



Workshop Manual

CC 2010 ➤

Passat 2006 ➤

Passat CC 2009 ➤

Tiguan 2008 ➤

6-speed automatic gearbox 09M

Edition 02.2016





List of Workshop Manual Repair Groups

Repair Group

- 00 - Technical data
- 32 - Torque converter
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- 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 Repair instructions

(VRL008816; Edition 02.2016)

1.1 General repair notes

The automatic gearboxes 09G, 09K and 09M are similar in construction.

Information can be found in:

- ◆ ⇒ Multimedia training; Automatic gearbox 09G and
- ◆ ⇒ Self-study programme No. 309 ; 6-speed automatic gearbox 09G/09K/09M

Gearbox

The 6-speed automatic gearbox 09M has six hydraulically actuated forward gears. The 2nd, 3rd, 4th, 5th and 6th gears, when locked up, become mechanically driven gears by eliminating torque converter slip.

Torque converter

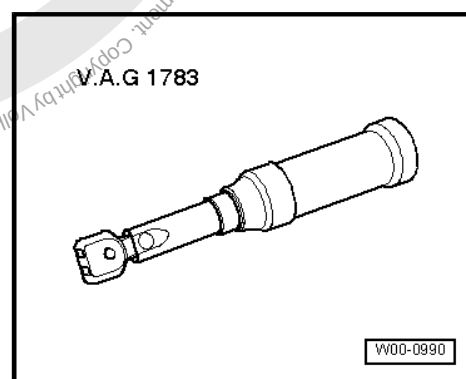
The torque converter is equipped with a lock-up clutch. The lock-up clutch locks up depending on load and speed. The 2nd, 3rd, 4th, 5th and 6th gears can be driven mechanically (without slip).

1.2 Tools

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

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

Often, one is uncertain when bolts must be tightened to low torque settings. Tighten these bolts with torque wrench - V.A.G 1783 - .



1.3 Gearbox

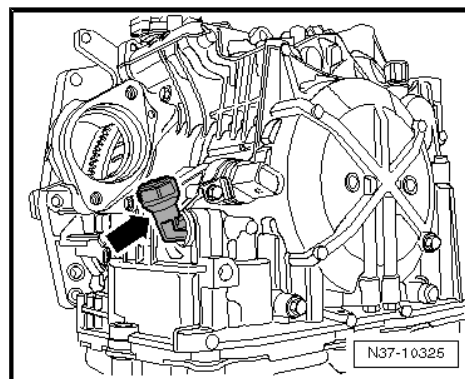
- ◆ If gearbox covers have been unbolted or gearbox has no fluid, do not run engine or tow vehicle.
- ◆ First thoroughly clean connecting points and surrounding areas and then loosen bolts.
- ◆ When installing the gearbox, ensure that dowel sleeves between the engine and gearbox are correctly located.
- ◆ Place removed parts on a clean surface. Cover parts to prevent soiling. Use plastic sheeting and paper. Use lint-free cloths only!



- ◆ Install only clean parts; do not remove new parts from packaging until immediately before installing.
- ◆ If repair work cannot be performed immediately, carefully cover or seal components.
- ◆ With gearbox removed, secure torque converter against falling out.

Gearboxes with and without filler pipe

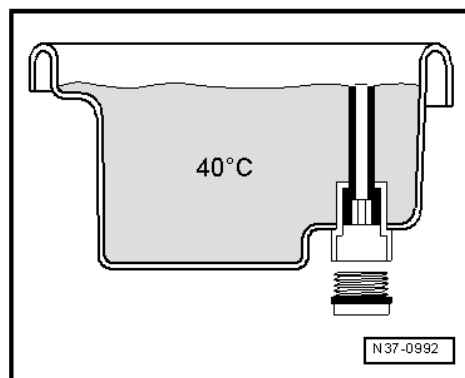
Here is an »example« with a filler pipe as it is installed in »older« gearboxes. This pipe has been discontinued.



This »old« filler opening with the red cap is not needed because ATF can be drained or filled as required through the bottom hole. The »height« of this tube determines the level of the ATF.

The tube must be removed to drain the fluid.

- ◆ After installation, check the ATF level and top up
⇒ [page 124](#) .
- ◆ Capacities ⇒ [page 10](#) .



1.4 ⇒ ATF

Automatic Transmission Fluid



Caution

Be careful when working with ATF. Dispose of drained ATF according to regulations. Remember: one drop of ATF will contaminate 1,000 litres of water.

The ATF does more than just »lubricate« the gearbox.

Consider that the ATF which just transported miniscule particles of metal from the differential to the filter and ensured that the film of lubricant on the flanks of the teeth does not tear now provides the pressure necessary for the shift valves to do their job.

In addition, it seals the spool valves and aids the friction plates in the clutch during gear changes. It stores and transports heat and reduces noise - the ATF performs many tasks. And it doesn't matter for the ATF if this happens on the hot equator or at a frigid pole of the earth. The ATF fulfils very high demands!



ATF and fault finding via ATF check

You have just read about all the things that ATF does. There is just one thing it cannot do: »disappear without a trace«.

ATF can only go missing if it has run out of the gearbox.

- Therefore, check where the ATF has escaped from the gearbox. First repair this leak.

The ATF is filled for life. The ATF need not be changed during a service.

ATF is available as a part ⇒ Electronics parts catalogue "ETKA".

The ATF level in planetary gearbox and final drive is checked and topped up together ⇒ [page 124](#).

Do not mix any additives into the ATF or use a substitute ATF.

ATF which has been drained out cannot be filled again.



1.5 Automatic gearbox control unit - J217-with ⇒ fuzzy logic

The gear change point, which is dependent on the driving situation and driving resistance, is determined automatically.

Advantages:

- Gear changes will be fuel-consumption orientated.
- Maximum engine output is always available.
- Individual adaptation of gear change points in all driving situations.
- Gear change points are infinitely variable.

1.6 Control units in vehicle

The installation locations of all vehicle control units and other useful information can also be found in ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

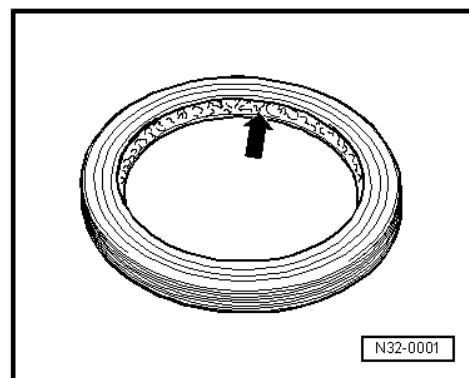
1.7 Seals and sealing rings

- ◆ Before installing radial oil seal, half-fill space between sealing lips with sealing grease - G 052 128-.
- ◆ Open side of oil seal faces oil.
- ◆ After installing, check ATF level.



Caution

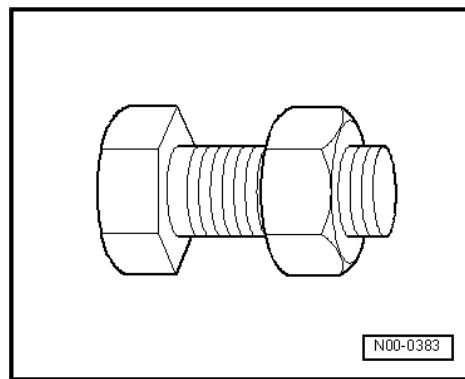
Be careful when working with oil. Dispose of drained oil according to regulations. Remember: one drop of oil will contaminate 1,000 litres of water.





1.8 Nuts and bolts

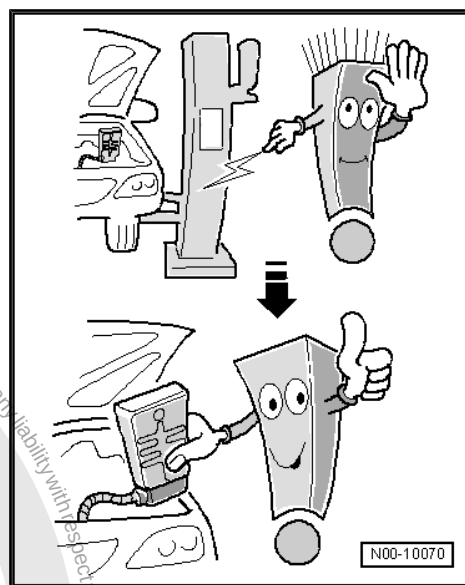
- ◆ Loosen and tighten securing nuts and bolts for covers and housings diagonally.
- ◆ Torque settings are specified for uncoiled bolts and nuts.
- ◆ Threads of bolts secured with locking fluid must be cleaned with a wire brush. Then insert bolts with locking fluid AMV 185 100 A1.
- ◆ All threaded holes into which self-locking bolts are to be screwed must be cleaned of residual locking fluid using a thread chaser. Otherwise there is a danger of bolts shearing when subsequently being removed.
- ◆ Always renew self-locking bolts and nuts.



1.9 Electrical components

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

- Before beginning work on electrical components, touch an earthed object, for example a water pipe or lifting platform. Please do not touch connectors directly.



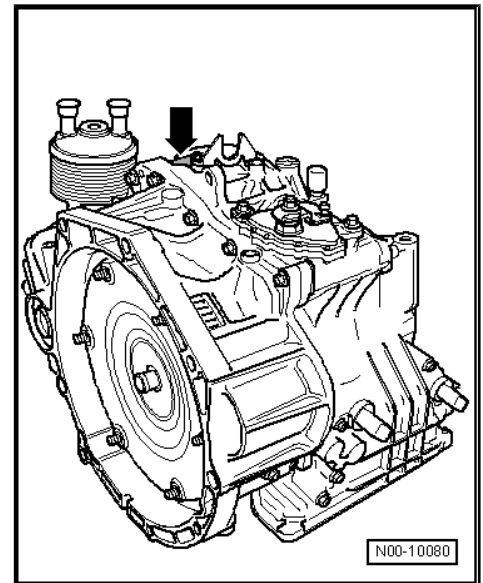


2 Gearbox identification

Code letters and date of gearbox manufacture -arrow-

Example:

Identification on a 09G gearbox

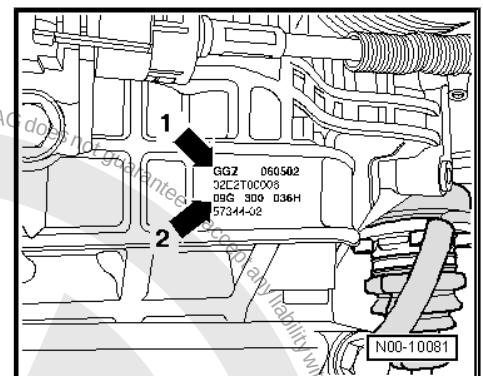


Code letters -arrow 1-

6-speed automatic gearbox 09G -arrow 2-

GGZ	06	05	02
Identification code	Day	Month	Year -2002- of manufacture

The gearbox code also appears on the vehicle identification plates.



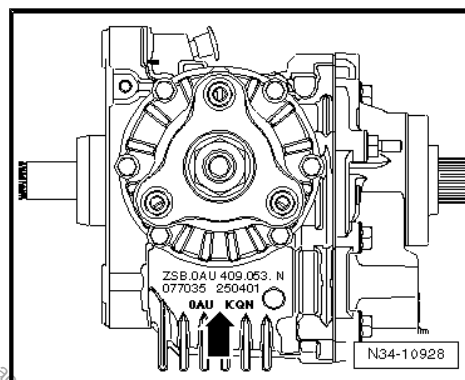
cardiagn.com



3 Bevel box identification

The identification -arrow- is under the output flange.

Example:



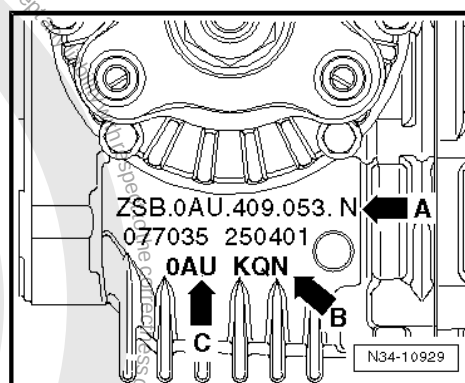
-Arrow A- part number of bevel box

-Arrow B- code letters of bevel box

-Arrow C- bevel box type "0AU"

- ◆ If the identification code is not present, allocation can be determined using the part number ⇒ Electronic parts catalogue "ETKA".

Additional data depend on manufacture.





4 Identification codes, assembly allocation - Passat

4.1 Identification codes, assembly allocation - Cars with front-wheel drive

Automatic gearbox 09M	
Identification code	»HTY«; »JUP«; KFE
Engine	3.6 I - 206 kW

4.2 Identification codes, assembly allocation - Cars with all-wheel drive

Identification code, automatic gearbox 09M	Identification code, bevel box	Engine
»HTZ«	HVB; JKF	3.6 I - 206 kW
»JUN«	KCE; KUJ; KQP; LGR; LGY	
KFD	LGY	



5 Identification codes, assembly allocation - Passat CC and CC

5.1 Identification codes, assembly allocation - Cars with front-wheel drive

Automatic gearbox 09M	
Identification code	JUP, KFE
Engine	3.6 l - 206 kW

5.2 Identification codes, assembly allocation - Cars with all-wheel drive

Automatic gearbox 09M	
Identification code	JUN, KFD, QNW
Engine	3.6 l - 206 kW





6 Identification codes, assembly allocation - Tiguan

6.1 Identification codes, assembly allocation - Cars with front-wheel drive

Automatic gearbox 09M	
Identification code	JWA, MYY, QNT
Engine	2.0 I - 147 kW TSI

6.2 Identification codes, assembly allocation - Cars with all-wheel drive

Engine	Identification code, automatic gearbox 09M	Identification code, bevel box
2.0 I - 100 kW TDI	MKD	LGZ
	JBG	KQP; KUJ; LGR; LGY, LGZ
2.0 I - 103 kW TDI	»JBG«	KQP; KUJ; LGR; LGY
	MKD, QNS	LGZ
2.0 I - 125 kW TSI	»JVZ«	KUJ; LGY, LGR
2.0 I - 132 kW TSI	MYZ	LGZ
2.0 I - 147 kW TSI	»JVZ«, QNR, QNU	KQP; KUJ; LGR; LGY
	MYZ	LGZ



7 Capacities

The planetary gearbox and the final drive are checked and filled together ➔ [page 124](#) .

7.1 6-speed automatic gearbox 09M, front-wheel drive

Capacities	Planetary gearbox and final drive
Initial filling	approx. 7.0 l
Change	Filled for life no change
Lubricant	ATF is available as a part. Part numbers can be found in the ➔ Electronic parts catalogue "ETKA".

7.2 6-speed automatic gearbox 09M, all-wheel drive

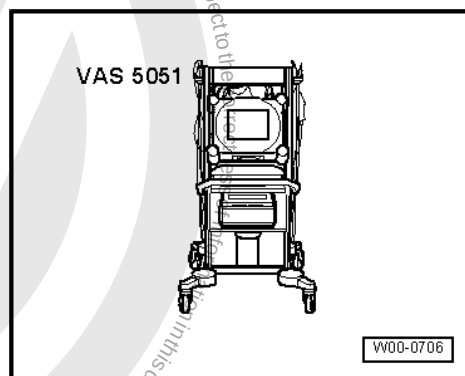
Capacities	Planetary gearbox and final drive	Front bevel box
Initial filling	approx. 7.0 l	approx. 0.9 l
Change	Filled for life, no change	Filled for life, no change
Lubricant	ATF is available as a part. Part numbers can be found in the ➔ Electronic parts catalogue "ETKA".	The final drive oil is available as a part. Part numbers can be found in the ➔ Electronic parts catalogue "ETKA".

7.3 Guided fault finding, vehicle self-diagnosis and testing

Before making repairs to the gearbox, determine the cause of the fault as precisely as possible with the aid of "guided fault finding".

Fault finding is performed with the vehicle diagnostic tester ➔ [page 14](#) .

The **guided functions** will guide you to the ATF temperature in the shortest way possible ➔ [page 14](#) .





32 – Torque converter

1 Torque converter

1.1 Identification of torque converter

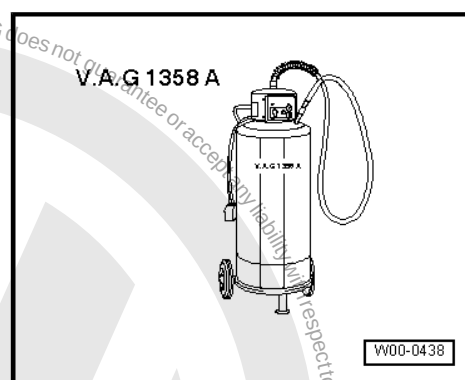
There are various torque converters. They are identified by codes.

Torque converter/gearbox allocation ⇒ Replacement parts catalogue ⇒ ETKA

1.2 Draining torque converter

Special tools and workshop equipment required

- ◆ Oil extraction unit - V.A.G 1358 A-
- ◆ Oil extraction probe - V.A.G 1358 A/1-

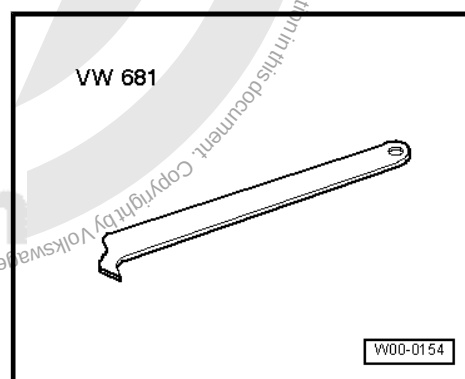


- Extract ATF from torque converter using -V.A.G 1358 A- and probe -V.A.G 1358 A/1- .

1.3 Removing and installing torque converter oil seal

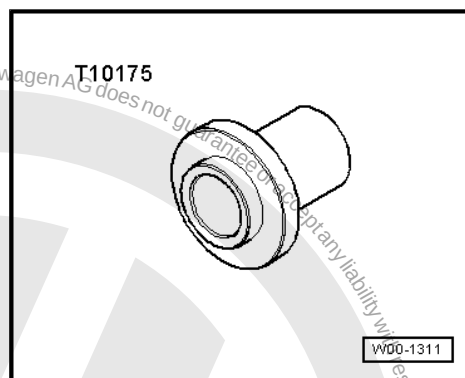
Special tools and workshop equipment required

- ◆ Extractor lever - VW 681-





◆ Thrust piece - T10175-



Removing oil seal

- Gearbox removed

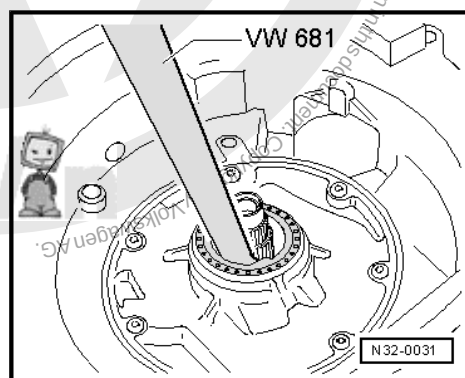
Removing and installing gearbox - Passat ➤ [page 50](#)

Removing and installing gearbox - Passat CC and CC
➤ [page 69](#)

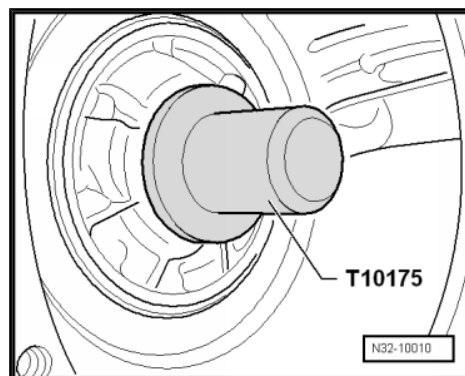
Removing and installing gearbox - Tiguan ➤ [page 87](#)

- Remove torque converter.
- Pry out seal with lever - VW 681- .

Installing oil seal



- Drive in seal flush thrust piece - T10175- .



1.4 Installing torque converter

- Carefully push on torque converter hub via oil seal to first stop.



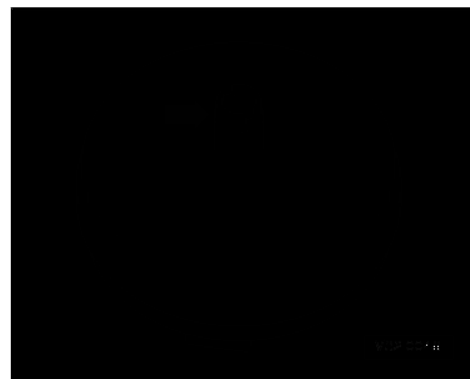
- Turn torque converter towards gearbox using light pressure until notch in hub -arrow- engages in follower of pump gear and torque converter can be felt to slip in place.

The torque converter is properly inserted when it can easily be turned by hand and is seated equally deep in gearbox around the entire circumference.



WARNING

If the torque converter is incorrectly installed and the gearbox is bolted with force to engine, the torque converter and ATF pump will be destroyed.





37 – Controls, housing

1 Connecting vehicle diagnostic tester and selecting functions

Special tools and workshop equipment required

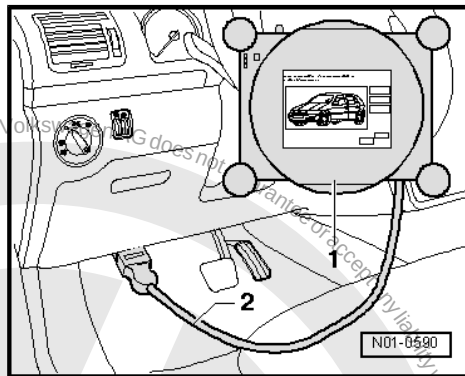
- ♦ Vehicle diagnostic tester



WARNING

- ♦ *During a road test, always secure testing and measuring equipment on the back seat.*
- ♦ *These devices may be operated only by a passenger during a road test.*

- Push connector of diagnosis cable - VAS 5051/1- -2- or - VAS 5051/3- onto diagnosis connection.



- Switch on tester -arrow-.

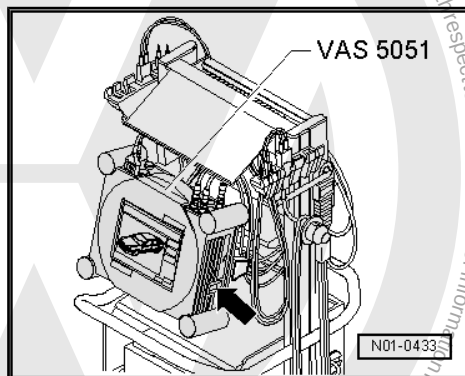
The tester is ready for use when it is possible to choose between the buttons Guided functions and Guided fault finding on the »right« of the screen.

Depending on equipment and version of the tester, other functions may be »displayed« such as:

- ♦ ElsaWin
- ♦ Testing
- ♦ Self-diagnosis

The »tester« is now ready for use.

- Switch on ignition.
- Touch a button on the screen to start the desired function.





2 Electrical and electronic components and their locations, Passat, Passat CC and CC

1 - Control unit for automatic gearbox - J217-

- ☐ The control unit transmits and receives data from the ⇒ data bus.
- ☐ Location and removing and installing ⇒ [page 16](#)
- ☐ Can be checked using "guided fault finding" of - VAS 5051- ⇒ [page 14](#).

2 - Engine control unit

- ☐ The control unit transmits and receives data from the data bus
- ☐ Location and removing and installing ⇒ Rep. Gr. 23 for the respective engine code letter ⇒ Rep. Gr. 24 for the respective engine code letter

3 - Multifunction switch - F125-

- ☐ Location ⇒ [page 16](#)
- ☐ Can be checked using "guided fault finding" of - VAS 5051- ⇒ [page 14](#).
- ☐ Removing, installing and adjusting ⇒ [page 23](#).

4 - Valve body

- ☐ Location ⇒ [page 17](#)
- ☐ Components can be checked using "guided fault finding" of - VAS 5051- ⇒ [page 14](#)

5 - Wiring harness for sender

- ☐ With gearbox oil temperature sender - G93-
- ☐ Location ⇒ [page 17](#)

6 - Gearbox oil temperature sender - G93-

- ☐ Location ⇒ [page 17](#)
- ☐ Can be checked using "guided fault finding" of -VAS 5051- ⇒ [page 14](#).

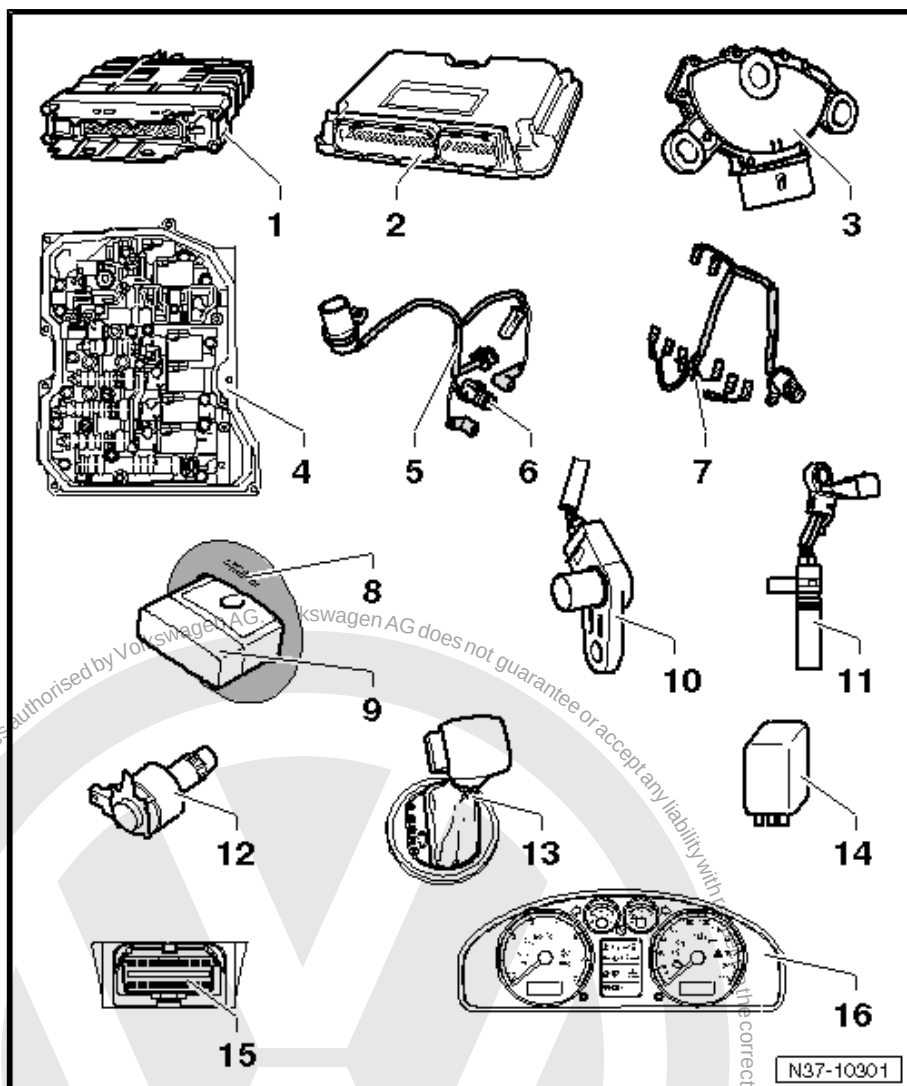
7 - Wiring harness for solenoid valves

- ☐ Location ⇒ [page 17](#)

8 - Electronic ignition lock - D9-

Depending on vehicle equipment, the following components may be integrated in the electronic ignition lock:

- ◆ Entry and start authorisation switch - E415-
- ◆ Ignition key withdrawal lock solenoid - N376-
- ◆
- ☐ Location ⇒ [page 17](#)





9 - Ignition key

10 - Gearbox input speed sender - G182-

- ❑ Location ➔ [page 18](#)
- ❑ Can be checked using "guided fault finding" of -VAS 5051- ➔ [page 14](#) .

11 - Gearbox output speed sender - G195-

- ❑ Location ➔ [page 18](#)
- ❑ Can be checked using "guided fault finding" of -VAS 5051- ➔ [page 14](#) .

12 - Selector lever lock solenoid - N110-

- ❑ Location: selector lever lock solenoid is located in the selector mechanism.
- ❑ Can be checked using "guided fault finding" of -VAS 5051- ➔ [page 14](#) .

13 - Tiptronic switch - F189-

- ❑ Location ➔ [page 18](#)
- ❑ Can be checked using "guided fault finding" of -VAS 5051- ➔ [page 14](#) .

14 - Terminal 50 voltage supply relay - J682-

- ❑ In E box in engine compartment ➔ Current flow diagrams, Electrical fault finding and Fitting locations.

15 - Diagnostic connection

- ❑ Location ➔ [page 18](#)

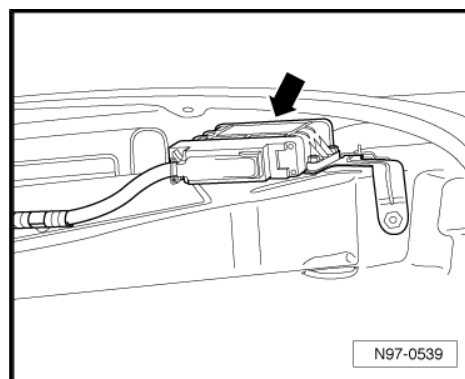
16 - Selector lever position display - Y6-

- ❑ Location ➔ [page 18](#)
- ❑ Removing and installing ➔ Electrical system; Rep. gr. 90 ; Gauges, instruments; Dash panel insert .

Automatic gearbox control unit - J217- -arrow-

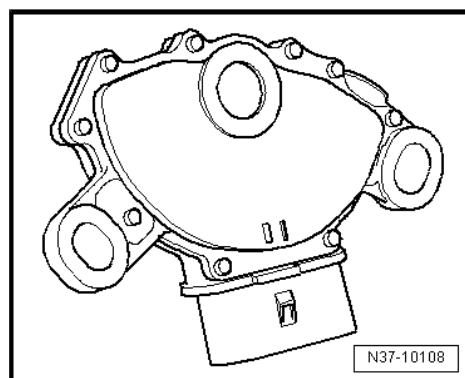
Location: Control unit is located in the front left wheel housing.

- Wheel housing liner must be removed for removing and installing.



Multifunction switch - F125-

Location: multifunction switch is located on top of the gearbox.

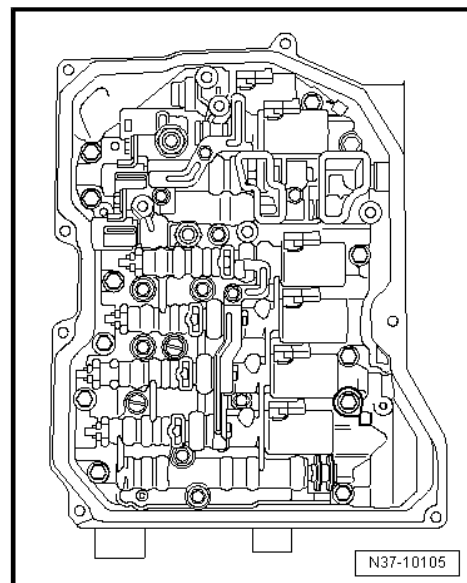




Valve body

Location: valve body is bolted to underside of gearbox housing and covered by pan.

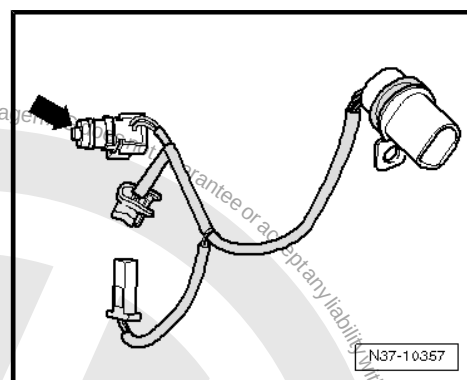
Solenoid valves - N88- and -N89- as well as pressure control valves - N90- , -N91- , -N92- , -N93- , -N282- and -N283- are secured to valve body.



Wiring harness for sender

- ◆ Wiring harness for senders
- ◆ With integrated gearbox oil temperature sender - G93-
-arrow-

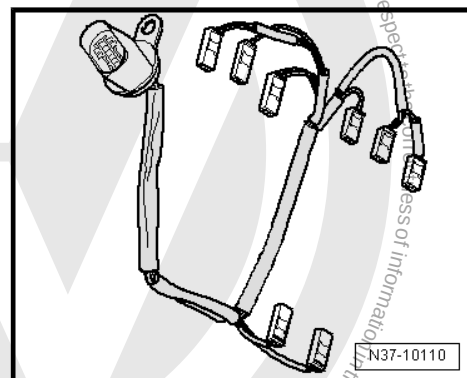
Location: Wiring harness is attached to valve body in gearbox.



Wiring harness for solenoid valves

- ◆ Wiring harness for solenoid valves.

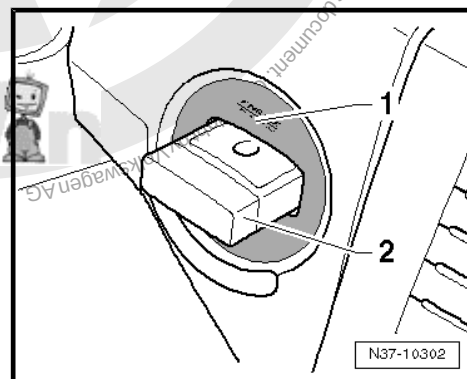
Location: Wiring harness is attached to valve body in gearbox.



Electronic ignition lock - D9-

Location: the ignition lock -1- is installed in the dash panel next to the steering column.

-2- Ignition key

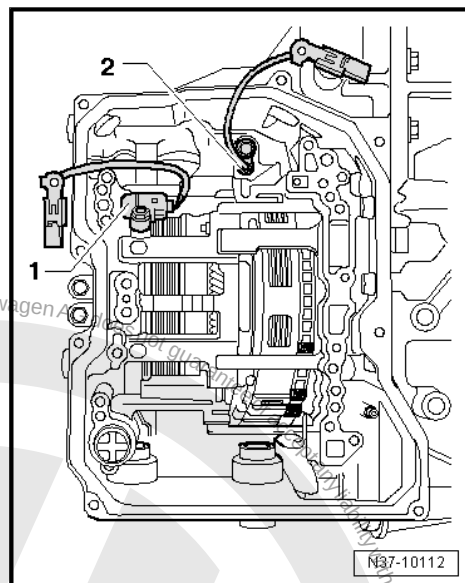




Gearbox input speed sender - G182- and gearbox output speed sender - G195-

Location: senders are installed in gearbox housing above valve body.

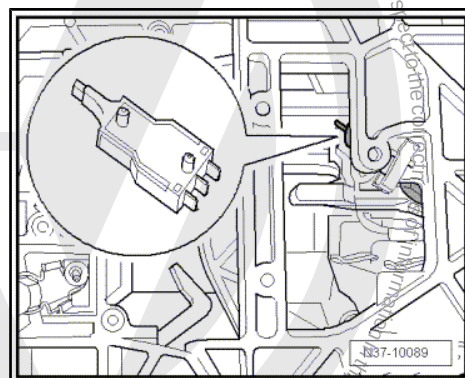
- 1 - Gearbox input speed sender - G182-
- 2 - Gearbox output speed sender - G195-



Tiptronic switch - F189-

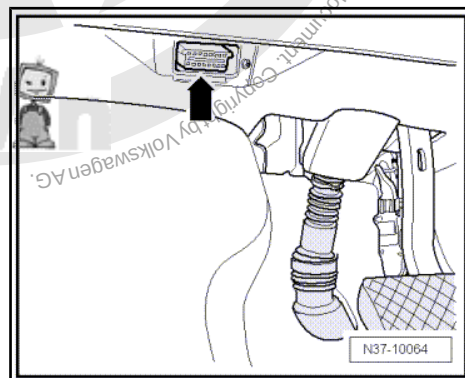
Location: Tiptronic switch is integrated into selector mechanism.

In vehicles with a multifunctional steering wheel, the buttons on the steering wheel and their cable connections must also be checked.



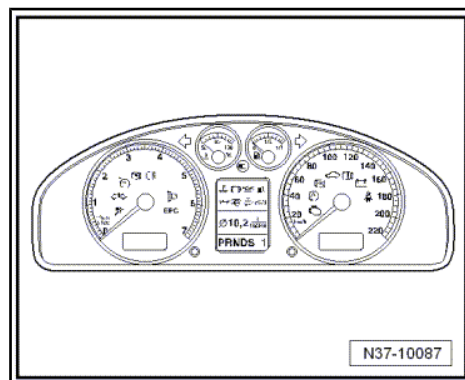
Diagnostic connection

Location: diagnostic connection -arrow- is located on left below driver side storage compartment



Selector lever position display - Y6-

Location: in dash panel insert





3 Electrical and electronic components and their locations - Tiguan

1 - Control unit for automatic gearbox - J217-

- ☐ The control unit transmits and receives data from the ⇒ data bus.
- ☐ Location and removing and installing ⇒ [page 20](#)
- ☐ Can be checked using "guided fault finding" of -VAS 5051- ⇒ [page 14](#).

2 - Engine control unit

- ☐ The control unit transmits and receives data from the data bus
- ☐ Location and removing and installing ⇒ Rep. Gr. 23 for the respective engine code letter ⇒ Rep. Gr. 24 for the respective engine code letter

3 - Multifunction switch - F125-

- ☐ Location ⇒ [page 20](#)
- ☐ Can be checked using "guided fault finding" of -VAS 5051- ⇒ [page 14](#).
- ☐ Removing, installing and adjusting ⇒ [page 23](#).

4 - Valve body

- ☐ Location ⇒ [page 21](#)
- ☐ Components can be checked using "guided fault finding" of -VAS 5051- ⇒ [page 14](#)

5 - Wiring harness for sender

- ☐ With gearbox oil temperature sender - G93-
- ☐ Location ⇒ [page 21](#)

6 - Gearbox oil temperature sender - G93-

- ☐ Location ⇒ [page 17](#)
- ☐ Can be checked using "guided fault finding" of -VAS 5051- ⇒ [page 14](#).

7 - Wiring harness for solenoid valves

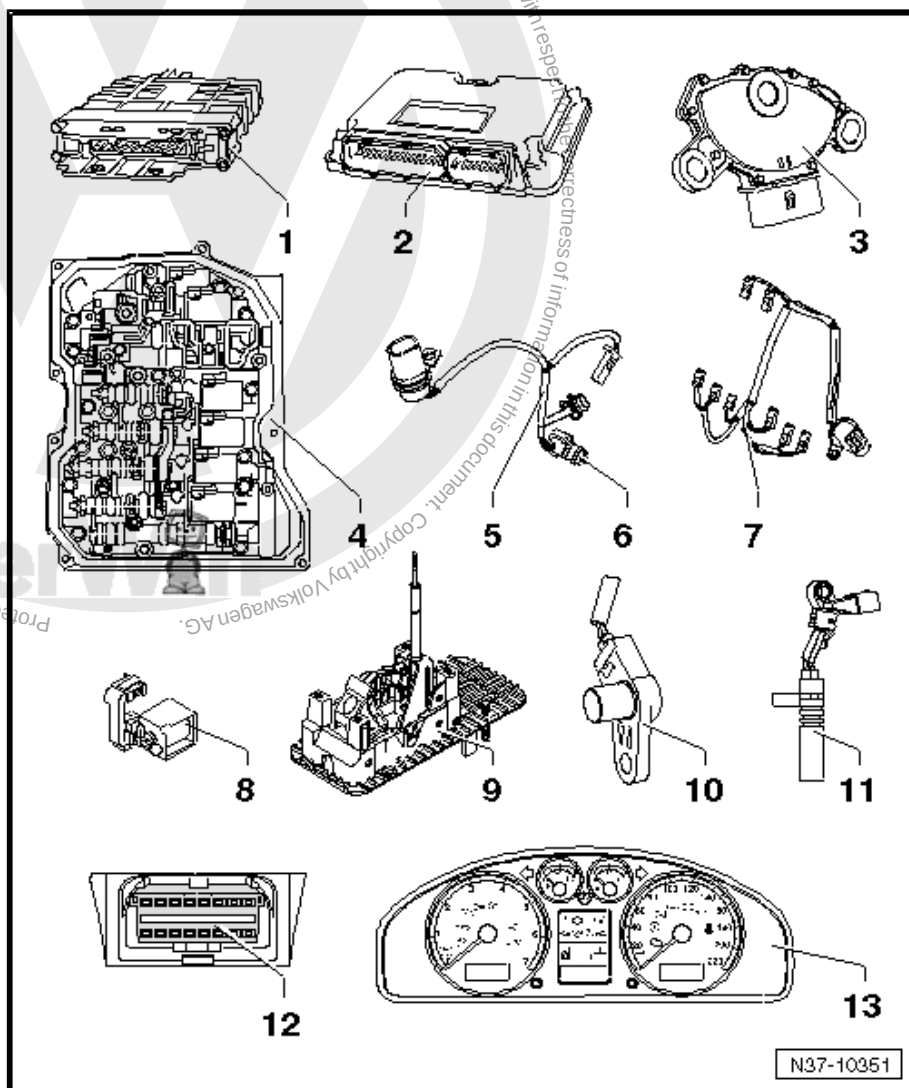
- ☐ Location ⇒ [page 21](#)

8 - Selector lever lock solenoid - N110-

- ☐ Location: selector lever lock solenoid is located in the selector mechanism.
- ☐ Can be checked using "guided fault finding" of -VAS 5051- ⇒ [page 14](#).

9 - Selector mechanism

- ☐ With Tiptronic switch - F189-
- ☐ The Tiptronic switch - F189- is part of the selector mechanism
- ☐ Can be checked using "guided fault finding" of -VAS 5051-





- ❑ Renew if selector mechanism is defective ⇒ [page 34](#)

10 - Gearbox input speed sender - G182-

- ❑ Location ⇒ [page 22](#)
- ❑ Can be checked using "guided fault finding" of -VAS 5051- ⇒ [page 14](#) .

11 - Gearbox output speed sender - G195-

- ❑ Location ⇒ [page 22](#)
- ❑ Can be checked using "guided fault finding" of -VAS 5051- ⇒ [page 14](#) .

12 - Diagnostic connection

- ❑ Location ⇒ [page 22](#)

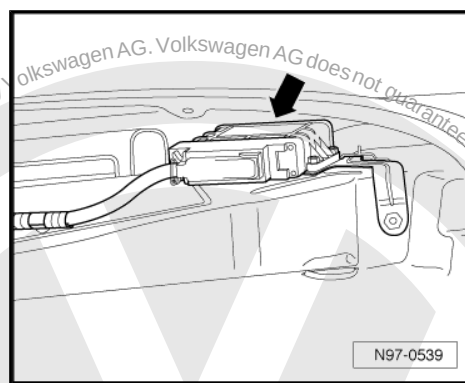
13 - Selector lever position display - Y6-

- ❑ Location ⇒ [page 22](#)
- ❑ Removing and installing ⇒ Electrical system; Rep. gr. 90 ; Gauges, instruments; Dash panel insert .

Automatic gearbox control unit - J217- -arrow-

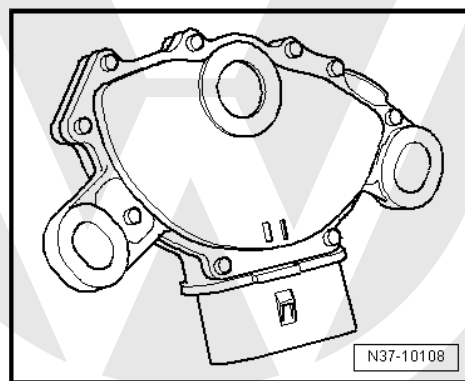
Location: Control unit is located in the front left wheel housing.

- Wheel housing liner must be removed for removing and installing.



Multifunction switch - F125-

Location: multifunction switch is located on top of the gearbox.

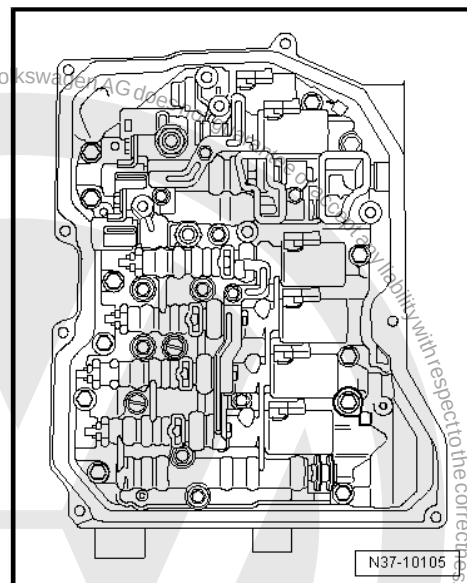




Valve body

Location: valve body is bolted to underside of gearbox housing and covered by pan.

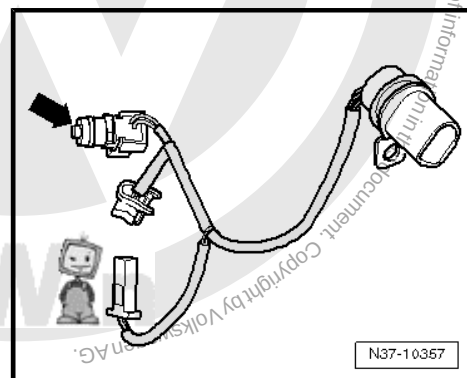
Solenoid valves - N88- and -N89- as well as pressure control valves - N90- , -N91- , -N92- , -N93- , -N282- and -N283- are secured to valve body.



Wiring harness for sender

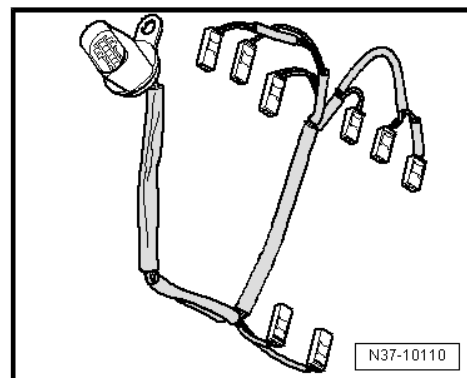
- ◆ With integrated gearbox oil temperature sender - G93-
-arrow-

Location: Wiring harness is attached to valve body in gearbox.



Wiring harness for solenoid valves

Location: Wiring harness is attached to valve body in gearbox.

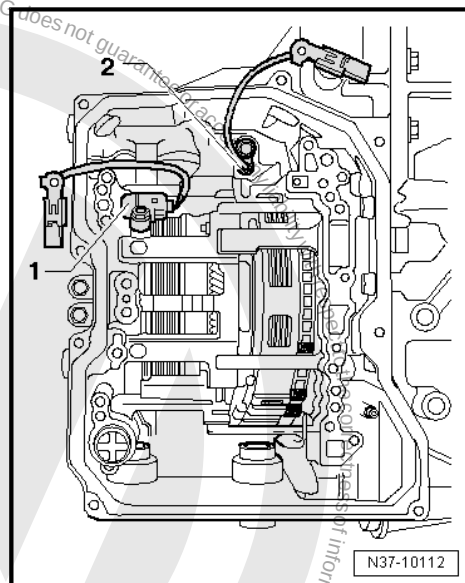




Gearbox input speed sender - G182- and gearbox output speed sender - G195-

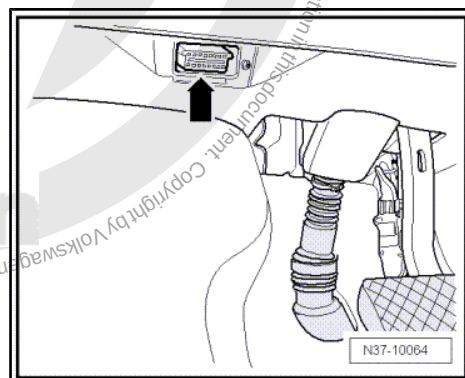
Location: senders are installed in gearbox housing above valve body.

- 1 - Gearbox input speed sender - G182-
- 2 - Gearbox output speed sender - G195-



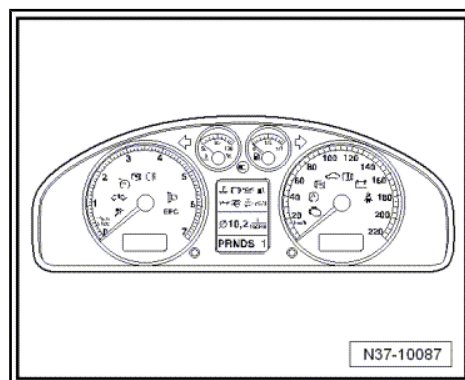
Diagnostic connection

Location: diagnostic connection -arrow- is located on left below driver side storage compartment



Selector lever position display - Y6-

Location: in dash panel insert

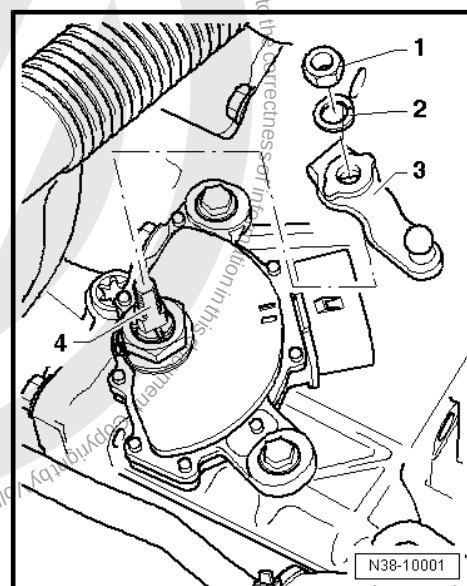
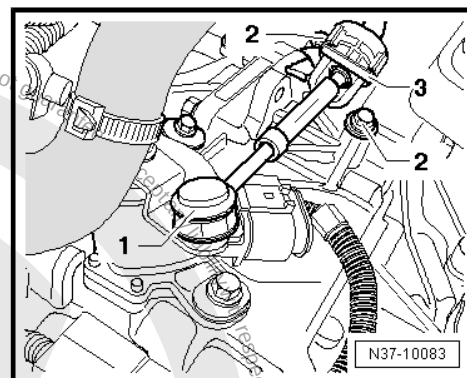




4 Removing, installing and adjusting multifunction switch - F125-

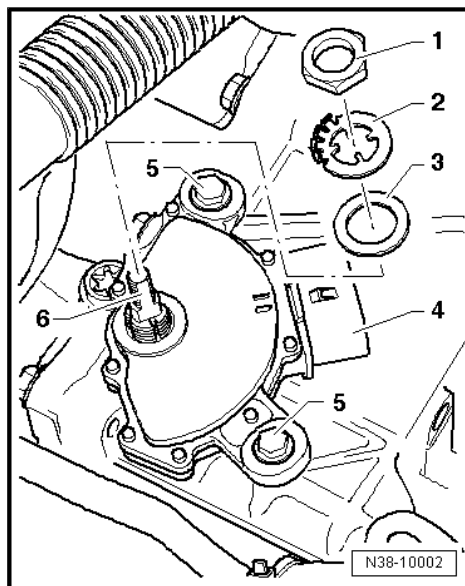
4.1 Removing multifunction switch - F125-

- Move selector lever to position “N”.
- Switch off ignition.
- Do not open cooling system.
- Press selector lever cable locks -3- together and pull selector lever cable up out of support bracket.
- Pull selector lever cable -1- off selector shaft lever by hand.
- Do not bend or kink selector lever cable.
- Pull connector off multifunction switch - F125- .
- Unscrew nut -1-.
- Remove spring ring -2- and lever -3- from selector shaft -4-.





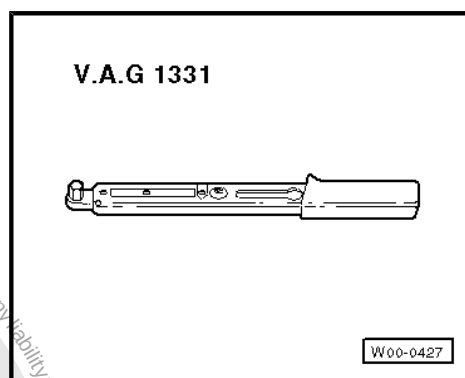
- Carefully bend back hooks of lock washer -2- using a screw-driver.
- If lock washer hooks break off due to bending, renew washer.
- Unscrew nut -1-.
- Unscrew bolt -5-.
- Pull multifunction switch -4-, together with washers -2- and -3-, off selector shaft -6-.



4.2 Installing multifunction switch - F125-

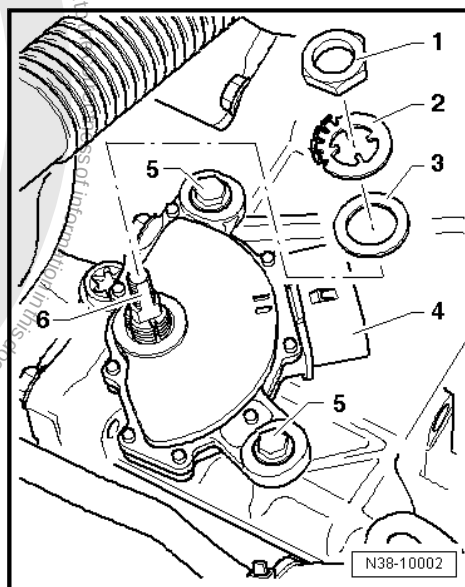
Special tools and workshop equipment required

- ♦ Torque wrench - V.A.G 1331-



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

- Place multifunction switch -4- on selector shaft -6-.
- Tighten securing bolts -5- for multifunction switch hand-tight.
- Carefully bend back hooks of lock washer -2-.
- Put washers -2- and -3- on selector shaft -6-.
- Install washer -2- with hooks pointing up.
- Install washer -2- with long, narrow guides in long, narrow recesses of selector shaft -6-.
- Tighten nut -1- to 7 Nm.
- Secure nut -1- by bending up hooks on lock washer -2-.
- If one or more lock washer hooks break off due to bending, renew washer.
- Before installing lever for selector shaft, first adjust Multifunction switch - F125- ➔ [page 25](#).





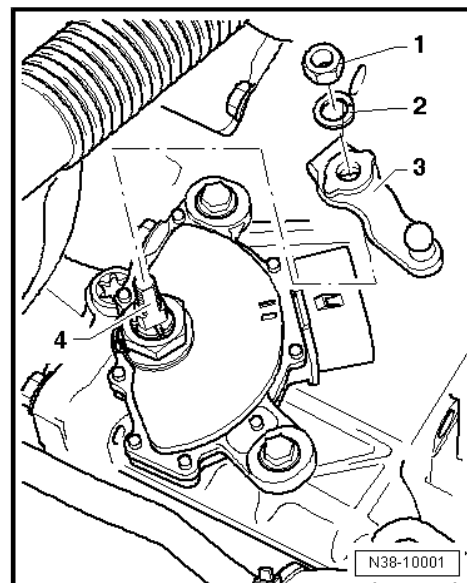
- Place lever -3- on selector shaft -4-.
- Use lever -3- to shift gearbox to “P” position, i.e. press lever -3- backwards to stop opposite direction of travel.
- Now use lever -3- to shift gearbox to “N” position. To do this, push lever -3- two detent positions forwards in direction of travel.
- Place spring ring -2- and nut -1- on selector shaft -4-.
- Tighten nut -1- to 13 Nm.

Vehicles with 6-cylinder petrol engine

- Install coolant expansion tank ⇒ 6-cylinder fuel injection engine, mechanics; Rep. gr. 19 ; Removing and installing parts of cooling system .
- With ignition switched off, connect battery earth strap ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .

Continuation for all vehicles

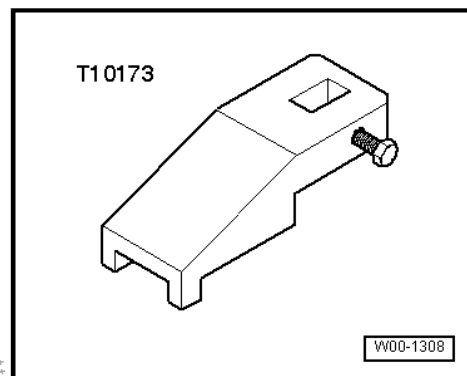
- Check shift mechanism ⇒ [page 33](#) .



4.3 Adjusting multifunction switch - F125-

Special tools and workshop equipment required

- ◆ Setting gauge - T10173



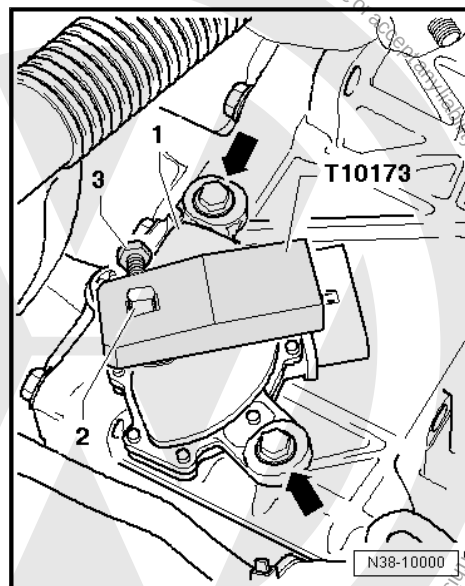
- Move selector lever to position “N”.
- Do not kink selector lever cable.

4.3.1 Adjustment prerequisites

- Selector lever cable is disconnected from selector shaft lever.
- Selector shaft is set to “N” position.
- Securing bolts for multifunction switch - F125- have been loosened.
- Selector shaft lever has been removed.



- Place setting gauge on selector shaft -2- and turn multifunction switch -1- until setting gauge engages in lug on multifunction switch connector.
- Secure setting gauge on selector shaft -2- with bolt -3-.
- Tighten bolts -arrows- to 6 Nm.
- Remove setting gauge.
- Continue installation in reverse order of removal ⇒ [page 24](#) .





5 Emergency release of selector lever

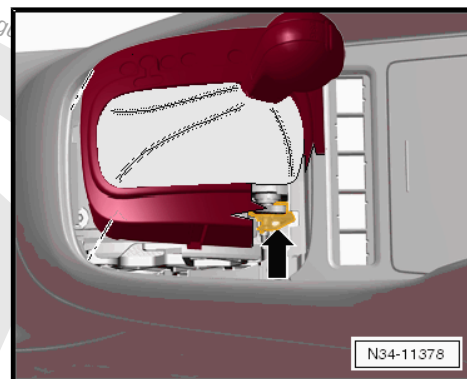
Do not remove knob.

- Depress brake pedal or set handbrake.

In an emergency:

Vehicles up to 02.2009

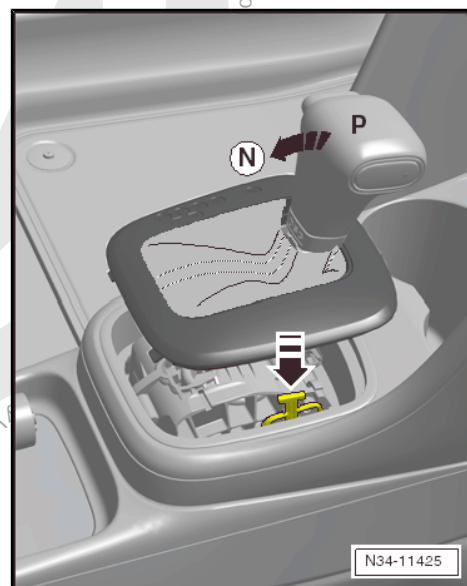
- Grip leather bellows and pull trim upwards.
- Press yellow plastic wedge from right to left.



Vehicles from 03.2009 onwards

- Unclip selector cover and hold to side.
- Press yellow plastic wedge -arrow-.

Lever can now be moved from position »P«.





6 Removing and installing selector lever handle

Brief description

Depending on the model, different handles may be installed.

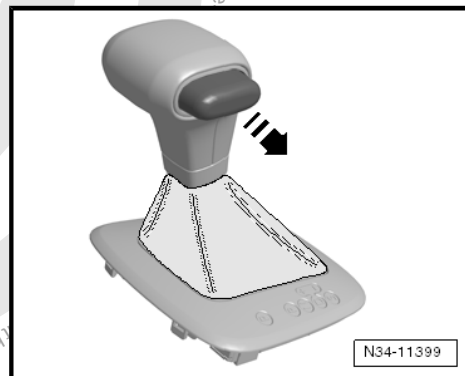
Handle is removed together with selector cover.

Removing:

- Shift selector lever to position “D”.

Handle with button on the side:

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

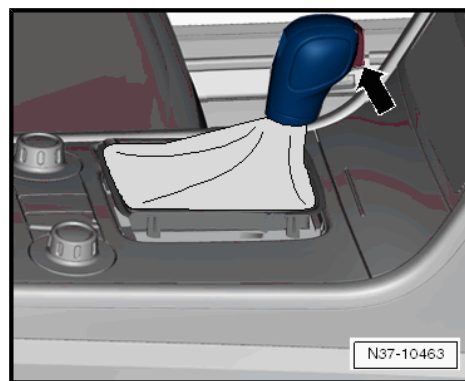


Handle with front push-button:

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

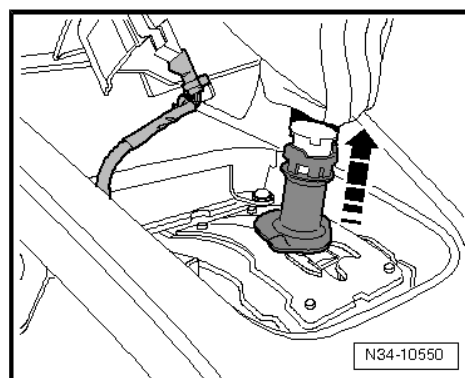
Further procedure for all handles:

- Unclip cover.
- Pull connector from selector cover.



- Push sleeve upwards to release knob.

Handles with clamp:





- Cut open clamp -arrow- under boot using side cutters.

Continuation for all handles:

- Pull handle off selector lever without pressing button.

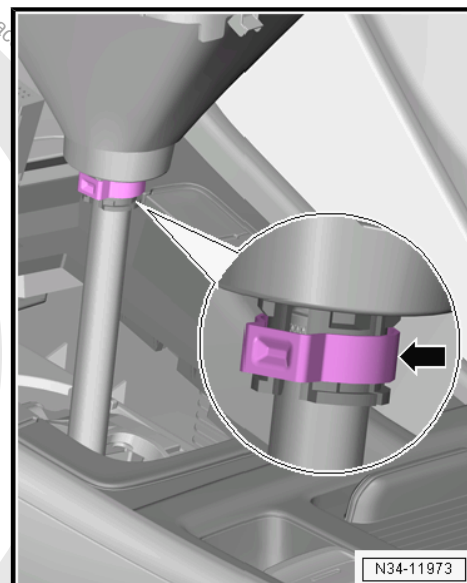


Note

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

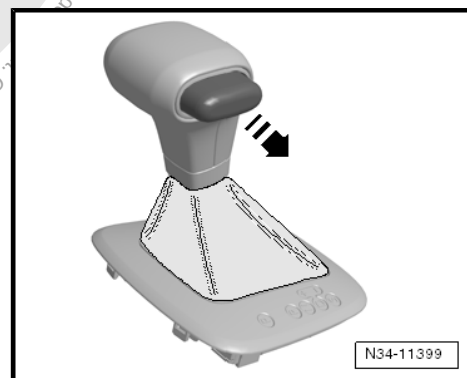
Installing

- Install in reverse order of removal, observing the following:
- Selector lever is in position "D".



Handle with push-button on the side:

- Button in handle is pulled out and secured against being pressed in.

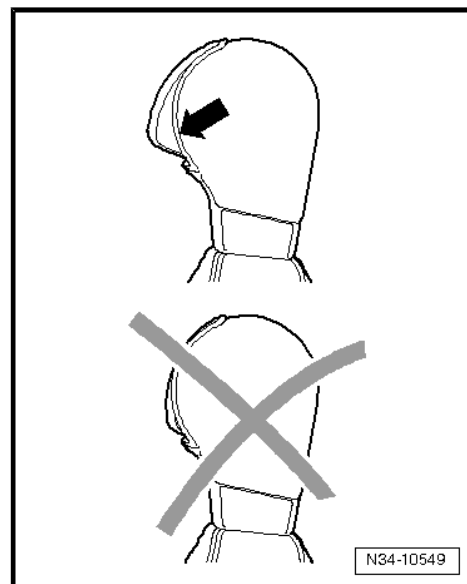


Handle with front push-button:

- Push-button is in installation position -arrow-.

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

- Move push-button to installation position ⇒ [page 30](#) .





Note

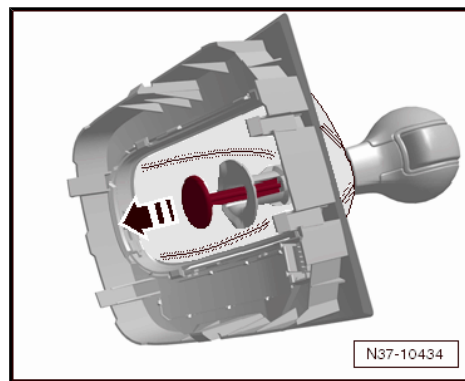
New handle is supplied with installation guard. Do not remove guard until just before installing. To remove, pull it out.

- Push handle fully onto selector lever and lock.
- Push sleeve downwards to lock.
- Press the push-button after installation.



Note

If not installed correctly, push-button remains inserted in handle after being pressed. If this happens, remove handle again and move push-button to installation position again ➔ [page 30](#) . The handle can then be installed again.

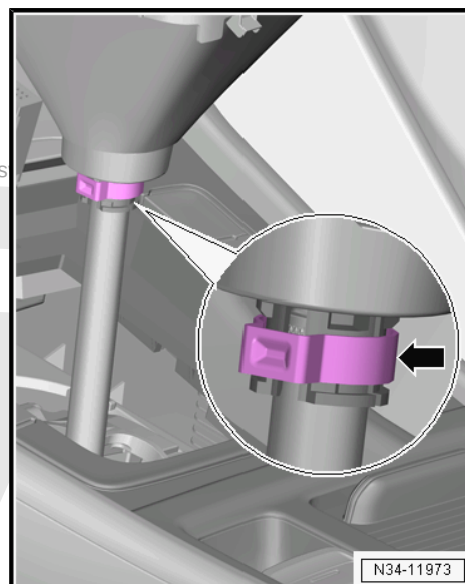


Handles with clamp:

- Push on handle with new clamp -arrow- to stop. Do not tighten clamp yet.
- Push the push button after installing it.
- 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- .

Continuation for all handles

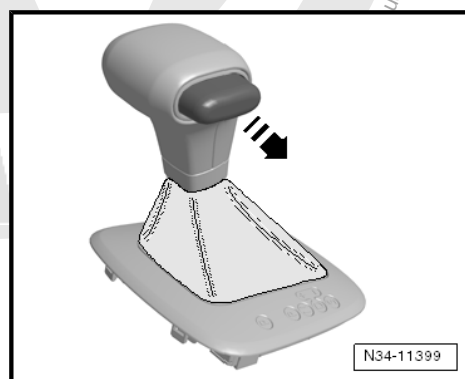
- Connect electrical connector.
- Clip cover in position.



