



## Workshop Manual

up! 2012 ➤

up! 2017 ➤

**Installed automated 5-speed manual gearbox OCT**

Edition 10.2016





## List of Workshop Manual Repair Groups

### Repair Group

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



## Contents

<b>00 - Technical data</b>	<b>1</b>
<b>1 Safety information</b>	<b>1</b>
1.1 General safety provisions	1
1.2 Safety measures when working on vehicles with start/stop system	2
1.3 Notes on tow-starting/towing	2
1.4 Safety precautions when using testers and measuring instruments during a road test	2
<b>2 Identification</b>	<b>4</b>
2.1 Gearbox identification	4
<b>3 Repair notes</b>	<b>5</b>
3.1 General repair instructions	5
<b>4 Technical data</b>	<b>8</b>
4.1 Allocation gearbox - engine	8
4.2 Capacities	9
4.3 Calculation of gear ratios	9
<b>5 Overview - power transmission</b>	<b>10</b>
<b>6 Electrical components</b>	<b>12</b>
6.1 Overview of fitting locations - electrical components	12
<b>30 - Clutch</b>	<b>14</b>
<b>1 Clutch operation</b>	<b>14</b>
1.1 Assembly overview - clutch actuator	14
1.2 Removing and installing clutch actuator VX64	15
<b>2 Clutch</b>	<b>18</b>
<b>34 - Controls, housing</b>	<b>19</b>
<b>1 Selector mechanism</b>	<b>19</b>
1.1 Overview - selector mechanism	19
1.2 Assembly overview - gear knob and cover	21
1.3 Assembly overview - selector mechanism	22
1.4 Assembly overview - gear actuator	23
1.5 Removing and installing gear knob	24
1.6 Removing and installing selector cover	24
1.7 Removing, installing and (if applicable) adjusting gear lever guide	26
1.8 Removing and installing selector mechanism	27
1.9 Removing and installing gear actuator VX65	29
<b>2 Removing and installing gearbox</b>	<b>36</b>
2.1 Specified torques for gearbox	36
2.2 Removing gearbox	36
2.3 Installing gearbox	43
<b>3 Assembly mounting</b>	<b>47</b>
3.1 Assembly overview - assembly mountings	47
<b>4 Gear oil</b>	<b>49</b>
4.1 Checking gear oil level	49
4.2 Draining and filling gear oil	49
<b>35 - Gears, shafts</b>	<b>51</b>
<b>1 Input shaft</b>	<b>51</b>
<b>2 Output shaft</b>	<b>52</b>
<b>3 Reverse shaft</b>	<b>53</b>
<b>39 - Final drive - differential</b>	<b>54</b>



<b>1</b>	<b>Oil seals</b>	<b>54</b>
1.1	Overview of fitting locations - seals	54
1.2	Renewing left oil seal	55
1.3	Renewing right oil seal	56
<b>2</b>	<b>Differential</b>	<b>57</b>
<b>3</b>	<b>Adjustment overview</b>	<b>58</b>
<b>4</b>	<b>Gearbox control system</b>	<b>59</b>
4.1	Overview of fitting locations - gearbox control	59
4.2	Removing and installing electronic manual gearbox control unit J514	59
4.3	Removing and installing gearbox input speed sender G182	59



## 00 – Technical data

### 1 Safety information

(VRL009692; Edition 10.2016)

⇒ [“1.1 General safety provisions”, page 1](#)

⇒ [“1.2 Safety measures when working on vehicles with start/stop system”, page 2](#)

⇒ [“1.3 Notes on tow-starting/towing”, page 2](#)

⇒ [“1.4 Safety precautions when using testers and measuring instruments during a road test”, page 2](#)

#### 1.1 General safety provisions

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 working on a vehicle with engine running, move selector lever in position “N”, and put on the handbrake.*

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 ⇒ Electrical system; Rep. gr. 27 ; Battery, Disconnecting and reconnecting battery .



## 1.2 Safety measures when working on vehicles with start/stop system

Observe the following when working on vehicles with a start/stop system:



### WARNING

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

- ◆ *In vehicles with an activated start/stop system (indicated by a message in the dash panel insert), the engine could start automatically.*
- ◆ *When working on the vehicle, always make sure that the start-stop system is deactivated (switch off the ignition; switch the ignition on again if necessary).*

## 1.3 Notes on tow-starting/towing



### Caution

*Danger of irreparable damage to gearbox.*

- ◆ *Selector lever must be in "N" position for towing vehicle.*



### Note

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

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

Observe the following if test and measuring equipment is required during a road test:



### WARNING

*Risk of accident from distraction and inadequate securing of test and measuring equipment.*

*Danger of front passenger airbag triggering in the event of an accident.*

- *Operating test and measuring equipment while driving causes distraction.*
- *Greater injury hazard as a result of unsecured test and measuring equipment.*
- ◆ *Always strap in place test and measuring equipment on rear seat and have a 2nd person sitting on the rear seat to operate them.*



**Please note the following to avoid personal injury and damage to, or destruction of, electrical and electronic components:**

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





## 2 Identification

⇒ "2.1 Gearbox identification", page 4

### 2.1 Gearbox identification

Code letters and production date -arrow 1- manual gearbox  
OCT-arrow 2-

Manual gearbox OCT -arrow 2-

Codes and production date of gearbox

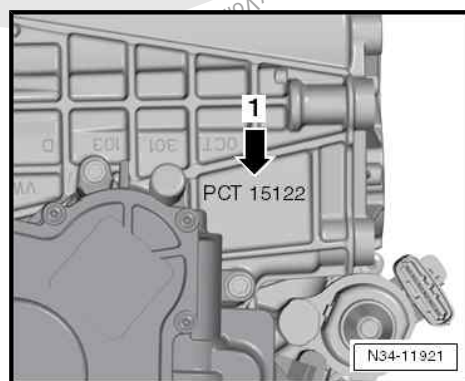
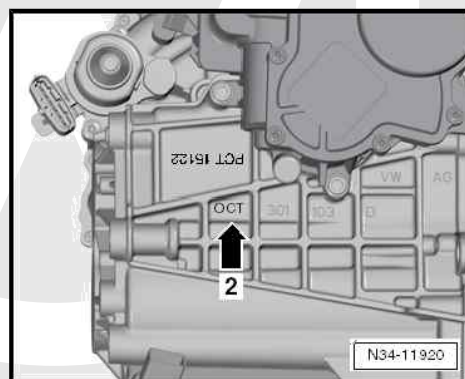
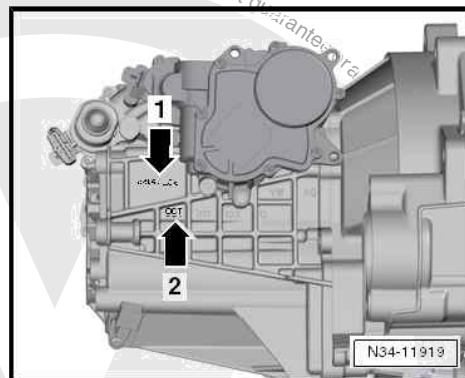
Example:	PCT	15	12	2
	Code	Day	Month	Year (2012) of manufacture

Additional data provide information about the production facility.



**Note**

*The gearbox code is also included on the vehicle data stickers.*







## 3 Repair notes

⇒ [“3.1 General repair instructions”, page 5](#)

### 3.1 General repair instructions

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

A number of general notes on the individual repair procedures, which can otherwise be found in the relevant sections of the manual, are summarised here. They apply for this particular workshop manual.

#### Special tool

For a complete list of special tools used in this workshop manual, see ⇒ Workshop equipment and special tools .

#### Gearbox

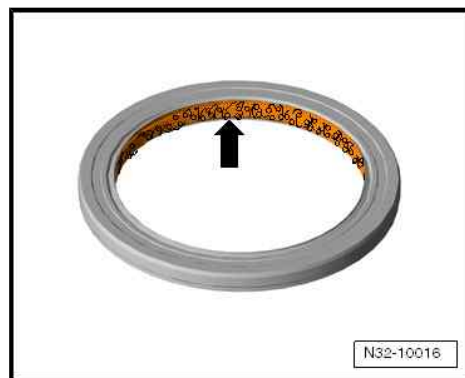
- ◆ Before removing, carry out Automatically read measured values via Gearbox electronics functions using ⇒ vehicle diagnosis tester .
- ◆ When installing the manual gearbox, ensure that the dowel sleeves between the engine and gearbox are correctly seated.
- ◆ When installing mounting brackets or waxed components, clean the contact surfaces. Contact surfaces must be free of wax and grease.
- ◆ Allocate bolts and other components using the ⇒ Electronic parts catalogue (ETKA) .
- ◆ Following installation, check gear oil level ⇒ [page 49](#) .
- ◆ Gear oil ⇒ Electronic parts catalogue (ETKA) .
- ◆ Capacity ⇒ [page 9](#)



## Gaskets and seals

After removing gaskets and seals, always inspect contact surfaces of housing and shaft for burrs resulting from removal or for other signs of damage.

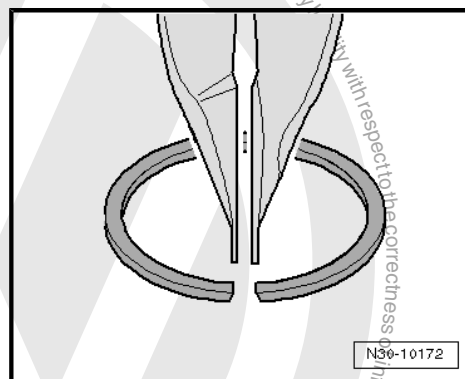
- ◆ Thoroughly clean joint surfaces and apply sealant .
- ◆ Allocation ⇒ Electronic parts catalogue (ETKA)
- ◆ Before installing radial oil seals, half-fill space between sealing lips with sealing grease -arrow-.
- ◆ Allocate grease using ⇒ Electronic parts catalogue (ETKA) .
- ◆ The open side of the oil seals faces toward the side with fluid filling.
- ◆ Lightly oil O-rings before installing; this prevents the rings being crushed when inserted.



## Sealant

- ◆ Thoroughly clean housing joint surfaces before applying sealant .
- ◆ Apply sealant uniformly and not too thickly.
- ◆ Allocation ⇒ Electronic parts catalogue (ETKA) .
- ◆ Breather holes must remain free of sealant .

## Locking devices

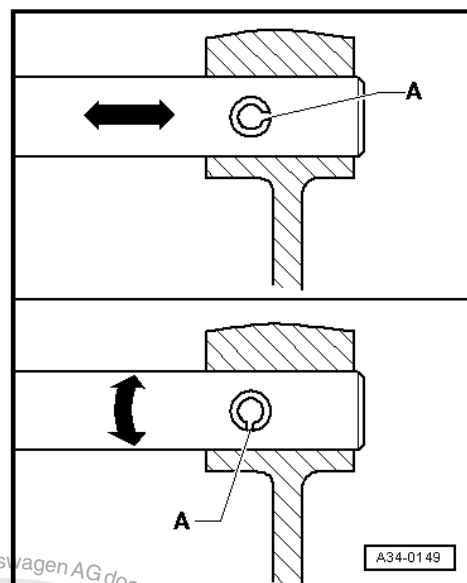




- ◆ Do not overstretch retaining rings.
- ◆ Installation position for retaining rings: At the top, the ring is »narrower« and its installation position therefore as well. This make it possible for the pliers to gain a better grip during removal and installation.
- ◆ Renew retaining rings which have been damaged or over-stretched after removal.
- ◆ Retaining rings must locate properly in grooves.
- ◆ Renew spring pins. Installation position: slit -A- should be in line with the line of force -arrow-.

#### Nuts and bolts

- ◆ Loosen and tighten securing bolts and nuts for covers and housings diagonally.
- ◆ Do not cant especially delicate parts, such as clutch pressure plates. Loosen and tighten bolts and nuts in stages in a diagonal sequence.
- ◆ Specified torques given are for uncoiled nuts, bolts and screws.
- ◆ Renew self-locking bolts and nuts after each removal.
- ◆ Ensure with threaded connections that contact surfaces as well as nuts and bolts are rewaxed only after assembly, if necessary.
- ◆ Residual locking agent must be removed from all threaded holes into which self-locking bolts are screwed; this is done with a screw tap. Otherwise there is a danger of bolts shearing when subsequently being removed.
- ◆ Check pitch of thread, to ensure correct thread chaser is used to clean threads and to ensure the threads are not damaged.





## 4 Technical data

⇒ "4.1 Allocation gearbox - engine", page 8 .

⇒ "4.2 Capacities", page 9 .

⇒ "4.3 Calculation of gear ratios", page 9 .

### 4.1 Allocation gearbox - engine

Manual gearbox		5-speed, OCT		
Code		PCT	PCS	QCK
Manufactured	from to	05.12 11.13	05.12 11.13	11.13 05.15
Allocation	Engine	1.0 l - 44 KW	1.0 l - 55 KW	1.0 l - 44 KW
Ratio Z2 : Z1	Final drive	74 : 19 = 3.895	75 : 18 = 4.1666	74 : 19 = 3.895

Glean following data from ⇒ Electronic parts catalogue (ETKA) :

- ◆ Individual gear ratios
- ◆ Gear oil
- ◆ Clutch allocation

Manual gearbox		5-speed, OCT		
Code		QCL	QCM	RNC
Manufactured	from to	11.13 05.15	05.14 05.15	05.15
Allocation	Engine	1.0 l - 55 KW	1.0 l - 55 KW	1.0 l - 44 KW
Ratio Z2 : Z1	Final drive	75 : 18 = 4.1666	77 : 16 = 4.8125	74 : 19 = 3.895

Glean following data from ⇒ Electronic parts catalogue (ETKA) :

- ◆ Individual gear ratios
- ◆ Gear oil
- ◆ Clutch allocation

Manual gearbox		5-speed, OCT		
Code		RND	RNE	SEQ
Manufactured	from to	05.15	05.15	05.15
Allocation	Engine	1.0 l - 55 KW	1.0 l - 55 KW	1.0 l - 44 KW
Ratio Z2 : Z1	Final drive	75 : 18 = 4.1666	75 : 18 = 4.1666	74 : 19 = 3.895

Glean following data from ⇒ Electronic parts catalogue (ETKA) :

- ◆ Individual gear ratios
- ◆ Gear oil
- ◆ Clutch allocation



Manual gearbox		5-speed, OCT		
Code		SER	SES	
Manufactured	from to	05.15	05.16	
Allocation	Engine	1.0 l - 44 KW 1.0 l - 55 KW	1.0 l - 55 KW	
Ratio Z2 : Z1	Final drive	75 : 18 = 4.1666	77 : 16 = 4.812	

Glean following data from ⇒ Electronic parts catalogue (ETKA) :

- ◆ Individual gear ratios
- ◆ Gear oil
- ◆ Clutch allocation

## 4.2 Capacities

Capacity of manual gearbox (gearbox completely dismantled)	1.3 l
Capacity of manual gearbox (if oil leaked during work on assembled gearbox, or if gearbox was removed and reinstalled)	1.1 l

## 4.3 Calculation of gear ratios

Example:

	5th gear	Final drive
Drive gear	ZG <sub>1</sub> = 46	ZA <sub>1</sub> = 24
Driven gear	ZG <sub>2</sub> = 33	ZA <sub>2</sub> = 70

$$i = ZG_2 : ZG_1 \quad 1)$$

$$i_G = \text{Gear ratio} = ZG_2 : ZG_1 = 33 : 46 = 0.717$$

$$i_A = \text{Final drive ratio} = ZA_2 : ZA_1 = 70 : 24 = 2.917$$

$$i_{\text{total}} = \text{Overall ratio} = i_G \times i_A = 0.717 \times 2.917 = 2.091$$

1) Z<sub>1</sub> = No. of teeth on driving gear, Z<sub>2</sub> = No. of teeth on driven gear

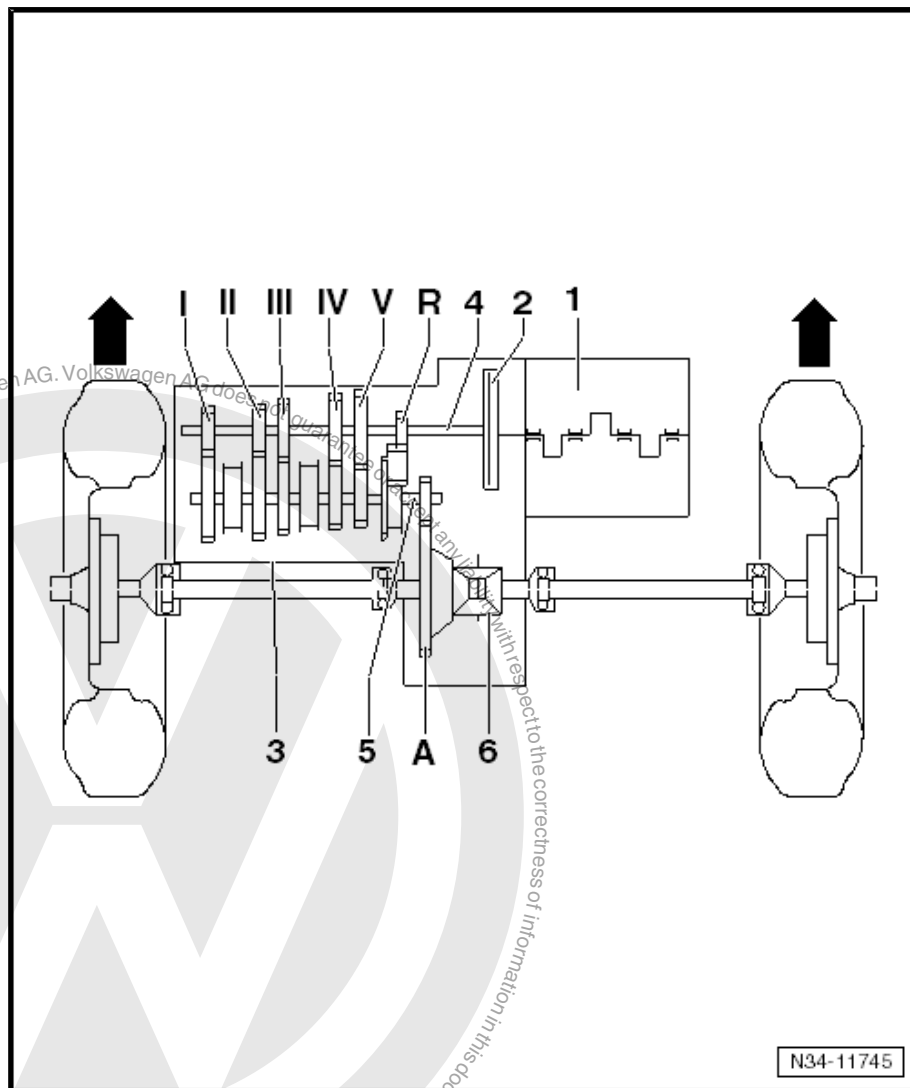


## 5 Overview - power transmission

### Designation:

-Arrows- point in direction of travel.

