



Workshop Manual

e-up! 2014 ➤

e-up! 2017 ➤

1-speed gearbox 0CZ

Edition 12.2018





List of Workshop Manual Repair Groups

Repair Group

00 - Technical data

34 - Controls, housing

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.



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00 – Technical data

1 Safety information

(VRL012537; Edition 12.2018)

⇒ [“1.1 Safety precautions when working on a high-voltage system”, page 1](#)

⇒ [“1.2 Safety precautions when working in the vicinity of high-voltage components”, page 2](#)

⇒ [“1.3 Safety precautions when using testers and measuring instruments during a road test”, page 2](#)

⇒ [“1.4 Safety precautions when working on cooling system”, page 2](#)

⇒ [“1.5 Safety precautions when tow-starting or towing”, page 2](#)

1.1 Safety precautions when working on a high-voltage system

Danger to life due to high voltage

The high-voltage system is under high voltage. Severe or fatal injury due to electric shock.

- Persons with life-preserving or other electronic medical devices in or on their body must not perform any work on the high-voltage system. Such medical devices include internal analgesic pumps, implanted defibrillators, pacemakers, insulin pumps and hearing aids.

The high-voltage system must be de-energised by a suitably qualified technician.

Risk of injury from unexpected motor start

On electric and hybrid vehicles, it can easily be missed that the vehicle is in „ready“ mode. There is a risk of parts of the body becoming trapped or drawn in.

- Switch off ignition.
- Always store the ignition key outside the vehicle.

Risk of damage to high-voltage cables

Improper handling of high-voltage cables or high-voltage connectors may result in damage to their insulation.

- Never support yourself on high-voltage cables or high-voltage connectors.
- Never support your tools on high-voltage cables or high-voltage connectors.
- Never kink or severely bend high-voltage cables.
- Always connect high-voltage connectors according to coding.



1.2 Safety precautions when working in the vicinity of high-voltage components

Danger to life due to high voltage

The high-voltage system is under high voltage. Damage to high-voltage components will result in severe or fatal injury due to electric shock.

- Perform visual check of high-voltage components and high-voltage cables.
- Never use cutting or forming tools, or any other sharp-edged tools.
- Never use heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.

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

Risk of injury through insecure testing and measuring instruments

When the front passenger airbag is triggered in an accident, insufficiently secured testing and measuring instruments become dangerous projectiles.

- Secure testing and measuring instruments on the rear seat.
- or
- Have a second person operate the test and measuring equipment on the rear seat.

1.4 Safety precautions when working on cooling system

Scalding from hot coolant

On a warm engine, the cooling system is under high pressure. Danger of scalding due to steam and hot coolant.

- Wear protective gloves.
- Wear safety goggles.
- Reduce excess pressure by covering the cap of the coolant expansion tank with cloths and opening it carefully.

1.5 Safety precautions when tow-starting or towing

Risk of irreparable damage to electric motor

Possibility of destroying electric motor when towing incorrectly.

- Position selector lever in “N” when vehicle is being towed.
- 50 km/h must not be exceeded when being towed.



2 Identification

⇒ **"2.1 Gearbox identification", page 3**

2.1 Gearbox identification

Location of code letters and production date on gearbox -arrow-

Codes and production date of gearbox -arrow-

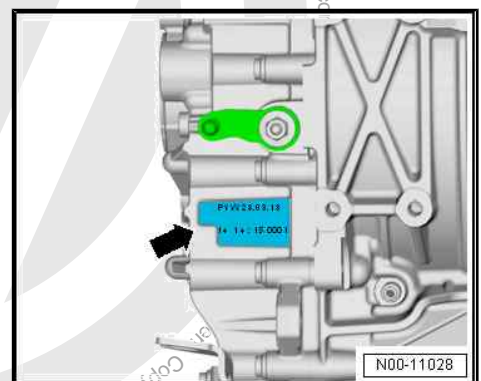
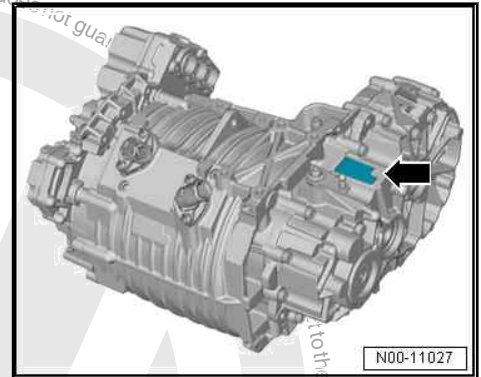
Example:	PYW	28	03	3
	Identification code	Day	Month	Year (2013) of manufacture

Additional data provide information about the production facility.



Note

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





3 Technical data

⇒ "3.1 Allocation gearbox - engine", page 4 .

⇒ "3.2 Capacities", page 4 .

3.1 Allocation gearbox - engine

Gearbox	1-speed, 0CZ		
Identification code	NPG	PYW	
Manufactured from to	03.13	03.13	
Allocation Engine	E-60 kW	E-60 kW	
Ratio Final drive Z2 : Z1	88 : 17 = 5.176	88 : 17 = 5.176	

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

- ◆ Gear oil

3.2 Capacities

Gearbox capacity	0.7 l
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4 Repair notes

⇒ **"4.1 General repair instructions", page 5**

4.1 General repair instructions

To achieve the desired results when performing repairs, it is important to work with the greatest possible care and cleanliness, and to use proper tools which are in perfect condition. Of course, the basic rules for safety also apply during repair work.

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 .

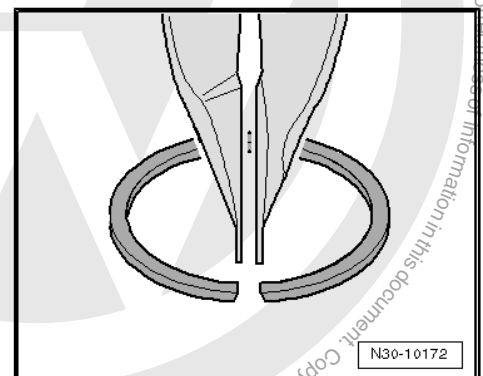
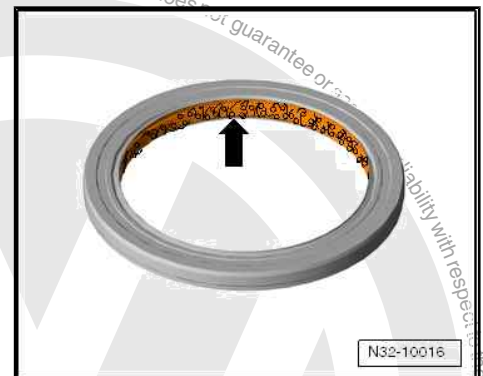
Gearbox

- ◆ Observe the following when fitting engine and gearbox:
- ◆ 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) .
- ◆ When repairing gearbox, top up gear oil.

Gaskets and seals

- ◆ 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.

Locking devices





- ◆ Renew retaining rings.
- ◆ Do not overstretch retaining rings.
- ◆ Retaining rings must locate properly in grooves.
- ◆ Renew spring pins. Installation position: slot must be in line with direction of force.

Nuts and bolts

- ◆ Loosen and tighten securing bolts and nuts for covers and housings alternately and diagonally.
- ◆ 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.
- ◆ Use a thread chaser to clear residual locking fluid from all threaded holes into which self-locking bolts are to be screwed. 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.

Bearings

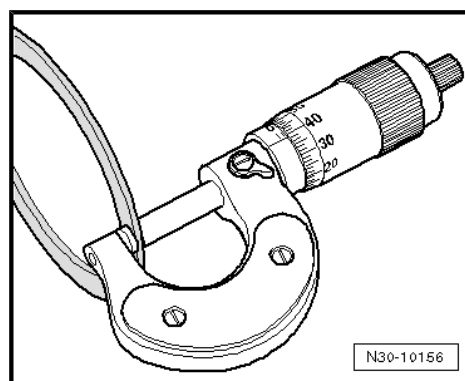
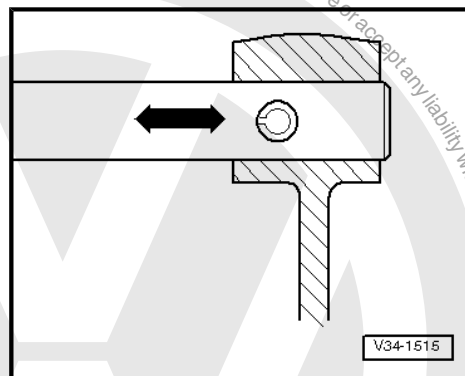
- ◆ Lubricate all bearings with gear oil before installing.
- ◆ Install new tapered roller bearings as supplied and do not lubricate additionally.
- ◆ Install needle bearings with lettered side (thicker metal) towards fitting tool.
- ◆ Tapered roller bearings fitted to one shaft must be renewed as a set. Use same make of bearings.
- ◆ Heat inner races to about 100 °C with the inductive heater - VAS 6414- before installing.
- ◆ Do not interchange outer or inner races of bearings of the same size. The bearings are matched in pairs.

Shims

- ◆ Measure shims at several points with a micrometer. The various tolerances make it possible to achieve the exact shim thickness required.
- ◆ Check for burrs and damage.
- ◆ Install only flawless shims.

Gear wheels

- ◆ Before installing, clean and heat with the inductive heater - VAS 6414- to maximum 100°C.
- ◆ Observe installation position





34 – Controls, housing

1 Selector mechanism

- ⇒ [“1.1 Assembly overview - selector mechanism”, page 7](#)
- ⇒ [“1.2 Repairing cable support bracket”, page 9](#)
- ⇒ [“1.3 Emergency release from position P”, page 9](#)
- ⇒ [“1.4 Removing and installing selector lever handle”, page 10](#)
- ⇒ [“1.5 Moving push-button in the handle to installation position”, page 13](#)
- ⇒ [“1.6 Removing and installing selector mechanism”, page 14](#)
- ⇒ [“1.7 Removing and installing gear selector cable”, page 18](#)
- ⇒ [“1.8 Checking selector mechanism”, page 22](#)
- ⇒ [“1.9 Checking and adjusting selector lever cable”, page 24](#)
- ⇒ [“1.10 Renewing selector shaft seal”, page 26](#)

1.1 Assembly overview - selector mechanism

1 - Handle with selector cover

- ☐ Secured to selector mechanism with a clamp
- ☐ Selector covers for LHD and RHD vehicles have different lengths
- ☐ Allocation ⇒ Electronic parts catalogue (ETKA)
- ☐ Do not remove handle without reason. For emergency release, only the cover needs to be unclipped ⇒ [page 9](#).
- ☐ Removing and installing ⇒ [page 10](#)

2 - Selector mechanism

- ☐ Removing and installing
- ☐ Removing and installing ⇒ [page 14](#)

3 - Bolt

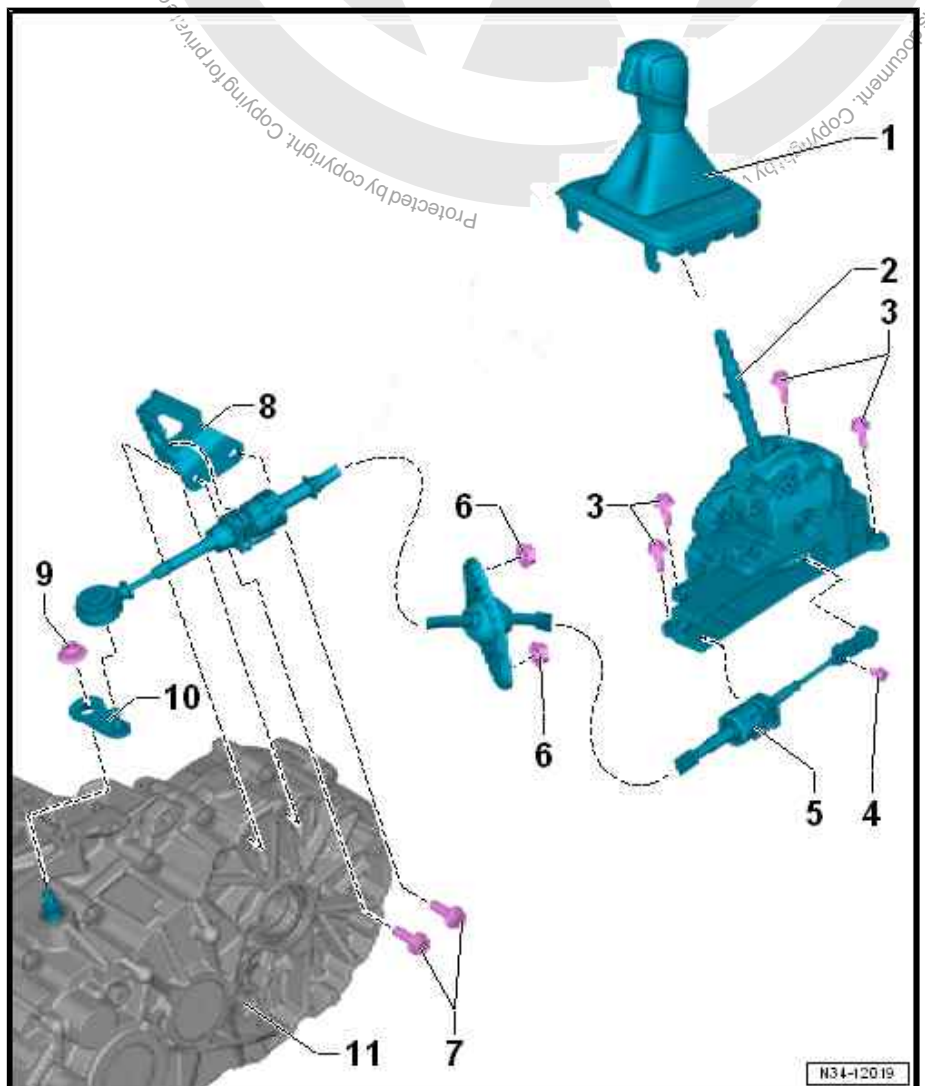
- ☐ 8 Nm

4 - Bolt

- ☐ Adjuster screw for selector lever cable
- ☐ 12 Nm

5 - Selector lever cable

- ☐ Different lengths for LHD and RHD vehicles.
- ☐ Allocation ⇒ Electronic parts catalogue (ETKA)
- ☐ Do not bend or kink





- ☐ Do not grease
- ☐ Removing and installing ⇒ [page 18](#)
- ☐ Checking ⇒ [page 24](#)
- ☐ Adjusting ⇒ [page 24](#)

