



## Workshop Manual

- Golf Variant 2007 >
- Golf Variant 2010 >
- Jetta 2005 >
- Jetta 2011 >

### 7-speed dual clutch gearbox 0AM

Edition 09.2011





## List of Workshop Manual Repair Groups

### Repair Group

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



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



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## 00 – Technical data

### 1 Gearbox identification

KHN - Gearbox code letters

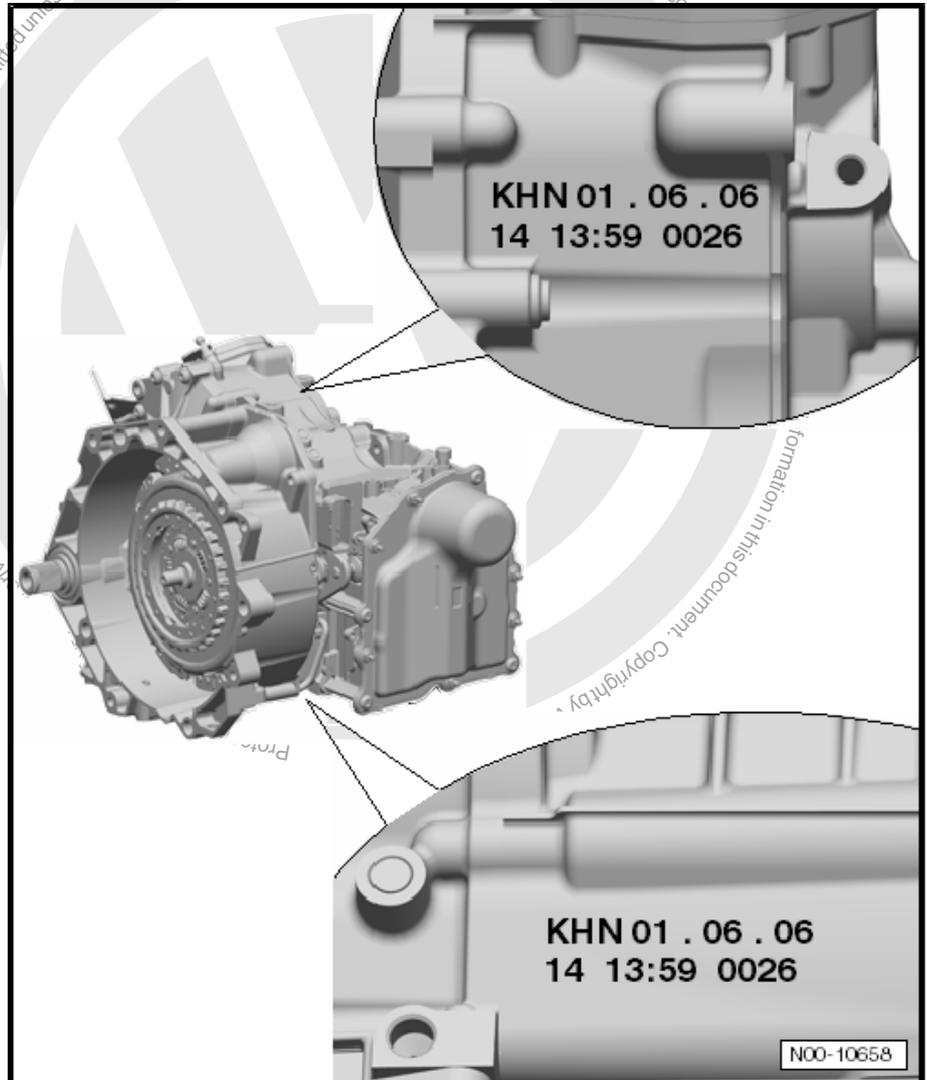
⇒ [page 3](#)

01.06.06 - Production date:  
1 June 2006

14 - Factory code

14 15 - Time

0026 - Serial number



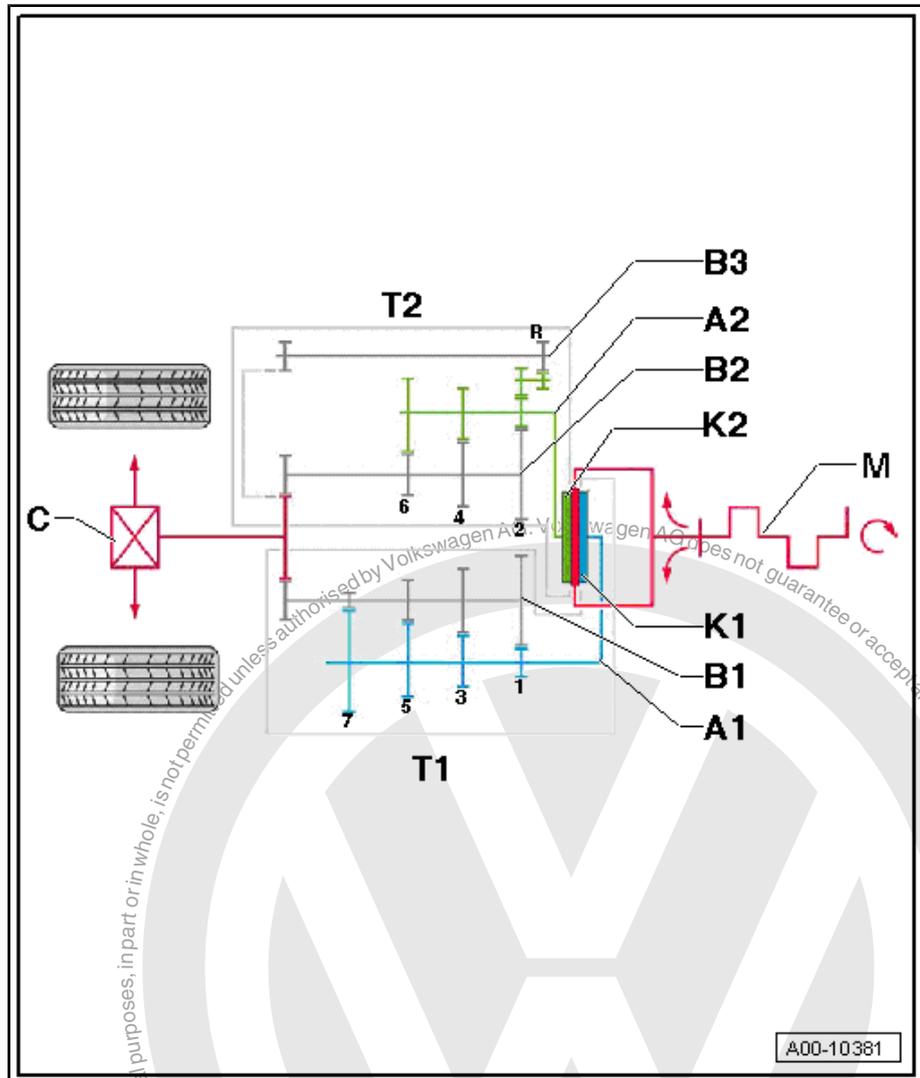
The gearbox code also appears on the vehicle identification plates.



## 2 Overview - power transmission

The 7-speed dual clutch gearbox 0AM is configured as a 5 shaft gearbox. There are two input shafts and three output shafts.

- A1 - Input shaft 1
- A2 - Input shaft 2
- B1 - Output shaft 1
- B2 - Output shaft 2
- B3 - Output shaft 3
- C - Front final drive
- K1 - Dual clutch 1
- K2 - Dual clutch 2
- M - Engine
- T1 - Sub-gearbox 1
  - with gears 1, 3, 5 and 7
- T2 - Sub-gearbox 2
  - with gears 2, 4, 6 and reverse gear





### 3 Code, engine allocation

Allocation: gearbox codes for petrol engines		
KHN, LKG, LKM	KUT, LPL	LSU
1.4 I/90 kW TSFI	1.4 I/118 kW TSI	1.6 I/75 kW MPI

Allocation: gearbox codes for diesel engines		
KHM, LKL, LKF	LQN, LST	
1.9 I/77 kW TDI PD	1.6 I/77 kW TDI common rail	



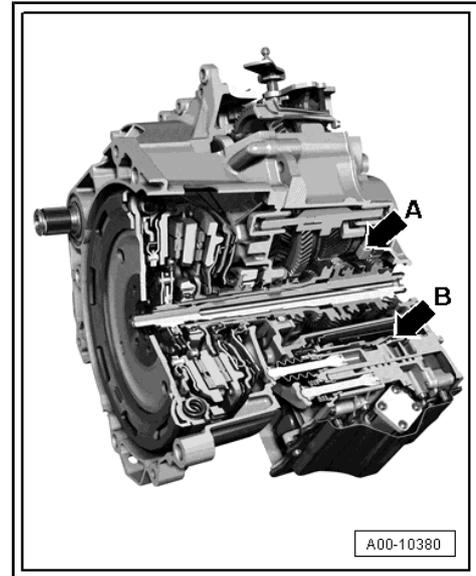


## 4 Capacities

The 7-speed dual clutch gearbox has two separate and different oil systems. One for the gear oil part -arrow A- and one for the hydraulic fluid part -arrow B-.

Capacities	Gear oil part
Initial filling	1.7 l
Change	No change necessary
Lubricant	Gear oil for dual clutch gearbox 0AM Part number => Electronic parts catalogue „ETKA“

Capacities	Hydraulic fluid part in mechatronic unit for dual clutch gearbox -J743-
Initial filling	1 l
Change	No change necessary
Lubricant	Hydraulic fluid Part number => Electronic parts catalogue „ETKA“



Further information in the part number designates the container size.



### Caution

#### **Risk of damage to gearbox.**

- ◆ **Only the gear oil for the 7-speed dual clutch gearbox 0AM, which is available through the replacement parts system, may be used => Electronic parts catalogue „ETKA“.**
- ◆ **Other oils will lead to malfunctions or failure of the gearbox.**
- ◆ **It is not possible to check the fill level of the hydraulic fluid part of the mechatronic unit for dual clutch gearbox -J743-. Before repairs, the breather of the mechatronic unit for dual clutch gearbox -J743- must be sealed so that no oil can escape.**
- ◆ **If any oil escapes from the hydraulic fluid part of the mechatronic unit for dual clutch gearbox -J743-, it is not possible to replenish it or check the level!**
- ◆ **If oil escapes from the gear oil part, it can only be rectified by changing the gear oil. It is not possible to check the oil level.**
- ◆ **If the level of oil/fluid is too high or too low in either of the parts, the function of the gearbox will be impaired.**



## 5 Safety precautions

Overview:

- ◆ ⇒ „5.1 During work on vehicle“ page 5
- ◆ ⇒ „5.2 During work on vehicles with start/stop system“ page 5

### 5.1 During work on vehicle

To prevent personal injury and material damage to the vehicle, observe the following:

 **WARNING**

*Risk of injury and accident by accidental engagement of gear while engine is running.*

- ◆ *Before work is done with the engine running, move the selector lever to the „P“ position and apply the parking brake.*

To prevent personal injury and damage to or destruction of electrical and electronic components, observe the following:

- ◆ Connect and disconnect measuring and testing devices only with the ignition switched off.

 **Caution**

*Danger of destruction of electronic components when battery is disconnected.*

- ◆ *Take the necessary measures when disconnecting the battery.*
- ◆ *Disconnect battery only after the ignition has been switched off.*

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

### 5.2 During work on vehicles with start/stop system

During work on vehicles with start/stop system, observe the following:

 **WARNING**

*Injury hazard as a result of automatic engine start in vehicles with start/stop system*

- ◆ *In vehicles with the start/stop system activated (identifiable by an indication on the combi-instrument) the engine can start automatically if required.*
- ◆ *When working on the vehicle, therefore, ensure that the start/stop system is deactivated (switch ignition off, then switch ignition back on when required).*



## 6 Notes on tow-starting/towing



### Caution

***Danger of irreparable damage to gearbox.***

- ◆ ***If the vehicle has to be towed, the selector lever must be in the „N“ position and the vehicle must not be towed at a speed no greater than 50 km/h and for a distance not exceeding 50 km.***



### Note

***It is not possible to tow-start the engine, e.g. if the battery is too flat or the starter is not functioning.***





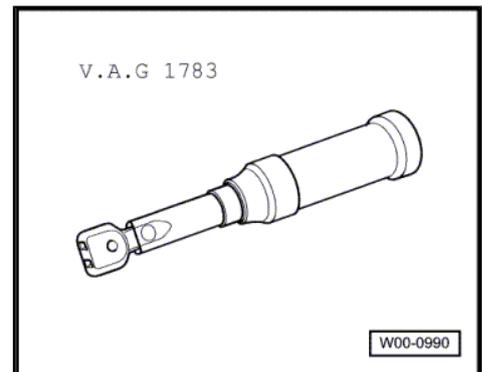
## 7 General repair notes

### 7.1 Tools

A summary of the special tools and workshop equipment used in the workshop manual precedes each repair procedure and can be found in „Special tools/Workshop equipment“ binder.

The catalogue is also available on CD-ROM and can be ordered the usual way from Bertelsmann.

Uncertainty often occurs with smaller bolts having low tightening forces. Torque wrench 2...10 Nm -V.A.G 1783- can be used with these bolts.



### 7.2 Gearbox

The torque of the engine is transmitted via the flywheel to the dual clutch gearbox. The flywheel and the dual clutch are joined together by a toothed connection. Together they take on the function of the dual-mass flywheel.

The gearbox is structured like a 7-speed manual gearbox. Through opposed hydraulic actuation of two multi-plate dry clutches, it is operated like an automatic gearbox. In other words, the gears are engaged automatically or manually via the Tiptronic system. There is no clutch pedal.

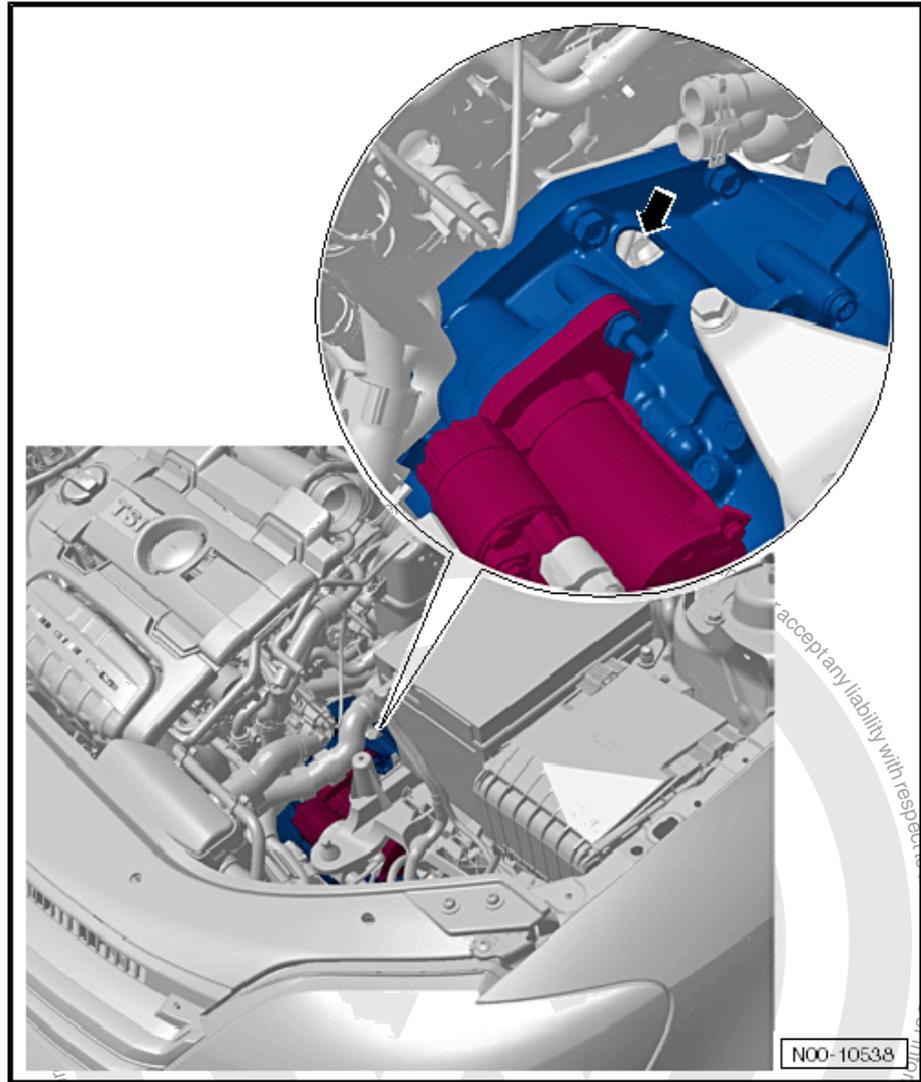
The gearbox has an opening in the housing.



#### Note

*On some gearboxes, this opening is sealed with a cap.*

- Ensure that no small parts fall into this opening during repairs  
arrow-. Cover opening with a cloth.



Make sure that no dirt can enter an »open« gearbox.

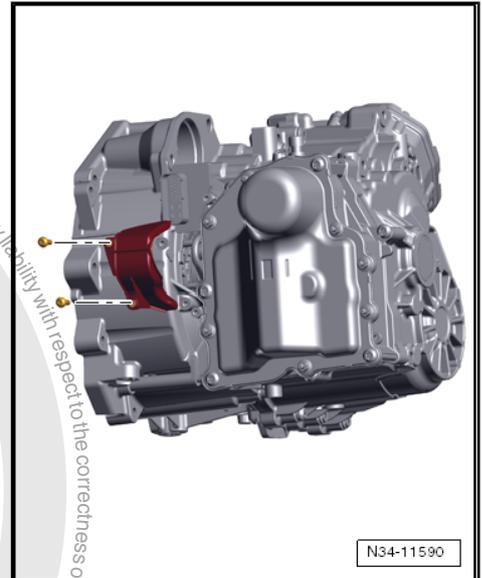
- ◆ If gearbox covers have been unbolted or gearbox has no fluid, do not run engine. Do not tow vehicle.
- ◆ First thoroughly clean connecting points and surrounding areas and then loosen bolts.
- ◆ During installation, ensure that the dowel sleeves between the engine and gearbox are correctly located.
- ◆ Place removed parts on a clean surface. Cover parts to prevent soiling. Use plastic sheeting and paper. Use lint-free cloths only!
- ◆ Install only clean parts; do not remove Genuine parts from packaging until immediately before installing.
- ◆ If repair work cannot be performed immediately, cover opened parts carefully.



In some vehicles, a cover is fitted over the engaging levers.

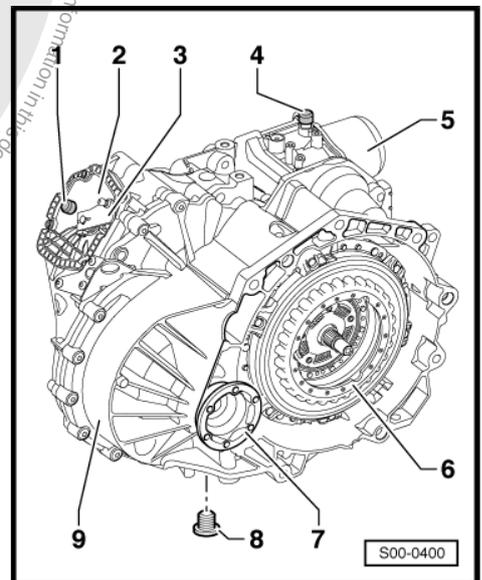
The cover prevents dirt getting in.

Tightening torque of securing bolts: 8 Nm



### Assembly overview of gearbox

- 1 - Gearbox breather cap
- 2 - Cover
- 3 - Lever/selector shaft
- 4 - Breather cap of mechatronic unit for dual clutch gearbox - J743-
- 5 - Mechatronic unit for dual clutch gearbox -J743-
- 6 - Dual clutch
- 7 - Flange shaft
- 8 - Oil drain plug, 30 Nm
- 9 - Dual clutch gearbox



### Gearbox oil

Only the gear oils available through the replacement parts system may be used for the dual clutch gearbox 0AM. Other oils will lead to malfunctions or failure of the gearbox, part number => Electronic parts catalogue „ETKA“ .

The oil level in the gearbox cannot be checked. The oil level can only be adjusted by changing the gear oil.

Oil which has been drained out cannot be added again.



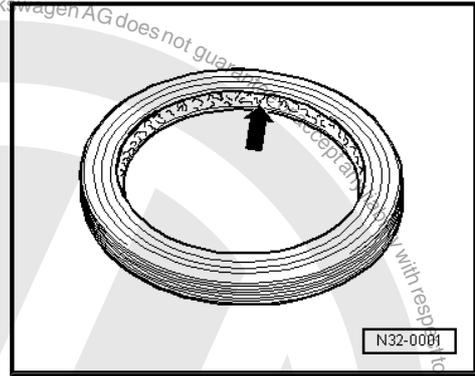
**Caution**

*Use caution when handling oil. Dispose of used oil properly.*

O-rings, radial oil seals, gaskets



- ◆ Always renew O-rings, radial oil seals and gaskets.
- ◆ After removing gaskets and seals, always inspect contact surface of housing or shaft for burrs resulting from removal or for other signs of damage.
- ◆ Before installing a radial oil seal, coat sealing lips and area between -arrow- with sealing grease -G 052 128- and outer circumference with gear oil.
- ◆ The open side of the oil seal faces the side with fluid filling.
- ◆ Moisten O-rings with gear oil or Vaseline to prevent crushing of the rings during assembly.
- ◆ Never use any other types of lubrication in the gear oil area. Otherwise there is a risk of malfunctions in the hydraulic gear-box control.



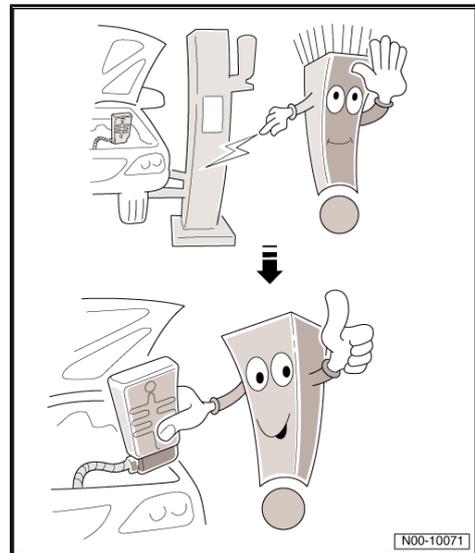
#### Nuts and bolts

- ◆ Loosen and tighten securing bolts and securing nuts for covers and housings in diagonal sequence.
- ◆ Torque settings are specified for unoled bolts and nuts.
- ◆ Threads of bolts secured with locking fluid must be cleaned with a wire brush. Then insert bolts with locking fluid - AMV 185 101 A1- .
- ◆ Threaded holes into which self-locking bolts or bolts coated with locking fluid are screwed, must be cleaned (e.g. with a thread chaser). Otherwise there is a danger of bolts shearing when subsequently being removed.
- ◆ Always renew self-locking bolts and nuts.

#### Electrical components

You have probably at some time received an electrical shock when touching a metal object. This is due to the electrostatic charge of the human body. This charge can disturb the function of electrical components of the gearbox and of the selector mechanism.

- Before beginning work on electrical components, touch an earthed object, for example a water pipe or lifting platform. Do not touch connectors or »open« electronic components directly.



### 7.3 Working with vehicle diagnostic testers

- Only work with vehicle diagnostic testers from Volkswagen.
- ◆ Vehicle diagnosis and service information system -VAS 5052 A-
- ◆ Vehicle diagnosis, testing and information system -VAS 5051B-
- ◆ Vehicle diagnostic tester -VAS 5053-



Various functions are available in the operating modes Guided functions and Guided fault finding. The 3 most important functions are:

- ◆ Adapting installation information
- ◆ Reading measured values for mandatory reporting
- ◆ Initiating basic adjustment

### 7.3.1 Adapting installation information

The mechatronic unit detects other control units in the vehicle by means of signals on the data bus. Pressing the Adapt installation information button instructs the mechatronic unit to forget all communication partners.

All »active partners« are detected once again the next time the ignition system is switched on.

You cannot »generate« any faults using this function. Please always perform the Adapt installation information function after the following activities:

- ◆ After a selector lever has been installed.
- ◆ After another control unit has been installed, e.g. engine, ABS or gateway.
- ◆ After work on the steering wheel paddle.

### 7.3.2 Reading measured values for mandatory reporting

You must read these measured values before contacting your Technical Service Center or your importer.

Save the measured values in the diagnosis log so that all necessary gearbox data will be available for fault analysis.

### 7.3.3 Initiating basic adjustment

This teaches important settings into the mechatronic unit. Even important adjustments are taught in again, or reset to programmed points. These include, for example, the synchronisation points and »reference points« for the engaging lever and gear actuator.



#### WARNING

*Do not carry out basic adjustment without a reason unless requested to do so!*

- Press the button DSG Mechatronic -J743- performing basic measurement only:
  - ◆ if you are prompted to do so in „guided fault finding“
  - ◆ after you have processed a fault entry
  - ◆ after you have installed a dual clutch
  - ◆ or after you have installed a mechatronic unit



## 30 – Clutch

### 1 Removing and installing dual clutch, gearboxes made up to 05.2011

Transporting gearbox and securing to assembly stand  
⇒ [page 165](#) .

Removing and installing dual clutch, gearboxes made from 06.2011 onwards ⇒ [page 37](#) .

#### Overview:

- ◆ ⇒ [„1.1 Assembly overview - dual clutch“, page 12](#)
- ◆ ⇒ [„1.2 Removing dual clutch“, page 14](#)
- ◆ ⇒ [„1.3 Adjusting position of clutch engagement bearings K 1 and K 2“, page 17](#)
- ◆ ⇒ [„1.4 Installing dual clutch“, page 29](#)

#### 1.1 Assembly overview - dual clutch



#### Caution

**Risk of damage from clutch adjustment device.**

- ◆ **The clutch is self-adjusting. Shocks can have an effect on this adjusting device. Do not allow clutch to fall into gear box during installation.**
- ◆ **A clutch that has fallen onto a hard surface or shows signs of damage must not be reinstalled.**



**1 - Retaining ring**

- Renew

**2 - Hub**

**3 - Retaining ring**

- Renew

**4 - Large engaging lever for „K 1“**

- With large engagement bearing
- ⇒ „1.3 Adjusting position of clutch engagement bearings K 1 and K 2“, page 17

**5 - Small engaging lever for »K 2«**

**6 - Bolts**

- 8 Nm + 90° further
- Renew

**7 - Retainer**

- For engaging lever

**8 - Clip**

- For small engaging lever
- No present in some older gearboxes

**9 - Oil seal**

- For inner input shaft
- Renewing ⇒ [page 61](#)

**10 - Oil seal**

- For outer input shaft
- Renewing ⇒ [page 61](#)

**11 - Outer input shaft**

**12 - Shim „SK 2“**

- Determining thickness ⇒ [page 17](#)

**13 - Shim „SK 1“**

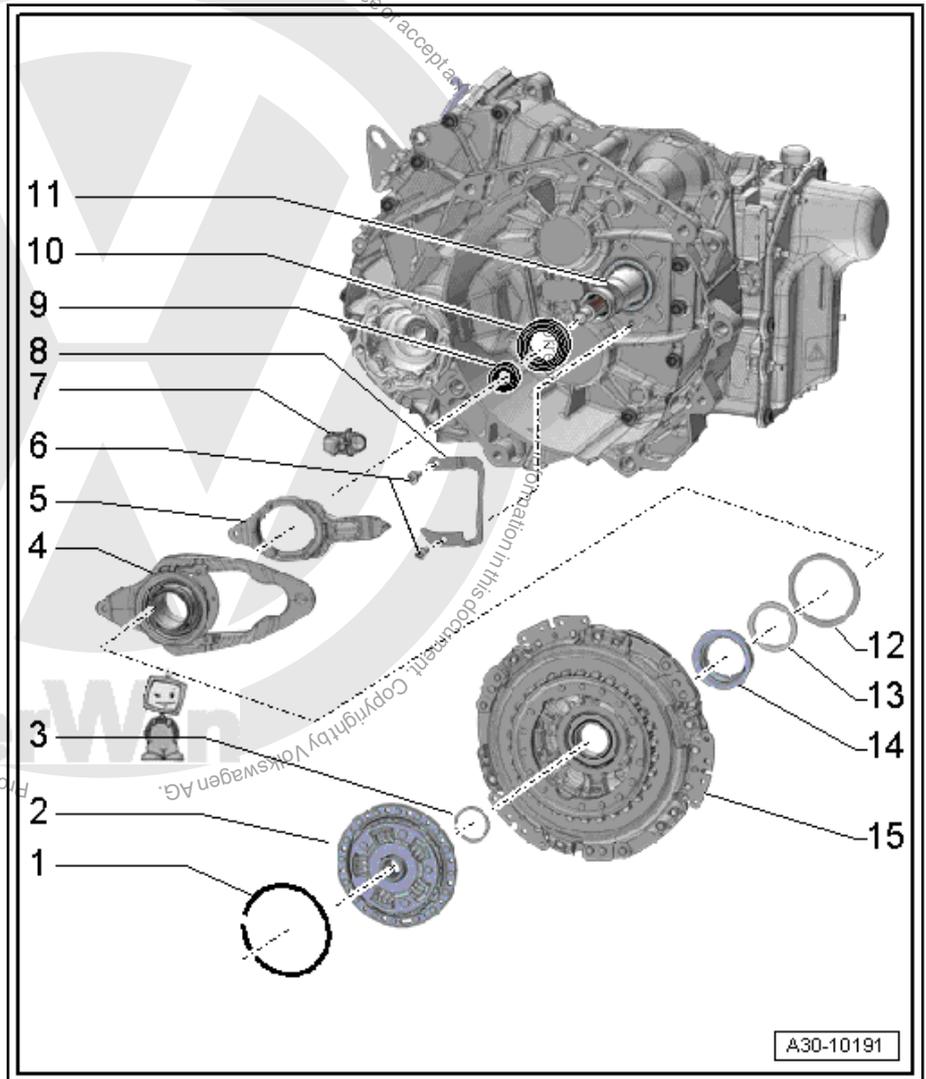
- Determining thickness ⇒ [page 17](#)

**14 - Small engagement bearings for »K 2«**

- ⇒ [page 17](#)

**15 - Dual clutch**

- Removing ⇒ [page 14](#)
- Installing ⇒ [page 29](#)

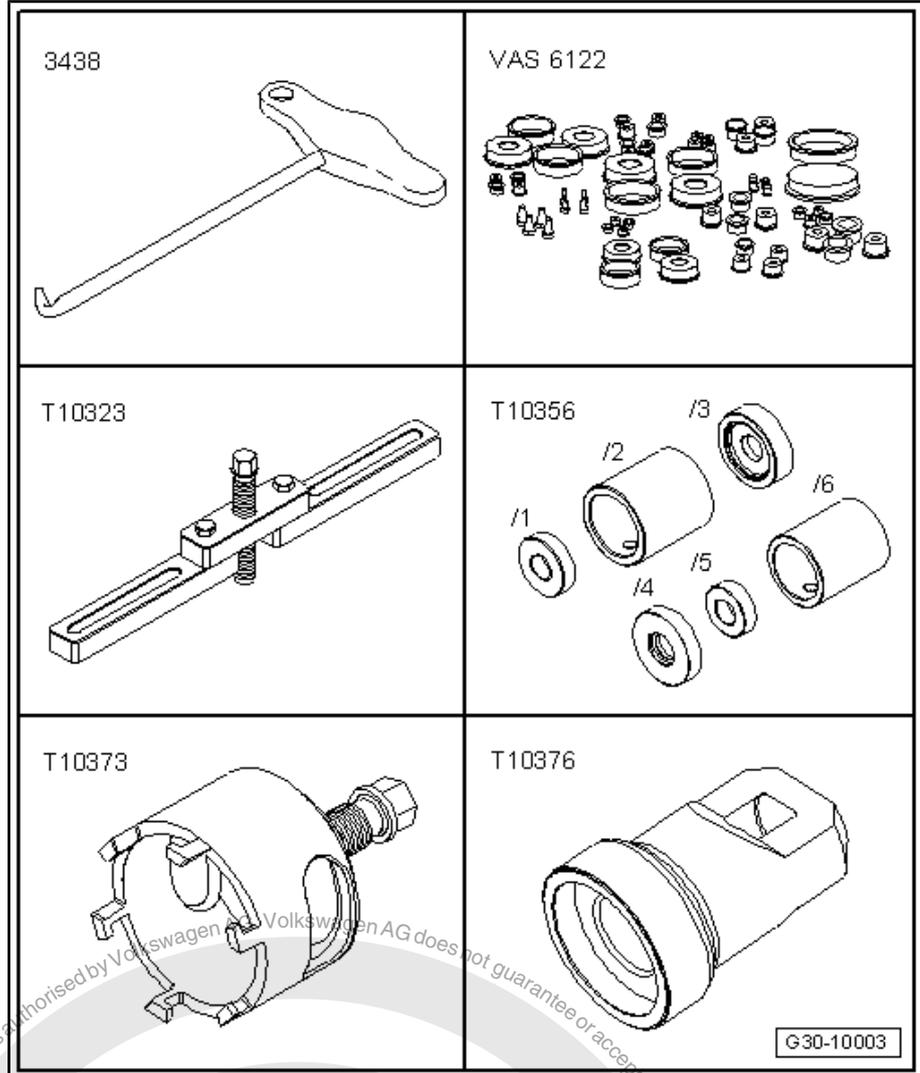




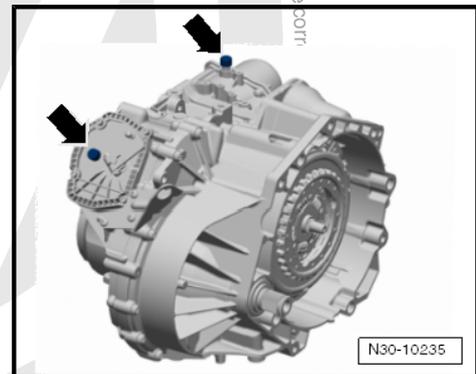
## 1.2 Removing dual clutch

### Special tools and workshop equipment required

- ◆ Hook -3438-
- ◆ Engine bung set -VAS 6122-
- ◆ Support device -T10323-
- ◆ -T10356/5- from assembly tool -T10356-
- ◆ Puller -T10373-
- ◆ Thrust piece -T10376-



- Removing gearbox:
- ◆ ⇒ [„4 Removing and installing gearbox, Jetta 2005 ▶, Golf Variant 2007 ▶, Golf Variant 2010 ▶“, page 112](#)
- ◆ ⇒ [„5 Removing and installing gearbox, Jetta 2011 ▶“, page 152](#)
- Pull off both breather caps -arrows- and seal using suitable plugs from engine bung set -VAS 6122- to achieve an oil-tight seal.





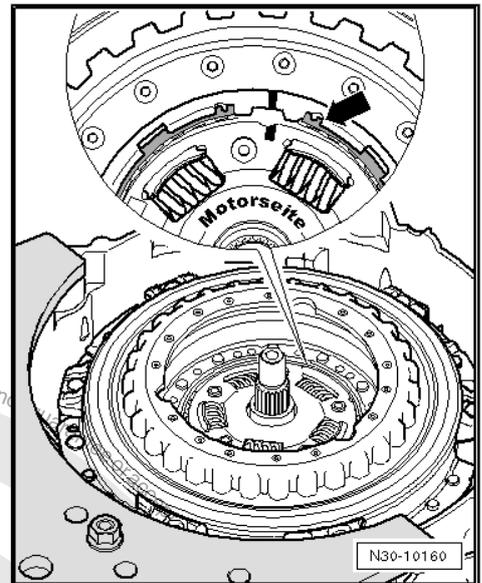
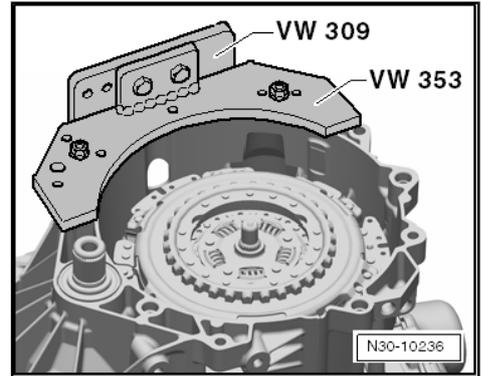
Turn gearbox with dual clutch upwards.

For information about how to transport the gearbox securely and attach it to the assembly stand => [page 165](#) .

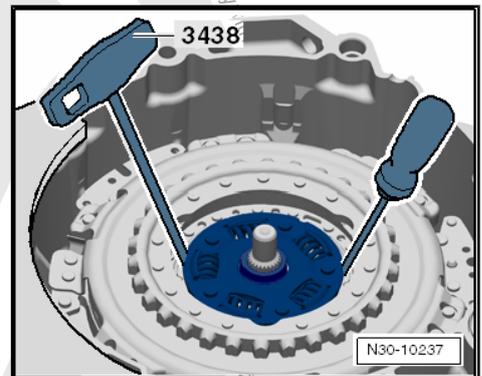
**i** Note

*The dual clutch is pulled off upwards. The mechatronic unit remains on the gearbox.*

- Remove retaining ring -arrow- for hub.



- Remove hub with hook -3438- and a screwdriver.

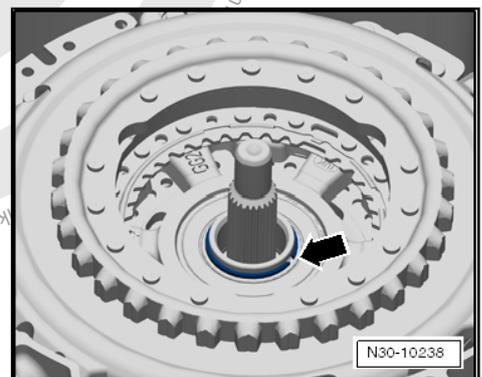


- Remove retaining ring -arrow- for clutch.

**If retaining ring cannot be removed:**

**i** Note

- ◆ *If the retaining ring cannot be removed it is because the clutch has »clamped« the retaining ring at the bottom.*
- ◆ *In this case, push the clutch down slightly (see following description) and release the load on the retaining ring. Never strike the clutch or shaft with a hammer!*
- ◆ *Always renew retaining ring.*

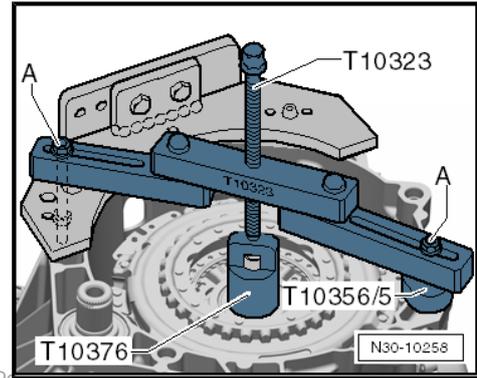




- Position support bracket -T10323- parallel to gearbox flange as shown in illustration.
- If necessary, balance out gaps using -T10356/5- , for example.
- Screw in bolts -A- hand-tight.

**i** Note

Bolts -A-, secure with nut as required.

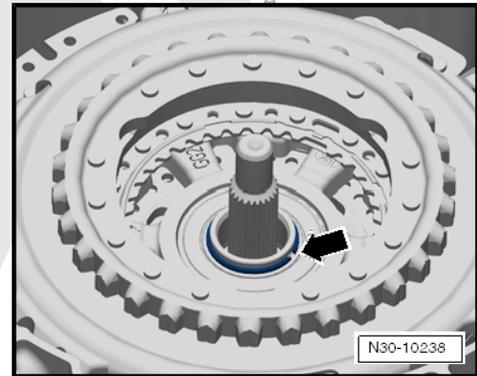


**!** Caution

**Risk of damage to clutch and other components!**

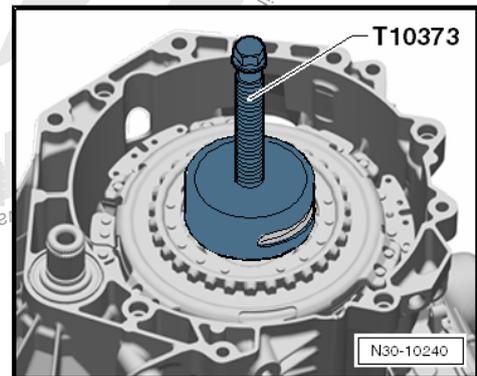
- Push down clutch using only very light force.

- To press down, turn spindle against thrust piece -T10376- .
- Detach special tool and remove retaining ring -arrow- for clutch.

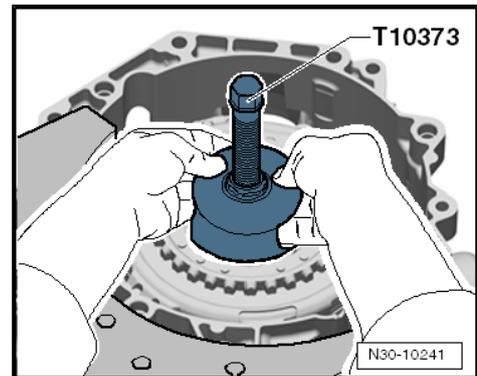


Continuation once retaining ring has been removed:

- Fit puller -T10373- in clutch and pull off clutch.

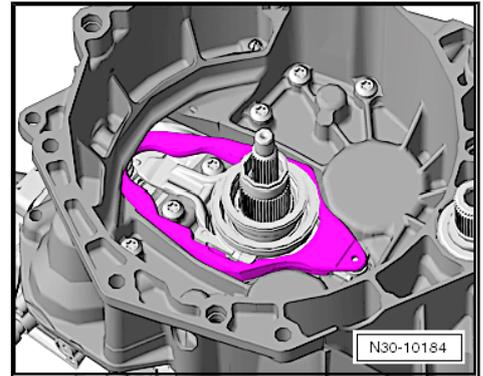


- Remove clutch together with puller -T10373- .

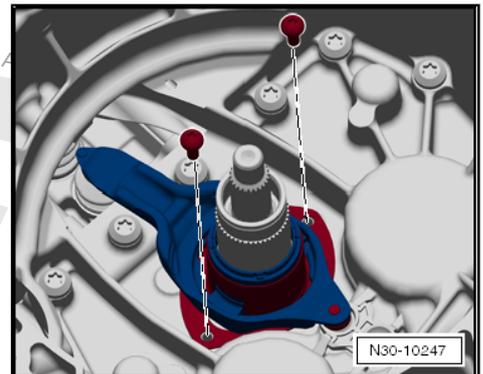




- Remove small engagement bearing.
- Remove large engaging lever.



- Undo bolts and remove small engaging lever.

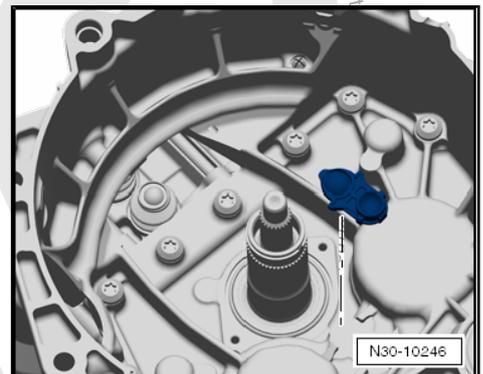


- Remove retainer for engaging lever.

Before installing clutch, please refer to ⇒ [page 17](#) to see whether »clutch needs adjusting during assembly or not.«

Adjusting ⇒ [page 17](#) .

Install dual clutch ⇒ [page 29](#) .



### 1.3 Adjusting position of clutch engagement bearings „K 1“ and „K 2“

The position of the engagement bearings must be adjusted after the following tasks:

- ◆ Dual clutch was renewed.
- ◆ Engaging levers were renewed.
- ◆ Retainer of engaging levers was renewed.
- ◆ Engagement bearings were renewed.



#### Note

*There is no need to adjust anything if all the named parts have only been removed and reinstalled.*

#### Brief description

- ◆ Position of engagement bearings is comparable with clutch play of a manual gearbox. In the 7-speed dual clutch gearbox 0AM there are tolerances in the engagement system of the

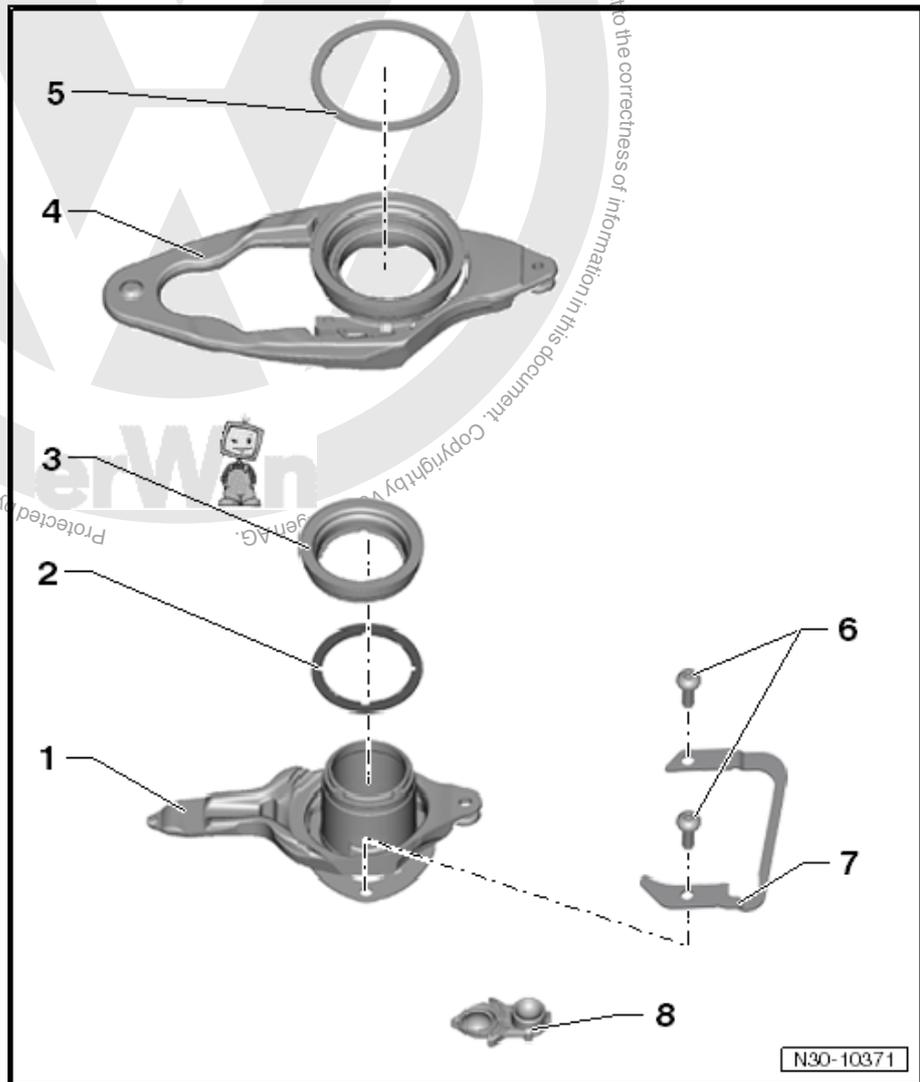


gearbox and in the gearbox itself. Even within the dual clutch there are tolerances. These tolerances must be taken into account separately during adjustment.

- ◆ The following procedure first describes how to measure all necessary dimensions on the gearbox so that the appropriate shim can be selected. In addition are the tolerances in the clutch that the manufacturer has already calculated. Tolerances on gearbox and tolerances in clutch determine thickness of shim.
- ◆ Adhere to the sequence of work steps.

#### Overview of clutch actuation

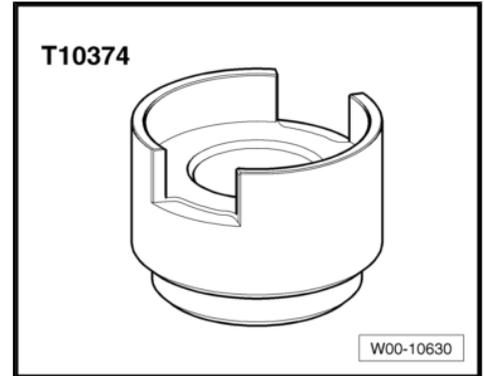
- 1 - Small engaging lever for »K 2«
- 2 - Shim for »K 2«
- 3 - Engagement bearings for »K 2«
- 4 - Large engaging lever for »K 1«
  - With large engagement bearing
- 5 - Shim for »K 1«
- 6 - Bolts
  - 8 Nm + 90° further
  - Always renew
- 7 - Clip
  - No present in some older gearboxes
- 8 - Retainer



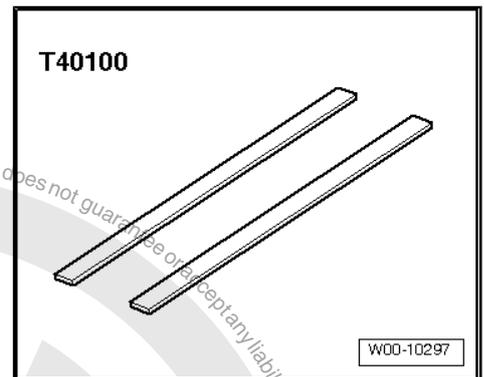
Special tools and workshop equipment required



- ◆ Gauge block -T10374-



- ◆ Ruler -T40100-



- ◆ Digital depth gauge 300 mm e.g. -VAS 6594-
- ◆ Adhesive -AMV 195 KD1 01-
- ◆ Micrometer caliper

**Requirement:**

- The gearbox flange must be level to assure good contact with the ruler.
- Mechatronic unit for dual clutch gearbox -J743- must be removed.
- Torque settings  
[⇒ „1.1 Assembly overview - dual clutch“, page 12](#) .



**Note**

*If a further tightening angle is specified for certain bolts, these must be renewed.*



**Caution**

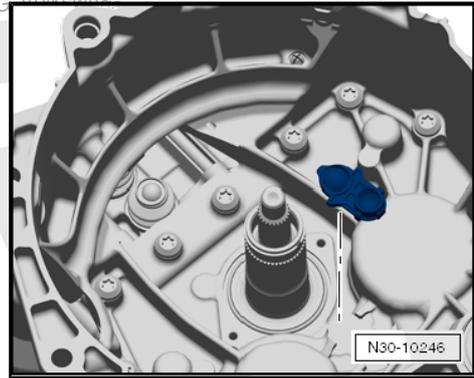
***Risk of damage to clutch and other components!***

- ***Mounting for engaging lever and entire mechanism of engagement bearing must be dry and free of oil or grease.***



### 1st step: Prepare dual clutch for measurement.

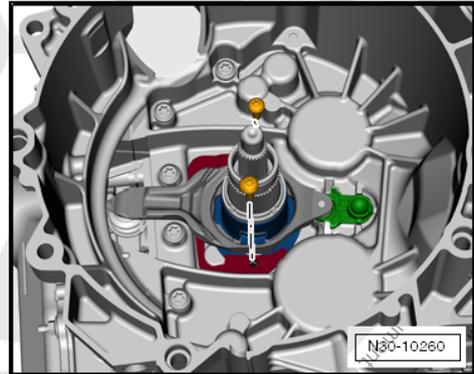
- Insert retainer for engaging lever.



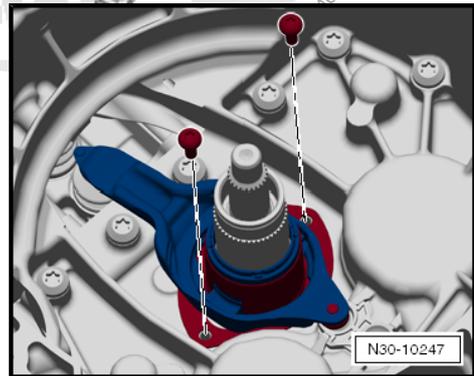
- Install small engaging lever with clip.

 **Note**

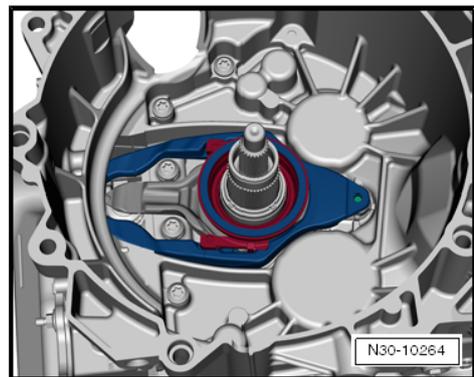
*Only a few, »older« gearboxes do not have a clip.*



- Tighten bolts for small engaging lever.

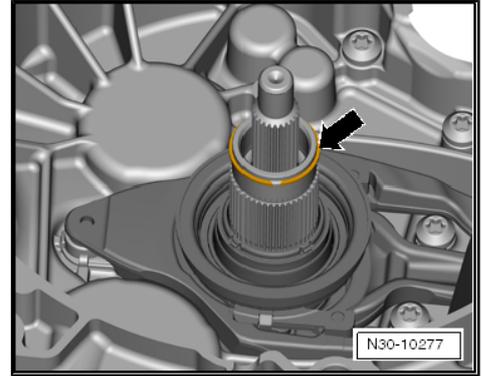


- Insert large engaging lever.
- Check both engaging levers are seated correctly.

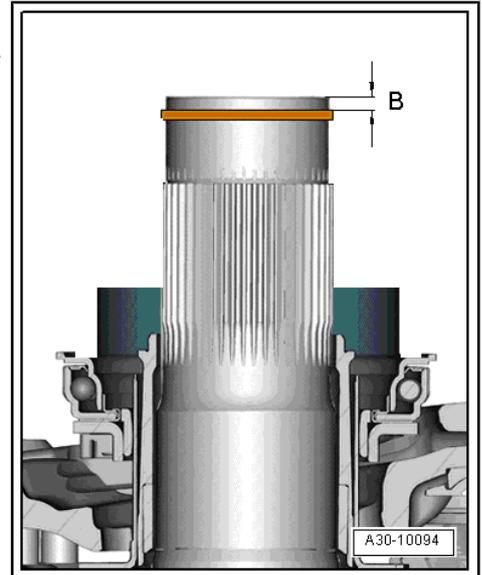




- Install previously used retaining ring -arrow- of outer input shaft.



2nd step: Determine dimension „B“ for clutch „K 1“ and „K 2“.

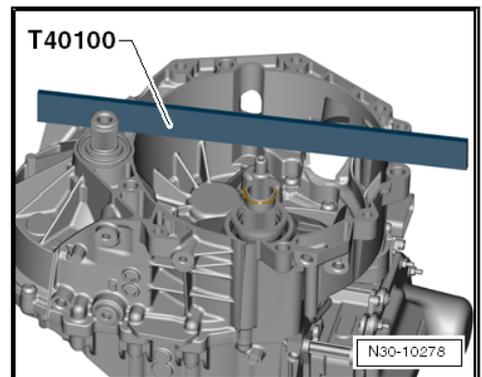


- Place ruler -T40100- upwards across end of shaft onto gear-box flange.

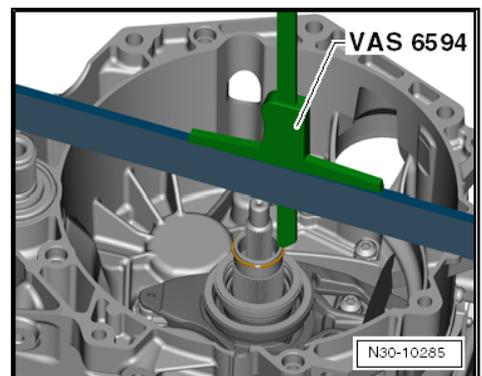
 **Caution**

*Risk of false measurements.*

◆ *The ruler -T40100- should remain in this position for the following measurements. Do not turn over, do not remove.*

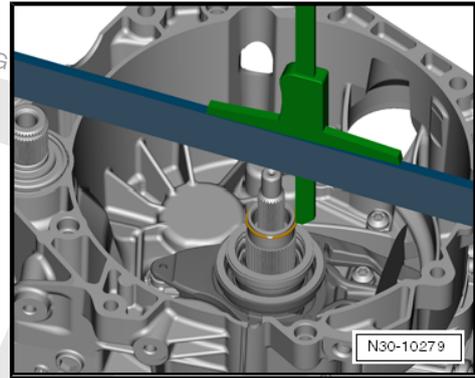


- Place digital 300 mm depth gauge -VAS 6594- on top of ruler -T40100- and position depth gauge rod on outer input shaft.
- Set depth gauge to „0“.





- Position depth gauge rod on retaining ring, as show in diagram.
- In this position, determine dimension „B<sub>1</sub>“ to retaining ring.
- Example: dimension „B<sub>1</sub>“ = 2.92 mm



- In the opposite position, determine dimension „B<sub>2</sub>“ to retaining ring.



#### Note

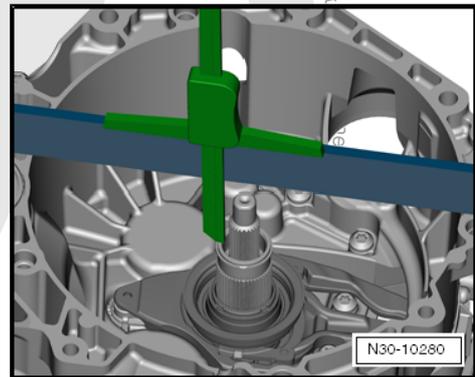
*Do not measure on retaining ring joint. It is possible that the retaining ring will be pushed away and thus falsify the reading.*

- Example: dimension „B<sub>2</sub>“ = 3.00 mm
- Calculate mean value from dimension „B<sub>1</sub>“ and „B<sub>2</sub>“.

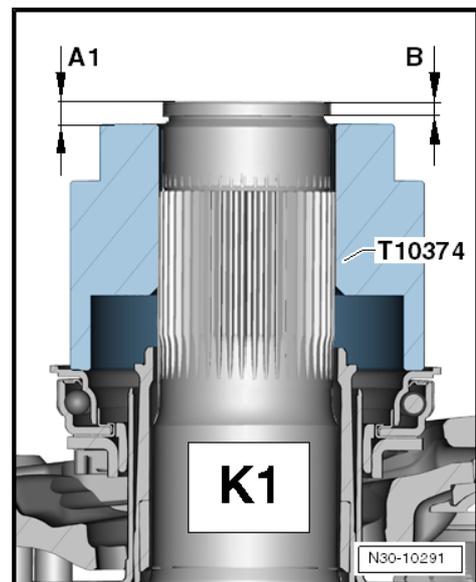
Formula:  $B_1 + B_2 \div 2$

Example:

- $2,92 + 3,00 \div 2 = 2.96$  mm
- Result: Dimension „B“ = 2.96 mm
- Remove and dispose of retaining ring.

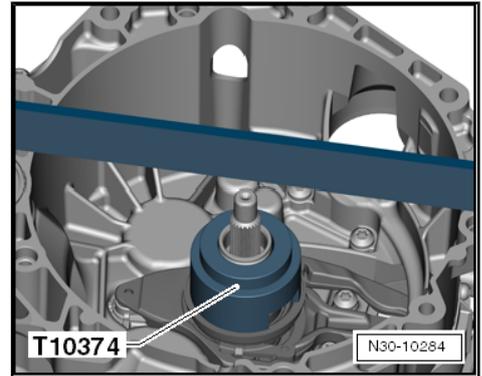


**3rd step: Determine dimension „A1“ for clutch engaging lever „K 1“.**





- Place end gauge -T10374- on large engagement bearing with large opening upwards.
- To ensure that end gauge -T10374- sits properly on engagement bearing, press down and turn end gauge .
- Engagement bearing will turn with end gauge -T10374- .

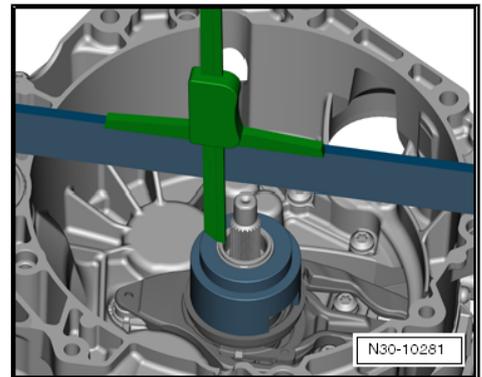


- Place digital 300 mm depth gauge -VAS 6594- on top of ruler -T40100- and position depth gauge rod on outer input shaft.
- Ruler -T40100- is lying upwards across end of shaft on gear-box flange.

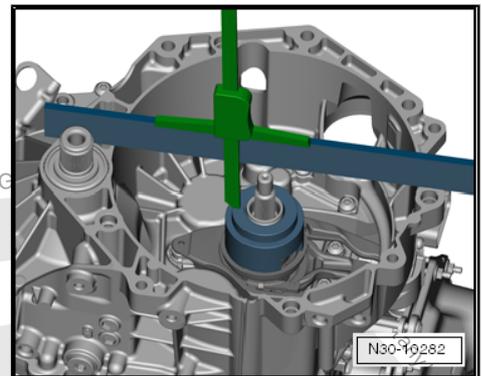
 **Caution**

*Risk of false measurements.*

◆ *The ruler -T40100- should remain in this position for the following measurements. Do not turn over, do not remove.*



- Set depth gauge to „0“.
- Position depth gauge rod on end gauge -T10374- , as show in diagram.
- In this position, determine dimension „A 1a“ to end gauge -T10374- .
- Example: Dimension „A 1a“ = 2.61 mm



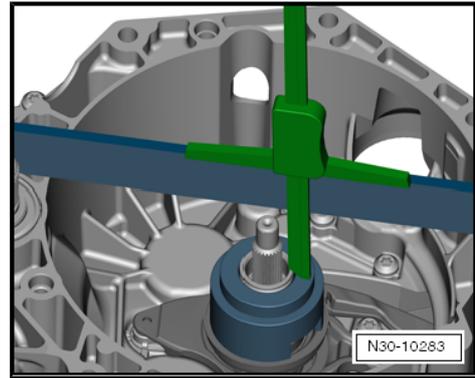


- In the opposite position, determine dimension „A 1<sub>b</sub>“ to end gauge -T10374- .
  - Example: Dimension „A 1<sub>b</sub>“ = 2.81 mm
  - Calculate mean value from dimension „A 1<sub>a</sub>“ and „A 1<sub>b</sub>“.
- Formula:  $A_{1a} + A_{1b} \div 2$

Example:

- $2,61 + 2,812 = 2.71$  mm
- Result: Dimension „A 1“ = 2.71 mm

**4th step: Calculate installation depth of clutch engagement bearing „K 1“.**



**Note**

*On the basis of dimension „A 1“ and dimension „B“, the actual installation depth of the clutch engagement bearing „K 1“ is now calculated based on the following calculus.*

	Dimension „A 1“
-	Dimension „B“
+	Exterior height end gauge -T10374- (51.81 mm; fixed value)
=	Actual installation depth of clutch engagement bearing „K 1“

Example:

- $2.71 \text{ mm} - 2.96 \text{ mm} + 51.81 \text{ mm} = 51.56 \text{ mm}$
- Result: Installation depth of clutch engagement bearing „K 1“ = 51.56 mm

**5th step: Calculate clearance of clutch „K 1“.**



**Note**

*With the actual value and specification for the engagement bearing installation depth, the clearance of clutch „K 1“ is now determined using the following calculus.*

	Actual value of engagement bearing installation depth
-	Specification of engagement bearing installation depth (50.08 mm; fixed value)
=	Clearance of clutch „K 1“

Example:

- $51.56 \text{ mm} - 50.08 \text{ mm} = 1.48 \text{ mm}$
- Result: Clearance of clutch „K 1“ = 1.48 mm



**6th step: Calculate clutch tolerance of clutch „K 1“.**

- Take clutch tolerance value from new clutch.
- Example: Read off clutch tolerance value on clutch „K 1 = +0.2“, as shown in diagram.

**7th step: Determining thickness of shim „SK 1“.**

**Note**

On the basis of the clearance value and clutch tolerance „K 1“, the thickness of shim „SK 1“ is now calculated using the following calculus.

	Clearance of clutch „K 1“
-/+	Clutch tolerance of clutch „K 1“
=	Calculated thickness of shim „SK 1“

Example:

- $1.48 \text{ mm} + 0.20 \text{ mm} = 1.68 \text{ mm}$
- Result: Calculated thickness of shim „SK 1“ = 1.68 mm
- From the shims supplied, measure the required shim and have it ready for installation.

