Workshop Manual
Octavia III 2013 ➤
Octavia III 2014 ➤
Gearbox 0CW-DSG

Edition 10.2013

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Repair Group

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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

(SRL000642; Edition 10.2013)

Edition 10.2013; version 4.0

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1.1 Identification of the gearbox

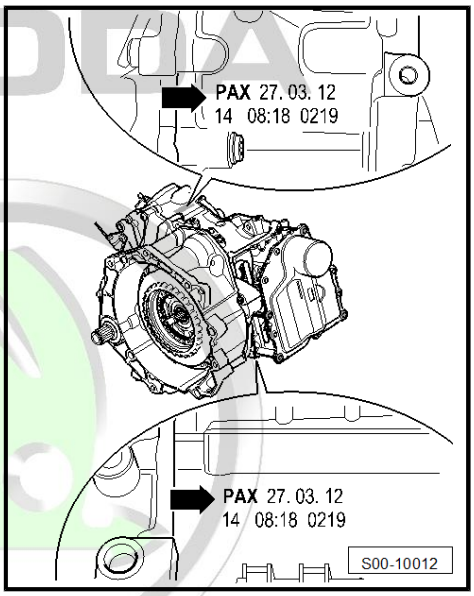
The “7-speed double clutch gearbox DSG - 0CW” is installed in combination with 4-cylinder engines.

Assignment ⇒ page 1 .

Location of identification code letters on the gearbox

Example for a gearbox:

The gearbox code letter -arrow- is located at the top and bottom of the gearbox.



- PAX = identification characters
- 27.03.12 = Production date 12th March 2012
- 14 = Factory code
- 08:18 = time
- 0219 = serial number

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

Note

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

1.2 Identification characters, aggregate assignment, ratios

Automatic gearbox DSG		0CW “Front-wheel-drive”		
Gearbox	**Identification characters**	**NNN**	**PNA**	**PLE**
	Manufactured from through	11.2012 11.2012	11.2012 05.2013	05.2013 10.2013
Assignment	Engine	1.2 ltr./77 kW TSI		
Ratio: $Z_2 : Z_1$	Final drive for 1st gear through 4th gear	71 : 16 = 4,437		
	Final drive for 5th 6th and 7th gears	71 : 22 = 3,227		
	Final drive for reverse gear	71 : 17 = 4.176		

Automatic gearbox DSG		0CW “Front-wheel-drive”		
Gearbox	**Identification characters**	**NNN**	**PNA**	**PLE**
Ratios	1st gear	64 : 17 = 3,765		
	2nd gear	50 : 22 = 2,273		
	3rd gear	49 : 32 = 1,531		
	4th gear	46 : 41 = 1,122		
	5th gear	40 : 34 = 1,176		
	6th gear	39 : 41 = 0,951		
	7th gear	35 : 44 = 0,795		
	Reverse gear	45 : 22 x 53 : 26 = 4,169		
$i_{tot.}$ in the highest gear		2.565		

Automatic gearbox DSG		0CW “Front-wheel-drive”		
Gearbox	**Identification characters**	**PWM**	**PYT**	
	Manufactured from through	11.2013 11.2013	11.2013	
Assignment	Engine	1.2 ltr./77 kW TSI		
Ratio: $Z_2 : Z_1$	Final drive for 1st gear through 4th gear	71 : 16 = 4,437		
	Final drive for 5th 6th and 7th gears	71 : 22 = 3,227		
	Final drive for reverse gear	71 : 17 = 4.176		
Ratios	1st gear	64 : 17 = 3,765		
	2nd gear	50 : 22 = 2,273		
	3rd gear	49 : 32 = 1,531		
	4th gear	46 : 41 = 1,122		
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	6th gear	39 : 41 = 0,951		
	7th gear	35 : 44 = 0,795		
	Reverse gear	45 : 22 x 53 : 26 = 4,169		
$i_{tot.}$ in the highest gear		2.565		

Automatic gearbox DSG		0CW “Front-wheel-drive”		
Gearbox	**Identification characters**	**MSP**	**PNB**	**PLF**
	Manufactured from through	11.2012 11.2012	11.2012 05.2013	05.2013 10.2013
Assignment	Engine	1.4 ltr./103 kW TSI		
Ratio: $Z_2 : Z_1$	Final drive for 1st gear through 4th gear	72 : 15 = 4,8		
	Final drive for 5th 6th and 7th gears	72 : 21 = 3,429		
	Final drive for reverse gear	72 : 16 = 4.5		

Automatic gearbox DSG		0CW “Front-wheel-drive”		
Gearbox	**Identification characters**	**MSP**	**PNB**	**PLF**
Ratios	1st gear	63 : 18 = 3,5		
	2nd gear	48 : 23 = 2,087		
	3rd gear	47 : 35 = 1,343		
	4th gear	42 : 45 = 0,933		
	5th gear	37 : 38 = 0,974		
	6th gear	35 : 45 = 0,778		
	7th gear	32 : 49 = 0,653		
	Reverse gear	42 : 23 x 53 : 26 = 3,722		
$i_{tot.}$ in the highest gear		2.239		

Automatic gearbox DSG		0CW “Front-wheel-drive”		
Gearbox	**Identification characters**	**PWN**	**PYU**	
	Manufactured from through	11.2013 11.2013	11.2013	
Assignment	Engine	1.4 ltr./103 kW TSI		
Ratio: $Z_2 : Z_1$	Final drive for 1st gear through 4th gear	72 : 15 = 4,8		
	Final drive for 5th 6th and 7th gears	72 : 21 = 3,429		
	Final drive for reverse gear	72 : 16 = 4.5		
Ratios	1st gear	63 : 18 = 3,5		
	2nd gear	48 : 23 = 2,087		
	3rd gear	47 : 35 = 1,343		
	4th gear	42 : 45 = 0,933		
	5th gear	37 : 38 = 0,974		
	6th gear	35 : 45 = 0,778		
	7th gear	32 : 49 = 0,653		
	Reverse gear	42 : 23 x 53 : 26 = 3,722		
$i_{tot.}$ in the highest gear		2.239		

Automatic gearbox DSG		0CW “Front-wheel-drive”		
Gearbox	**Identification characters**	**NAR**	**PMZ**	**PLD**
	Manufactured from through	11.2012 11.2012	11.2012 05.2013	05.2013 10.2013
Assignment	Engine	1.6 ltr./77 kW TDI CR		
Ratio: $Z_2 : Z_1$	Final drive for 1st gear through 4th gear	72 : 15 = 4,8		
	Final drive for 5th 6th and 7th gears	72 : 21 = 3,429		
	Final drive for reverse gear	72 : 16 = 4,5		

Automatic gearbox DSG		0CW “Front-wheel-drive”		
Gearbox	**Identification characters**	**NAR**	**PMZ**	**PLD**
Ratios	1st gear	63 : 18 = 3,5		
	2nd gear	48 : 23 = 2,087		
	3rd gear	47 : 35 = 1,343		
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	6th gear	35 : 45 = 0,777		
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	Reverse gear	42 : 23 x 53 : 26 = 3,722		
$i_{tot.}$ in the highest gear		2.239		

Automatic gearbox DSG		0CW “Front-wheel-drive”		
Gearbox	**Identification characters**	**PWL**	**PYS**	
	Manufactured from through	11.2013 11.2013	11.2013	
Assignment	Engine	1.6 ltr./77 kW TDI CR		
Ratio: $Z_2 : Z_1$	Final drive for 1st gear through 4th gear	72 : 15 = 4,8		
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	6th gear	35 : 45 = 0,777		
	7th gear	32 : 49 = 0,653		
	Reverse gear	42 : 23 x 53 : 26 = 3,722		
$i_{tot.}$ in the highest gear		2.239		

Automatic gearbox DSG		0CW “Front-wheel-drive”		
Gearbox	**Identification characters**	**NKE**	**PAX**	**PGP**
	Manufactured from through	11.2012 11.2012	11.2012 11.2012	11.2012 11.2012
Assignment	Engine	1.8 ltr./132 kW TFSI		
Ratio: $Z_2 : Z_1$	Final drive for 1st gear through 4th gear	71 : 16 = 4,437		
	Final drive for 5th 6th and 7th gears	71 : 22 = 3,227		
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	Reverse gear	45 : 22 x 53 : 26 = 4,169		
$i_{tot.}$ in the highest gear		2.565		

Automatic gearbox DSG		0CW “Front-wheel-drive”	
Gearbox	**Identification characters**	**PNC**	**PLG**
	Manufactured from through	11.2012 05.2013	05.2013 10.2013
Assignment	Engine	1.8 ltr./132 kW TFSI	
Ratio: $Z_2 : Z_1$	Final drive for 1st gear through 4th gear	71 : 16 = 4,437	
	Final drive for 5th 6th and 7th gears	71 : 22 = 3,227	
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	6th gear	39 : 41 = 0,951	
	7th gear	35 : 44 = 0,795	
	Reverse gear	45 : 22 x 53 : 26 = 4,169	
$i_{tot.}$ in the highest gear		2.565	

Automatic gearbox DSG		0CW “Front-wheel-drive”	
Gearbox	**Identification characters**	**PWP**	**PYV**
	Manufactured from through	11.2013 11.2013	11.2013
Assignment	Engine	1.8 ltr./132 kW TFSI	
Ratio: $Z_2 : Z_1$	Final drive for 1st gear through 4th gear	71 : 16 = 4,437	
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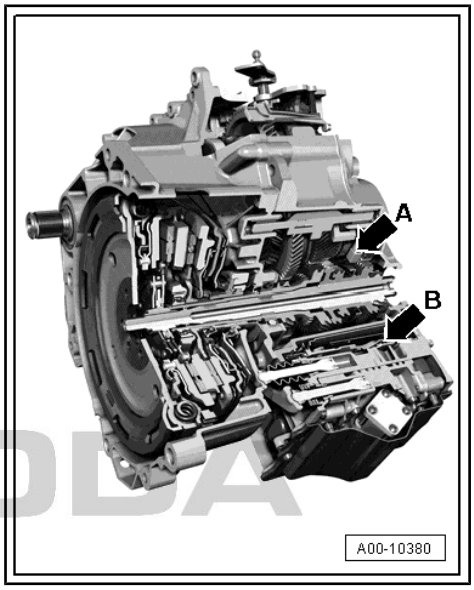
	Final drive for reverse gear	71 : 17 = 4.176	

Automatic gearbox DSG		0CW “Front-wheel-drive”	
Gearbox	**Identification characters**	**PWP**	**PYV**
Ratios	1st gear	64 : 17 = 3,765	
	2nd gear	50 : 22 = 2,273	
	3rd gear	49 : 32 = 1,531	
	4th gear	46 : 41 = 1,122	
	5th gear	40 : 34 = 1,176	
	6th gear	39 : 41 = 0,951	
	7th gear	35 : 44 = 0,795	
	Reverse gear	45 : 22 x 53 : 26 = 4,169	
$i_{tot.}$ in the highest gear		2.565	

1.3 Filling capacity

The “7-speed double clutch gearbox DSG - 0CM” has two separate, different oil fillings. One for the area with gearbox oil -arrow A- and the other one for the area with hydraulic oil -arrow B-.



Caution

Risk of damage to gearbox.

- *Only spare part gear oil should be used for the 7-speed double clutch gearbox 0CW ⇒ Electronic catalogue of original parts .*
- *Other gear oils lead to malfunctions and/or gearbox failure.*
- *The gear oil level cannot be checked. The correct gear oil level can only be reached by changing the gear oil ⇒ page 94 .*
- *The hydraulic oil level in the dual clutch gearbox mechatronics - J743- cannot be checked. The ventilation hole of the mechatronics for double clutch gearbox - J743- must be closed in an oil tight manner when undertaking installation work ⇒ page 92 . Oil that has escaped from the Double clutch gearbox mechatronics - J743- area cannot be topped up and the mechatronics must be replaced.*
- *Insufficient quantities of gearbox or hydraulic oil or overfilling of these oils impairs gearbox function and failure would be the consequence.*

Gearbox capacity	
New filling [1]	2.1 l
Change [2]	Filled for life, no change
Lubricant	Gearbox oil for double clutch gearbox 0CW part number ⇒ Electronic Catalogue of Original Parts

[1] Filling when changing depends on the type of gear oil draining during repairs ⇒ page 94 .

[2] Only in the event of gearbox repairs ⇒ page 94 .

Capacity in the mechatronics for double clutch gearbox - J743-	
Filling	1 ltr.
Top-up	Filled for life, no change
Lubricant	Hydraulic oil

- The mechatronics is allocated according to the gearbox code letters ⇒ Electronic Catalogue of Original Parts .
- The »new« mechatronics for the gearbox is already precisely filled with oil at the factory.

1.4 Transmission System - Overview

The “7-speed double clutch gearbox DSG - 0CW” has 2 drive shafts and 3 output shafts.

A1 - 1st Drive shaft

A2 - 2nd Drive shaft

B1 - 1st Output shaft

B2 - 2nd Output shaft

B3 - 3rd Output shaft

C - Front final drive

K1 - Clutch 1

K2 - Clutch 2

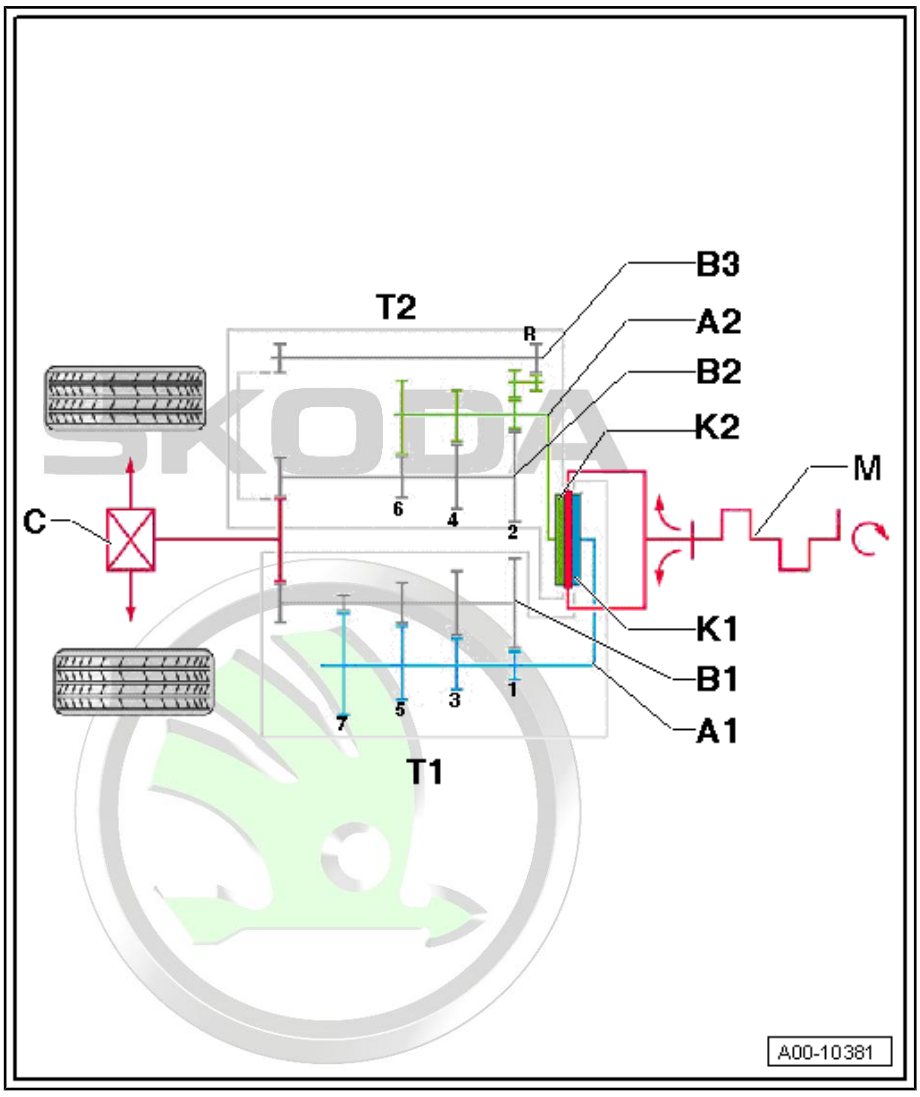
M - Engine

T1 - One part of the gearbox 1

- with 1st, 3rd, 5th and 7th gear

T2 - One part of the gearbox 2

- with 2nd, 4th, 6th gear and reverse gear R



2 Instructions for automatic gearbox DSG - 0CW

General safety instructions ⇒ page 8 .

Safety precautions when working on vehicles with start-stop system ⇒ page 9 .

Safety precautions during road tests with testing and measuring equipment ⇒ page 9 .

Safety measures for working on the mechatronics for double clutch gearbox - J743- ⇒ page 9 .

Notes on tow starting and towing ⇒ page 10 .

General repair information ⇒ page 11 .

Working with testing devices ⇒ page 14 .

Explanation of the terms used in this workshop manual ⇒ page 15 .

Note

- *The “7-speed double clutch gearbox DSG - 0CW” is only mounted with outlet flange shafts. The grooved output shafts shown in certain illustrations must be ignored.*
- *The automatic gearbox DSG - 0CW is also designated as double clutch gearbox. The gearbox is built like a 7-speed manual gearbox.*
- *Information about the assembly and function of the gearbox can be found in the information about the similar 7-speed automatic gearbox ⇒ Self-study programme No. 75 ; 7-speed dual clutch gearbox 0AM and ⇒ Self-study programme No. 94 ; diagnostics if automatic gearboxes 0AM and 02E .*

2.1 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 working on the engine when the engine is running, push the selector lever in position “P” and apply handbrake.***

Observe the following points to prevent injury to persons and/or damage to the 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 when the ignition is switched off ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .*

2.2 Safety measures for working on vehicles with start/stop system

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

WARNING

On vehicles with start-stop system, there is the risk of injury from automatic engine start.

- *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 therefore necessary to ensure that the start-stop system is deactivated when carrying out work on the vehicle (ignition switched off, switch ignition on again if necessary).*

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

Note the following if testers and measuring instruments are used during road tests:

WARNING

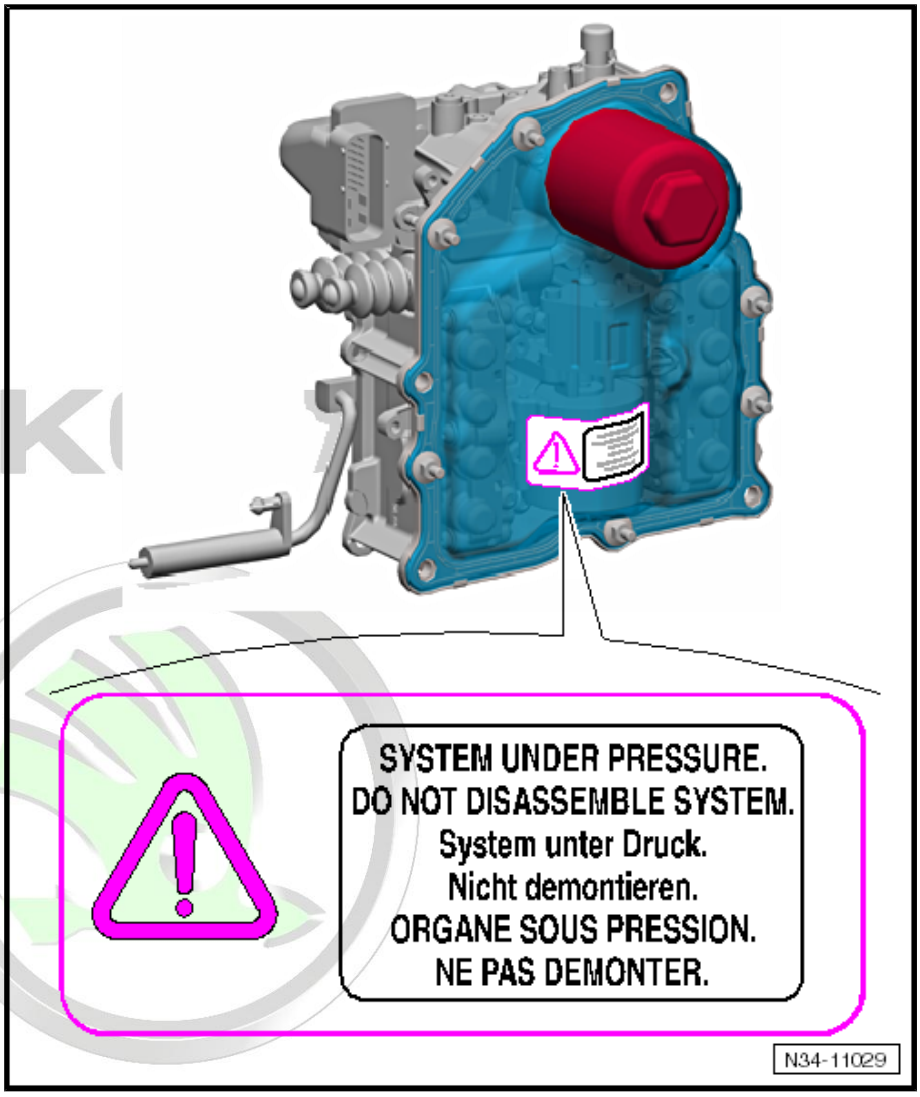
There is a risk of accident from deflection and insufficient securing of testers and measuring instruments.

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

- *Using testers and measuring instruments during driving operation creates a risk of deflection.*
- *There is an increased risk of injury from unsecured testers and measuring instruments.*

Always secure the test and measuring devices on the rear seat and have a second person operate them there.

2.4 Safety measures for working on the mechatronics for double clutch gearbox - J743-



WARNING

System is under pressure!

Note

The maximum pressure in the pressure tank is set to 60 bar using the Software. Once this pressure has been reached, the pump switches off. If changing gear causes the pressure to drop to 42 bar, the pump switches on again. The pressure can rise to approximately 75 bar in the event of a software defect. In this case, the pressure limiting valve opens automatically.

2.5 Notes on tow starting and towing

Caution

When the vehicle is being towed the selector lever must be in position "N", it must not be towed for more than 50 km or at a speed of more 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.

2.6 General repair instructions

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 7-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.

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.

A number of generally valid notes for individual repair operations - which are otherwise listed several times at numerous points in the workshop manual - are summarised here. They apply for this particular workshop manual.

Special tools

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

Summary of components of gearbox

1 - Ventilation cap of the gearbox

2 - Cover for parking lock - after this has been removed, the gearbox can be topped up with oil directly without using the vent ⇒ page 97

3 - Gearshift lever

4 - Ventilation cap of the mechatronics for double clutch gearbox - J743-

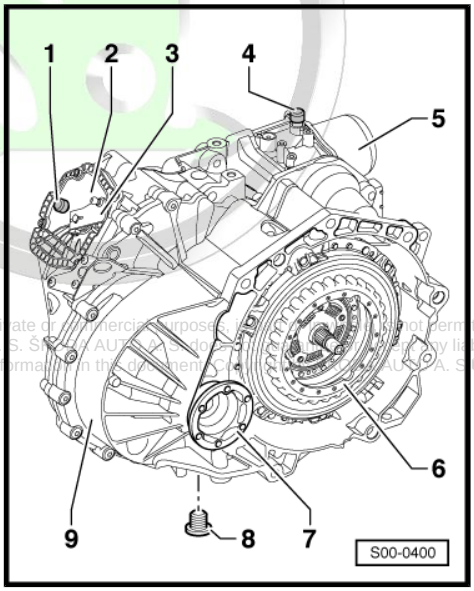
5 - Mechatronics for double clutch gearbox - J743-

6 - Double clutch

7 - Flange shaft

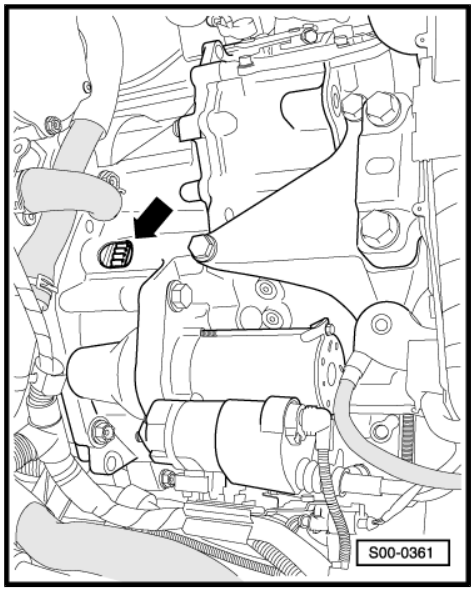
8 - Oil drain plug, 30 Nm

9 - Automatic Gearbox DSG - 0CW



Gearbox

The gearbox has an opening in the housing -arrow-.



Note

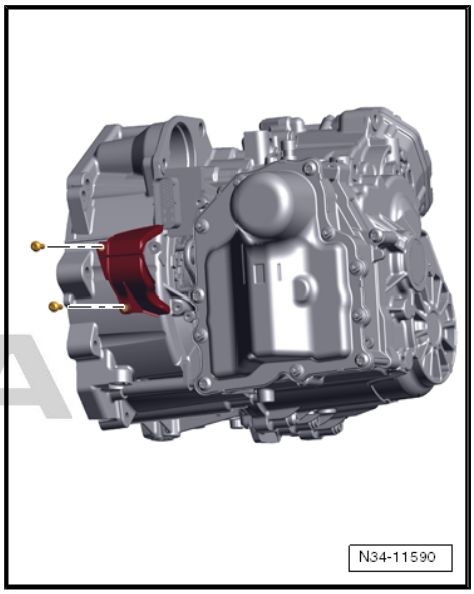
- *This opening is closed with a cap.*
- *When installing pay attention that nothing falls into this opening.*

- If the cover for the parking lock is unscrewed from the gearbox or the gearbox is without oil, do not let the engine run and do not tow the vehicle.
- Permanently ensure that no dirt can get into the »opened« gearbox.
- 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.

Cover above the engagement lever

The cover protects against contamination.

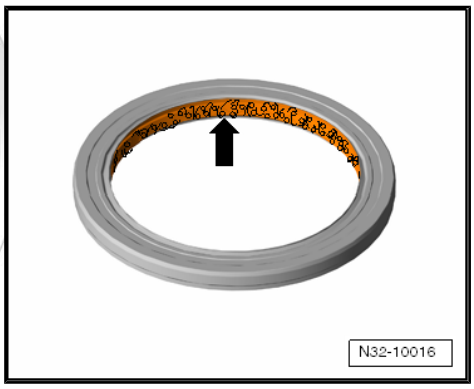
Tightening torque securing bolts: 8 Nm



Mechatronics

- The mechatronics is allocated according to the gearbox code letters ⇒ Electronic Catalogue of Original Parts .
- The »new« mechatronics for the gearbox is already precisely filled with oil at the factory, do not drain the oil.
- The »removed« mechatronics for the gearbox is sent back with oil (close the ventilation opening with a suitable plug).
- During assembly work, remove the cover of the ventilation for the mechatronics and close the opening with a suitable screw plug. In case of oil leakage from the mechatronics , the mechatronics must be replaced ⇒ Electronic Catalogue of Original Parts .

Gaskets, gasket rings, O-rings

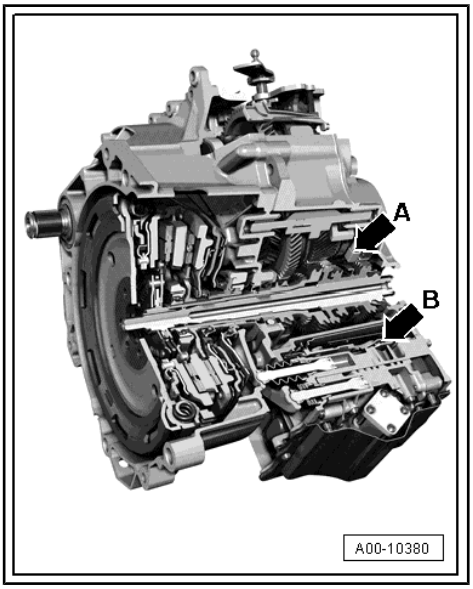


- Always replace O-rings, gasket rings and gaskets ⇒ Electronic Catalogue of Original Parts .
- After removing all seals, inspect the contact faces on housings and shafts for burrs and damage and remove all which are found.
- Before the radial shaft sealing ring is installed, half-coat the sealing lips and the space between them with sealing grease - G 052 128 A1- .
- Assemble sealing rings with the open side toward the oil.
- Before inserting the O-rings coat with gear oil to prevent the rings being damaged during installation.
- Change oil in the gearbox after installation ⇒ page 94 .

Gear oil

The “7-speed double clutch gearbox DSG - 0CM” has two separate, different oil fillings. One for the area with gearbox oil -arrow A- and the other one for the area with hydraulic oil -arrow B-.

The oil level cannot be checked. The correct gear oil level can only be achieved by changing the gear oil, for example if the gearbox leaks ⇒ page 94 .



Caution

Be careful when handling oil. Dispose of drained oil appropriately.

- For filling, only use gear oil for “7-speed dual clutch gearbox DSG - 0CW” ⇒ Electronic Catalogue of Original Parts .
- 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.

Locking elements

- Do not over-extend the circlips, if necessary replace.
- Circlips must be positioned in the base of the groove.

Nuts and bolts

- Slacken and tighten screws or fixing nuts of 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 old locking agent residues. Otherwise there is a risk that the bolts will shear at the next disassembling.
- Always replace the self-locking screws and nuts.

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.

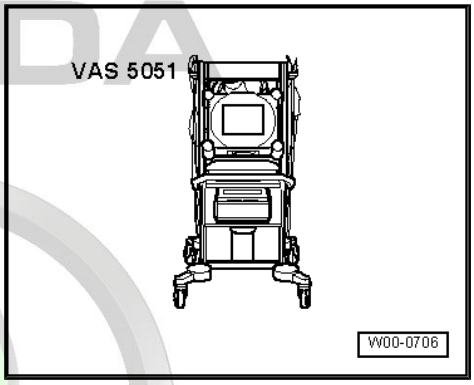
– Touch a conductive object, e.g. a metal water pipe or a lift platform, before working on electric components.

– Please do not touch the plug contacts.

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 parts: Remove spare parts from their wrapping immediately before fitting.
- Always replace the paper gaskets. Completely remove old gaskets 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 seal opened or removed components if the repair is not carried out immediately.

2.7 Working with testing devices

- Vehicle Diagnosis, Measurement and Information System - VAS-

Work in the operating modes `targeted functions` and `targeted fault finding`.

2.7.1 Adapt information regarding lining

The mechatronics detects the other control units in the vehicle via the signals in the CAN databus. If the button `adapt information regarding lining` is pressed, the mechatronics receives a command to forget all systems with which it can communicate.

However, after switching on the ignition all »active systems« with which it can communicate are detected.

No faults can be »generated« with this function. The function `adapt information regarding lining` is always carried out after the following operations:

- After installing the mechatronics.
- After the gearbox has been fitted.
- After installing the selector lever.
- After installing another control unit, for example the engine control unit, the ABS control unit or the diagnostic interface for data bus (Gateway).
- After working on the steering column gearshift.

2.7.2 Perform basic setting

The mechatronics memorises important settings in the function `COMPLETE BASIC SETTING`. The important settings are also memorised, e.g reset to preprogrammed points. For example among others, the synchronisation points and the »vertices« for the engaging lever and the gear actuator.

– Button `COMPLETE BASIC SETTING` only functions:

- after interrogating with “Targeted fault finding”,
- after rectifying the fault stored in the fault memory,
- or after dual clutch gearbox installation.

2.8 Explanation of the terms used in this workshop manual

The following explanations are only related to the automatic gearbox DSG - 0CW. They do not claim to be valid in all cases.

CAN databus

Data transfer. Before transmission, electrical signals are put into certain forms (BUS). More detailed information about this can be found in the ⇒ Self-study programme No. 24 ; CAN databus .

DSG

Automatic gearbox DSG. More detailed information about this can be found in the information about the similar 7-speed automatic gearbox ⇒ Self-study programme No. 75 ; 7-speed dual clutch gearbox 0AM and ⇒ Self-study programme No. 94 ; diagnostics if automatic gearboxes 0AM and 02E .

Self-diagnosis

The capability of the control unit to:

- Detect faults.
- React to faults.
- Store faults.
- Determine measured values and display them in the measured value block.

Gearbox input r.p.m. sender - G182-

The sender determines the speed at the clutch and sends it to the mechatronics.

Gearbox

The automatic gearbox DSG - 0CW is also designated as double clutch gearbox. The engine torque is initiated in the gearbox via the two-mass flywheel. The flywheel and the double clutch are interconnected via a serration. The gearbox is built like a 7-speed double clutch gearbox 0CW. Due to the alternative hydraulic activation of the two dry clutches, it is operated like an automatic gearbox, i.e. the gears are automatically or manually engaged via the Tiptronic mode. A clutch pedal is not present.