6 - Hexagon flange nut

- ☐ 8 Nm

7 - Bolt

- ☐ Replace after removal.
- ☐ For selector cable support bracket to gearbox
- ☐ 20 Nm + 45°

8 - Cable support bracket

- ☐ Repairing ⇒ [page 9](#)
- ☐ After installing, adjust selector lever cable ⇒ [page 24](#)

9 - Hexagon flange nut

- ☐ Replace after removal.
- ☐ 20 Nm

10 - Lever

- ☐ For parking lock
- ☐ Fits in one position only ⇒ [page 28](#)
- ☐ Fit to stop
- ☐ After removal or installation, adjust selector lever cable ⇒ [page 24](#)

11 - Three-phase current drive - VX54- /gearbox



1.2 Repairing cable support bracket

1 - Lower cable support bracket

2 - Upper cable support bracket

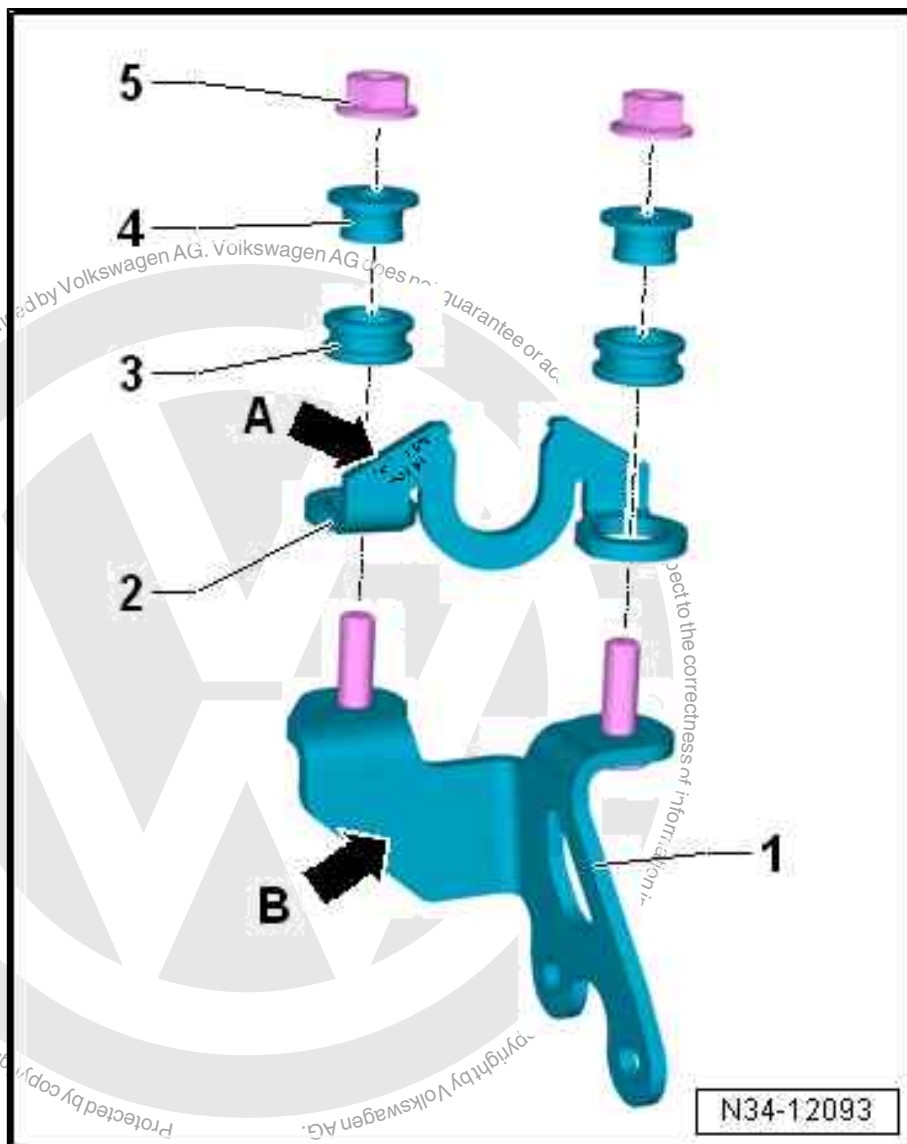
- Installation position: lettering -arrow A- is above area -arrow B-

3 - Grommet

4 - Bush

5 - Hexagon flange nut

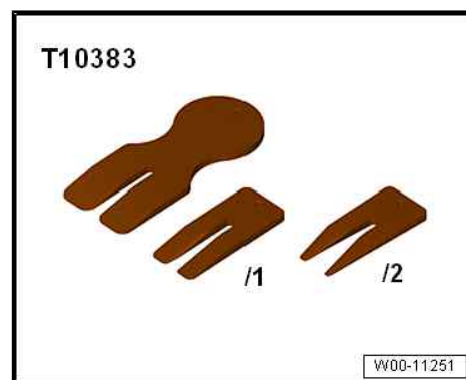
- 20 Nm



1.3 Emergency release from position P

Special tools and workshop equipment required

- ◆ Wedges - T10383-



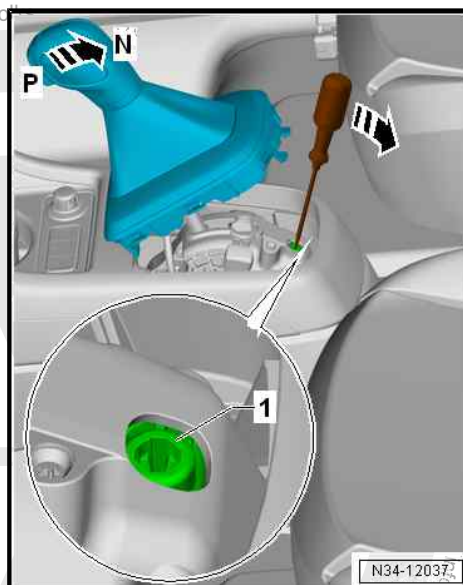
- Observe safety notes ➔ [page 1](#)



Do not remove knob.

- Depress brake pedal or set handbrake.
- Lever up back of cover using wedge - T10383- .
- Using a screwdriver, press locking element -1- in direction of -arrow-.

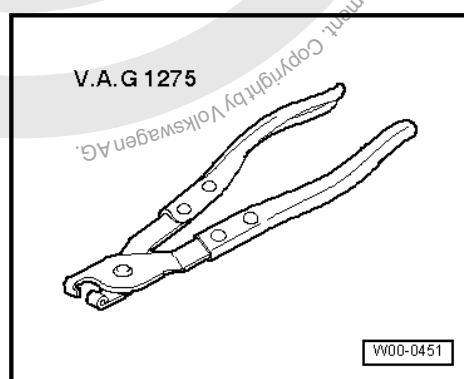
Selector lever can now be moved from position »P«.



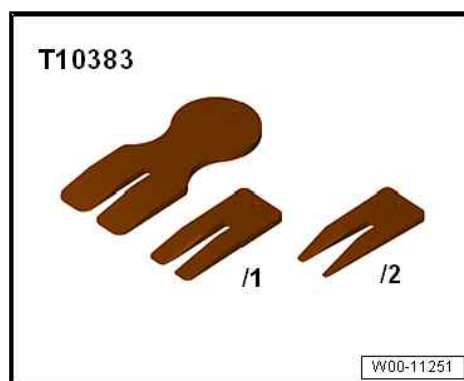
1.4 Removing and installing selector lever handle

Special tools and workshop equipment required

- ◆ Hose clip pliers - V.A.G 1275-



- ◆ Wedges - T10383-



Removing

- Observe safety notes ➔ [page 1](#)
- Depress brake pedal or set handbrake.

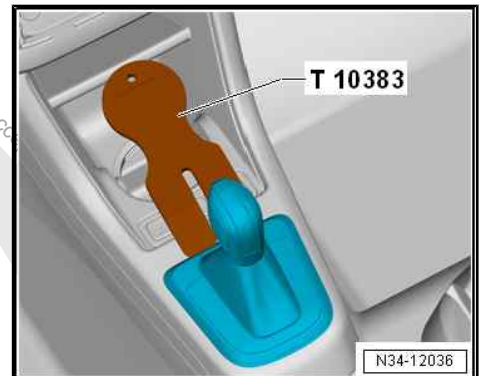


- Move selector lever to position “N”.

The push button -arrow- does not need to be pulled out by hand. Push button engages automatically in installation position when handle is pulled off.



- Lever off cover.
- Disconnect electrical connectors.



- Cut open clamp -arrow- under boot using side cutters.
- Pull handle upwards off selector lever without pressing push button.



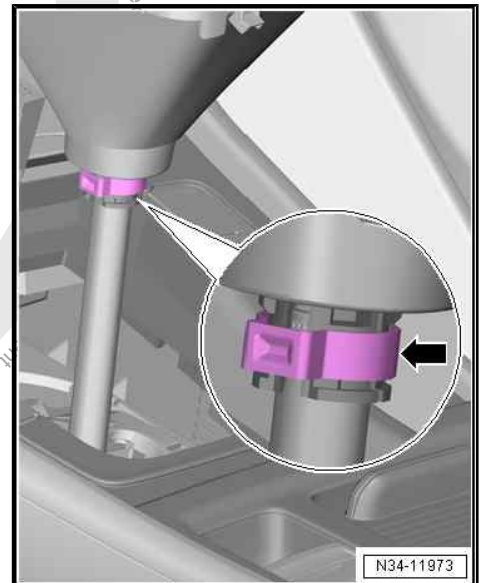
Note

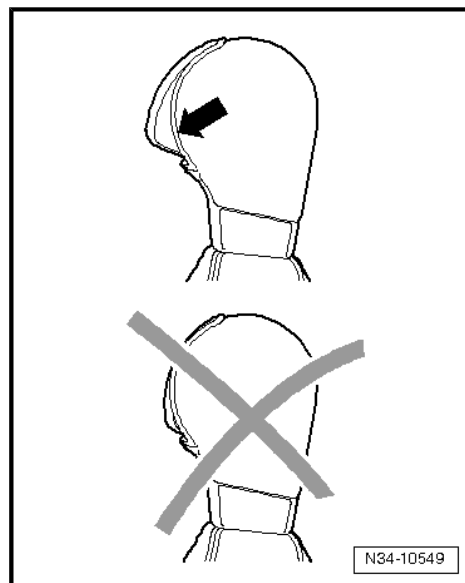
Do not press button again after removal as it will no longer be possible to install the handle.

Installing

Install in reverse order of removal, observing the following:

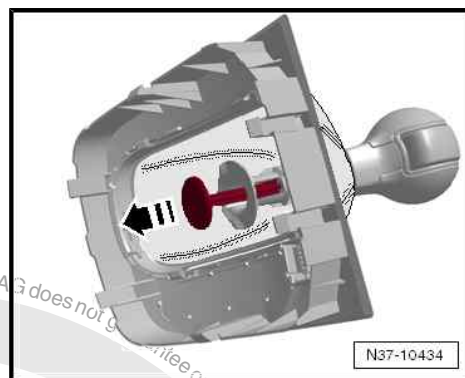
- Selector lever is in position “N”.





Note

- ◆ There is a danger of the button being pressed into the handle. Never install a handle with the button pressed in.
- ◆ Move push-button to installation position ⇒ [page 13](#).
- ◆ New handle is supplied with installation guard. Do not remove guard until just before installing. To remove, pull out -in direction of arrow-.



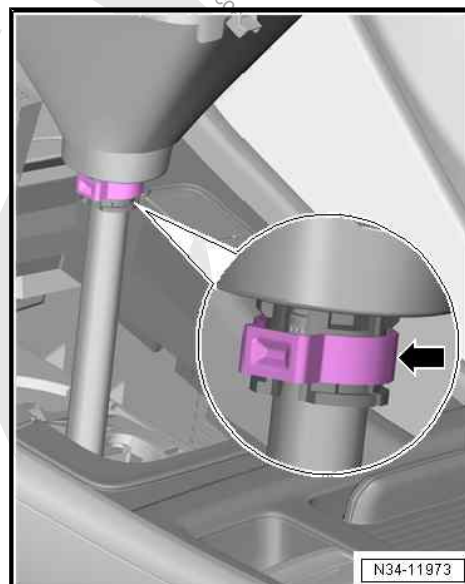
- Push on handle with new clamp -arrow- to stop. Do not tighten clamp yet.
- Press push button after installation.



Note

If not installed correctly, the button remains inserted in the handle after being pressed. If this happens, pull handle off again and move push button to installation position again ⇒ [page 13](#). Then fit the handle again.

- If the push button returns to its start position when released, the clamp can be tightened using the hose clip pliers - V.A.G 1275- .

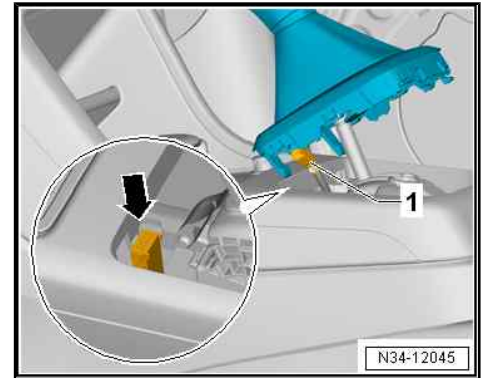




- Connect electrical connector -1-.

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

- The connector must not make contact with the selector mechanism.
- Clip in cover in rear area first.



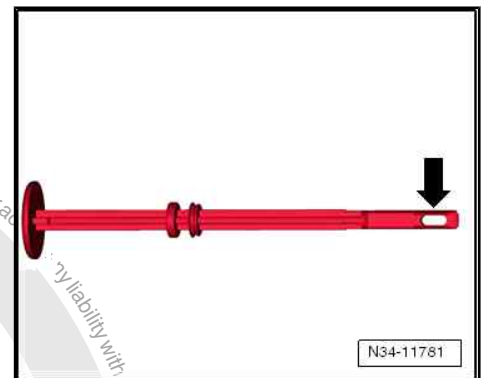
1.5 Moving push-button in the handle to installation position

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

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

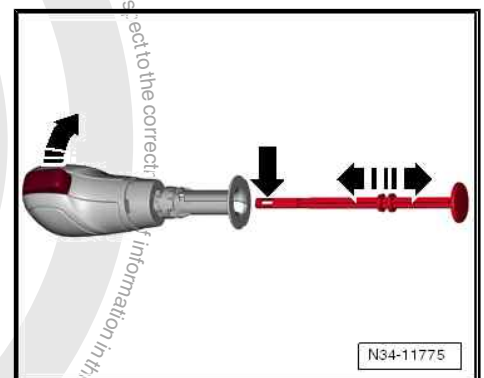
Place handle »with« installation guard in installation position:

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



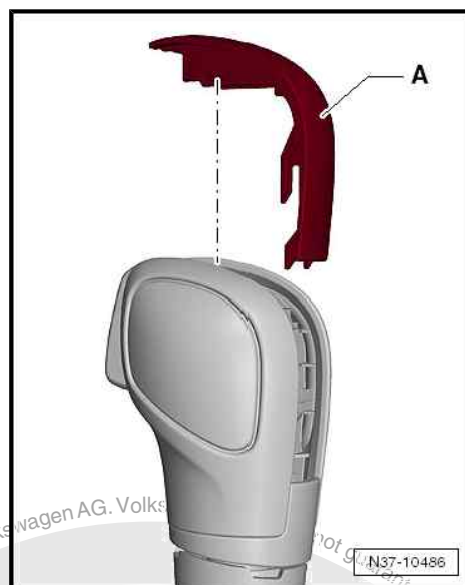
- Holding down push button, completely push in installation guard with eyelet -arrow- until installation guard engages, then release push button. When the installation guard is pulled out, the push-button engages in the installation position.