- 1 - Engine
- 2 - Clutch
- 3 - Manual gearbox
- 4 - Input shaft
- 5 - Output shaft
- 6 - Differential

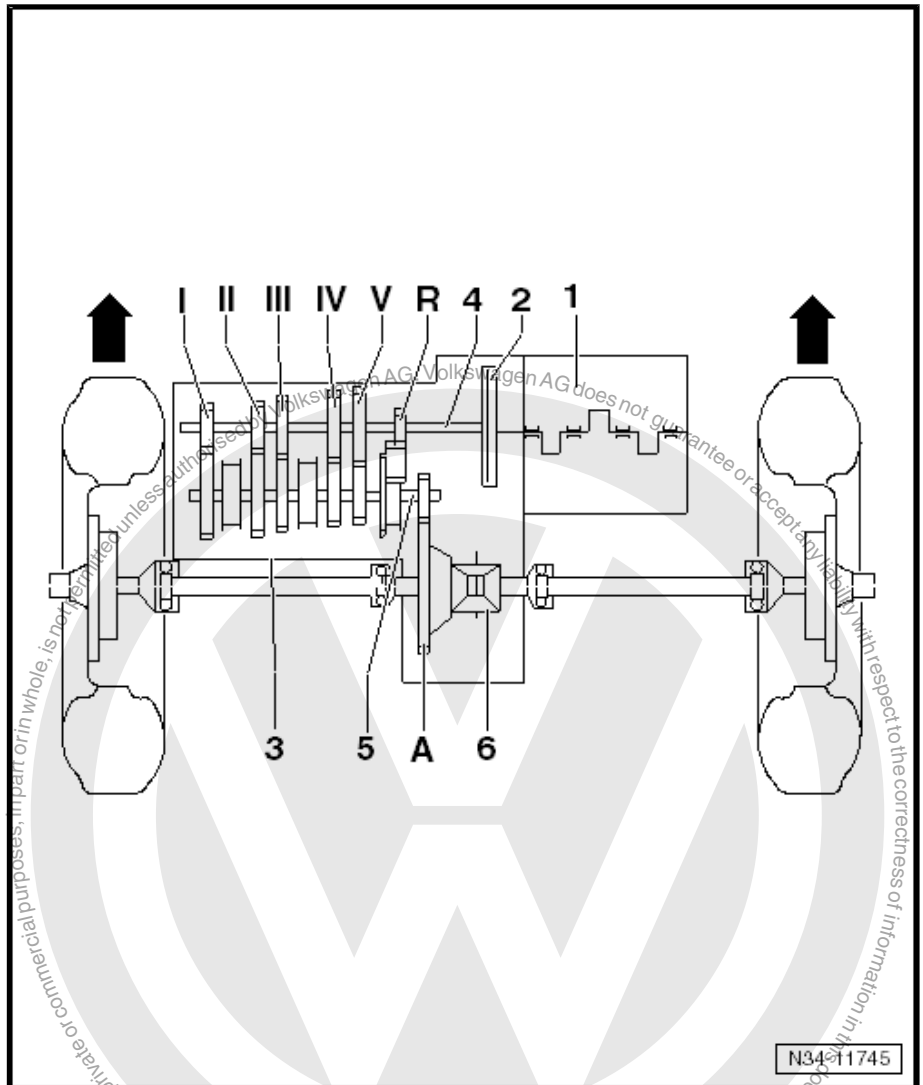


### Ratio

-Arrows- point in direction of travel.



- I - 1st gear
- II - 2nd gear
- III - 3rd gear
- IV - 4th gear
- V - 5th gear
- R - Reverse gear
- A - Final drive



## 6 Electrical components

⇒ "6.1 Overview of fitting locations - electrical components", page 12

### 6.1 Overview of fitting locations - electrical components

#### 1 - Clutch actuator - VX64-

- ☐ With motor for clutch actuator - V530-
- ☐ ⇒ "1.1 Assembly overview - clutch actuator", page 14
- ☐ Removing and installing ⇒ page 15
- ☐ Protect connector and connector housing against damage.
- ☐ Perform Basic Setting using Guided Functions in ⇒ vehicle diagnostic tester

#### 2 - Gear actuator - VX65-

- ☐ With motor 1 for gear actuator - V528- and motor 2 for gear actuator - V529-
- ☐ ⇒ "1.4 Assembly overview - gear actuator", page 23
- ☐ Removing and installing ⇒ page 29
- ☐ Protect connector and connector housing against damage.
- ☐ Perform Basic Setting using Guided Functions in ⇒ vehicle diagnostic tester

#### 3 - Gearbox input speed sender - G182-

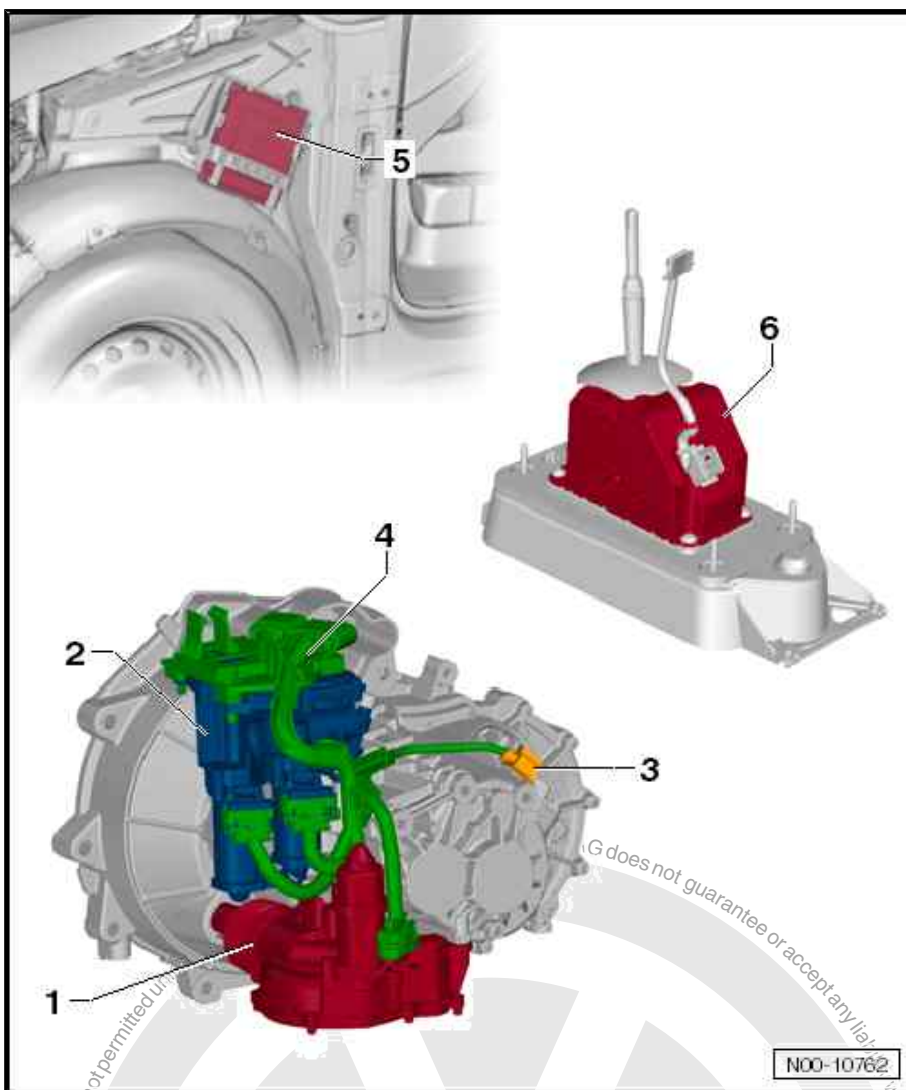
- ☐ Protect against damaged.
- ☐ Removing and installing ⇒ page 59

#### 4 - Wiring harness with retainer

- ☐ With connectors for clutch actuator - VX64- , gear actuator - VX65- and gearbox input speed sender - G182- .
- ☐ Do not interchange connectors.
- ☐ Protect connector and connector housing against damage.
- ☐ Removing retainer with wiring harness ⇒ page 32
- ☐ The wiring harness can be removed from retainer.

#### 5 - Electronic manual gearbox control unit - J514-

- ☐ The electronic manual gearbox control unit - J514- is located in upper area of left front wheel housing.
- ☐ Removing and installing ⇒ page 59
- ☐ Perform Basic Setting using Guided Functions in ⇒ vehicle diagnostic tester







## 6 - Selector mechanism with selector lever - E313-

- ❑ Removing and installing selector mechanism ➔ [page 27](#)





## 30 – Clutch

### 1 Clutch operation

⇒ “1.1 Assembly overview - clutch actuator”, page 14

⇒ “1.2 Removing and installing clutch actuator VX64”, page 15

#### 1.1 Assembly overview - clutch actuator



##### Note

- ◆ Disconnect battery earth strap ⇒ *Electrical system; Rep. gr. 27; Battery; Disconnecting and connecting battery.*
- ◆ When reconnecting battery, follow procedure after connecting battery ⇒ *Electrical system; Rep. gr. 27; Battery; Disconnecting and connecting battery.*

##### 1 - Gearbox

##### 2 - Clutch actuator - VX64

- ☐ With motor for clutch actuator - V530-
- ☐ Plunger as of December 2015 with grease cap ⇒ [page 16](#)
- ☐ Phased introduction
- ☐ Removing and installing clutch actuator ⇒ [page 15](#)
- ☐ Allocate clutch actuator via ⇒ Electronic parts catalogue (ETKA)
- ☐ Perform Basic Setting using Guided Functions in ⇒ vehicle diagnostic tester

##### 3 - Bolt

- ☐ Renew after removal
- ☐ 5 Nm and turn 90° further

##### 4 - Bolt

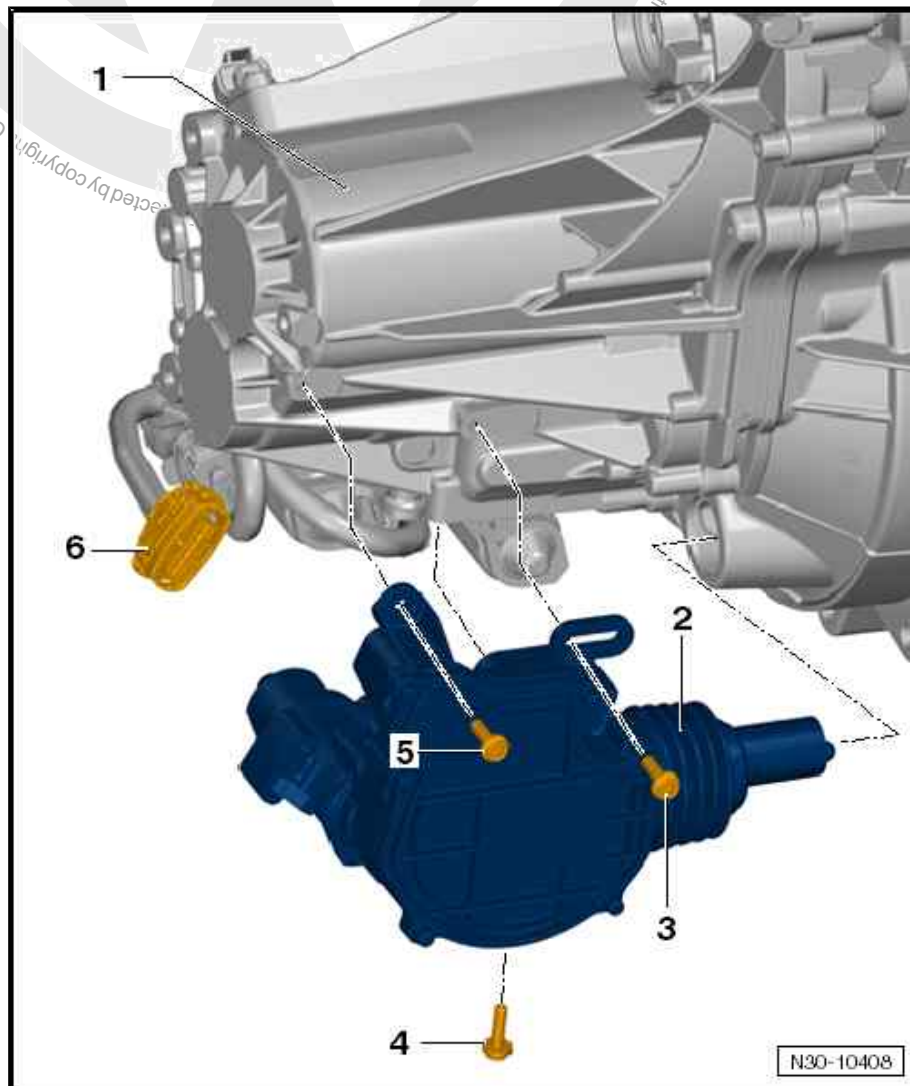
- ☐ Renew after removal
- ☐ 5 Nm and turn 90° further

##### 5 - Bolt

- ☐ Renew after removal
- ☐ 5 Nm and turn 90° further

##### 6 - Connector

- ☐ Protect connector and connector housing against damage.





## 1.2 Removing and installing clutch actuator - VX64-

Special tools and workshop equipment required

- ◆ Torque wrench - VAS 6583-



- ◆ Clutch actuator with grease cap, clutch plate spine grease  
⇒ [page 16](#)
- ◆ Allocate grease using ⇒ Electronic parts catalogue (ETKA) .

Clutch actuator - VX64- is removed and installed from under vehicle.

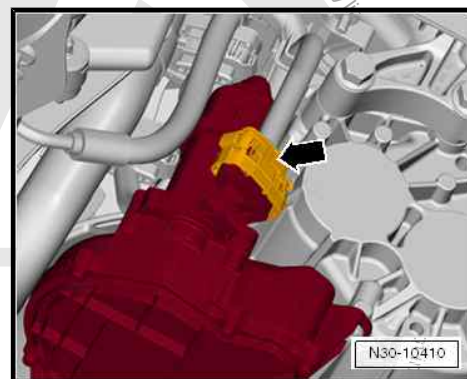
### Removing



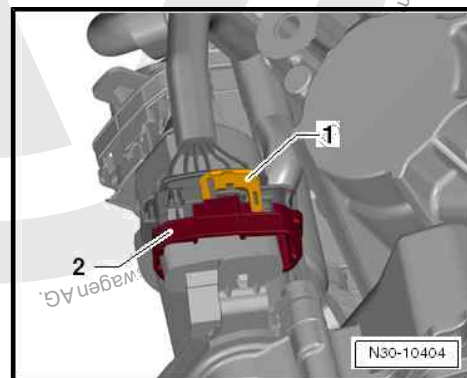
**DANGER!**

*Do not open clutch actuator - VX64- , risk of injury!*

- Disconnect electrical connector -arrow-



- To disconnect, pull latch -1- towards cable and push catch -2- to side.

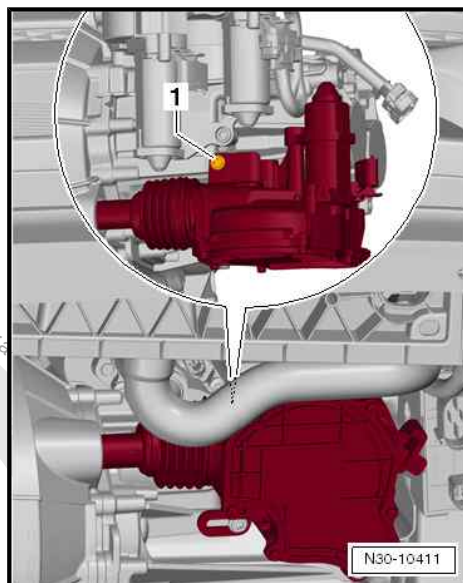




- Remove securing bolt -1-.
- Remove securing bolt -2- (⇒ next fig.).
- Loosen securing bolt -3- (⇒ next fig.).

If necessary, push clutch actuator to stop of elongated hole for securing bolt -3-.

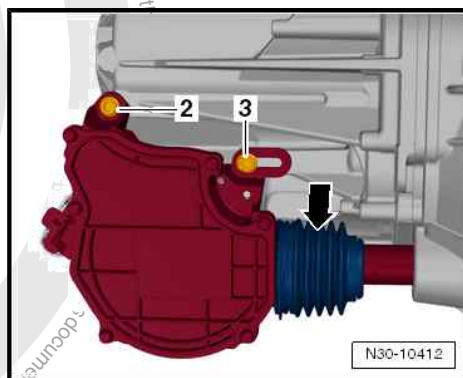
- Remove securing bolt -3- and remove clutch actuator (⇒ next fig.).



**Do not damage bellows -arrow A-.**

#### Installing

Install in the reverse order of removal, observing the following:



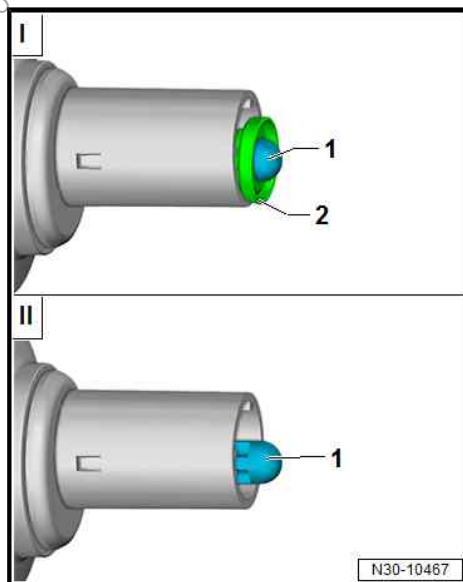
#### Identifying clutch actuator

**-I- = plunger -1- as of December 2015 with grease cap -2-**

- Apply some clutch plate spline grease to the top of the plunger -1-
- Fill grease cap -2- to edge with clutch plate spline grease
- Allocate grease using ⇒ Electronic parts catalogue (ETKA) .