Calculated thickness of shim mm	Available shims Thickness in mm
0.31 ... 0.90	0.80
0.91 ... 1.10	1.00
1.11 ... 1.30	1.20
1.31 ... 1.50	1.40
1.51 ... 1.70	1.60
1.71 ... 1.90	1.80
1.91 ... 2.10	2.00
2.11 ... 2.30	2.20
2.31 ... 2.50	2.40
2.51 ... 2.70	2.60
2.71 ... 3.30	2.80

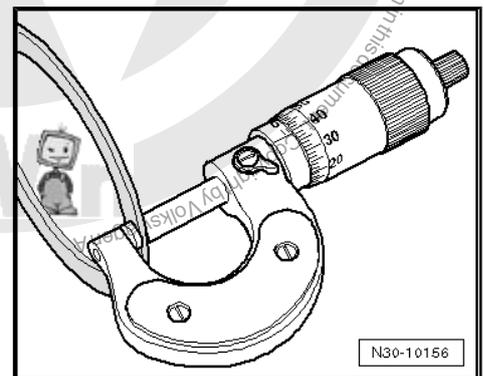
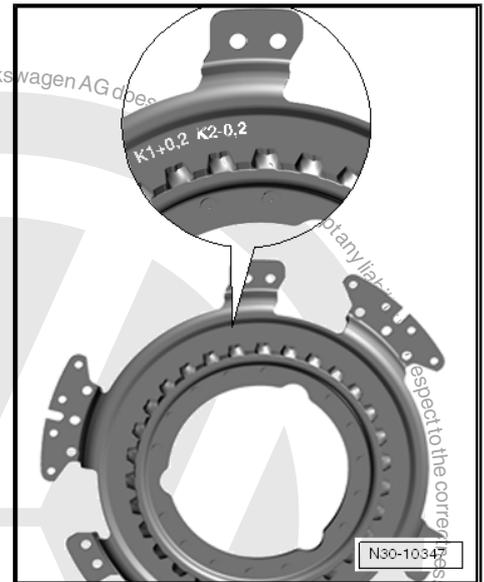
Example:

- Result: Calculated thickness of shim „SK 1“ = 1.68 mm
- Chosen shim thickness = 1.60 mm

**Caution**

*Risk of damage to gearbox*

- ◆ *Mark shim „SK 1“ and have it ready for assembly.*
- ◆ *For adjustment, only this shim „SK 1“ may be inserted for the small engaging lever.*



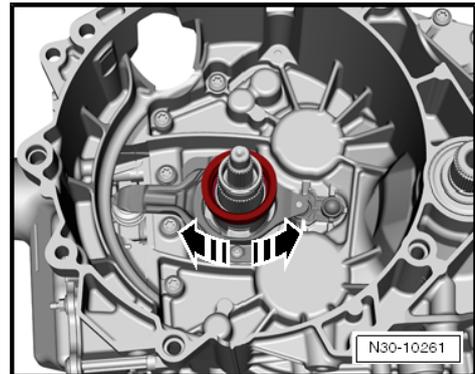
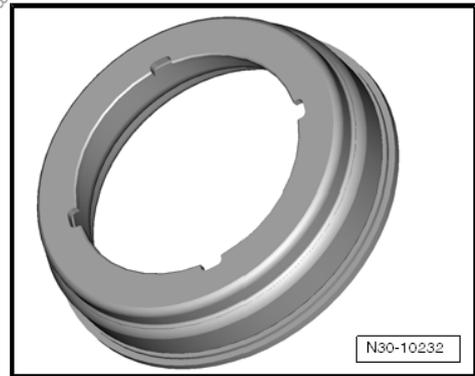
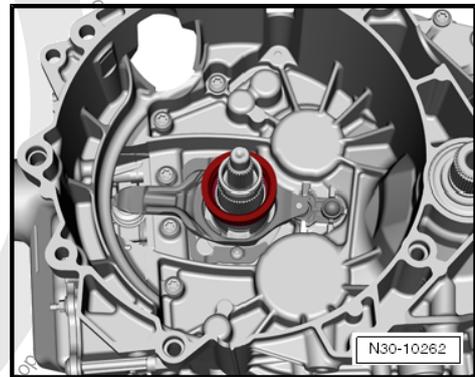
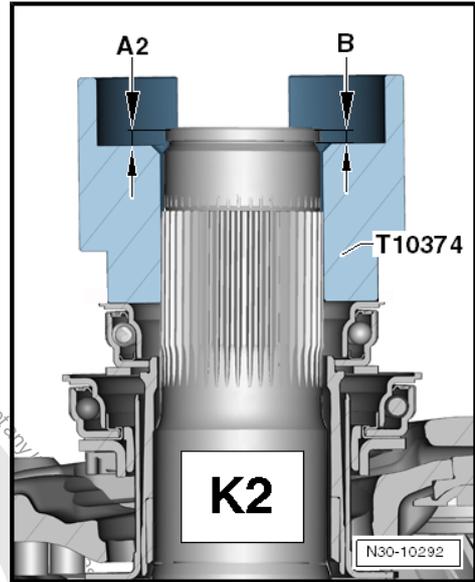


**8th step: Determine dimension „A 2“ for clutch engaging lever  
„K 2“**

- Only insert small engagement bearing.

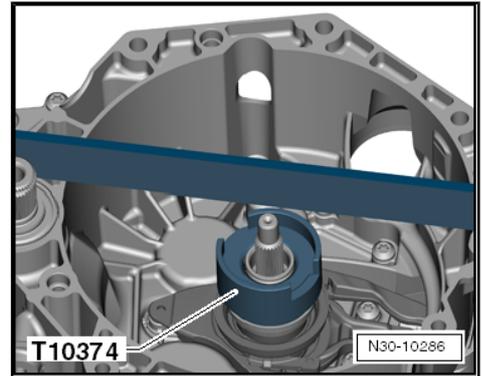
- Small engagement bearing only fits in one position due to 4 grooves.

- By turning -arrows-, check whether small engagement bearing is properly installed and that grooves are seated correctly.





- Place end gauge -T10374- on small engagement bearing with large opening upwards.

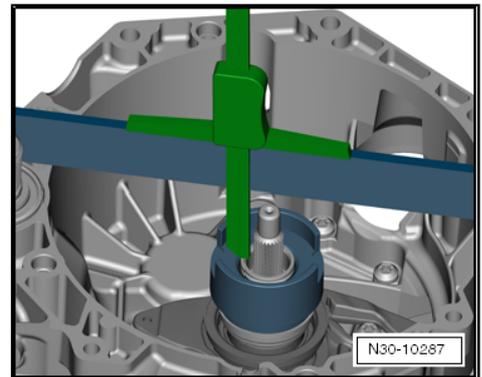


- Place digital 300 mm depth gauge -VAS 6594- on top of ruler -T40100- and position depth gauge rod on outer input shaft.
- Ruler -T40100- is lying upwards across end of shaft on gear-box flange.

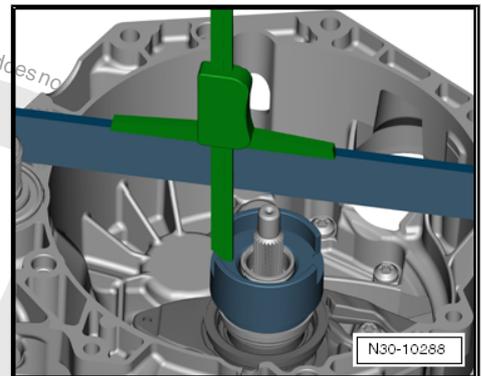
 **Caution**

*Risk of false measurements.*

◆ *The ruler -T40100- should remain in this position for the following measurements. Do not turn over, do not remove.*



- Set depth gauge to „0“.
- Position depth gauge rod on end gauge -T10374-, as show in diagram.
- In this position, determine dimension „A 2a“ to end gauge -T10374- .
- Example: Dimension „A 2a“ = 2.50 mm



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- In the opposite position, determine dimension „A 2b“ to end gauge -T10374- .

• Example: Dimension „A 2b“ = 2.54 mm

- Calculate mean value from dimension „A 2a“ and „A 2b“.

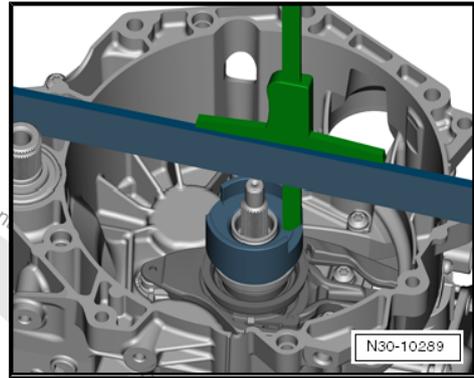
Formula:  $A_{2a} + A_{2b} / 2$

Example:

•  $2,50 + 2,542 = 2,52$  mm

• Result: Dimension „A 2“ = 2.52 mm

**9th step: Calculate installation depth of clutch engagement bearing „K 2“.**



**Note**

*On the basis of dimension „A 2“ and dimension „B“, the actual installation depth of the clutch engagement bearing „K 2“ is now calculated based on the following calculus.*

	Dimension „A 2“
-	Dimension „B“
+	Interior height end gauge -T10374- (36.20 mm; fixed value)
=	Actual installation depth of clutch engagement bearing „K 2“

Example:

•  $2.52 \text{ mm} - 2.96 \text{ mm} + 36.20 \text{ mm} = 35.76 \text{ mm}$

• Result: Installation depth of clutch engagement bearing „K 2“ = 35.76 mm

**10th step: Calculate clearance of clutch „K 2“.**



**Note**

*With the actual value and specification for the engagement bearing installation depth, the clearance of clutch „K 2“ is now determined using the following calculus.*

	Actual value of engagement bearing installation depth
-	Specification of engagement bearing installation depth (34.35 mm; fixed value)
=	Clearance of clutch „K 2“

Example:

•  $35.76 \text{ mm} - 34.35 \text{ mm} = 1.41 \text{ mm}$

• Result: Clearance of clutch „K 2“ = 1.41 mm



**11th step: Calculate clutch tolerance of clutch „K 2“.**

- Take clutch tolerance value from new clutch.
- Example: Read off clutch tolerance value on clutch „K 2“ = - 0.2“, as shown in diagram.

**12th step: Determining thickness of shim „SK 2“.**



**Note**

*On the basis of the clearance value and clutch tolerance „K 2“, the thickness of shim „SK 2“ is now calculated using the following calculus.*

	Clearance of clutch „K 2“
-/+	Clutch tolerance of clutch „K 2“
=	Calculated thickness of shim „SK 2“

Example:

- $1.41 \text{ mm} - 0.20 \text{ mm} = 1.21 \text{ mm}$
- Result: Calculated thickness of shim „SK 2“ = 1.21 mm
- From the shims supplied, measure the required shim and have it ready for installation.

Calculated thickness of shim mm	Available shims Thickness in mm
0.31 ... 0.90	0.80
0.91 ... 1.10	1.00
1.11 ... 1.30	1.20
1.31 ... 1.50	1.40
1.51 ... 1.70	1.60
1.71 ... 1.90	1.80
1.91 ... 2.10	2.00
2.11 ... 2.30	2.20
2.31 ... 2.50	2.40
2.51 ... 2.70	2.60
2.71 ... 3.30	2.80

Example:

- Result: Calculated thickness of shim „SK 2“ = 1.21 mm
- Chosen shim thickness = 1.20 mm



**Caution**

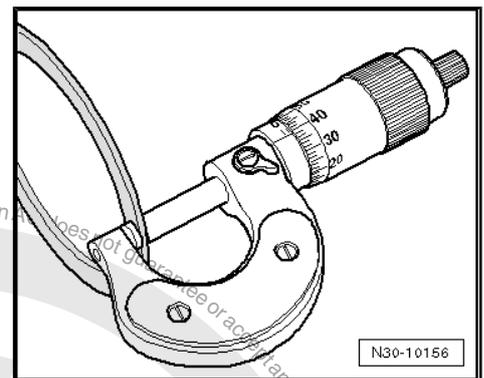
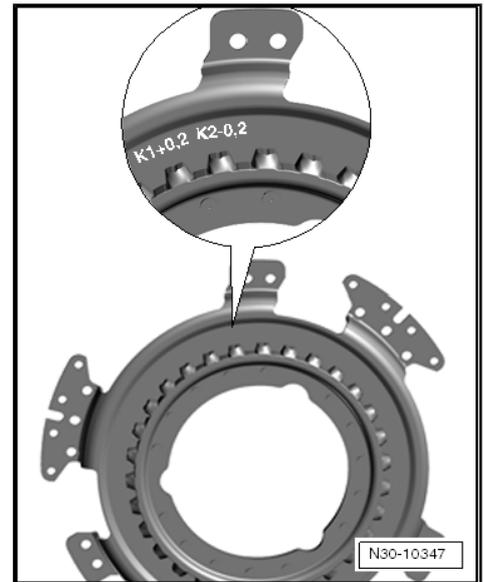
**Risk of damage to gearbox**

- ◆ **Mark shim „SK 2“ and have it ready for assembly.**
- ◆ **For adjustment, only this shim „SK 2“ may be inserted.**

- Install dual clutch => [page 29](#) .

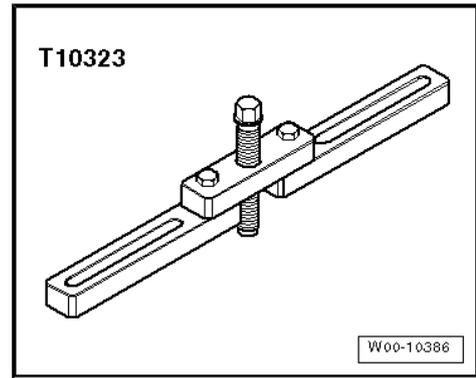
**1.4 Installing dual clutch**

Special tools and workshop equipment required

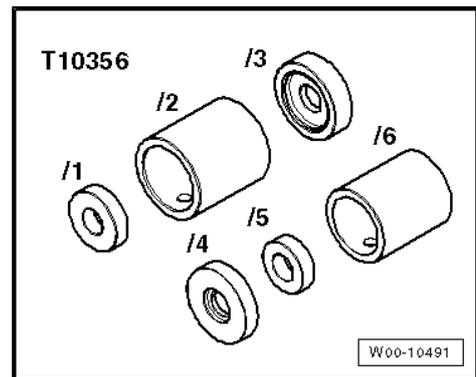




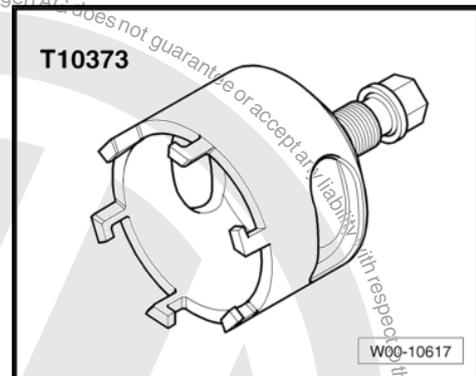
- ◆ Support device -T10323-



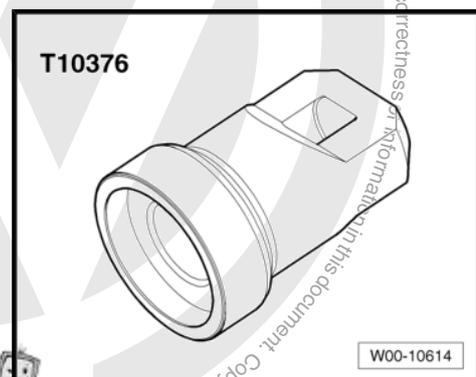
- ◆ -T10356/5- from assembly tool -T10356-



- ◆ Puller -T10373-



- ◆ Thrust piece -T10376-



- ◆ Adhesive -AMV 195 KD1 01-

**Perform the following steps:**

- Torque settings  
⇒ ["1.1 Assembly overview - dual clutch", page 12](#) .



**i** Note

If a further tightening angle is specified for certain bolts, these must be renewed.

**!** Caution

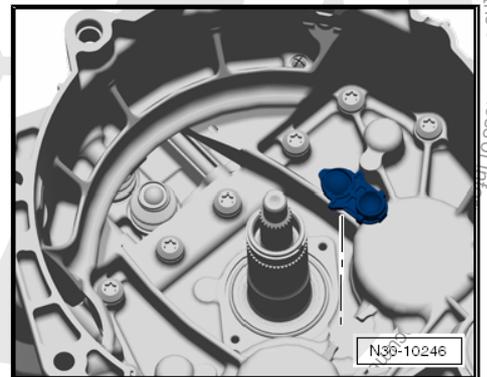
**Risk of damage to dual clutch and other components!**

- Clutch parts must be free of oil and grease.

**i** Note

The following four work steps are only necessary if the position of the engagement bearings did not have to be adjusted.

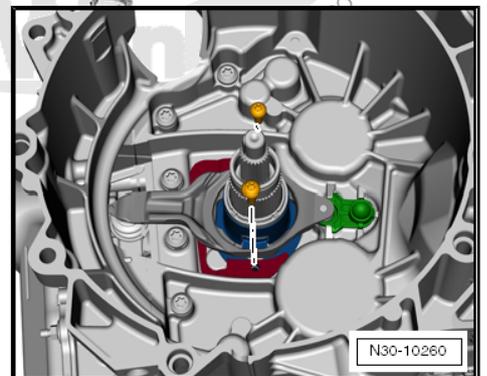
- Insert retainer for engaging lever.



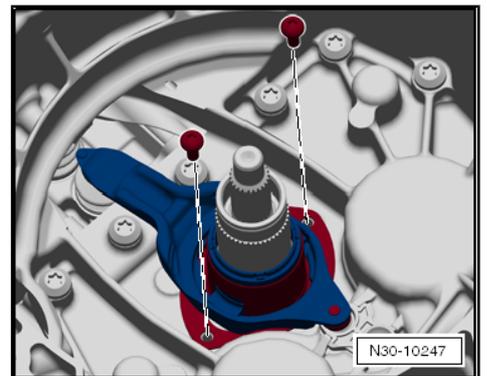
- Install small engaging lever with clip.

**i** Note

Only a few, »older« gearboxes do not have a clip.



- Secure small engaging lever with 2 new bolts.





- Insert large engaging lever.
- Check both engaging levers are seated correctly.



### Caution

**Risk of damage to dual clutch and other components!**

- **The positions of the engagement bearings must be set correctly.**

**Adjustment can only be carried out before the dual clutch is installed.**

**The position of the engagement bearings must be adjusted after the following tasks:**

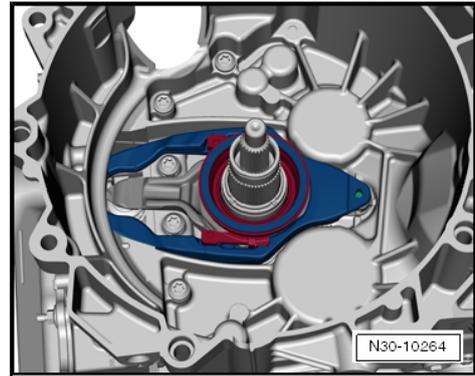
- ◆ **Dual clutch was renewed.**
- ◆ **Engaging levers were renewed.**
- ◆ **Retainer of engaging levers was renewed.**
- ◆ **Engagement bearings were renewed.**

**If one of the above work measures was carried out, the position of engagement bearings „K 1 and K 2“ must now first be set => [page 17](#) and the newly calculated shims inserted.**

**Do not continue with assembly until the setting is correct!**

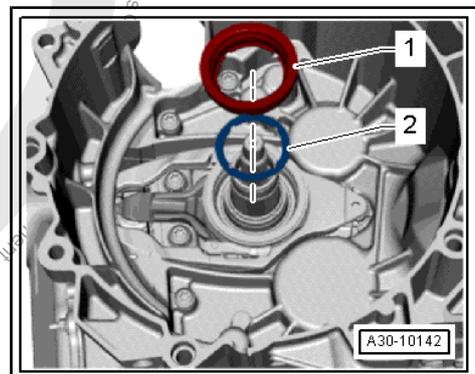
**If no new parts have been installed, insert removed shims.**

**For adjustment, only one shim per engagement bearing may be installed.**

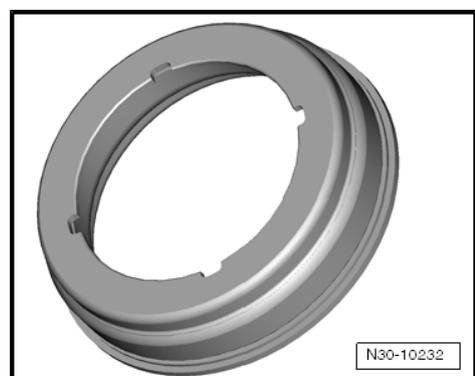


- Insert small engagement bearings -1- with measured shim -item 2- for „K 2“.

**Shim should be under small engagement bearing. Therefore, insert shim first.**

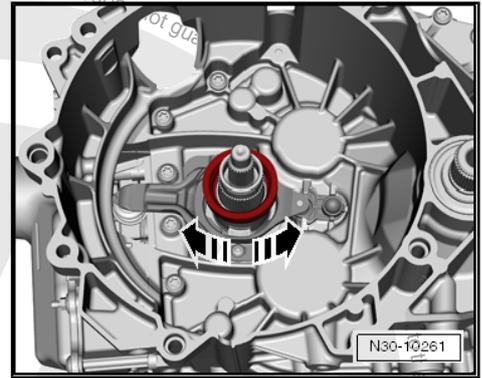


- Small engagement bearing only fits in one position due to 4 grooves.



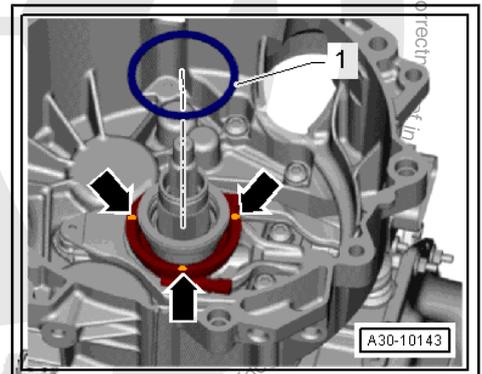


- By turning -arrows-, check whether small engagement bearing is properly installed and that grooves are seated correctly.



- Fix »large« shim -1- for „K-1“ in place with 3 drops of adhesive -AMV 195 KD1 01- -arrows-.

This prevents shim from slipping out of its seat when clutch is inserted.

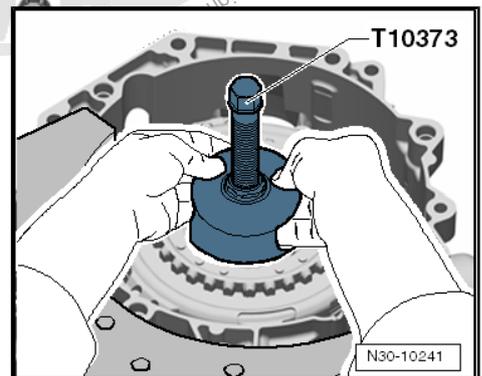


- Turn back spindle of puller -T10373- .

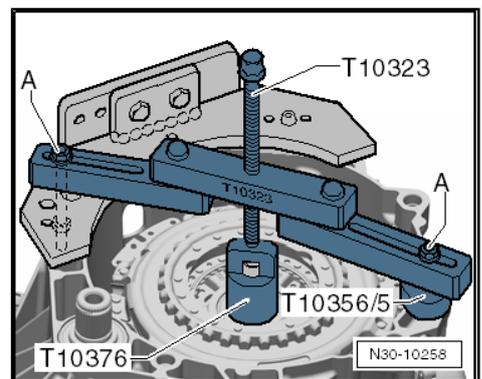
 **Caution**

**Risk of damage from clutch adjustment device.**

◆ **The clutch is self-adjusting. Shocks can have an effect on this adjusting device. Do not allow clutch to fall into gearbox during installation.**



- Install clutch with puller -T10373- in gearbox, as shown in diagram.
- Position support bracket -T10323- parallel to gearbox flange as shown in illustration.
- If necessary, balance out gaps using -T10356/5- from assembly tool -T10356- , for example.
- Screw in bolts -A- hand-tight.



 **Note**

*Bolts -A-, secure with nut as required.*

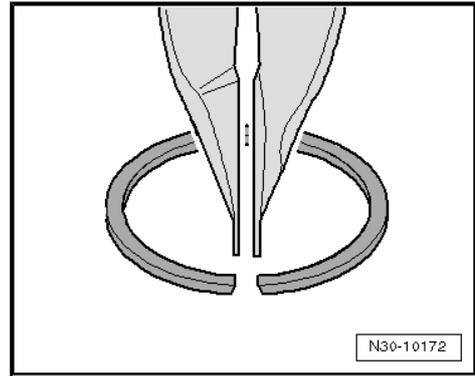
- Press on clutch as far as it will go.

 **Note**

*Place a hand on the clutch when pressing it on. A slight »rattling« will be felt. Rattling indicates that the clutch is being pressed onto its press seat. This also enables detection of the limit stop once the clutch has been seated correctly.*



- Take hold of new retaining ring with retaining ring pliers, as shown in the illustration.
- Installation position: narrow surface of retaining ring on top.

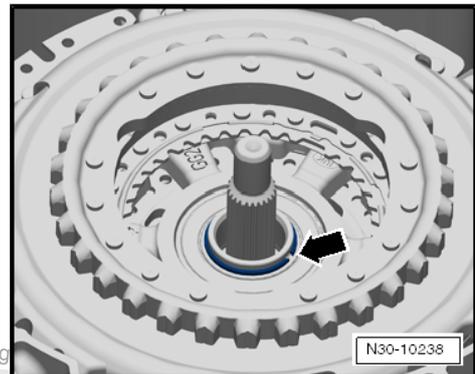


- Inserting retaining ring -arrow-.

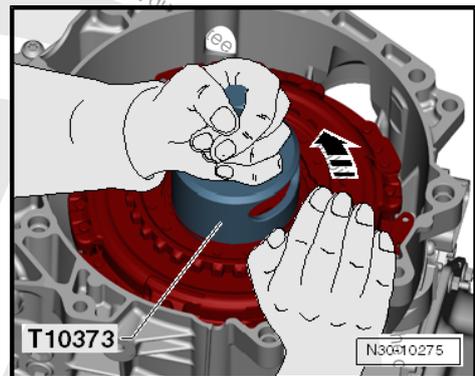


**Note**

*If the retaining ring cannot be inserted, the clutch has not been pressed in onto its limit stop.*



- To ensure that the clutch reaches its operating position right from this stage, turn it against puller -T10373- -arrow- by hand without using any other tools.



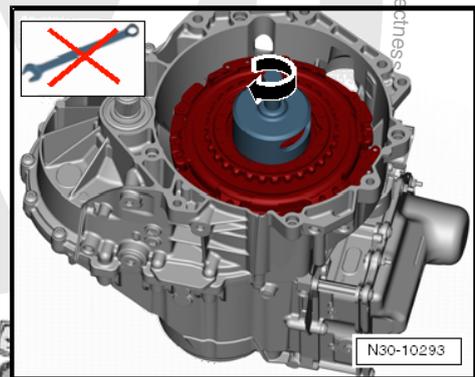
**Note**

- ◆ *By pressing on, the clutch sits at the bottom against the limit stop on the input shaft. This is not the optimum position.*
- ◆ *Clutch should only be pulled up far enough for it to contact retaining ring.*



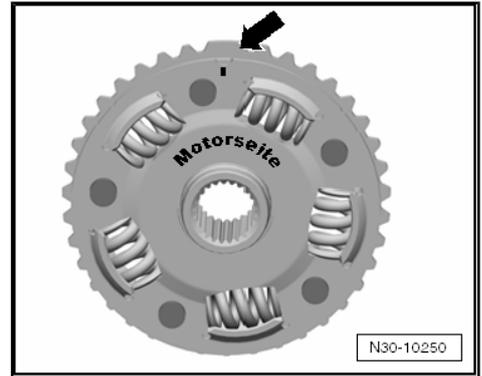
**Note**

*Only turn by hand. In this way, clutch slides against retaining ring. Do not use any other tool.*

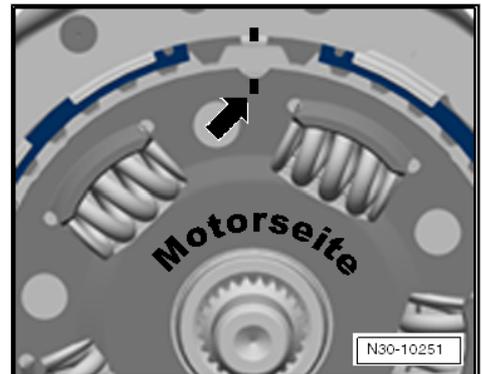




– Insert hub.

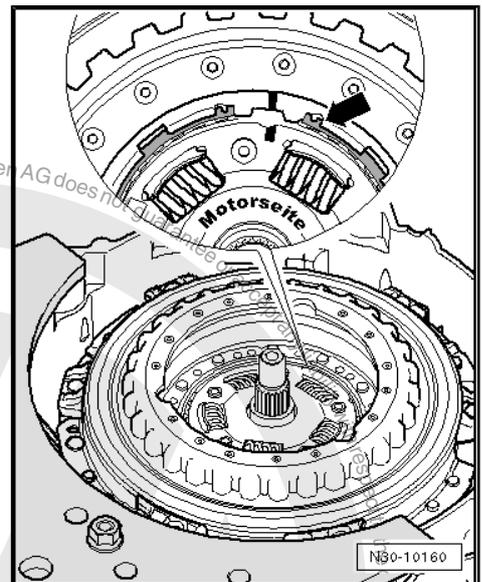


- Hub has »large tooth« -arrow- and only fits in one position.
- »Large tooth« has a mark on engine end -arrow-.



– Insert retaining ring -arrow- of hub.

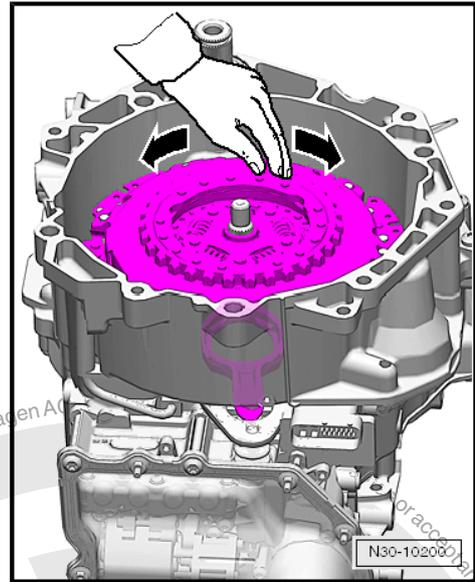
- Joint of retaining ring must point towards »hub« of clutch.



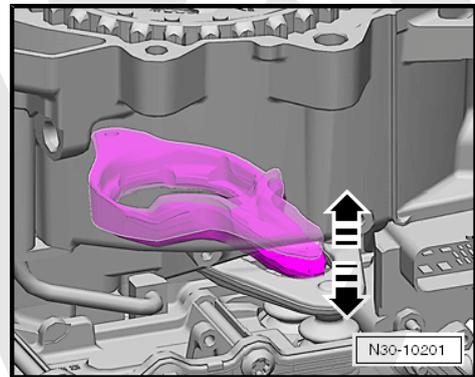
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- Turn clutch by hand and observe small engaging lever whilst turning.

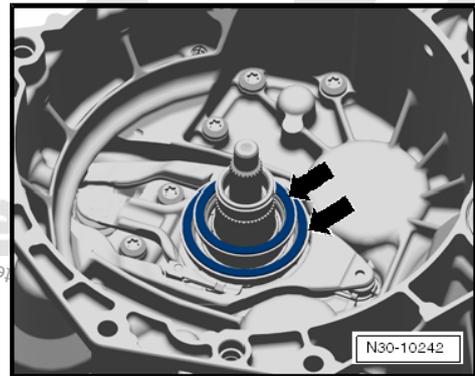


- While the clutch is being turned, it must be ensured that the small engaging lever remains absolutely still. It must be ensured that it does not move up and down.

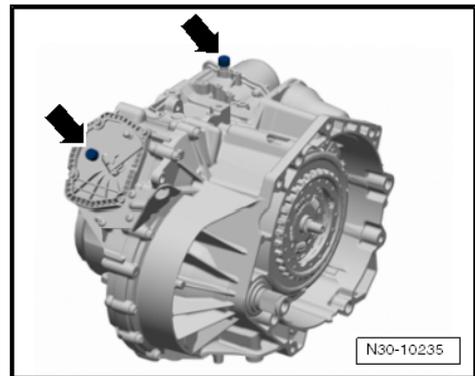


**i** Note

- ◆ If an engaging lever moves up and down, the shim is not properly seated.
- ◆ In this case, remove clutch again => [page 14](#) .
- ◆ Check shims -arrows-.
- ◆ The shims must be properly seated and must not be damaged.



- Remove plugs and put both breather caps -arrows- back on.
- After installation of gearbox, perform Complete reset by means of Guided functions => Vehicle diagnostic tester.





## 2 Removing and installing dual clutch, gearboxes made from 06.2011 onwards

Removing and installing dual clutch, gearboxes made up to 05.2011 ⇒ [page 12](#)



### Caution

*Risk of damage from clutch adjustment device.*

- ◆ *The clutch is self-adjusting. Shocks can have an effect on this adjusting device. Do not allow clutch to fall into gearbox during installation.*
- ◆ *A clutch that has fallen onto a hard surface or shows signs of damage must not be reinstalled.*

### Overview:

- ◆ ⇒ [„2.1 Assembly overview - dual clutch“, page 38](#)
- ◆ ⇒ [„2.2 Removing dual clutch“, page 39](#)
- ◆ ⇒ [„2.3 Adjusting position of clutch engagement bearings K 1 and K 2“, page 42](#)
- ◆ ⇒ [„2.4 Installing dual clutch“, page 54](#)



## 2.1 Assembly overview - dual clutch

### 1 - Hinge mounting

- For large engaging lever „K 1“
- Is not renewed

### 2 - Ball stud

- Small small engaging lever „K 2“
- ⇒ „2.3 Adjusting position of clutch engagement bearings K 1 and K 2“, page 42

### 3 - Shim „SK 1“

- Determining thickness ⇒ „2.3 Adjusting position of clutch engagement bearings K 1 and K 2“, page 42

### 4 - Shim „SK 2“

- Determining thickness ⇒ „2.3 Adjusting position of clutch engagement bearings K 1 and K 2“, page 42

### 5 - Small engagement bearings for „K 2“

- ⇒ „2.3 Adjusting position of clutch engagement bearings K 1 and K 2“, page 42

### 6 - Dual clutch

- Removing ⇒ page 39
- Installing ⇒ page 54
- Renewing ⇒ „2.3 Adjusting position of clutch engagement bearings K 1 and K 2“, page 42

### 7 - Retaining ring

- Renew

### 8 - Hub

### 9 - Retaining ring

- Renew

### 10 - Large engaging lever for „K 1“

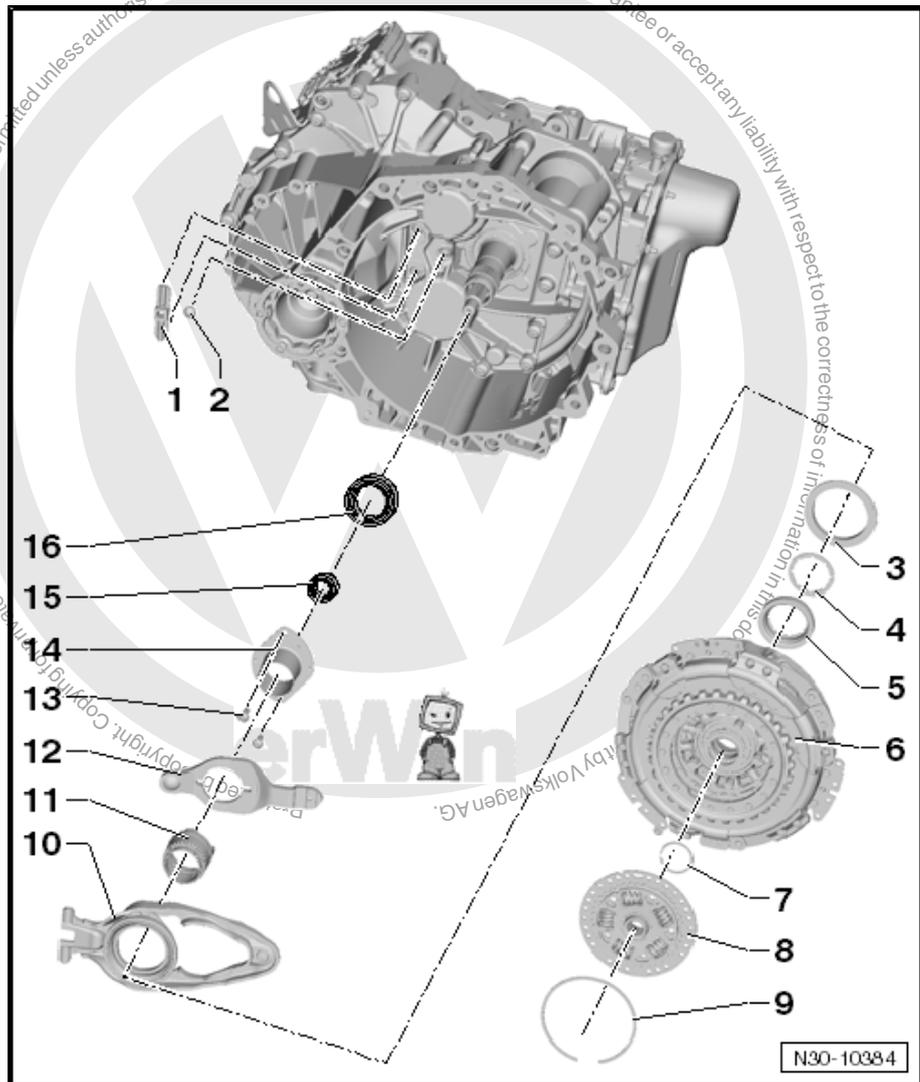
- With engagement bearing
- ⇒ „2.3 Adjusting position of clutch engagement bearings K 1 and K 2“, page 42

### 11 - Upper section of bushing

- Small small engaging lever „K 2“
- Is removed and installed together with lower section of bushing

### 12 - Small engaging lever for „K 2“

- Is removed and installed together with upper and lower section of bushing
- ⇒ „2.3 Adjusting position of clutch engagement bearings K 1 and K 2“, page 42





### 13 - Bolts

- 8 Nm + 90° further
- Always renew

### 14 - Lower section of bushing

- Small small engaging lever „K 2“
- Is removed and installed together with upper section of bushing

### 15 - Oil seal

- For inner input shaft
- Renewing => [page 61](#)

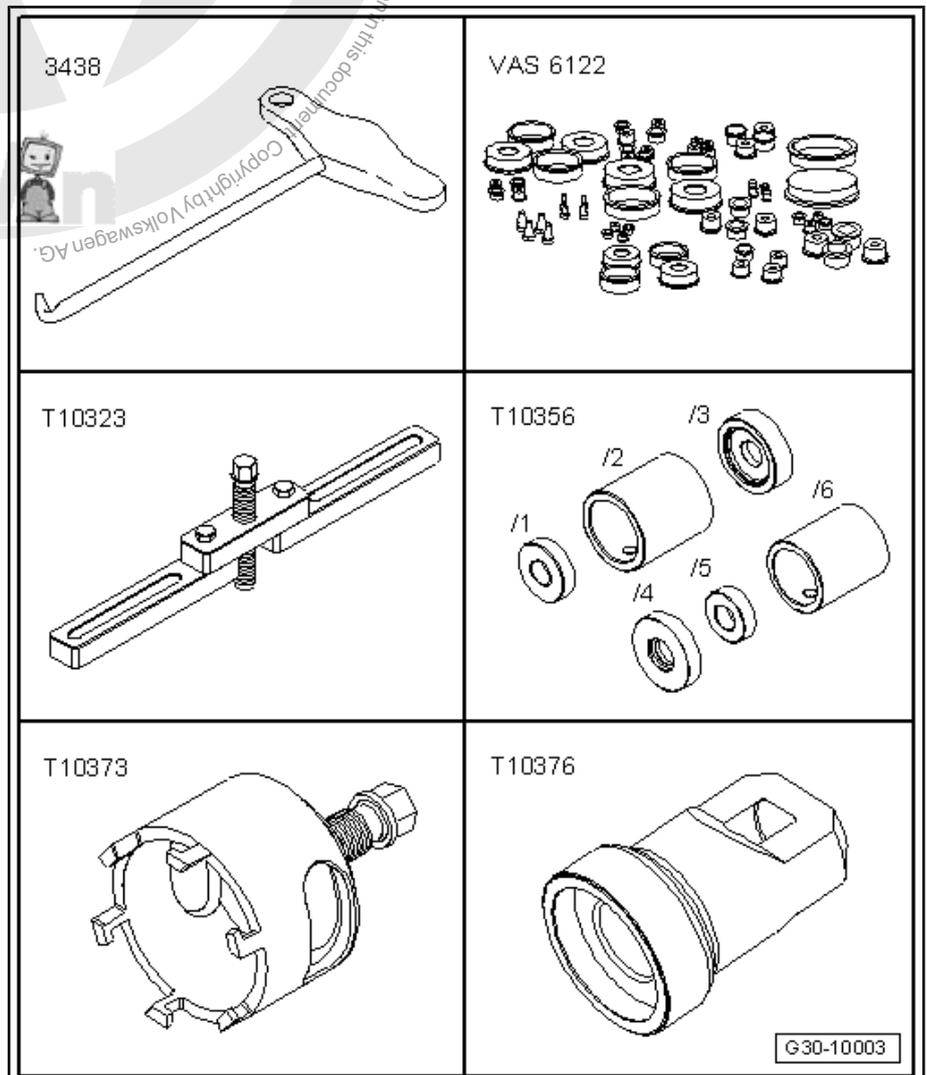
### 16 - Oil seal

- For outer input shaft
- Renewing => [page 61](#)

## 2.2 Removing dual clutch

### Special tools and workshop equipment required

- ◆ Hook -3438-
- ◆ Engine plug set -VAS 6122-
- ◆ Support device -T10323-
- ◆ -T10356/5- from assembly tool -T10356-
- ◆ Puller -T10373-
- ◆ Thrust piece -T10376-



### Requirement:

- Gearbox removed and secured to engine and gearbox jack  
=> [page 165](#) .

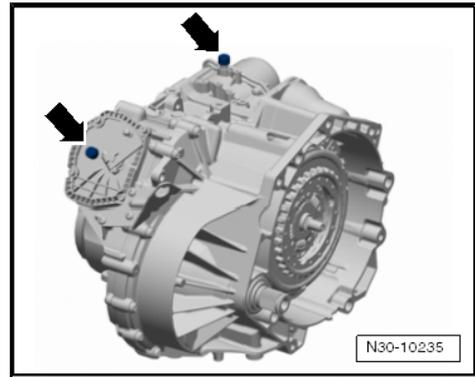


- Mechatronic unit for dual clutch gearbox -J743- built into gear-box.
- Pull off both breather caps -arrows- and close using clean plugs from engine bung set -VAS 6122- to achieve an oil-tight seal.



**WARNING**

*The breather cap on the mechatronic unit is destroyed during removal and must be renewed.*

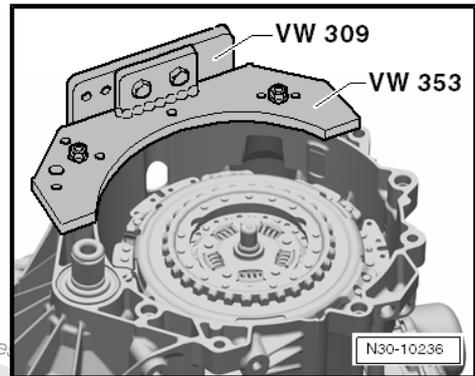


- Turn gearbox on engine and gearbox jack upwards together with clutch..

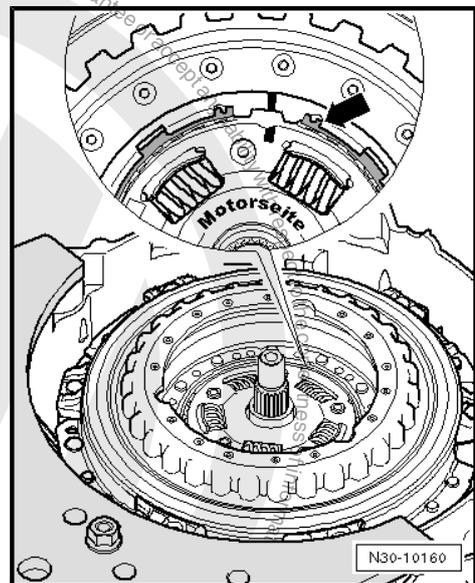


**Note**

*The clutch is pulled off upwards. The mechatronic unit remains on the gearbox.*



- Remove retaining ring of hub -arrow-.

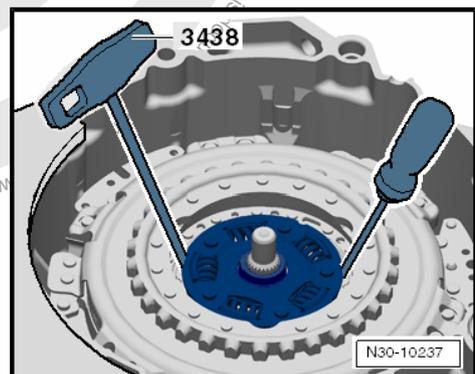


- Remove hub with hook -3438- and a screwdriver.



**Note**

*If parts of clutch are renewed, the position of engagement bearings „K 1“ and „K 2“ must be set later. It is therefore advisable to determine dimension „B“ for the measurements now => [page 42](#) .*





- Remove retaining ring -arrow- for clutch

If retaining ring cannot be removed:

**i** Note

- ◆ If the retaining ring cannot be removed it is because the clutch has »clamped« the retaining ring at the bottom.
- ◆ In this case, push the clutch down slightly (see following description) and release the load on the retaining ring. Never strike the clutch or shaft with a hammer!

- Position support bracket -T10323- parallel to gearbox flange as shown in illustration.
- If necessary, balance out gaps using -T10356/5-, for example.
- Screw in bolts -A- hand-tight.

**i** Note

Bolts -A-, secure with nut as required.

**!** Caution

**Risk of damage to clutch and other components!**

- Push down clutch using only very light force.

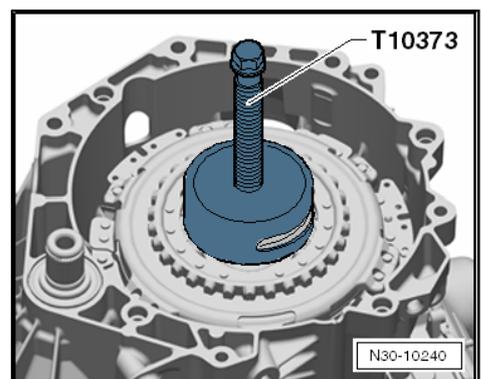
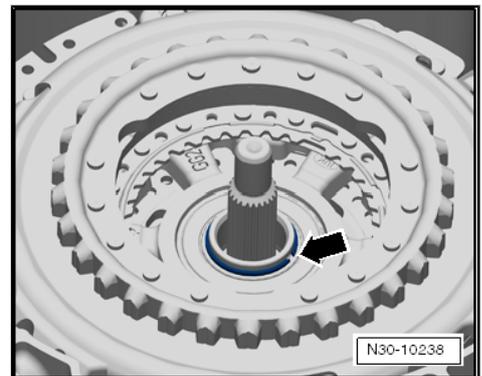
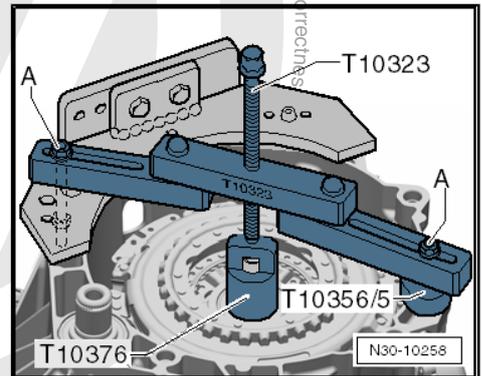
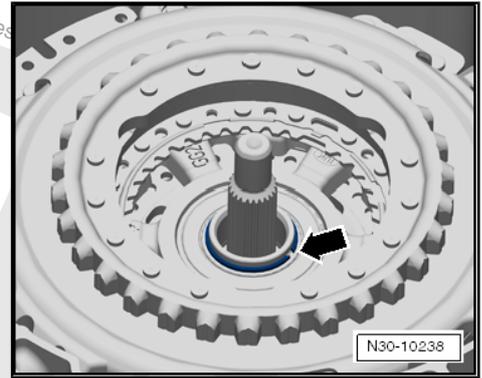
- To press down, turn spindle against thrust piece -T10376- .
- Remove retaining ring -arrow- for clutch.

**!** WARNING

**It is not permissible to reuse the retaining ring.**

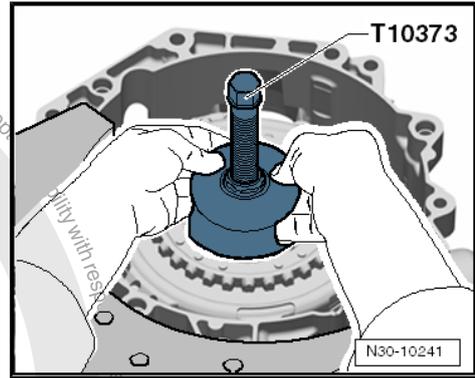
Continuation once retaining ring has been removed:

- Insert puller -T10373- into clutch and bore out clutch.





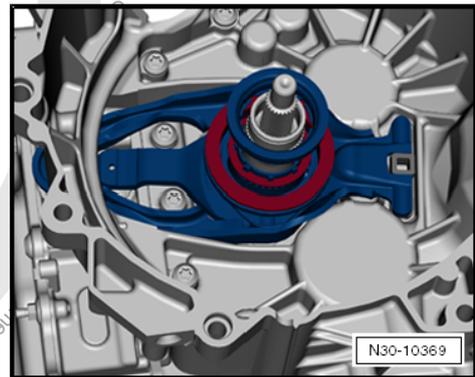
- Remove clutch together with puller -T10373- .



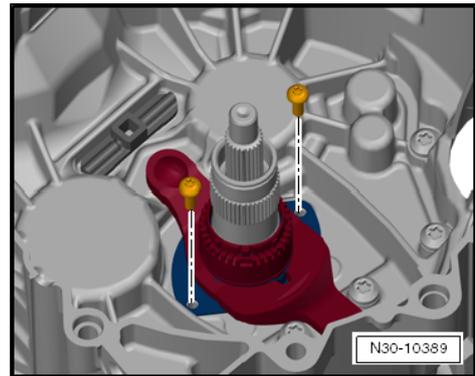
- Remove »large« engagement lever together with »small« engagement bearings.

**i Note**

*The upper section of bushing cannot be removed or installed alone. It is always removed or installed together with lower section of bushing and »small« engagement lever.*



- Undo and remove bolts and remove »small« engagement lever together with upper and lower section of bushing.

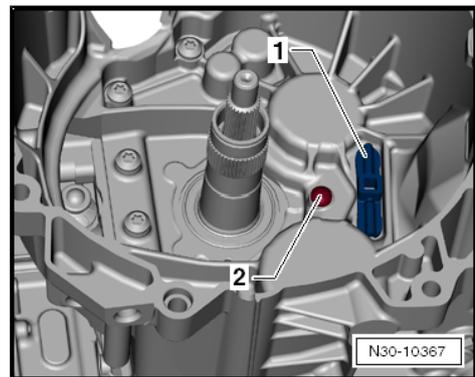


If no parts are renewed, the ball stud -2- remains installed.

The hinge mounting -1- is not removed.

**i Note**

*If dimension „B“ has already been determined, it is now possible to proceed with step „2“ of the measurement => [page 48](#) .*



### 2.3 Adjusting position of clutch engagement bearings „K 1“ and „K 2“

The position of the engagement bearings must be adjusted after the following tasks:

- ◆ Clutch has been renewed.
- ◆ Engaging levers were renewed.



- ◆ Small ball stud for engaging lever „K 2“ has been renewed.
- ◆ Engagement bearings were renewed.

 **Note**

- ◆ *There is no need to adjust anything if all the named parts have only been removed and reinstalled.*
- ◆ *The retaining ring must be renewed in each case.*

**Brief description**

- ◆ Position of engagement bearings is comparable with clutch play of a manual gearbox. In the 7-speed dual clutch gearbox 0AM there are tolerances in the engagement system of the gearbox and in the gearbox itself. Even within the dual clutch there are tolerances. These tolerances must be taken into account separately during adjustment.
- ◆ The following procedure first describes how to measure all necessary dimensions on the gearbox so that the appropriate shim can be selected. In addition are the tolerances in the clutch that the manufacturer has already calculated. Tolerances on gearbox and tolerances in clutch determine thickness of shim.
- ◆ Adhere to the sequence of work steps.

**Overview of clutch actuation:**



**1 - Shim for „K 1“**

- ⇒ „2.3 Adjusting position of clutch engagement bearings K 1 and K 2“, page 42

**2 - Large engaging lever for „K 1“**

- With engagement bearing

**3 - Hinge mounting**

- For large engaging lever „K 1“
- Is not renewed

**4 - Small engagement bearings for „K 2“**

**5 - Shim for „K 2“**

- ⇒ „2.3 Adjusting position of clutch engagement bearings K 1 and K 2“, page 42

**6 - Upper section of bushing**

- Small small engaging lever „K 2“
- Is removed and installed together with lower section of bushing

**7 - Small engaging lever for „K 2“**

- Is removed and installed together with upper and lower section of bushing

**8 - Ball stud**

- Small small engaging lever „K 2“
- ⇒ „2.3 Adjusting position of clutch engagement bearings K 1 and K 2“, page 42

**9 - Bolts**

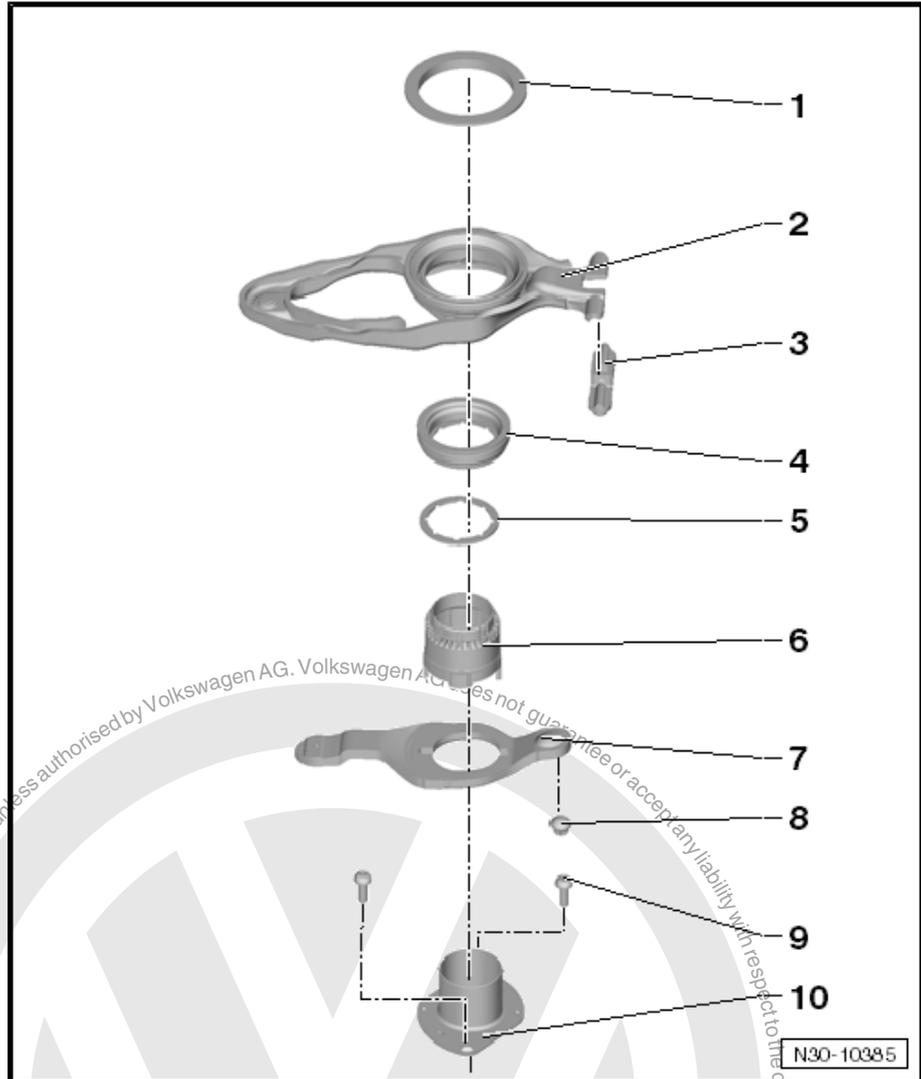
- 8 Nm + 90° further
- Always renew

**10 - Lower section of bushing**

- Small small engaging lever „K 2“
- Is removed and installed together with upper section of bushing

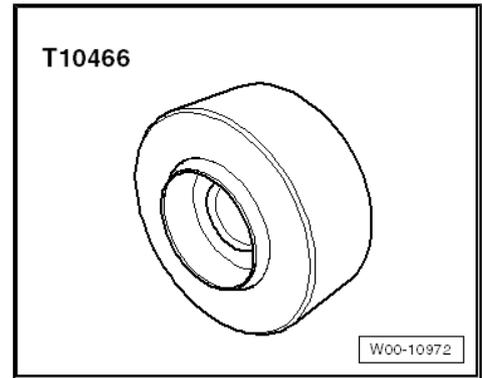
**Special tools and workshop equipment required**

- ◆ Depth gauge, digital 300 mm -VAS 6594-

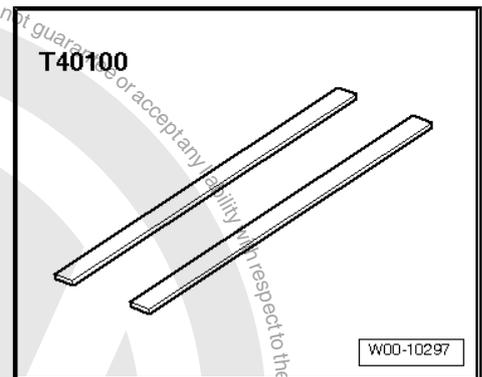




- ◆ Gauge block -T10466-



- ◆ Ruler -T40100-



**Requirement:**

- The gearbox flange must be level to assure good contact with the ruler.
- Mechatronic unit for dual clutch gearbox -J743- must be removed.

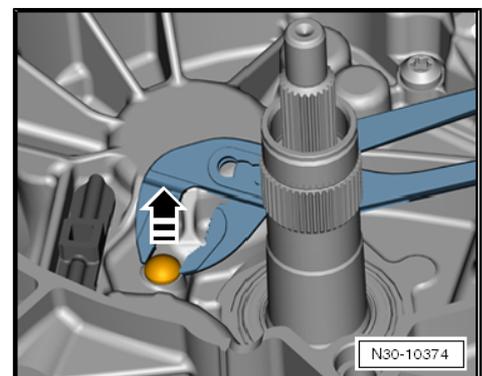


**Caution**

***Risk of damage to clutch and other components!***

- ***Mounting for engaging lever and entire mechanism of engagement bearing must be dry and free of oil or grease.***

- Remove installed ball stud using pliers.



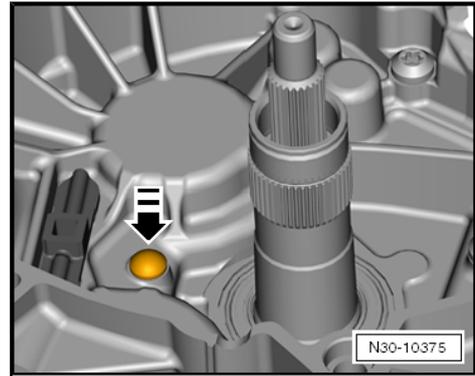


- Push in »new« ball stud by hand, if necessary using a plastic hammer and drift to tap it in.

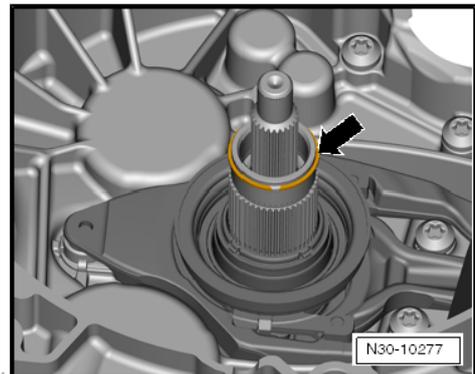


**Note**

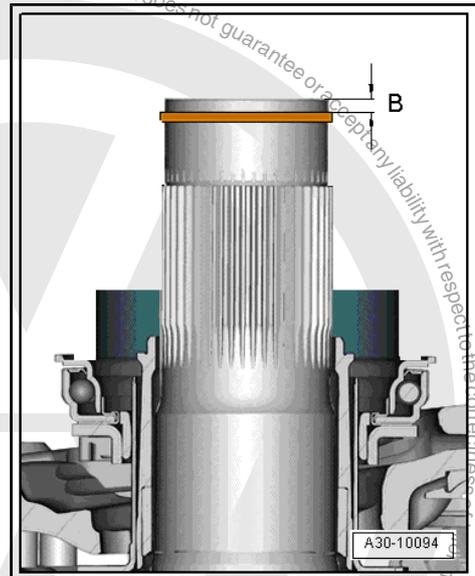
To avoid damage to ball stud, only tap the drift lightly with the hammer.



- Install previously used retaining ring of outer input shaft.



2nd step: Determine dimension „B“ for clutch „K 1“ and „K 2“.



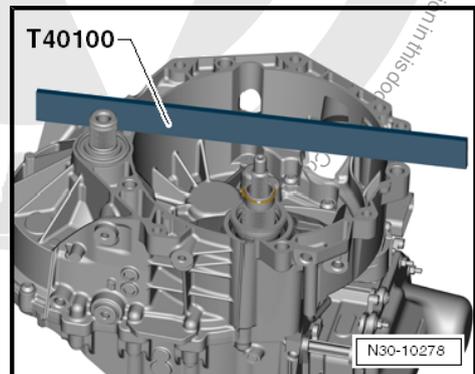
- Place ruler -T40100- upwards across end of shaft onto gear-box flange.



**Caution**

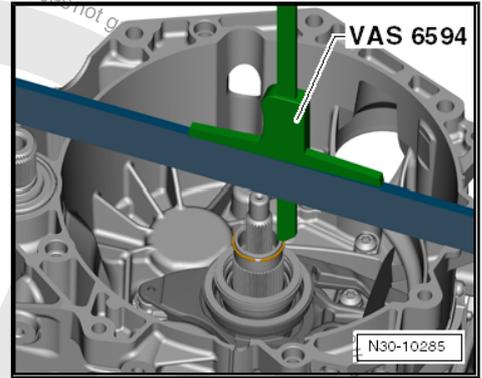
**Risk of false measurements.**

- ◆ The ruler -T40100- should remain in this position for the following measurements. Do not turn over, do not remove.

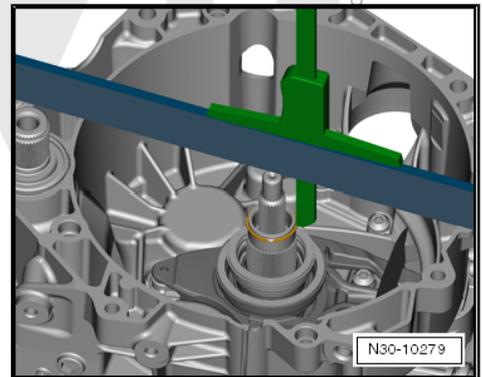




- Place digital 300 mm depth gauge -VAS 6594- on top of ruler -T40100- and position depth gauge rod on outer input shaft.
- Set depth gauge to „0“.



- Position depth gauge rod on retaining ring, as show in diagram.
- In this position, determine dimension „B<sub>1</sub>“ to retaining ring.
- Example: dimension „B<sub>1</sub>“ = 2.62 mm



- In the opposite position, determine dimension „B<sub>2</sub>“ to retaining ring.

**i** Note

*Do not measure on retaining ring joint. It is possible that the retaining ring will be pushed away and thus falsify the reading.*

- Example: dimension „B<sub>2</sub>“ = 2.58 mm
- Calculate mean value from dimension „B<sub>1</sub>“ and „B<sub>2</sub>“.

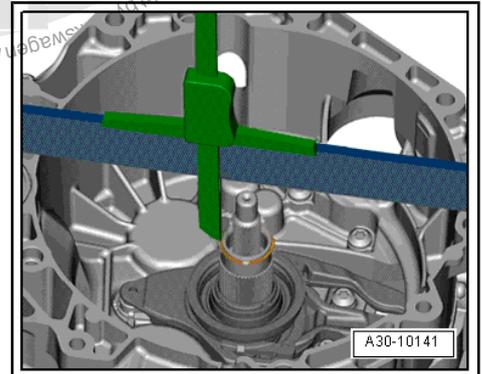
Formula:  $B_1 + B_2$

Example:

- $2,62 + 2,582 = 2.60$  mm
- Result: Dimension „B“ = 2.60 mm

**i** Note

*If the dual clutch is still in place after this measurement, it must now be removed => [page 41](#) .*



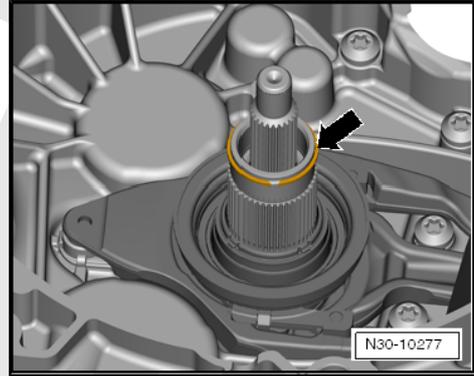


- Remove and dispose of outer input shaft.

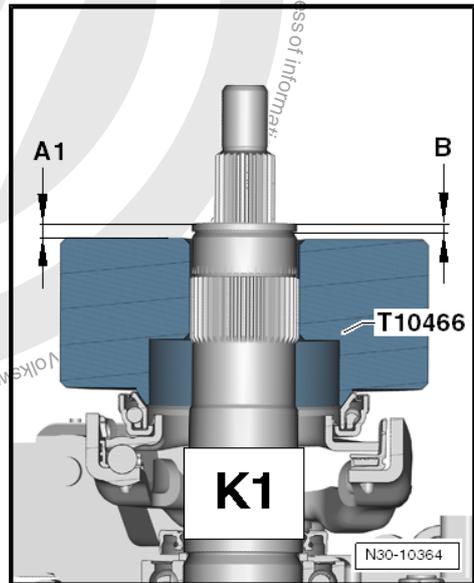


**WARNING**

*It is not permissible to reuse the retaining ring.*



2nd step: Determine dimension „A1“ for clutch engaging lever „K 1“.