Place handle »without« installation guard in installation position:





- Carefully unclip handle trim -A- upwards.



- Using e.g. a screwdriver press small lever -1- for pull rod into groove -2-. This action presses the push button -3- back into installation position.

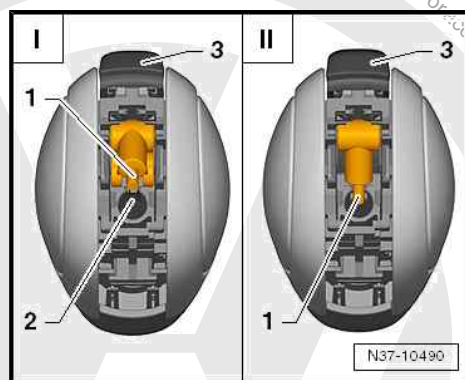
-I- Button pressed in

-I- Button in installation position



Note

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



1.6 Removing and installing selector mechanism

⇒ ["1.6.1 Removing and installing selector mechanism with selector lever cable", page 14](#)

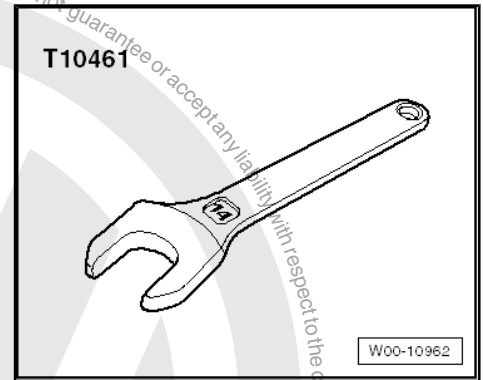
⇒ ["1.6.2 Removing and installing selector mechanism without selector lever cable", page 16](#)

1.6.1 Removing and installing selector mechanism with selector lever cable

Special tools and workshop equipment required



- ◆ Open end spanner 14 mm - T10461



Removing

- Observe general warning instructions for work on the high-voltage system ⇒ [page 1](#) .
- Observe the risk category of the high-voltage system ⇒ Rep. gr. 00 ; Risk category of the high-voltage system .
- Perform visual check of high-voltage components in work area ⇒ Rep. gr. 00 ; Safety notes .
- Remove selector lever cable from gearbox and from cable support bracket
⇒ [“1.7 Removing and installing gear selector cable”](#),
[page 18](#) .



- Remove selector lever handle ➔ [page 10](#) .
- Remove centre console ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Unscrew securing bolts -1- for selector mechanism.
- Separate electrical connector -2-.
- Detach selector lever cable (from ➔ [page 19](#)) .
- Remove selector mechanism together with selector lever cable.

Installing

Install in reverse order of removal. During this step, observe the following:



Note

- ◆ Do not bend or kink gear selector cable.
- ◆ Do not grease selector lever cable.
- ◆ For further installation of the selector lever cable, observe ➔ [“1.7 Removing and installing gear selector cable”, page 18](#) .
- Following installation, check selector lever cable for ease of movement.
- Adjust selector lever cable ➔ [page 24](#) .
- Install centre console ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Install selector lever handle ➔ [page 10](#) .
- Check selector mechanism ➔ [page 22](#) .

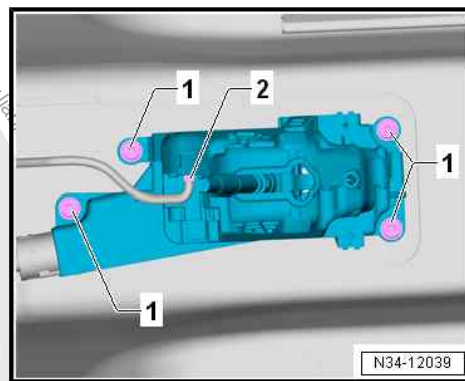
Torque settings

- ◆ Selector housing to body
➔ [“1.1 Assembly overview - selector mechanism”, page 7](#)
- ◆ Selector lever cable to body
➔ [“1.1 Assembly overview - selector mechanism”, page 7](#)

1.6.2 Removing and installing selector mechanism without selector lever cable

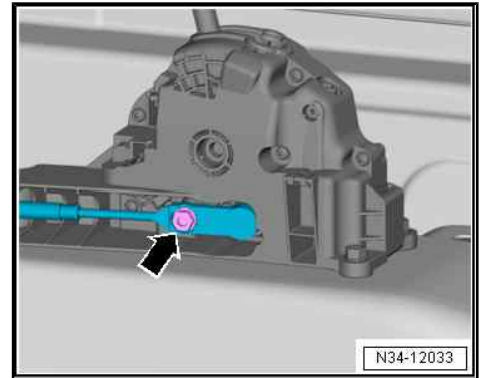
Removing

- Observe general warning instructions for work on the high-voltage system ➔ [page 1](#) .
- Observe the risk category of the high-voltage system ➔ Rep. gr. 00 ; Risk category of the high-voltage system .
- Perform visual check of high-voltage components in work area ➔ Rep. gr. 00 ; Safety notes .
- Remove selector lever handle ➔ [page 10](#) .
- Remove centre console ➔ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .

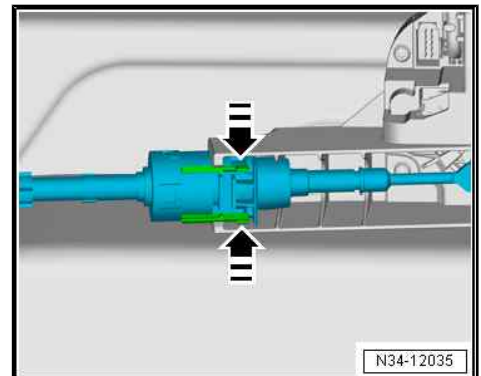




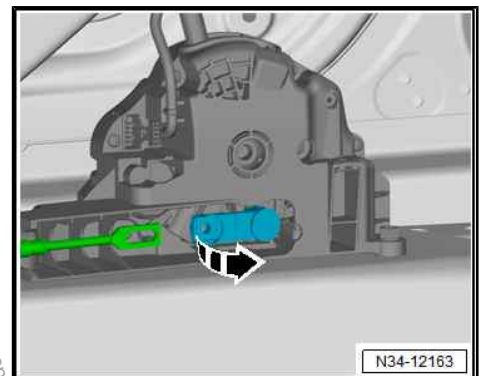
- Unscrew bolt -arrow- securing cable to end piece.



- Unclip selector lever cable from selector mechanism -arrows-.



- Pull selector lever cable out of selector lever and end piece.
- Pull end piece of selector lever cable off selector mechanism -arrow-.
- Join selector lever cable to end piece.



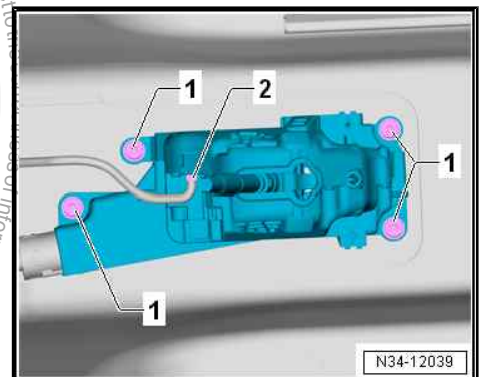
- Unscrew securing bolts -1- for selector mechanism.
- Separate electrical connector -2-.
- Remove selector mechanism with selector housing.

Installing

Install in reverse order of removal. During this step, observe the following:

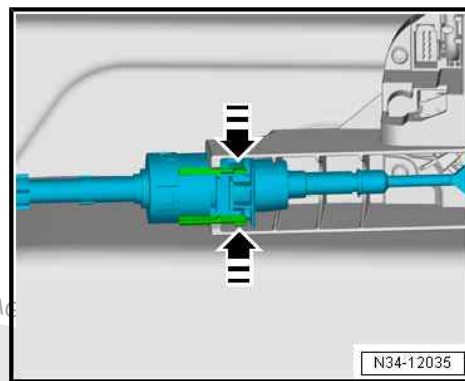
Note

- ◆ Do not bend or kink gear selector cable.
- ◆ Do not grease selector lever cable.
- ◆ Following installation of selector mechanism, selector lever cable must be checked for ease of movement and be adjusted.
- Selector lever of selector mechanism is in position "P".





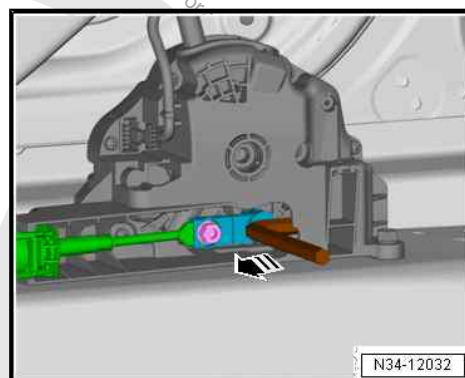
- Ensure that selector lever cable is properly engaged in selector mechanism -arrows-.



- Push selector lever cable onto ball head of selector mechanism.

This can be done by carefully pushing e.g. an AF 8 hexagon key in direction of -arrow-.

- Adjust selector lever cable ⇒ [page 24](#) .
- Install centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Install selector lever handle ⇒ [page 10](#) .
- Check selector mechanism ⇒ [page 22](#) .



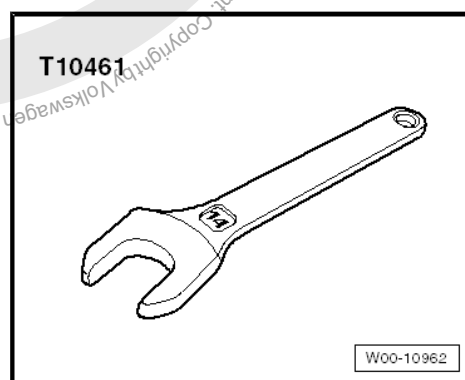
Torque settings

- ♦ Selector housing to body
⇒ [“1.1 Assembly overview - selector mechanism”, page 7](#)

1.7 Removing and installing gear selector cable

Special tools and workshop equipment required

- ♦ Open end spanner 14 mm - T10461-

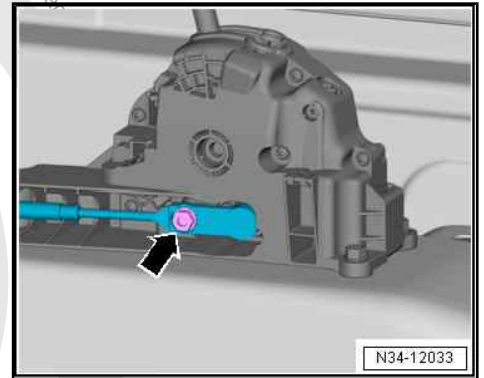


Removing

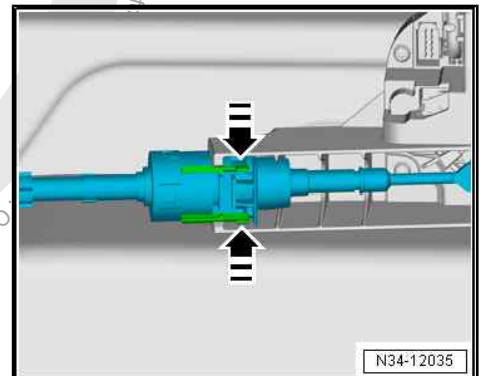
- Observe general warning instructions for work on the high-voltage system ⇒ [page 1](#) .
- Observe the risk category of the high-voltage system ⇒ Rep. gr. 00 ; Risk category of the high-voltage system .
- Perform visual check of high-voltage components in work area ⇒ Rep. gr. 00 ; Safety notes .
- Remove selector lever handle ⇒ [page 10](#) .
- Remove centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .



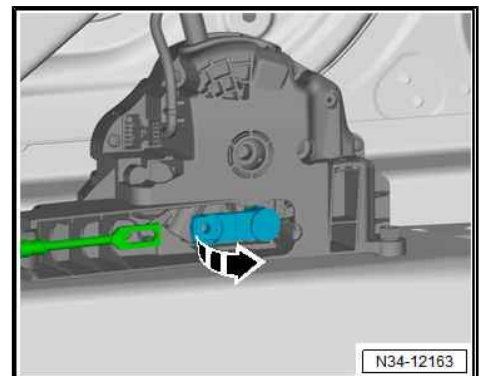
- Unscrew bolt -arrow- securing cable to end piece.



- Unclip selector lever cable from selector mechanism -arrows-.



- Pull selector lever cable out of selector lever and end piece.
- Pull end piece of selector lever cable off selector mechanism -arrow-.
- Join selector lever cable to end piece.

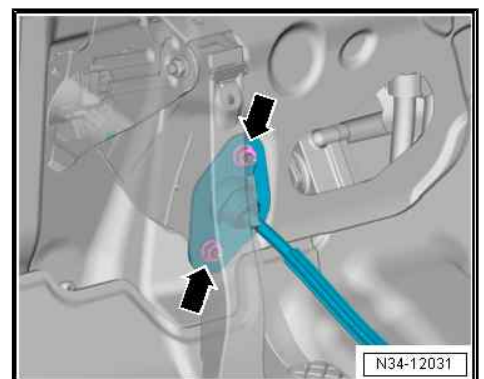


RHD vehicles

- If upper securing nut for gate selector cable is not accessible, release heater and air conditioning unit at front, and remove it if necessary ⇒ Heater, air conditioning system; Rep. gr. 87 ; Heater and air conditioning unit, front; Assembly overview – heater and air conditioning unit

Continuation for all

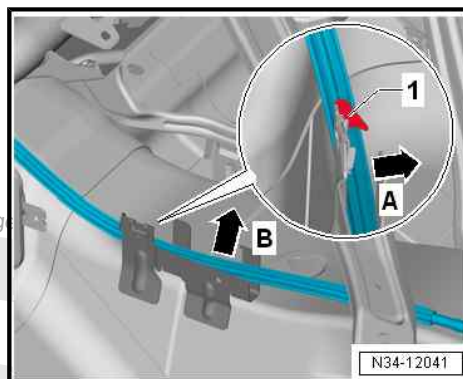
- Unbolt selector lever cable -arrows-.