**-II- = plunger -1- without grease cap**

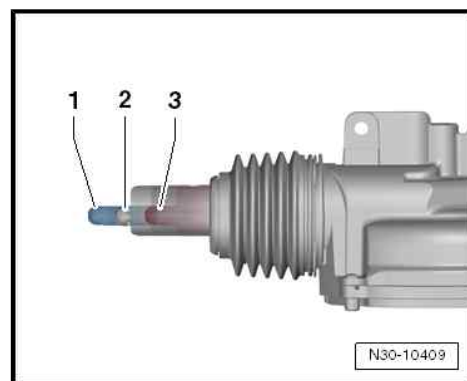
- Do NOT grease plunger -1-



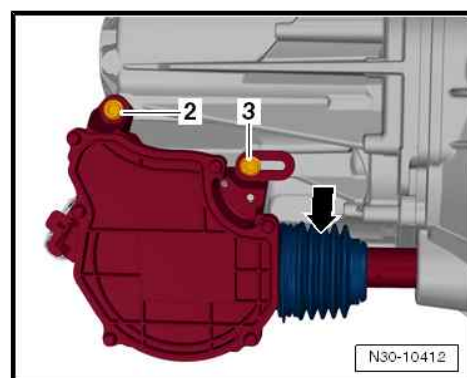


## Continuation for all

- Do NOT pull or push plunger.
- The plunger may be in different positions, e.g. -1-, -2- or -3-.

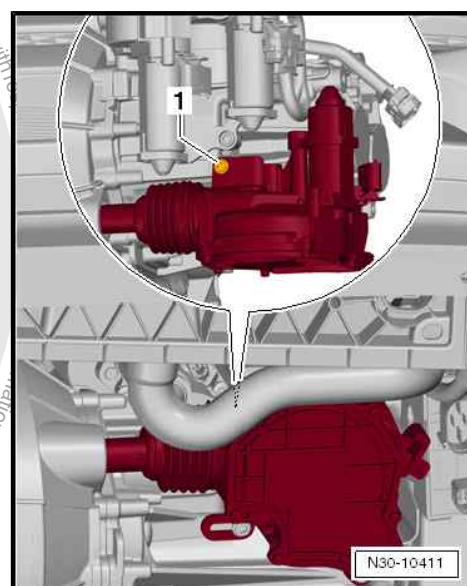


- Do not damage bellows -arrow A-.
- Clean plunger support in clutch release lever.
- Insert plunger into clutch release lever.
- Push clutch actuator to stop of elongated hole and screw in securing bolt -3- hand-tight.
- Screw in securing bolt -2- hand-tight.



Screw in securing bolt -1- hand-tight.

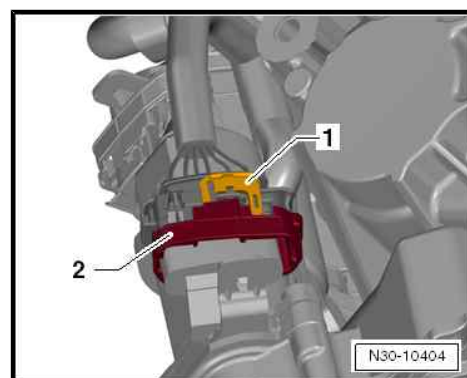
Tighten all securing bolts to specified torque.



- Connect connector as follows:
- Catch -2- must engage.
- Push latch -1- towards clutch actuator.
- Slightly pull on connector to ensure it is properly engaged.
- Perform **Basic Setting** using **Guided Functions** in ⇒ vehicle diagnostic tester .

## Torque settings

- ◆ Clutch actuator to gearbox ⇒ [page 14](#)





## 2 Clutch

The relevant description can be found in ⇒ Rep. gr. 30 ; Clutch .





## 34 – Controls, housing

### 1 Selector mechanism

⇒ [“1.1 Overview - selector mechanism”, page 19](#) .

⇒ [“1.2 Assembly overview - gear knob and cover”, page 21](#) .

⇒ [“1.3 Assembly overview - selector mechanism”, page 22](#) .

⇒ [“1.4 Assembly overview - gear actuator”, page 23](#) .

⇒ [“1.5 Removing and installing gear knob”, page 24](#) .

⇒ [“1.6 Removing and installing selector cover”, page 24](#) .

⇒ [“1.7 Removing, installing and \(if applicable\) adjusting gear lever guide”, page 26](#) .

⇒ [“1.8 Removing and installing selector mechanism”, page 27](#) .

⇒ [“1.9 Removing and installing gear actuator VX65”, page 29](#) .

#### 1.1 Overview - selector mechanism



##### Note

- ◆ *Before working on selector mechanism in engine compartment, disconnect earth strap from battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .*
- ◆ *Removing and installing selector mechanism ⇒ [page 27](#) .*





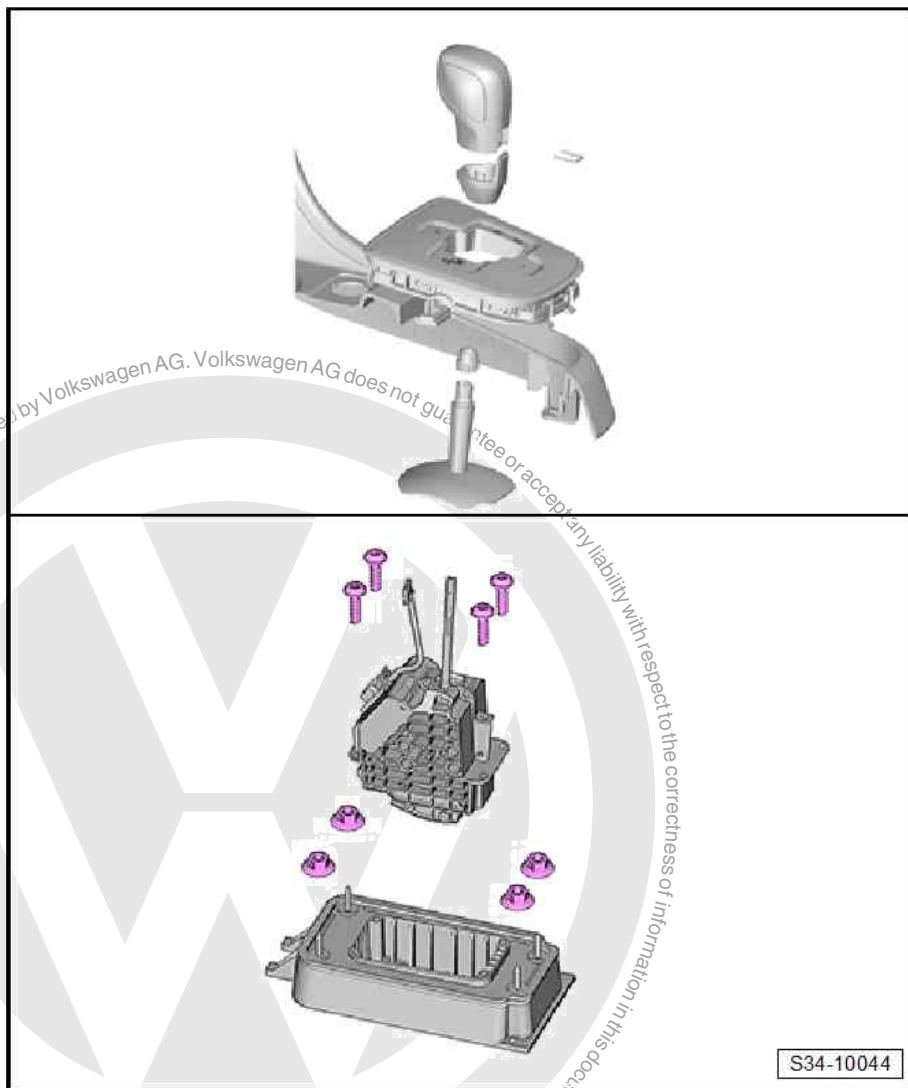


I -

⇒ **"1.2 Assembly overview - gear knob and cover", page 21 .**

II -

⇒ **"1.3 Assembly overview - selector mechanism", page 22 .**







## 1.2 Assembly overview - gear knob and cover

### 1 - Gear knob

- ☐ Removing and installing  
 ⇒ [page 24](#)

### 2 - Clip

- ☐ For securing gear knob to gear lever
- ☐ Availability ⇒ Electronic parts catalogue (ETKA)

### 3 - Trim

- ☐ Availability ⇒ Electronic parts catalogue (ETKA)

### 4 - Selector cover

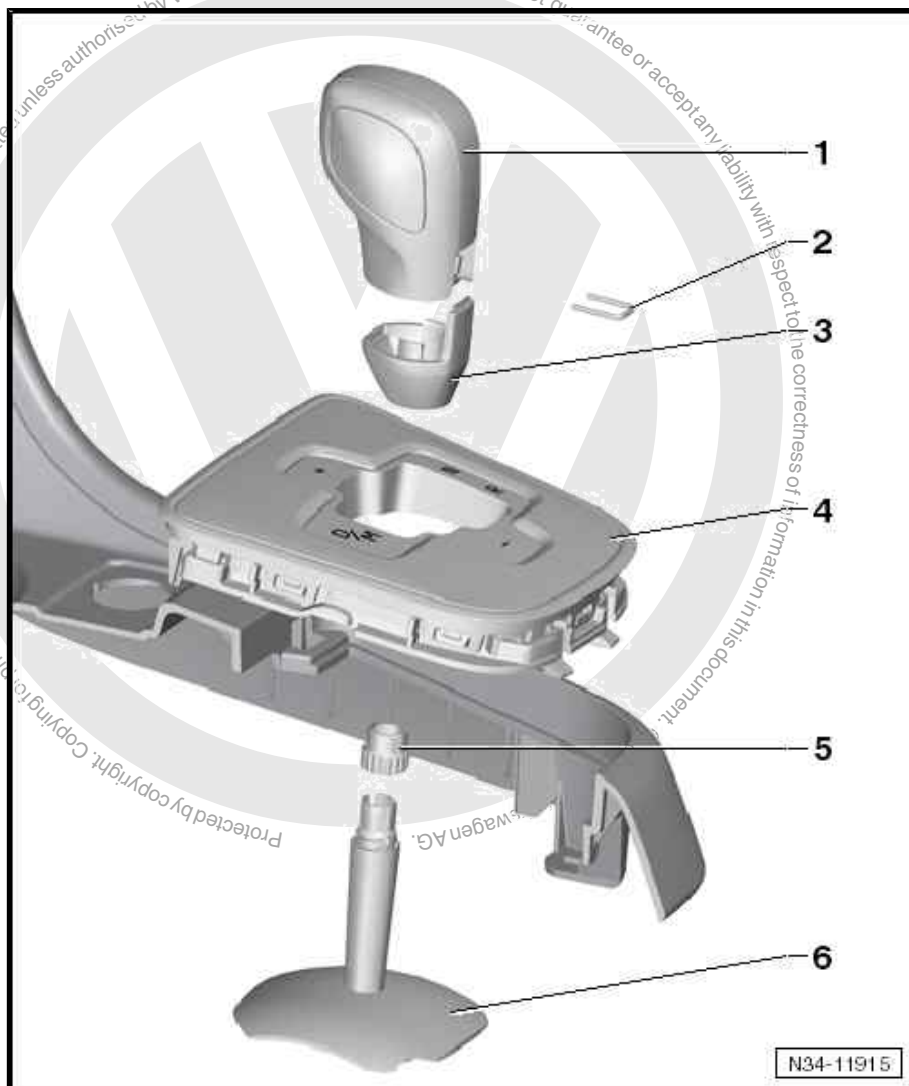
- ☐ Removing and installing  
 ⇒ [page 24](#)

### 5 - Adjustment wheel

- ☐ For adjusting guide
- ☐ Availability ⇒ Electronic parts catalogue (ETKA)

### 6 - Guide

- ☐ Installation position  
 ⇒ [page 26](#)
- ☐ Adjusting ⇒ [page 26](#)





## 1.3 Assembly overview - selector mechanism

### 1 - Selector mechanism

- ❑ With integrated selector lever - E313-
- ❑ Removing and installing  
⇒ [page 27](#)

### 2 - Bolt

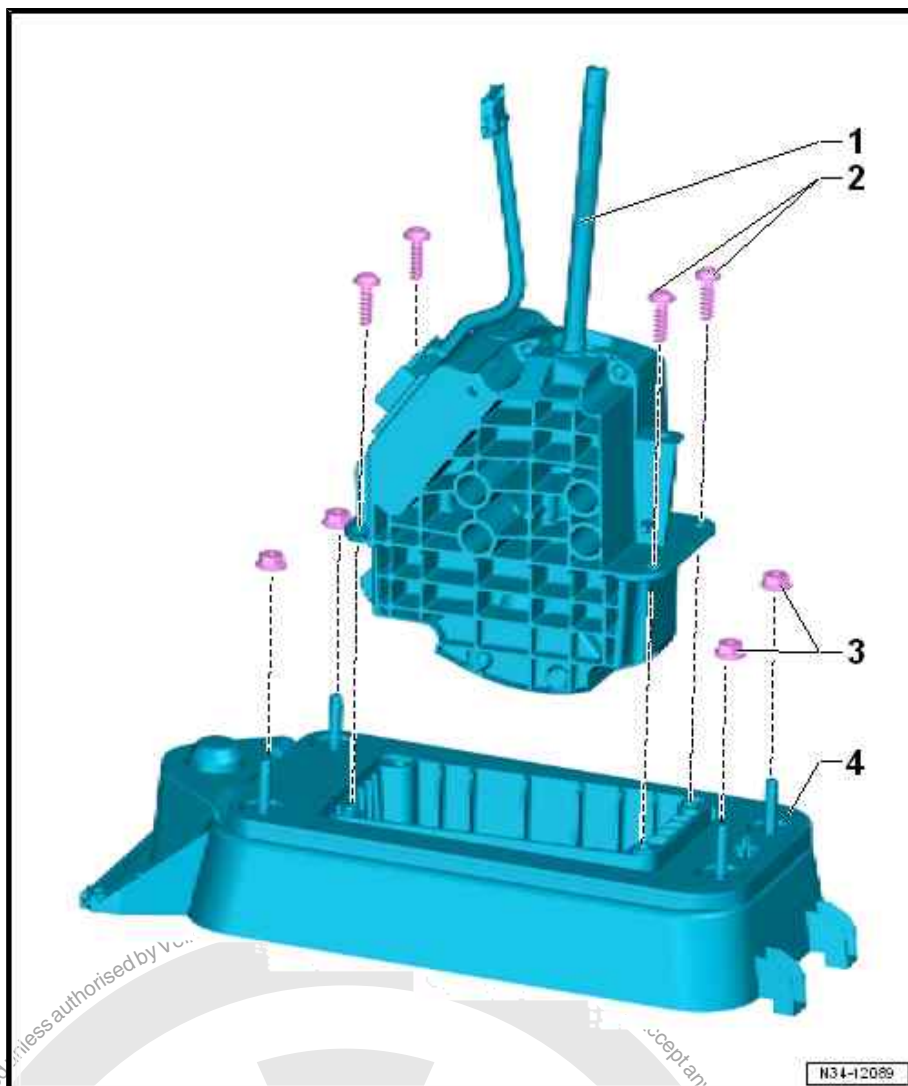
- ❑ Selector mechanism to selector housing
- ❑ Qty. 4
- ❑ 8 Nm

### 3 - Hexagon flange nut

- ❑ Gearbox housing with crash plate on underbody
- ❑ Qty. 4
- ❑ 8 Nm

### 4 - Selector housing

- ❑ Combined with crash plate and seals in a single component
- ❑ To be renewed together after removal
- ❑ Removing and installing  
⇒ [page 27](#)





## 1.4 Assembly overview - gear actuator



### Caution

Observe the following when removing the gear actuator:

- The gear actuator must be in neutral position.
- To do this, move selector lever - E313- to position "N" with ignition switched on.
- Alternatively you can set the neutral position using the vehicle diagnosis, testing and information system - VAS 5051-.

Only disassemble the gear actuator if it cannot be removed in assembled condition.

A gear actuator which has been disassembled must not be installed again.

The illustrated components of the gear actuator are no replacement parts.

◆ Also refer to [page 29](#).

### 1 - Selector shaft

### 2 - Bolt

- ☐ Gear actuator to gear-box
- ☐ Renew after removal
- ☐ 5 Nm and turn 90° further

### 3 - Gear actuator - VX65-

- ☐ Removing and installing gear actuator - VX65- [⇒ page 29](#)
- ☐ Protect connector and connector housing against damage.

Perform [Basic Setting](#) using [Guided Functions](#) in [⇒ vehicle diagnostic tester](#).