6.1 Moving push-button to installation position in the handle

6.1.1 Handle with push-button on the side

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





6.1.2 Handle with front push-button

With this kind of handle, the push-button cannot be pulled out.

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

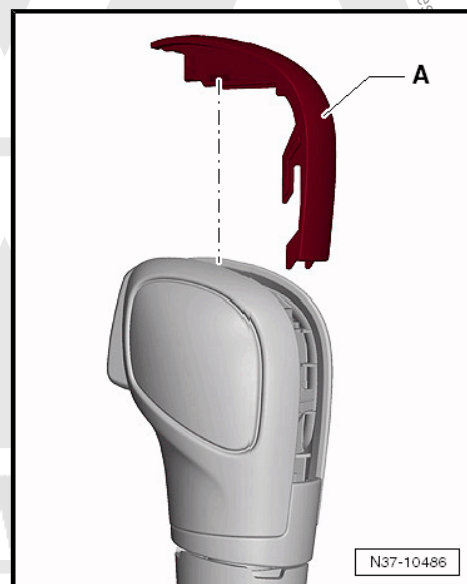
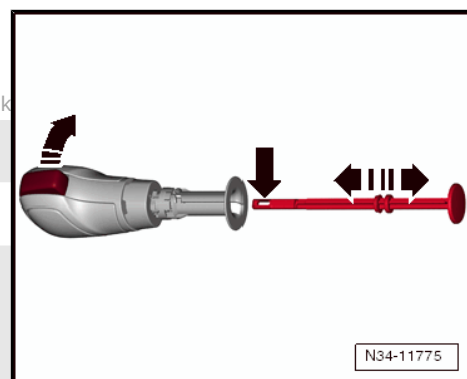
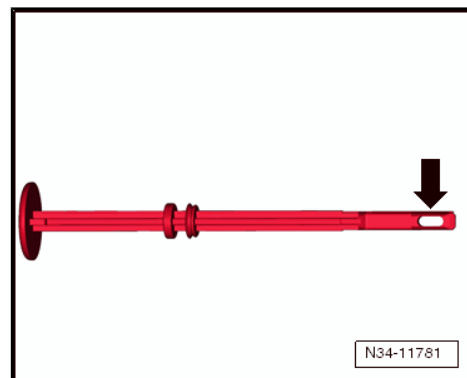
Place handle »with« installation guard in installation position:

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

Place handle »without« installation guard in installation position:

- Carefully unclip trim of handle -A- upwards.





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

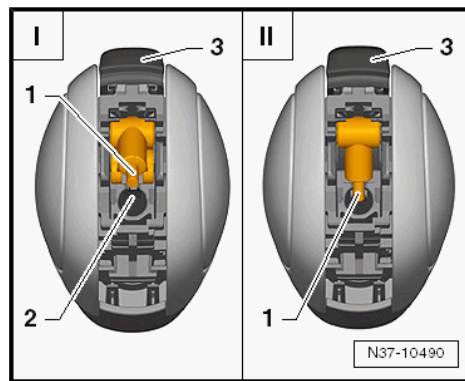
-I- Push-button in pressed position

-II- Push-button in installation position



Note

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





7 Selector mechanism, Passat, Passat CC, CC and Tiguan through week 44/09

Tiguan from week 45/09 with modified selector mechanism
⇒ [page 45](#) .



WARNING

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

7.1 Overview - selector mechanism

1 - Selector cover with knob

- ☐ Removing and installing knob ⇒ [page 28](#)
- ☐ Emergency release: ⇒ [page 27](#)

2 - Selector mechanism with selector lever

- ☐ Removing and installing, Passat, Passat CC and CC ⇒ [page 34](#)

3 - Bolt with spring

- ☐ 3 Nm

4 - Pin

- ☐ Do not grease

5 - Securing clip

- ☐ Always renew after removing

6 - Nut

- ☐ 9 Nm
- ☐ Qty. 4

7 - Selector housing

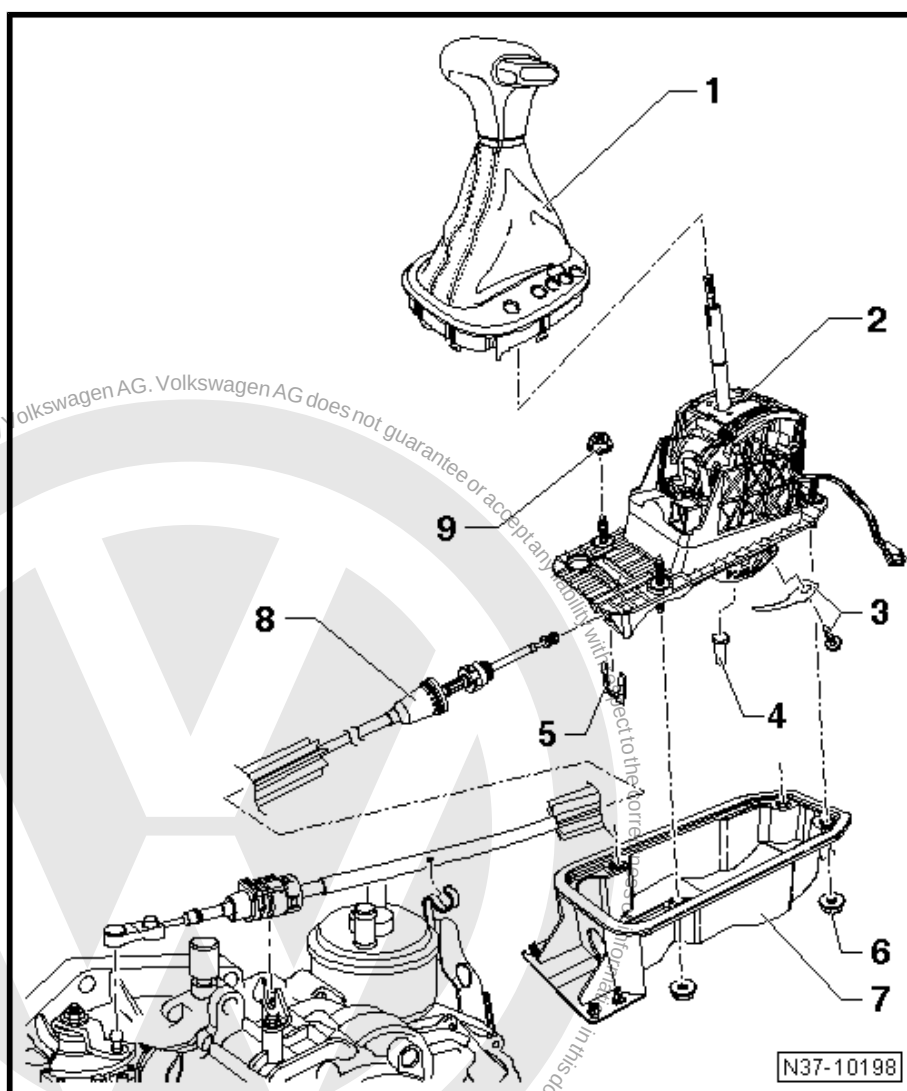
- ☐ With seal

8 - Selector lever cable

- ☐ Cable must not be greased
- ☐ Removing and installing ⇒ [page 34](#)
- ☐ Checking ⇒ [page 42](#)
- ☐ Adjusting ⇒ [page 42](#)

9 - Hexagon nut with washer

- ☐ 8 Nm
- ☐ Qty. 4





7.2 Removing and installing selector mechanism with selector lever



Note

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

- Remove centre console ⇒ Rep. gr. 68 ; Compartments, covers and trims .
- Remove air filter housing:
 - ◆ Petrol engine ⇒ Rep. gr. 24 ; Removing and installing air filter
 - ◆ Diesel engine ⇒ Rep. gr. 23 ; Removing and installing air filter
- Remove Bowden cable from gearbox ⇒ [page 34](#) .
- Remove parts of exhaust system under heat shield ⇒ Rep. gr. 26 ; Removing and installing parts of exhaust system .

Vehicles with all-wheel drive

- Remove propshaft ⇒ Propshaft and rear final drive; Rep. gr. 39

All vehicles

- Remove heat shield beneath vehicle.
- Remove 4 nuts for selector mechanism »from above«.
- Remove selector mechanism.

Torque setting for nuts: 8 Nm

- After installing, check cable ⇒ [page 42](#) .

7.3 Removing and installing selector lever cable



Note

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

Removing

- Move selector lever to position “S” position.
- Remove air filter housing:
 - ◆ Petrol engine ⇒ Rep. gr. 24 ; Removing and installing air filter
 - ◆ Diesel engine ⇒ Rep. gr. 23 ; Removing and installing air filter
- Remove selector lever cable upwards out of cable support bracket, being careful not to kink cable.

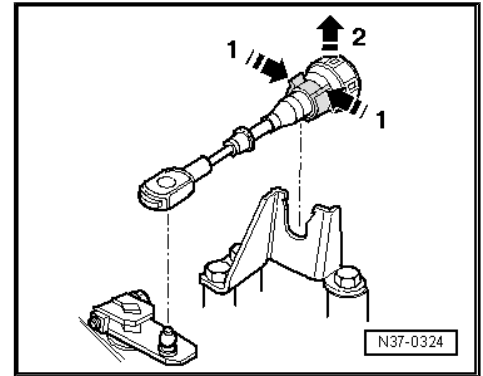


- In order to remove selector lever cable from gearbox, first release cable -1- and then remove it from cable support bracket -2-.



Caution

Carefully push together catches of selector lever cable -arrows- because lugs can break off very easily. If a lug breaks, the selector lever cable must be renewed.



- Lever cable -1- off lever -3- using an open jaw spanner -2-.
- Raise vehicle.

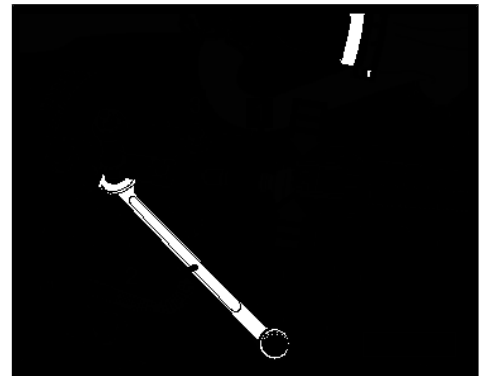
To continue removal of cable and/or selector mechanism, heat shield and, as appropriate, parts of exhaust system must now be removed ⇒ Rep. gr. 26 ; Removing and installing parts of exhaust system .

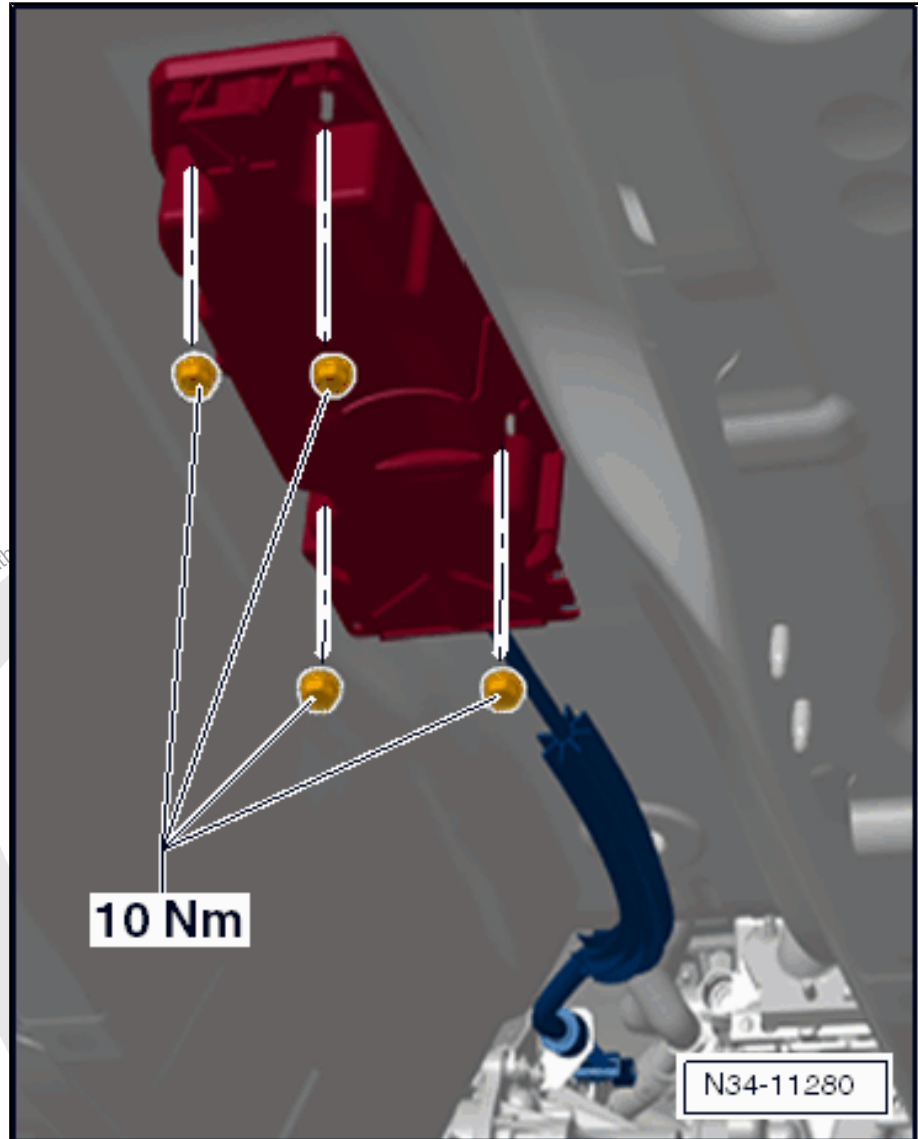
Vehicles with all-wheel drive

- Remove propshaft ⇒ Propshaft and rear final drive; Rep. gr. 39

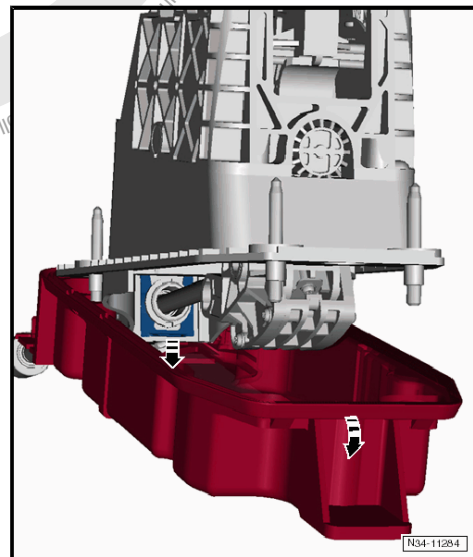
All vehicles

- Remove heat shield.
- Remove -selector housing- beneath selector lever.



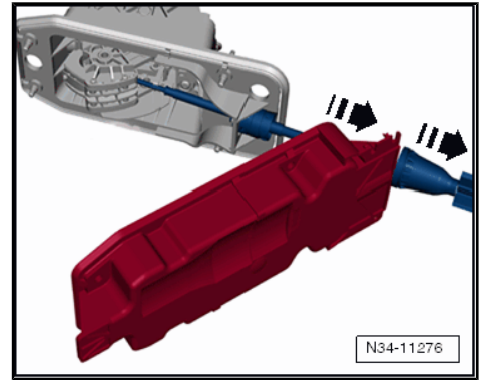


- Remove securing clip. Always renew securing clip.



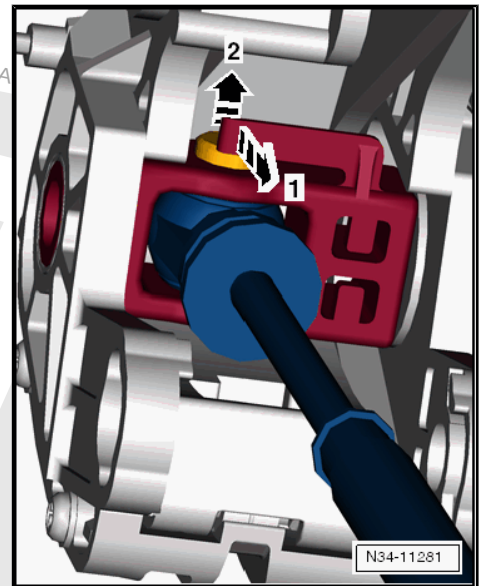


-Selector housing- is pushed forwards slightly on cable.

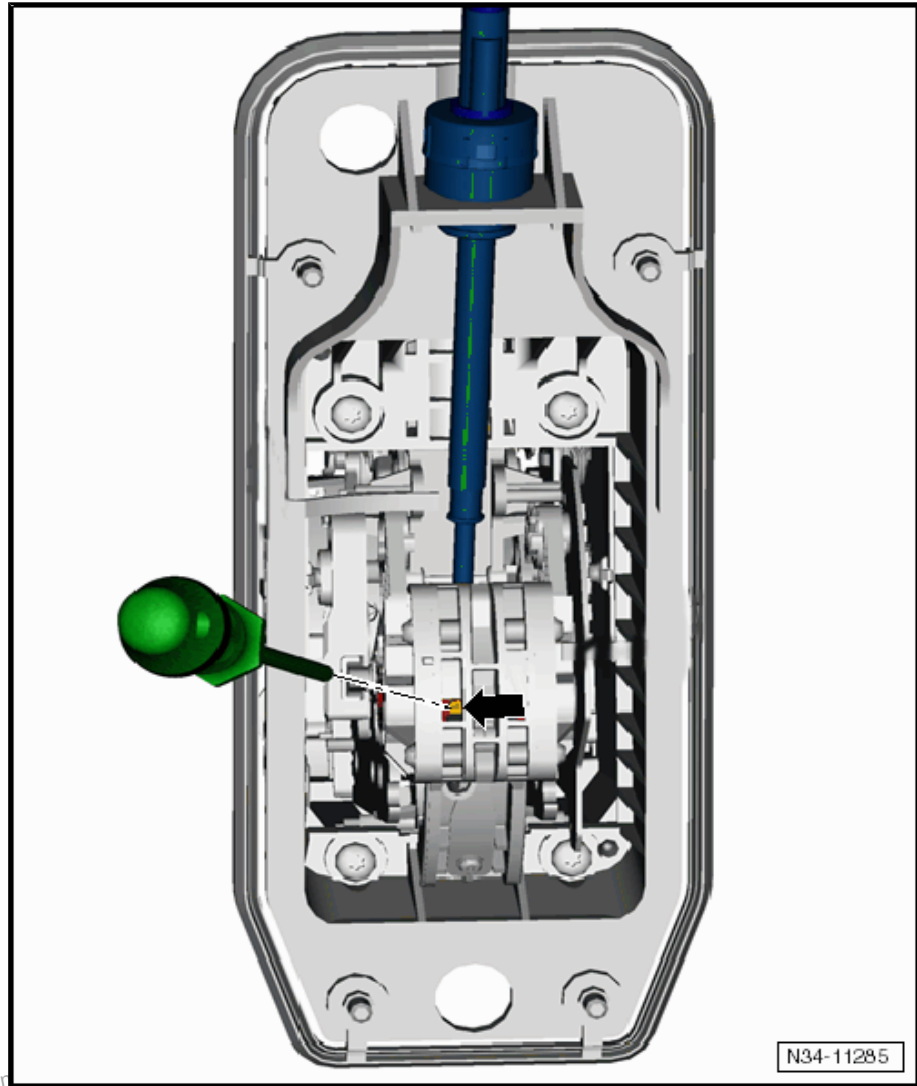


To remove cable, securing tab must be pushed forwards -1-.

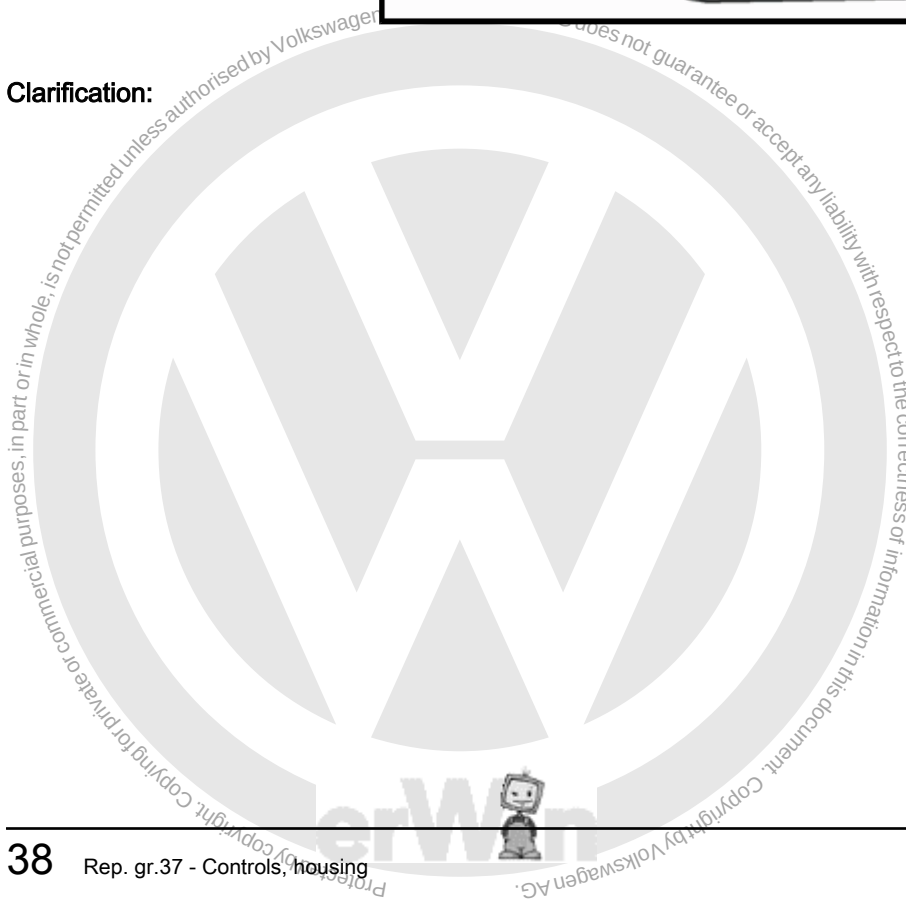
- At same time, push -pin- up with a screwdriver -2-.

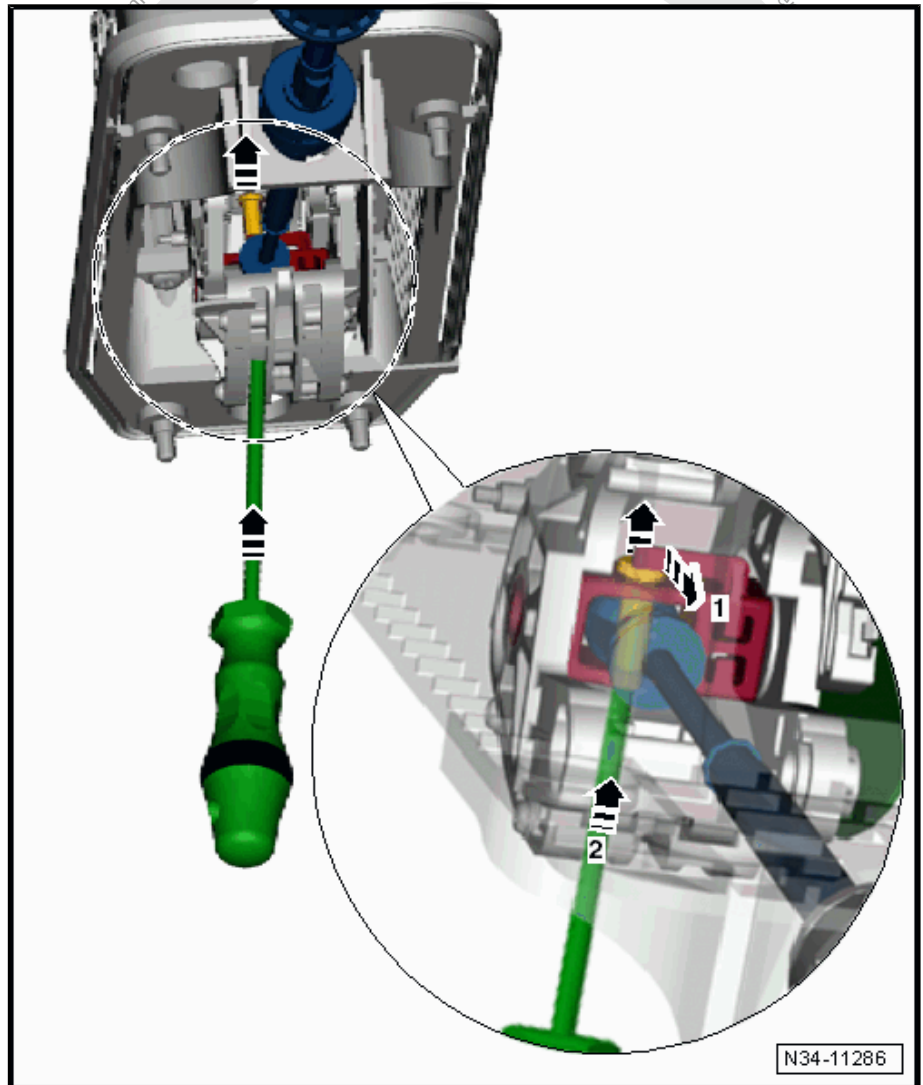


- Please insert -screwdriver- from underneath whilst pushing securing tab forwards.



Clarification:



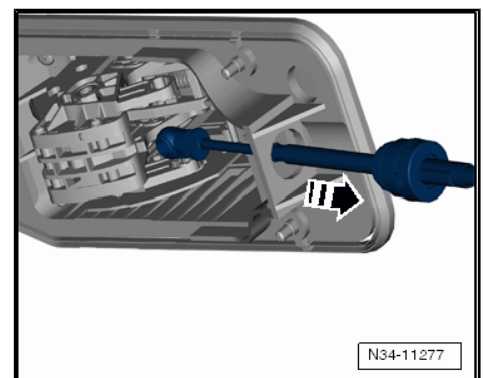


- Remove selector lever cable.
- Remove selector housing from cable.

Installing

Do not grease cable.

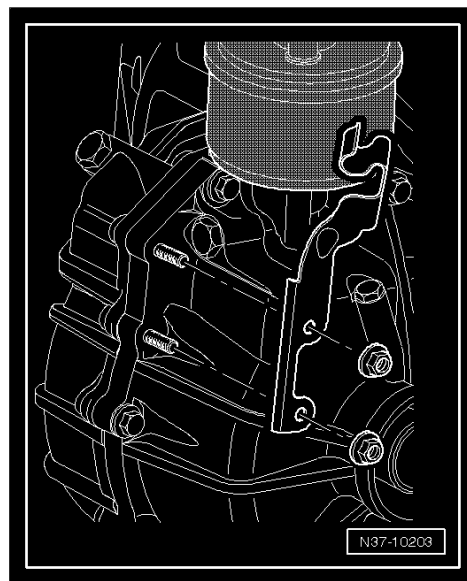
- Route selector lever cable free of tension, insert in cable support bracket on gearbox but do not yet secure.
- Ensure that selector lever cable is properly routed during installation.
- Also clip cable into retainer. Ensure that retainer does not contact gearbox oil cooler.



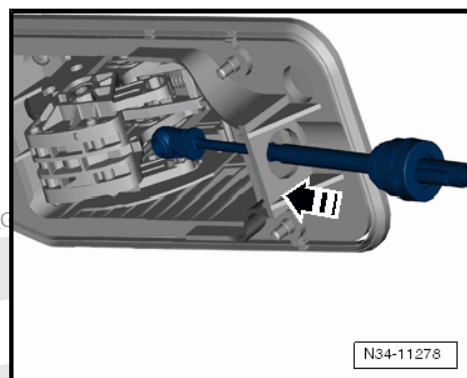


-Nuts- 8 Nm

- Put selector housing onto cable.

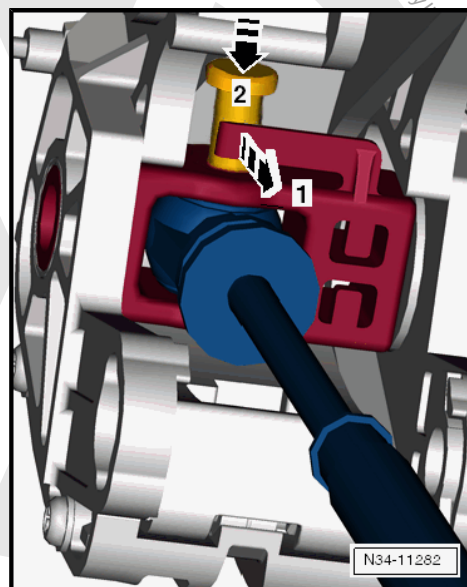


- Insert selector lever cable into selector mechanism.

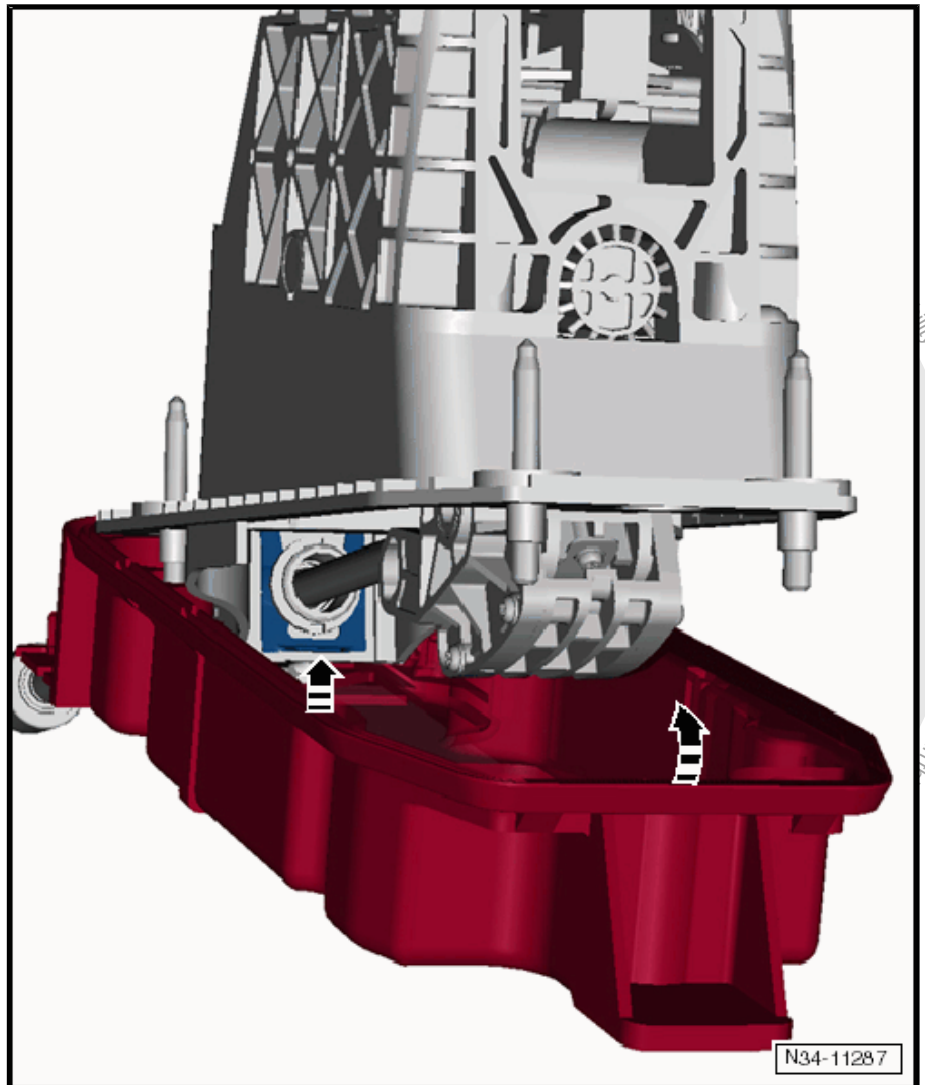


- Insert cable into bearing and insert pin from above, downwards through eye.

When you have checked freedom of movement of cable
⇒ [page 42](#) , insert securing clip.



- Attach cable with new securing clip on cable support bracket of selector mechanism.



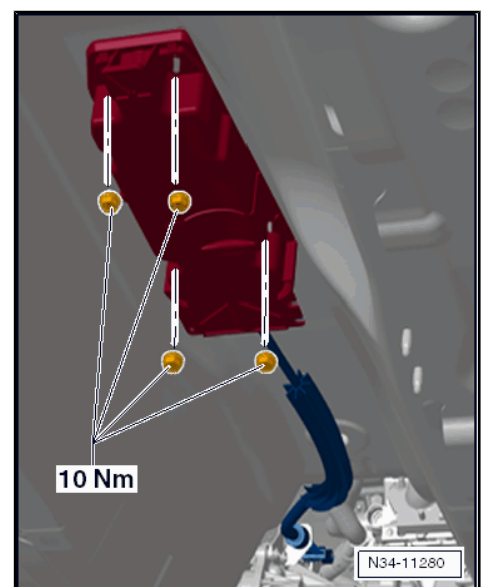
- Install selector housing, heat shield and exhaust system.

Vehicles with all-wheel drive

- Install propshaft ⇒ Propshaft and rear final drive; Rep. gr. 39 .

All vehicles

- Check selector lever cable after installing ⇒ [page 42](#) .





7.4 Checking selector lever cable

Brief description

To check ease of movement of selector lever cable, it must be removed from the gearbox and the free end must be placed so that it does not bump against anything.

Then move selector lever and reinstall the cable.

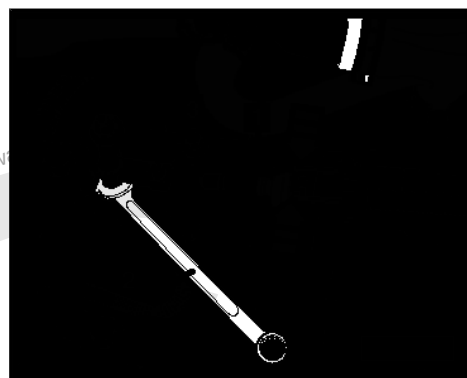
Then the selector lever cable must be adjusted ➔ [page 42](#) .

Do not grease cable connection!

- Move selector lever to position »P« position.
- Remove air filter housing:
- ♦ Petrol engine ➔ Rep. gr. 24 ; Removing and installing air filter
- ♦ Diesel engine ➔ Rep. gr. 23 ; Removing and installing air filter
- Lever cable -1- from selector shaft lever -3- using an open jaw spanner -2-.
- The cable is removed from the support bracket by pressing the catches together -arrows-.

Checking:

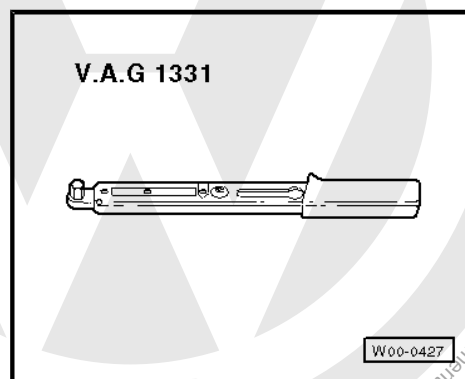
- Move selector lever repeatedly from »P« to »S« and back to »P«.
- Selector lever must move easily.
- Reinstall cable.
- Adjust selector lever cable ➔ [page 42](#) .



7.5 Adjusting selector lever cable

Special tools and workshop equipment required

- ♦ Torque wrench - V.A.G 1331-





The selector lever cable must be adjusted if

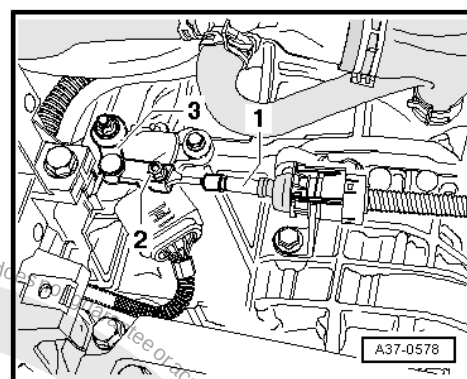
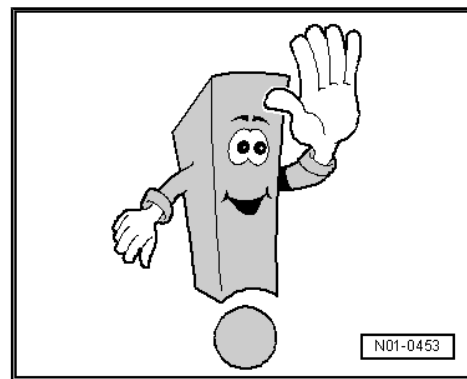
- ◆ The selector lever cable has been removed from the gearbox.
- ◆ The engine and/or gearbox has been removed and installed.
- ◆ The cable itself or the selector mechanism has been removed and installed.
- ◆ The position of the engine and gearbox is shifted, for example to install it free of tension.

Adjusting

- Move selector lever to “P” position.
- Remove air filter housing:
- ◆ Petrol engine ➔ Rep. gr. 24 ; Removing and installing air filter
- ◆ Diesel engine ➔ Rep. gr. 23 ; Removing and installing air filter
- Loosen bolt -2- for cable -1-.
- Gently push knob of selector lever forwards and backwards but under no circumstances must you shift out of “P”.

In this way the ➔ inner cable of the Bowden cable finds its optimal position.

- Set selector shaft lever -3- to “P” on gearbox (push lever backwards).



Note

To be sure that the gearbox is in “P” (parking lock engaged), raise vehicle. It should not be possible to turn both front wheels together in the same direction.

- Tighten bolt -2- to 15 Nm.
- Install air filter housing:
- ◆ Petrol engine ➔ Rep. gr. 24 ; Removing and installing air filter
- ◆ Diesel engine ➔ Rep. gr. 23 ; Removing and installing air filter

7.6 Checking selector mechanism

The starter must not operate in the selector lever positions “R”, “D” or “S”.

On right-hand drive vehicles, the starter must operate in selector lever positions “P” and “N” only when the push-button in the selector lever handle is not pressed.

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

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

7.6.1 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 depressed:

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

7.6.2 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 depressed:

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

7.6.3 Selector lever in position "Tiptronic"

- Shift selector lever into Tiptronic gate.

The illuminated "D" symbol in the selector mechanism cover must go out and the "+" and "-" symbols must light up.

When the selector lever is shifted into the Tiptronic gate, the selector lever position display in the dash panel insert must change from "P R N D S" to "6 5 4 3 2 1".

7.6.4 Ignition and light switched on

The respective symbol in the shift mechanism cover lights up.

7.6.5 Selector lever position display

Simultaneous illumination of all selector lever position display segments indicates that the gearbox is in gearbox emergency running mode.



8 Selector mechanism for Tiguan from week 45/09

8.1 Overview - selector mechanism

1 - Cover with handle

- ☐ Do not remove knob without reason. For emergency release, only the cover needs to be unclipped. ⇒ [page 27](#)
- ☐ Removing and installing ⇒ [page 28](#)

2 - Centre console cover

- ☐ Only installed in some cases.

3 - Selector lever and selector mechanism with selector lever cable

- ☐ With selector lever lock solenoid - N110-
- ☐ Selector mechanism and selector lever cable are not allowed to be separated from one another. Both are removed together.
- ☐ Removing and installing ⇒ [page 48](#)
- ☐ Checking ⇒ [page 42](#)
- ☐ Adjusting ⇒ [page 42](#)

4 - Bolt

- ☐ 8 Nm

5 - Hexagon flange nut

- ☐ M6 - 8 Nm
- ☐ M8 - 20 Nm
- ☐ Qty. 4

6 - Selector housing

- ☐ Only available together with selector mechanism ⇒ Electronic parts catalogue (ETKA) .
- ☐ Removing ⇒ [page 46](#)

7 - Bracket

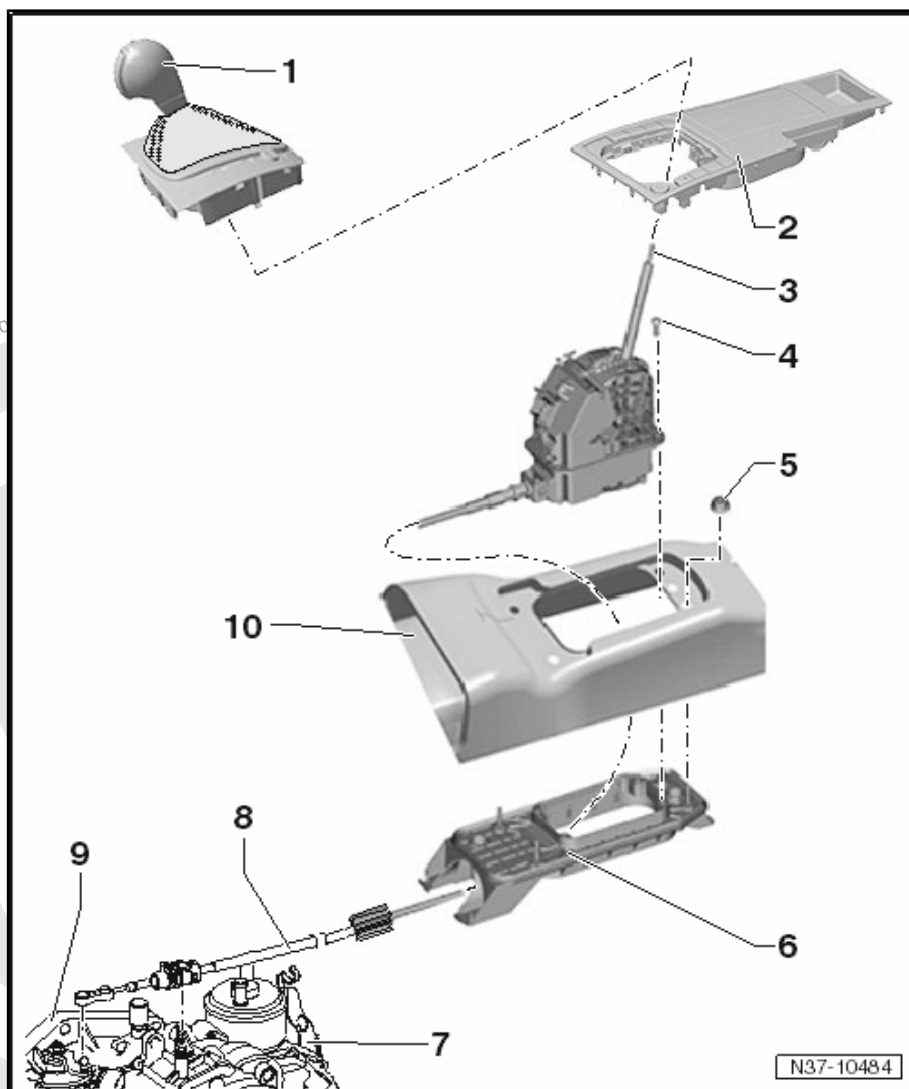
- ☐ For selector lever cable

8 - Selector lever cable

- ☐ can only be replaced together with selector mechanism ⇒ [page 34](#)

9 - Gearbox

10 - Tunnel/bodywork





8.2 Removing and installing selector mechanism with selector housing

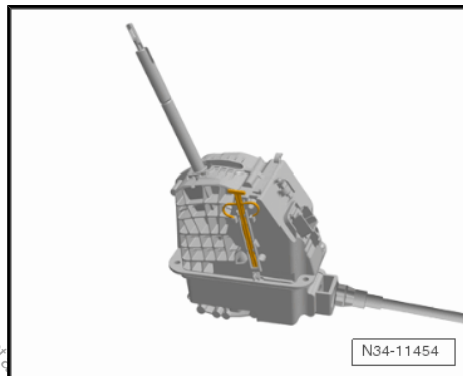
Brief description

Selector mechanism and selector lever cable are not allowed to be separated from one another. Both are removed together with the selector housing.

In the interior, the centre console must be removed.

Beneath the vehicle, the heat shield must be removed.

The selector mechanism with selector lever cable can be removed and installed separately without removing and installing the selector housing ➔ [page 48](#).



Note

Following installation of selector mechanism, selector lever cable must be checked for ease of movement and be adjusted.

Removing

- Remove selector lever handle ➔ [page 28](#).
- Remove centre console ➔ Rep. gr. 68 ; Compartments, covers and trims.
- Separate electrical connector from selector mechanism to vehicle wiring harness.
- Remove air filter housing:
 - ◆ Petrol engine ➔ Rep. gr. 24 ; Removing and installing air filter
 - ◆ Diesel engine ➔ Rep. gr. 23 ; Removing and installing air filter
- Lever selector lever cable -1- off selector shaft lever -3- using an open-end spanner -2-.



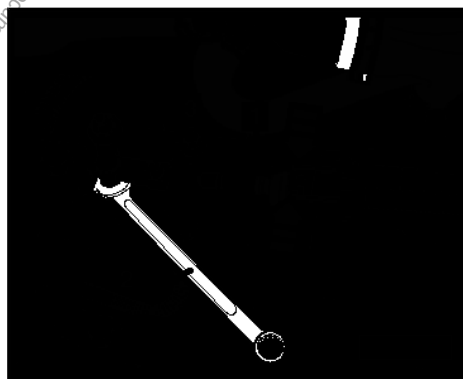
Caution

The catches of the selector lever cable break off very easily. If a locking lug is broken off, the complete selector mechanism together with selector lever cable must be replaced.

- Carefully push together catches of selector lever cable together -arrows- and remove selector lever cable upwards out of cable support bracket.
- Do not bend or kink cable.
- Unhook selector lever cable -1- from bracket -arrow-, if present, on gearbox.
- Raise vehicle.
- To remove cable and/or selector mechanism, parts of exhaust system must now be removed ➔ Exhaust system; Rep. gr. 26.
- Remove heat shield ➔ Rep. gr. 66.

Vehicles with all-wheel drive

- Remove propshaft ➔ Propshaft and rear final drive; Rep. gr. 39





Note

- ◆ To remove selector mechanism, a 2nd mechanic is required under the vehicle.
- ◆ If fitted, pull bracket with interior aerial 1 for entry and start authorisation - R138- off front studs on selector mechanism.

- Remove nuts -arrows- inside vehicle.

Specified torques ➔ Item 5 (page 45)

- Remove selector mechanism together with selector lever cable and selector housing downwards.

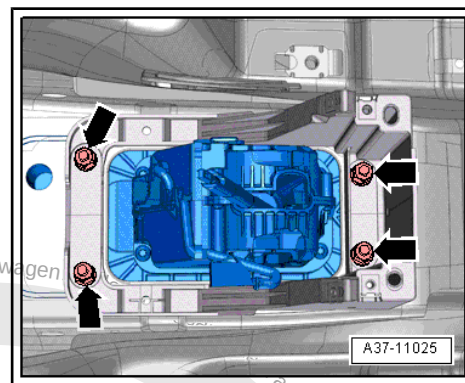
Installing

Install in reverse order of removal.



Note

- ◆ Do not bend or kink selector lever cable.
- ◆ Do not grease selector lever cable.
- Carefully press selector lever cable onto gearbox selector lever and insert in cable support bracket.
- Install propshaft ➔ Propshaft and rear final drive; Rep. gr. 39 .
- Install parts of ➔ exhaust system; Rep. gr. 26 .
- Install heat shield ➔ Rep. gr. 66 .
- Install centre console ➔ Rep. gr. 68 ; Compartments, covers and trims .
- Install selector lever handle ➔ page 28 .
- Adjust selector lever cable ➔ page 42 .
- Check selector mechanism ➔ page 43 .
- Install air filter housing:
- ◆ Petrol engine ➔ Rep. gr. 24 ; Removing and installing air filter
- ◆ Diesel engine ➔ Rep. gr. 23 ; Removing and installing air filter





8.3 Removing and installing selector mechanism without selector housing

Brief description

Selector mechanism and selector lever cable are not allowed to be separated from one another. Both are removed together.

In the interior, the centre console is to be removed.

A cord must be attached to the Bowden cable before it is removed. The cord is needed to guide the Bowden cable between the tunnel and the heat shield.

The selector mechanism with selector lever cable can also be removed and installed with the selector housing ⇒ [page 46](#) .



Note

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

- Remove selector lever handle ⇒ [page 28](#) .
- Remove centre console ⇒ Rep. gr. 68 ; Compartments, covers and trims .
- Separate electrical connector from selector mechanism to vehicle wiring harness.
- Remove air filter housing:
 - ♦ Petrol engine ⇒ Rep. gr. 24 ; Removing and installing air filter
 - ♦ Diesel engine ⇒ Rep. gr. 23 ; Removing and installing air filter
- Lever selector lever cable -1- off selector shaft lever -3- using an open-end spanner -2-.



Caution

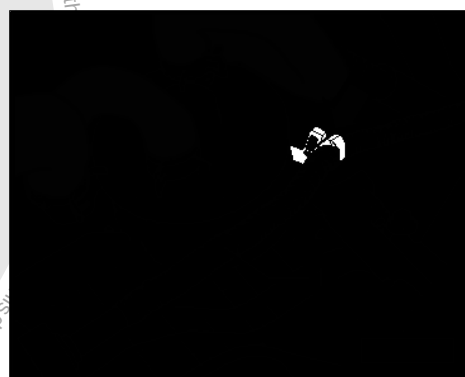
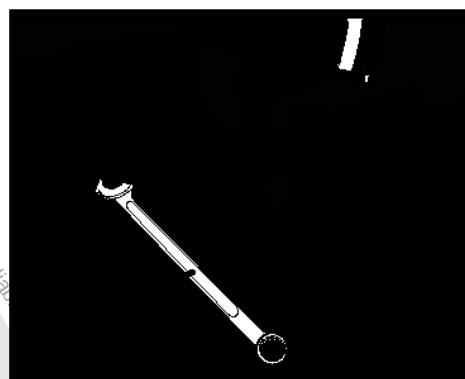
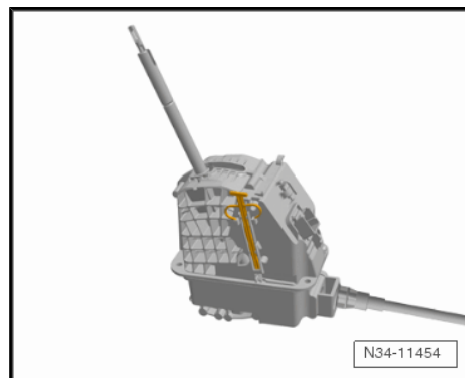
The catches of the selector lever cable break off very easily. If a locking lug is broken off, the complete selector mechanism together with selector lever cable must be replaced.

- Carefully push together catches of selector lever cable together -arrows- and remove selector lever cable upwards out of cable support bracket.

Do not bend or kink cable.

Unhook selector lever cable -1- from bracket -arrow-, if present, on gearbox.

Then a long cord must be attached to the end of the Bowden cable. The cord is needed to guide the Bowden cable between the tunnel and heat shield during installation.





- Remove 4 bolts.

- Carefully pull selector mechanism with Bowden cable out of the centre tunnel. Ensure that the cord remains accessible from the engine compartment after being pulled by the Bowden cable.

- Remove cord from Bowden cable.

Installing

Install in reverse order of removal, observing the following:

A second mechanic is needed to guide Bowden cable from passenger compartment into engine compartment.

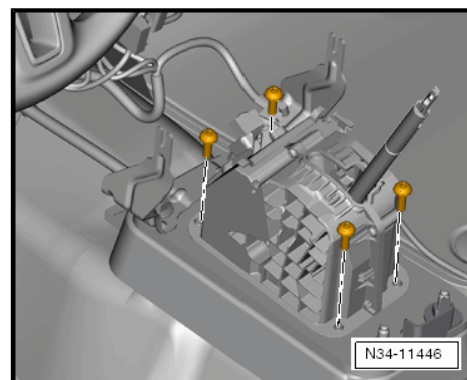
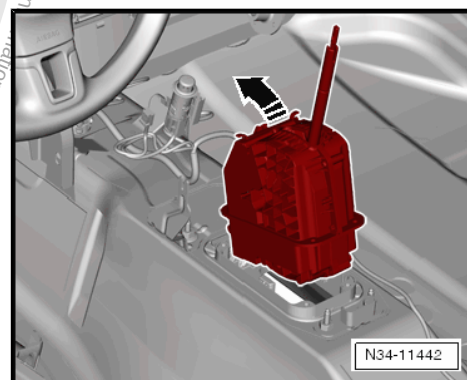
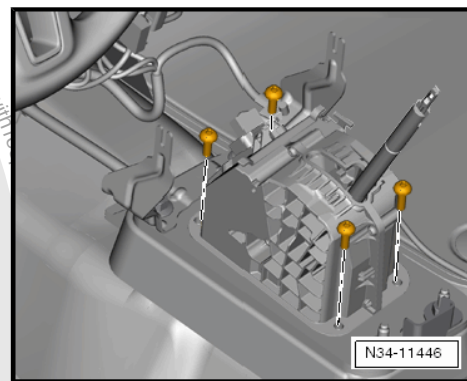


Note

- ◆ *Do not bend or kink selector lever cable.*
- ◆ *Do not grease selector lever cable.*
- Attach Bowden cable to cord which was drawn into the passenger compartment during removal.
- Carefully guide selector mechanism with Bowden cable through opening in centre tunnel.
- Have the second mechanic pull cord with Bowden cable through tunnel from engine compartment until Bowden cable can be attached to support bracket.
- Remove cord from Bowden cable.
- Secure selector mechanism to selector housing using 4 bolts.

Torque setting: ➔ [Item 4 \(page 45\)](#) .

- Before you put on ball head: check cable ➔ [page 42](#) .
- Install centre console ➔ Rep. gr. 68 ; Compartments, covers and trims .
- Install selector lever handle ➔ [page 28](#) .
- Adjust selector lever cable after installing ➔ [page 42](#) .
- Check selector mechanism ➔ [page 43](#) .
- Install air filter housing:
 - ◆ Petrol engine ➔ Rep. gr. 24 ; Air filter; Removing and installing air filter housing .
 - ◆ Diesel engine ➔ Rep. gr. 23 ; Air filter; Removing and installing air filter housing .





9 Removing and installing gearbox - Passat

Removing and installing gearbox - vehicles with front-wheel drive
⇒ [page 50](#)

Removing and installing gearbox - vehicles with all-wheel drive
⇒ [page 59](#)

9.1 Removing and installing gearbox - vehicles with front-wheel drive

Removing gearbox - vehicles with 3.6 l - 206 kW engine
⇒ [page 50](#)

Installing gearbox - vehicles with 3.6 l - 206 kW engine
⇒ [page 57](#)

9.2 Removing gearbox - vehicles with 3.6 l - 206 kW engine

Brief description

- Before removing, print diagnosis log. Return removed gearbox together with log in the customary manner.

The gearbox is removed downwards separately. The engine remains in the vehicle.

Air filter and engine cover are removed »from above«. Engine and gearbox must then be supported so that gearbox mounting can be removed.

Noise insulation and ATF lines are removed »from below«. The drive shafts must be pressed off and then the gearbox can be lowered with the gearbox jack.



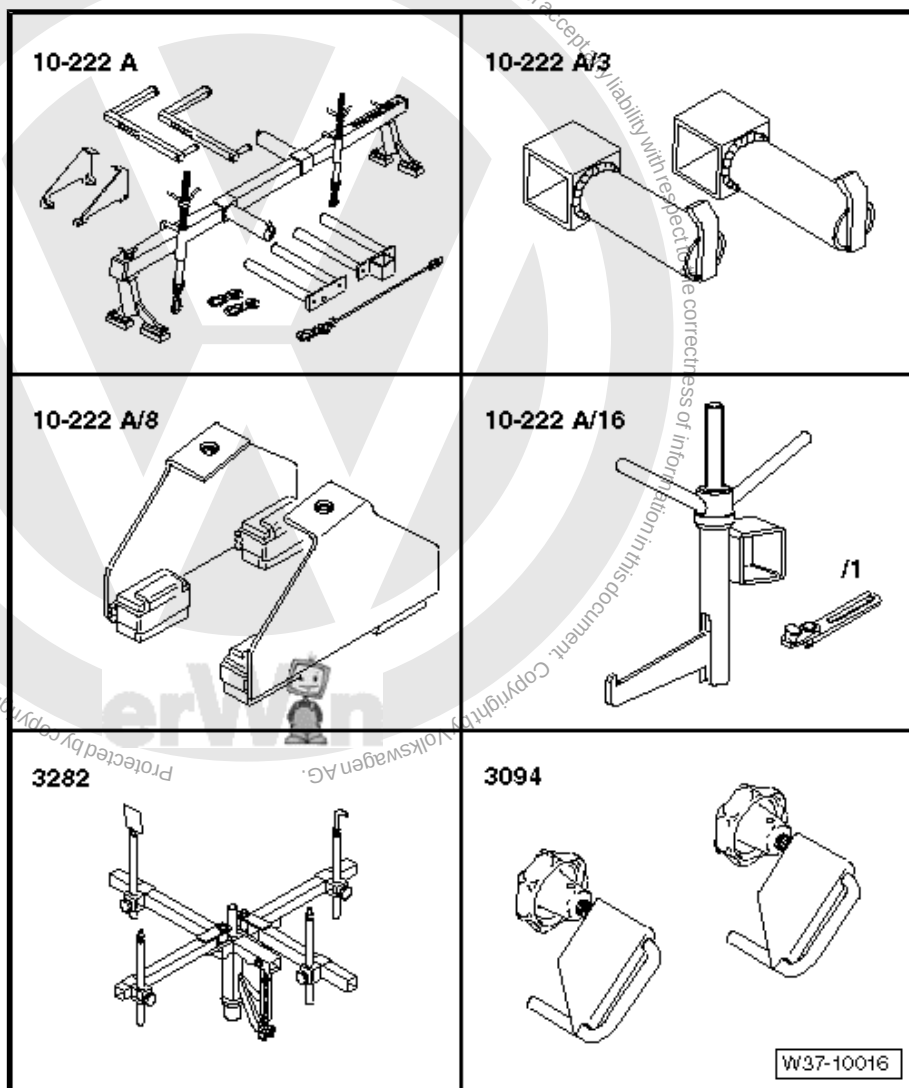
Note

The subframe is not to be removed.



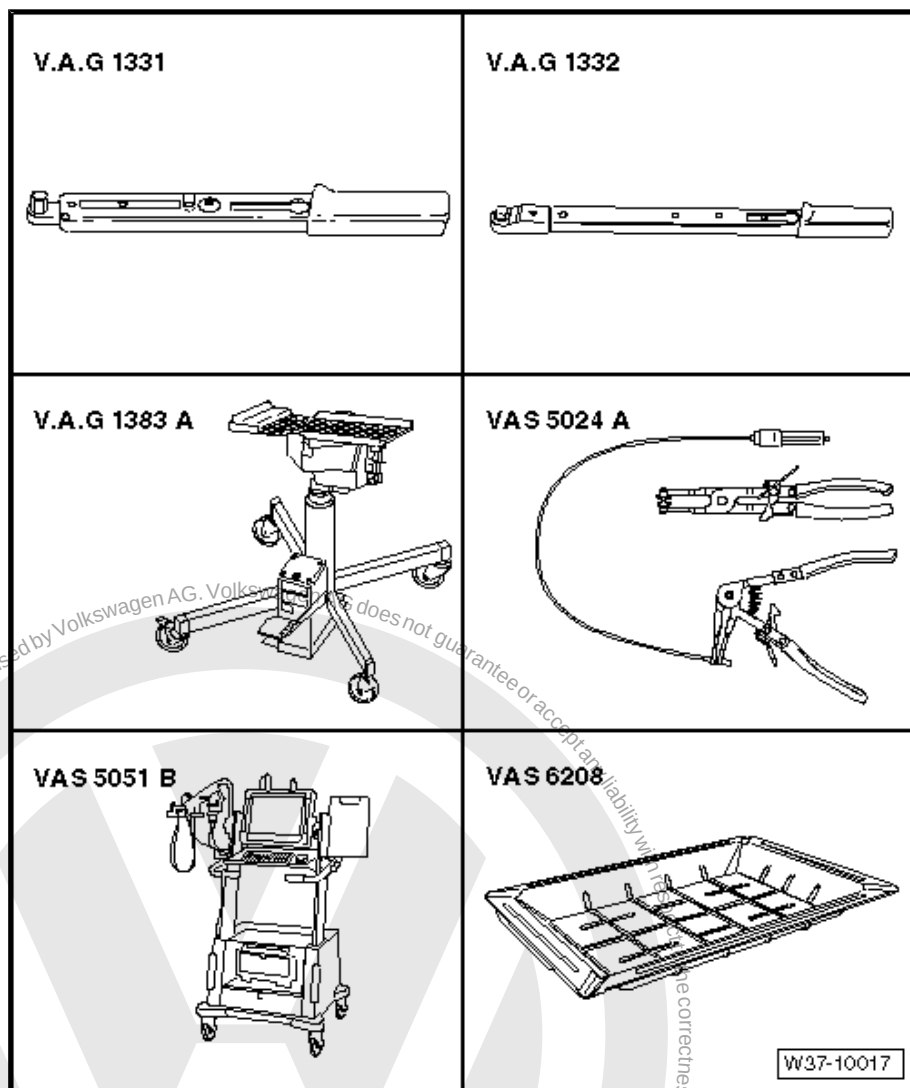
Special tools and workshop equipment required

- ◆ Support bracket - 10-222 A-
- ◆ Adapter - 10-222 A/3-
- ◆ Rack - 10-222 A/8-
- ◆ Adapter - 10-222 A/16-
- ◆ Gearbox support - 3282-
- ◆ Hose clamp to Ø 25 mm - 3094- Qty. 4

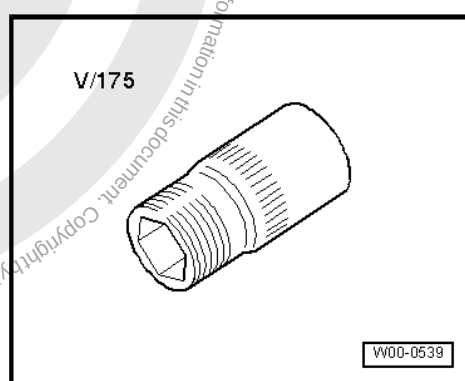




- ◆ Torque wrench - V.A.G 1331-
- ◆ Torque wrench - V.A.G 1332-
- ◆ Engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931-
- ◆ Spring-type clip pliers - VAS 5024 A-
- ◆ Vehicle diagnosis, testing and information system - VAS 5051-
- ◆ Drip tray for workshop hoist - VAS 6208-

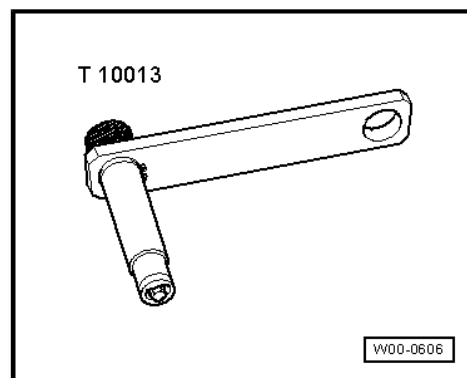


- ◆ Socket insert - V/175-





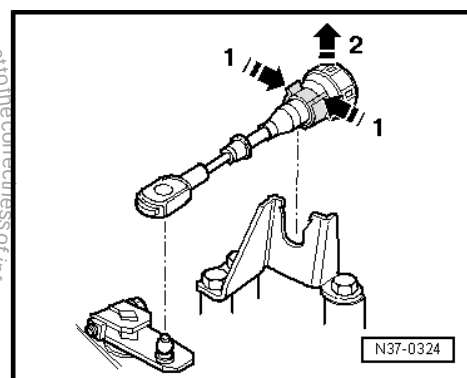
◆ Bracket - T10013-



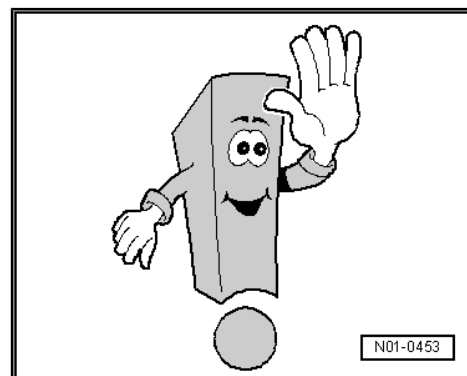
◆ Engine bung set - VAS 6122-

◆ Adjustment plate - 3282/56-

- Raise vehicle.
- Move selector lever to position »P« position.
- With ignition switched off, disconnect battery earth strap ➤ Electrical system; Rep. gr. 27 ; Disconnecting and connecting battery .
- Remove air filter.
- Release selector lever cable from gearbox by hand -1- and pull out of cable support bracket -2-.

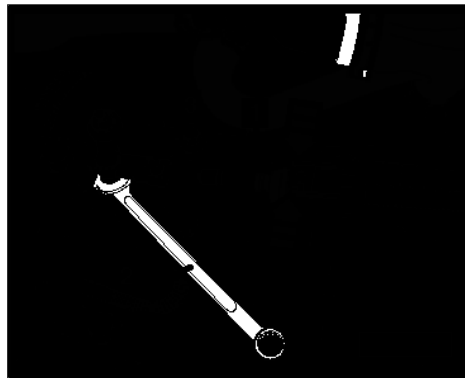


Work with care to avoid bending cable. Do not use pliers, or the retaining tabs on the cable support bracket may break off.

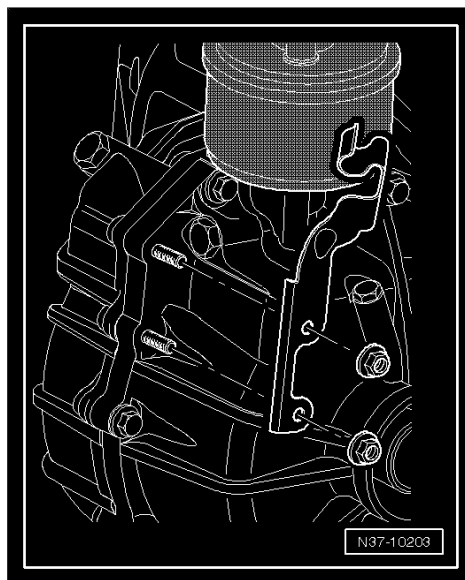




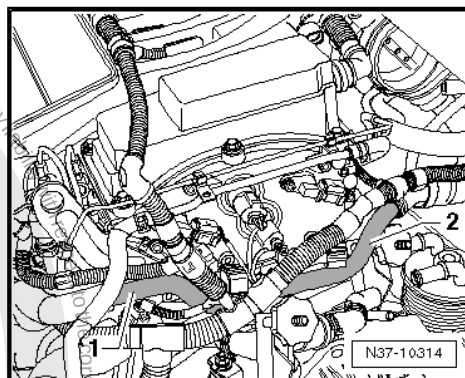
- Then lever cable off ball head -2-.