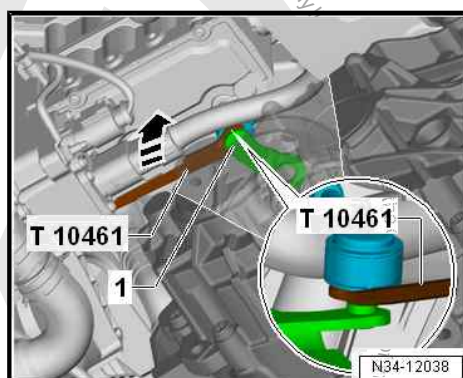


There is a locking lug -1- above selector lever cable.

- Carefully push selector lever cable past retaining lug -1- in direction of -arrow A-, and lever it out of bracket in direction of -arrow B-.



- Lever selector lever cable off lever for parking lock -1- in direction of -arrow-.



- Unbolt cable support bracket together with selector lever cable from gearbox -arrows-.





- Proceed as follows to detach cable support bracket from selector lever cable:

The length of the selector lever cable installed may vary.

- In order to detach the cable support bracket from the selector lever cable, therefore, position the support bracket on the inner joint of the left drive shaft or in front of it.
- Unclip selector lever cable from cable support bracket -arrows- using ball-head long nose pliers.
- Remove cable support bracket from selector lever cable.
- Remove selector lever cable.

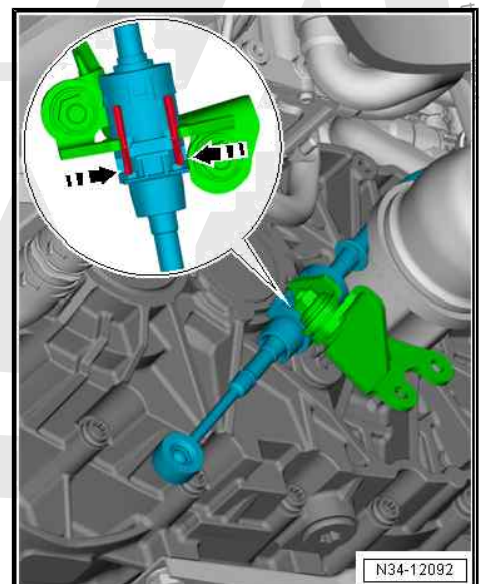
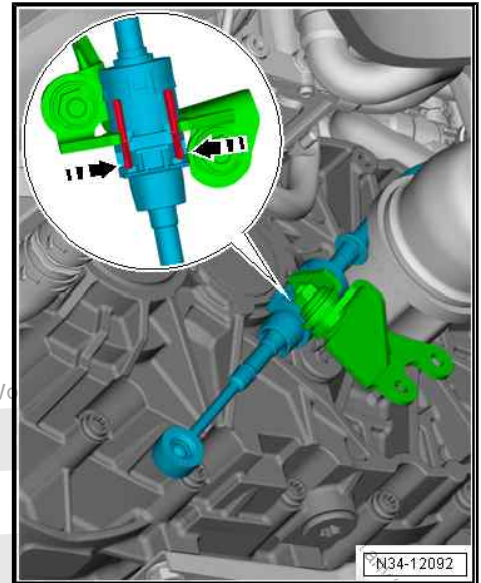
Installing

Install in reverse order of removal. During this step, observe the following:



Note

- ◆ *Selector lever of selector mechanism is in position "P".*
- ◆ *Do not bend or kink gear selector cable.*
- ◆ *Do not grease selector lever cable.*
- First, engage selector lever cable in support bracket -arrows-.
- To ensure proper engagement, carefully pull selector lever cable and cable support bracket.
- Then, bolt cable support bracket to gearbox.

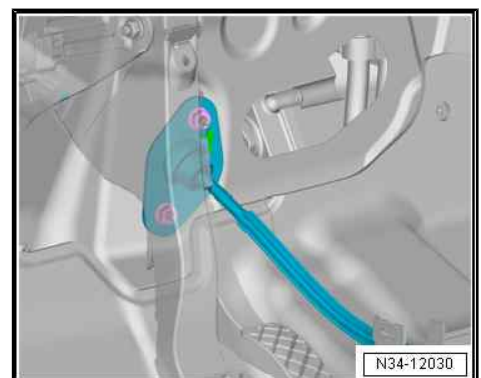


Installation position of selector lever cable:

- -Arrow A- on plenum chamber bulkhead seal points toward dash panel.

RHD vehicles

- Install heater and air conditioning unit at front ⇒ Heater, air conditioning system; Rep. gr. 87 ; Heater and air conditioning unit, front; Assembly overview – heater and air conditioning unit

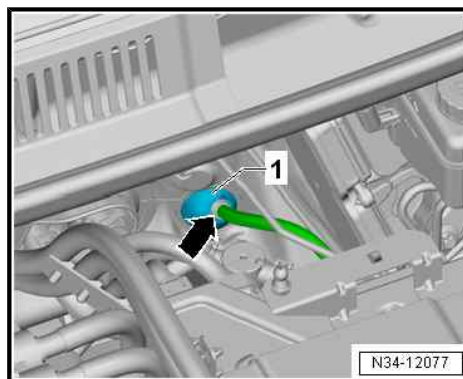




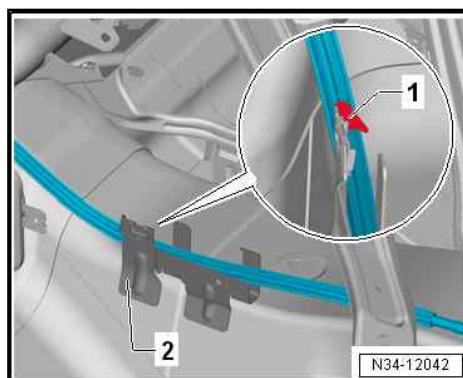
Continuation for all

When new, cable guide -arrow- and plenum chamber bulkhead seal -1- are two separate parts.

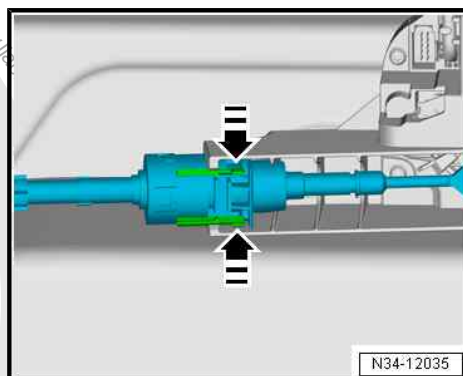
- Engage cable guide -arrow- with seal of plenum chamber bulkhead -1-.
- Light-coloured tip -arrow- of cable guide must be visible from engine compartment when installed.



- Selector lever cable is held in position by locking lug -1-.
- Carefully push selector lever cable past locking lug -1- into bracket -2-.



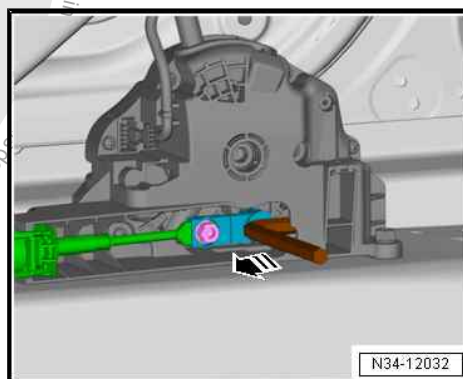
- Make sure that selector lever cable engages properly in selector mechanism -arrow-.
 - Ensure proper engagement by pulling selector lever cable.
 - Following installation, check selector lever cable for ease of movement.
- Push selector lever cable onto ball head of lever for parking lock as far as stop (after having checked and adjusted it as necessary).



- Push selector lever cable onto ball head of selector mechanism.

This can be done by carefully pushing e.g. an AF 8 hexagon key in direction of -arrow-.

- Adjust selector lever cable ⇒ [page 24](#) .
- Install centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Install selector lever handle ⇒ [page 10](#) .
- Check selector mechanism ⇒ [page 22](#) .



Torque settings

- ♦ Selector lever cable to body and gearbox
⇒ ["1.1 Assembly overview - selector mechanism", page 7](#)

1.8 Checking selector mechanism

- Observe safety notes ⇒ [page 1](#)



When selector lever is in positions "R", "D", "B", or in recuperation position, "Ready" must NOT be shown on the display of the dash panel insert.

Above 5 km/h:

When the selector lever is shifted to "N", the selector lever lock solenoid must not lock the selector lever. Selector lever can be shifted back into a driving range.

Below 5 km/h:

When the selector lever is shifted to "N", the selector lever lock solenoid must lock the selector lever only after approx. 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 push-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 "B", 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.

Moving selector position from "D" in "direction of arrow" in cover for selector mechanism

- The illumination of the "D" symbol in the selector mechanism cover lights up more brightly.

Tapping in the "+" and "-" gate:

- The illumination of the "D" symbol in the selector mechanism cover remains brighter.
- The energy recovery level is displayed in the dash panel insert

Tapping from "B" in "direction of arrow" in cover for selector mechanism

- "B" lights up more brightly (maximum energy recovery)

Moving selector lever from "B" in the "+" "-" gate:

Variable energy recovery ("+" or "-") cannot be selected.

"B" continues to light up more brightly.

Moving selector lever in position "D" again

Tapping rearwards again selects position "D" again with the previously selected energy recovery level "4 3 2 1".

"D" continues to light up more brightly.



Ignition and light switched on

The respective symbol in the shift mechanism cover lights up.

Selector lever position indicator

Simultaneous brighter illumination of all selector lever position display segments indicates an operational failure.

1.9 Checking and adjusting selector lever cable

- Observe general warning instructions for work on the high-voltage system ⇒ [page 1](#) .
- Observe the risk category of the high-voltage system ⇒ Rep. gr. 00 ; Risk category of the high-voltage system .
- Perform visual check of high-voltage components in work area ⇒ Rep. gr. 00 ; Safety notes .

Checking selector lever cable – brief description

Remove selector lever cable from gearbox to be able to check it for ease of movement ⇒ [page 18](#) .

- 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.

Do not grease connections of cable!

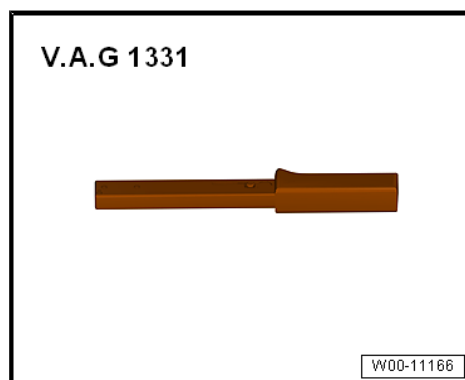
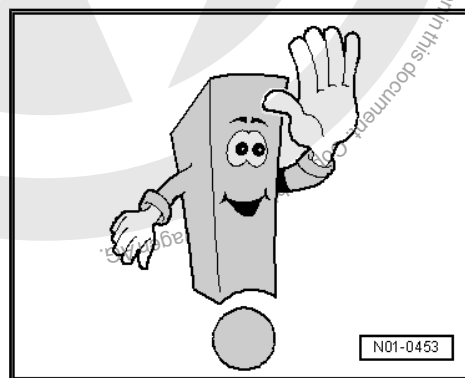
Then the selector lever must be adjusted!

Always adjust selector lever cable if the following applies:

- ◆ The selector lever cable has been removed from the gearbox.
- ◆ The three-phase current drive - VX54- /gearbox has been removed and reinstalled.
- ◆ 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 three-phase current drive - VX54- /gearbox has been shifted, for example to install it free of tension.

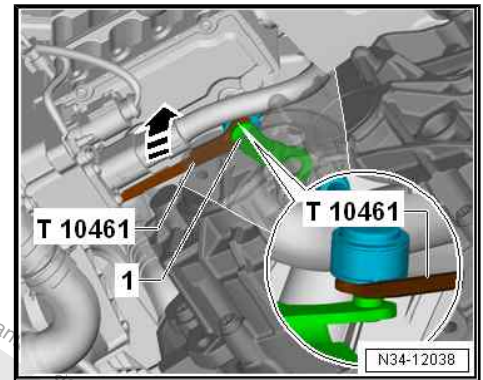
Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



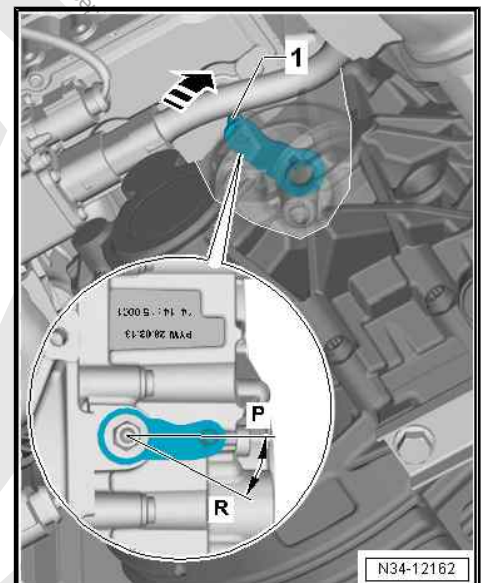


- Lever selector lever cable off lever for parking lock -1- in direction of -arrow-.



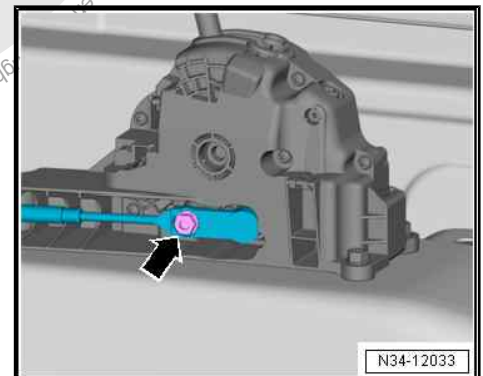
Checking selector lever

- Shift selector lever to position »P« (direction -of arrow-).
Lever for parking lock -1- on gearbox is accessible from below.
- Shift selector lever several times from »P« to »R« and back to »P«.
- Selector lever must move easily.



