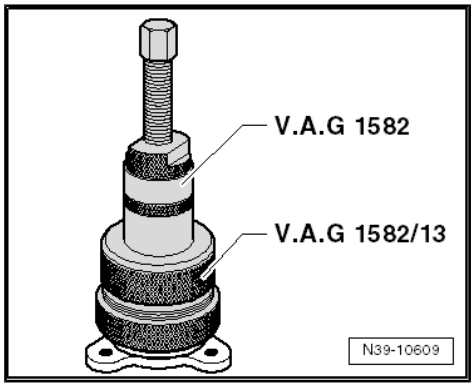


• Inner ring/tapered-roller bearing must be pulled off the output flange for the removal of the gasket ring.

Caution

Risk of damage to the inner ring/tapered-roller bearing.

- ***Pull off inner ring/tapered-roller bearing with gripper - V.A.G 1582/13- .***
- ***If the inner ring/tapered-roller bearing is damaged, the angle gear must be replaced.***



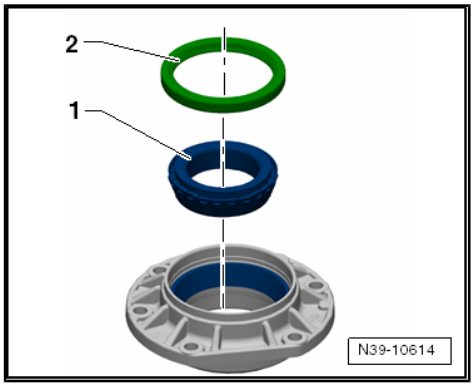
– Place pressure plate - MP3-467 (40-105)- on the output flange.

– Pull off inner ring/tapered-roller bearing with tapered-roller bearing extractor from output flange.

– Remove gasket ring from output flange.

– Put the existing inner ring/tapered-roller bearing -1- into the drive pinion housing.

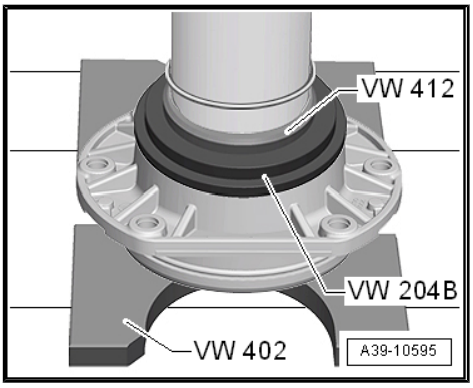
– Lightly oil the new gasket ring -2- for output flange on the outer circumference.



– Press in gasket ring until flush.

• The large diameter of the retractor - T30070 (VW 204 B)- points towards the gasket ring.

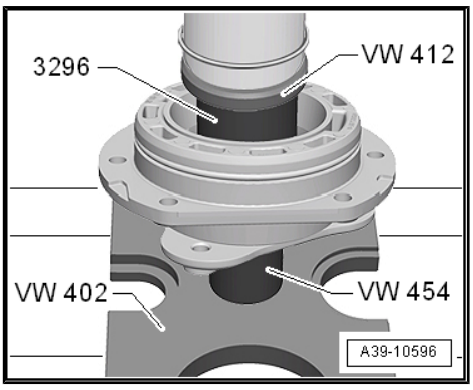
– Fill half the space between the sealing lip and dust lip with sealing grease ⇒ Electronic catalogue of original parts .



– Push inner ring/tapered-roller bearing ⇒ page 123 onto the output flange until it stops.