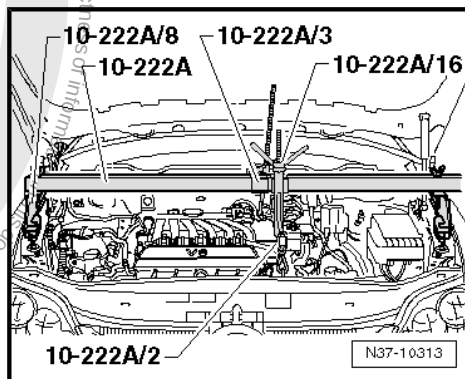
- Press cable out of additional retainer on gearbox.
- Disconnect electrical connections to gearbox and starter.
 - ◆ Multifunction switch
 - ◆ Starter motor
 - ◆ Earth strap to bracket



- Unbolt coolant lines -1- and -2- from engine and unhook wiring harness.

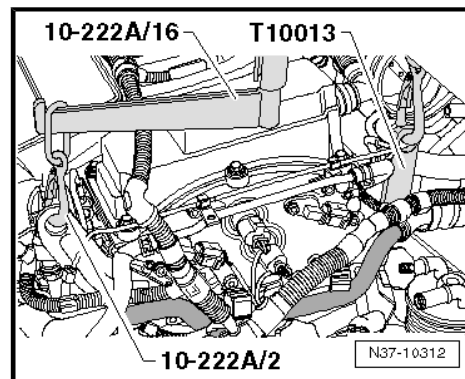


Set up support device - 10 - 222 A- .





- Suspend and support engine and gearbox. Do not raise.

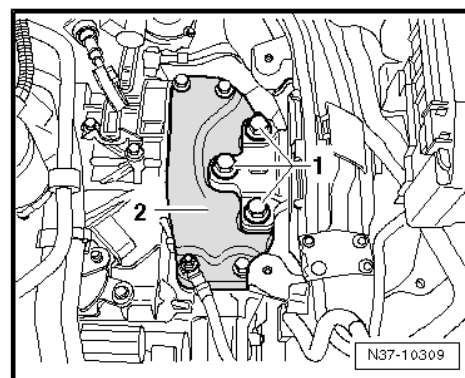


- Remove bolts -1-.

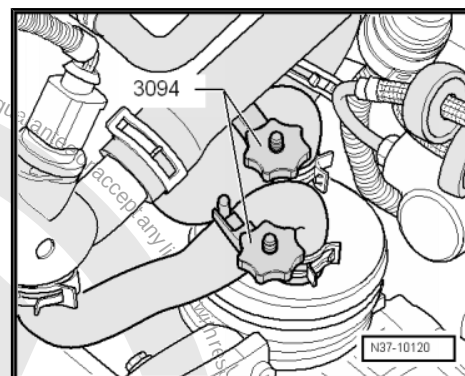


WARNING

Hot steam may escape when expansion tank is opened. Wear protective goggles and clothing to avoid eye injuries and scalding. Cover cap with a cloth and carefully open.



- Open cap on expansion tank.
- Place hose clamps up to Ø 25 mm - 3094- onto the hoses and remove hoses from the ATF cooler.
- Remove both upper engine/gearbox connecting bolts.



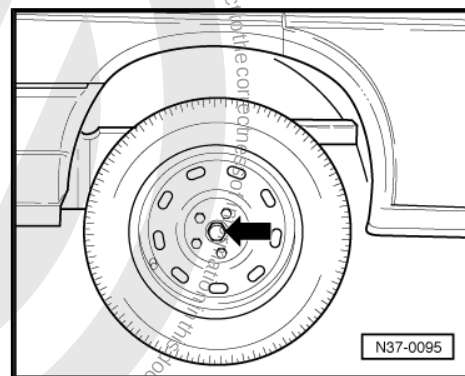
- Depress brake pedal to remove bolt for left drive shaft -arrow- (second mechanic required).



Note

After this, do not set vehicle on the ground any more ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR 2600i .

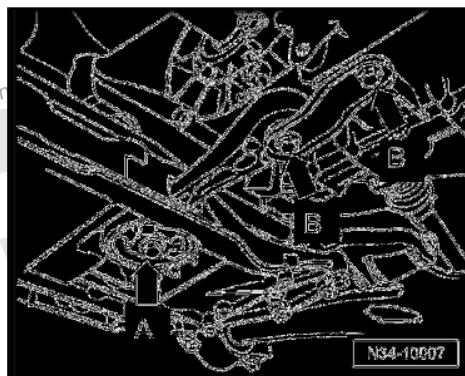
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .
- Remove heat shield over right drive shaft from engine.
- Pull both electrical connectors off gearbox.
- Remove lower part of left wheel housing liner.





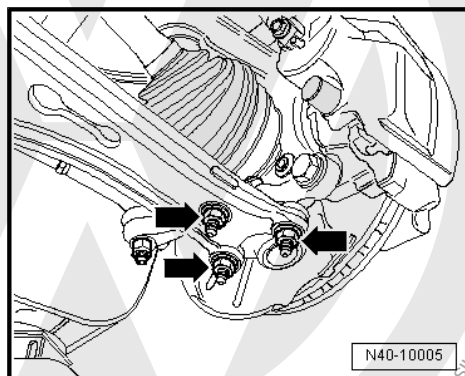
- Remove ⇒ pendulum support, first -A- and then -B-.

(On installation, first tighten -B-, then -A-.) Torque settings ⇒ Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .



- Unscrew -nuts- from lower suspension links on both sides.

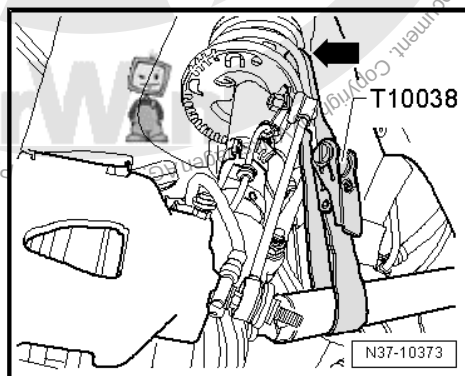
Torque settings for suspension link bolts ⇒ Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .



- Press both drive shafts out of gearbox. For procedure, refer to ⇒ Rep. gr. 40 ; Repairing drive shaft; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR 2600i .

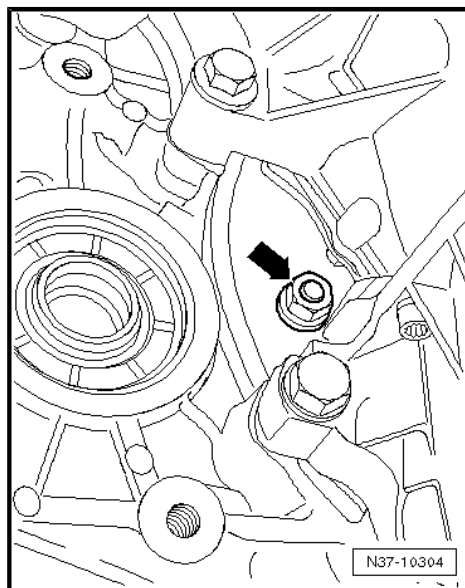
- Remove left drive shaft.

- Raise right drive shaft as far as possible and secure to suspension strut in this position.



- Remove six -torque converter nuts- with insert - V/175- . Counterhold with screwdriver on starter ring gear.

- Remove all lower gearbox-engine connecting bolts except bolt beneath opening for torque converter bolts -arrow- ⇒ [page 57](#) .

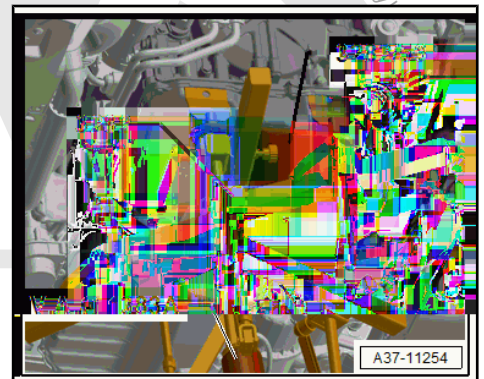
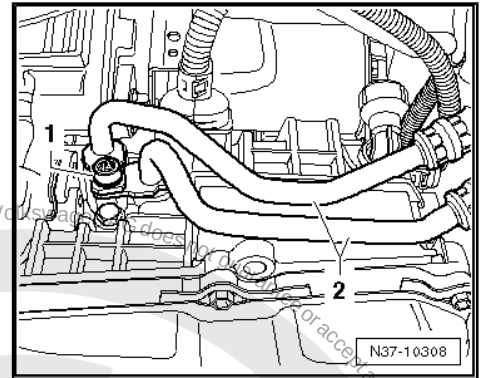




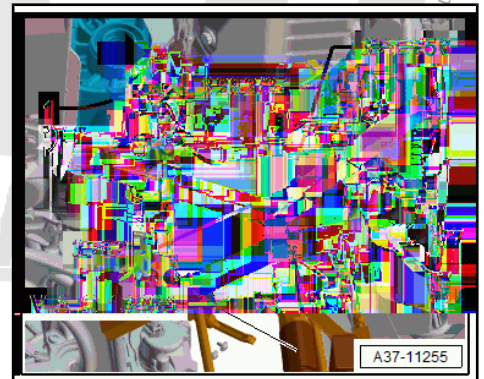
- Clamp off ATF lines -2- with hose clamps to Ø 25 mm - 3094- .
- Remove bolt -1- and pull ATF lines -2- off gearbox.
- Seal off gearbox and ATF lines with clean plugs.

To remove automatic gearbox 09M, set up gearbox support - 3282- with adjustment plate - 3282/56- and fit to engine and gearbox support .

- Align arms of gearbox support according to holes in adjustment plate - 3282/56- .
- Screw in support elements on adjustment plate - 3282/56- as illustrated.
- Place engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931- under gearbox.
- »Arrow symbol« on adjustment plate - 3282/56- points in driving direction.



- Screw pin - 3282/34- into gearbox.
- Raise engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931- to support gearbox -1- from below.
- Remove last engine/gearbox connecting bolt -arrow-.



- Press gearbox off engine -3- while pressing torque converter -1- against gearbox in -direction of arrow- using, for example, a screwdriver -2-.
- Carefully lower gearbox, ensuring »clearance« to other components.
- After gearbox has been removed, secure torque converter to prevent it from falling out ⇒ [page 114](#)



9.3 Installing gearbox - vehicles with 3.6 l - 206 kW engine

Installation is performed in the reverse order. However, the following notes should be observed.



- If a new gearbox is installed, transfer attached parts to new gearbox.
- ◆ Support bracket for selector lever cable
- ◆ Retainer for selector lever cable
- Check whether dowel sleeves are pressed into engine flange
⇒ [Item \(page 59\)](#) .

Ensure that the torque converter is properly installed. It must be easily turned by hand and the entire circumference must be uniformly deep in gearbox.

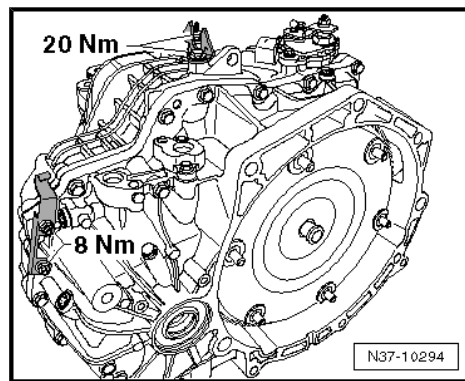


Note

- ◆ *Continue turning the engine carefully!*
- ◆ *Particularly on installation, ensure that you turn the engine cautiously »whilst guiding the transmission to the engine«.*
The starter ring gear can be held from the outside with a screwdriver. This way, the studs will locate in the drive plate bores on installation.

The engine and gearbox should be mounted tension-free in the assembly mounting. The correct procedure is described in ⇒ Rep. gr. 10 ; Removing and installing engine; Notes on installation .

- Before tightening the bolts securing bracket to gearbox mounting, re-establish »former position« of bolts. Torque setting:
⇒ [page 58](#) .
- Adjust selector lever cable ⇒ [page 42](#) .
- After installing, check ATF level ⇒ [page 124](#) .
- Check coolant level and top up if necessary ⇒ Rep. gr. 19 .
- Carry out basic settings. To do this, connect vehicle diagnosis, testing and information system - VAS 5051- and then select "Perform basic settings" under **Guided functions**.



9.3.1 Specified torques



1 - Direction of travel

- Drive plate to torque converter

- ☐ 60 Nm
- ☐ Qty. 6; remove and install with insert - V/175- .

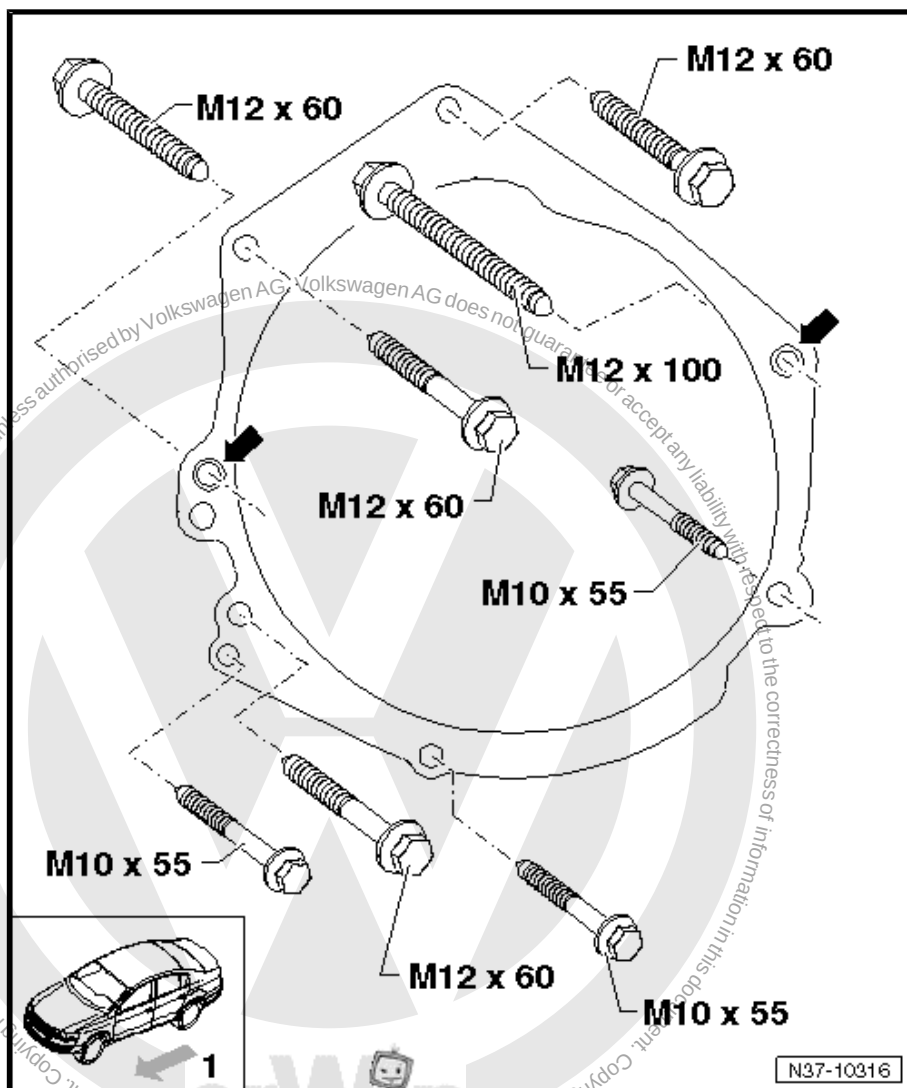
- M12 bolts ➔ M12

- ☐ 80 Nm

- M10 bolts ➔ M10

- ☐ 40 Nm
- ☐ These bolts are located in lower flange

- Two dowel sleeves in engine -arrows-



Component	Nm
Bracket to gearbox (use new bolts)	40 + 90° (1/4 turn)
Bracket to gearbox mounting (use new bolts)	60 + 90° (1/4 turn)
ATF lines to gearbox	20
Earth strap to bracket	25

9.4 Removing and installing gearbox - vehicles with all-wheel drive

9.5 Removing gearbox - vehicles with 3.6 l - 206 kW engine

Brief description

- Before removing, print diagnosis log. Return removed gearbox together with log in the customary manner.

The gearbox is removed downwards separately. The engine remains in the vehicle.



Battery tray, air filter and engine cover are removed »from above«. Engine and gearbox must then be supported so that left assembly mounting can be removed.

After the bevel box has been removed, the gearbox must be supported, the final engine/gearbox connecting bolt removed and the gearbox lowered.

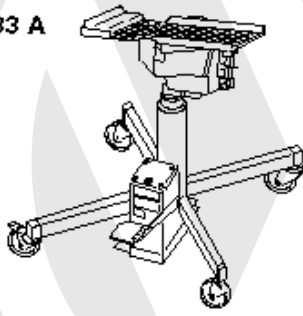
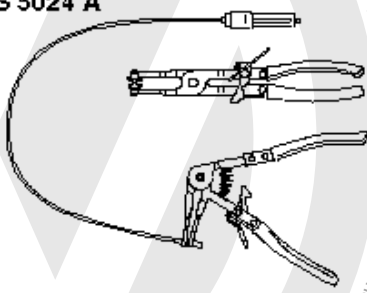
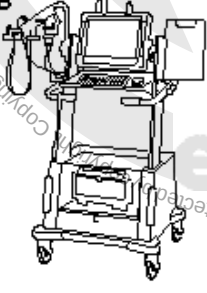
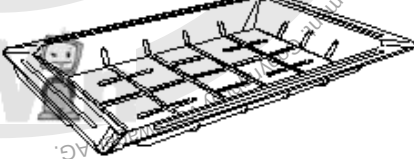


Note

The subframe is not to be removed.

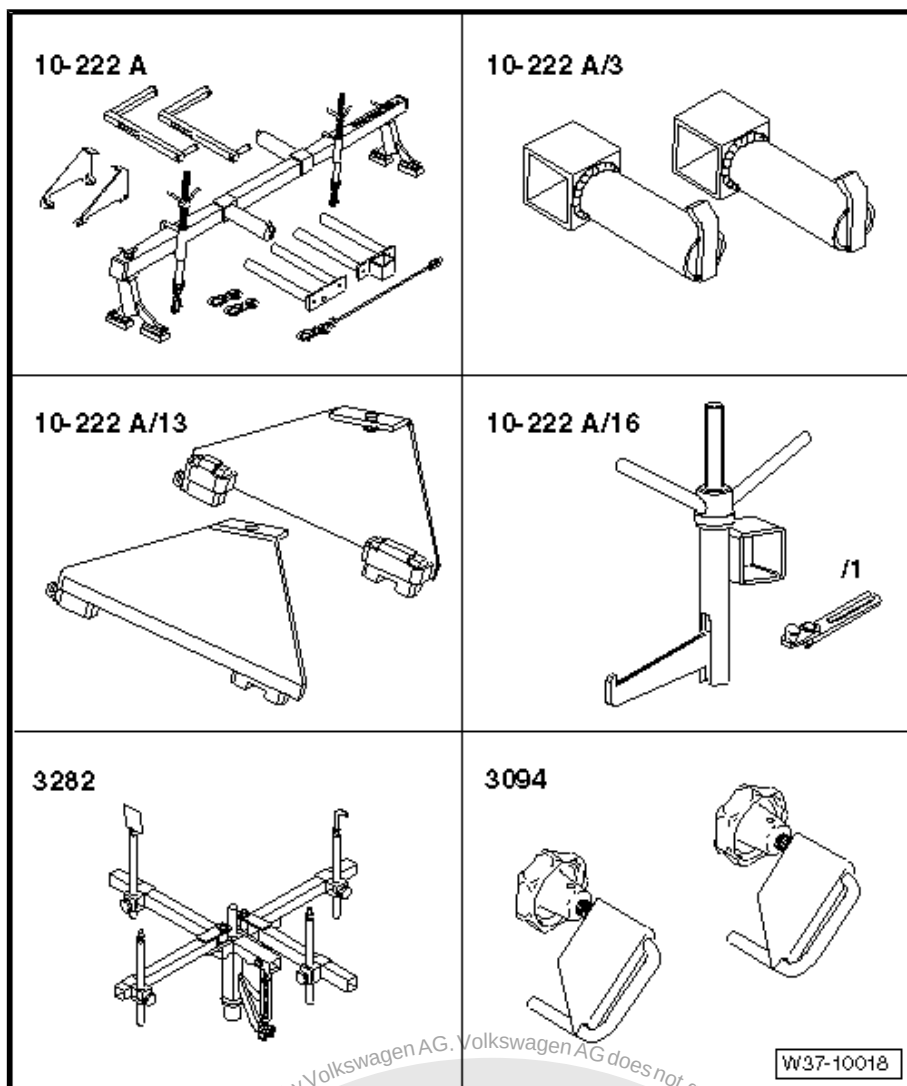
Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-
- ◆ Torque wrench - V.A.G 1332-
- ◆ Engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931-
- ◆ Spring-type clip pliers - VAS 5024A-
- ◆ Vehicle diagnosis, testing and information system - VAS 5051B-
- ◆ Drip tray for workshop hoist - VAS 6208-

V.A.G 1331 	V.A.G 1332 
V.A.G 1383 A 	VAS 5024 A 
VAS 5051 B 	VAS 6208  W37-10017

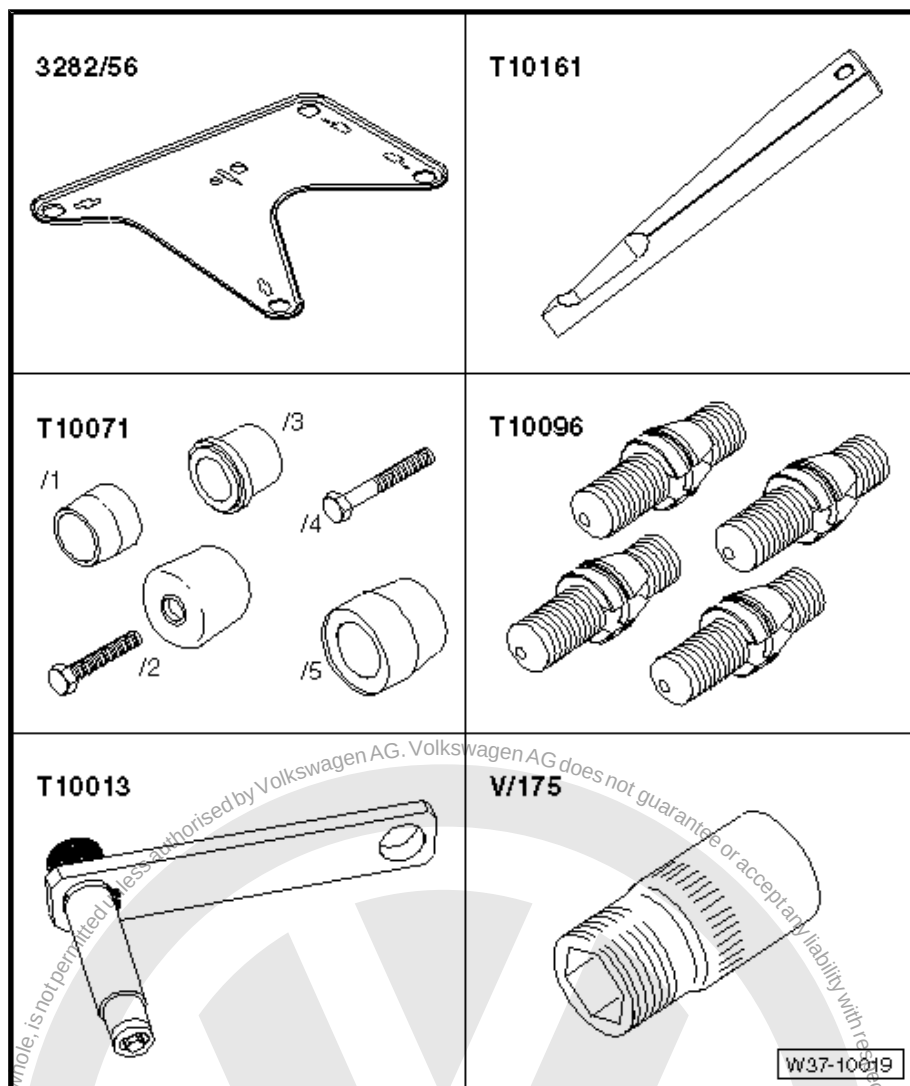


- ◆ Support bracket - 10 - 222 A-
- ◆ Adapter - 10 - 222 A /3-
- ◆ Adapter - 10 - 222 A /13-
- ◆ Adapter - 10 - 222 A /16-
- ◆ Gearbox support - 3282-
- ◆ Hose clamps to 25 mm - 3094-





- ◆ Adjustment plate - 3282/56-
- ◆ Not required: wedge - T10161-
- ◆ Assembly tool - T10071-
- ◆ Bracket - T10013-
- ◆ Socket insert - V/175-



Tools without illustration:

- ◆ Counterhold tool - T10172-

Removing:

- Before removal, print out a diagnosis log for this vehicle. Before returning the gearbox in the usual manner, secure the log to the gearbox so that it cannot be lost during transport.
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P«.



- Loosen both drive shafts.



Note

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

- Remove both front wheels.



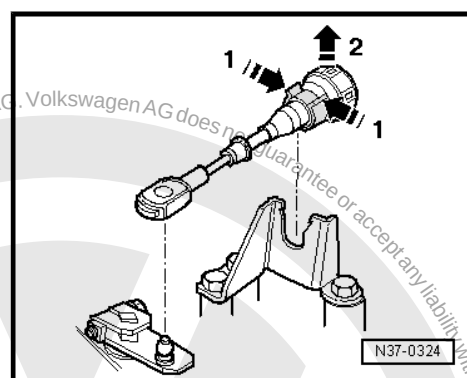
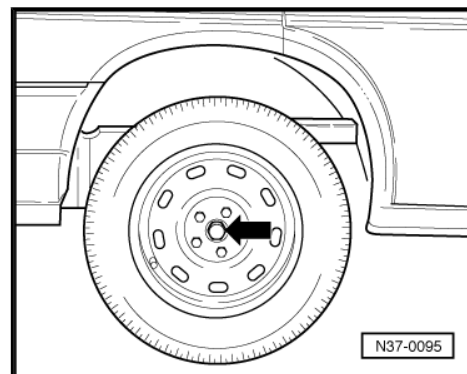
Note

So that the propshaft can be turned later in order to loosen it:

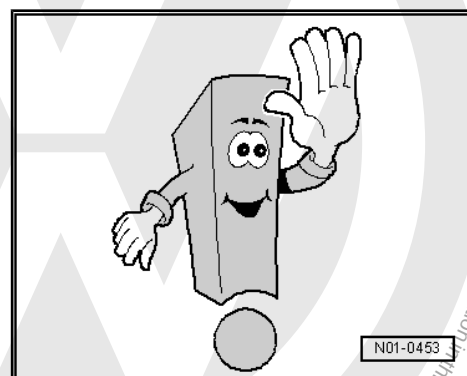
- Move selector lever to »N« position.
- Pull out ignition key and engage steering wheel lock.
- Disconnect battery ⇒ Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove complete air filter housing ⇒ Rep. gr. 24 ; Removing and installing air filter and bracket below.
- Separate all electrical connections to gearbox and starter which are »better accessible from above«.

- ◆ Multifunction switch
- ◆ Starter motor
- ◆ Earth strap to bracket

- Release selector lever cable from gearbox by hand -1- and pull out of cable support bracket -2-.



Work with care to avoid bending cable. Do not use pliers, or the retaining tabs on the cable support bracket may break off.





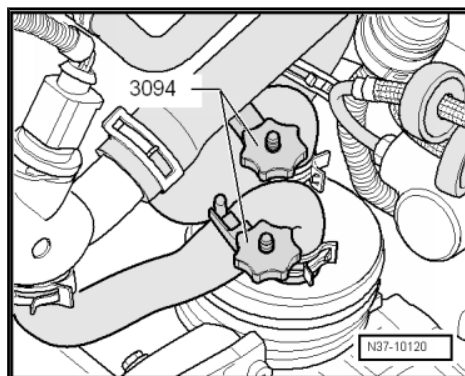
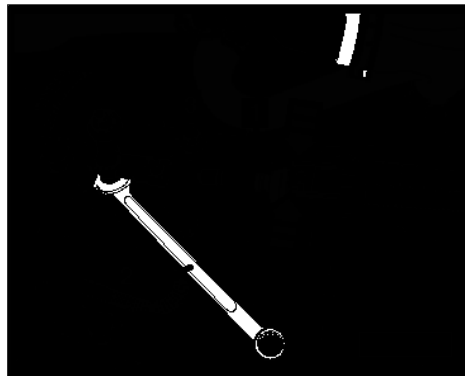
- Then lever cable off ball head -2-.



WARNING

Hot steam may escape when expansion tank is opened. Wear protective goggles and clothing to avoid eye injuries and scalding. Cover cap with a cloth and carefully open.

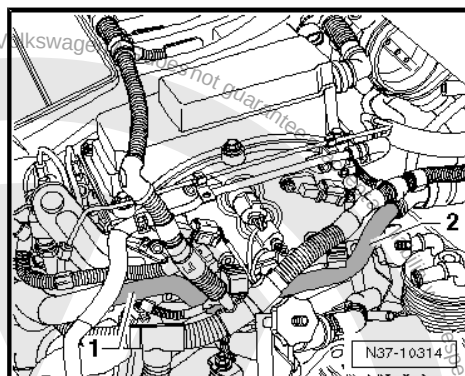
- Open cap on expansion tank.
- Clamp off coolant hoses using hose clamps to 25 mm - 3094- and remove.



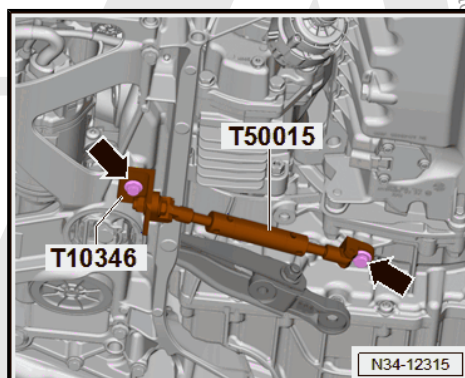
- Unbolt coolant lines -1- and -2- from engine and unhook wiring harness.
- Now remove all upper connecting bolts between gearbox and engine.

It is advisable to now do all the work which must be done »beneath« the vehicle. This will avoid having the weight of the engine carried by the support bar for »a long time«.

- Remove bevel box ➔ [page 154](#) .

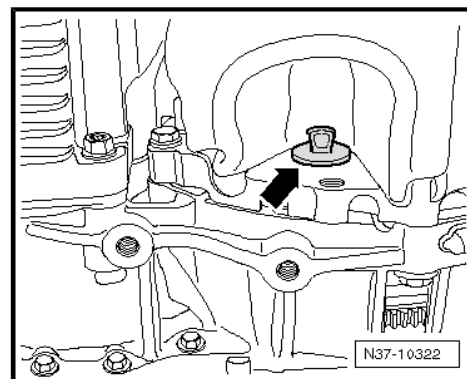


- After bevel box has been removed, remove engine support - T50015- from gearbox.

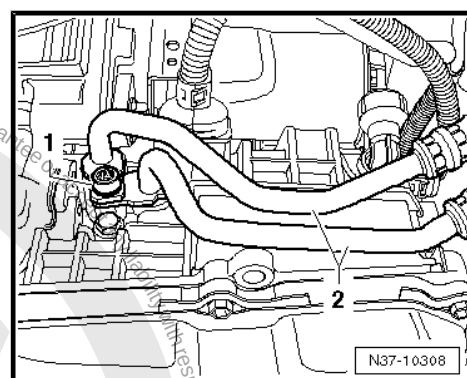




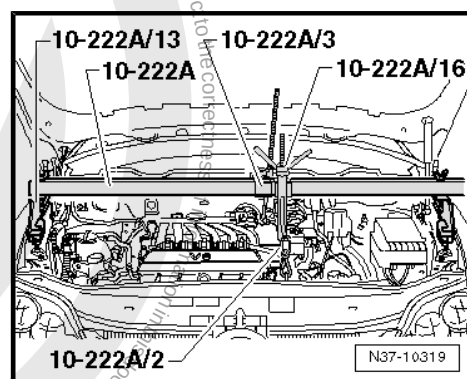
- Pull out plug.
- Through this -opening-, remove six torque converter nuts with insert - V/175- . Counterhold with screwdriver on starter ring gear.
- Remove lower engine/gearbox connecting bolts except bolt to right of lower right bolt for bevel box ⇒ [page 66](#) .
- Separate the two electrical connections to gearbox which are easily accessible »from below«.
- Clamp off ATF lines -2- with hose clamps to Ø 25 mm - 3094- .



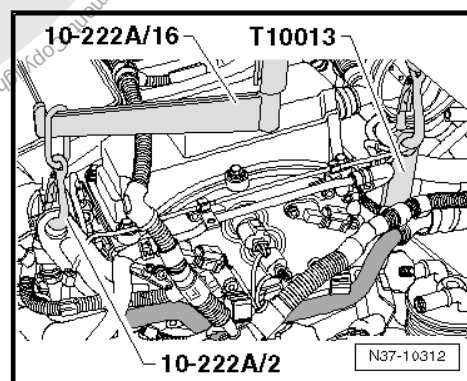
- Remove bolt -1- and pull ATF lines -2- off gearbox.
- Seal off gearbox and ATF lines with clean plugs.
- Remove intake hose from throttle valve housing and lay to side in order to create sufficient »clearance« for the »rear« spindle of the support bracket.



- Set up support device - 10 - 222 A- .



- Suspend and support engine and gearbox. Do not raise.

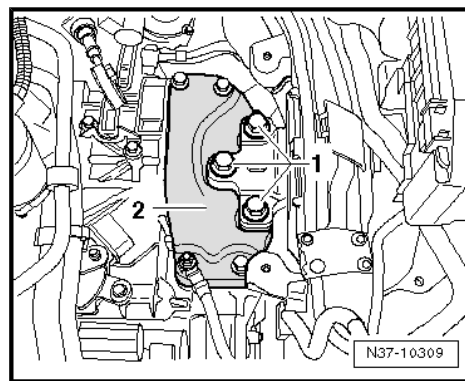




- Remove gearbox/bracket bolts -1-.
- Unbolt bracket -2- from gearbox.
- Then lower engine and gearbox using the spindles of the support bracket - 10 - 222 A- about 6 turns.
- Remove bracket.

To remove automatic gearbox 09M, set up gearbox support - 3282- with adjustment plate - 3282/56- and fitted to engine and gearbox support .

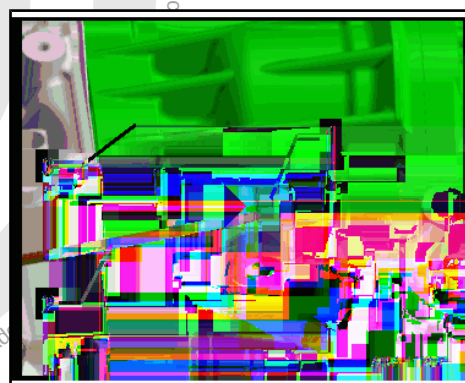
- Align arms of gearbox support according to holes in adjustment plate - 3282/56- .
- Screw in support elements on adjustment plate - 3282/56- as illustrated.
- Place engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931- under gearbox.
- Arrow symbol »B« on adjustment plate - 3282/56- points in driving direction.



- Screw pin - 3282/34- into gearbox.
- Raise engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931- to support gearbox -1- from below.
- Remove last engine/gearbox connecting bolt -arrow-.



- Press gearbox off engine -3- while pressing torque converter -1- against gearbox in -direction of arrow- using, for example, a screwdriver -2-.
- Carefully lower gearbox, ensuring »clearance« to other components.
- After gearbox has been removed, secure torque converter to prevent it from falling out => [page 114](#)

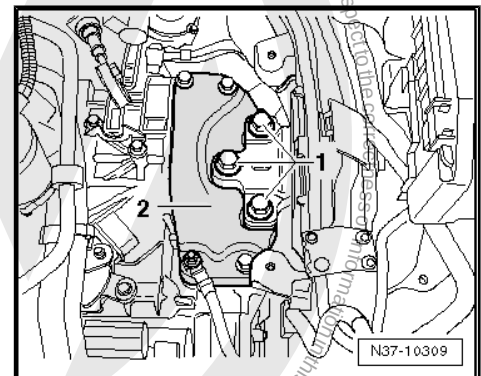
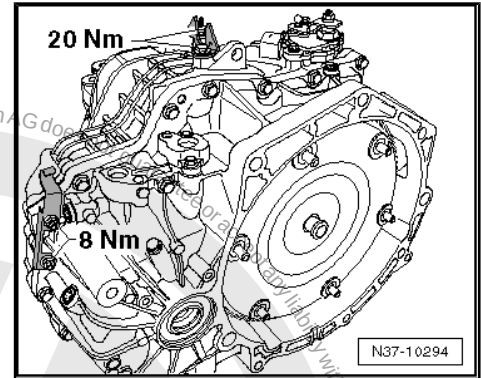


9.6 Installing gearbox - vehicles with 3.6 l - 206 kW engine

Install in reverse order of removal. Nevertheless, important steps are listed here:



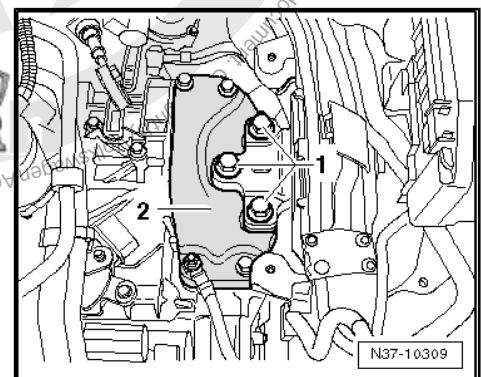
- If a new gearbox is installed, transfer attached parts to new gearbox.
- ◆ Support bracket for selector lever cable
- ◆ Retainer for selector lever cable
- Check for proper seating of both dowel sleeves between engine and gearbox.
- Set gearbox in place, possible adjusting gearbox support.
- Now install an engine/gearbox connecting bolt.
- Fit and tighten all torque converter bolts. Torque specification ⇒ [page 67](#) .
- Next bolt bracket -2- to gearbox. Torque specification ⇒ [page 67](#) .



- Raise engine and gearbox, reestablish »former seating« of bolts -1- for gearbox mounting to bracket -2- and tighten. Torque specification ⇒ [page 67](#) .
- Install bevel box ⇒ [page 160](#) .
- Adjust selector lever cable ⇒ [page 42](#) .

Cable must not be greased!

- Renew seals on ATF pressure lines.
- After installing, check ATF level ⇒ [page 124](#) .
- Check coolant level and top up if necessary ⇒ Rep. gr. 19 .
- Perform basic setting by pressing **Perform basic setting**.
- Press ☐.
- Press ☐.



9.6.1 Specified torques



1 - Direction of travel

- Drive plate to torque converter

- ☐ 60 Nm
- ☐ Qty. 6; remove and install with insert - V/175- .

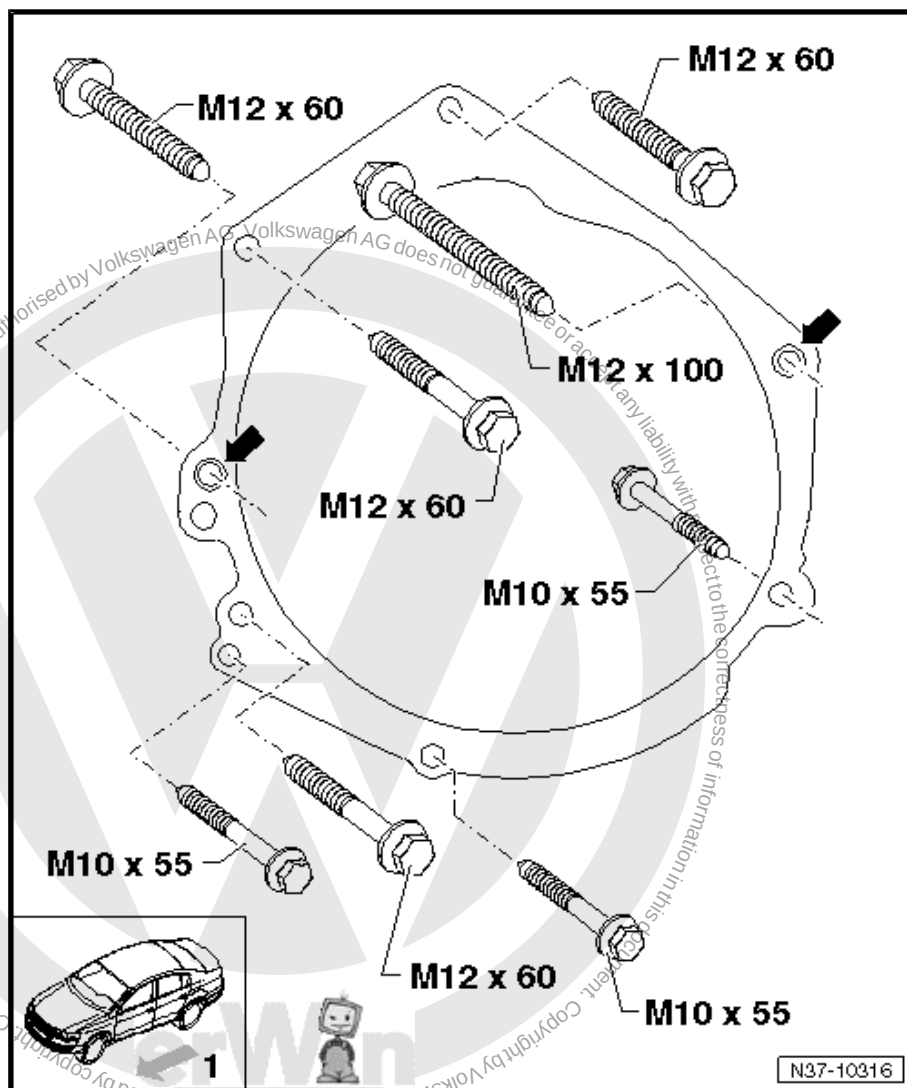
- M12 bolts ⇒ M12

- ☐ 80 Nm

- M10 bolts ⇒ M10

- ☐ 40 Nm
- ☐ These bolts are located in lower flange

- Two dowel sleeves in engine -arrows-



Component	Nm
Bracket to gearbox (use new bolts)	40 + 90° (1/4 turn)
Bracket to gearbox mounting (use new bolts)	60 + 90° (1/4 turn)
ATF lines to gearbox	20
Earth strap to bracket	25
Gearbox carrier to engine and bevel box	⇒ page 160 "Installing bevel box"
Bevel box to gearbox	
Heat shield for right drive shaft to bevel box	
Propshaft to bevel box	⇒ Propshaft and rear final drive; Rep. gr. 39
Suspension link, coupling rod, pendulum support, drive shaft, wheel bolts	⇒ Running gear, axles, steering; Rep. gr. 40
Wheel bolts	⇒ Running gear, axles, steering; Rep. gr. 44 ; Torque settings for wheel bolts .



10 Removing and installing gearbox - Passat CC and CC

Removing and installing gearbox - vehicles with front-wheel drive
⇒ [page 69](#)

Removing and installing gearbox - vehicles with all-wheel drive
⇒ [page 78](#)

10.1 Removing and installing gearbox - vehicles with front-wheel drive

10.2 Removing gearbox - vehicles with 3.6 l - 206 kW engine

Brief description

- Before removing, print diagnosis log. Return removed gearbox together with log in the customary manner.

The gearbox is removed downwards separately. The engine remains in the vehicle.

Air filter is removed »from above«. Engine and gearbox must then be supported so that gearbox mounting can be removed.

Noise insulation and ATF lines are removed »from below«. The drive shafts must be pressed off and then the gearbox can be lowered with the gearbox jack.



Note

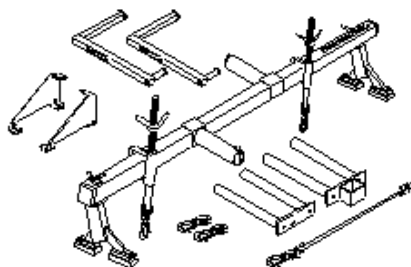
The subframe is not to be removed.



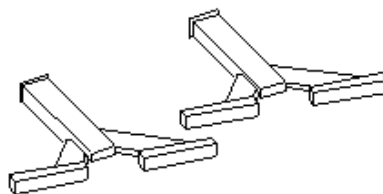
Special tools and workshop equipment required

- ◆ Support bracket - 10-222 A-
- ◆ Adapter - 10 - 222 A /1-
- ◆ Adapter - 10 - 222 A /18-
- ◆ Adjustment plate - 3282/56-
- ◆ Bracket - T10013-
- ◆ Insert tool, 18 mm - T10179-

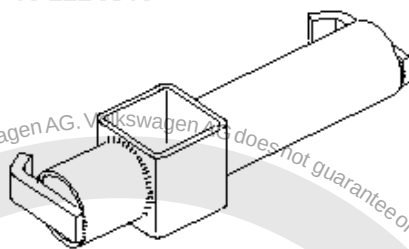
10-222 A



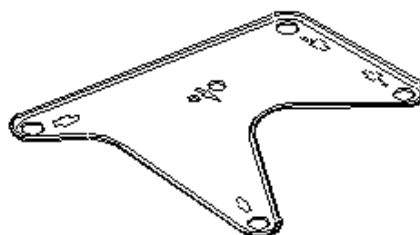
10-222 A/1



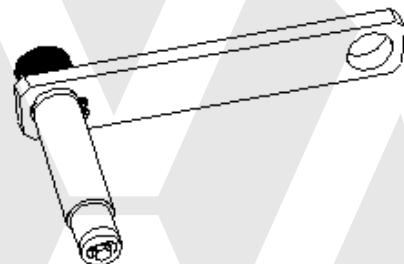
10-222 A/18



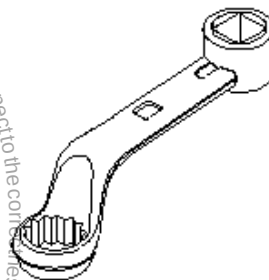
3282/56



T 10013



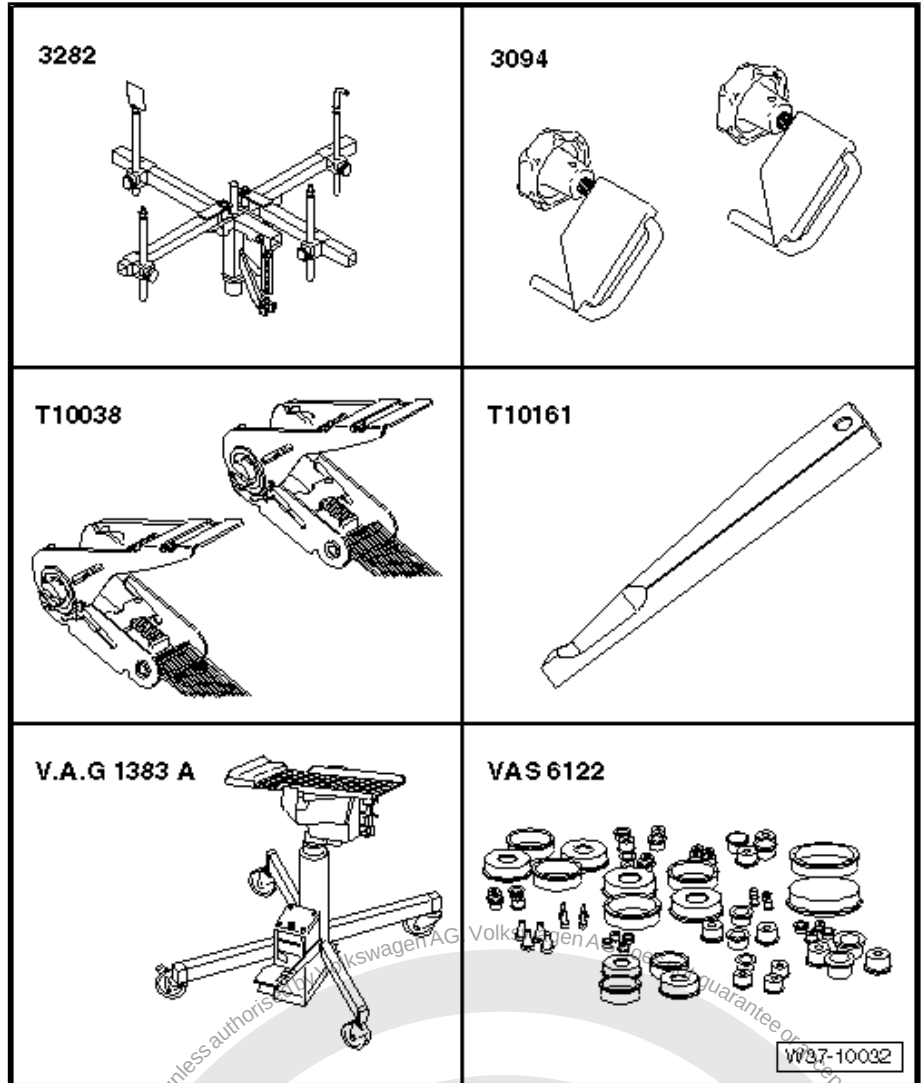
T10179



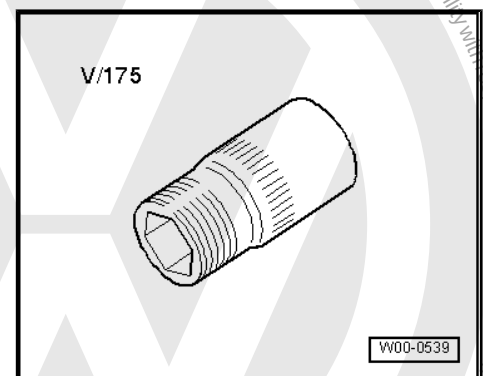
W37-10031



- ◆ Gearbox support - 3282-
- ◆ Hose clamp to Ø 25 mm - 3094- Qty. 4
- ◆ Tensioning strap - T10038-
- ◆ Not required: wedge - T10161-
- ◆ Engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931-
- ◆ Engine bung set - VAS 6122-

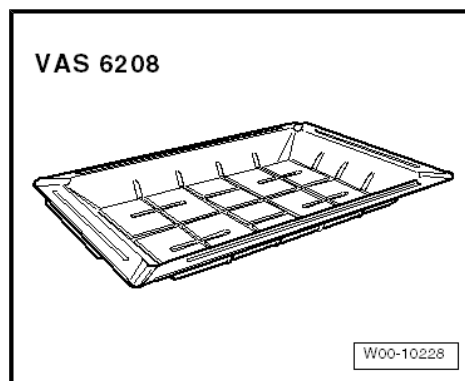


- ◆ Socket insert - V/175-





◆ Drip tray for workshop hoist - VAS 6208-



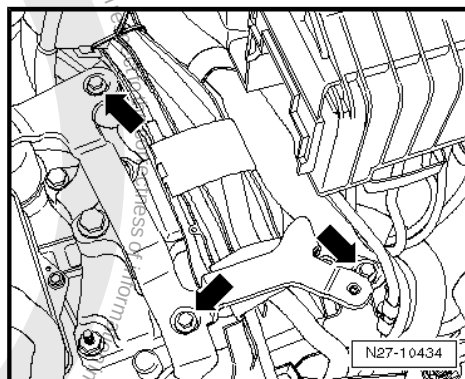
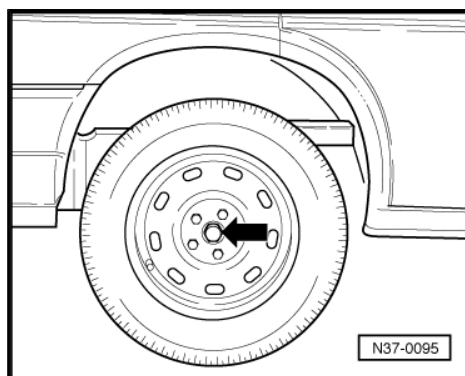
- Depress brake pedal to remove bolt for left drive shaft -arrow- (second mechanic required).



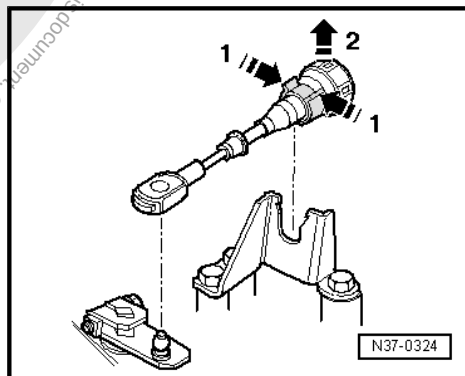
Note

After this, do not set vehicle on the ground any more ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR 2600i .

- Raise vehicle.
- Move selector lever to position »P« position.
- With ignition switched off, disconnect battery earth strap ⇒ Electrical system; Rep. gr. 27 ; Disconnecting and connecting battery .
- Remove air filter.
- Remove securing bolts for air filter housing bracket -arrows-.
- Remove bracket for air filter housing from vehicle.

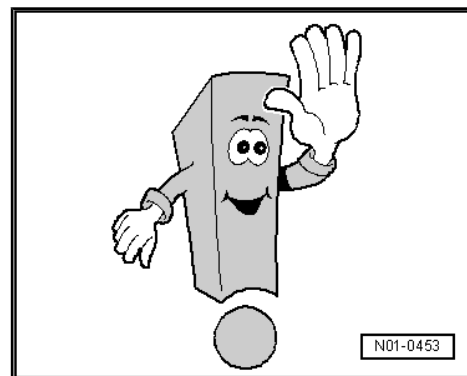


- Release selector lever cable from gearbox by hand -1- and pull out of cable support bracket -2-.

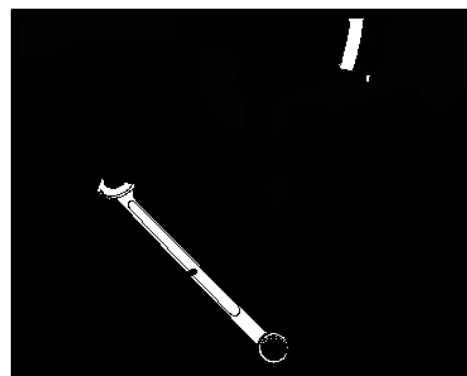




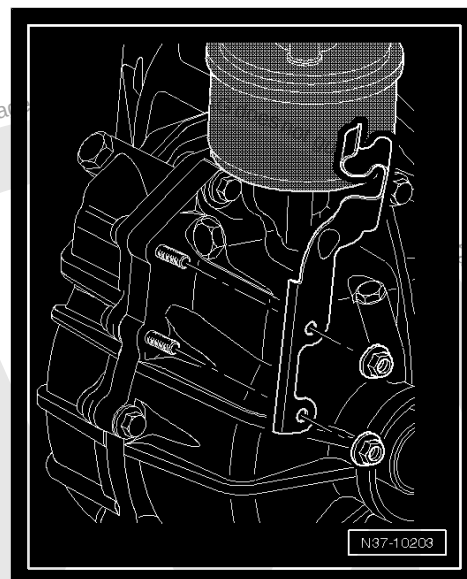
Work with care to avoid bending cable. Do not use pliers, or the retaining tabs on the cable support bracket may break off.



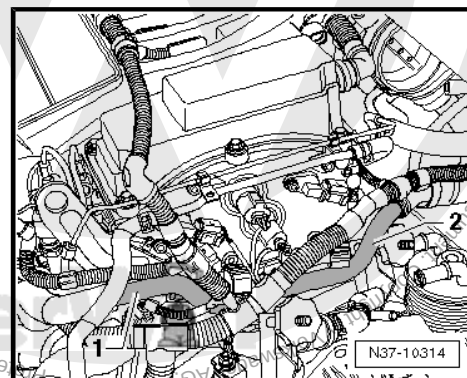
- Then lever cable off ball head -2-.



- Press cable out of additional retainer on gearbox.
- Disconnect electrical connections to gearbox and starter.
 - ◆ Multifunction switch
 - ◆ Starter motor
 - ◆ Earth strap to bracket

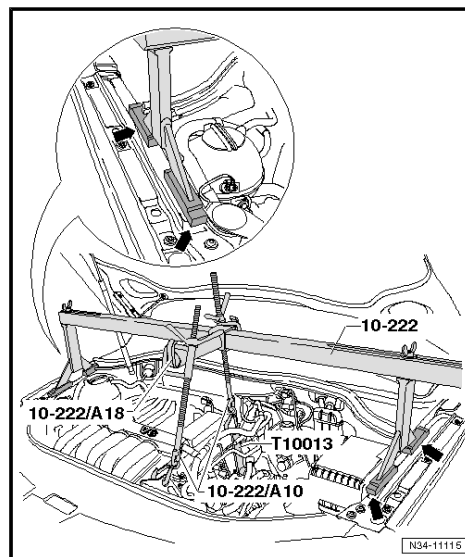


- Unbolt coolant lines -1- and -2- from engine.





- Set up support device - 10 - 222 A- .
- Suspend and support engine and gearbox. Do not raise.



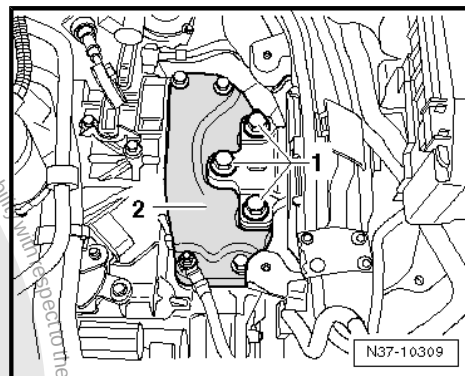
- Remove bolts -1-.



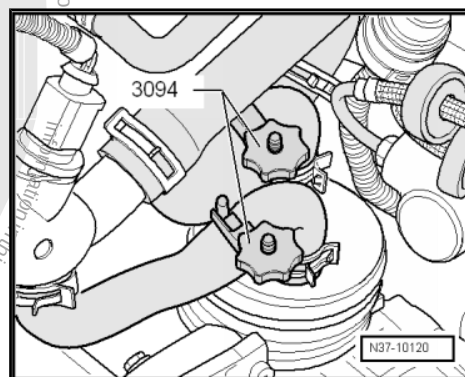
WARNING

Hot steam may escape when expansion tank is opened. Wear protective goggles and clothing to avoid eye injuries and scalding. Cover cap with a cloth and carefully open.

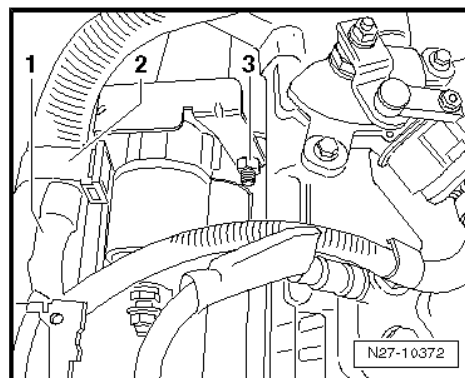
Open cap on expansion tank.



- Place hose clamps up to Ø 25 mm - 3094- onto the hoses and remove hoses from the ATF cooler.
- Remove both upper engine/gearbox connecting bolts.

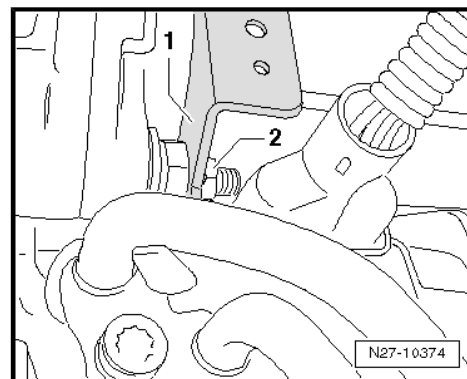


- Unscrew securing nut -3- from upper starter motor bolt.
- Remove noise insulation ➤ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .



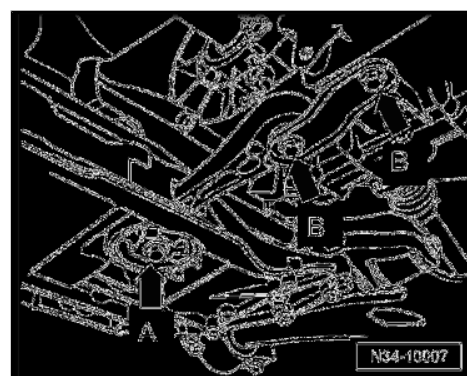


- Unscrew securing nut -2- and pull line retainer -1- upwards off securing bolts of starter.
- Remove heat shield over right drive shaft from engine.
- Pull both electrical connectors off gearbox.
- Remove lower part of left wheel housing liner.



- Remove ⇒ pendulum support, first -A- and then -B-.

(On installation, first tighten -B-, then -A-.) Torque settings ⇒ Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .

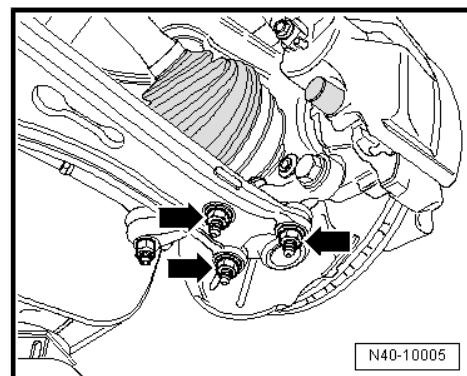


- Unscrew -nuts- from lower suspension links on both sides.

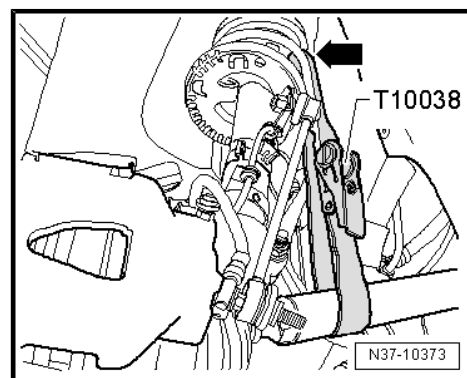
Torque settings for suspension link bolts ⇒ Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .

- Press both drive shafts out of gearbox. For procedure, refer to ⇒ Rep. gr. 40 ; Repairing drive shaft; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR 2600i .

- Remove left drive shaft.

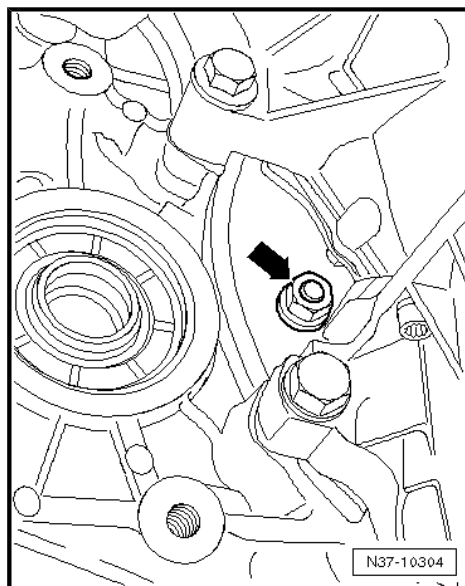


- Raise right drive shaft as far as possible and secure to suspension strut in this position.





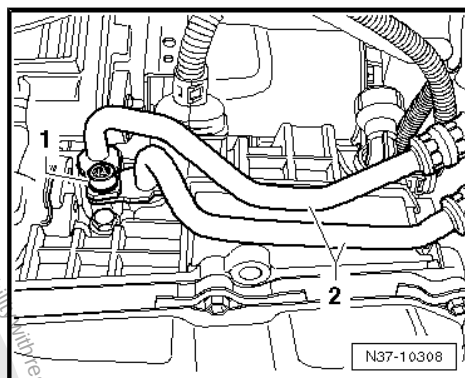
- Remove six -torque converter nuts- with insert - V/175- . Counterhold with screwdriver on starter ring gear.
- Remove all lower gearbox-engine connecting bolts except bolt beneath opening for torque converter bolts -arrow- ➔ [page 76](#) .



- Clamp off ATF lines -2- with hose clamps to Ø 25 mm - 3094- .
- Remove bolt -1- and pull ATF lines -2- off gearbox.
- Seal off gearbox and ATF lines with clean plugs.

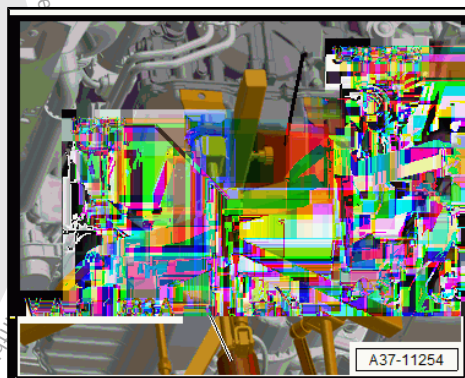
To remove automatic gearbox 09M, set up gearbox support - 3282- with adjustment plate - 3282/56- and fitted to engine and gearbox support .

- Align arms of gearbox support according to holes in adjustment plate - 3282/56- .
- Screw in support elements on adjustment plate - 3282/56- as illustrated.



Place engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931- under gearbox.

- Arrow symbol »B« on adjustment plate - 3282/56- points in driving direction.



- Screw pin - 3282/34- into gearbox.
- Raise engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931- to support gearbox -1- from below.
- Remove engine/gearbox connecting bolt -arrow-.





- Press gearbox off engine -3- while pressing torque converter -1- against gearbox in -direction of arrow- using, for example, a screwdriver -2-.
- Carefully lower gearbox, ensuring »clearance« to other components.
- After gearbox has been removed, secure torque converter to prevent it from falling out ⇒ [page 114](#)

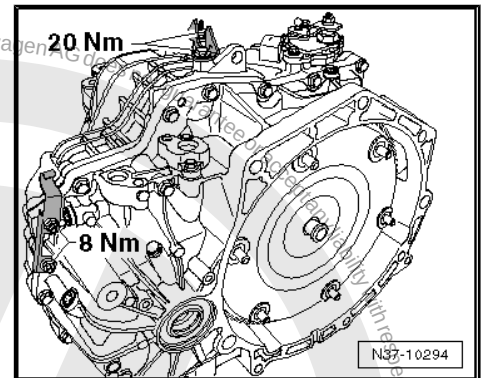


10.3 Installing gearbox - vehicles with 3.6 l - 206 kW engine

Installation is performed in the reverse order. However, the following notes should be observed.

- If a new gearbox is installed, transfer attached parts to new gearbox.
- ◆ Support bracket for selector lever cable
- ◆ Retainer for selector lever cable
- Check whether dowel sleeves are pressed into engine flange ⇒ [Item \(page 78\)](#).