Adjusting

- Remove centre console - General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .
- Reinstall cable with loosened adjuster screw -arrow- (if removed beforehand), or loosen adjuster screw -arrow- now.
- Move selector lever in vehicle to "P" position.





Then, shift lever for parking lock -1- on gearbox to position "P".

- To do this, push lever for parking lock -1- »as far as it will go« towards plenum chamber bulkhead (direction of -arrow-).

Position "P" is the last detent position.



Note

- ♦ On some gearboxes, the lever for parking lock can be shifted slightly further than position "P" and engage there.
- ♦ In this case, shift lever for parking lock back to position "P", or tip on it slightly to let it spring back to "P" automatically.
- ♦ Check: When in P position, lever is aligned parallel to threaded connection between engine and gearbox housing.
- ♦ Raise vehicle, to be sure that the gearbox is in "P" (parking lock engaged). It should not be possible to turn both front wheels together in the same direction.
- ♦ Gearbox is also in "P" if vehicle cannot be pushed although its wheels are free to turn.

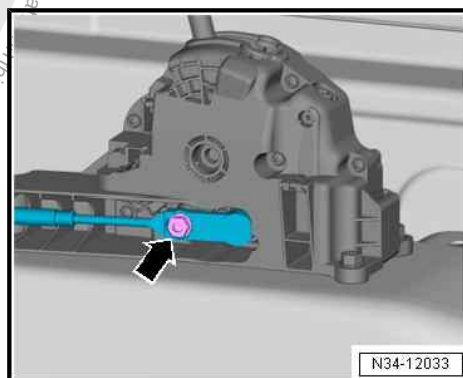
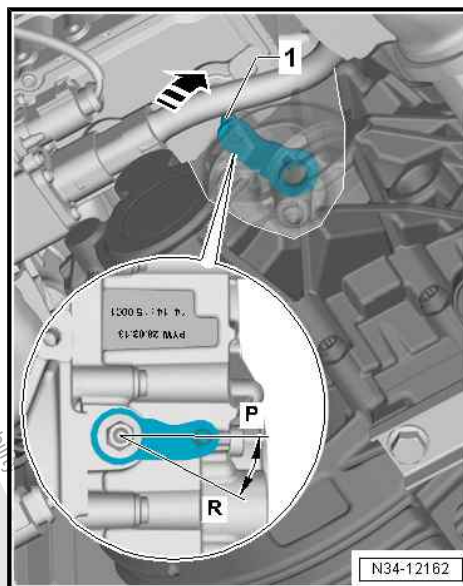
"P" is the first detent position after "R". In this position, both front wheels cannot be turned in the same direction at the same time.

Push selector lever cable onto lever for parking lock. When doing so, make sure not to shift the lever for parking lock.

- If removed beforehand, reinstall cable with loosened adjuster screw -arrow-.
- Tighten adjuster screw -arrow- to specified torque.

Torque setting

- ♦ Adjustment screw for selector lever cable
⇒ ["1.1 Assembly overview - selector mechanism", page 7](#)
- Install centre console ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Removing and installing centre console .



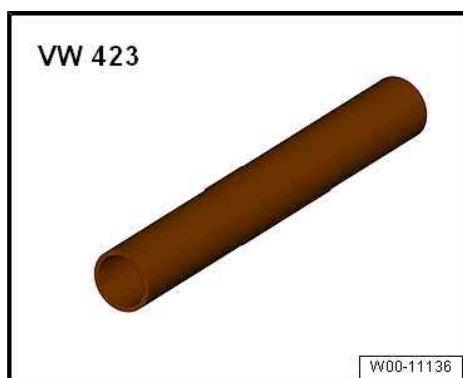
1.10 Renewing selector shaft seal

Brief description

Remove three-phase current drive - VX54- /gearbox to be able to remove the seal.

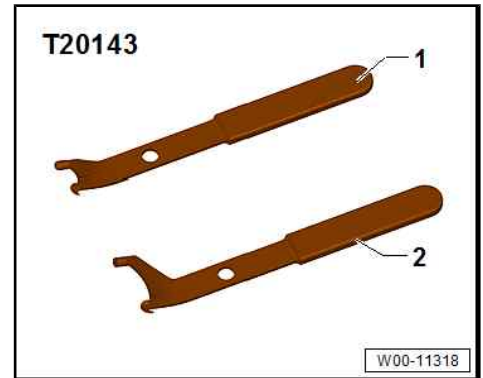
Special tools and workshop equipment required

- ♦ Tube - VW 423-

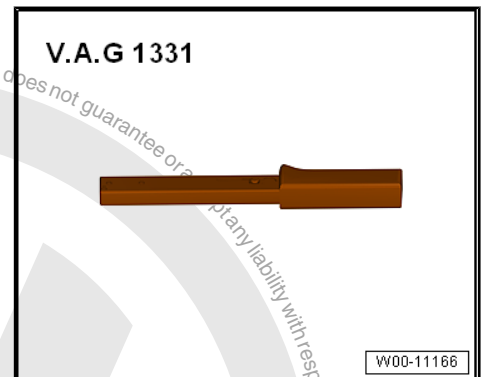




◆ Extractor hook - T20143-



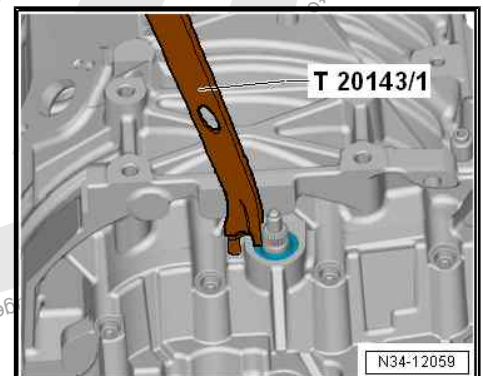
◆ Torque wrench - V.A.G 1331-



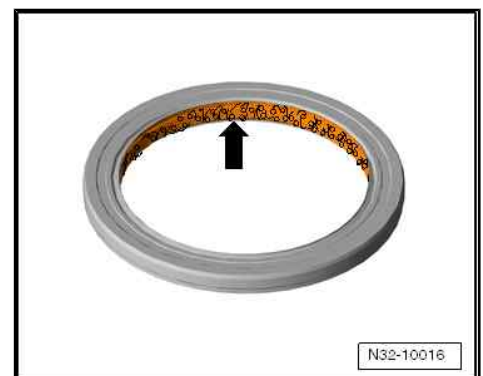
◆ Sealing grease

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

- Remove three-phase current drive - VX54- /gearbox ⇒ Rep. gr. 93 ; Electric drive motor .
- Remove lever for parking lock from selector shaft ⇒ [page 7](#) .
- Lever out seal.



- Lightly oil outer circumference of new oil seal.
- Half-fill space between sealing lip and dust lip -arrow- with sealing grease .
- Closed end of seal points towards tube - VW 423- .

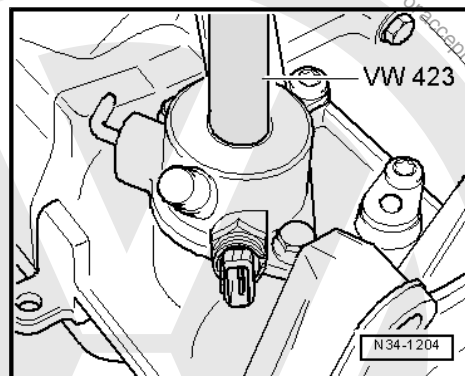




Push in new seal ensuring it is flush with surface of gearbox housing.

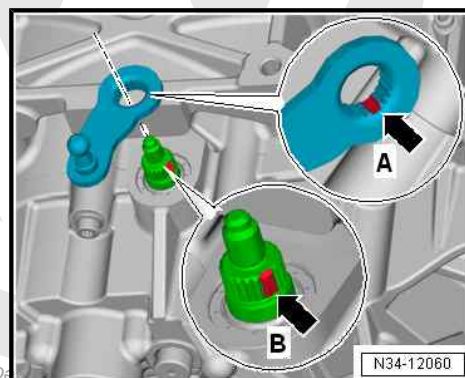
- Do not cant oil seal.

Installation procedure shown here applies for another gearbox.



Lever for parking lock can be fitted onto splines in one position only.

- When fitting the lever for parking lock, ensure that the gap -arrow A- is aligned with the master spline -arrow B-.
- Tighten securing nut for lever for parking lock to specified torque ➔ [page 7](#) .
- Install three-phase current drive - VX54- /gearbox ➔ Rep. gr. 93 ; Electric drive motor .
- Bolt cable support bracket together with selector lever cable to gearbox ➔ [page 18](#) .
- Adjust selector lever cable ➔ [page 24](#) .





2 Gearbox housing, clutch housing

⇒ [“2.1 Renewing sealing cap on gearbox housing”, page 29](#)

2.1 Renewing sealing cap on gearbox housing

⇒ [“2.1.1 Renewing front sealing cap on gearbox housing”, page 29](#)

⇒ [“2.1.2 Renewing rear sealing cap on gearbox housing”, page 31](#)

2.1.1 Renewing “front” sealing cap on gearbox housing

Special tools and workshop equipment required

- ◆ Internal puller - VAS 251 603- , or e.g. internal puller - Kukko 21/01-



- ◆ Counter support - VAS 251 621- , or e.g. counter support - Kukko 22/1-

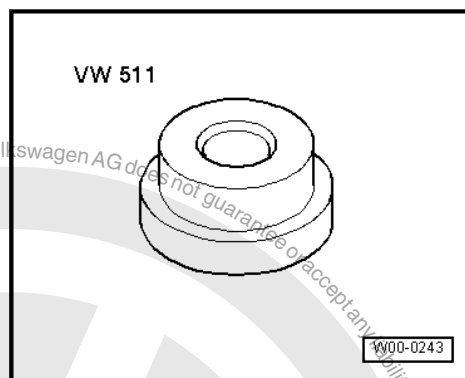


- ◆ Press tool - 30 - 505-





◆ Thrust pad - VW 511-



- Observe general warning instructions for work on the high-voltage system ⇒ [page 1](#) .
- Observe the risk category of the high-voltage system ⇒ Rep. gr. 00 ; Risk category of the high-voltage system .
- Now, de-energise the high-voltage system ⇒ Rep. gr. 93 ; De-energising high-voltage system .
- Perform visual check of high-voltage components in work area ⇒ Rep. gr. 00 ; Safety notes .
- Remove high-voltage heater (PTC) - Z115- from cross member. Do not disconnect lines ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit; Removing and installing high-voltage heater (PTC) - Z115- / high-voltage heater (PTC) control unit - J848-)
- Push high-voltage heater (PTC) - Z115- upwards, and engage it in ribs of gearbox housing. Tie if necessary.
- Carefully pierce rubber in centre of sealing cap with a screwdriver .

! NOTICE

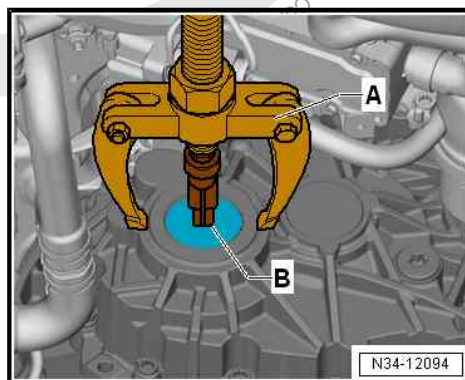
Risk of damage to components beneath sealing cover.

- **Make sure not to insert screwdriver and internal puller too far.**

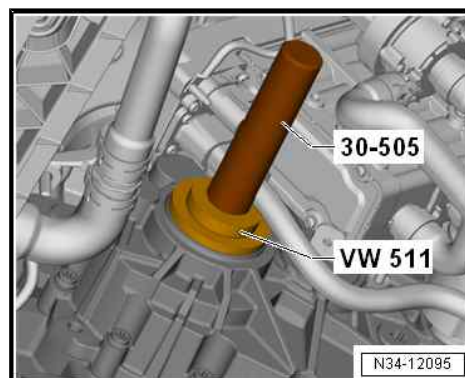
- Pull sealing cover out of gearbox housing.

A - Counter support - VAS 251 621- , or e.g. counter support - Kukko 22/1-

B - Internal puller - VAS 251 603- , or e.g. internal puller - Kukko 21/01-



- Drive sealing cover plate into gearbox housing to stop of thrust piece.
- Install high-voltage heater (PTC) - Z115- . Do not disconnect lines ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit; Removing and installing high-voltage heater (PTC) - Z115- / high-voltage heater (PTC) control unit - J848-)
- Check gear oil ⇒ [page 45](#) .



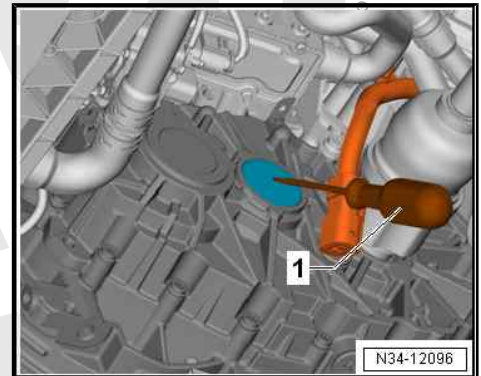


2.1.2 Renewing “rear” sealing cap on gearbox housing

- Observe general warning instructions for work on the high-voltage system ➔ [page 1](#).
- Observe the risk category of the high-voltage system ➔ Rep. gr. 00 ; Risk category of the high-voltage system .
- Now, de-energise the high-voltage system ➔ Rep. gr. 93 ; De-energising high-voltage system .
- Perform visual check of high-voltage components in work area ➔ Rep. gr. 00 ; Safety notes .
- Pull off high-voltage connector from high-voltage heater (PTC) - Z115- ➔ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit; Removing and installing high-voltage heater (PTC) - Z115- / high-voltage heater (PTC) control unit - J848- .
- Carefully pierce rubber in centre of sealing cap with a screwdriver -1-.
- Then, carefully lever off sealing cap.

To drive in the “rear” sealing cap, proceed in the same manner as when driving in the “front” sealing cap ➔ [page 29](#) .

- Attach high-voltage connector to high-voltage heater (PTC) - Z115- ➔ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit; Removing and installing high-voltage heater (PTC) - Z115- / high-voltage heater (PTC) control unit - J848- .
- Check gear oil level, and top it up to lower edge of oil filler hole if necessary ➔ [page 45](#) .





