Workshop Manual

CC 2010 ➤, Golf 2004 ➤, Golf 2009 ➤, Golf Plus 2005 ➤, Passat 2006 ➤, Passat CC 2009 ➤, Touran 2003 ➤

6-speed automatic gearbox 09G

Edition 07.2011

List of Workshop Manual Repair GroupsList of Workshop Manual Repair GroupsList of Workshop Manual Repair Groups

Repair Group

00 - Technical data
32 - Torque converter
37 - Controls, housing
38 - Gears, control
39 - Final drive - differential

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

Contents

00 - Technical data 1
1 General repair notes 1
1.1 Gearbox 1
1.2 Torque converter 1
1.3 ATF 1
1.4 Automatic gearbox control unit J217 with fuzzy logic 1
1.5 Control units in vehicle 1
1.6 Information on „09G gearbox“ 1
1.7 Tools 2
1.8 Gearbox 2
1.9 Gaskets, seals and oil 3
1.10 Nuts and bolts 3
1.11 Electrical components 4
1.12 Guided fault finding, vehicle self-diagnosis and test instruments 4
2 Capacities 5
2.1 Planetary gearbox and final drive 5
3 Code - engine allocation 6
3.1 Gearbox codes 6
4 Golf 2004 ➢ 7
5 Golf Plus 2005 ➢ 8
6 Golf 2009 ➢ 9
7 Touran 2003 ➢ 10
8 Passat 2006 ➢ 11
9 Passat CC 2009 ➢ CC 2010 ➢ 12

32 - Torque converter 13
1 Proper handling and installation of torque converter 13
1.1 Identification of torque converter 13
1.2 Draining torque converter 13
1.3 Removing and installing torque converter oil seal 14
1.4 Installing torque converter 15

37 - Controls, housing 16
1 Connecting »tester« 16
1.1 Connecting vehicle diagnosis, testing and information system VAS 5051 16
2 Electrical and electronic components and their locations 18
3 Multifunction switch F125 23
3.1 Removing multifunction switch F125 23
3.2 Installing multifunction switch F125 24
3.3 Adjusting multifunction switch F125 25
4 Emergency release of selector lever 27
5 Removing and installing selector lever handle 28
5.1 Moving pushbutton to installation position in the handle 30
6 Selector mechanism up to 02.2009 33
6.1 Overview of selector mechanism up to 02.2009 33
6.2 Removing and installing selector mechanism with selector lever 34
6.3 Removing and installing selector lever cable 34
6.4 Checking selector lever cable 42
6.5 Adjusting selector lever cable 43
7 Selector mechanism from 03.2009 onwards 45

7.1 Overview of selector mechanism in vehicles from 03.2009 onwards . . . 45
7.2 Removing and installing selector lever and selector mechanism with selector lever cable from 03.2009 onwards . . . 46
8 Checking selector mechanism . . . 48
8.1 Selector lever in „P“ position and ignition switched on . . . 48
8.2 Selector lever in „N“ position and ignition switched on . . . 48
8.3 Selector lever in position „Tiptronic“ . . . 48
8.4 Ignition and light switched on . . . 48
8.5 Selector lever position display . . . 48
9 Removing and installing gearbox, Golf 2004 ► . . . 49
9.1 Removing gearbox, Golf 2004 with 1.6 l - 75 kW, 1.6 l - 85 kW (FSI) and 2.0 l - 110 kW (FSI) engines . . . 49
9.2 Installing gearbox, Golf 2004 with 1.6 l - 75 kW, 1.6 l - 85 kW (FSI) and 2.0 l - 110 kW (FSI) engines . . . 55
9.3 Removing gearbox, Golf 2004 with 2.5 l - 110 kW and 125 kW engines . . . 55
9.4 Installing gearbox, Golf 2004 with 2.5 l - 110 kW and 125 engines . . . 63
9.5 Torque settings, gearbox to engine . . . 64
10 Removing and installing gearbox, Golf Plus 2005 ► . . . 68
10.1 Removing gearbox, Golf Plus 2005 . . . 68
10.2 Installing gearbox, Golf Plus 2005 . . . 74
10.3 Torque settings, gearbox to engine . . . 75
11 Removing and installing gearbox, Touran 2003 ► . . . 80
11.1 Removing gearbox, Touran 2003 . . . 80
11.2 Installing gearbox, Touran 2003 . . . 84
11.3 Torque settings, gearbox to engine . . . 85
12 Removing and installing gearbox, Passat 2003 ► . . . 88
12.1 Removing gearbox, Passat with 1.6 l - 85 kW and 2.0 l - 110 kW engines . . . 88
12.2 Installing gearbox, Passat with 1.6 l - 85 kW and 2.0 l - 110 kW engines . . . 94
12.3 Torque settings, gearbox to engine . . . 95
12.4 Removing gearbox, Passat with 1.8 l - 118 kW and 2.0 l - 147 kW engines . . . 96
12.5 Installing gearbox, Passat with 1.8 l - 118 kW and 2.0 l - 147 kW engines . . . 102
12.6 Torque settings, gearbox to engine . . . 103
13 Removing and installing gearbox, Passat CC 2009 ►, CC 2010 ► . . . 105
13.1 Removing gearbox, Passat CC 2009, CC 2010 with 2.0 l 147 kW TFSI engine . . . 105
13.2 Installing gearbox, Passat CC 2009, CC 2010 with 2.0 l 147 kW TFSI engine . . . 113
13.3 Torque settings, gearbox to engine . . . 114
14 Removing and installing gearbox, Golf 2009 ► . . . 116
14.1 Removing gearbox, Golf 2009 with 2.5 l - 125 kW engine . . . 116
14.2 Installing gearbox, Golf 2009 with 2.5 l - 125 kW engine . . . 124
14.3 Torque settings, Golf 2009 with 2.5 l - 125 kW engine . . . 125
15 Transporting gearbox . . . 127
16 ATF cooler for 1.6 l - 85 kW and 2.0 l - 110 kW engines . . . 128
16.1 Assembly overview - ATF cooler . . . 128
17 ATF lines, ATF water cooler and additional ATF cooler, Passat with 2.0 l TFSI engine . . . 129
17.1 Overview . . . 129
18 Checking ATF level and topping up . . . 134
18.1 Checking ATF level . . . 136
18.2 Topping up ATF . . . 137
18.3 Draining and filling ATF . . . 138

38 - Gears, control . . . 140
1 Renewing oil seal for selector shaft . . . 140
2 Removing and installing ATF pan . . . 141
2.1 Removing . . . 141

2.2 Installing . . . 142
3 Removing and installing ATF strainer . . . 144
3.1 Removing . . . 144
3.2 Installing . . . 144
4 Removing and installing valve body . . . 145
4.1 Overview - valve chest . . . 145
4.2 Removing valve body . . . 147
4.3 Installing valve body . . . 150
4.4 Specified torques . . . 154
5 Removing and installing wiring harness for solenoid valves and senders . . . 155
5.1 Removing . . . 155
5.2 Installing . . . 155
6 Removing and installing gearbox input speed sender G182 . . . 156
6.1 Removing . . . 156
6.2 Installing . . . 156
7 Removing and installing gearbox output speed sender G195 . . . 157
7.1 Removing . . . 157
7.2 Installing . . . 157

39 - Final drive - differential . . . 158
1 Renewing oil seals for flange shafts . . . 158
1.1 Renewing oil seal for left flange shaft . . . 158
1.2 Renewing seal for right flange shaft . . . 159

00 – Technical data

1 General repair notes

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To ensure flawless and successful gearbox repairs, the greatest care and cleanliness as well as the use of good and proper tools are essential. Obviously, the basic rules for safety also apply during repair work.

A number of generally valid instructions applicable for the various repair procedures - which were formerly repeated a number of times at numerous places in the workshop manual - are summarised here. They apply to this workshop manual.

1.1 Gearbox

The „automatic gearbox 09G“ has six hydraulically actuated forward gears. When the torque converter lock-up clutch closes, 2nd, 3rd, 4th, 5th and 6th gears become mechanically driven gears by eliminating torque converter slip.

1.2 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).