Ensure that the torque converter is properly installed. It must be easily turned by hand and the entire circumference must be uniformly deep in gearbox.



Note

- ◆ *Continue turning the engine carefully!*
- ◆ *Particularly on installation, ensure that you turn the engine cautiously »whilst guiding the transmission to the engine«. The starter ring gear can be held from the outside with a screwdriver. Thus the studs will be located in the drive plate bores on installation.*

The engine and gearbox should be mounted tension-free in the assembly mounting. The correct procedure is described in ⇒ Rep. gr. 10 ; Removing and installing engine; Notes on installation .

- Before tightening the bolts securing bracket to gearbox mounting, re-establish »former position« of bolts. Torque setting: ⇒ [page 77](#) .
- Adjust selector lever cable ⇒ [page 42](#) .
- After installing, check ATF level ⇒ [page 124](#) .
- Check coolant level and top up if necessary ⇒ Rep. gr. 19 .
- Carry out basic settings. To do this, connect vehicle diagnosis, testing and information system - VAS 5051- and then select "Perform basic settings" under Guided functions.

10.3.1 Specified torques



1 - Direction of travel

- Drive plate to torque converter

- ☐ 60 Nm
- ☐ Qty. 6; remove and install with insert - V/175-

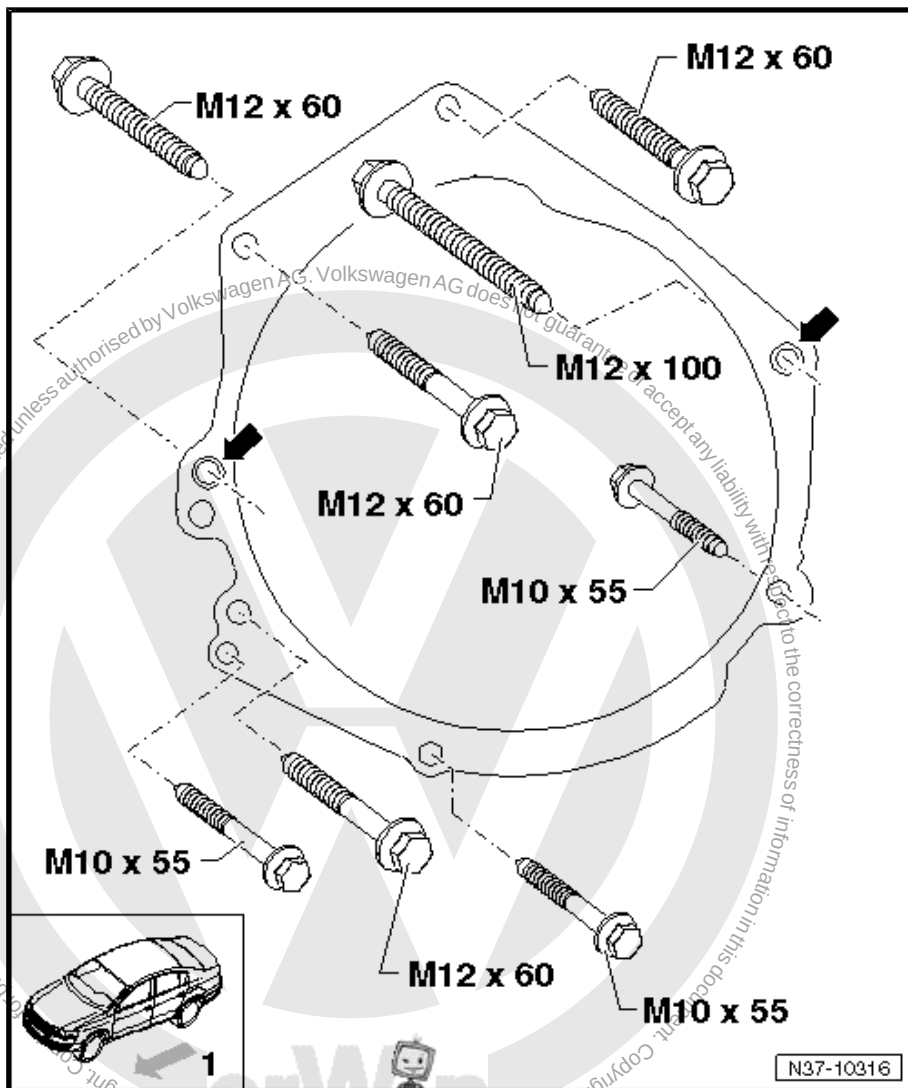
- M12 bolts ⇒ M12

- ☐ 80 Nm

- M10 bolts ⇒ M10

- ☐ 40 Nm
- ☐ These bolts are located in lower flange

- Two dowel sleeves in engine -arrows-



Component	Nm
Bracket to gearbox (use new bolts)	40 + 90° (1/4 turn)
Bracket to gearbox mounting (use new bolts)	60 + 90° (1/4 turn)
ATF lines to gearbox	20
Earth strap to bracket	25
Heat shield for right drive shaft	40

10.4 Removing and installing gearbox - vehicles with all-wheel drive

10.5 Removing gearbox - vehicles with 3.6 l - 206 kW engine

Brief description

- Before removing, print diagnosis log. Return removed gearbox together with log in the customary manner.

The gearbox is removed downwards separately. The engine remains in the vehicle.



Battery tray, air filter and engine cover are removed »from above«. Engine and gearbox must then be supported so that left assembly mounting can be removed.

After the bevel box has been removed, the gearbox must be supported, the final engine/gearbox connecting bolt removed and the gearbox lowered.

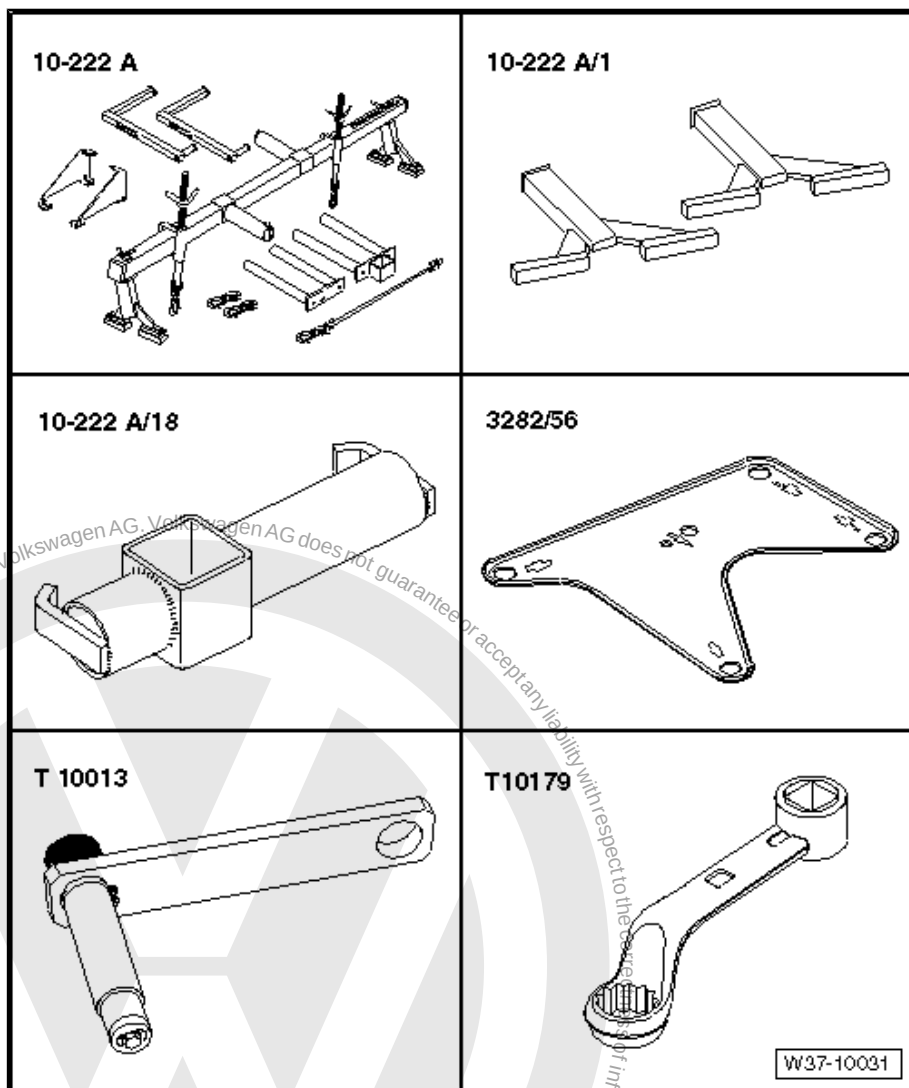


Note

The subframe is not to be removed.

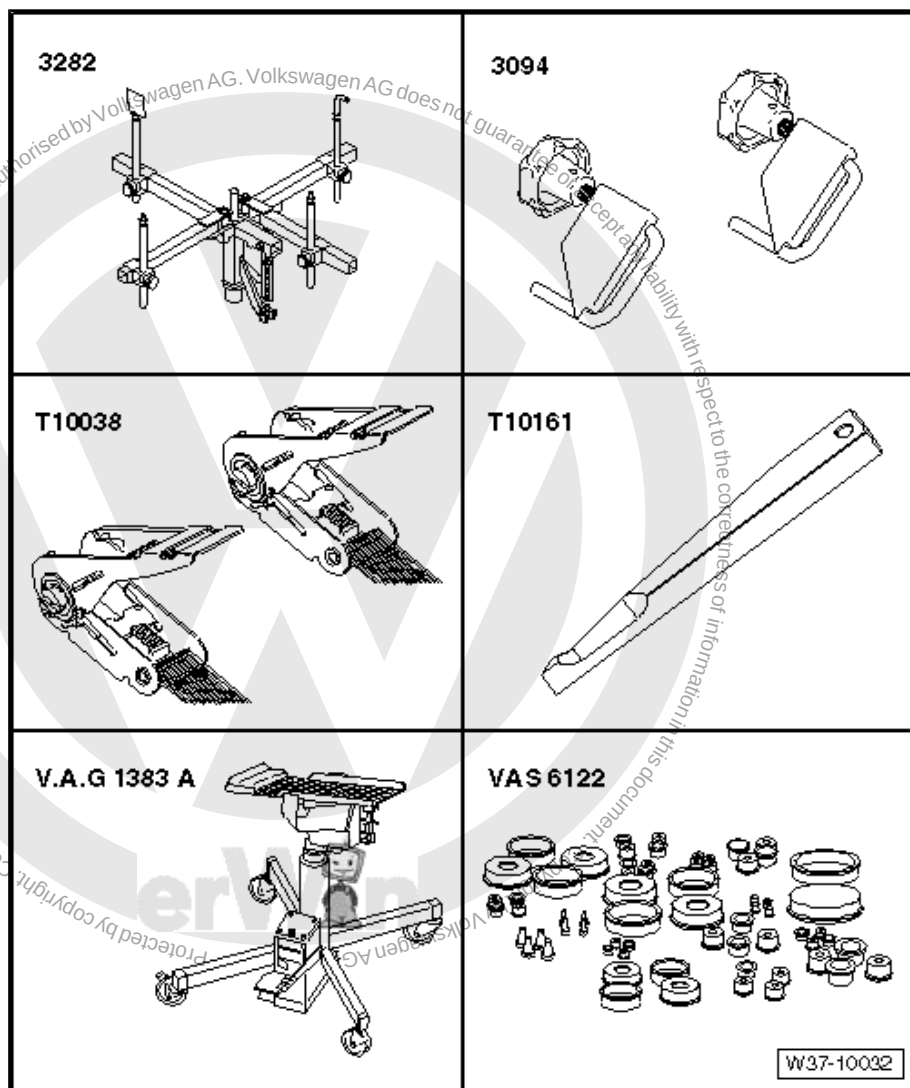
Special tools and workshop equipment required

- ◆ Support bracket - 10-222 A-
- ◆ Adapter - 10 - 222 A /1-
- ◆ Adapter - 10 - 222 A /18-
- ◆ Adjustment plate - 3282/56-
- ◆ Bracket - T10013-
- ◆ Insert tool, 18 mm - T10179-





- ◆ Gearbox support - 3282-
- ◆ Hose clamp to Ø 25 mm - 3094- Qty. 4
- ◆ Tensioning strap - T10038-
- ◆ Not required: wedge - T10161-
- ◆ Engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931-
- ◆ Engine bung set - VAS 6122-



Removing:

- Before removal, print out a diagnosis log for this vehicle. Before returning the gearbox in the usual manner, secure the log to the gearbox so that it cannot be lost during transport.
- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Move selector lever to position »P«.



- Loosen both drive shafts.



Note

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

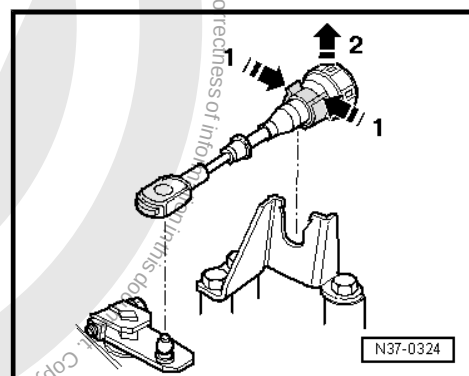
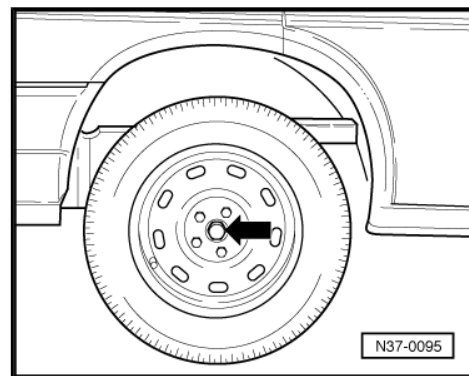
- Remove both front wheels.



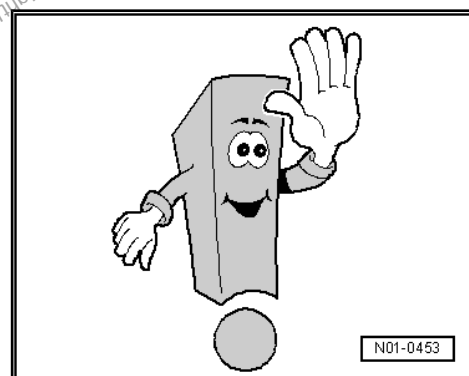
Note

So that the propshaft can be turned later in order to loosen it:

- Move selector lever to »N« position.
- Pull out ignition key and engage steering wheel lock.
- Disconnect battery ⇒ Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove complete air filter housing ⇒ Rep. gr. 24 ; Removing and installing air filter and bracket below.
- Separate all electrical connections to gearbox and starter which are »better accessible from above«.
- ◆ Multifunction switch
- ◆ Starter motor
- ◆ Earth strap to bracket
- Release selector lever cable from gearbox by hand -1- and pull out of cable support bracket -2-.



Work with care to avoid bending cable. Do not use pliers, or the retaining tabs on the cable support bracket may break off.





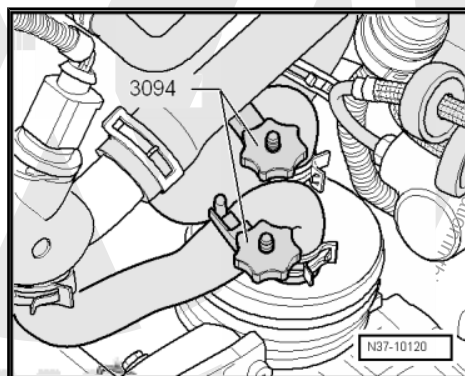
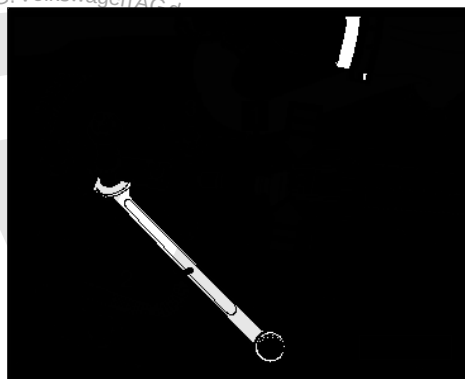
- Then lever cable off ball head -2-.



WARNING

Hot steam may escape when expansion tank is opened. Wear protective goggles and clothing to avoid eye injuries and scalding. Cover cap with a cloth and carefully open.

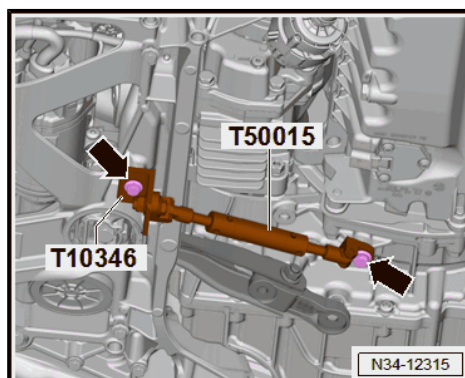
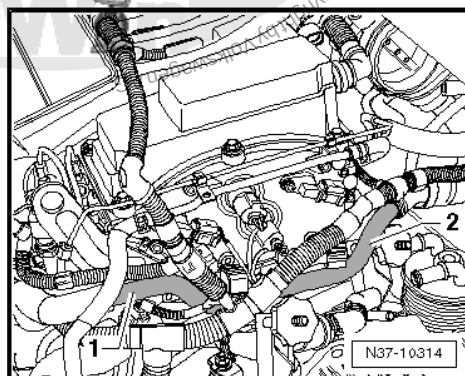
- Open cap on expansion tank.
- Clamp off coolant hoses using hose clamps to 25 mm - 3094- and remove.



- Unbolt coolant lines -1- and -2- from engine and unhook wiring harness.
- Now remove all upper connecting bolts between gearbox and engine.

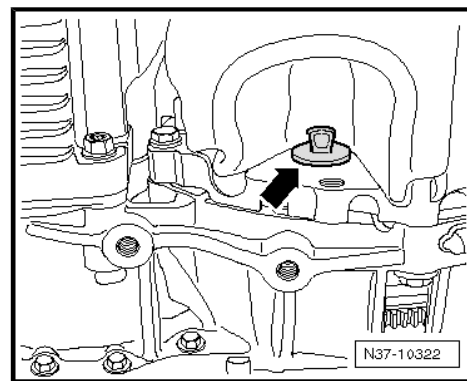
It is advisable to now do all the work which must be done »beneath« the vehicle. This will avoid having the weight of the engine carried by the support bar for »a long time«.

- Remove bevel box ➔ [page 154](#) .
- After bevel box has been removed, remove engine support - T50015- from gearbox.

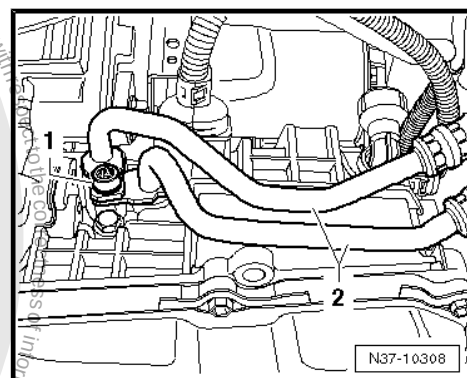




- Pull out plug.
- Through this -opening-, remove six torque converter nuts with insert - V/175- . Counterhold with screwdriver on starter ring gear.
- Remove lower engine/gearbox connecting bolts except bolt to right of lower right bolt for bevel box [page 84](#) .
- Separate the two electrical connections to gearbox which are easily accessible »from below«.

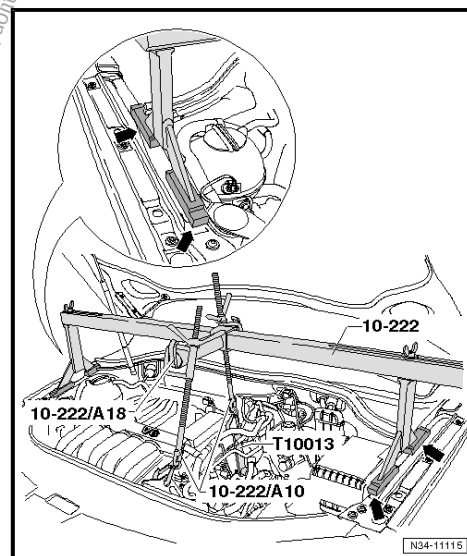


- Clamp off ATF lines -2- with hose clamps to Ø 25 mm - 3094- .
- Remove bolt -1- and pull ATF lines -2- off gearbox.
- Seal off gearbox and ATF lines with clean plugs.
- Remove intake hose from throttle valve housing and lay to side in order to create sufficient »clearance« for the »rear« spindle of the support bracket.



Set up support device - 10 - 222 A- .

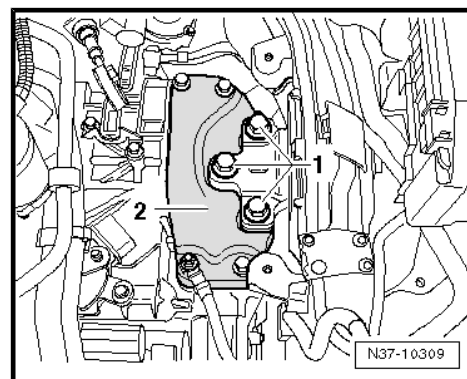
- Suspend and support engine and gearbox. Do not raise.



- Remove gearbox/bracket bolts -1-.
- Unbolt bracket -2- from gearbox.
- Then lower engine and gearbox using the spindles of the support bracket - 10 - 222 A- about 6 turns.
- Remove bracket.

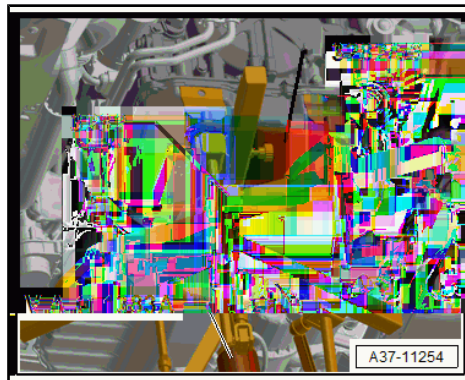
To remove automatic gearbox 09M, set up gearbox support - 3282- with adjustment plate - 3282/56- and fitted to engine and gearbox support .

- Align arms of gearbox support according to holes in adjustment plate - 3282/56- .
- Screw in support elements on adjustment plate - 3282/56- as illustrated.

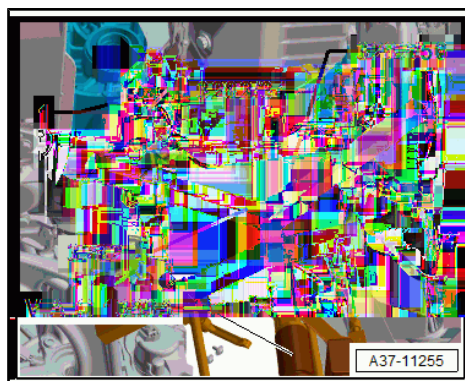




- Place engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931- under gearbox.
- Arrow symbol »B« on adjustment plate - 3282/56- points in driving direction.



- Screw pin - 3282/34- into gearbox.
- Raise engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931- to support gearbox -1- from below.
- Remove engine/gearbox connecting bolt -arrow-.



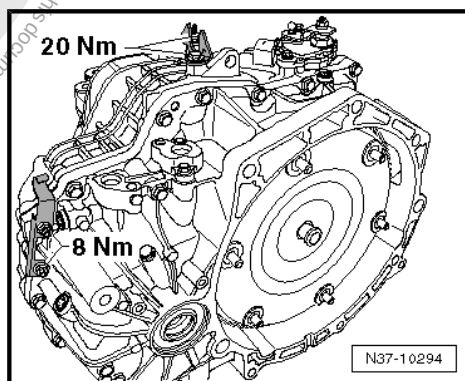
- Press gearbox off engine -3- while pressing torque converter -1- against gearbox in -direction of arrow- using, for example, a screwdriver -2-.
- Carefully lower gearbox, ensuring »clearance« to other components.
- After gearbox has been removed, secure torque converter to prevent it from falling out ⇒ [page 114](#)



10.6 Installing gearbox - vehicles with 3.6 l - 206 kW engine

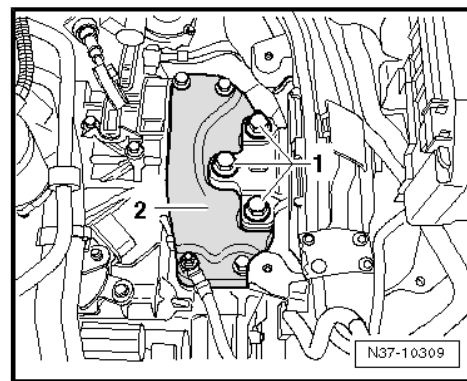
Install in reverse order of removal. Nevertheless, important steps are listed here:

- If a new gearbox is installed, transfer attached parts to new gearbox.
- ◆ Support bracket for selector lever cable
- ◆ Retainer for selector lever cable
- Check for proper seating of both dowel sleeves between engine and gearbox.
- Set gearbox in place, possible adjusting gearbox support.
- Now install an engine/gearbox connecting bolt.
- Fit and tighten all torque converter bolts. Torque specification ⇒ [page 85](#) .





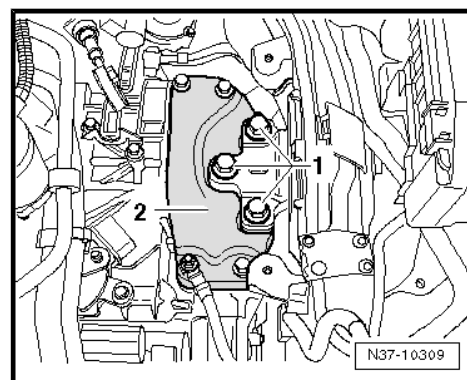
- Next bolt bracket -2- to gearbox. Torque specification
⇒ [page 67](#) .



- Raise engine and gearbox, reestablish »former seating« of bolts -1- for gearbox mounting to bracket -2- and tighten. Torque specification ⇒ [page 85](#) .
- Install bevel box ⇒ [page 160](#) .
- Adjust selector lever cable ⇒ [page 42](#) .

Cable must not be greased!

- Renew seals on ATF pressure lines.
- After installing, check ATF level ⇒ [page 124](#) .
- Check coolant level and top up if necessary ⇒ Rep. gr. 19 .
- Perform basic setting by pressing **Perform basic setting**.
- Press .
- Press .



10.6.1 Specified torques





1 - Direction of travel

- Drive plate to torque converter

- ☐ 60 Nm
- ☐ Qty. 6; remove and install with insert - V/175-

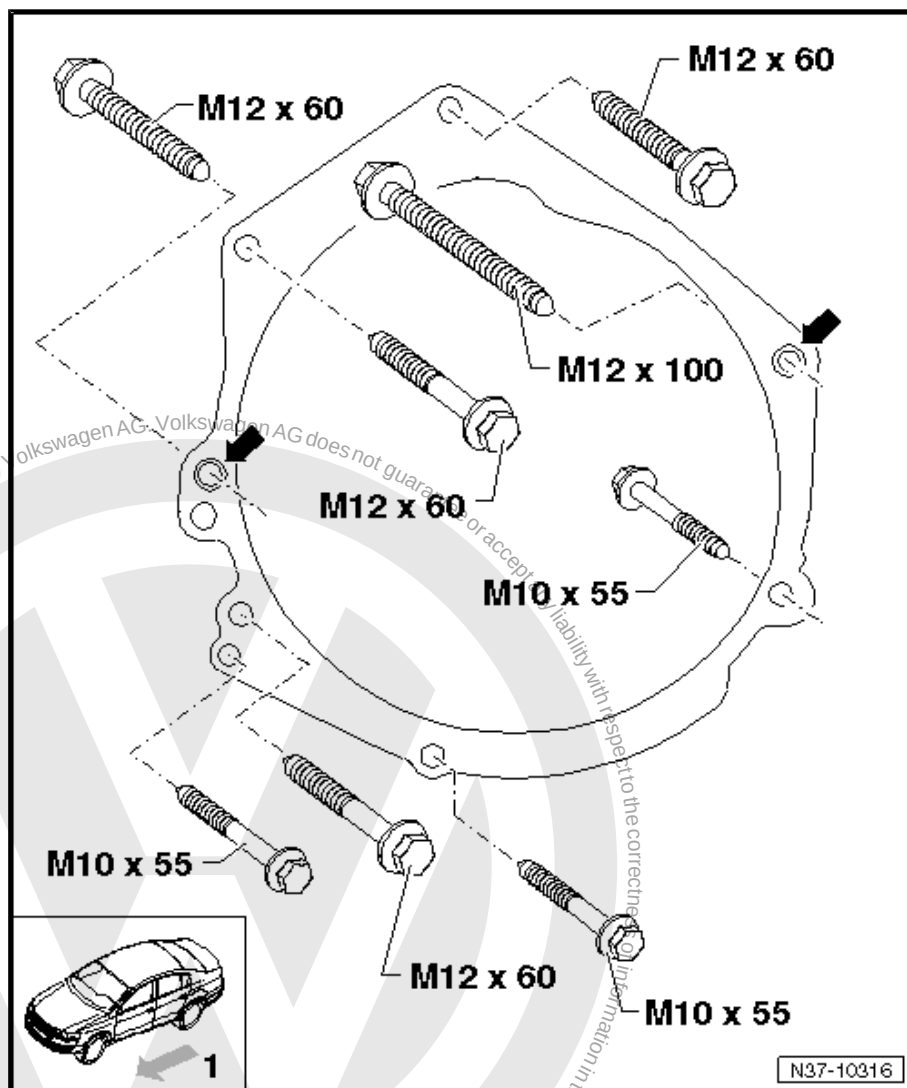
- M12 bolts ➔ M12

- ☐ 80 Nm

- M10 bolts ➔ M10

- ☐ 40 Nm
- ☐ These bolts are located in lower flange

- Two dowel sleeves in engine -arrows-



Component	Nm
Bracket to gearbox (use new bolts)	40 + 90° (1/4 turn)
Bracket to gearbox mounting (use new bolts)	60 + 90° (1/4 turn)
ATF lines to gearbox	20
Earth strap to bracket	25
Gearbox carrier to engine and bevel box	⇒ page 160 "Installing bevel box"
Bevel box to gearbox	
Heat shield for right drive shaft to bevel box	
Propshaft to bevel box	⇒ Propshaft and rear final drive; Rep. gr. 39
Suspension link, coupling rod, pendulum support, drive shaft, wheel bolts	⇒ Running gear, axles, steering; Rep. gr. 40
Wheel bolts	⇒ Running gear, axles, steering; Rep. gr. 44 ; Torque settings for wheel bolts



11 Removing and installing gearbox - Tiguan

Removing and installing gearbox - vehicles with front-wheel drive
⇒ [page 87](#)

Removing and installing gearbox - vehicles with all-wheel drive
⇒ [page 95](#)

11.1 Removing and installing gearbox - vehicles with front-wheel drive

Vehicles with 2.0 l - 147 kW TSFI engine

Removing gearbox ⇒ [page 87](#)

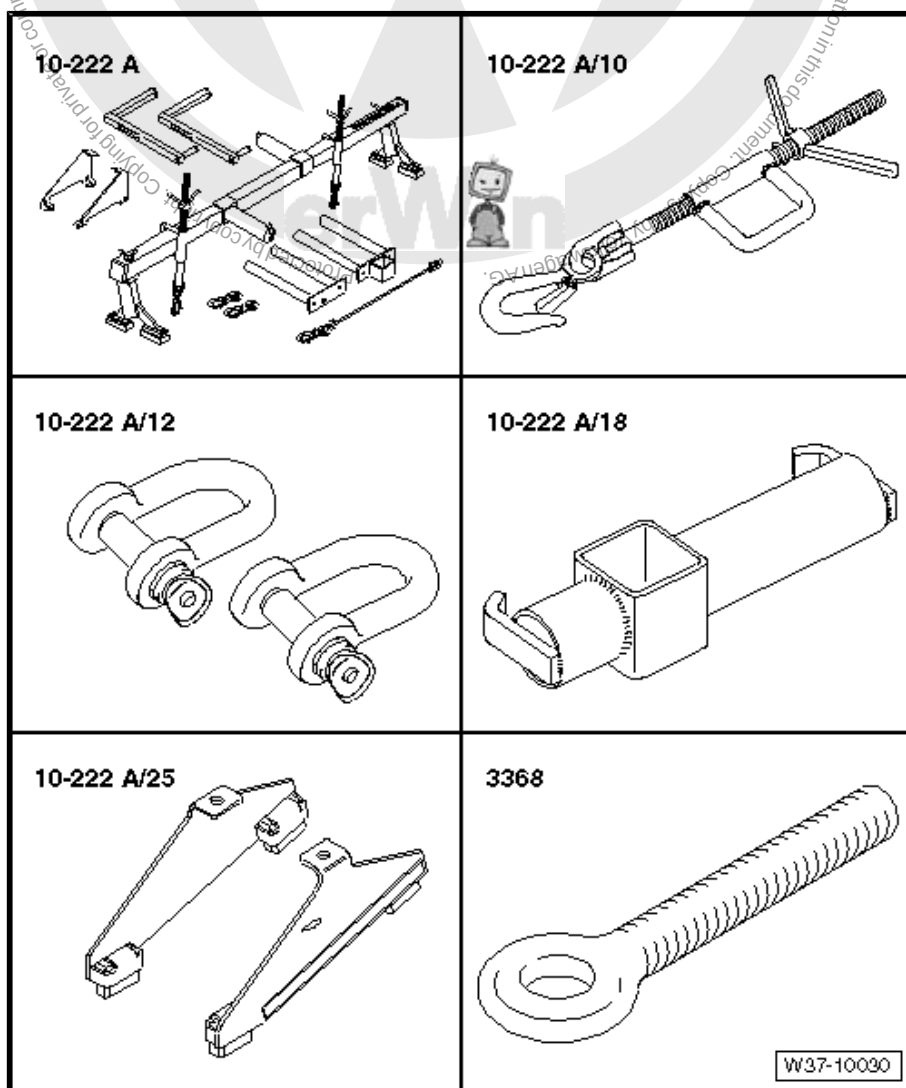
Installing gearbox ⇒ [page 94](#)

Torque settings ⇒ [page 94](#)

11.2 Removing gearbox - vehicles with 2.0 l - 147 kW TSFI engine

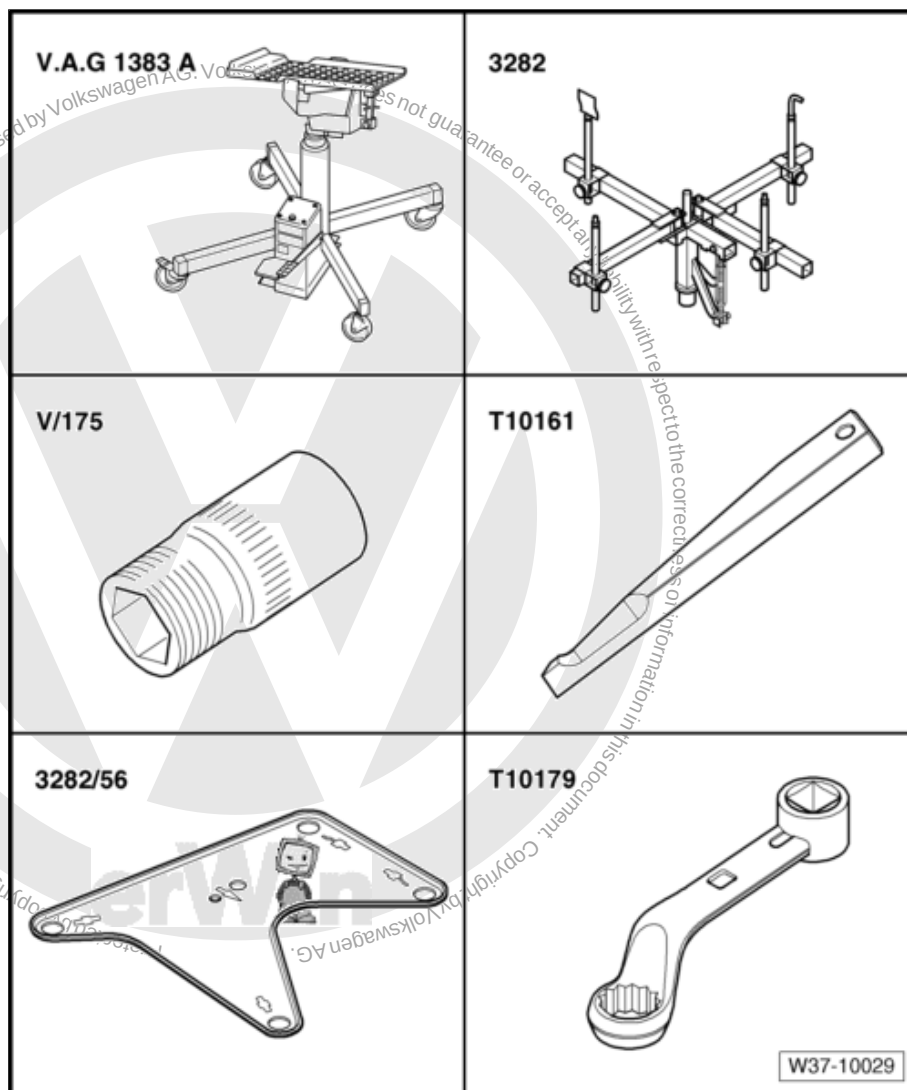
Special tools and workshop equipment required

- ◆ Support bracket - 10 - 222 A-
- ◆ Hook - 10 - 222 A /10-
- ◆ Shackle - 10 - 222 A /12-
- ◆ Adapter - 10 - 222 A /18-
- ◆ Adapter - 10 - 222 A /25-
- ◆ Eye bolt - 3368-





- ♦ Engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931-
- ♦ Gearbox support - 3282-
- ♦ Socket insert - V/175-
- ♦ Not required: wedge - T10161-
- ♦ Adjustment plates - 3282/56-
- ♦ Insert tool, 18 mm - T10179-



Tools without illustration:

- ♦ Drip tray for workshop hoist - VAS 6208-
- ♦ Tensioning strap - T10038-



Note

The subframe is not to be removed.

- Raise vehicle. All 4 supports of lifting platform must be at same height.
- Turn steering to straight-ahead position.
- Pull out ignition key and engage steering wheel lock.
- Move selector lever to position »P« position.



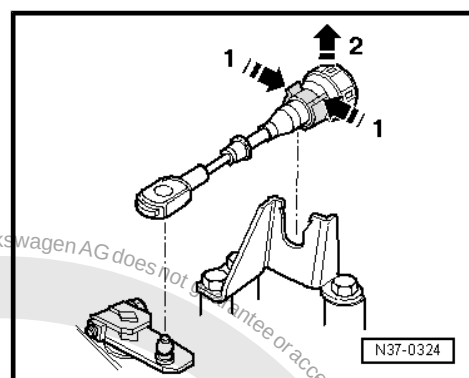
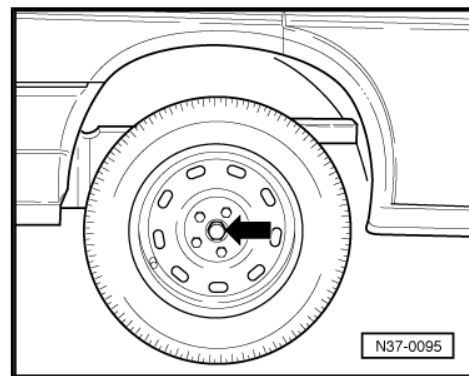
- Depress brake pedal to remove bolt for left drive shaft -arrow- (second mechanic required).



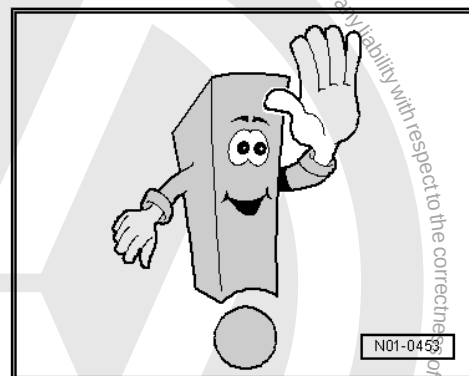
Note

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

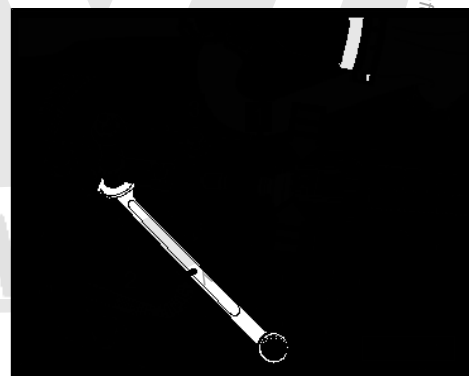
- Remove front left wheel.
- Disconnect battery ⇒ Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove complete air filter housing ⇒ Rep. gr. 24 ; Removing and installing air filter .
- Remove battery and tray.
- Release selector lever cable from gearbox by hand -1- and pull out of cable support bracket -2-.



Work with care to avoid bending cable. Do not use pliers, or the retaining tabs on the cable support bracket may break off.

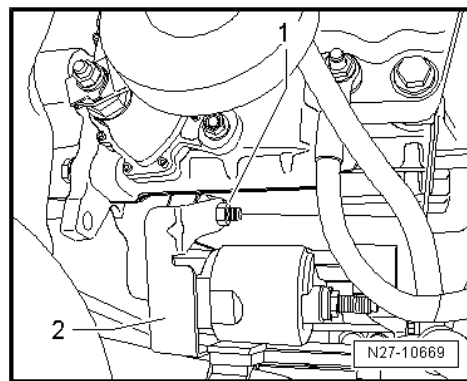


- Then lever cable off ball head -2-.
- Separate all electrical connections to gearbox and starter which are »better accessible from above«.
- ◆ Multifunction switch
- ◆ Starter motor
- ◆ Earth strap to bracket





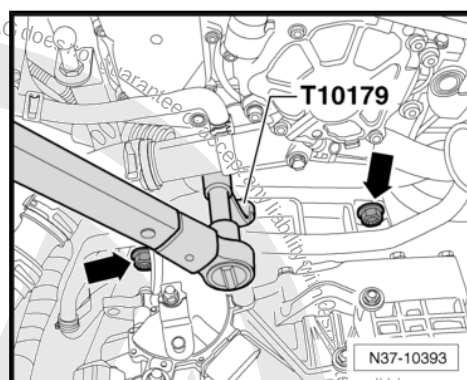
- Unbolt upper securing nut -1- for line retainer -2-.



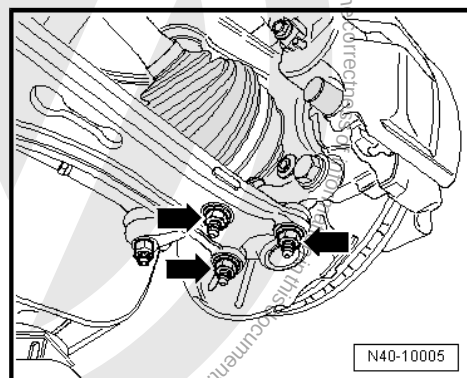
- Now remove all upper connecting bolts between gearbox and engine.
- Raise vehicle.
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .

If necessary:

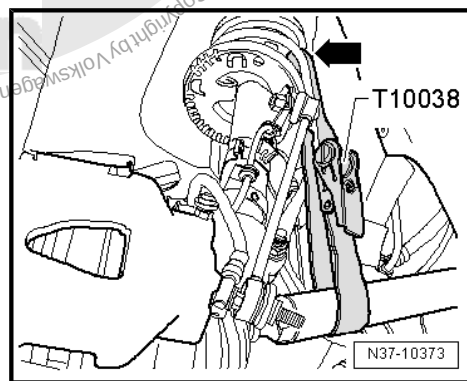
- Pull connector off front left vehicle level sender - G78- .



- Unscrew -nuts- from lower suspension links on both sides.
- Press both drive shafts off gearbox.
- Remove left drive shaft.

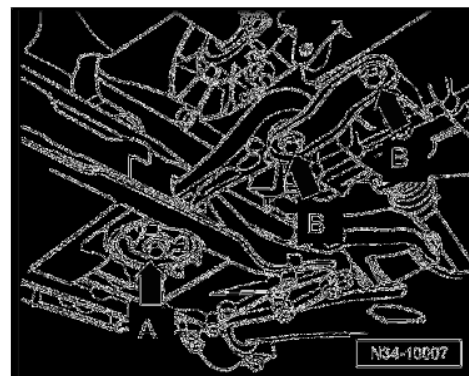


- Raise right drive shaft as far as possible and secure to suspension strut in this position.

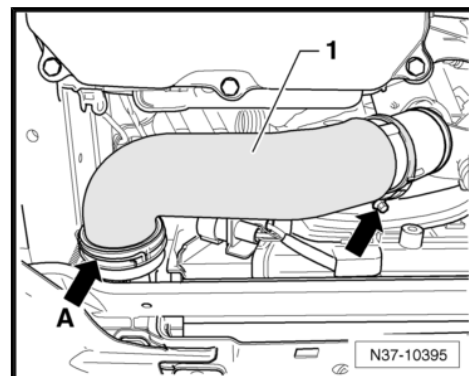




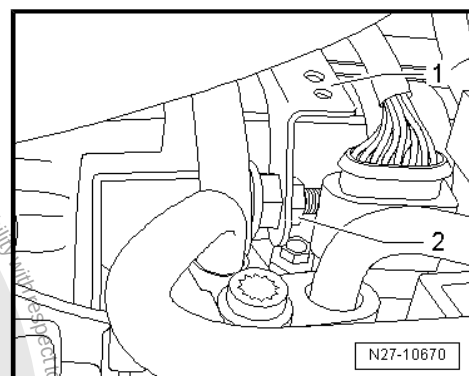
- Remove pendulum support, first -A- and then -B-.



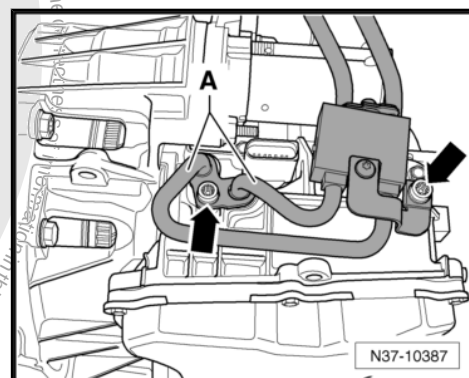
- Remove charge air hose -1-.
- Separate the two electrical connections to gearbox which are easily accessible »from below«.



- Remove cable retainer -1- from lower starter bolt -2-.
- Remove cable retainer -1-.

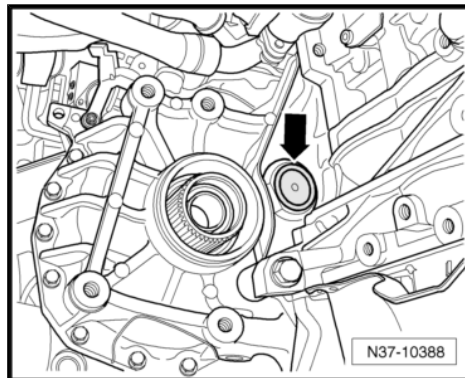


- Remove bolts -arrows- and pull ATF lines -A- off gearbox.
- Seal off gearbox and ATF lines with clean plugs.





- Pull out plug.
- Pull out plug.

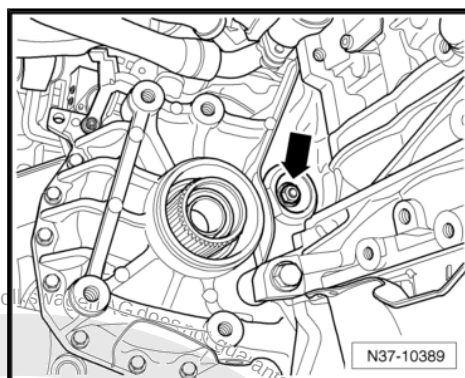


- Through this -opening-, remove six torque converter nuts with insert - V/175- . Counterhold with screwdriver on starter ring gear.



Note

Engine is turned further at pulley using commercially available tools.



- Remove all lower gearbox-engine connecting bolts except bolt beneath opening for torque converter bolts -arrow- ➔ [page 93](#) .
- Lower vehicle.
- Set up support device - 10 - 222 A- .
- To avoid stress when loosening and tightening gearbox mountings, align hooks - 10 - 222 A /10- on left and right as follows:

Left (gearbox end):

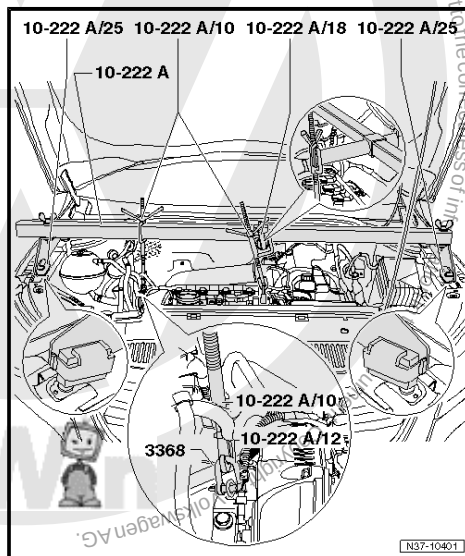
- Align adapter - 10 - 222 A /18- on support bracket - 10 - 222 A- so that hook of spindle hangs vertically in eyelet on engine.



Note

Spindle is on an angle in this position, with its top end pointing towards middle of car.

Right (engine end):





- Hold nut M10 -arrow- under engine mounting. Insert eye bolt 3368- through engine mounting. Screw nut about 8 turns onto eye bolt.
- Mount shackle - 10 - 222 A /12- on eye bolt.
- Insert hook - 10 - 222 A /10- into shackle and align spindle vertically.
- To stabilise support bracket, first turn spindle until it makes contact, then tighten by 6 turns.



Note

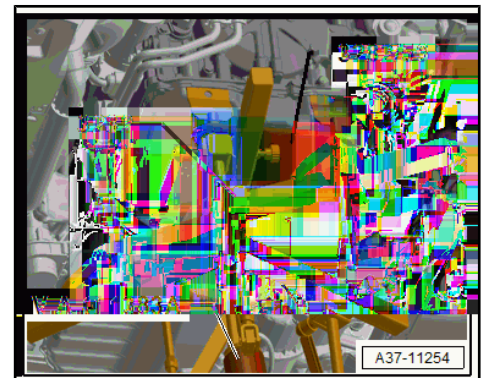
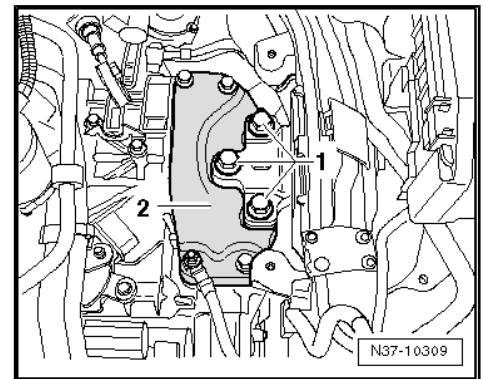
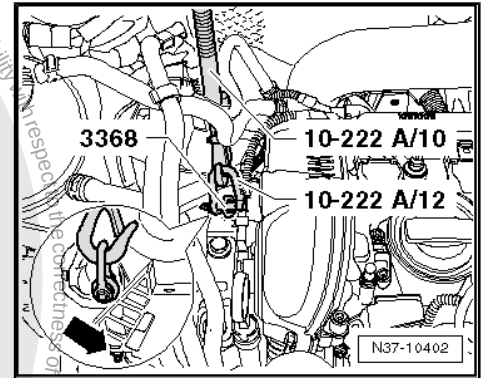
From this point on, continue turning only left-hand spindle (gear-box end).

- Support engine and gearbox. Do not raise.
- Remove gearbox/bracket bolts -1-.
- Unbolt bracket -2- from gearbox.
- Lower engine/gearbox by turning left spindle approx. 6 turns.
- Remove bracket.

To remove automatic gearbox 09M, set up gearbox support - 3282- with adjustment plate - 3282/56- and fitted to engine and gearbox support .

- Align arms of gearbox support according to holes in adjustment plate - 3282/56- .
- Screw in support elements on adjustment plate - 3282/56- as illustrated.
- Place engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931- under gearbox.
- Arrow symbol »B« on adjustment plate - 3282/56- points in driving direction.

- Screw pin - 3282/34- into gearbox.
- Raise engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931- to support gearbox -1- from below.
- Remove engine/gearbox connecting bolt -arrow-.





- Press gearbox off engine -3- while pressing torque converter -1- against gearbox in -direction of arrow- using, for example, a screwdriver -2-.
- Carefully lower gearbox, ensuring »clearance« to other components.
- After gearbox has been removed, secure torque converter to prevent it from falling out ➔ [page 114](#)



11.3 Installing gearbox - vehicles with 2.0 I - 147 kW TSFI engine

Installation is performed in the reverse order. However, the following notes should be observed.

- If a new gearbox is installed, transfer attached parts to new gearbox.
- ◆ Support bracket for selector lever cable
- ◆ Retainer for selector lever cable
- Check whether dowel sleeves are pressed into engine flange ➔ [page 94](#) .

Ensure that the torque converter is properly installed. It must be easily turned by hand and the entire circumference must be uniformly deep in gearbox.

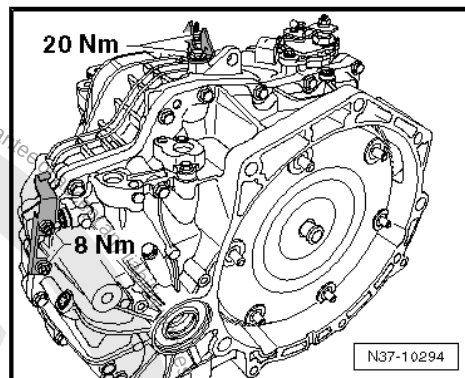


Note

- ◆ *Continue turning the engine carefully!*
- ◆ *Particularly on installation, ensure that you turn the engine cautiously »whilst guiding the transmission to the engine«. The starter ring gear can be held from the outside with a screwdriver. Thus the studs will be located in the drive plate bores on installation.*

The engine and gearbox should be mounted tension-free in the assembly mounting. The correct procedure is described in ➔ Rep. gr. 10 ; Removing and installing engine; Notes on installation .

- Before tightening the bolts securing bracket to gearbox mounting, re-establish »former position« of bolts. Torque setting: ➔ [page 94](#) .
- Adjust selector lever cable ➔ [page 42](#) .
- After installing, check ATF level ➔ [page 124](#) .
- Carry out basic settings. To do this, connect vehicle diagnosis, testing and information system - VAS 5051- and then select "Perform basic settings" under Guided functions.



11.3.1 Specified torques



1 - Direction of travel

- Drive plate to torque converter

- ☐ 60 Nm
- ☐ Qty. 6; remove and install with insert - V/175- .

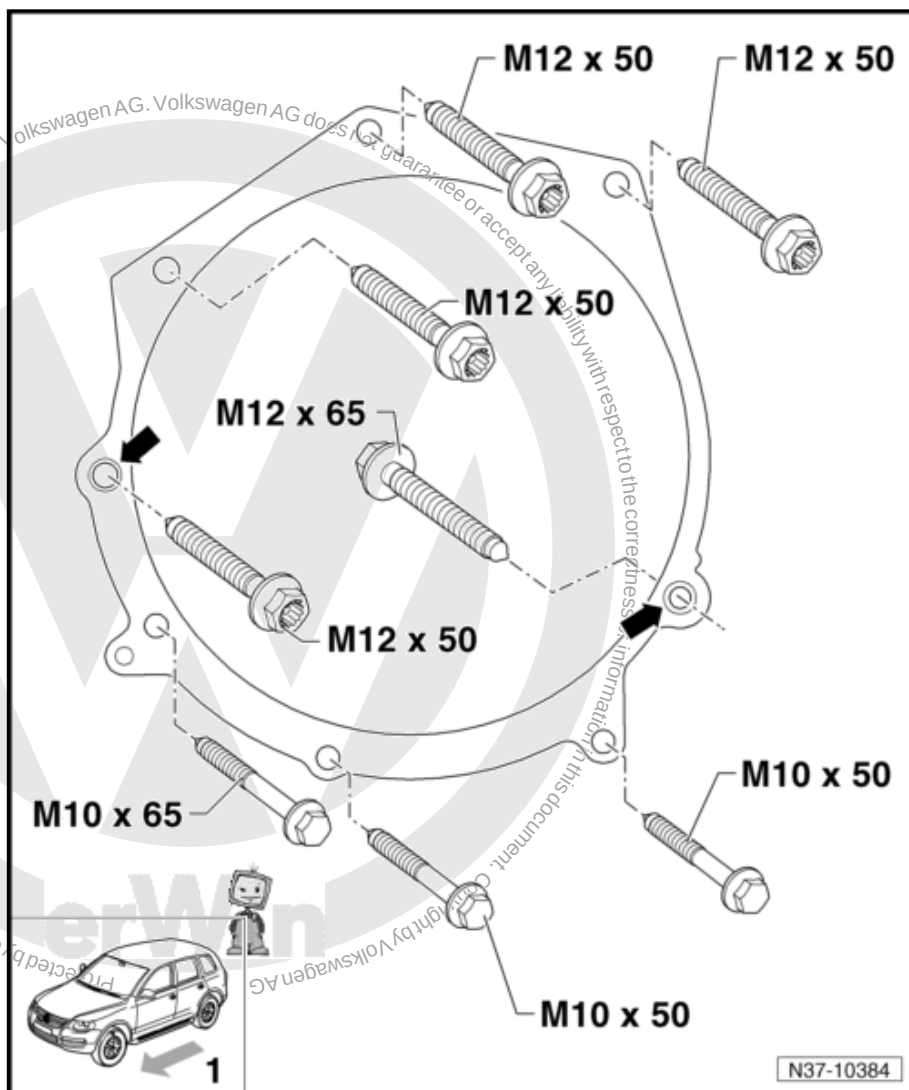
- M12 bolts ➔ M12

- ☐ 80 Nm

- M10 bolts ➔ M10

- ☐ 40 Nm
- ☐ These bolts are located in lower flange

- Two dowel sleeves in engine -arrows-



11.4 Removing and installing gearbox - vehicles with all-wheel drive

Vehicles with 2.0 l - 103 kW TDI engine

Removing gearbox ➔ [page 95](#)

Installing gearbox ➔ [page 102](#)

Torque settings ➔ [page 103](#)

Vehicles with 2.0 l - 125 kW/147 kW TSFI engine

Removing gearbox ➔ [page 104](#)

Installing gearbox ➔ [page 111](#)

Torque settings ➔ [page 112](#)

11.4.1 Removing gearbox - vehicles with 2.0 l - 103 kW TDI engine

Brief description

The gearbox is removed downwards separately. The engine remains in the vehicle.



Battery tray, air filter and engine cover are removed »from above«. Engine and gearbox must then be supported so that left assembly mounting can be removed.

After the bevel box has been removed, the gearbox must be supported, the final engine/gearbox connecting bolt removed and the gearbox lowered.

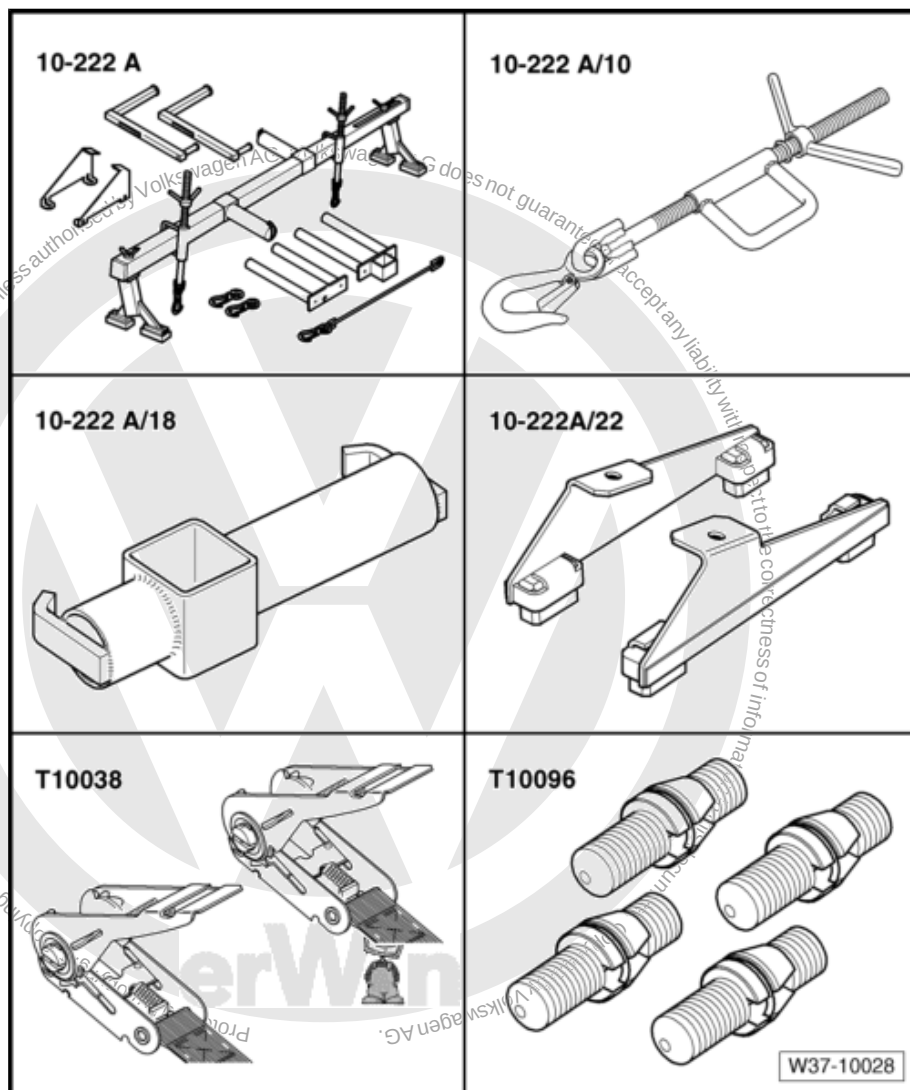


Note

The subframe is not to be removed.

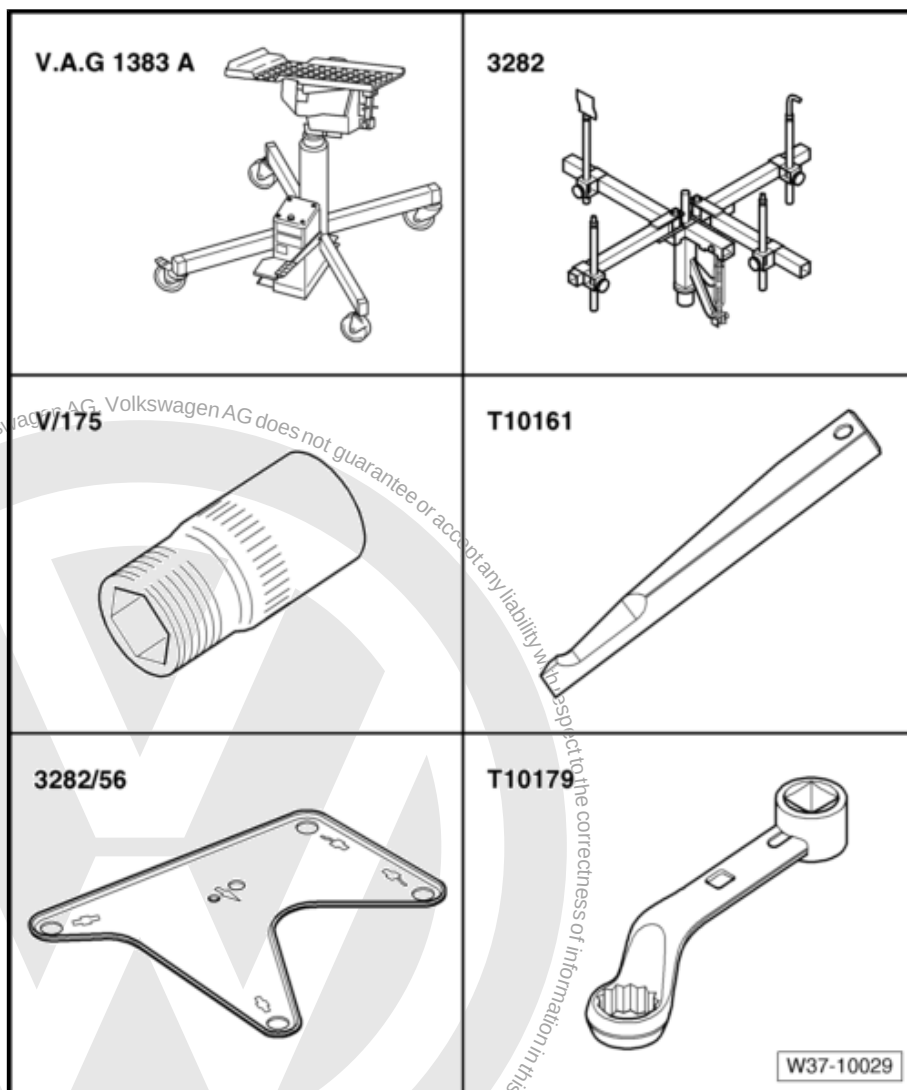
Special tools and workshop equipment required

- ◆ Support bracket - 10 - 222 A-
- ◆ Hook - 10 - 222 A /10-
- ◆ Adapter - 10 - 222 A /18-
- ◆ Adapter - 10 - 222 A /22-
- ◆ Tensioning strap - T10038

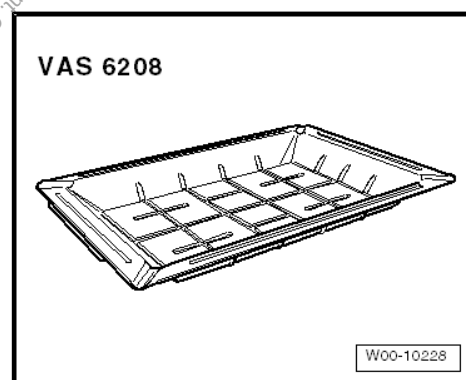




- ◆ Engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931-
- ◆ Gearbox support - 3282-
- ◆ Socket insert - V/175-
- ◆ Not required: wedge - T10161-
- ◆ Adjustment plates - 3282/56-
- ◆ Insert tool, 18 mm - T10179-



- ◆ Drip tray for workshop hoist - VAS 6208-

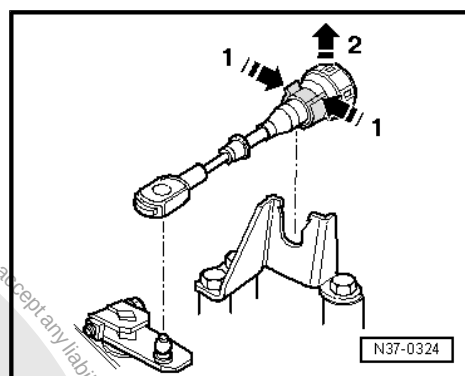
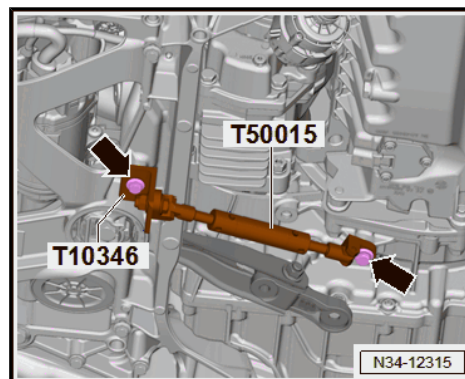


Removing

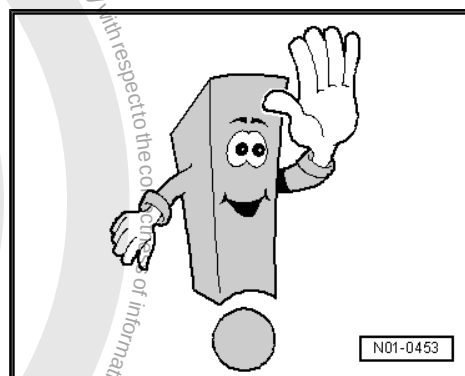
- Remove bevel box ➔ [page 163](#) .