3 Removing and installing gearbox

The gearbox and the three-phase current drive - VX54- are comprised together in one component.

These are removed and installed together ⇒ Rep. gr. 93 ; Electric drive motor .

- Check gear oil level, and top it up to lower edge of oil filler hole if necessary ⇒ [page 45](#) .





4 Assembly mountings

⇒ ["4.1 Assembly overview - assembly mountings", page 33](#)

⇒ ["4.2 Removing and installing cross member for three-phase current drive VX54", page 34](#)

⇒ ["4.3 Removing and installing gearbox mounting", page 36](#)

⇒ ["4.4 Removing and installing engine mountings", page 40](#)

4.1 Assembly overview - assembly mountings

1 - Bolt

- ☒ Renew after removal
- ☐ Engine mounting to console for engine mounting
- ☐ 60 Nm +180°

2 - Bolt

- ☒ Renew after removal
- ☐ Gearbox mounting to gearbox bracket
- ☐ 60 Nm +180°

3 - Bolt

- ☐ Renew after removal
- ☐ Gearbox mounting to cross member
- ☐ 40 Nm +90°

4 - Gearbox mounting

- ☐ Removing and installing
⇒ [page 36](#)

5 - Bolt

- ☐ Renew after removal
- ☐ Cross member to body
- ☐ 40 Nm +90°

6 - Cross member

- ☐ For three-phase current drive - VX54- /gearbox
- ☐ Removing and installing
⇒ [page 34](#)

7 - Bolt

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

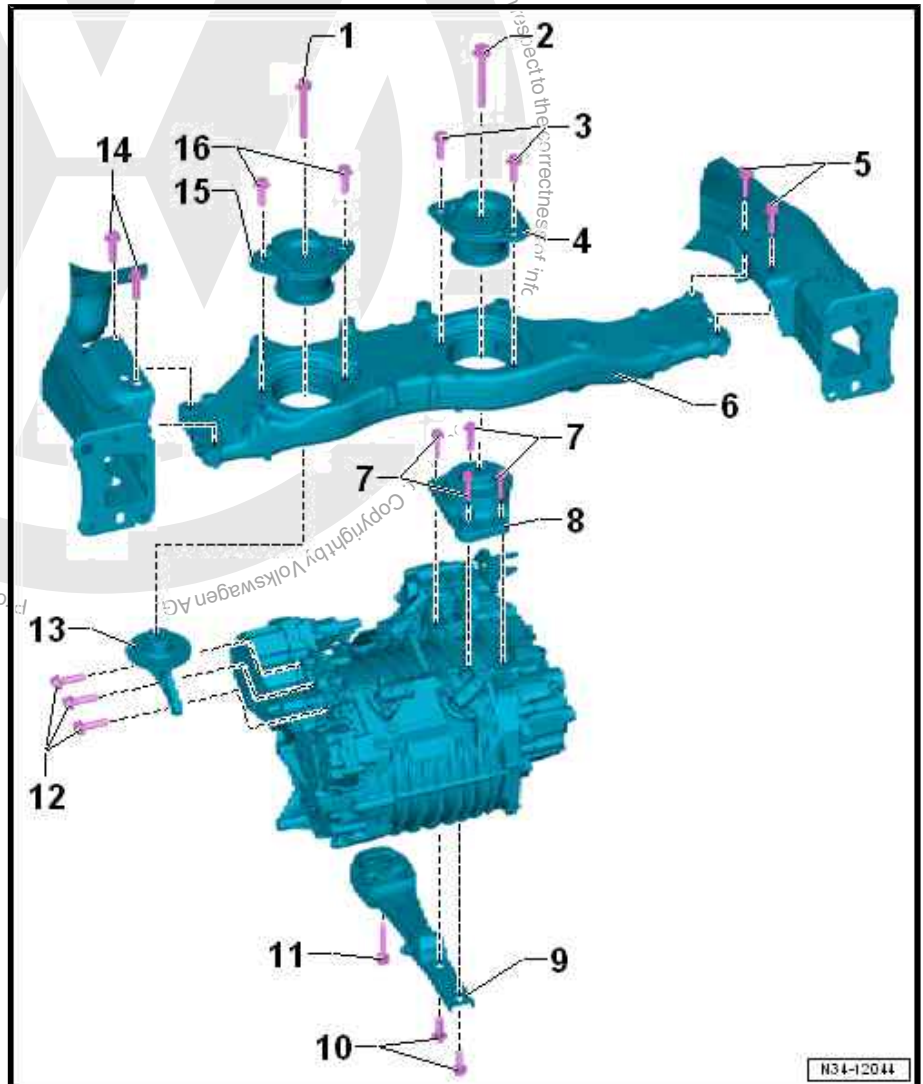
8 - Gearbox bracket

9 - Pendulum support

- ☐ ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Assembly overview - subframe .

10 - Bolt

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





11 - Bolt

- ☐ Renew after removal
- ☐ Pendulum support to sub-frame
- ☐ ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Assembly overview - subframe .

12 - Bolt

- ☐ Renew after removal
- ☐ Console for engine mounting to engine
- ☐ 40 Nm +90°

13 - Console for engine mounting

⇒ Rep. gr. 93 ; Electric drive motor

14 - Bolt

- ☐ Renew after removal
- ☐ Cross member to body
- ☐ 40 Nm +90°

15 - Motor mounting

- ☐ Removing and installing ⇒ [page 40](#)

16 - Bolt

- ☐ Renew after removal
- ☐ Engine mounting to cross member
- ☐ 40 Nm +90°



Note

Install engine and gearbox mountings without tension ⇒ Rep. gr. 93 ; Electric drive motor .

4.2 Removing and installing cross member for three-phase current drive - VX54-

⇒ ["4.2.1 Removing cross member for three-phase current drive VX54", page 34](#)

⇒ ["4.2.2 Installing cross member for three-phase current drive VX54", page 35](#)

4.2.1 Removing cross member for three-phase current drive - VX54-

- Observe general warning instructions for work on the high-voltage system ⇒ [page 1](#) .
- Observe the risk category of the high-voltage system ⇒ Rep. gr. 00 ; Risk category of the high-voltage system .
- ⇒ Rep. gr. 93 ; De-energising high-voltage system
- Perform visual check of high-voltage components in work area
⇒ Rep. gr. 00 ; Safety notes .
- Remove three-phase drive - VX54- ⇒ Rep. gr. 93 ; Electric drive motor .
- If installed, remove following consoles:



Mounting console for power and control electronics for electric drive - JX1- ➔ Rep. gr. 93 ; Power and control electronics for electric drive .

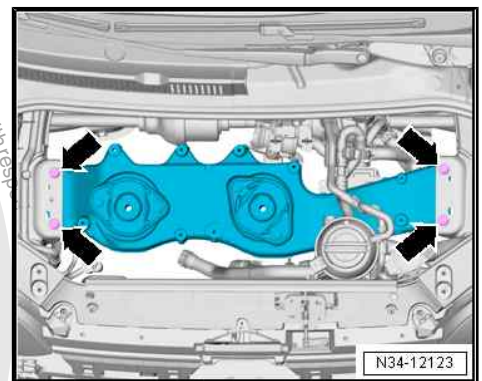
Mounting console for charger 1 for high-voltage battery - AX4- ➔ Rep. gr. 93 ; Charger for high-voltage battery .

- Remove battery and battery tray ➔ Rep. gr. 27 ; Battery; Removing and installing battery .
- Working from motor compartment, remove pump ahead of power and control electronics for electric drive - V508- from cross member (do not open line circuit) ➔ Rep. gr. 93 ; Power and control electronics for electric drive .
- Remove bracket from cross member together with following components (do not open line circuit):

High-voltage heater (PTC) - Z115- ➔ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit; Removing and installing high-voltage heater (PTC) - Z115- / high-voltage heater (PTC) control unit - J848- .

Coolant pump for high-voltage temperature circuit - V467- ➔ Rep. gr. 93 ; Power and control electronics for electric drive

- Remove all lines from cross member ➔ Current flow diagrams, Electrical fault finding and Fitting locations.
- Have a second mechanic support cross member.
- Unbolt cross member -arrows-, and remove it upwards.



4.2.2 Installing cross member for three-phase current drive - VX54-



Note

To find out which special tools are required, see work procedure for removing cross member for three-phase current drive - VX54-, e-up! - ➔ [page 34](#)

- Three-phase current drive - VX54- is removed ➔ Rep. gr. 93 ; Electric drive motor .



- Insert cross member, and secure it with bolts -arrows-.
- Install all cross member lines ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Install following components on cross member (do not open line circuit):

High-voltage heater (PTC) - Z115- ⇒ Heating, air conditioning; Rep. gr. 87 ; Coolant circuit; Removing and installing high-voltage heater (PTC) - Z115- / high-voltage heater (PTC) control unit - J848- .

Coolant pump for high-voltage temperature circuit - V467- ⇒ Rep. gr. 93 ; Power and control electronics for electric drive

- Install three-phase current drive - VX54- ⇒ Rep. gr. 93 ; Electric drive motor .
- Working from motor compartment, remove pump ahead of power and control electronics for electric drive - V508- from cross member (do not open line circuit) ⇒ Rep. gr. 93 ; Power and control electronics for electric drive .
- Install battery and battery tray ⇒ Rep. gr. 27 ; Battery; Removing and installing battery .
- Install power and control electronics for electric drive - JX1- ⇒ Rep. gr. 93 ; Power and control electronics for electric drive .
- Install charger 1 for high-voltage battery - AX4- ⇒ Rep. gr. 93 ; Power and control electronics for electric drive .

Torque settings

Cross member for three-phase current drive - VX54- ⇒ [page 33](#)

4.3 Removing and installing gearbox mounting

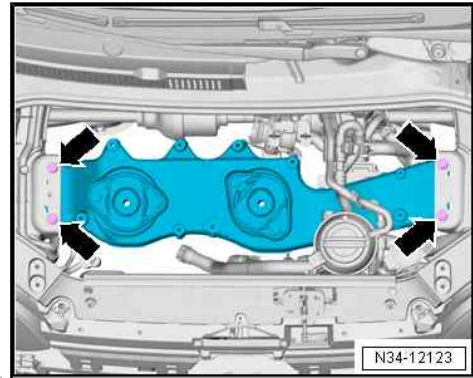
⇒ ["4.3.1 Removing gearbox mountings", page 36](#)

⇒ ["4.3.2 Installing gearbox mounting", page 39](#)

4.3.1 Removing gearbox mountings

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



V.A.G 1331



W00-11166

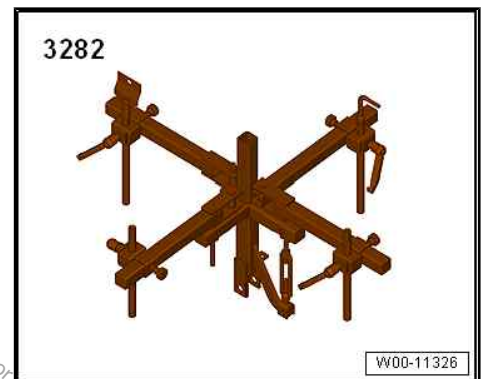
- ◆ Torque wrench - V.A.G 1332-



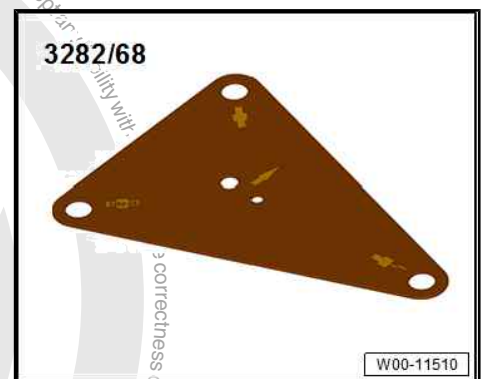
- ◆ Engine and gearbox jack - VAS 6931-



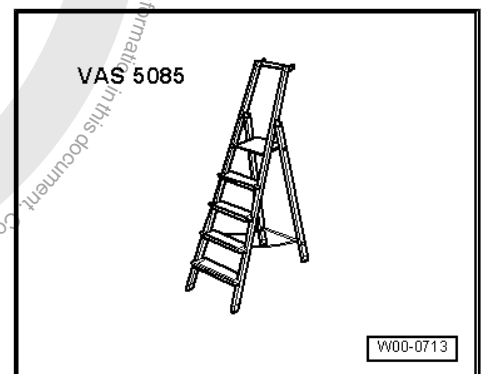
- ◆ Or engine and gearbox jack - V.A.G 1383 A-
- ◆ Gearbox support - 3282-



- ◆ Adjustment plate - 3282/68-



- ◆ Ladder - VAS 5085- or commercially available item



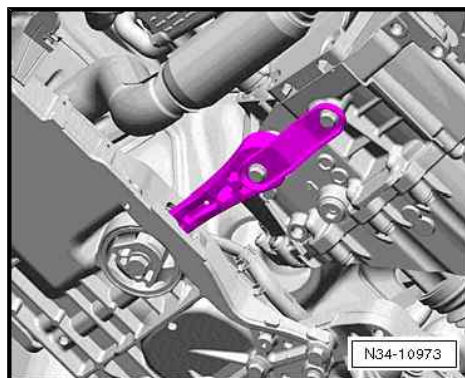
- Observe general warning instructions for work on the high-voltage system ⇒ [page 1](#) .
- Observe the risk category of the high-voltage system ⇒ Rep. gr. 00 ; Risk category of the high-voltage system .



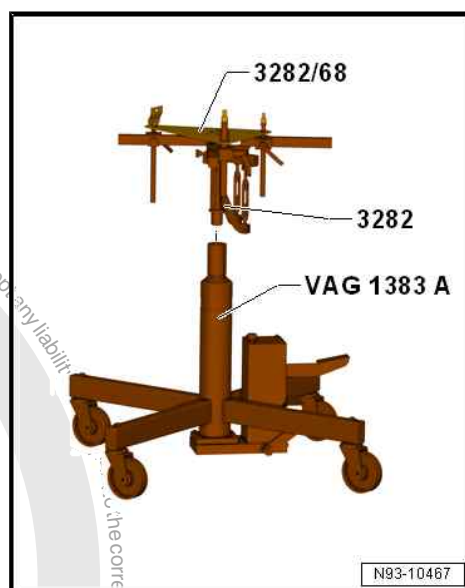
- Now, de-energise the high-voltage system ⇒ Rep. gr. 93 ; De-energising high-voltage system .
- Perform visual check of high-voltage components in work area ⇒ Rep. gr. 00 ; Safety notes .
- Remove engine control unit - J623- ⇒ Rep. gr. 93 ; Engine control unit; Removing and installing engine control unit - J623- .