1.3 ATF

Use only ATF which has been ordered as a part from the ⇒ Electronic parts catalogue „ETKA“ .

The ATF levels in the planetary gearbox and final drive are checked and topped up together.

1.4 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.

1.5 Control units in vehicle

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

1.6 Information on „09G gearbox“

Design and function of gearbox

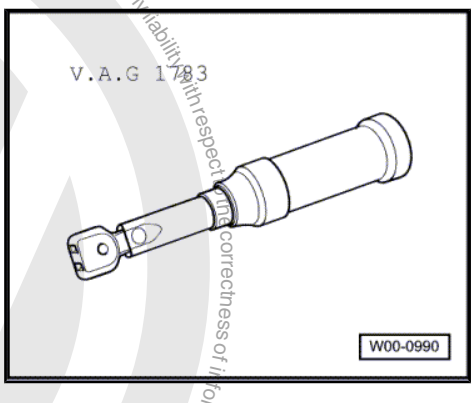
- ⇒ Multimedia training; Automatic gearbox 09G
- ⇒ Self-study programme No. 291 ; Automatic gearbox 09G

1.7 Tools

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

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

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

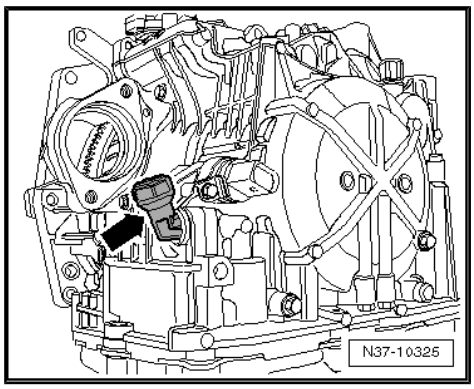


1.8 Gearbox

- 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

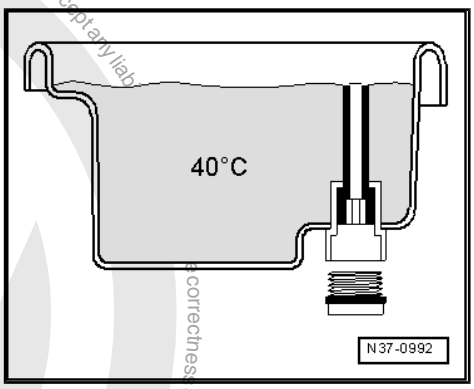
Here is an »example« with a filler pipe as it is installed in »older« gearboxes. This pipe has been discontinued.



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.

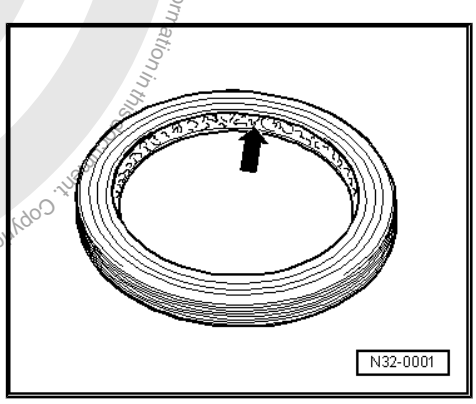
The tube must be removed to drain the fluid.

- After installation, check the ATF level and top up ⇒ page 134 .
- Capacities ⇒ page 5 .



1.9 Gaskets, seals and oil

- Always renew O-ring, seals and gaskets.
- Before installing a radial oil seal, coat sealing lips and area between them 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.

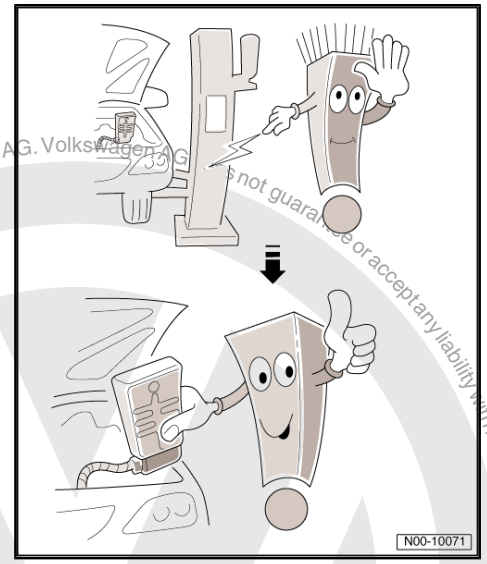
1.10 Nuts and bolts

- Loosen and tighten bolts and securing nuts for covers and housings diagonally.
- Torque settings are specified for unoiled 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.
- Use a thread chaser to clear residual locking fluid from all threaded holes into which self-locking bolts are to be screwed. Otherwise there is a danger of bolts shearing when subsequently being removed.
- Always renew self-locking bolts and nuts.

1.11 Electrical components

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

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

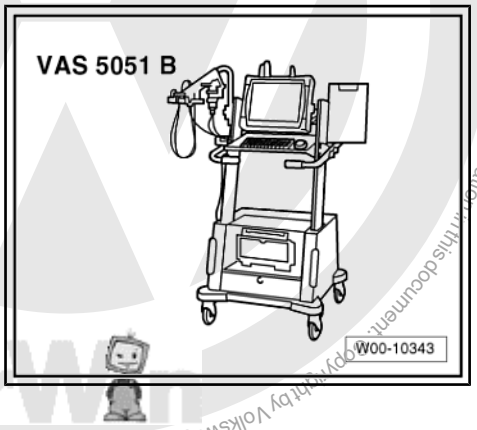


1.12 Guided fault finding, vehicle self-diagnosis and test instruments

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

`Guided fault finding` is carried out using the vehicle diagnosis, testing and information system -VAS 5051B- ⇒ page 16 .

The `guided functions` will guide you to the ATF temperature in the shortest way possible ⇒ page 16 .



2 Capacities

2.1 Planetary gearbox and final drive

Capacities	„6-speed automatic gearbox 09G“
Initial filling	approx. 7.0 l
Change	approx. 3.0 l
Lubricant	ATF is available as a part. Therefore, the part number for it can be found in the ⇒ Electronic parts catalogue „ETKA“.

3 Code - engine allocation

Codes for Golf 2004 ► ⇒ page 7

Codes for Golf 2009 ► ⇒ page 9

Codes for Golf Plus 2005 ► ⇒ page 8

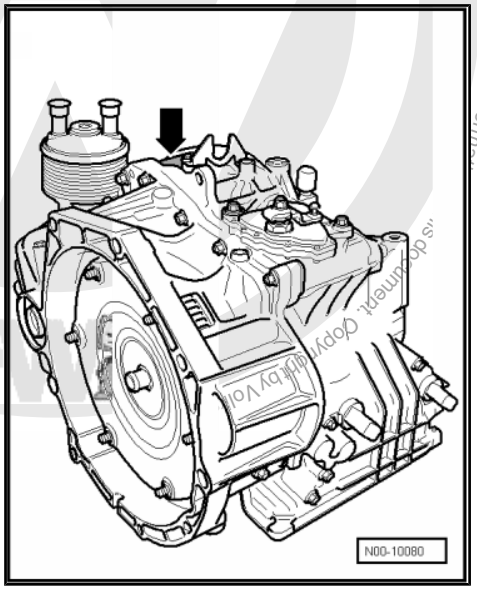
Codes for Touran 2003 ► ⇒ page 10

Codes for Passat 2006 ► ⇒ page 11

Codes for Passat CC 2009 ►, CC 2010 ► ⇒ page 12

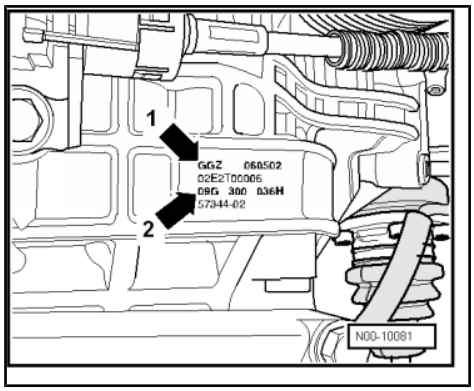
3.1 Gearbox codes

Code letters -arrow-



Code letters -arrow 1-

„Automatic gearbox 09G“ -arrow 2-



Example:

GGZ	08	05	02
I	I	I	I
Identification code	Day	Month	Year -2002- of manufacture

The gearbox code also appears on the vehicle identification plates.