- After bevel box has been removed, remove engine support - T50015- from gearbox.
- Remove battery and battery tray ⇒ Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove complete air filter housing ⇒ Rep. gr. 24 ; Removing and installing air filter .
- Separate all electrical connections to gearbox and starter which are »better accessible from above«.
- ◆ Multifunction switch
- ◆ Starter motor
- ◆ Earth strap to bracket
- Release selector lever cable from gearbox by hand -1- and pull out of cable support bracket -2-.

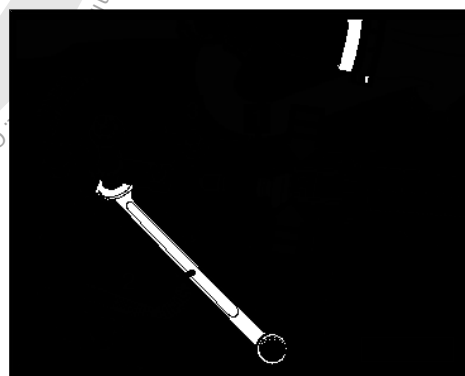


Work with care to avoid bending cable. Do not use pliers, or the retaining tabs on the cable support bracket may break off.



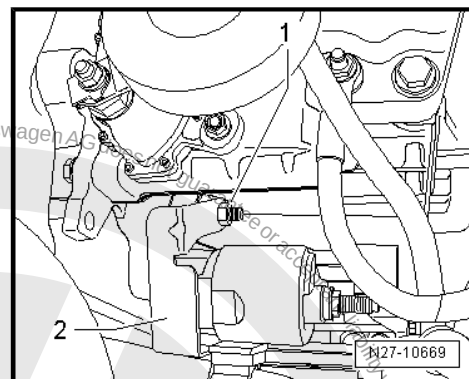
- Then lever cable off ball head -2-.

To remove upper engine/gearbox connecting bolts:

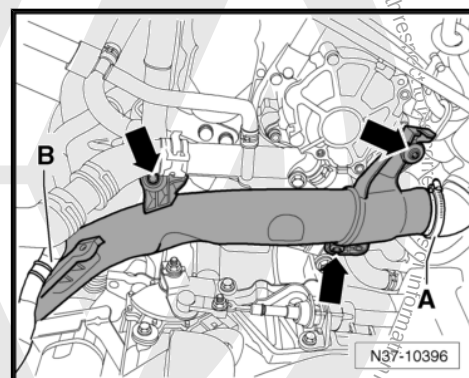




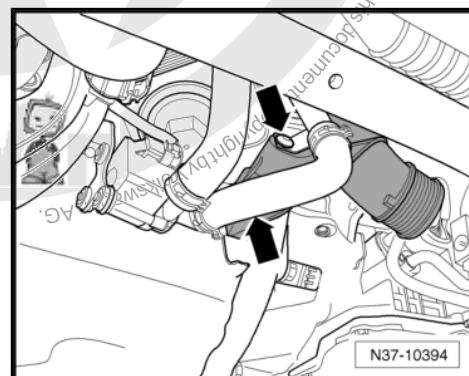
- Unbolt upper securing nut -1- for line retainer -2-.
- Pull connector off front left vehicle level sender - G78- .



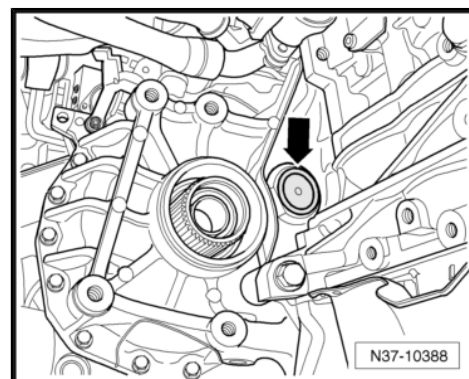
- Unscrew charge air pipe, unclip line -B-, open clip and pull charge air pipe out of hose -A-.



- Carefully unbolt charge air pipe from gearbox and remove downwards.
- Remove left drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shaft .

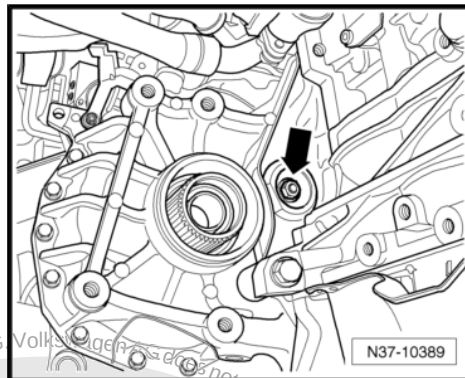


- Pull out plug.

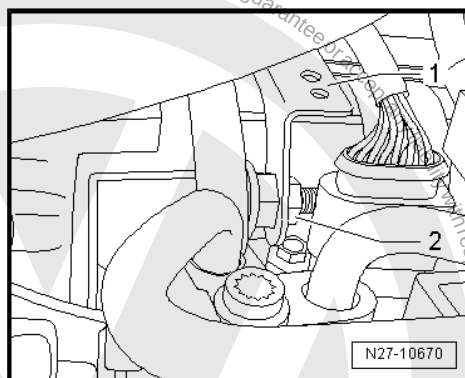




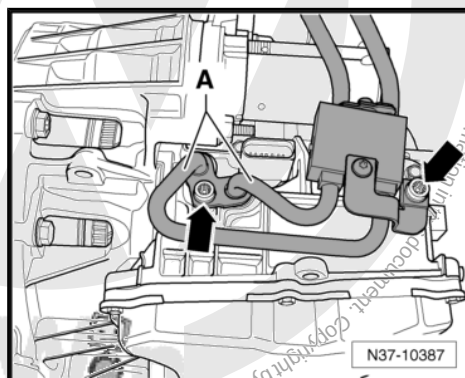
- Through this -opening-, remove six torque converter nuts with insert - V/175- . Counterhold with screwdriver on starter ring gear.
- Remove all lower gearbox-engine connecting bolts except bolt beneath opening for torque converter bolts -arrow- ➔ [page 101](#) .



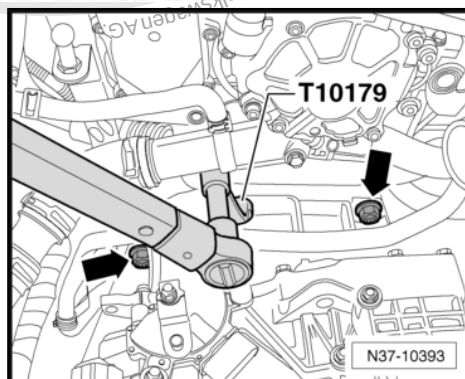
- Unscrew lower securing bolt -2- of line retainer and pull line retainer -1- off securing bolts of starter.
- Separate the two electrical connections to gearbox which are easily accessible »from below«.



- Remove bolts -arrows- and pull ATF lines -A- off gearbox.
- Seal off gearbox and ATF lines with clean plugs.

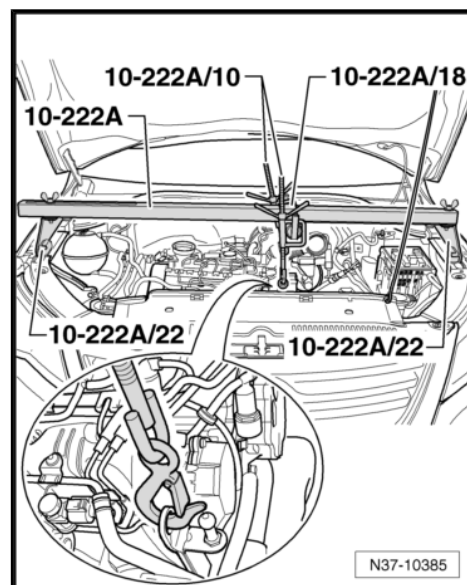


- Now remove all upper connecting bolts between gearbox and engine.





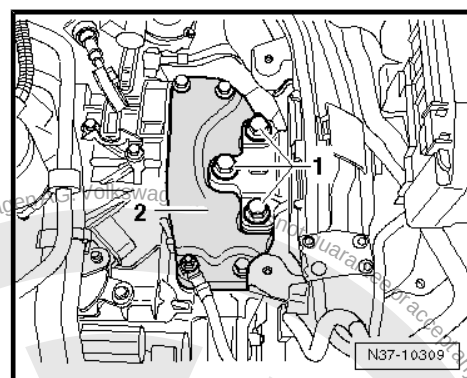
- Set up support device - 10 - 222 A- .
- Suspend and support engine and gearbox. Do not raise.



- Remove gearbox/bracket bolts -1-.
- Unbolt bracket -2- from gearbox.

To remove automatic gearbox 09M, set up gearbox support - 3282- with adjustment plate - 3282/56- and fitted to engine and gearbox support .

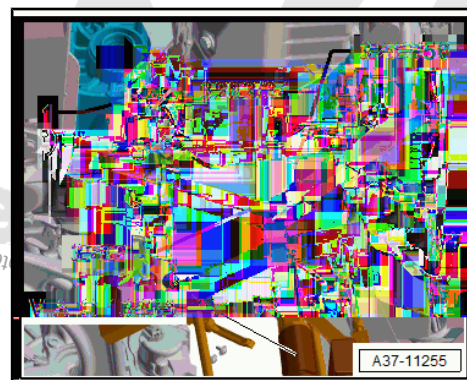
- Align arms of gearbox support according to holes in adjustment plate - 3282/56- .
- Screw in support elements on adjustment plate - 3282/56- as illustrated.



- Place engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931- under gearbox.
- Arrow symbol »B« on adjustment plate - 3282/56- points in driving direction.



- Screw pin - 3282/34- into gearbox.
- Raise engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931- to support gearbox -1- from below.
- Remove engine/gearbox connecting bolt -arrow-





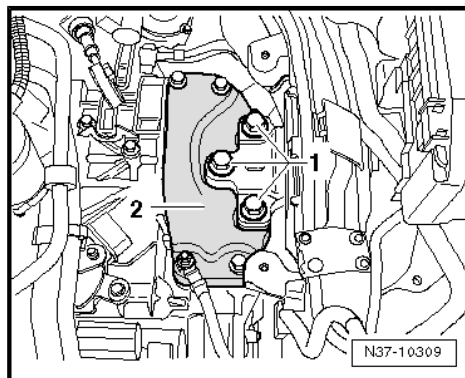
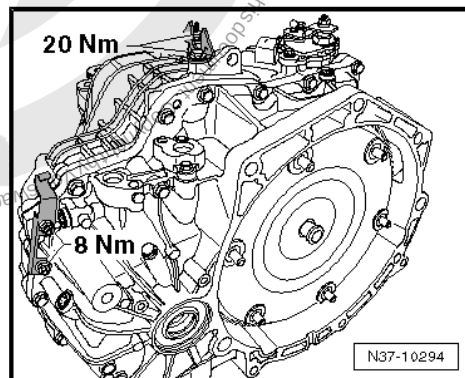
- Press gearbox off engine -3- while pressing torque converter -1- against gearbox in -direction of arrow- using, for example, a screwdriver -2-.
- Carefully lower gearbox, ensuring »clearance« to other components.
- After gearbox has been removed, secure torque converter to prevent it from falling out => [page 114](#)



11.4.2 Installing gearbox - vehicles with 2.0 l - 103 kW TDI engine

Install in reverse order of removal. Nevertheless, important steps are listed here:

- If a new gearbox is installed, transfer attached parts to new gearbox.
- ◆ Support bracket for selector lever cable
- ◆ Retainer for selector lever cable
- Check for proper seating of both dowel sleeves between engine and gearbox.
- Set gearbox in place, possible adjusting gearbox support.
- Now install an engine/gearbox connecting bolt.
- Fit and tighten all torque converter bolts. Torque specification => [page 103](#) .
- Next bolt bracket -2- to gearbox. Torque specification => [page 103](#) .





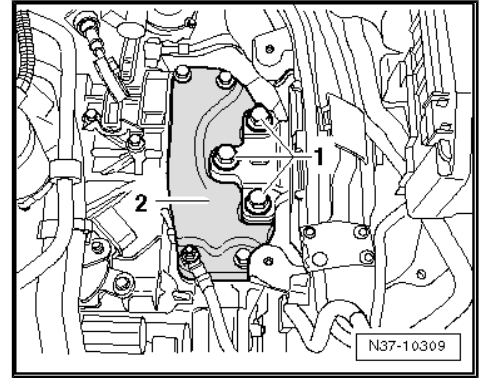
- Raise engine and gearbox, reestablish »former seating« of bolts -1- for gearbox mounting to bracket -2- and tighten. Torque specification ➤ [page 103](#) .
- Install bevel box ➤ [page 170](#) .
- Assemble exhaust system, taking particular care to follow the procedure when tightening particle filter ➤ Rep. gr. 26 ; Exhaust system .

Install remaining components in reverse order of removal.

- Adjust selector lever cable ➤ [page 42](#) .

Cable must not be greased!

- Install air filter housing.
- After installing, check ATF level ➤ [page 124](#) .
- Perform basic setting by pressing **Perform basic setting**.
- Press .
- Press .



11.4.3 Specified torques

1 - Direction of travel

- Drive plate to torque converter

- ☐ 60 Nm
- ☐ Qty. 6; remove and install with insert -V/175- .

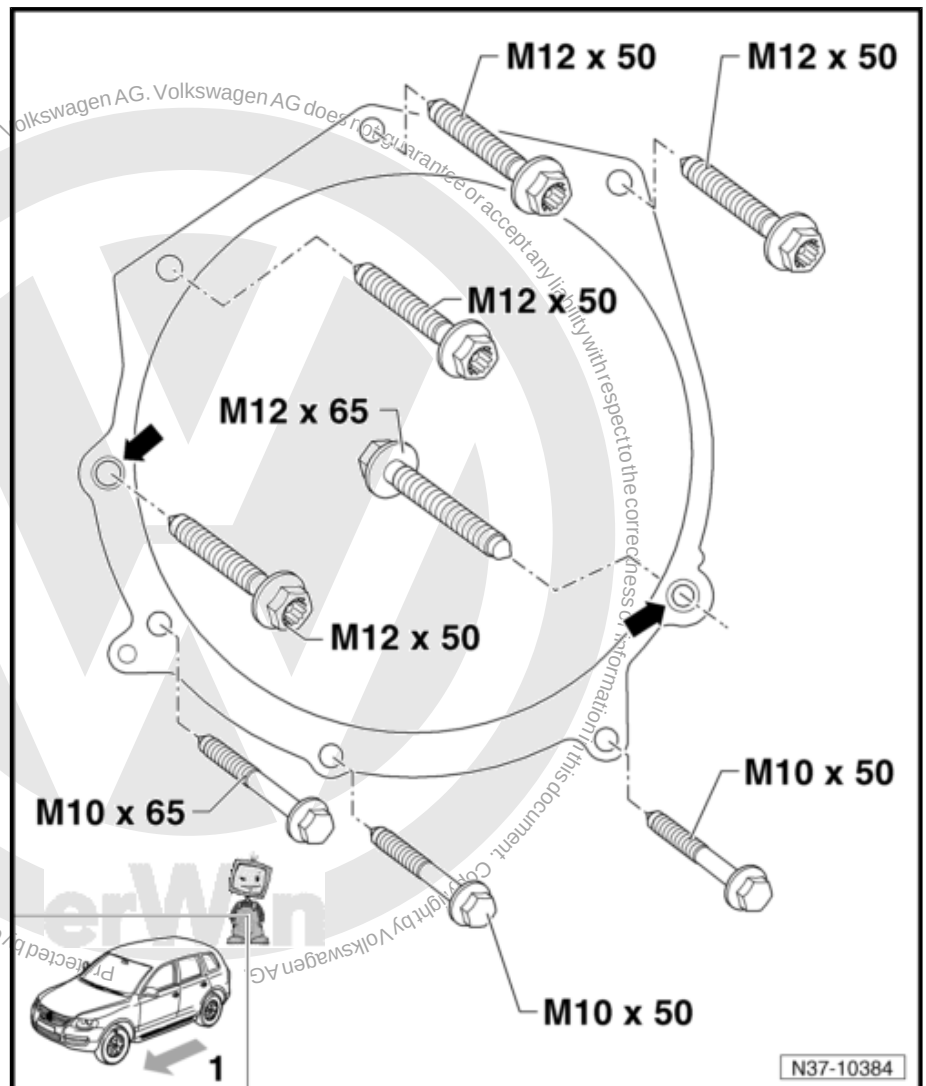
- M12 bolts ➤ M12

- ☐ 80 Nm

- M10 bolts ➤ M10

- ☐ 40 Nm
- ☐ These bolts are located in lower flange

- Two dowel sleeves in engine -arrows-





Component	Nm
Bracket to gearbox (use new bolts)	40 + 90° (1/4 turn)
Bracket to gearbox mounting (use new bolts)	60 + 90° (1/4 turn)
ATF lines to gearbox	20
Earth strap to bracket	25
Gearbox carrier to engine and bevel box	⇒ page 170 "Installing bevel box"
Bevel box to gearbox	
Heat shield for right drive shaft to bevel box	
Propshaft to bevel box	⇒ Propshaft and rear final drive; Rep. gr. 39
Suspension link, coupling rod, pendulum support, drive shaft, wheel bolts	⇒ Running gear, axles, steering; Rep. gr. 40
Wheel bolts	⇒ Running gear, axles, steering; Rep. gr. 44 ; Torque settings for wheel bolts

11.5 Removing gearbox - vehicles with 2.0 I - 125/132/147 kW TSFI engine

Brief description

The gearbox is removed downwards separately. The engine remains in the vehicle.

Battery tray, air filter and engine cover are removed »from above«. Engine and gearbox must then be supported so that left assembly mounting can be removed.

After the bevel box has been removed, the gearbox must be supported, the final engine/gearbox connecting bolt removed and the gearbox lowered.



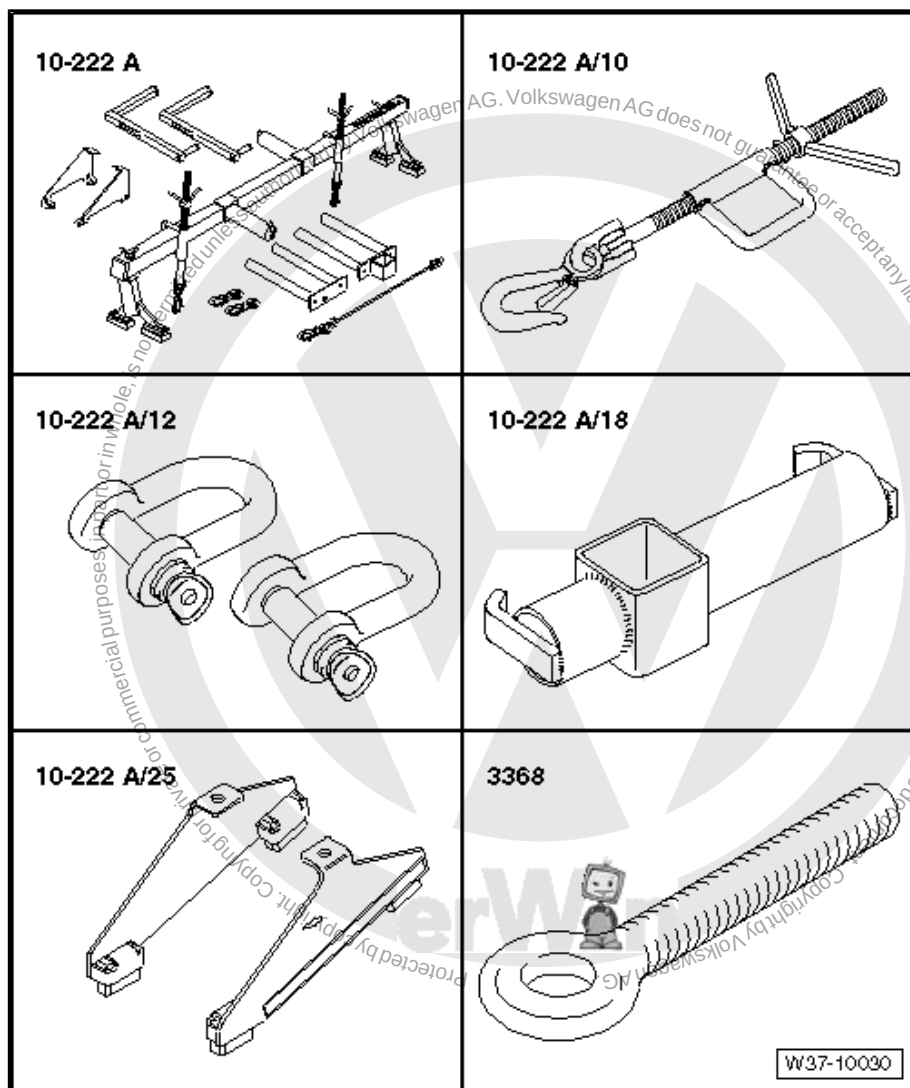
Note

The subframe is not to be removed.



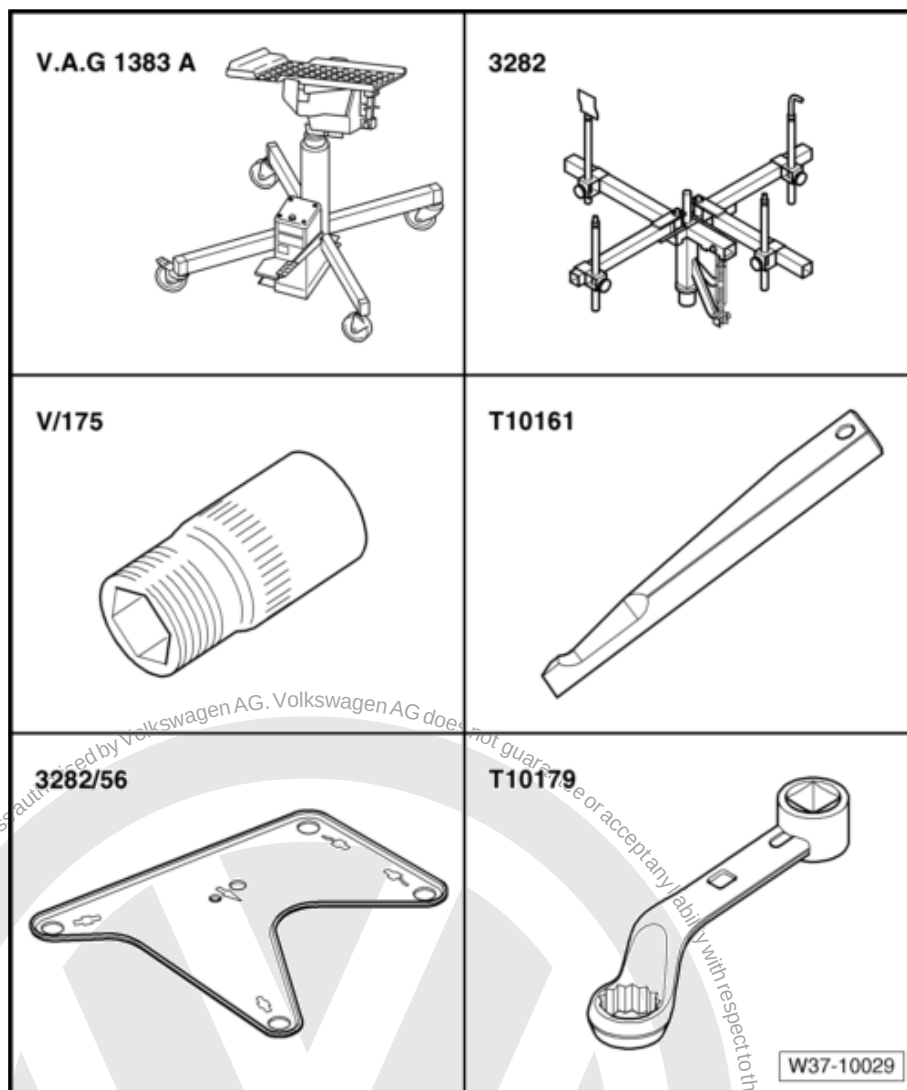
Special tools and workshop equipment required

- ◆ Support bracket - 10 - 222 A-
- ◆ Hook - 10 - 222 A /10-
- ◆ Shackle - 10 - 222 A /12-
- ◆ Adapter - 10 - 222 A /18-
- ◆ Adapter - 10 - 222 A /25-
- ◆ Eye bolt - 3368-

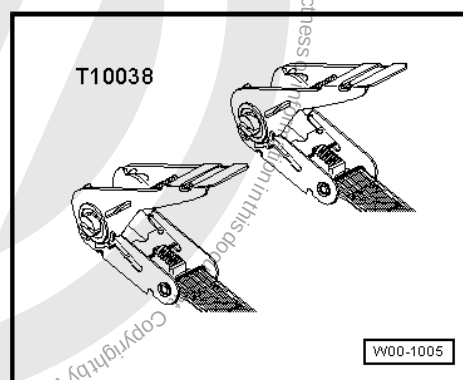




- ◆ Engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931-
- ◆ Gearbox support - 3282-
- ◆ Socket insert - V/175-
- ◆ Not required: wedge - T10161-
- ◆ Adjustment plates - 3282/56-
- ◆ Insert tool, 18 mm - T10179-



- ◆ Tensioning strap - T10038-



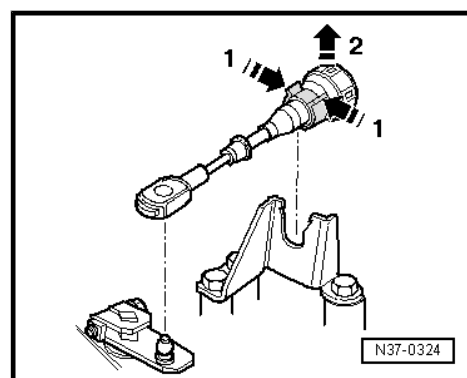
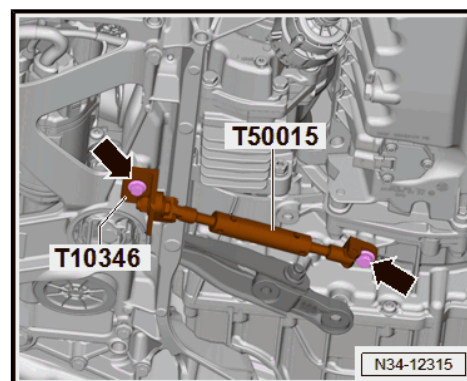
- ◆ Drip tray for workshop hoist - VAS 6208-

Removing

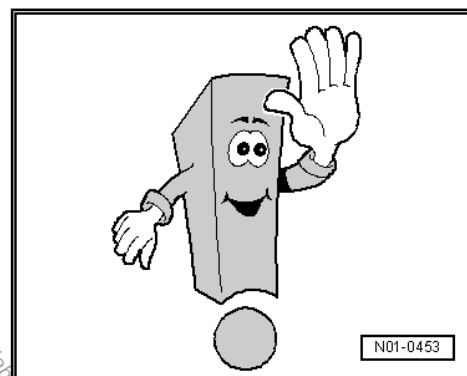
- Remove bevel box ⇒ [page 173](#) .



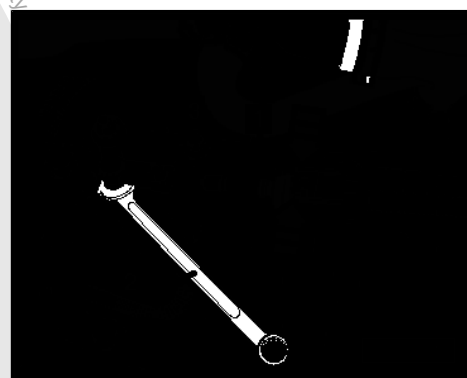
- After bevel box has been removed, remove engine support - T50015- from gearbox.
- Remove battery and battery tray ⇒ Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- Remove complete air filter housing ⇒ Rep. gr. 24 ; Removing and installing air filter .
- .
- Release selector lever cable from gearbox by hand -1- and pull out of cable support bracket -2-.



Work with care to avoid bending cable. Do not use pliers, or the retaining tabs on the cable support bracket may break off.

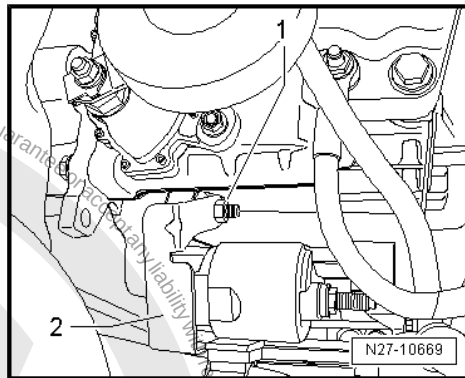


- Then lever cable off ball head -2-.
- Separate all electrical connections to gearbox and starter which are »better accessible from above«.
- ◆ Multifunction switch
- ◆ Starter motor
- ◆ Earth strap to bracket

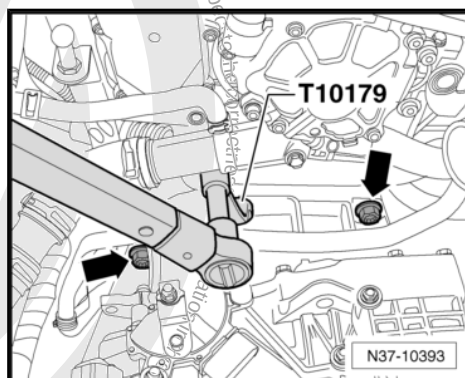




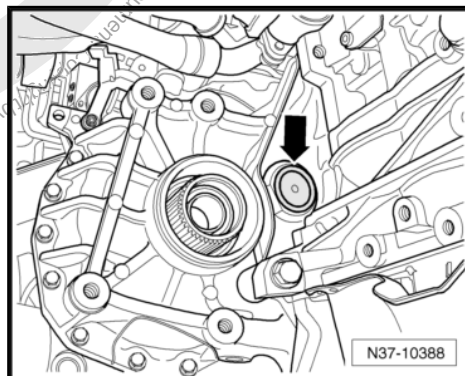
- Unbolt upper securing nut -1- for line retainer -2-.



- Now remove all upper connecting bolts between gearbox and engine.
- Remove left drive shaft ➔ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shaft .



- Pull out plug.



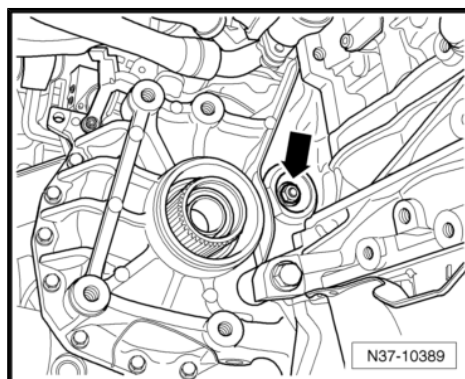
- Through this -opening-, remove six torque converter nuts with insert - V/175- . Counterhold with screwdriver on starter ring gear.



Note

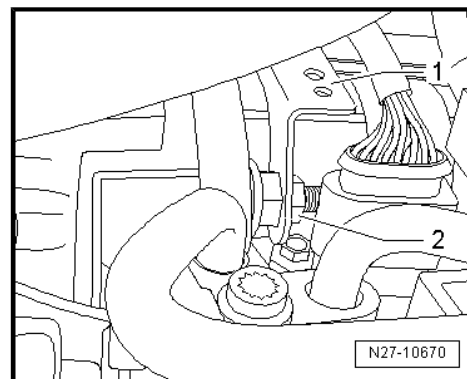
Engine is turned further at pulley using commercially available tools.

- Remove all lower gearbox-engine connecting bolts except bolt beneath opening for torque converter bolts -arrow- ➔ [page 110](#) .

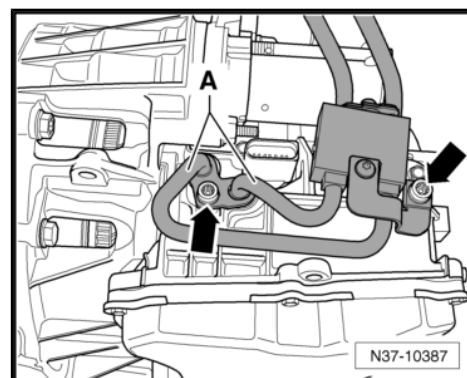




- Remove cable retainer -1- from lower starter bolt -2-.
- Remove cable retainer -1-.
- Separate the two electrical connections to gearbox which are easily accessible »from below«.



- Remove bolts -arrows- and pull ATF lines -A- off gearbox.
- Seal off gearbox and ATF lines with clean plugs.
- Lower vehicle.
- Set up support device - 10 - 222 A - .
- To avoid stress when loosening and tightening gearbox mountings, align hooks - 10 - 222 A /10- on left and right as follows:



Left (gearbox end):

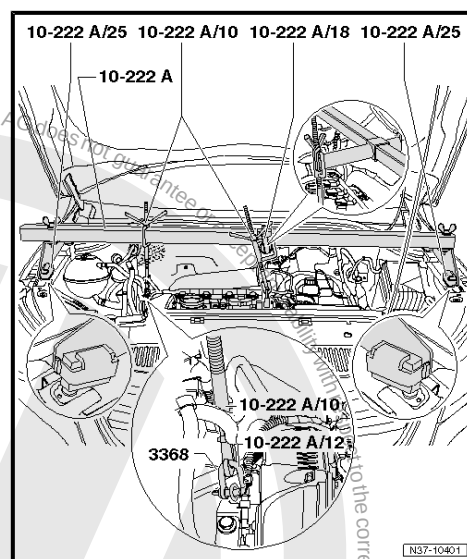
- Align adapter - 10 - 222 A /18- on support bracket - 10 - 222 A- so that hook of spindle hangs vertically in eyelet on engine.



Note

Spindle is on an angle in this position, with its top end pointing towards middle of car.

Right (engine end):





- Hold nut M10 -arrow- under engine mounting. Insert eye bolt - 3368- through engine mounting. Screw nut about 8 turns onto eye bolt.
- Mount shackle - 10 - 222 A /12- on eye bolt.
- Insert hook - 10 - 222 A /10- into shackle and align spindle vertically.
- To stabilise support bracket, first turn spindle until it makes contact, then tighten by 6 turns.



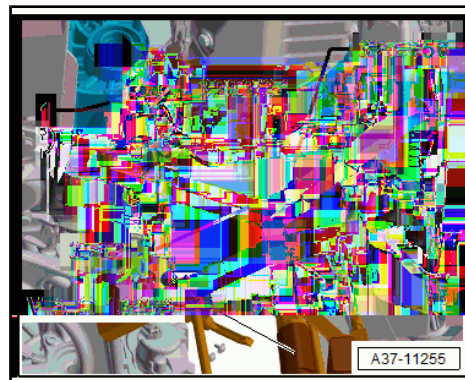
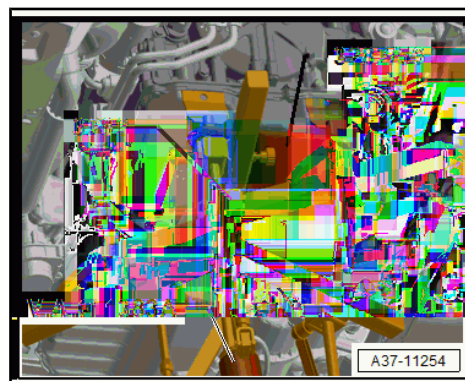
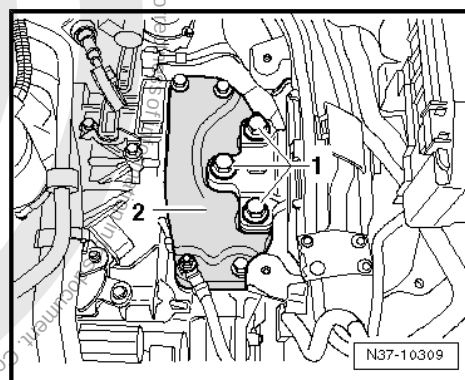
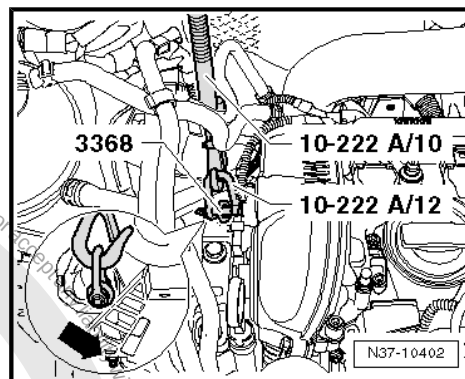
Note

From this point on, continue turning only left-hand spindle (gear-box end).

- Support engine and gearbox. Do not raise.
- Remove gearbox/bracket bolts -1-.
- Unbolt bracket -2- from gearbox.
- Then lower engine and gearbox using the spindles of the support bracket - 10 - 222 A- about 6 turns.
- Remove bracket.

To remove automatic gearbox 09M, set up gearbox support - 3282- with adjustment plate - 3282/56- and fitted to engine and gearbox support .

- Align arms of gearbox support according to holes in adjustment plate - 3282/56- .
- Screw in support elements on adjustment plate - 3282/56- as illustrated.
- Place engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931- under gearbox.
- Arrow symbol »B« on adjustment plate - 3282/56- points in driving direction.
- Screw pin - 3282/34- into gearbox.
- Raise engine and gearbox jack - V.A.G 1383 A- or engine and gearbox jack - VAS 6931- to support gearbox -1- from below.
- Remove engine/gearbox connecting bolt -arrow-.





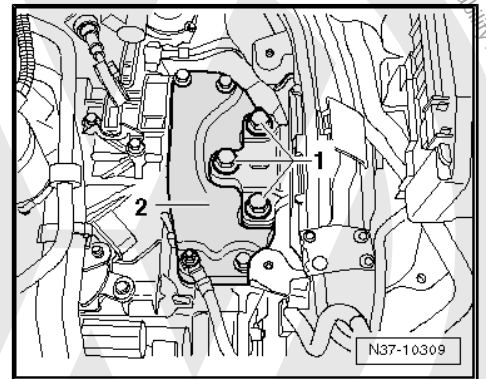
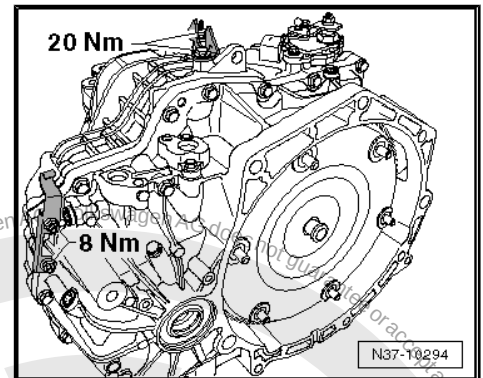
- Press gearbox off engine -3- while pressing torque converter -1- against gearbox in -direction of arrow- using, for example, a screwdriver -2-.
- Carefully lower gearbox, ensuring »clearance« to other components.
- After gearbox has been removed, secure torque converter to prevent it from falling out ⇒ [page 114](#)



11.6 Installing gearbox - vehicles with 2.0 I - 125/132/147 kW TSFI engine

Install in reverse order of removal. Nevertheless, important steps are listed here:

- If a new gearbox is installed, transfer attached parts to new gearbox.
- ◆ Support bracket for selector lever cable
- ◆ Retainer for selector lever cable
- Check for proper seating of both dowel sleeves between engine and gearbox.
- Set gearbox in place, possible adjusting gearbox support.
- Now install an engine/gearbox connecting bolt.
- Fit and tighten all torque converter bolts. Torque specification ⇒ [page 112](#).
- Next bolt bracket -2- to gearbox. Torque specification ⇒ [page 112](#).





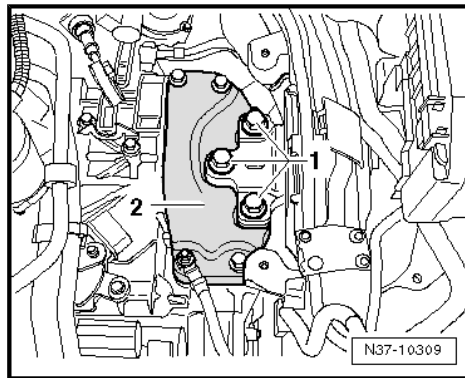
- Raise engine and gearbox, reestablish »former seating« of bolts -1- for gearbox mounting to bracket -2- and tighten. Torque specification ➔ [page 103](#) .
- Install bevel box ➔ [page 179](#) .
- Install parts of exhaust system, ➔ Rep. gr. 26 ; Exhaust system .

Install remaining components in reverse order of removal.

- Adjust selector lever cable ➔ [page 42](#) .

Cable must not be greased!

- Install air filter housing.
- After installing, check ATF level ➔ [page 124](#) .
- Perform basic setting by pressing **Perform basic setting**.
- Press .
- Press .



11.6.1 Specified torques

1 - Direction of travel

- Drive plate to torque converter

- ☐ 60 Nm
- ☐ Qty. 6 remove and install with insert - V/175- .

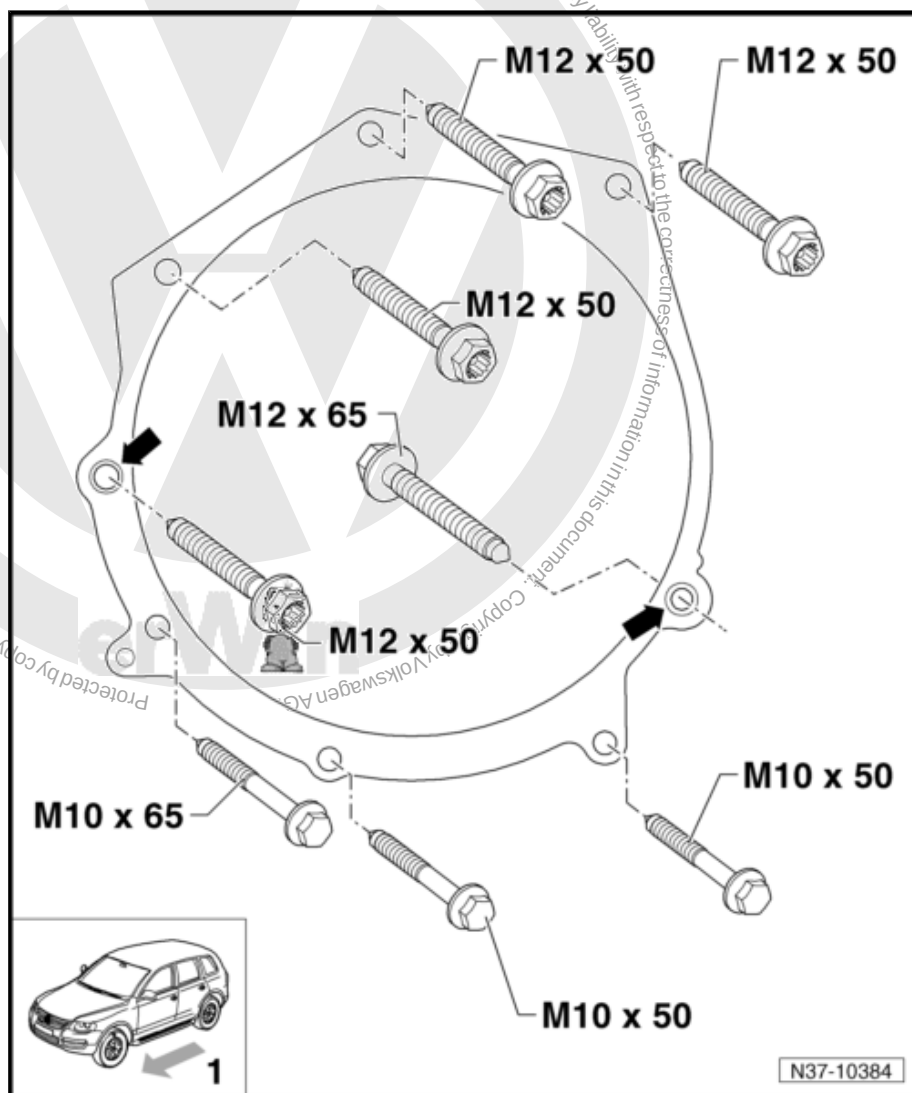
- M12 bolts ➔ M12

- ☐ 80 Nm

- M10 bolts ➔ M10

- ☐ 40 Nm
- ☐ These bolts are located in lower flange

- Two dowel sleeves in engine -arrows-





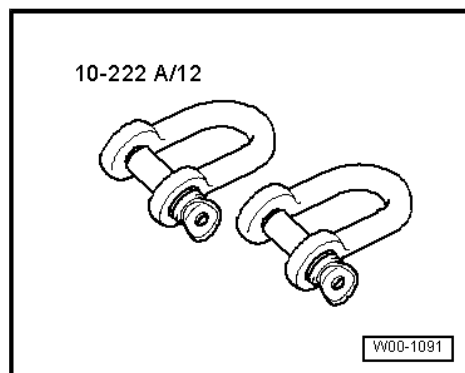
Component	Nm
Bracket to gearbox (use new bolts)	40 + 90° (1/4 turn)
Bracket to gearbox mounting (use new bolts)	60 + 90° (1/4 turn)
ATF lines to gearbox	20
Earth strap to bracket	25
Gearbox carrier to engine and bevel box	⇒ page 179 "Installing bevel box"
Bevel box to gearbox	
Heat shield for right drive shaft to bevel box	
Front flexible coupling heat shield	
Propshaft to bevel box	⇒ Propshaft and rear final drive; Rep. gr. 39
Suspension link, coupling rod, pendulum support, drive shaft, wheel bolts	⇒ Running gear, axles, steering; Rep. gr. 40
Wheel bolts	⇒ Running gear, axles, steering; Rep. gr. 44 ; Torque settings for wheel bolts



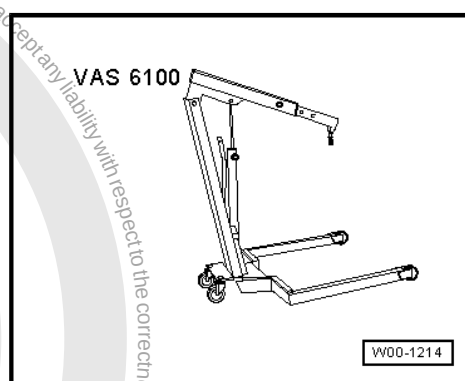
12 Transporting gearbox

Special tools and workshop equipment required

- ◆ Shackle - 10-222 A/12-

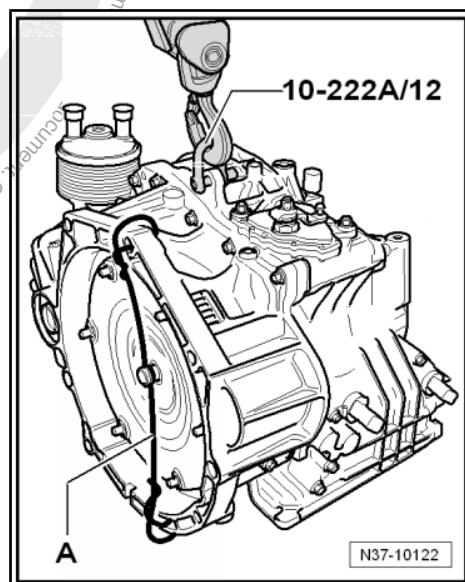


- ◆ Workshop hoist - VAS 6100-



Use shackle - 3282- to transport automatic gearbox as well as to set up gearbox support - 10-222A/12- .

- During transportation, secure torque converter from falling out, e.g. with a wire -A-.





13 Assembly overview - ATF cooler - Passat

13.1 Assembly overview for vehicles with 3.6 l 206 kW engine

1 - Additional ATF cooler

2 - Bolt

□ 5 Nm

3 - Bolt

□ 9 Nm

4 - ATF line

□ »Return«

□ Always renew oil seal

5 - ATF line

□ »Supply.«

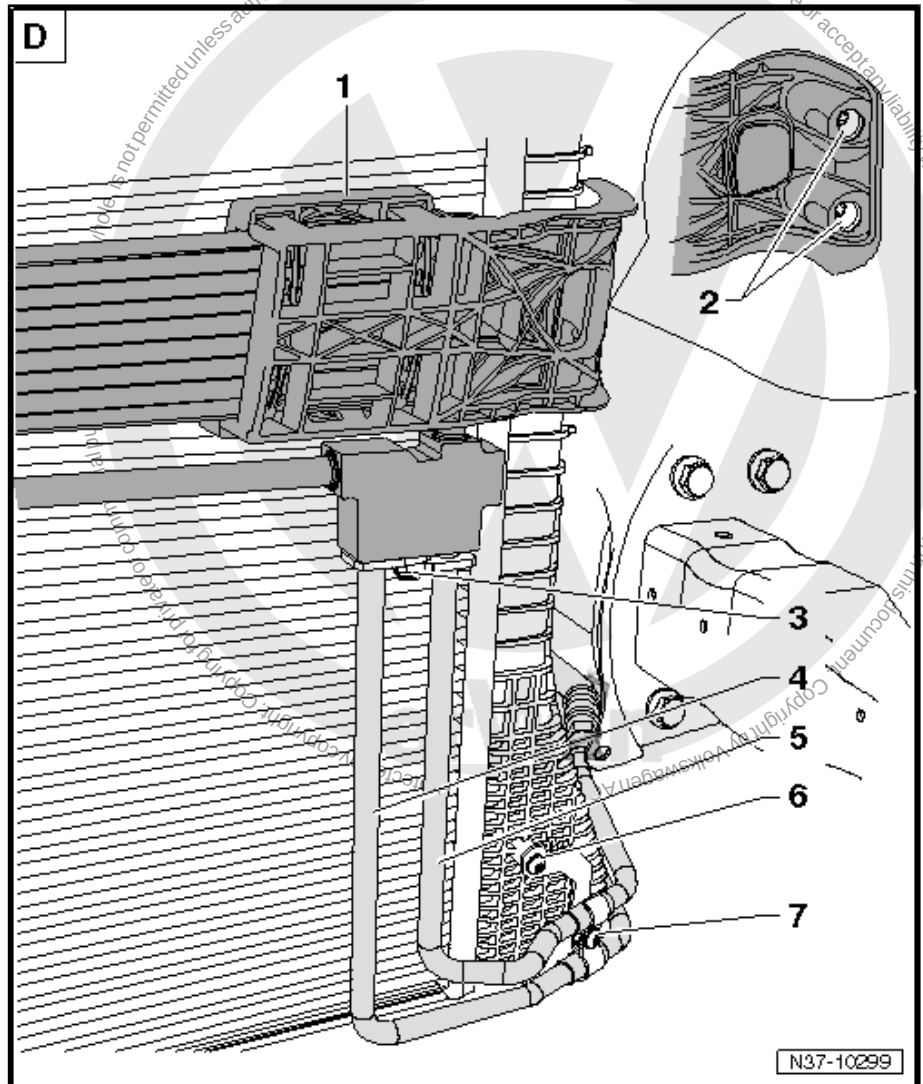
□ Always renew oil seal

6 - Bolt

□ 5 Nm

7 - Bolt

□ 9 Nm





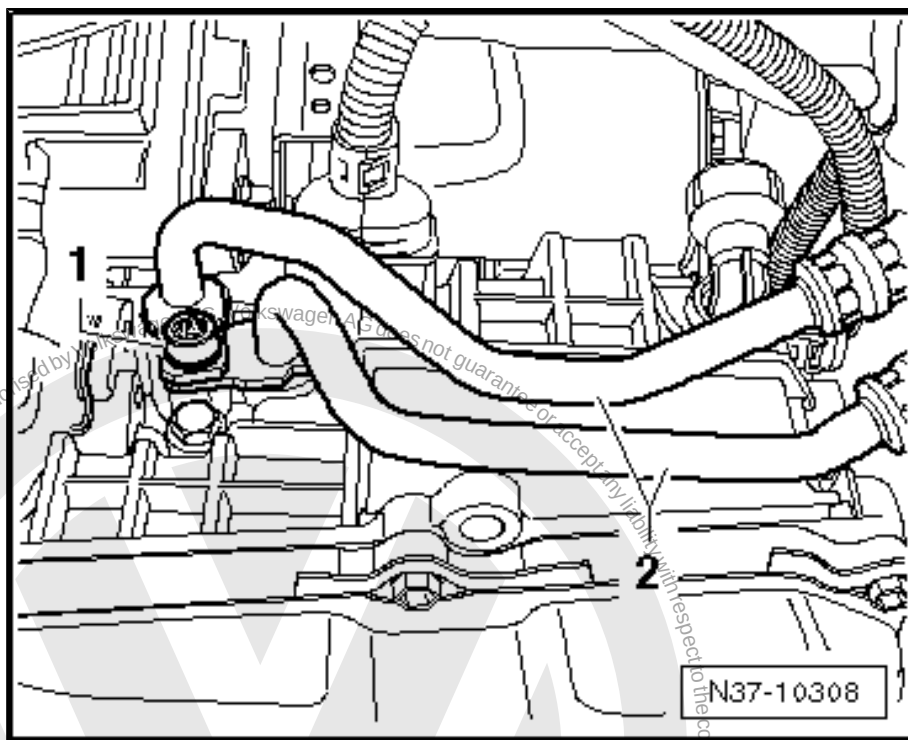
13.1.1 ATF lines

1 - Bolt

- ❑ 20 Nm

2 - ATF line

- ❑ Supply and return lines
- ❑ Always renew oil seal





14 Assembly overview - ATF cooler - Tiguan

1 - ATF cooler

- ☐ Removing and installing
⇒ [page 118](#)

2 - Supply line

- ☐ Connected to ATF cooler with "quick-release connection"

3 - Return line

- ☐ Connected to ATF cooler with "quick-release connection"

4 - Bolt

- ☐ 9 Nm

5 - Seal

- ☐ Square silicone ring
- ☐ Renew "seal set for quick-release connection" in case of leaks
⇒ [page 121](#)
- ☐ Insert with ATF

6 - Seal

- ☐ O-ring
- ☐ Renew "seal set for quick-release connection" in case of leaks
⇒ [page 121](#)
- ☐ Insert with ATF

7 - Clip

- ☐ Observe installation position ⇒ [page 123](#)
- ☐ Secures "quick-release connection", must not be overtightened
- ☐ Renew clip if it has been overstretched ⇒ [page 121](#)

8 - Seal

- ☐ Insert with ATF

9 - Gearbox

10 - Thermostat

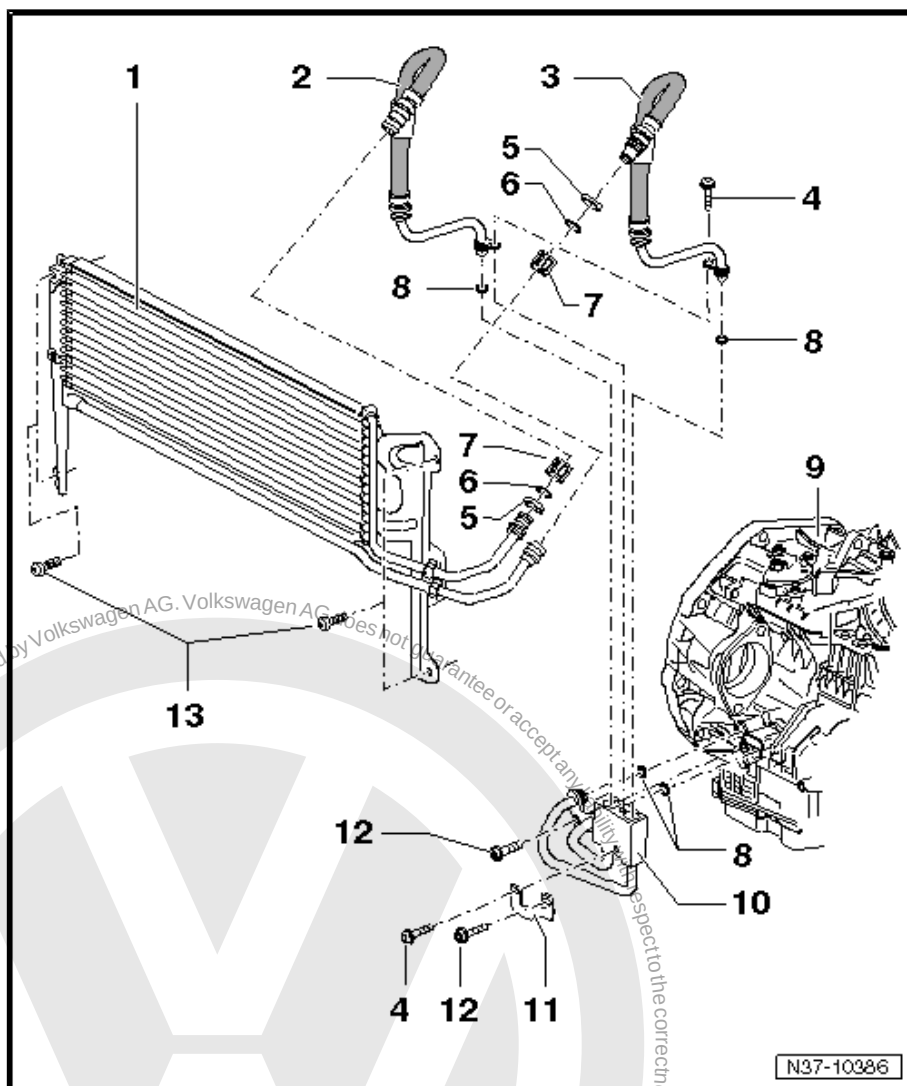
11 - Bracket

12 - Bolt

- ☐ 20 Nm

13 - Bolt

- ☐ 5 Nm





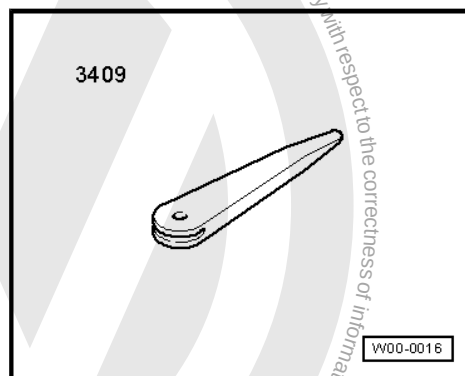
14.1 Removing and installing ATF cooler



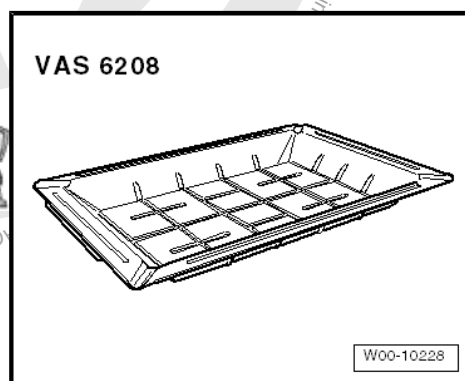
Note

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-



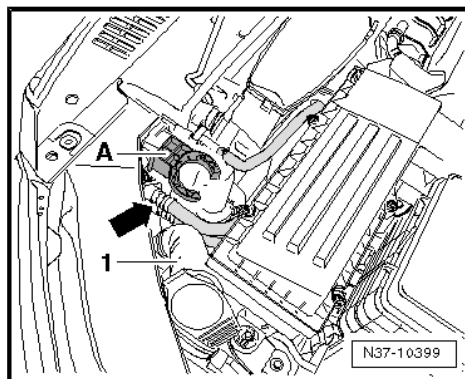
- ◆ Drip tray for workshop hoist - VAS 6208-



- ◆ Retaining ring pliers

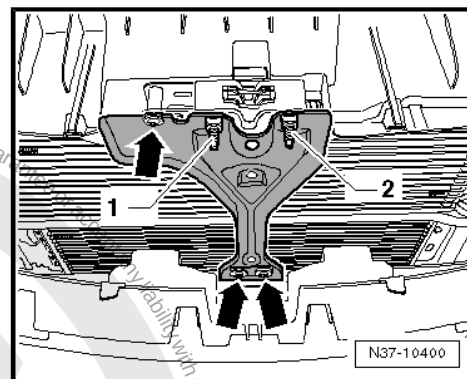
14.1.1 Removing

- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .
- Remove radiator grille ⇒ General body repairs, exterior; Rep. gr. 66 ; Radiator grille .
- Press filler neck -1- of windscreen washer system out of retainer -A- and fix behind headlight.





- Remove bolts -arrows-.
- Remove bolt -1-, only loosen bolt -2-.
- Set drip tray for workshop hoist - VAS 6208- underneath.



Note

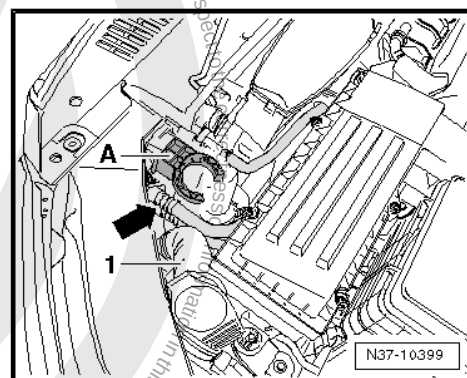
- ◆ Supply and return lines are connected to ATF cooler with a "quick-release connection" -arrow- and secured with a clip.
- ◆ Clip is expanded in order for lines to be pulled off.



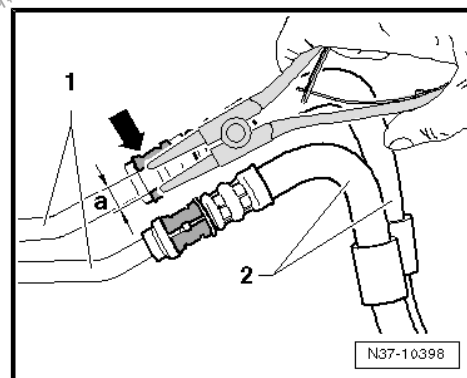
Caution

Do not overstretch clip.

Renew clip if it has been overstretched ⇒ page 121 , do not bend together. Otherwise the connection may come loose later on and ATF leak out.



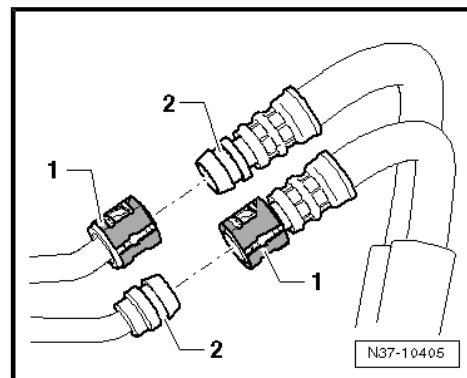
- Expand clip to max. -a- 16 mm and pull lines -2- off ATF cooler -1-.



Note

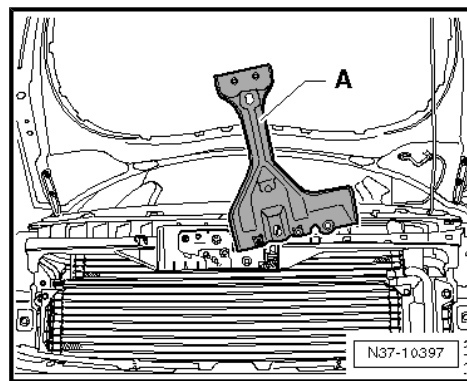
Connections -1- are arranged on opposite sides to prevent the supply and return being mixed up.

- Seal off line openings with suitable plugs.





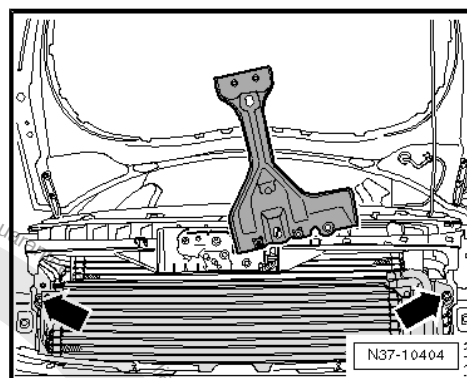
- Turn lock support -A- »clockwise« upwards.



- Remove ATF cooler -arrows-.

There are two more bolts underneath ATF cooler.

- Remove ATF cooler forwards.



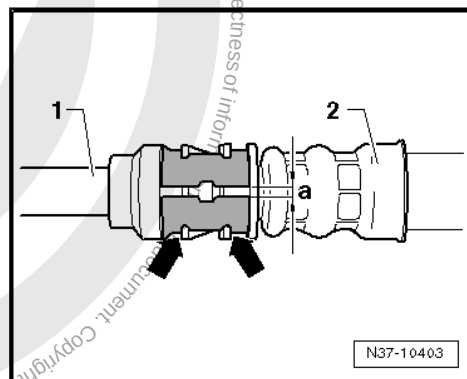
14.1.2 Installing

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

- Insert and tighten ATF cooler. Torque setting:
⇒ [Item 13 \(page 117\)](#) .
- Plug supply and return lines onto connections on ATF cooler.

When pushed on, clip audibly engages in connection -1- with a »clicking noise«.

- Check clip is seated correctly.





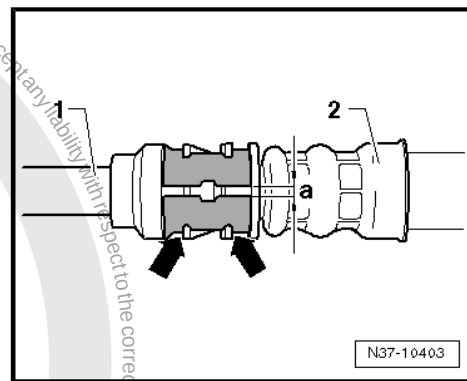
Each clip must be completely seated in groove of connection -2- and connection -1-, dimension -a- is allowed to be max. 5 mm.