Gear oil

The gearbox has separate oil filling; a for the mechatronics and a separate one for the manual gearbox. Oils are designed to be filled for life.

Selector lever lock solenoid - N110-

The selector lever lock solenoid is integrated into the shift mechanism. Prevents the (unintentional) tipping of the selector lever from the positions “P” and “N” for not-operated brake.

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.

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 are transmitted via a separate control unit in the shift mechanism via the CAN databus to the mechatronics. The shifting 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

Another one exists to the right of the normal selector lever gate. In this selector lever gate, the selector lever can be tipped towards the Plus sign (+) to change up the gears manually and vice versa towards the Minus sign (-) to change down the gears manually.

30 – Clutch

1 Removing and installing the double clutch

Double clutch - Summary of components ⇒ page 18 .

Remove double clutch ⇒ page 19 .

Setting engaging bearing positions for clutches “K 1 and K 2” ⇒ page 23 .

Install double clutch ⇒ page 34 .

Replace shaft seals for inner and outer drive shafts ⇒ page 40 .

Transport the gearbox and secure it to the assembly stand ⇒ page 92 .

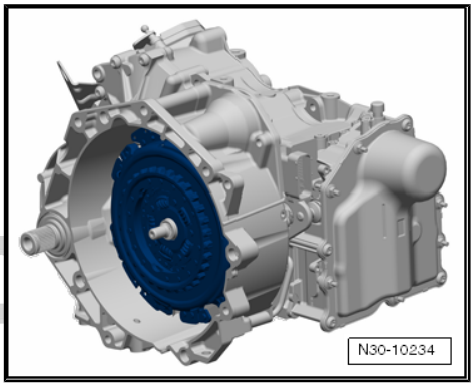
Short description

Detach the clutch »upwards« when the gearbox is removed. The mechatronics remains on the gearbox.

If a new clutch is installed, the positions of the engaging bearings for “K 1” and “K 2” must be determined and adjusted. Then the clutch is pressed onto the drive shaft.

When installing a clutch, »most« of the mechanics press the clutch onto the drive shaft up to the stop. This is not the optimum position of the clutch!

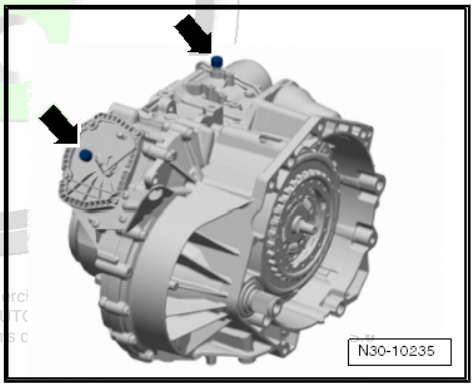
After the installation, the clutch is therefore slightly pulled »upwards« against the circlip.



Note

The clutch is self-adjusting. Vibrations can have a negative effect on the adjusting device of the clutch. Do not let the clutch fall. Do not let the clutch fall into the gearbox when installing it. Even when the mechatronics is removed, the »sudden removal« of the assembly lever - T10407- below the engaging levers can have a negative effect on the adjusting device.

Both vent caps -arrows- must be removed during fitting work on the gearbox and the openings must be sealed using suitable screw plugs to make them oil-tight. In case of oil leakage from the mechatronics, the mechatronics must be replaced ⇒ Electronic Catalogue of Original Parts . The »new« mechatronics for the gearbox is already precisely filled with oil at the factory. No filling other than the factory filling is possible.



Note

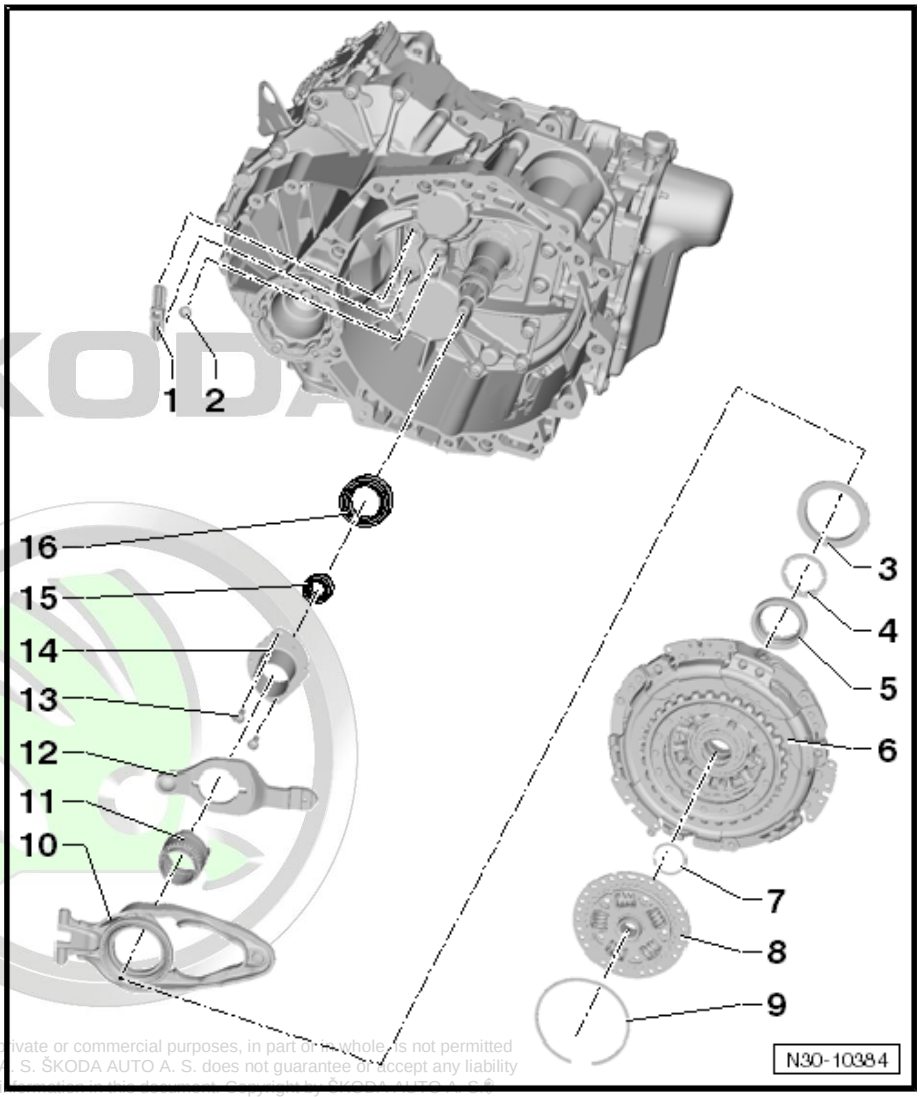
- *The »new« mechatronics for the gearbox is already precisely filled with oil at the factory.*
- *The »removed« mechatronics is sent back with oil (close the ventilation opening with a suitable plug).*
- *Pay attention to the ventilation when handling the mechatronics .*

1.1 Double clutch - Summary of components

Caution

Risk of damage to the adjusting device of the clutch.

- *The clutch is self-adjusting. Vibrations can impair the adjusting device of the clutch. Do not let the clutch fall. The clutch should not fall into the gearbox when installing it.*
- *A clutch that has been dropped on a hard surface, or which is otherwise damaged, must no longer be installed.*



1 - Hinge bearing

- ❑ large engaging lever for “K1”
- ❑ is not replaced

2 - Ball pin

- ❑ small engaging lever for “K1”
- ❑ removing ⇒ page 19
- ❑ installing ⇒ page 34
- ❑ when replacing the dual clutch ⇒ Electronic Catalogue of Original Parts

3 - Adjusting washer “SK1”

- ❑ Determine thickness ⇒ page 23

4 - Adjusting washer “SK2”

- ❑ Determine thickness ⇒ page 23

5 - Small engaging bearing for “K2”

- ❑ when replacing the dual clutch ⇒ Electronic Catalogue of Original Parts

6 - Double clutch

- ❑ removing ⇒ page 19
- ❑ installing ⇒ page 34

7 - Circlip

- ❑ replace ⇒ Electronic Catalogue of Original Parts

8 - Hub

9 - Circlip

- ❑ replace ⇒ Electronic Catalogue of Original Parts

10 - Large engaging lever for “K1”

- ❑ with engaging bearing
- ❑ removing ⇒ page 19
- ❑ installing ⇒ page 34

- ❑ when replacing the dual clutch ⇒ Electronic Catalogue of Original Parts

11 - Guide bushing-top part

- ❑ small engaging lever for “K2”
- ❑ remove and install together with the small engaging lever Pos. 12 and guide bushing bottom part Pos. 14

12 - Small engaging lever for “K2”

- ❑ is removed and installed together with the top and bottom part of the guide bushing Pos. 11 and 14
- ❑ removing ⇒ page 19
- ❑ installing ⇒ page 34
- ❑ when replacing the dual clutch ⇒ Electronic Catalogue of Original Parts

13 - 8 Nm + torque a further 90° ($^1/_4$ turn)

- ❑ replace ⇒ Electronic Catalogue of Original Parts

14 - Guide bushing-bottom part

- ❑ small engaging lever for “K2”
- ❑ remove and install together with the small engaging lever Pos. 12 and guide bushing top part Pos. 11

15 - Sealing ring

- ❑ for inner drive shaft
- ❑ Renew. ⇒ page 41 .

16 - Sealing ring

- ❑ for outer drive shaft
- ❑ Renew. ⇒ page 40 .

1.2 Remove double clutch

Special tools and workshop equipment required

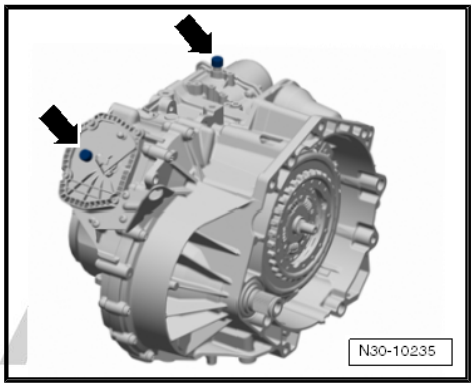
- ♦ Assembly stand - MP9-101-
- ♦ Hook - 3438-
- ♦ Supporting bridge - T10323-
- ♦ Thrust piece - T10368-
- ♦ Extractor - T10373-
- ♦ Thrust piece - T10376-
- ♦ Gearbox mount - T30108-
- ♦ Gearbox mount - T30109 (VW 353)-

Conditions

- Gearbox removed
- The mechatronics for double clutch gearbox - J743- is installed on the gearbox

Both vent caps -arrows- must be removed during fitting work on the gearbox and the openings must be sealed using suitable screw plugs to make them oil-tight. In case of oil leakage from the mechatronics, the mechatronics must be replaced ⇒ Electronic Catalogue of Original Parts . The »new« mechatronics for the gearbox is already precisely filled with oil at the factory. No filling other than the factory filling is possible.

– Detach both ventilation caps -arrows- and close in an oil-tight manner with suitable screw plugs.



WARNING

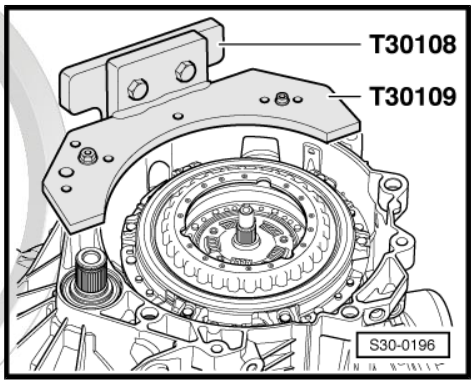
The vent cap on the mechatronics is destroyed during removal and must be replaced ⇒ Electronic Catalogue of Original Parts .

The oil filling in the area with the hydraulic oil for mechatronics can not be checked. Before assembly work, the ventilation of the mechatronics must be sealed oil-tight.

The oil escaping from the area with hydraulic oil for mechatronics cannot be refilled nor checked. In the event of an oil loss, the mechatronics must be replaced!

The gearbox must be installed on the gearbox holder - T30109 (VW 353)- with the clutch pointing upwards.

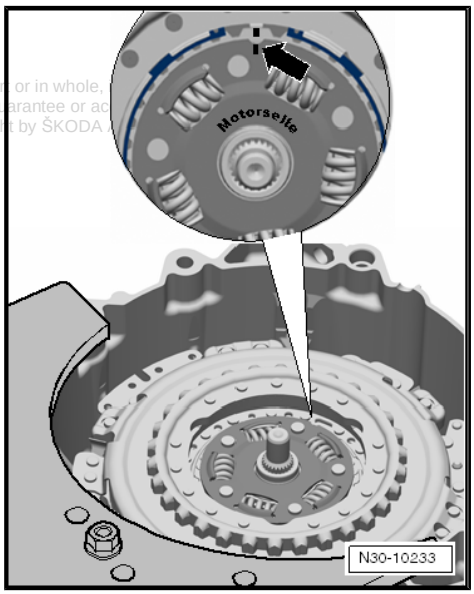
The way in which the gearbox is transported and attached to the assembly stand can be seen here ⇒ page 92 .



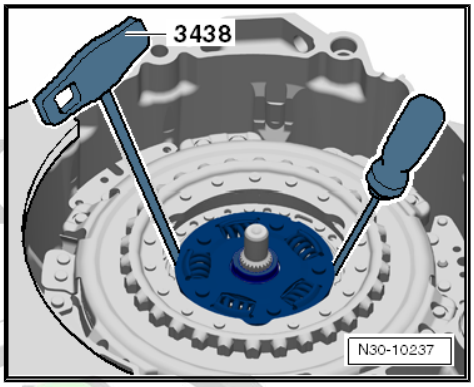
Note

The clutch must be removed from the top. The mechatronics remains in the gearbox.

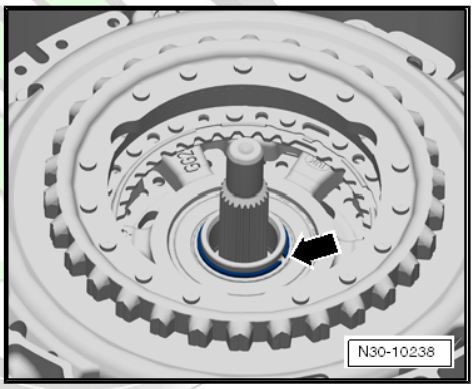
– Remove the circlip of the hub -arrow-.



– Use the hook - 3438- and a screwdriver to remove the hub.



– Remove the circlip for the clutch -arrow-.



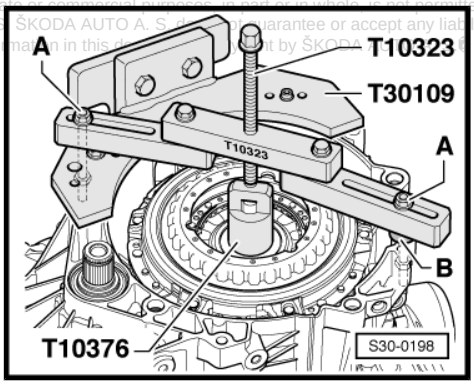
Note

- *It is possible that the clutch is resting at the circlip so close that the circlip »fits very tightly«. In this case it is possible to press the clutch slightly downwards as described in the following work procedure. In doing so, the circlip is released. Do not knock on the clutch or the shaft with a hammer!*
- *Always replace circlip -arrow- ⇒ Electronic Catalogue of Original Parts .*

Clutch circlip -arrow- cannot be removed

Note

In the following description the clutch is pressed slightly downwards in the event that the circlip cannot be removed.



– Position the supporting bridge - T10323- parallel to the flange of the clutch housing.
– Equalise distances, e.g using washers -B- with a total thickness of 15 mm.
– Secure supporting bridge - T10323- with bolts -A- and nuts.

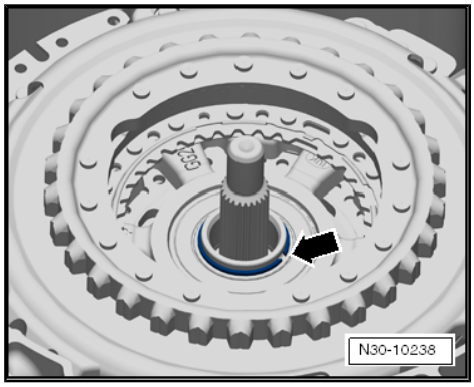
Caution

Risk of damage to the clutch as well as to other components!

Press the clutch downwards with light force without pressing it.

– Carefully press the clutch downwards via the spindle.
– Remove supporting bridge - T10323- .

– Remove the circlip for the clutch -arrow-.

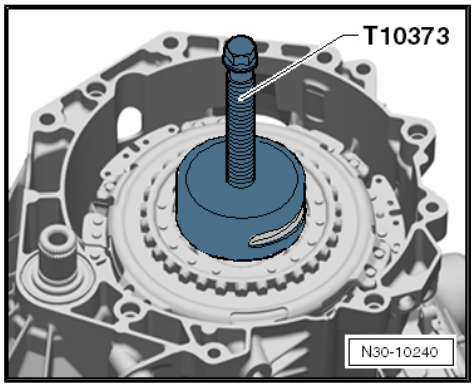


WARNING

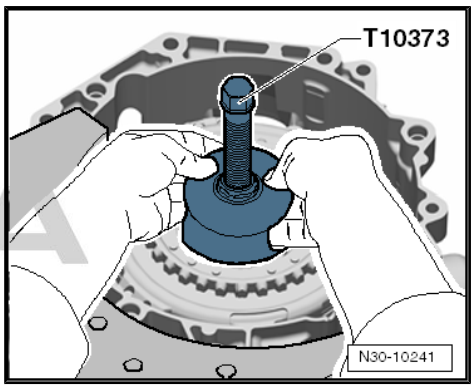
The circlip may not be reused.

Continuation after removal of clutch circlip

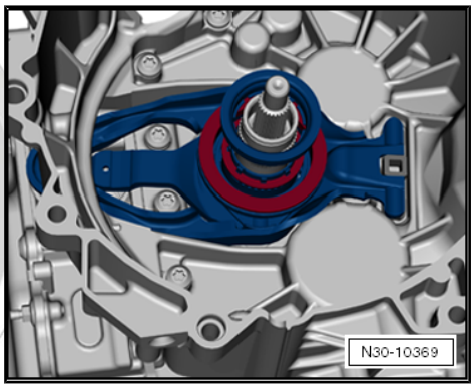
– Insert the extractor - T10373- in the clutch and remove the clutch.



– Remove the clutch together with the extractor - T10373- .



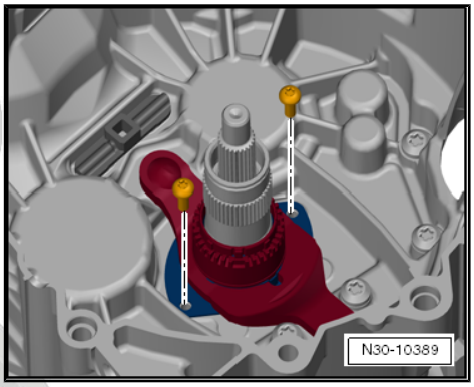
– Remove the small engaging bearing.
– Remove the large engaging lever.



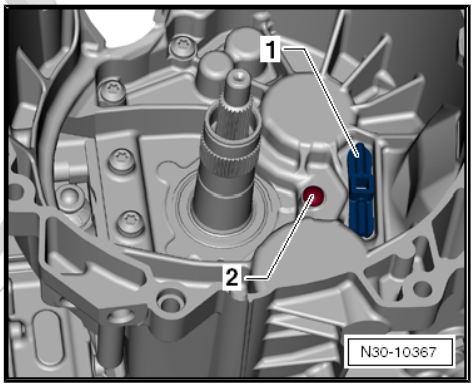
Note

Guide bushing top part cannot be removed or installed individually. It is always removed and installed together with the guide bushing bottom part and small engaging bearing.

– Remove screws and remove the small engaging lever.



– If no parts are replaced, the ball stud -2- remains installed.



WARNING

The hinge bearing -1- cannot be removed.

Before installing the clutch, check if it must be adjusted or not ⇒ page 23 .

Install double clutch ⇒ page 34 .

1.3 Setting engaging bearing positions for clutches “K 1 and K 2”

Special tools and workshop equipment required

- Gauge block - T10466-
- Straightedge - T40100-
- Digital depth gauge

WARNING

When replacing the dual clutch, the following parts must always be replaced too:

- *both engaging levers with engaging bearings,*
- *Ball stud of the engaging lever for clutch “K2”,*
- *Shims for engaging bearing.*

After replacing the dual clutch and the corresponding parts, the position of the engaging bearings for clutches “K1” and “K2” will always require re-adjusting.

Note

- *If all the mentioned parts are only removed and reinstalled, there is nothing to adjust.*
- *The circlip must be replaced under all circumstances.*

Conditions

- Only use proper tools.

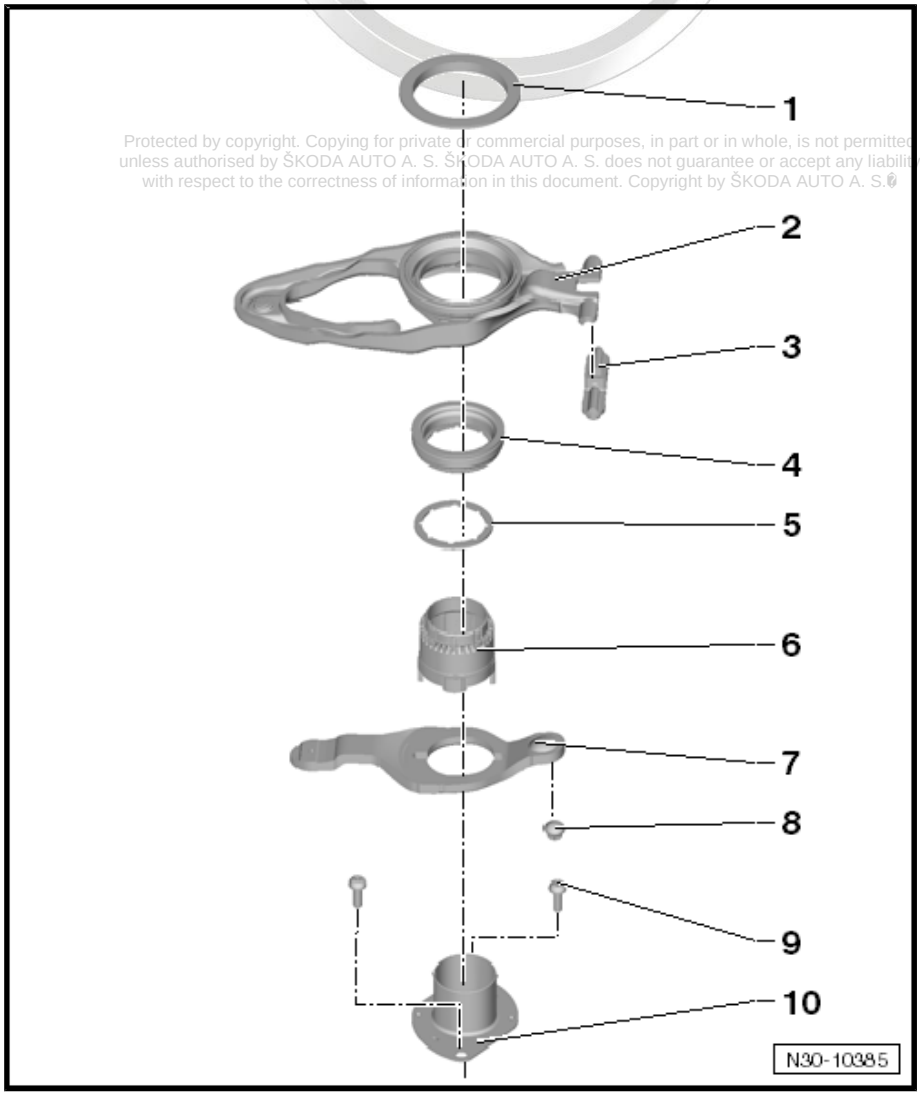
- The flange of the clutch housing must be free of »irregularities«. This ensures a good position of the straightedge.
- The mechatronics is installed.

Short description

The position of the engaging bearing is comparable with the clutch play of a mechanical manual gearbox. In the automatic gearbox DSG there are tolerances in the engaging system and in the gearbox itself. There are also tolerances in the dual clutch gearbox. These tolerances must be considered separately when adjusting.

In the following procedure is first shown how to establish all the necessary dimensions on the »gearbox side« in order to determine the suitable adjusting washer. The tolerances on the gearbox side and the tolerances in the clutch determine the thickness of the adjusting washer.

Overview of clutch control:



1 - Adjusting washer for “K1”

- ❑ Determine thickness ⇒ page 23

2 - Large engaging lever for “K1”

- ❑ together with large engaging bearing
- ❑ replace when replacing the dual clutch gearbox

3 - Hinge bearing

- ❑ for large engaging lever Pos. 2
- ❑ is not replaced

4 - Small engaging bearing for “K2”

- ❑ replace when replacing the dual clutch gearbox

5 - Adjusting washer for “K2”

- ❑ Determine thickness ⇒ page 23

6 - Guide bushing-top part

- ❑ for small engaging lever Pos. 7
- ❑ is removed and installed together with the guide bushing-bottom part Pos. 10

7 - Small engaging lever for “K2”

- ❑ removed and installed with guide bushing upper and lower part, Pos. 6 and Pos. 10
- ❑ replace when replacing the dual clutch gearbox

8 - Ball pin

- ❑ for small engaging lever Pos. 7
- ❑ replace when replacing the dual clutch gearbox

9 - 8 Nm + torque a further 90° (1/4 turn)

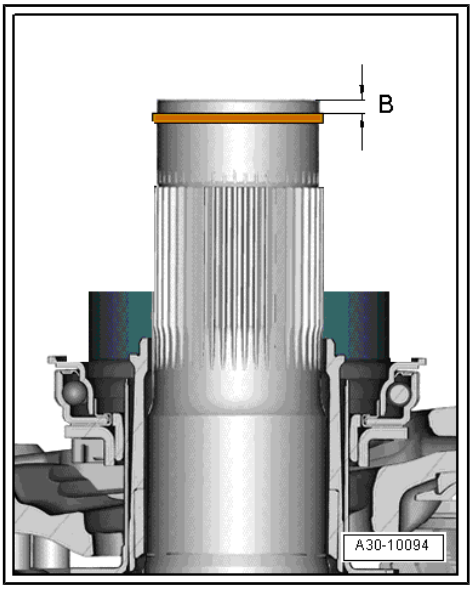
- ❑ replace ⇒ Electronic Catalogue of Original Parts

10 - Guide bushing-bottom part

- ❑ for small engaging lever Pos. 7
- ❑ is removed and installed together with the guide bushing-top part Pos. 6

Adjust the position of the engaging bearings for clutch “K 1 and K 2”

First the dimension “B” must be determined. This dimension is required for both clutches »K 1« and »K 2«.



Note

Perform the following work steps accurately and »in sequence«.

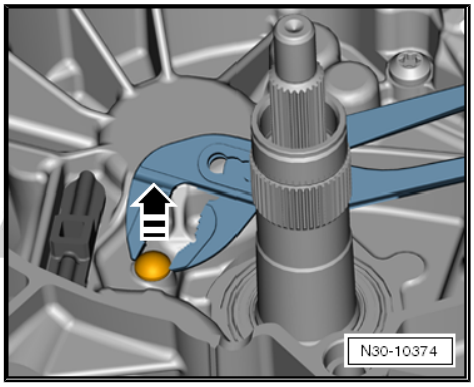
Setting

Caution

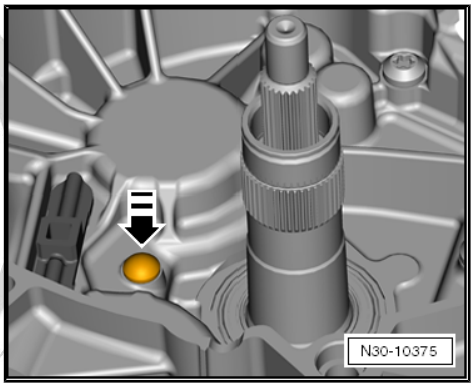
Risk of damage to the clutch as well as to other components.

Bearing of the engaging lever and the entire engaging bearing mechatronics must be dry and free of oil and grease.

– Remove the fitted ball studs with the pliers.



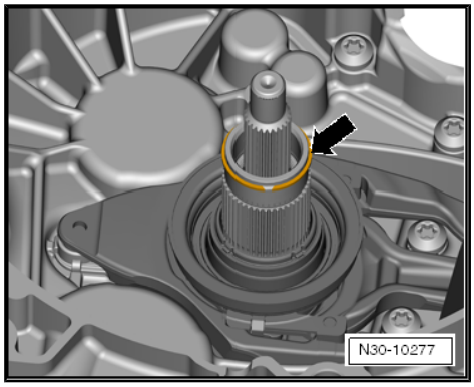
– Install a new ball stud.



Note

Press in the ball stud by hand, if necessary slightly drive in with a plastic hammer (in order not to damage the ball stud).

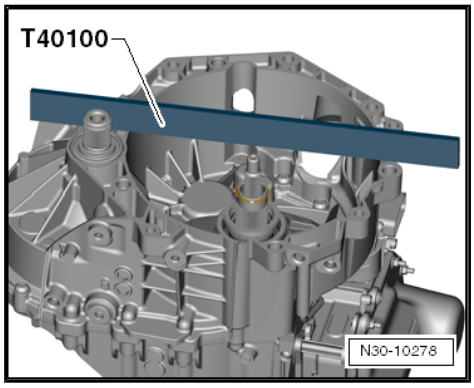
– Install the old circlip of the outer drive shaft -arrow-.



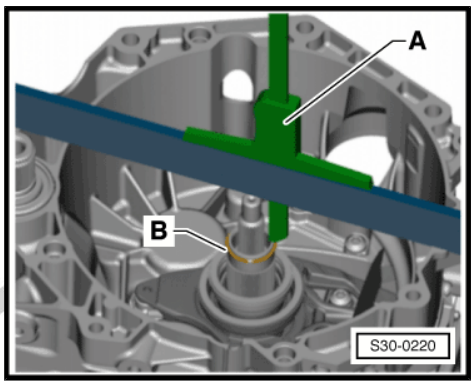
– Place the ruler - T40100- upright on the flange of the clutch housing.

Note

The measuring ruler - T40100- must remain in this position during the following measurements. Do not turn or remove it.

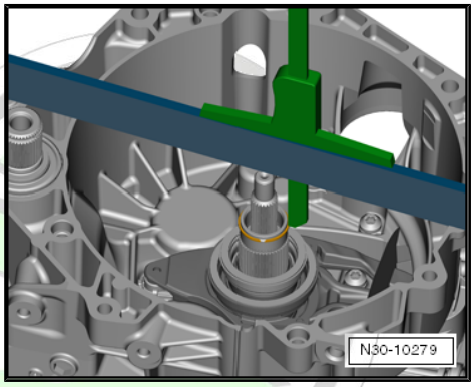


– Place the digital depth gauge -A- on the outer drive shaft -B-.
– Set the depth gauge to »0«.



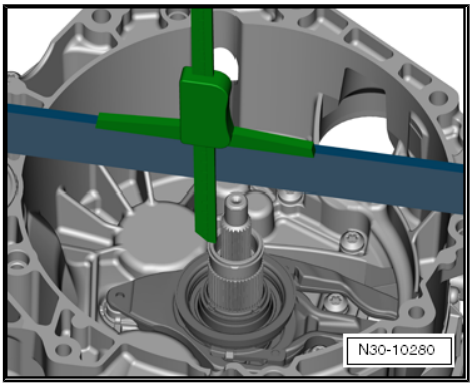
– Measure the distance to the circlip.
– Note the result and name it “B1”.

Example: Dimension “B1” = 2.62 mm



– Measure the dimension “B” once more at the opposite-facing point.
– Note the result and name it “B2”.

Example: Dimension “B2” = 2.58 mm



Note

Do not measure on the joint of the ring. The ring could be pressed off from the joint and thus the measuring result will be inaccurate.

– Determine the mean value from both measurement results.

Example

Dimension “B” = B1+B22 = 2.62+2.582 = 2.60 mm

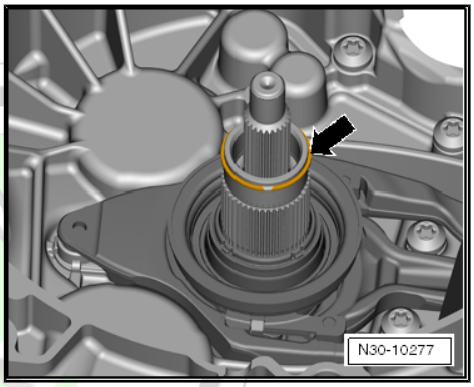
This dimension “B” is required for the following calculations.

In the following example calculations “B” should be = 2.60 mm. The dimension “B” is for this example, there can be another value “B” for a different gearbox.