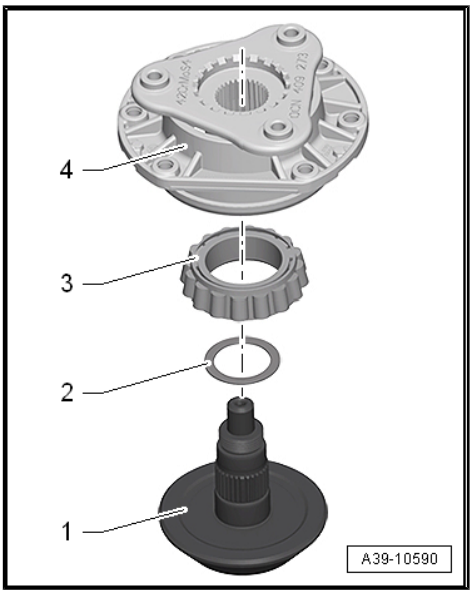
• The large diameter of the thrust piece - MP3-411 (VW 454)- points towards the output flange.

• Press on inner ring/tapered-roller bearing until it stops. Do not apply a large pressing force to the tapered-roller bearing.



– Attach shim -2-, inner ring/tapered-roller bearing -3- and drive pinion housing -4- to shaft bevel gear -1-.

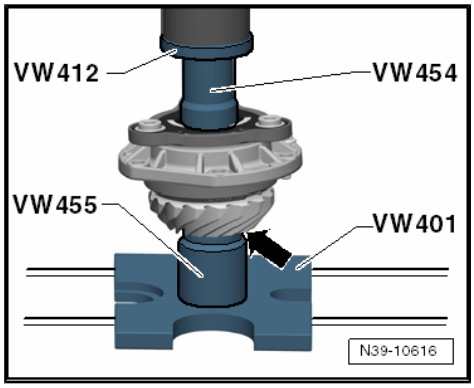
• Reinstall the previous shim -2-. This ensures the bearing pre-load of the shaft bevel gear in the drive bevel housing.



– Gently press drive pinion housing with output flange onto the shaft bevel gear up to the stop.

• The shoulder -arrow- of the insertion bushing - MP3-412 (VW 455)- points to the shaft bevel gear.

• Rotate the drive pinion housing while pressing it on.

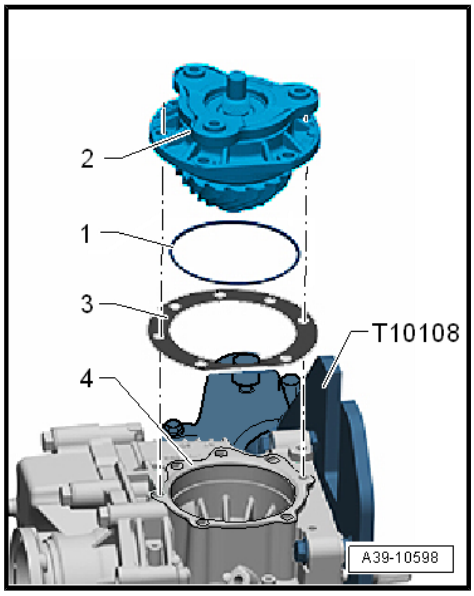


– Align the previous shim -3- opposite the drive pinion housing -2-.

• Drive pinion housing -2- and shim -3- only fit in one position.

– Moisten new O-ring -1- with oil for final drives and fit onto drive pinion housing -2-.

– Insert drive pinion housing -2- into angle gearbox housing -4-.

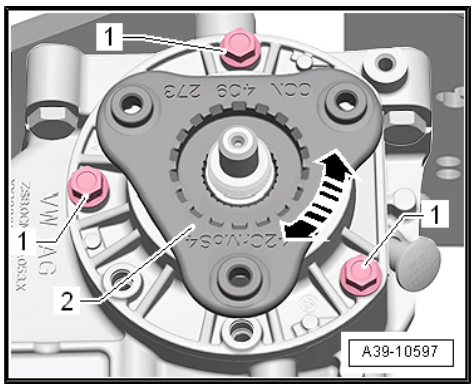


Note

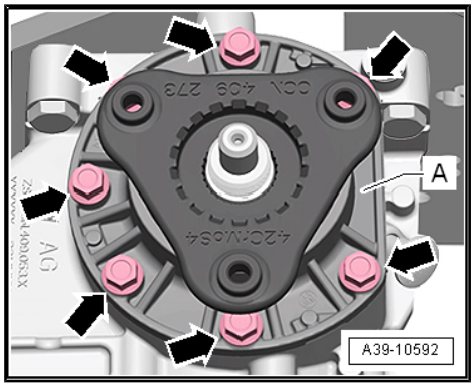
♦ *The teeth of the shaft bevel gear must be engaged with the head.*