Remove charger 1 for high-voltage battery - AX4- and console ⇒ Rep. gr. 93 ; Charger for high-voltage battery .

- Remove pendulum support.

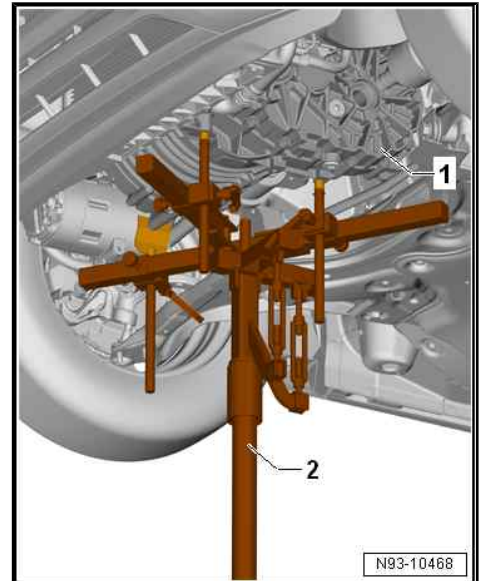


- Place gearbox support - 3282- on engine and gearbox jack and align supports by means of adjustment plate - 3282/68- ⇒ Rep. gr. 93 ; Electric drive motor .

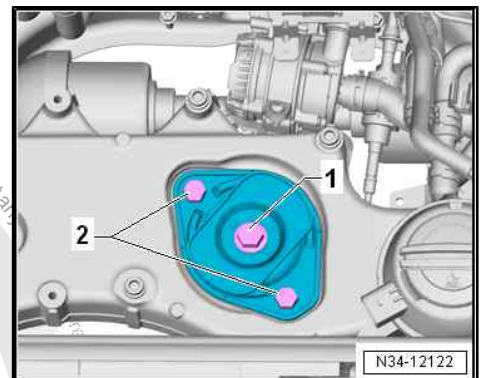




- Position engine and gearbox jack -2- under three-phase current drive - VX54- -1- and secure ⇒ Rep. gr. 93 ; Electric drive motor .



- Remove bolts -1- and -2- from above using step ladder - VAS 5085- (figure shows just one gearbox mounting)
- Remove gearbox mounting.



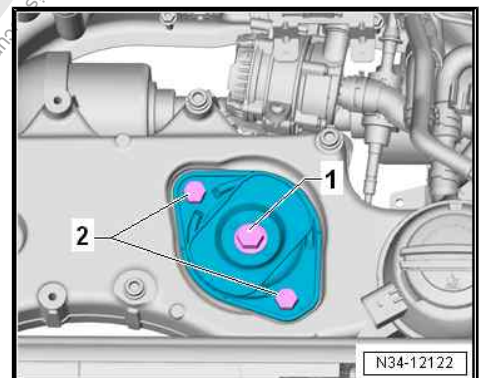
4.3.2 Installing gearbox mounting



Note

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

- Three-phase current drive - VX54- is held in installation position by engine and gearbox jack .
- Step on step ladder - VAS 5085- , insert gearbox mounting, and tighten securing bolts -2- and -1-.
- After having tightened all assembly mounting bolts to specified torque, remove engine and gearbox jack - V.A.G 1383 A-





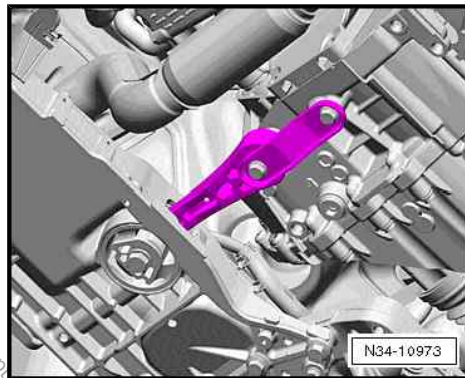
- Install pendulum support using new bolts ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Assembly overview – subframe .

Install charger 1 for high-voltage battery - AX4- ⇒ Rep. gr. 93 ;
Charger for high-voltage battery .

- Install engine control unit - J623- ⇒ Rep. gr. 93 ; Engine control unit; Removing and installing engine control unit - J623- .

Torque settings

Gearbox mounting ⇒ [page 33](#)



4.4 Removing and installing engine mountings

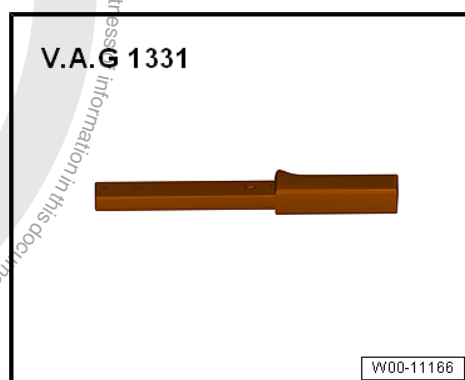
⇒ [“4.4.1 Removing engine mountings”, page 40](#)

⇒ [“4.4.2 Installing engine mountings”, page 42](#)

4.4.1 Removing engine mountings

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



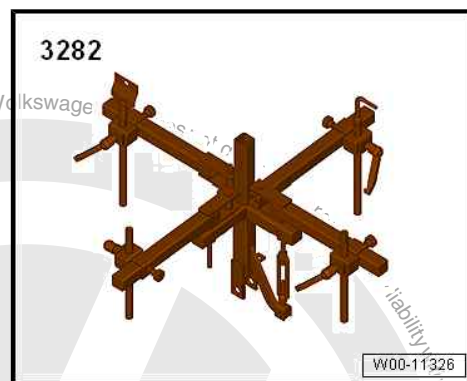
- ◆ Torque wrench - V.A.G 1332-
- ◆ Engine and gearbox jack - VAS 6931-



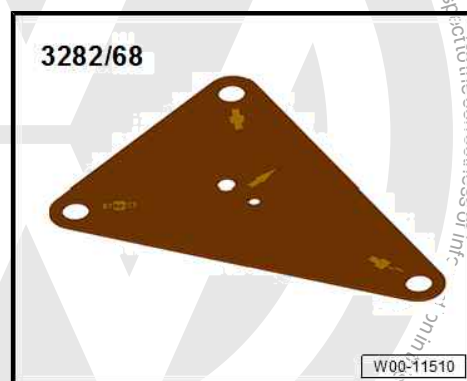
- ◆ Or engine and gearbox jack - V.A.G 1383 A-



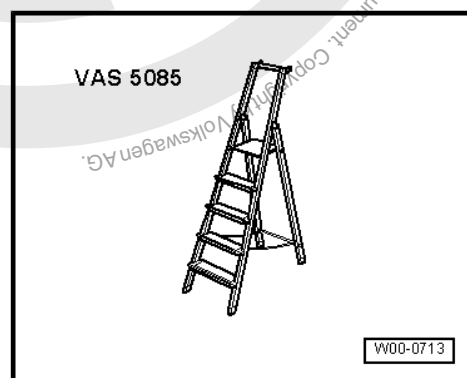
◆ Gearbox support - 3282-



◆ Adjustment plate - 3282/68-



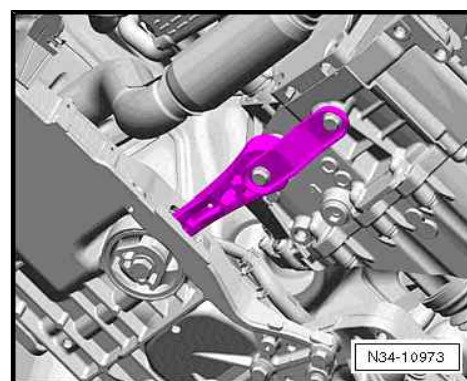
◆ Ladder - VAS 5085- or commercially available item



- Observe safety notes ➔ [page 1](#)

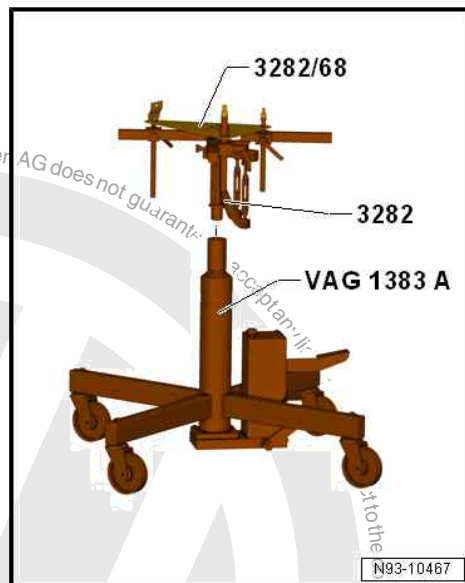
Remove power and control electronics for electric drive - JX1- and console ➔ Rep. gr. 93 ; Power and control electronics for electric drive .

- Remove pendulum support.

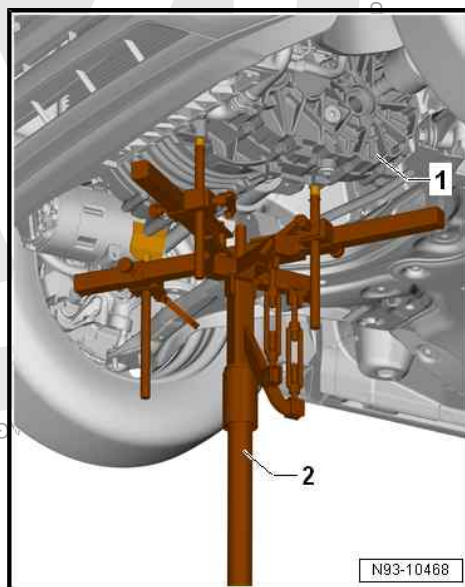




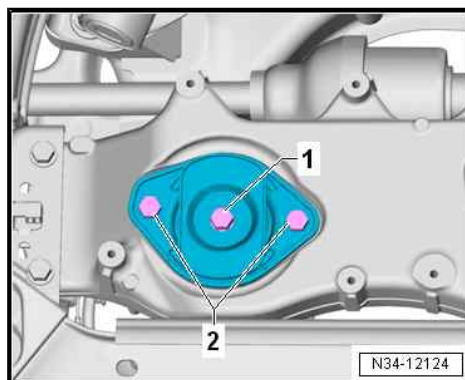
- Place gearbox support - 3282- on engine and gearbox jack and align supports by means of adjustment plate - 3282/68- ➔ Rep. gr. 93 ; Electric drive motor .



- Position engine and gearbox jack -2- under three-phase current drive - VX54- -1- and secure ➔ Rep. gr. 93 ; Electric drive motor .



- Remove bolts -1- and -2- from above using step ladder - VAS 5085- (figure shows just one engine mounting)
- Remove engine mounting.



4.4.2 Installing engine mountings

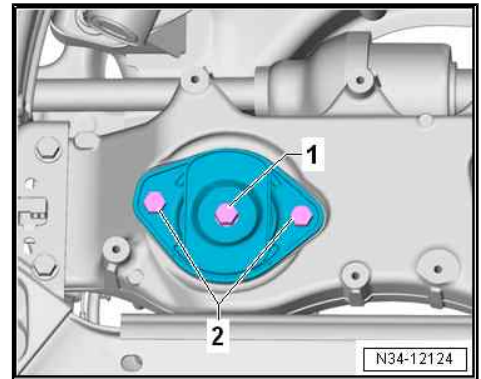


Note

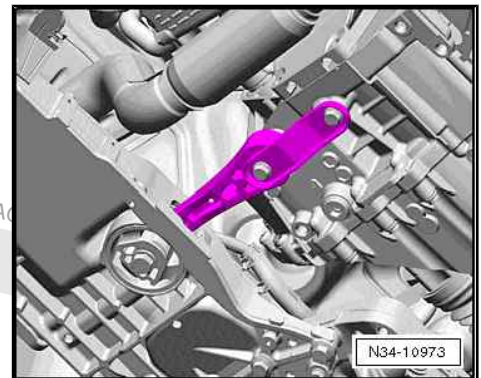
To find out which special tools are needed, see procedure for "Removing engine mountings" ➔ [page 40](#) .



- Three-phase current drive - VX54- is held in installation position by engine and gearbox jack .
- Insert engine mounting with aid of step ladder - VAS 5085- and tighten bolts (bolts -2- and -1-).
- After having tightened all assembly mounting bolts to specified torque, remove engine and gearbox jack .
- Remove engine and gearbox jack and gearbox support - 3282- .

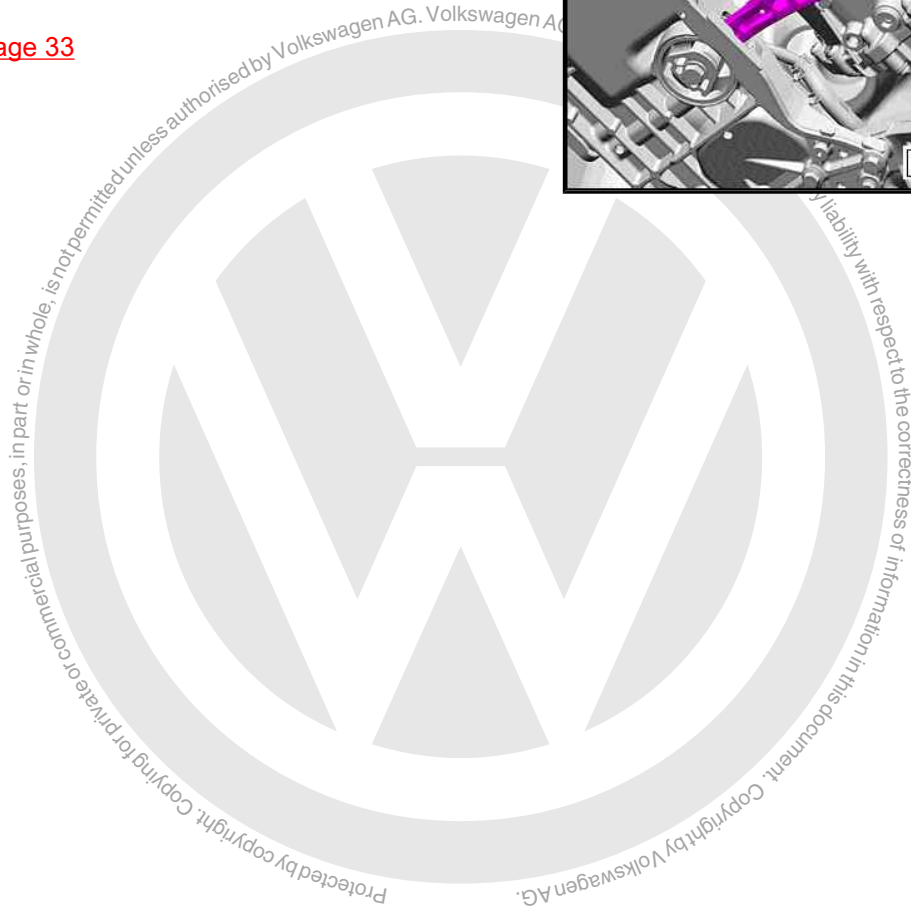


- Install pendulum support using new bolts ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Assembly overview - subframe .
- Install power and control electronics for electric drive - JX1- ⇒ Rep. gr. 93 ; Power and control electronics for electric drive .