As there are 2 clutches, 2 steps are performed for the adjustment.

Each measurement requires different preparatory measures, including a few calculations. Please observe the following work procedures.

– Remove the circlip -arrow- again.



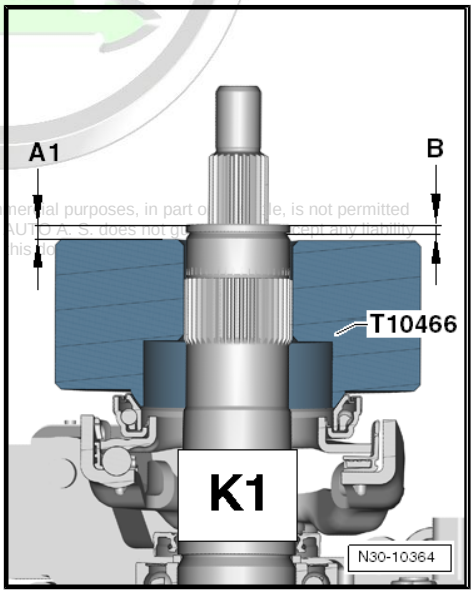
Note

This ring must not be reinstalled!

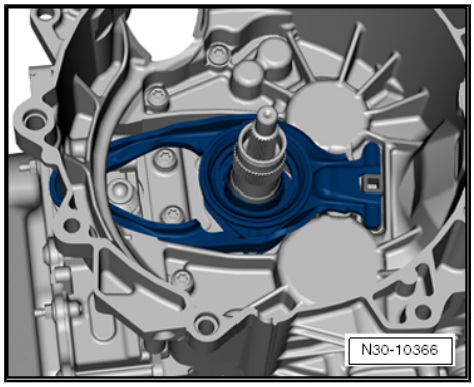
Determine the dimension “A1” of the adjusting washer for the large engaging bearing of clutch “K1”.

WARNING

Do not insert an adjusting washer!

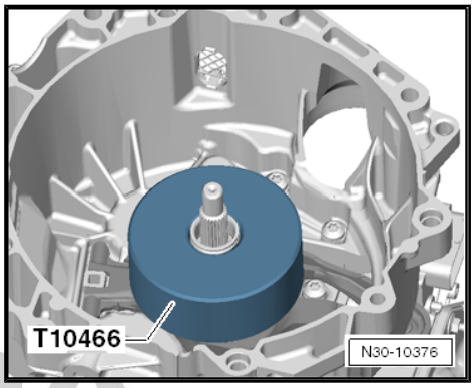


– Insert the large engaging lever.



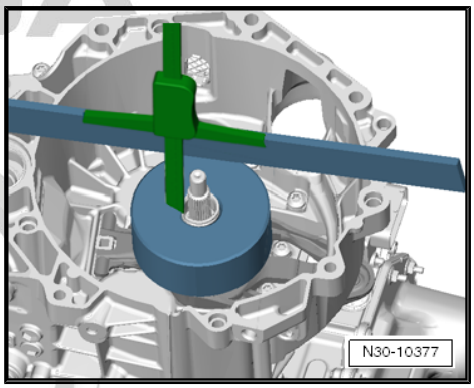
– Position the gauge block - T10466- on the »large« engaging bearing.
– Press on the gauge block - T10466- once and turn it at the same time.

In this way one can observe how the engaging bearing turns. Thus, the gauge block - T10466- is also »positioned« correctly on the bearing.

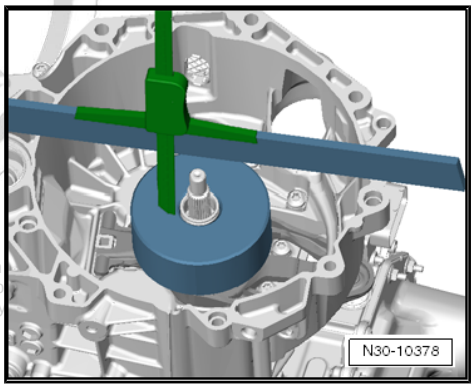


– Place digital depth gauge » top« on the outer drive shaft and set it to “0”.

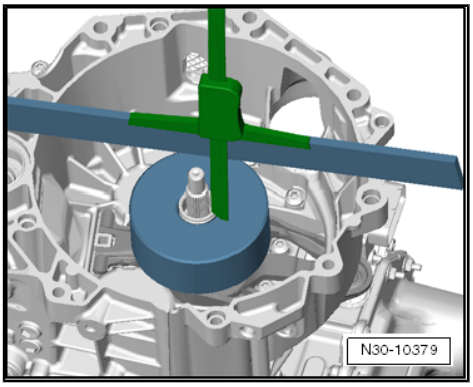
The ruler - T40100- is already positioned »upright« on the flange of the clutch housing ⇒ page 26 .



– Measure the distance from the »shaft end« to the gauge block - T10466- .



– Position the digital depth gauge twice at opposite-facing points for a precise measurement.



In this way, an even more precise value is determined as the inaccuracy resulting from the »wobbling« on the engaging bearing is thus minimised.

– Calculate the mean value “A1” of both measurements to the gauge block - T10466- .
– Note this value and name it “A1”.

Example

Dimension “A1” = 4.93+4.912 = 4.92 mm

Result: “A1” = 4.92 mm

The following calculation:

“A1” minus “B” = depth of the engaging bearing for clutch “K1”.

Example calculation

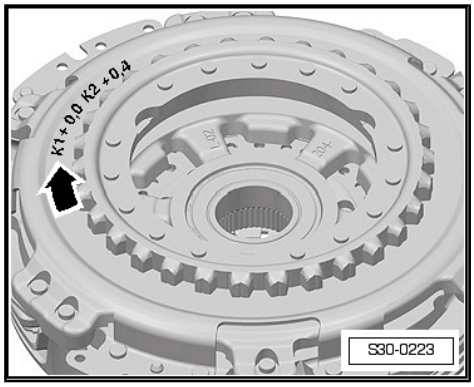
4.92 minus 2.60 = 2.32 mm

You have now determined the value of how deep the engaging bearing is actually positioned in the gearbox.

You therefore continue with the calculation

Now the tolerances in the double clutch must be included in this calculation. This is a very simple procedure:

– Please read off the clutch tolerance value that is marked on the »new« clutch -arrow-.



A value between minus 0.40 and plus 0.40 mm is marked on the new clutch.

– Note this value.

Example: K1 “+0.0 mm is shown on the clutch”

The last calculation for »K 1«: »Its determined« air passage plus value of the clutch = thickness of adjusting washer for »K1«.

Example calculation

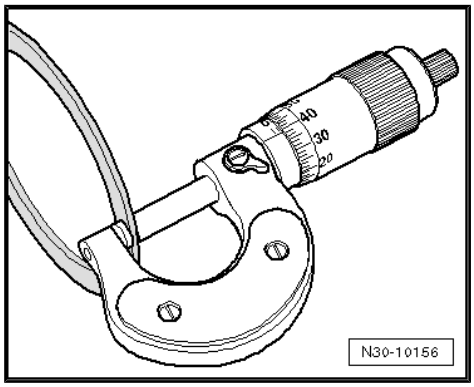
2.32 mm + 0.0 = 2.32 mm

Result: Shim thickness for »K1« = 2.32 mm

– Select the correct washer from the table and put it aside until you are ready to install it.

Determined thickness of the adjusting washer mm	Shim to be installed in millimetres	Part number
1.21...1.60	1.50	0AM 141 383
1.61...1.80	1.70	0AM 141 383 A
1.81...2.00	1.90	0AM 141 383 B
2.01...2.20	2.10	0AM 141 383 C
2.21...2.40	2.30	0AM 141 383 D
2.41...2.60	2.50	0AM 141 383 E
2.61...2.80	2.70	0AM 141 383 F
2.81...3.00	2.90	0AM 141 383 G
3.01...3.20	3.10	0AM 141 383 H
3.21...3.40	3.30	0AM 141 383 J
3.41...3.80	3.50	0AM 141 383 K

– From the delivered washers, determine the required adjusting washer and put it aside until you are ready to install it.



In this case, the adjusting washer of 2.30 mm, part number 0AM 141 383 D is installed.

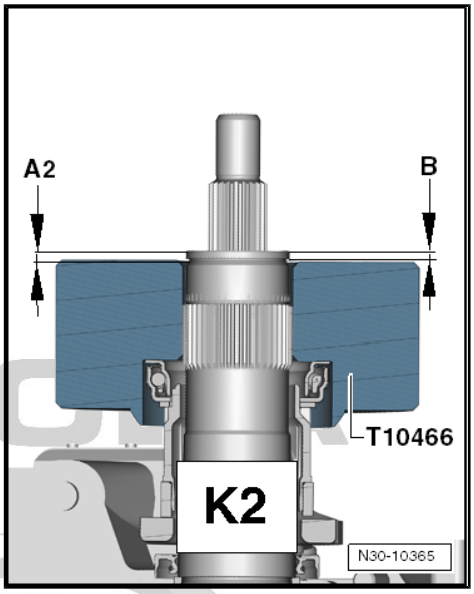
WARNING

At a later stage, just insert this 1 adjusting washer. Do not insert 2 washers.

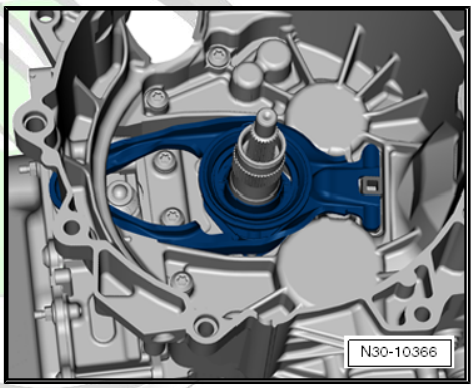
Thus, the »correct« adjusting washer for “K 1” is determined. Please install this adjusting washer when installing the clutch at a later stage.

– Proceed with clutch “K2” setting.

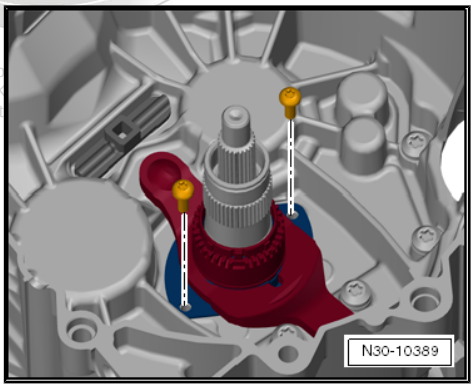
Determine the dimension “A2” of the adjusting washer for the small engaging bearing of clutch “K2”.



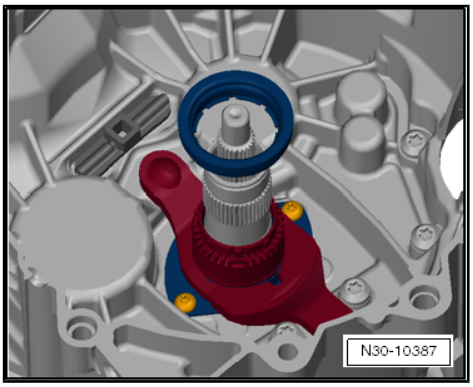
– Remove the large engaging lever.



– Insert the small engaging lever with the top and bottom part of the guide bushing. Tighten screws to tightening torque ⇒ page 18 .



– Only insert the small bearing without adjusting washer.

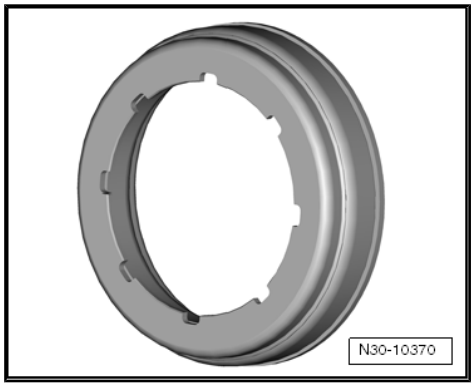


WARNING

Do not insert an adjusting washer!

The small engaging bearing fits in only one position due to the 8 grooves.

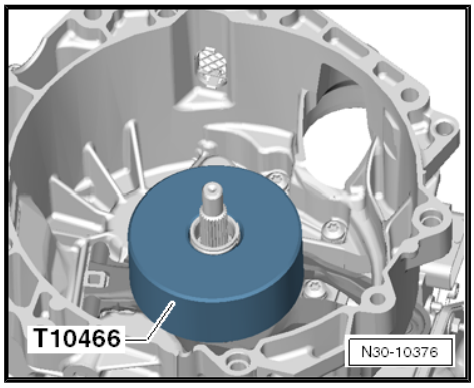
– While »turning«, check if the small engaging bearing is correctly installed and the grooves are correctly positioned.



– Position the gauge block - T10466- on the small engaging bearing.

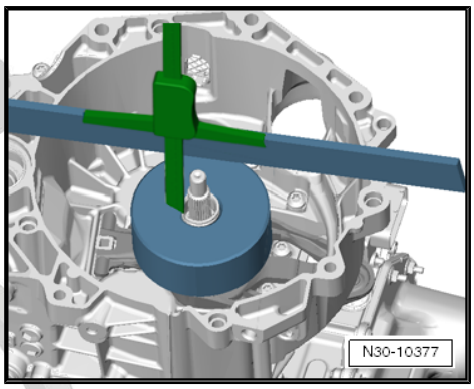
– Press on the gauge block - T10466- once and turn it at the same time.

In this way one can observe how the engaging bearing turns. Thus, the gauge block - T10466- is also »positioned« correctly on the bearing.

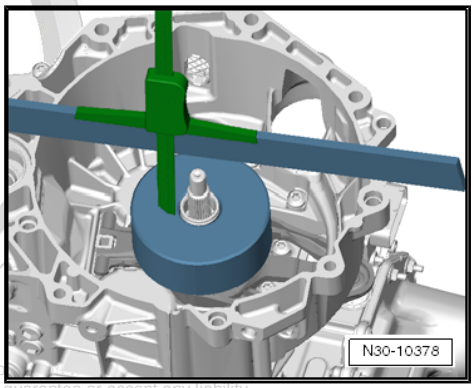


– Place the digital depth gauge at the »top« on the outer drive shaft.

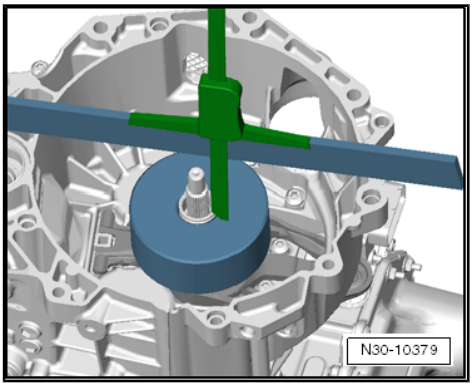
– Set the depth gauge to »0«.



– Measure the distance from the »shaft end« to the gauge block - T10466- .



– Position the digital depth gauge twice at opposite-facing points for a precise measurement.



In this way, an even more precise value is determined as the inaccuracy resulting from the »wobbling« on the engaging bearing is thus minimised.

– Calculate the mean value of both measurements to the gauge block - T10466- .

– Note this value and name it “A2”.

Example

Dimension “A2” = 4.79 + 4.752 = 4.77 mm

Result: “A2” = 4.77 mm

The following calculation:

“A2” minus “B” = depth of the engaging bearing for clutch “K2”.

Example calculation

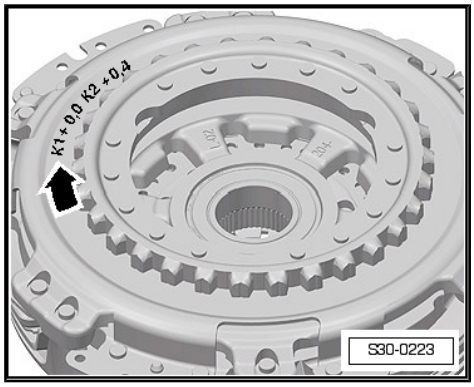
4.77 mm minus 2.60 mm = 2.17 mm

You have now determined the value of how deep the engaging bearing is actually positioned in the gearbox.

You therefore continue with the calculation

Now the tolerances in the double clutch must be included in this calculation. This is a very simple procedure:

– Please read off the clutch tolerance value that is marked on the »new« clutch -arrow-.



A value between minus 0.40 and plus 0.40 mm is marked on the new clutch.

– Note this value.

Example: K2 “+0.4 mm is shown on the clutch”

The last calculation for »K 2«: »Its determined« air passage plus value of the clutch = thickness of adjusting washer for »K2«.

Example calculation

2.17 mm + 0.4 = 2.57 mm.

Result: Shim thickness for »K2« = 2.57 mm

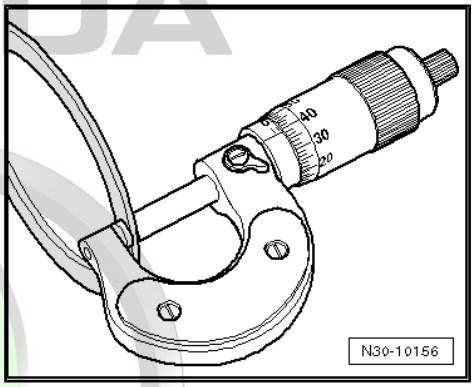
– Select the correct washer from the table and put it aside until you are ready to install it.

Determined thickness of the washer		Available adjusting washers thickness in mm
from	to	
0.31	0.90	0.8
0.91	1.10	1.0
1.11	1.30	1.2
1.31	1.50	1.4
1.51	1.70	1.6
1.71	1.90	1.8
1.91	2.10	2.0
2.11	2.30	2.2
2.31	2.50	2.4
2.51	2.70	2.6
2.71	3.30	2.8

Thus, the »correct« adjusting washer for “K2” is also determined. Please install this adjusting washer when installing the clutch at a later stage.

– From the delivered washers, determine the required adjusting washer and put it aside until you are ready to install it.

In this case, an adjusting washer of 2.60 mm is installed.



WARNING

At a later stage, just insert this 1 adjusting washer. Do not insert 2 washers.

– The clutch can be installed ⇒ page 34 .

1.4 Install double clutch

Special tools and workshop equipment required

- Extractor - T10373-
- Supporting bridge - T10323-
- Thrust piece - T10368-
- Thrust piece - T10376-

WARNING

When replacing the dual clutch, the following parts must always be replaced too:

- *the two engaging levers with engaging bearings*
- *Ball stud of the engaging lever for clutch "K2"*
- *Shims for engaging bearing*

After replacing the dual clutch and the corresponding parts, the position of the engaging bearings for clutches "K1" and "K2" will always require re-adjusting ⇒ page 23 *.*

Note

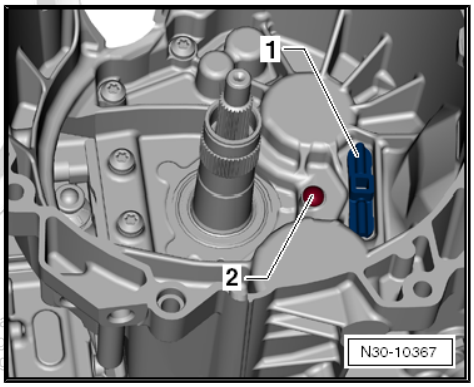
- *If all the mentioned parts are only removed and reinstalled, there is nothing to adjust.*
- *The circlip must be replaced under all circumstances.*

Note

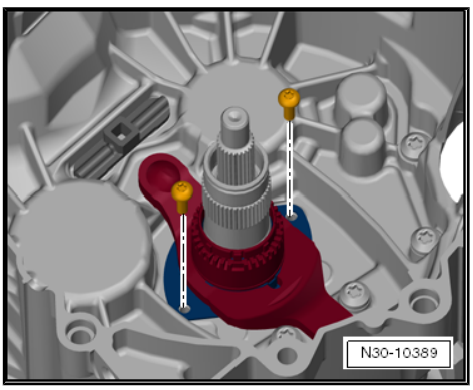
The large adjusting washer for the clutch "K1" is inserted with the semispherical side downwards on the large bearing, the small adjusting washer for the clutch "K2" is inserted under the small bearing.

Do not oil or grease!

– Insert hinge bearing -1- and ball stud -2-.



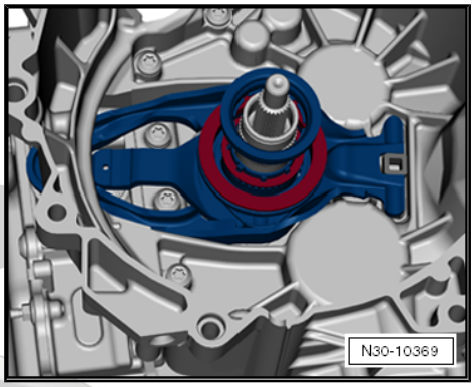
– Insert the small engaging lever with the top and bottom part of the guide bushing. Tighten screws to tightening torque ⇒ page 18 .



Note

The support of the engaging levers and the complete mechanism for the engaging bearings must be dry and free of oil or grease. If necessary, clean these component parts with a clean cloth.

– Insert the second, »larger« engaging lever with the measured adjusting washers for clutch “K1” and “K2”.



Note

The large adjusting washer for the clutch “K1” is inserted with the semispherical side downwards on the large bearing, the small adjusting washer for the clutch “K2” is inserted under the small bearing.

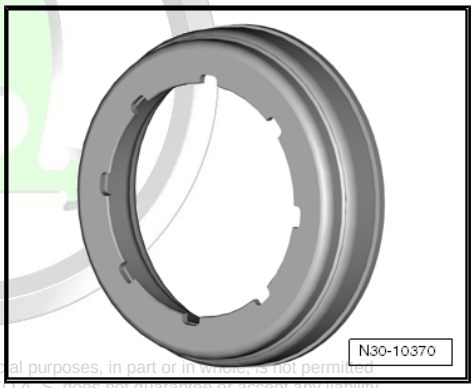
Caution

The small engaging bearing and the adjusting washer fit in only one position due to the 8 grooves.

– Insert the »small« engaging bearing.

– While »turning« the bearing, check if it is correctly installed and the grooves are correctly positioned.

– Check the correct fit of both engaging levers.

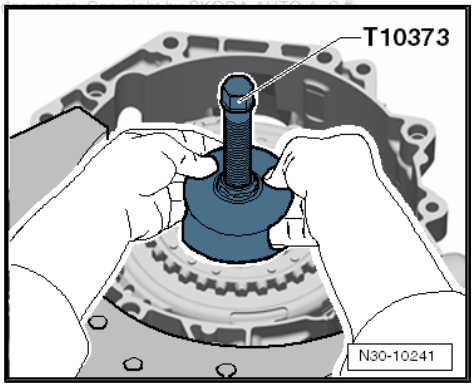


The large adjusting washer is used for the clutch “K1”, the small one is used for the clutch “K2”.

– Screw out spindle of the extractor - T10373- .

– Place extractor - T10373- on the clutch.

– Insert the clutch into the gearbox using the extractor - T10373- .

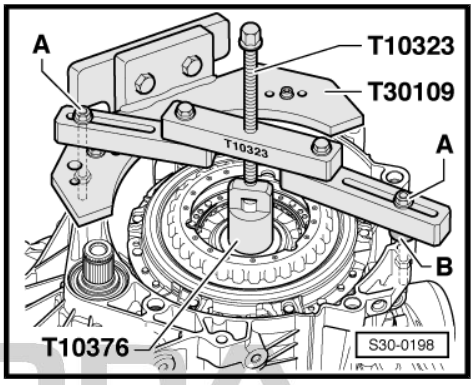


Note

The clutch is self-adjusting. Vibrations can have a negative effect on the adjusting device. Therefore do not let the clutch fall. Do not let the clutch fall into the gearbox when installing it.

– Remove the extractor - T10373- from the clutch.

– Position the supporting bridge - T10323- parallel to the flange of the clutch housing.
– Equalise distances, e.g using washers -B- with a total thickness of 15 mm.
– Secure supporting bridge - T10323- with bolts -A- and nuts.
– Press the clutch downwards via the spindle as far as it will go.

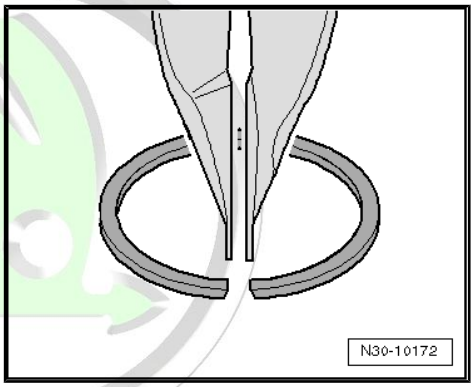


Note

♦ *During press-in procedure, place a hand onto the clutch. A slight rattling can be felt. Rattling means that the clutch is pressed onto its press seat. »The stop must be felt« in this way when the clutch has reached its seat.*

♦ *The clutch is pressed in up to the stop if the circlip can be inserted.*

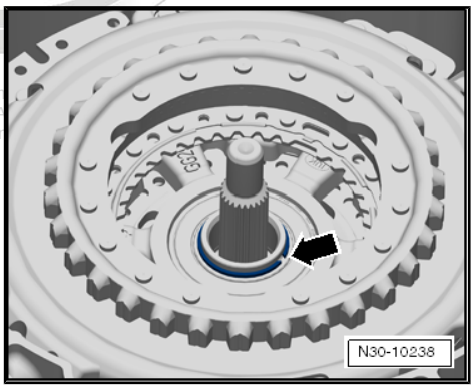
• Fitting position of the circlip: The narrower impact side of the circlip facing upwards.



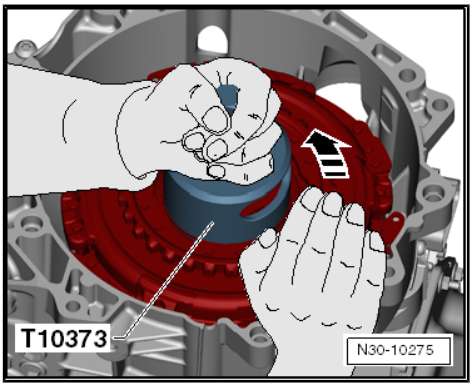
– Insert the new circlip -arrow-.

Note

If the circlip cannot be inserted -arrow-, the clutch is not correctly pressed on up to the stop.

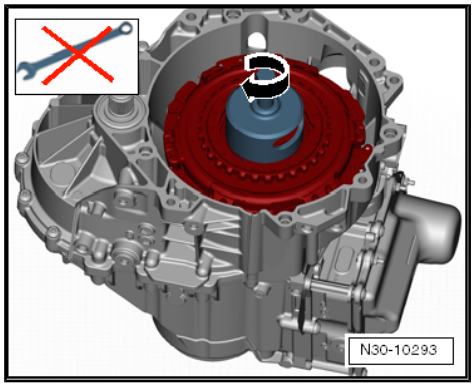


– Turn the clutch against the extractor by hand so that the clutch finds its fitting position.
• Only turn the clutch by hand, do not use any tool.



Only turn by hand. In this way, the clutch slips against the circlip. Do not use any further tool.

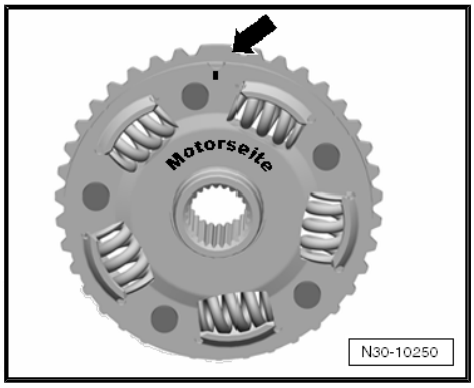
By pressing on the »clutch it is positioned at the bottom« on the drive shaft. The clutch should only be pulled up as far as necessary until it touches the circlip.



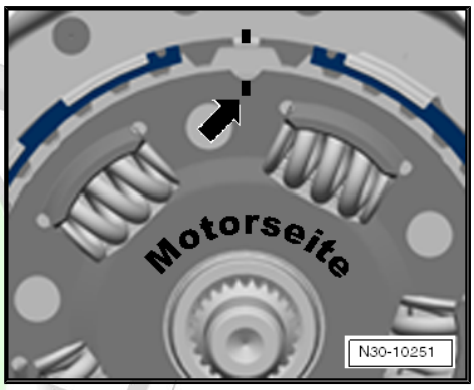
Subsequently insert the hub:

The hub has a »large« tooth and therefore only fits in one position.

On the -engine side-, the »large« tooth has a marking -arrow-.

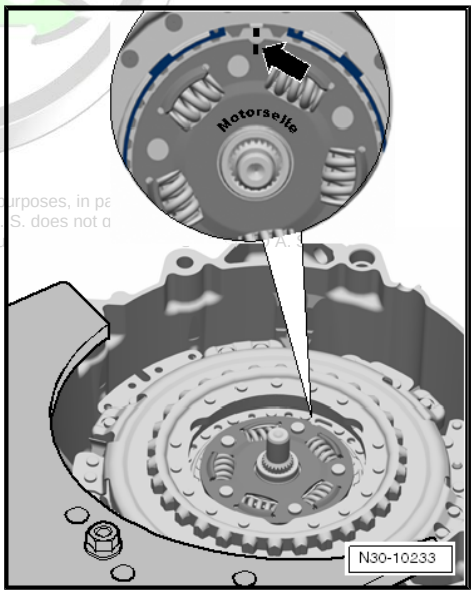


– Install the hub with the marking on the »large tooth« in such a way that it is flush with the marking on the drive plate -arrow-.

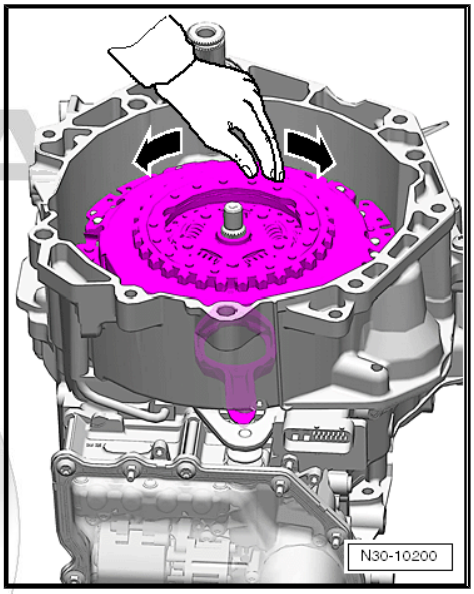


– Insert the circlip for the hub -arrow-.

Fitting position: The joint of the ring must point to the »hub« on the clutch.

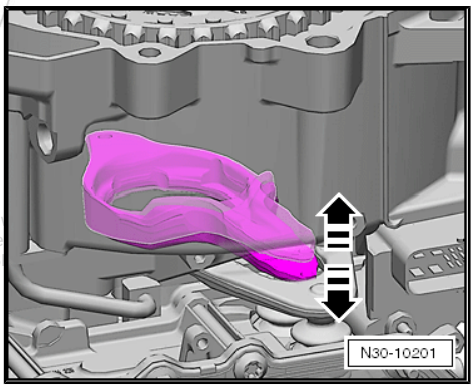


– Turn the clutch by hand and while turning it pay attention to the »small« engaging lever.

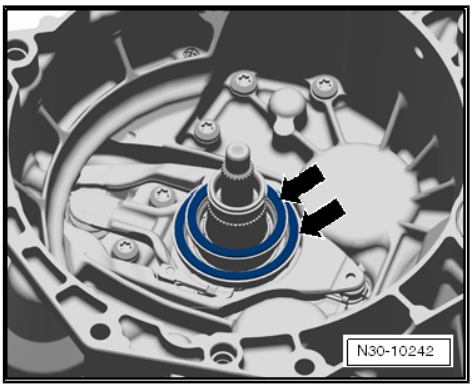


While doing so, the engaging lever »in standstill« must remain in its position. It must neither move up nor down.

If the engaging lever moves up and down, the adjusting washers are not in their correct position.



– In this case, remove the clutch again ⇒ page 19 .
– Have a close look at the adjusting washers -arrows-.
• The washers must be correctly positioned. They should not be damaged.

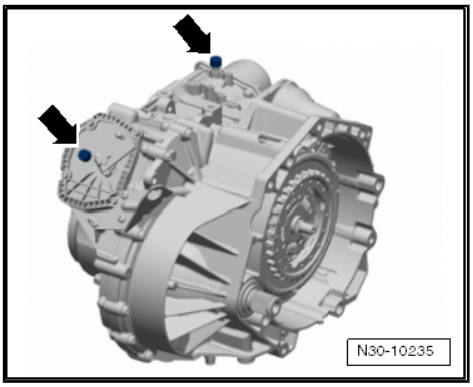


– Remove the screw plugs and position both ventilation caps -arrows- again.