4 Golf 2004 ►

If Genuine parts are required for a repair, always refer to the gearbox code.

„Automatic gearbox 09G“					
Identification code	GJY »GSY« »HFS« »HTN« »JTY« KGJ	»GJX« »HFR« »HTM« »JUG« »KGH«	»FUF« »GJZ« »HFT« »HTP« »JUH« KGK	»HFU« »HRM« »JUJ«	»KBV« KGL
Engine	1.6 l - 75 kW	1.6 l - 85 kW (FSI)	2.0 l - 110 kW (FSI)	2.5 l - 110 kW	2.5 l - 125 kW

5 Golf Plus 2005 ►

If Genuine parts are required for a repair, always refer to the gearbox code.

„Automatic gearbox 09G“			
Identification code	»HFS« »HTN« »JTY« »KGJ«	»HLP« »JTV« KGN	»HFX« »HTQ« »JTW«
Engine	1.6 l - 75 kW	1.6 l - 85 kW (FSI)	2.0 l - 110 kW (FSI)

6 Golf 2009 ►

If Genuine parts are required for a repair, always refer to the gearbox code.

„Automatic gearbox 09G“	
Identification code	KGL, MAN
Engine	2.5 l - 125 kW

7 Touran 2003 ►

If Genuine parts are required for a repair, always refer to the gearbox code.

„Automatic gearbox 09G“			
Identification code	»FUH« »GKB« »GXY« »HLP« »JTV«	»GKC« »HFX« »HTQ« »JTW« KGM	»HHH« »HTR« JTX KGP
Engine	1.6 l - 85 kW	2.0 l - 110 kW	1.8 l - 110 kW (China)

8 Passat 2006 ►

If Genuine parts are required for a repair, always refer to the gearbox code.

„Automatic gearbox 09G“				
Identification code	»HXK« »JUB« KGS	»HFT« »HVW« »HXJ« »JUC« KGT	»JYY« KGV	»HHP« »HRN« »JUD« JZV KGU
Engine	1.6 l - 85 kW (FSI)	2.0 l - 110 kW (FSI)	1.8 l - 118 kW (TFSI)	2.0 l - 147 kW (FSI)

9 Passat CC 2009 ►, CC 2010 ►

If Genuine parts are required for a repair, always refer to the gearbox code.

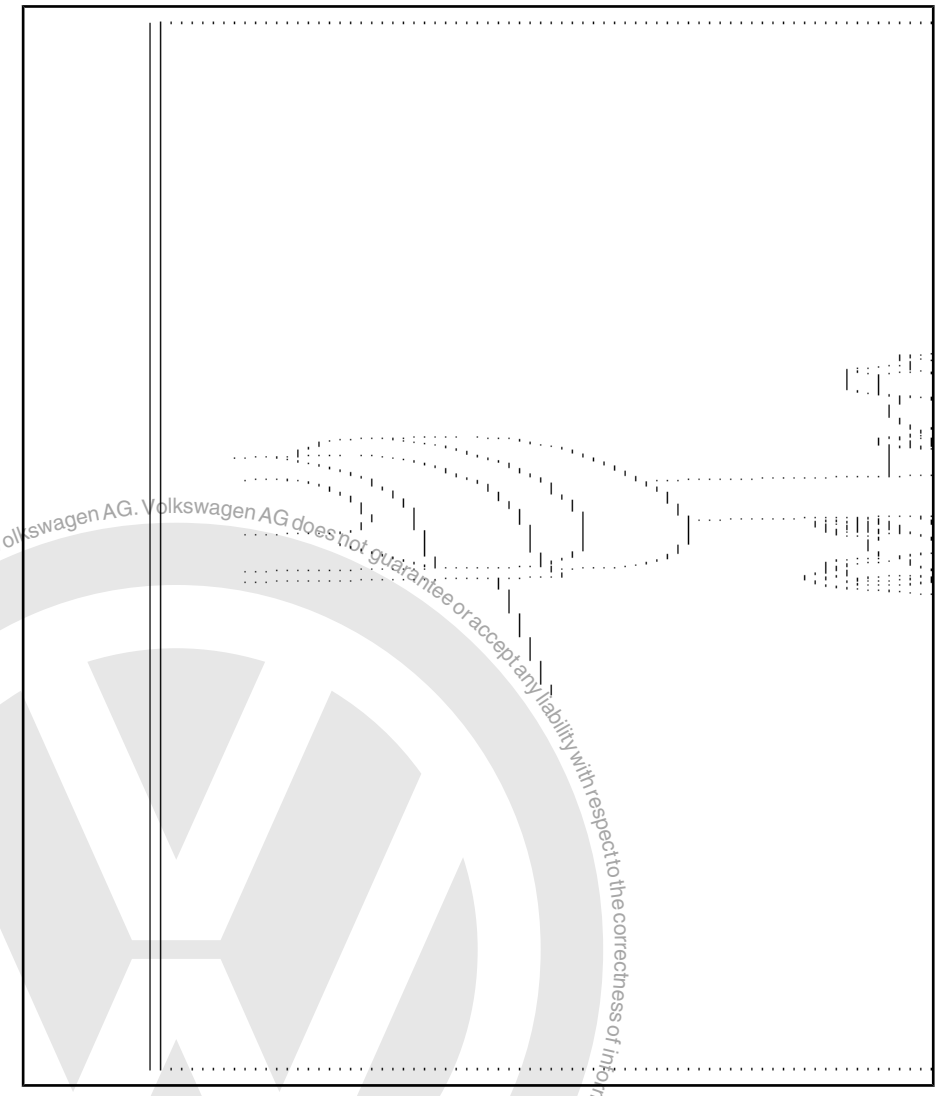
„Automatic gearbox 09G“	
Identification code	»JZV« »KGU«
Engine	2.0 l - 147 kW (FSI)

32 – Torque converter

1 Proper handling and installation of torque converter

– Always secure torque converter.

An unsecured torque converter may slide out when the gearbox is tipped.



Therefore, always work with care.

1.1 Identification of torque converter

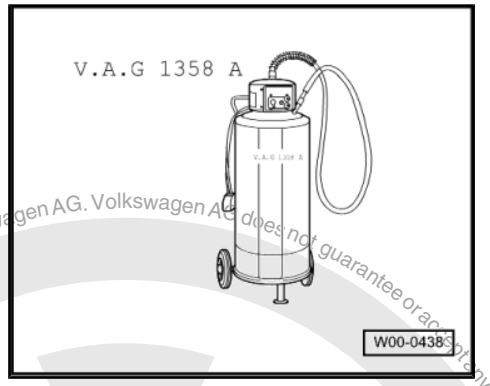
There are various torque converters. They are identified by codes.

Torque converter/gearbox allocation ⇒ Replacement parts catalogue ⇒ ETKA

1.2 Draining torque converter

Special tools and workshop equipment required

- -V.A.G 1358 A- Oil extraction unit



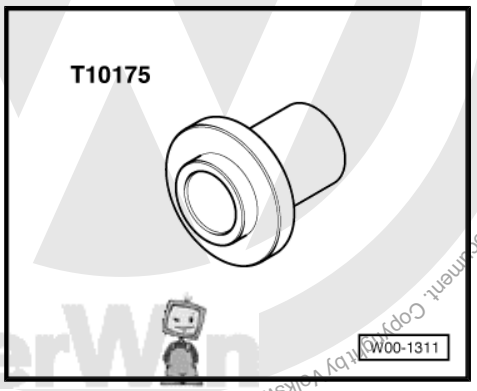
- -V.A.G 1358 A/1- Oil extraction probe

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

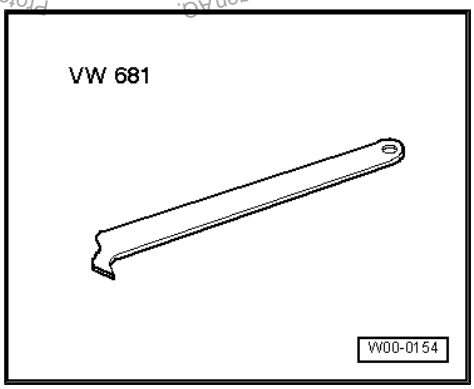
1.3 Removing and installing torque converter oil seal