### 4 - Bolt

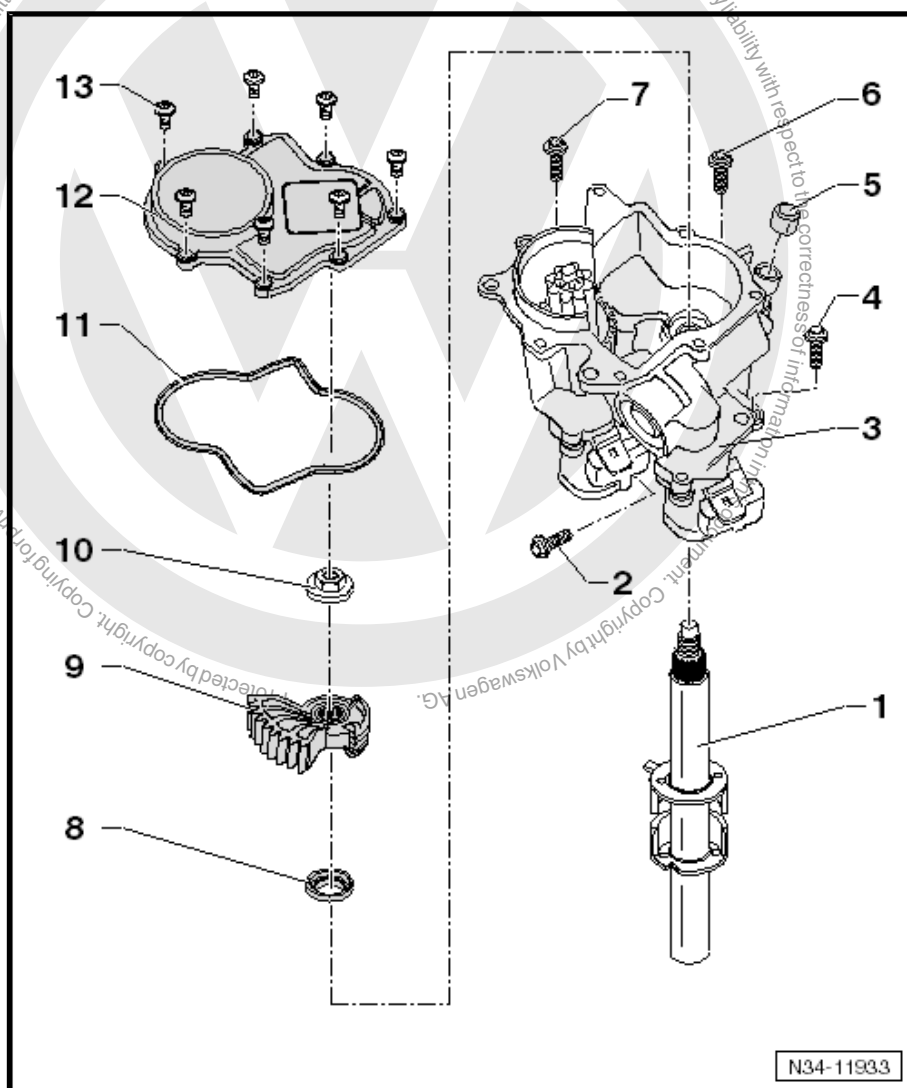
- ☐ Gear actuator to gear-box
- ☐ Renew after removal
- ☐ 5 Nm and turn 90° further

### 5 - Cap

- ☐ For gearbox breather

### 6 - Bolt

- ☐ Gear actuator to gear-box
- ☐ Renew after removal
- ☐ 5 Nm and turn 90° further





## 7 - Bolt

- ☐ Gear actuator to gearbox
- ☐ Renew after removal
- ☐ 5 Nm and turn 90° further

## 8 - Sealing ring

## 9 - Gearbox selector lever

## 10 - Hexagon nut

## 11 - Seal

## 12 - Cover

## 13 - Bolt

# 1.5 Removing and installing gear knob

## Removing

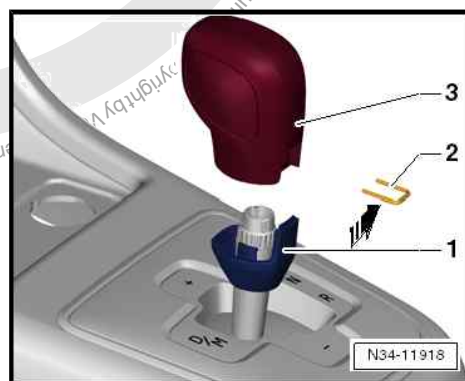
- Press down trim -1-.
- Carefully pull out clip -2- from below -arrow- using a pointed object and remove it if necessary.



### Caution

*In most selector mechanisms clip -2- can be pulled out of gear knob completely.*

*Do not drop clip -2- into the selector mechanism if you pull it out completely.*



If necessary, trim -A- can be unclipped upwards carefully for pulling out clip -2-.

The illustration of trim -A- is different from the original trim.

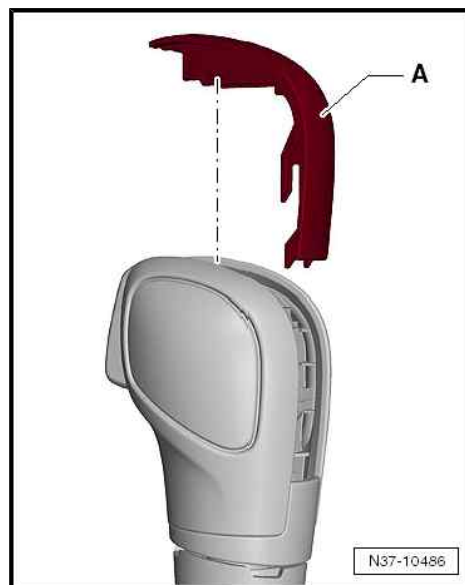
- Pull off gear knob -3- (⇒ previous illustration).

## Installing

- Gear knob -3- is in removed condition.
- Press in clip -2- to stop.
- Press both trims onto gear knob -3- to stop.

Gear knob fits only in one position.

- Press gear knob on onto stop.



# 1.6 Removing and installing selector cover

Special tools and workshop equipment required



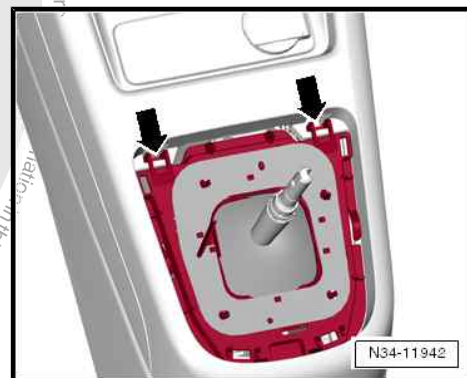
◆ Removal wedge - 3409-



- Remove gear knob ➤ [page 24](#) .
- Carefully lever off cover using removing wedge - 3409-  
 -arrows-



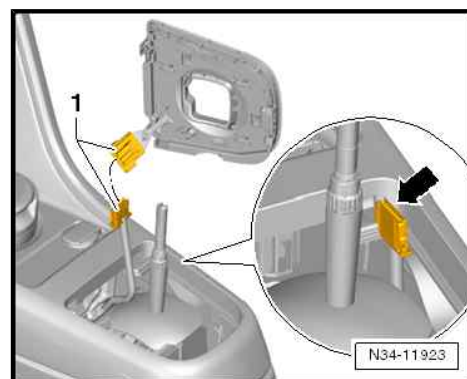
- If necessary, carefully lever off lower part of cover using a screwdriver -arrows-



- Separate connector -1-
- Press upper and lower part of cover together when installing.
- Connect electrical connector -1-

Position connector in front area of centre console -arrow- as shown in illustration.

- The connector must not make contact with the selector mechanism.
- First, insert front of cover (-arrows- ➤ previous illustration). Then, engage rear of cover in centre console.
- The cover must not make contact with the gear lever guide.
- Check gear lever guide, and adjust it if necessary ➤ [page 26](#) .
- Install gear knob ➤ [page 24](#) .







## 1.7 Removing, installing and (if applicable) adjusting gear lever guide

Special tools and workshop equipment required

- ◆ Protective caps - T10250-

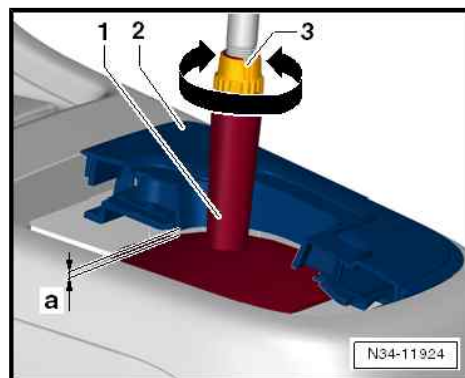
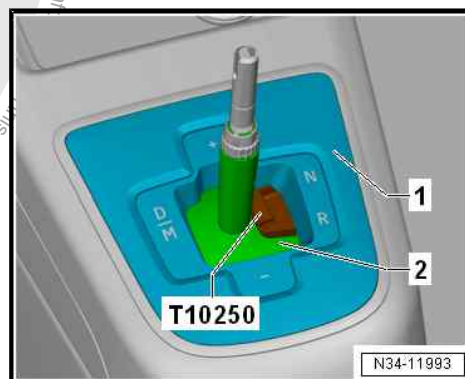
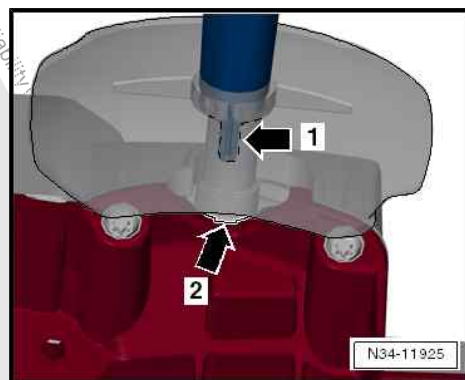
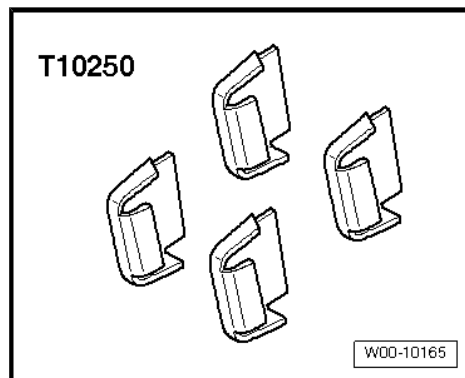
- To remove or install, remove/install selector cover  
⇒ [page 24](#) .

### Installation position of gear lever guide

The pin -arrow 1- must engage in notch -arrow 2-.

- To adjust, position protective cap - T10250- between cover  
-1- and gear stick guide -2-. Loosen wheel -3- (⇒ next figure)  
to do this.

- Dimension -a- = approx. 1 mm
- Tighten wheel -3- hand-tight.
- The gear lever guide -1- must not make contact with cover  
-2-.





## 1.8 Removing and installing selector mechanism

⇒ ["1.8.1 Removing and installing selector mechanism without selector housing", page 27](#)

⇒ ["1.8.2 Removing and installing selector mechanism and selector housing", page 28](#)

### 1.8.1 Removing and installing selector mechanism without selector housing

Selector mechanism is located in selector housing

⇒ [Item 4 \(page 22\)](#) .

Selector housing remains in vehicle.

#### Special tools and workshop equipment required

- ◆ Torque wrench - VAS 6583-

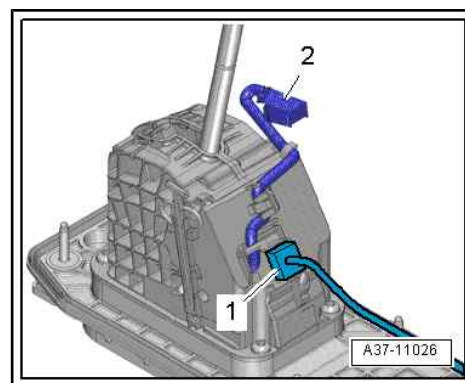
VAS 6583



W00-11263

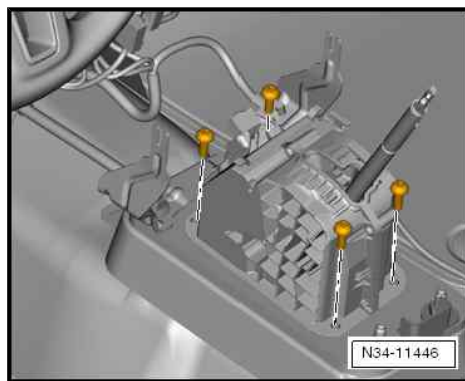
#### Removing

- Disconnect battery earth strap ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove gear knob ⇒ [page 24](#) .
- Remove selector mechanism cover ⇒ [page 24](#) . To do this, disconnect connector -2-.
- Remove gear lever guide ⇒ [page 26](#) .
- Remove upper part of centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Separate connector -1-.





- Remove 4 bolts.

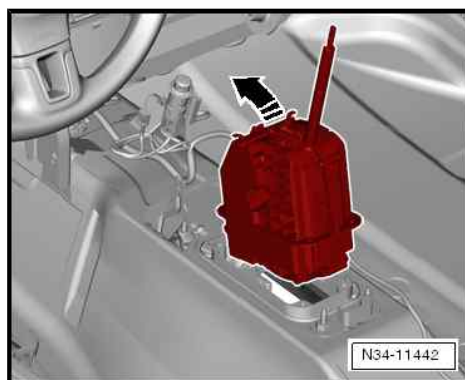


- Remove selector mechanism.

### Installing

Install in reverse order of removal. When doing so, observe the following:

- Install upper part of centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Install cover for selector mechanism ⇒ [page 24](#) .
- Check gear lever guide and adjust as necessary ⇒ [page 26](#) .
- Install gear knob ⇒ [page 24](#) .



### Torque settings

- ◆ Selector mechanism to selector housing ⇒ [page 22](#)

## 1.8.2 Removing and installing selector mechanism and selector housing

The selector housing is combined with a crash plate and the respective seals in one component ⇒ [Item 4 \(page 22\)](#) and can be renewed only together.

### Special tools and workshop equipment required

- ◆ Torque wrench - VAS 6583-

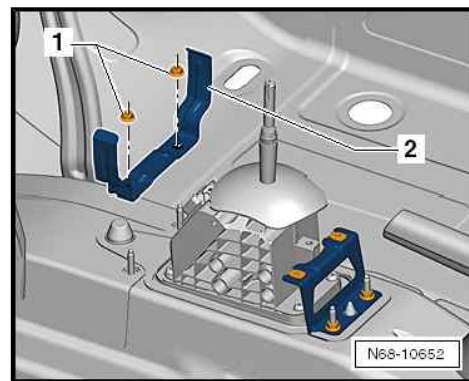






## Removing

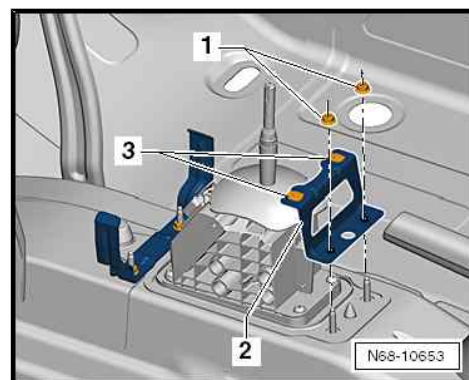
- Remove selector mechanism ➔ [page 27](#) .
- Unbolt lower part of centre console in footwell ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Unscrew nuts -1- for mounting bracket -2- and selector mechanism (shown in illustration with centre console removed and selector mechanism installed).



- Carefully, slightly lift lower part of centre console.
- Unscrew nuts -1- for mounting bracket -2- and selector mechanism (shown in illustration with centre console removed and selector mechanism installed).

Observe snap nuts -3-.

- Separate exhaust system at front separating point ➔ Rep. gr. 26 ; Exhaust pipes/silencers; Separating exhaust pipes, silencers .
- Detach exhaust system ➔ Rep. gr. 26 ; Exhaust pipes/silencers; Assembly overview - silencer .
- Remove heat shield ➔ General body repairs, exterior; Rep. gr. 66 ; Mouldings/trim/extensions/cladding; Removing and installing floor heat shield .
- Remove selector housing with crash plate downwards.



## Installing

Install in reverse order of removal. When doing so, observe the following:

The selector housing is sealed against the crash plate and the underbody with gaskets.

**There are no replacement parts for the seals or the crash plate.**

- Renew the selector housing, seals and crash plate together following removal.
- Install heat shield ➔ General body repairs, exterior; Rep. gr. 66 ; Mouldings/trim/extensions; Removing and installing floor heat shield .
- Assemble and attach exhaust system ➔ Rep. gr. 26 ; Exhaust pipes/silencers; Removing and installing silencer .
- Install selector mechanism ➔ [page 27](#) .
- Install centre console and tighten bolts ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Check gear lever guide and adjust as necessary ➔ [page 26](#) .
- Install gear knob ➔ [page 24](#) .

## Torque settings

- ◆ Gearbox housing with crash plate on underbody ➔ [page 22](#)

## 1.9 Removing and installing gear actuator - VX65-

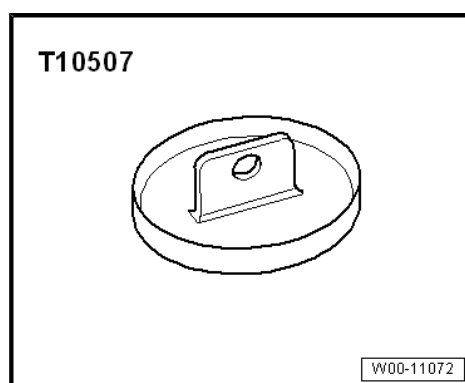
Special tools and workshop equipment required



- ◆ Torque wrench - VAS 6583-



- ◆ Sealing cap - T10507-





## Removing

Set gear actuator to neutral position as follows:



### Caution

- *Always set gear actuator to neutral position.*

*This can be done in the following ways:*

1.:

- ◆ *Move selector lever - E313- to position "N" with ignition switched on.*
- ◆ *Switch off ignition, and wait approx. 1 minute before you remove the gear actuator.*

2.:

- ◆ *Alternatively you can set the gear actuator to neutral position using the vehicle diagnosis, testing and information system - VAS 5051- .*
- ◆ *Select Guided Fault Finding.*
- ◆ *Under "Automated 5-speed manual gearbox OCT", select Moving gear actuator into -neutral- position.*

*Continuation for all*

- ◆ *If the gear actuator is not defective:*

*Set gearbox to neutral position. The gear actuator can now be removed and installed.*

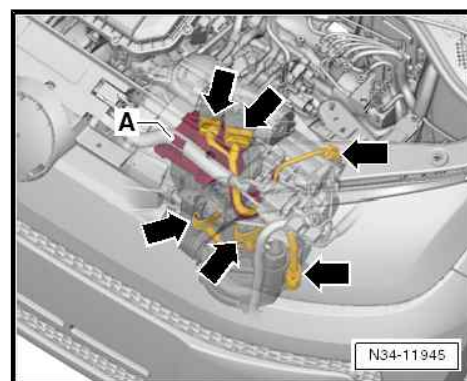
- ◆ *If the gear actuator is defective:*

*The gearbox cannot be set to neutral position. The gear actuator can not be removed and installed as a complete unit.*

*The gear actuator must be disassembled.*

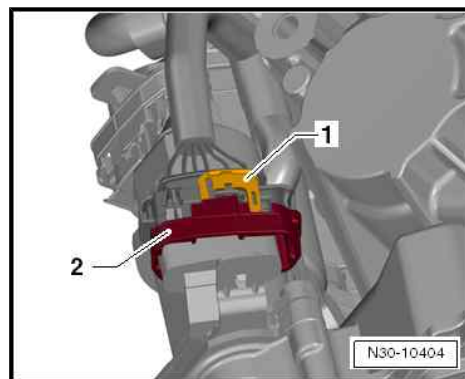
*A gear actuator which has been disassembled must not be installed again.*

- Disconnect battery earth strap ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove battery tray ⇒ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery .
- Disconnect all connectors from gear actuator, clutch actuator, speed sensor and wiring harness -arrows-.
- Remove wiring harness -A- from retainer.