Note

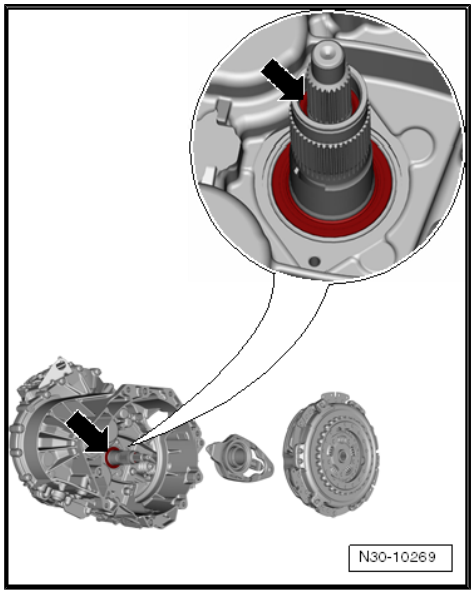
The vent cap on the mechatronics is destroyed during removal and must be replaced ⇒ Electronic Catalogue of Original Parts .

Perform the `basic setting` after the gearbox has been fitted with the ⇒ Vehicle diagnostic tester.



1.5 Replacing shaft seals for inner and outer drive shafts

Shaft sealing rings are located in the gearbox 2 -arrows-. Both seals can be replaced without disassembling the gearbox. If only the shaft seals are replaced, the double clutch must not be adjusted.



Note

In the event of a gearbox drive shaft ""Leaks"" error, the condition of the engine crankshaft sealing flange on the gearbox side must also be checked simultaneously.

Caution

If there are leaks, you must check the dual clutch. If the dual clutch is covered in oil, it will need to be replaced.

– Removing and installing the double clutch ⇒ page 17 .

1.5.1 Replacing the shaft seal for outer drive shafts

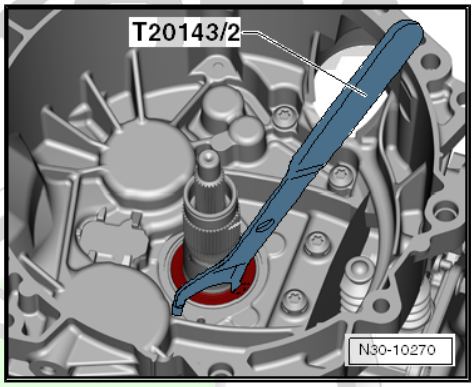
Special tools and workshop equipment required

- Pipe section - VW 415 A (MP3-450)-
- Removal tool - T20143-

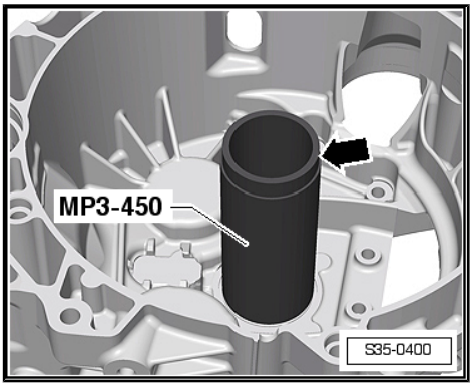
Precondition

- Dual clutch gearbox removed ⇒ page 17 .

– Lever out shaft seal for outer drive shaft.



– Drive in new shaft seal until it is flush with the clutch housing. Use a plastic hammer for this purpose.



Note

- *The shoulder -arrow- on the pipe section - MP3-450 (VW 415 A)- points upwards.*
- *If the inner drive shaft is installed, position the pipe - 3296 (T30055)- onto the pipe section - MP3-450 (VW 415 A)- if necessary.*

Caution

Touch the gasket ring until flush to ensure the oil bore underneath is not blocked In this case, the bearing is not given a sufficient supply of oil.

– Install double clutch ⇒ page 34 .

1.5.2 Replacing the shaft seal for inner drive shaft

Special tools and workshop equipment required

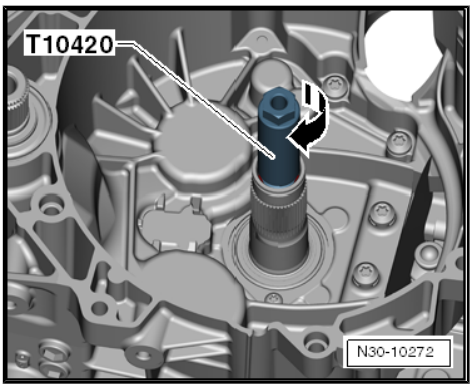
- Gasket ring extractor - T10420-
- Thrust piece - T10421-

Precondition

- Dual clutch gearbox removed ⇒ page 17 .

– Unscrew the spindle of the gasket ring extractor - T10420- .

– Screw sealing ring extractor for shaft sealing ring - T10420- without spindle into the »small« inner shaft sealing ring. While doing so, press onto the gasket ring extractor for shaft seals .

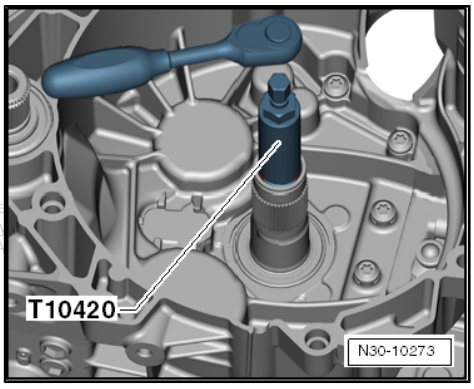


Note

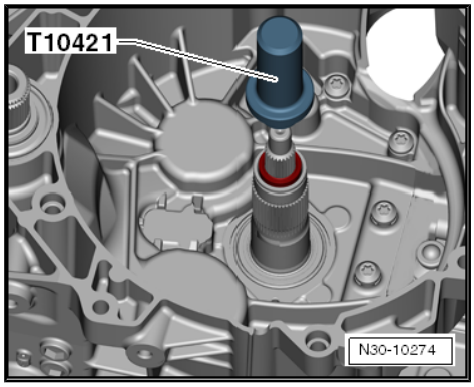
Screw sealing ring extractor for shaft sealing ring - T10420- in until the sealing ring begins to turn in its bearing.

– Now screw the spindle back into the sealing ring extractor for shaft sealing rings . Hold the outer drive shaft when doing so if necessary.

– Remove the shaft seal using the screws on the spindle.



– »Drive in new« shaft sealing ring up to the stop of the thrust piece - T10421- .

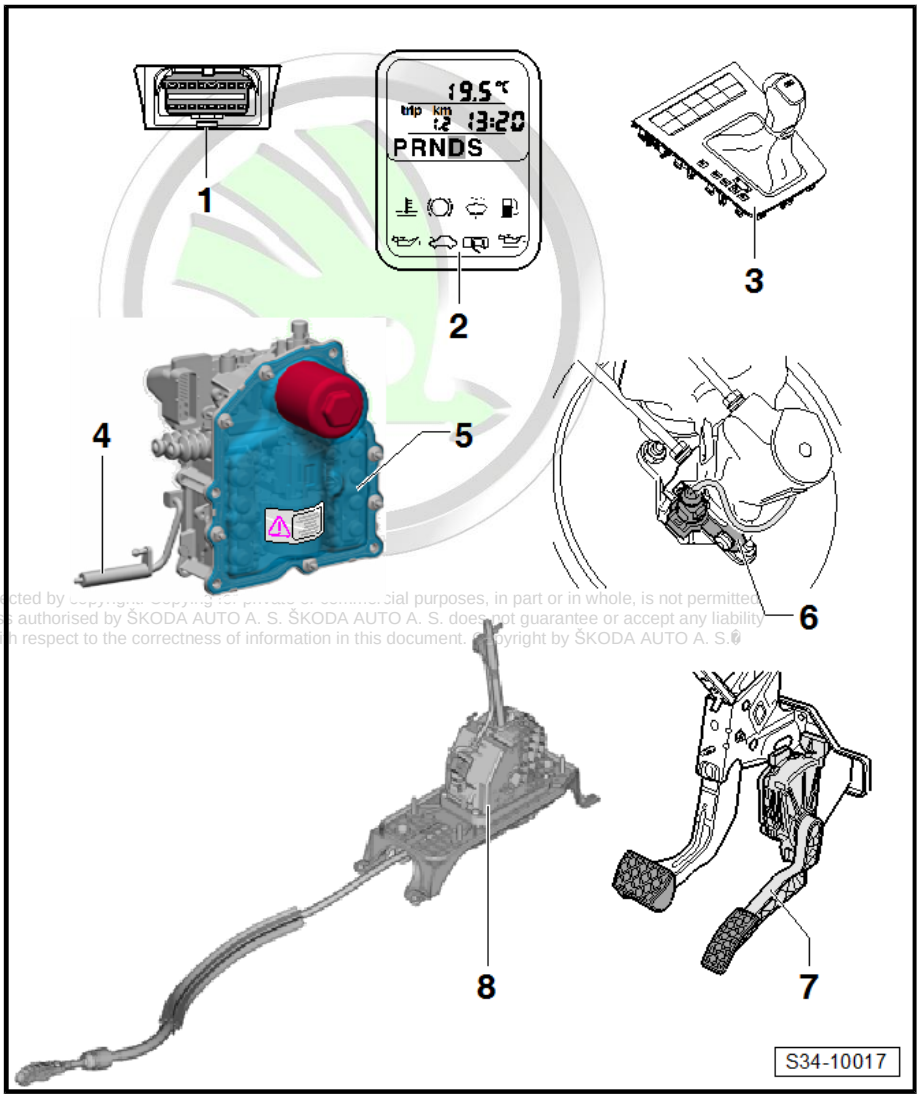


Depth of installation of the gasket ring: 17.5 ± 0.2 mm

– Install double clutch ⇒ page 34 .

34 – Controls, housing

1 Electric/electronic components and fitting locations for the automatic gearbox DSG - 0CW



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 ⇒ page 52

4 - Gearbox input r.p.m. sender - G182-

- ❑ Fitting location ⇒ page 44
- ❑ is checked by self-diagnosis
- ❑ is an integral part of the mechatronics for double clutch gearbox - J743-
- ❑ only removing and installing with mechatronics for double clutch gearbox - J743- ⇒ page 64

5 - Mechatronics for double clutch gearbox - J743-

- ❑ Fitting location ⇒ page 44
- ❑ is checked by self-diagnosis
- ❑ removing and installing ⇒ page 64

6 - Brake light switch - F- and brake pedal switch - F47-

- ❑ Fitting location ⇒ page 45
- ❑ Signal transfer from engine control unit to gearbox control unit via CAN databus
- ❑ is checked by self-diagnosis

- ❑ removing and installing ⇒ Chassis; Rep. gr. 46

7 - Kick-down switch - F8-

- ❑ Fitting location ⇒ page 45
- ❑ 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

8 - 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 ⇒ page 50

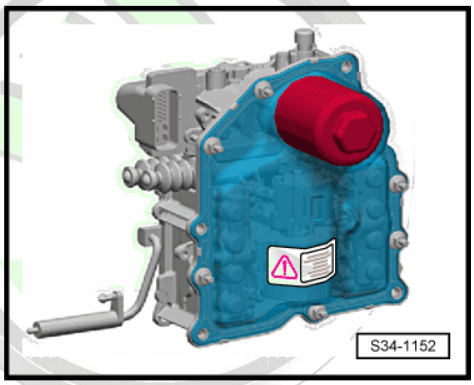
Mechatronics for double clutch gearbox - J743-

Fitting location: The mechatronics for dual clutch gearboxes - J743- is screwed onto the front gearbox housing.

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

- ♦ Tested by self-diagnosis

The senders and the actuators are located in the mechatronics for double clutch gearbox - J743- . More detailed information about this can be found in the information about the similar 7-speed automatic gearbox 0AM ⇒ Self-study programme No. 75 ; 7-speed dual clutch gearbox 0AM and ⇒ Self-study programme No. 94 ; diagnostics if automatic gearboxes 0AM and 02E .

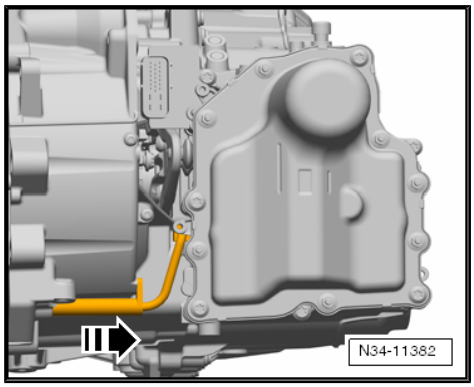


Removing mechatronics for double clutch gearbox - J743- ⇒ page 66 .

Installing mechatronics for double clutch gearbox - J743- ⇒ page 75 .

Gearbox input r.p.m. sender - G182-

Fitting location: The gearbox input speed sender - G182- is clipped onto the front of the gearbox housing. Release the sender for removal and pull out in -direction of arrow-.



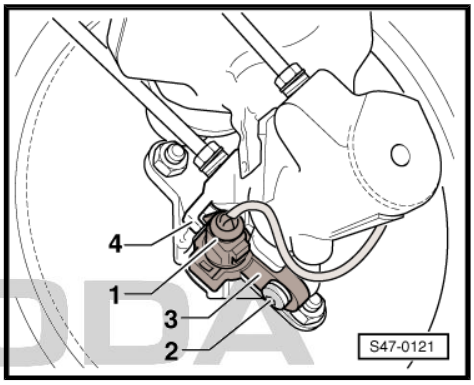
The gearbox input r.p.m. sender - G182- can only be replaced together with the mechatronics for double clutch gearbox - J743- ⇒ page 64 .

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-

Fitting location: Fully integrated into the shift mechanism and cannot be changed separately. The removal and installation procedure is only possible together with the gearshift mechanism ⇒ page 50 .

Brake light switch - F- and brake pedal switch - F47-

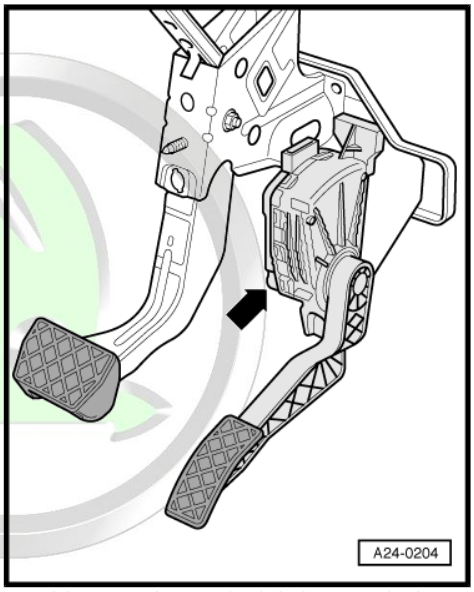
Fitting location: Brake light switch - F- and brake pedal switch - F47- -Pos. 3- is located at the master brake cylinder -Pos. 4-.



Kick-down switch - F8-

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

Fitting location: Accelerator pedal position sender - G79- / accelerator pedal position sender 2 - G185- -arrow- is located at the pedal cluster.



2 Shift mechanism

WARNING

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

2.1 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. Selector lever can be shifted in a driving position.
- At speeds below 5 km/h (virtual standstill) and shifting in selector lever position “N” the selector lever lock solenoid must only engage after approx. 1 s. 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

- Brake pedal is not operated.

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.

- Brake pedal is operated.

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

- Brake pedal is not operated.

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

- Brake pedal is operated.

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 position “D”, ignition and light switched on

- Guide selector lever in the Tiptronic gear.

The lighting up of the “D” on the lamp for selector lever scale illumination - L101- should go out and the “+” and “–” symbols should light up.

When the selector lever is put into the Tiptronic gate, the selector lever position indicator - Y6- in the dash panel insert should change from “P R N D S” to “7 6 5 4 3 2 1”.

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

The display of the selector lever position “7 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 “–”.

If the gearshift mechanism does not function as described:

– Inspecting and adjusting the selector lever control cable ⇒ page 48 .

– Check ignition key anti-removal lock ⇒ page 50 .

Selector lever position indicator

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

2.2 Inspecting and adjusting the selector lever control cable

2.2.1 Inspect setting of selector lever control cable

- The gearshift mechanism is checked ⇒ page 46 .

– Pull selector lever out of position “P” with the button pressed, approx. 5 mm to the rear and hold, but do not shift into position “R”.

– Release the selector lever.

- The selector lever must automatically jump back again into the position “P”.

– If this is not the case, then the gearshift mechanism must be set ⇒ page 48 .

– 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, but do not shift into position “D”.

– Release the selector lever.

- The selector lever must automatically jump back again into the position “N”.

– If this is not the case, then the gearshift mechanism must be set ⇒ page 48 .

– Pull selector lever out of position “N” with the button pressed, approx. 5 mm to the front and hold, but do not shift into position “R”.

– Release the selector lever.

- The selector lever must automatically jump back again into the position “N”.

– If this is not the case, then the gearshift mechanism must be set ⇒ page 48 .

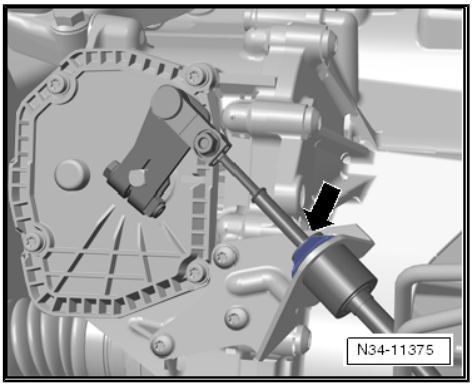
2.2.2 Adjusting selector lever control cable

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

- ♦ The selector lever control cable was removed from the gearbox
- ♦ The engine or the gearbox was removed and installed.
- ♦ Removed and installed parts of the unit mounting.
- ♦ The position of the engine/gearbox was changed, e.g. during a stress-free assembly.

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

– Check if the lock washer -arrow- is correctly fitted and secured towards the bottom.



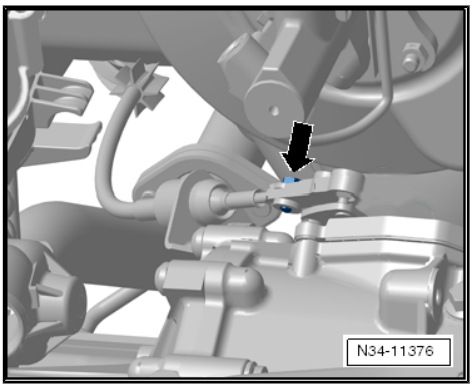
Note

The lock washer -arrow- must be replaced after each removal ⇒ Electronic Catalogue of Original Parts .

– Shift selector lever from “P” to “S”.
– Check the protective cover at the front gearshift mechanism on the selector lever control cable for damage. The selector lever control cable must be replaced if damaged.
• Gearshift mechanism and selector lever control cable must move smoothly when shifting gears. If this is not the case, replace gearshift mechanism ⇒ page 50 .

Setting

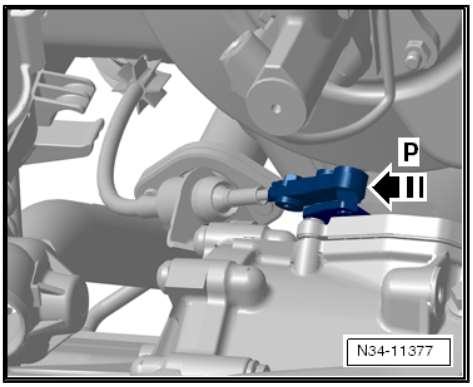
– Shift selector lever in the vehicle into position “P”.
– Switch off ignition.
– Release screw -arrow-.



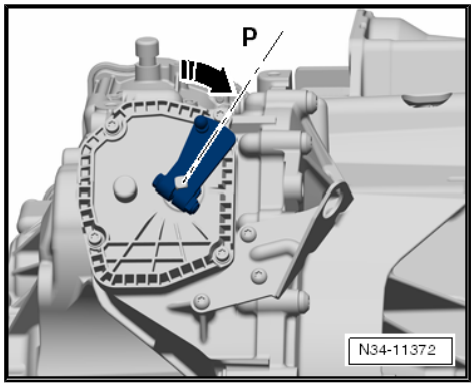
Note

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

– Position gearshift lever at gearbox in “P”. To do so, press the gearshift lever in -direction of arrow- in the direction towards the cable support.



The figure shows the gearbox »from the rear«. Position -P- is in the linkage counter bearing direction.



– Turn both front wheels in one direction, e.g. by rolling the vehicle forwards, until the parking lock in the gearbox engages into the parking gear.

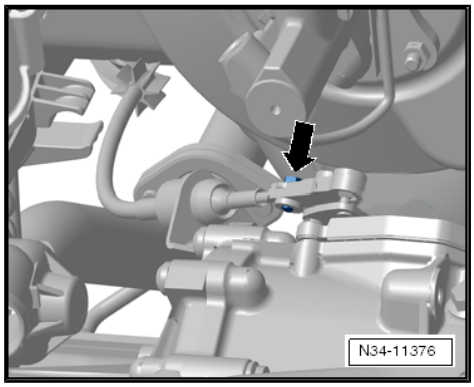
• Only if both front wheels cannot be simultaneously turned in one direction, the parking lock is engaged.

– Slightly move the selector lever towards the front and rear, without shifting into another selector lever position.

Note

This will put the selector lever linkage into the optimum position.

– Tighten screw -arrow- at selector lever cable without jolting to tightening torque.



Note

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

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

– Inspect gearshift mechanism ⇒ page 46 .

2.3 Check the function of the ignition key removal lock

– Turn the ignition key slightly to the right (do not start the engine) in order to set the position “ignition on”.

– Depress brake pedal and hold pressed.

• Shifting the selector lever out of the position “P” when the lock button is pressed at the selector lever handle must be possible without “jerking”.

– Switch off ignition.

• The key cannot be withdrawn from the ignition starter switch in any other selector lever position except in the position “P”.

– Shift selector lever into position “P”.

– Withdraw ignition key.

• Only withdraw the key from the ignition starter switch if the selector lever is in position “P”.

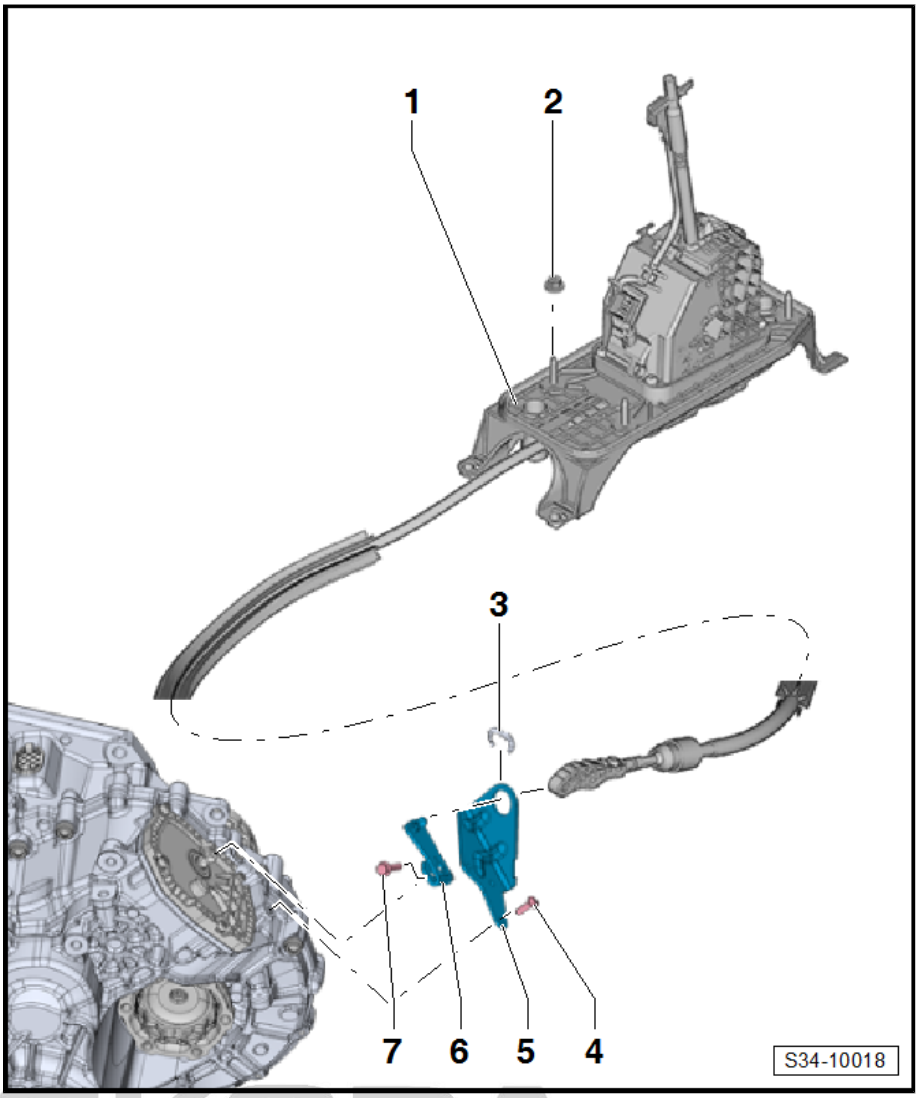
• The selector lever cannot be shifted out of position “P” when the button is pressed and the brake pedal is actuated.

If the ignition key removal lock does not function as described:

♦ Inspecting and adjusting the selector lever control cable ⇒ page 48 .

♦ Inspect the vehicle ⇒ Vehicle diagnostic tester in the function `Targeted fault finding`.

2.4 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 ⇒ page 48
- ❑ Tightening torque of the adjusting screw for linkage: 12 Nm

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 ⇒ page 59
- ❑ removing and installing ⇒ page 56
- ❑ Adjusting selector lever linkage ⇒ page 48

2 - Nut, 8 Nm

- ❑ for shift mechanism to body
- ❑ 4 pieces

3 - Lock washer

- ❑ always replace after removing ⇒ Electronic Catalogue of Original Parts

4 - Screw, 8 Nm

- ❑ 3 pieces

5 - Cable support

- ❑ for selector lever control cable

6 - Gearshift lever

7 - Screw, 15 Nm

2.5 Removing and Installing the cover for the shift mechanism

Special tools and workshop equipment required

♦ Release tool - T30098-

Removing

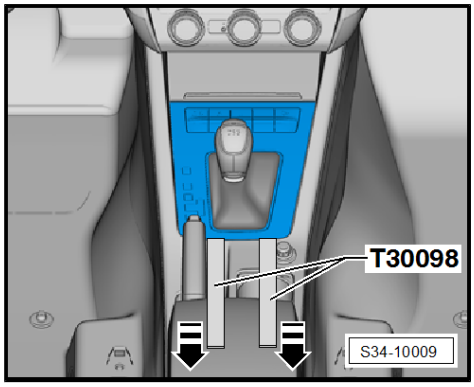
– Apply handbrake.

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

– Switch off ignition.

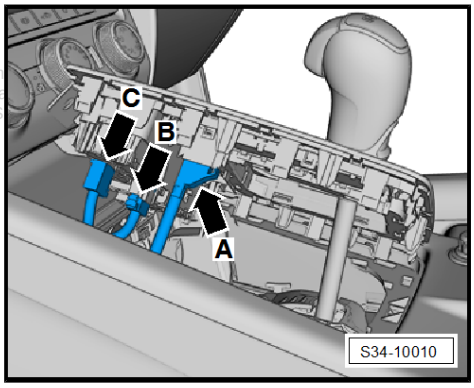
– Fit the release tool - T30098- under the cover for shift mechanism and loosen the cover by pressing it in -direction of arrow-.

– Swivel the cover for shift mechanism to the side.



– Disconnect the plug of the display unit -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.

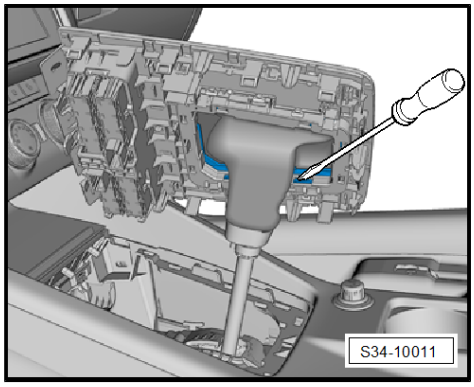


– Use a screwdriver to press onto the clips of the protective cover for the selector lever and separate the protective cover from the cover for the selector mechanism.

– 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.



2.6 Removing and installing selector lever handle

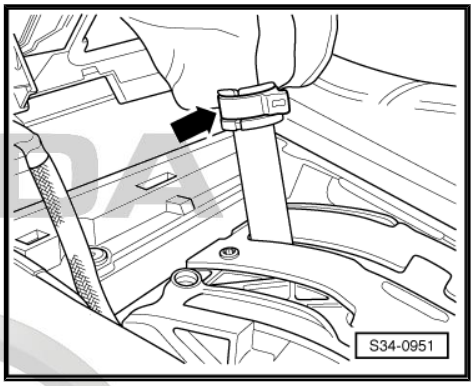
Special tools and workshop equipment required

♦ Hose binding claw - V.A.G 1275-

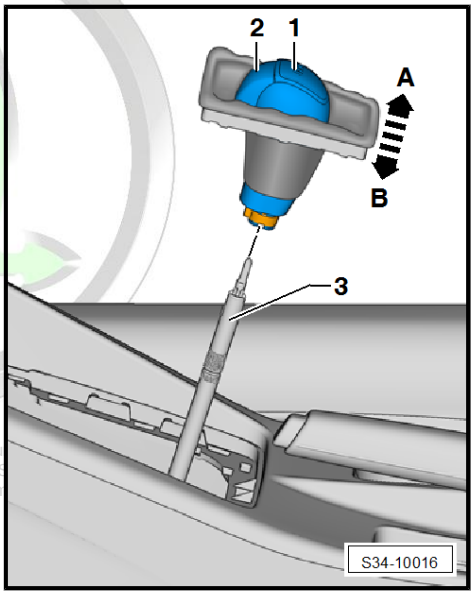
2.6.1 Removing

– Removing the cover for the shift mechanism ⇒ page 51 .

– Open the warm-type clamp -arrow- below the handle.



– 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

Do not observe -arrow B-.

2.6.2 Install

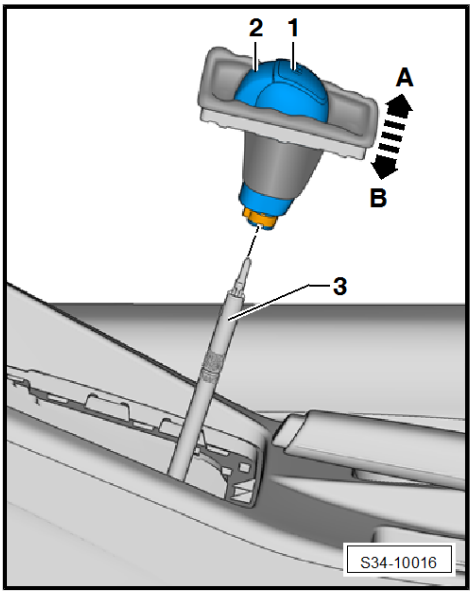
Installation is performed in the reverse order, pay attention to the following points:

- The lock button -2- points in direction of travel.

Caution

The shift mechanism can be damaged.

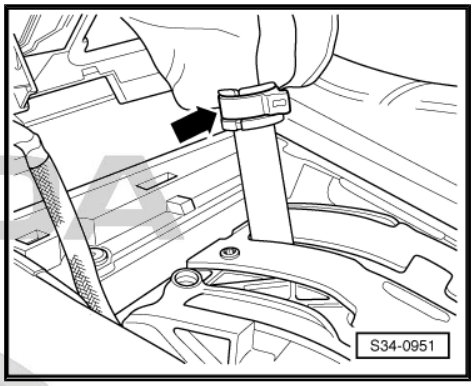
- ***In the installation position, the lock button on the selector lever must not be pressed in and must protrude. If the lock button was inadvertently pressed in when removing the selector lever handle, it must be repositioned*** ***⇒ page 54*** ***.***
- ***If the selector lever handle is installed 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 is only correctly secured when the gripper clamp is under tension. Only then the lock button at the handle may be pressed on.*
- *The lock button can only show high resistance when it is pressed on for the first time after installing the selector lever handle.*

– Press the lock button onto the selector lever handle.

– Install trim panel for selector lever position indicator - Y6- ⇒ page 51 .

– Inspect gearshift mechanism ⇒ page 46 .