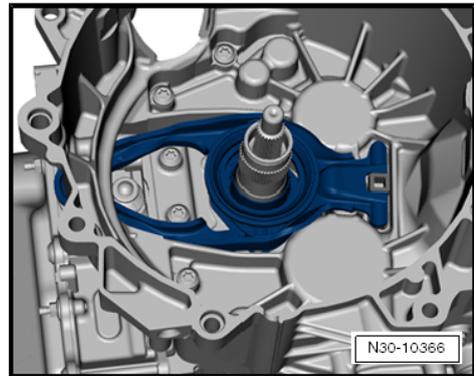
- Insert large engaging lever.



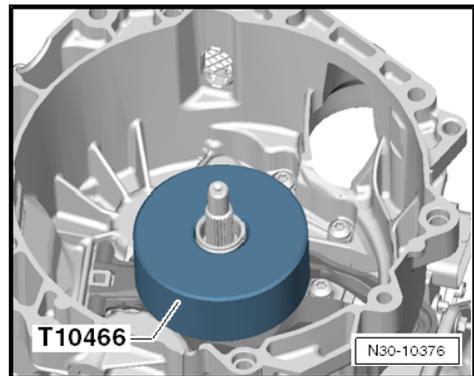
**WARNING**

*Do not insert any shim!*

- Check that engaging lever is seated correctly.



- Place end gauge -T10466- on large engagement bearing. Flat side faces upwards.
- To ensure that end gauge -T10466- sits properly on engagement bearing, press down and turn end gauge.
- Engagement bearing will turn with end gauge -T10466- .



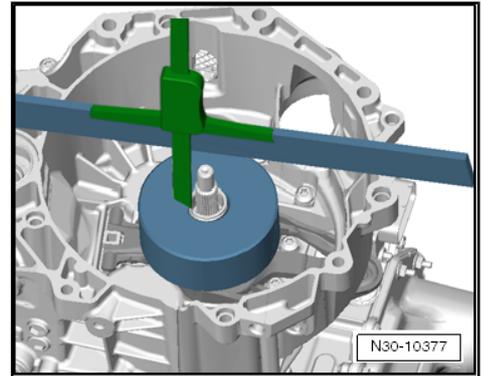


- Place digital 300 mm depth gauge -VAS 6594- on top of ruler and position depth gauge rod on outer input shaft.
- Ruler -T40100- is lying upwards across end of shaft on gear-box flange.

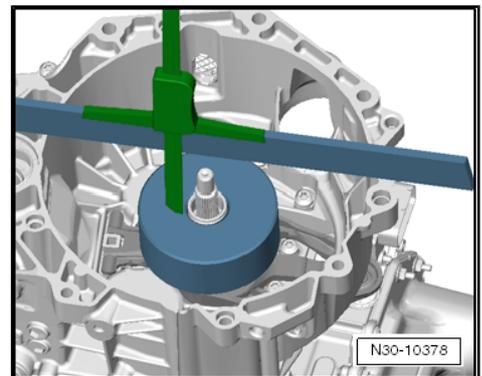
 **Caution**

*Risk of false measurements.*

◆ *The ruler -T40100- should remain in this position for the following measurements. Do not turn over, do not remove.*



- Set depth gauge to „0“.
- Position depth gauge rod on end gauge -T10466- , as show in diagram.
- In this position, determine dimension „A 1a“ to end gauge - T10466- .
- Example: Dimension „A 1a“ = 4.93 mm

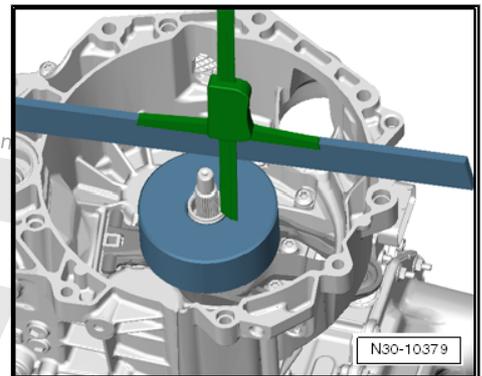


- In the opposite position, determine dimension „A 1b“ to end gauge -T10466- .
- Example: Dimension „A 1b“ = 4.91 mm
- Calculate mean value from dimension „A 1a“ and „A 1b“.

Formula:  $A_{1a} + A_{1b} \div 2$

Example:

- $4,93 + 4,912 = 4.92\text{mm}$
- Result: Dimension „A 1“ = 4.92 mm



**3rd step: Calculate height tolerance of clutch engagement bearing „K 1“.**

 **Note**

*On the basis of dimension „A 1“ and dimension „B“, the height tolerance of the clutch engagement bearing „K 1“ is now calculated according to the following calculus.*

	Dimension „A 1“
-	Dimension „B“
=	Actual height tolerance of clutch engagement bearing „K 1“

Example:

- $4.92 \text{ mm} - 2.60 \text{ mm} = 2.32 \text{ mm}$
- Result: Height tolerance of clutch engagement bearing „K 1“ = 2.32 mm



**4th step: Calculate clutch tolerance of clutch „K 1“.**

- Take clutch tolerance value from new clutch.
- Example: Read off clutch tolerance value on clutch „K 1 = +0.2“, as shown in diagram.

**5th step: Determining thickness of shim „SK 1“.**



**Note**

On the basis of the clutch tolerance „K 1“, the thickness of shim „SK 1“ is now calculated according to the following calculus.

	Height tolerance of engagement bearing „K 1“
-/+	Clutch tolerance of clutch „K 1“
=	Calculated thickness of shim „SK 1“

Example:

- $2.32 \text{ mm} + 0.20 \text{ mm} = 2.52 \text{ mm}$
- Result: Calculated thickness of shim „SK 1“ = 2.52 mm
- Select required shim from the table with the help of the part number -magnifying glass- and have it ready for installation.

Calculated thickness of shim mm	Available shims Thickness in mm	Part number of shim
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

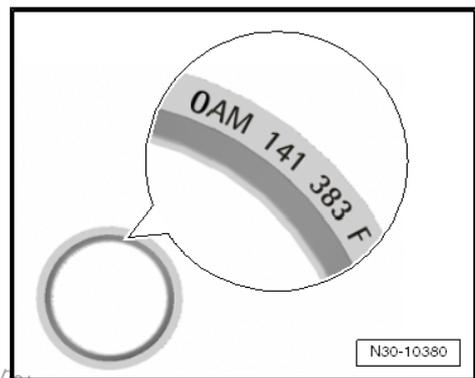
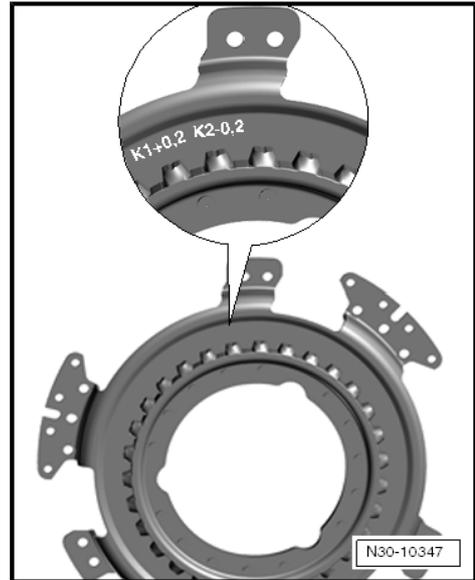
Example:

- Result: Calculated thickness of shim „SK 1“ = 2.52 mm
- Chosen shim thickness = 2.50 mm = part number DAM 141 383 E



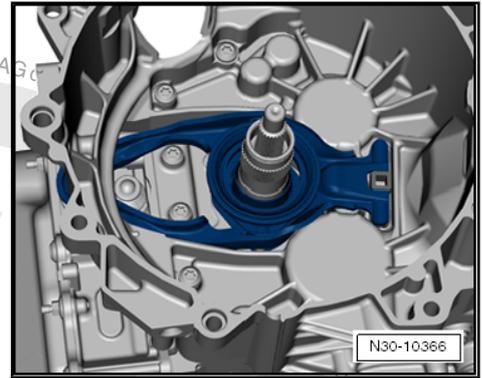
**WARNING**

To avoid damage to clutch, only fit this shim later.





- Remove end gauge -T10466- and large engagement lever again.

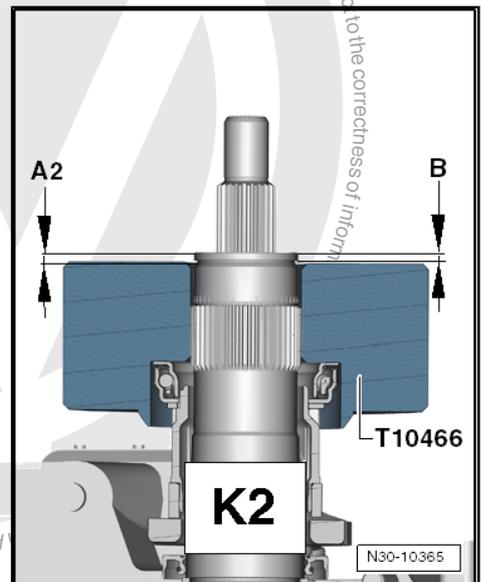


6th step: Determine dimension „A 2“ for clutch engaging lever „K 2“



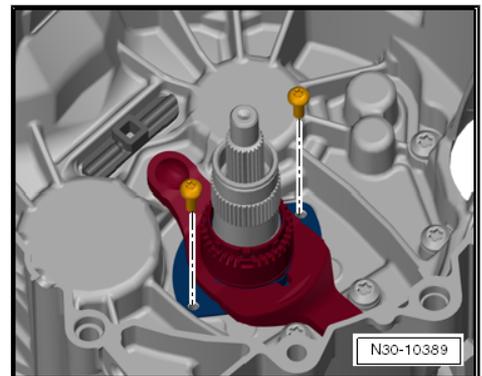
**Note**

*The upper section of bushing cannot be removed or installed alone. It is always removed or installed together with lower section of bushing and »small« engagement lever.*



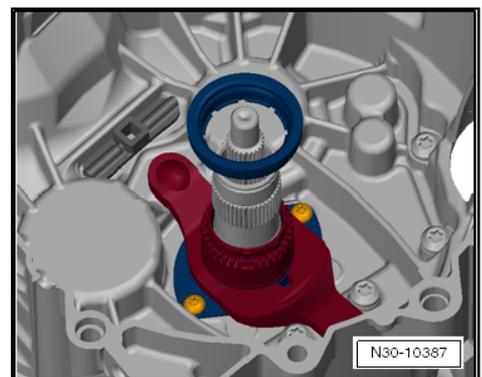
- Install »small« engagement lever together with upper and lower section of bushing. Insert and tighten bolts.

Torque setting: => [page 44](#) .



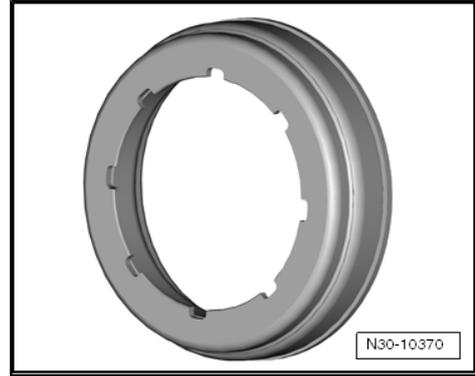
- Insert »small« engagement bearing without shim.

	<p><b>WARNING</b></p> <p><i>Do not insert a shim!</i></p>
--	---

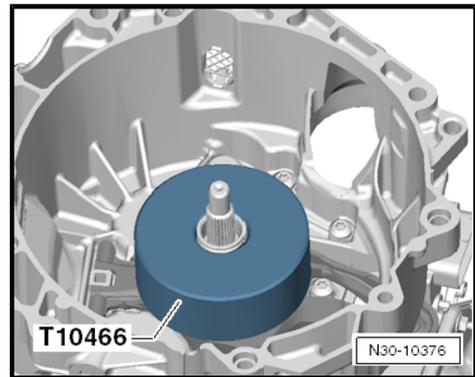




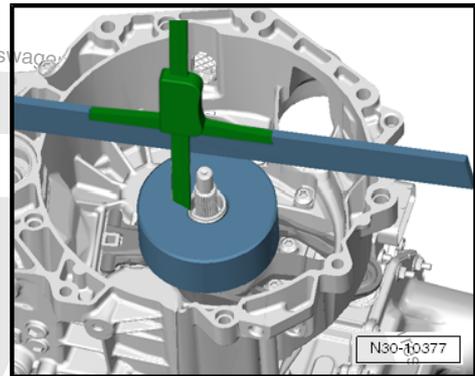
- Small engagement bearing only fits in one position due to 8 grooves.
- By turning, check whether small engagement bearing has been installed correctly and that grooves are seated correctly.



- Place end gauge -T10466- on small engagement bearing. Flat side faces upwards.
- To ensure that end gauge -T10466- sits properly on engagement bearing, press down and turn end gauge.
- Engagement bearing will turn with end gauge -T10466- .



- Place digital 300 mm depth gauge -VAS 6594- on top of ruler and position depth gauge rod on outer input shaft.
- Ruler -T40100- is lying upwards across end of shaft on gearbox flange.

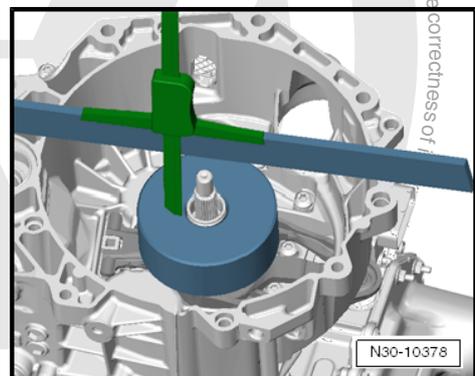


**Caution**

**Risk of false measurements.**

- ◆ **The ruler -T40100- should remain in this position for the following measurements. Do not turn over, do not remove.**

- Set depth gauge to „0“.
- Position depth gauge rod on end gauge -T10466- , as show in diagram.
- In this position, determine dimension „A 2a“ to end gauge -T10466- .
- Example: Dimension „A 2a“ = 4.79 mm





– In the opposite position, determine dimension „A 2<sub>b</sub>“ to end gauge -T10466- .

• Example: Dimension „A 2<sub>b</sub>“ = 4.75 mm

– Calculate mean value from dimension „A 2<sub>a</sub>“ and „A 2<sub>b</sub>“.

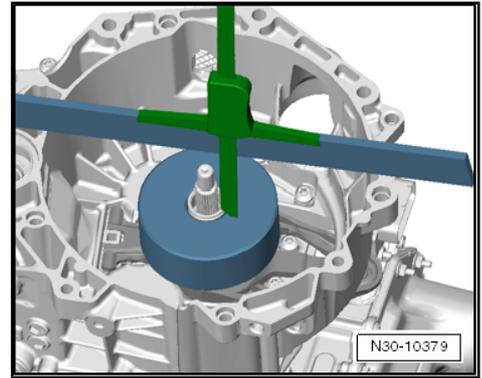
Formula:  $A 2_a + A 2_b \div 2$

Example:

•  $4,79 + 4,752 = 4.77$  mm

• Result: Dimension „A 2“ = 4.77 mm

**7th step: Calculate height tolerance of clutch engagement bearing „K 2“.**



**Note**

*On the basis of dimension „A 2“ and dimension „B“, the height tolerance of the clutch engagement bearing „K 2“ is now calculated according to the following calculus.*

	Dimension „A 2“
–	Dimension „B“
=	Actual height tolerance of clutch engagement bearing „K 2“

Example:

•  $4.77 \text{ mm} - 2.60 \text{ mm} = 2.17 \text{ mm}$

• Result: Height tolerance of clutch engagement bearing „K 2“ = 2.17 mm

**8th step: Calculate clutch tolerance of clutch „K 2“.**

– Take clutch tolerance value from new clutch.

• Example: Read off clutch tolerance value on clutch „K 2 = – 0.2“, as shown in diagram.

**9. step: Determining thickness of shim „SK 2“-**



**Note**

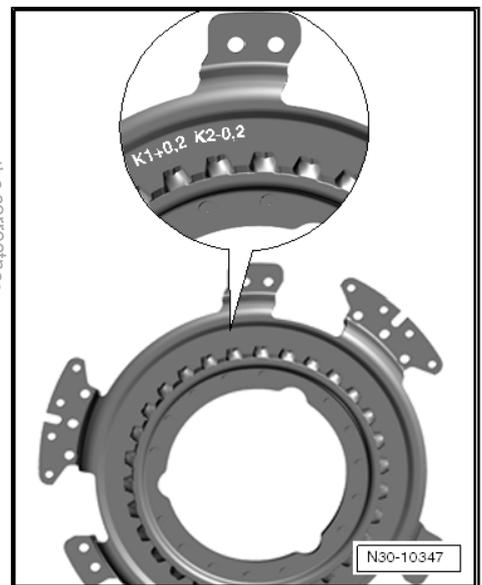
*On the basis of the clutch tolerance „K 2“, the thickness of shim „SK 2“ is now calculated according to the following calculus.*

	Height tolerance of engagement bearing „K 2“
–/+	Clutch tolerance of clutch „K 2“
=	Calculated thickness of shim „SK 2“

Example:

•  $2.17 \text{ mm} - 0.20 \text{ mm} = 1.97 \text{ mm}$

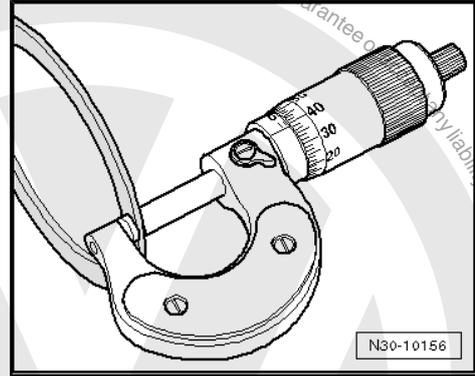
• Result: Calculated thickness of shim „SK 2“ = 1.97 mm





- From the shims supplied, measure the required shim and have it ready for installation.

Calculated thickness of shim mm	Available shims Thickness in mm
0.31 ... 0.90	0.80
0.91 ... 1.10	1.00
1.11 ... 1.30	1.20
1.31 ... 1.50	1.40
1.51 ... 1.70	1.60
1.71 ... 1.90	1.80
1.91 ... 2.10	2.00
2.11 ... 2.30	2.20
2.31 ... 2.50	2.40
2.51 ... 2.70	2.60
2.71 ... 3.30	2.80



Example:

- Result: Calculated thickness of shim „SK 2“ = 1.97 mm
- Chosen shim thickness = 2.00 mm



**WARNING**

*To avoid damage to clutch, only fit this shim later.*

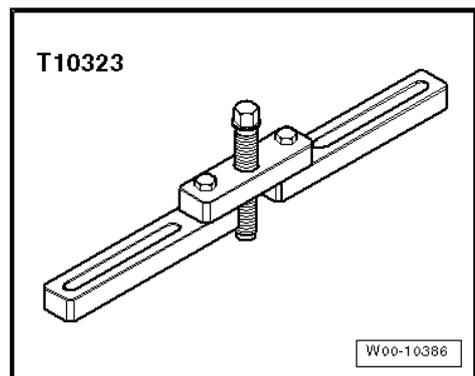
The adjusting work has now been completed and the »small« engagement lever has already been installed. The next step now is to install the clutch again.

- Install clutch => [page 54](#) .

## 2.4 Installing dual clutch

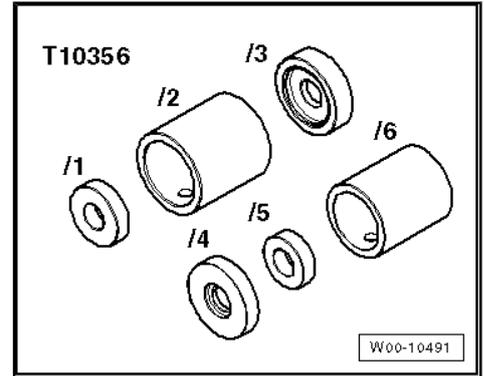
Special tools and workshop equipment required

- ◆ Support device -T10323-

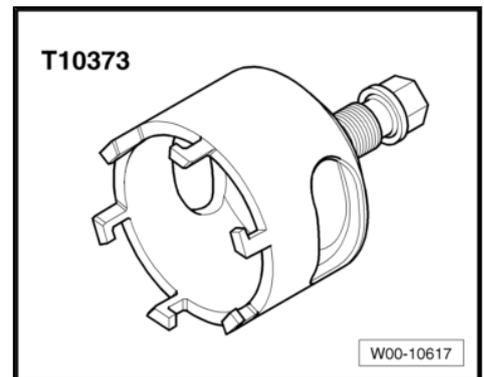




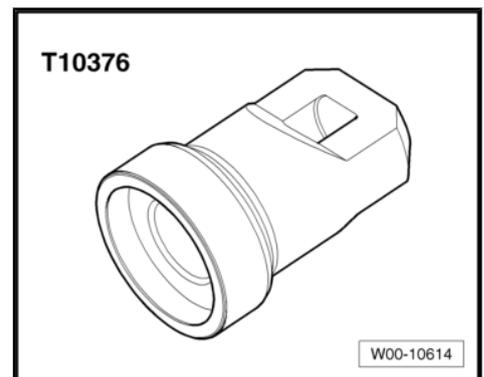
- ◆ -T10356/5- from assembly tool -T10356-



- ◆ Puller -T10373-



- ◆ Thrust piece -T10376-



### Installing



#### Note

*Replace all bolts tightened with further tightening angle.*





### Caution

**Risk of damage to clutch and other components!**

- **The positions of the engagement bearings must be set correctly.**

**Adjustment can only be carried out before the clutch is installed.**

**The position of the engagement bearings must be adjusted after the following tasks:**

- ◆ **Clutch has been renewed.**
- ◆ **Engaging levers were renewed.**
- ◆ **Small ball stud for engaging lever „K 2“ has been renewed.**
- ◆ **Engagement bearings were renewed.**

**If you have performed any of the above work, you must now adjust the position of engagement bearings „K 1 and K 2“ => [page 42](#) .**

**Do not continue with assembly until the setting is correct!**

**If no new parts have been installed, insert removed shims.**

**For adjustment, only one shim per engagement bearing may be installed.**

- **Clutch parts must be free of oil and grease.**

Hinge mounting -1- and ball stud -2- have been installed.



### Note

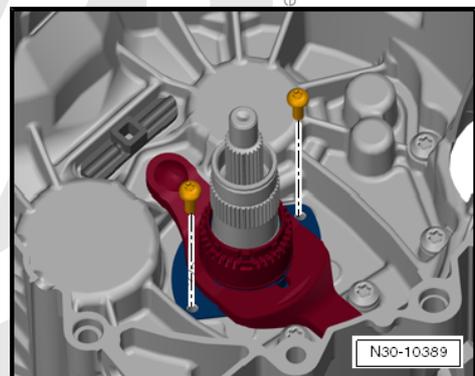
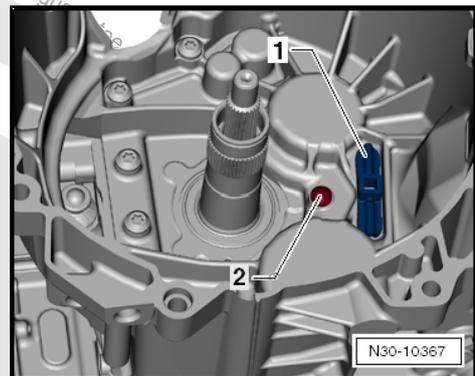
*The upper section of bushing cannot be removed or installed alone. It is always removed or installed together with lower section of bushing and »small« engagement lever.*

**The following work is only necessary if all the named parts have merely been removed and reinstalled.**

- Install »small« engagement lever together with upper and lower section of bushing. Insert and tighten new bolts.

Torque setting => [page 44](#)

**Continuation for all vehicles:**

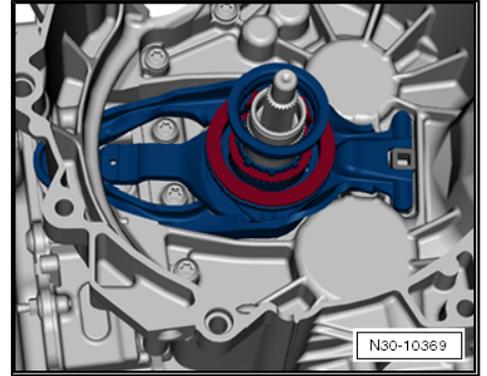




- Insert »large« engaging lever with measured shims for „K 1“ and „K 2“ and with small engagement bearing.

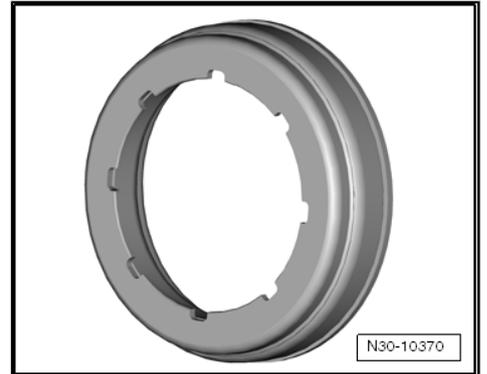
**i** Note

- ◆ *The large shim is inserted into the large engagement bearing, with the hemispherical side of the shim facing downwards.*
- ◆ *The small shim goes under the small engagement bearing. Therefore, insert shim first.*



The shim and the small engagement bearing only fit in one position due to the 8 grooves.

- By turning, check that parts have been installed correctly and that grooves are seated correctly.
- Check both engaging levers are seated correctly.
- Turn back spindle of puller -T10373- .

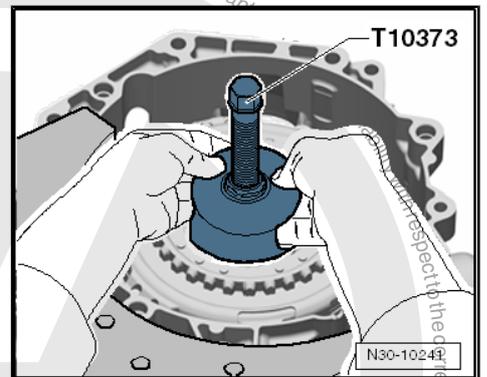


**Caution**

**Risk of damage from clutch adjustment device.**

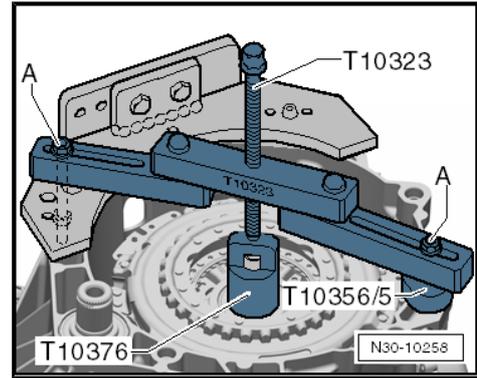
- ◆ *The clutch is self-adjusting. Shocks can have an effect on this adjusting device. Do not allow clutch to fall into gearbox during installation.*

- Install clutch with puller -T10373- in gearbox, as shown in diagram.





- Position support bracket -T10323- parallel to gearbox flange as shown in illustration.
- If necessary, balance out gaps using -T10356/5- from assembly tool -T10356- , for example.
- Screw in bolts -A- hand-tight.



**Note**

*Bolts -A-, secure with nut as required.*

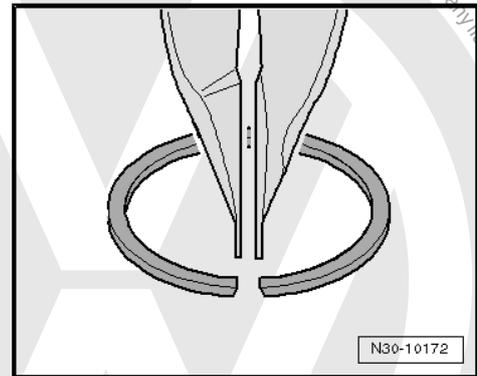
- Press on clutch as far as it will go.



**Note**

*Place a hand on the clutch when pressing it on. A slight »rattling« will be felt. Rattling indicates that the clutch is being pressed onto its press seat. This also enables detection of the limit stop once the clutch has been seated correctly.*

- Take hold of new retaining ring with retaining ring pliers, as shown in the illustration.
- Installation position: narrow surface of retaining ring on top.

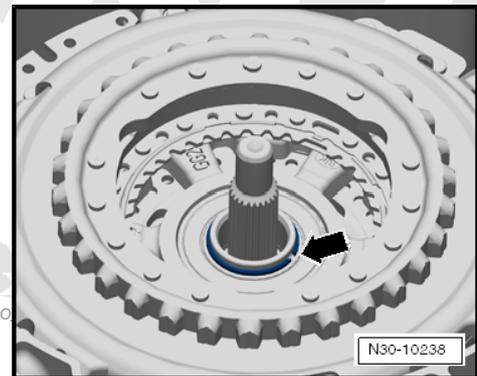


- Inserting retaining ring -arrow-.

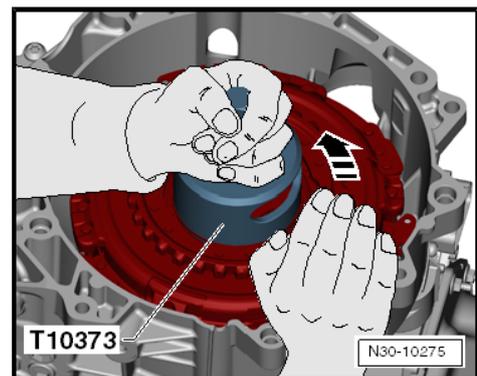


**Note**

*If the retaining ring cannot be inserted, the clutch has not been pressed in onto its limit stop.*



- To ensure that the clutch reaches its operating position right from this stage, turn it against puller -T10373- -arrow- by hand without using any other tools.





**i** Note

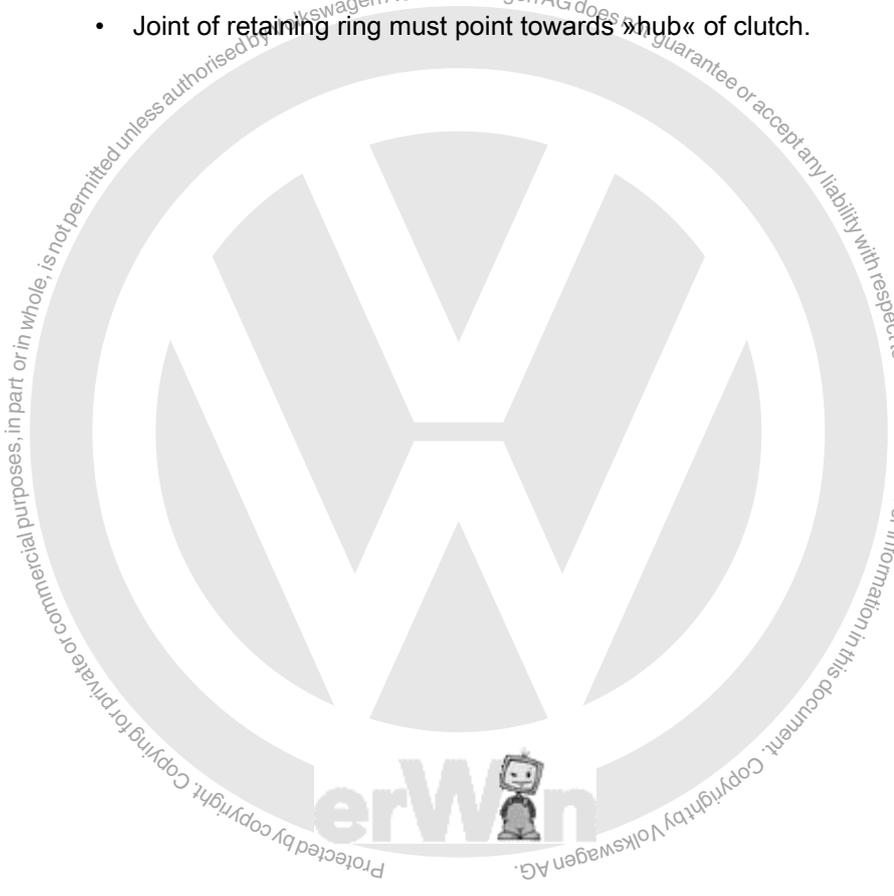
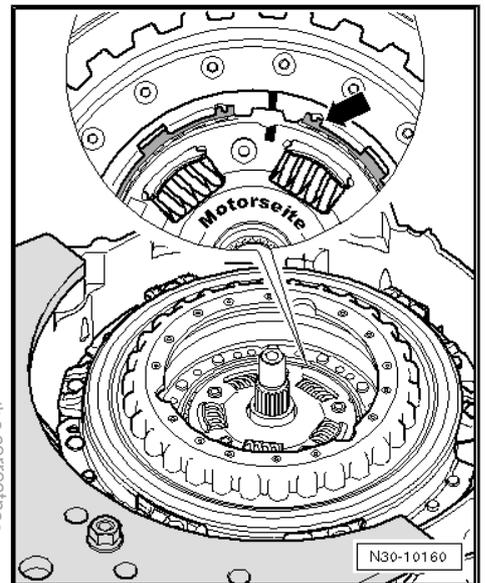
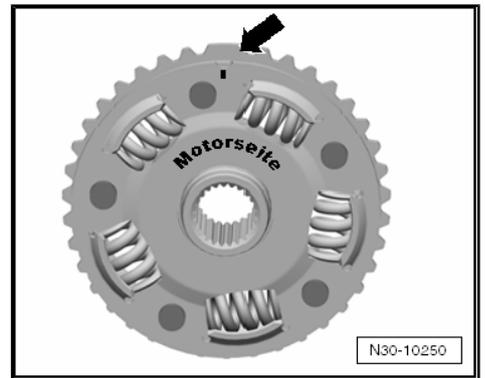
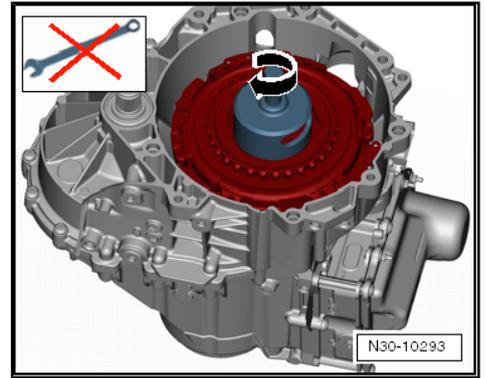
- ◆ *By pressing on, the clutch sits at the bottom against the limit stop on the input shaft. This is not the optimum position.*
- ◆ *Clutch should only be pulled up far enough for it to contact retaining ring.*

**i** Note

*Only turn by hand. In this way, clutch slides against retaining ring. Do not use any other tool.*

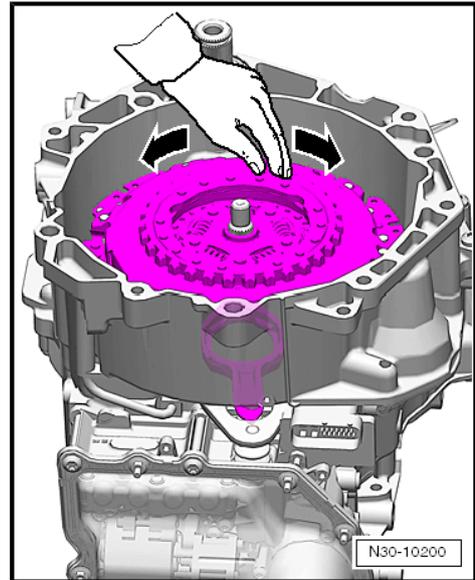
- Insert hub.
- Hub has »large tooth« -arrow- and only fits in one position.
- »Large tooth« has a mark at engine end.

- Insert retaining ring -arrow- of hub.
- Joint of retaining ring must point towards »hub« of clutch.



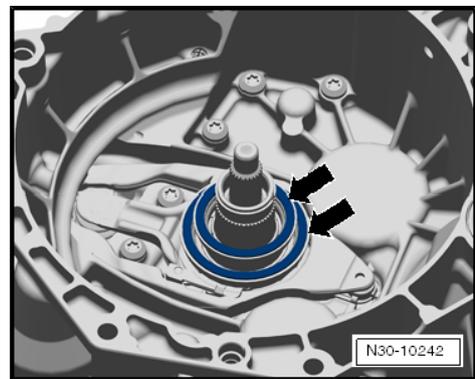


- Turn clutch by hand. It should be possible to turn it without difficulty.



#### Note

- ◆ If the clutch is difficult to turn or if the clutch lining is being rubbed hard, remove clutch again => [page 39](#) .
- ◆ Check installation position of shims -arrows-.
- ◆ The shims must be properly seated and undamaged => [page 54](#) .
- ◆ A mathematical error could have been made. Check measurements again => [page 42](#) .
- ◆ If no error has been made, the clutch may have been moved out of position due to transport/assembly and a new clutch now has to be installed. The position of the engagement bearings must then be readjusted => [page 42](#) .



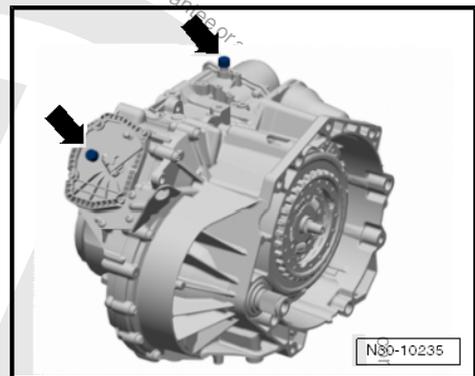
- Remove two plugs and put breather caps -arrows-on.



#### WARNING

**The breather cap on the mechatronic unit is destroyed during removal and must be renewed.**

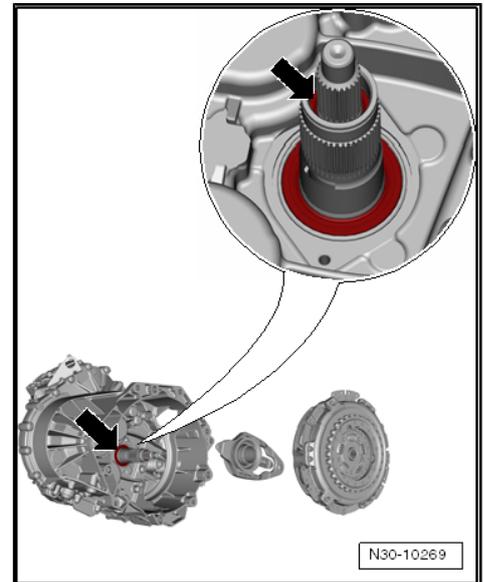
- After installation of gearbox, perform **Complete reset** by means of **Guided functions** => Vehicle diagnostic tester.





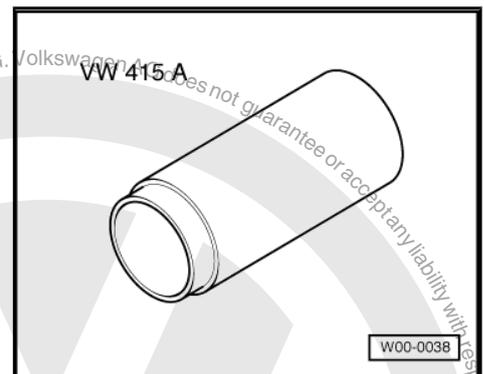
### 3 Removing and installing oil seals at clutch end

There are 2 oil seals in gearbox at clutch end. Both oil seals -arrows- can be renewed without gearbox being dismantled. If only oil seals are renewed, there is no need to adjust clutch.

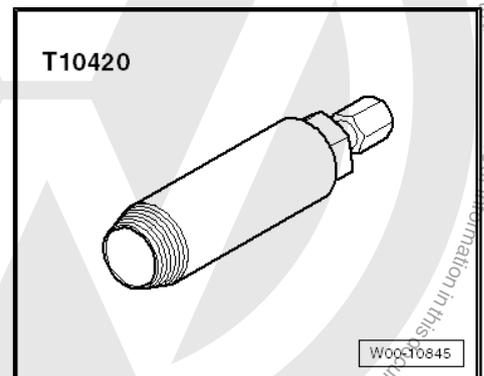


#### Special tools and workshop equipment required

- ◆ Tube -VW 415 A-

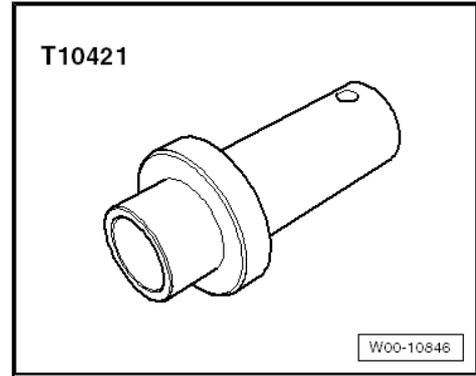


- ◆ Oil seal extractor -T10420-

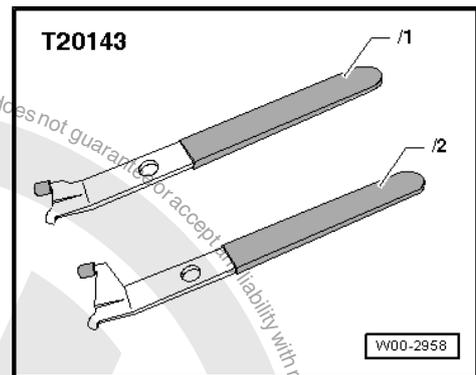




- ◆ Thrust piece -T10421-



- ◆ Puller hooks -T20143/2-



- Removing gearbox:

- ◆ ⇒ „4 Removing and installing gearbox, Jetta 2005 ▶, Golf Variant 2007 ▶, Golf Variant 2010 ▶“, page 112
- ◆ ⇒ „5 Removing and installing gearbox, Jetta 2011 ▶“, page 152

- Removing dual clutch:

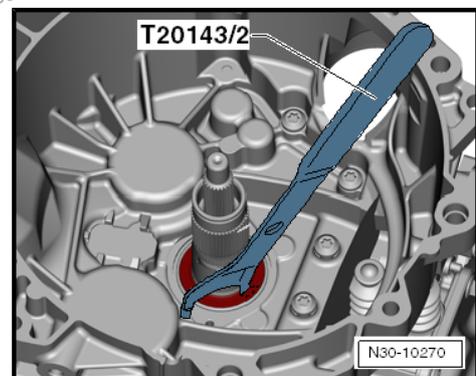
- ◆ Up to gearbox manufacturing date 05.2011 ⇒ page 12
- ◆ From gearbox manufacturing date 06.2011 onwards ⇒ page 37



**Caution**

*It is essential to check the clutch in case of leaks. Renew double clutch if it is oily.*

- Remove outer oil seal.

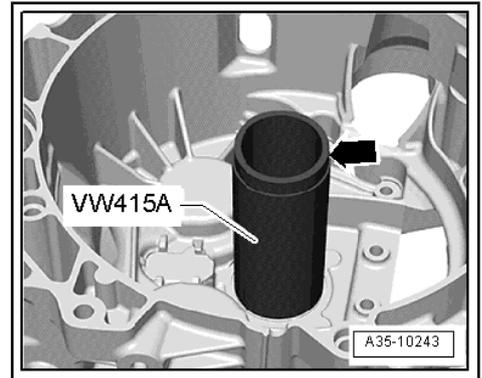




- Drive in outer, »new« oil seal with a plastic mallet until flush with clutch housing.
- Shoulder of pipe section -VW 415 A- points upwards -arrow-.

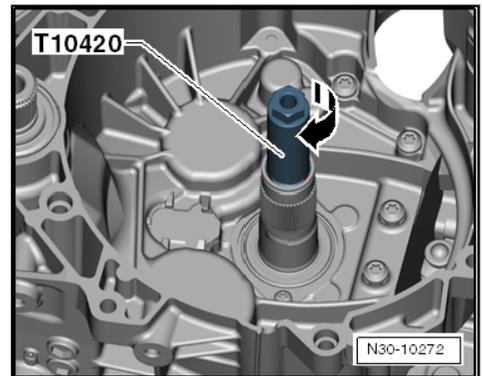
**⚠ WARNING**

*Only drive in oil seal until flush with clutch housing, in order to avoid closing off oil drilling located behind it. Otherwise, ball bearing of outer input shaft can no longer be supplied with enough oil.*

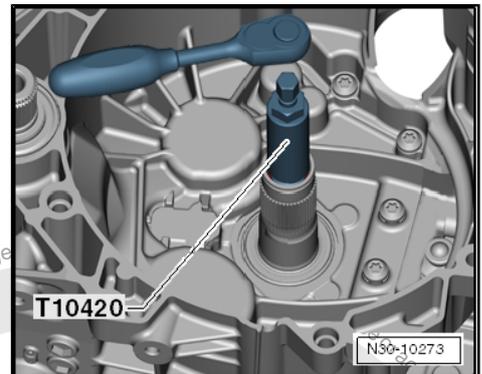


- Unscrew spindle of oil seal extractor -T10420- .
- Screw oil seal extractor -T10420- into »small«, inner oil seal. Press oil seal extractor when doing this.

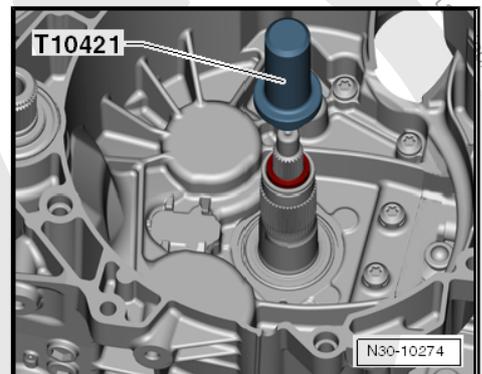
Oil seal extractor jams very tightly when oil seal is turned. You can »feel« when oil seal starts to turn in its seat as well.



- Now screw in spindle.
- Pull out oil seal using spindle.



- Knock in »new« oil seal up to stop.
- Installing dual clutch:
  - ◆ Up to gearbox manufacturing date 05.2011 ⇒ [page 29](#)
  - ◆ From gearbox manufacturing date 06.2011 onwards ⇒ [page 54](#)
- Installing gearbox:
  - ◆ ⇒ „4 Removing and installing gearbox, Jetta 2005 ▶, Golf Variant 2007 ▶, Golf Variant 2010 ▶“, [page 112](#)
  - ◆ ⇒ „5 Removing and installing gearbox, Jetta 2011 ▶“, [page 152](#)



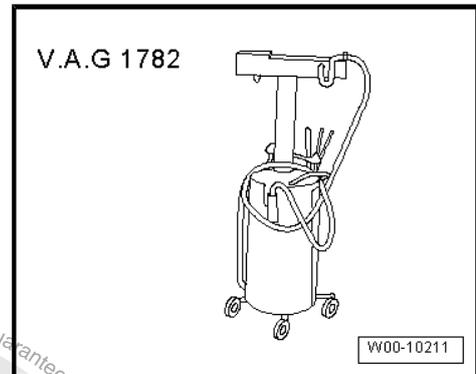


## 34 – Controls, housing

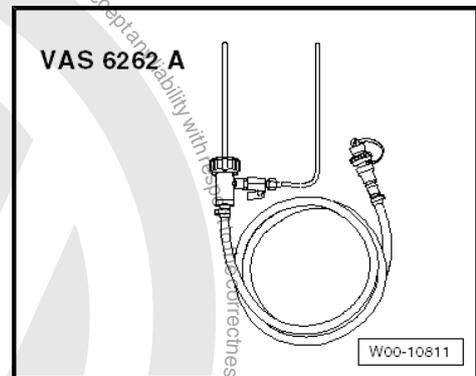
### 1 Renewing gear oil

#### Special tools and workshop equipment required

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



- ◆ Adapter for filling oil -VAS 6262 A- with -VAS 6262/4-



- ◆ Adapter -VAS 6262/6- , if necessary
- ◆ Bottle of gear oil for 7 gear dual clutch gearbox 0AM; part number → Electronic parts catalogue „ETKA“

Measure length of breather pipe attached to adapter for filling oil -VAS 6262 A- and, if necessary, shorten it.

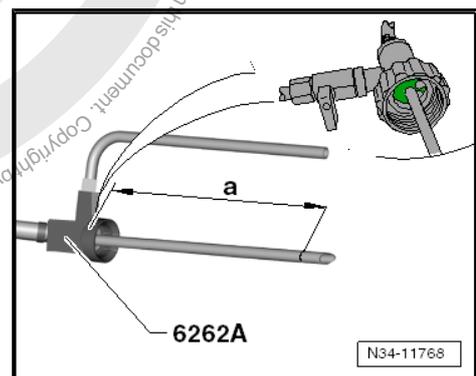
In order to ensure that the breather pipe of the -VAS 6262 A- adapter for oil filling does not touch the bottom of some oil bottles, the pipe must be shortened to the length -a-.

- Dimension -a- = 210 mm



#### Note

The dimension -a- is measured from the shaft (green area in the counting glass) of the adapter for oil filling -VAS 6262 A- .



If dimension -a- is greater than 210 mm:



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

#### Procedure

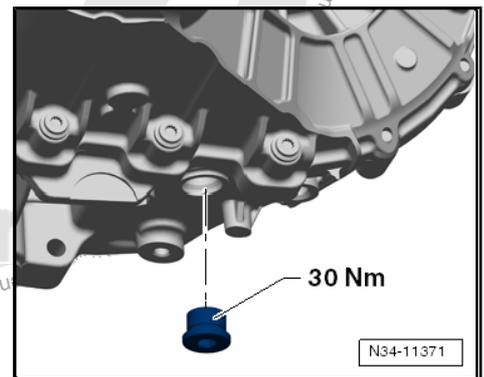
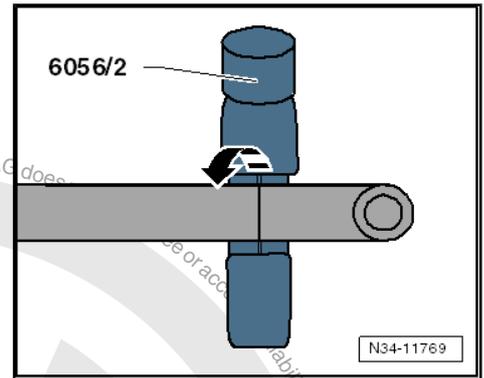
#### Note

- ◆ *The gearbox is filled for life. Therefore, there is no need to check the oil level of this gearbox.*
- ◆ *This explains why there is no oil level check.*
- ◆ *In case of leaks on gearbox, find out what is the cause and rectify the faults.*
- ◆ *After this, the gear oil must be drained off completely and gearbox filled with new oil.*

- Raise vehicle.
- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Position used oil collection and extraction unit -V.A.G 1782- or a drip tray under gearbox.
- Unscrew oil drain plug of gearbox.
- Allow oil to drain off, then screw in oil drain plug firmly again.

#### Note

- ◆ *The oil level in the gearbox cannot be checked.*
- ◆ *The prescribed amount to be put in the gearbox must be adhered to exactly.*
- ◆ *Only in this way is the gearbox correctly filled.*
- ◆ *If too little or too much oil is put in the gearbox, the latter will not function correctly.*



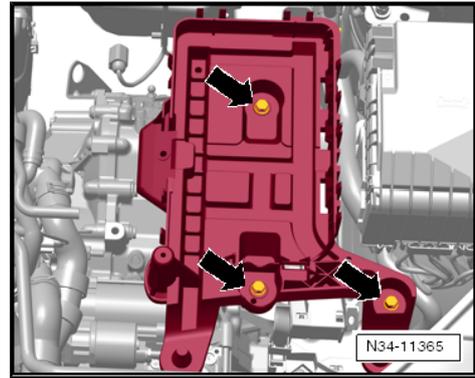
#### Caution

##### **Risk of damage to gearbox.**

- ◆ *Only the gear oil for the 7-speed dual clutch gearbox 0AM, which is available through the replacement parts system, may be used ⇒ Electronic parts catalogue „ETKA“ .*
- ◆ *Other oils will lead to malfunctions or failure of the gearbox.*



- Remove battery and battery tray -arrows- → Rep. gr. 27 ;  
Battery; Removing and installing battery .

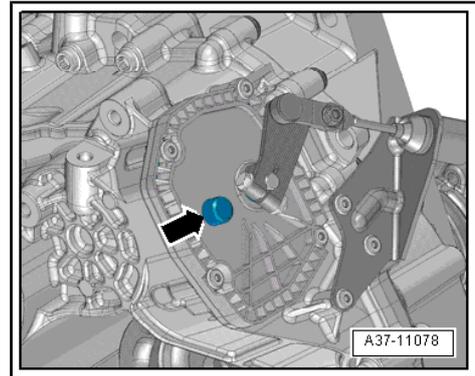


- Pull off breather cap -arrow- next to lever for parking interlock.



**Note**

*To make this clearer, see the installation position with the gearbox removed.*

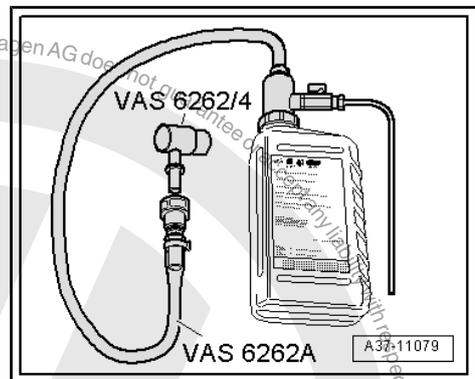


**Caution**

**Risk of damage to gearbox.**

- ◆ **The adapter for filling oil -VAS 6262 A- with -VAS 6262/4- must be clean and it must be ensured that the gear oil is not mixed with any other oils!**

- Shake bottle before opening.
- Screw bottle of gear oil for 7 gear dual clutch gearbox 0AM onto oil filling adapter -VAS 6262 A- ; part number → Electronic parts catalogue „ETKA“ .

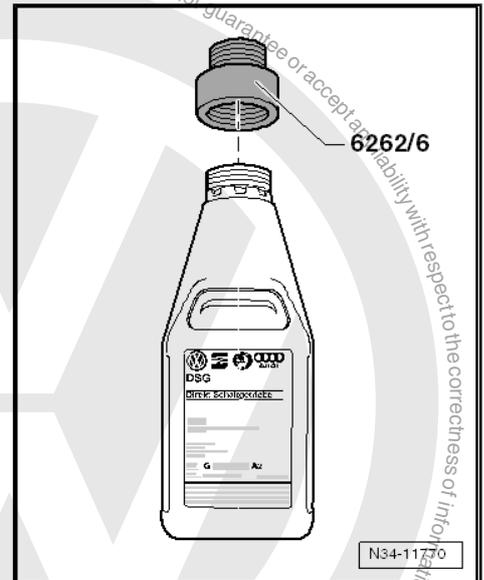




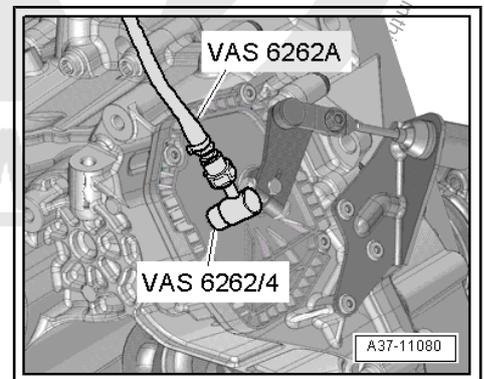
### Note

If the thread of the bottle does not fit onto the oil filling adapter - VAS 6262 A- , use adapter -VAS 6262/6- .

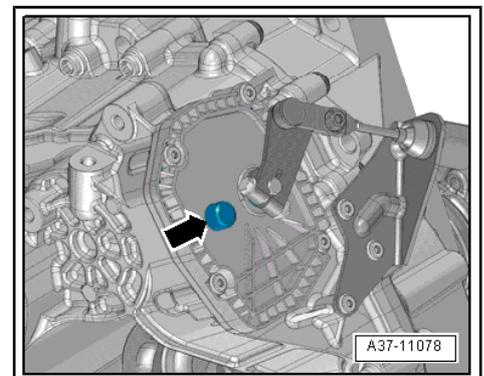
- Position bottle in such a way that oil does not run into the filling hose.



- Connect adapter -VAS 6262/4- to filling hose and attach to bleeder hole in gearbox.
- Turn oil bottle upside down and pour in 1.7 litres of oil.



- After filling, remove oil filling adapter -VAS 6262 A- . Clean area around breather hole with a cloth and fit the breather cap -arrow-.
- Install battery tray and battery -arrows- → Rep. gr. 27 ; Battery; Removing and installing battery .
- Install noise insulation → Rep. gr. 50 ; Assembly overview - noise insulation .





## 2 Selector mechanism



### WARNING

*Before working on vehicle with engine running, move selector lever into position „P“ and apply handbrake.*





⇒ „2.1 Overview - selector mechanism in vehicles up to 02.2009“, page 69

⇒ „2.2 Removing and installing selector lever cable - vehicles up to 02.2009“, page 70

⇒ „2.3 Overview of selector mechanism - vehicles from 03.2009 onwards“, page 78

⇒ „2.4 Removing and installing selector mechanism with selector lever and selector lever cable - vehicles from 03.2009 onwards“, page 79

⇒ „2.5 Checking selector lever cable“, page 81

⇒ „2.6 Adjusting selector lever cable“, page 82

⇒ „2.7 Emergency release of selector lever“, page 84

⇒ „2.8 Removing and installing selector lever knob“, page 85

⇒ „2.9 Moving pushbutton to installation position in the handle“, page 86

⇒ „2.10 Checking selector mechanism“, page 87

## 2.1 Overview - selector mechanism in vehicles up to 02.2009

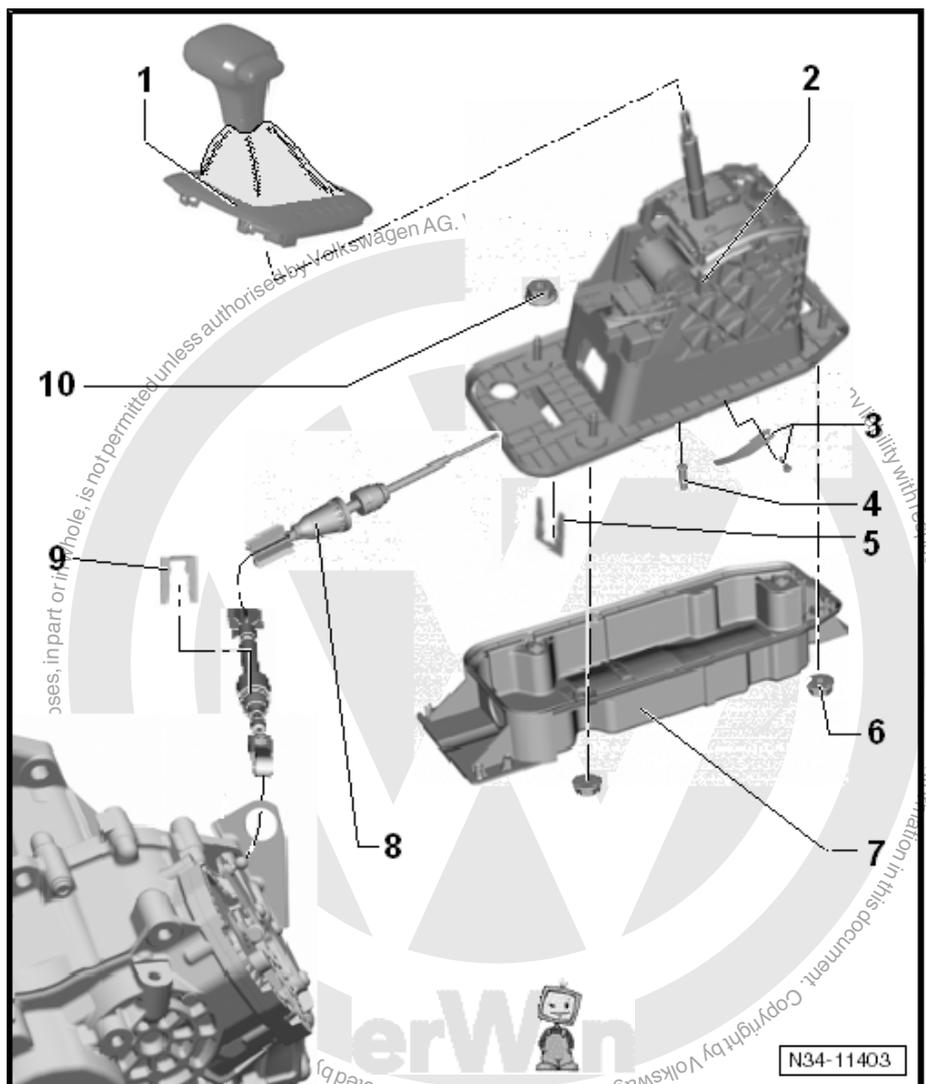
Selector mechanism from 03.2009 onwards ⇒ [page 78](#) .

### 1 - Selector cover with knob

- ❑ Do not remove knob without reason. For emergency release, only the cover needs to be unclipped ⇒ [page 84](#) .
- ❑ Before removal of knob, pull pushbutton out past its pressure point. Secure pushbutton with a cable tie or suitable wire. This will prevent the pushbutton from being accidentally pressed into the knob.
- ❑ Removing and installing selector lever knob ⇒ [page 85](#)

### 2 - Selector mechanism with selector lever

- ❑ With selector lever lock solenoid -N110-
- ❑ Emergency release ⇒ [page 84](#) .
- ❑ Brief instructions for removing and installing:
  - Remove centre console.
  - Remove Bowden cable from gearbox ⇒ [page 70](#) .
  - If necessary, disconnect or remove parts of exhaust system ⇒ Rep. gr. 26 ; Removing and



N34-11403



installing parts of ex-  
haust system .

- Remove heat shield beneath selector mechanism.
- Adjust selector lever cable after installing ⇒ [page 82](#) .

### 3 - Bolt with spring

- 3 Nm

### 4 - Pin

- Removing ⇒ [page 70](#)
- Do not grease

### 5 - Securing clip

- Always renew after removing

### 6 - Nut

- 9 Nm
- Qty. 4

### 7 - Selector housing

- With seal

### 8 - Selector lever cable

- Bowden cable is not greased
- Removing and installing ⇒ [page 70](#)
- Checking ⇒ [page 81](#)
- Adjusting ⇒ [page 82](#)

### 9 - Securing clip

- Always renew after removing

### 10 - Hexagon flange nut

- 8 Nm
- Qty. 4

Torque setting , selector lever to selector shaft ⇒ [page 64](#) .

## 2.2 Removing and installing selector lever cable - vehicles up to 02.2009



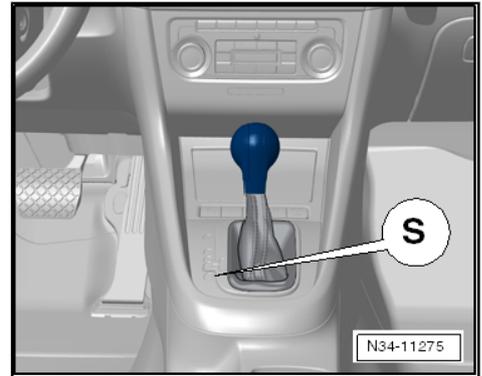
### Note

*Following installation, Bowden cable must be checked for ease  
of movement and be adjusted.*

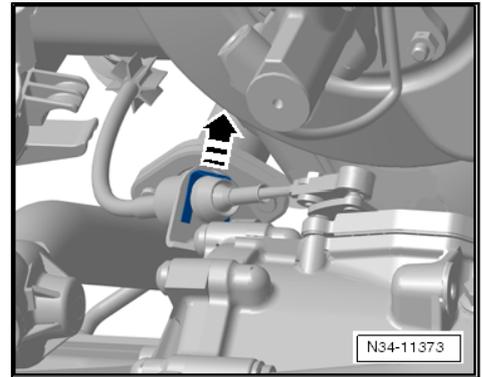


## Removing

- Move selector lever to position „S“ position.

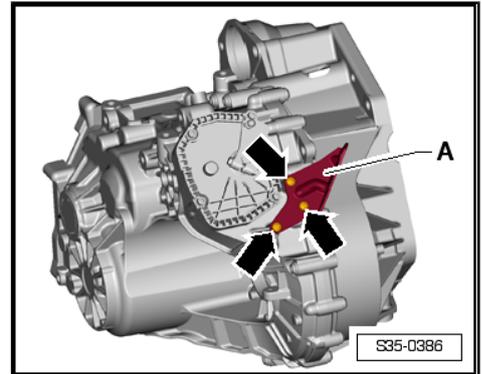


- Remove securing clip in -direction of arrow-.
- Securing clips for selector lever cable must always be renewed.