If dimension is larger than 5 mm, clip has been overstretched and must be renewed ➔ [page 121](#) .



Caution

Do not bend clip together. Otherwise the connection may come loose later on and ATF leak out.



- Adjust lid lock ➔ General body repairs, exterior; Rep. gr. 55 ; Adjusting lid lock
- Check and top up ATF level ➔ [page 124](#) .

14.2 Renew “seal set for quick-release connection”

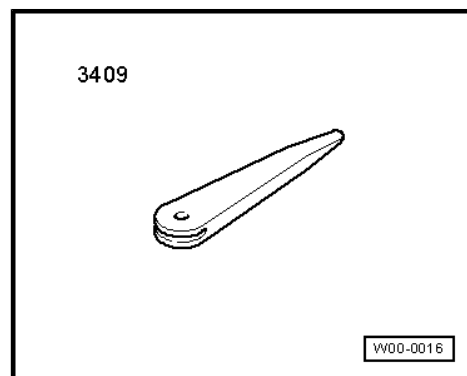


Note

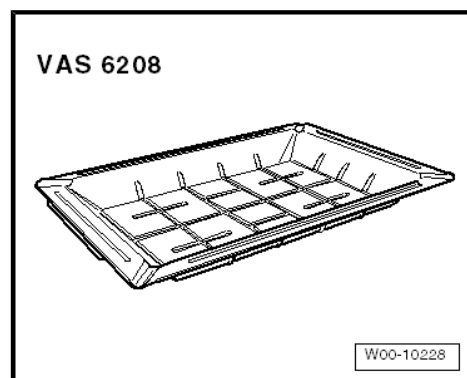
- ◆ Seal set is renewed in case of leaks on the quick-release connection and overstretching.
- ◆ Seal set contains clip ➔ [Item 7 \(page 117\)](#) , seal ➔ [Item 5 \(page 117\)](#) and ➔ [Item 6 \(page 117\)](#) for sealing a quick-release connection ➔ Electronic parts catalogue ➔ ET-KA .

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-



- ◆ Drip tray for workshop hoist - VAS 6208-

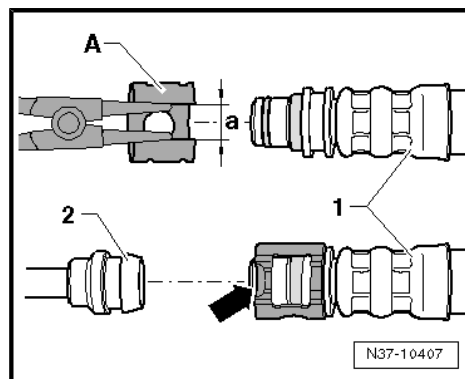


- ◆ Retaining ring pliers



14.2.1 Removing seal set

- Supply and return lines pulled off connection on ATF cooler
⇒ [page 118](#)
- Expand clip -A- and remove from connection.

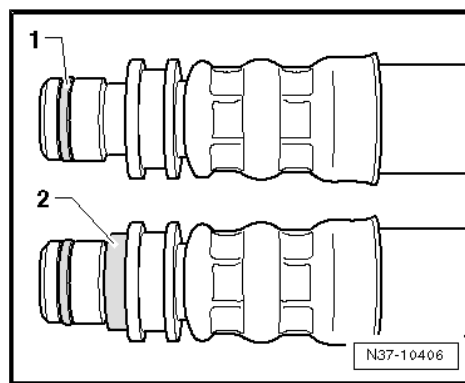


- Lever seals -1- and -2- out of groove.



Caution

Only use plastic tools, e.g. removal wedge - 3409- to lever seals out of groove. Do not use a screwdriver, or leaks may result.



14.2.2 Installing seal set

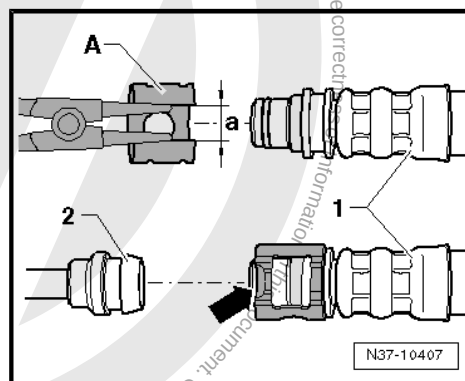
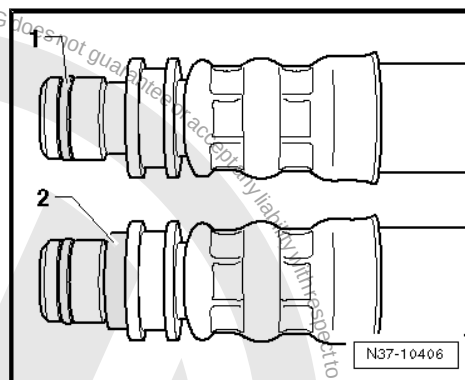
- Coat seal -1- with ATF and insert in groove by hand.
- Coat seal -2- with ATF and carefully push on to stop. Make sure seal does not turn inside out in the process.



Note

Next put on clip. Proceed precisely as described so that clip will not be overstretched.

- Expand clip to max. -a- 16 mm and put onto connection.

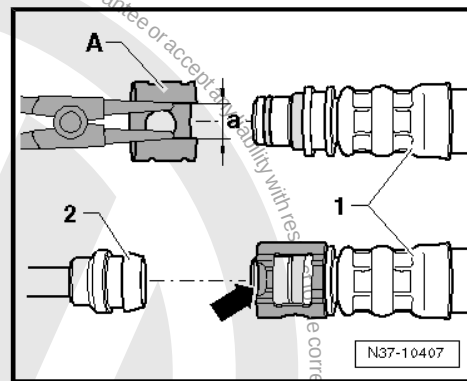




Installation position of clip

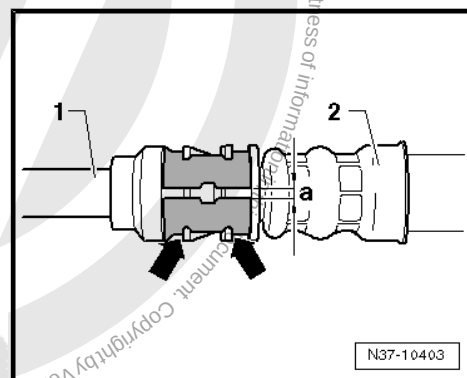
Insertion chamfer -arrow- faces towards connection -2-.

- Plug supply and return lines onto connections on ATF cooler.



When pushed on, clip audibly engages into groove in connection -1- with a »click«.

- Check clip is seated correctly.



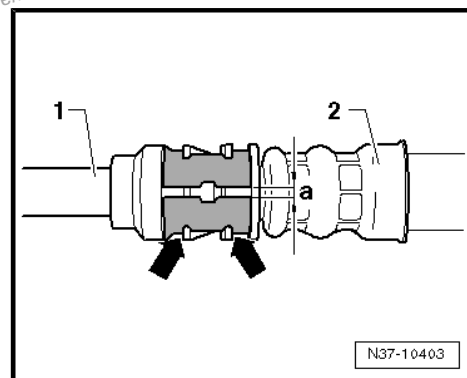
Each clip must be completely seated in groove of connection -2- and connection -1-, dimension -a- is allowed to be max. 5 mm.

If dimension is larger than 5 mm, clip has been overstretched and must be renewed ➔ [page 121](#) .



Caution

Do not bend clip together. Otherwise the connection may come loose later on and ATF leak out.



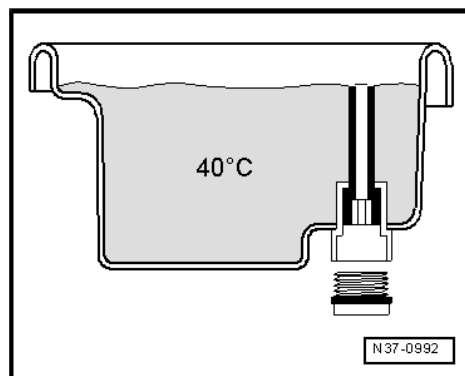
- Check and top up ATF level ➔ [page 124](#) .



15 Checking ATF level and topping up

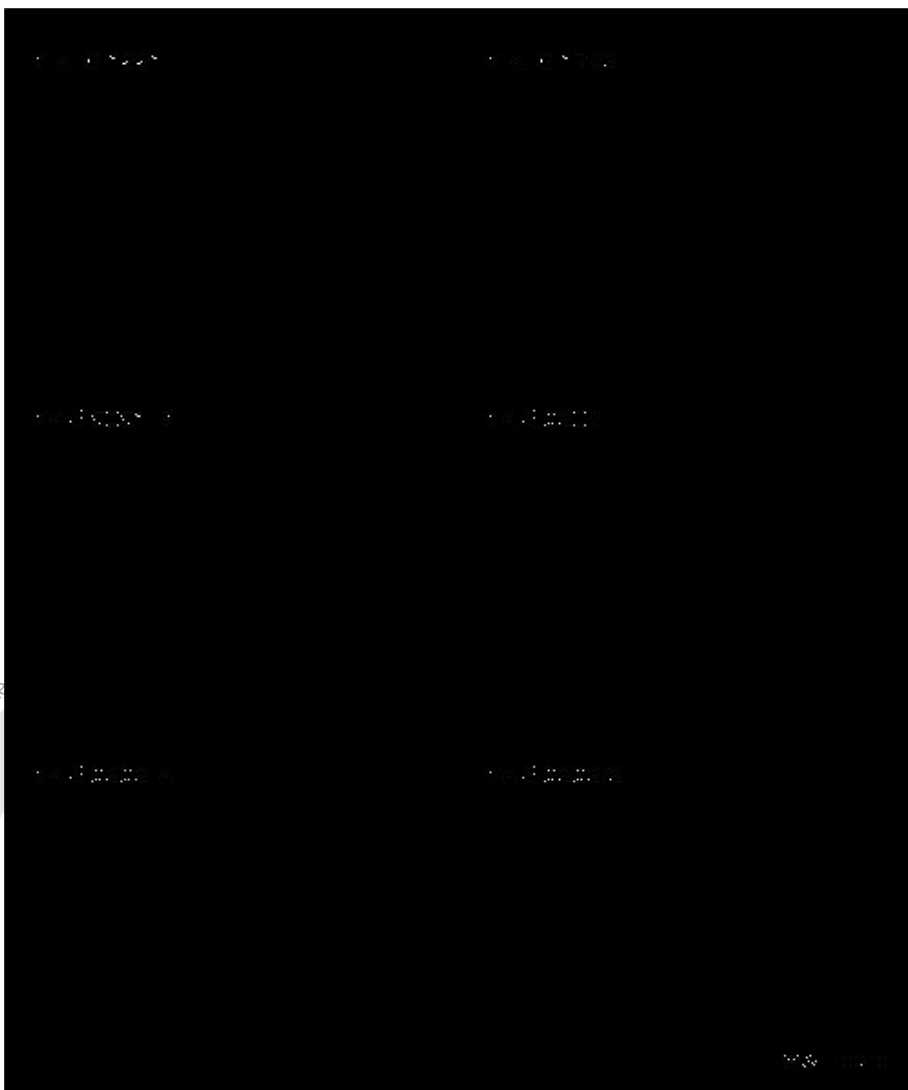
Observe these notes as well.

- ◆ About this workshop manual ⇒ [page 1](#)
- ◆ About ATF ⇒ [page 2](#)
- ◆ About »filler pipe« ⇒ [page 2](#)
- ◆ If necessary, the breather pipe of the adapter for oil filling - VAS 6262 A- has to be shortened ⇒ [page 125](#) .



Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-
- ◆ Used oil collection and extraction unit - V.A.G 1782-
- ◆ Vehicle diagnosis, testing and information system - VAS 5051-
- ◆ Drip tray for workshop hoist - VAS 6208-
- ◆ Adapter for filling oil - VAS 6262 A-
- ◆ Adapter - VAS 6262/2-
- ◆ Not illustrated: pipe cutter - VAS 6056/2-





Shortening breather pipe of adapter for oil filling - VAS 6262 A- :

- In order to ensure that the breather pipe of the adapter for oil filling - VAS 6262 A- does not bump against the bottom of the oil bottle, the pipe must be shortened to the length -a- in the case of some bottles that are used.

Dimension -a- = 210 mm



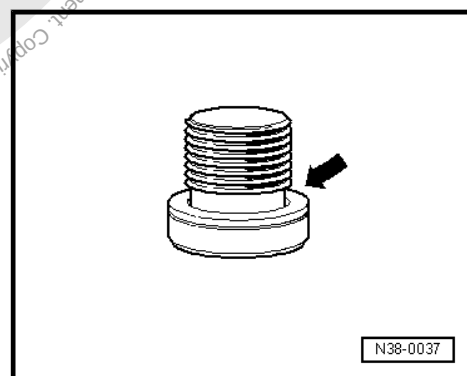
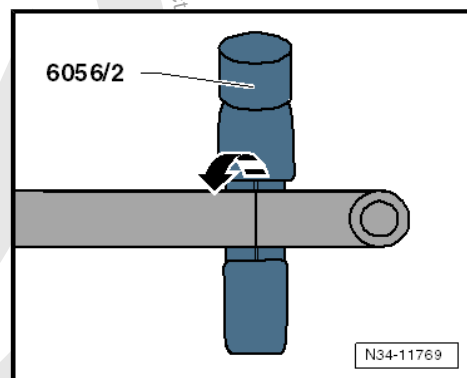
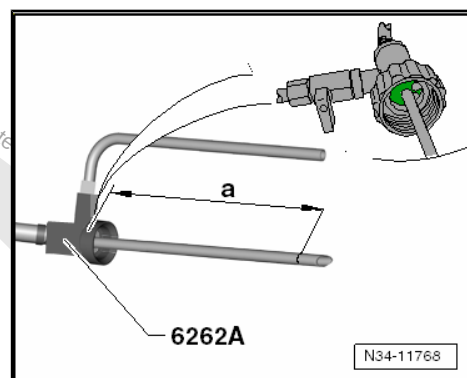
Note

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

- Mark dimension -a- on the breather pipe and shorten pipe with pipe cutter - VAS 6056/2- .

If ATF must be added, use only ATF listed in ➔ Electronic parts catalogue ➔ ETKA .

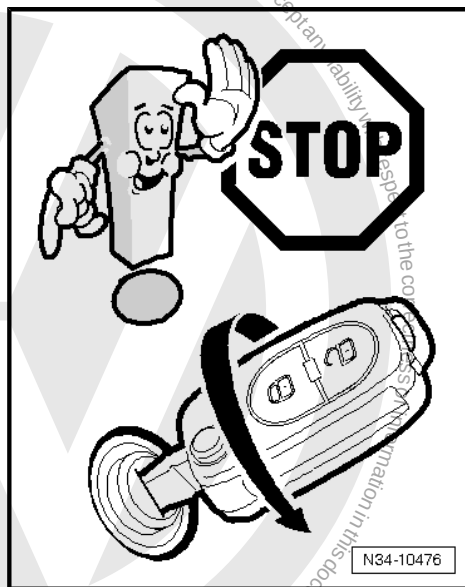
- If ATF level is checked, the oil seal -arrow- on ATF inspection plug must always be renewed.





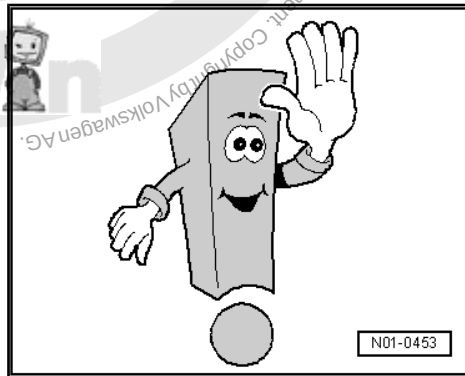
15.1 Checking ATF level

- Switch off engine.



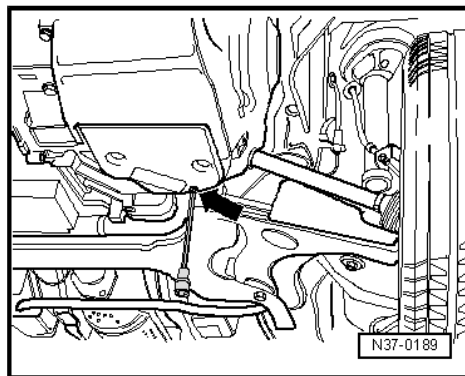
The ATF temperature should not be more than approx. 30° C at the start of the test.

- Gearbox not in emergency running mode; ATF temperature not above approx. 30° C
- Vehicle must be standing level
- Selector lever in "P".
- Connect »tester« and continue switching until it is ready for operation ⇒ [page 14](#) .
- Press **Guided functions** »on right«.
- Then select vehicle, the gearbox and **Check ATF level**.
- Press **↵**.
- Start engine.
- Raise vehicle.
- Place drip tray under gearbox.
- Press **↵**.



If a test temperature between 35° C and 45° C is displayed:

- Remove ATF inspection plug from oil pan.





The ATF present in the overflow pipe runs out.

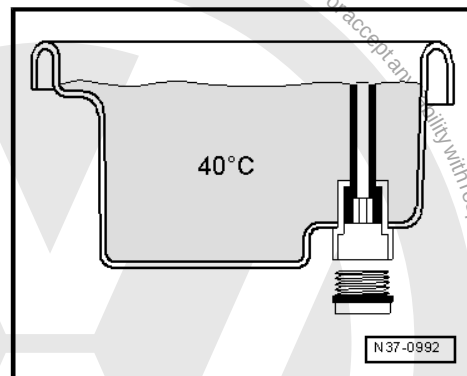
If ATF drips out of drilling:

ATF does not need topping up.

- Install ATF inspection plug with new seal and tighten to 27 Nm.
This completes the ATF check.

If no ATF drips out of inspection hole:

- Top up ATF ⇒ [page 127](#) .



15.2 Topping up ATF

- With engine »running«, screw in adapter for filling oil - VAS 6262/2- hand-tight.
- Shake oil bottles before opening them.
- Before screwing adapter for oil filling - VAS 6262 A- onto oil bottle, take note of the notes regarding the breather pipe ⇒ [page 125](#)
- Add 1 l of ATF.
- Pull off adapter for oil filling - VAS 6262- at quick-release connection and check:

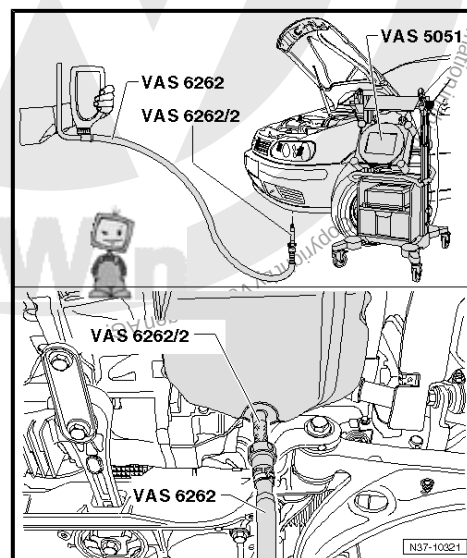
If ATF now flows out of hole in adapter:

ATF does not need topping up.

- Drain ATF until it drips.
- Install ATF inspection plug with new seal and tighten to 27 Nm.
This completes the ATF check.

If no ATF drips out:

- Add another litre ⇒ [page 127](#) .



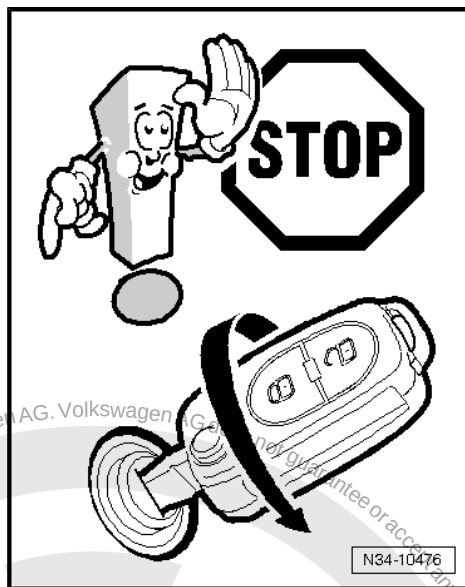
WARNING

An ATF level which is too low or too high will impair the function of the gearbox. But if the gearbox was 2 litres low, it must be carefully inspected. There is probably a »major« leak.

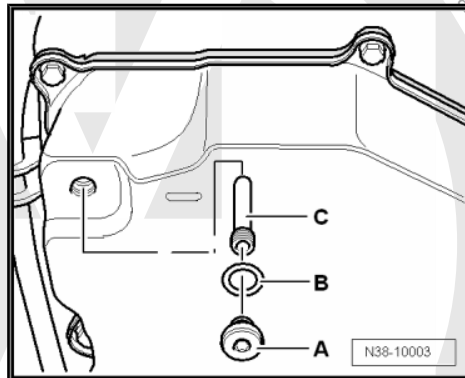


15.3 Draining and filling ATF

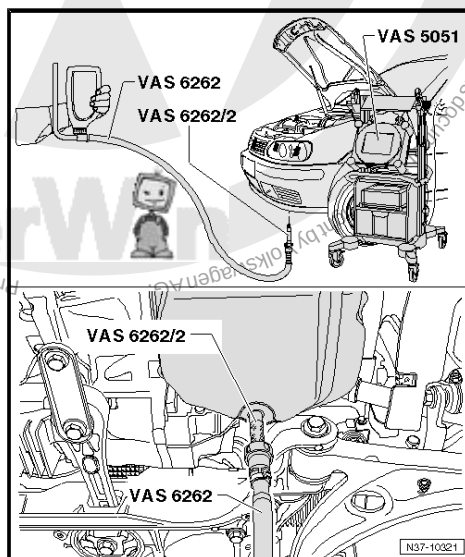
- Switch off engine.



- Unscrew and remove ATF inspection plug -A-.
- Always renew oil seal -B-.
- Unscrew and remove overflow pipe -C-.
- Drain ATF.
- Screw in overflow pipe -C- ➔ [page 144](#) .

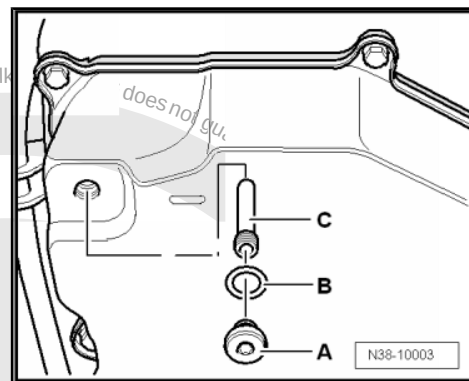


- Screw in oil filler adapter - VAS 6262/2 - hand tight.
- Shake oil bottles before opening them.
- Before screwing adapter for oil filling - VAS 6262 A- onto oil bottle, take note of the notes regarding the breather pipe ➔ [page 125](#)
- Add 3 litres of ATF ➔ Electronic parts catalogue ➔ ETKA .





- Screw in ATF inspection plug -A- hand-tight with new seal -B-.
- Start engine, shift through all selector lever positions with vehicle stationary, leaving selector lever in each position for about 10 seconds.
- Finally, check ATF level and top up ⇒ [page 124](#) .





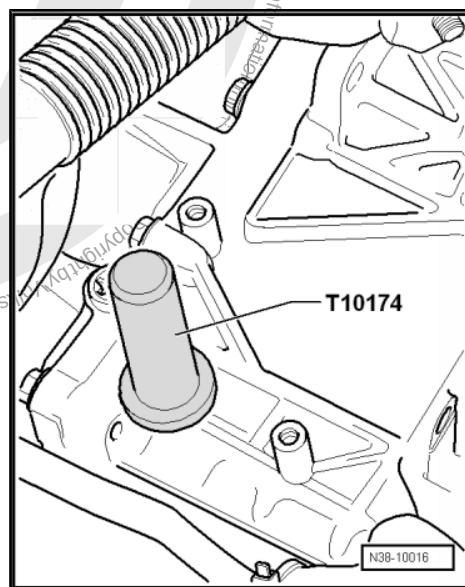
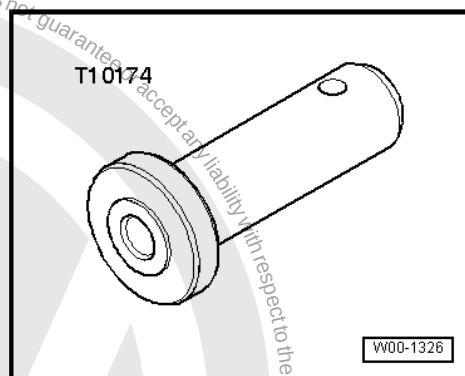
38 – Gears, control

1 Renewing oil seal for selector shaft

Special tools and workshop equipment required

- ◆ Thrust piece - T10174-

- Remove multifunction switch - F125- .
- Carefully lever out selector shaft seal using a screwdriver. Do not damage selector shaft.
- Drive in new seal to stop with thrust piece -T10174-, taking care not to cant seal.
- Adjust multifunction switch -F125- .

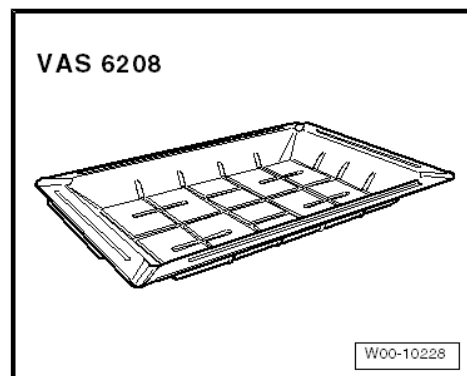




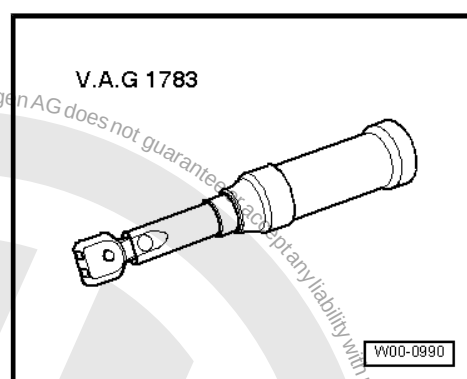
2 Removing and installing oil pan

Special tools and workshop equipment required

- ◆ Drip tray for workshop hoist - VAS 6208-

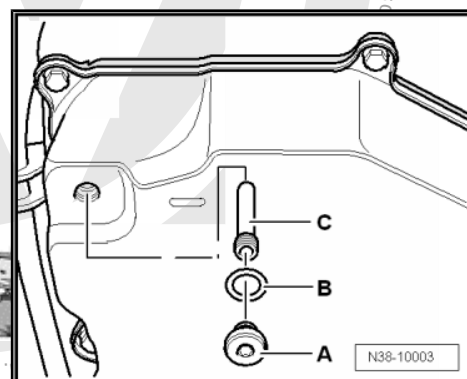


- ◆ Torque wrench - V.A.G 1783-



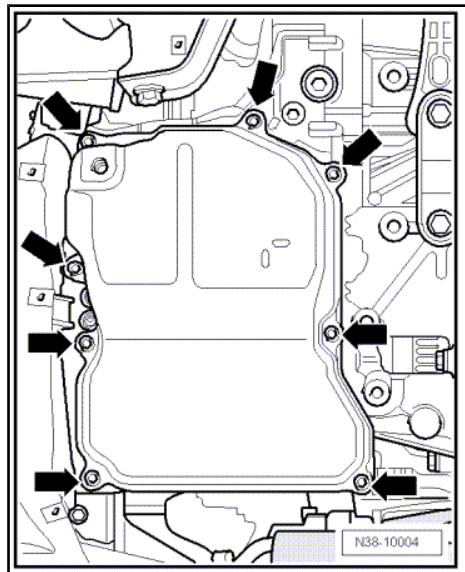
2.1 Removing

- Remove noise insulation below engine.
- Set drip tray for workshop hoist - VAS 6208- underneath.
- Unscrew ATF inspection plug -A-.
- Remove overflow pipe -C- and allow remaining ATF to drain.





- Loosen oil pan bolts -arrows- diagonally.
- Remove oil pan together with gasket.



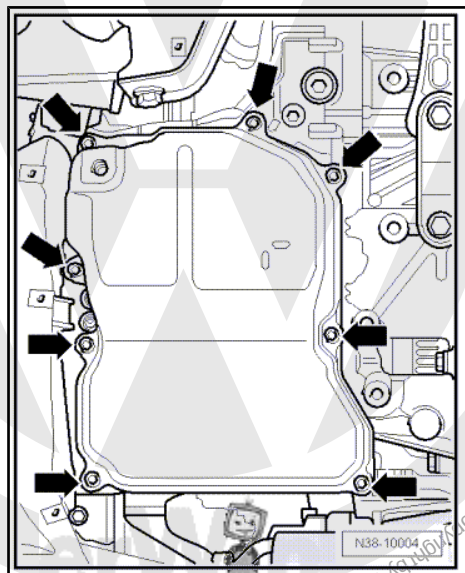
2.2 Installing

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

- Clean the two magnets in recesses of oil pan. Ensure that magnets are seated correctly in pan.
- Check that seal is undamaged and all spacer sleeves (qty. 8) are present.

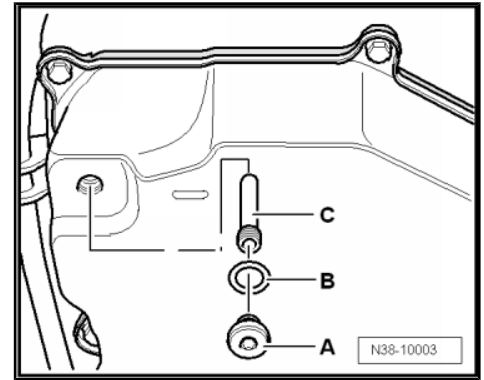
Otherwise renew seal.

- Fit oil sump with seal, taking care not to pinch any wires.
- Ensure that oil pan gasket is seated correctly.
- Tighten pan bolts -arrows- diagonally in several stages
⇒ [page 144](#) .





- Screw in overflow pipe -C- ➔ [page 144](#) .
- Insert seal -B- for ATF inspection plug -A-.
- Fill with ATF; check ATF level and top up ➔ [page 124](#) .

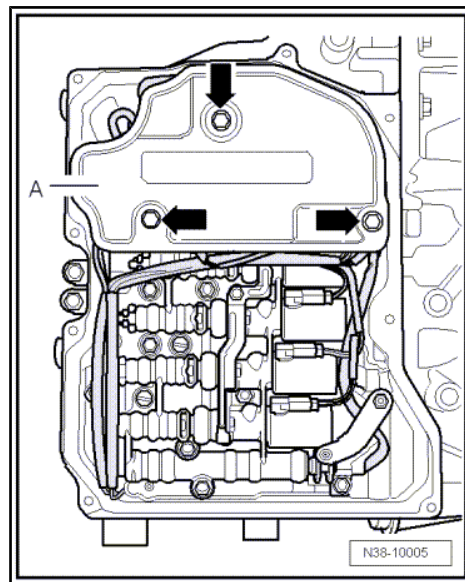




3 Removing and installing ATF strainer

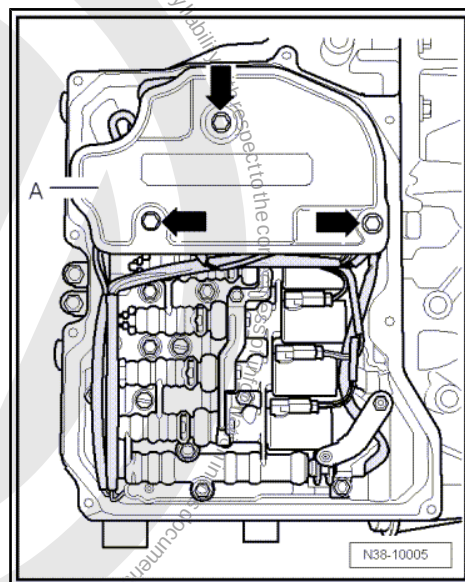
3.1 Removing

- Remove oil pan ➔ [page 131](#) .
- Unscrew ATF strainer bolts -arrows-.
- Pull ATF strainer -A- off valve body.



3.2 Installing

- Thinly coat seals on intake neck of ATF strainer with ATF.
- The ATF strainer must be renewed if seals are loose or defective.
- Place ATF strainer -A- onto valve body and tighten bolts -arrows- ➔ [page 144](#) .
- Install oil pan ➔ [page 132](#) .
- Fill with ATF; check ATF level and top up ➔ [page 124](#) .





4 Removing and installing valve body



WARNING

Do not run engine or tow vehicle with pan removed or when there is no ATF in gearbox.

- ◆ The valve body and the wiring harnesses can also be removed when the gearbox is installed.
- ◆ Moisten seals with ATF before fitting. Other lubricants lead to malfunction of the gearbox hydraulics.
- ◆ Always renew a valve body which is fouled or defective.
- ◆ Do not use fluffy cloths.
- ◆ After the pan has been installed, the ATF level must be checked and topped up ⇒ [page 124](#) .

4.1 Overview - valve chest

1 - ATF inspection plug

- ☐ Checking ATF level and topping up ⇒ [page 124](#)
- ☐ Torque setting ⇒ [page 144](#)

2 - Seal

- ☐ Always renew

3 - Overflow pipe

- ☐ Unscrew to drain ATF
- ☐ Torque setting ⇒ [page 144](#)

4 - Oil pan

- ☐ Removing and installing ⇒ [page 131](#)

5 - Bolt

- ☐ Tighten oil pan bolts diagonally in several stages.
- ☐ Torque setting ⇒ [page 144](#)

6 - Seal

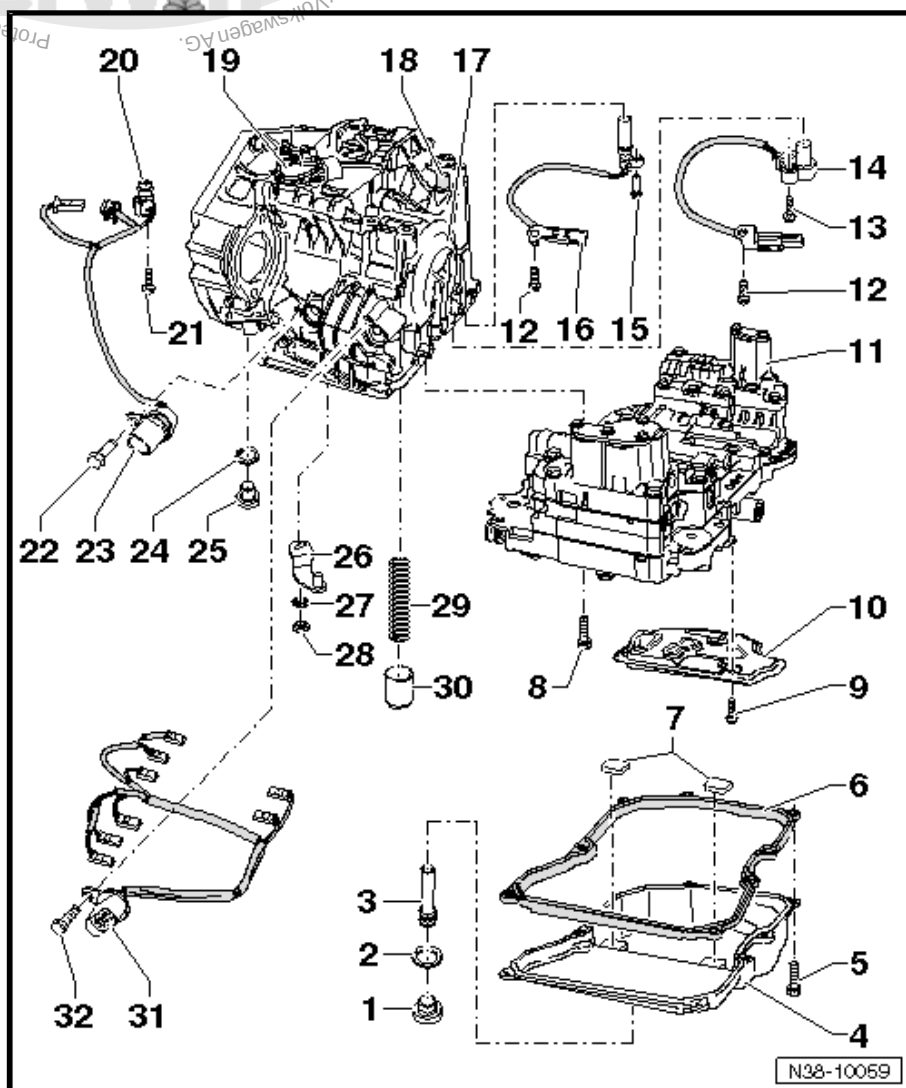
- ☐ With spacer sleeves (qty. 8)
- ☐ Examine before fitting
- ☐ Renew brittle, cracked or deformed seal

7 - Magnet

- ☐ Qty. 2 in depressions in pan
- ☐ Clean oil pan before installing

8 - Bolt

- ☐ For securing valve body in gearbox





- ☐ Qty. 12, various lengths ⇒ [page 141](#)
- ☐ Always renew bolts
- ☐ Torque setting ⇒ [page 144](#)

9 - Bolt

- ☐ Qty. 3
- ☐ For securing strainer to valve body
- ☐ Torque setting ⇒ [page 144](#)

10 - ATF strainer

- ☐ Removing and installing ⇒ [page 134](#)

11 - Valve body

- ☐ Removing ⇒ [page 137](#)
- ☐ Installing ⇒ [page 140](#)
- ☐ Allocation ⇒ Electronic parts catalogue "ETKA"

12 - Bolt

- ☐ Torque setting ⇒ [page 144](#)

13 - Bolt

- ☐ Torque setting ⇒ [page 144](#)

14 - Gearbox input speed sender - G182-

- ☐ Removing and installing ⇒ [page 145](#)

15 - Bolt

- ☐ Torque setting ⇒ [page 144](#)

16 - Gearbox output speed sender - G195-

- ☐ Removing and installing ⇒ [page 146](#)

17 - Gearbox housing

- ☐ Shown here without oil cooler

18 - Breather cap

19 - Multifunction switch - F125-

- ☐ Removing and installing ⇒ [page 23](#)
- ☐ Adjusting ⇒ [page 25](#)

20 - Gearbox oil temperature sender - G93-

- ☐ Integrated into wiring harness
- ☐ Torque setting ⇒ [page 144](#)
- ☐ Removing and installing ⇒ [page 145](#)
- ☐ Cable routing ⇒ [page 142](#) .

21 - Bolt

- ☐ Torque setting ⇒ [page 144](#)

22 - Bolt

- ☐ Torque setting ⇒ [page 144](#)

23 - Wiring harness for sender

- ☐ With gearbox oil temperature sender - G93-
- ☐ For gearbox input speed sender - G182-
- ☐ For gearbox output speed sender - G195-
- ☐ Always renew oil seal on housing
- ☐ Removing and installing ⇒ [page 145](#)
- ☐ Cable routing ⇒ [page 142](#) .
- ☐ Allocation ⇒ Electronic parts catalogue "ETKA"



24 - Seal

- ☐ Always renew

25 - ATF drain plug

- ☐ Torque setting ⇒ [page 144](#)

26 - Selector lever

- ☐ For selector shaft
- ☐ Removing and installing ⇒ [page 138](#)

27 - Washer

28 - Nut

- ☐ Location: centring collar faces washer ⇒ [Item 27 \(page 137\)](#)
- ☐ Torque setting ⇒ [page 144](#)

29 - Spring

- ☐ Allocation ⇒ Electronic parts catalogue "ETKA"

30 - Damper piston

31 - Wiring harness for solenoid valves

- ☐ Always renew oil seal on housing
- ☐ Removing and installing ⇒ [page 145](#)
- ☐ Cable routing ⇒ [page 142](#) .

32 - Bolt

- ☐ Torque setting ⇒ [page 144](#)

4.2 Removing valve body

Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1331-

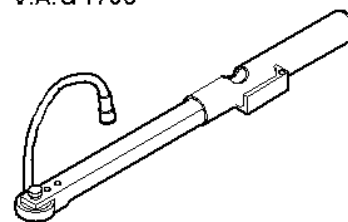
V.A.G 1331



W00-0427

- ◆ Angle wrench - V.A.G 1756-

V.A.G 1756



W00-0449

- Remove oil pan ⇒ [page 131](#) .



- Remove ATF strainer ➔ [page 134](#) .
- Pull connectors off solenoid valves ➔ [Item 1 \(page 143\)](#)
through ➔ [Item 8 \(page 143\)](#) .

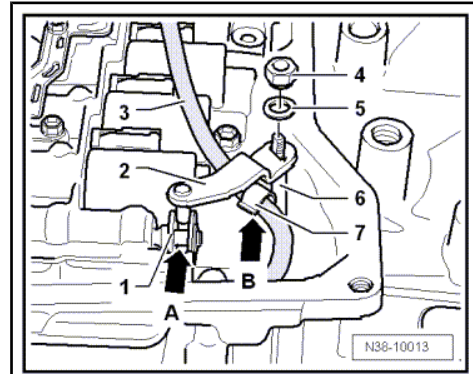
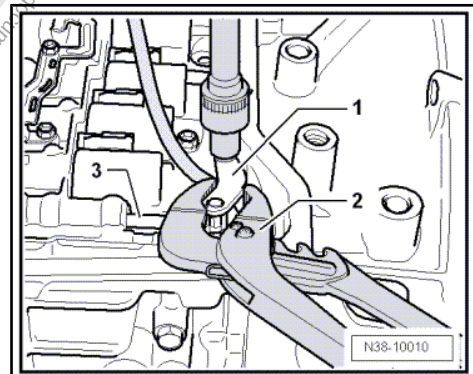
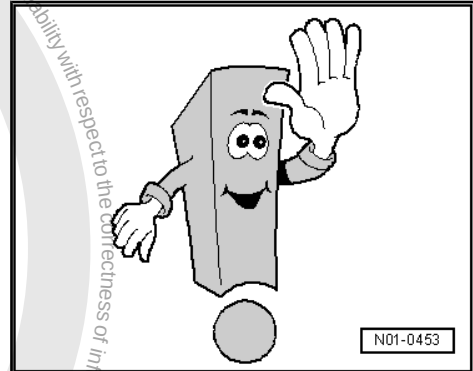
A flat-blade screwdriver with a shaft diameter of 2.5 mm is well suited to release connector housing on solenoid valves.



Caution

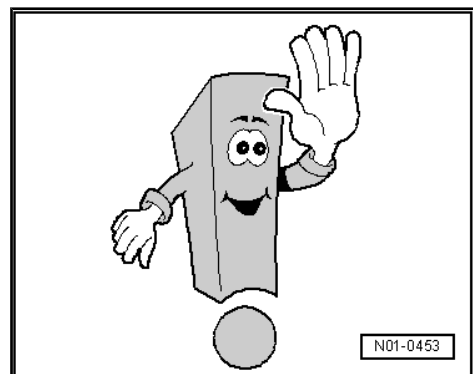
If a connector is damaged, the wiring harness and the valve body must be replaced together with the solenoid valves.

- Separate connectors ➔ [Item A \(page 143\)](#) and
➔ [Item B \(page 143\)](#) .
- Unbolt retainer for connectors ➔ [Item 1 \(page 144\)](#) and
➔ [Item 2 \(page 144\)](#) .
- Unscrew gearbox oil temperature sender - G93-
➔ [Item 3 \(page 144\)](#) and carefully pull out of valve body.
- Remove selector lever -1- from selector shaft.
- In the process, carefully grip selector lever -1- with pliers -2-
so that torque is not transferred to multifunction switch - F125.



The spool valve is very »sensitive«. Even the slightest damage will lead to faults in operation.

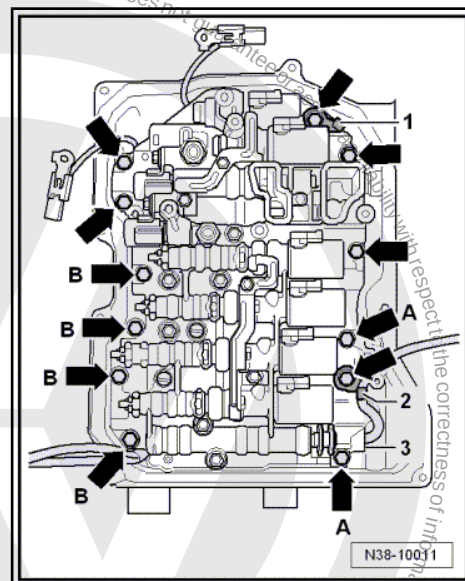
- Therefore, always push spool valve into valve body, secure against falling out and never interchange.



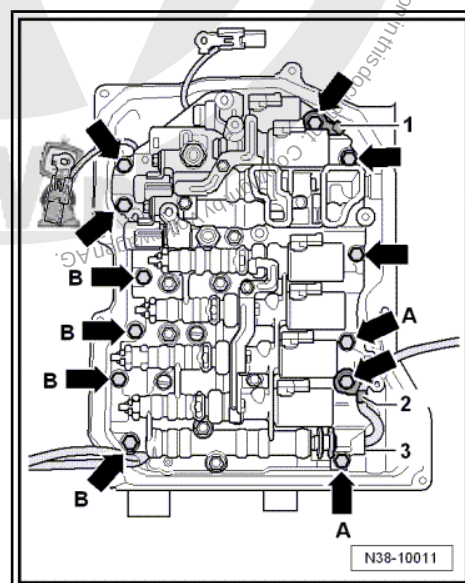


- Loosen marked bolts (Qty. 12) -arrows-.

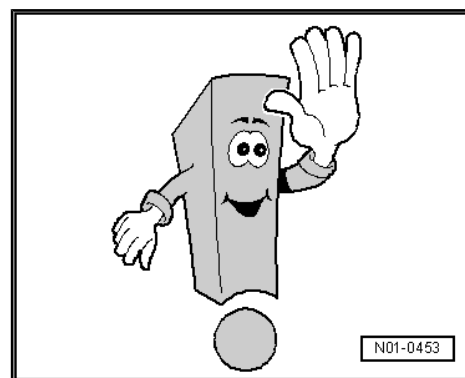
If other bolts are loosened, the function of the valve body is impeded or the valve body falls to pieces.



- Unbolt brackets -1- and -2-.

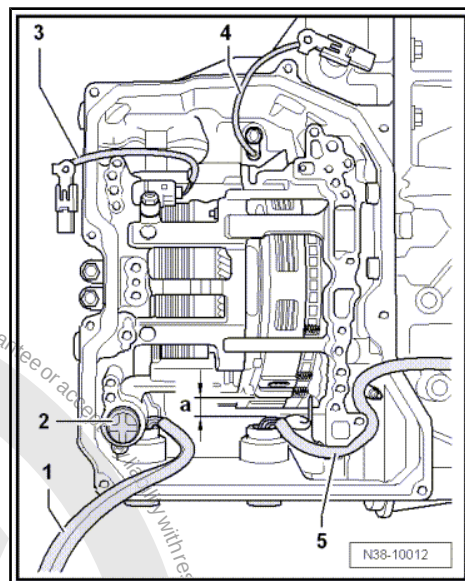


- Unbolt valve body and remove.





- When removing valve body, observer damper piston -2-.
- Remove piston with spring.

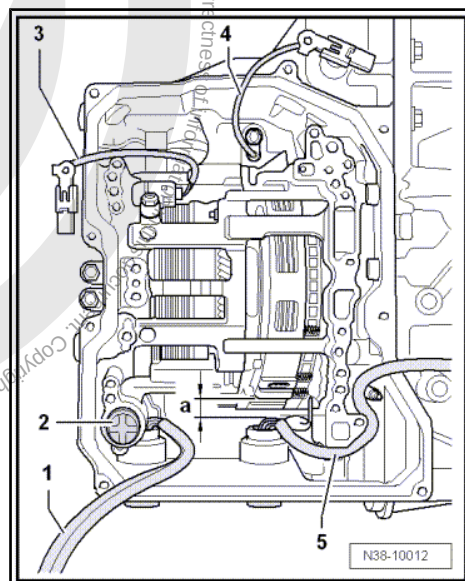


4.3 Installing valve body

So that no wiring is pinched during installation:

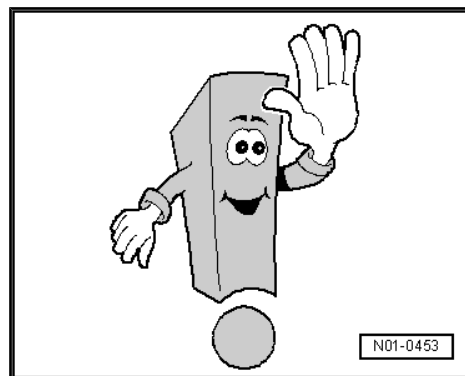
- Route wires -1-, -3-, -4- and -5- as shown in figure and fix them in place.

The distance -a- must be maintained to prevent wiring harness -5- from coming into contact with planetary gearbox and thereby becoming damaged during vehicle operation.



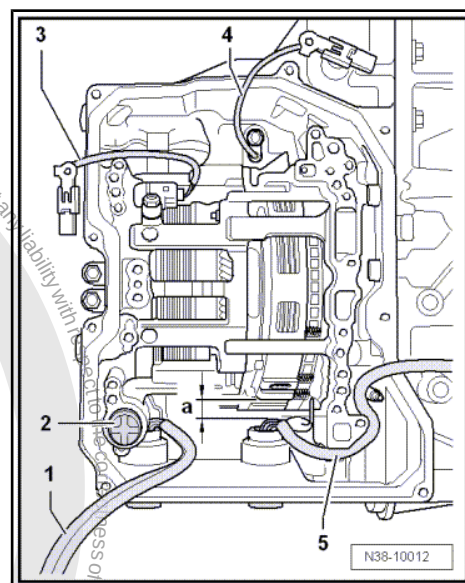
The valve body is secured with bolts of three different lengths.

- Before installing valve body, sort bolts by length.





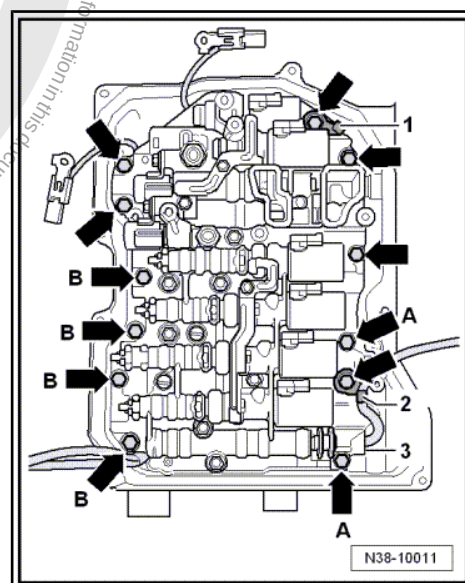
- Coat damper piston -2- with ATF and insert with spring.
- Carefully insert valve body and start 2 bolts.



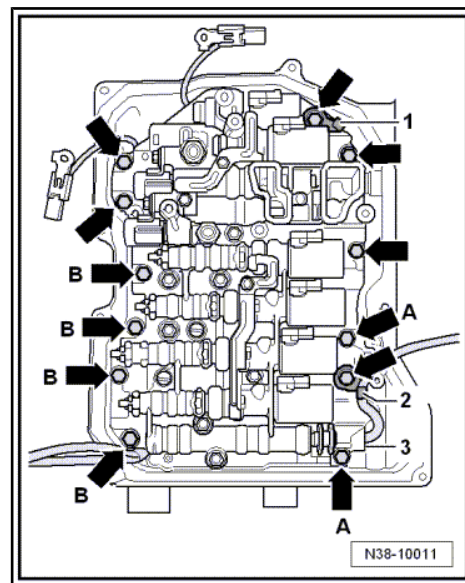
Lengths of bolts and location on valve body

Bolts -arrows-	M 6x21, Qty. 3
Bolts -arrows A-	M 6x16, Qty. 2
Bolts -arrows B-	M 6x28, Qty. 4

- Check that no wire is pinched.

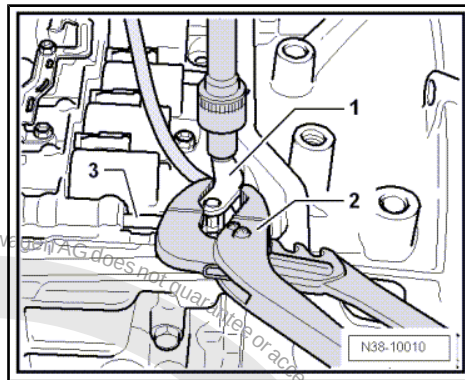


- First fit remaining bolts and retainers -1- and -2- and tighten by hand.
- Install gearbox oil temperature sender - G93- and tighten; torque settings ➔ [page 144](#) .
- Push connector (Qty. 8) onto solenoid valves ➔ [page 142](#) .
- Tighten retainer for connectors ➔ [page 142](#) ; torque setting ➔ [page 144](#) .
- Push on connectors ➔ [Item A \(page 143\)](#) and ➔ [Item B \(page 143\)](#) .
- Tighten valve body diagonally from centre outwards; torque setting ➔ [page 144](#) .
- Install selector lever.





- Tighten selector lever nut -1- to specified torque
⇒ [page 144](#) .
- In the process, carefully grip selector lever -2- with pliers -3- so that torque is not transferred to multifunction switch - F125- .
- Install ATF strainer ⇒ [page 134](#) .
- Install oil pan ⇒ [page 132](#) .
- Fill with ATF; check ATF level and top up ⇒ [page 124](#) .
- Connect -VAS 5051- and continue to advance until "Function/component selection" is displayed.
- Then press "Drive (Repair group 01; 10...26; 28...39)".
- Then "6-speed automatic gearbox 09G".
- Press "01 - Self-diagnosis".
- Press "Functions".
- Press "Basic setting".



4.3.1 Wire routing, connectors, connections and retainer on valve body

This chapter contains information and figures pertaining to work on the valve body.

Wire routing, connectors and connections



1 - Solenoid valve 4 - N91-

- ☐ Colour of wire to valve:
green/brown

2 - Solenoid valve 6 - N93-

- ☐ Colour of wire to valve:
green/grey

3 - Solenoid valve 5 - N92-

- ☐ Colour of wire to valve:
yellow/violet

4 - Solenoid valve 9 - N282-

- ☐ Colour of wire to valve:
red/blue

5 - Solenoid valve 10 - N283-

- ☐ Colour of wire to valve:
white/black

6 - Solenoid valve 3 - N90-

- ☐ Colour of wire to valve:
green/blue

7 - Solenoid valve 1 - N88-

- ☐ Colour of wire to valve:
white

8 - Solenoid valve 2 - N89-

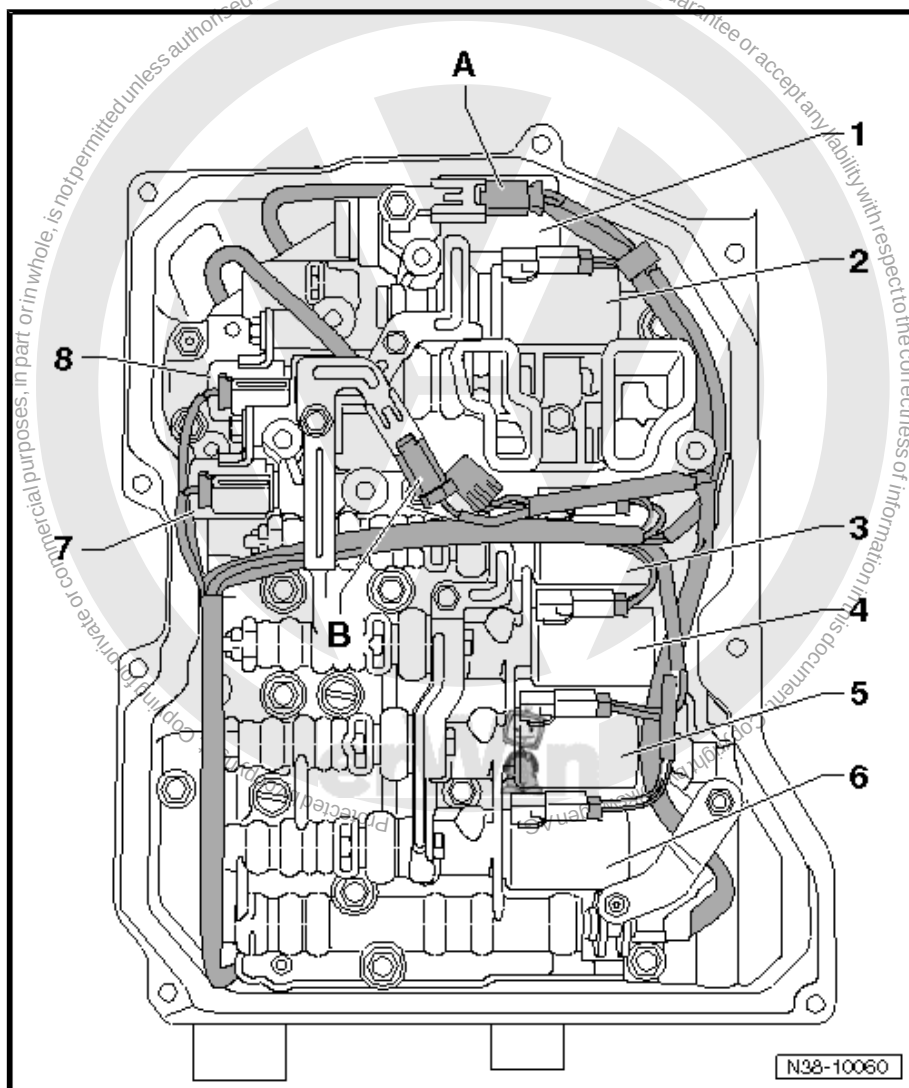
- ☐ Colour of wire to valve:
black

**A - Connection for gearbox
output speed sender - G195-**

- ☐ Colour of wire to sender:
blue/orange

**B - Connection for gearbox in-
put speed sender - G182-**

- ☐ Colour of wire to sender:
white/red



Retainer for connectors, fixing wires in place



**1 - Retainer for connection
gearbox output speed sender -
G195-**

- ❑ Torque setting
⇒ [page 144](#)

**2 - Retainer for connection
gearbox input speed sender -
G182-**

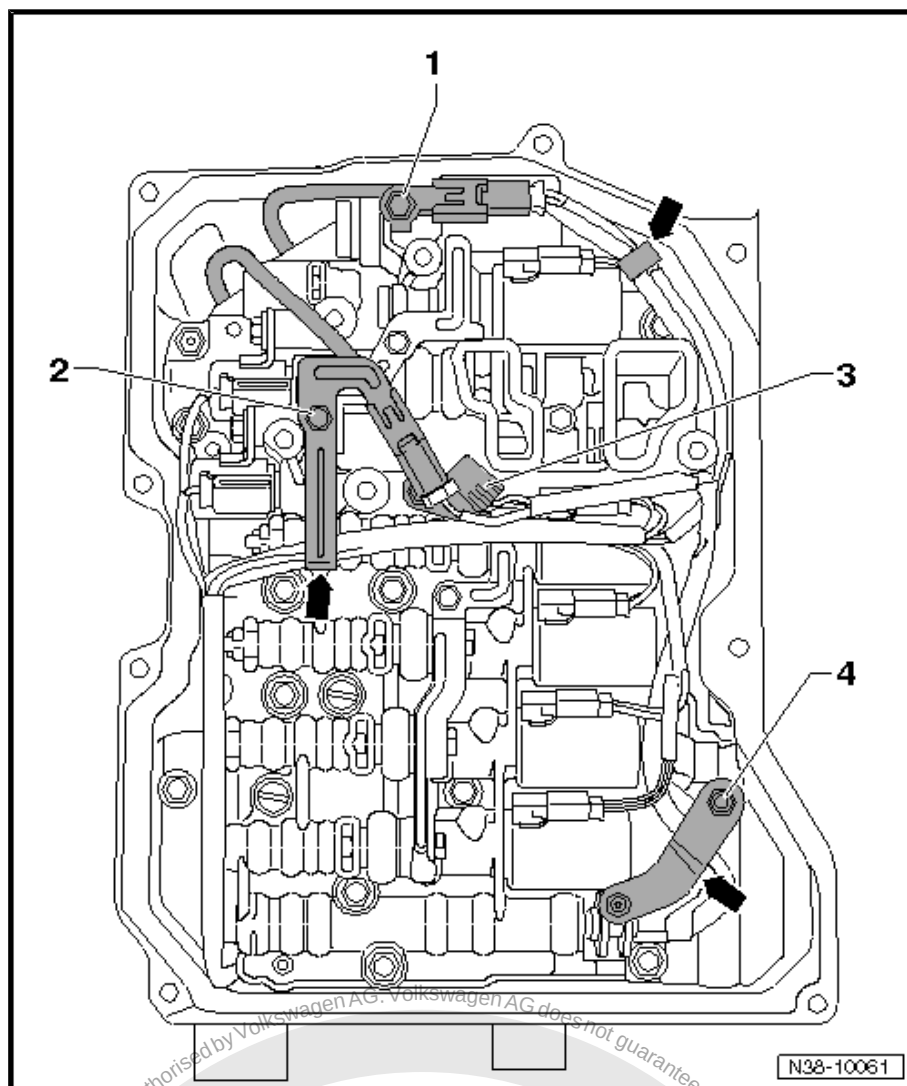
- ❑ Torque setting
⇒ [page 144](#)

**3 - Gearbox oil temperature
sender - G93-**

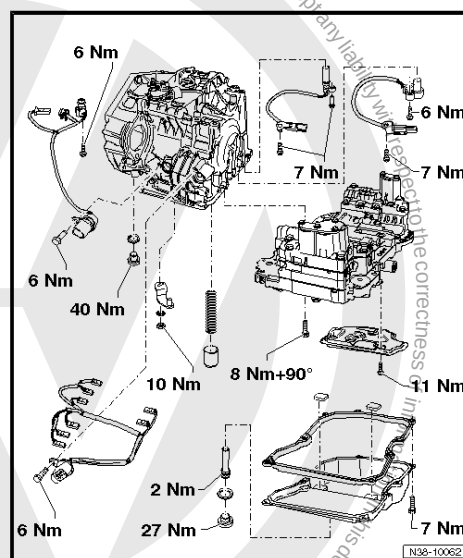
- ❑ Colour of wire on sender:
orange/orange

4 - Selector lever

- ❑ Torque setting
⇒ [page 144](#)



4.4 Specified torques

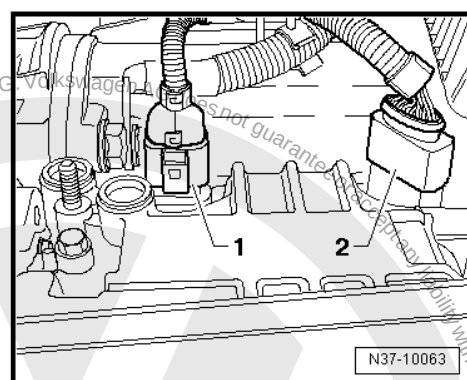




5 Removing and installing wiring harness for solenoid valves and senders

5.1 Removing

- Drain ATF ⇒ [page 128](#) .
- Remove oil pan ⇒ [page 131](#) .
- Remove ATF strainer ⇒ [page 134](#) .
- Remove valve body ⇒ [page 137](#) .
- Pull connector off gearbox.
- 1- connector for sender in gearbox
- 2- Connector for solenoid valves
- Unbolt connector housing from gearbox.
- Pull connector housing with wiring harness outwards out of gearbox housing.



5.2 Installing

- Renew seal on connector housing.
- Carefully thread wiring harness into gearbox from outside.
- Moisten seal on connector housing with ATF and press connector housing into gearbox to stop.
- Tighten connector housing; torque setting ⇒ [page 144](#) .
- Install valve body ⇒ [page 140](#) .
- Install ATF strainer ⇒ [page 134](#) .
- Install oil pan ⇒ [page 132](#) .
- Fill with ATF; check ATF level and top up ⇒ [page 124](#) .

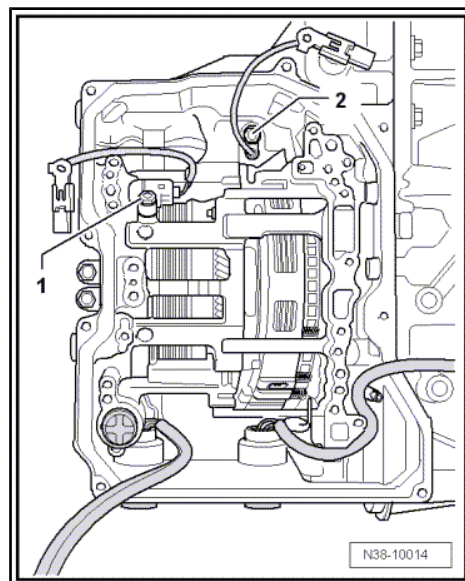
5.3 Removing and installing gearbox input speed sender - G182-

5.3.1 Removing

- Remove valve body ⇒ [page 137](#) .



- Unscrew bolt -1- from gearbox input speed sender - G182- .
- Pull sender out of gearbox.



5.3.2 Installing

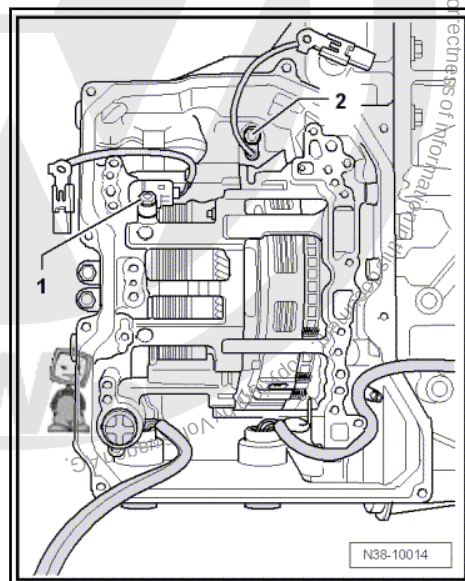
Install in reverse order of removal. During this step, observe the following:

- Press sender into gearbox to stop.
- Tighten bolt -1- for gearbox input speed sender - G182- ; torque specifications ➔ [page 144](#) .
- Install valve body ➔ [page 140](#) .

5.4 Removing and installing gearbox output speed sender - G195-

5.4.1 Removing

- Remove valve body ➔ [page 137](#) .
- Unscrew bolt -2- from gearbox output speed sender - G195- .
- Pull sender out of gearbox.



5.4.2 Installing

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



- Press sender into gearbox to stop.
- Tighten bolt -2- for gearbox output speed sender - G195- ; torque specifications ➤ [page 144](#) .
- Install valve body ➤ [page 140](#) .