♦ *Align the screw holes for drive pinion housing opposite the angle gearbox housing.*

– Tighten screws -1- in small increments alternately on opposite sides. while rotating the output flange -2- slightly back and forth in the -direction of the arrow-.

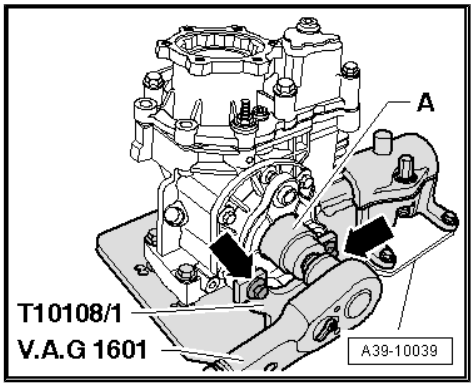


– Tighten screws -arrows- for drive pinion housing -A- cross-wise.

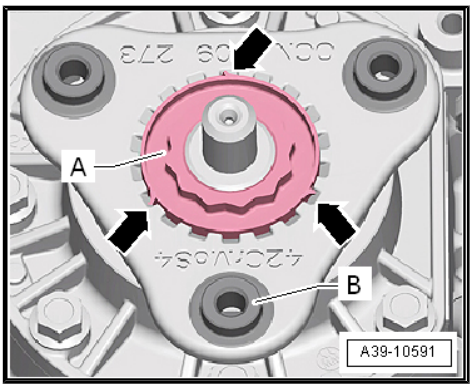


– Tighten new 12-point nut for output flange.

A - Socket insert SW 34



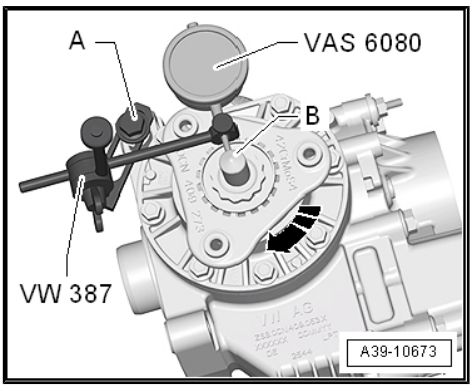
– Secure 12-point nut -A-.
– Caulk nut at 120° offset in the grooves of the output flange -B- -arrows-.



Measure runout on the output flange of the shaft bevel gear

Note

After tightening the nut for the output flange, check the runout on fixing bolt of the shaft bevel gear.



– Fasten measuring tools with screw M8 x 25 -position A- to the angle gearbox.
– Place dial gauge - VAS 6080- to fixing bolt on the shank bevel gear -B- and set to “0” with a 1 mm pre-load.
– Rotate output flange one full turn -arrow-.
– Read measured value on the dial gauge.

• Runout: maximum 0.05 mm

– Install angle gearbox
⇒ “12.3 Install angle gearbox”, page 102 .
– Check oil level for final drives
⇒ “4.1 Checking the oil level”, page 127 .

Tightening torques

♦ Parts of angle gearbox - assembly overview
⇒ “3.1 Parts of angle gearbox - assembly overview”, page 116 .