- To disconnect connectors from gear actuator and clutch actuator, pull latch -1- towards cable and push catch -2- to side.

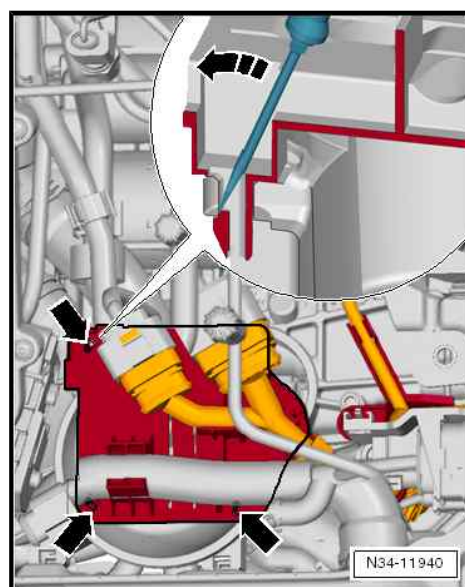


Carefully unclip retainer for wiring harness from gear actuator -arrows-.

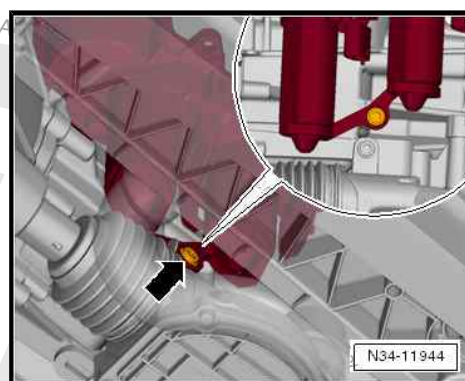


**Note**

- ◆ Risk of damage to catches on retainer.
  - ◆ Press catches -arrows- by hand.
  - ◆ If necessary, carefully release catches -arrows- using a screwdriver.
- Remove retainer with wiring harness.



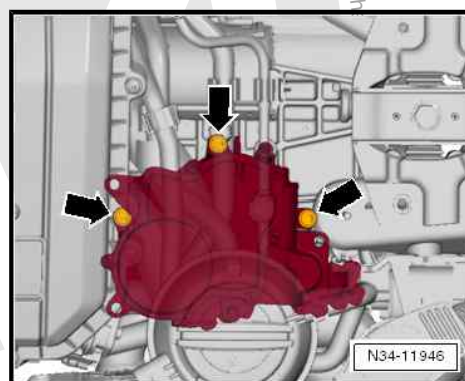
- Unscrew front securing bolt for gear actuator -arrow-.



- Unscrew upper securing bolts for gear actuator -arrows-.

The joint between the gear actuator and the gearbox is sealed with sealant .

- Pull off gear actuator forcefully, because the sealant is adhesive.



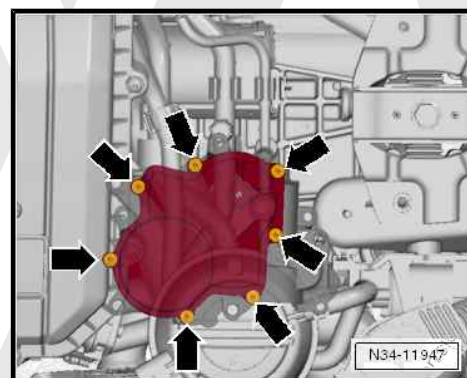
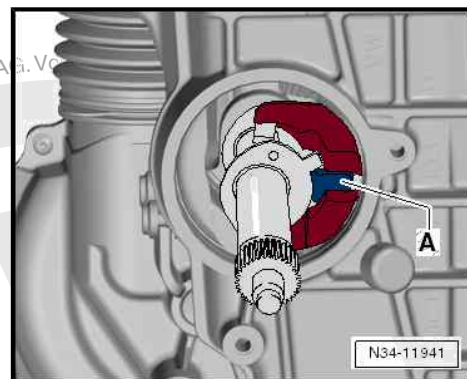




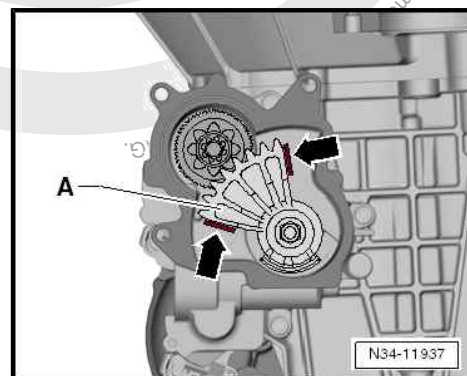
If the gear actuator cannot be pulled off completely, the selector shaft -A- got caught in the selector forks of the gearbox.

The selector shaft is illustrated with gear actuator removed.

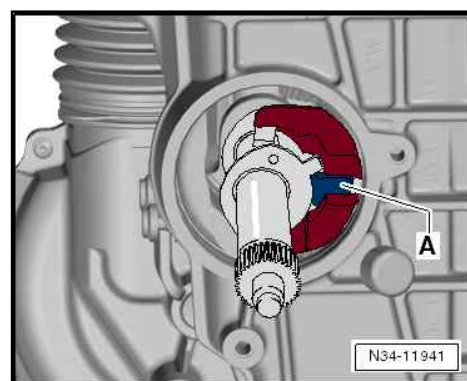
- Remove cover -arrows-.



- Carefully move gearbox selector lever -A- so that it is positioned between the markings -arrows-.
- If the gearbox selector lever -A- cannot be positioned between the markings -arrows-, the gear actuator must be removed with selector shaft installed.
- To do this, unscrew securing nut for gearbox selector lever.
- Pull gear actuator together with gearbox selector lever -A- off selector shaft.

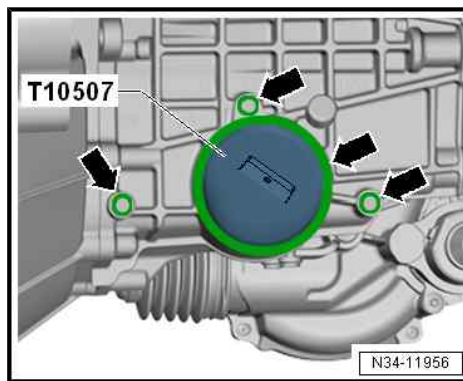


- Remove selector shaft from gearbox. To do this, move selector rod to neutral position via selector finger -A-.



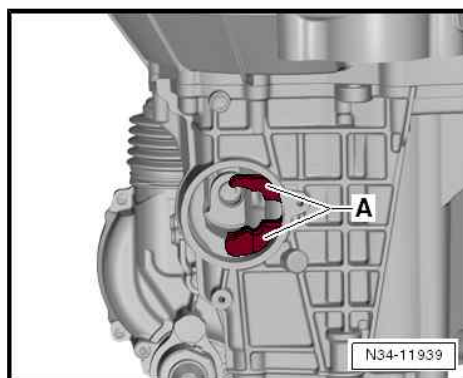


- Insert closure cap - T10507- into gearbox.
- Seal threaded holes for securing gear actuator with M6 bolt each.
- Clean all sealing surfaces on gearbox -arrows-.
- If the existing gear actuator can be reinstalled, clean sealing surfaces on gear actuator.



### Installing

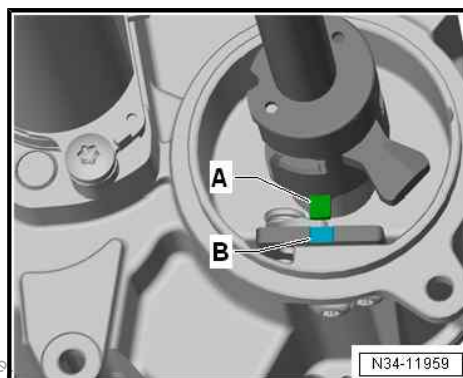
- Carefully remove closure cap - T10507- .
- Unscrew bolts from threaded holes for securing gear actuator.
- The selector rods -A- of the gearbox are in neutral position.



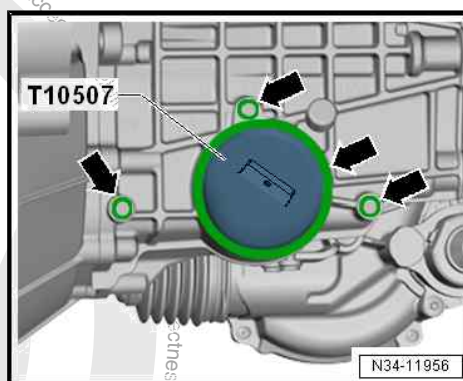
- The gear actuator is in neutral position.

Illustration shows gear actuator from below.

- The pin -A- on the selector shaft points towards recess -B-.
- Turn selector shaft accordingly, if necessary.

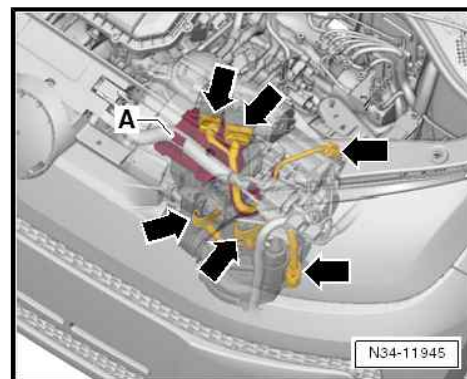


- Uniformly apply sealant at several points on the sealing surfaces of the gear actuator -arrows-.
- Insert gear actuator and bolt it on using new bolts.

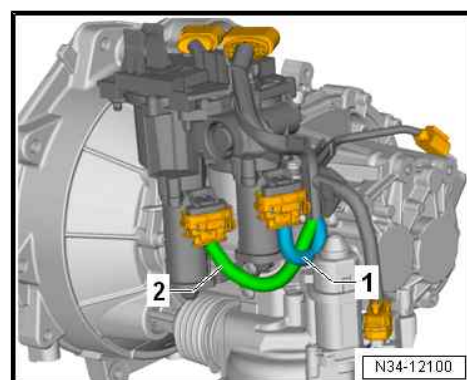




- Clip retainer for wiring harness into gear actuator.
- Connect all connectors on gear actuator, clutch actuator, speed sensor and wiring harness -arrows-.
- Press wiring harness -A- into retainer.



- Route lines without tension.
- Line -1- is located in front of line -2-.



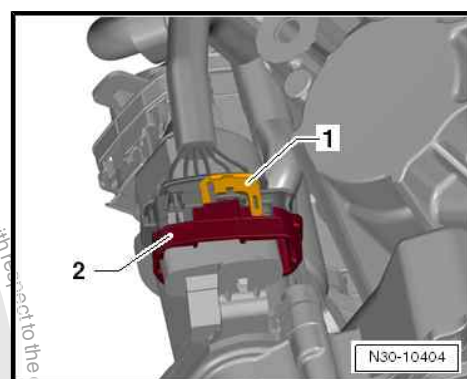
- Connect connectors for gear actuator and clutch actuator as follows:

- Catch -2- must engage.
- Press latch -1- downwards.
- Slightly pull on connector to ensure it is properly engaged.

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

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

– Perform **Basic Setting** using **Guided Functions** in ⇒ vehicle diagnostic tester .



#### Torque settings

- ◆ Gear actuator to gearbox ⇒ [page 23](#)



## 2 Removing and installing gearbox

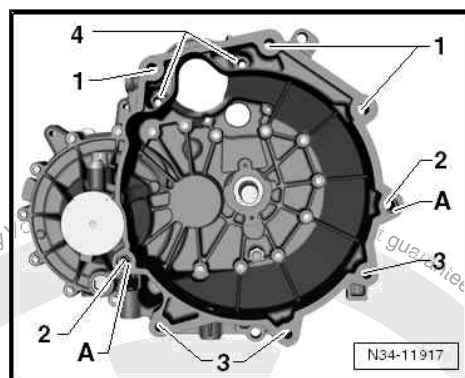
⇒ "2.1 Specified torques for gearbox", page 36

⇒ "2.2 Removing gearbox", page 36

⇒ "2.3 Installing gearbox", page 43

### 2.1 Specified torques for gearbox

Item	Bolt	Quantity	Nm
1	M12 x 60	3	80
2	M12 x 70	2	80
3	M10 x 55	3	40
4	For starter only	2	⇒ Electrical system; Rep. gr. 27 ; Starter; Removing and installing starter

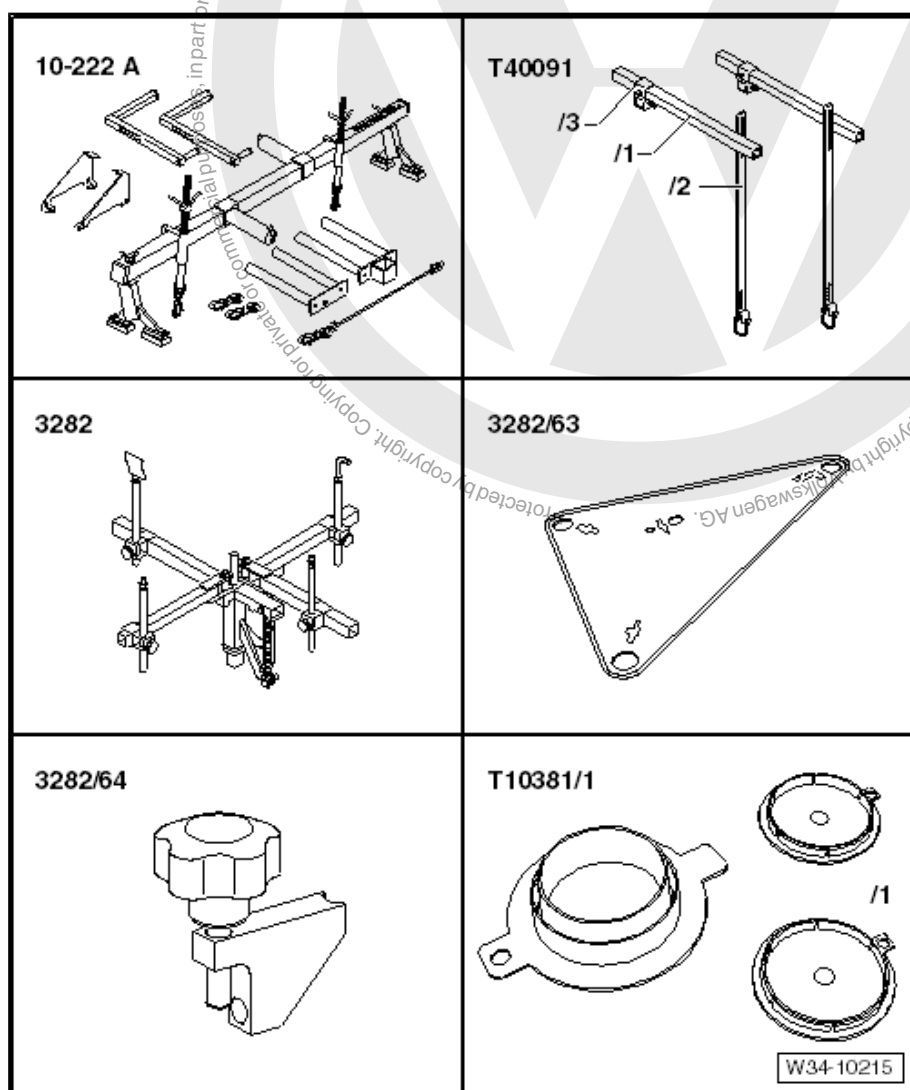


Item -A- dowel sleeves for centring

### 2.2 Removing gearbox

#### Special tools and workshop equipment required

- ◆ Support - 10 - 222 A-
- ◆ Adapter - 10 - 222 A /31-1-
- ◆ Adapter - 10 - 222 A /31-2-
- ◆ Support - 10 - 222 A /31-3-
- ◆ Adapter - 10 - 222 A /31-5-
- ◆ Square tube - T40091/1-
- ◆ Joints - T40091/3-
- ◆ Gearbox support - 3282-
- ◆ Adjustment plate - 3282/63-
- ◆ Adapter - 3282/64-
- ◆ Support elements for gearbox (determine when setting adjustment plate on gearbox support )







◆ Sealing cap - T10381/1-

◆ Torque wrench -  
 V.A.G 1331-

◆ Torque wrench -  
 V.A.G 1332-

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

◆ Insert - T10509-

◆ Grease for splines

◆ Allocate grease using ⇒  
 Electronic parts catalogue  
 (ETKA) .





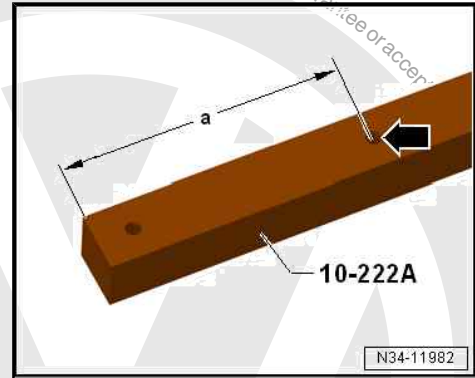
- If support bracket - 10 - 222 A- does not yet have hole marked with -arrow-, then hole must subsequently be drilled into engine support bracket.
- Dimension -a- = 225 mm.
- Hole diameter = 12.5 mm.



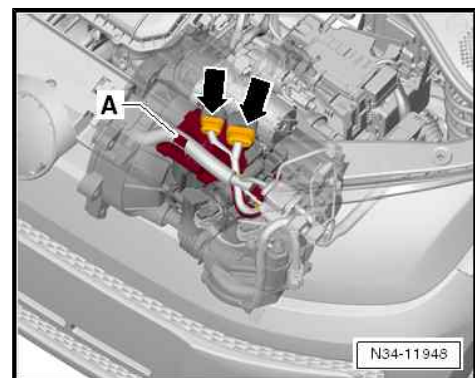
### Caution

**Observe the following when removing the gear actuator from the gearbox:**

- *The gear actuator must be in neutral position.*
- *To do this, move selector lever - E313- to position "N" with ignition switched on.*
- *Alternatively you can set the neutral position using the vehicle diagnosis, testing and information system - VAS 5051- .*
- *Also refer to ➤ [page 29](#) .*



- ◆ Carry out Automatically read measured values via Gearbox electronics functions using ➤ vehicle diagnosis tester .
- Disconnect battery earth strap ➤ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove engine cover and air filter ➤ Rep. gr. 24 ; Air filter; Removing and installing air filter housing .
- Remove battery ➤ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery .
- Remove battery tray ➤ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery .
- Separate electrical connectors -arrows-.
- Remove wiring harness -A- from retainer.
- Remove starter ➤ Electrical system; Rep. gr. 27 ; Starter; Removing and installing starter .