Torque settings ➤ [page 144](#)





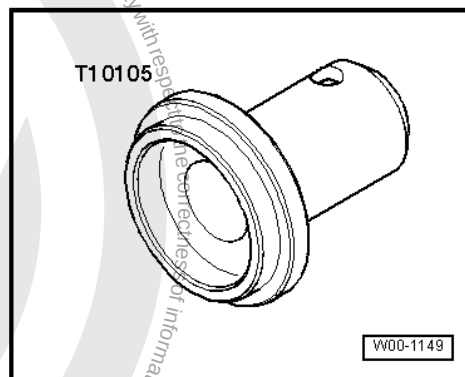
39 – Final drive - front differential

1 Renewing oil seals for flange shafts

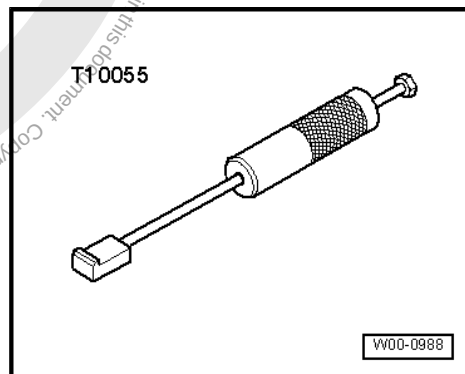
1.1 Renewing left oil seal - front and all-wheel drive vehicles

Special tools and workshop equipment required

◆ Thrust piece - T10105-



◆ Puller - T10055-



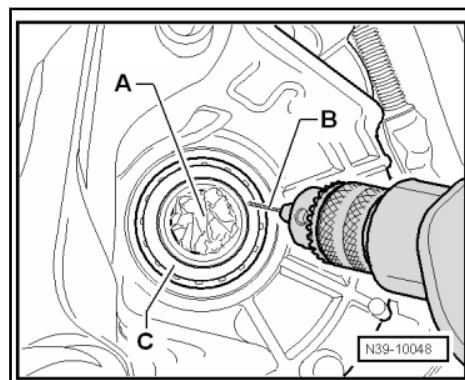
1.1.1 Removing left oil seal

- Remove drive shaft ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR 2600i .
- Seal drive shaft aperture on transmission with a clean cloth -A-.
- Grease drill -B- so that metal chips adhere.



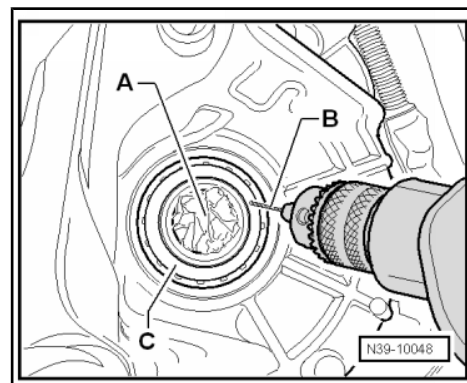
Note

Drill only through sheet metal ring -C- because gearbox may otherwise be damaged.





- Carefully drill -B-a hole (size 2...4 mm) into outer sheet metal ring of oil seal.

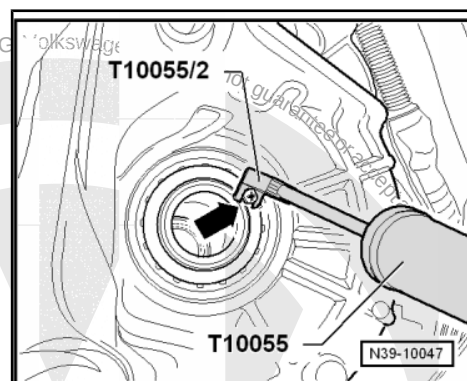


- Screw a self-tapping screw, approx. 4 mm in diameter, into hole drilled in oil seal -arrow-.



Note

Do not screw in sheet metal screw too far to avoid damaging bearing behind it.



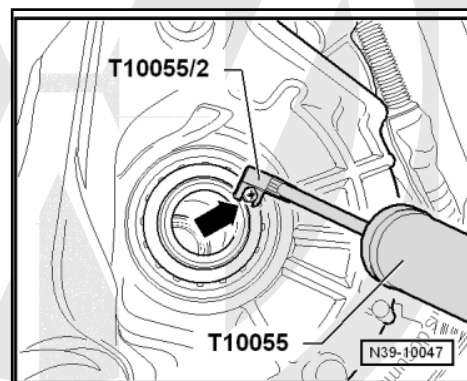
- Pull out oil seal using puller - T10055- and adapter - T10055/2- .
- Remove cloth and clean area.

No metal swarf must enter gearbox or flange shaft. If necessary vacuum up swarf.



Note

If only the sheet metal ring of seal could be pulled out, carefully lever out rest of seal with a screwdriver.



1.1.2 Installing left seal

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

- Apply ATF to circumference and sealing lips of oil seal.

Installation position:

Open side of oil seal faces gearbox.

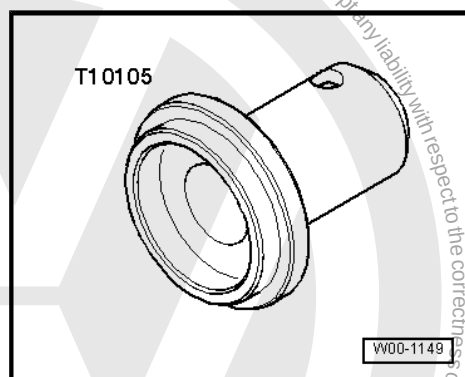
- Drive in seal to stop with thrust piece - T10176- , being careful not to cant seal.
- Install drive shaft ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Installing drive shafts with triple-roller joint AAR 2600i .
- Check and top up ATF level ⇒ [page 124](#) .
- Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .



1.2 Renewing right oil seal - front-wheel drive vehicles

Special tools and workshop equipment required

- ◆ Thrust piece - T10105-

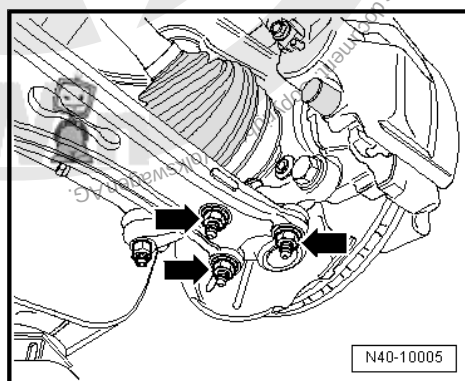


1.2.1 Removing right oil seal

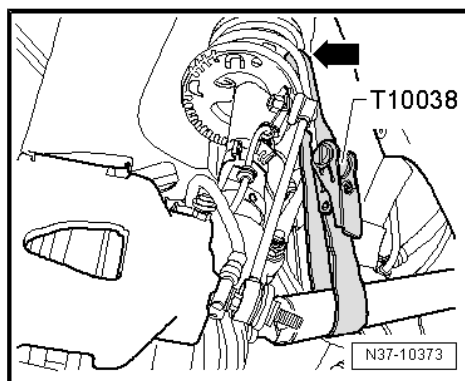
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .
- Mark position of -nuts- securing wishbone to suspension strut.

During assembly, reinstall in exactly the same position.

- Unbolt lower suspension link from suspension strut.
- Set drip tray for workshop hoist - VAS 6208- underneath.
- Press drive shaft off gearbox. For procedure, refer to ⇒ Rep. gr. 40 ; Repairing drive shaft; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR 2600i .



- Raise right drive shaft as far as possible and secure to suspension strut in this position.
- Carefully lever out oil seal, ensuring that shaft in gearbox is not damaged.



1.2.2 Installing right seal

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

- Apply ATF to circumference and sealing lips of oil seal.
- Drive in seal to stop with thrust piece - T10105- , being careful not to cant seal.
- Install drive shaft ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Installing drive shafts with triple-roller joint AAR 2600i .
- Check and top up ATF level ⇒ [page 124](#) .



- Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .

1.3 Renewing right oil seal - all-wheel drive vehicles

- Bevel box removed.

Remove bevel box ⇒ [page 183](#) .

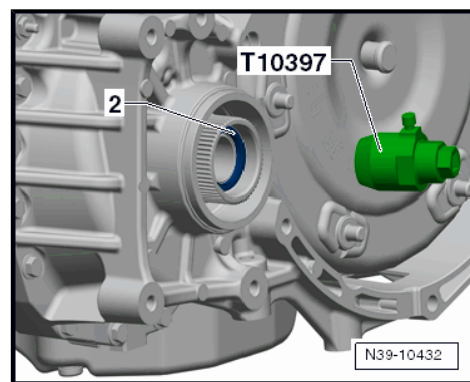
Special tools and workshop equipment required

- ◆ Torque wrench - V.A.G 1332-
- ◆ Oil seal extractor - T10397-
- ◆ Oil seal extractor - T10398-
- ◆ Assembly tool - T10399-
- ◆ Thrust piece - T10400-



1.3.1 Removing small oil seal

- Turn -oil seal extractor- into oil seal -2-.





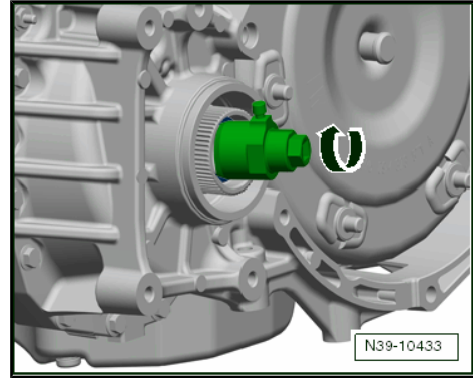
- Pull out oil seal.



Note

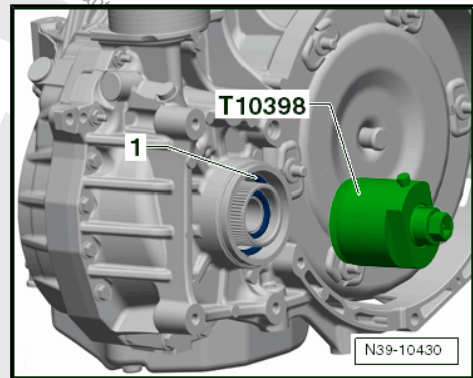
If the seal slips off:

- Apply oil ring extractor again and pull out seal.



1.3.2 Removing large oil seal

- Turn -oil seal extractor- with 100 Nm torque into oil seal -1-.



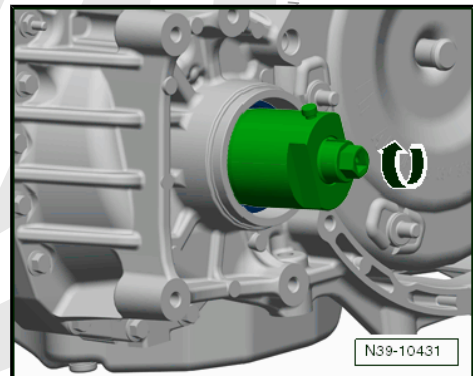
- Pull out oil seal.



Note

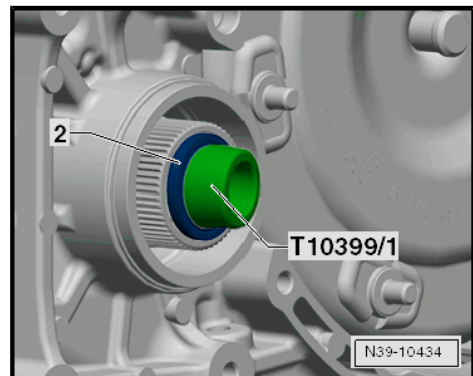
If the seal slips off:

- Turn oil seal extractor with 120 Nm torque into oil seal.
- Pull out oil seal.



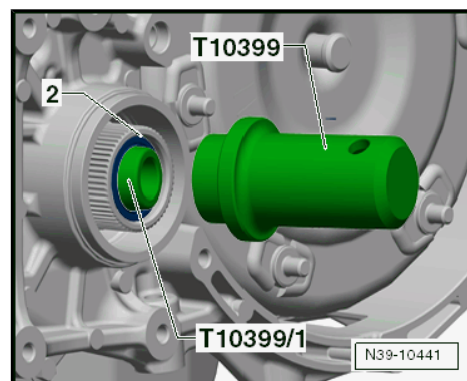
1.3.3 Installing small oil seal

- Insert assembly tool - T10399/1- .
- Place oil seal -2- over assembly tool - T10399/1- .



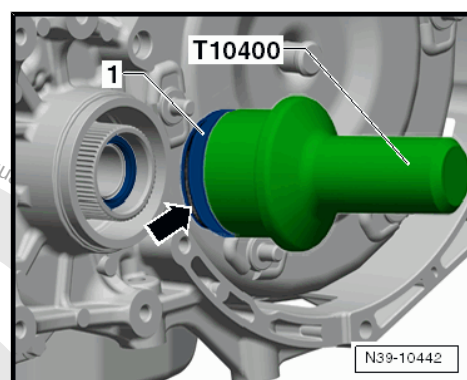


- Drive oil seal in to stop with assembly device - T10399- .

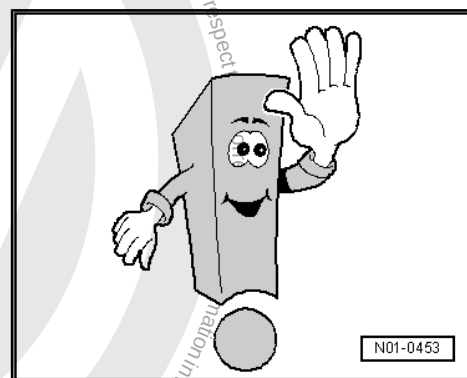


1.3.4 Installing large oil seal

- Place oil seal -1- over thrust piece - T10400- .
Spring -arrow- faces away from thrust piece.
- Drive in seal to stop.



- Now twist thrust piece in gearbox before starting to pull it out.
- Install bevel box ➔ [page 183](#) .
- Check and top up ATF level ➔ [page 124](#) .





39 – Final drive - differential

1 Removing and installing bevel box - Passat, Passat CC and CC

1.1 Removing and installing bevel box - vehicles with 3.6 l - 206 kW engine





Special tools and workshop equipment required

- ◆ Multipurpose tool - VW 771-
- ◆ Socket, 8 mm - 3247-
- ◆ Supplementary set for engine and gearbox support - VW 540/1 B-
- ◆ Puller - T 10472-
- ◆ Counterhold tool - T10172A-
- ◆ Engine support - T50015A-
- ◆ Bracket - T10346/1-



T10172A



W00-11665

T50015A



W00-11671

T10346/1





1.1.1 Removing

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



Note

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

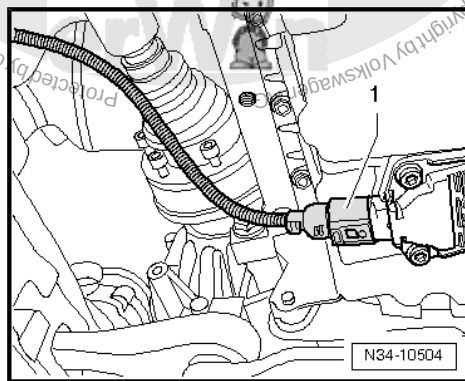
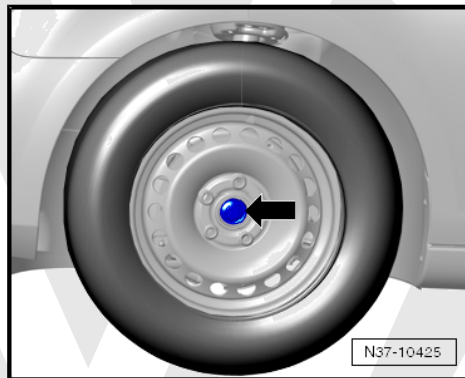
- Depress brake pedal and loosen bolt of right drive shaft -arrow- (2nd mechanic needed)⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts .



Note

So that the propshaft can be turned later in order to loosen it:

- Move selector lever to »N« position.
- Remove engine cover.
- Remove noise insulation below engine and gearbox. ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .
- Remove right drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts .
- Disconnect connector -1- from oil level and oil temperature sender - G266- .



- Unbolt heat shield for right drive shaft from bevel box -arrows-.

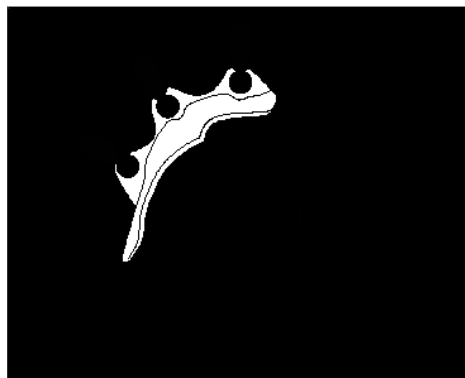


Caution

Risk of damage to decoupling element.

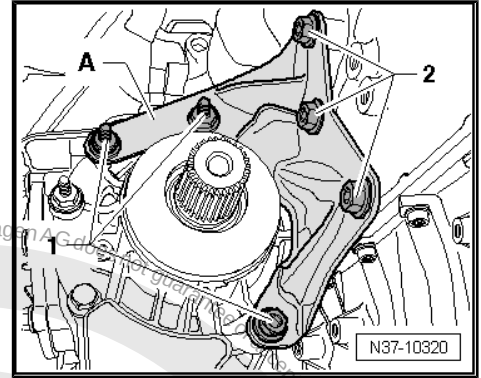
- ♦ **Observe ⇒ Rep. gr. 26 ; Emission control; Assembly overview - emission control .**

- Remove front exhaust system from engine, raise it and tie it in place ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Assembly overview - silencer .

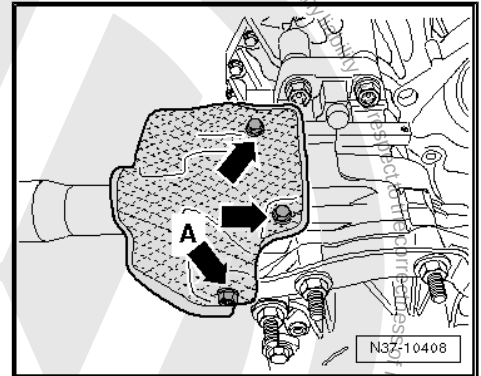




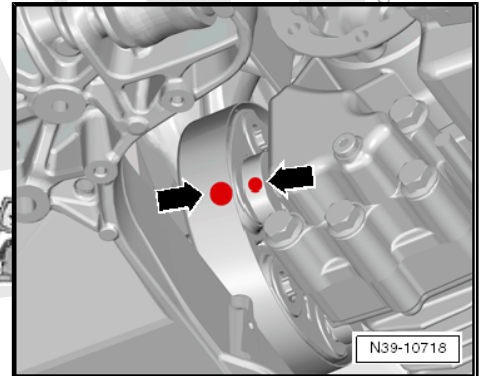
- Unscrew gearbox carriers -1- and -2-.



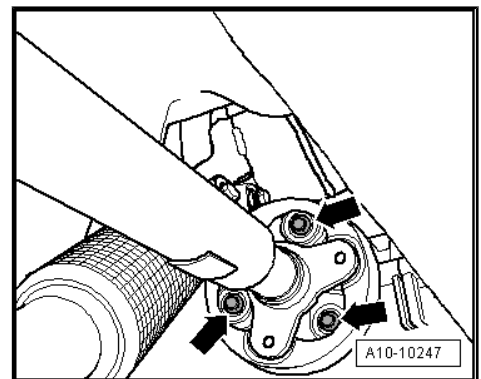
If fitted, remove heat shield for propshaft.



- Mark position of propshaft with flexible coupling relative to output shaft of bevel box.



- Unbolt propshaft -arrows- and pull off from bevel box.



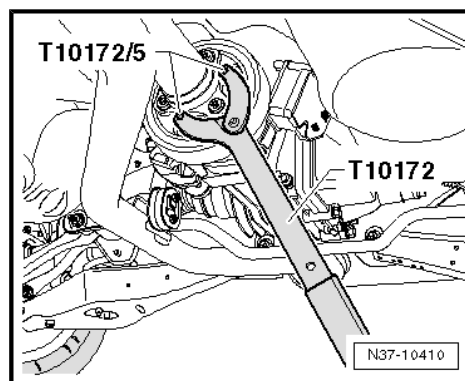


- Counterhold at rear final drive when loosening or tightening propshaft.

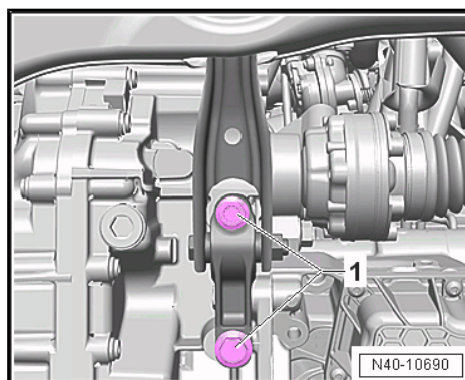


Note

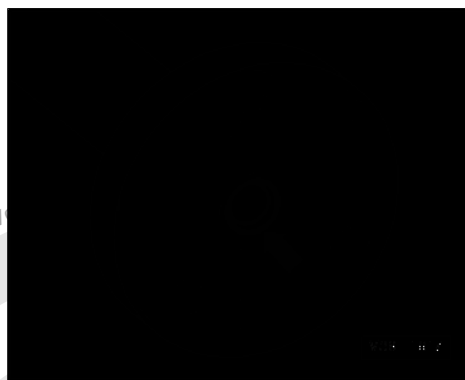
To loosen »next« bolt, turn propshaft further by turning rear wheels at same time.



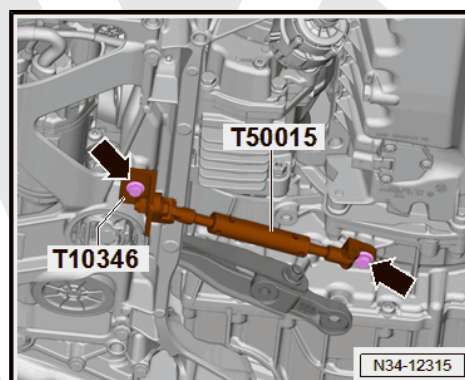
- Unscrew pendulum support bolts -1- from gearbox.



- Push front propshaft back to stop. Make sure not to damage seal -arrow- in centring bush.
- Place left propshaft on heat shield of steering rack. Place a cloth between propshaft and heat shield.

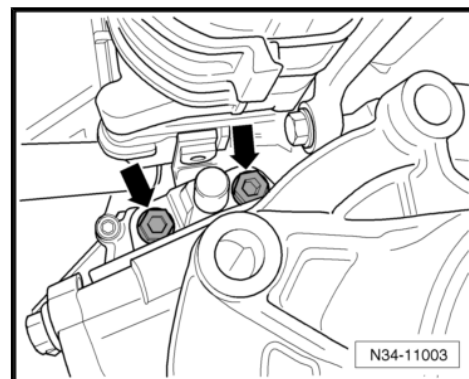


- Secure bracket - T10346/1- to subframe as shown in illustration using an M 8 x 25 bolt.
- Bolt engine support - T50015- to bracket - T10346/1- and to gearbox at front threaded connection for pendulum support.
- Force engine/gearbox as far forwards as possible by turning spindle of engine support - T50015- . Avoid collisions between components and radiator cowl.





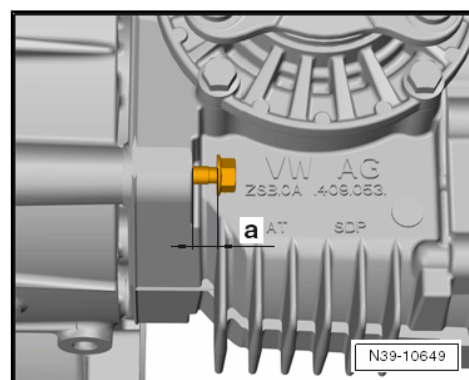
- Unbolt bevel box at top from gearbox -arrows-.



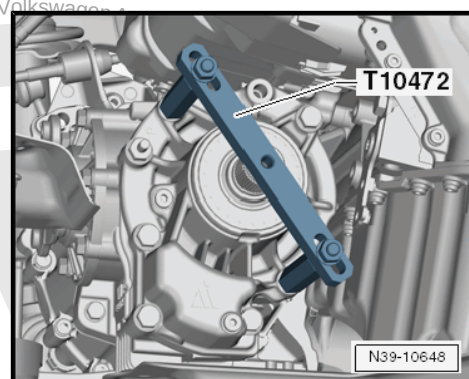
- Loosen lower securing bolts securing bevel box to gearbox and unscrew only as far as dimension -a-.

Dimension -a- = 15 mm

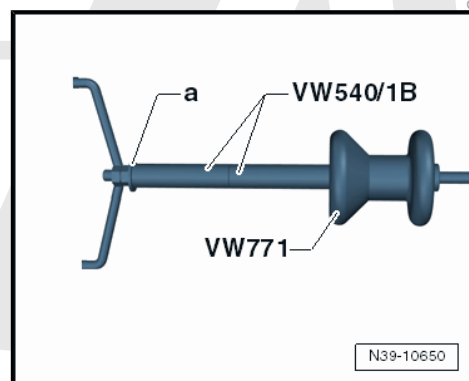
This prevents the bevel box from falling down immediately when loosened using multi-purpose tool - VW 771- .



- Fit puller - T 10472- to bevel box.

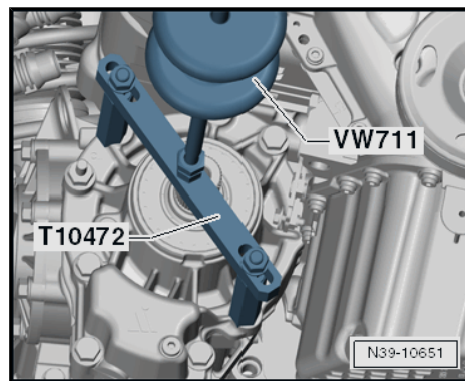


- Prepare multi-purpose tool - VW 771- with a washer -a- and 2 sleeves from the supplementary set for engine and gearbox support - VW 540/1 B- as shown in the illustration.

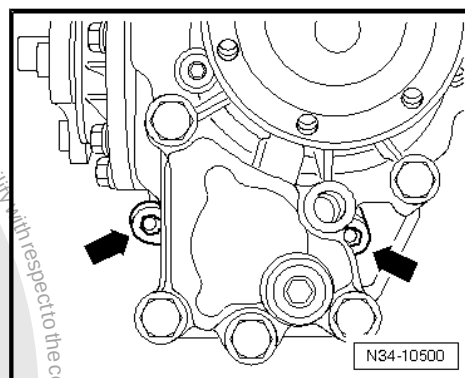




- Bolt multi-purpose tool - VW 771- onto puller - T10472- and loosen bevel box from gearbox.
- Remove multi-purpose tool - VW 771- and puller - T10472- from bevel box.



- Unscrew lower securing bolts -arrows- and remove bevel box.



1.1.2 Installing

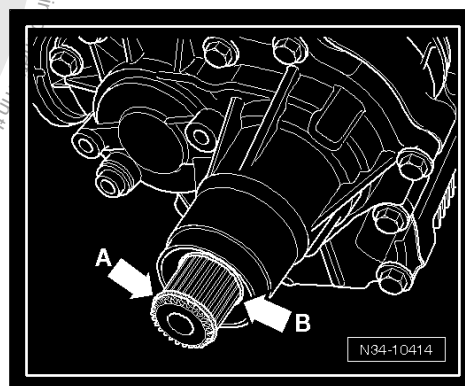
Install in the reverse order of removal, observing the following:

- Grease splines of differential with grease for clutch plate splines - G 000 100- .
- Install new retaining ring -arrow A- and new O-ring -arrow B- on right stub shaft.
- Insert bevel box and press against gearbox to stop.



Note

Turn stub shaft if spline position is unfavourable (bevel box cannot be pressed to stop against gearbox).



- If splines are correctly positioned and shafts are centred, then bevel box will slide to stop against gearbox.



Caution

To ensure that the retaining ring of the stub shaft engages properly in the differential bevel gear, strike the face of the spline stub with a plastic hammer. Do not pull bevel box forcefully against gearbox by turning securing bolts. Damage to gearbox or bevel box could result.



- Screw on bevel box with new bolts -arrows- until finger-tight, then tighten. Torque setting 40 Nm then turn further through 90°.
- Install gearbox carrier -A-. Observe installation location and tightening sequence of bolts.

Location ➤ [page 161](#)

Tightening sequence ➤ [page 161](#) .

Location

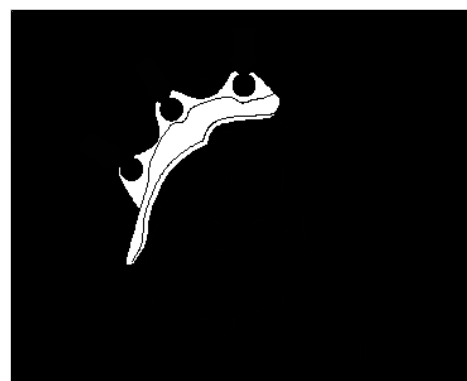
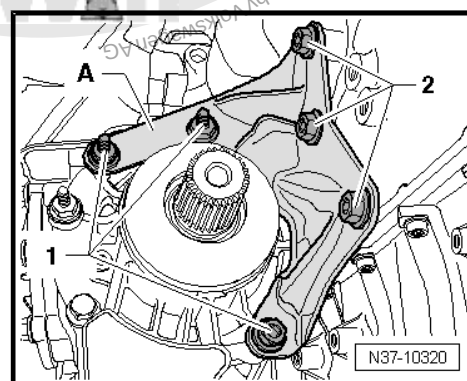
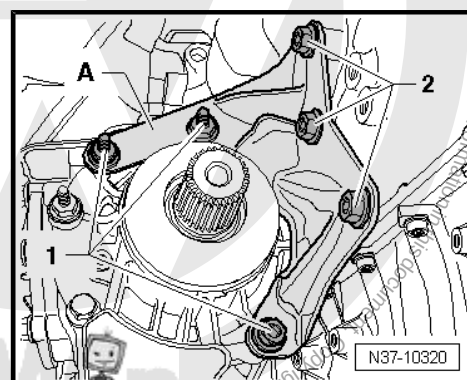
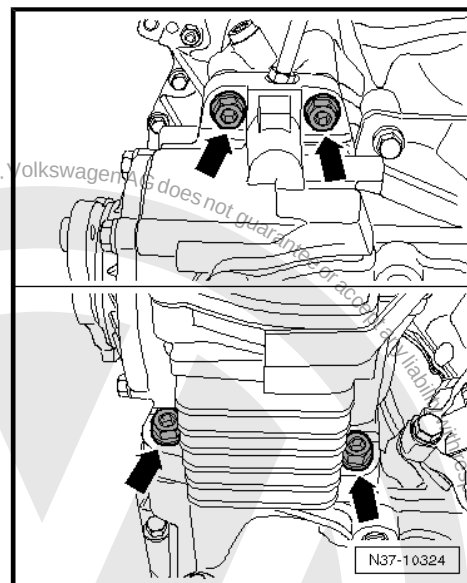
Item	Bolt
1	M10 x 45
2	M10 x 21

Tightening sequence

Sequence	Bolts	Torque setting
1.	-1- and -2-	Brace by hand
2.	Tighten -2-	40 Nm
3.	Tighten -1-	40 Nm
Heat shield for drive shaft		20 Nm

- Check gear oil in bevel box ➤ [page 199](#) .

- Install heat shield for right drive shaft.





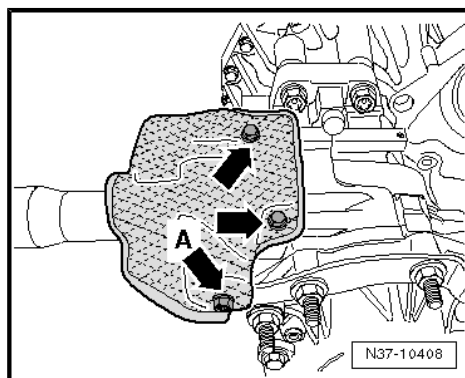
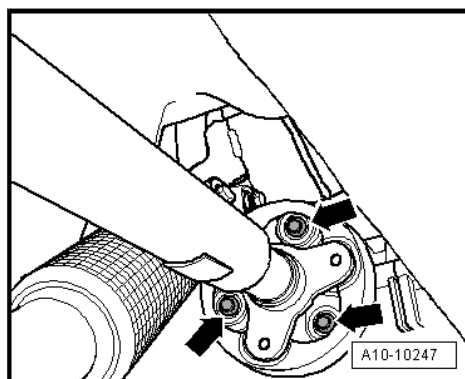
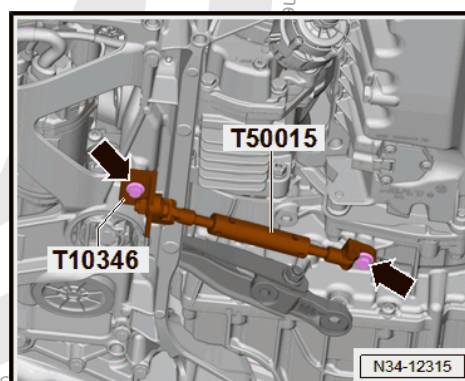
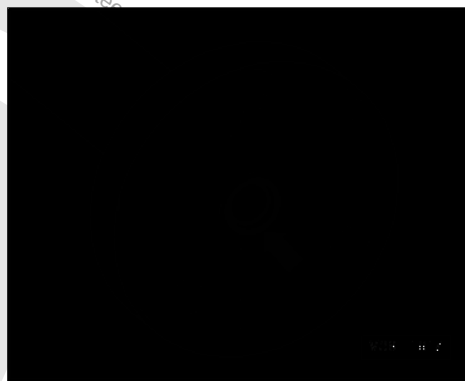
Note

When removing and installing gearbox, do not damage seal in the propshaft flange -arrow-. Renew propshaft if damaged.

- Join bevel box and propshaft by turning spindle of engine support - T50015-
- Remove engine support - T50015- together with bracket - T10346/1- .

- Bolt propshaft onto bevel box -arrows- ⇒ Rep. gr. 39 ; Removing and installing propshaft .

- If previously removed, install heat shield for propshaft.
- Bolt on pendulum support using »new« bolts. Specified torques ⇒ Running gear, axles, steering; Rep. gr. 40 .
- Install right drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shaft .
- Install parts of exhaust system ⇒ Rep. gr. 26 ; Exhaust system .
- Check gear oil in bevel box ⇒ [page 199](#) .
- Following installation, check oil level in gearbox ⇒ [page 126](#) .
- Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .



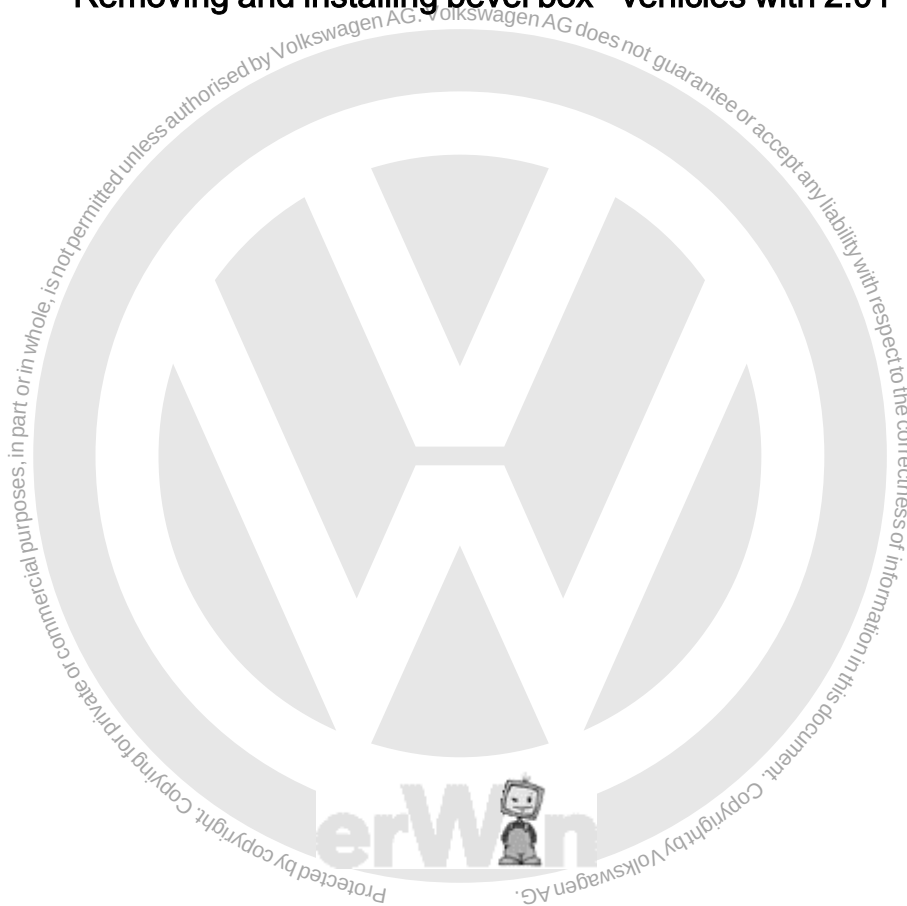


2 Removing and installing bevel box - Tiguan

Removing and installing bevel box - vehicles with 2.0 l - 103 kW TDI engine ➔ [page 163](#)

Removing and installing bevel box - vehicles with 2.0 l - 125/132/147 kW TFSI engine ➔ [page 173](#)

2.1 Removing and installing bevel box - vehicles with 2.0 l - 103 kW TDI engine





Special tools and workshop equipment required

- ◆ Multipurpose tool - VW 771-
- ◆ Socket, 8 mm - 3247-
- ◆ Supplementary set for engine and gearbox support - VW 540/1 B-
- ◆ Puller - T 10472-
- ◆ Counterhold tool - T10172A-
- ◆ Engine support - T50015A-
- ◆ Bracket - T10346/1-

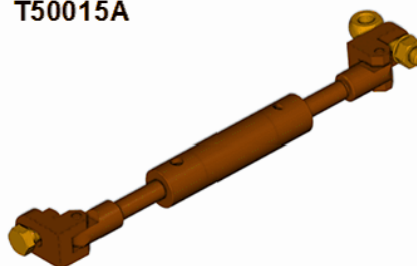


T10172A



W00-11665

T50015A



W00-11671

T10346/1



/1



2.1.1 Removing

- Raise vehicle. All 4 supports of lifting platform must be at same height.



Note

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

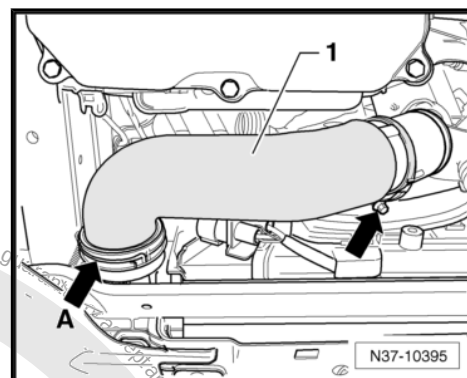
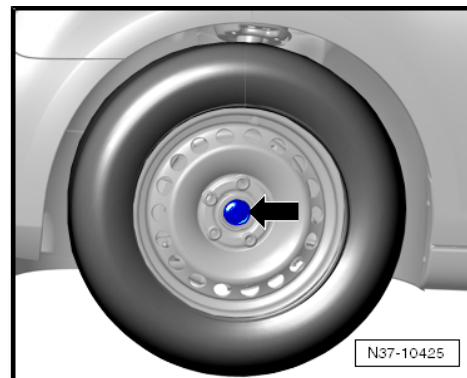
- Depress brake pedal and loosen bolt of right drive shaft -arrow- (2nd mechanic needed)⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts .



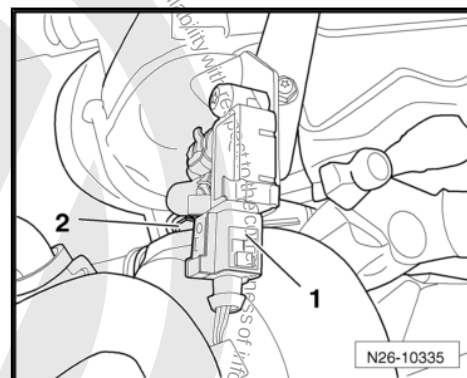
Note

So that the propshaft can be turned later in order to loosen it:

- Move selector lever to »N« position.
- Remove noise insulation below engine and gearbox. ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .
- Remove charge air hose -1-.

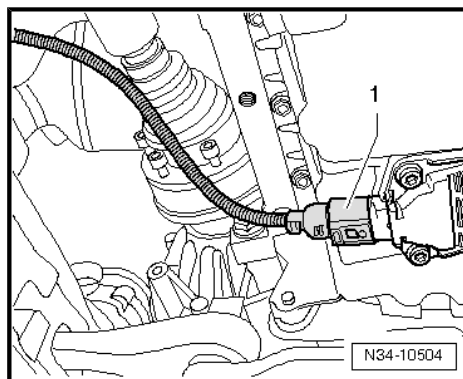


- Pull connector -1- from pressure sensor 1 for exhaust - G450- , remove bolt -2-





- Disconnect connector -1- from oil level and oil temperature sender - G266- .
- Remove right drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts .



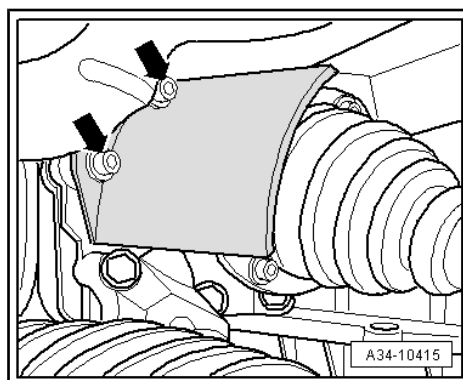
- Remove drive shaft heat shield, if present, from bevel box ⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts .



Caution

Risk of damage to decoupling element.

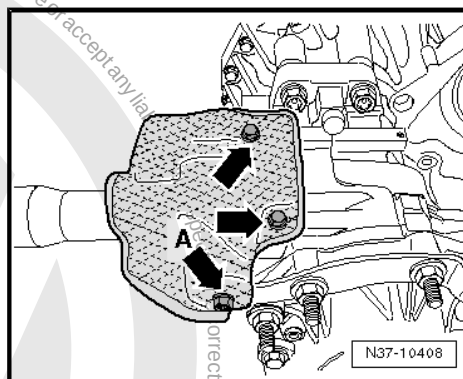
- ♦ **Observe ⇒ Rep. gr. 26 ; Emission control; Assembly overview - emission control .**



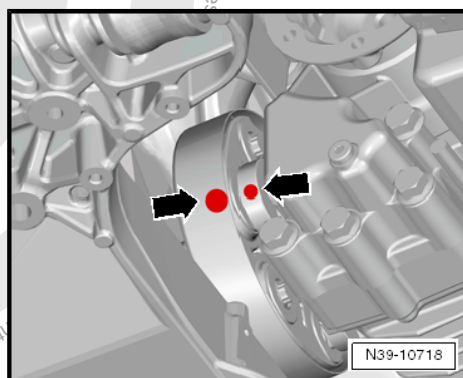
- Remove front exhaust system from engine, raise it and tie it in place ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Assembly overview - silencer .

If fitted, remove heat shield for propshaft.

- Remove bolts -arrows-, and remove heat shield -A-.

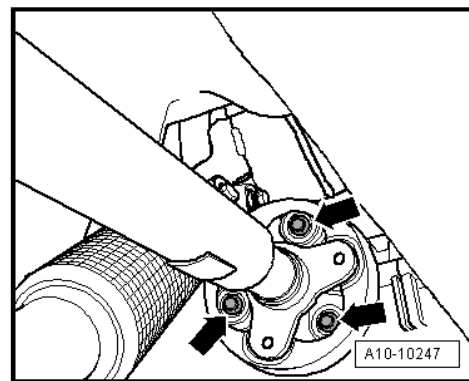


- Mark position of propshaft with flexible coupling relative to output shaft of bevel box -arrows-.





- Unbolt front propshaft from bevel box -arrows-.

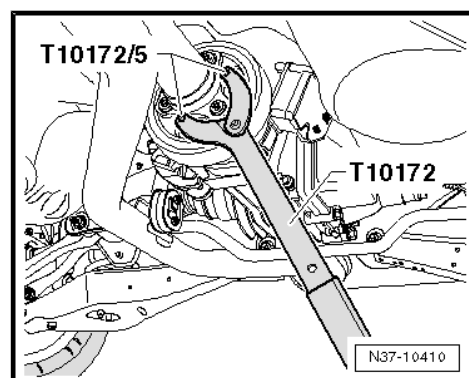


- If necessary, counterhold at rear final drive when loosening or tightening propshaft.

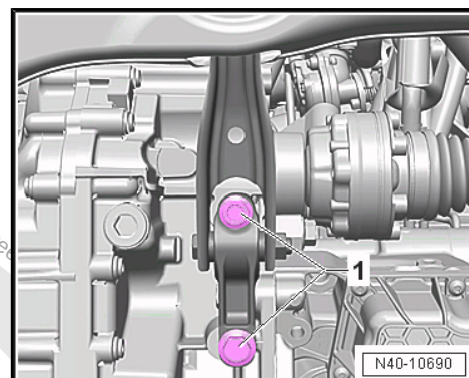


Note

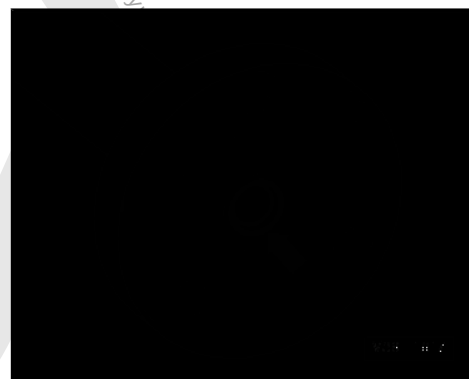
To loosen »next« bolt, turn propshaft further by turning rear wheels at same time.



- Unscrew pendulum support bolts -1- from gearbox.
- Place a cloth on subframe to avoid damaging paint of propshaft when it is placed on subframe.

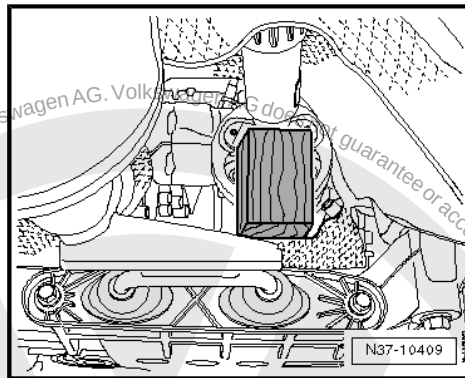


- Push front propshaft back to stop. Make sure not to damage seal -arrow- in centring bush.

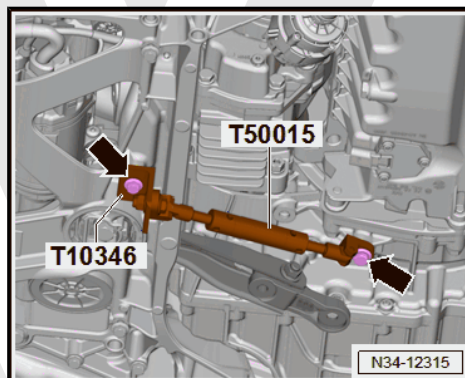




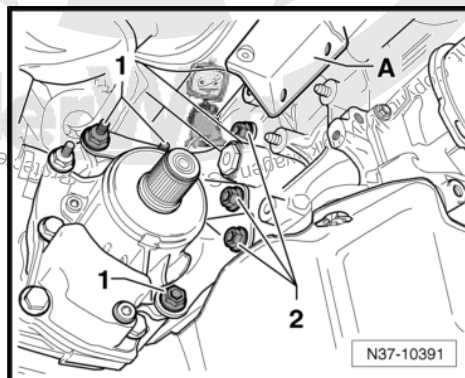
- Guide propshaft upwards into tunnel, and use a suitable piece of wood to support it on subframe.



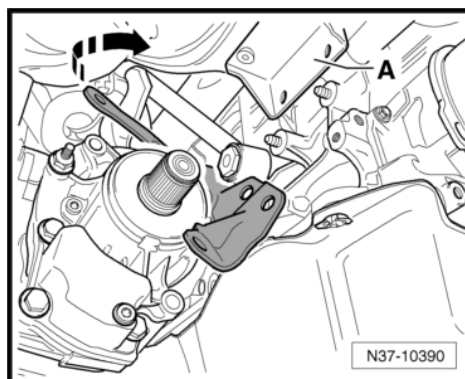
- Secure bracket - T10346/1- to subframe as shown in illustration using an M 8 x 25 bolt.
- Bolt engine support - T50015- to bracket - T10346/1- and to gearbox at front threaded connection for pendulum support.
- Force engine/gearbox as far forwards as possible by turning spindle of engine support - T50015- . Avoid collisions between components and radiator cowl.



- Unscrew gearbox carriers -1- and -2-.

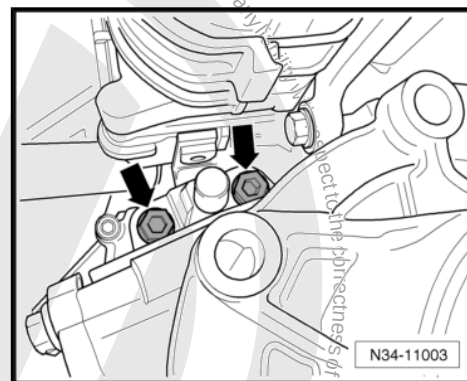


- Push particle filter -A- upwards and remove gearbox carriers.





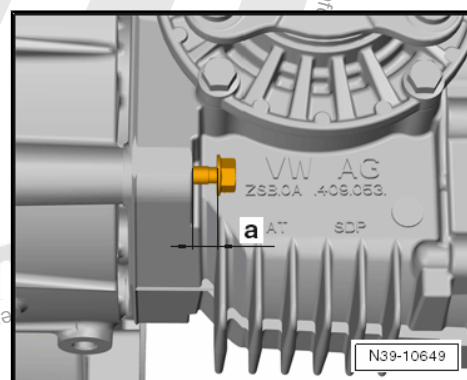
- Unbolt bevel box at top from gearbox -arrows-.



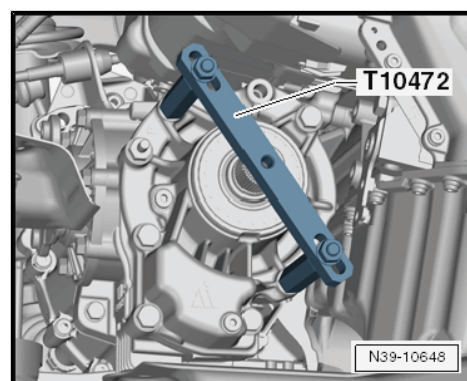
- Loosen lower securing bolts securing bevel box to gearbox and unscrew only as far as dimension -a-.

Dimension -a- = 15 mm

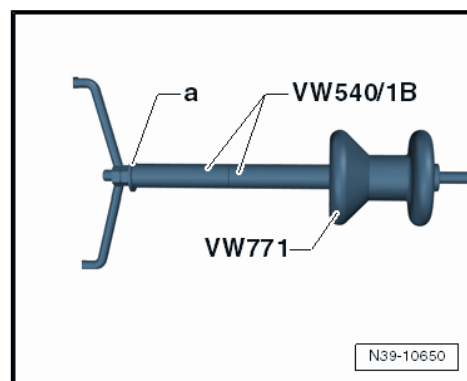
This prevents the bevel box from falling down immediately when loosened using multi-purpose tool - VW 771- .



- Fit puller - T 10472- to bevel box.

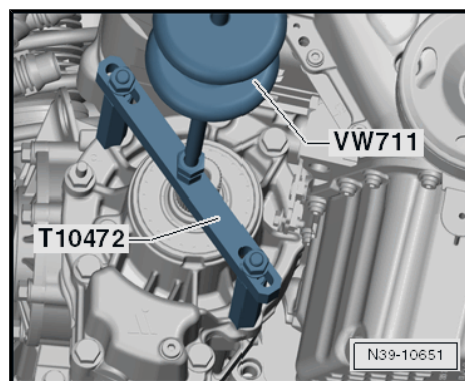


- Prepare multi-purpose tool - VW 771- with a washer -a- and 2 sleeves from the supplementary set for engine and gearbox support - VW 540/1 B- as shown in the illustration.

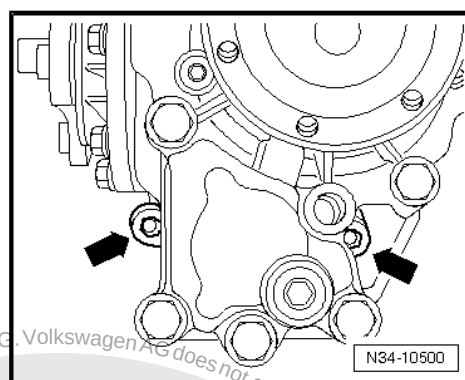




- Bolt multi-purpose tool - VW 771- onto puller - T10472- and loosen bevel box from gearbox.
- Remove multi-purpose tool - VW 771- and puller - T10472- from bevel box.



- Unscrew lower securing bolts -arrows- and remove bevel box.



2.1.2 Installing

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

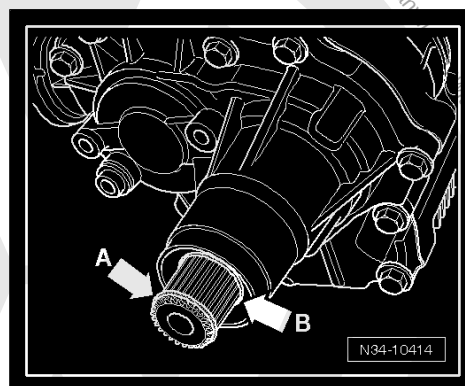
- Grease splines of differential with grease for clutch plate splines - G 000 100- .
- Install new retaining ring -arrow A- and new O-ring -arrow B- on right stub shaft.
- Insert bevel box and press against gearbox to stop.



Note

Turn stub shaft if spline position is unfavourable (bevel box cannot be pressed to stop against gearbox).

- If splines are correctly positioned and shafts are centred, then bevel box will slide to stop against gearbox.

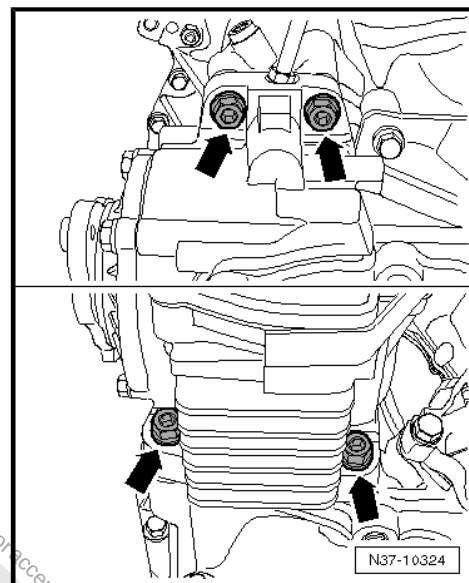


Caution

To ensure that the retaining ring of the stub shaft engages properly in the differential bevel gear, strike the face of the spline stub with a plastic hammer. Do not pull bevel box forcefully against gearbox by turning securing bolts. Damage to gearbox or bevel box could result.



- Screw on bevel box with new bolts -arrows- until finger-tight, then tighten. Torque setting 40 Nm then turn further through 90°.



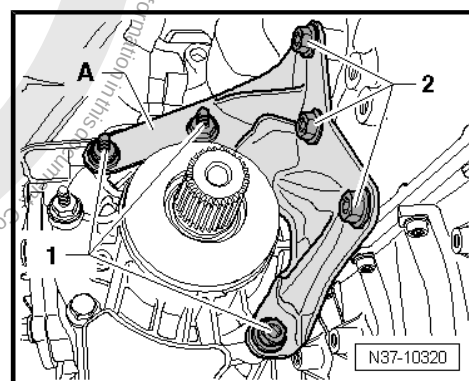
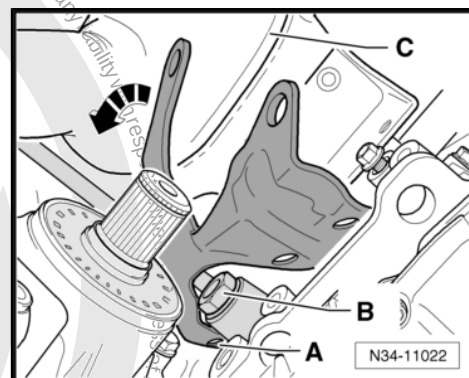
- Insert gearbox carrier, pushing particle filter -C- upwards to do so.
- Insert gearbox carrier as shown, guiding angled piece -A- behind support -B-.
- Then swivel gearbox carrier in -direction of arrow- against bevel box.
- Install gearbox carrier -A-. Observe installation location and tightening sequence of bolts.

Location ➤ [page 171](#)

Tightening sequence ➤ [page 171](#).

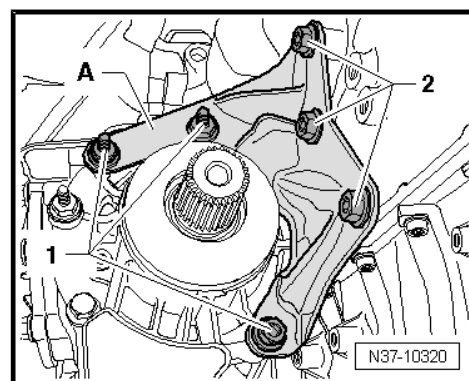
Location

Item	Bolt
1	M10 x 45
2	M10 x 21



Tightening sequence

Sequence	Bolts	Torque setting
1.	-1- and -2-	Brace by hand
2.	Tighten -2-	40 Nm
3.	Tighten -1-	40 Nm
Heat shield/drive shaft		20 Nm





- If previously removed, attach drive shaft heat shield to bevel box ⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts .
- Fit propshaft on bevel box.

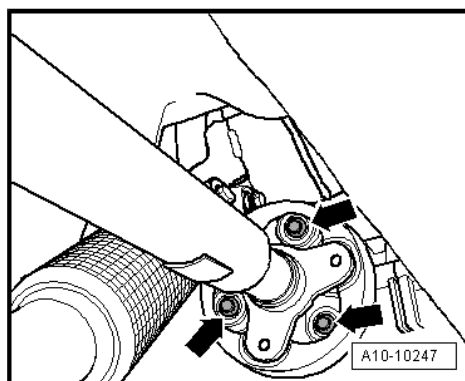
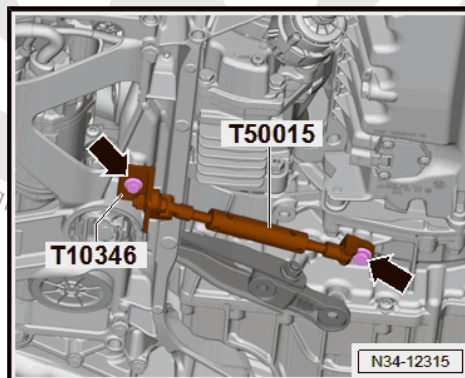
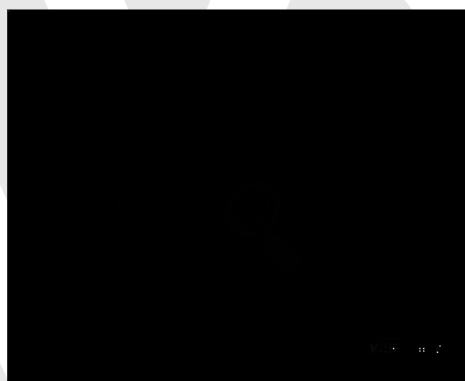
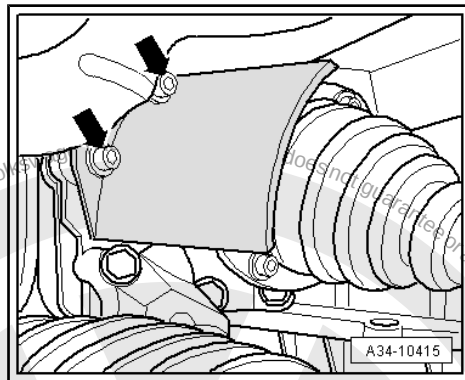


Note

When removing and installing the bevel box, do not damage the seal in the propshaft flange -arrow-. Renew propshaft if damaged.

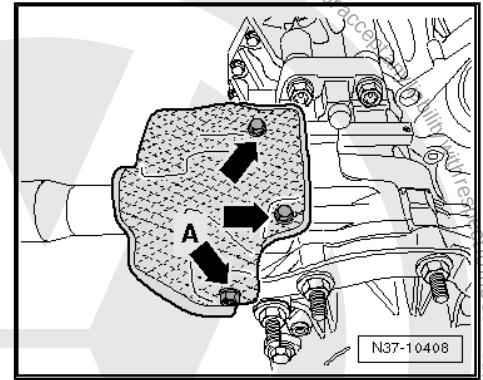
- Join bevel box and propshaft by turning spindle of engine support - T50015- .
- Remove engine support - T50015- together with bracket - T10346/1- .

- Bolt propshaft onto bevel box -arrows- ⇒ Rep. gr. 39 ; Removing and installing propshaft .





- If previously removed, install heat shield for propshaft. Specified torque: 9 Nm.
- Bolt on pendulum support using »new« bolts. Specified torques ⇒ Running gear, axles, steering; Rep. gr. 40 .
- Grease splines of stub shaft with grease - G 000 100- .
- Install right drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shaft .
- Install parts of exhaust system ⇒ Rep. gr. 26 ; Exhaust system .
- Check gear oil in bevel box ⇒ [page 199](#) .
- Following installation, check oil level in gearbox ⇒ [page 126](#) .
- Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .



2.2 Removing and installing bevel box - vehicles with 2.0 I - 125/132/147 kW TSFI engine

2.2.1 Removing



Special tools and workshop equipment required

- ◆ Multipurpose tool - VW 771-
- ◆ Socket, 8 mm - 3247-
- ◆ Supplementary set for engine and gearbox support - VW 540/1 B-
- ◆ Puller - T 10472-
- ◆ Counterhold tool - T10172A-
- ◆ Engine support - T50015A-
- ◆ Bracket - T10346/1-

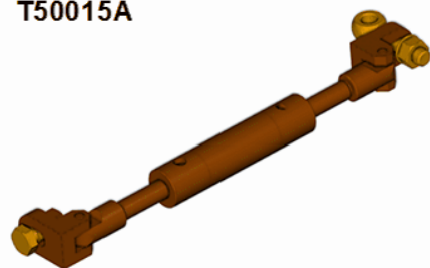


T10172A



W00-11665

T50015A



W00-11671

T10346/1



/1



Removing

- Raise vehicle. All 4 supports of lifting platform must be at same height.



Note

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

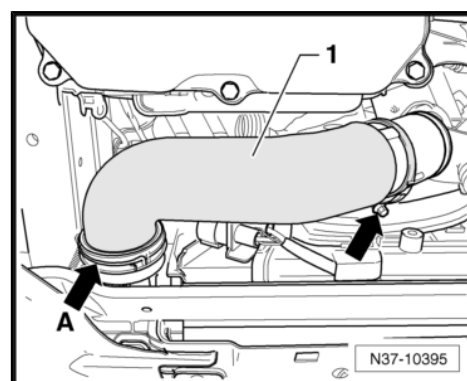
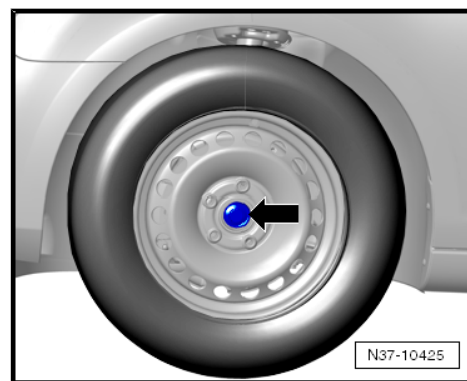
- Depress brake pedal and loosen bolt of right drive shaft -arrow- (2nd mechanic needed) ⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts .



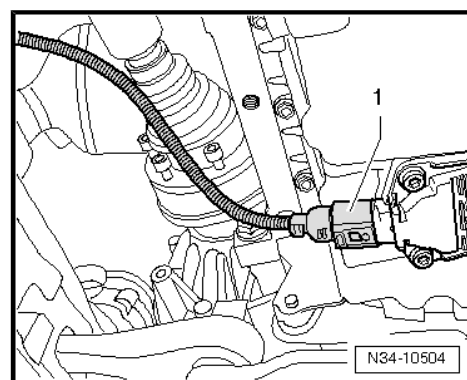
Note

So that the propshaft can be turned later in order to loosen it:

- Move selector lever to »N« position.
- Remove noise insulation below engine and gearbox. ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .
- Remove charge air hose -1-.



- Disconnect connector -1- from oil level and oil temperature sender - G266- .
- Remove right drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts .





- Remove drive shaft heat shield, if present, from bevel box ➔ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts .



Caution

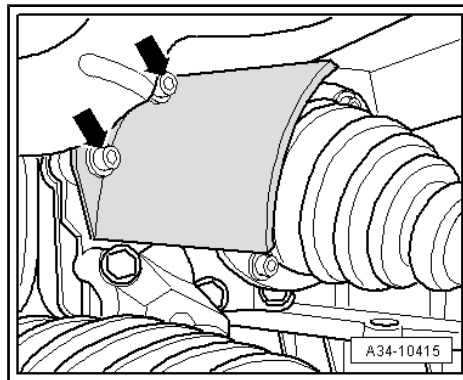
Risk of damage to decoupling element.

- ♦ **Observe ➔ Rep. gr. 26 ; Emission control; Assembly overview - emission control .**

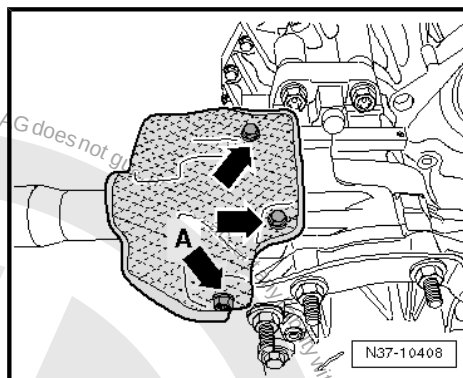
- Remove front exhaust system from engine, raise it and tie it in place ➔ Rep. gr. 26 ; Exhaust pipes/silencers; Assembly overview - silencer .

If fitted, remove heat shield for propshaft.