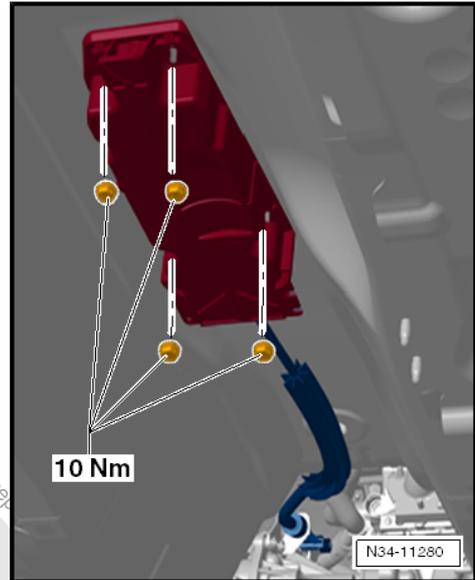
### Note

- ◆ Use pliers to remove the securing clip on the cable support bracket. Do not use a sharp-edged lever. The selector lever cable could otherwise be damaged.
  - ◆ If necessary, remove the cable support bracket -A- with the selector lever cable from the gearbox. To do so, remove bolts -arrows-. These bolts must be renewed.
  - ◆ Torque setting of bolts -arrows-: 8 Nm + turn 90° further
- Remove cable from ball head e.g. using removal lever -80 - 200- .
  - Raise vehicle.
  - To remove Bowden cable and/or selector mechanism, heat shield under selector mechanism and, if necessary, parts of exhaust system must now be removed ⇒ Rep. gr. 26 ; Removing and installing parts of exhaust system .

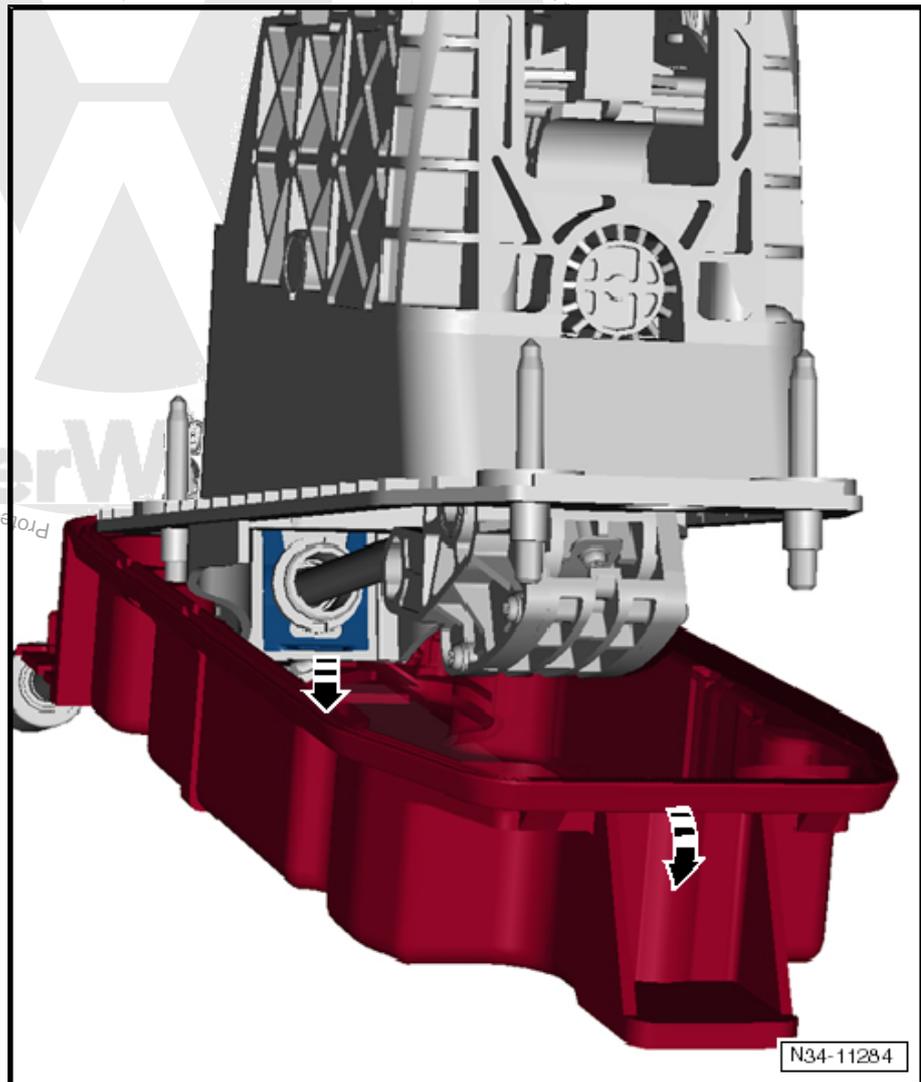




- Remove -selector housing- beneath selector lever.

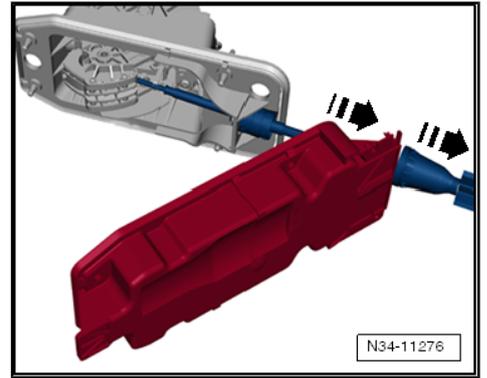


- Remove locking plate of cable support bracket. Always renew locking plate.



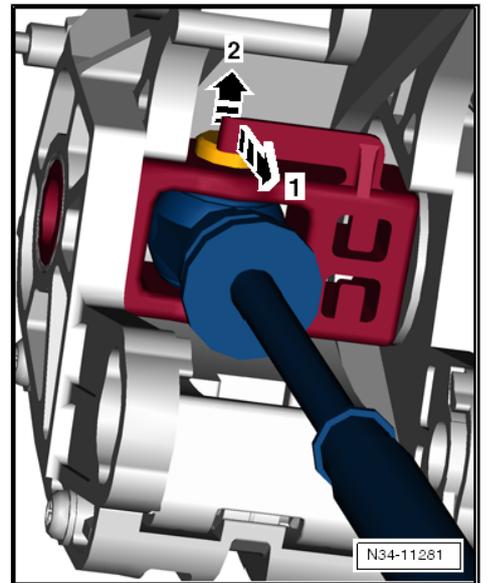


-Selector housing- is pushed forwards slightly on cable.

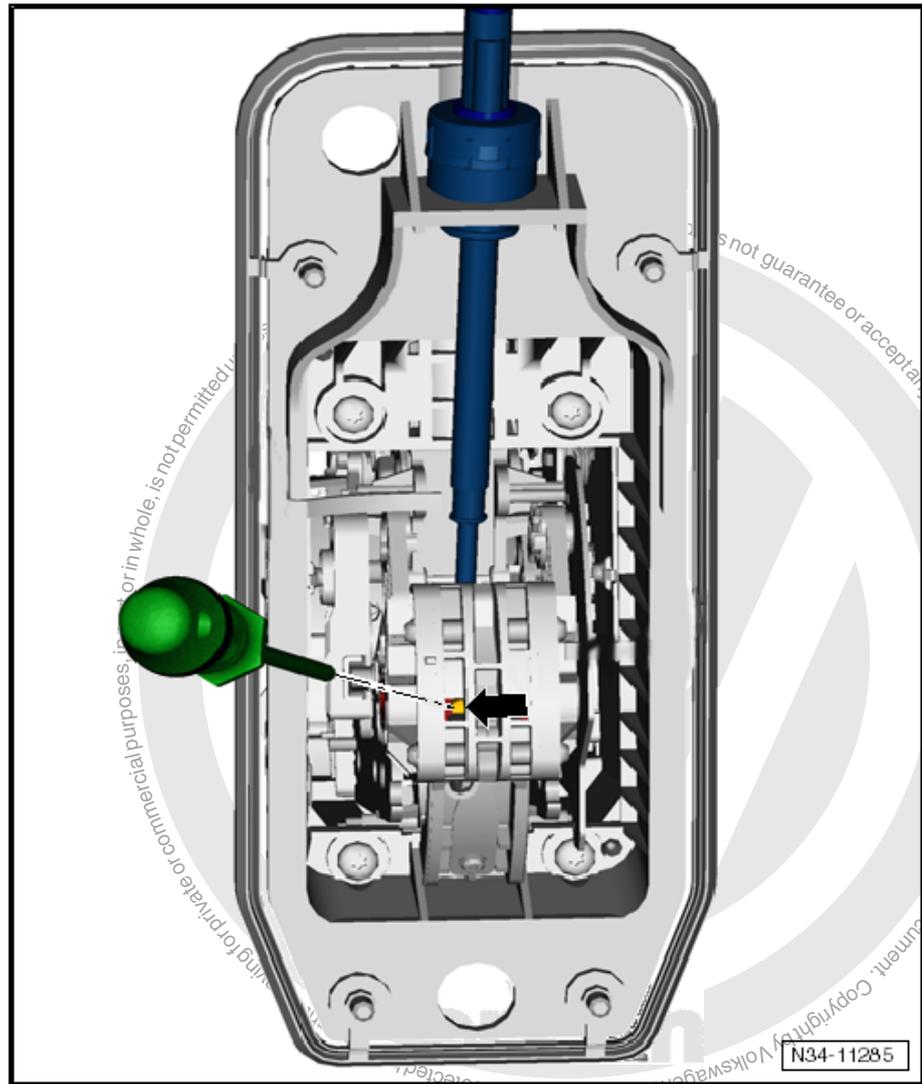


To remove cable, securing tab must be pushed forwards  
-arrow 1-.

- At same time, push -pin- up with a screwdriver -arrow 2-.

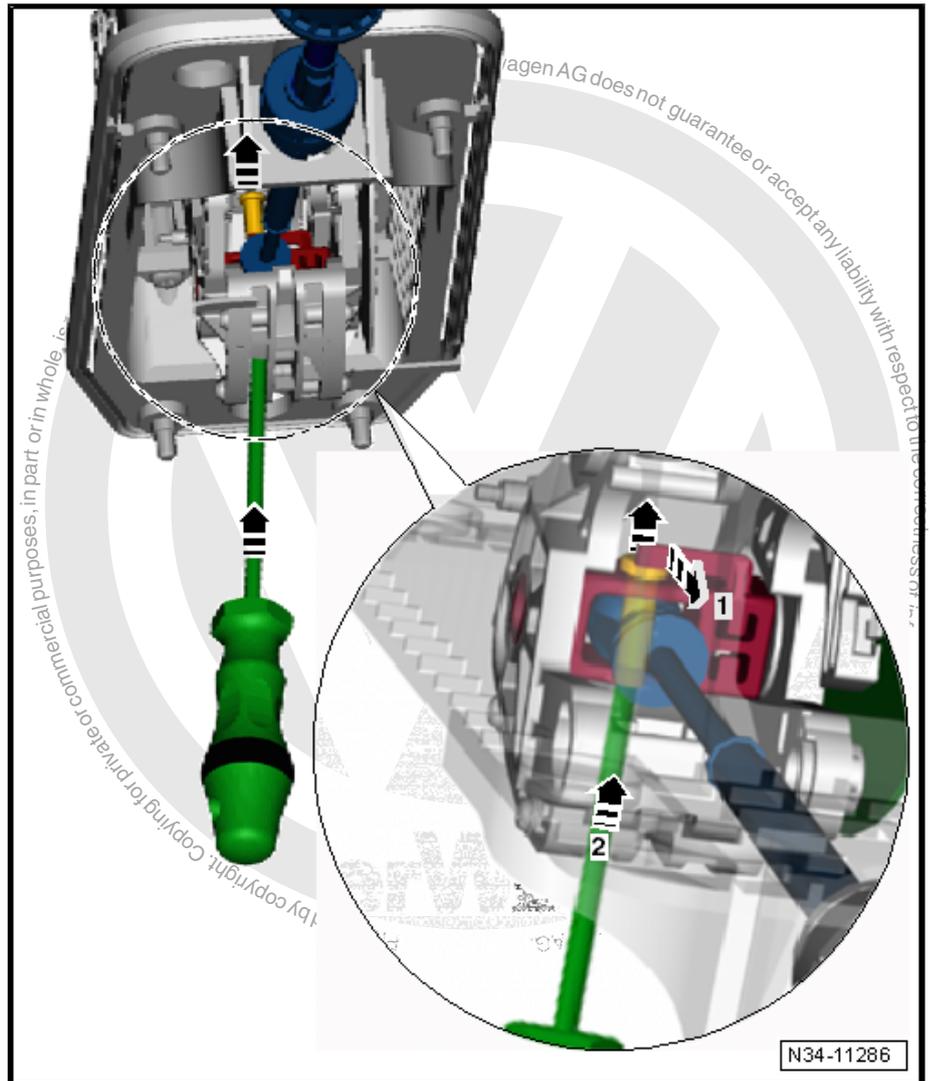


- Please insert -screwdriver- from underneath whilst pushing  
securing tab forwards.



**Clarification:**

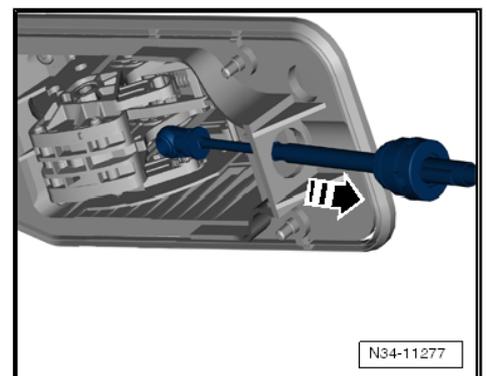
- ◆ -Arrow 1- Push tab forwards
- ◆ -Arrow 2- Push pin up



- Remove selector lever cable.
- Remove selector housing from cable.

#### Installing

- Route selector lever cable without tension. Also insert into cable support bracket on gearbox. Do not secure with securing clips yet. Do not clip in ball head.

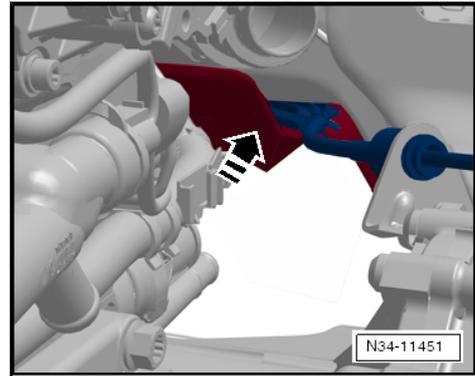




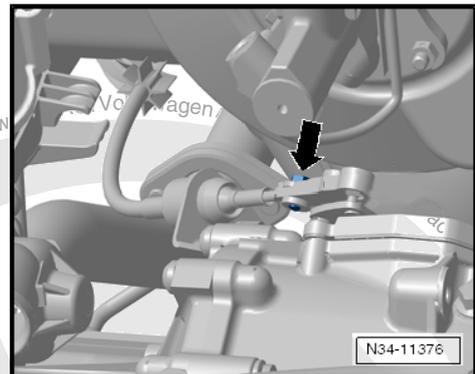
- Ensure that selector lever cable is properly routed during installation.

If the sheet metal is bent downwards, it may cause noises. The cable will vibrate against the sheet metal.

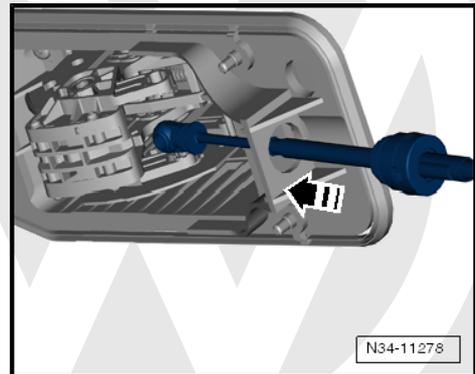
- Observe sheet metal. Press it back up in the tunnel during installation.



Loosen adjustment screw -arrow-.

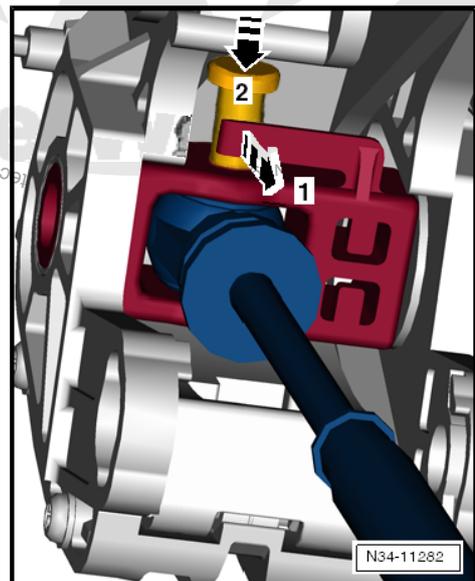


- Put selector housing onto cable.

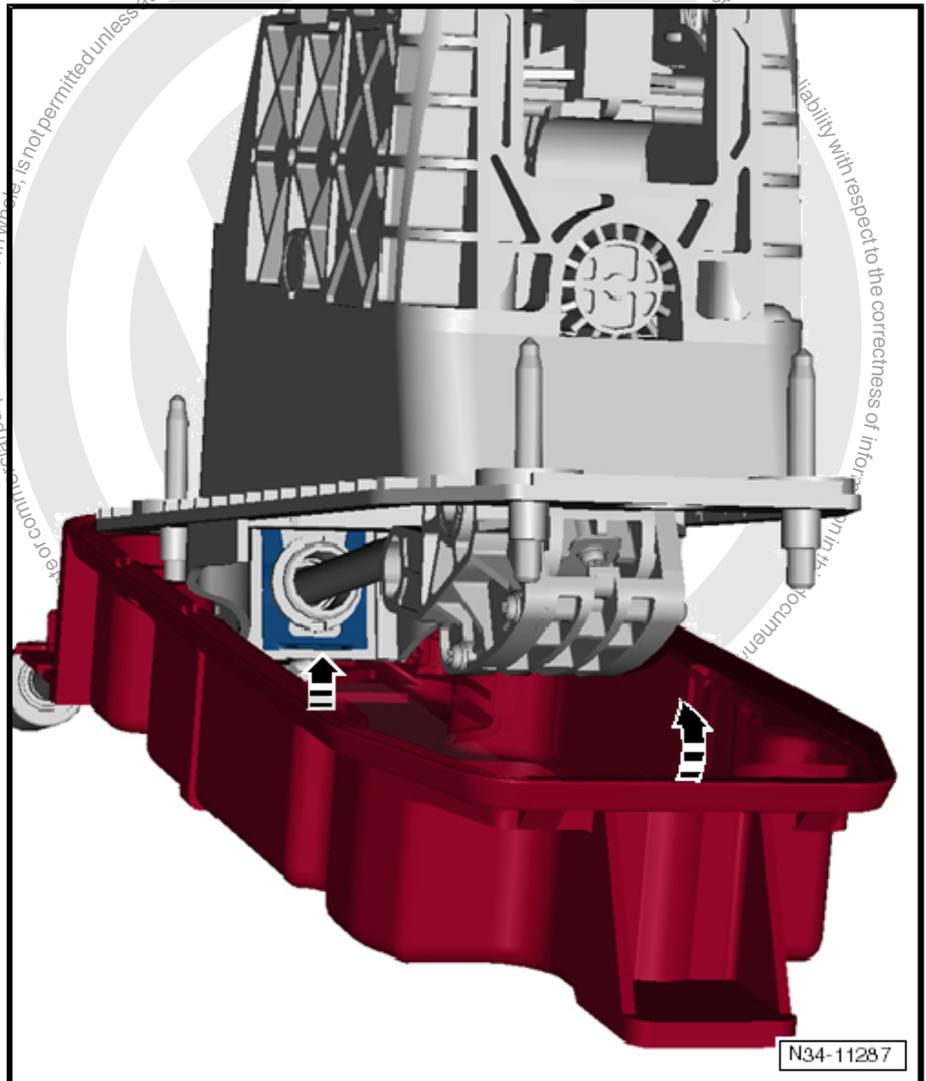


- Insert selector lever cable into selector mechanism.
- Insert cable into bearing and insert pin from above downwards through eye.

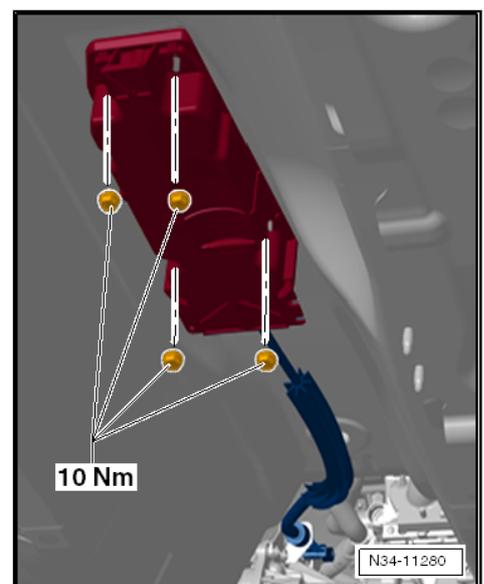
When you have checked freedom of movement of cable => [page 81](#) , insert locking plate.



- Attach cable with new locking plate on cable support bracket of selector mechanism.



- Remove selector housing, heat shield and exhaust system ⇒ Rep. gr. 26 ; Removing and installing parts of exhaust system .
- Check cable ⇒ [page 81](#) .





## 2.3 Overview of selector mechanism - vehicles from 03.2009 onwards

### 1 - Selector cover with knob

- ❑ Do not remove knob without reason. For emergency release, only the cover needs to be unclipped ⇒ [page 84](#).
- ❑ Before removal of knob, pull pushbutton out past its pressure point. Secure pushbutton with a cable tie or suitable wire. This will prevent the pushbutton from being accidentally pressed into the knob.
- ❑ Removing and installing selector lever knob ⇒ [page 85](#)

### 2 - Selector mechanism with selector lever and selector lever cable

- ❑ With selector lever lock solenoid -N110-
- ❑ Bowden cable must not be greased
- ❑ Removing and installing ⇒ [page 79](#)
- ❑ Checking ⇒ [page 81](#)
- ❑ Adjusting ⇒ [page 82](#)

### 3 - Bolt

- ❑ 8 Nm

### 4 - Hexagon flange nut

- ❑ 8 Nm
- ❑ Qty. 4

### 5 - Selector housing

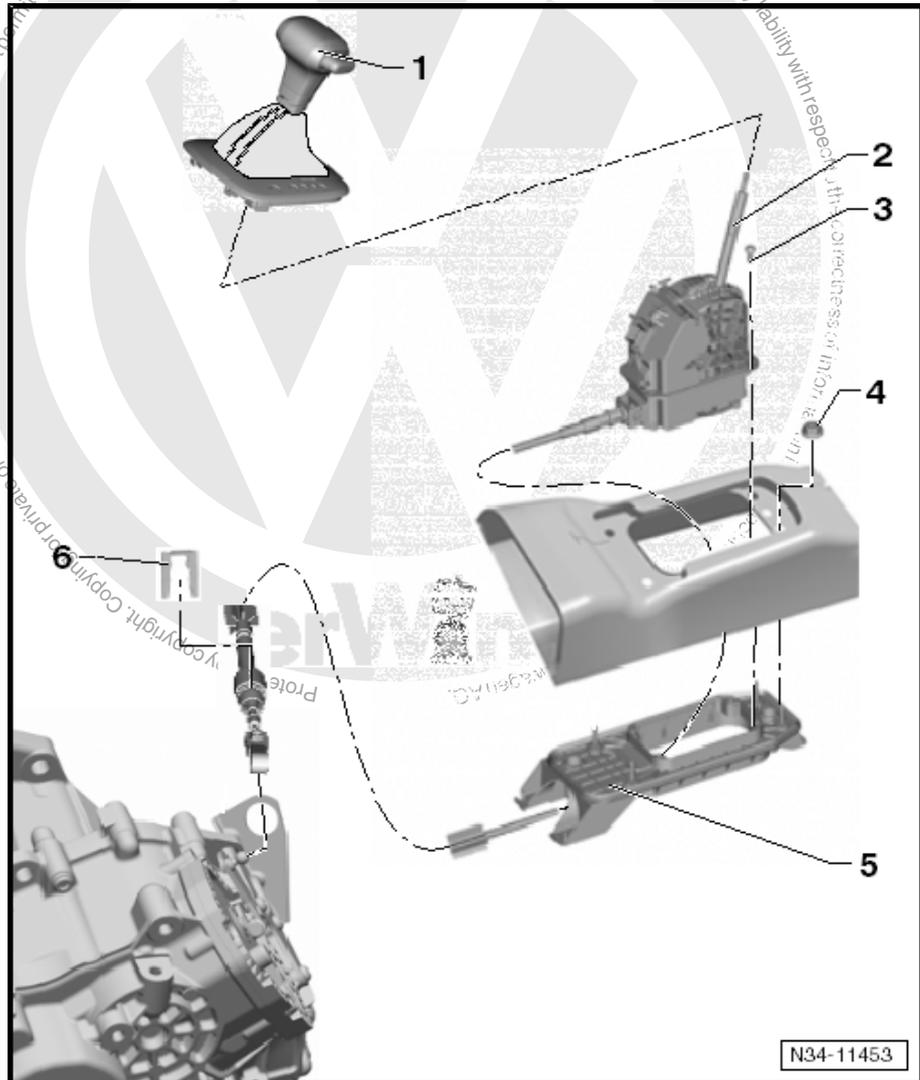
- ❑ Only available together with selector mechanism ⇒ Electronic parts catalogue „ETKA“

### 6 - Securing clip

- ❑ Always renew after removing



Note





## 2.4 Removing and installing selector mechanism with selector lever and selector lever cable - vehicles from 03.2009 onwards

Perform the following steps:

Selector mechanism and selector lever cable are not allowed to be separated from one another. Both are removed together. In the engine compartment, it may be necessary to provide installation space. Often, it is necessary to remove air filter.

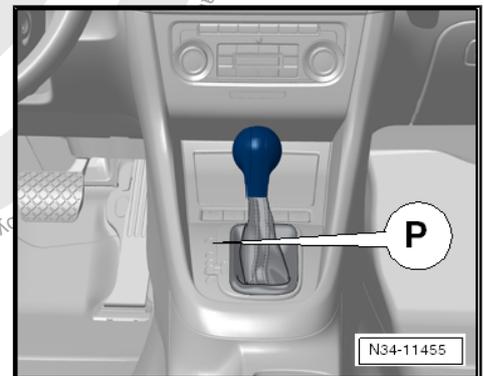
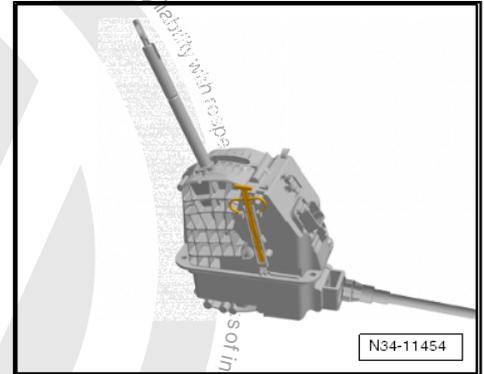
In the interior, it may be necessary to remove centre console.



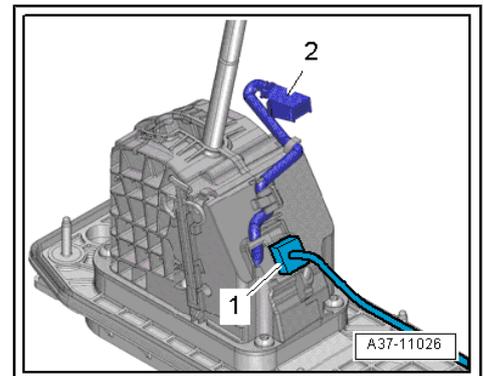
### Note

Following installation, Bowden cable must be checked for ease of movement and be adjusted.

- Move selector lever to position „P“ position.



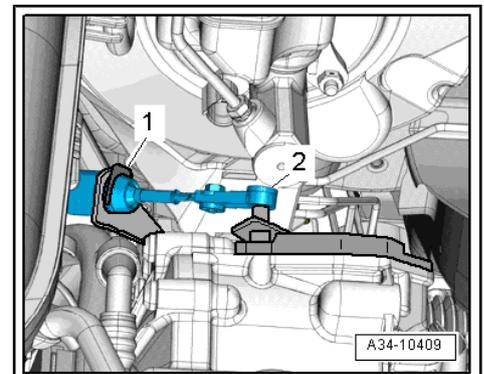
- Remove selector lever handle ⇒ [page 85](#) , pulling off connector -2- from cover in process.
- Remove centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trims .
- Separate electrical wiring connector -1- from selector mechanism to vehicle wiring harness.
- If necessary, remove engine cover ⇒ Engine mechanics; Rep. gr. 10 ; Removing and installing engine cover .



- Pull off securing clip -1- for selector lever cable.

Securing clips for selector lever cable must always be renewed.

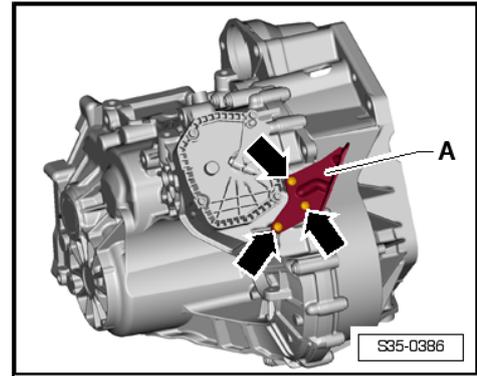
- Remove selector lever cable -2- from lever/selector shaft, e.g. using removal lever -80 - 200- .





### Note

- ◆ Use pliers to remove the securing clip -1- on the cable support bracket. Do not use a sharp-edged lever. The selector lever cable could otherwise be damaged.
- ◆ If necessary, remove the cable support bracket -A- with the selector lever cable from the gearbox. To do so, remove bolts -arrows-. These bolts must be renewed.
- ◆ Torque setting of bolts -arrows-: 8 Nm + turn 90° further



### Caution

**Risk of damage to selector lever cable.**

- ◆ Do not push selector lever cable backwards out of cable support bracket. The selector lever cable is not guided out of the cable support bracket until the selector mechanism is removed.

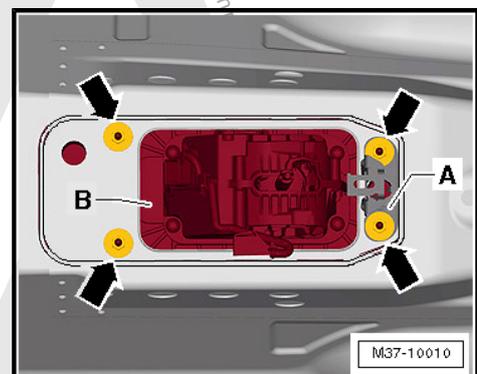
- Raise vehicle.
- Remove tunnel bridges from body ⇒ General body repairs, exterior; Rep. gr. 50 ; Tunnel bridge .
- Remove exhaust pipe beneath heat shield for middle tunnel ⇒ Engine mechanics; Rep. gr. 26 ; Exhaust system .
- Unhook centre and rear silencer from retaining straps and tie up to body using wire, for example ⇒ Engine mechanics; Rep. gr. 26 ; Exhaust system .
- Remove heat shield for middle tunnel beneath selector mechanism.

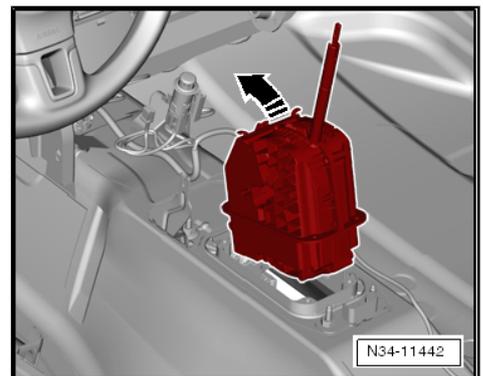
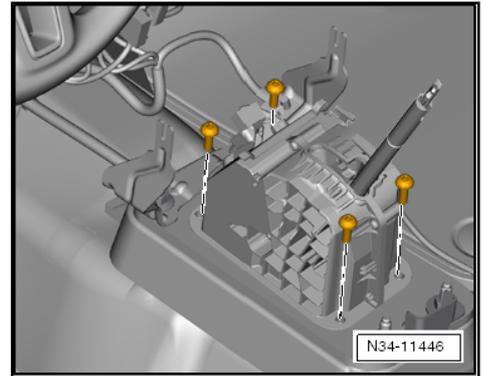


### Note

To remove selector mechanism, a 2nd mechanic is required under the vehicle.

- Remove nuts -arrows- inside vehicle.
- If fitted, remove bracket -A-.
- Remove selector mechanism -B- together with selector lever cable and selector housing downwards.





#### Note

- ◆ The selector mechanism can also be removed without removing the selector housing.
- ◆ Remove the 4 bolts ⇒ [Item 3 \(page 78\)](#) to do this.
- ◆ Then remove selector mechanism with selector lever cable inside vehicle in direction of -arrow-.
- ◆ The selector mechanism is only available together with the selector housing and selector lever cable ⇒ Electronic parts catalogue „ETKA“.

Install in reverse order of removal.



#### Note

- ◆ Do not bend or kink selector lever cable.
- ◆ Do not grease selector lever cable.
- ◆ Torque settings ⇒ [page 78](#) .
- Install heat shield beneath selector mechanism.
- Install exhaust system and align free of stress ⇒ Engine mechanics; Rep. gr. 26 ; Exhaust system .
- Fit tunnel bridges onto body ⇒ General body repairs, exterior; Rep. gr. 50 ; Tunnel bridge .
- Install centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trims .
- Install selector lever handle ⇒ [page 85](#) .
- Before you put on ball head: check selector lever cable ⇒ [page 81](#) .
- Adjust selector lever cable after installing ⇒ [page 82](#) .
- If removed, install engine cover ⇒ Engine mechanics; Rep. gr. 10 ; Removing and installing engine cover .

## 2.5 Checking selector lever cable

### Brief description

Selector lever cable must be removed from gearbox so that its ease of movement can be checked. Put removed end down so it does not rub against anything.



Then the selector lever must be moved and after that, the Bowden cable must be reattached to the gearbox.

Then the selector lever cable must be adjusted ⇒ [page 82](#) .

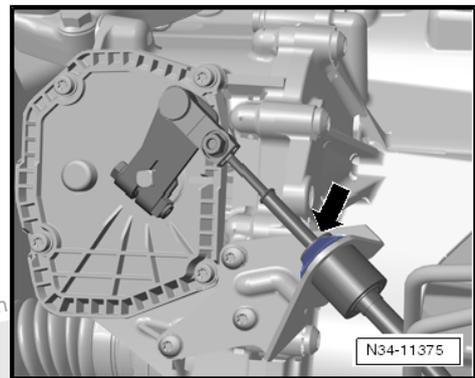
Do not grease connections of cable!

### Checking

- Move selector lever to position »P« position.
- Remove cable from lever on gearbox.
- Move selector lever repeatedly from »P« to »S« and back to »P«.
- Selector lever must move easily.
- Reinstall cable with »loosened« adjustment screw.

If you remove the securing clip, you must always install a »new« securing clip.

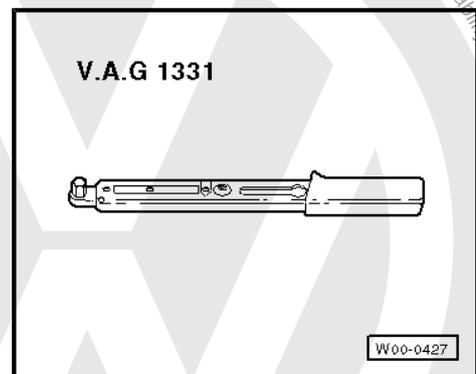
- Adjust cable ⇒ [page 82](#) .



## 2.6 Adjusting selector lever cable

### Special tools and workshop equipment required

- ◆ Torque wrench -V.A.G 1331-



### The selector lever cable must always be adjusted whenever

- ◆ The selector lever cable has been removed from the gearbox.
- ◆ The engine and/or gearbox has been removed and installed.
- ◆ Parts of the assembly mounting have been removed and installed.
- ◆ The cable itself or the selector mechanism has been removed and installed.
- ◆ The position of the engine and gearbox is shifted, for example to install it free of tension.

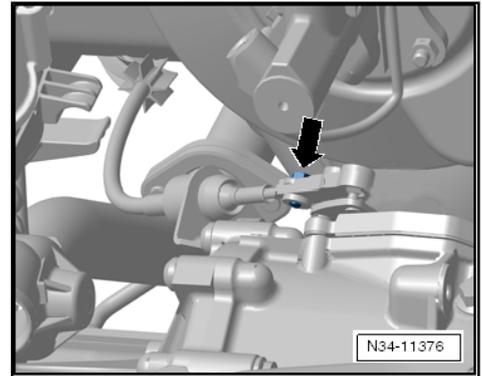
### Adjusting

- Move selector lever in vehicle to „P“ position.

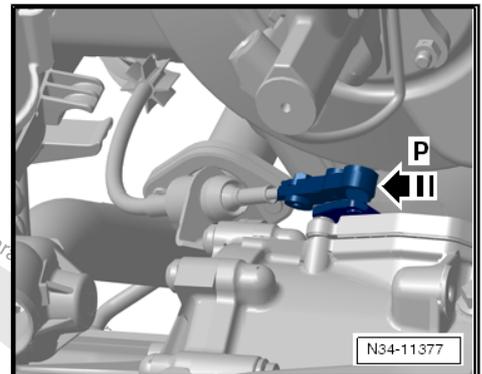


Adjuster screw -arrow- must be »loosened«.

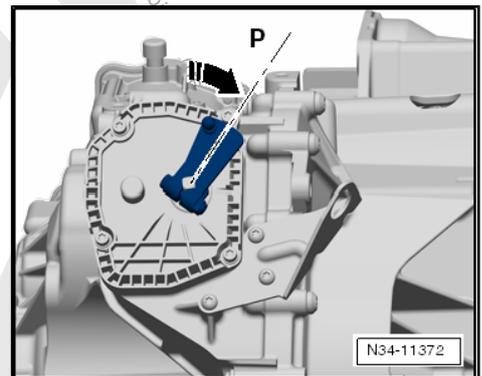
- Shift lever on gearbox to position „P“.



The gearbox lever must be pressed »completely to right side of vehicle« in the direction of selector lever cable support bracket.



This figure shows you the view of gearbox from »behind«. -P- in direction of cable support bracket.



- Install Bowden cable with loosened adjusting screw -arrow- and new securing clip.



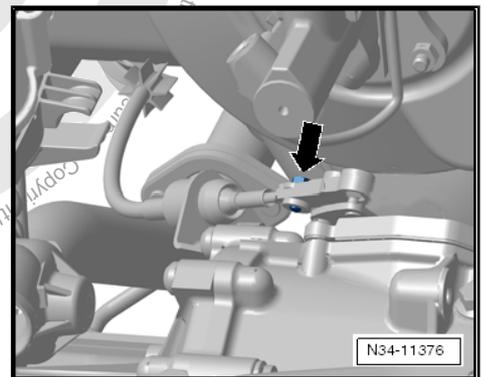
**WARNING**

*Be sure that the parking lock is engaged.*



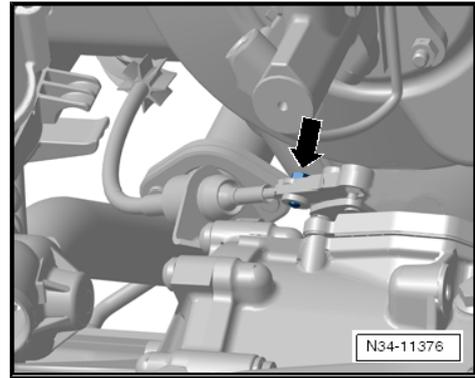
- To do this, turn both front wheels simultaneously »under the car« in the same direction until the parking lock can be head to engage.
- The parking lock is engaged when both front wheels cannot be turned in the same direction at the same time.
- Gently push knob of selector lever forwards and backwards but under no circumstances must you shift out of „P“.

In this way the core of the Bowden cable finds it optimal position.





- Tighten adjusting screw -arrow- to 13 Nm.
- This completes the adjustment.



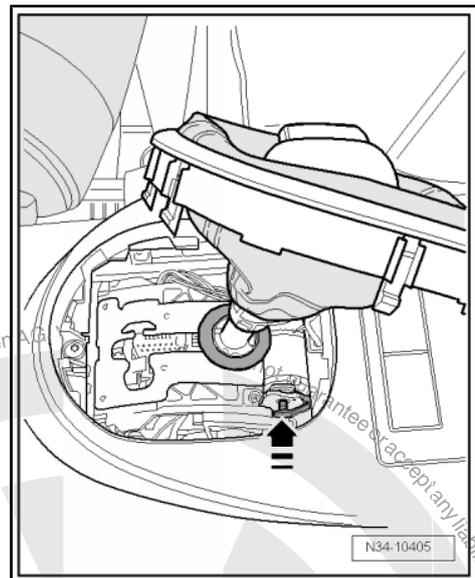
## 2.7 Emergency release of selector lever

**Do not remove knob.**

- Unclip selector cover and hold to side.
- Depress brake pedal or set handbrake.

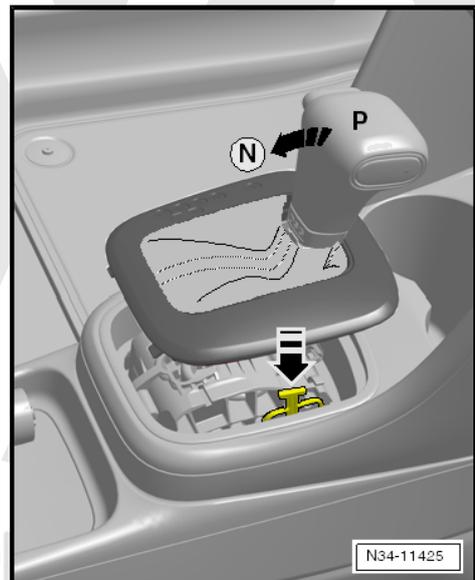
**Vehicles up to 02.2009**

- Press yellow plastic part -arrow- from right to left.
- Or press on the pin of the solenoid.



**Vehicles from 03.2009 onwards**

- Press onto yellow plastic part -arrow-.

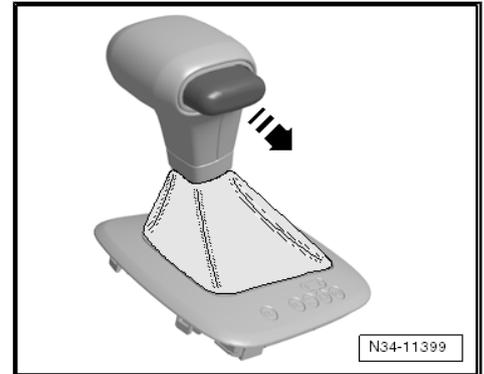




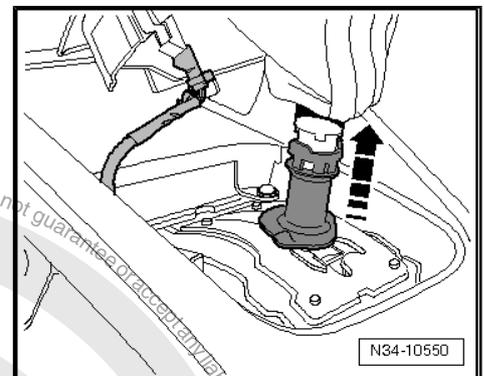
## 2.8 Removing and installing selector lever knob

On all types of handle it is possible for the pushbutton in the handle to be pressed. Do not install a knob with the pushbutton pressed in.

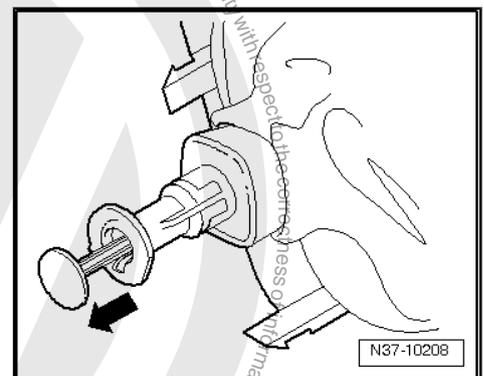
- Before removal, pull pushbutton out past its pressure point.
- Secure pushbutton with a cable tie or wire to prevent it being pressed in.
- Unclip cover.



- Push sleeve upwards to release knob.
- Lock knob again after installing. To do this, press the sleeve under the handle back down.



- You only have to remove transport guard from »new« handles. The pushbutton is already in installation position.
- Pull connector from cover.
- Pull off knob upwards.
- Lock knob again after installing. Press sleeve under knob back down.



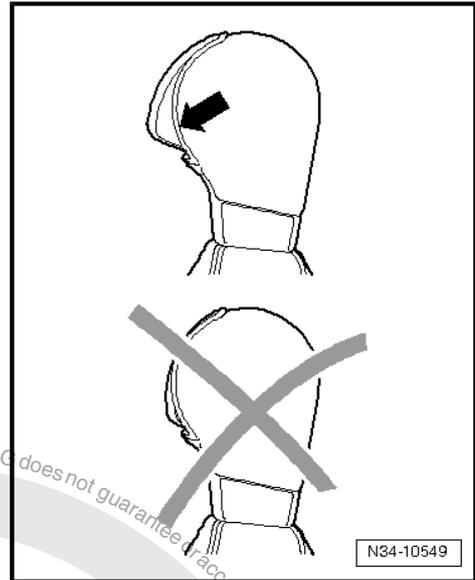


### In vehicles with pushbutton at front on handle -arrow-

- Pushbutton is in installation position -arrow-.

If the pushbutton was pressed by mistake, the installation position can be restored.

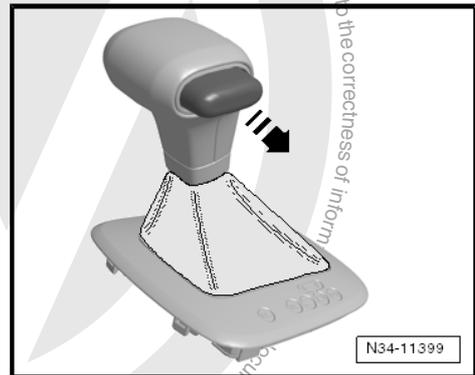
- Move pushbutton to installation position => [page 86](#) .



## 2.9 Moving pushbutton to installation position in the handle

### 2.9.1 Handle with pushbutton on side

- First pull button far enough out of knob that a small gap is visible between knob and button. Button locks when released.
- Hold button in this position with a cable tie or wire to prevent it from being pressed in.



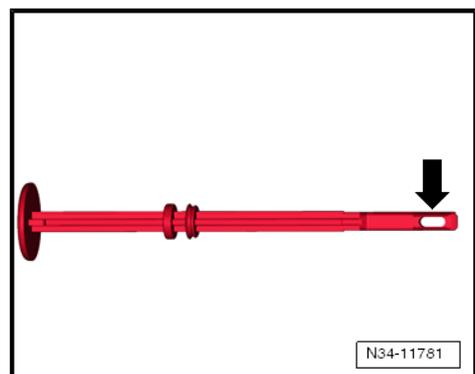
### 2.9.2 Handle with front pushbutton

With this kind of handle, the pushbutton cannot be pulled out.

There are 2 ways of moving the pushbutton into the installation position, »with« and »without« installation guard. Both of them are described here.

#### Place handle »with« installation guard in installation position:

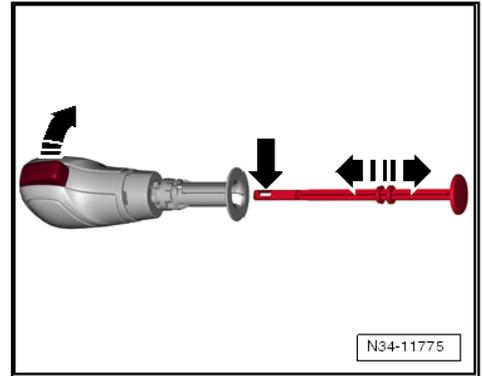
When using the installation guard, make sure that it has an eyelet -arrow- at the front. Other types of installation guard are not suitable.



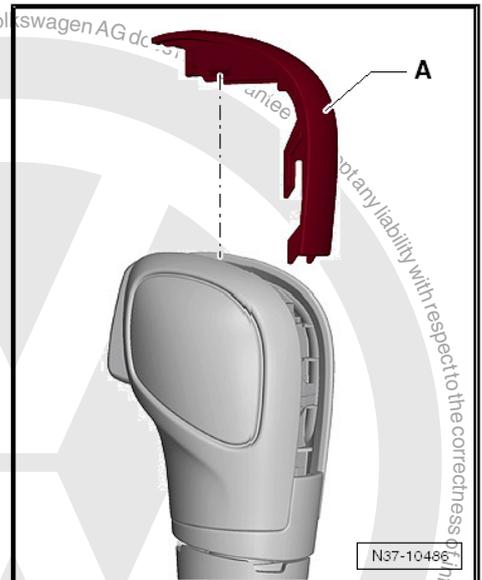


- Holding the button down, completely push in installation guard with eyelet -arrow- until the installation guard engages, then release the button. When the installation guard is pulled out, the pushbutton engages in the installation position.

Place handle »without« installation guard in installation position:



- Carefully unclip trim of handle -A- upwards.

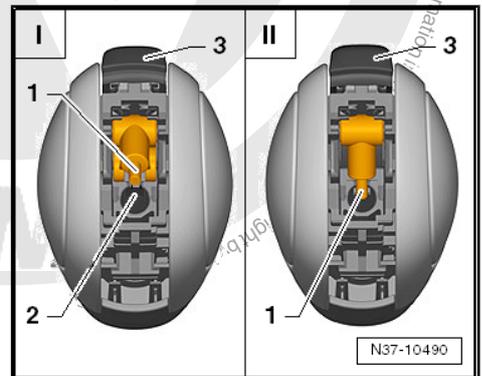


- Using a screwdriver, press the small lever -1- for the tie rod into the groove -2-. When this is done, the pushbutton -3- is pressed into the installation position.

- I- Pushbutton in pressed position
- II- Pushbutton in installation position

**i** Note

- ◆ Only press the lever into the groove and no further.
- ◆ Do not clip the trim of the handle onto the selector mechanism until the handle has been fitted. This makes it possible to check whether the small lever engages in the tie rod when the pushbutton is pressed.



## 2.10 Checking selector mechanism

Faults which can be detected electrically can be determined with guided fault finding. In the case of mechanical faults, skill is required to localise and repair a faulty system or defective »part«.

It must not be possible to start the engine in the selector lever positions „R“, „D“ or „S“.

When selector lever is shifted to position „N“ at speeds above 5 km/h, solenoid for selector lever lock must not engage and block selector lever. Selector lever can be shifted into a driving range.



When travelling at speeds below 5 km/h (almost stationary) and shifting into selector lever position „N“, solenoid for selector lever lock should only engage after about 1 second. Selector lever cannot be shifted out of „N“ position until brake pedal is depressed.

#### **Selector lever in „P“ position and ignition switched on**

- Brake pedal not depressed:

Selector lever is locked and cannot be shifted out of „P“ position when the button is pressed. Solenoid for selector lever lock blocks selector lever.

- Brake pedal is depressed:

Solenoid for selector lever lock releases selector lever. It is possible to shift into a driving gear. Slowly shift selector lever from „P“ through to „S“, checking whether selector lever position in dash panel insert corresponds to selector lever position.

#### **Selector lever in „N“ position and ignition switched on**

- Brake pedal not depressed:

Selector lever is locked and cannot be shifted out of „N“ position with the push button pressed. Solenoid for selector lever lock blocks selector lever.

- Brake pedal is depressed:

Solenoid for selector lever lock releases selector lever. It is possible to shift into a driving gear.

#### **Selector lever in position „Tiptronic“**

- Shift selector lever into Tiptronic gate.

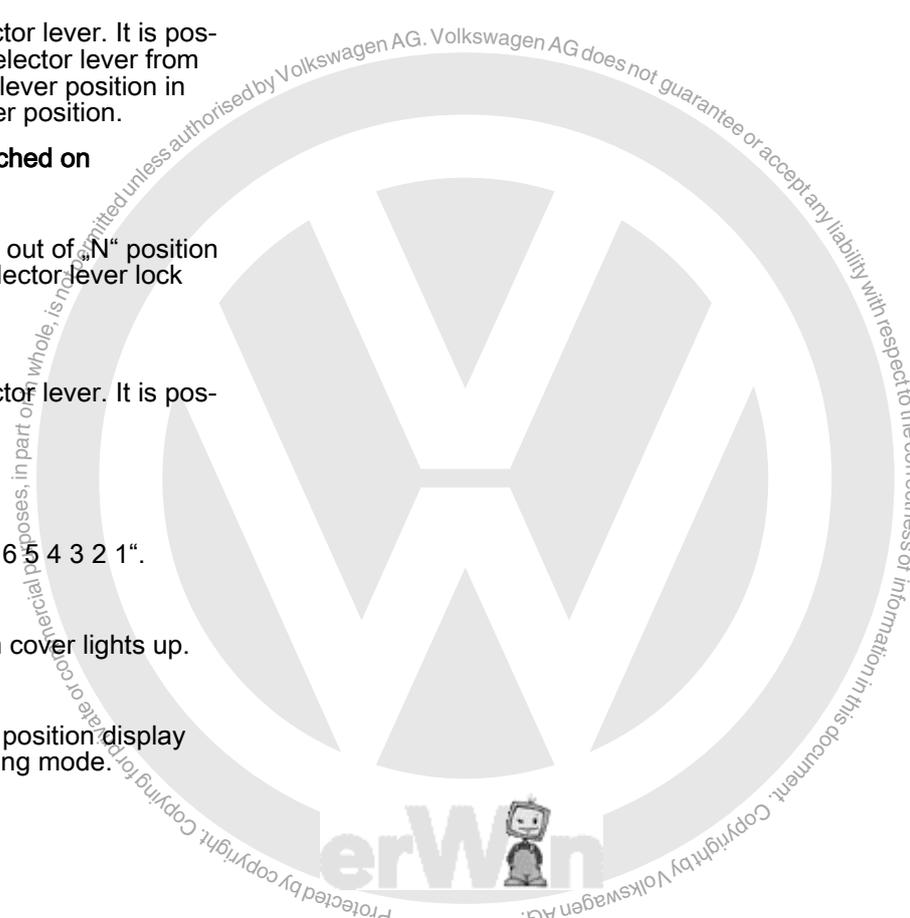
Symbols must change from „P R N D S“ to „7 6 5 4 3 2 1“.

#### **Ignition and light switched on**

The respective symbol in the shift mechanism cover lights up.

#### **Selector lever position display**

Simultaneous illumination of all selector lever position display segments indicates gearbox emergency running mode.





### 3 Mechatronic unit for dual clutch gearbox -J743-

⇒ [„3.1 Safety note on mechatronic unit for dual clutch gearbox J743“, page 89](#)

⇒ [„3.2 Overview „mechatronic unit“, page 90](#)

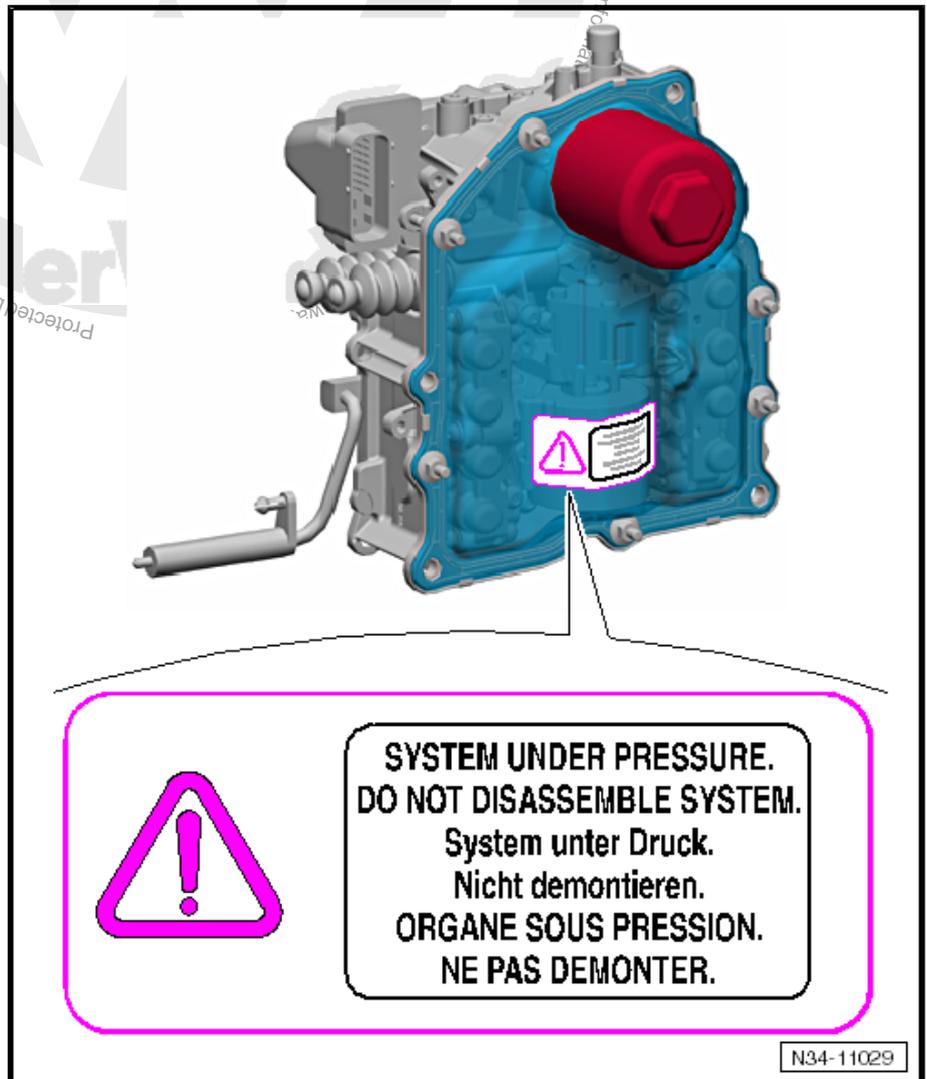
⇒ [„3.3 Removing mechatronic unit for dual clutch gearbox J743 with gearbox installed“, page 91](#)

⇒ [„3.4 Moving mechatronic unit for dual clutch gearbox J743 into removal position by hand“, page 101](#)

⇒ [„3.5 Installing mechatronic unit for dual clutch gearbox J743“, page 104](#)

⇒ [„3.6 View of selector forks with mechatronic unit removed“, page 111](#)

#### 3.1 Safety note on mechatronic unit for dual clutch gearbox -J743-





**WARNING**

*Do not work on pressure accumulator. The accumulator is under pressure and is not allowed to be opened.*

### 3.2 Overview - mechatronic unit

**1 - Bolt**

- 10 Nm
- M8 x 35
- Always renew



**Note**

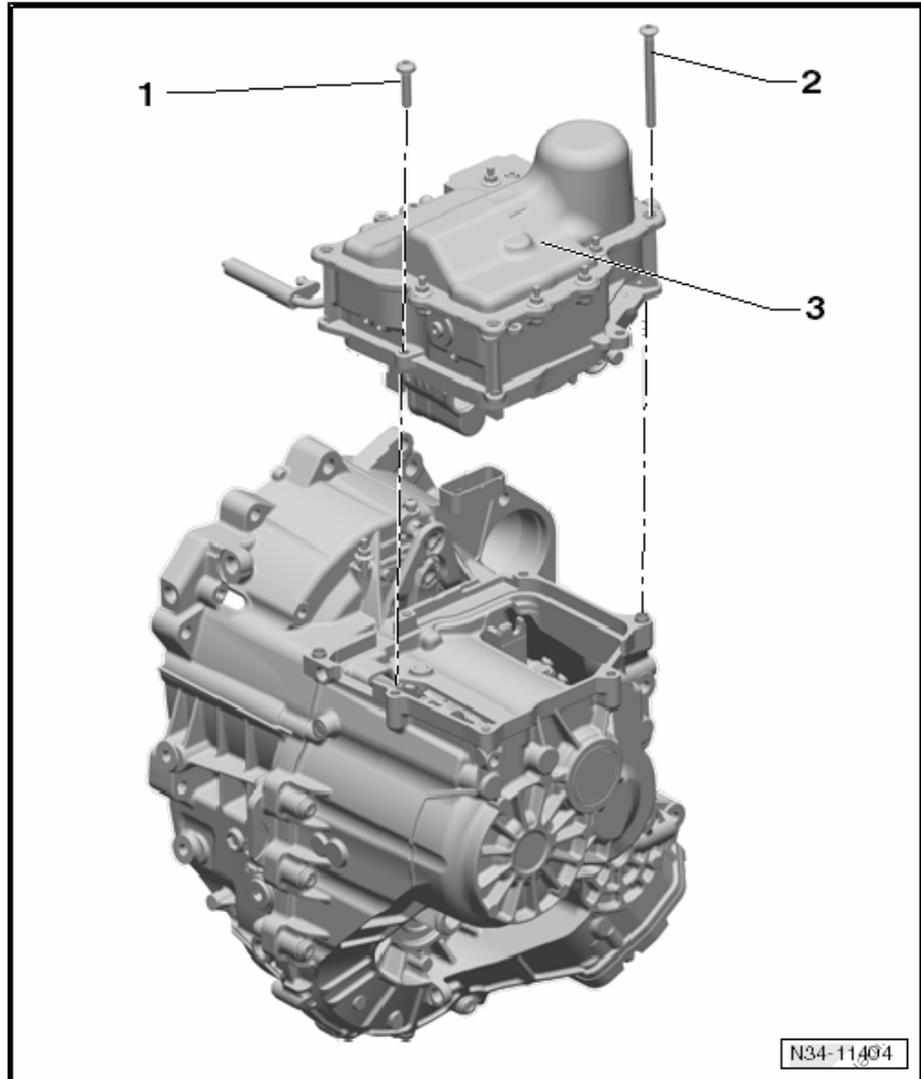
**2 - Bolt**

- 10 Nm
- M8 x 90
- Always renew

**3 - Mechatronic unit for dual clutch gearbox -J743-**



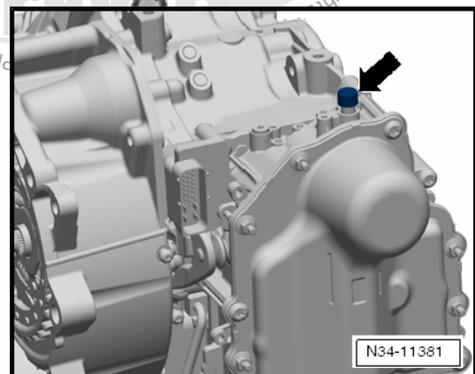
**Note**



Take care with the breather when handling the mechatronic unit.

- When doing any work on the mechatronic unit, please remove cap -arrow- from breather and seal with a suitable plug.

Protective cover -0AM 325 120- is well suited.





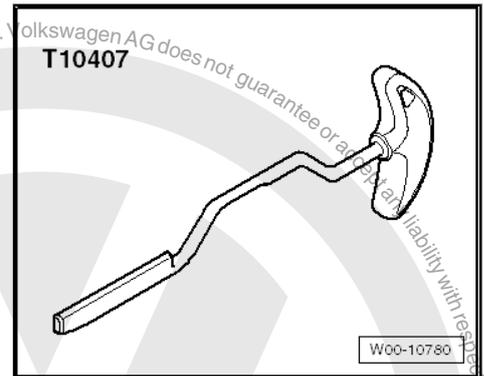
### 3.3 Removing mechatronic unit for dual clutch gearbox -J743- with gearbox installed

This description only applies to installed gearboxes. If gearbox has been removed, first remove clutch then mechatronic unit.

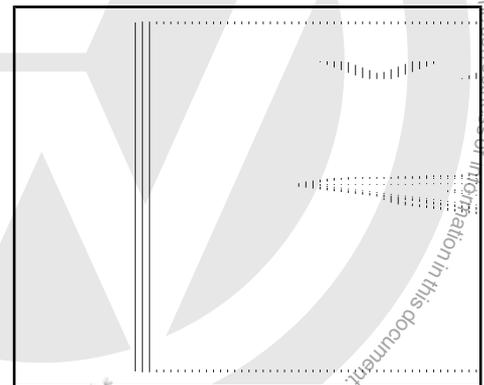
- ◆ Move mechatronic unit for dual clutch gearbox -J743- into »removal position« by hand ⇒ [page 101](#) .

#### Special tools and workshop equipment required

- ◆ Assembly lever -T10407-



- ◆ Drip tray for workshop hoist -VAS 6208-



- ◆ Vehicle diagnostic tester

#### Perform the following steps:

In order to remove the mechatronic unit, sufficient space must be available in front of the gearbox. Depending on the vehicle, parts must be removed which do not have anything to do directly with the gearbox. For example, the air filter housing and, if present, charge air lines or coolant lines.

Any retainers fitted on the cover of the mechatronic unit must also be removed.

The vehicle diagnostic tester brings the mechatronic unit into the correct position for removal. All gear actuators are moved into »neutral position«.

In this position, insert assembly lever -T10407- between release lever and gearbox housing. This makes it possible to remove load from plungers of mechatronic unit so that they may be removed by hand from cups of engaging levers.

Mechatronic unit can be removed and inserted. When installing, make sure clutch plungers are correctly seated in cups of engaging levers.

Therefore, please follow description below step by step.