Special tools and workshop equipment required

- Thrust piece -T10175-

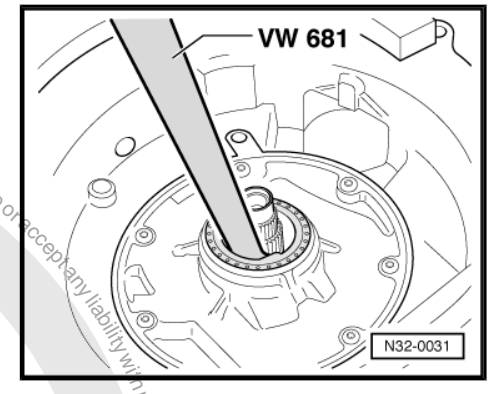


- extractor lever -VW 681-



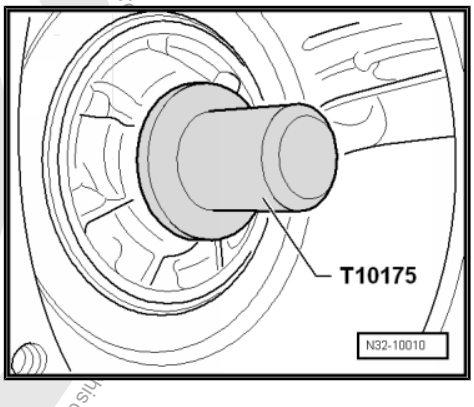
Removing

– Pry out seal with lever -VW 681- .



Installing

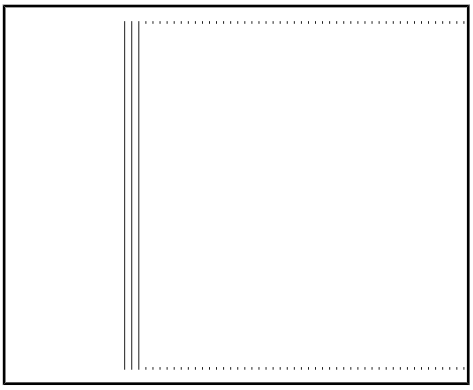
– Drive in seal flush thrust piece -T10175- .



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.

Caution

If engine and gearbox are brought together with force because the torque converter is improperly fitted, both gearbox and torque converter will be damaged.

37 – Controls, housing

1 Connecting »tester«

Volkswagen offers various devices such as

- Vehicle diagnosis, testing and information system -VAS 5051-
- Vehicle diagnosis, testing and information system -VAS 5051B-
- Tester -VAS 5051/11A-
- Vehicle diagnosis and service information system -VAS 5052-
- Diagnostic system -VAS 5053-

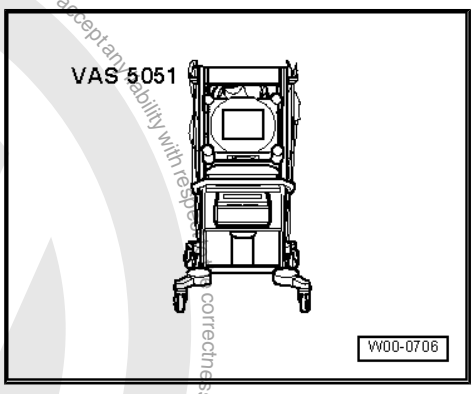
The operation of these »devices« is described in the respective user's manuals.

The following description refers to the vehicle diagnosis, testing and information system -VAS 5051- ⇒ page 16 .

1.1 Connecting vehicle diagnosis, testing and information system -VAS 5051-

Special tools and workshop equipment required

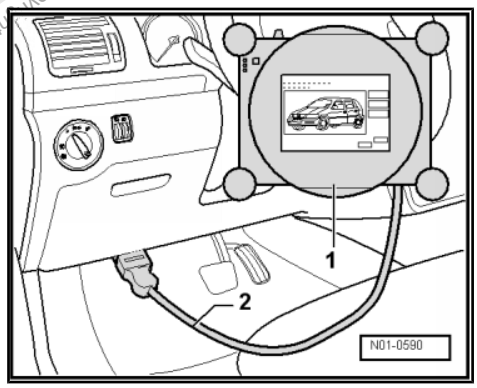
- Vehicle diagnosis, testing and information system -VAS 5051-



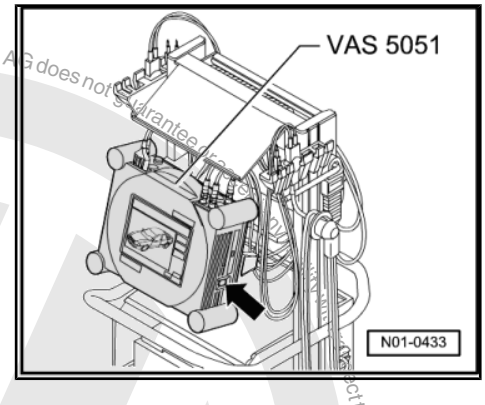
WARNING

- *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:

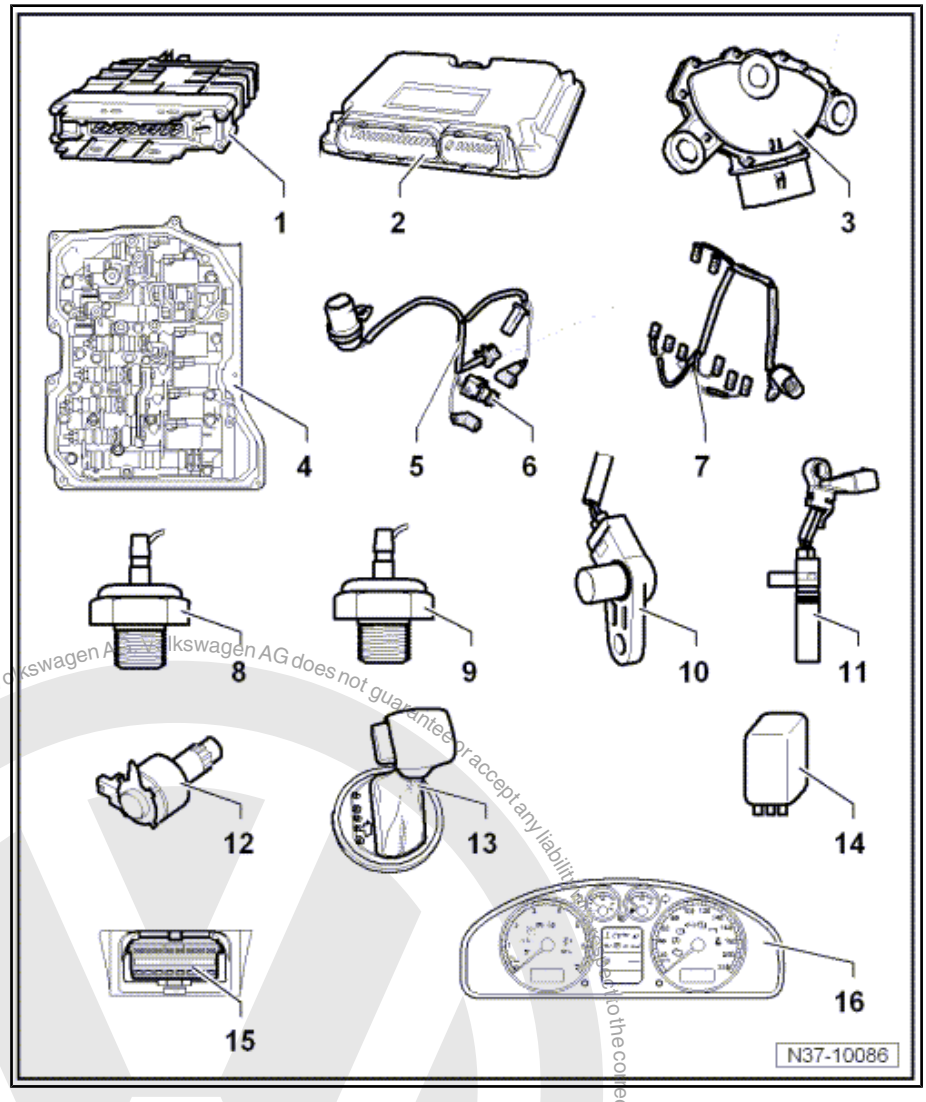
- `ElsaWin`
- `Testing`
- `Self-diagnosis`

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



1 - Control unit for automatic gearbox -J217-

- The control unit transmits and receives data from the ⇒ data bus.
- Location and removing and installing ⇒ page 19
- Can be checked using „guided fault finding“ of -VAS 5051-

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 19
- Can be checked using „guided fault finding“ of -VAS 5051-
- Removing, installing and adjusting ⇒ page 23 .