Torque settings

Engine mounting ⇒ [page 33](#)

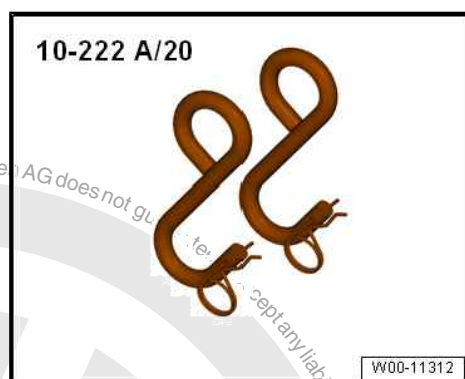




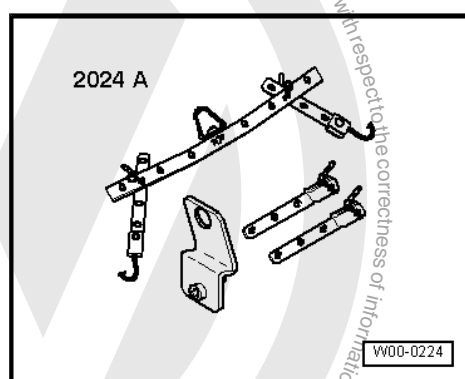
5 Transporting gearbox

Special tools and workshop equipment required

- ◆ hooks - 10 - 222 A /20-



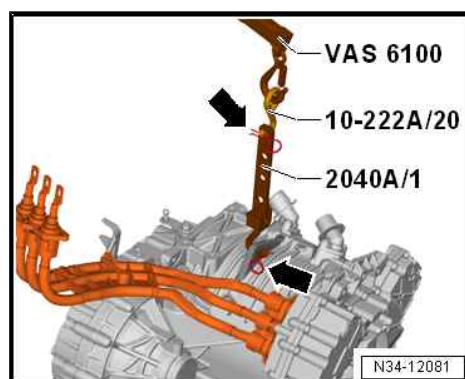
- ◆ Hook - 2024 A /1- of lifting tackle - 2024 A-



- ◆ Workshop hoist - VAS 6100



- Attach hook - 2024 A /1- to lifting eye, and secure it with locating pin -arrow-.
- Attach hook - 10 - 222 A /20- of workshop hoist - VAS 6100- to hook - 2024 A /1- .
- Secure hook with locating pin -arrow-.
- Set gearbox aside, for example in a transport container.





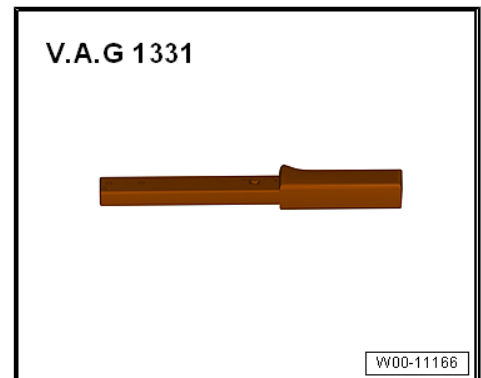
6 Gear oil

⇒ ["6.1 Checking gear oil level", page 45](#)

6.1 Checking gear oil level

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-



- Observe safety notes ⇒ [page 1](#)

Gear oil ⇒ Electronic parts catalogue (ETKA)

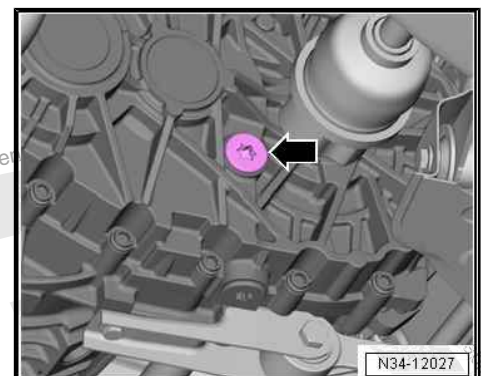
- If fitted, remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Assembly overview - noise insulation .
- To check gear oil, remove oil plug -arrow-.

The oil level is correct, when the gearbox is filled to lower edge of filler hole.

- If necessary, fill with gear oil to lower edge of filler hole.
- Tighten oil plug -arrow- to specified torque.
- If fitted, install noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Assembly overview - noise insulation .

Torque setting

Hydraulic fluid filler plug
45 Nm





39 – Final drive - differential

1 Oil seals

⇒ [“1.1 Overview of fitting locations - seals”, page 46](#)

⇒ [“1.2 Renewing left seal”, page 47](#)

⇒ [“1.3 Renewing right oil seal”, page 48](#)

⇒ [“1.10 Renewing selector shaft seal”, page 26](#)

1.1 Overview of fitting locations - seals

1 - Seal

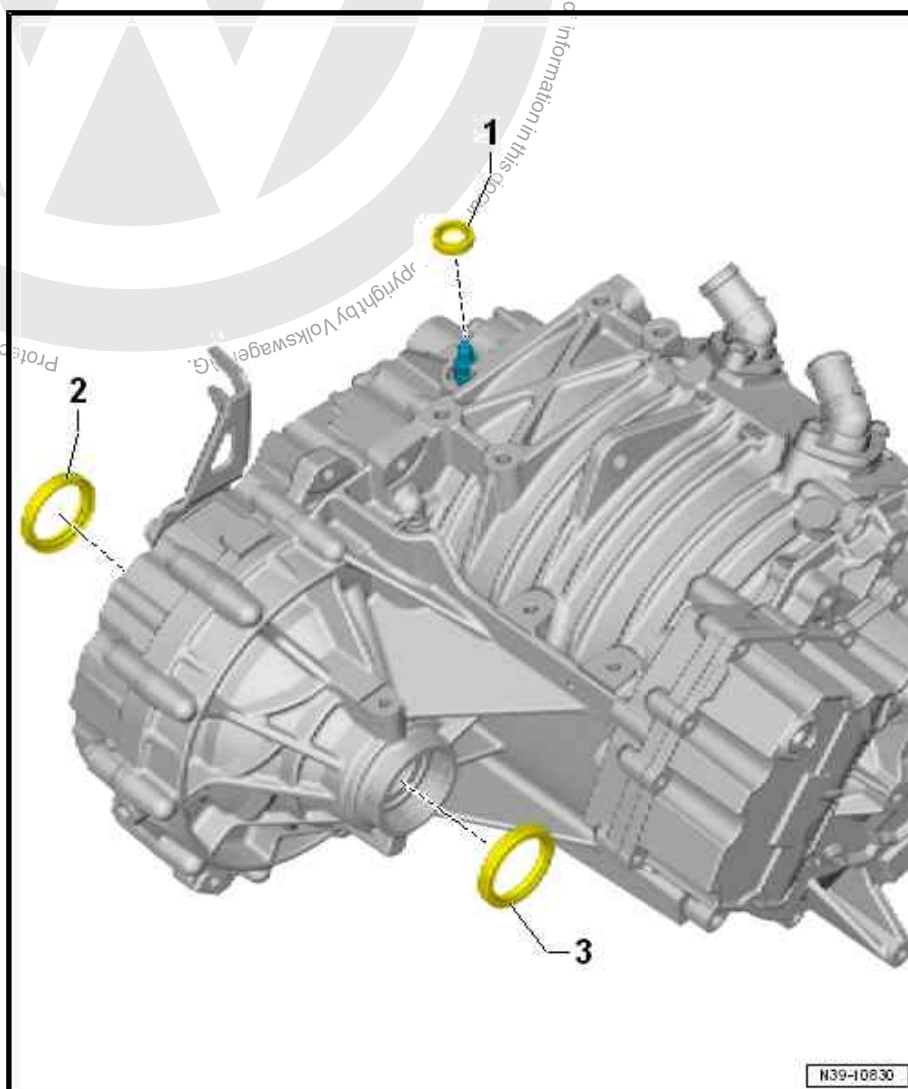
- ☐ For selector shaft
- ☐ Renew after removal
⇒ [page 26](#)

2 - Seal

- ☐ For left drive shaft
- ☐ Renew after removal
⇒ [page 47](#)

3 - Seal

- ☐ For right drive shaft
- ☐ Renew after removal
⇒ [page 48](#)

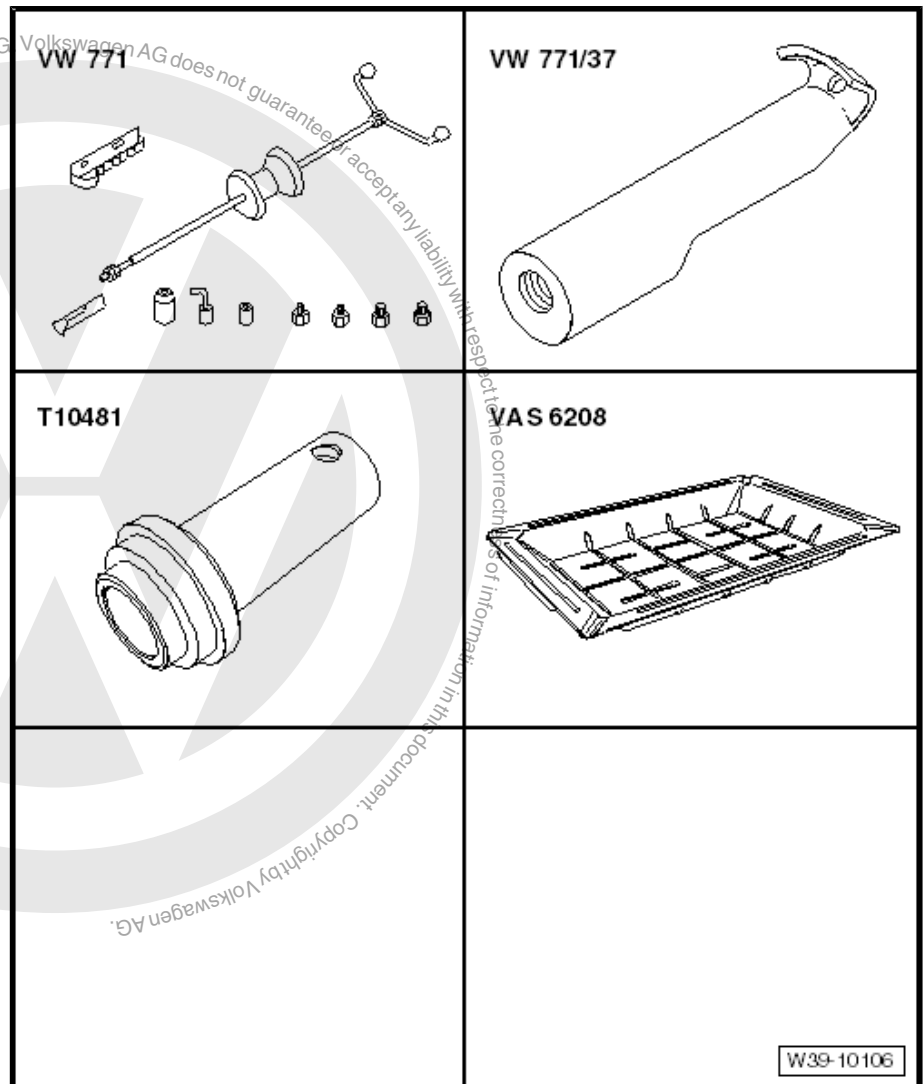


N39-I0830



1.2 Renewing left seal

Special tools and workshop equipment required



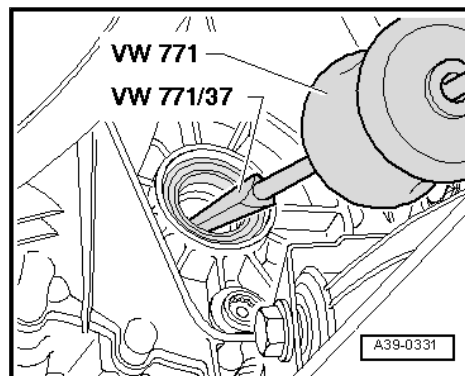
- ◆ Multi-purpose tool - VW 771-
- ◆ Extractor hook - VW 771/37-
- ◆ Press tool - T10481-
- ◆ Drip tray for workshop hoist - VAS 6208-
- ◆ Sealing grease
- ◆ Allocate grease using ⇒ Electronic parts catalogue (ETKA) .

Removing

- Observe safety notes ⇒ [page 1](#)
- Place drip tray under gearbox.
- Remove drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .

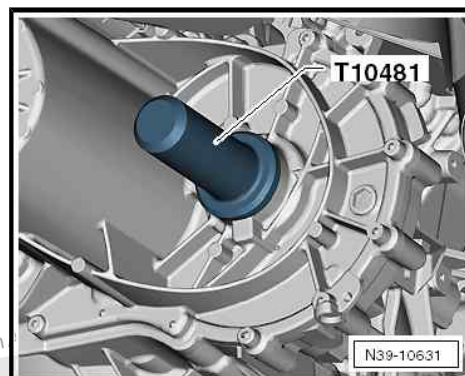


- Pull out drive shaft seal using -VW 771- and -VW 771/37- .

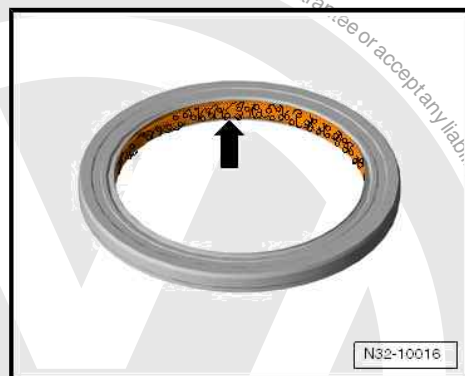


Installing

- 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 .
- Check gear oil level, and top it up to lower edge of oil filler hole if necessary ➔ [page 45](#) .



1.3 Renewing right oil seal

- Observe safety notes ➔ [page 1](#)

For the removal of the right seal, the same procedure applies as for the removal of the left seal ➔ [page 47](#).