3.2.4 Replacing the right flange shaft needle bearing

Special tools and workshop equipment required

♦ Pressure plate - MP3-406 (VW 401)-
♦ Pressure plate - MP3-407 (VW 402)-

- Pressure spindle - MP3-423 (VW 407)-
- Pressure spindle - MP3-408 (VW 412)-
- Assembly device - MP6-414/5 (3253/5)-
- Assembly device - T10047-
-

Work procedure

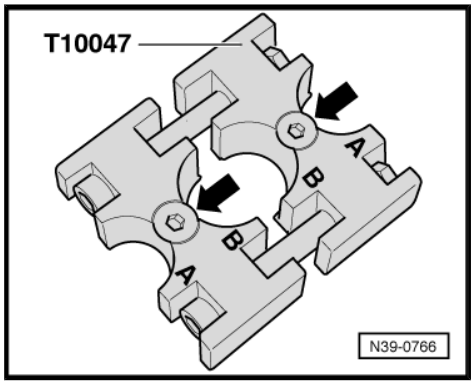
– Remove right flange shaft
⇒ “2.2 Removing and installing left flange shaft”, page 111 .

– Position the assembly device - T10047- as shown.

• Marks “B” on both parts of the device point to each other

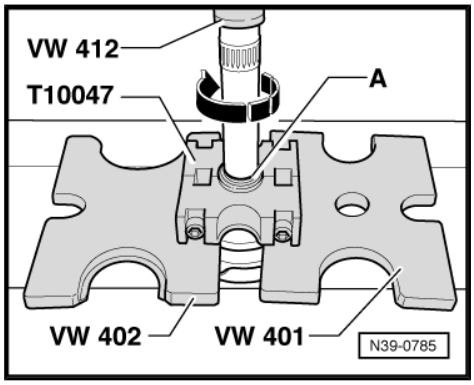
• The pegs -arrows - must be under the needle bearing.

– Screw on parts up to the stop.



– Remove detention ring -A- .

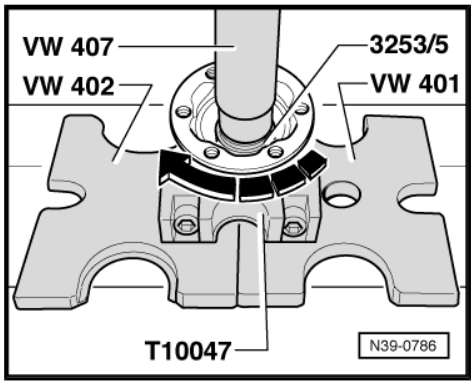
– During pushing off, the shaft must be turned -arrow- to prevent damage to the track of the needle bearing on the shaft.



– During drive-in procedure, the shaft must be turned -arrow- to prevent damage to the track of the needle bearing on the shaft.

– Secure the needle bearing with a new circlip.

– Mount the right flange shaft
⇒ “2.2 Removing and installing left flange shaft”, page 111 .



4 Oil for angle gearbox

⇒ “4.1 Checking the oil level”, page 127

⇒ “4.2 Drain and fill oil”, page 129

4.1 Checking the oil level

Special tools and workshop equipment required

- Filling device for Haldex 2 - coupling - VAS 6291 A-
- Adapter for oil filling - VAS 6291/2-
- Used oil collector and extractor - VAS 6622-
- Protective goggles
- Acid-resistant gloves

Note

- *The angle gearbox has an automatic oil filling for final drives.*
- *Notes on 6-speed automatic gearbox DSG - 0D9*
  ⇒ “2 Notes on 6-speed automatic gearbox DSG - 0D9”, page 7 .
- *Observe the general repair instructions*
  ⇒ “2.2 General repair instructions”, page 7 .

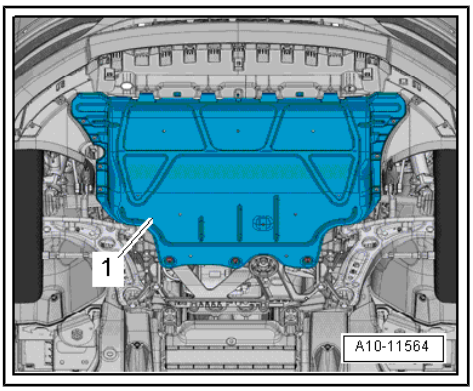
Test conditions

- Run vehicle on a four-column lift platform or over a workshop pit, so that the vehicle will be kept absolutely horizontal.
- Selector lever in “P”.
- Pull button for parking brake to activate the electromechanical parking brake.
- Engine switched off.