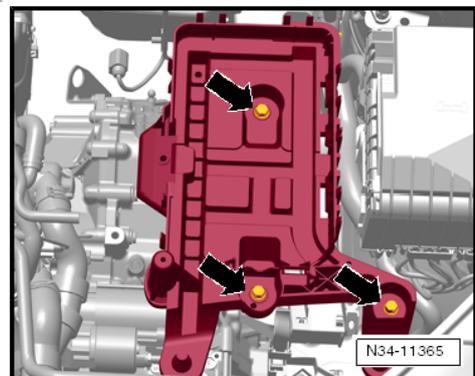
## Note

- ◆ *The clutch is self-adjusting. Shocks can have an effect on this adjusting device. Even if the mechatronic unit has been removed, the »sudden removal« of the assembly lever -T10407- from under the engaging levers can have a negative effect on the adjusting mechanism.*
- ◆ *In order to remove the mechatronic unit, sufficient space must be available in front of the gearbox. In some vehicles, parts must be removed which do not have anything to do directly with the gearbox. Remove any charge air lines or coolant lines that may be present.*
- ◆ *Any retainers fitted on the cover of the mechatronic unit must also be removed.*
- ◆ *A »new« mechatronic unit is correctly filled with oil.*
- ◆ *Do not drain oil. A »removed« mechatronic unit is sent back with its oil in.*

### **Mechatronic unit remains filled with oil.**

#### **Removing:**

- Move selector lever to position »P« position.
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Connect vehicle diagnostic tester and then select „7-speed dual clutch gearbox“, Moving gear actuator into -neutral position under Guided functions.
- Switch off ignition.
- Raise vehicle.
- Remove complete air filter housing.
- ◆ Vehicles with petrol engines ⇒ Rep. gr. 24 ; Removing and installing air filter
- ◆ Vehicles with diesel engines ⇒ Rep. gr. 23 ; Removing and installing air filter
- Remove battery and battery tray ⇒ Rep. gr. 27 ; Battery; Removing and installing battery





In some vehicles, a cover is fitted over the engaging levers.

The cover prevents dirt getting in.

**Torque setting: 8 Nm**

- If this cover is fitted, remove it.
- Remove starter => Electrical system; Rep. gr. 27 ; Removing and installing starter .

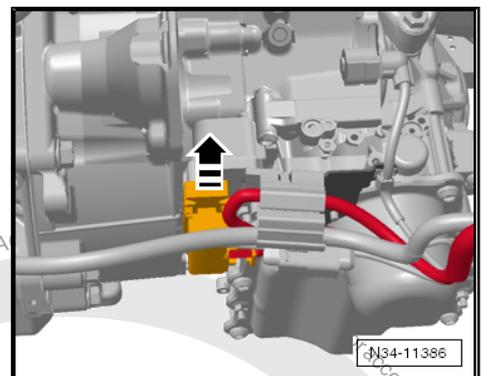
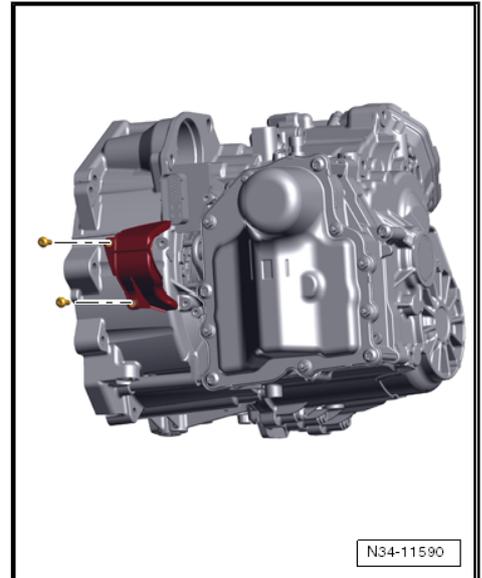


**Caution**

*Risk of damaging mechatronic unit for dual gearbox -J743- beyond repair through static discharge.*

◆ *Do not touch the contacts in the connector of the mechatronic unit for dual clutch -J743- by hand.*

- To become electrostatically discharged, touch an earthed object by hand (without gloves) => [page 10](#) .
- Release mechatronic unit connector by pulling in -direction of arrow- and pull off connector.
- Place drip tray under gearbox.
- Drain gear oil, then reinstall drain plug => [page 64](#) .

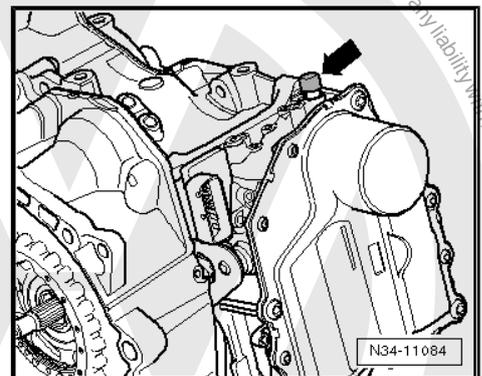


- Pull cap off breather and close using a suitable plug to achieve an oil-tight seal.

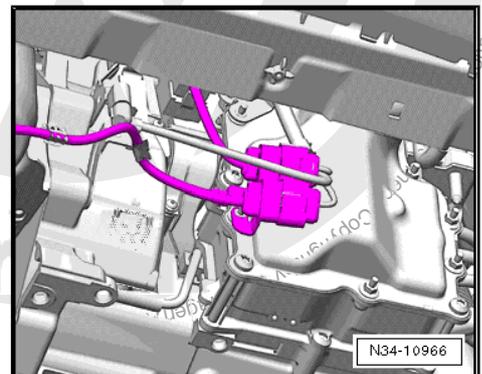


**Note**

*Protective cover -0AM 325 120- is well suited.*

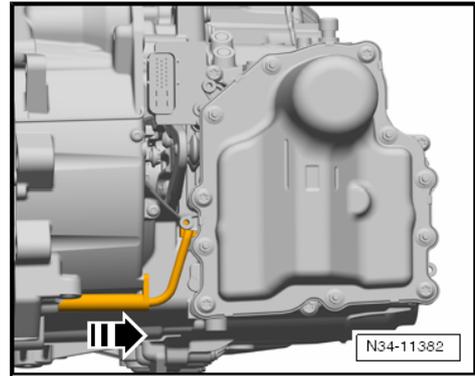


- Remove all retainers and brackets from front of gearbox.





- Using a screwdriver, carefully unclip gearbox input speed sender 3 -G641- from housing in -direction of arrow-.

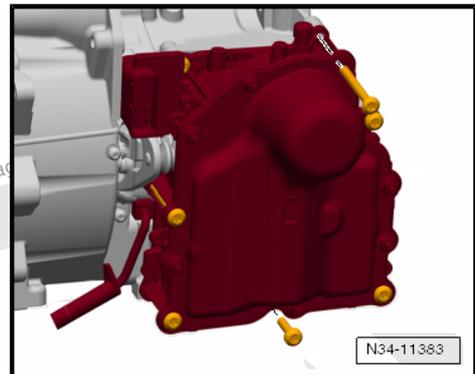


- Unscrew bolts of mechatronic unit for dual clutch gearbox - J743- »in diagonal sequence«.

»There are 4 long and 3 short bolts.«

**Do not remove more than 7 bolts!**

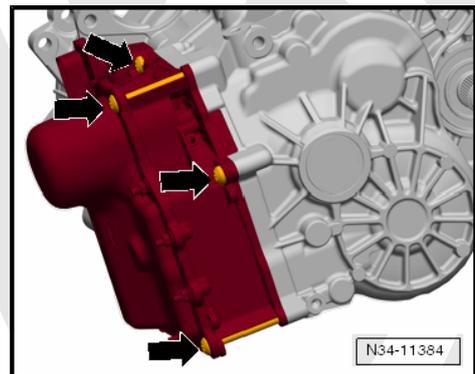
- Please look carefully to check which bolts you are unscrewing. Do not unscrew any cover bolts.



The gearbox is shown here again from the side to make this situation clearer.

The mechatronic unit must be removed. The cover does not have to be removed.

**Therefore, do not remove more than 7 bolts!**



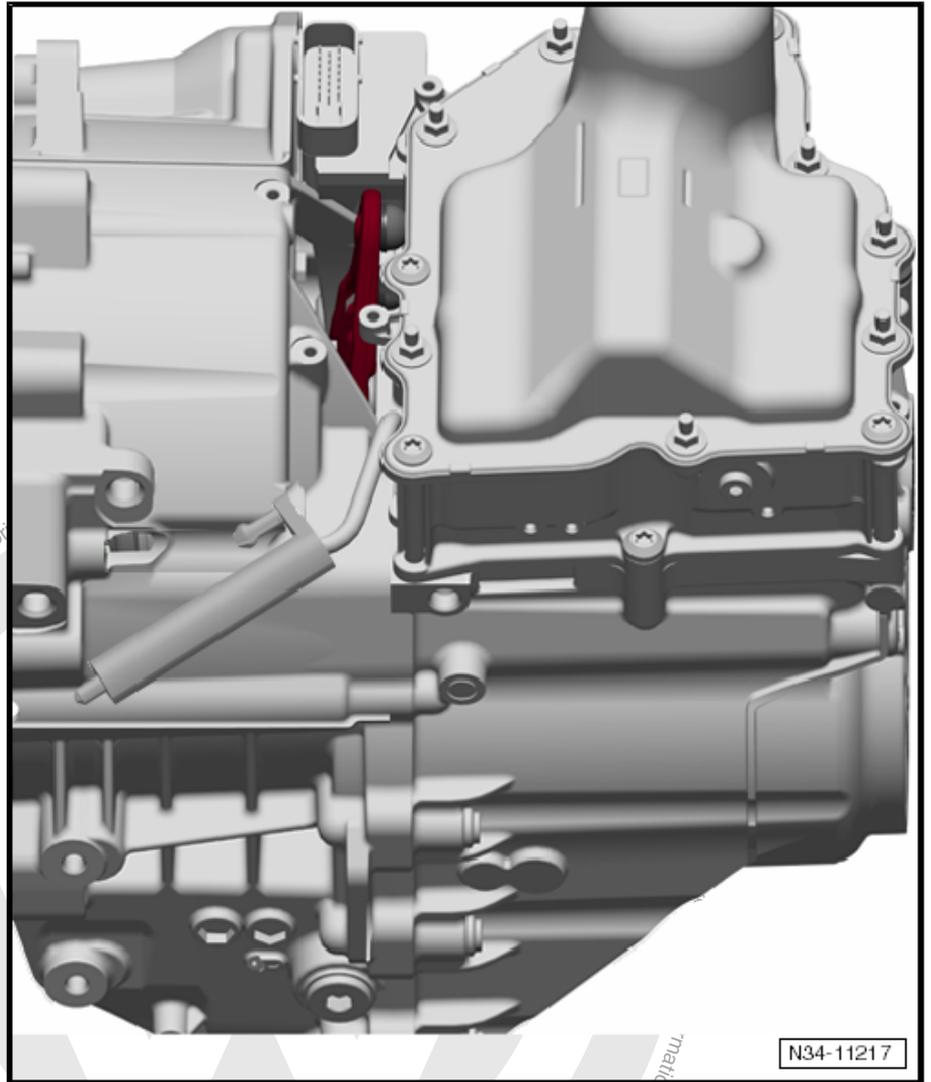
**The next step is »difficult«:**

Now press both engaging levers of dual clutch »away« from plungers of mechatronic unit. Otherwise, levers will jam mechatronic unit at plungers and prevent mechatronic unit from being removed.

- Please read through this description all the way to the end first. This will help you to perform the following steps »correctly«.

Both levers must now be carefully pressed away from the plungers.

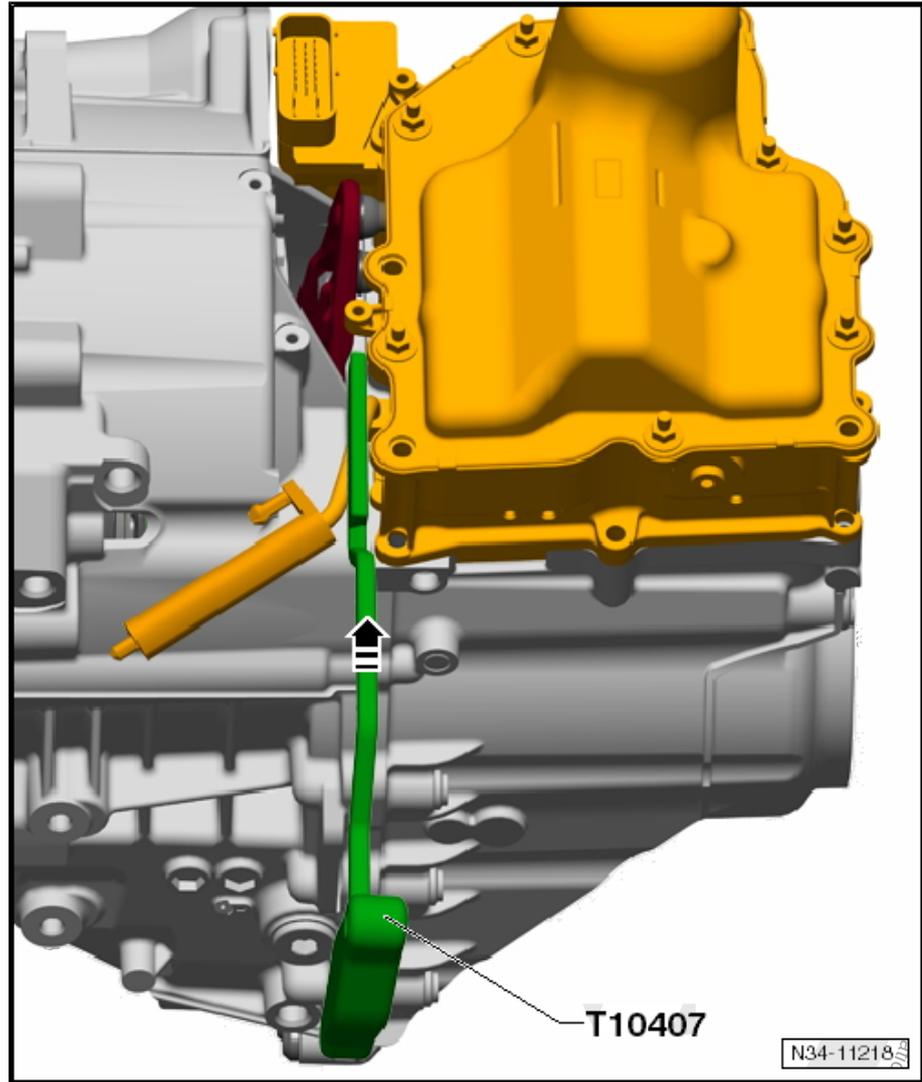
- First take a look at -reddish-brown- engaging lever in this picture.



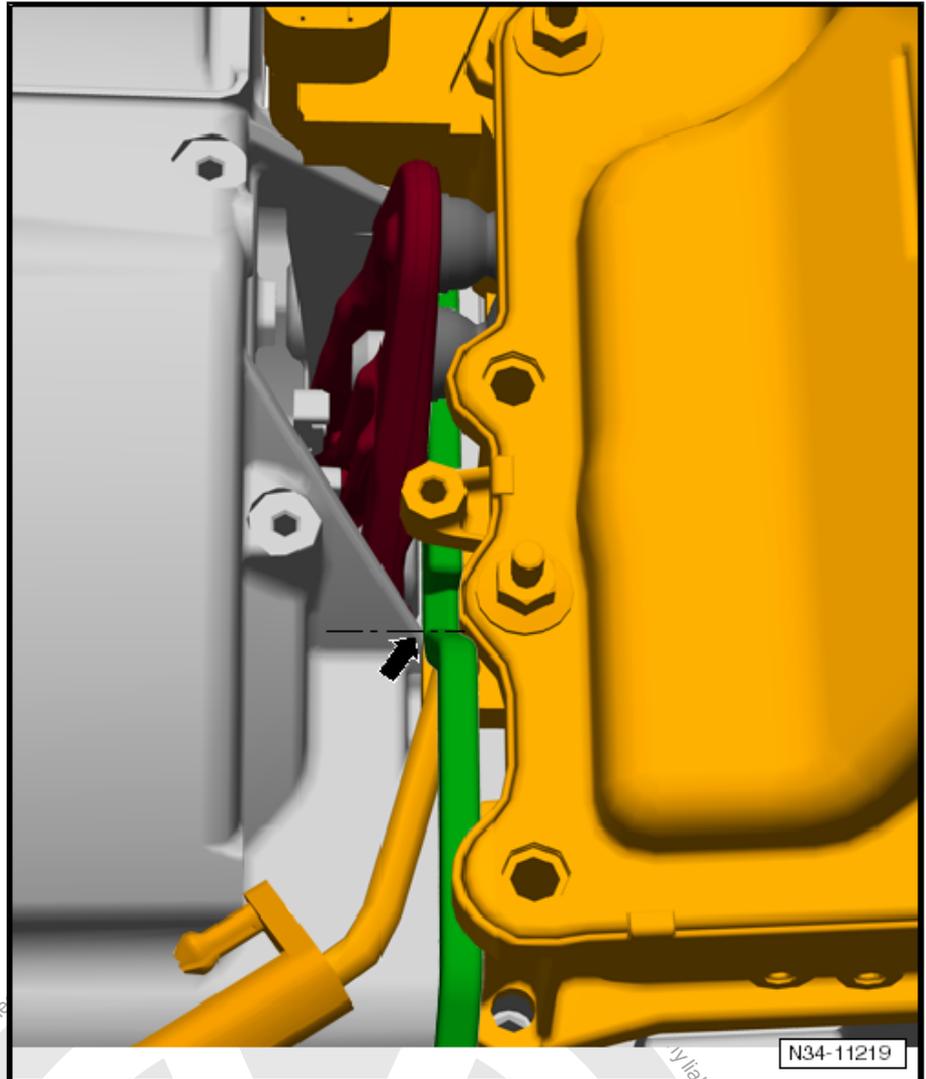
- On right of it, insert assembly lever -T10407- .

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- Far enough until groove lines up with housing rib -arrow-



No further.

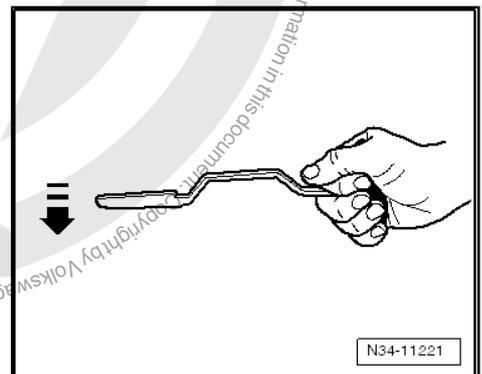
- Assembly lever -T10407- should make contact with gearbox housing with its entire »rear face«.



**Caution**

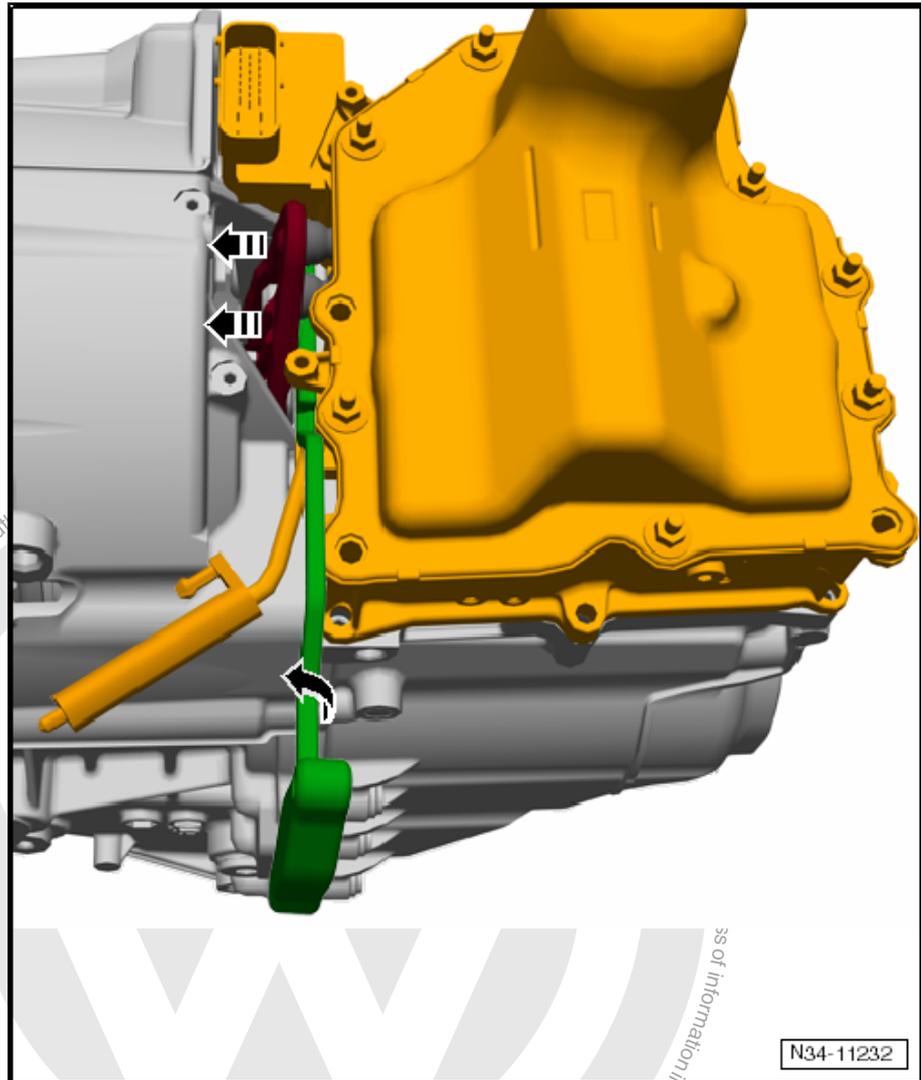
- *Housing rib and groove of lever must be flush with one another. Do not insert tool as far as stop.*

- Apply a bit of force to tip of lever when turning.  
This stops lever from slipping out when turning.



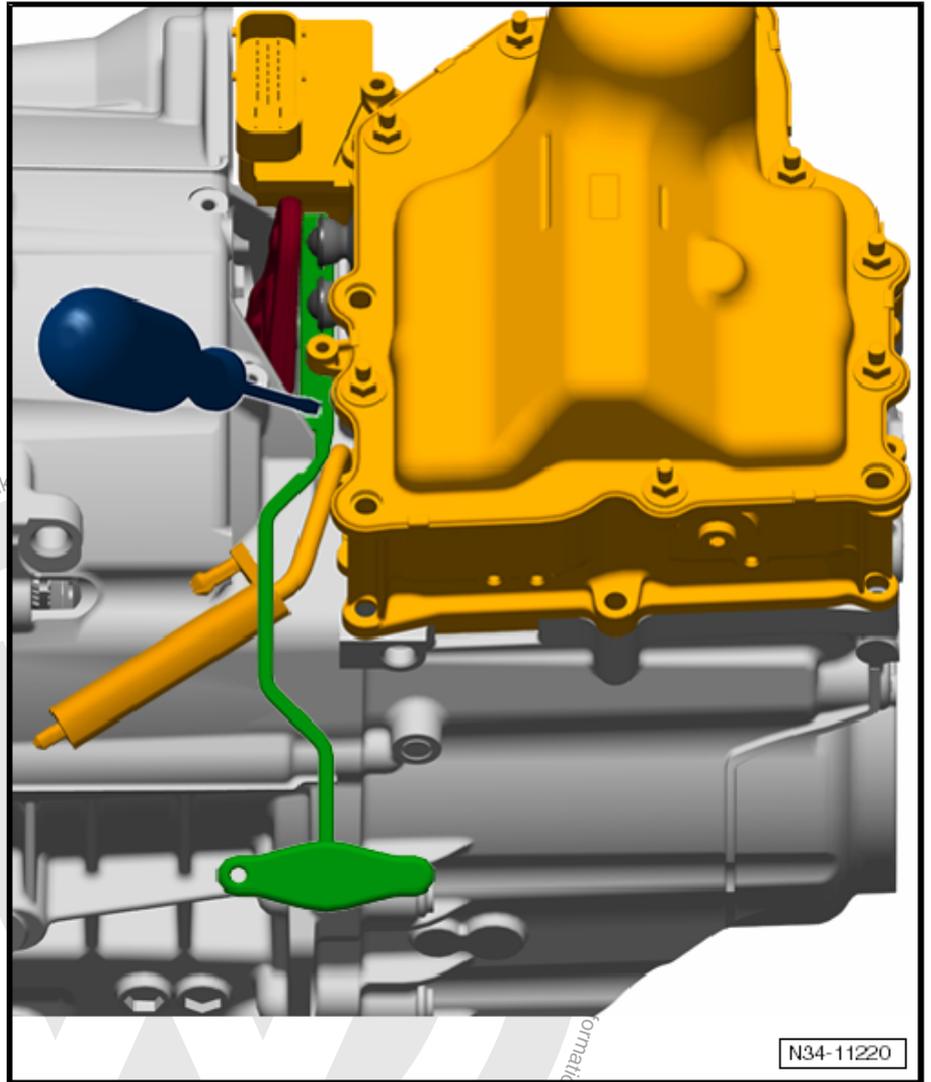


Turn assembly lever -T10407- anticlockwise. In this way, engaging levers are pressed away from plungers -direction of arrow-.

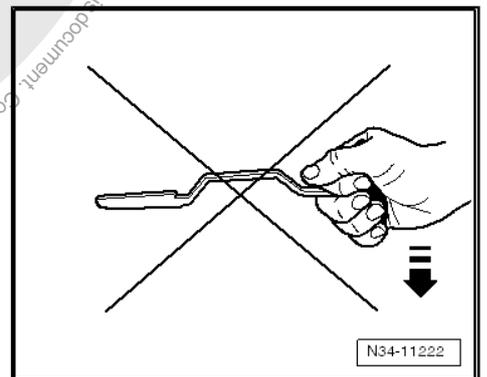


Do not take out assembly lever -T10407-. It must remain inserted between engaging lever and gearbox housing for the entire process.

- If necessary, press assembly lever -T10407- against gearbox using a screwdriver.



If lever slips off, this indicates you applied a bit of leverage to handle whilst turning.





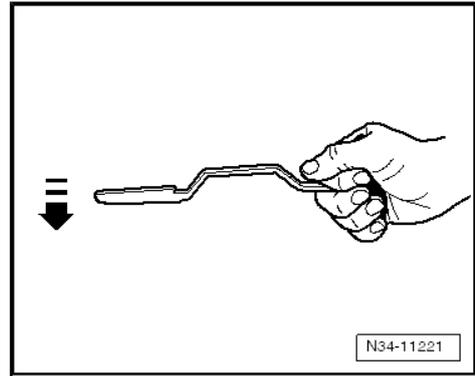
- Apply a bit of force to tip of lever when turning.  
This stops lever from slipping out when turning.



### Caution

*Risk of damaging gearbox components beyond repair.*

- ◆ *Do not touch or remove the mechatronic unit for dual clutch gearbox -J743- until you have electrostatically discharged yourself by touching an earthed object, e.g. skin contact with earth.*
- ◆ *Do not under any circumstances touch the contacts in the gearbox connector by hand. Static discharge could destroy the control unit and, consequently, the mechatronic unit.*

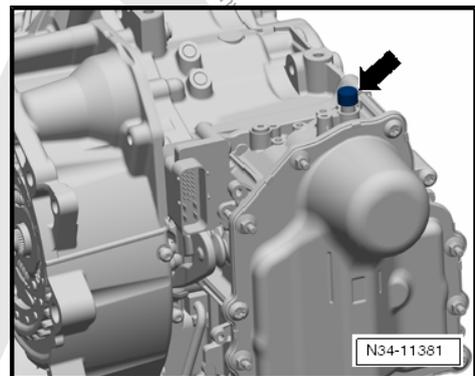


- To become electrostatically discharged, touch an earthed object by hand (without gloves) => [page 10](#).
- Remove mechatronic unit.

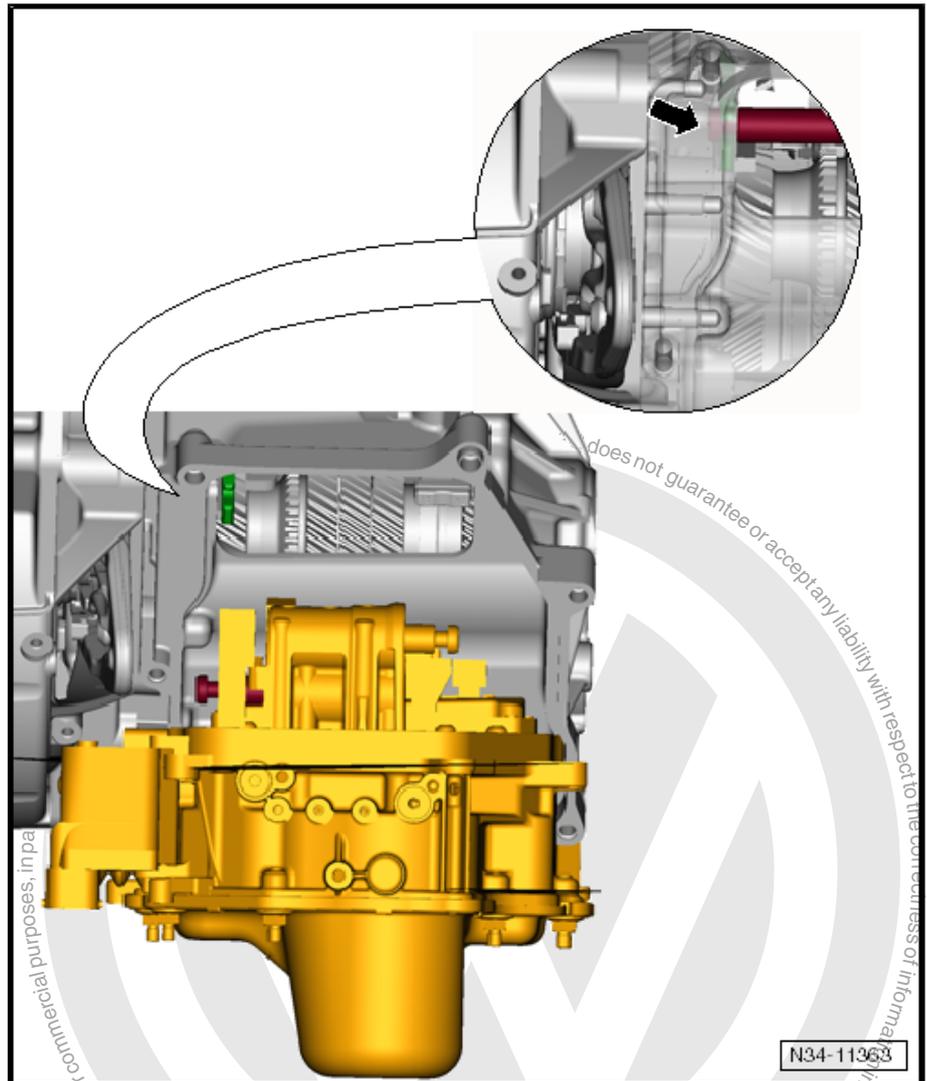
**Mechatronic unit remains filled with oil.**

- Make sure no oil runs out of breather.

Mechatronic unit is delivered for reconditioning with its oil in.



**If mechatronic unit »jams« and cannot be removed:**



Sometimes, the mechatronic unit cannot be removed. In this case, the gear actuator is »caught« at the »top left« of the gearbox housing.

In this case, mechatronic unit is not allowed to be removed with significant force.

- First reposition mechatronic unit on gearbox housing and secure it with one bolt.
- Move mechatronic unit into »removal position« by hand  
⇒ [page 101](#) .

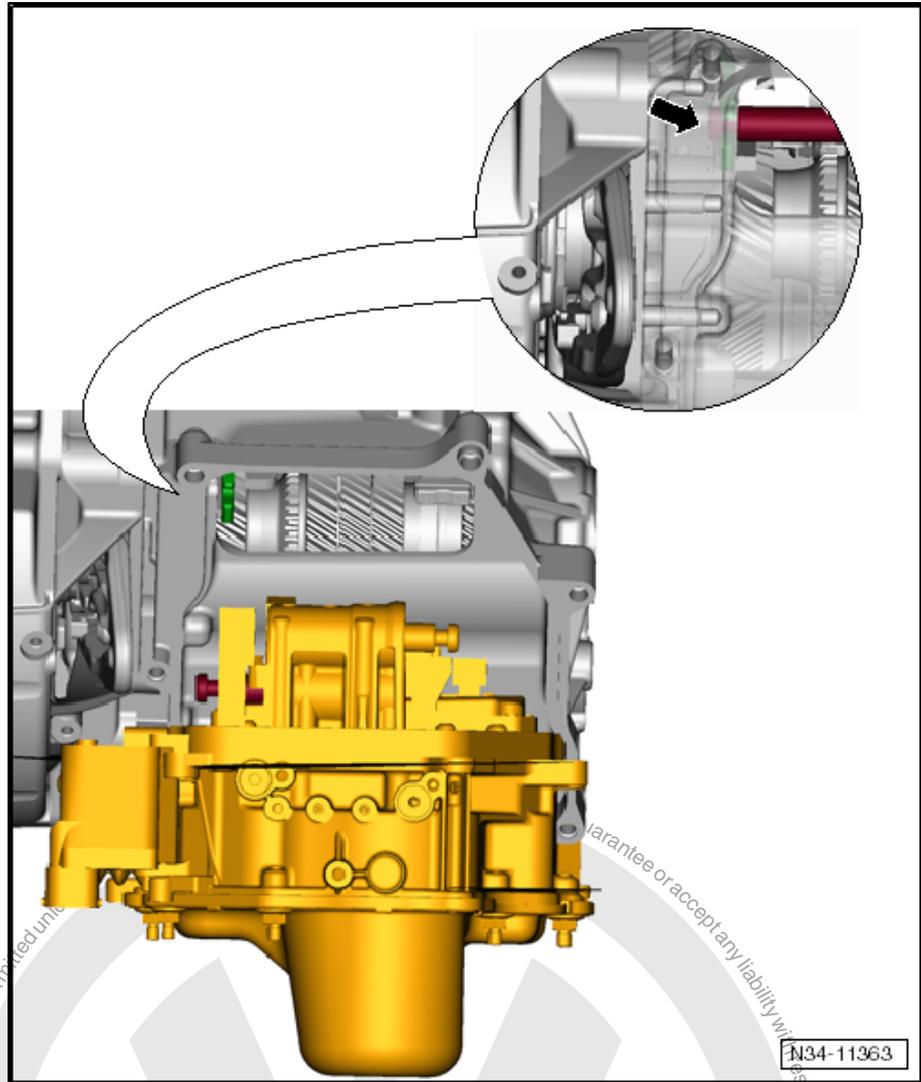
Installing mechatronic unit ⇒ [page 104](#) .

### 3.4 Moving mechatronic unit for dual clutch gearbox -J743- into »removal position« by hand

Sometimes, the mechatronic unit cannot be removed. In this case, the gear actuator is »caught« at the »top left« of the gearbox housing -arrow-.



- Only if you cannot set the mechatronic unit to removal position with the vehicle diagnostic tester , you must move the unit by hand to this position.



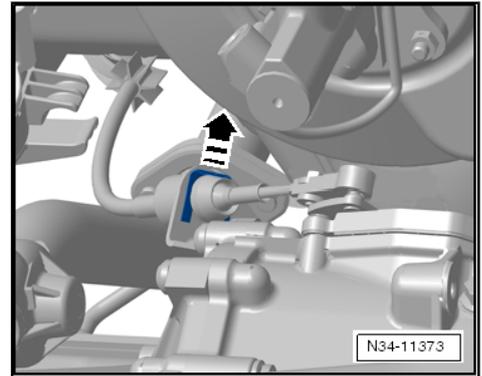
The »sticking« gear actuator -arrow- can be pressed by hand into its »removal position«. To do this, push a selector fork behind the parking lock cover. How to do this is described in the following work procedure:

- First reposition mechatronic unit on gearbox housing and secure it with one bolt.
- Move selector lever to position „P“ position.



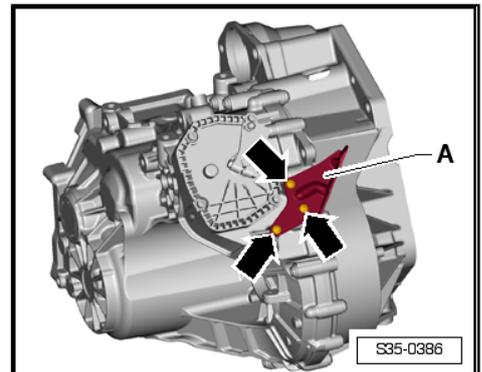
- Remove securing clip in -direction of arrow-.

Securing clips for selector lever cable must always be renewed.

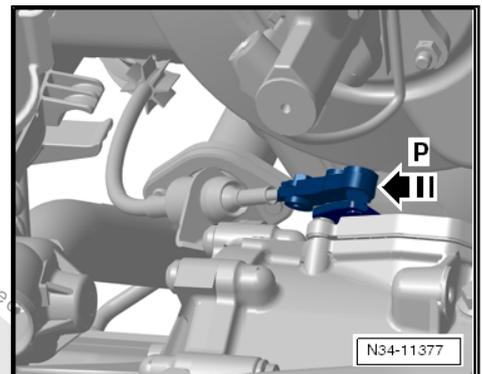


**i** Note

- ◆ Use pliers to remove the securing clip on the cable support bracket. Do not use a sharp-edged lever. The selector lever cable could otherwise be damaged.
- ◆ If necessary, remove the cable support bracket -A- with the selector lever cable from the gearbox. To do so, remove bolts -arrows-. These bolts must be renewed.
- ◆ Torque setting of bolts -arrows-: 8 Nm + turn 90° further



- Remove cable from ball head e.g. using removal lever -80 -200- .
- Use your hand to press lever to stop in direction of cable support bracket.

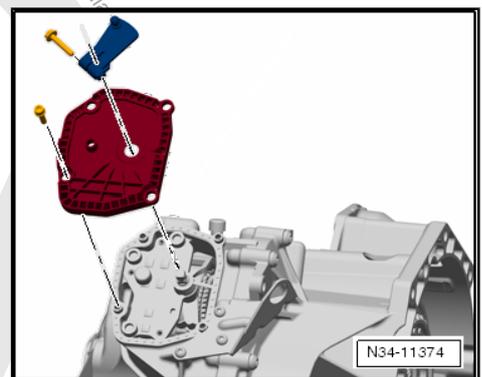


- Remove lever of selector shaft.
- Unbolt cover.



**Caution**

**The mechatronic unit will not be »stuck« after the next step. That means that it could fall out. If it has not already been done, secure mechatronic unit on gearbox with one bolt to prevent it from falling down.**



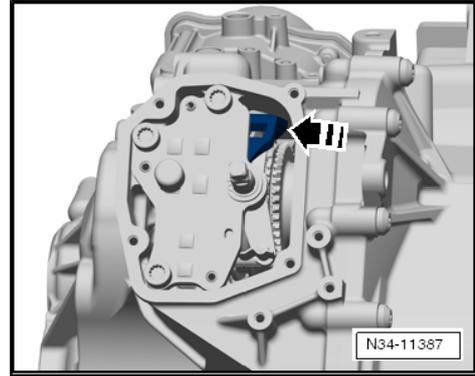


- Working through opening, push selector fork to side -direction of arrow-

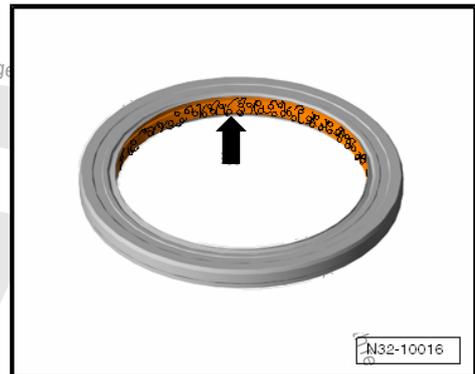
(Press to left in direction of travel.)

This presses back »sticking« gear actuator and mechatronic unit can be removed.

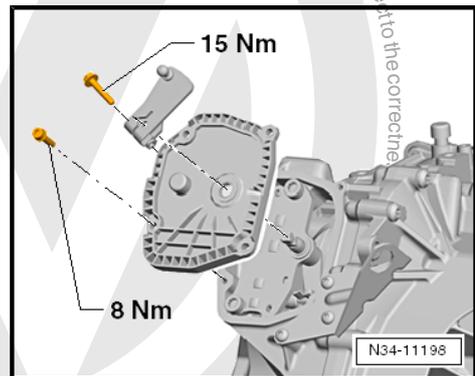
- Please do not assemble parking lock until you have filled oil.



- Grease oil seal in cover with sealing grease -G 052 128 A1- .

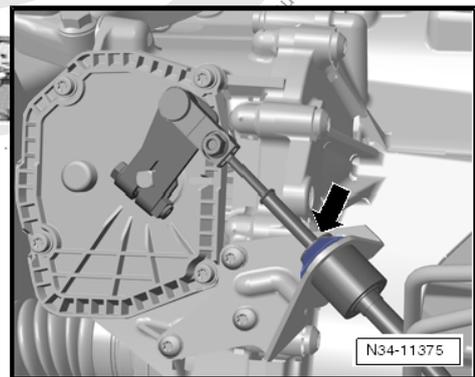


- Fit cover and lever again.



- Press selector lever cable back onto ball head and install new securing clip.
- Securing clips for selector lever cable must always be renewed.
- Add gear oil after completing work on mechatronic unit. Fill oil into gearbox => [page 64](#) .
- Adjust selector lever cable => [page 82](#) .
- Place plug on removed mechatronic unit.

This way, the mechatronic unit can be sent sealed in oil-tight condition.



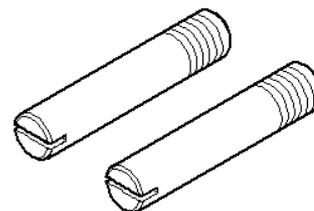
### 3.5 Installing mechatronic unit for dual clutch gearbox -J743-

Special tools and workshop equipment required



◆ Guide pin -T10406-

T10406



W00-10784

 **Note**

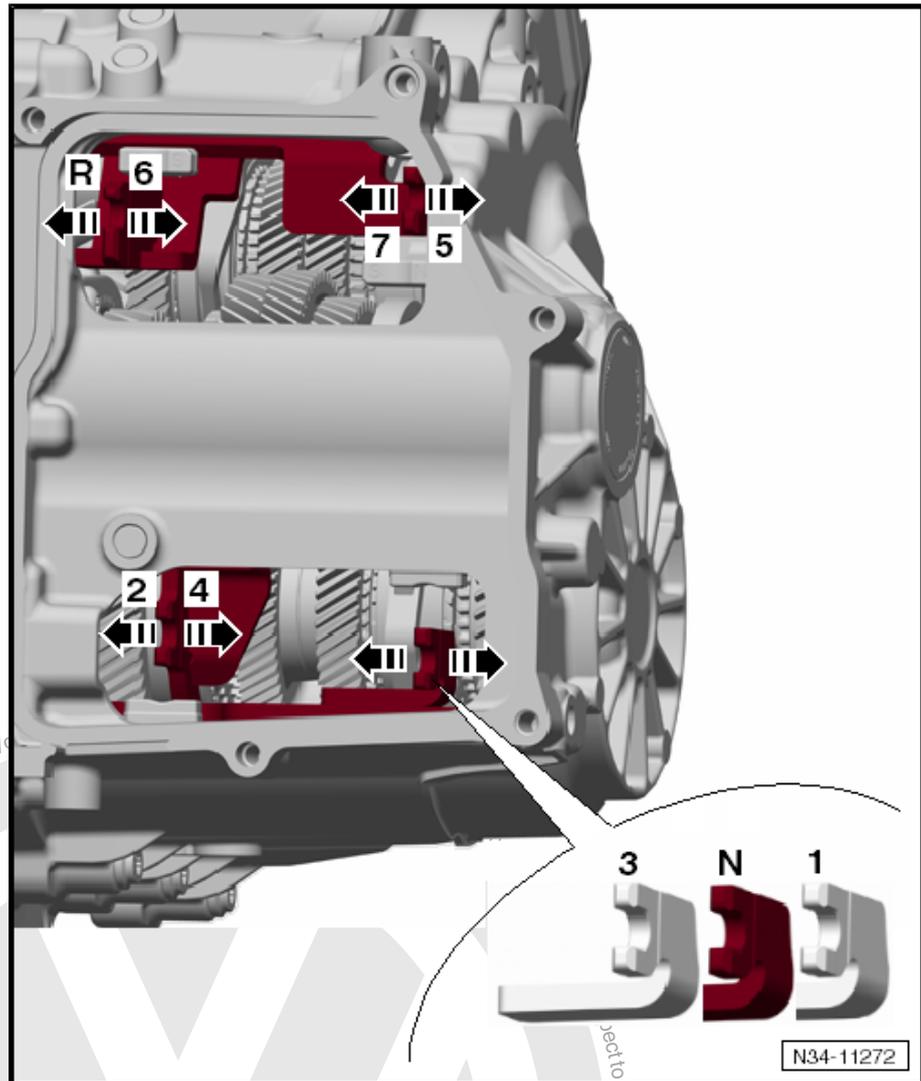
- ◆ A »new« mechatronic unit is correctly filled with oil.
- ◆ Do not drain oil. A »removed« mechatronic unit is sent back with its oil in.

**Installing**

- All selector forks must be »in neutral position« before installation of mechatronic unit.

 **Note**

Make sure that all selector forks are located in -N-, »in the middle«, and therefore that the gearbox is in neutral.



- Therefore, check each of 4 selector forks by hand.

**Every selector fork has 3 positions: »gear selected - neutral - gear selected«.**

- Also, move each fork into each position in succession. Then disengage all gears and return selector forks to middle position »neutral«.



#### Note

*»Neutral, neutral, neutral«, or gearbox will not function!*

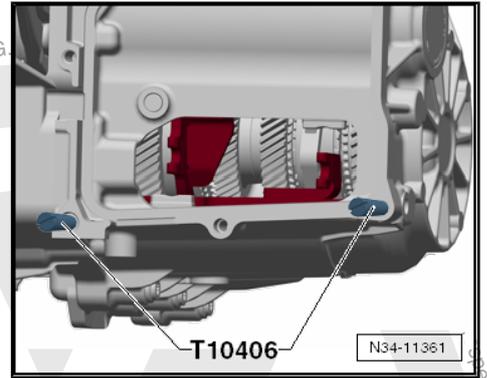
You can turn the front gear slightly for assistance. This makes it »easier« to shift the forks.

- Please clean sealing surface where mechatronic unit will make contact later on.

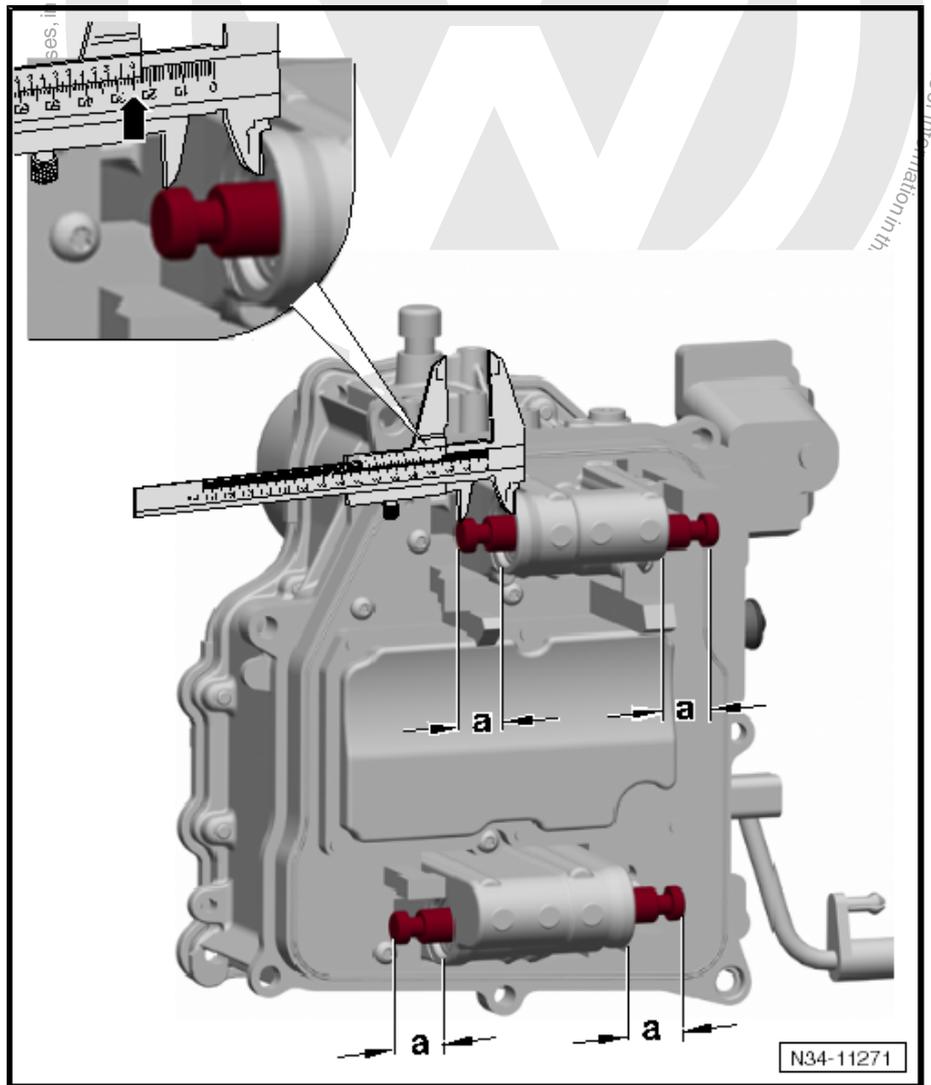
Oil residues on sealing surface will later result in a misdiagnosis of »leaking«.



- Screw in guide pin -T10406- hand-tight.



Make sure that all 4 gear actuators project 25 millimetres -a-.



**Caution**

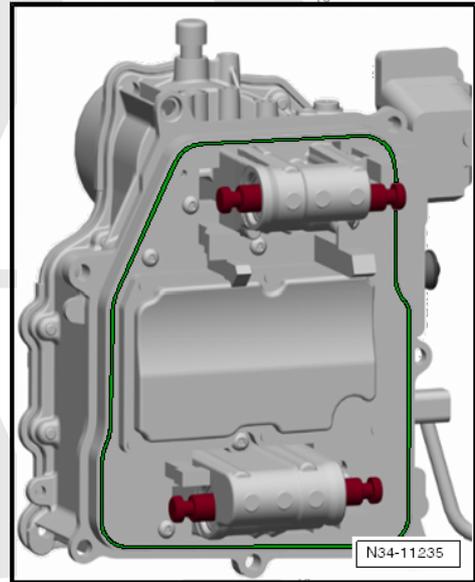
*Handle with care. When levering the plungers out of the mechatronic unit, make sure that you do not brace yourself on the sensors.*



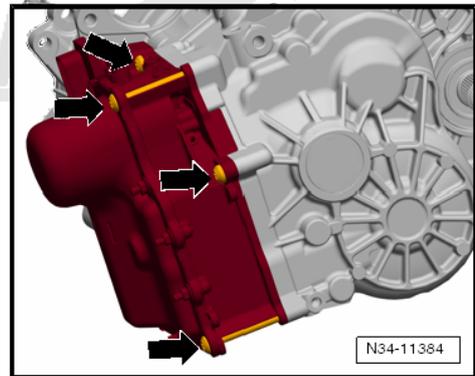
- Please clean sealing surface of mechatronic unit.
- Watch out for seal on mechatronic unit.

Seal must be pushed in all around.

- Look at gearbox input speed sender 3 -G641- . Clip must not be damaged.
- Put on mechatronic unit.
- When gripping and putting on, make sure selector forks are not inadvertently pressed out of their position.
- Also observe engaging levers and plungers on mechatronic unit.



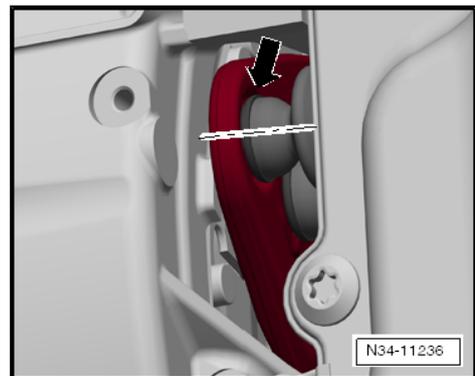
- Screw in 7 new bolts and tighten until finger-tight.
- Remove guide pins -T10406- again.



- Make sure that plungers meet up correctly in cups of engaging levers.
- Pull out plungers by hand until they are seated in cups.

Plungers can be moved into position with a hook bent from a piece of welding wire (local manufacture).

- Now check seat of plungers again.



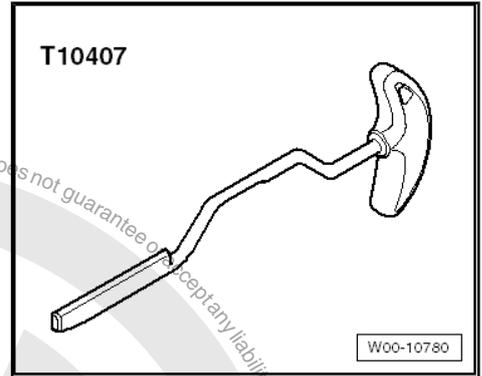
Plungers that are not seated correctly will damage mechatronic unit.

- Tighten mechatronic unit diagonally to 10 Nm.

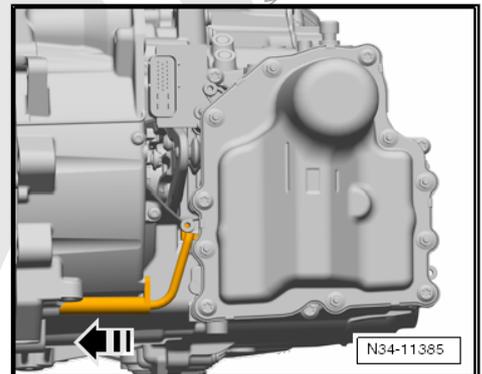




- Turn assembly lever -T10407- clockwise and remove it.



- Install gearbox input speed sender 3 -G641- .
- Look at sender. Clip must not be damaged.
- Sender lug must be fully and firmly in contact with gearbox housing. If sender is »loose« or clip is broken, renew mechatronic unit.

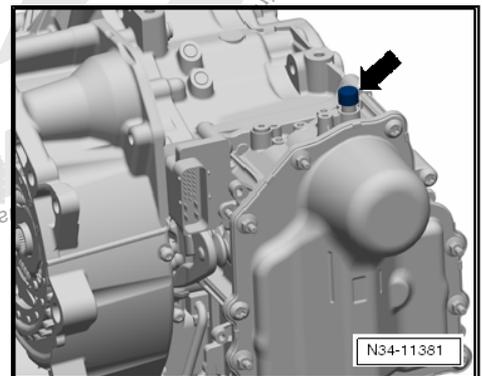


- Remove plug and put breather cap -arrow- in place.

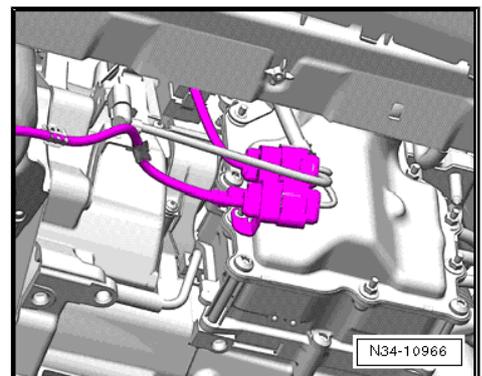
 **Caution**

**Risk of damaging gearbox components.**

◆ **Do not under any circumstances touch the contacts in the gearbox connector by hand. Static discharge could destroy the control unit and, consequently, the mechatronic unit.**



- To become electrostatically discharged, touch an earthed object by hand (without gloves) => [page 10](#) .
- Put on connector of mechatronic unit.
- Attach all retainers and brackets to front of gearbox.





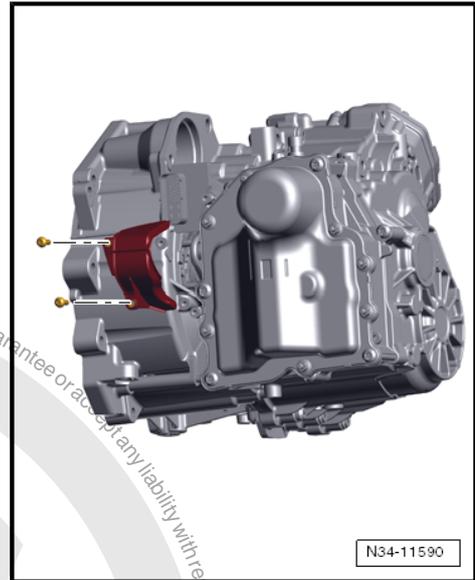
In some vehicles, a cover is fitted over the engaging levers.

The cover prevents dirt getting in.

**Torque setting: 8 Nm**

Now add gear oil ⇒ [page 64](#) .

– Install starter ⇒ Rep. gr. 27 ; Removing and installing starter .



– Fit charge air or coolant hoses as necessary.

– Install battery and battery tray ⇒ Rep. gr. 27 ; Battery; Removing and installing battery .

– Install complete air filter housing.

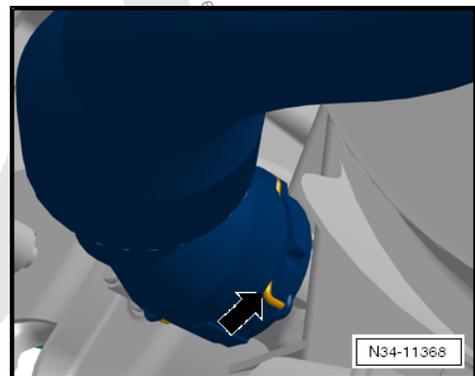
◆ Vehicles with petrol engines ⇒ Rep. gr. 24 ; Removing and installing air filter

◆ Vehicles with diesel engines ⇒ Rep. gr. 23 ; Removing and installing air filter

– If necessary, top up coolant ⇒ Rep. gr. 19 ; Draining and filling coolant .

– Install noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .

– Carrying out basic adjustment ⇒ [page 11](#) .



**Mechatronic unit remains filled with oil.**

– Place plug on »removed« mechatronic unit if necessary.

This way, the mechatronic unit can be sent sealed in oil-tight condition.



### 3.6 View of selector forks with mechatronic unit removed

**N - Idling/gearbox neutral position** »in the middle«

**R - Reverse gear**

- If reverse gear is engaged, extended plunger of mechatronic unit catches behind gearbox housing.

– Therefore, move mechatronic unit into removal position by hand  
⇒ [page 104](#) .

1 - gear

2 - gear

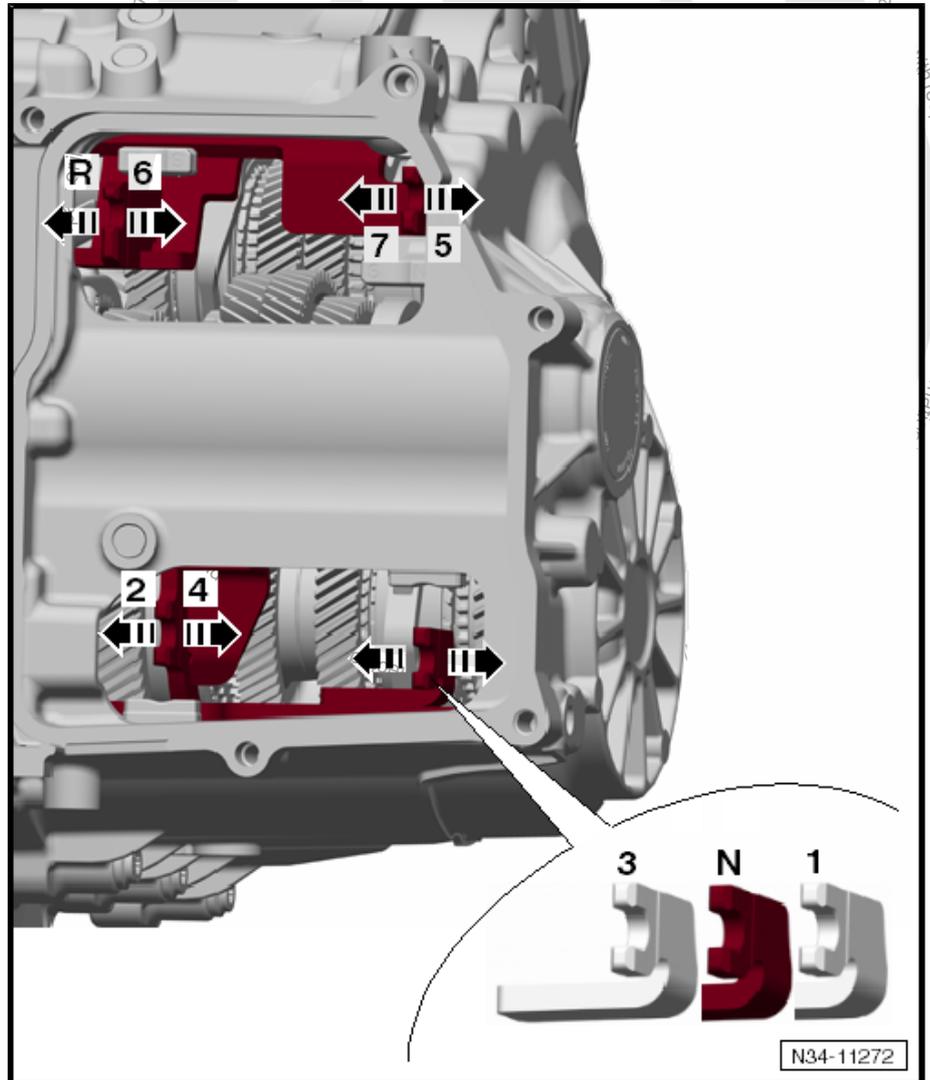
3 - gear

4 - gear

5 - gear

6 - gear

7 - gear





## 4 Removing and installing gearbox, Jetta 2005 ▶, Golf Variant 2007 ▶, Golf Variant 2010 ▶

Information about gearboxes with different output shafts  
⇒ [page 112](#)

### Vehicles with petrol engines

1.4 I/90 kW TFSI engine and 1.4 I/118 kW TSI engine  
⇒ [page 113](#)

1.6 I/75 kW MPI engine ⇒ [page 122](#)

### Vehicles with diesel engine

1.9 I/77 kW TDI PD engine ⇒ [page 131](#)

1.6 I/77 kW TDI CR engine ⇒ [page 138](#)

### 4.1 Information about gearboxes with different output shafts

#### Gearbox with different output shafts.

A - Stub shafts »to 11.2008«

B - Flange shafts »from 12.2008«

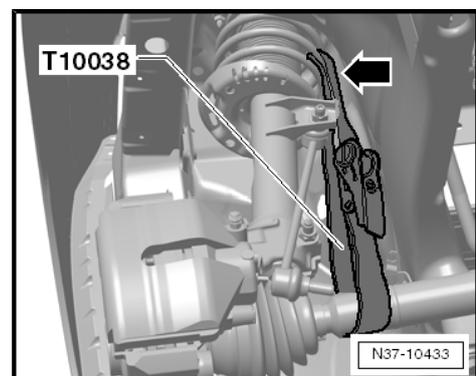
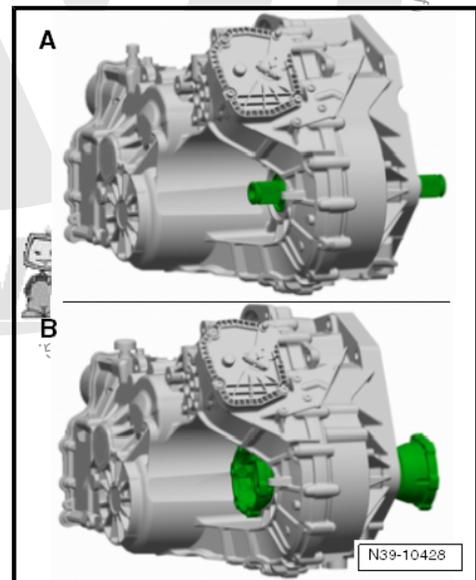
#### Vehicles with stub shafts on gearbox

To remove gearboxes with stub shafts, it is necessary to remove stub shafts. Only shafts with straight joints can be put back onto the output shafts safely. Therefore, these drive shafts must be removed.

#### Vehicles with flange shafts on gearbox

For gearboxes with flange shafts, the drive shafts must be unbolted from the gearbox. This way, the gearbox can be removed. In individual cases, it is necessary to remove right-hand flange shaft from gearbox. This gives you enough clearance for removing gearbox.

Secure both drive shafts to suspension struts using tensioning straps -T10038- .