- Remove upper engine/gearbox securing bolts -arrows A- and -arrows B-.
- Loosen bolts -arrows A- if necessary using insert tool, 18 mm - T10509- .
- Install support bracket as follows:

Required material:

- ◆ Adapter - 10 - 222 A /31-1-
- ◆ Adapter - 10 - 222 A /31-2-
- ◆ Connector - T40091/3-
- ◆ Square tube - T40091/1-
- ◆ Support - 10 - 222 A /31-3-
- ◆ Adapter - 10 - 222 A /31-5-

Adapter - 10 - 222 A /31-1- and adapter - 10 - 222 A /31-2- are placed onto suspension strut supports underneath plenum chamber cover.

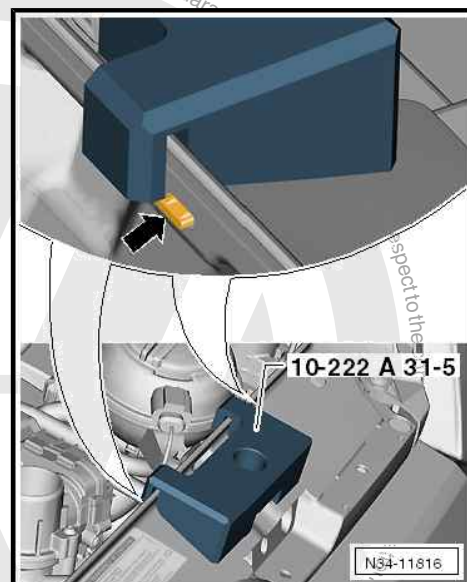
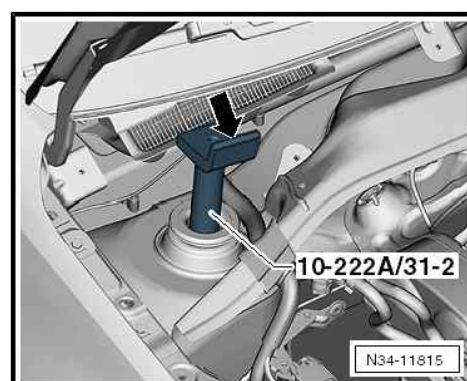
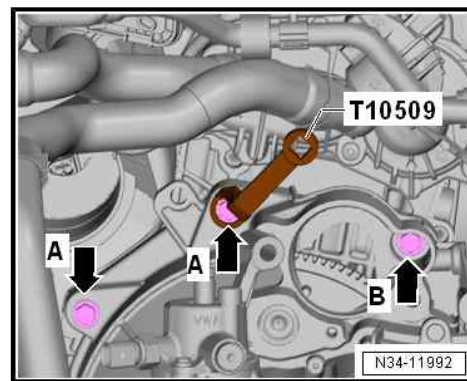
Therefore, remove following components:

- ◆ Windscreen wiper arms ⇒ Electrical system; Rep. gr. 92 ; Windscreen wiper system; Removing and installing wiper arms .
- ◆ Plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover
- Fit adapter - 10 - 222 A /31-1- and adapter - 10 - 222 A /31-2- onto suspension strut supports.

Angled pieces of adapters -arrow- point towards engine compartment.

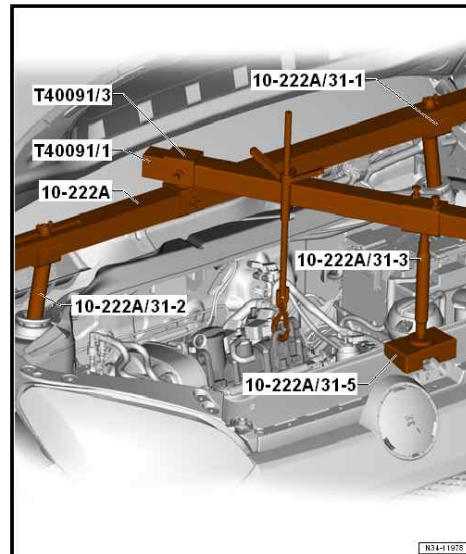
- If fitted, pull bonnet seal off lock carrier.
- Position support - 10 - 222 A /31-5- above bonnet catch.

Correct position is between 2 lugs -arrow-.





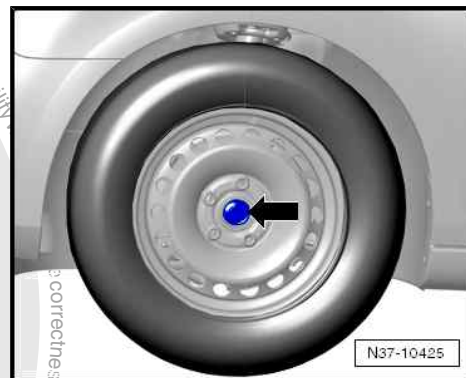
- Slide connector - T40091/3- onto support bracket - 10-222 A- .
- Bolt support bracket - 10-222 A- to adapter - 10 - 222 A /31-1- and to adapter - 10 - 222 A /31-2- .
- Attach square tube - T40091/1- to support bracket - 10-222 A- .
- Fit square tube on support - 10 - 222 A /31-3- and adapter - 10 - 222 A /31-5- .
- Then attach spindle to front engine support eye.
- Slightly take up weight of engine/gearbox assembly on spindle .



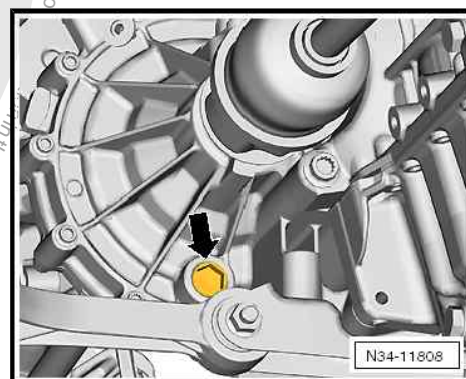
During subsequent work process, the drive shafts must be removed.

- Loosen securing nuts -arrow- for drive shafts ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .

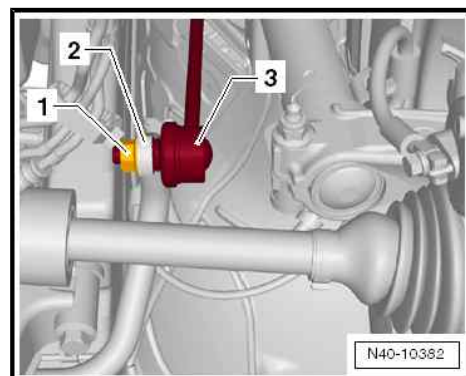
Remove clutch actuator ⇒ [page 15](#) .



Drain gearbox oil -arrow- ⇒ [page 49](#) .



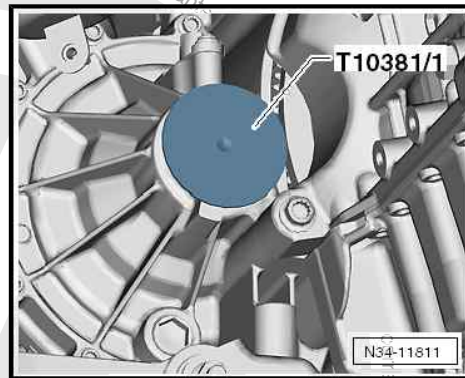
- Unscrew nut -1- from coupling rod -3- on both sides.
- Withdraw coupling rod -3- from anti-roll bar -2- on both sides.
- Remove drive shafts ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .



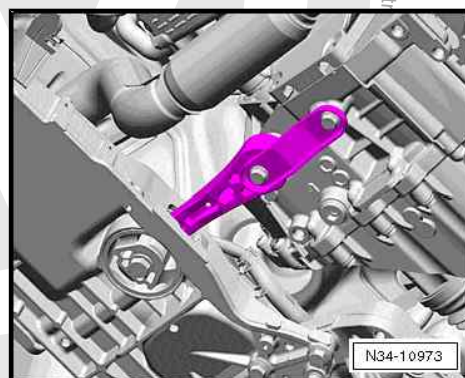




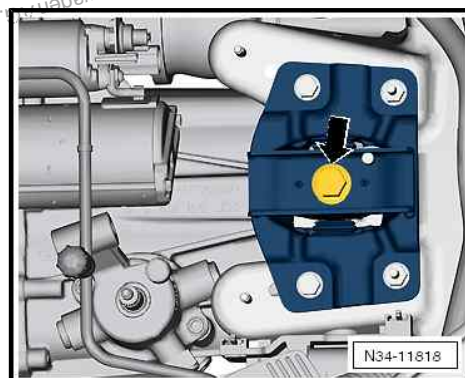
- Install sealing caps in gearbox.



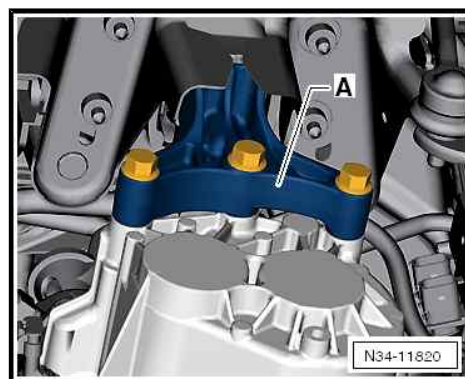
- Remove pendulum support.
- Detach exhaust system > Rep. gr. 26 ; Emission control; Assembly overview – emission control .



- Remove hexagon bolt -arrow- for left-hand hand assembly mounting from gearbox mounting.

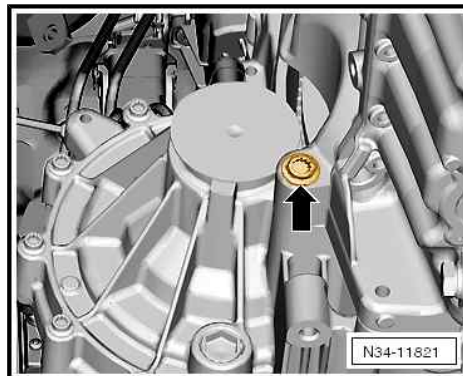


- Tilt engine/gearbox assembly.
- Securing bolts for gearbox bracket -A- must be accessible.
- Remove gearbox bracket -A-.



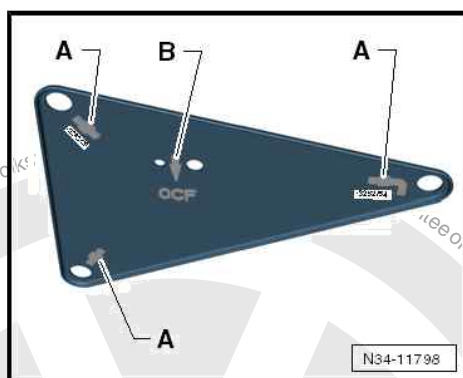


- Unscrew engine/gearbox connecting bolt -arrow- in area of right-hand drive shaft seal.

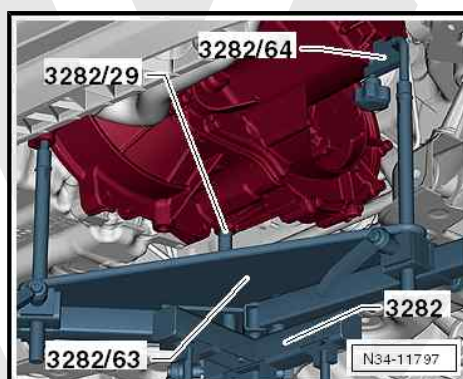


Gearbox support - 3282- is aligned with adjustment plate - 3282/63- for removal of gearbox.

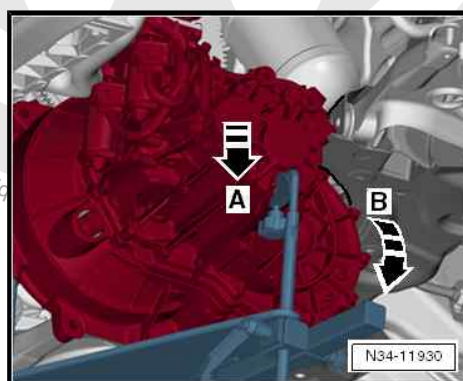
- Insert gearbox support - 3282- in engine and gearbox jack - V.A.G 1383A- .
- Align arms of gearbox support according to holes in adjustment plate .
- Attach support elements -A- to adjustment plate as illustrated.



- Position engine and gearbox jack under vehicle. Arrow -B- on adjustment plate points in direction of vehicle travel.
- Align adjustment plate parallel to gearbox.
- Then screw pin - 3282/29- into rear hole on gearbox for securing bolt of pendulum support.
- Secure gearbox with adapter - 3282/64- .
- Remove lower engine/gearbox connecting bolts.
- Carefully press gearbox off dowel sleeves.

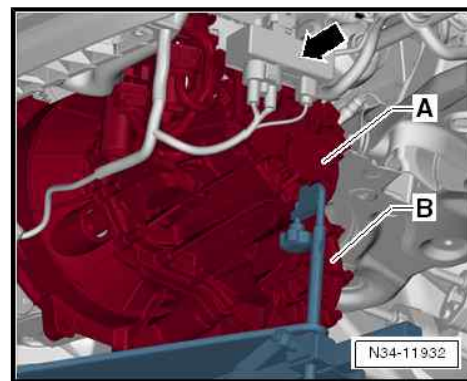


- Lower gearbox in area of 5th gear (-arrow A-) and in area of differential (-arrow B-) alternately using spindles of gearbox support - 3282- .



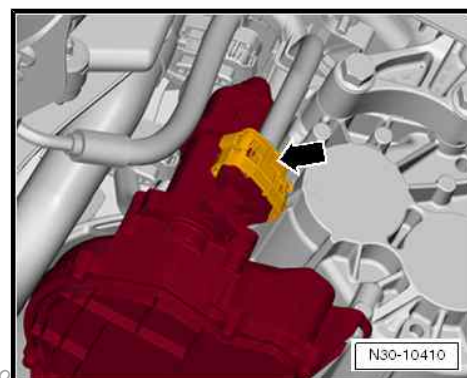


- When lowering gearbox, adjust position of gearbox by pushing in areas -A- and -B-.
- Observe adjacent components -arrow-.



#### Note

- ◆ *Protect connector and connector housing -arrow- against damage.*
- ◆ *Observe connecting lines, hoses and radiator when moving engine/gearbox assembly.*
- If the gearbox is not to be reinstalled, attach clutch actuator ⇒ [page 15](#) .



## 2.3 Installing gearbox

- The gearbox is installed with clutch actuator - VX64- in removed condition.
- Remove clutch actuator ⇒ [page 15](#) .



#### Note

Refer to procedure "Removing gearbox" for required special tools ⇒ [page 36](#) .

- All threaded holes into which self-locking bolts are to be screwed must be cleaned of residual locking fluid carefully using a thread tap.
- Clean input shaft splines and apply thin coat of grease for clutch plate splines .

The clutch plate must slide easily to and fro on the input shaft.

- If no dowel sleeves for aligning engine and gearbox are fitted in cylinder block, install if necessary.

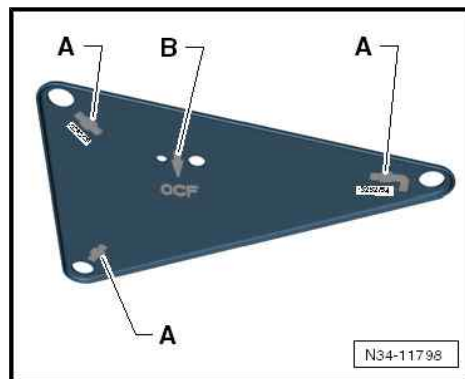
If dowel sleeves are not fitted, difficulties shifting gears, clutch problems and possible noises from the gearbox (rattling of gears which are not engaged) could occur.



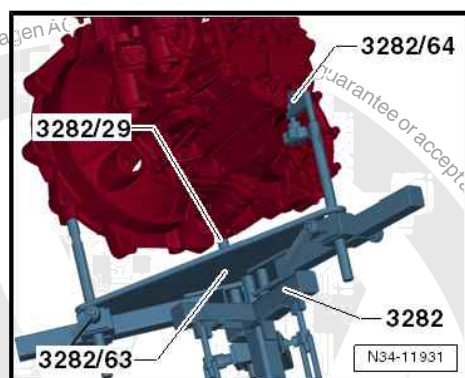


Gearbox support - 3282- is aligned with adjustment plate - 3282/63- for installation of gearbox.

- Insert gearbox support - 3282- in engine and gearbox jack - V.A.G 1383A- .
- Align arms of gearbox support according to holes in adjustment plate .
- Attach support elements -A- to adjustment plate as illustrated.

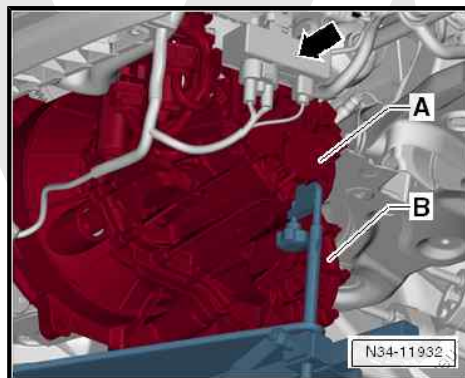


- Align gearbox parallel to adjustment plate and set on engine and gearbox jack .
- Then screw pin - 3282/29- into rear hole on gearbox for securing bolt of pendulum support.
- Secure gearbox with adapter - 3282/64- .
- Position engine and gearbox jack under vehicle. Arrow -B- on adjustment plate points in direction of vehicle travel.



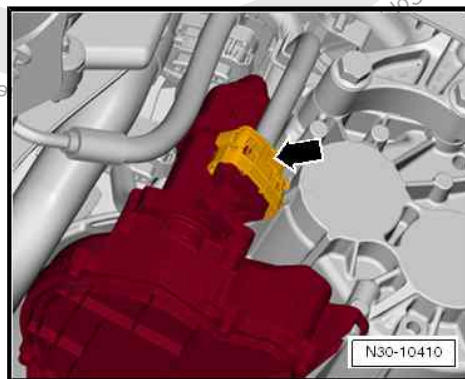
Gearbox ends in area of 5th gear (-A-) and in area of differential (-B-) are facing downwards.