4 - Valve body

- Location ⇒ page 20
- Components can be checked using „guided fault finding“ of -VAS 5051-
- Allocation ⇒ Electronic parts catalogue „ETKA“

5 - Wiring harness for sender

- With gearbox oil temperature sender -G93-
- Location ⇒ page 20
- Removing and installing ⇒ page 155
- Allocation ⇒ Electronic parts catalogue „ETKA“

6 - Gearbox oil temperature sender -G93-

- Location ⇒ page 20
- Can be checked using „guided fault finding“ of -VAS 5051-

7 - Wiring harness for solenoid valves

- Location ⇒ page 20
- Removing and installing ⇒ page 155
- Allocation ⇒ Electronic parts catalogue „ETKA“

8 - Automatic gearbox hydraulic pressure sender 1 -G193-

- Not installed in all gearboxes

- ❑ Allocation ⇒ Electronic parts catalogue „ETKA“
- ❑ Location ⇒ page 21

9 - Automatic gearbox hydraulic pressure sender 2 -G194-
- ❑ Not installed in all gearboxes
- ❑ Allocation ⇒ Electronic parts catalogue „ETKA“
- ❑ Location ⇒ page 21

10 - Gearbox input speed sender -G182-
- ❑ Removing and installing ⇒ page 156
- ❑ Can be checked using „guided fault finding“ of -VAS 5051-

11 - Gearbox output speed sender -G195-
- ❑ Removing and installing ⇒ page 157
- ❑ Can be checked using „guided fault finding“ of -VAS 5051-

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-

13 - Tiptronic switch -F189-
- ❑ Location ⇒ page 21
- ❑ Can be checked using „guided fault finding“ of -VAS 5051-

14 - Terminal 50 voltage supply relay -J682-
- ❑ In E box in engine compartment ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

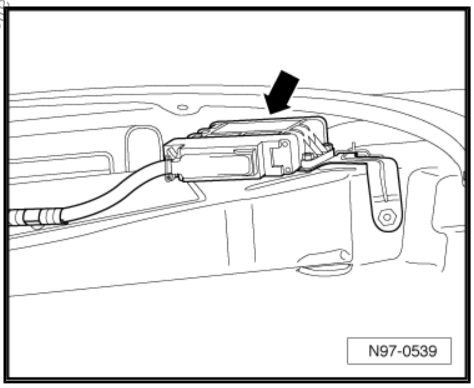
15 - Diagnostic connection
- ❑ Location ⇒ page 22

16 - 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-

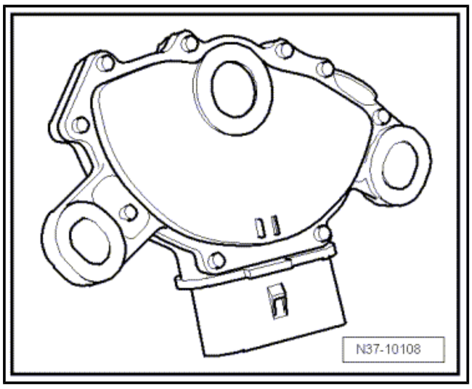
Location: Control unit is located in the front left wheel housing.

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



Multifunction switch -F125-

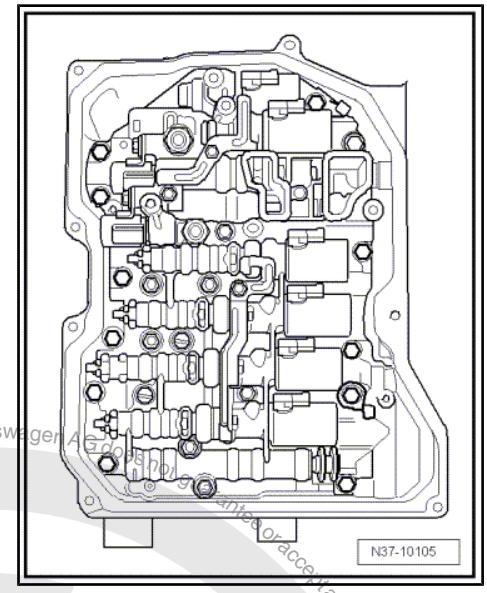
Location: multifunction switch is located on top of the gearbox.



Valve body

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

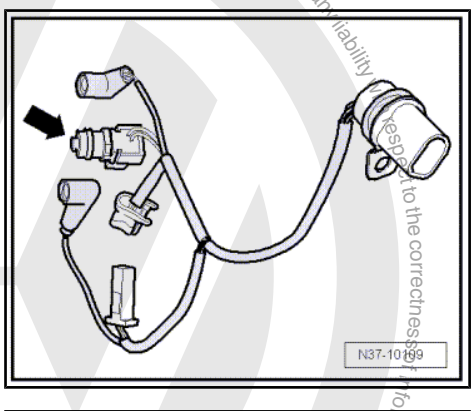
Solenoid valves -N88- and -N89- as well as pressure control valves -N90- , -N91- , -N92- , -N93- , -N282- and -N283- are secured to valve body.



Wiring harness for sender

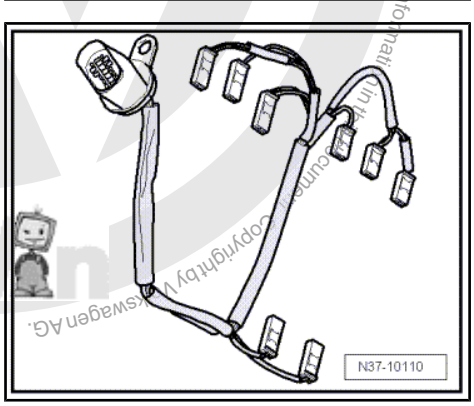
- With integrated gearbox oil temperature sender -G93- -arrow-

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.

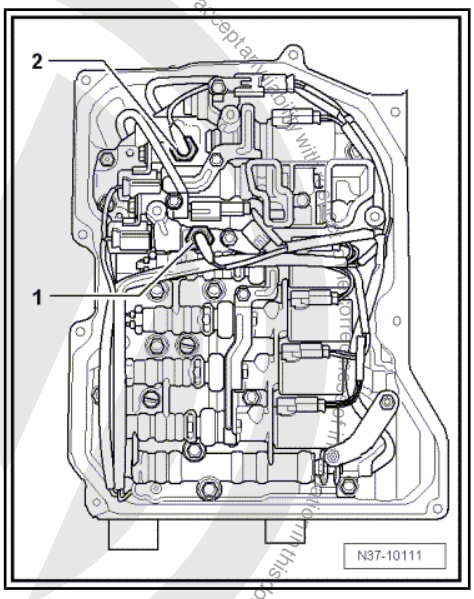


Hydraulic pressure sender 1 -G193- and hydraulic pressure sender 2 -G194-

This sender is not installed in all gearboxes.

Location:

Automatic gearbox hydraulic pressure sender 1 -G193- -1- and automatic gearbox hydraulic pressure sender 2 -G194- are bolted into the valve body.