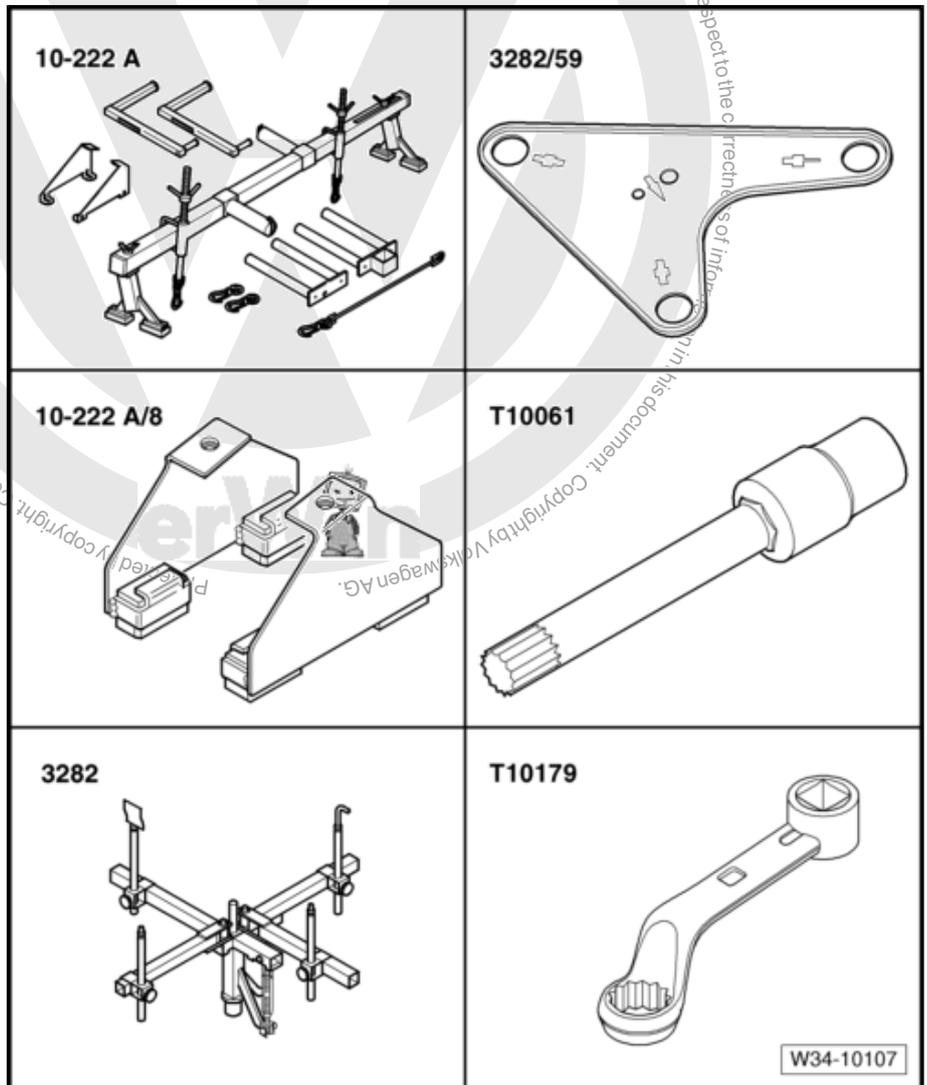




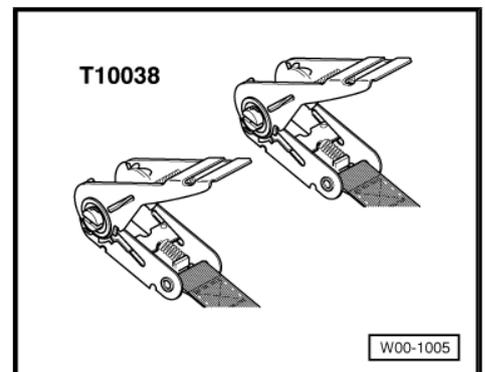
## 4.2 Removing gearbox, vehicles with 1.4 I/90 kW TFSI engine and 1.4 I/118 kW TSI engine

### Special tools and workshop equipment required

- ◆ Support bracket -10 - 222 A-
- ◆ Adjustment plate -3282/59-
- ◆ Adapter -10 - 222 A /8-
- ◆ Socket -T10061-
- ◆ Gearbox support -3282-
- ◆ Insert tool, 18 mm -T10179-

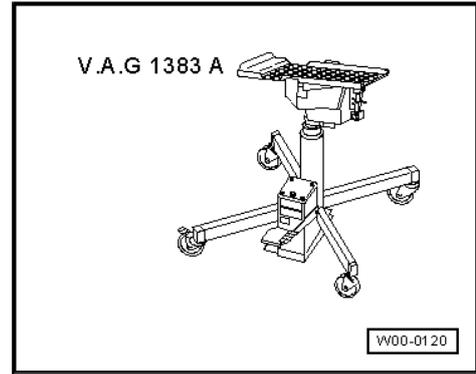


- ◆ Tensioning strap -T10038-





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



**Brief description**

The gearbox is removed downwards separately, without engine.

The battery, air filter and starter are removed »from above«.

Noise insulation beneath engine/gearbox, lower cover in front left wheel housing and pendulum support are removed »from below«.

**Perform the following steps:**

- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.

**Only in vehicles with stub shafts**



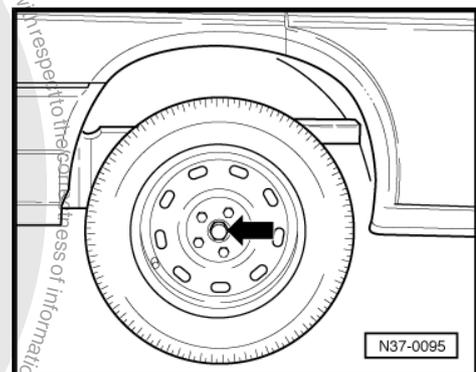
**Note**

*After loosening centre bolt, do not lower vehicle to ground again.*

- Step on the brake pedal while a 2nd mechanic loosens the two drive shaft bolts -arrow-.
- Remove both front wheels.

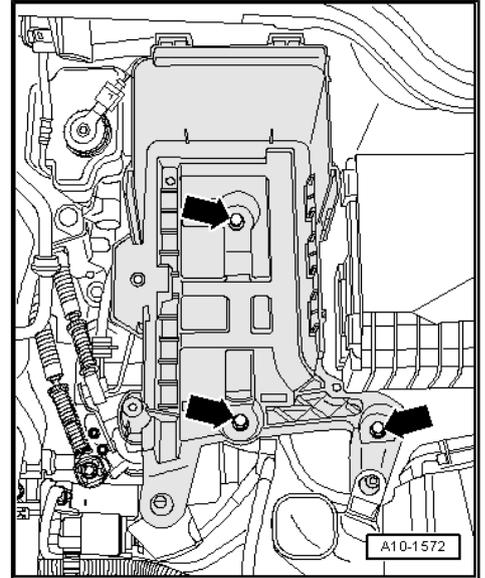
**Continuation for all vehicles**

- Remove complete air filter housing ⇒ Rep. gr. 24 ; Removing and installing air filter .

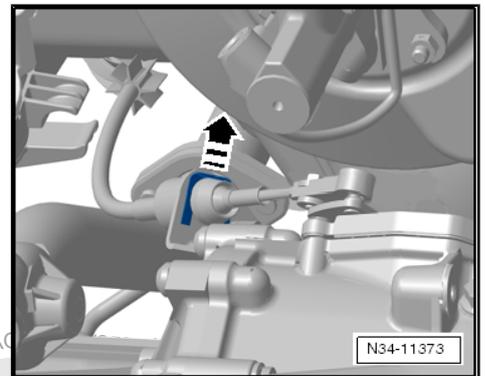




- Remove battery and battery tray ⇒ Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove starter ⇒ Rep. gr. 27 ; Removing and installing starter .



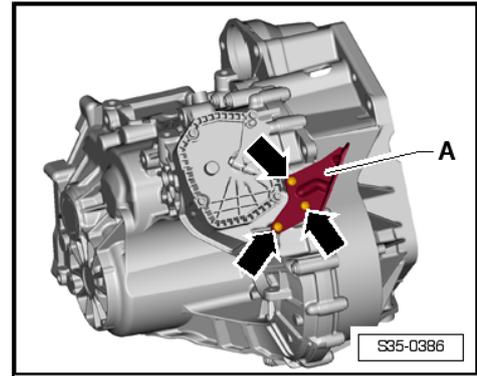
- Remove securing clip in -direction of arrow-.
- Securing clips for selector lever cable must always be renewed.





### Note

- ◆ Use pliers to remove the securing clip on the cable support bracket. Do not use a sharp-edged lever. The selector lever cable could otherwise be damaged.
  - ◆ If necessary, remove the cable support bracket -A- with the selector lever cable from the gearbox. To do so, remove bolts -arrows-. These bolts must be renewed.
  - ◆ Torque setting of bolts -arrows-: 8 Nm + turn 90° further
- Remove cable from ball head e.g. using removal lever -80 - 200- .



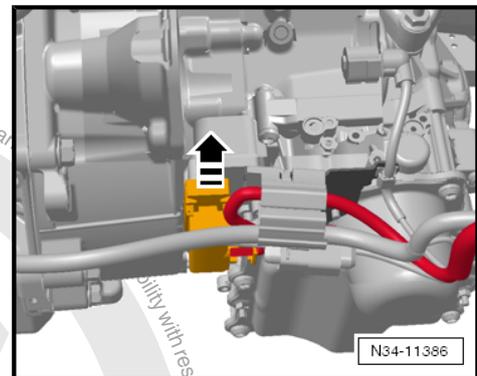
Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.



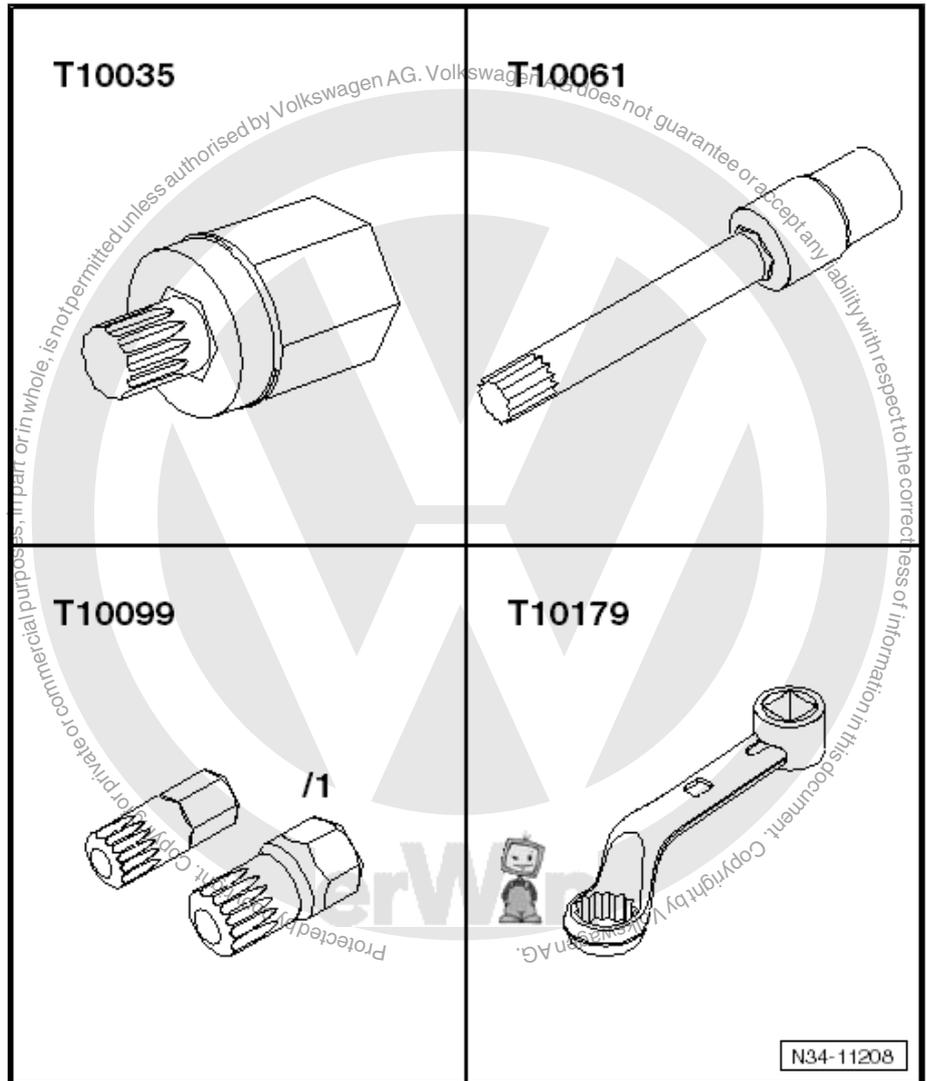
### Caution

**Risk of damaging gearbox components beyond repair.**

- ◆ Do not under any circumstances touch the contacts in the gearbox connector by hand. Static discharge could destroy the control unit and, consequently, the mechatronic unit.
- To become electrostatically discharged, touch an earthed object by hand (without gloves) => [page 10](#) .
- Release mechatronic unit connector by pulling in -direction of arrow- and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.

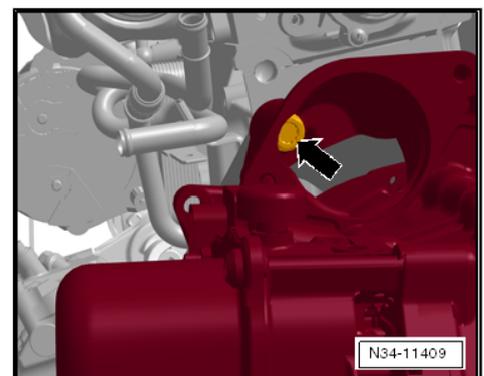


These tools are appropriate for this.



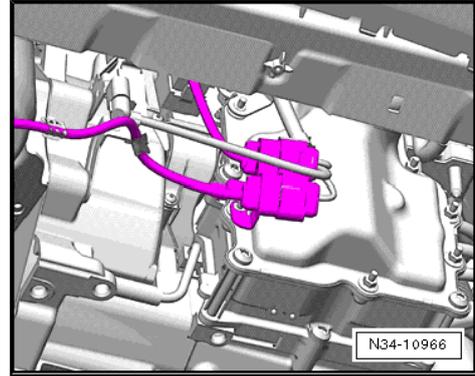
A bolt is located in the starter motor hole. Bit -T10061- can be used instead of an 18 mm socket.

- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front part of wheel housing ⇒ Rep. gr. 66 ; Assembly overview - front wheel housing .





- Remove all retainers and brackets from front of gearbox.

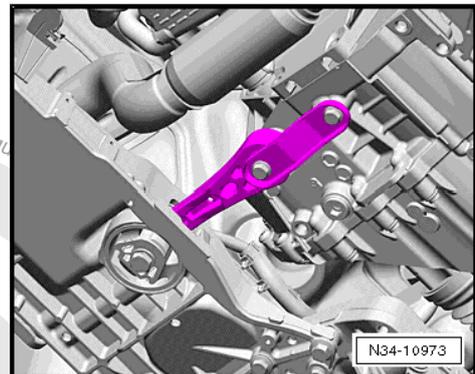


- Remove pendulum support.

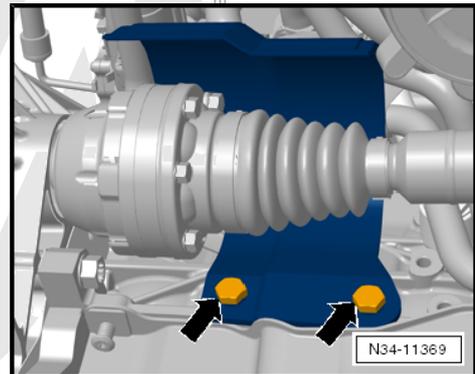
**Only in vehicles with stub shafts**

- Remove both drive shafts ⇒ Rep. gr. 40 ; Removing and installing drive shafts .

**Only in vehicles with flange shafts**



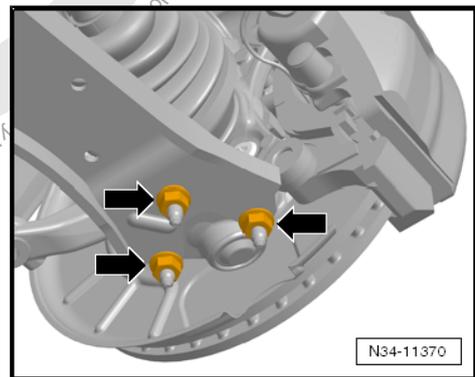
- If present, remove heat shield above right drive shaft; specified torque ⇒ Rep. gr. 40 ; Repairing drive shafts .



- Unbolt only left suspension link from swivel joint -arrows-.

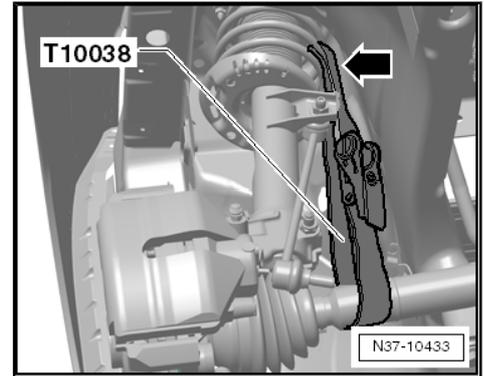
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

The surface protection of the shafts must not be damaged. Plastic cable ties or a pair of tensioning straps -T10038- are therefore very good for this.





Secure both drive shafts to suspension struts using tensioning straps -T10038- .



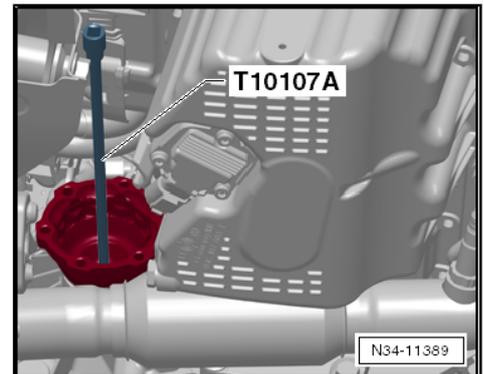
- Remove right flange shaft of gearbox.

Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

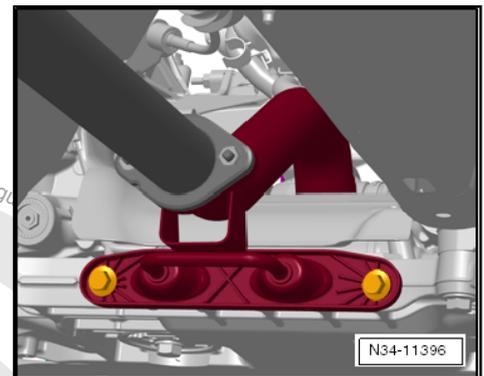
**Torque setting: 30 Nm**

- Close opening in flange shaft using a suitable plug.

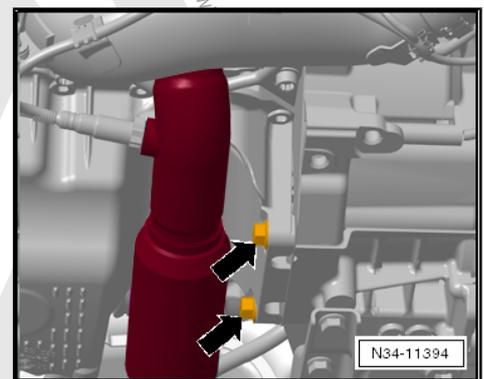
**Continuation for all vehicles**



- Unbolt exhaust system bracket from subframe.

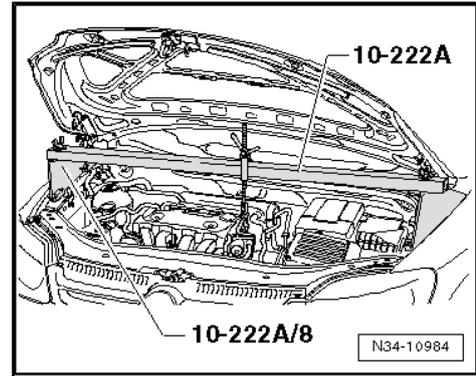


- Remove front exhaust pipe so that lower bolts can be removed -arrows-.
- Remove engine cover from cylinder head.
- If there are hose and cable connections in area of engine support eye for support bracket -10-222 A- , remove these now.





- Support engine and gearbox with support bracket -10-222 A- but do not raise.

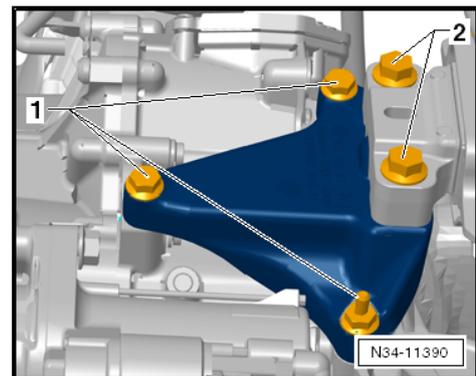


Remove all bolts -1- and -2- for bracket.

- Then lower engine and gearbox slightly using spindles of support bracket -10-222 A- so that bracket can be removed.

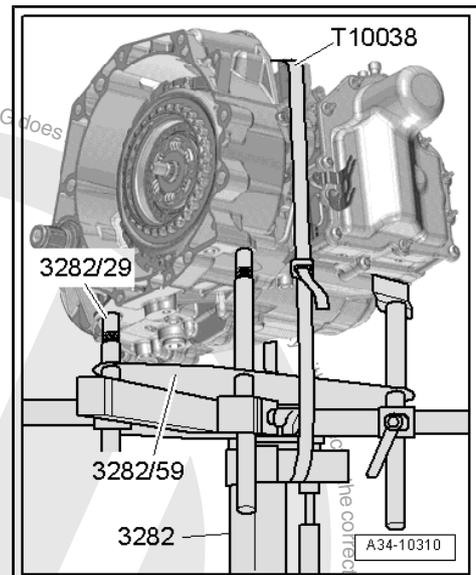
At most, 5 turns are sufficient to remove bracket.

In many cases, the spindle does not need to be lowered further for the later removal of the gearbox.



To remove gearbox 0AM, set up gearbox support -3282- with adjustment plate -3282/59- and push onto engine and gearbox support -V.A.G 1383 A-.

- Align arms of gearbox support according to holes in adjustment plate -3282/59-.
- Screw in support elements as illustrated on adjustment plate -3282/59-.
- Position engine and gearbox jack -V.A.G 1383 A- under vehicle.
- Arrow on adjustment plate -3282/59- points in direction of travel.
- Align gearbox support -3282- parallel to gearbox.
- Screw pin -3282/29- into »rear« hole for pendulum support.

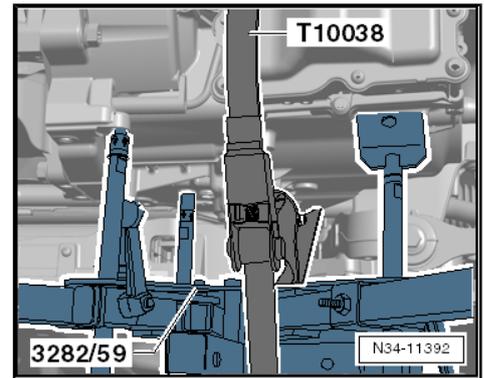




- Place both remaining attachments onto gearbox as shown. When doing this, place sheet metal of drift under gearbox housing and not under mechatronic unit.
- Secure gearbox with tensioning strap -T10038- .
- Raise gearbox and engine support -V.A.G 1383 A- from below to support gearbox.

The gearbox is separated from the engine in this position.

- Remove remaining engine/gearbox connecting bolts.
- Press gearbox off engine, »observing selector lever cable« and lower gearbox.



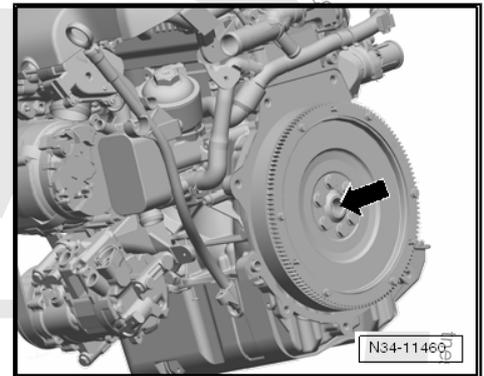
**i Note**

- ◆ *Distance between engine flange and gearbox flange should be about 50 mm before gearbox is lowered.*
- ◆ *Be careful of all lines and coolant hoses when lowering gearbox.*
- Renew needle bearing in crankshaft »arrow- => Rep. gr. 13 ; Crankshaft, pulling needle bearing from crankshaft and driving in .

**Transporting gearbox and securing to assembly stand**  
=> [page 165](#) .

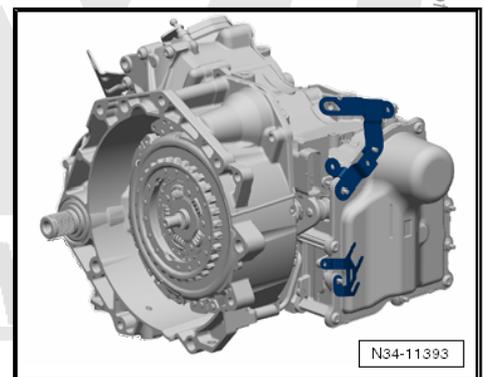
**Installing gearbox => [page 145](#) .**

**If gearbox is to be sent:**



In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.
- Install right flange shaft of gearbox with flange shafts  
=> [page 172](#) .

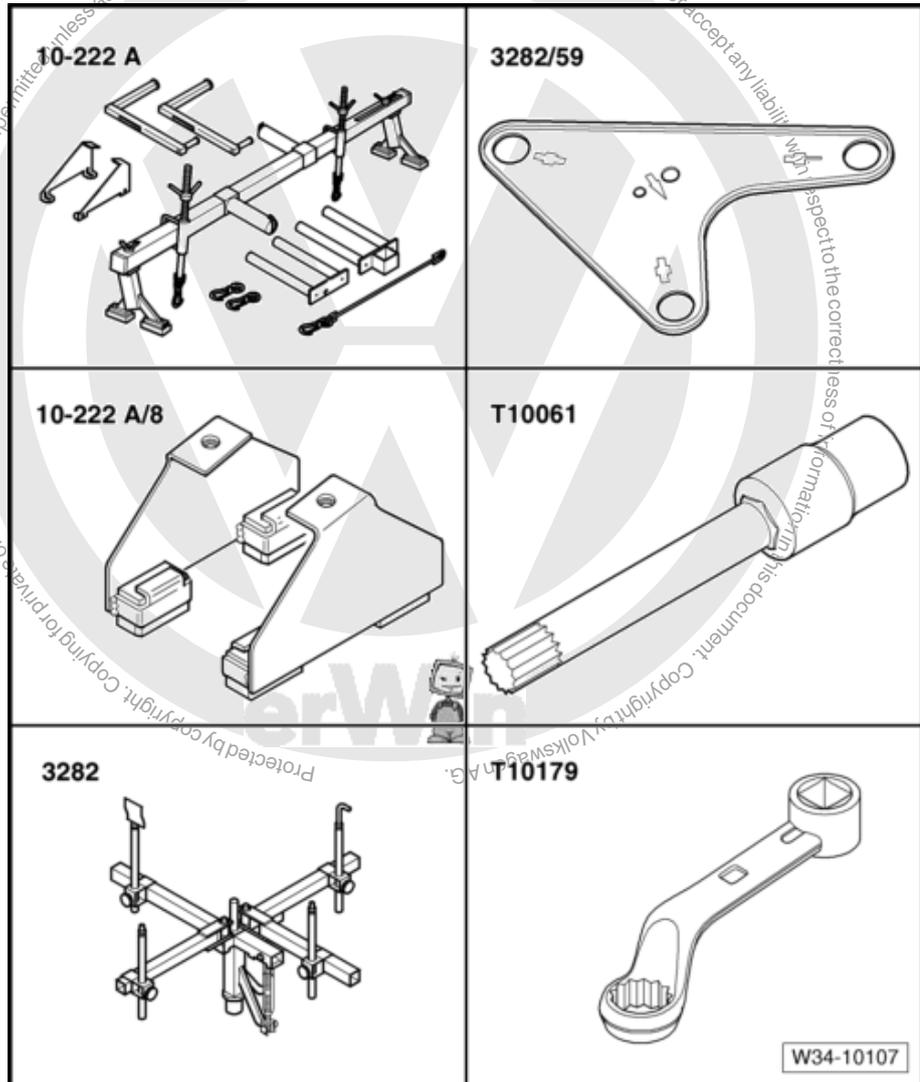




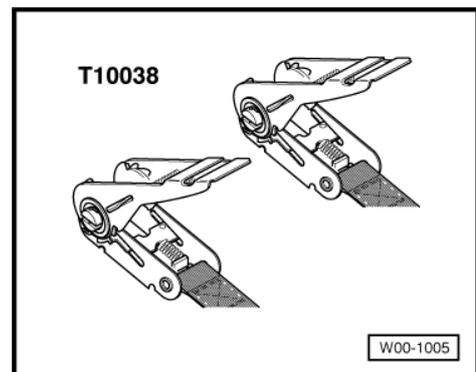
### 4.3 Removing gearbox, vehicles with 1.6 l/75 kW MPI engine

#### Special tools and workshop equipment required

- ◆ Support bracket -10 - 222 A-
- ◆ Adapter -10 - 222 A /3-
- ◆ Adjustment plate -3282/59-
- ◆ Adapter -10 - 222 A /8-
- ◆ Socket -T10061-
- ◆ Gearbox support -3282-
- ◆ Insert tool, 18 mm -T10179-

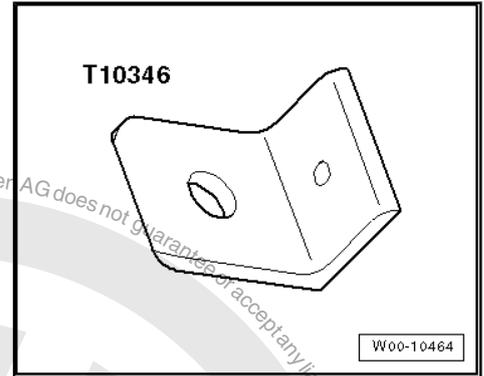


- ◆ Tensioning strap -T10038-

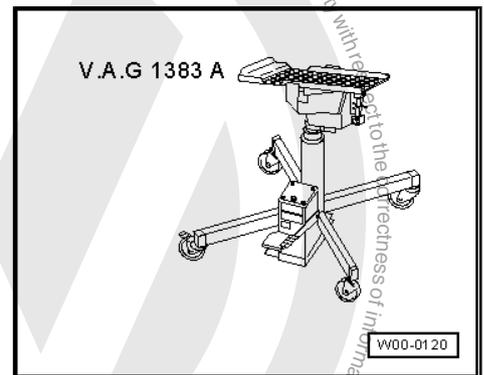




◆ Retainer -T10346-



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



**Brief description**

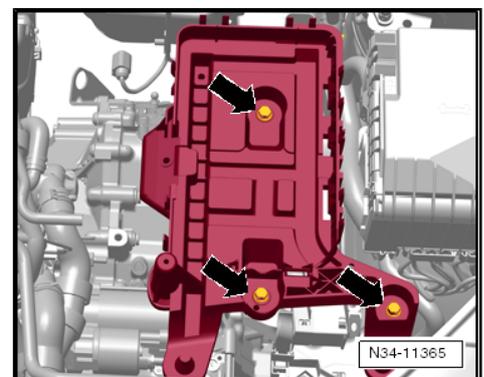
The gearbox is removed downwards separately, without engine.

The battery, air filter and starter are removed »from above«.

Noise insulation beneath engine/gearbox, lower cover in front left wheel housing and pendulum support are removed »from below«.

**Perform the following steps:**

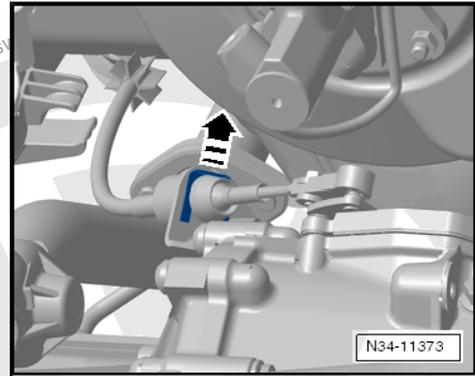
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.
- Remove complete air filter housing ⇒ Rep. gr. 24 ; Removing and installing air filter .
- Remove battery and battery tray ⇒ Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove starter ⇒ Rep. gr. 27 ; Removing and installing starter .





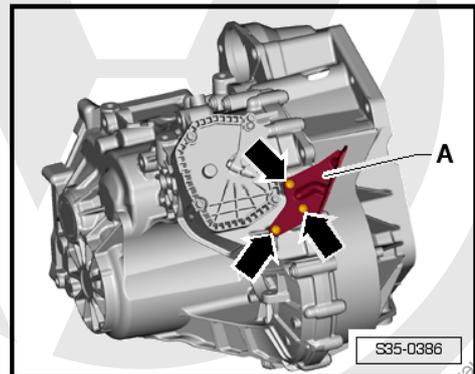
- Remove securing clip in -direction of arrow-.

Securing clips for selector lever cable must always be renewed.



#### Note

- ◆ Use pliers to remove the securing clip on the cable support bracket. Do not use a sharp-edged lever. The selector lever cable could otherwise be damaged.
  - ◆ If necessary, remove the cable support bracket -A- with the selector lever cable from the gearbox. To do so, remove bolts -arrows-. These bolts must be renewed.
  - ◆ Torque setting of bolts -arrows-: 8 Nm + turn 90° further
- Remove cable from ball head e.g. using removal lever -80 - 200- .



Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.

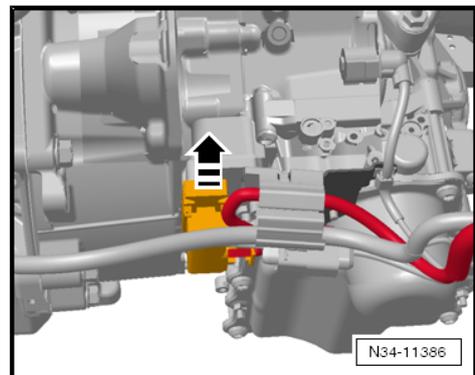


#### Caution

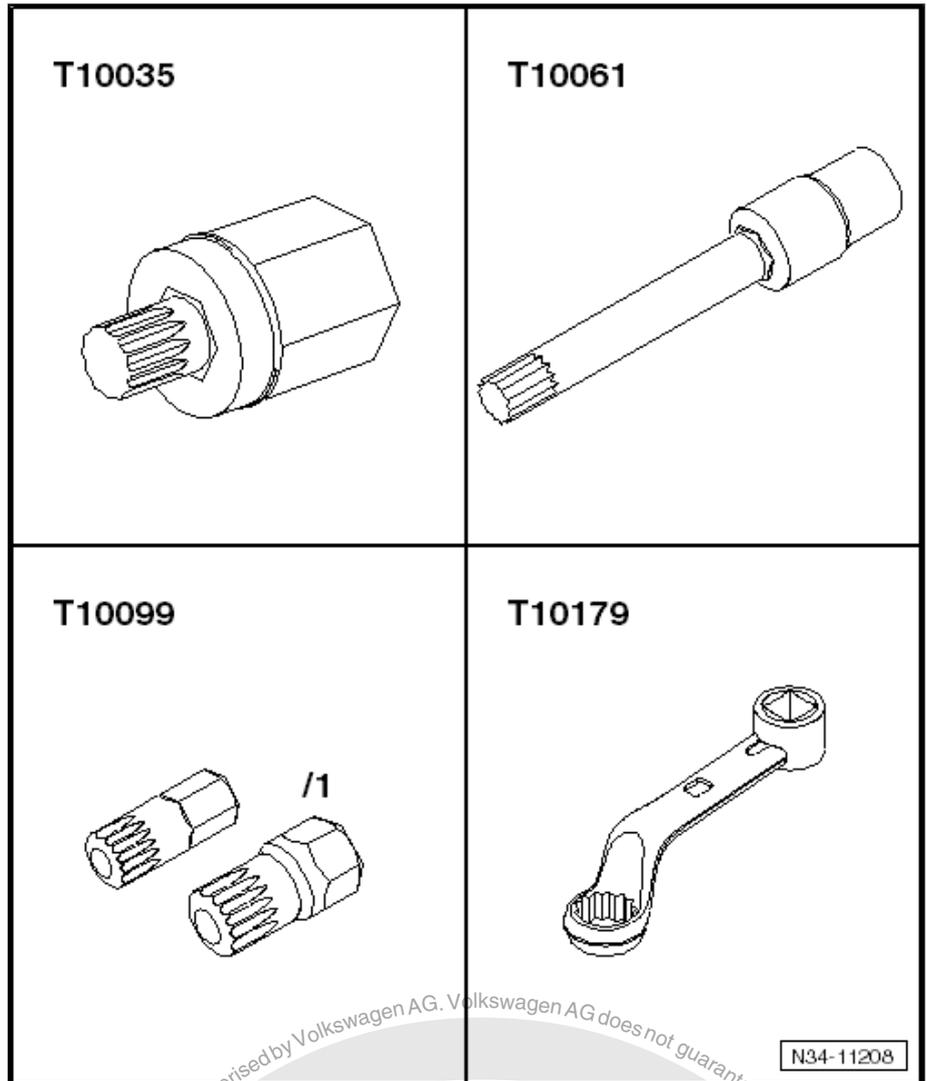
**Risk of damaging gearbox components beyond repair.**

- ◆ Do not under any circumstances touch the contacts in the gearbox connector by hand. Static discharge could destroy the control unit and, consequently, the mechatronic unit.

- To become electrostatically discharged, touch an earthed object by hand (without gloves) ⇒ [page 10](#) .
- Release mechatronic unit connector by pulling in -direction of arrow- and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.

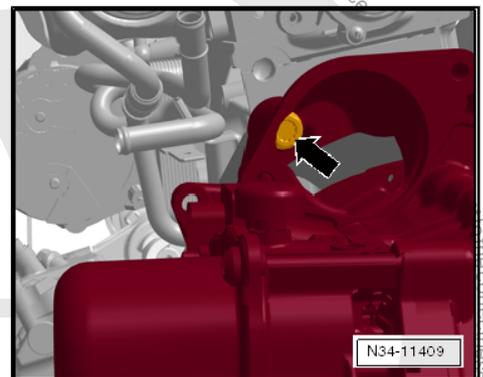


These tools are appropriate for this.



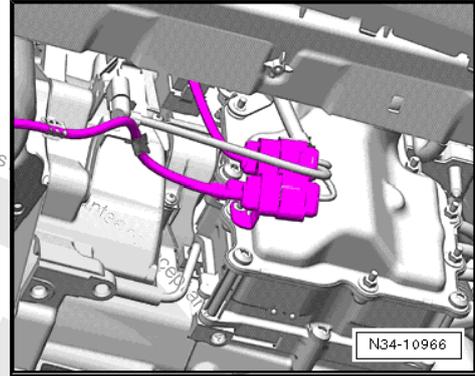
A bolt is located in the starter motor hole. Bit -T10061- can be used instead of an 18 mm socket.

- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front part of wheel housing ⇒ Rep. gr. 66 ; Assembly overview - front wheel housing

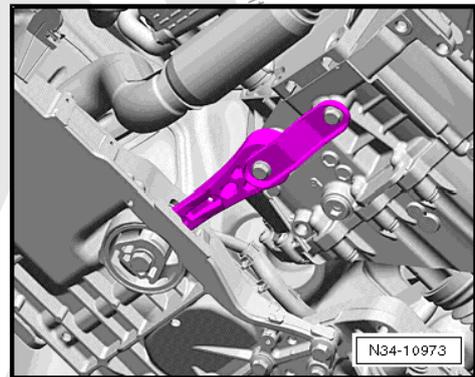




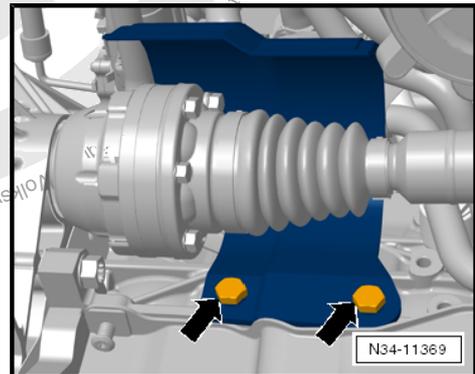
- Remove all retainers and brackets from front of gearbox.



- Remove pendulum support.

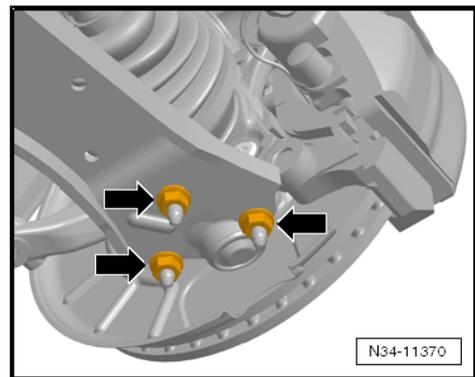


- If present, remove heat shield above right drive shaft; specified torque: => Rep. gr. 40; Repairing drive shafts .
- Disconnect left and right-hand drive shafts from flanges on gearbox.



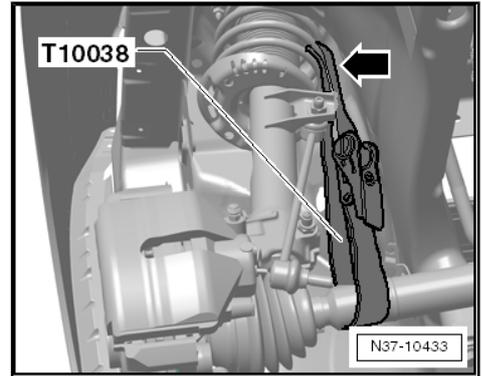
- Unbolt only left suspension link from swivel joint -arrows-.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

The surface protection of the shafts must not be damaged. Plastic cable ties or a pair of tensioning straps -T10038- are therefore very good for this.





Secure both drive shafts to suspension struts using tensioning straps -T10038- .

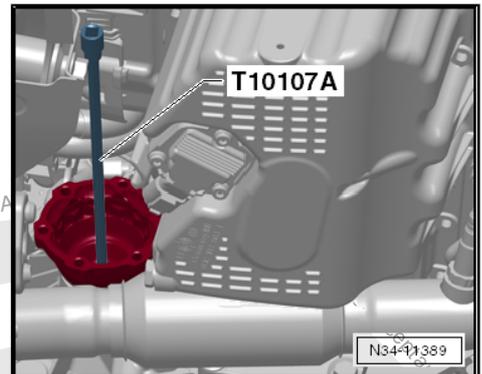


- Remove right flange shaft of gearbox.

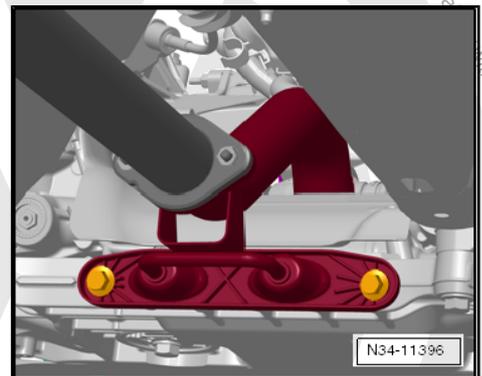
Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

**Torque setting: 30 Nm**

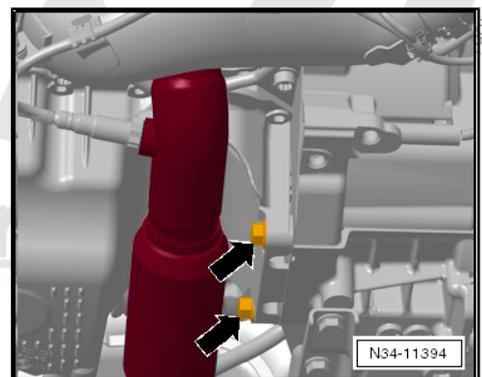
- Close opening in flange shaft using a suitable plug.



- Unbolt exhaust system bracket from subframe.

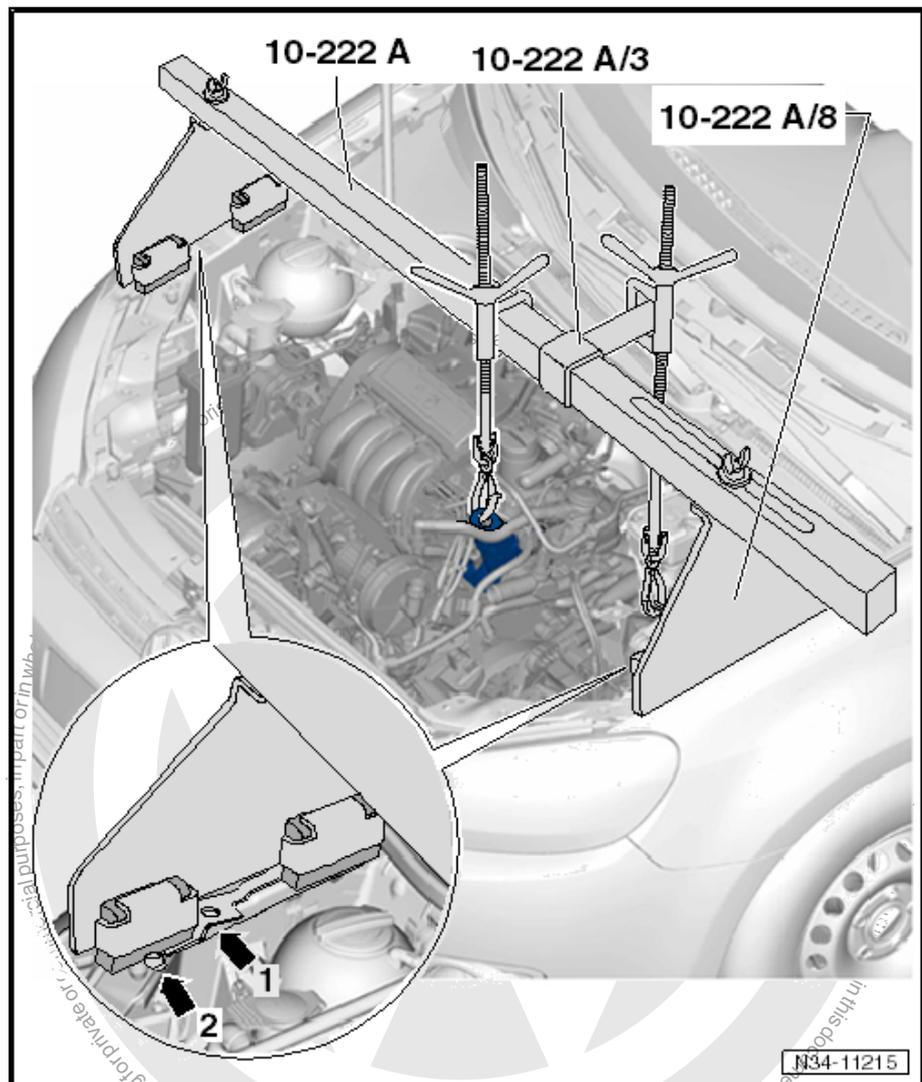
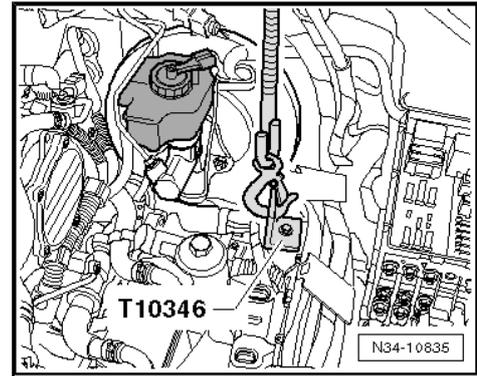


- Remove front exhaust pipe so that lower bolts can be removed -arrows-.
- Remove engine cover from cylinder head.





- Bolt bracket -T10346- to rear of the 3 mounting holes for battery tray.
- To do this, use a collar bolt M 6 or a securing bolt for battery tray.
- If there are hose and cable connections in area of engine support eye for support bracket -10 - 222 A- , remove these now.



- Set up support bracket -10-222 A- in front of bonnet support.
- Use:
  - ◆ Adapter -10 - 222 A /8-
  - ◆ Adapter -10 - 222 A /3-
- Place adapters -10 - 222 A /8- on upper longitudinal carriers, directly before the raised portion (-arrow 1-) next to bolt (-arrow 2-).

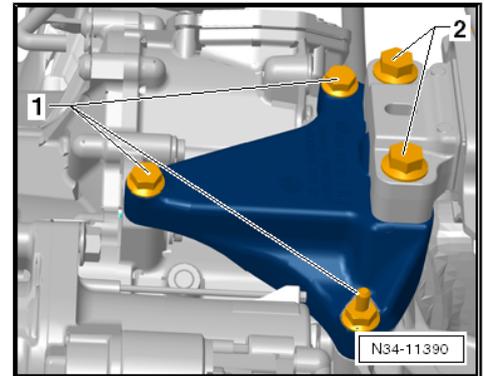


- Connect left support eye on engine to support bracket .
- Connect bracket -T10346- to support bracket (⇒ previous illustration).
- Take up weight of engine/gearbox assembly and support bracket on spindles.

Remove all bolts -1- and -2- for bracket.

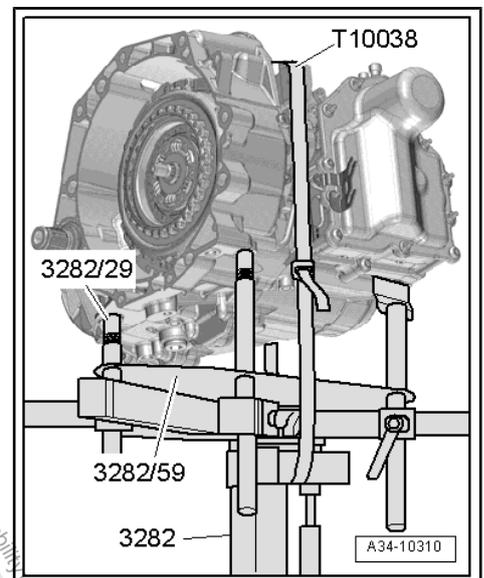
- Then lower engine and gearbox slightly using spindles of support bracket -10 - 222 A- so that bracket can be removed.

At most, 5 turns are sufficient to remove bracket.



To remove gearbox 0AM, set up gearbox support -3282- with adjustment plate -3282/59- and push onto engine and gearbox support -V.A.G 1383 A- .

- Align arms of gearbox support according to holes in adjustment plate -3282/59- .
- Screw in support elements as illustrated on adjustment plate -3282/59- .
- Position engine and gearbox jack -V.A.G 1383 A- under vehicle.
- Arrow on adjustment plate -3282/59- points in direction of travel.
- Align gearbox support -3282- parallel to gearbox.
- Screw pin -3282/29- into »rear« hole for pendulum support.



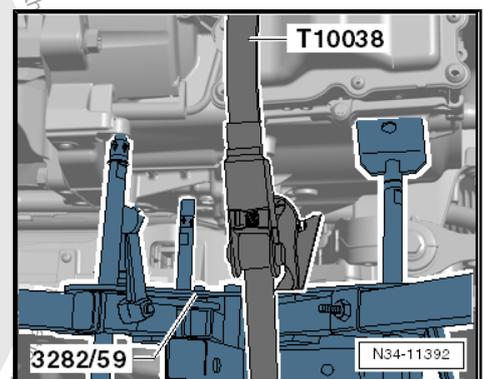
Place both remaining attachments onto gearbox as shown. When doing this, place sheet metal of drift under gearbox housing and not under mechatronic unit.

- Secure gearbox with tensioning strap -T10038- .
- Raise gearbox and engine support -V.A.G 1383 A- from below to support gearbox.

The gearbox is separated from the engine in this position.

Remove remaining engine/gearbox connecting bolts.

- Press gearbox off engine, »observing selector lever cable« and lower gearbox.



**i Note**

- ◆ Distance between engine flange and gearbox flange should be about 50 mm before gearbox is lowered.
- ◆ Be careful of all lines and coolant hoses when lowering gearbox.



- Renew needle bearing in crankshaft -arrow- ⇒ Rep. gr. 13 ;  
Crankshaft, pulling needle bearing from crankshaft and driving  
in .

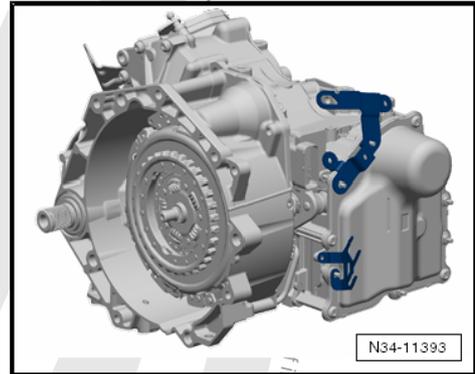
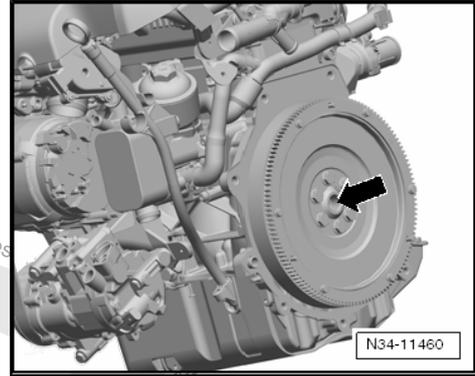
Transporting gearbox and securing to assembly stand  
⇒ [page 165](#) .

Installing gearbox ⇒ [page 145](#) .

If gearbox is to be sent:

In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there  
are no retainers on a »new« gearbox.
- Install right flange shaft ⇒ [page 172](#) .

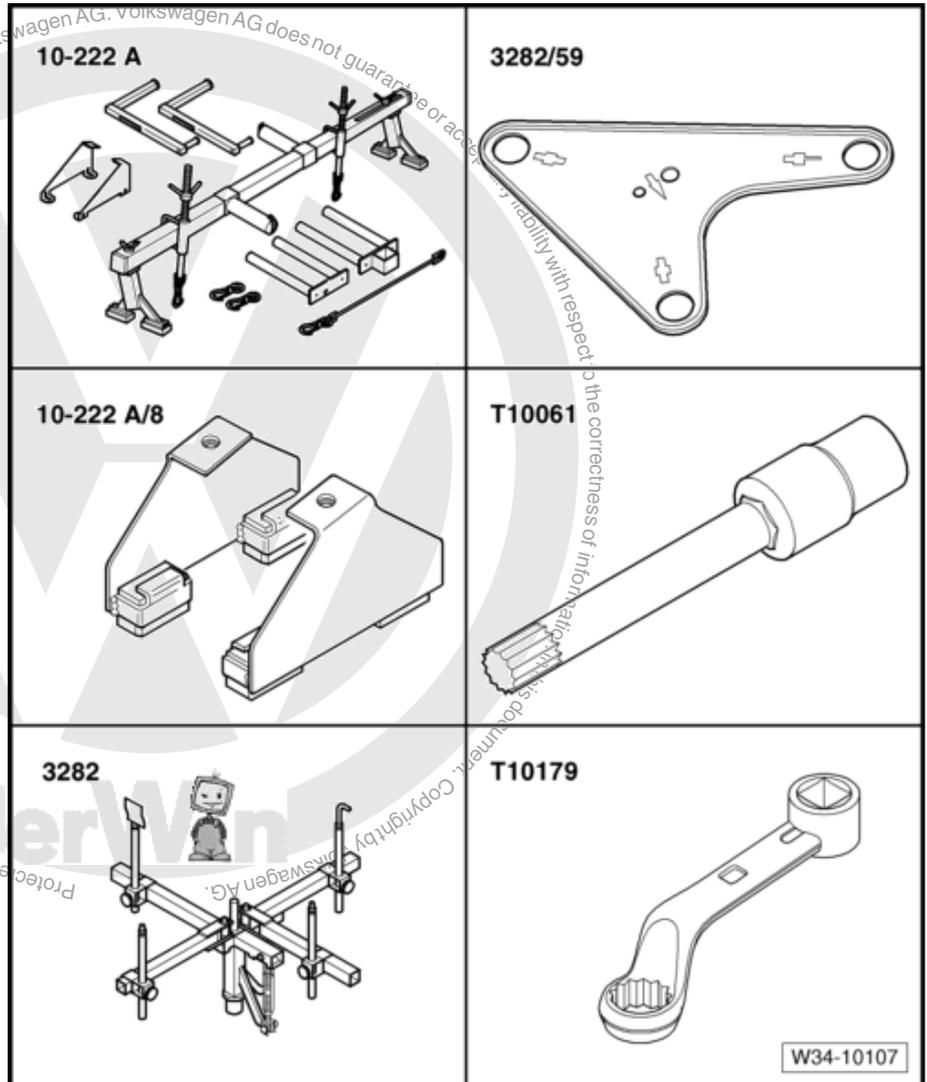




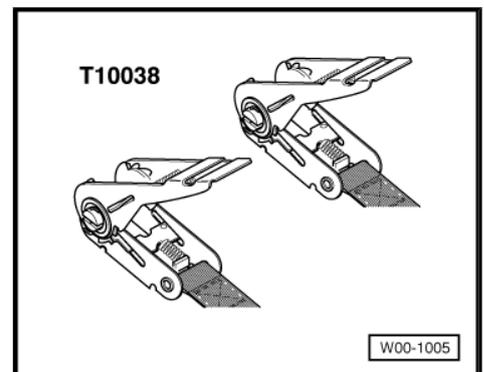
## 4.4 Removing gearbox - vehicles with 1.9 l/77 kW TDI PD engine

### Special tools and workshop equipment required

- ◆ Support bracket -10 - 222 A-
- ◆ Adapter -10 - 222 A /16-
- ◆ Hook -10 - 222 A /2-
- ◆ Shackle -10 - 222 A /12-
- ◆ Adjustment plate -3282/59-
- ◆ Adapter -10 - 222 A /8-
- ◆ Socket -T10061-
- ◆ Gearbox support -3282-
- ◆ Insert tool, 18 mm -T10179-

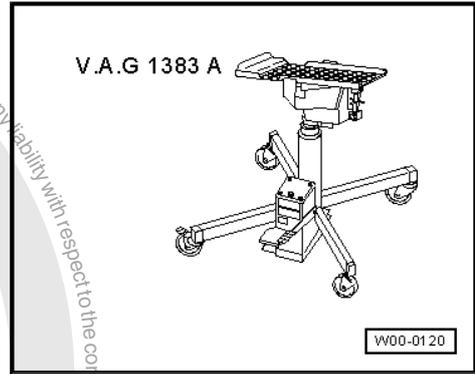


- ◆ Tensioning strap -T10038-





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



**Brief description**

The gearbox is removed downwards separately, without engine.

The battery, air filter and starter are removed »from above«.

Noise insulation beneath engine/gearbox, lower cover in front left wheel housing and pendulum support are removed »from below«.

**Perform the following steps:**

- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.

**Only in vehicles with stub shafts**



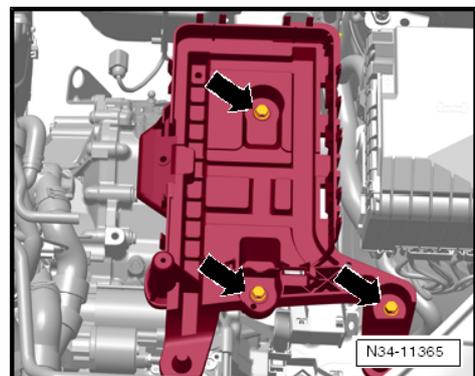
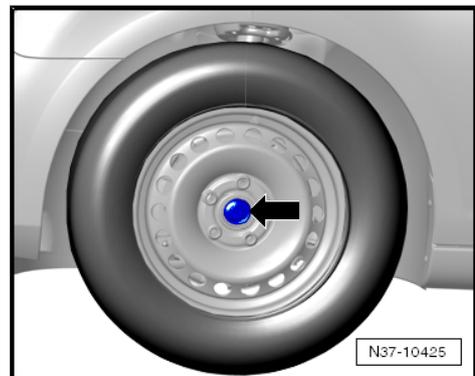
**Note**

*After loosening centre bolt, do not lower vehicle to ground again.*

- Step on the brake pedal while a 2nd mechanic loosens the two drive shaft bolts -arrow-.
- Remove both front wheels.

**Continuation for all vehicles**

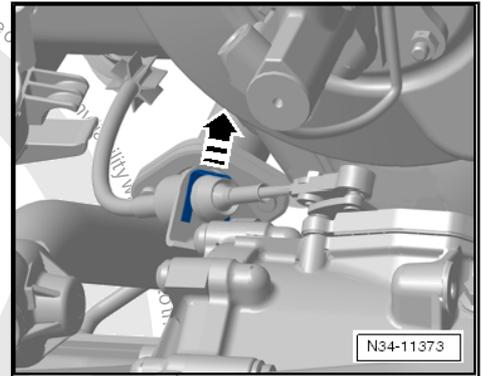
- Remove complete air filter housing ⇒ Rep. gr. 23 ; Removing and installing air filter .
- Remove battery and battery tray ⇒ Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove starter ⇒ Rep. gr. 27 ; Removing and installing starter .





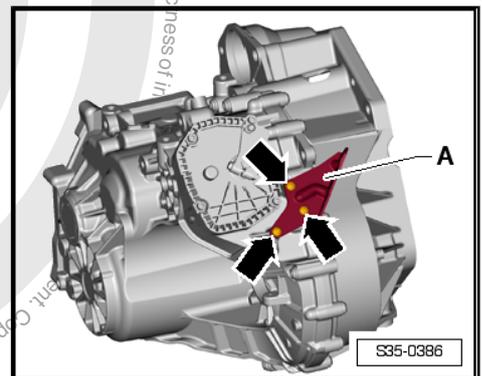
- Remove securing clip in -direction of arrow-.

Securing clips for selector lever cable must always be renewed.



**i Note**

- ◆ Use pliers to remove the securing clip on the cable support bracket. Do not use a sharp-edged lever. The selector lever cable could otherwise be damaged.
- ◆ If necessary, remove the cable support bracket -A- with the selector lever cable from the gearbox. To do so, remove bolts -arrows-. These bolts must be renewed.
- ◆ Torque setting of bolts -arrows-: 8 Nm + turn 90° further
- Remove cable from ball head e.g. using removal lever -80 200- .



Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.

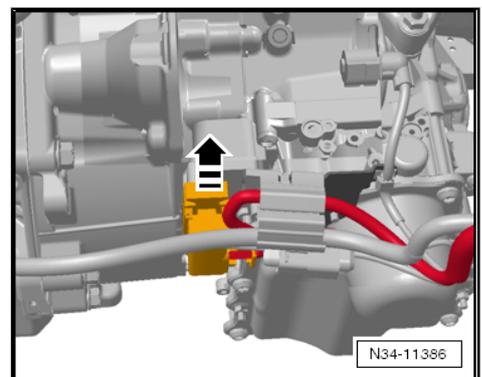


**Caution**

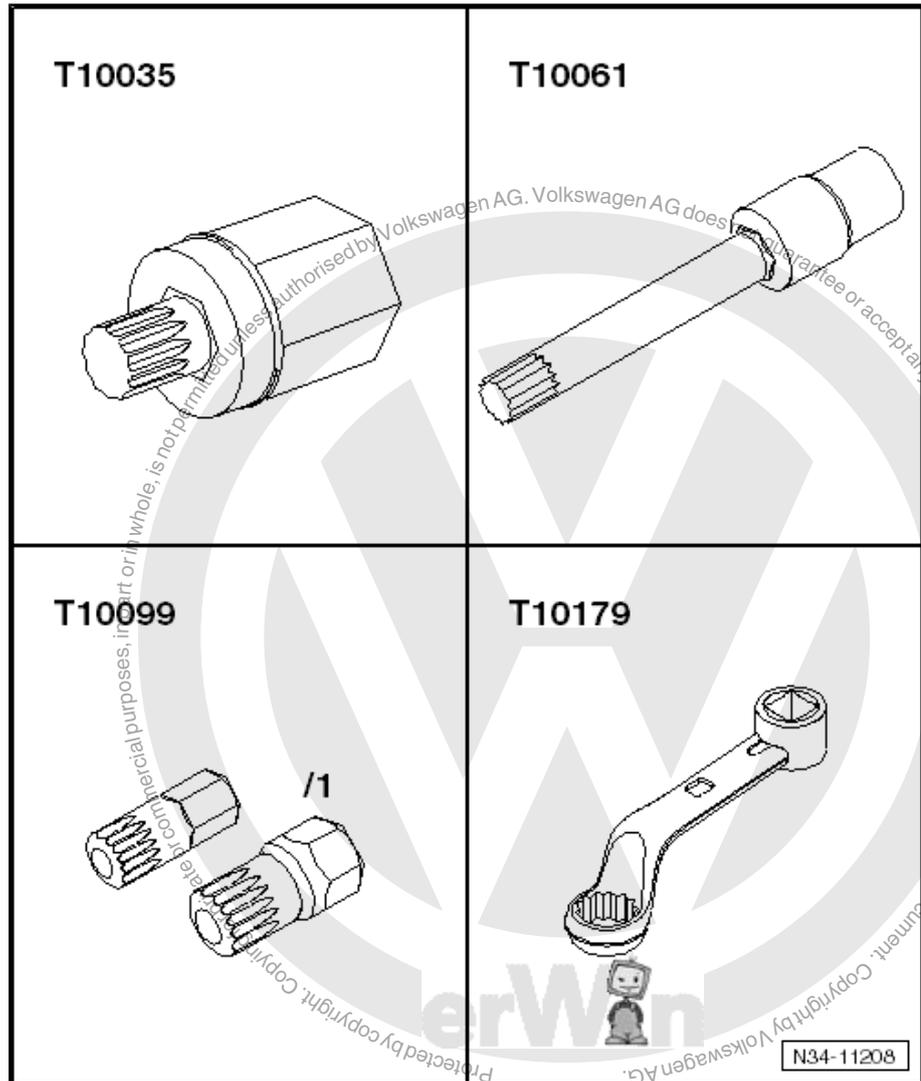
*Risk of damaging gearbox components beyond repair.*

- ◆ Do not under any circumstances touch the contacts in the gearbox connector by hand. Static discharge could destroy the control unit and, consequently, the mechatronic unit.