- Then raise gearbox carefully and guide past subframe.
- Observe adjacent components -arrow-



#### Note

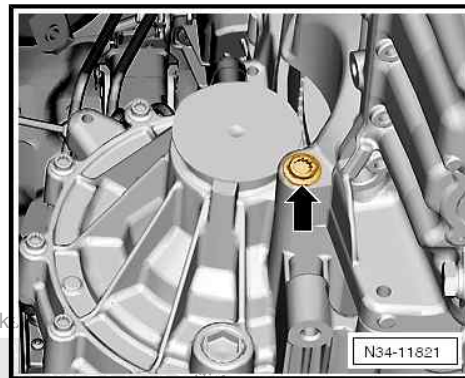
- ◆ *Protect connector and connector housing -arrow- against damage.*
- ◆ *Be careful of all lines when installing gearbox.*



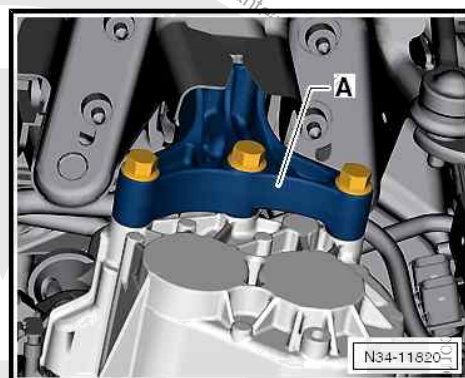




- Line up gearbox and install.
- Screw in engine/gearbox connecting bolt -arrow- in area of right drive shaft seal ⇒ [page 36](#) .
- Install lower engine/gearbox securing bolts ⇒ [page 36](#) .
- After gearbox has been bolted to engine, remove engine and gearbox jack from gearbox.



- Fit gearbox bracket -A- with new bolts ⇒ [page 47](#) .

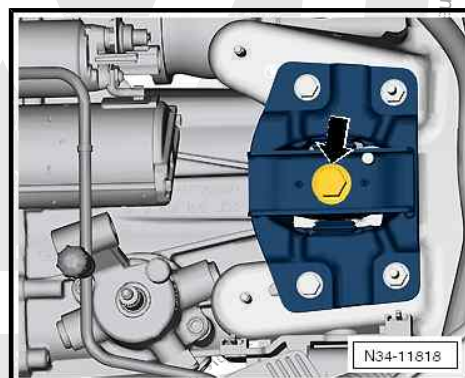


- Align engine and gearbox in installation position.
- Install new bolt -arrow- for left assembly mounting in gearbox mounting ⇒ [page 47](#) .

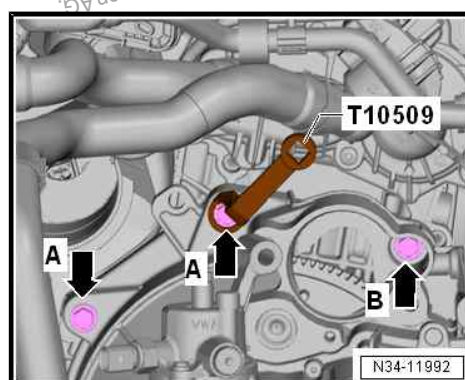


#### WARNING

*Do not remove support bracket - 10-222 A- until all bolts securing the assembly mounting have been tightened to specified torque.*

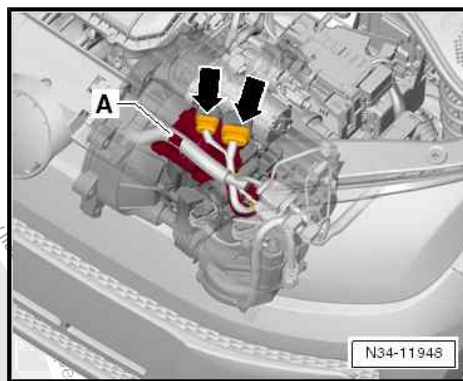


- If previously removed, fit bonnet seal to lock carrier.
- Install upper engine/gearbox securing bolts -arrows A- and -arrows B- ⇒ [page 36](#) .
- Bolts -arrows A- can be tightened using insert tool, 18 mm - T10509- .
- Install starter ⇒ Electrical system; Rep. gr. 27 ; Starter; Removing and installing starter .
- Fit earth strap if necessary.
- Install clutch actuator ⇒ [page 15](#) .





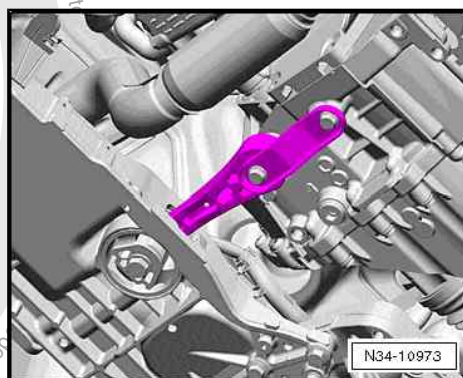
- Connect electrical connectors -arrows-.
- Press wiring harness into retainer -A-.



Install pendulum support using new bolts ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Assembly overview - subframe .

Install exhaust system ⇒ Rep. gr. 26 ; Emission control; Assembly overview - emission control .

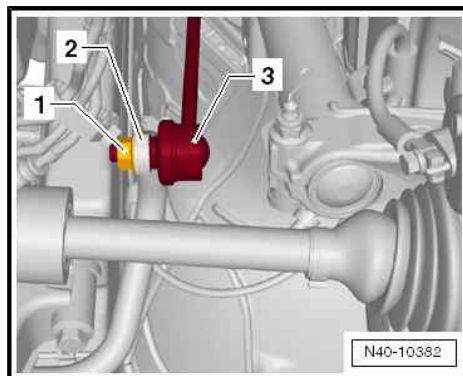
- Install drive shafts ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shafts .



- Install coupling rod -3- to anti-roll bar -2- on both sides ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Assembly overview - subframe .

- Fill with gear oil ⇒ [page 49](#)

- Install battery tray ⇒ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery .
- Install battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Removing and installing battery .
- Connect battery and follow procedure after connecting battery ⇒ Electrical system; Rep. gr. 27 ; Disconnecting and connecting battery .
- Install engine cover and air filter ⇒ Rep. gr. 24 ; Air filter; Removing and installing air filter housing .
- Install plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Plenum chamber bulkhead; Removing and installing plenum chamber cover .
- Wiper arms ⇒ Electrical system; Rep. gr. 92 ; Windscreen wiper system; Removing and installing wiper arms .
- Perform [Basic Setting](#) using [Guided Functions](#) in ⇒ vehicle diagnostic tester .





### 3 Assembly mounting

⇒ ["3.1 Assembly overview - assembly mountings", page 47](#)

#### 3.1 Assembly overview - assembly mountings

##### 1 - Engine mounting

- ☐ ⇒ Rep. gr. 10 ; Assembly mountings; Assembly overview - assembly mountings

##### 2 - Bolt

- ☐ Pendulum support to sub-frame
- ☐ ⇒ Rep. gr. 10 ; Assembly mountings; Assembly overview - assembly mountings

##### 3 - Pendulum support

- ☐ ⇒ Rep. gr. 10 ; Assembly mountings; Assembly overview - assembly mountings

##### 4 - Bolt

- ☐ Pendulum support to gearbox
- ☐ ⇒ Rep. gr. 10 ; Assembly mountings; Assembly overview - assembly mountings

##### 5 - Bolt

- ☐ M10 x 55
- ☐ Renew after removal
- ☐ Gearbox bracket to gearbox
- ☐ 40 Nm +90°

##### 6 - Gearbox bracket

##### 7 - Gearbox mounting

- ☐ ⇒ Rep. gr. 10 ; Assembly mountings; Assembly overview - assembly mountings

##### 8 - Bolt

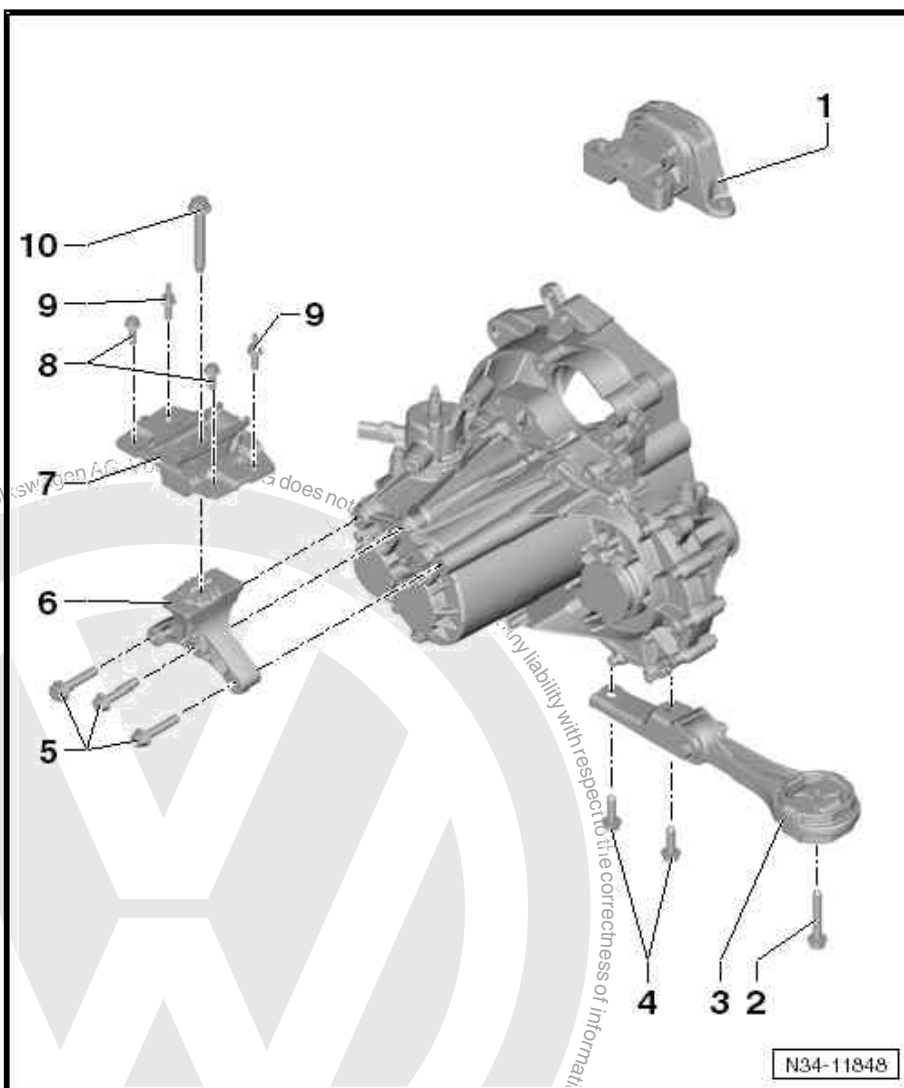
- ☐ Gearbox mounting to body
- ☐ ⇒ Rep. gr. 10 ; Assembly mountings; Assembly overview - assembly mountings

##### 9 - Bolt

- ☐ Gearbox mounting to body
- ☐ ⇒ Rep. gr. 10 ; Assembly mountings; Assembly overview - assembly mountings

##### 10 - Bolt

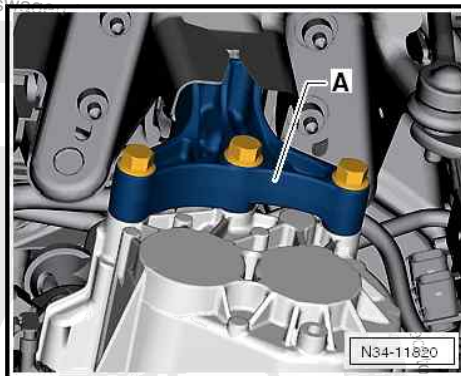
- ☐ M12 x 85
- ☐ Renew after removal
- ☐ Gearbox bracket to gearbox mounting
- ☐ 60 Nm +180°





### Gearbox bracket -A- to gearbox

- Renew bolts.
- Screw in all bolts hand-tight.
- Tighten bolts to specified torque ⇒ [Item 5 \(page 47\)](#) .



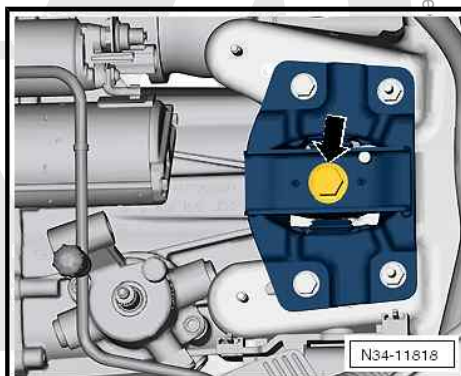
### Gearbox to body

- Renew bolt.
- Screw in bolts hand-tight.
- Tighten bolt to specified torque ⇒ [Item 10 \(page 47\)](#) .



#### Note

*Install engine and gearbox mountings without tension ⇒ Rep. gr. 10 ; Assembly mountings; Assembly overview - Assembly mountings .*



Pendulum support to subframe and gearbox ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Assembly overview - subframe .





## 4 Gear oil

⇒ [“4.1 Checking gear oil level”, page 49](#)

⇒ [“4.2 Draining and filling gear oil”, page 49](#)

### 4.1 Checking gear oil level

The oil level in the gearbox can only be checked by completely draining the gear oil and then refilling it ⇒ [page 49](#) .

### 4.2 Draining and filling gear oil

Special tools and workshop equipment required

- ◆ Torque wrench - VAS 6583-

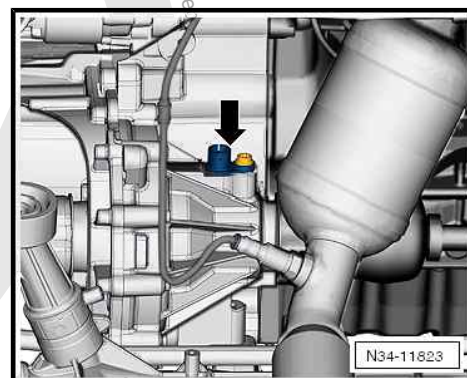


- ◆ Commercially available hose (length of approx. 600 mm; external diameter: max. 22 mm)
- ◆ Funnel, commercially available

#### Preparation

Gear oil ⇒ Electronic parts catalogue (ETKA) .

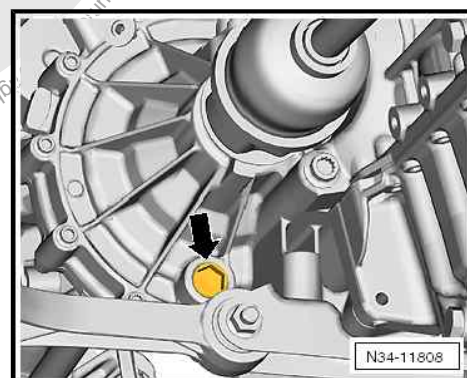
- During subsequent work process, sealing plug -arrow- will be removed for filling gearbox oil.
- Clean area around sealing plug -arrow-.



**Drain gear oil -arrow- - -**

**Use a clean container with a scale and a 1.5-litre capacity to catch the gear oil when draining.**

- Tighten oil drain plug -arrow- to specified torque.





### Fill with gear oil

- The oil drain plug is tightened to specified torque.

Gear oil ➔ Electronic parts catalogue (ETKA)

### Topping up gear oil in container ➔ [page 9](#)

The gearbox oil is filled through the sealing plug hole -arrow-.

It is accessible from beneath vehicle.

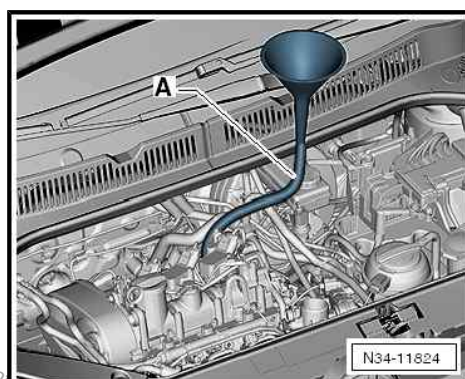
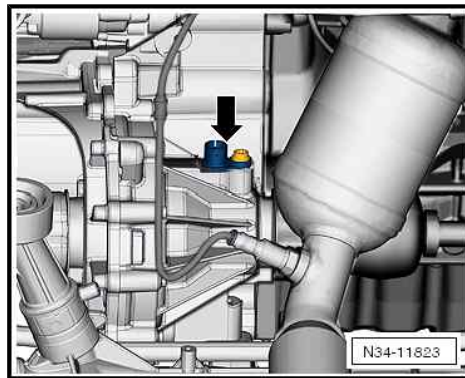
- Remove sealing plug -arrow-.



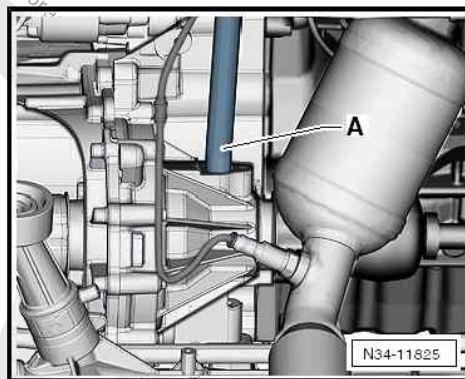
### Note

*The area beneath the sealing plug -arrow- must be covered with a cloth.*

- Use a commercially available hose (length of approx. 600 mm, external diameter: max. 22 mm), and a commercially available funnel for filling oil.
- Route hose -A- through engine compartment.



- Fit hose -A- into sealing plug hole, and fill gearbox with oil.

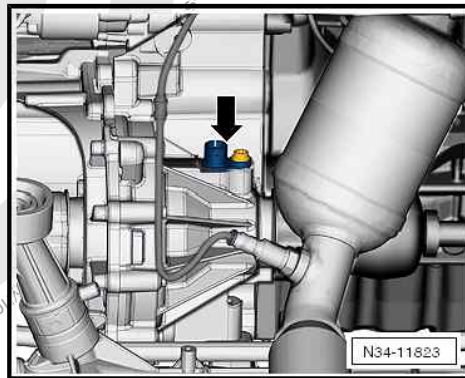


- Install sealing cap, and tighten securing bolt -arrow- to specified torque.
- If oil should get on gearbox and other components, remove it thoroughly.