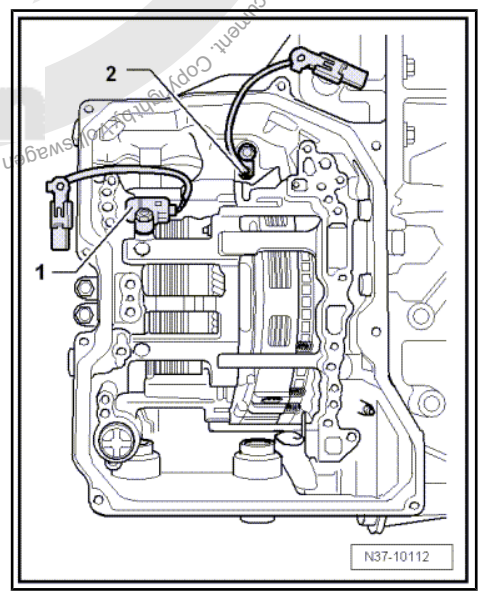


Gearbox input speed sender -G182- and gearbox output speed sender -G195-

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

1 - Gearbox input speed sender -G182-

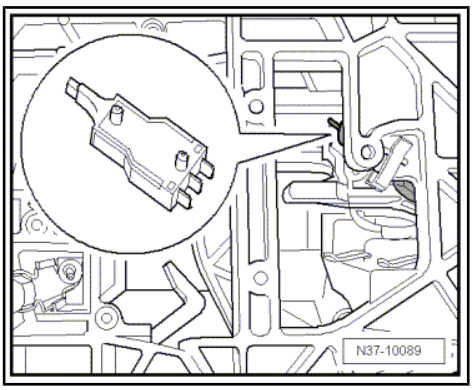
2 - Gearbox output speed sender -G195-



Tiptronic switch -F189-

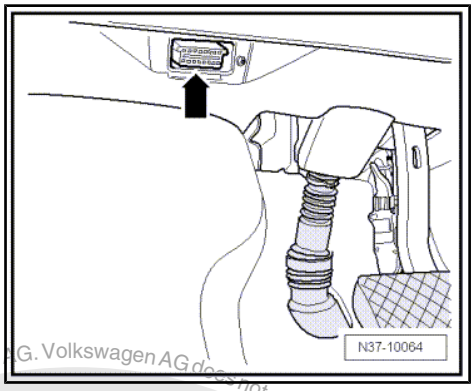
Location: Tiptronic switch is integrated into selector mechanism.

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



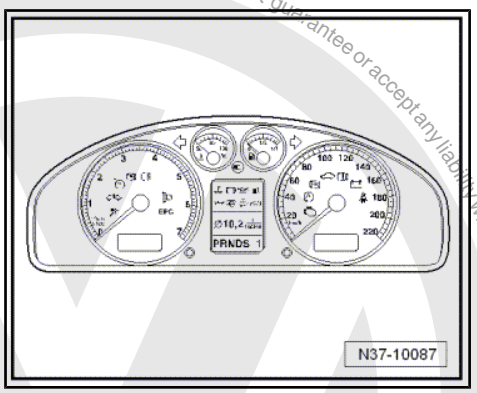
Diagnostic connection

Location: diagnosis connector -arrow- is located on left below driver storage compartment.



Selector lever position display -Y6-

Location: in dash panel insert



3 Multifunction switch -F125-

Removing multifunction switch -F125- ⇒ page 23

Installing multifunction switch -F125- ⇒ page 24

Adjusting multifunction switch -F125- ⇒ page 25

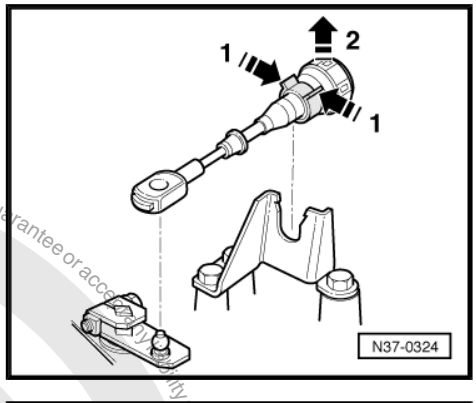
3.1 Removing multifunction switch -F125-

– Move selector lever to position „N“.

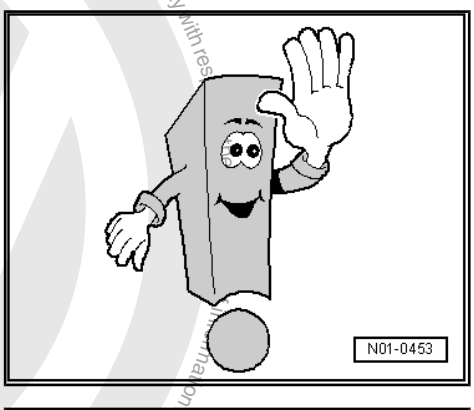
– Switch off ignition.

– Do not open cooling system.

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

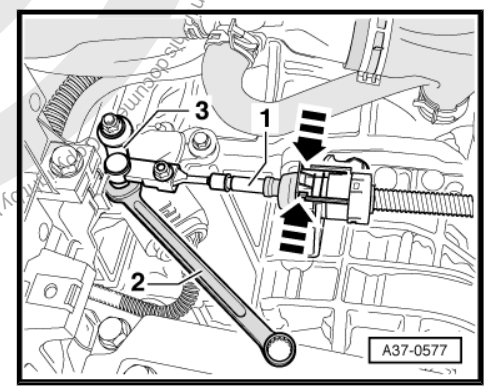


Work with care to avoid bending cable. Do not use pliers, or the retaining tabs on the cable support bracket may break off.

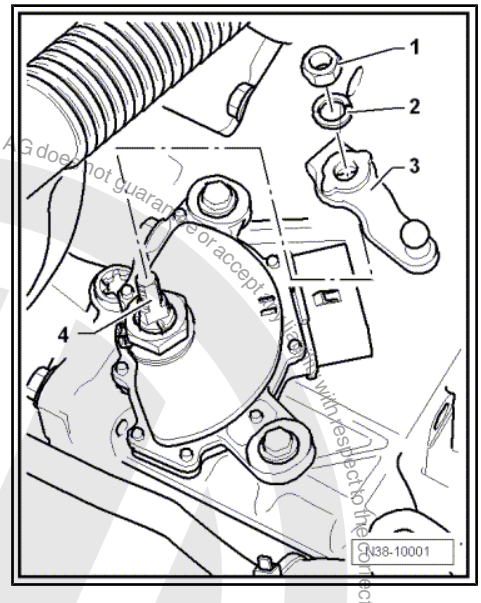


– Lever cable -1- off lever -3- using an open jaw spanner -2-.

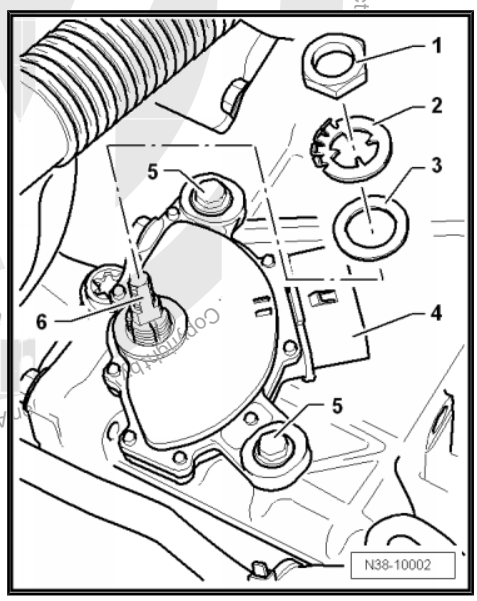
– Pull connector off multifunction switch -F125- .



– Unscrew nut -1-.
– Remove spring ring -2- and lever -3- from selector shaft -4-.



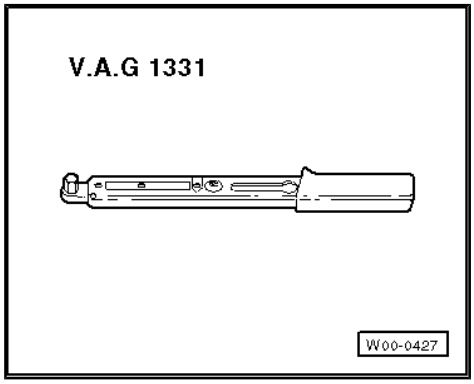
– Carefully bend back hooks of lock washer -2- using a screwdriver.
– If hooks are broken off, renew lock washer.
– Unscrew nut -1-.
– Unscrew bolt -5-.
– Pull multifunction switch -4-, together with washers -2- and -3-, off selector shaft -6-.