- To become electrostatically discharged, touch an earthed object by hand (without gloves) ⇒ [page 10](#) .
- Release mechatronic unit connector by pulling in -direction of arrow- and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.



These tools are appropriate for this.



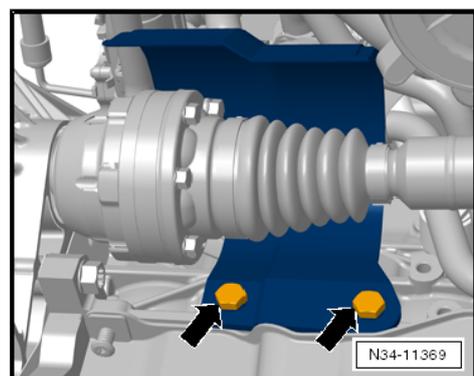
- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front part of wheel housing ⇒ Rep. gr. 66 ; Assembly overview - front wheel housing .

**Only in vehicles with stub shafts**

- Remove both drive shafts ⇒ Rep. gr. 40 ; Removing and installing drive shafts .

**Only in vehicles with flange shafts**

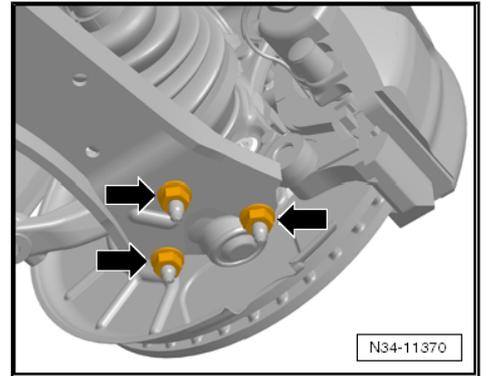
- If present, remove heat shield above right drive shaft; specified torque ⇒ Rep. gr. 40 ; Repairing drive shafts .



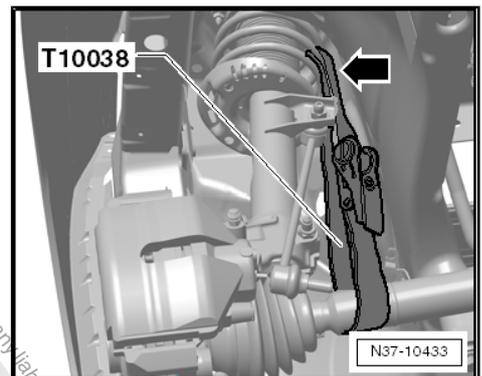


- Unscrew left suspension link from swivel joint.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

The surface protection of the shafts must not be damaged. Plastic cable ties or a pair of tensioning straps -T10038- are therefore very good for this.



Secure both drive shafts to suspension struts using tensioning straps -T10038- .



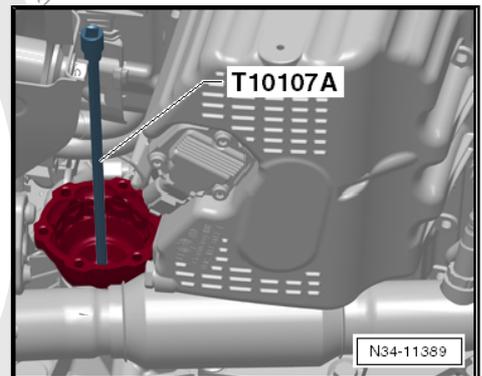
- Remove right flange shaft of gearbox.

Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

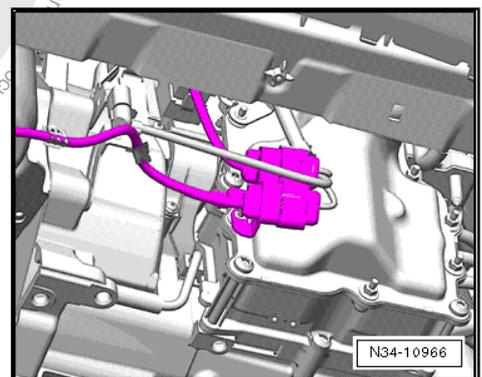
**Torque setting: 30 Nm**

- Close opening in flange shaft using a suitable plug.

**Continuation for all vehicles**

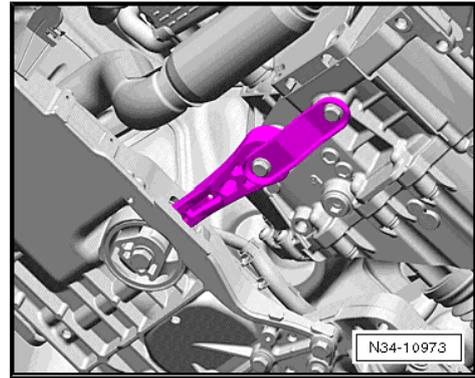


- Remove all retainers and brackets from front of gearbox.

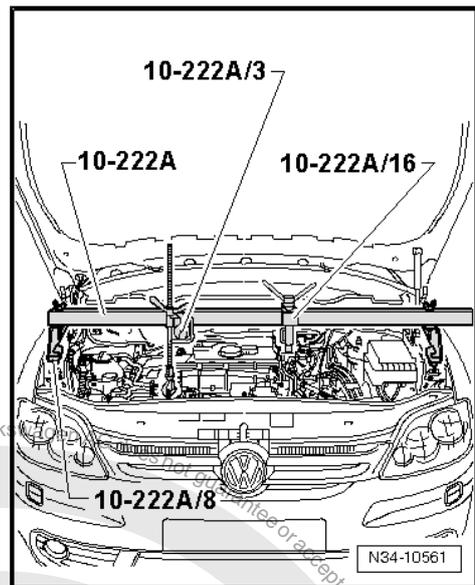




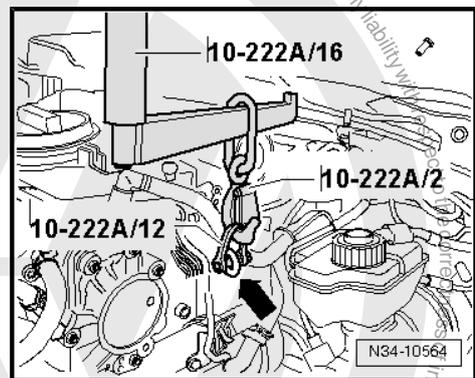
- Remove pendulum support.
- Remove engine cover from cylinder head.
- If there are hose and cable connections in area of engine support eye for support bracket -10 - 222 A- , remove these now.
- Remove filler pieces from upper edges of both wings.



- Support engine and gearbox with support bracket -10-222 A- but do not raise.



Secure adapter -10 - 222 A /16- , hook -10 - 222 A /2- and shackle -10 - 222 A /12- .

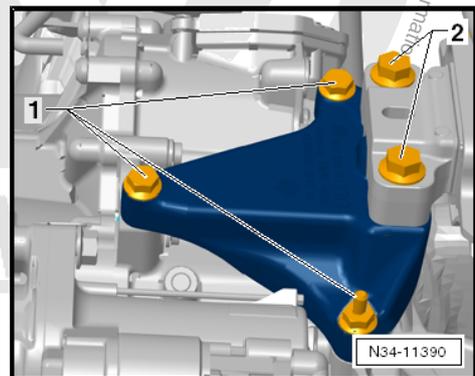


Remove all bolts -1- and -2- for bracket.

- Then lower engine and gearbox slightly using spindles of support bracket -10 - 222 A- or adapter -10 - 222 A /16- so that bracket can be removed.

At most, 5 turns are sufficient to remove bracket.

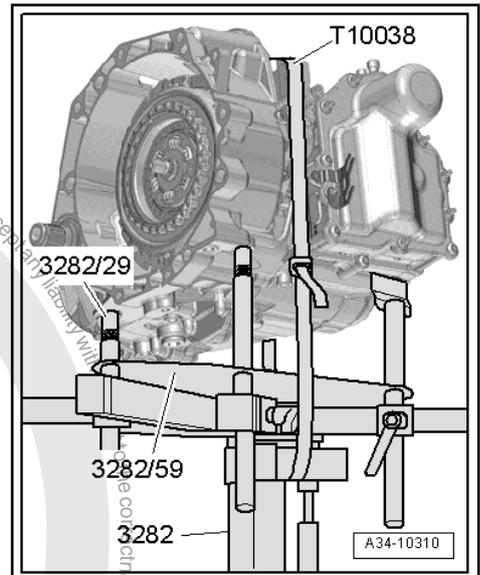
In many cases, the spindle does not need to be lowered further for the later removal of the gearbox.





To remove gearbox 0AM, set up gearbox support -3282- with adjustment plate -3282/59- and push onto engine and gearbox support -V.A.G 1383 A- .

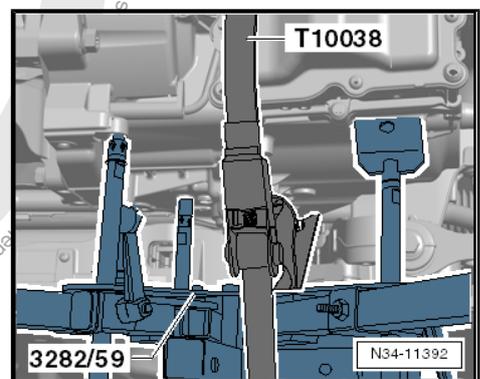
- Align arms of gearbox support according to holes in adjustment plate -3282/59-
- Screw in support elements as illustrated on adjustment plate -3282/59-
- Position engine and gearbox jack -V.A.G 1383 A- under vehicle.
- Arrow on adjustment plate -3282/59- points in direction of travel.
- Align gearbox support -3282- parallel to gearbox.
- Screw pin -3282/29- into »rear« hole for pendulum support.



- Place both remaining attachments onto gearbox as shown. When doing this, place sheet metal of drift under gearbox housing and not under mechatronic unit.
- Secure gearbox with tensioning strap -T10038- .
- Raise gearbox and engine support -V.A.G 1383 A- from below to support gearbox.

The gearbox is separated from the engine in this position.

- Remove remaining engine/gearbox connecting bolts.
- Press gearbox off engine, »observing selector lever cable« and lower gearbox.



**Note**

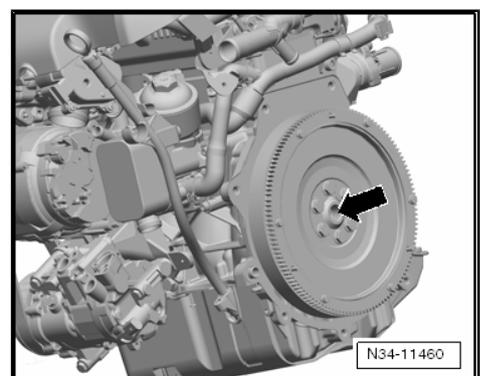
- ◆ *Distance between engine flange and gearbox flange should be about 50 mm before gearbox is lowered.*
- ◆ *Be careful of all lines and coolant hoses when lowering gearbox.*

- Renew needle bearing in crankshaft -arrow- ⇒ Rep. gr. 13 ; Crankshaft, pulling needle bearing from crankshaft and driving in .

Transporting gearbox and securing to assembly stand  
⇒ [page 165](#) .

Installing gearbox ⇒ [page 145](#) .

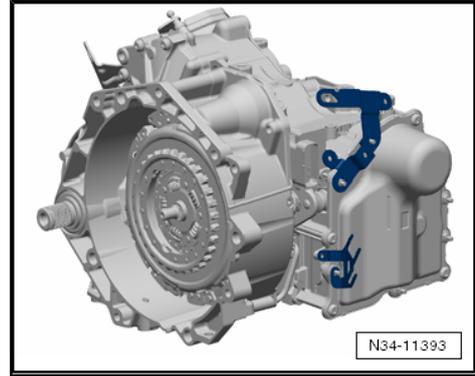
If gearbox is to be sent:





In some cases, there are retainers on the front of the gearbox.

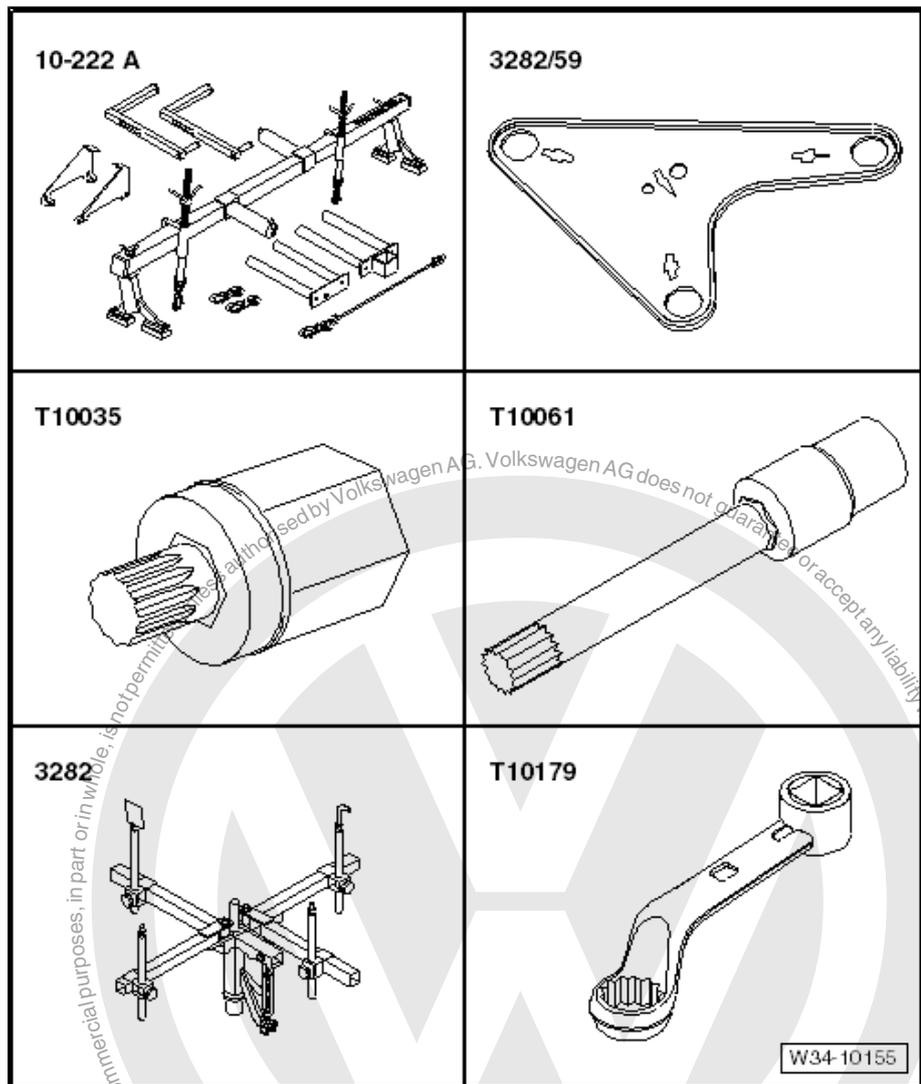
- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.
- Install right flange shaft of gearbox with flange shafts  
=> [page 172](#) .



#### 4.5 Removing gearbox - vehicles with 1.6 l/77 kW TDI CR engine

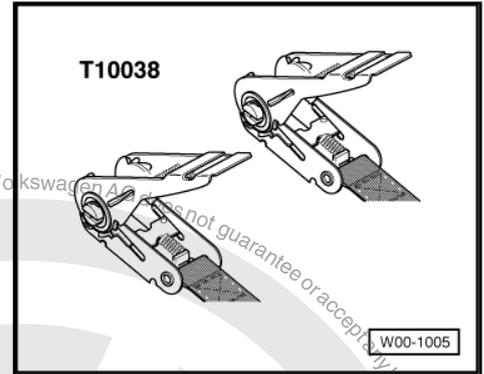
##### Special tools and workshop equipment required

- ◆ Support bracket -10 - 222 A-
- ◆ Adapter -10 - 222 A /3-
- ◆ Adapter -10 - 222 A /18-
- ◆ Adjustment plate -3282/59-
- ◆ Socket -T10035-
- ◆ Socket -T10061-
- ◆ Gearbox support -3282-
- ◆ Insert tool, 18 mm -T10179-

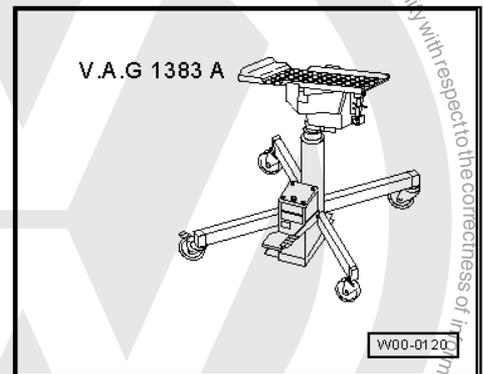




◆ Tensioning strap -T10038-



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



**Brief description**

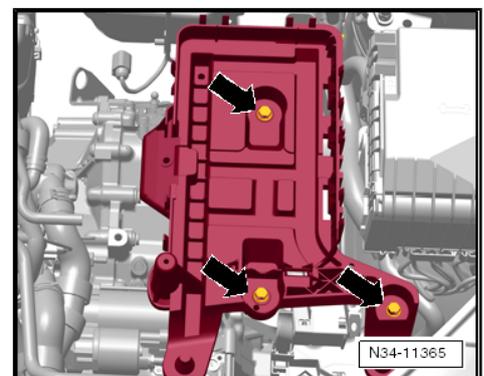
The gearbox is removed downwards separately, without engine.

The battery, air filter and starter are removed »from above«.

Noise insulation beneath engine/gearbox, lower cover in front left wheel housing and pendulum support are removed »from below«.

**Perform the following steps:**

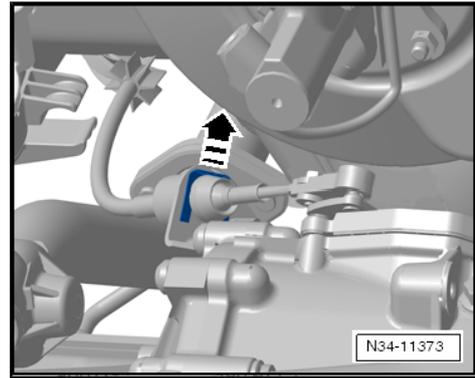
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P« position.
- Remove engine cover from cylinder head.
- Remove complete air filter housing ⇒ Rep. gr. 23 ; Removing and installing air filter .
- Remove battery and battery tray ⇒ Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove starter ⇒ Rep. gr. 27 ; Removing and installing starter .





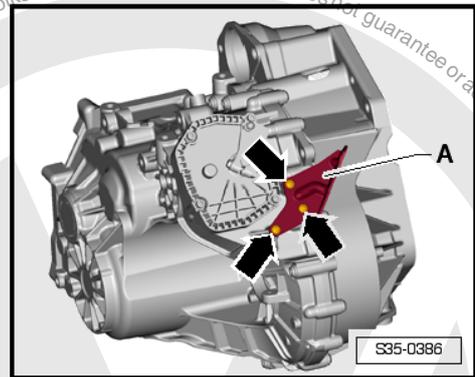
- Remove securing clip in -direction of arrow-.

Securing clips for selector lever cable must always be renewed.



### Note

- ◆ Use pliers to remove the securing clip on the cable support bracket. Do not use a sharp-edged lever. The selector lever cable could otherwise be damaged.
  - ◆ If necessary, remove the cable support bracket -A- with the selector lever cable from the gearbox. To do so, remove bolts -arrows-. These bolts must be renewed.
  - ◆ Torque setting of bolts -arrows-: 8 Nm + turn 90° further
- Remove cable from ball head e.g. using removal lever -80 - 200- .



Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.

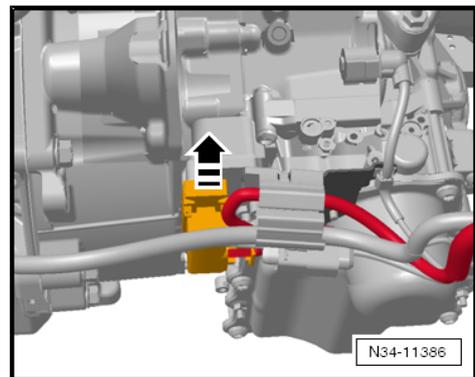


### Caution

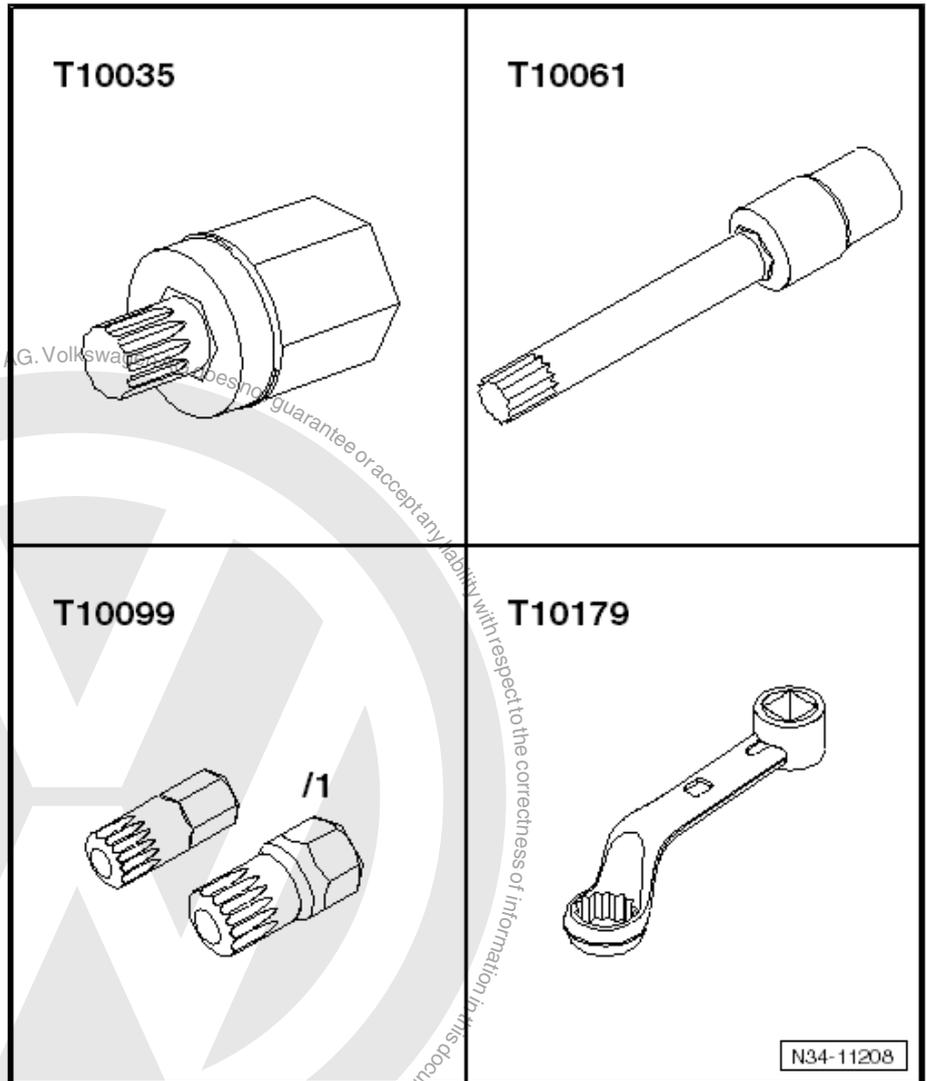
**Risk of damaging gearbox components beyond repair.**

- ◆ Do not under any circumstances touch the contacts in the gearbox connector by hand. Static discharge could destroy the control unit and, consequently, the mechatronic unit.

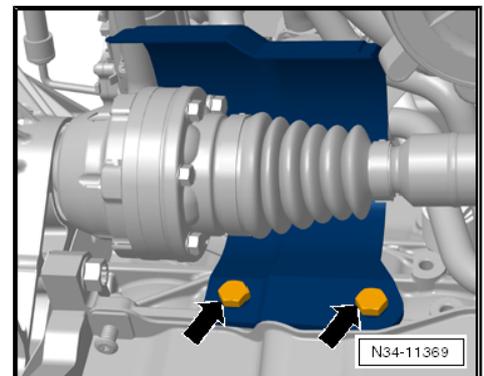
- To become electrostatically discharged, touch an earthed object by hand (without gloves) ⇒ [page 10](#) .
- Release mechatronic unit connector by pulling in -direction of arrow- and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.



These tools are appropriate for this.



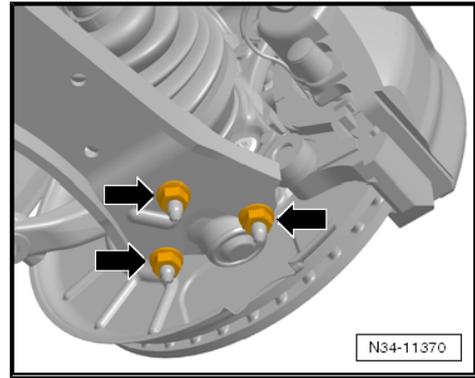
- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation
- Remove front part of wheel housing ⇒ Rep. gr. 66 ; Assembly overview - front wheel housing .
- If present, remove heat shield above right drive shaft; specified torque: ⇒ Rep. gr. 40 ; Repairing drive shafts .



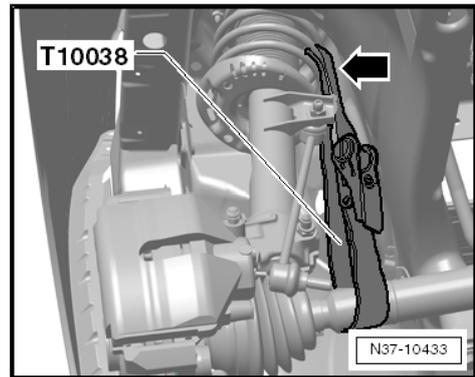


- Unscrew left suspension link from swivel joint.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

The surface protection of the shafts must not be damaged. Plastic cable ties or a pair of tensioning straps -T10038- are therefore very good for this.



Secure both drive shafts to suspension struts using tensioning straps -T10038- .

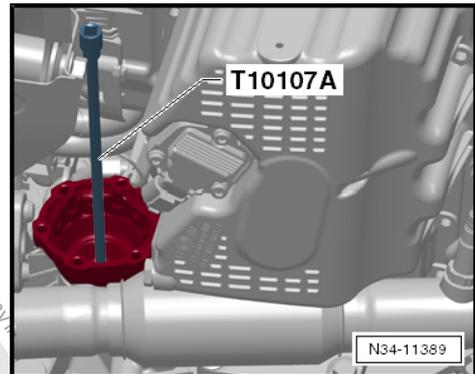


- Remove right flange shaft of gearbox.

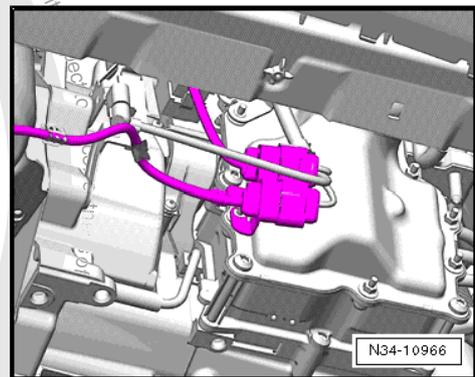
Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

**Torque setting: 30 Nm**

- Close opening in flange shaft using a suitable plug.

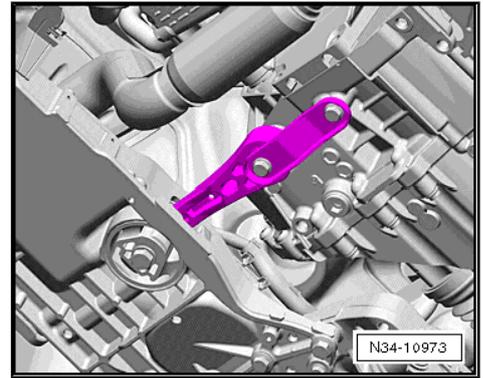


- Remove all retainers and brackets from front of gearbox.

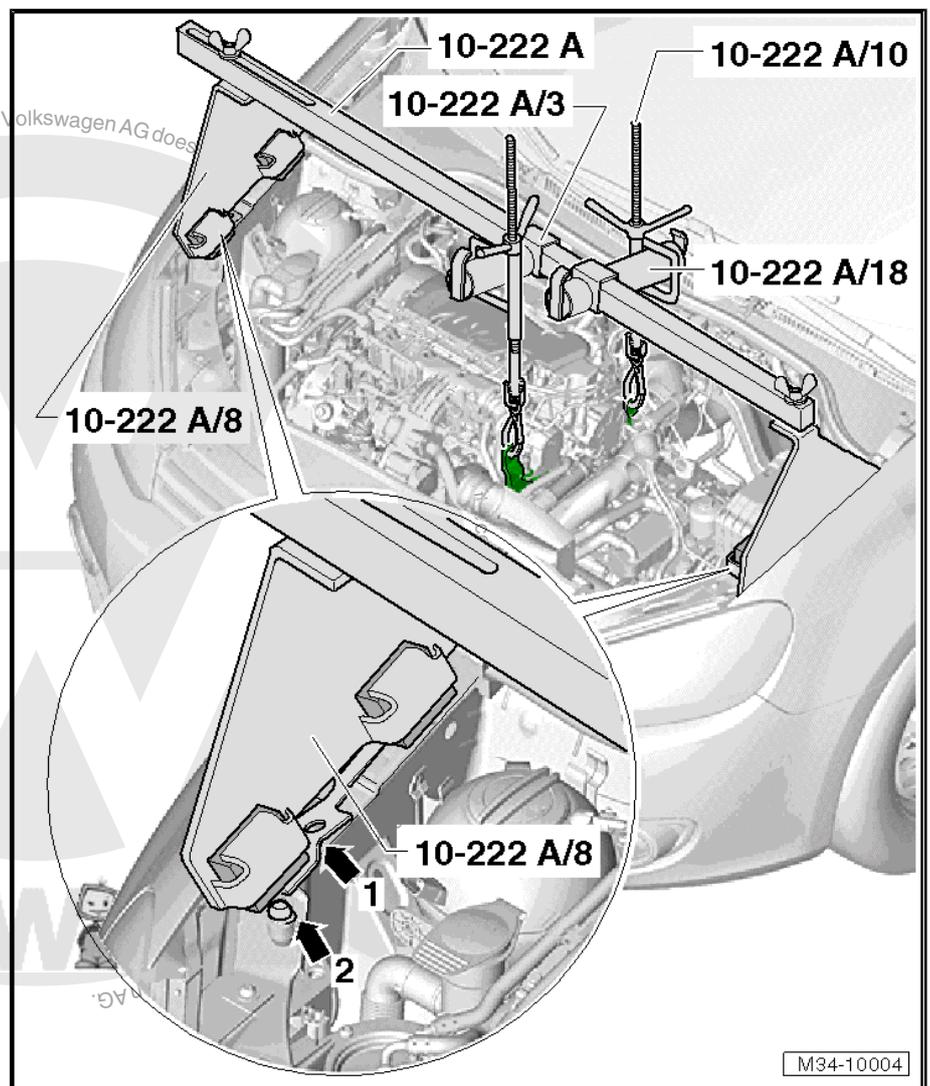




- Remove pendulum support.
- If there are hose and cable connections in area of engine support eye for support bracket -10-222 A-, remove these now.
- Remove filler pieces from upper edges of both wings.



- Support engine and gearbox with support bracket -10-222 A- but do not raise.



- Place adapters -10 - 222 A /8- on upper longitudinal carriers, directly before the raised portion (-arrow 1-) next to bolt (-arrow 2-).

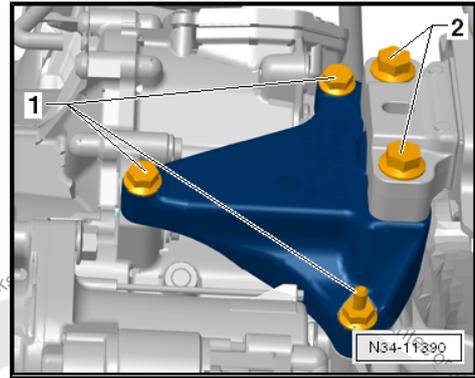


Remove all bolts -1- and -2- for bracket.

- Then lower engine and gearbox slightly using spindles of support bracket -10 - 222 A- so that bracket can be removed.

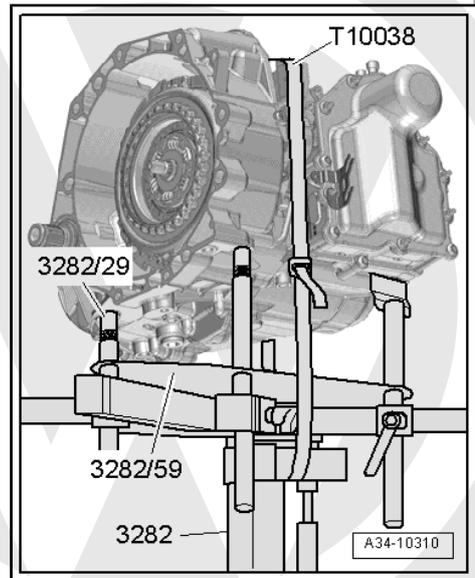
At most, 5 turns are sufficient to remove bracket.

In many cases, the spindle does not need to be lowered further for the later removal of the gearbox.



To remove gearbox 0AM, set up gearbox support -3282- with adjustment plate -3282/59- and push onto engine and gearbox support -V.A.G 1383 A- .

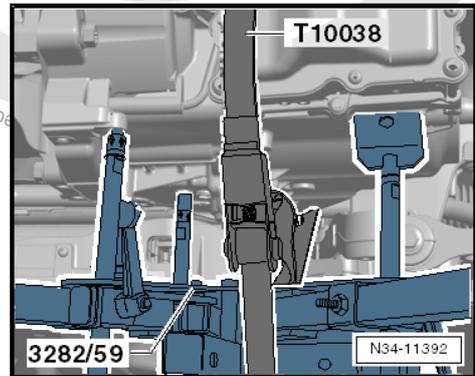
- Align arms of gearbox support according to holes in adjustment plate -3282/59- .
- Screw in support elements as illustrated on adjustment plate -3282/59- .
- Position engine and gearbox jack -V.A.G 1383 A- under vehicle.
- Arrow on adjustment plate -3282/59- points in direction of travel.
- Align gearbox support -3282- parallel to gearbox.
- Screw pin -3282/29- into »rear« hole for pendulum support.



- Place both remaining attachments onto gearbox as shown. When doing this, place sheet metal of drift under gearbox housing and not under mechatronic unit.
- Secure gearbox with tensioning strap -T10038- .
- Raise gearbox and engine support -V.A.G 1383 A- from below to support gearbox.

The gearbox is separated from the engine in this position.

- Remove remaining engine/gearbox connecting bolts.
- Press gearbox off engine, »observing selector lever cable« and lower gearbox.



**i Note**

- ◆ Distance between engine flange and gearbox flange should be about 50 mm before gearbox is lowered.
- ◆ Be careful of all lines and coolant hoses when lowering gearbox.

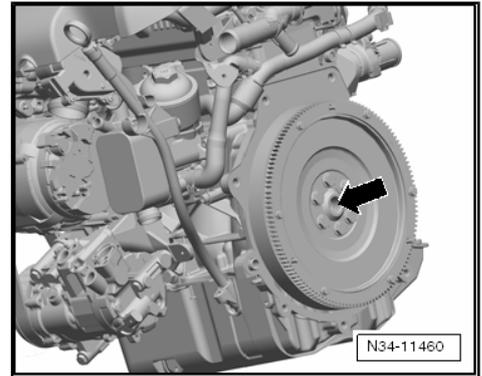


- Renew needle bearing in crankshaft -arrow- ⇒ Rep. gr. 13 ; Crankshaft, pulling needle bearing from crankshaft and driving in .

Transporting gearbox and securing to assembly stand  
⇒ [page 165](#) .

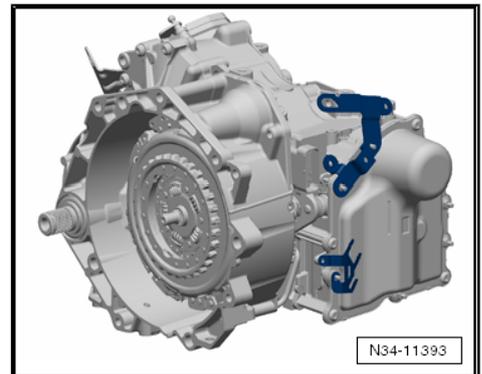
Installing gearbox ⇒ [page 145](#) .

If gearbox is to be sent:



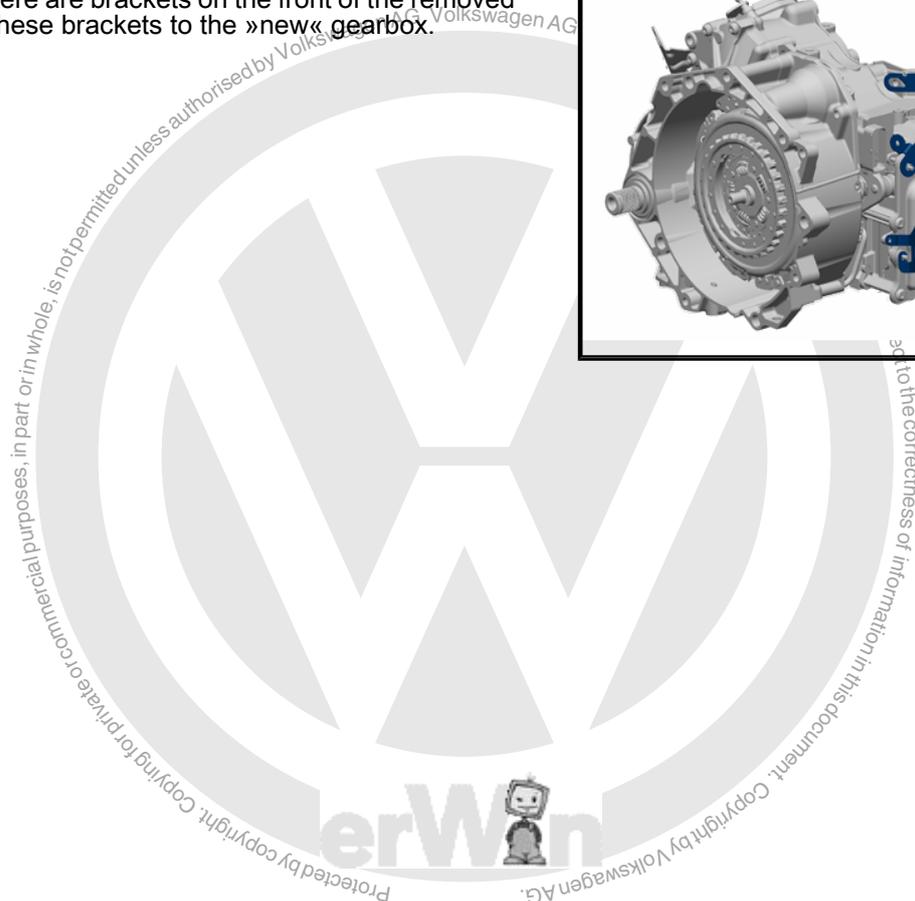
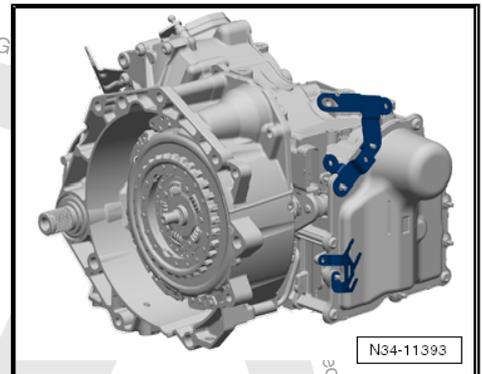
In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.
- Install right flange shaft of gearbox with flange shafts  
⇒ [page 172](#) .



## 4.6 Installing gearbox

- Please read these important work steps before installing gearbox.
- In some cases, there are brackets on the front of the removed gearbox. Attach these brackets to the »new« gearbox.

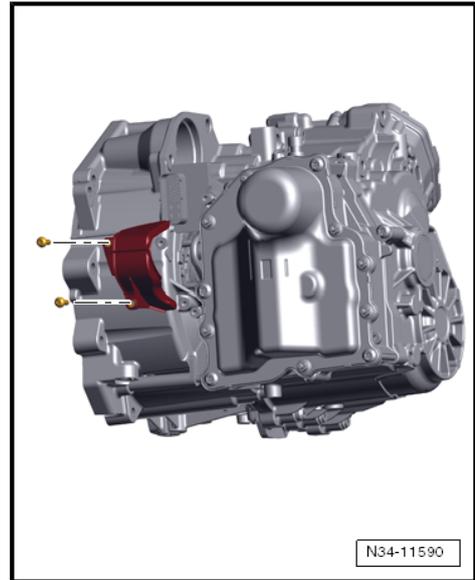




In some vehicles, a cover is fitted over the engaging levers.

The cover prevents dirt getting in.

Torque setting: 8 Nm



**Gearbox with stub shafts -A-**

**Gearbox with flange shafts -B-**

- Remove right-hand flange shaft of gearbox in order to install gearbox.
- After gearbox has been installed, flange shaft must be mounted on gearbox again => [page 172](#) .

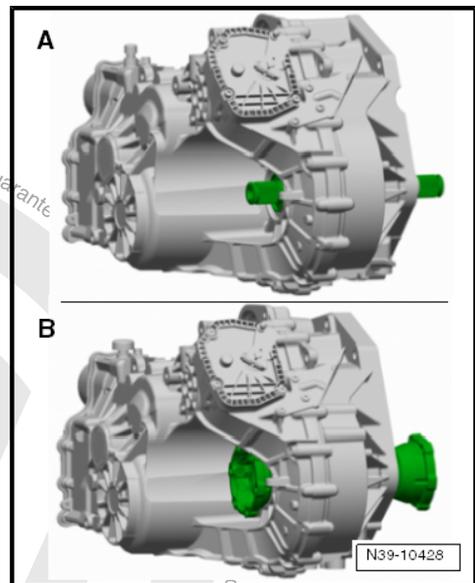


**Note**

*There is no need to renew oil seal for flange shaft when doing this.*

Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

**Continued for all gearboxes**





- If it has not already been done, renew needle bearing in crankshaft -arrow- ⇒ Rep. gr. 13 ; Crankshaft, pulling needle bearing from crankshaft and driving in .
- Check for proper seating of both dowel sleeves between engine and gearbox.
- Check for proper seating of intermediate plate.
- Guide selector lever cable as soon as possible into its cable support bracket.

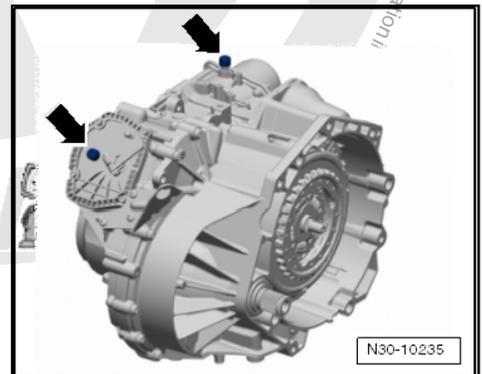
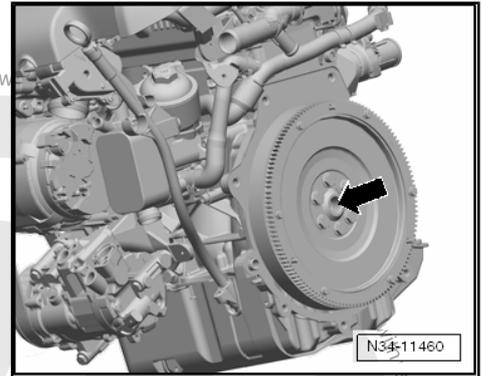
**Check Bowden cable as soon as gearbox is raised. Be sure to insert it in cable support bracket »early«.**

Bowden cable must not be greased.

**It must be possible to guide the engine and gearbox together by hand until the engine flange and gearbox flange make contact all around.**

If not, »something has gone wrong«!

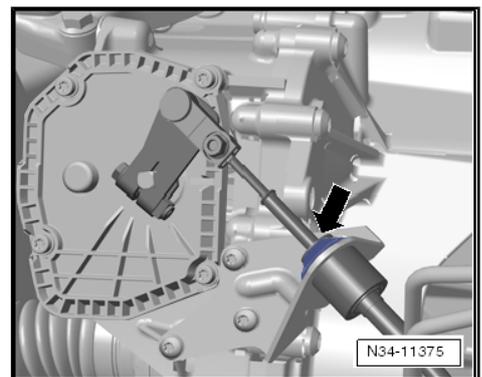
- Readjust gearbox support until engine and gearbox are »aligned with each other«.
- Turn crankshaft slightly if necessary.
- After fitting starter motor, check that both breather caps are in place -arrows-!



- Securing clip for selector lever Bowden cable -arrow- must be renewed.

A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

- Therefore, when installing, always use a »new« securing clip.



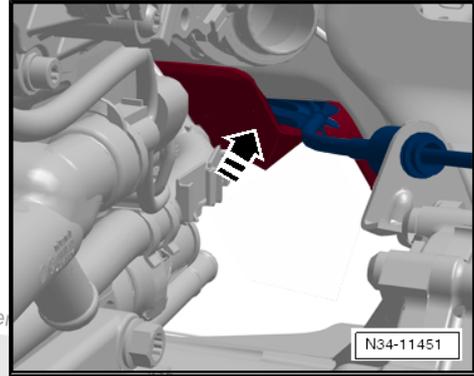


- Ensure that selector lever cable is properly routed during installation -arrow-.

If the sheet metal has been bent downwards when the gearbox was removed, it may cause noises. The cable will vibrate against the sheet metal.

- Observe sheet metal. Press it back up in the tunnel during installation.
- Always adjust selector lever cable ⇒ [page 82](#) .

**Torque settings for gearbox installation ⇒ [page 148](#) .**



## 4.7 Torque settings »Gearbox to engine« and notes on assembly mounting

The »next chapters« list the torque settings for gearbox installation.

There is also information about the »left« assembly mounting.

Threaded connections that are not directly assigned to the gearbox can be found in the associated assembly groups.

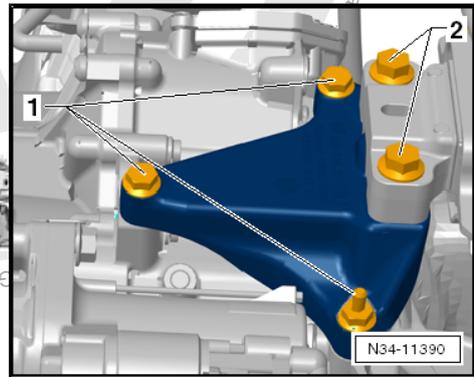
**For example: subframe and pendulum support.**

The pendulum support on the subframe is part of the running gear.

Consequently, further descriptions can also be found in ⇒ Running gear, axles, steering; Rep. gr. 40 .

### Left assembly mounting

- Renew all bolts -1- and -2- of left assembly mounting.
- First screw in all bolts by hand.
- First attach console to gearbox with bolts -1-; specified torque: 40 Nm + 90°.



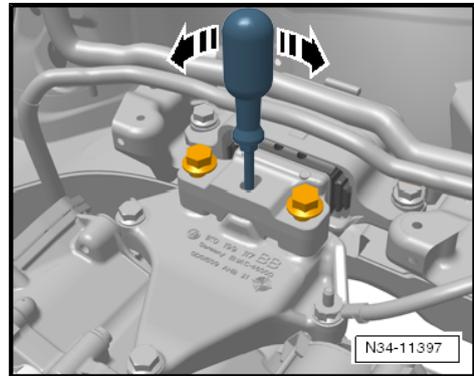
- The bracket can be moved within its seat with a screwdriver when bolts -2- are tightened. Tightening torque of -bolts 2-: 60 Nm + 90°.

Starter to gearbox ⇒ Rep. gr. 27 ; Removing and installing starter .

Pendulum support to subframe and gearbox ⇒ Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .

Gearbox to engine:

- ◆ 1.4 I/90 kW TFSI engine ⇒ [page 149](#)
- ◆ 1.4 I/118 kW TSI engine ⇒ [page 149](#)
- ◆ 1.6 I/75 kW MPI engine ⇒ [page 149](#)
- ◆ 1.9 I/77 kW TDI PD engine ⇒ [page 150](#)
- ◆ 1.6 I/77 kW TDI CR engine ⇒ [page 151](#)





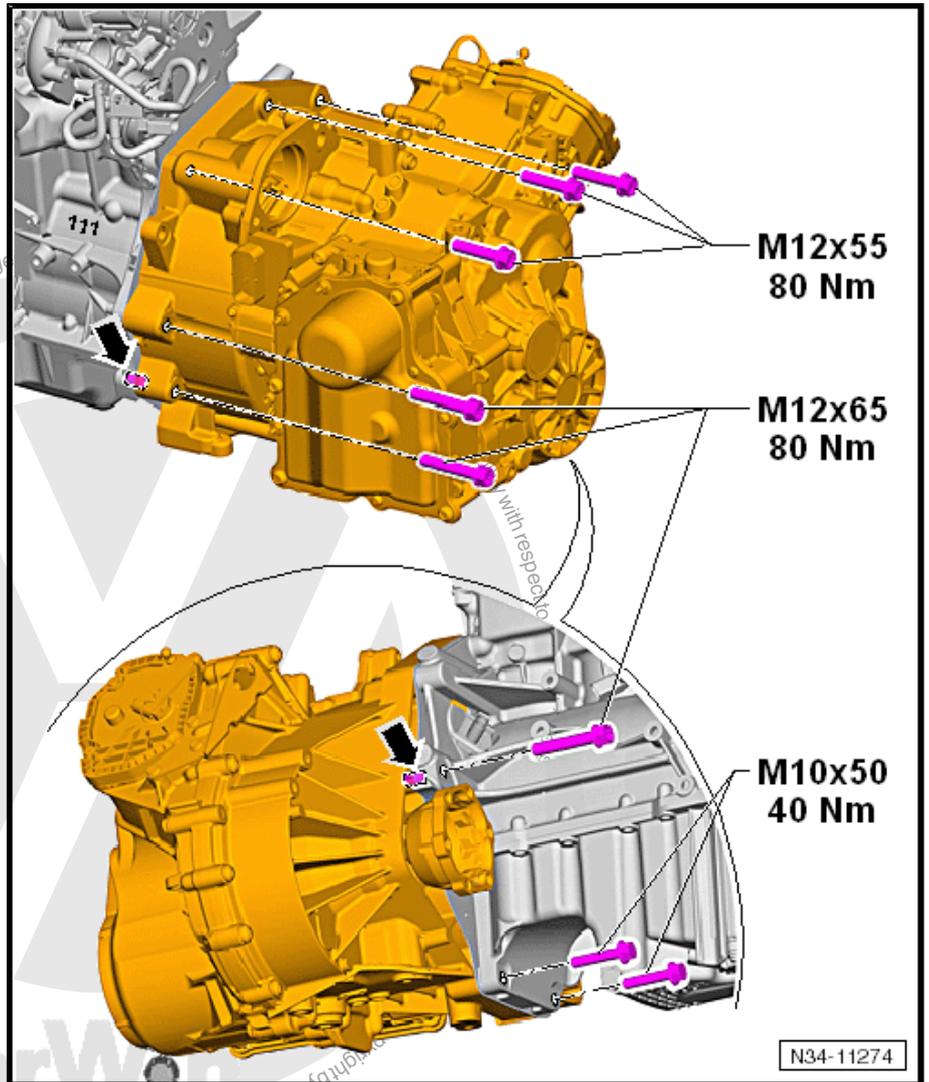
#### 4.7.1 Engines: 1.4 I/90 kW TFSI, 1.4 I/118 kW TSI, 1.6 I/75 kW

M12 - 80 Nm

- If 18 mm insert -T10179- is used: 65 Nm.

M10 - 40 Nm

- Arrows point towards dowel sleeves





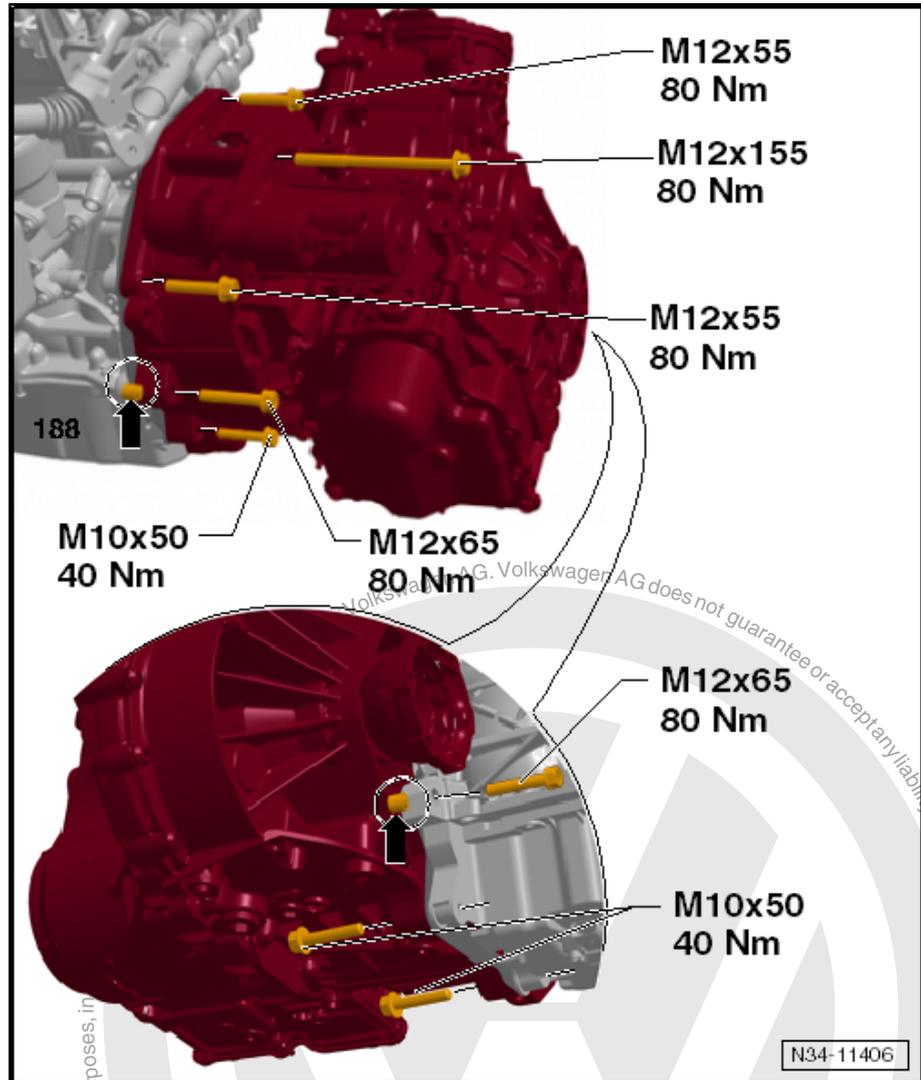
#### 4.7.2 Engine: 1.9 I/77 kW TDI PD

M12 - 80 Nm

- If 18 mm insert -T10179- is used: 65 Nm.

M10 - 40 Nm

- Arrows point towards dowel sleeves





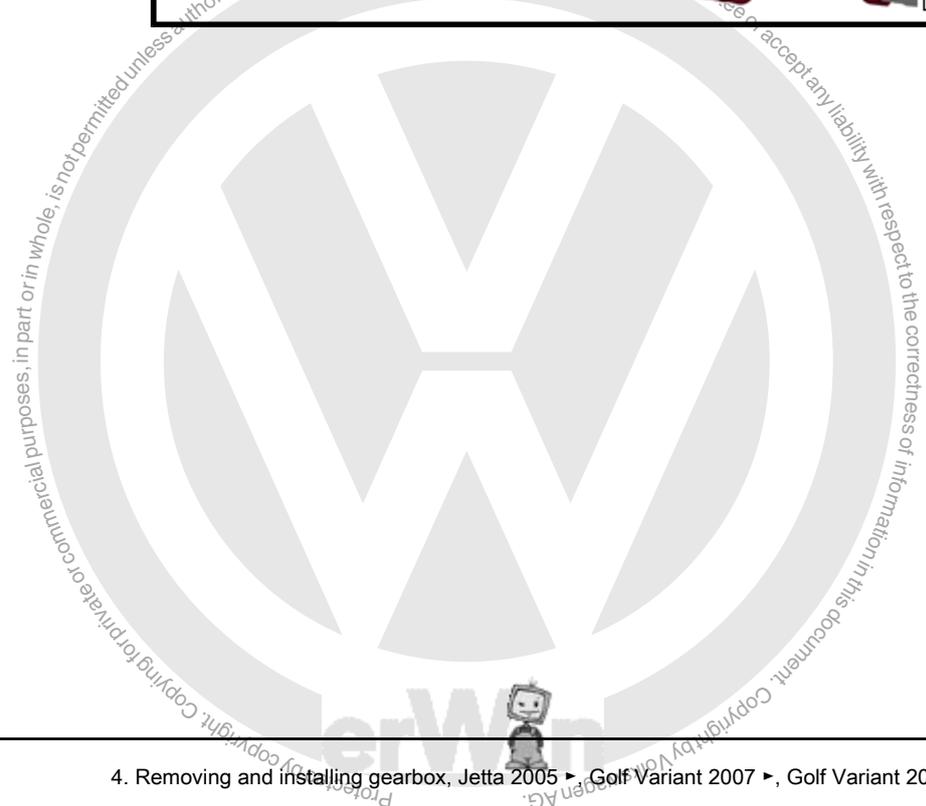
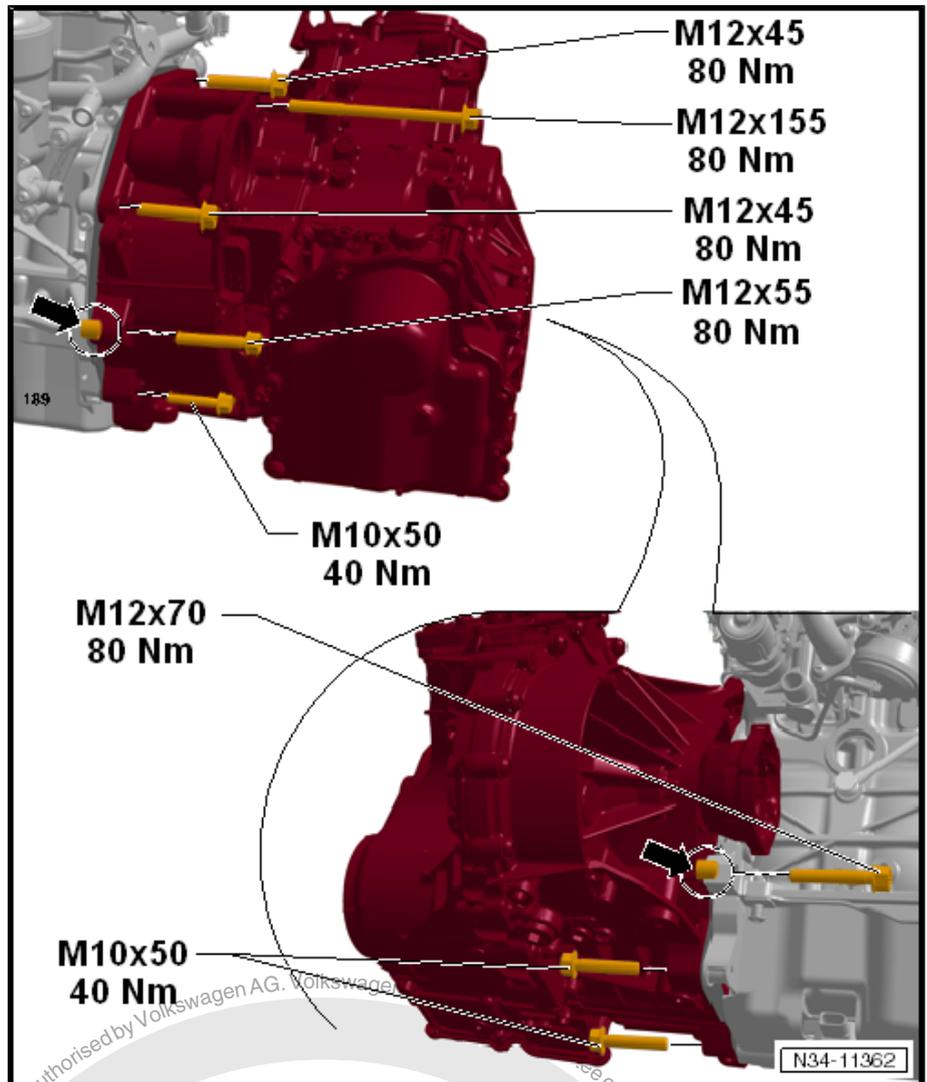
### 4.7.3 Engine: 1.6 I/77 kW TDI common rail

M12 - 80 Nm

- If 18 mm insert -T10179- is used: 65 Nm.

M10 - 40 Nm

- Arrows point towards dowel sleeves





## 5 Removing and installing gearbox, Jetta 2011 >

Removing gearbox, Jetta 2011 with 1.6 I/77 kW TDI CR engine  
⇒ [page 152](#)

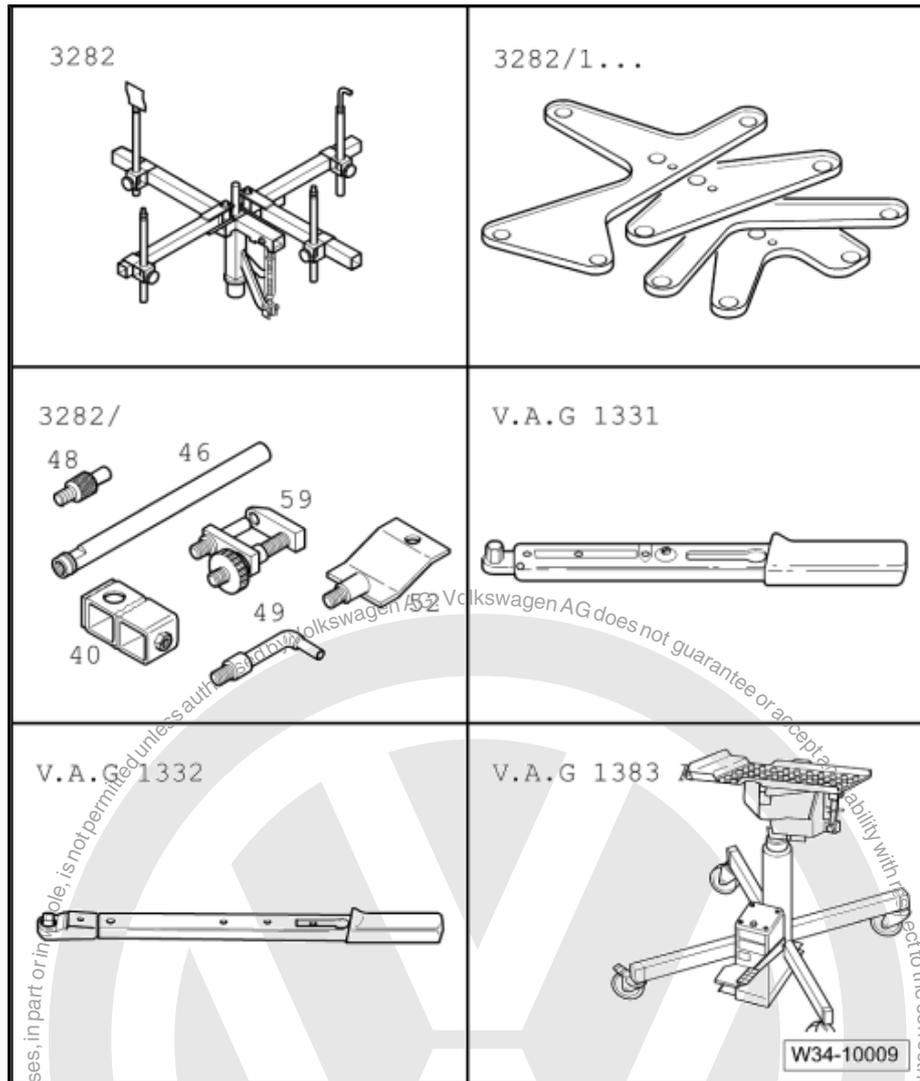
Installing gearbox, Jetta 2011 with 1.6 I/77 kW TDI CR engine  
⇒ [page 160](#)

Torque settings ⇒ [page 163](#)

### 5.1 Removing gearbox, Jetta 2011 with 1.6 I/77 kW TDI CR engine

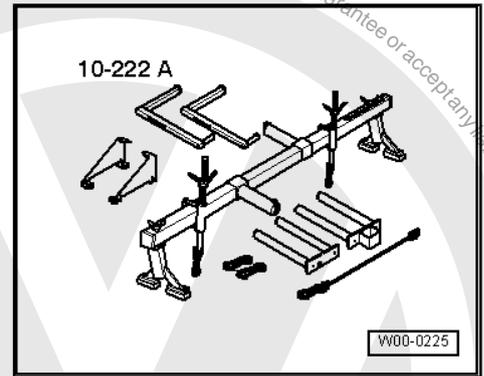
#### Special tools and workshop equipment required

- ◆ Gearbox support -3282-
- ◆ Adjustment plate -3282/59-
- ◆ Pin -3282/29-
- ◆ Torque wrench -V.A.G 1331-
- ◆ Torque wrench -V.A.G 1332-
- ◆ Engine and gearbox jack - V.A.G 1383 A-

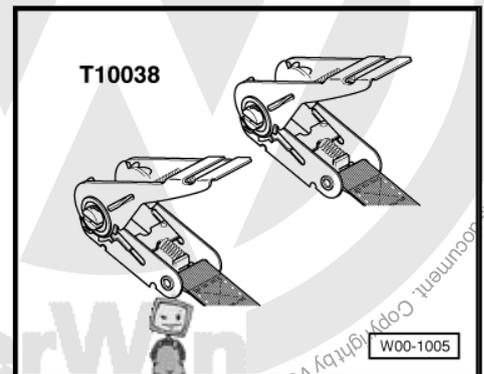




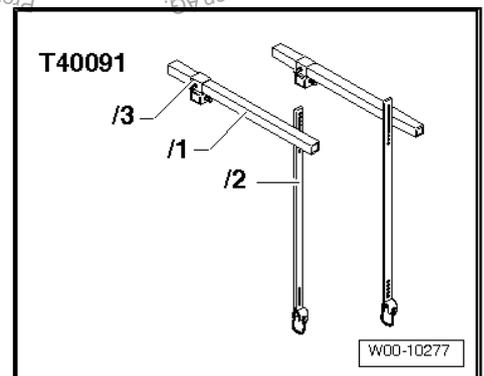
◆ Support bracket -10-222A-



◆ Tensioning strap -T10038-



◆ Engine support basic set -T40091-



**Brief description**

The gearbox is removed downwards separately, without engine.