Oil level test sequence

– Remove the sound dampening system -1- ⇒ Body Work; Rep. gr. 66 .

– Place old oil collection and suction device - VAS 6622- underneath the gearbox.



WARNING

Risk of injury from hot oil for final drives.

- *Wear safety goggles.*
- *Wear acid-resistant gloves.*

Note

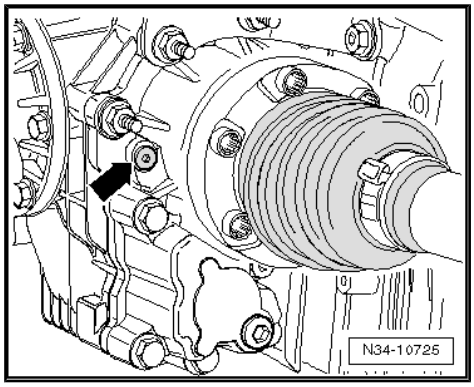
Cover area under the oil filler opening with cloth.

– Unscrew oil filler plug -arrow-.

• Specified value: Oil level in angle gearbox should be at lower edge of oil filler hole.

If oil level is low:

– Fill oil for final drive into the angle gearbox ⇒ Electronic Catalogue of Original Parts .



Top up oil

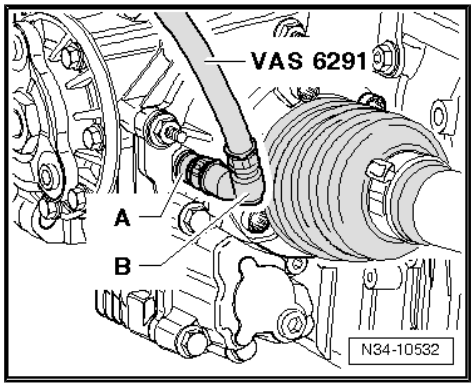
• Observe all safety measures and test conditions.

• New oil filling for final drives ⇒ Electronic Catalogue of Original Parts .

– Pull hose for filling device for Haldex 2 coupling - VAS 6291 A- behind the drive shaft on the right through the right wheelhouse towards the outside.

– Screw in adapter for oil filling - VAS 6291/2- -A- into the filler hole as far as it will go.

– Attach the angular piece -B- with the adapter for oil filling - VAS 6291/2- .



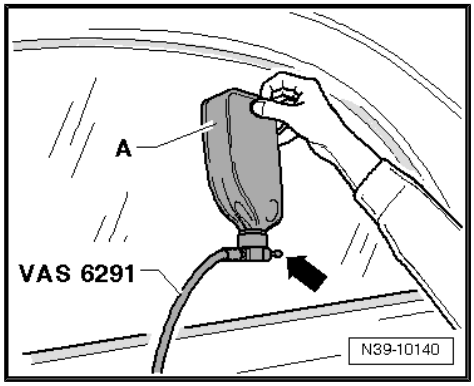
Note

The hose must not sag.

– Check that the valve -arrow- is closed.

– Screw oil reservoir -A- onto filling device for Haldex 2 couplings - VAS 6291 A- .

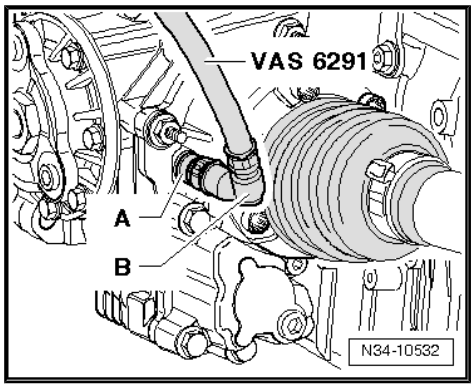
– Open valve -arrow- and hold oil reservoir at the top as shown in the figure.