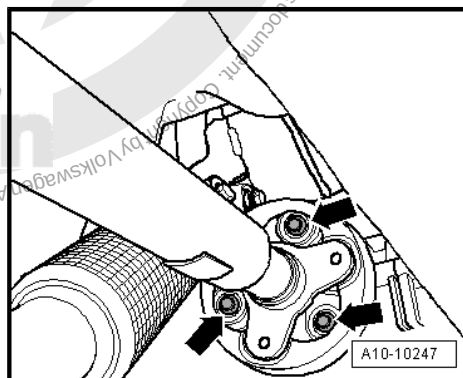
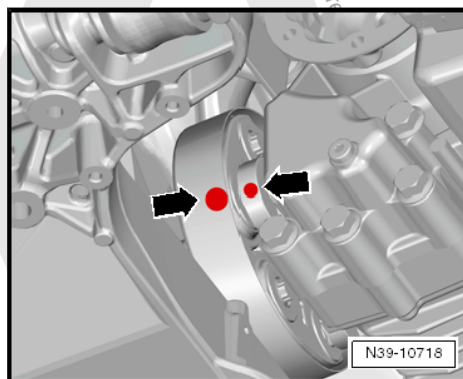
- Remove bolts -arrows-, and remove heat shield -A-.



- Mark position of propshaft with flexible coupling relative to output shaft of bevel box -arrows-.



- Unbolt front propshaft from bevel box -arrows-.



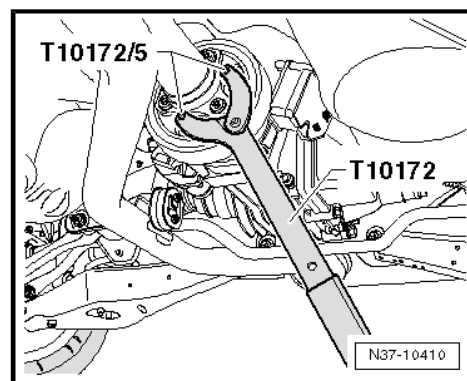


- If necessary, counterhold at rear final drive when loosening or tightening propshaft.

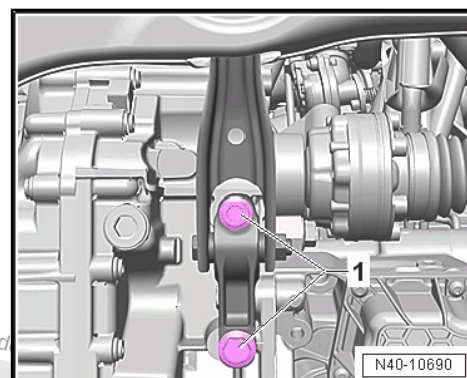


Note

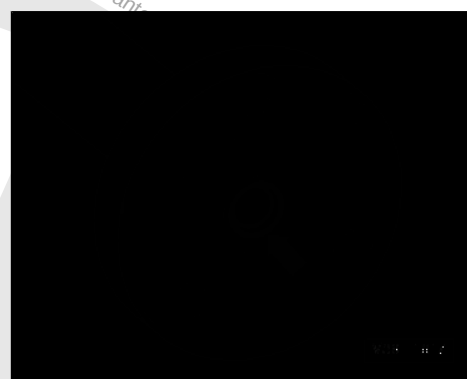
To loosen »next« bolt, turn propshaft further by turning rear wheels at same time.



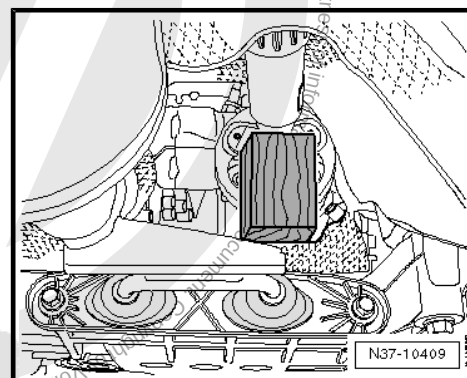
- Unscrew pendulum support bolts -1- from gearbox.
- Place a cloth on subframe to avoid damaging paint of propshaft when it is placed on subframe.



- Push front propshaft back to stop. Make sure not to damage seal -arrow- in centring bush.

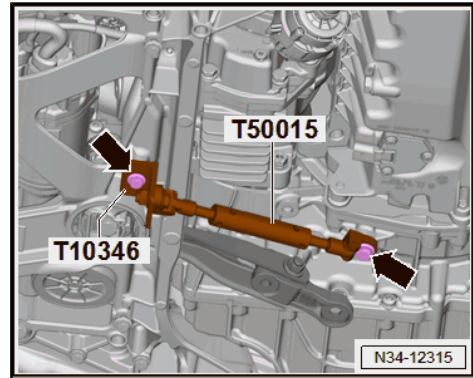


- Guide propshaft upwards into tunnel, and use a suitable piece of wood to support it on subframe.

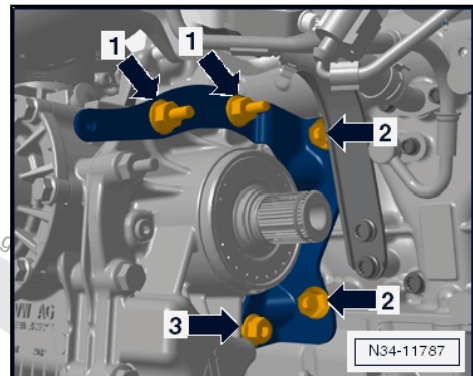




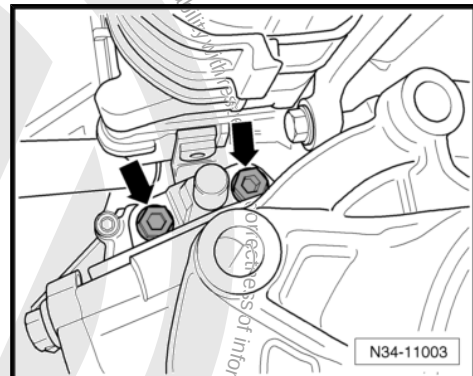
- Secure bracket - T10346/1- to subframe as shown in illustration using an M 8 x 25 bolt.
- Bolt engine support - T50015- to bracket - T10346/1- and to gearbox at front threaded connection for pendulum support.
- Force engine/gearbox as far forwards as possible by turning spindle of engine support - T50015- . Avoid collisions between components and radiator cowl.
- Unbolt gearbox carrier.



- Unscrew bolts -1-, -2- and -3-, and remove bevel box carrier.



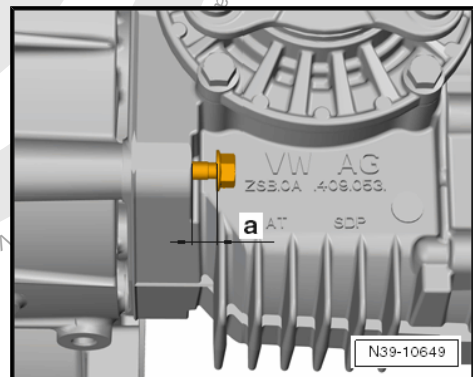
- Remove upper securing bolts -arrows- securing bevel box to gearbox.



- Loosen lower securing bolts securing bevel box to gearbox and unscrew only as far as dimension -a-.

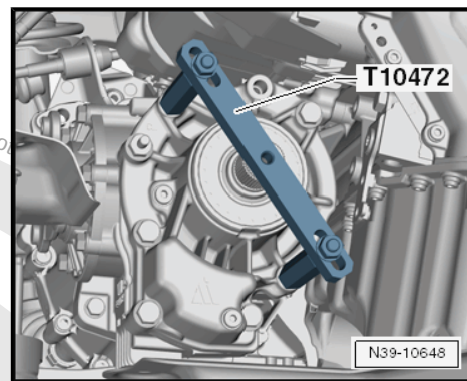
Dimension -a- = 15 mm

This prevents the bevel box from falling down immediately when loosened using multi-purpose tool - VW 771- .

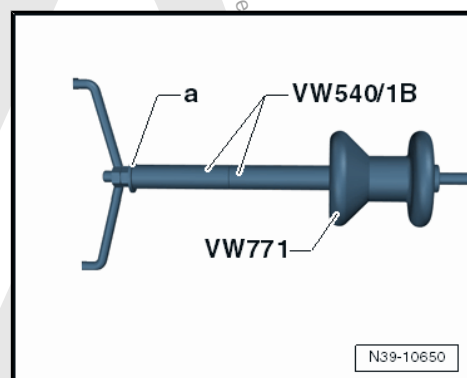




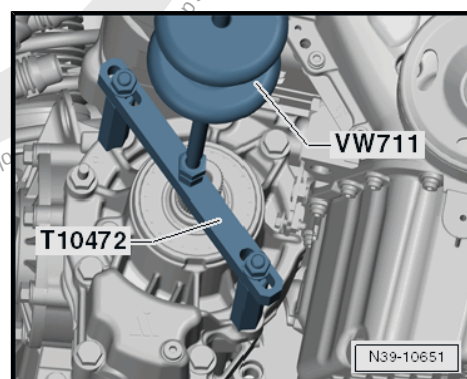
- Fit puller - T 10472- to bevel box.



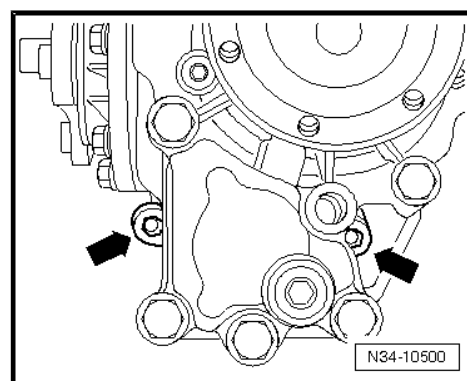
- Prepare multi-purpose tool - VW 771- with a washer -a- and 2 sleeves from the supplementary set for engine and gearbox support - VW 540/1 B- as shown in the illustration.



- Bolt multi-purpose tool - VW 771- onto puller - T10472- and loosen bevel box from gearbox.
- Remove multi-purpose tool - VW 771- and puller - T10472- from bevel box.



- Unscrew lower securing bolts -arrows- and remove bevel box.



2.2.2 Installing

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



- Grease splines of differential with grease for clutch plate splines - G 000 100- .
- Install new retaining ring -arrow A- and new O-ring -arrow B- on right stub shaft.
- Insert bevel box and press against gearbox to stop.



Note

Turn stub shaft if spline position is unfavourable (bevel box cannot be pressed to stop against gearbox).

- If splines are correctly positioned and shafts are centred, then bevel box will slide to stop against gearbox.



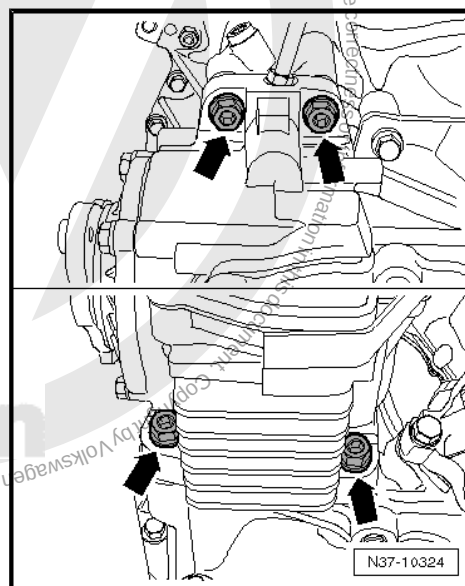
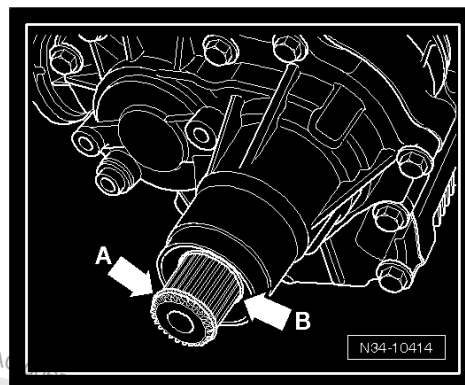
Caution

To ensure that the retaining ring of the stub shaft engages properly in the differential bevel gear, strike the face of the spline stub with a plastic hammer. Do not pull bevel box forcefully against gearbox by turning securing bolts. Damage to gearbox or bevel box could result.

- Screw on bevel box with new bolts -arrows- until finger-tight, then tighten. Torque setting 40 Nm then turn further through 90°.
- Install gearbox carrier. Observe installation location and tightening sequence of bolts.

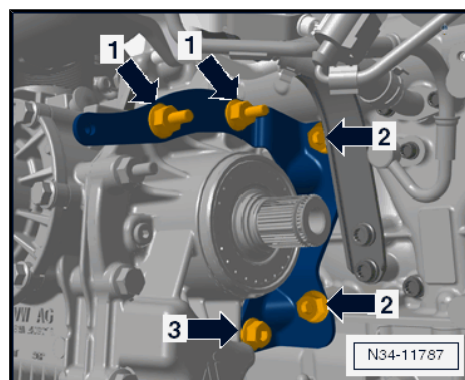
Location ➔ [page 180](#)

Tightening sequence ➔ [page 181](#) .



Location

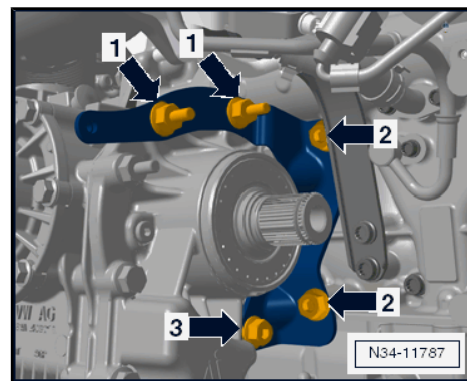
Item	Bolt
1	M10 x 45
2	M10 x 21
3	M10 x 45



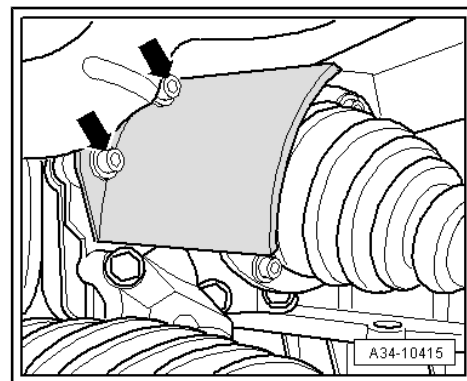


Tightening sequence

Sequence	Bolts	Torque setting
1.	-1- and -3-	Brace by hand
2.	Tighten -2-	40 Nm
3.	Tighten -1- and -3-	40 Nm
Heat shield/drive shaft		20 Nm



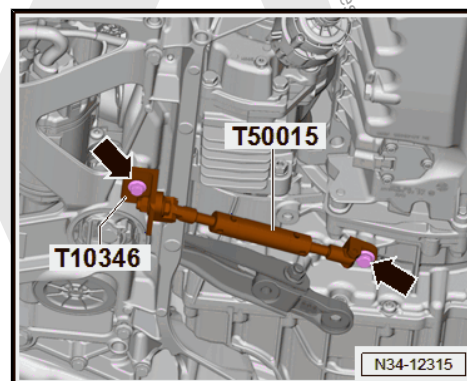
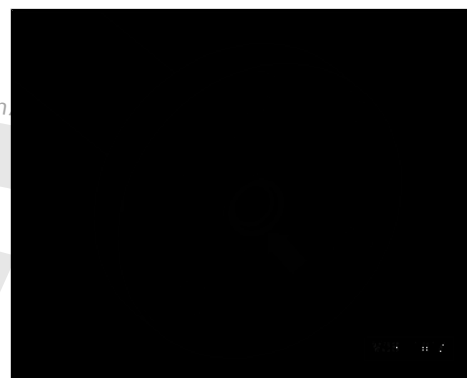
- If previously removed, attach drive shaft heat shield to bevel box ⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts .



Note

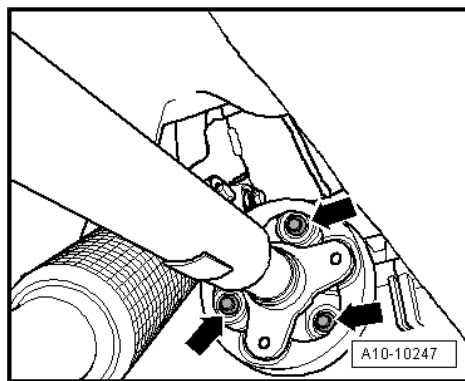
When removing and installing the bevel box, do not damage the seal in the propshaft flange -arrow-. Renew propshaft if damaged.

- Join bevel box and propshaft by turning spindle of engine support - T50015- .
- Remove engine support - T50015- together with bracket - T10346/1- .

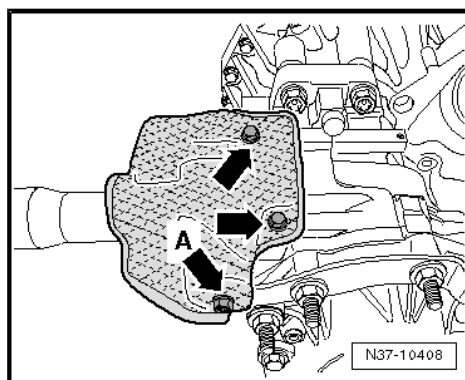




- Bolt propshaft onto bevel box -arrows- ⇒ Rep. gr. 39 ; Removing and installing propshaft .



- If previously removed, install heat shield for propshaft. Specified torque: 9 Nm.
- Bolt on pendulum support using »new« bolts. Specified torques ⇒ Running gear, axles, steering; Rep. gr. 40 .
- Install right drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shaft .
- Install parts of exhaust system ⇒ Rep. gr. 26 ; Exhaust system .
- Check gear oil in bevel box ⇒ [page 199](#) .
- Following installation, check oil level in gearbox ⇒ [page 126](#) .
- Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .





3 Repairing bevel box

Removing and installing bevel box - Passat ➤ [page 154](#)

Removing and installing bevel box - Tiguan ➤ [page 163](#)

3.1 Bevel box - assembly overview

1 - Seal, left

- ☐ Between bevel box and bevel box
- ☐ To renew, remove bevel box ➤ [page 183](#)
- ☐ In case of leakage, also renew »inner« seal ➤ [Item 2 \(page 183\)](#)
- ☐ Renewing ➤ [page 185](#)

2 - Seal, left

- ☐ Between bevel box and bevel box
- ☐ To renew, remove bevel box ➤ [page 154](#)
- ☐ In case of leakage, also renew »outer« seal ➤ [Item 1 \(page 183\)](#)
- ☐ Renewing ➤ [page 185](#)

3 - Bevel box

- ☐ Removing and installing ➤ [page 154](#)

4 - Seal

- ☐ Right (drive shaft side)
- ☐ Seal can be renewed with bevel box installed
- ☐ Renewing ➤ [page 188](#)

5 - Protective cap

- ☐ Right (drive shaft side), if there is one
- ☐ Renewing ➤ [page 188](#)

6 - Retaining ring

- ☐ Always renew
- ☐ Insert in circumferential groove in stub shaft

7 - O-ring

- ☐ Always renew
- ☐ Insert in circumferential groove in stub shaft

8 - Stub shaft

- ☐ To remove and install, remove bevel box ➤ [page 154](#)
- ☐ Removing and installing ➤ [page 195](#)

9 - Needle bearing (polygon bearing)

- ☐ Renewing ➤ [page 195](#)

10 - Retaining ring

- ☐ Always renew





11 - Hexagon nut, 480 Nm

- ☐ Removing and installing ⇒ [page 190](#)
- ☐ Insert with locking fluid - D 000 600-

12 - Output flange

- ☐ Removing and installing ⇒ [page 190](#)

13 - Seal

- ☐ To renew, remove bevel box ⇒ [page 154](#)
- ☐ Renewing ⇒ [page 190](#)

14 - Bolt, 25 Nm

- ☐ Tighten diagonally and alternately

15 - Pinion housing

- ☐ With shaft bevel gear
- ☐ Pinion housing fits only in one position.
- ☐ Installing: place pinion housing loosely on bevel box, screw in all bolts by hand, screw in alternately until heads contact casing and then tighten bolts alternately

16 - O-ring

- ☐ To renew, unscrew bolts ⇒ [Item 14 \(page 184\)](#) and carefully lever off pinion housing at projecting webs on outside edge
- ☐ Do not remove hexagon nut ⇒ [Item 11 \(page 184\)](#) and output flange ⇒ [Item 12 \(page 184\)](#)



4 Renewing seals on bevel box

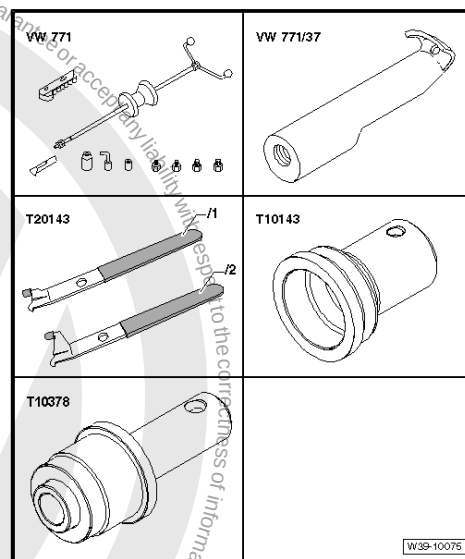


Note

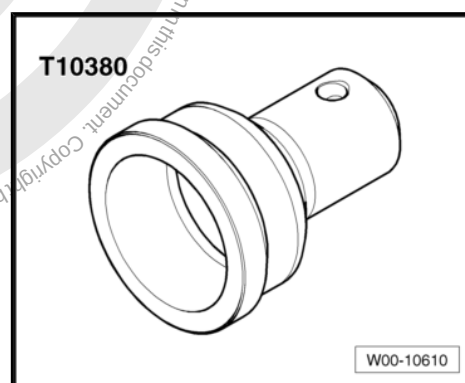
Bevel box is usually removed to renew seals ➔ [page 183](#) , in this case examine all seals carefully and renew any that are defective.

Special tools and workshop equipment required

- ◆ Multi-purpose tool - VW 771- and multi-purpose tool - VW 771/37-
- ◆ Puller hooks - T20143-
- ◆ Thrust piece - T10143-
- ◆ Thrust piece - T10378-

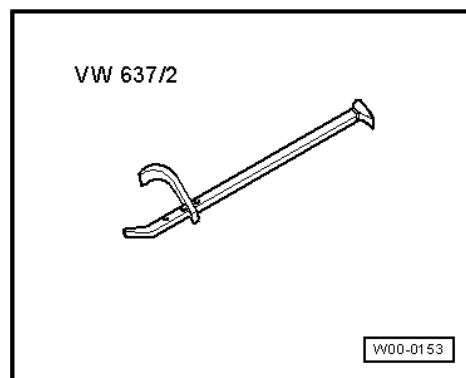


- ◆ Thrust piece - T10380-





- ◆ Hub grease cap puller - VW 637/2-



4.1 Renewing seals on left (between bevel box and gearbox)



Note

Seals (Qty. 2) can be renewed only with bevel box removed. It is recommended that both seals should be renewed.

4.1.1 Removing seals

- Remove bevel box ➔ [page 154](#) .

Remove »outer« seal

- Lever out seal using oil seal extractor lever - T20143/2- .

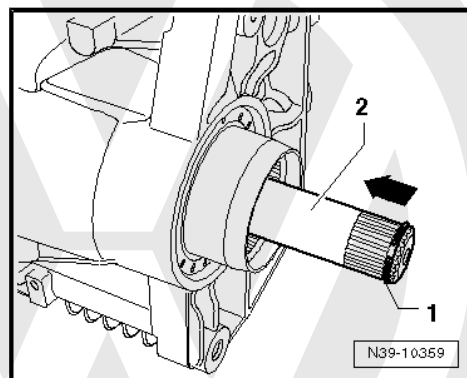
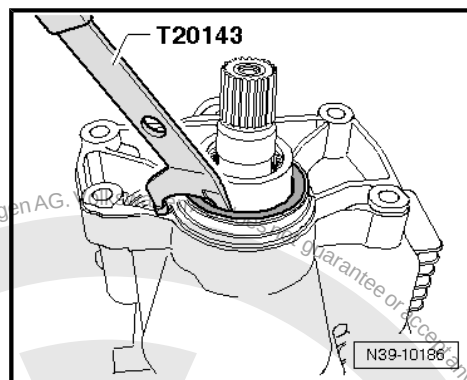
Remove »inner« seal



Note

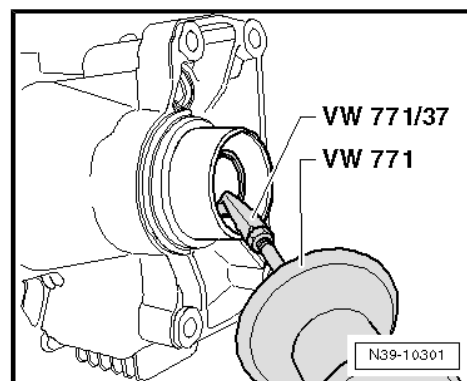
So that new seal will not be damaged later on:

- Remove retaining ring -1- from stub shaft.
- Carefully use plastic mallet -2- to drive stub shaft out in direction of arrow.





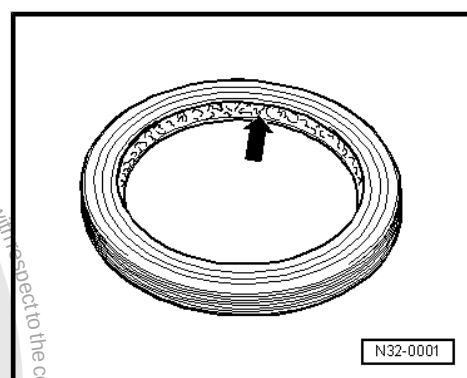
- Pull out seal for stub shaft on gearbox side.



4.1.2 Installing seals

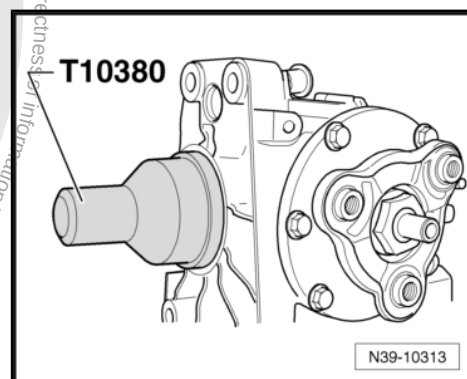
Drive in »outer« seal

- Half-fill space between sealing lip and dust lip of new seal -arrow- with sealing grease - G 052 128 A1- .
- Lightly oil outer circumference of new oil seal.

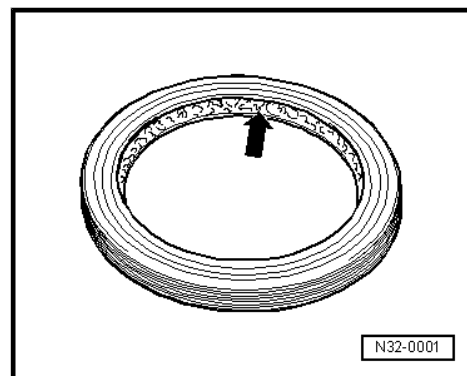


- Drive in seal to stop.

Drive in »inner« seal

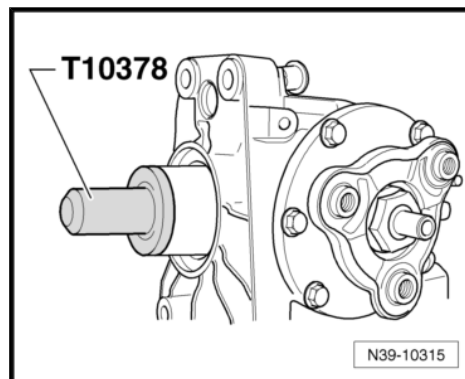


- Half-fill space between sealing lip and dust lip of new seal -arrow- with sealing grease - G 052 128 A1- .
- Lightly oil outer circumference of new oil seal.

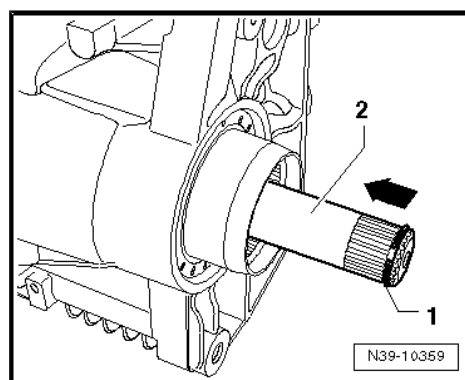




- Drive in seal to stop.
- Carefully use plastic mallet to drive in stub shaft to stop.



- Fit new retaining ring -1- on stub shaft.
- Install bevel box ➤ [page 154](#) .
- Check gear oil in bevel box ➤ [page 199](#) .



4.2 Renewing right seal (drive shaft side)



Note

Seal can be renewed with bevel box installed.

4.2.1 Removing oil seal

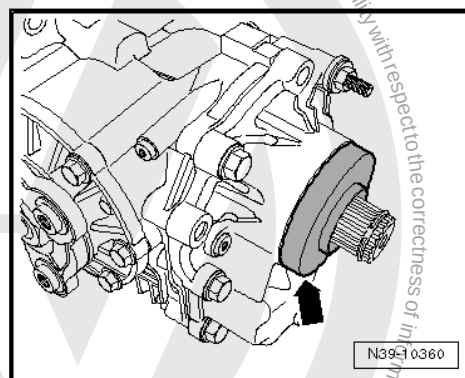
- Raise vehicle.
- Remove noise insulation beneath engine/gearbox ➤ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .
- Remove right drive shaft ➤ Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts



Note

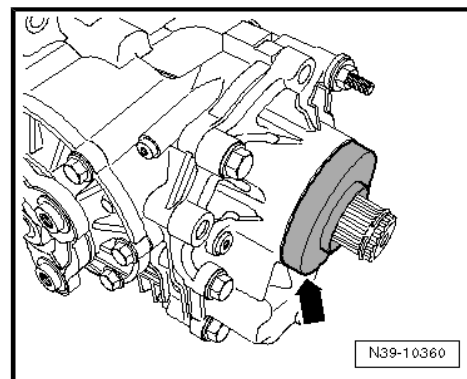
Some bevel boxes have protective cover -arrow- installed on right. Renew protective cover each time after removing.

Pull off protective cover.

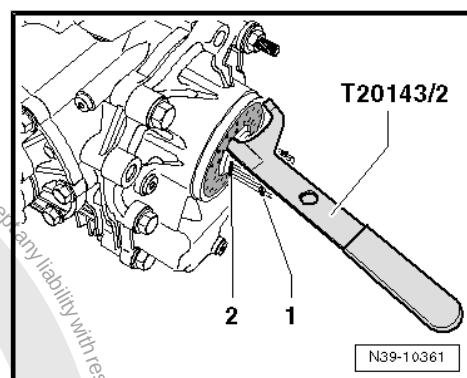




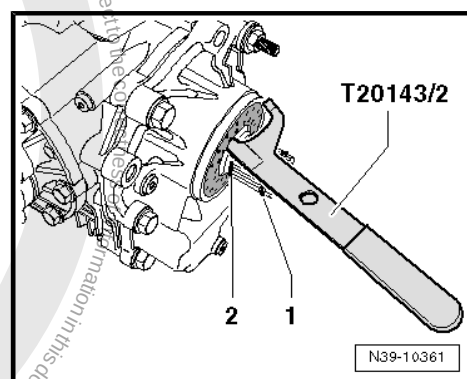
- Position hub grease cap puller - VW 637/2- in recess -arrow- and lever off protective cover.



- Remove retaining ring -1- and seal -2- from stub shaft.
- Place drip tray under bevel box.

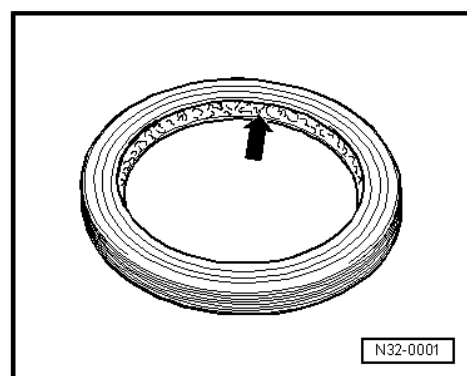


Lever out seal.



4.2.2 Installing oil seal

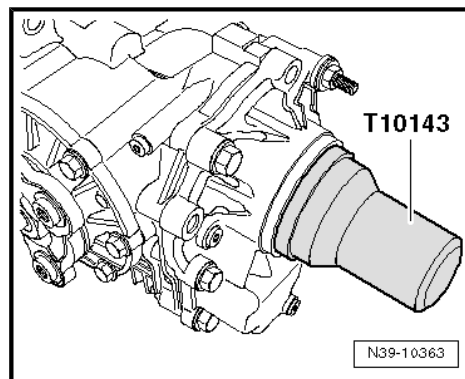
- Half-fill space between sealing lip and dust lip of new seal -arrow- with sealing grease - G 052 128 A1-.
- Lightly oil outer circumference of new oil seal.



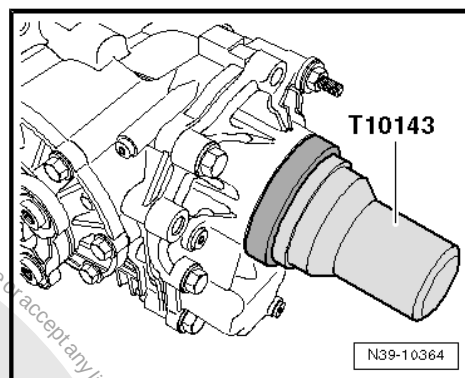


- Drive in seal to stop.
- Fit new retaining ring and new seal on stub shaft.

Bevel box with protective cover



- Drive on new protective cover to stop.
- Check gear oil in bevel box ⇒ [page 199](#) .
- Install drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Removing and installing drive shafts .



4.3 Renewing output flange oil seal (bevel box removed)



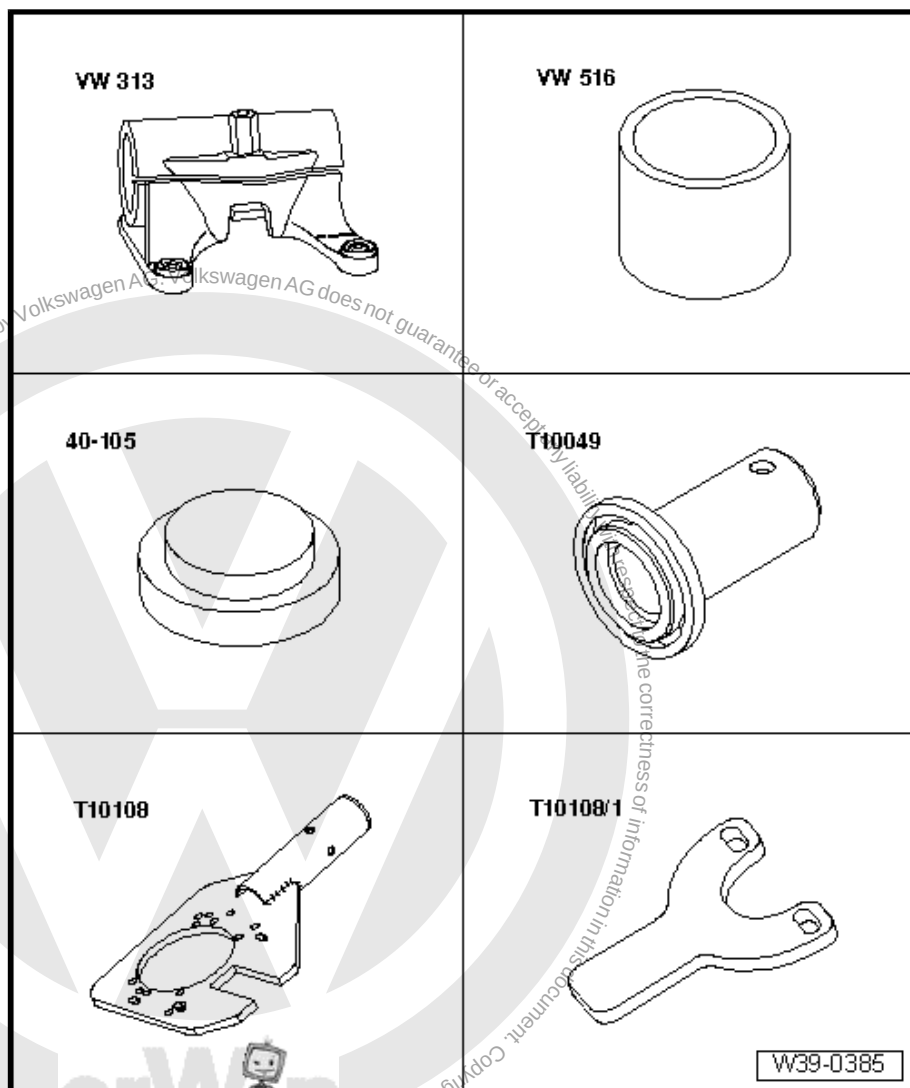
Note

Seal can be renewed only with bevel box removed.



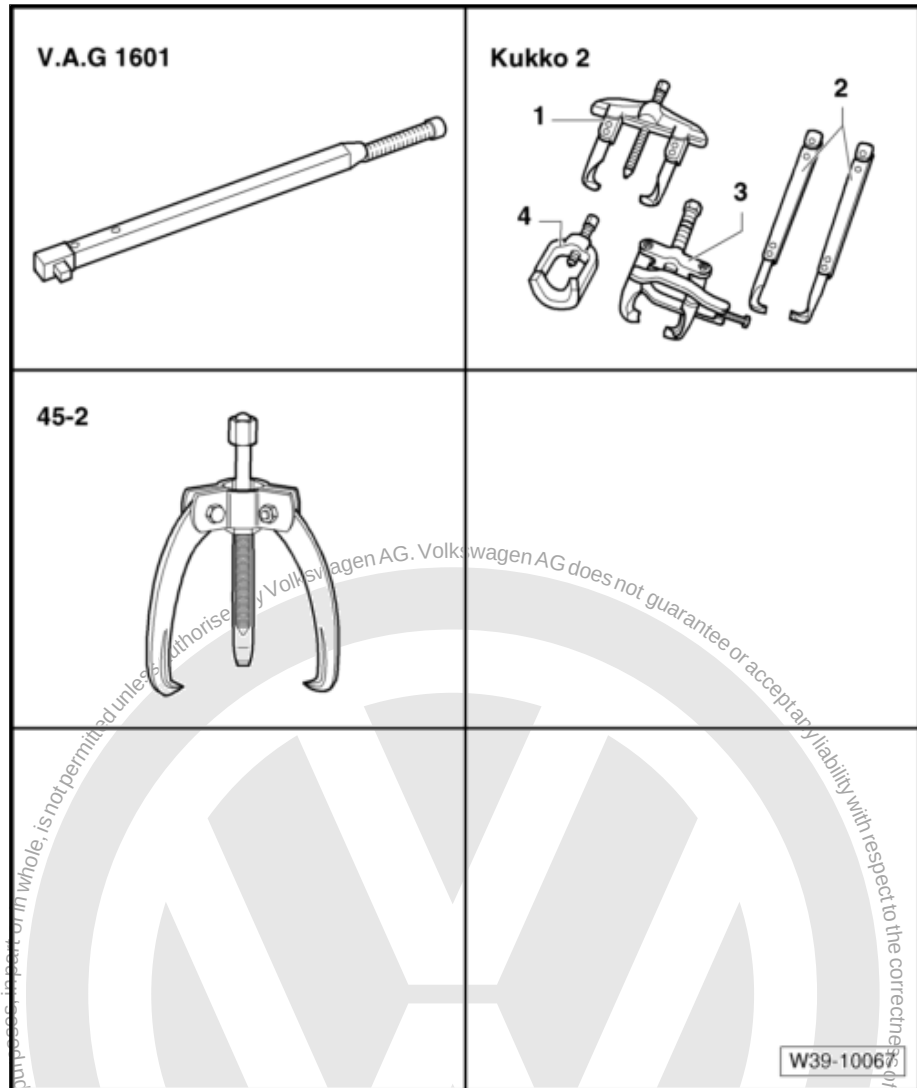
Special tools and workshop equipment required

- ◆ Support clamp - VW 313-
- ◆ Tube - VW 516-
- ◆ Thrust plate - 40-105-
- ◆ Thrust piece - T10049-
- ◆ Gearbox support - T10108-
- ◆ Support plate - T10108/1-

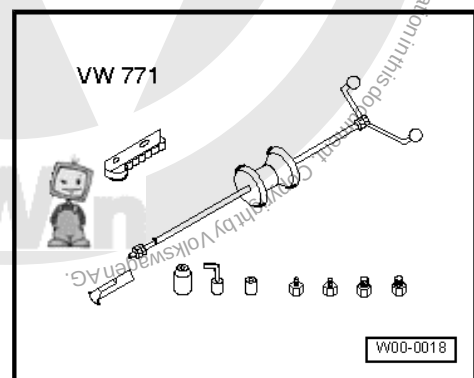




- ◆ Torque wrench - V.A.G 1601-
- ◆ -1- Two arm puller - Kukko 20/10-
- ◆ Three arm puller - Kukko 45-2-

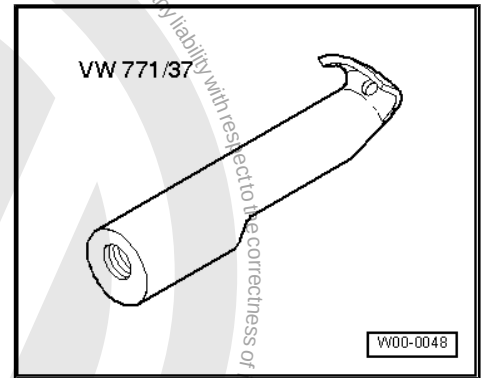


- ◆ Multipurpose tool - VW 771-





- ◆ Puller hooks - VW 771/37-



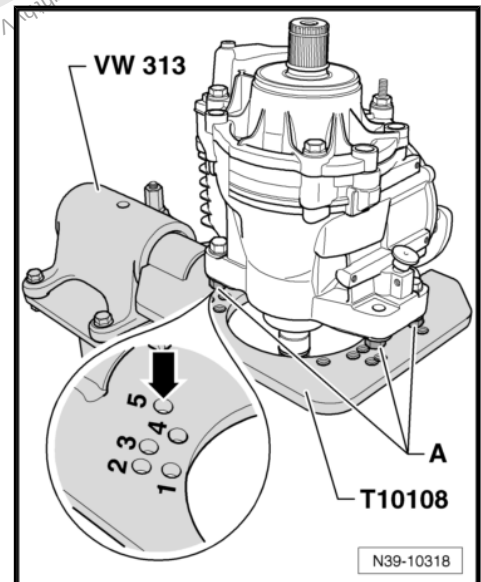
- ◆ Sealing grease - G 052 128 A1-
- ◆ 2 Bolts M10 x 30
- ◆ 4 Nuts M12 x 10

4.3.1 Removing

- Remove bevel box ⇒ [page 154](#) .
- Set bevel box in gearbox support - T10108- on hole -arrow- marked with the number -5-.

A - Lay nuts M 12 x 10 (Qty. 4) between bevel box and gearbox support . Nuts function as spacers.

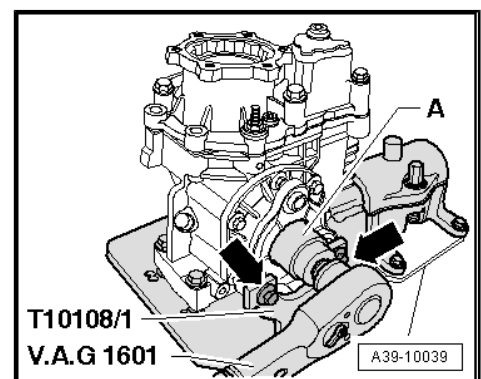
- Then align bevel box with hole opposite and secure.
- Set drip tray for workshop hoist - VAS 6208- underneath.
- Drain oil from bevel box.



- Lock bevel box output flange with stop plate - T10108/1- , screwing in M 10 x 30 bolts -arrows-.
- Remove hexagon nut for output flange.

A - 36 mm socket for 3/4" drive

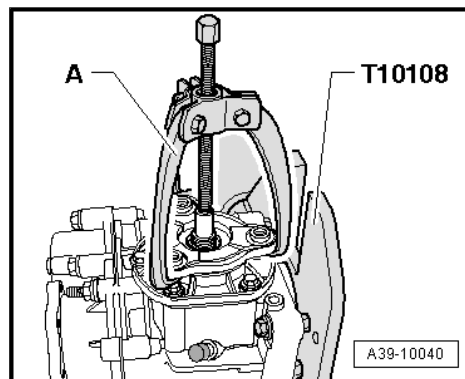
- Swing bevel box so that output flange points upwards.



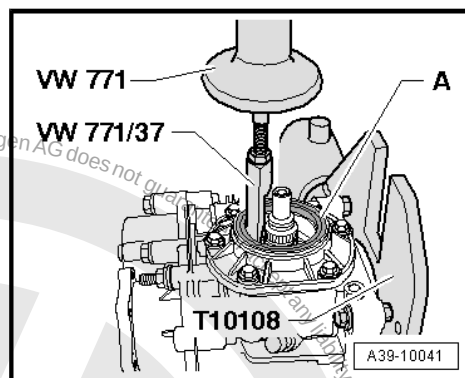


- Pull output flange off shaft bevel gear of bevel box.

A - Three arm puller , e.g. -Kukko 45-2-

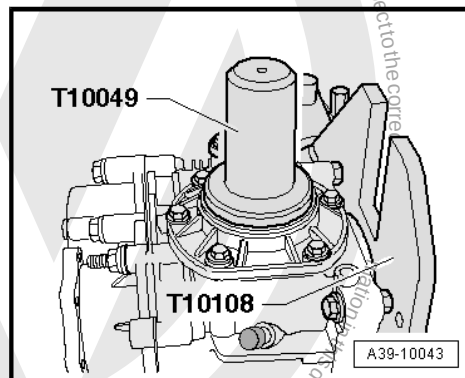


- Pull out seal -A- for output flange.
- Clean residual locking fluid from thread of shaft bevel gear.

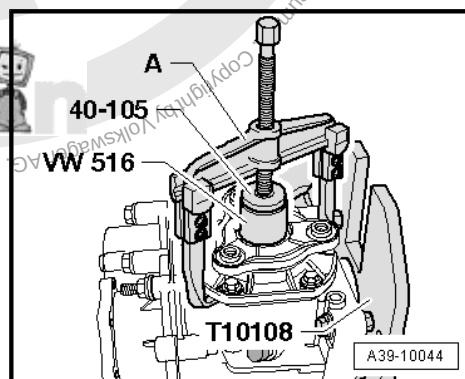


4.3.2 Installing

- Drive in new oil seal to stop using thrust piece - T10049- .
- Half-fill space between sealing lip and dust lip with sealing grease - G 052 128 A1-



- Pull in output flange using two arm puller -A-.
- A - Two arm puller , e.g. -Kukko 20/10-
- Apply puller hooks to lower side of pinion housing.
- Coat thread of new hexagon nut with locking fluid D 000 600.

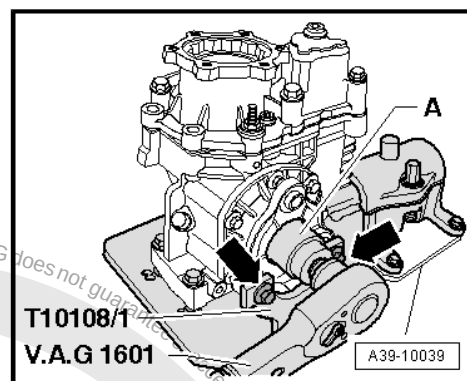




- Fit new nut for output flange and tighten to specified torque
⇒ [Item 11 \(page 184\)](#) .

A - 36 mm socket for 3/4" drive

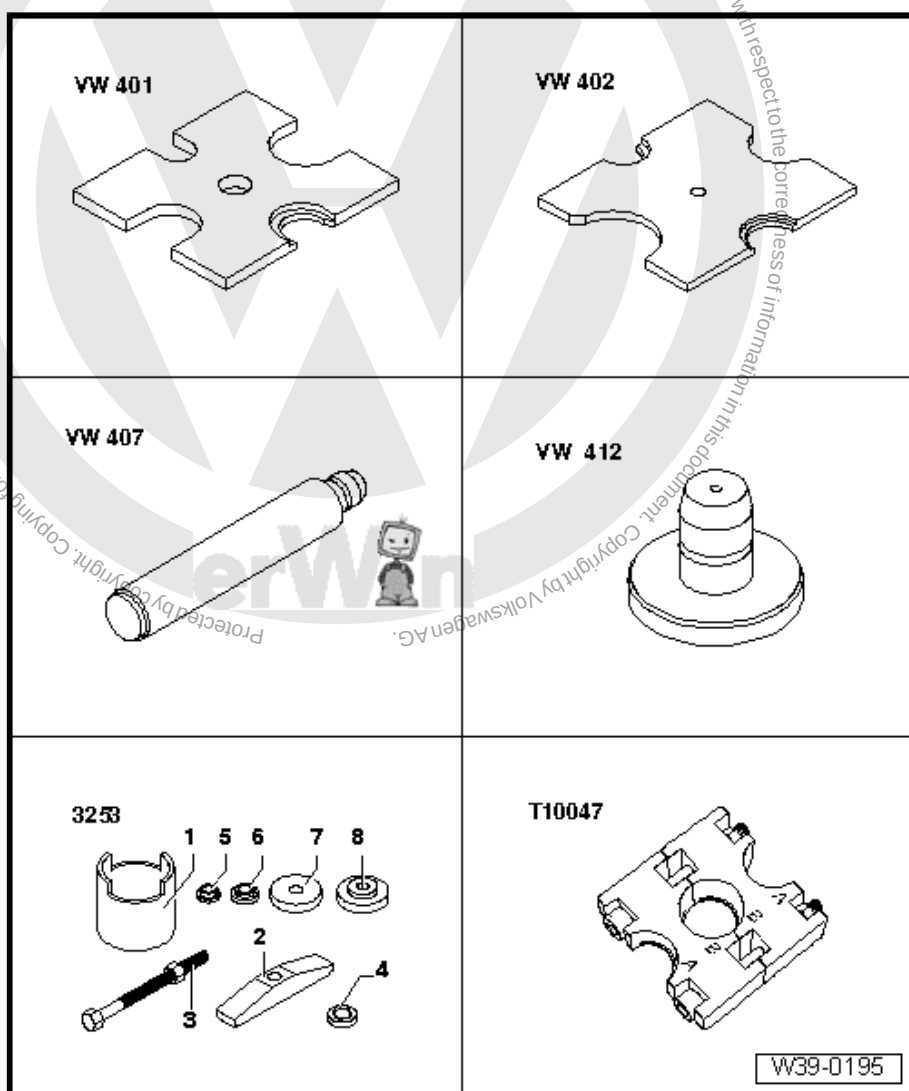
- Install bevel box ⇒ [page 154](#) .
- Check gear oil in bevel box ⇒ [page 199](#) .



4.4 Renewing needle bearing (polygon bearing) for stub shaft

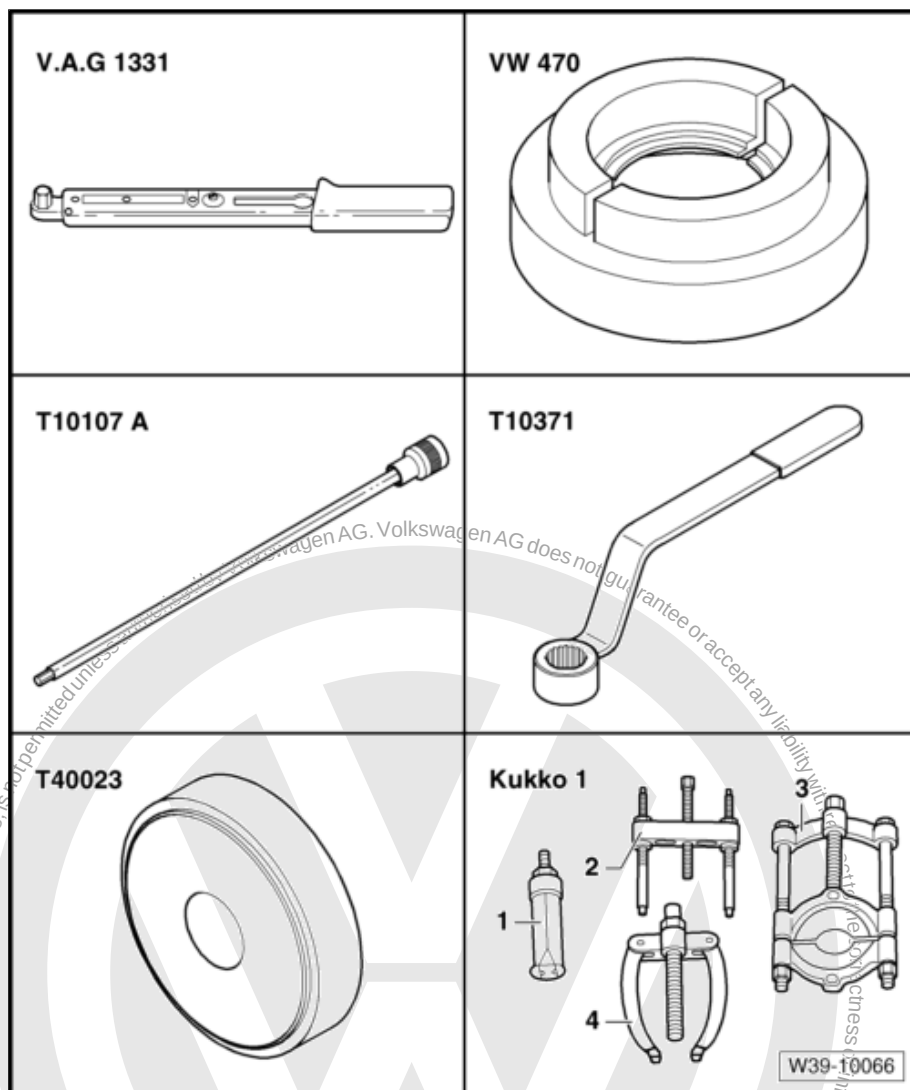
Special tools and workshop equipment required

- ◆ Pressure plate - VW 401-
- ◆ Pressure plate - VW 402-
- ◆ Press tool - VW 407-
- ◆ Press tool - VW 412-
- ◆ Assembly tool - 3253/5-
- ◆ Clamp - T10047-



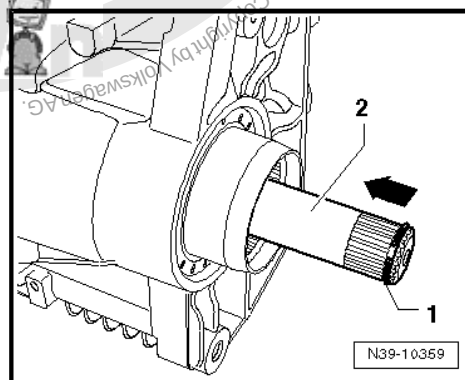


- ◆ Torque wrench - V.A.G 1331-
- ◆ Thrust pieces for pinion shaft bearing - VW 470-
- ◆ Socket - T10107 A-
- ◆ Thrust piece - T40023-
- ◆ -3- Splitter, 22 ... 75 mm , e.g. -Kukko 17/1-



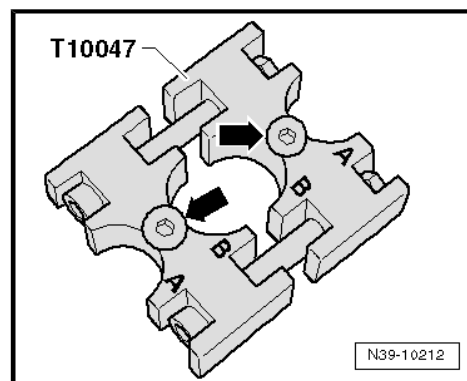
Removing

- Remove noise insulation below engine and gearbox. ⇒ General body repairs, exterior; Rep. gr. 66
- Remove bevel box ⇒ [page 154](#) .
- Remove retaining ring -1- from stub shaft.
- Carefully use plastic mallet -2- to drive stub shaft out in direction of arrow.



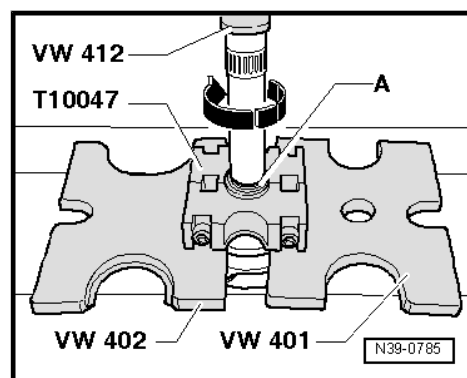


- Align both parts of tool so that marks "B" are opposite one another.
- The shoulders -arrows- must then be below the bearing.
- Now screw both halves together to stop.

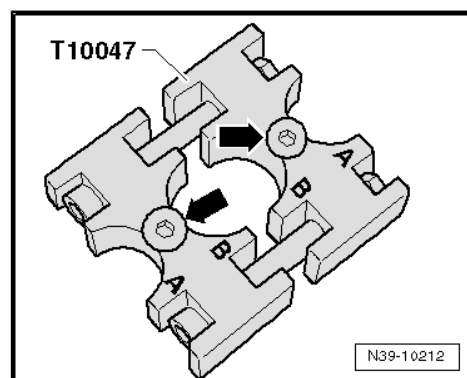


- Lever off retaining ring -A- for needle bearing.
- To avoid damage to running surface of bearing on shaft, turn shaft during pressing procedure -arrow-.

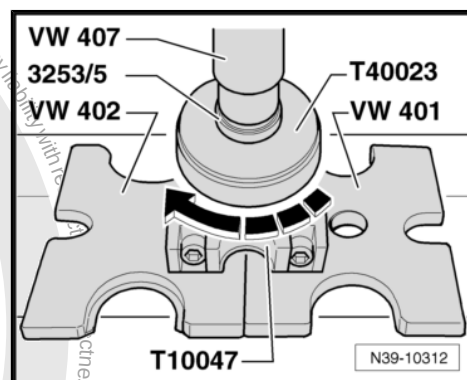
Installing



- Align both parts of tool so that marks "B" are opposite one another.

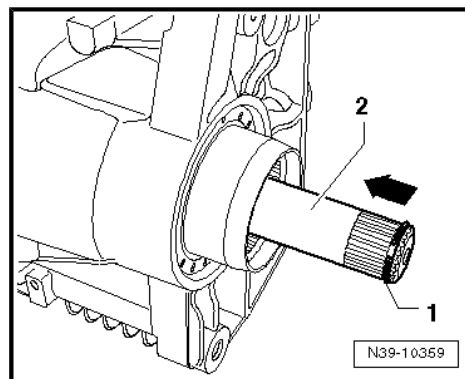


- To avoid damage to running surface of bearing on shaft, turn shaft during pressing procedure -arrow-.
- Secure needle bearing with a new retaining ring.
- Carefully use plastic mallet to drive in stub shaft to stop.

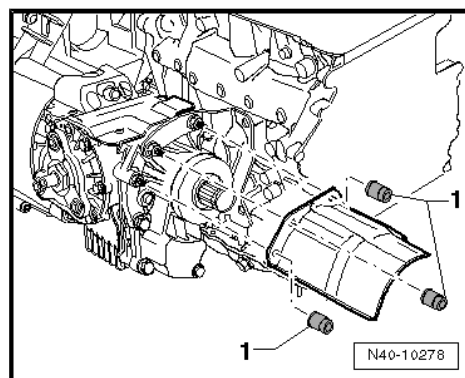




- Fit new retaining ring -1- on stub shaft.
- Install right drive shaft ⇒ Running gear - front and four wheel drive; Rep. gr. 40 ; Removing and installing drive shafts .



- Install heat shield. Torque setting ⇒ Running gear, axles, steering; Rep. gr. 40 ; Repairing drive shafts .
- Install bevel box ⇒ [page 154](#) .
- Check oil level in bevel box ⇒ [page 199](#) .
- Install noise insulation. ⇒ General body repairs, exterior; Rep. gr. 66

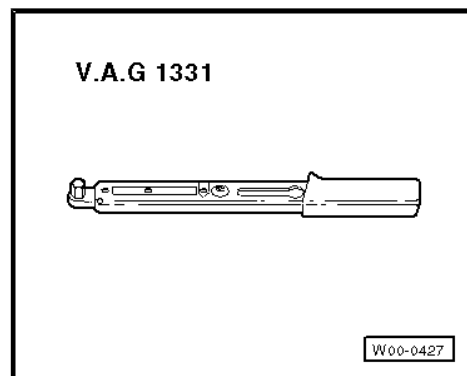




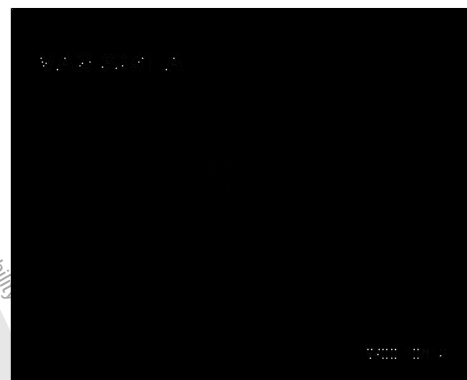
5 Checking and topping up gear oil in bevel box

Special tools and workshop equipment required

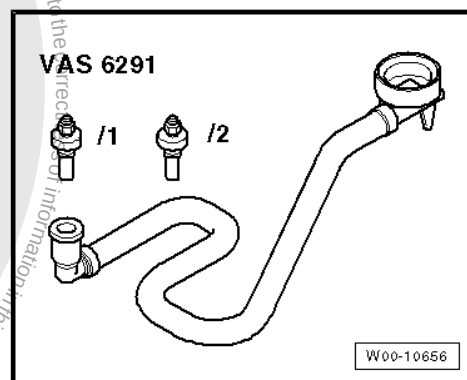
- ◆ Torque wrench - V.A.G 1331-



- ◆ Also required for topping up:
- ◆ Filling device - VAS 6291 A-

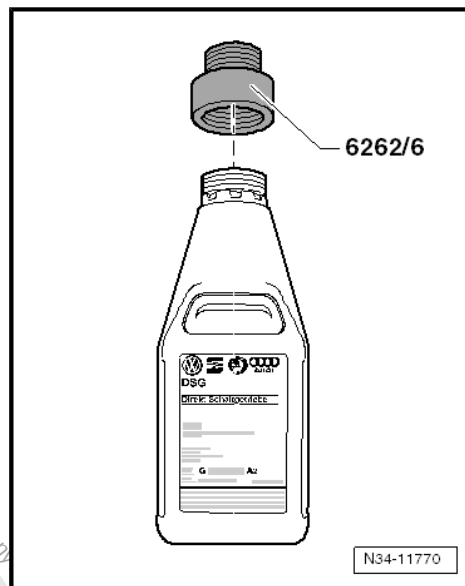


- ◆ Adapter - VAS 6291/2-





- ◆ In the case of some oil bottles, the adapter - VAS 6262/6- must be used as well.



Bevel box is bolted to side of gearbox and has its own oil supply.

Gear oil specification for bevel boxes ⇒ Electronic parts catalogue "ETKA".

5.1 Checking gear oil in bevel box

Conditions

- Bevel box must be in installation position.
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .
- Set drip tray for workshop hoist - VAS 6208- underneath.



Note

Cover area beneath oil filler plug -arrow- with a cloth.

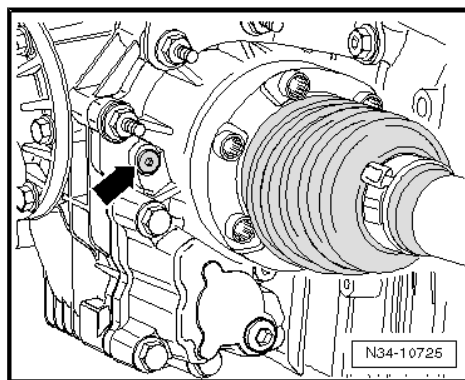
- Remove oil filler plug -arrow- from bevel box.

Oil filler plug -arrow- must be renewed.

Oil level is correct when bevel box is filled to lower edge of filler hole.

If oil should get on bevel box, carefully remove it.

- If necessary, top up gear oil ⇒ [page 200](#) .
- Install new oil filler plug -arrow- and tighten to 15 Nm.



5.2 Topping up gear oil in bevel box

Conditions

- Vehicle level.
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .



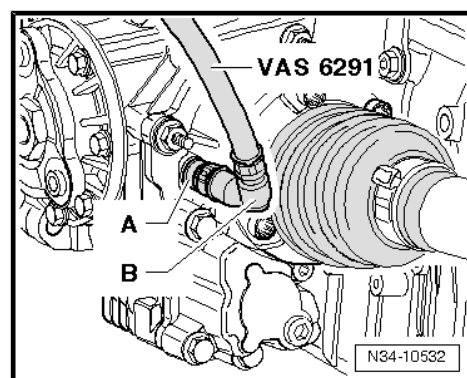
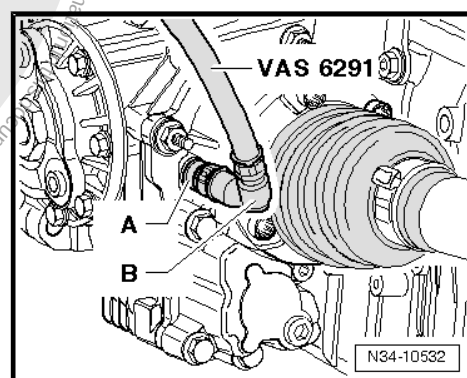
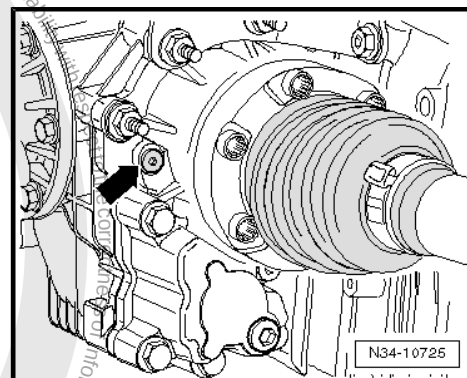
- If fitted, remove right drive shaft heat shield from bevel box -arrows- ➤ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .



Note

Cover area beneath oil filler plug -arrow- with a cloth.

- Remove oil filler plug -arrow- from bevel box.
- Screw adapter - VAS 6291/2- -A- in to stop.
- Engage elbow -B- in adapter -A-.
- Top up with oil.



Note

- ◆ If bevel box has been properly filled, oil will have run out at adapter -A-.
- ◆ Continue with filling procedure if no oil has run out yet.
- After bevel box has been properly filled, unscrew adapter - VAS 6291/2- .
- Screw in »old« oil drain plug and tighten slightly.
- Start engine, engage gear and allow gearbox to turn for approx. 2 minutes.
- Turn off engine and remove plug from oil filler hole.
- Check oil level, if necessary top up gear oil again to lower edge of filler hole.
- Install new oil filler plug -arrow- and tighten to 15 Nm.

If oil should get on bevel box, carefully remove it.

- If present, install heat shield above right drive shaft. Specified torque ➤ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .
- Install noise insulation ➤ General body repairs, exterior; Rep. gr. 50 ; Noise insulation .