3.2 Installing multifunction switch -F125-

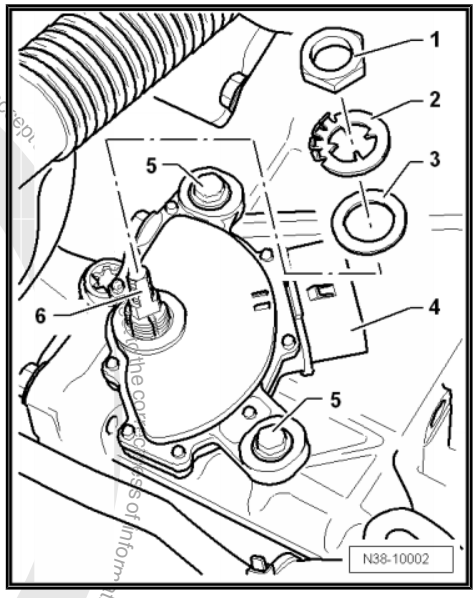
Special tools and workshop equipment required

♦ Torque wrench -V.A.G 1331-

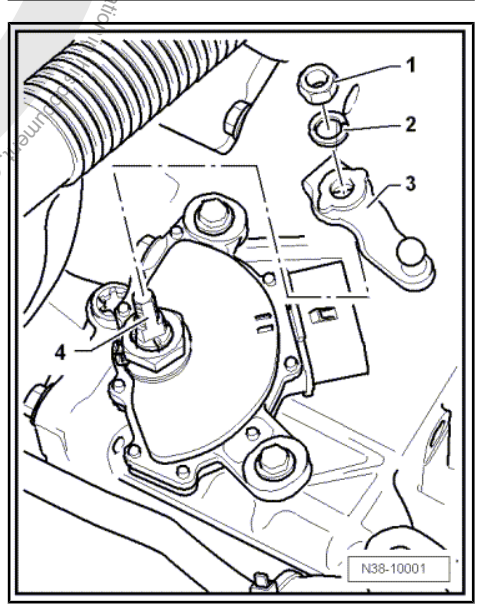


Install in reverse order of removal. During this step, observe the following:

– 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 hooks are broken off, renew lock washer.



– Place lever -3- on selector shaft -4-.
– Use lever -3- to shift gearbox to „P“ position, i.e. press lever -3- back (opposite direction of travel) to stop.
– 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 reservoir ⇒ 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 .

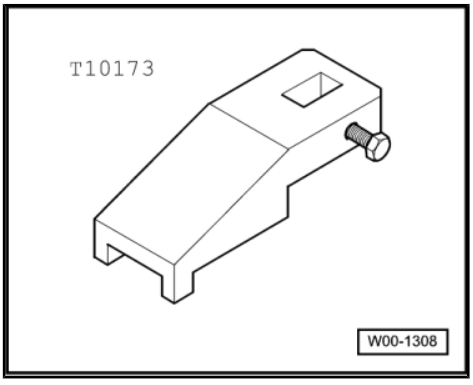
Continuation for all vehicles

– Check selector mechanism ⇒ page 33 .

3.3 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.

3.3.1 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.

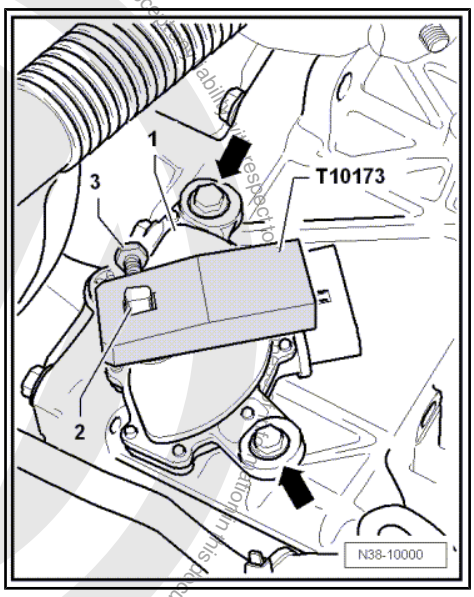
– Place setting gauge on selector shaft -2- and turn multifunction switch -1- until setting gauge engages in lug on multifunction switch connector.

– 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 .



4 Emergency release of selector lever

Do not remove knob.

– Depress brake pedal or set handbrake.

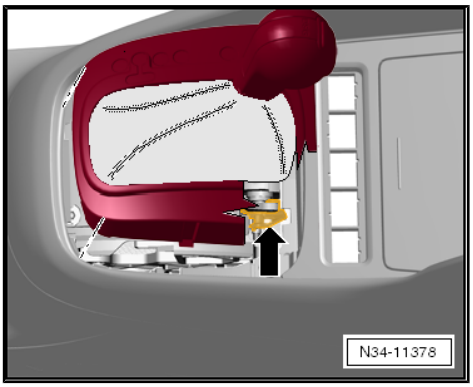
In an emergency:

– Unclip selector cover and hold to side.

Vehicles up to 02.2009

– Press yellow plastic wedge from right to left.

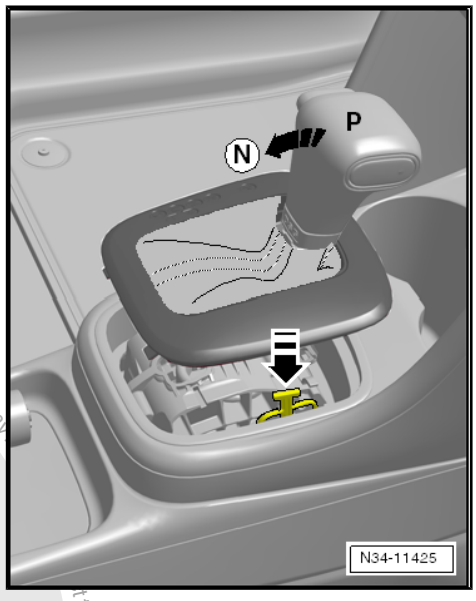
Lever can now be moved from position »P«.



Vehicles from 03.2009 onwards

– Press yellow plastic wedge.

Lever can now be moved from position »P«.



5 Removing and installing selector lever handle

Brief description

Depending on the model, different handles may be installed.

Handle is removed together with selector cover.

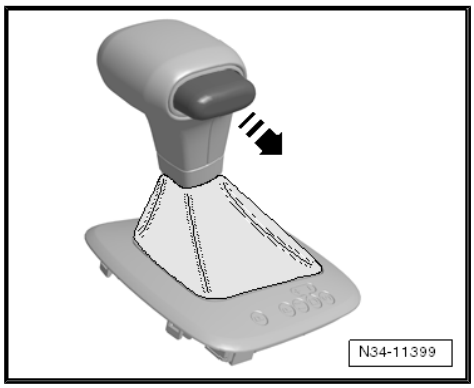
Removing:

– Shift selector lever to position „D“.

Handle with pushbutton on side:

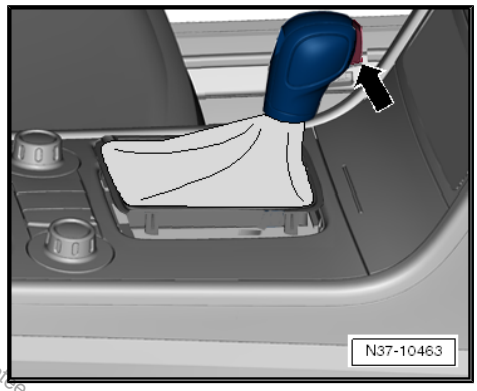
– First pull button far enough out of knob that a small gap is visible between knob and button. Button locks when released.

– Hold button in this position with a cable tie or wire to prevent it from being pressed in.