• If oil for final drives exits from the adapter -A-. the oil level is fine.

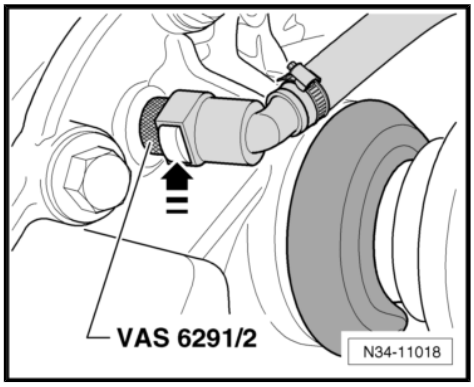
– Place down oil reservoir so that the excess oil can flow back into the oil reservoir.

When no more oil flows back:



– Press lug -arrow- and detach filling device.

– Remove adapter for oil filling - VAS 6291/2- .



Assembling together

Assembly is carried out in the reverse order. When installing, observe the following:

Note

Replace oil filler plug

– Install the noise insulation ⇒ Body Work; Rep. gr. 66 .

Tightening torques

♦ Summary of components - Angle gearbox
⇒ “3.1 Parts of angle gearbox - assembly overview”, page 116 .

4.2 Drain and fill oil

Note

♦ *Oil needs to be drained from the angle gear only for repairs. Oil changes are not considered.*

♦ *New oil filling for final drives ⇒ Electronic Catalogue of Original Parts .*

Special tools and workshop equipment required

♦ Filling device for Haldex 2 - coupling - VAS 6291 A-

♦ Adapter for oil filling - VAS 6291/2-

♦ Used oil collector and extractor - VAS 6622-

♦ Protective goggles

♦ Acid-resistant gloves

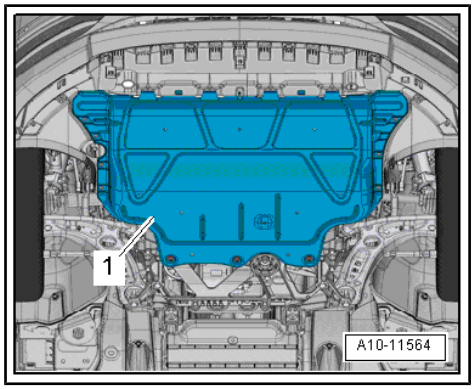
Conditions

- Run the vehicle on a four-column lift platform or over a workshop pit, so that it will be kept absolutely horizontal.
- Selector lever in “P”.
- Pull button for parking brake to activate the electromechanical parking brake.
- Engine switched off.

Drain oil

– Remove the sound dampening system -1- ⇒ Body Work; Rep. gr. 66 .

– Place old oil collection and suction device - VAS 6622- underneath the gearbox.



WARNING

Risk of injury from hot oil for final drives.

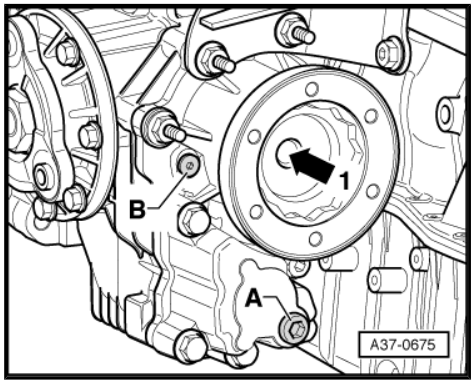
- *Wear safety goggles.*
- *Wear acid-resistant gloves.*

– Screw out oil drain plug -A-.

– Drain oil for final drives.

– Screw in new oil drain plug -A- and tighten.

– Unscrew oil filler plug -B-.