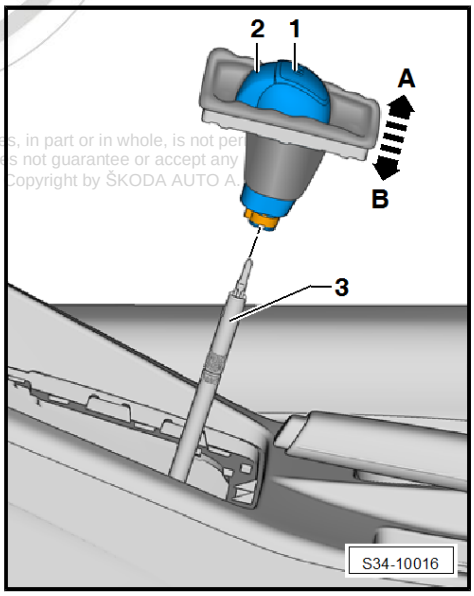
2.7 Installing the lock button at the selector lever handle

Special tools and workshop equipment required

- Release tool - T40203-

Work procedure

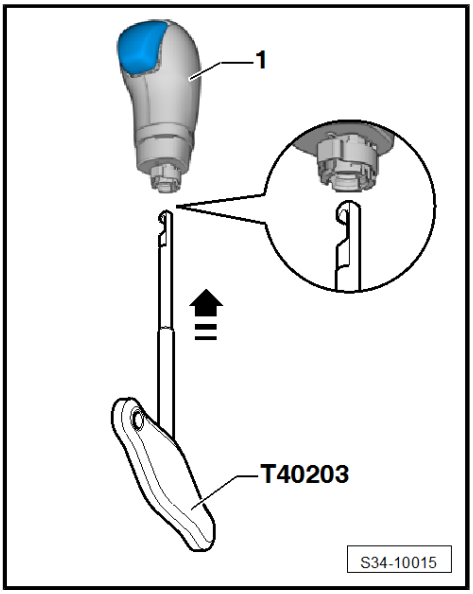
- The lock button -2- on the selector lever handle protrudes when it is in the installation position.



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-.



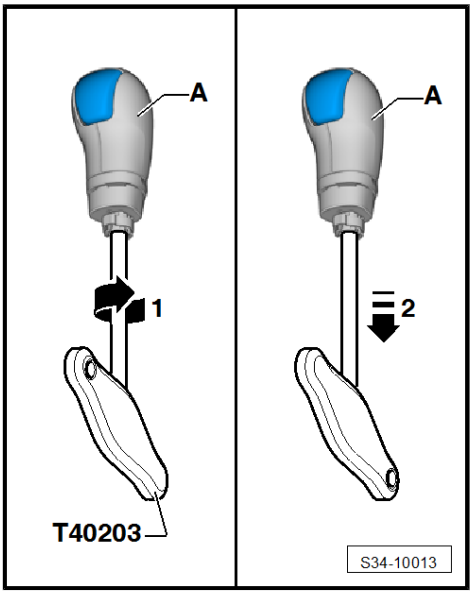
Note

The selector lever handle in the illustration is shown without the protective cover for the selector lever. The protective cover for the selector lever cannot be removed from the handle.

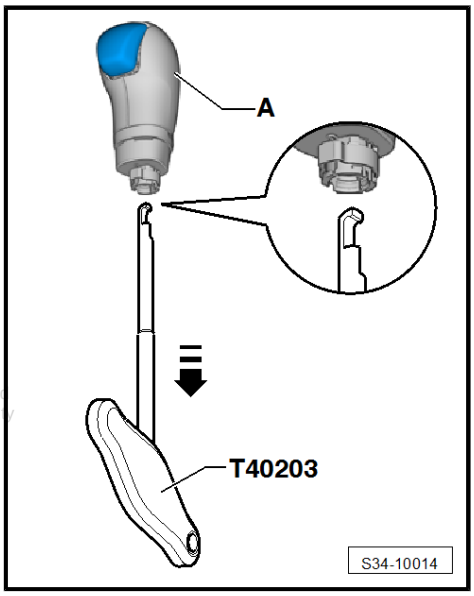
- The recess at the release tool - T40203- points to the lock button and the hook points to the left.

– 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 out and locked.
- Do not touch and press in the lock button again before installing the selector lever handle.



2.8 Removing and installing selector mechanism

Special tools and workshop equipment required

- Removal tool for the inner lining of the door panel -MP8-602/1-

2.8.1 Removing

– Removing the cover for the shift mechanism ⇒ page 51 .

– Removing selector lever handle ⇒ page 52 .

– Shift selector lever into position “P”.

Note

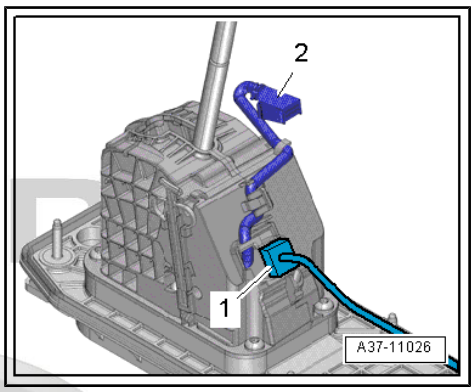
If the battery earth strap is disconnected and connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .

– 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-.

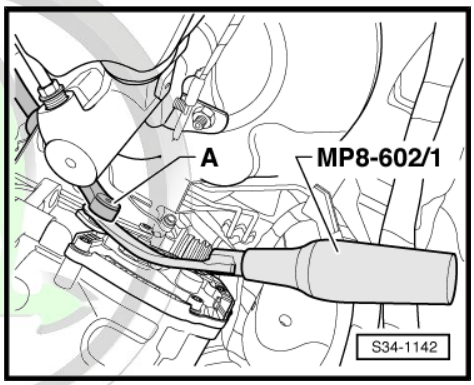


Note

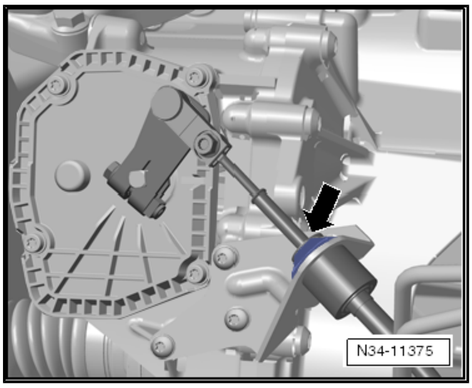
Ignore -Pos. 2-.

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

– Release selector lever linkage from gearshift lever -A- using the inner door trim panel disassembly tool -MP8-602/1- .



– Remove lock washer -arrow- of the selector lever control cable and leave the selector lever control cable must be left in the fitting position.



Note

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

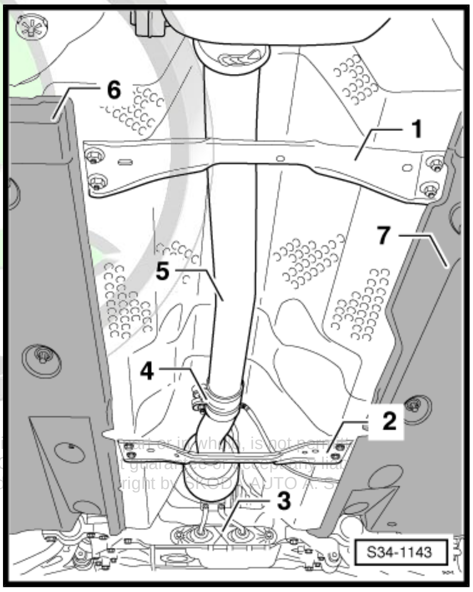
Caution

Risk of damage to the 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 gearshift mechanism.*

– Raise vehicle ⇒ Maintenance ; Booklet Octavia III .

– 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

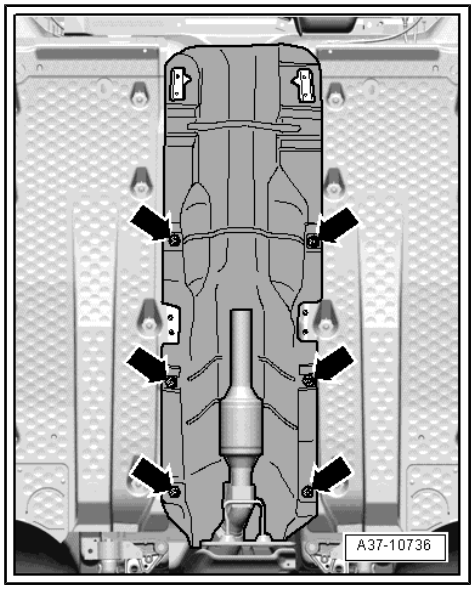
- *The decoupling element in the pre-exhaust pipe should not be bent by more than 10° - risk of damage.*
- *A second mechanic is needed to remove the rear part of the exhaust system.*

– Remove the rear part of the exhaust system -5- as 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 lambda probe cable at heat shield.

– Remove the heat shield below the shift mechanism towards the rear, to do so slacken the clips -arrows-.

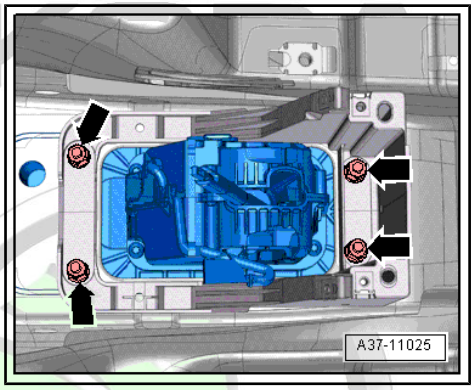


Note

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.

2.8.2 Install

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

Note

Do not bend or buckle selector lever control cable.

Tightening torques: ⇒ page 50

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

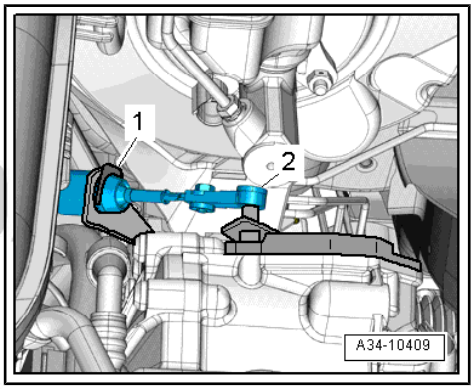
– Install ashtray or storage area in front of the shift mechanism ⇒ Body Work; Rep. gr. 68 .

– Installing the selector lever handle and cover for the shift mechanism ⇒ page 52 .

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

Note

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



– Carefully press the selector lever control cable -2- onto the gearshift lever and secure in the cable support with a new lock washer -1-.
– Check the function of the ignition key anti-removal lock ⇒ page 50 .
– Setting selector lever control cable ⇒ page 48 .
– Install air filter ⇒ Engine; Rep. gr. 24 or ⇒ Engine; Rep. gr. 23 .
– Inspect gearshift mechanism ⇒ page 46 .
– Install the heat shield below the shift mechanism and fasten the trim panels for the underfloor on the body ⇒ 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 .

2.9 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 ⇒ page 56 .

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

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:

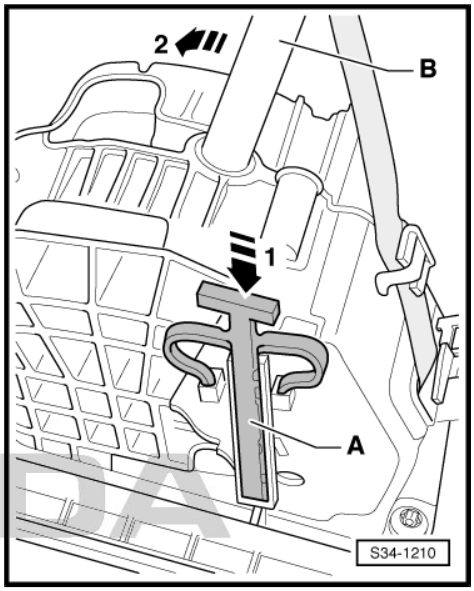
– Test fuse ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
– Check the battery voltage ⇒ Electrical System; Rep. gr. 27 .

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”.

2.10.1 Perform emergency release

– Removing the cover for the shift mechanism ⇒ page 51 .

– 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.

2.11 Replacing the gasket ring for the gear-shift shaft

The gasket ring for the gearshift shaft can only be replaced in combination with the parking lock cover ⇒ page 97 .

2.12 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 ⇒ page 56 .

2.13 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 ⇒ page 56 .

2.14 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 ⇒ page 56 .

2.15 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 ⇒ page 56 .

2.16 Checking the plug connections at the gearshift mechanism

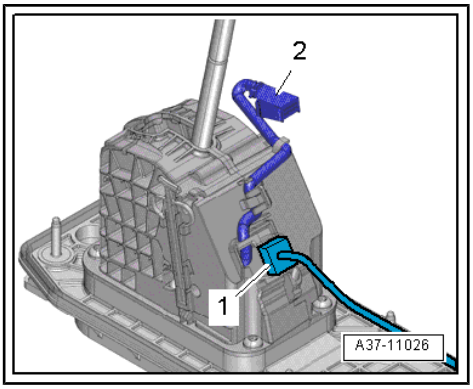
Before repairing or checking the plug connections, try to determine the origin of the damage via the “targeted fault finding” using the ⇒ Vehicle diagnostic tester.

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 gearbox shift mechanism connecting lines (with CAN bus line), to the selector lever lock magnet - N110- and selector lever switch locked in P - F319-

2 - Plug connection for selector lever position indicator - Y6-



3 Mechatronics for double clutch gearbox - J743-

Safety instruction for mechatronics for double clutch gearbox - J743- ⇒ page 62 .

Summary of components - mechatronics for double clutch gearbox - J743- ⇒ page 64 .

Remove mechatronics for double clutch gearbox - J743- ; gearbox installed ⇒ page 66 .

Place the mechatronics for double clutch gearbox - J743- by hand in the »removal position« ⇒ page 73 .

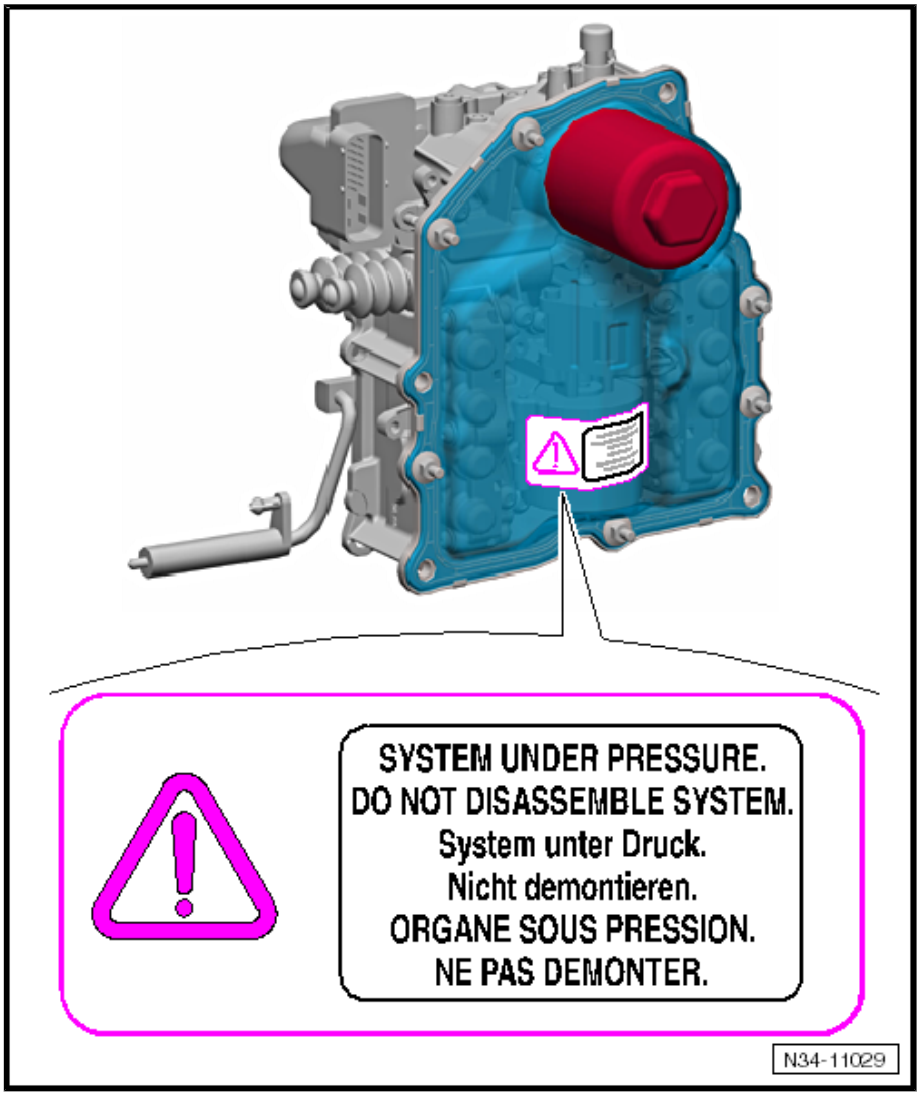
Install mechatronics for double clutch gearbox - J743- ; gearbox installed ⇒ page 75 .

3.1 Safety instructions for mechatronics for double clutch gearbox - J743-

DANGER!

Do not remove the pressure tank. The pressure tank is under pressure and should not be opened.

Caution



DANGER!

Do not remove the pressure tank. The tank is under pressure and must not be opened.

Caution

Risk of damage to gearbox.

- *When the mechatronics for dual clutch gearbox - J743- is removed or in the absence of gear oil the engine must not be left running and the vehicle must not be towed.*

Note

- *Observe the general repair instructions ⇒ page 11 .*
- *The clutch is self-adjusting. Vibrations can influence the self-adjuster. Even with the mechatronics removed the »sudden removal « of the assembly lever - T10407- below the engaging lever can have a negative influence on the self-adjuster.*
- *The »new « mechatronics is precisely filled with oil. Do not drain or oil or top up with oil.*
- *After installation of the »new« mechatronics, adjust the immobilizer control unit⇒ Vehicle diagnostic tester.*

3.2 Summary of components - mechatronics for double clutch gearbox - J743-

Note

- *The »new« mechatronics for the gearbox is already precisely filled with oil at the factory, do not drain the oil.*
- *The »removed« mechatronics is sent back with oil (close the ventilation opening with a suitable plug).*
- *Pay attention to the ventilation when handling the mechatronics .*
- *During assembly work, remove the cover of the ventilation opening and close it with a suitable screw plug. In case of oil leakage from the mechatronics , the mechatronics must be replaced ⇒ Electronic Catalogue of Original Parts .*

1 - Screw, 10 Nm

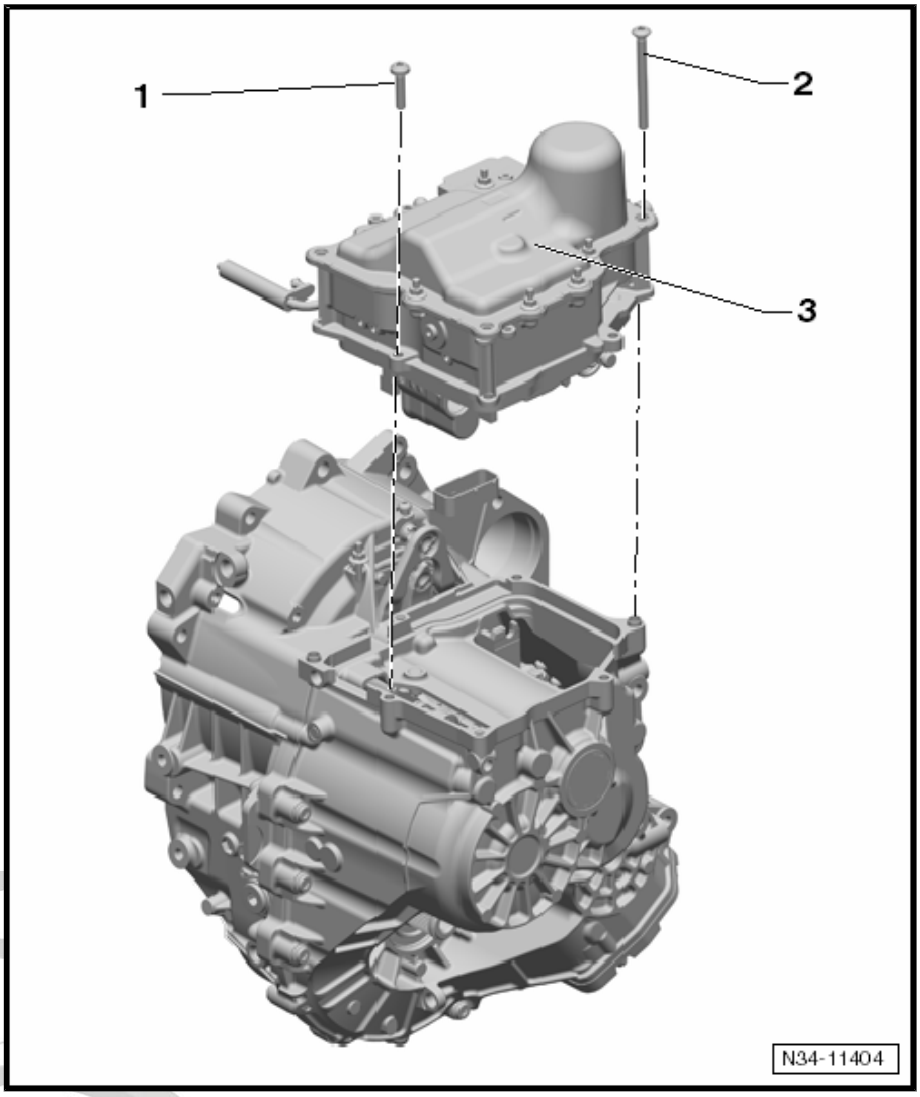
- ❑ 3 units, M8 x 35, for securing the dual clutch gearbox mechatronics - J743- to the gearbox housing
- ❑ replace ⇒ Electronic Catalogue of Original Parts
- ❑ Tightening ⇒ page 66

2 - Screw, 10 Nm

- ❑ 4 units, M8 x 90, for securing the dual clutch gearbox mechatronics - J743- to the gearbox housing
- ❑ replace ⇒ Electronic Catalogue of Original Parts
- ❑ Tightening ⇒ page 66

3 - Mechatronics for double clutch gearbox - J743-

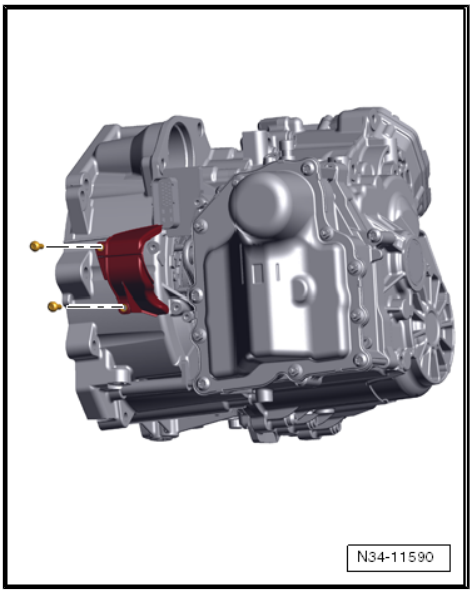
- ❑ Assignment via the gearbox identification characters ⇒ Electronic Catalogue of Original Parts .
- ❑ manually move into the »removal position« ⇒ page 73
- ❑ removing ⇒ page 66
- ❑ installing ⇒ page 75



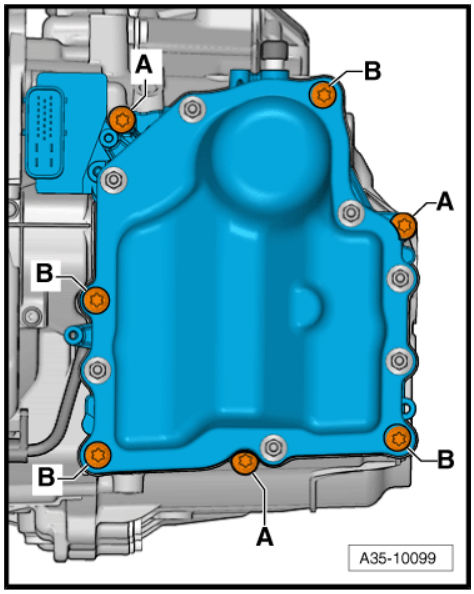
Cover above the engagement lever

The cover protects against contamination.

Tightening torque securing bolts: 8 Nm



Assembly sequence and tightening torque of the mechatronics fixing screws



Note

Replace bolts ⇒ Electronic Catalogue of Original Parts .

– Install new mechatronics securing bolts in 4 stages as follows:

Stage	Screws	Tightening torque
1st	-A- M8 x 35	Tighten by hand as far as the stop
2nd	Guide bolt - T10406-	Unscrew
3rd	-B- M8 x 90	Tighten by hand as far as the stop
4th	-A, B-	10 Nm, tighten crosswise

3.3 Remove mechatronics for double clutch gearbox - J743- ; gearbox installed.

Special tools and workshop equipment required

- Assembly lever - T10407-
- Catch pan - VAS 6208-

Note

- *Observe safety instruction for the mechatronics for double clutch gearbox - J743- ⇒ page 62 .*
- *Observe instructions for automatic gearbox DSG - 0CW ⇒ page 8 .*
- *General repair information ⇒ page 11 .*
- *The clutch is self-adjusting. Vibrations can have a negative effect on the adjusting device of the clutch. Even when the mechatronics is removed, the »sudden removal« of the assembly lever - T10407- below the engaging levers can have a negative effect on the adjusting device.*
- *Ensure adequate clearance in front of the gearbox in order to remove the mechatronics. Components, which are not directly connected with the mechatronics, must be removed on some vehicles, e.g. brackets at the screws of the cover for mechatronics.*
- *After the battery earth strap is disconnected and connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .*

The mechatronics remains filled with oil

– Shift selector lever into position »P«.

Before the actual removal of the mechatronics , carry out the basic setting of the »idle position« of the gearbox with the ⇒ Vehicle diagnostic tester.

– Switch on ignition.

– Select targeted functions, then select 02 7-speed dual clutch gearbox DSG followed by the basic setting of the neutral position .

– Switch off ignition.

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

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

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

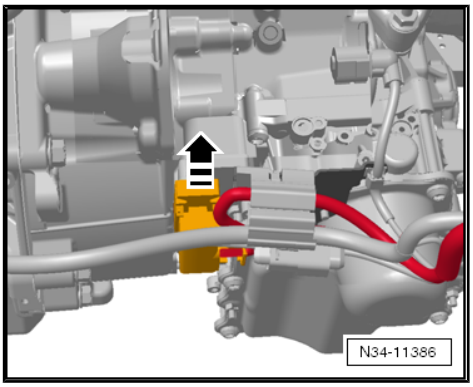
Caution

There is a risk of destruction of gearbox components.

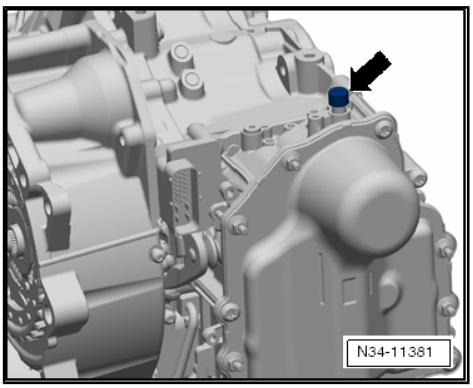
Do not in any circumstances allow the gearbox plug contacts to come into contact with your hands. Static discharges may destroy the control unit and the mechatronics.

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

– Release the connector catch of the mechatronics by pulling it in -direction of arrow- and disconnect the plug.



– Remove cover from the ventilation and close the ventilation with a suitable screw plug to prevent any oil from leaking out.



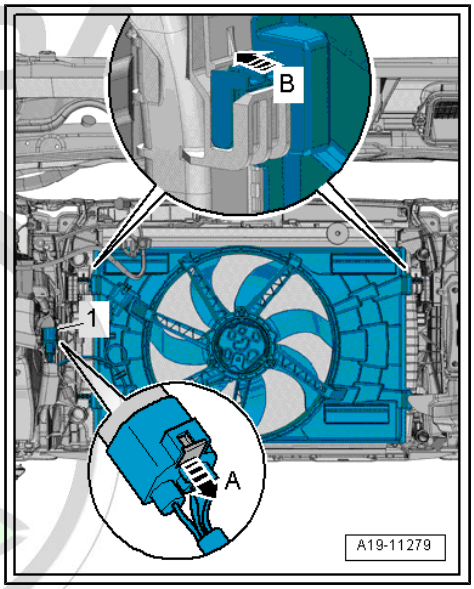
Note

- *The vent cap on the mechatronics is destroyed during removal and must be replaced ⇒ Electronic Catalogue of Original Parts .*
- *Seal the vent using a clean plug from the engine locking screw set - VAS 6122- or alternatively using a cap - 0AM 325 120 A- .*

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

– Remove the charge air hose from the bottom left charge air cooler and the charge air pipe ⇒ Engine; Rep. gr. 21 .

– Disconnect plug connection -1- for radiator fan.
– Loosen the clips -arrow B- and remove the fan shroud ⇒ Engine; Rep. gr. 19 .

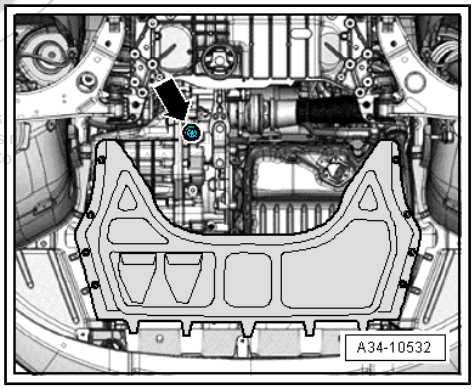


Note

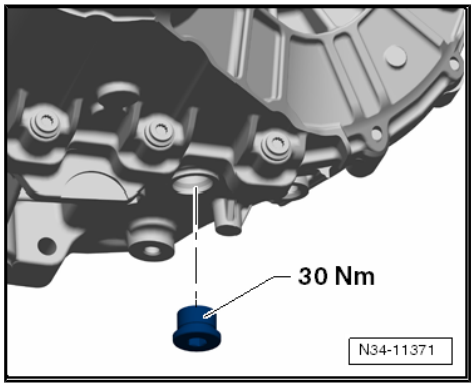
The fan shroud can be installed with two fans.

– Remove the electrical lines from the front holder at the mechatronics and tie up to the top.
– Remove the holder from the cover of the mechatronics .
– Position the catch pan under the gearbox.

– Release oil drain plug -arrow- at the gearbox.



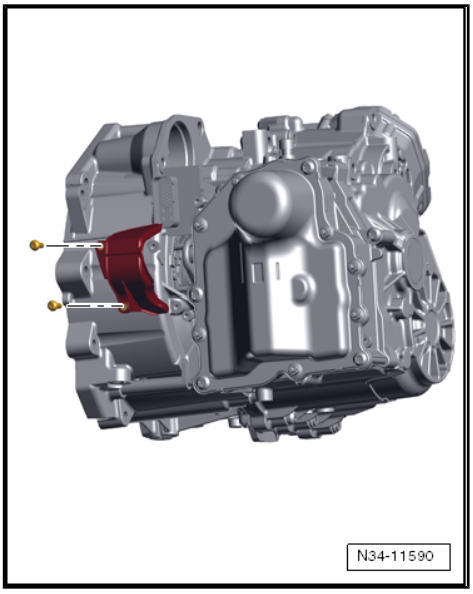
– Drain off oil.
– Install oil drain plug.



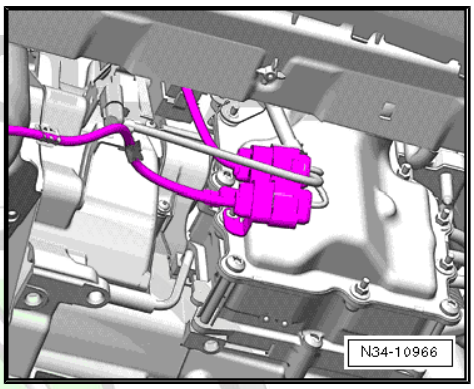
Note

Suction off oil residues which do not escape from the gearbox after removing the mechatronics with the diesel extractor, e. g. - VAS 5226- .

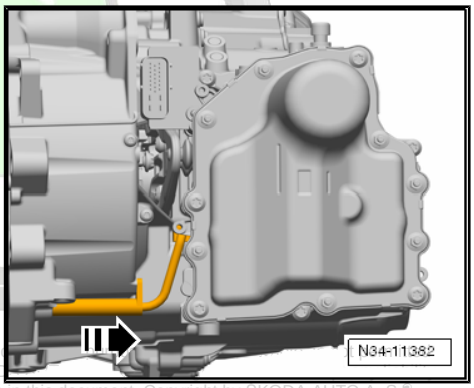
– If present, remove the cover for preventing dirt penetration that is above the dual clutch gearbox engaging lever.



– Remove the electrical lines from the bottom holder at the front of the mechatronics and tie up.
– Remove all the brackets from the gearbox.