### Torque settings

Securing bolt for sealing plug	5 Nm +90°
--------------------------------	-----------

Oil drain plug	30 Nm
----------------	-------

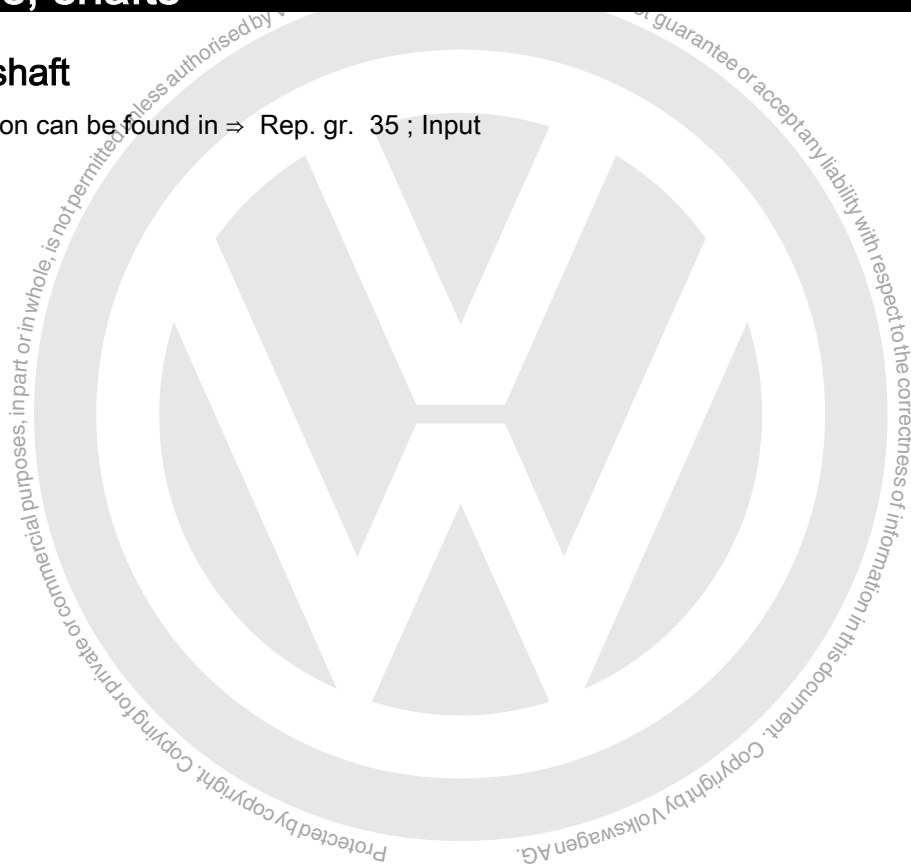




## 35 – Gears, shafts

### 1 Input shaft

The relevant description can be found in ⇒ Rep. gr. 35 ; Input shaft .





## 2 Output shaft

The relevant description can be found in ⇒ Rep. gr. 35 ; Output shaft .







### 3 Reverse shaft

The relevant description can be found in ⇒ Rep. gr. 35 ; Reverse shaft .



## 39 – Final drive - differential

### 1 Oil seals

⇒ [“1.1 Overview of fitting locations - seals”, page 54](#)

⇒ [“1.2 Renewing left oil seal”, page 55](#)

⇒ [“1.3 Renewing right oil seal”, page 56](#)

#### 1.1 Overview of fitting locations - seals

The selector shaft seal for gear actuator - VX65- is not a replacement part ⇒ [page 23](#) .

Renew the selector shaft seal for the gear actuator - VX65- together with the gear actuator - VX65- ⇒ [page 29](#) .

##### 1 - Sealing ring

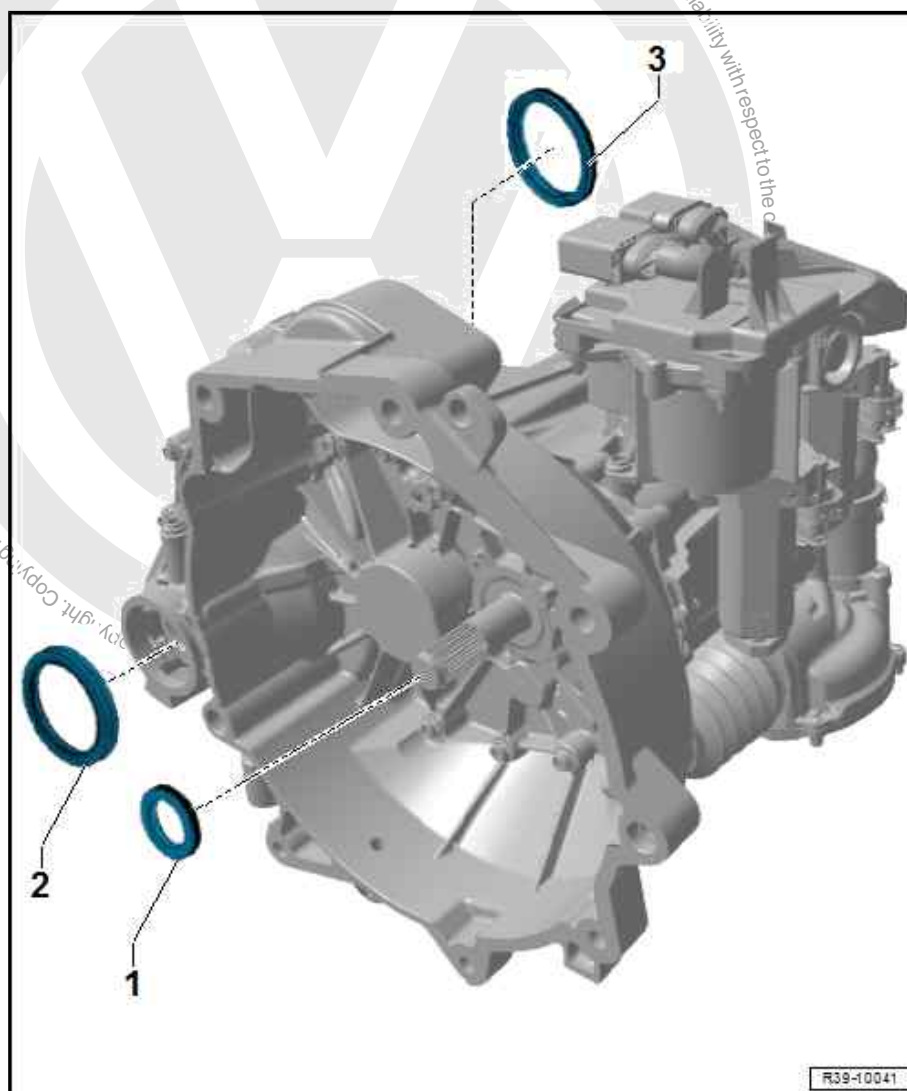
- ☐ For input shaft
- ☐ Renew after removing  
⇒ Rep. gr. 35 Input shaft; Renewing input shaft seal

##### 2 - Sealing ring

- ☐ For right drive shaft
- ☐ Renew after removal  
⇒ [page 56](#)

##### 3 - Sealing ring

- ☐ For left drive shaft
- ☐ Renew after removal  
⇒ [page 55](#)





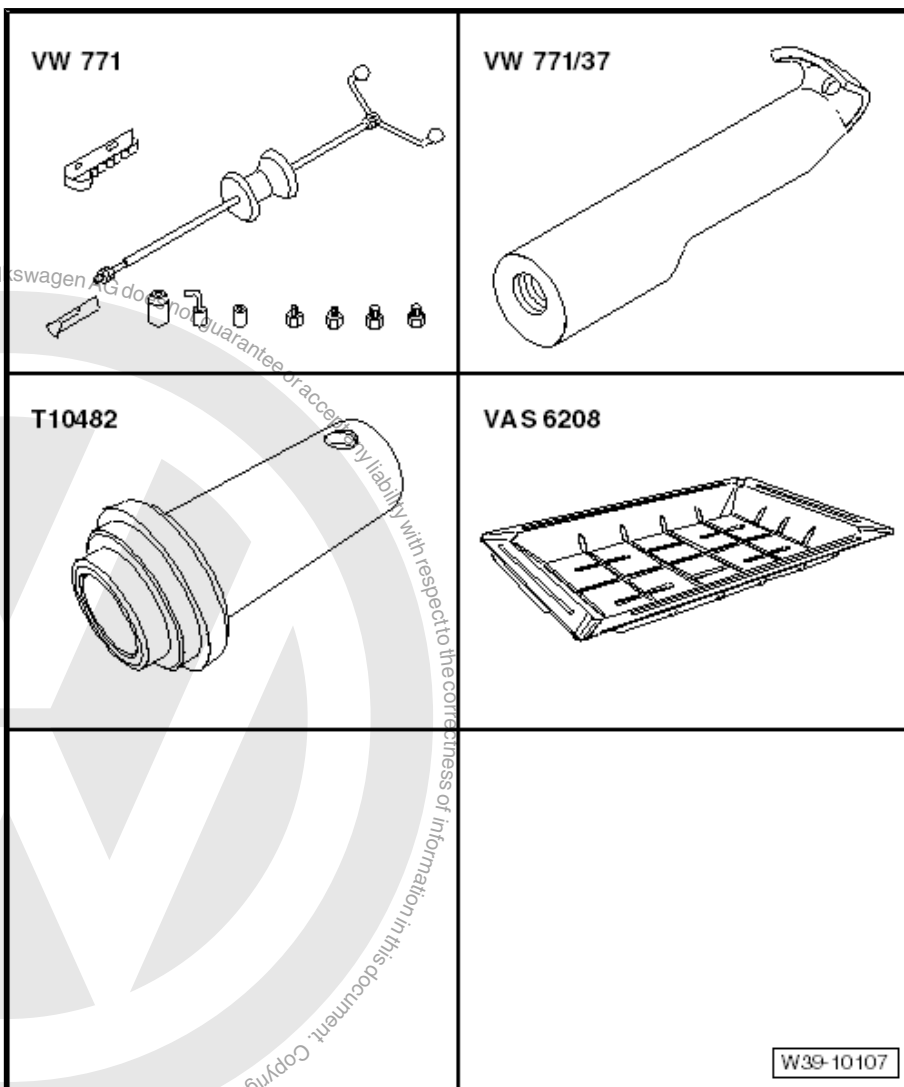
## 1.2 Renewing left oil seal

⇒ ["1.2.1 Renewing seal for left drive shaft", page 55](#)

### 1.2.1 Renewing seal for left drive shaft

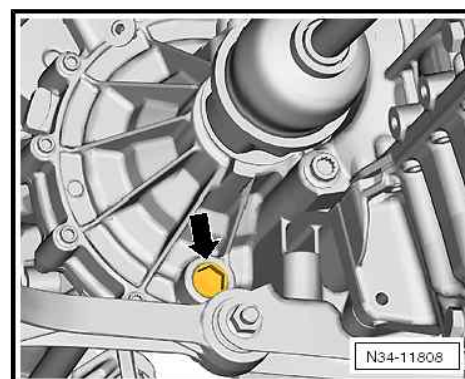
#### Special tools and workshop equipment required

- ◆ Multipurpose tool - VW 771-
- ◆ Extractor hook - VW 771/37-
- ◆ Press tool - T10482-
- ◆ Drip tray for workshop hoist - VAS 6208-



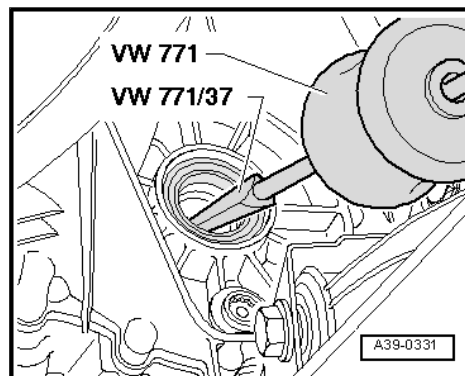
#### Removing

- Place drip tray under gearbox.
- Drain gearbox oil -arrow- ⇒ [page 49](#) .
- Remove drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .



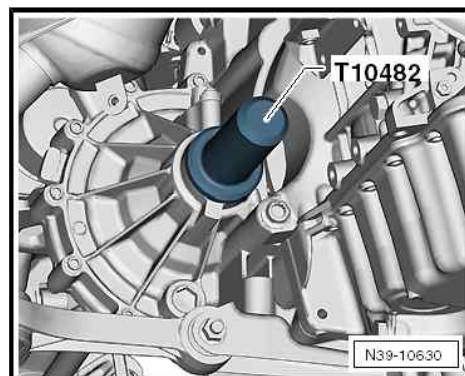


- Pull out drive shaft seal using -VW 771- and -VW 771/37- .

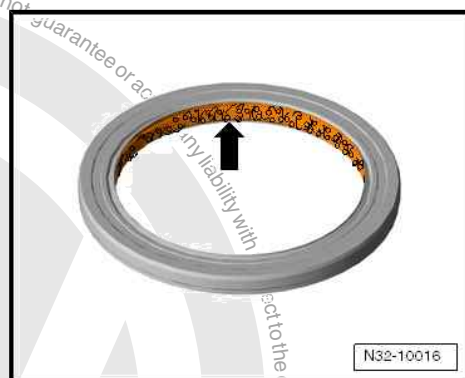


### Installing

- Drive in new seal to stop, being careful not to cant seal.



- Half-fill space between sealing lip and dust lip with sealing grease .
- Install drive shaft ➔ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shafts .
- Fill with gear oil ➔ [page 49](#) .



## 1.3 Renewing right oil seal

➔ ["1.3.1 Renewing seal for right drive shaft", page 56](#)

### 1.3.1 Renewing seal for right drive shaft

For the renewal of the right seal, the same procedure applies as for the removal of the left seal ➔ [page 55](#) .



## 2 Differential

The relevant description can be found in ⇒ Rep. gr. 39 ; Differential .



### 3 Adjustment overview

The relevant description can be found in ⇒ Rep. gr. 39 ; Adjustment overview .





## 4 Gearbox control system

⇒ [“4.1 Overview of fitting locations - gearbox control”, page 59](#)

⇒ [“4.2 Removing and installing electronic manual gearbox control unit J514”, page 59](#)

⇒ [“4.3 Removing and installing gearbox input speed sender G182”, page 59](#)

### 4.1 Overview of fitting locations - gearbox control

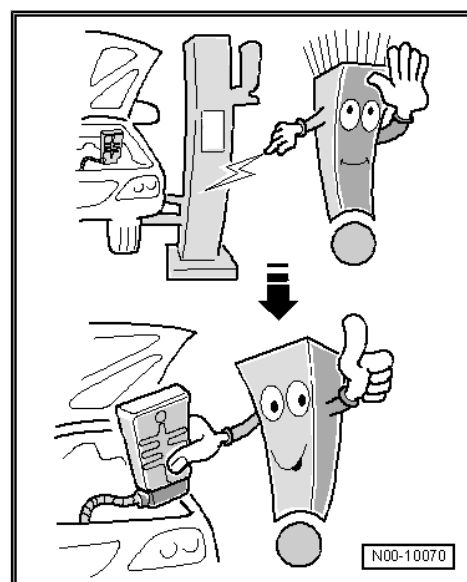
For the overview of fitting locations of components used for gearbox control, refer to

⇒ [“6.1 Overview of fitting locations - electrical components”, page 12](#).

### 4.2 Removing and installing electronic manual gearbox control unit - J514-

#### Removing

- Before working on electrical components, electrostatically discharge yourself (touch something that is earthed). Do not directly touch connector contacts or electronic components.
- Remove front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner .



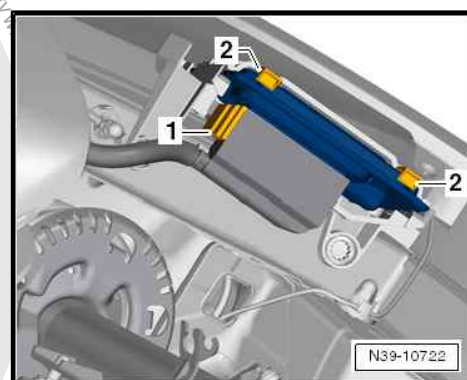
- Release connector -1- and pull it off.

Remove electronic manual gearbox control unit - J514- . To do this, release catches -2-.

#### Installing

- Install in reverse order of removal.
- Ensure that the connector and catches are properly engaged.
- Install front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner .

Perform **Basic Setting** using **Guided Functions** in ⇒ vehicle diagnostic tester .

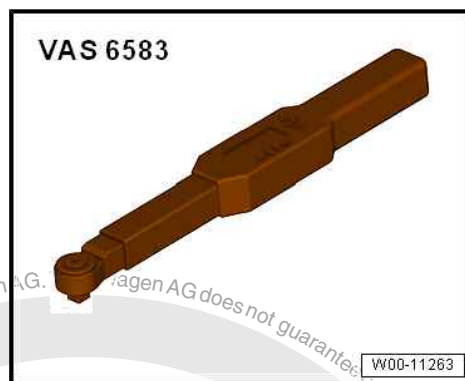


### 4.3 Removing and installing gearbox input speed sender - G182-

Special tools and workshop equipment required

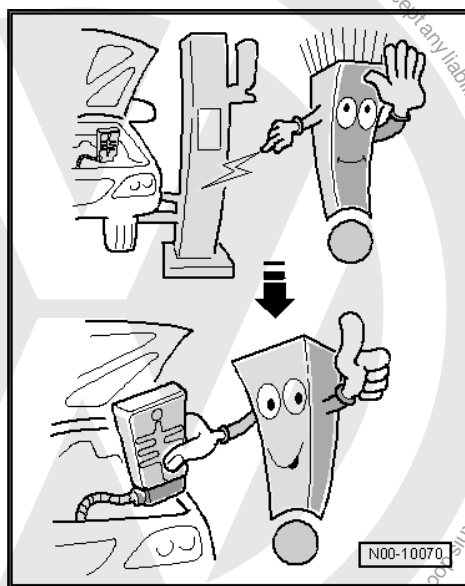


◆ Torque wrench - VAS 6583-



### Removing

- Before working on electrical components, electrostatically discharge yourself (touch something that is earthed). Do not directly touch connector contacts or electronic components.



The gearbox input speed sender - G182- is accessible from beneath vehicle.

- Detach connector.
- Unscrew bolt -arrow-.

### Installing

- Renew bolt -arrow-.

### Torque setting

Gearbox input speed sender - G182- 5 Nm +90°

- Perform Basic Setting using Guided Functions in ⇒ vehicle diagnostic tester .