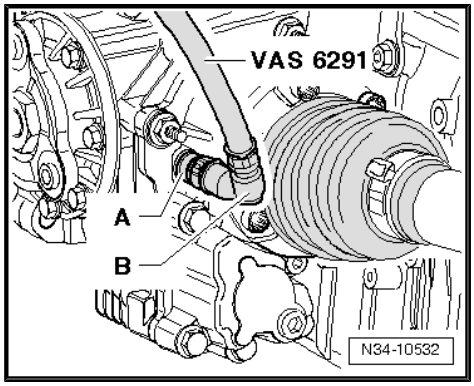
Replenish oil

- Observe all safety measures and test conditions.
- New oil filling for final drives ⇒ Electronic Catalogue of Original Parts .

– Pull hose for filling device for Haldex 2 coupling - VAS 6291 A- behind the drive shaft on the right through the right wheelhouse towards the outside.

– Screw in adapter for oil filling - VAS 6291/2- -A- into the filler hole as far as it will go.

– Attach the angular piece -B- with the adapter for oil filling - VAS 6291/2- .



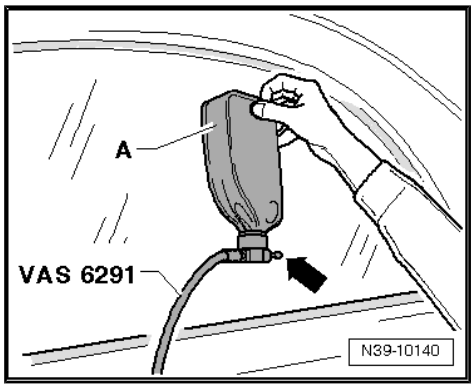
Note

The hose must not sag.

– Check that the valve -arrow- is closed.

– Screw oil reservoir -A- onto filling device for Haldex 2 couplings - VAS 6291 A- .

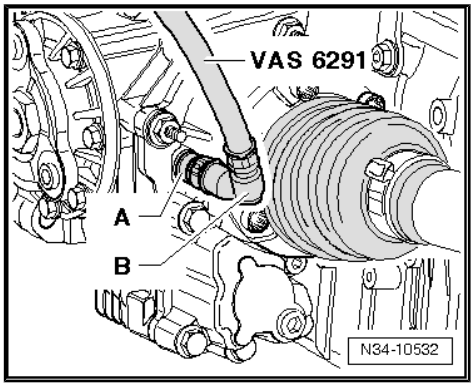
– Open valve -arrow- and hold oil reservoir at the top as shown in the figure.



- If oil for final drives exits from the adapter -A-. the oil level is fine.

– Place down oil reservoir so that the excess oil can flow back into the oil reservoir.

When no more oil flows back:



– Press lug -arrow- and detach filling device.

– Remove adapter for oil filling - VAS 6291/2- .

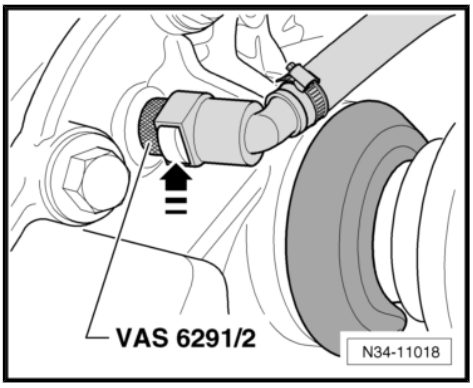
– Screw in previous gearbox oil filler plug and tighten slightly.

– Start engine, engage a gear and allow gearbox to rotate for about 2 minutes.

– Switch off engine and unscrew oil drain plug.

– Checking the oil level. As needed, replenish oil for final drives up to lower edge of oil filler hole.

- Specified value: Oil level in final drive should be at lower edge of oil filler hole.



Assembling together

Assembly is carried out in the reverse order. When installing, observe the following:

Note

Replace oil filler plug

– Install the noise insulation ⇒ Body Work; Rep. gr. 66 .

Tightening torques

♦ Summary of components - Angle gearbox
⇒ “3.1 Parts of angle gearbox - assembly overview”, page 116 .