The battery, air filter and starter are removed »from above«.

Noise insulation beneath engine/gearbox, lower cover in front left wheel housing and pendulum support are removed »from below«.

**Perform the following steps:**

- Move selector lever to position »P« position.
- Remove engine cover from cylinder head.

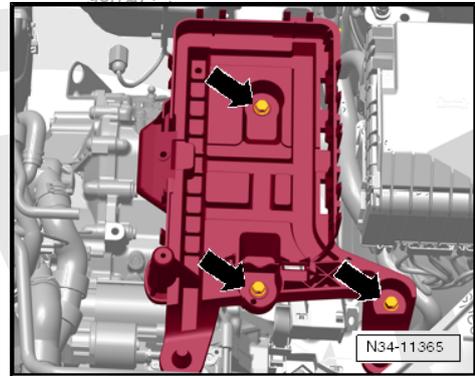


**Note**

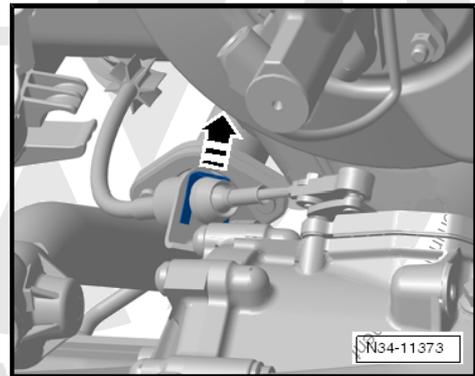
*The battery earth must be disconnected for continued work.  
Check whether a coded radio is fitted. Obtain anti-theft coding first  
if necessary.*



- With ignition switched off, disconnect battery earth strap ⇒ Electrical system; Rep. gr. 27 ; Disconnecting and connecting battery .
- Remove complete air filter housing ⇒ Rep. gr. 23 ; Removing and installing air filter .
- Remove battery and battery tray ⇒ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove starter ⇒ Rep. gr. 27 ; Removing and installing starter .



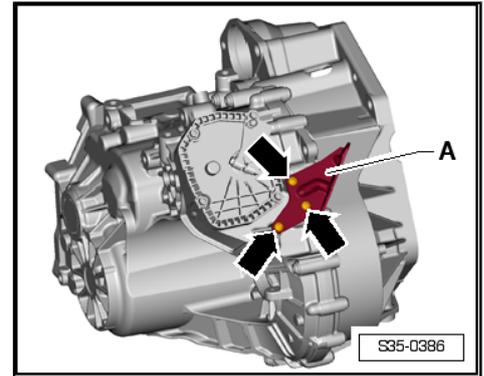
- Remove securing clip in -direction of arrow-.  
Securing clips for selector lever cable must always be renewed.





### Note

- ◆ Use pliers to remove the securing clip on the cable support bracket. Do not use a sharp-edged lever. The selector lever cable could otherwise be damaged.
  - ◆ If necessary, remove the cable support bracket -A- with the selector lever cable from the gearbox. To do so, remove bolts -arrows-. These bolts must be renewed.
  - ◆ Torque setting of bolts -arrows-: 8 Nm + turn 90° further
- Remove cable from ball head e.g. using removal lever -80 - 200- .



Cable may also be pushed slightly backwards out of cable support bracket and removed later when gearbox is lowered. But then observe cable when lowering gearbox.

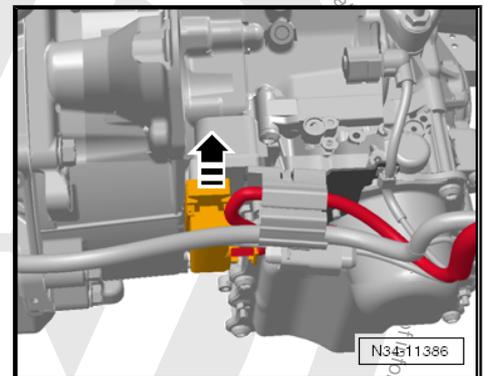


### Caution

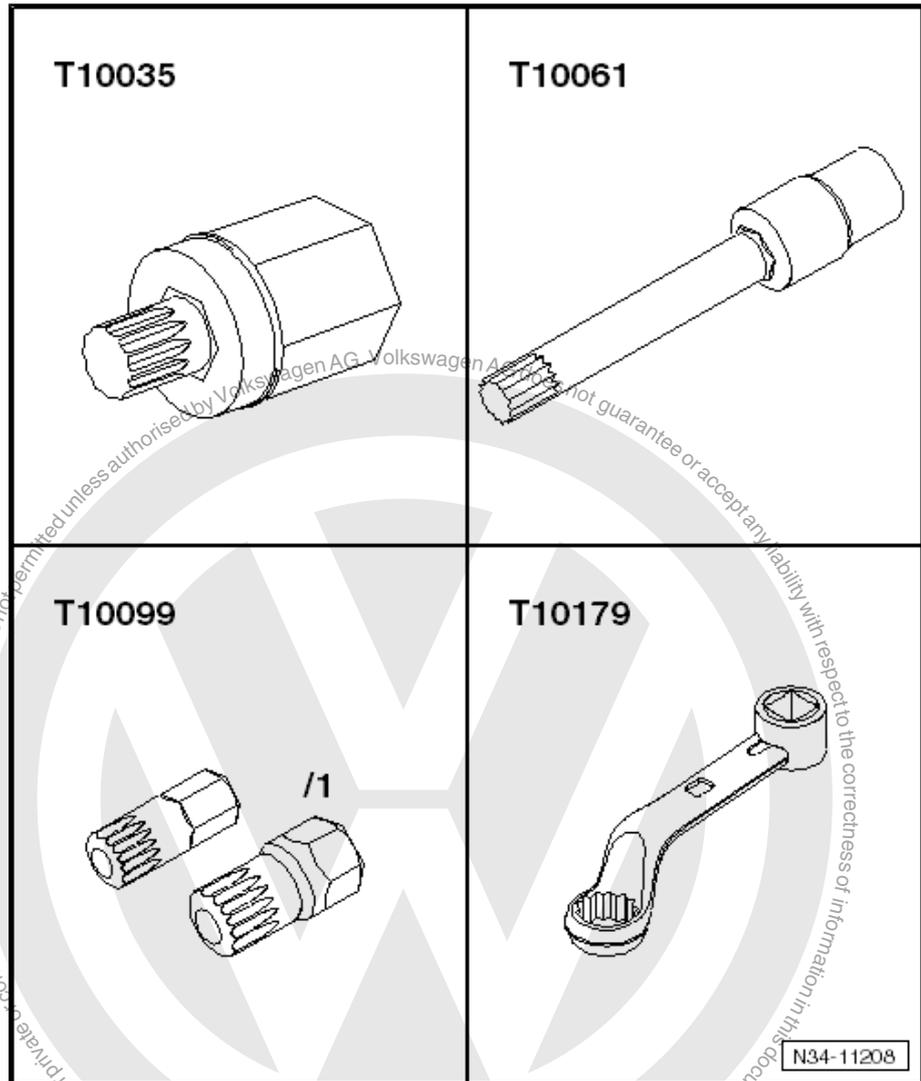
**Risk of damaging gearbox components beyond repair.**

- ◆ Do not under any circumstances touch the contacts in the gearbox connector by hand. Static discharge could destroy the control unit and, consequently, the mechatronic unit.

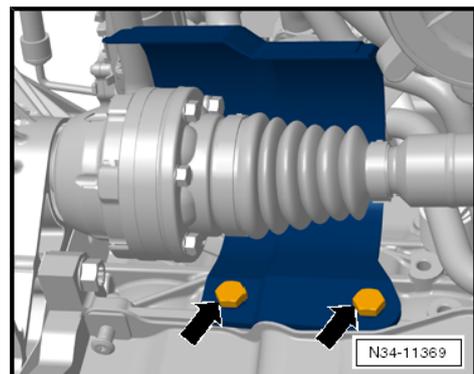
- To become electrostatically discharged, touch an earthed object by hand (without gloves) ⇒ [page 10](#) .
- Release mechatronic unit connector by pulling in -direction of arrow- and pull off connector.
- Now remove all upper connecting bolts between engine and gearbox.



These tools are appropriate for this.



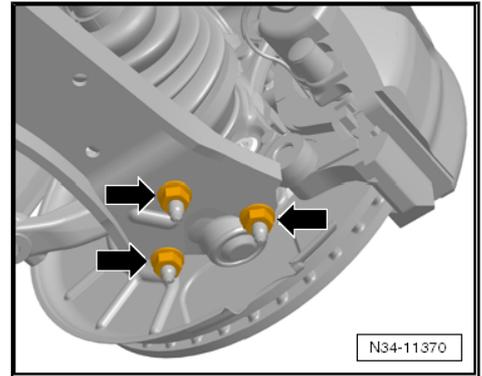
- Remove front left wheel bolts.
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Remove front left wheel.
- Remove noise insulation => General body repairs, exterior; Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove front left wheel housing liner => General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Front wheel housing liner .
- If fitted, remove the heat shield over the right-hand drive shaft. Tightening torque => Rep. gr. 40 ; Repairing drive shafts



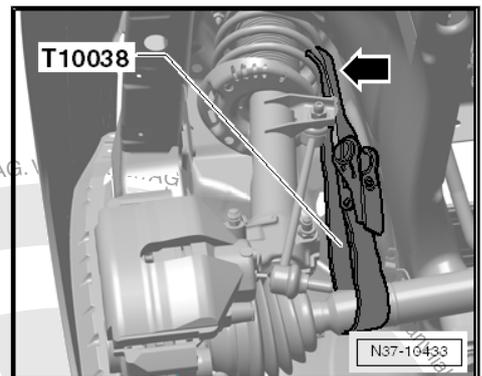


- Unscrew left suspension link from swivel joint.
- Swing left drive shaft into wheel housing onto longitudinal member. This will keep the shaft out of the way during further work.

The surface protection of the shafts must not be damaged. Plastic cable ties or a pair of tensioning straps -T10038- are therefore very good for this.



Secure both drive shafts to suspension struts using tensioning straps -T10038- .

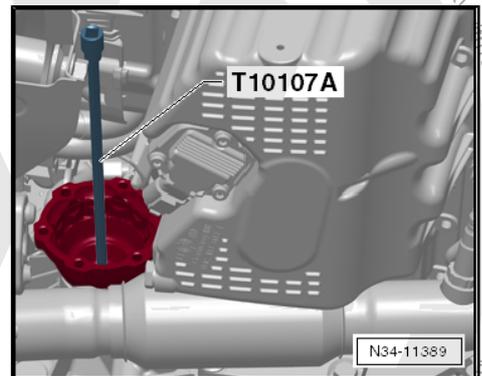


- Remove right flange shaft of gearbox.

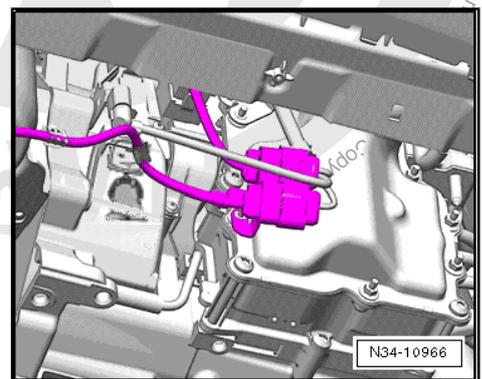
Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

**Torque setting: 30 Nm**

- Close opening in flange shaft using a suitable plug.

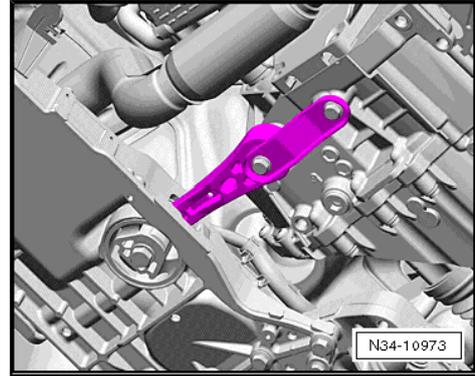


- Remove all retainers and brackets from front of gearbox.



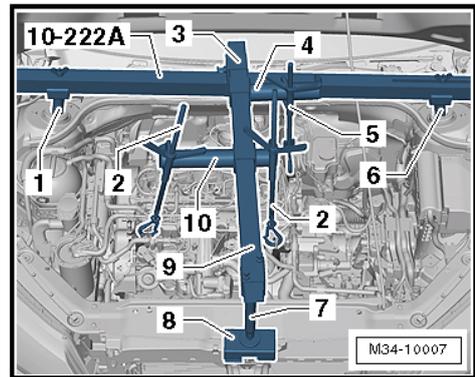


- Remove pendulum support.
- Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Plenum chamber cover; Removing and installing plenum chamber cover .
- Remove radiator grille ⇒ General body repairs, exterior; Rep. gr. 50 ; Radiator grille; Removing and installing radiator grille .
- If there are hose and cable connections in area of engine support eye for support bracket -10-222 A- , remove these now.



- Set up support device -10 - 222 A- .

- 1 - -10 - 222 A /31-2-
- 2 - -10 - 222 A /11-
- 3 - -T40091/3-
- 4 - -10 - 222 A /3-
- 5 - -10 - 222 A /10-
- 6 - -10 - 222 A /31-1-
- 7 - -10 - 222 A /31-3-
- 8 - -10 - 222 A /31-4-
- 9 - -T40091/1-
- 10 - -10 - 222 A /18-



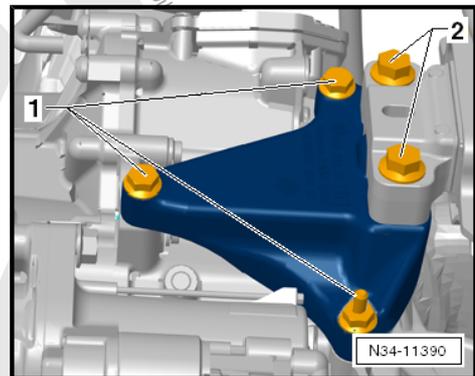
- Take up weight of engine/gearbox assembly on spindles, do not lift.

Remove all bolts -1- and -2- for bracket.

- Then lower engine and gearbox slightly using spindles of support bracket -10 - 222 A- so that bracket can be removed.

At most, 5 turns are sufficient to remove bracket.

In many cases, the spindle does not need to be lowered further for the later removal of the gearbox.



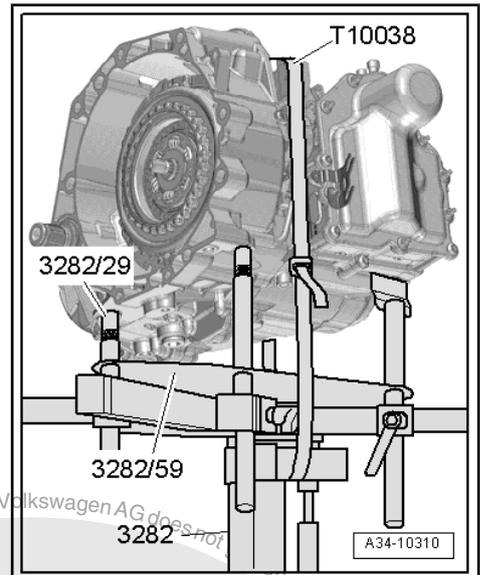
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To remove gearbox 0AM, set up gearbox support -3282- with adjustment plate -3282/59- and push onto engine and gearbox support -V.A.G 1383 A- .

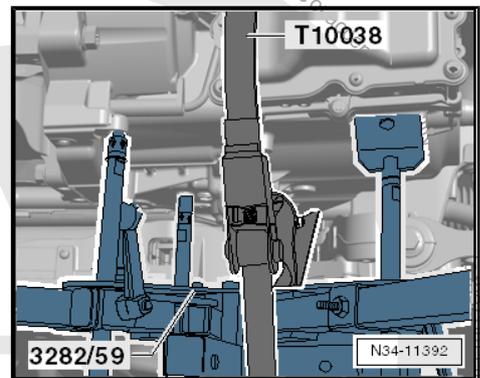
- Align arms of gearbox support according to holes in adjustment plate -3282/59- .
- Screw in support elements as illustrated on adjustment plate -3282/59- .
- Position engine and gearbox jack -V.A.G 1383 A- under vehicle.
- Arrow on adjustment plate -3282/59- points in direction of travel.
- Align gearbox support -3282- parallel to gearbox.
- Screw pin -3282/29- into »rear« hole for pendulum support.



- Place both remaining attachments onto gearbox as shown. When doing this, place sheet metal of drift under gearbox housing and not under mechatronic unit.
- Secure gearbox with tensioning strap -T10038- .
- Raise gearbox and engine support -V.A.G 1383 A- from below to support gearbox.

The gearbox is separated from the engine in this position.

- Remove remaining engine/gearbox connecting bolts.
- Press gearbox off engine, »observing selector lever cable« and lower gearbox.

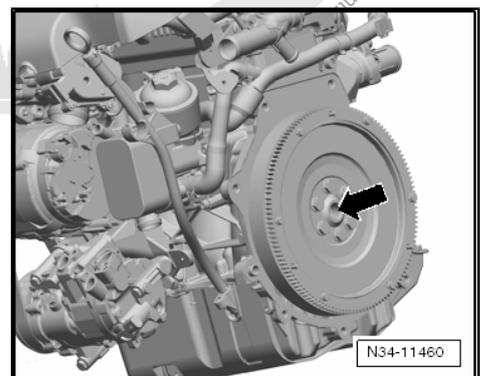


#### Note

- ◆ *Distance between engine flange and gearbox flange should be about 50 mm before gearbox is lowered.*
- ◆ *Be careful of all lines and coolant hoses when lowering gearbox.*
- Renew needle bearing in crankshaft -arrow⇒ Rep. gr. 13 ; Crankshaft, pulling needle bearing from crankshaft and driving in .

Transporting gearbox and securing to assembly stand  
⇒ [page 165](#) .

Installing gearbox ⇒ [page 160](#) .

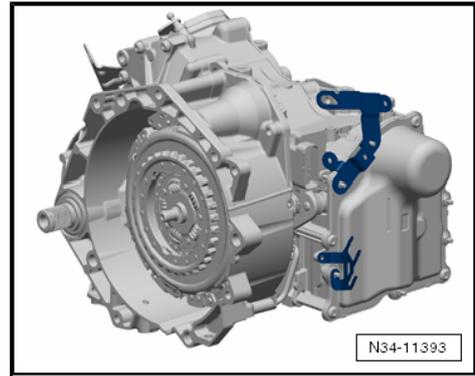




### If gearbox is to be sent:

In some cases, there are retainers on the front of the gearbox.

- Remove retainers if installing a »new« gearbox, because there are no retainers on a »new« gearbox.
- Install right flange shaft ⇒ [page 172](#) .



## 5.2 Installing gearbox, Jetta 2011 with 1.6/77 kW TDI CR engine



### Note

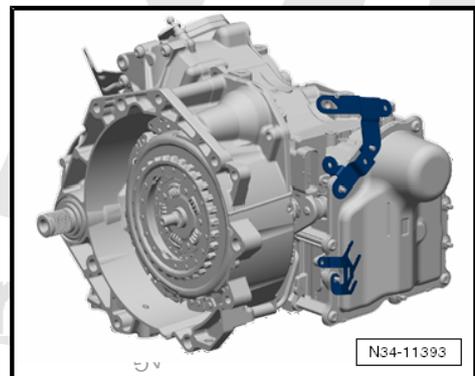
- ◆ Refer to procedure „Removing gearbox“ for required special tools ⇒ [page 152](#) .
- ◆ Install engine and gearbox mounting free of tension ⇒ Engine; Rep. gr. 10 ; Removing and installing engine .

### Perform the following steps:

Install in reverse order of removal. Nevertheless, important steps are listed here:

Torque settings ⇒ [page 163](#) .

- In some cases, there are brackets on the front of the removed gearbox. Attach these brackets to the »new« gearbox.



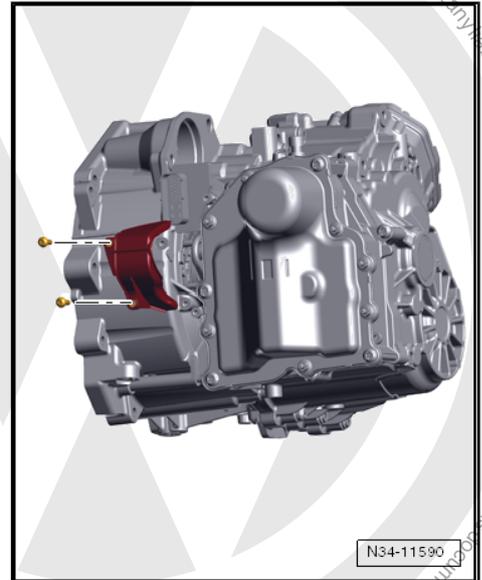


In some vehicles, a cover is fitted over the engaging levers.

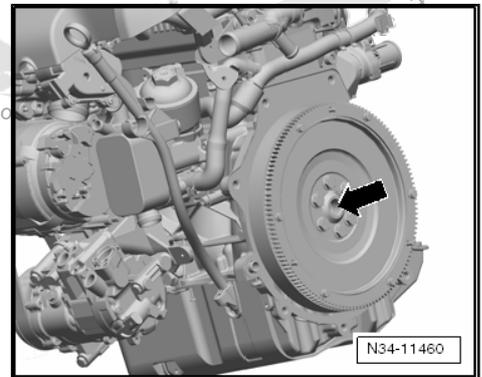
The cover prevents dirt getting in.

**Torque setting: 8 Nm**

- Remove right-hand flange shaft in order to install gearbox.



- If it has not already been done, renew needle bearing in crankshaft -arrow- ⇒ Rep. gr. 13 ; Crankshaft, pulling needle bearing from crankshaft and driving in .
- Check for proper seating of both dowel sleeves between engine and gearbox.
- Check for proper seating of intermediate plate.
- Guide selector lever cable as soon as possible into its cable support bracket.



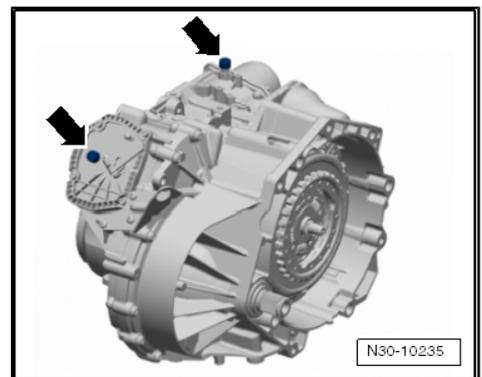
**Check Bowden cable as soon as gearbox is raised. Be sure to insert it in cable support bracket »early«.**

Bowden cable must not be greased.

**It must be possible to guide the engine and gearbox together by hand until the engine flange and gearbox flange make contact all around.**

If not, »something has gone wrong«!

- Readjust gearbox support until engine and gearbox are »aligned with each other«.
- Turn crankshaft slightly if necessary.
- After fitting starter motor, check that both breather caps are in place -arrows-!

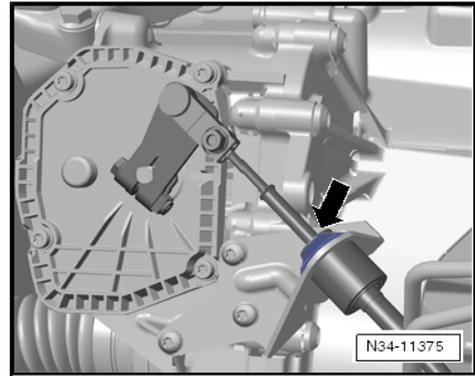




- Securing clip for selector lever Bowden cable -arrow- must be renewed.

A securing clip which has been removed is not allowed to be installed again. The clip will have lost its internal tension and so it might fall off.

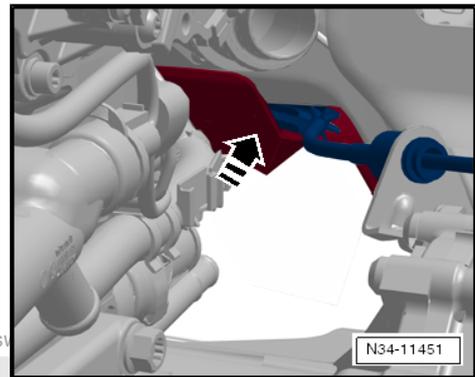
- Therefore, when installing, always use a »new« securing clip.



- Ensure that selector lever cable is properly routed during installation -arrow-.

If the sheet metal has been bent downwards when the gearbox was removed, it may cause noises. The cable will vibrate against the sheet metal.

- Observe sheet metal. Press it back up in the tunnel during installation.
- Install starter ⇒ Electrical system; Rep. gr. 27 ; Starter .
- Mount right flange shaft back on gearbox ⇒ [page 172](#) .



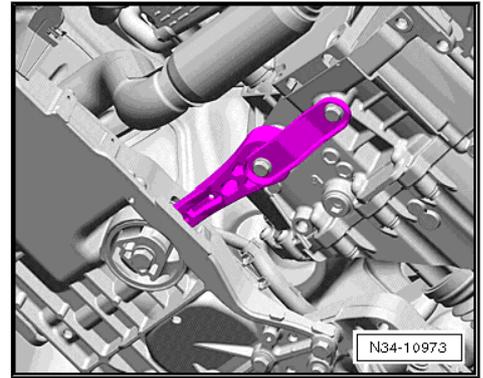
#### Note

*There is no need to renew oil seal for flange shaft when doing this.*

- Attach drive shafts to gearbox ⇒ Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .
- Install heat shield over right drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Drive shaft heat shield .



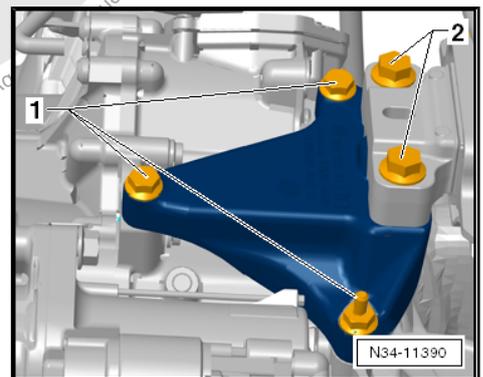
- Attach pendulum support to gearbox with new bolts ⇒ Running gear, axles, steering; Rep. gr. 40 ; Assembly overview - Subframe .
- Assemble exhaust system and attach exhaust system bracket to subframe ⇒ Engine; Rep. gr. 26 ; Removing and installing parts of exhaust system .
- Install plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Plenum chamber cover; Removing and installing plenum chamber cover .
- Install radiator grille ⇒ General body repairs, exterior; Rep. gr. 50 ; Radiator grille; Removing and installing radiator grille .
- Install battery tray and battery ⇒ Electrical system; Rep. gr. 27 ; Removing and installing battery .
- Installing air filter ⇒ Rep. gr. 23 ; Removing and installing air filter .
- Connect battery and follow procedure after connecting battery ⇒ Electrical system; Rep. gr. 27 ; Disconnecting and connecting battery .
- Always adjust selector lever cable ⇒ [page 82](#) .
- Install engine cover ⇒ Engine; Rep. gr. 15 ; Removing and installing engine cover .
- Install front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Front wheel housing liner .
- Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .
- Install wheel ⇒ Running gear, axles, steering; Rep. gr. 44 ; Torque settings for mounting wheels .



### 5.3 Specified torques

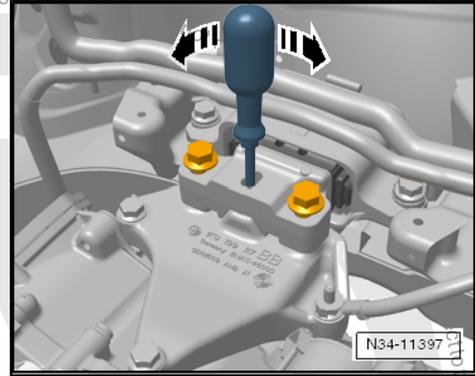
#### Left assembly mounting

- Renew all bolts -1- and -2- of left assembly mounting.
- First screw in all bolts by hand.
- First attach console to gearbox with bolts -1-; specified torque: 40 Nm + 90° .





- The bracket can be moved within its seat with a screwdriver when bolts -2- are tightened. Tightening torque of -bolts 2-: 60 Nm + 90°.



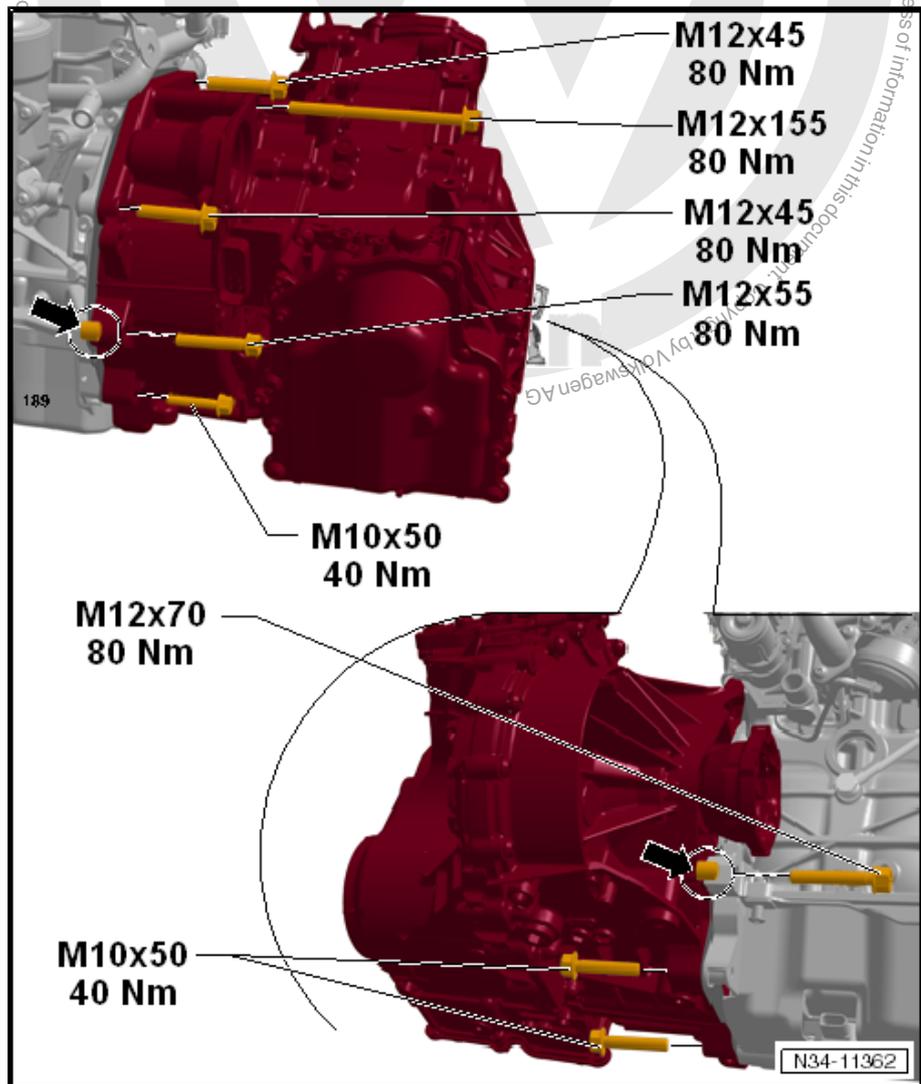
### 5.3.1 Engine: 1.6 I/77 kW TDI common rail

M12 - 80 Nm

- If 18 mm insert -T10179- is used: 65 Nm.

M10 - 40 Nm

- Arrows point towards dowel sleeves

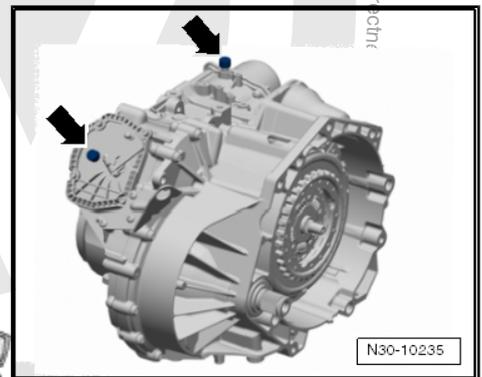
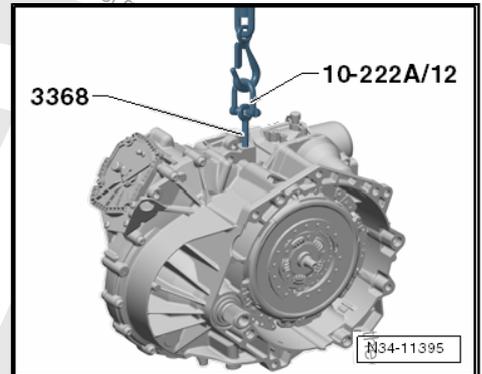




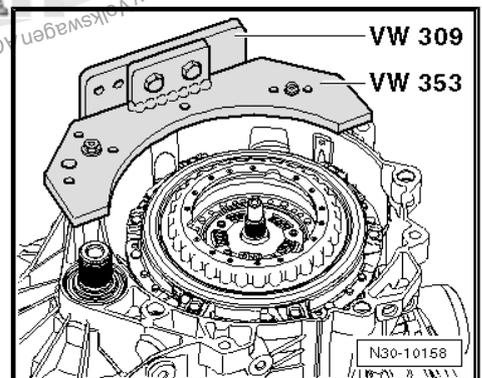
## 6 Transporting gearbox and securing to assembly stand

Transporting gearbox.

- Pull off both breather caps -arrows- and close using suitable plugs to achieve an oil-tight seal.



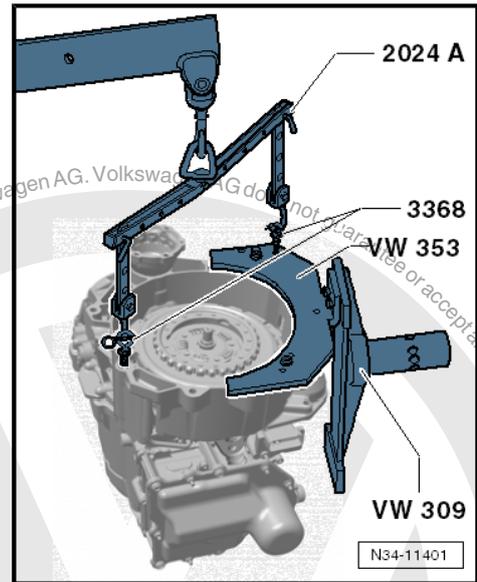
Secure gearbox on gearbox support -VW 353- .





### Lift gearbox into assembly stand.

The gearbox is lifted »into assembly stand« together with gearbox support -VW 353- .



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erWin



## 35 – Gears, shafts

- 1 Currently, no repairs can be made to gears and shafts





## 39 – Final drive - front differential

### 1 Oil seals

Gearbox with stub shafts -A-.

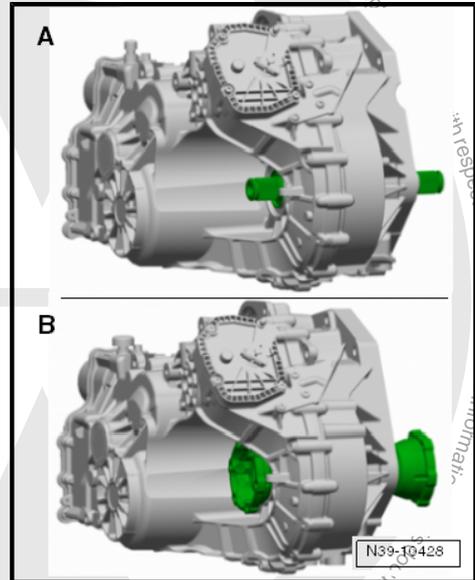
Right ⇒ [page 168](#)

Left ⇒ [page 170](#)

Gearbox with flange shafts -B-.

Right ⇒ [page 172](#)

Left ⇒ [page 174](#)

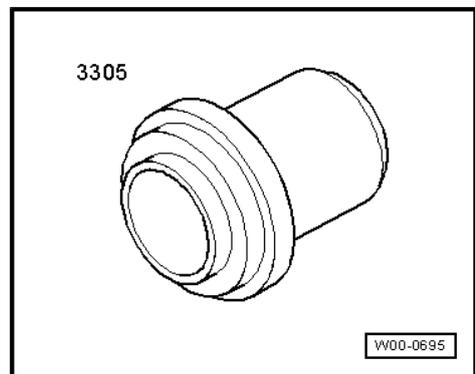


#### 1.1 Renewing oil seal for right stub shaft

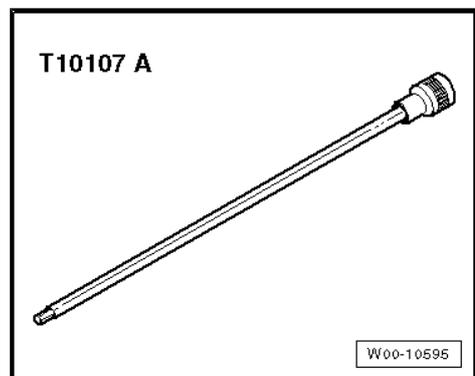
Left-hand side ⇒ [page 170](#)

Special tools and workshop equipment required

◆ Thrust piece -3305-



◆ Hexagon key -T10107 A- or socket and extended bit -V.A.G 1669-



◆ Torque wrench -V.A.G 1331-

◆ Torque wrench -V.A.G 1332-



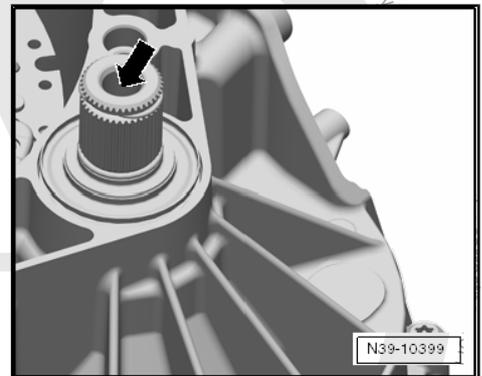
- ◆ Sealing grease -G 052 128 A1-
- ◆ Drip tray

Perform the following steps:

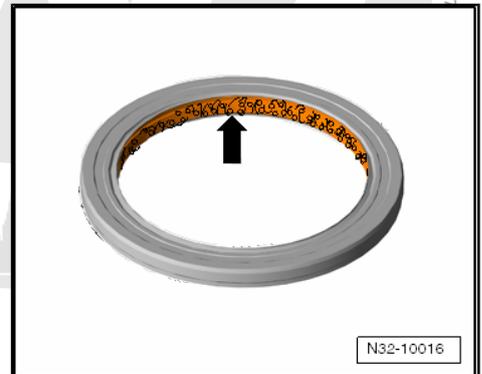
**i** Note

- ◆ *Do not remove both drive shafts from gearbox at the same time. If you do so, it will no longer be possible to hold the opposite front wheel fixed for removing or installing the bolt of the stub shaft.*
- ◆ *Do not remove both stub shafts from gearbox at the same time. If the differential bevel gears turn, it is difficult to reinstall the securing bolts for the stub shafts.*

- Remove drive shaft ⇒ Rep. gr. 40 ; Removing and installing drive shafts .
- Place drip tray under gearbox.
- Remove bolt -arrow- in stub shaft with socket -T10107 A- or socket -V.A.G 1669- .
- Pull out stub shaft.
- Pry oil seal out using assembly lever.
- Lightly oil outer circumference of new radial oil seal.



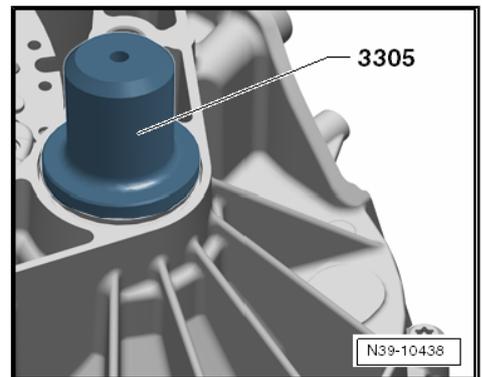
- Half fill space between sealing lip and dust lip with sealing grease -G 052 128- -arrow-.



- Drive in new oil seal to stop, being careful not to cant oil seal.

If necessary, it is possible to press a new dust ring onto the stub shaft using tube -2010- . Do not use a hammer.

- Insert stub shaft.
- Tighten new countersunk bolt for stub shaft to 30 Nm.
- Reinstall drive shaft ⇒ Rep. gr. 40 ; Removing and installing drive shafts .
- Renew gear oil ⇒ [page 64](#) .
- Install noise insulation; torque settings ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .



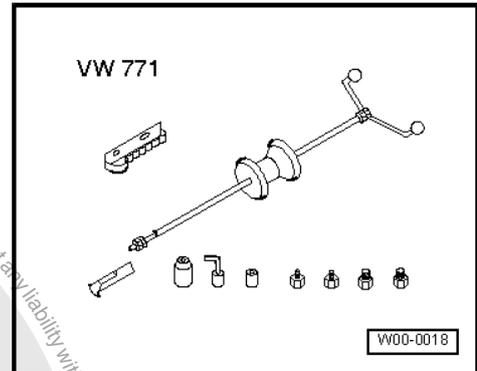


## 1.2 Renewing oil seal for left stub shaft

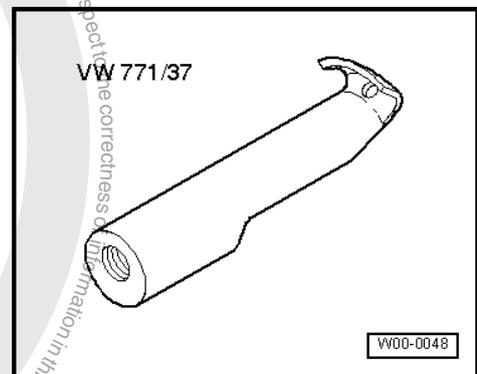
Right side ⇒ [page 168](#) .

### Special tools and workshop equipment required

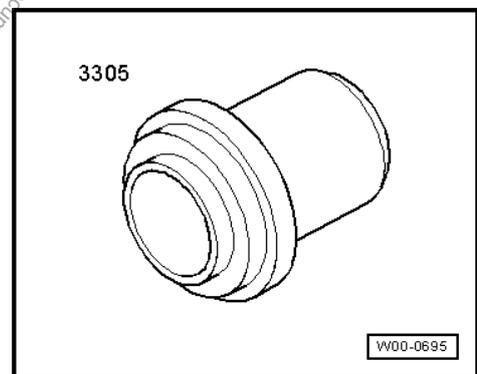
- ◆ Multipurpose tool -771-



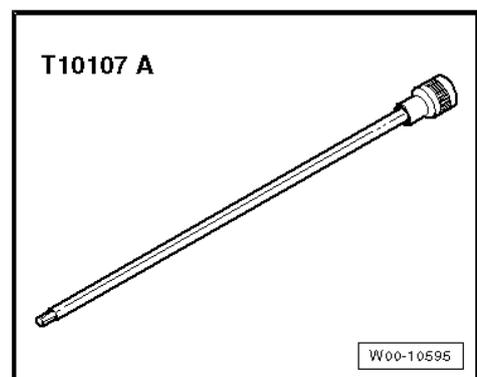
- ◆ Puller hooks -771/37-



- ◆ Thrust piece -3305-



- ◆ Hexagon key -T10107 A- or socket and extended bit -V.A.G 1669-



- ◆ Torque wrench -V.A.G 1331-



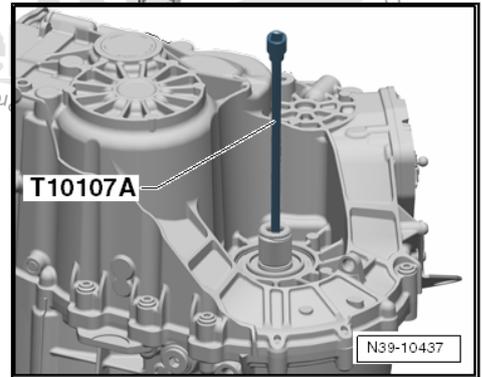
- ◆ Torque wrench -V.A.G 1332-
- ◆ Sealing grease -G 052 128 A1-
- ◆ Drip tray

**Perform the following steps:**

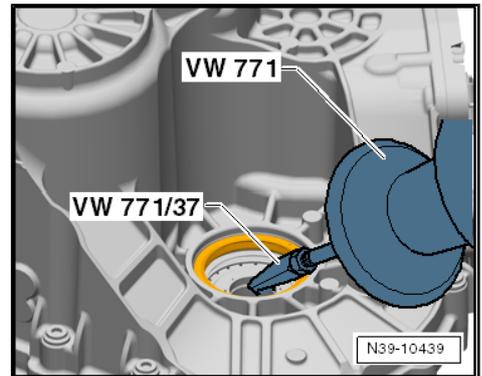
**Note**

- ◆ *Do not remove both drive shafts from gearbox at the same time. If you do so, it will no longer be possible to hold the opposite front wheel fixed for removing or installing the bolt of the stub shaft.*
- ◆ *Do not remove both stub shafts from gearbox at the same time. If the differential bevel gears turn, it is difficult to reinstall the securing bolts for the stub shafts.*

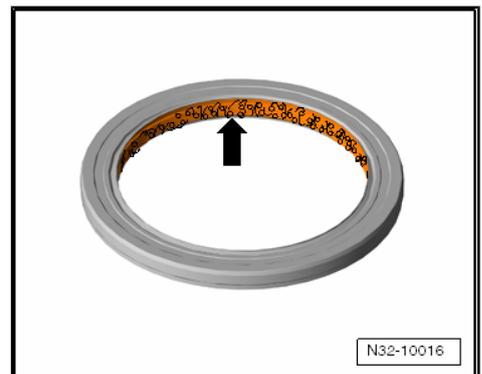
- Remove drive shaft ⇒ Rep. gr. 40 ; Removing and installing drive shafts .
- Place drip tray under gearbox.
- Remove bolt in stub shaft with socket -T10107 A- or socket -V.A.G 1669- .
- Pull out stub shaft.



- Pull out stub shaft oil seal with multi-purpose tool -VW 771- and puller hooks -VW 771/37-.
- Oil seal can also be removed using extractor tool -T20143- .
- Lightly oil outer circumference of new radial oil seal.



- Half fill space between sealing lip and dust lip with sealing grease -G 052 128- -arrow-.

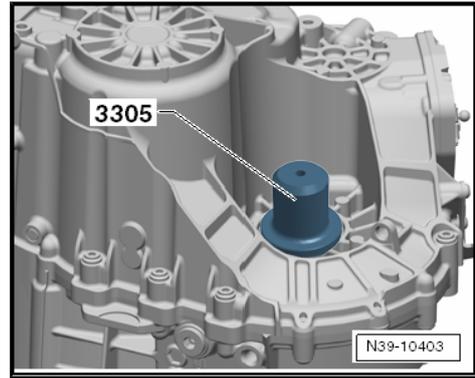




- Drive in new oil seal to stop, being careful not to cant oil seal.

If necessary, it is possible to press a new dust ring onto the stub shaft using drift sleeve -40 - 20-. Do not use a hammer.

- Insert stub shaft.
- Tighten new countersunk bolt for stub shaft to 30 Nm.
- Reinstall drive shaft ⇒ Rep. gr. 40 ; Removing and installing drive shafts .
- Renew gear oil ⇒ [page 64](#) .
- Install noise insulation; torque settings ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .

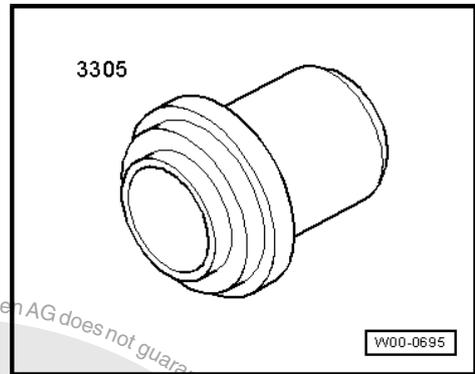


### 1.3 Renewing oil seal for right flange shaft

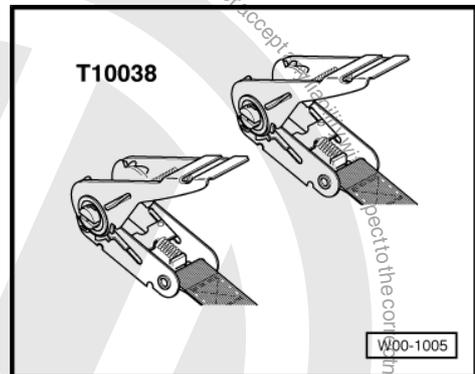
Left-hand side ⇒ [page 174](#)

#### Special tools and workshop equipment required

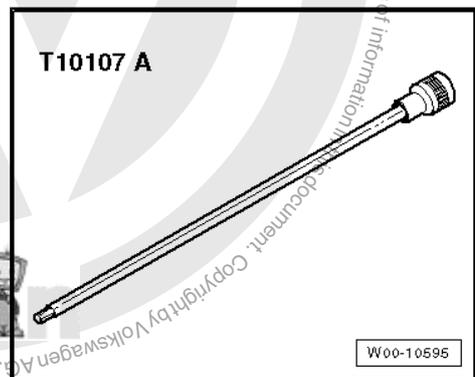
- ◆ Thrust piece -3305-



- ◆ Tensioning strap -T10038-



- ◆ Hexagon key -T10107 A- or socket and extended bit -V.A.G 1669-



- ◆ Torque wrench -V.A.G 1331-



- ◆ Torque wrench -V.A.G 1332-
- ◆ Sealing grease -G 052 128 A1-
- ◆ Drip tray

**Perform the following steps:**

**Note**

- ◆ *Do not remove both flange shafts from gearbox at the same time. If the differential bevel gears turn, it is difficult to reinstall the securing bolts for the flange shafts.*
- ◆ *Remove drive shaft from gearbox and lay to side. Drive shaft is fixed onto suspension strut with tensioning belt -T10038- .*
- ◆ *You do not need to remove the centre bolt of the drive shaft.*

- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview  
- noise insulation .

- If heat shield for drive shaft is installed, remove it from engine  
-arrows-

Unbolt drive shaft from gearbox.

- Place drip tray under gearbox.

- Raise drive shaft as high as possible and secure. Take care not to damage paint on drive shaft in the process.

- Remove right flange shaft of gearbox.

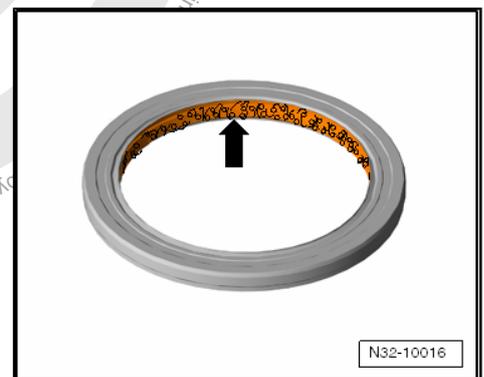
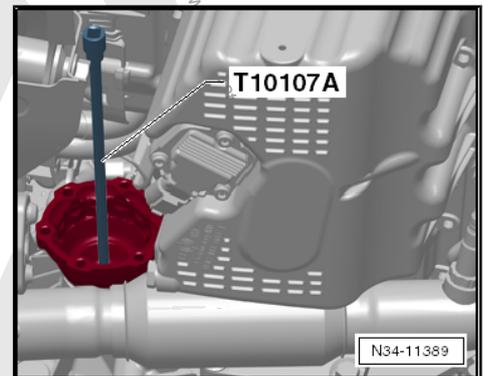
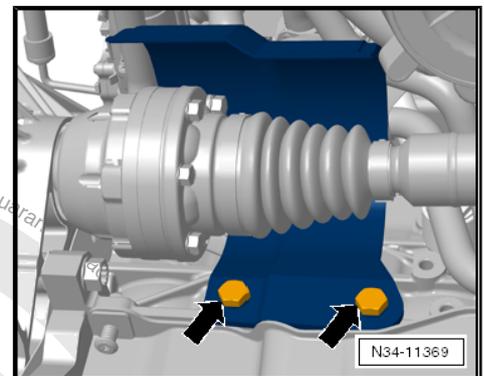
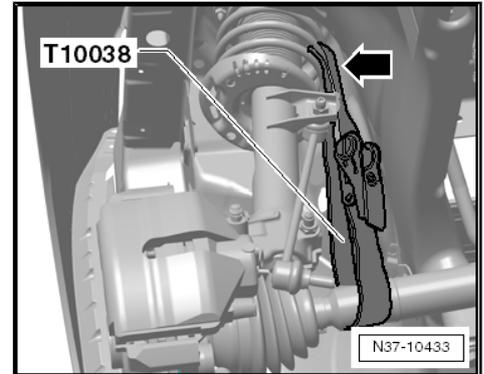
Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

- Pull out flange shaft.

- Pry oil seal out using assembly lever.

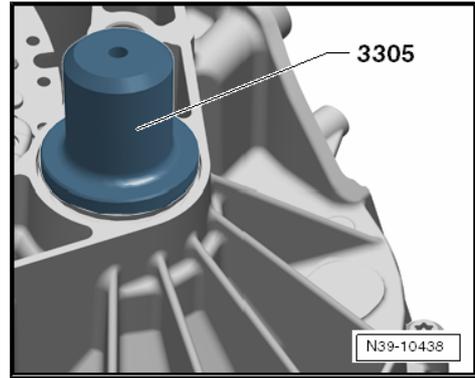
- Lightly oil outer circumference of new radial oil seal.

- Half-fill space between sealing lip and dust lip of new oil seal with sealing grease -G 052 128- -arrow-.





- Drive in new radial oil seal to stop with thrust piece -3305-, being careful not to cant radial oil seal.
- Insert flange shaft.
- Tighten new countersunk bolt to 30 Nm. When doing this, press flange shaft against gearbox so that bolt engages in thread.
- Fit drive shaft back on => Rep. gr. 40 ; Removing and installing drive shafts .
- Renew gear oil => [page 64](#) .
- Install noise insulation; torque settings => Rep. gr. 50 ; Assembly overview - noise insulation .

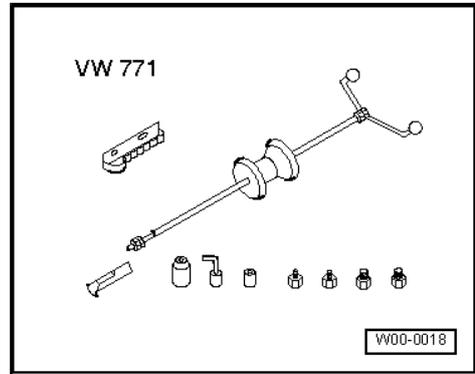


## 1.4 Renewing oil seal for left flange shaft

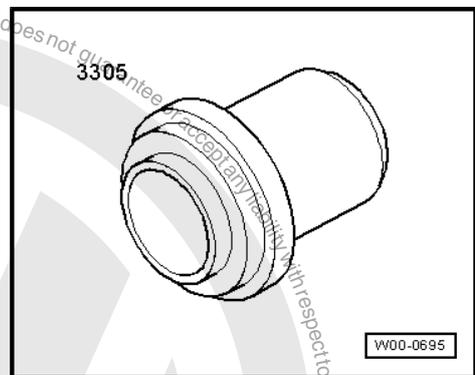
Right side => [page 172](#)

### Special tools and workshop equipment required

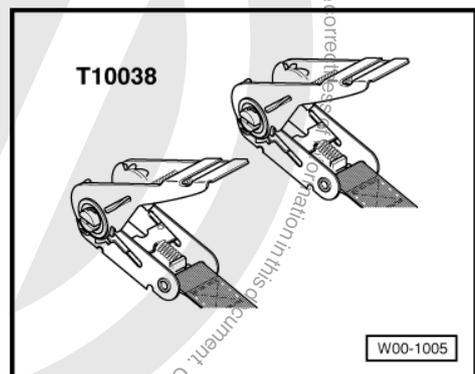
- ◆ Multipurpose tool -VW 771-



- ◆ Thrust piece -3305-

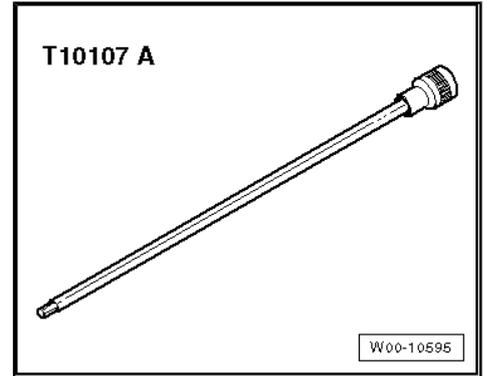


- ◆ Tensioning strap T10038-





- ◆ Hexagon key -T10107 A- or socket and extended bit -V.A.G 1669-



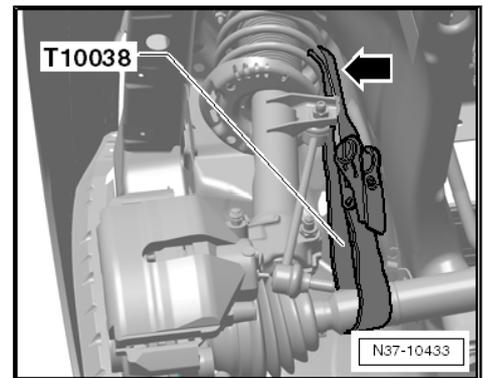
- ◆ Torque wrench -V.A.G 1331-
- ◆ Torque wrench -V.A.G 1332-
- ◆ Sealing grease -G 052 128 A1-
- ◆ Drip tray

Perform the following steps:



**Note**

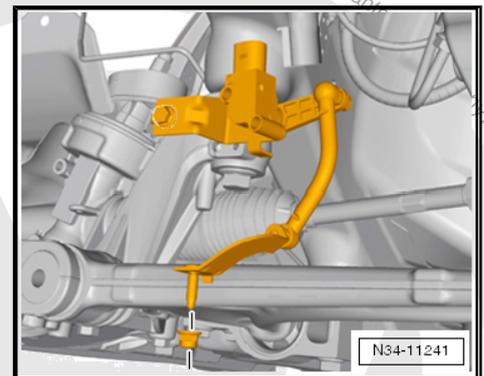
- ◆ *Do not remove both securing bolts in left and right flange shafts at the same time. If the differential bevel gears turn, it is difficult to reinstall the bolts.*
- ◆ *Remove drive shaft from gearbox and lay to side. Drive shaft is fixed onto suspension strut with tensioning belt -T10038- .*
- ◆ *You do not need to remove the centre bolt of the drive shaft.*



- Remove noise insulation ⇒ Rep. gr. 50 ; Assembly overview - noise insulation .
- Remove left wheel housing liner⇒ Rep. gr. 66 ; Assembly overview - front wheel housing liner .
- If present, undo bolts securing front left vehicle level sender - G78- and remove sender from suspension link.

Torque setting for removing and installing ⇒ Rep. gr. 40 ; front left vehicle level sender -G78- .

- Turn steering wheel to left lock and remove left drive shaft from flange shaft ⇒ Rep. gr. 40 ; Removing and installing drive shafts .

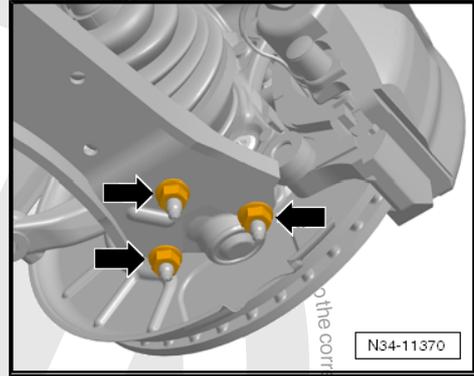


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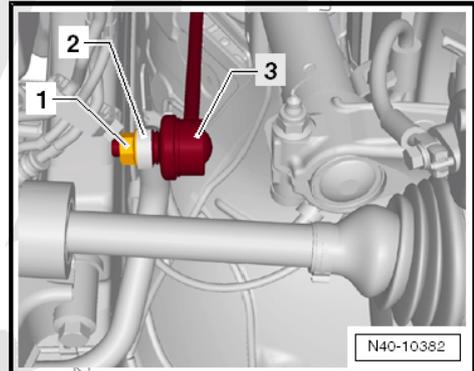




- Only unscrew left suspension link from swivel joint.



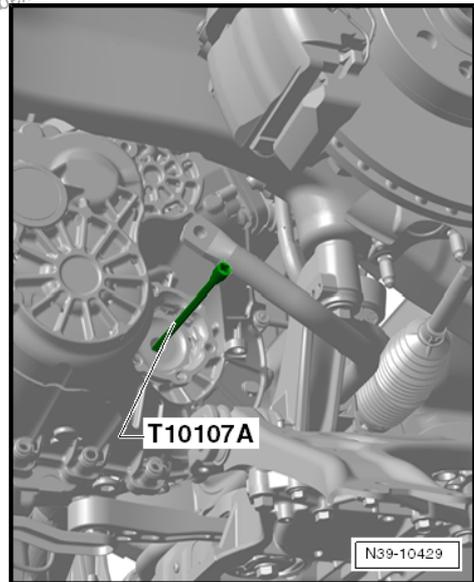
- Unscrew nut -1- from coupling rod -3- => Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .
- Pull off coupling rod and turn anti-roll bar -2- upwards slightly.
- Swing left drive shaft into wheel housing.
- Raise drive shaft as high as possible and secure. Take care not to damage paint on drive shaft in the process.
- Place drip tray under gearbox.



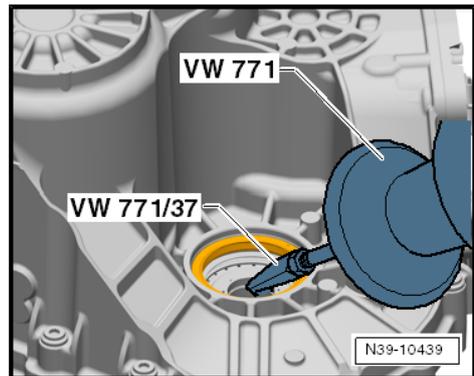
- Remove left flange shaft of gearbox.

Bolt has a 6 mm hexagon socket. Bolt can also be removed and installed with socket -V.A.G 1669- .

- Pull out flange shaft.

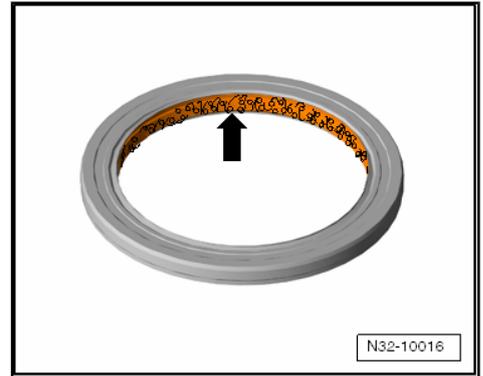


- Remove flange shaft oil seal.
- Lightly oil outer circumference of new radial oil seal.

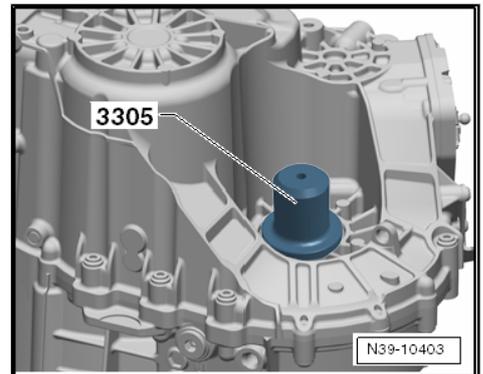




- Half-fill space between sealing lip and dust lip of new oil seal with sealing grease -G 052 128- -arrow-.



- Drive in new radial oil seal to stop with thrust piece -3305- , being careful not to cant radial oil seal.
- Insert flange shaft.
- Tighten new countersunk bolt to 30 Nm. When doing this, press flange shaft against gearbox so that bolt engages in thread.
- Fit drive shaft back on => Rep. gr. 40 ; Removing and installing drive shafts .



- Fit suspension link and coupling rod back on => Rep. gr. 40 ; Removing and installing drive shafts .
- Renew gear oil => [page 64](#) .
- Install noise insulation; torque settings => Rep. gr. 50 ; Assembly overview - noise insulation .