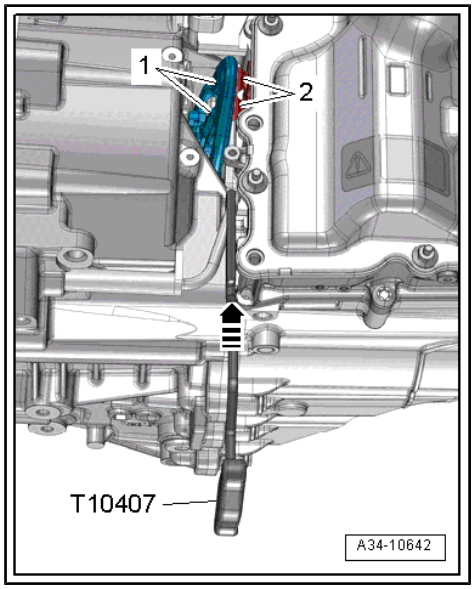
– Carefully unlock the gearbox input r.p.m. sender - G182- with a screwdriver and pull it out of the housing in the -direction of arrow-.



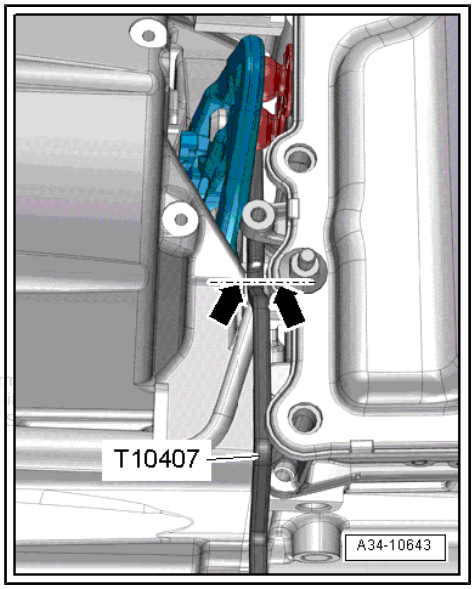
Note

The following operation serves to push both dual clutch gearbox engaging levers off the tappets. Otherwise the engaging levers will in contact with the mechatronics tappets and it will not be possible to remove the mechatronics.

– Insert assembly lever - T10407- below the tappets -2- between the gearbox housing and both engaging levers -1- - arrow-, as shown in the illustration.



– Insert the assembly lever - T10407- only far enough for the groove to be level with the housing recess -arrows-, as shown in the illustration. Do not insert as far as the stop.

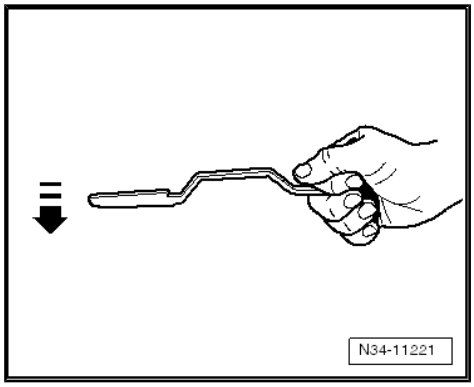


Note

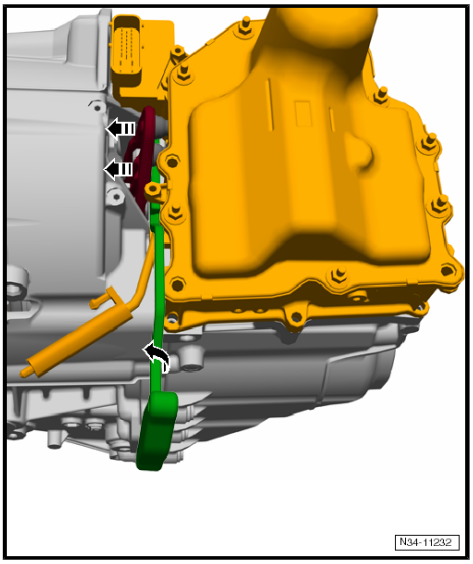
- *The recess of the housing and the nut on the lever must form one level. Do not insert the assembly lever - T10407- up to the stop.*
- *The rear of the assembly lever must rest against the gearbox housing.*

– When turning, only apply force limited force to the lever end.

This will prevent the lever from falling out during turning.



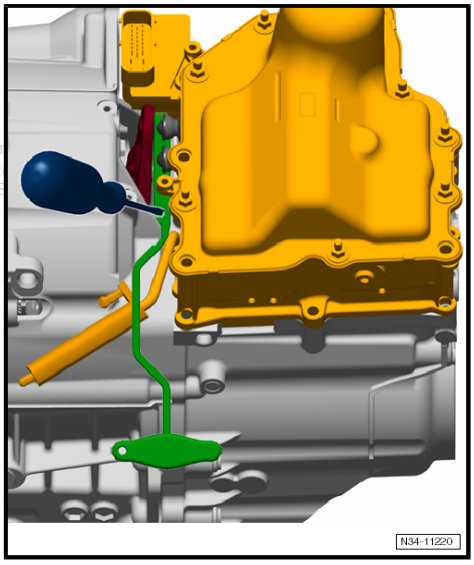
– Turn the assembly lever - T10407- to the left in -direction of arrow- and thus press the engaging lever away from the tappets.



Note

- *Do not remove the assembly lever - T10407- . The assembly lever remains inserted between the engaging lever and the gearbox housing for the duration of the assembly time.*
- *Removing the assembly lever can have negative consequences on the automatic adjusting device of the dual clutch gearbox.*

If necessary, press the assembly lever - T10407- against the gearbox using a screwdriver, thereby both levers of the dual clutch gearbox are pressed off the mechatronics .



Note

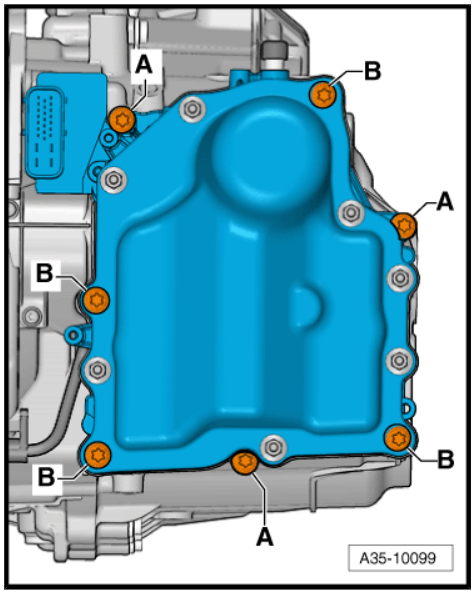
While doing so, the rubber grommets of the dual clutch adjusters should not be damaged.

Caution

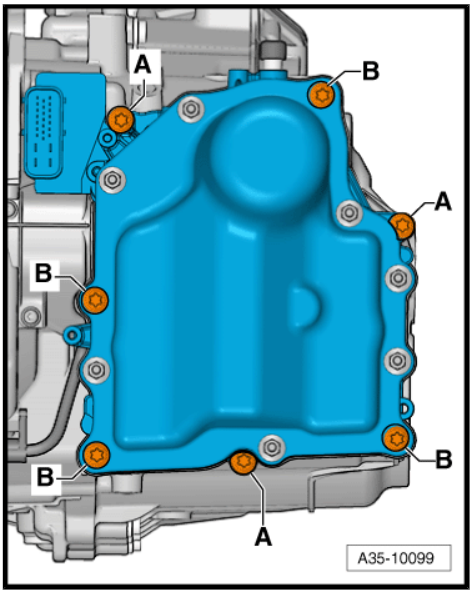
There is a risk of damage to the dual clutch gearbox mechatronics - J743- .

- ***Do not slacken cover screws for mechatronics for double clutch gearbox - J743- .***
- ***Place the removed dual clutch gearbox mechatronics - J743- in a way that prevents any oil from escaping from the vent cap on the mechatronics.***
- ***If any oil escapes, topping up is not permitted and the mechatronics must be replaced!***

– Release long screws -B- (4 pieces, M8 x 90) crosswise.



– Release the remaining screws -A- (3 pieces, M8 x 35) crosswise.



Note

- *Do not remove more than 7 screws! »There are 4 long and 3 short screws«.*
- *Do not slacken the cover screws of 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.***

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

– Remove mechatronics.

Caution

There is a risk of damage to the dual clutch gearbox mechatronics - J743- .

- ***Occasionally it is not possible to remove the mechatronics.***
- ***In this case the top left gear controller clamps to the mechatronics.***
- ***The mechatronics must not be pulled out with increased force.***
- ***In this case, the mechatronics must first be moved manually into the removal position ⇒ page 73 .***

Note

The »removed« mechatronics is sent back with oil (close the ventilation opening with a suitable plug).

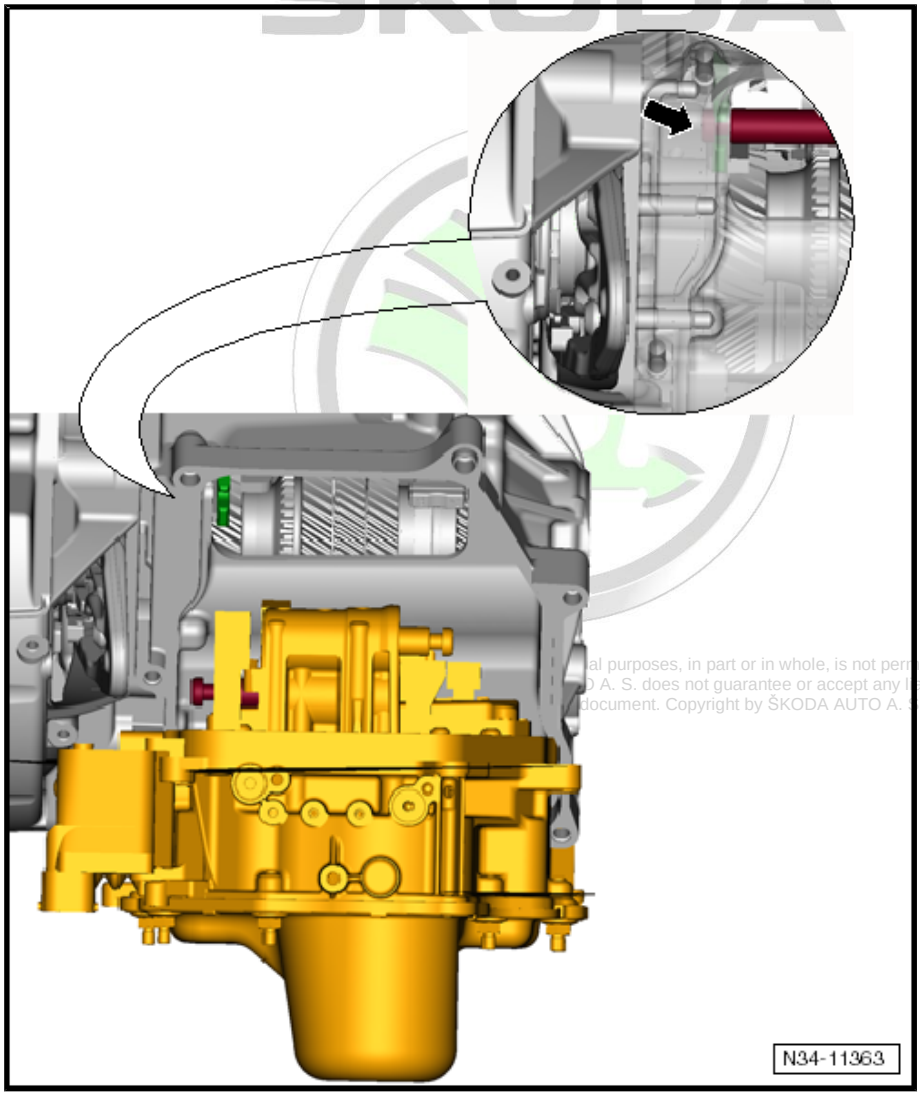
Install mechatronics on installed gearbox ⇒ page 75 .

3.4 Place the mechatronics for double clutch gearbox - J743- by hand in the »removal position«

Special tools and workshop equipment required

- Sealing grease - G 052 128 A1-

It can happen that the mechatronics cannot be removed. In this case, the gear actuator »jams« at the »top left« on the gearbox housing -arrow-.



The »jammed« gear actuator must now be pressed by hand into the »removal position«. To do so, remove the cover for the parking lock.

Work procedure

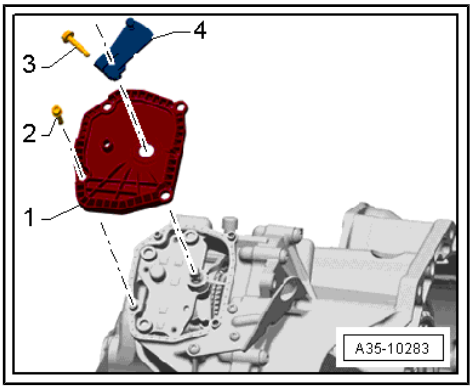
Caution

There is a risk of destruction of the mechatronics as a result of falling!

After the mechatronics has been moved manually into the »removal position«, the mechatronics is loosened and can be removed from the gearbox. If the attempt is still unsuccessful, secure the mechatronics to the gearbox with at least one bolt to prevent it from falling.

– Place mechatronics fully onto the gearbox and use a bolt to secure it.
– Shift selector lever into position “P”.

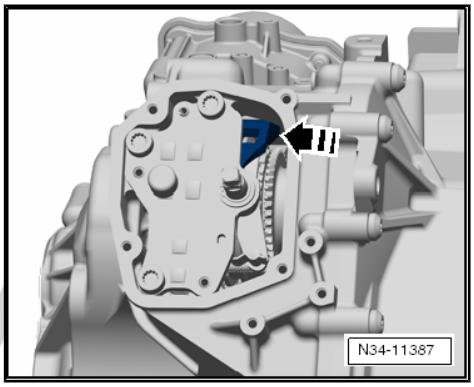
– Remove parking lock cover -1- ⇒ page 97 .



Note

Make sure that, for the next work step, the mechatronics is secured with at least one bolt to prevent it from falling out.

– Push the shift lever aside through the opening -in the direction of the arrow-.



By doing so, the »jammed« gear actuator is now pressed back and the mechatronics can be removed.

– Remove the mechatronics.

– Clean sealing surfaces on the gearbox and on the parking lock cover.

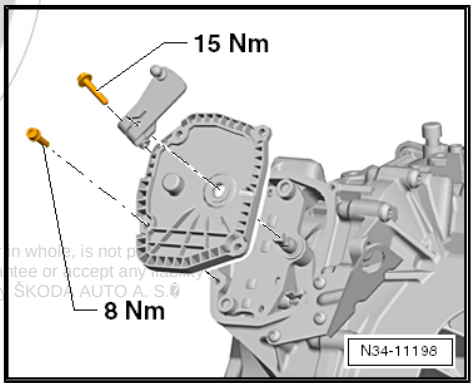
Note

After working on and installing the mechatronics, put gear oil into the parking lock through the opening ⇒ page 94 .

Note

- *Grease the shaft seal in the cover with sealing grease - G 052 128 A1- .*
- *Replace gearshift lever bolt ⇒ Electronic Catalogue of Original Parts .*

– Install cover for parking lock and gearshift lever ⇒ page 97 .



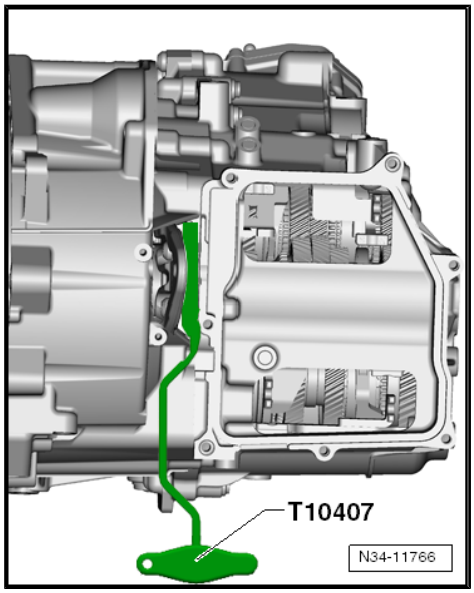
3.5 Install mechatronics for double clutch gearbox - J743- ; gearbox installed

Special tools and workshop equipment required

- Assembly lever - T10407-
- Guide bolt - T10406-
- Catch pan - VAS 6208-

Precondition

- The assembly lever - T10407- is inserted between the engaging levers of the dual clutch gearbox and the gearbox housing.



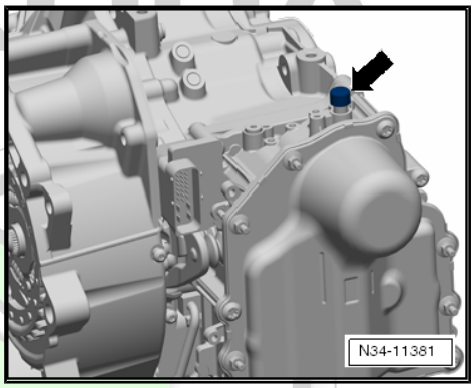
Note

- *During mechatronics installation, observe the following:*
- *After unpacking, do not liquidate the packaging or the red vent pipe cap of the new mechatronics. These will be needed for returning the removed mechatronics.*
- *The »removed« mechatronics is sent back with oil (close the ventilation opening with a suitable plug).*
- *The mechatronics is allocated according to the gearbox code letters ⇒ Electronic Catalogue of Original Parts .*
- *The »"new"« mechatronics is precisely filled with oil. Do not drain or oil or top up with oil.*
- *After installation of the »new« mechatronics, the immobilizer control unit must be adjusted ⇒ Vehicle diagnostic tester.*

Mounting sequence

– Close the ventilation opening of the mechatronics for double clutch gearbox - J743- with a suitable screw plug -arrow-, so that no oil can flow out.

– Before putting the mechatronics in place, first check all 4 shift levers in the gearbox manually.



All shift forks have 3 positions:

- Engaged drive position
- Neutral -N-
- Engaged drive position

– Consecutively bring all 4 shift forks once into each position -arrows-, if necessary turn a little on the pinions.

N - Neutral/idle position

R - Reverse gear

1 - first gear

2 - second gear

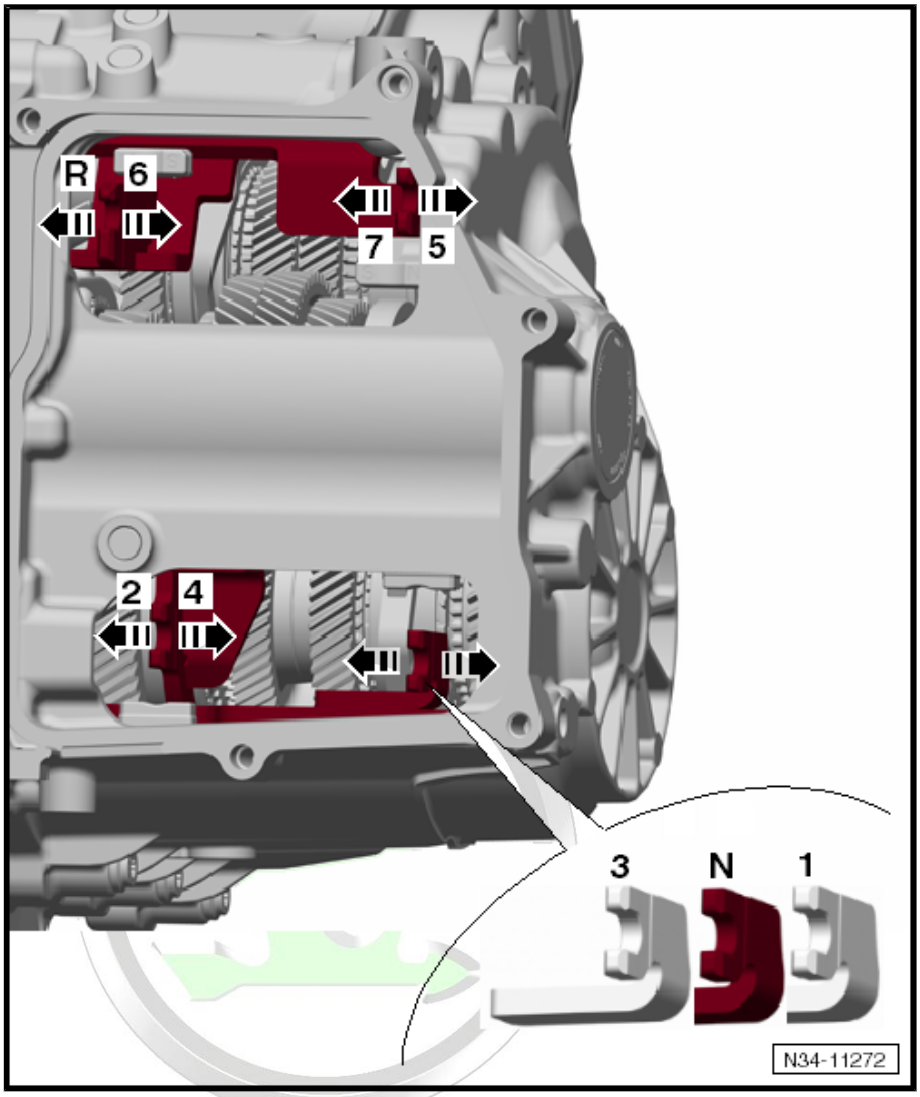
3 - third gear

4 - fourth gear

5 - fifth gear

6 - sixth gear

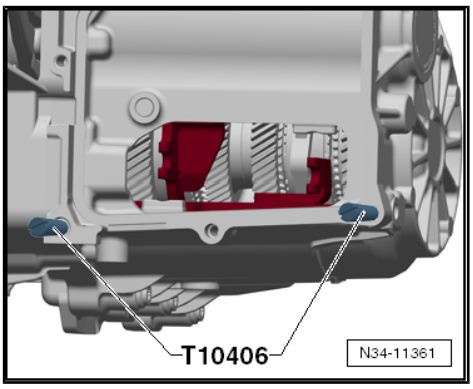
7 - seventh gear



– Then bring all the shift forks again into the »centre position«, position -N-.

– Clean the sealing surface on the gearbox housing on which the mechatronics will later be placed.

– Tighten the guide bolts - T10406- until they are hand-tight.

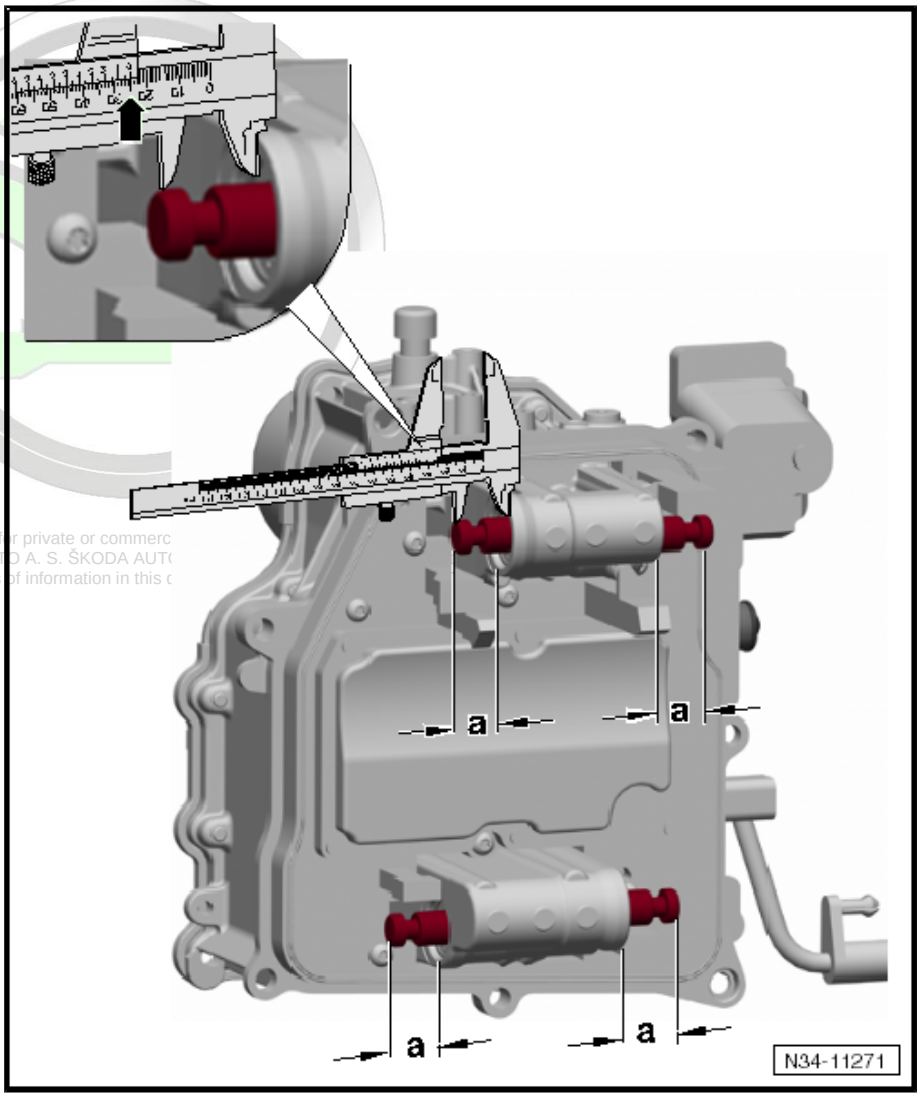


Adjusting the gear controller

Caution

Risk of damage mechatronics for double clutch gearbox - J743- .

When setting the gear actuators, do not press the senders.



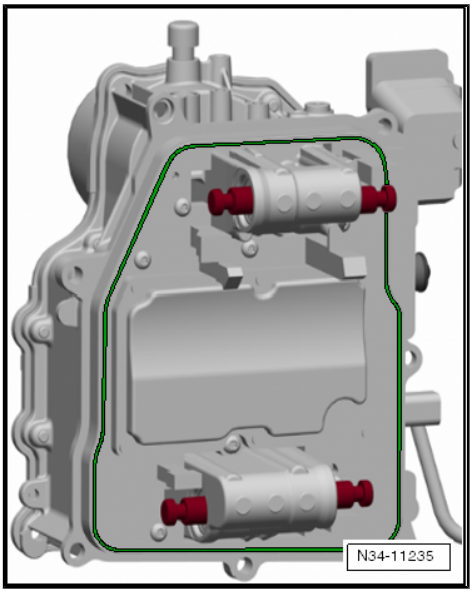
– Set all 4 gear controllers on the rear of the dual clutch gearbox mechatronics - J743- to the specified position.

Specified position:

-a- = 25 mm

Note

- *Clean sealing surface on the gearbox housing on which the mechatronics will later be placed.*
- *Oil residues on the sealing surface can lead to the wrong diagnosis »leaking« at a later stage.*
- *The seal around the sealing surface of the dual clutch gearbox mechatronics - J743- must be inserted into the groove.*



– Check gearbox input r.p.m. sender - G182- . The clip must not be damaged.

Caution

Risk of damage do clutches.

- ***When handling and placing the mechatronics in position, make sure that the shift levers are not unintentionally pushed out of position. Also pay attention to the engaging lever and the tappet of the mechatronics.***
- ***If the engaging lever falls heavily onto the tappet, it will be subjected to overpressure and automatic clutch setting will be activated. Automatic clutch setting cannot be cancelled.***

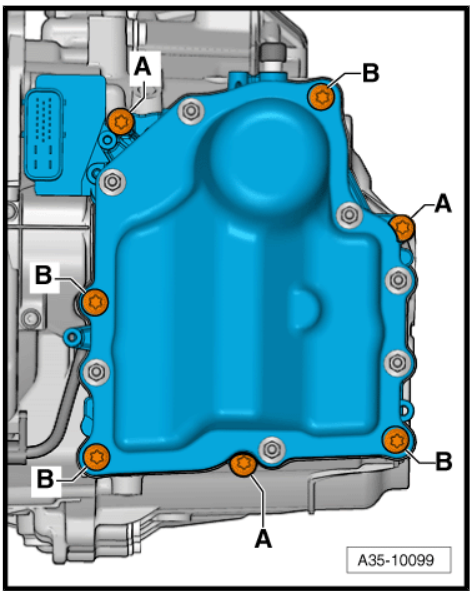
– Install mechatronics.

– Screw in new bolts -A- (3 units, M8 x 35) and -B- (2 units, M8 x 90) crosswise until hand-tight.

– Remove guide bolts - T10406- .

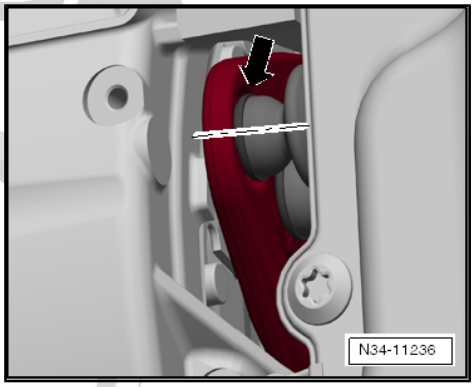
– Screw in the remaining bolts -B- (2 units, M8 x 90) until hand-tight.

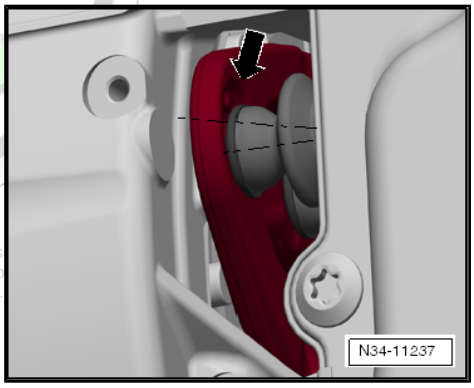
– Tighten all the screws for the mechatronics for double clutch gearbox - J743- crosswise to the recommended tightening torque ⇒ page 64 .



Make sure that the tappets grip precisely into the engaging lever bearing. Pull out the tappets by hand until they fit in these bearings.

– Check the position of the tappets once again.





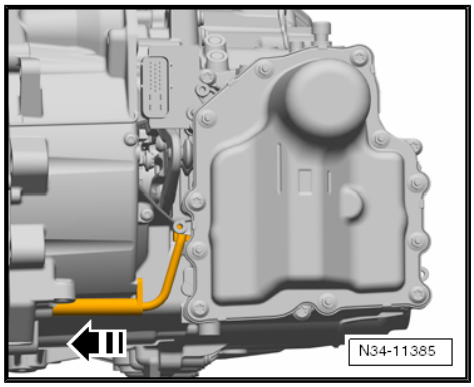
Note

- *Incorrectly mounted tappets will damage the mechatronics.*
- *The tappets can be put into their correct positions by means of a hook made from welding wire.*

– Turn the assembly lever - T10407- »slowly and carefully« to the right and remove it.

- Both clutch adjusters must correctly lock in the recesses of the engaging levers for the clutch.
- While doing so, the rubber grommets of the clutch actuators should not be damaged.
- The rubber grommets must rest on the mechatronics.
- An incorrect assembly or damage to the rubber grommets leads to oil leakage in the mechatronics.

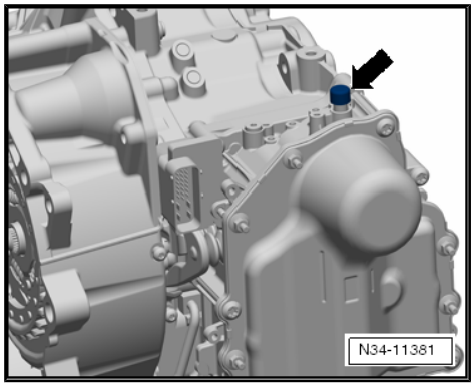
– Position the gearbox input r.p.m. sender - G182- in the -direction of arrow- on the gearbox housing.



Note

- *Look at the sender . The clip must not be damaged.*
- *The sender must be positioned completely and tightly with its tab on the gearbox housing. If the sender is »loose«, the clip is broken ⇒ replace the mechatronics.*

– Remove the screw plug from the ventilation and position the ventilation cap.

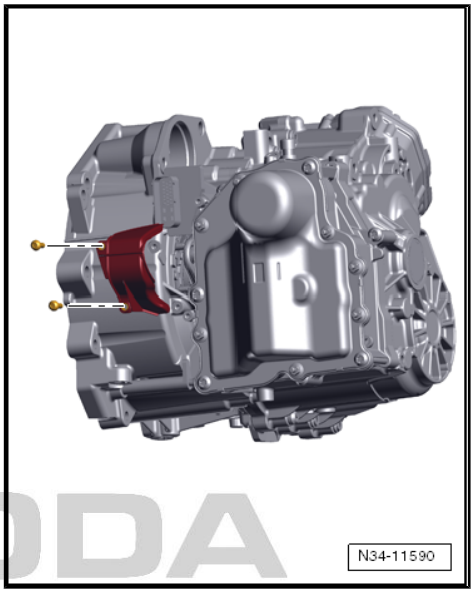


– Install the cover against contamination above the engaging lever.

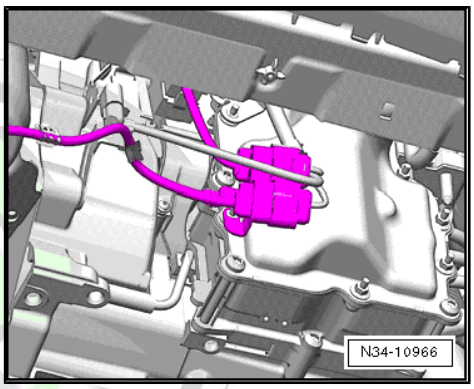
  Tightening torque securing bolts: 8 Nm

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.*



– Grab with the hand (without gloves) at the mass, so that it discharges electrostatically.
– Mount the plug of the mechatronics and lock.



– Attach all the holders and cables again on the mechatronics.
– Install fan shroud ⇒ Engine; Rep. gr. 19 .
– Install charge air hose ⇒ Engine; Rep. gr. 21 .
– Install the noise insulation ⇒ Body Work; Rep. gr. 50 .
– Pour in gear oil ⇒ page 94 .
– Inspect setting of selector lever control cable; adjust if necessary ⇒ page 48 .
– Install the battery tray and battery ⇒ Electrical System; Rep. gr. 27 .
– Install air filter ⇒ Engine; Rep. gr. 24 or ⇒ Engine; Rep. gr. 23 .

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

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

After the installation of the mechatronics , perform a `basic setting` with the ⇒ Vehicle diagnostic tester.

4 Removing and installing the gearbox

Removing the gearbox ⇒ page 82 .

Installing the gearbox ⇒ page 88 .

Note

- *Observe instructions for automatic gearbox DSG - 0CW ⇒ page 8 .*
- *General repair information ⇒ page 11 .*
- *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 additional operations ⇒ Electrical System; Rep. gr. 27 .*

4.1 Removing the gearbox

Special tools and workshop equipment required

- Removal tool for the inner lining of the door panel -MP8-602/1-
- Supporting device - T30099-
- Surface - T30119-
- Hook for MP9-200 and T30099 - MP9-200/10 (10-222A/10)-
- Support - 10-222A/31-3-
- Clutch - T40091/3-
- Gearbox mount - 3282-
- Bolt - 3282/29-
- Adjusting plate - 3282/59-
- Tensioning strap - T10038-
- Engine/gearbox jack , e.g. -V.A.G 1383 A-
- Spring strap clips , e.g. -VAS 6340-

– Shift selector lever into position “P”.

Note

Do not take out ignition key.

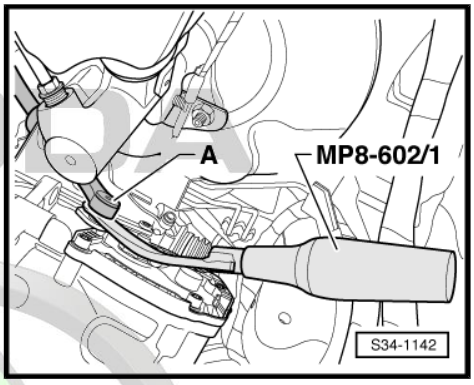
– Remove engine cover ⇒ engine; Rep. gr. 10 .

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

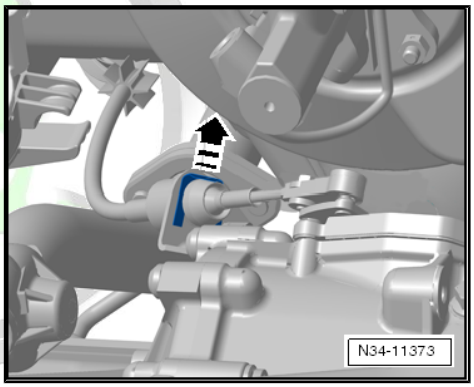
– Remove battery and battery tray ⇒ Electrical System; Rep. gr. 27 .

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

– Expose the selector lever control cable -A- from the gearbox shift lever with the removal tool for the inner lining of the door panel -MP8-602/1- .



– Remove the lock washer -arrow- of the selector lever control cable, the selector lever control cable must be left in the fitting position.



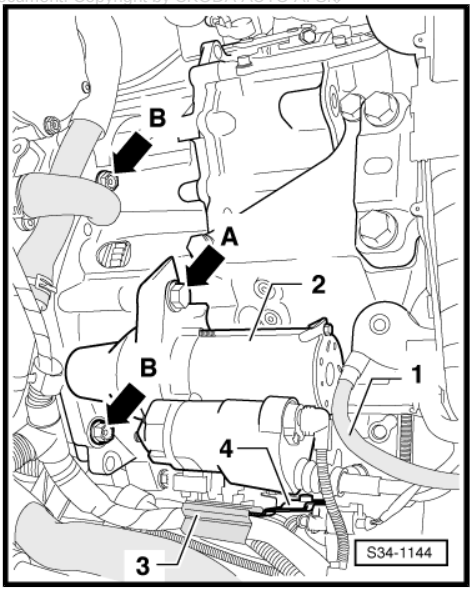
Note

- *The lock washer -1- of the selector lever control cable 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 linkage is first removed from the linkage bearing during gearbox removal.*

– Remove the earth lead -1- from the fixing screw of the gearbox console.

– Remove plug and cable from starter ⇒ Electrical System; Rep. gr. 27 .

– Unscrew screw -arrow°A- from starter.



Note

Unscrew the second fixing screw from the starter (not visible in the illustration) and remove starter -2-.

– Unscrew the connecting screws -arrows B- at engine and gearbox. To this end, use if necessary the socket insert -T10035- .

– Pull line connections -3- out of holder -4- and strap up.

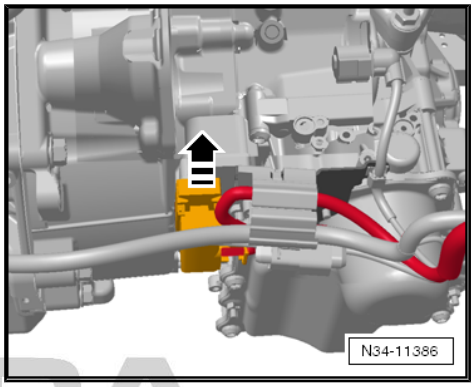
– Remove the holder -4- from the gearbox.

Caution

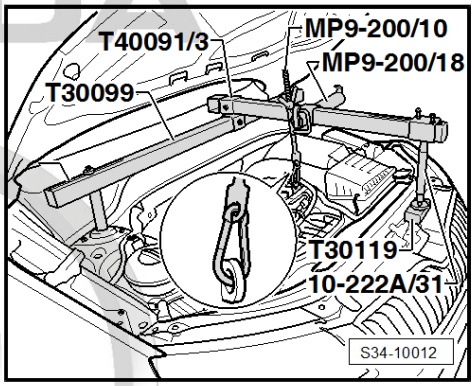
- ***Under no circumstances must the plug contacts in the plug of the gearbox be touched with the hands, because the control unit can be destroyed through static discharge as well as the mechatronics.***

– Grab with the hand (without gloves) at the mass, so that it discharges electrostatically.

– Unlock the cap of the plug on the mechatronics by pulling in -direction of arrow- and disconnect the plug.
– Remove caps of screwed connections for front suspension strut domes.



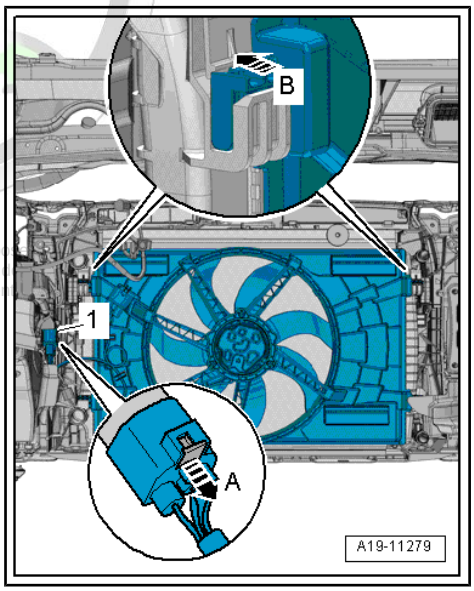
– Position the supporting device -T30099- together with the other elements according to the illustration.
– Slightly pre-tension the engine/gearbox unit via the hooks (do not raise).
– Remove front wheels ⇒ Chassis; Rep. gr. 44 .
– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
– Remove the front left wheelhouse liner ⇒ Body Work; Rep. gr. 66 .
– Remove the charge air hose from the bottom left charge air cooler and the charge air pipe ⇒ Engine; Rep. gr. 21 .



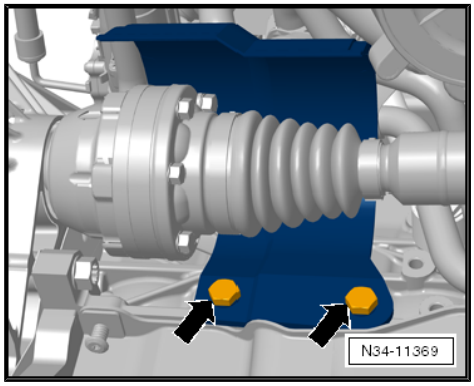
– Disconnect plug connection -1- for radiator fan.
– Loosen the clips -arrow B- and remove the fan shroud ⇒ Engine; Rep. gr. 19 .

Note

The fan shroud can be installed with two fans.



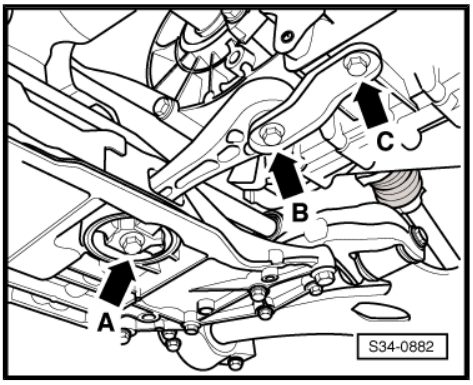
– Remove the protective cap for right drive shaft from the engine -arrows-.



– Remove pendulum support, to do so screw out screws -arrows A, B and C-.

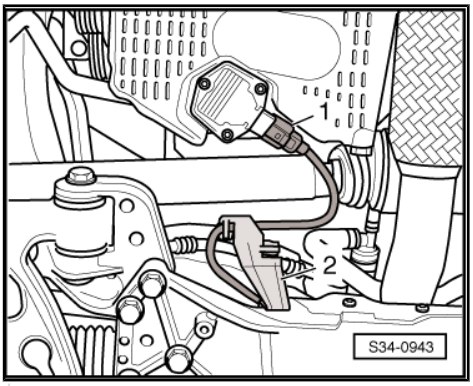
– Separate exhaust system at the clamping sleeve and remove bracket for the exhaust system from the assembly carrier ⇒ Engine; Rep. gr. 21 .

– Tie up pre-exhaust pipe.



– Disconnect plug -1- at the oil level and oil temperature sender - G266- .

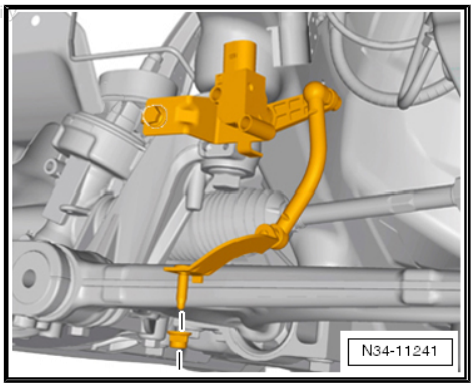
– Unclip the wiring loom from the holder -2-.



– If present, remove front left vehicle level sensor - G78- .

– Lower the assembly carrier in the service position ⇒ Chassis; Rep. gr. 40 .

– Remove drive shafts from flange shafts ⇒ Chassis; Rep. gr. 40 .



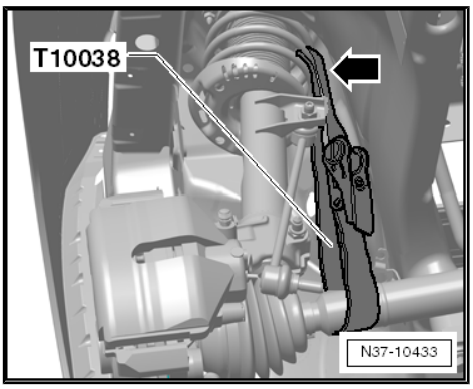
– Tie up the drive shaft as far as possible. Avoid damaging the paintwork on the drive shaft during this operation.

– Remove right flange shaft ⇒ page 103 .

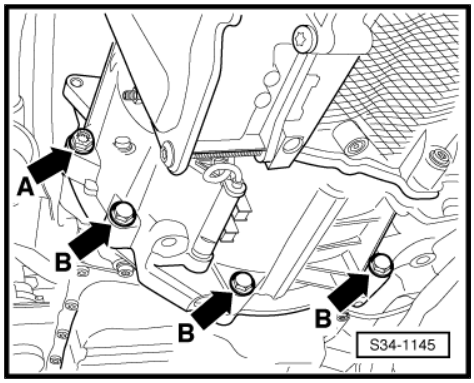
Continued for vehicles with 1.2 and 1.4 engines

On the 1.4 engine separate the front exhaust system, the exhaust system must not be separated on the 1.2 engine.

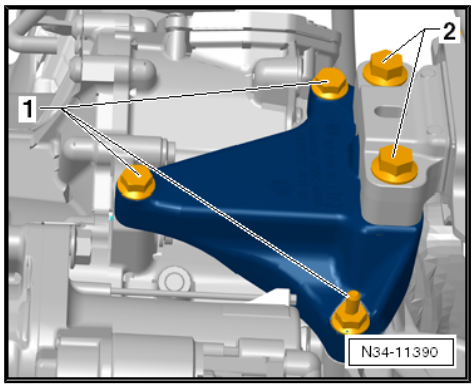
Continued for all vehicles



– Unscrew bottom connecting screws -arrow°A- and -arrow°B- from engine/gearbox.

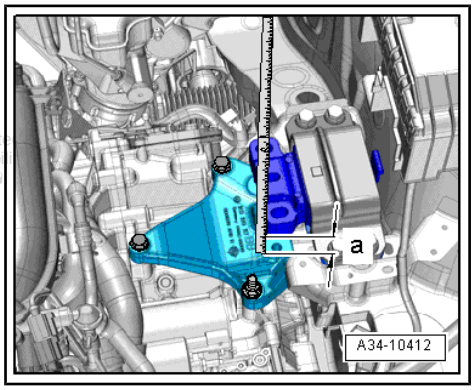


Slacken the screws -1- of the gearbox console by approx. one turn and screw out the screws -2-.

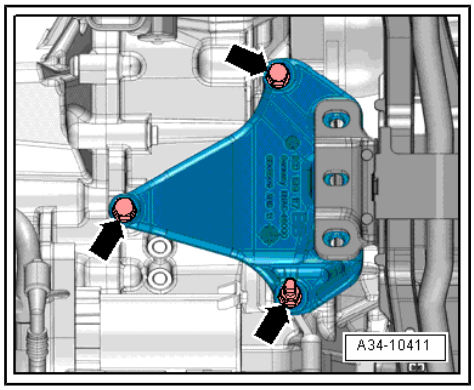


– Then lower the engine and gearbox via the hooks of the supporting device - MP9-200 (10-222 A)- as far as necessary so that there is a gap of dimension -a- between the gearbox console and the gearbox mount.

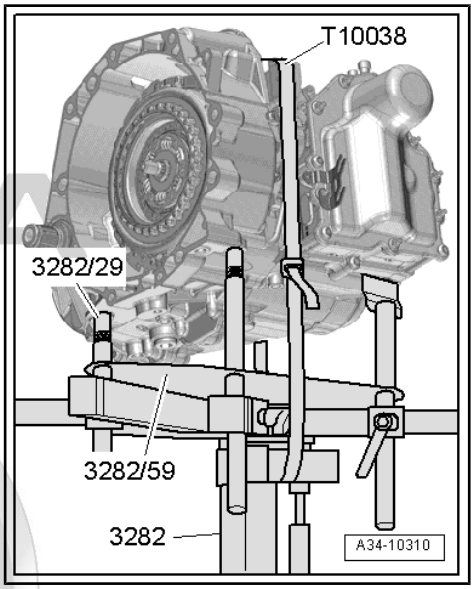
• Dimension -a- = 60 ... 70 mm



– Screw out screws -arrows- and remove gearbox console.

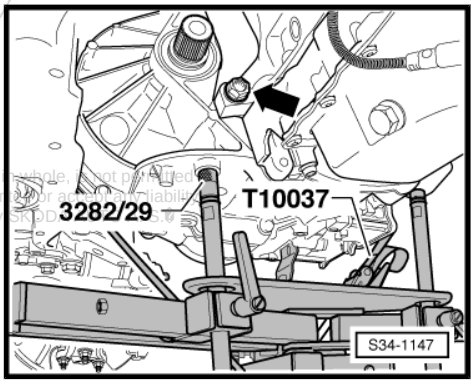


For the removal of the gearbox DSG - 0CW the gearbox mount - 3282- is aligned with the adjusting plate - 3282/59- and placed on the engine and gearbox jack - V.A.G 1383 A- .



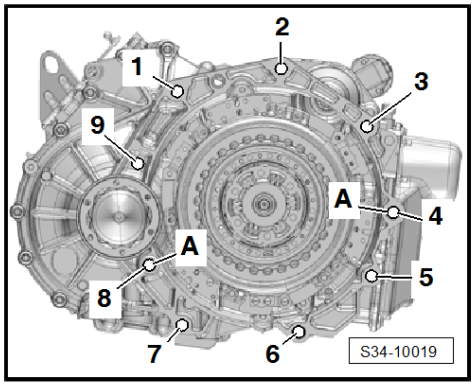
– Align arms of the gearbox mount to match the holes in the adjusting plate - 3282/59- .
– Screw in the mounting elements as shown on adjusting plate - 3282/59- .
– Position the engine/gearbox jack - V.A.G 1383 A- below the vehicle.
• The arrow symbol on the adjusting plate - 3282/59- points in the direction of travel.
– Align the gearbox mount - 3282- parallel to the gearbox.
– Screw the bolt - 3282/29- into the gearbox.
– Place both remaining mounting elements on the gearbox as shown. To do so, place the panel of the drift under the gearbox housing and not under the mechatronics.
– Secure the gearbox with the tensioning strap - T10038- .
– Support the gearbox from below by raising the engine and gearbox jack - V.A.G 1383 A- .

– Unscrew the last connecting screw -arrow- at engine and gearbox.



Note

For vehicles with 1.2 l/77 kW TSI engines and 1.4 l/103 kW TSI engines, there is also an additional locking screw -9-.



- Press the gearbox out of the sleeves.
- Carefully separate the gearbox from the engine and lower a little.
- When lowering the gearbox, guide the selector lever control cable out of the cable support.

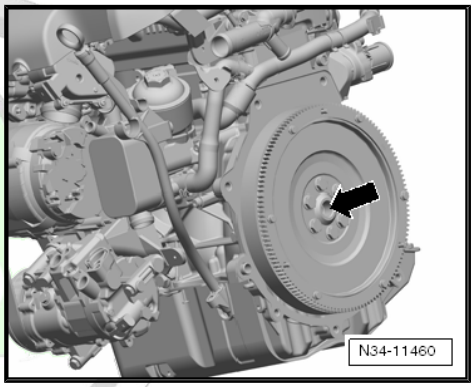
Note

- *When lowering the gearbox, carefully guide the selector lever control cable out of the cable support.*
- *Do not bend or buckle selector lever control cable.*
- *Observe all lines and coolant hoses when lowering the gearbox.*

Transport the gearbox and secure it to the assembly stand
⇒ page 92 .

4.2 Installing the gearbox

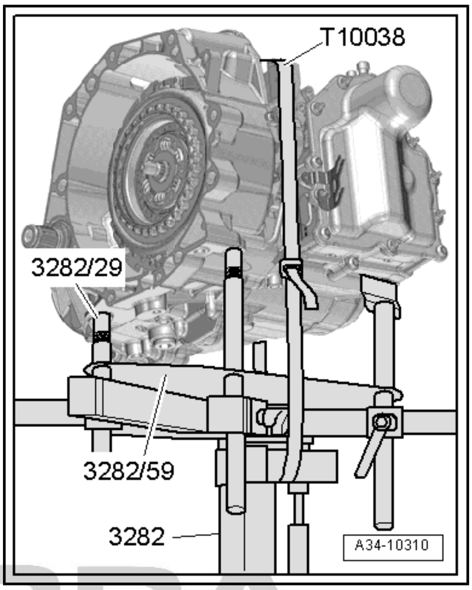
Installation is performed in the reverse order, pay attention to the following points:



Note

- *Replace the self-locking nuts and screws when undertaking assembly work.*
- *Replace screws which have been 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.*
- *The lock washer of the selector lever control cable must always be replaced ⇒ Electronic Catalogue of Original Parts .*
- *Replace the needle bearing -arrow- in the crankshaft ⇒ Engine; Rep. gr. 13 .*
- *Check whether the dowel sleeves 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- .



Note

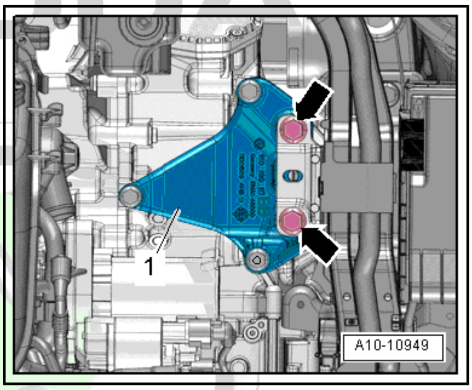
- *Carefully insert the selector lever control cable in the cable support when raising the gearbox.*
- *Do not bend or buckle selector lever control cable.*
- *Observe all lines and coolant hoses when raising the gearbox.*

– Adjust the gearbox mount - 3282- via the spindles in such a way that the engine and the gearbox are »aligned«.

The engine and the gearbox must be moved together by hand until the engine flange and the gearbox flange touch each other all around! If necessary, turn crankshaft further when doing so.

– Screw on the gearbox to the engine.

Install the unit mounting as follows:



– Insert the gearbox console -1- between the gearbox and the supporting arm of the gearbox mount.

– Screw the gearbox console -1- with new screws to 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.

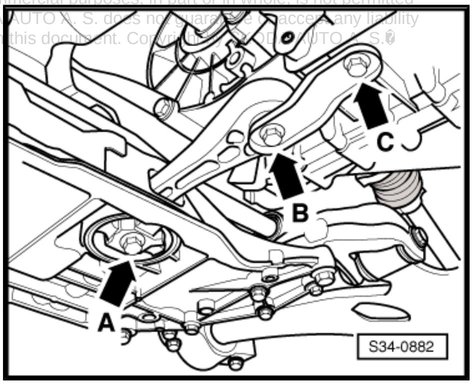
– At first, tighten screws -arrows- hand-tight.

Caution

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

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

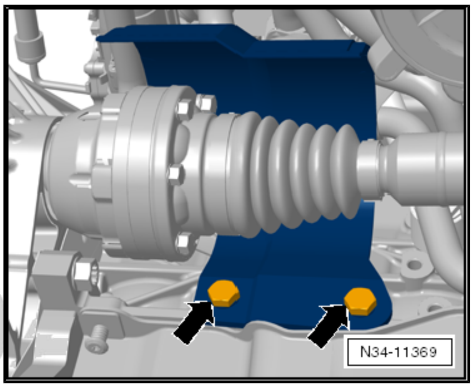
– Attach the assembly carrier ⇒ Chassis; Rep. gr. 40 .



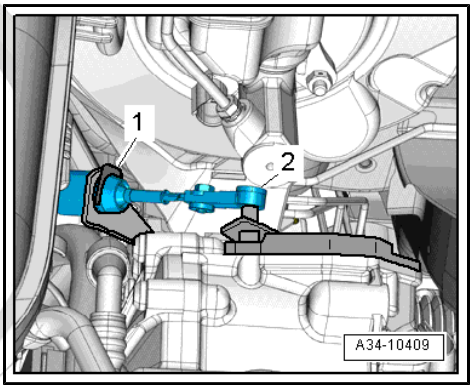
– Using the new bolts -arrows A, B, and C-, screw the pendulum support onto the gearbox ⇒ Chassis; Rep. gr. 40 .

– Mount the right flange shaft ⇒ page 103 .

– Install the left drive shaft and the right drive shaft ⇒ Chassis; Rep. gr. 40 .



– Install protective cap for right drive shaft on the engine, to do so tighten the screws -arrows- to 35 Nm.
– Install fan shroud ⇒ Engine; Rep. gr. 19 .
– Install the charge air hose between the bottom left charge air cooler and the charge air pipe ⇒ Engine; Rep. gr. 21 .
– Screw pre-exhaust pipe holder onto the assembly carrier and align exhaust system free of stress ⇒ Engine; Rep. gr. 26 .
– Install the starter motor ⇒ Electrical System; Rep. gr. 27 .
– Check the setting of the assembly bearings ⇒ Engine; Rep. gr. 10 .
– Tighten the new screws of the gearbox mount to the gearbox console with tightening torque ⇒ page 90 .
– Remove supporting device - MP9-200 (10-222 A)- .

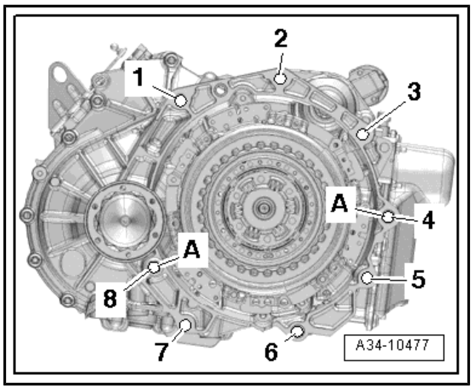


– Carefully press the selector lever control cable -2- onto the gearshift lever and secure in the cable support with a new lock washer -1-.
– Install the battery tray and battery ⇒ Electrical System; Rep. gr. 27 .
– Inspect setting of selector lever control cable and adjust if necessary ⇒ page 48 .
– Install air filter ⇒ Engine; Rep. gr. 24 or ⇒ Engine; Rep. gr. 23 .
– 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 .
– If the front left vehicle level sensor - G78- was removed, check headlight beam setting ⇒ Electrical System; Rep. gr. 94 .

Perform the `basic setting` after the gearbox has been fitted with the ⇒ Vehicle diagnostic tester.

4.2.1 Tightening torques

Attachment of gearbox to 1.6 ltr./77 kW TDI CR engines



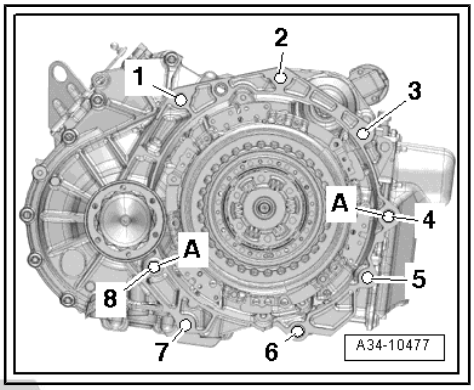
Pos.	Screw	Nm
1, 3	M12 x 55	80
2[1)]	M12 x 150 + M8 x 16	80
4	M12 x 65	80
5, 6, 7	M10 x 55	40
8[2)]	M12 x 65	80
A	Dowel sleeves	

1) Additional starter to gearbox with engine.

2) Screwed in from the engine side.

Attachment of gearbox to 1.8 ltr./132 kW TSI engines

Pos.	Screw	Nm
1, 3	M12 x 50	80
2[1)]	M12 x 165 + M8 x 16	80
4	M12 x 65	80
5, 6, 7	M10 x 55	40
8[2)]	M12 x 65	80
A	Dowel sleeves	

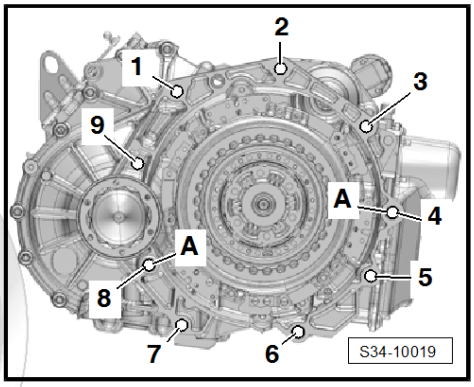


1) Additional starter to gearbox with engine.

2) Screwed in from the engine side.

Securing gearbox to 1.2 l/77 kW TSI and 1,4 l/103 kW TSI engines

Pos.	Screw	Nm
1.3	M12 x 50	80
2[1)]	M12 x 165 + M8 x 16	80
4	M12 x 70	80
5, 6, 7	M10 x 55	40
8[2)], 9[2)]	M12 x 70	80
A	Dowel sleeves	



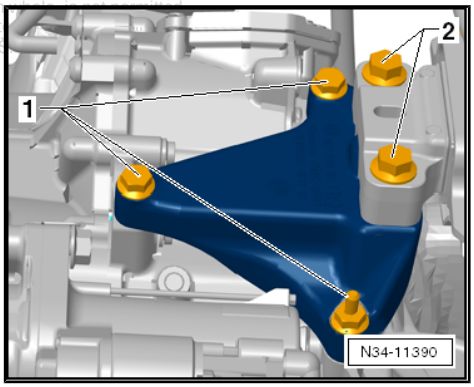
1) Additional starter to gearbox with engine.

2) Screwed in from the engine side.

Gearbox console to gearbox and gearbox mount to gearbox console

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

- Turn the screws -1- further tightening torque 40 Nm + 90° (1/4 turns.)
- Turn the screws -2- further tightening torque 60 Nm + 90° (1/4 turns.)



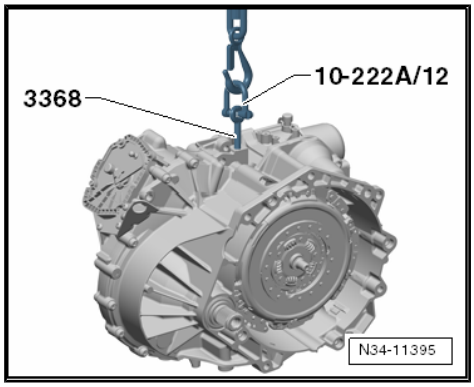
5 Transport the gearbox and secure to the assembly support

Special tools and workshop equipment required

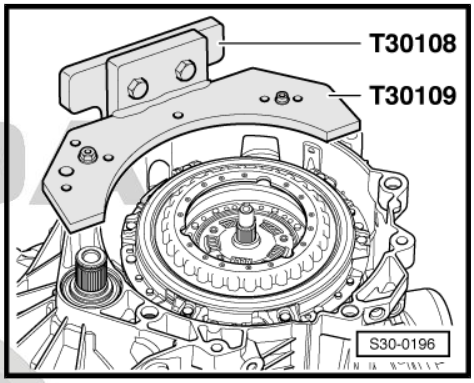
- Ring bolt - 3368- (2 pieces)
- Shackle - 10-222 A /12-
- Gearbox mount - T30109 (VW 353)-
- Gearbox mount - T30108-
- Lifting device - MP9-201 (2024 A)-
- Assembly stand - MP9-101-

Transporting the gearbox

– Screw the ring bolt - 3368- into the threaded bore of the gearbox up to the stop and secure with nut M10. Subsequently hook a workshop crane in the shackle - 10-222 A /12- .

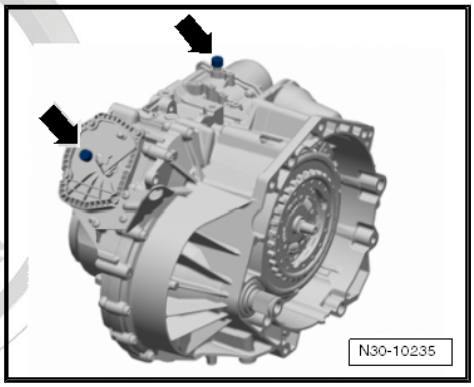


Secure the gearbox in the gearbox mount - T30109 (VW 353)-



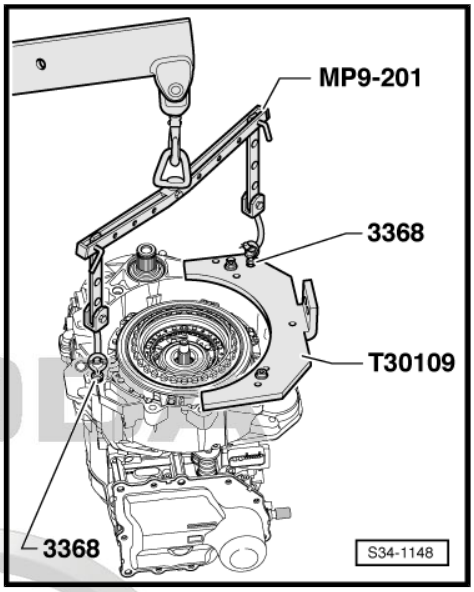
Note

- *Before the gearbox can be turned horizontally, both ventilation caps -arrows- must be removed and the openings must be closed with suitable screw plugs so that no oil can flow out.*
- *Close the gearbox in an oil-tight manner.*



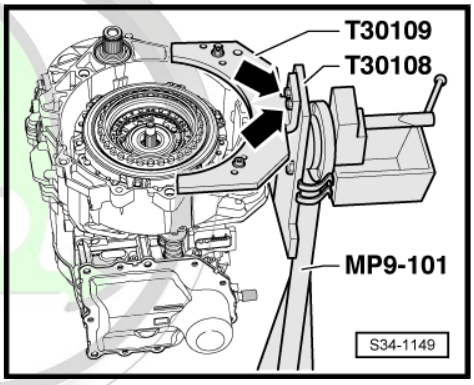
Raise the gearbox on the assembly stand - MP9-101-

The gearbox is raised together with the gearbox mount - T30109 (VW 353)- on the assembly stand .



Attach gearbox to assembly stand - MP9-101-

– Screw the gearbox mount - T30109 (VW 353)- with screws -arrows- onto the gearbox mount - T30108- .



6 Change gearbox oil

Special tools and workshop equipment required

- Adapter -VAS 6262A-
- Adapter -VAS 6262/4-
- Adapter -VAS 6262/6-
- Catch pan

Note

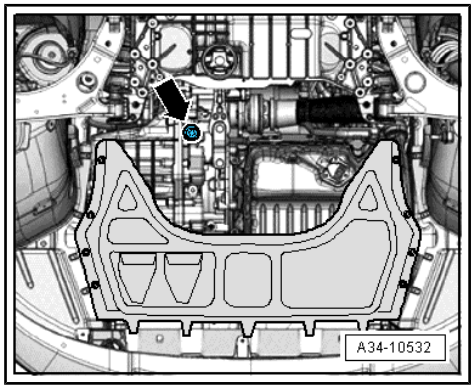
- *The gear oil filling is permanent for the "7-speed double clutch gearbox 0CW" (oils are designed to be filled for life). For this reason the oil level is not checked and the inspection plug is not present on this gearbox.*
- *Observe the general repair instructions ⇒ page 11 .*

If leaks on the gearbox or mechatronics errors occur, the cause must be found and faults must be remedied.

The gear oil must then be fully drained and replaced with new oil.

Draining out gear oil

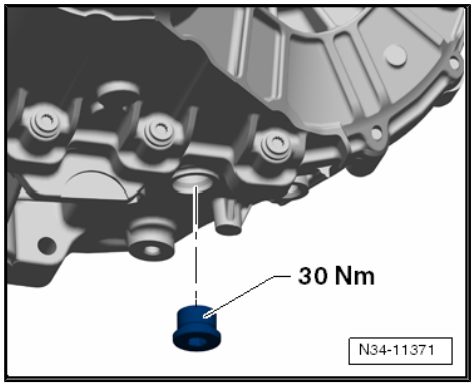
– Raise vehicle ⇒ Maintenance ; Booklet Octavia III .
– Position the catch pan under the gearbox.
– Release oil drain plug -arrow- at the gearbox.



– Drain off oil.

Note

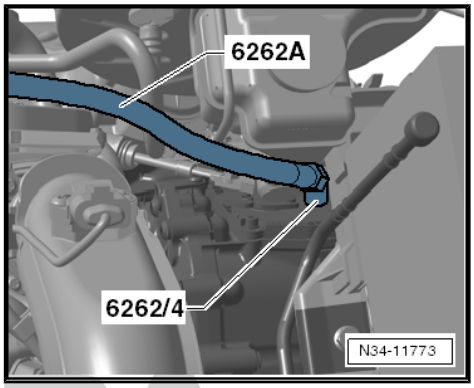
When using mechatronics, oil residues that have not escaped from the gearbox must be removed by suction through the opening when removing the mechatronics, e.g. using a diesel suction device -VAS 5226- .



– Install oil drain plug.

Pour in gear oil

The new oil is filled via the air release hole.



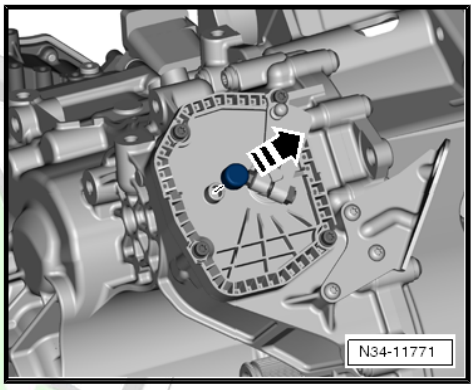
Note

- *If the gearbox is installed, the air filter or the battery with the battery tray must be removed when filling up the oil, depending on the model and engine.*
- *If the battery earth strap is disconnected and connected, carry out additional operations ⇒ Electrical System; Rep. gr. 27 .*

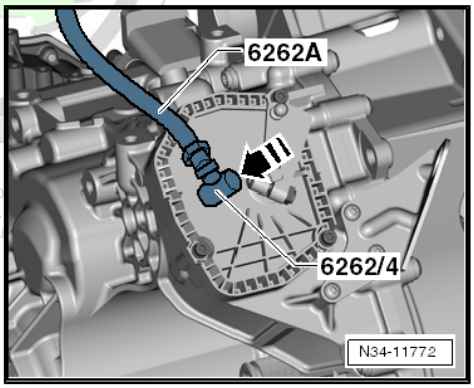
– Remove air filter ⇒ Engine; Rep. gr. 24 or ⇒ Engine; Rep. gr. 23 .

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

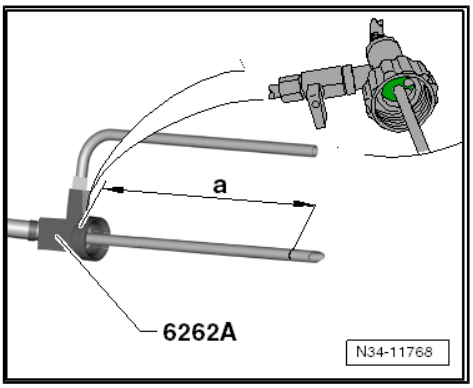
– Detach the cap from the air release hole.



– Fit on adapter -VAS 6262A- and adapter -VAS 6262/4- .



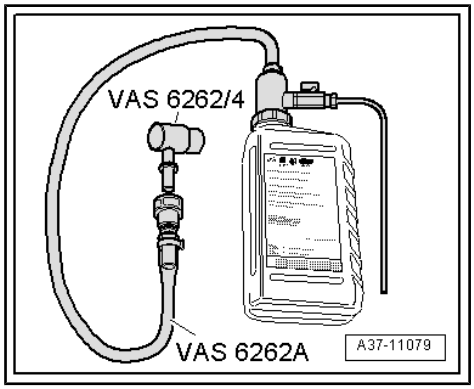
Before screwing the adapter - VAS 6262A- onto the oil dispenser, measure the length of the vent pipe, dimension -a-, and if necessary cut the pipe length to match dimension -a-: Lengthen off 210 mm.



Note

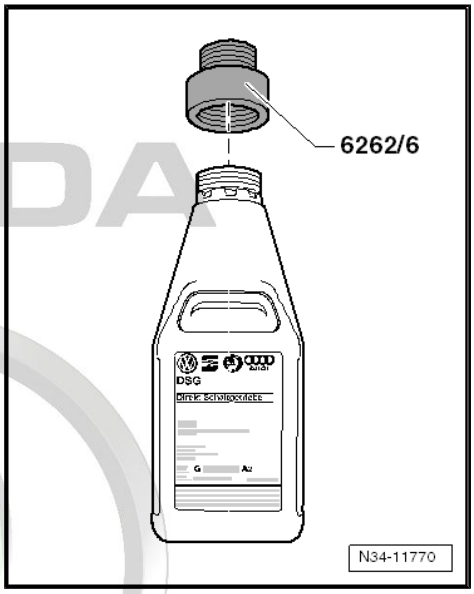
The dimension -a- is measured on the shaft (starting with the green area in the magnifying glass) of the adapter for oil filling - VAS 6262A- .

– Screw the oil bottle onto the adapter - VAS 6262 A- .



Note

If the oil dispenser thread does not match the adapter - VAS 6262 A- thread, the adapter must also -VAS 6262/6- be used.



Note

- *For filling, only use gear oil for "7-speed dual clutch gearbox DSG - 0CW" ⇒ Electronic Catalogue of Original Parts .*
- *Shake oil reservoir before filling.*
- *The gear oil level cannot be checked.*
- *The prescribed filling quantity must be observed exactly - the gearbox has only been filled correctly if this has been done.*
- *An over-filling as well as an under-filling impairs the proper working of the gearbox.*

– Filling with the pre-determined gear oil quantity.

Filling capacity	
After draining the gear oil using the gearbox drain plug only	1.9 l
After draining the gear oil using the gearbox drain plug and removing oil residues by suction with mecha-tronics removed	2.1 l

– Remove the adapter from the gearbox after filling up.

Note

Wipe the area around the air release hole clean using a cloth.

– Fit on the ventilation cap.
– Install the battery tray and battery ⇒ Electrical System; Rep. gr. 27 .
– Install air filter ⇒ Engine; Rep. gr. 24 or ⇒ Engine; Rep. gr. 23 .

7 Parking lock of automatic gearbox

Removing and installing cover for parking lock ⇒ page 97 .

Removing and installing parking lock ⇒ page 98 .

7.1 Removing and installing cover for parking lock

Special tools and workshop equipment required

♦ Removal tool for the inner lining of the door panel -MP8-602/1-

Removing

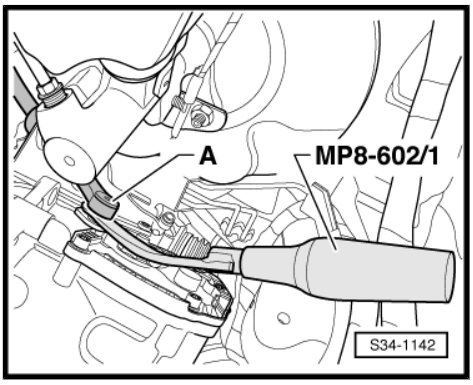
- The gearbox is installed.
- Selector lever in »"P"«.

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

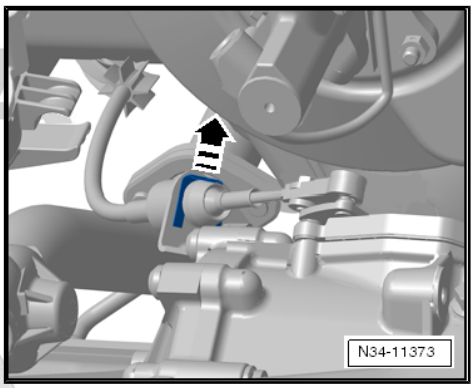
– Remove air filter ⇒ Engine; Rep. gr. 24 or ⇒ Engine; Rep. gr. 23 .

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

– Use disassembly tool for inner door trim panel -MP8-602/1- to release selector lever linkage-A- from the gearshift lever.

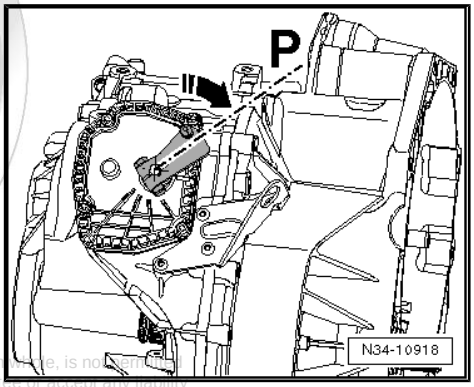


– Remove lock washer -arrow- of the selector lever control cable and leave the selector lever control cable must be left in the fitting position.



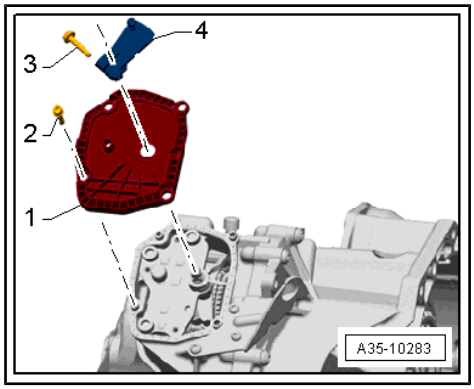
– Position gearshift lever in “P”.

– To do so, press the lever by hand up to the stop in the direction towards the cable support -arrow-.



– Screw out screw -3- and remove gearbox shift lever -4-.

– Remove screws -2- and take out retainer -1-.



Install

If there are leaks on the gearshift shaft sealing ring or on the parking lock cover, the parking lock cover must be replaced ⇒ Electronic Catalogue of Original Parts .

– Clean the sealing surface and the cover for the parking lock -1-.

– Place parking lock cover -1- in position, screw in bolts -2- and tighten to 8 Nm.

– Place gearshift lever -4- in position, screw in the new bolts -3- and tighten to 15 Nm.

Further installation occurs in reverse order.

– Setting selector lever control cable ⇒ page 48 .

7.2 Removing and installing parking lock

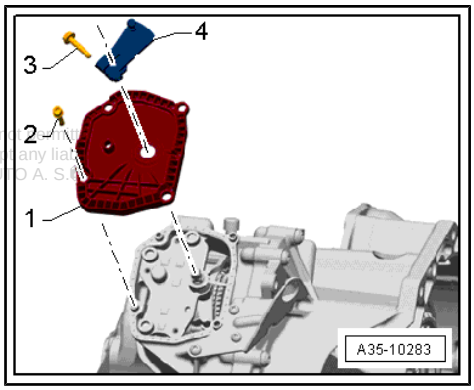
Special tools and workshop equipment required

- Multi-purpose tool - VW 771-
- Extraction hook - VW 771/37-

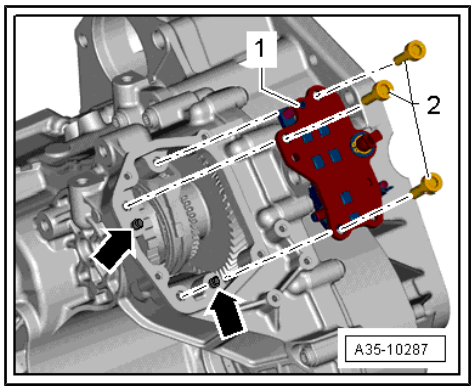
Removing

- The gearbox is installed.

– Remove cover for parking lock -1- ⇒ page 97 .



– Release the screws -2- and remove the parking lock -1- from the assembly sleeves -arrows-.



If the parking lock cannot be removed by hand:

– Position the multi-purpose tool - VW 771- with the extractor hook - VW 771/37- on the parking lock and remove it by pulling on both sides.

Install

– Place the parking lock -1- onto the assembly sleeves -arrows-.

– Screw on new bolts -2-, tighten them to 20 Nm and turn them a further 90° ($^1/_4$ turn).

– Install cover for parking lock -1- ⇒ page 97 .

35 – Gears, shafts

1 Pinions and shafts

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

39 – Final drive - differential

1 Replace the flange shaft gasket rings

Gasket rings- Summary of components ⇒ page 100 .

Replacing the left flange shaft gasket ring ⇒ page 100 .

Replacing the right flange shaft gasket ring ⇒ page 103 .

1.1 Gasket rings- Summary of components

1 - Flange shaft left

2 - Screw, 30 Nm
- ❑ Replacing

3 - Sealing ring
- ❑ for left flange shaft
- ❑ Renew. ⇒ page 100 .

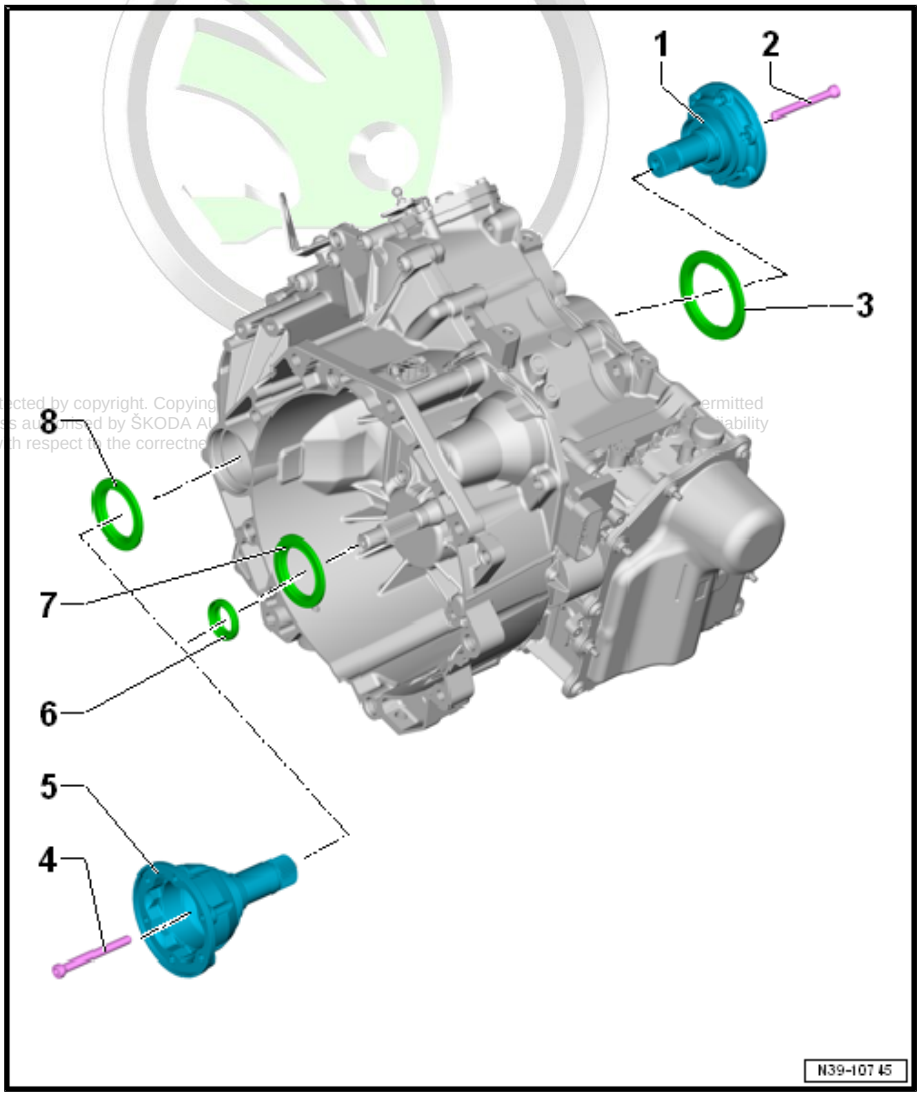
4 - Screw, 30 Nm
- ❑ Replacing

5 - Right flange shaft

6 - Sealing ring
- ❑ for inner drive shaft
- ❑ Renew. ⇒ page 41 .

7 - Sealing ring
- ❑ for outer drive shaft
- ❑ Renew. ⇒ page 40 .

8 - Sealing ring
- ❑ for right flange shaft
- ❑ Renew. ⇒ page 103 .



1.2 Replacing the left flange shaft gasket ring

Special tools and workshop equipment required

- Multi-purpose tool - MP3-419 (VW 771)-
- Extractor - MP3-419/37 (VW 771/37)-
- Socket insert - T10107A- or socket insert 6 mm, commercially available

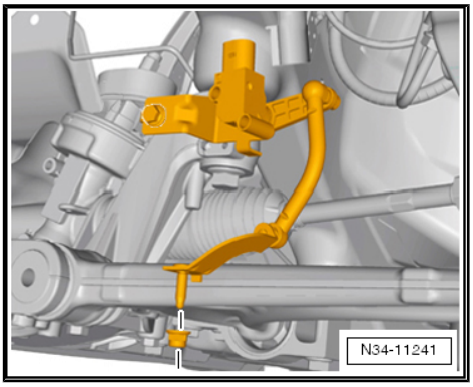
- Thrust piece - T30028 (3305)-
- Tensioning strap - T10038-
- Sealing grease - G 052 128 A1-
- Catch pan

1.2.1 Removing

Note

- *Observe the general repair instructions ⇒ page 11 .*
- *Do not remove both drive shafts simultaneously from the gearbox. Then it is no longer possible to hold the opposite wheel in order to remove or install the screws of the flange shafts.*
- *Do not loosen both fixing screws in the left and right flange shafts at the same time. If the differential bevel gears twist, it will be difficult to reinstall the screws.*

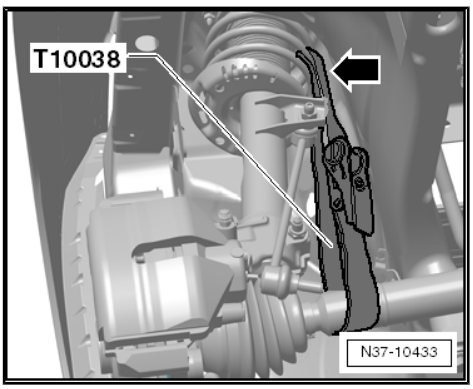
– Loosen the front left wheel bolts.
– Raise vehicle ⇒ Maintenance ; Booklet Octavia III .
– Fit the left front wheel ⇒ Chassis; Rep. gr. 44 .
– Remove the sound dampening system ⇒ Body Work; Rep. gr. 50 .
– Remove coupling rod from anti-roll bar.
– If present, remove front left vehicle level sensor - G78- .
– Remove left drive shaft from flange shaft ⇒ Chassis; Rep. gr. 40 .



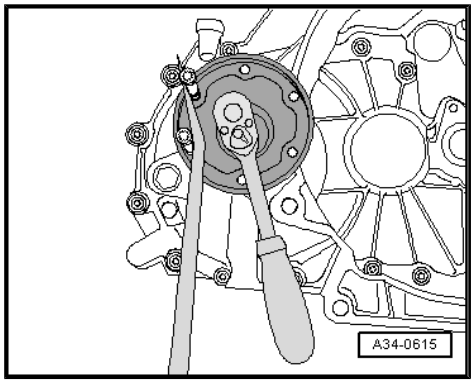
Note

The drive shaft must not hang down, because overstretching will cause damage to the inner joint.

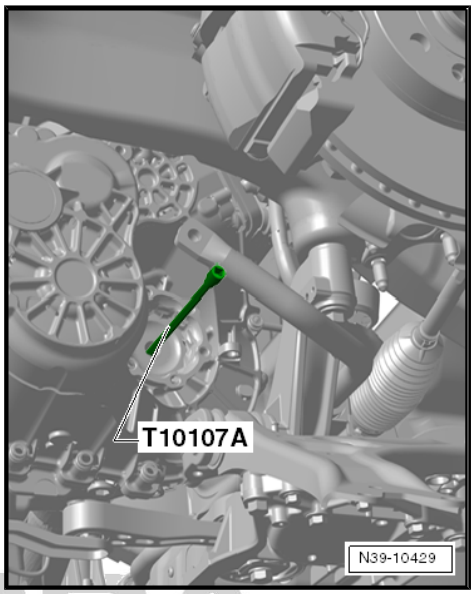
– Tie up the drive shaft as far as possible. Avoid damaging the paintwork on the drive shaft during this operation.
– Position the catch pan under the gearbox.



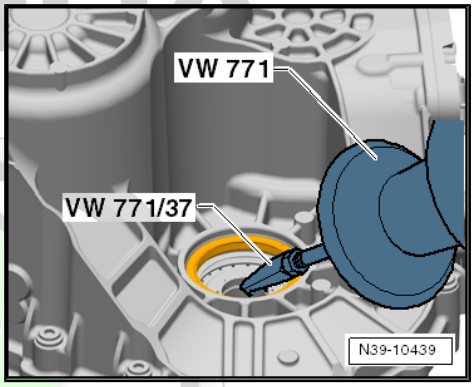
– To unscrew the fixing screw for the flange shaft, insert two bolts in the flange and hold the flange shaft using an assembly lever.



– Unscrew screw for flange shaft with socket insert - T10107A- or commercially available socket insert 6 mm.
– Take out the flange shaft.



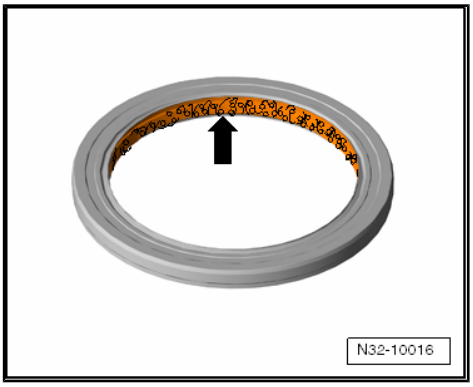
– Pull out gasket ring for flange shaft with multi-purpose tool - MP3-419- and -MP3-419/37- .



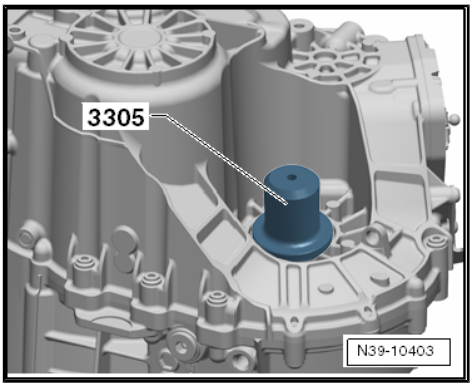
1.2.2 Install

– Lightly oil new gasket ring at outer surface.

– Fill half the space between the sealing lip and dust lip with sealing grease - G 052 128- .



– Drive in the new gasket ring with thrust piece - T30028 (3305)- up to the stop, do not twist the new gasket ring.



– Insert the flange shaft.
– Tighten new conical screw to the recommended tightening torque ⇒ page 103 .
– Attach the left drive shaft to the flange shaft ⇒ Chassis; Rep. gr. 40 .
– Change gearbox oil ⇒ page 94 .

Note

The gearbox oil must be changed, only in this way the correct gear oil level can be ensured.

– Install left front wheel ⇒ Chassis; Rep. gr. 44 .
– If the front left vehicle level sensor - G78- was removed, then the headlight beam setting must be checked ⇒ Electrical System; Rep. gr. 94 .
– Install the noise insulation ⇒ Body Work; Rep. gr. 50 .

Tightening torque

Component	Nm
Flange shaft on gearbox (conical screw) 1)	30 Nm

1) Always replace conical screw ⇒ Electronic Catalogue of Original Parts

1.3 Replacing the right flange shaft seal ring

Special tools and workshop equipment required

- Socket insert - T10107A- or socket insert 6 mm, commercially available
- Extractor tool - T20143-
- Thrust piece - T30028 (3305)-
- Tensioning strap - T10038-
- Sealing grease - G 052 128 A1-
- Catch pan

1.3.1 Removing

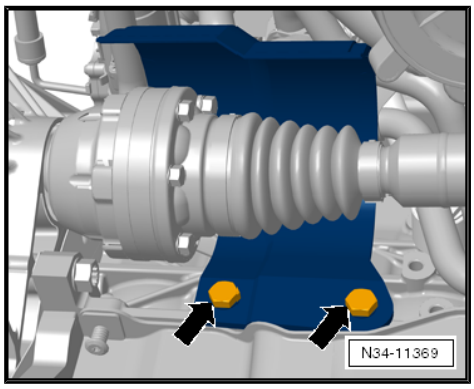
Note

- *Observe the general repair instructions ⇒ page 11 .*
- *Do not remove both drive shafts simultaneously from the gearbox. Then it is no longer possible to hold the opposite wheel in order to remove or install the screws of the flange shafts.*
- *Do not loosen both fixing screws in the left and right flange shafts at the same time. If the differential bevel gears twist, it will be difficult to reinstall the screws.*

– Shift selector lever into position “P”.

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

– Remove the protective cap for right drive shaft from the engine -arrows-.



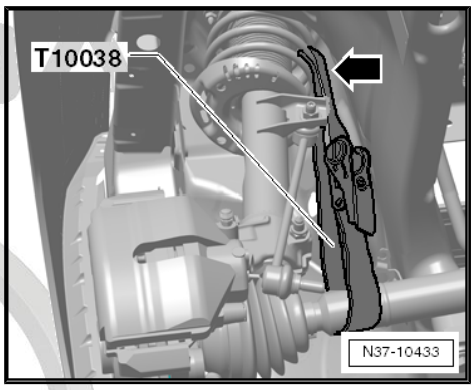
– Remove right drive shaft from flange shaft ⇒ Chassis; Rep. gr. 40 .

Note

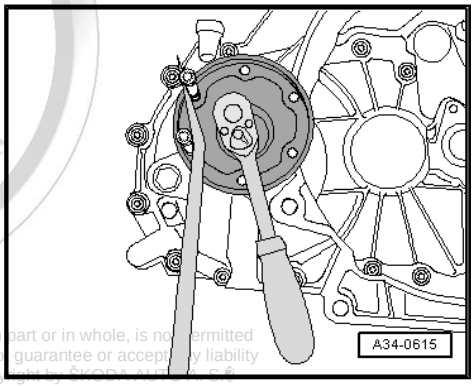
The drive shaft must not hang down, because overstretching will cause damage to the inner joint.

– Tie up the drive shaft as far as possible. Avoid damaging the paintwork on the drive shaft during this operation.

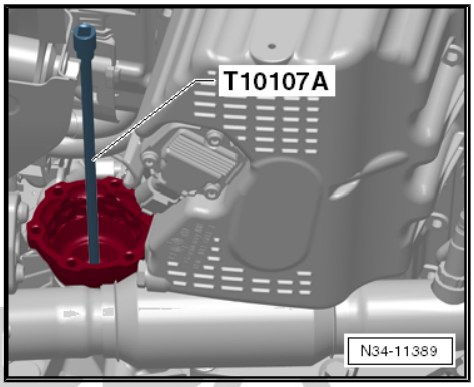
– Position the catch pan under the gearbox.



– To unscrew the fixing screw for the flange shaft, insert two bolts in the flange and hold the flange shaft using an assembly lever.

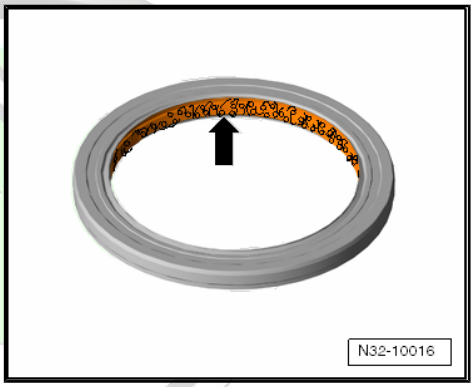


– Unscrew screw for flange shaft with socket insert - T10107A- or commercially available socket insert 6 mm.
– Take out the flange shaft.
– Remove the gasket ring of the flange shaft e.g with extractor tool - T20143- or tyre iron.



1.3.2 Install

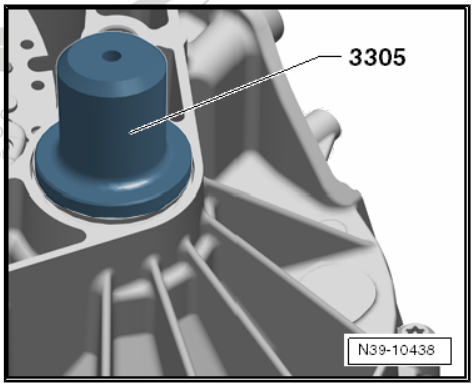
– Lightly oil new gasket ring at outer surface.
– Fill half the space between the sealing lip and dust lip with sealing grease - G 052 128- .



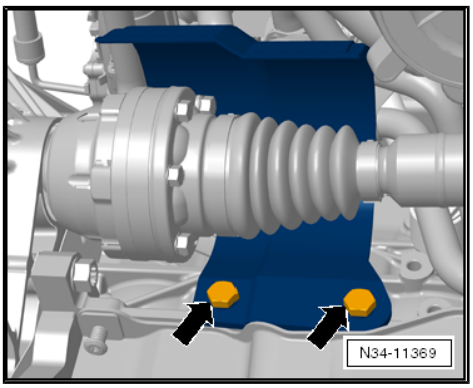
Note

- *When driving in the gasket ring with the thrust piece - T30028 (3305)- , ensure that the gasket ring for the flange shaft reaches its stop in the gearbox before the thrust piece - T30028 (3305)- reaches its stop.*
- *Therefore, the thrust piece - T30028 (3305)- must never be driven fully into the gearbox housing!*

– Carefully drive the new gasket ring into the gearbox up to the stop, during this procedure do not twist the gasket ring.
– Insert the flange shaft.
– Screw in the new conical screw and tighten it to the specified tightening torque ⇒ page 105 .
– Fit the right drive shaft to the flange shaft ⇒ Chassis; Rep. gr. 40 .



– Attach protective cap for drive shaft to the engine on the right -arrows-. Tightening torque ⇒ page 105 .
– Change gearbox oil ⇒ page 94 .



Note

The gearbox oil must be changed, only in this way the correct gear oil level can be ensured.

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

Tightening torques

Component	Nm
Flange shaft on gearbox (conical screw) 1)	30 Nm

Component	Nm
Protective cap for drive shaft on engine	35 Nm

1) Always replace conical screw ⇒ Electronic Catalogue of Original Parts