Handle with front pushbutton:

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

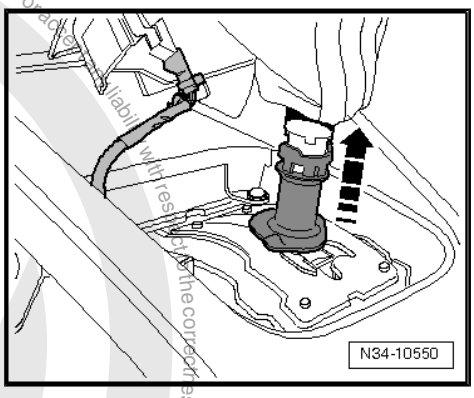


Further procedure for all handles:

– Unclip cover.

– Pull connector from selector cover.

– Push sleeve upwards to release knob.



Only handle with clip:

– Cut open clip beneath boot -arrow- using side cutters.

Further procedure for all handles:

– Pull handle off selector lever without pressing button.

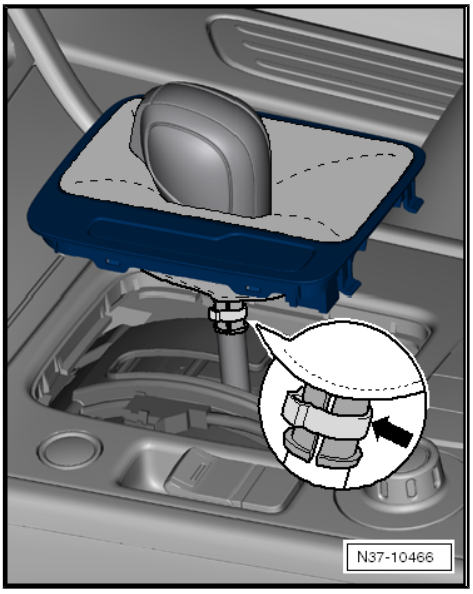
Note

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

Installing

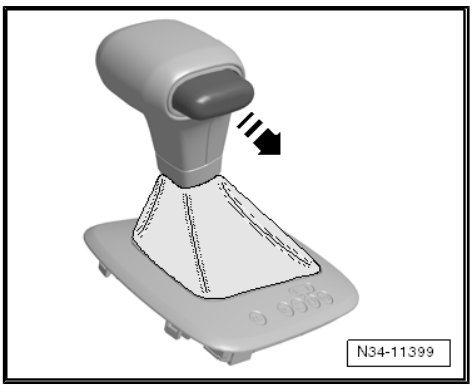
– Install in reverse order of removal, observing the following:

• Selector lever is in position „D“.



Handle with pushbutton on side:

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

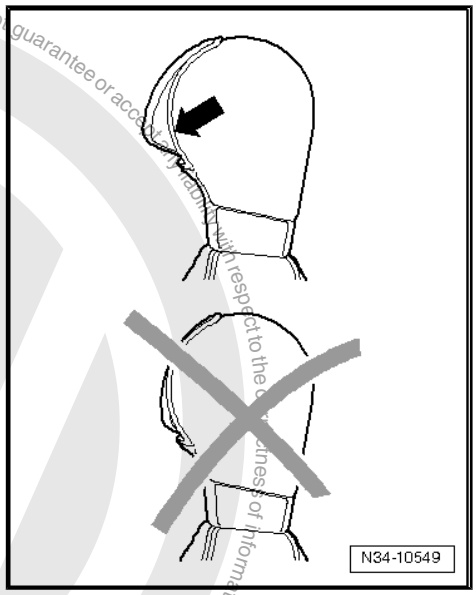


Handle with front pushbutton:

• Pushbutton is in installation position -arrow-.

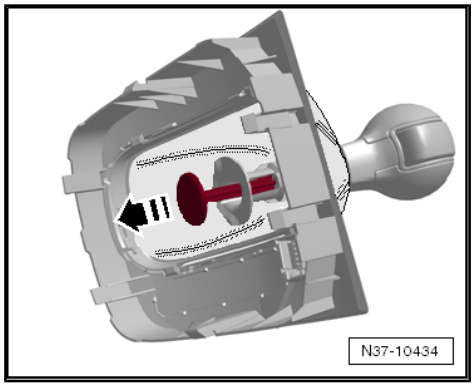
If the pushbutton was pressed by mistake, the installation position can be restored.

– Move pushbutton to installation position ⇒ page 30 .



Note

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



Further procedure for all handles:

– Push handle fully onto selector lever and lock.

– Push sleeve downwards to lock.

Only handle with clip:

– Push on handle with new clip onto stop.

– Secure clip with hose clip pliers -V.A.G 1275- .

– Push pushbutton after installing it.

Note

If not installed correctly, pushbutton remains inserted in handle after being pressed. If this happens, remove handle again and move pushbutton to installation position again ⇒ page 30 . The handle can then be installed again.

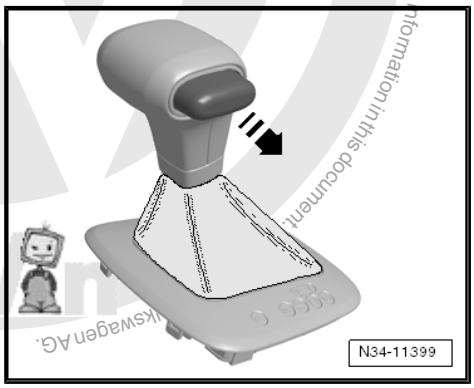
Continue installation in reverse order of removal.

5.1 Moving pushbutton to installation position in the handle

5.1.1 Handle with pushbutton on side

– First pull button far enough out of knob that a small gap is visible between knob and button. Button locks when released.

– Hold button in this position with a cable tie or wire to prevent it from being pressed in.



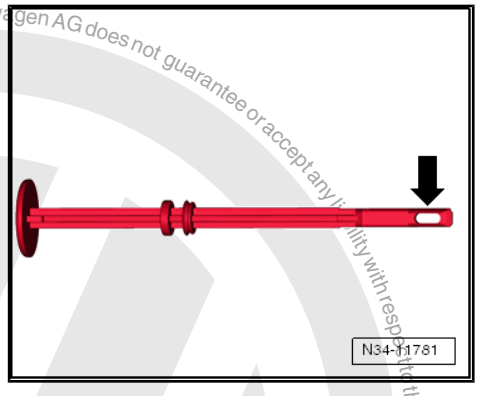
5.1.2 Handle with front pushbutton

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

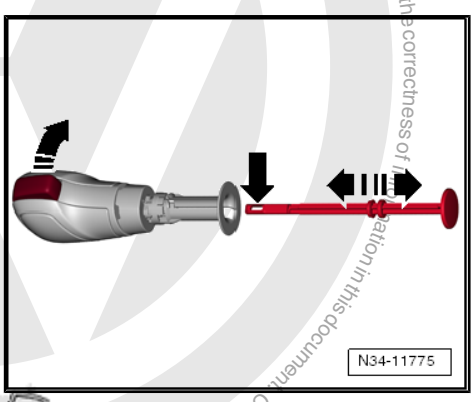
There are 2 ways of moving the pushbutton into the installation position, »with« and »without« installation guard. Both of them are described here.

Place handle »with« installation guard in installation position:

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

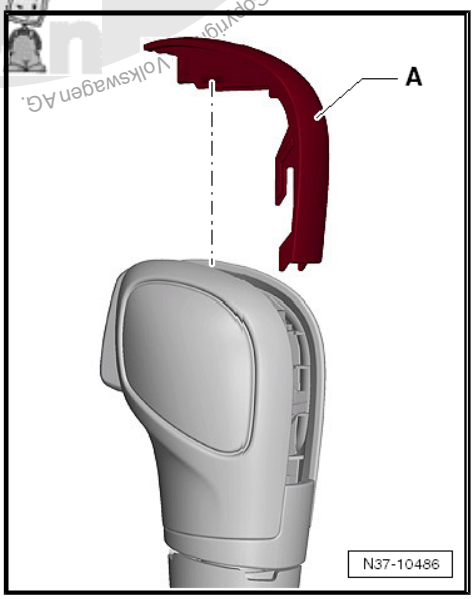


– Holding the button down, completely push in installation guard with eyelet -arrow- until the installation guard engages, then release the button. When the installation guard is pulled out, the pushbutton engages in the installation position.



Place handle »without« installation guard in installation position:

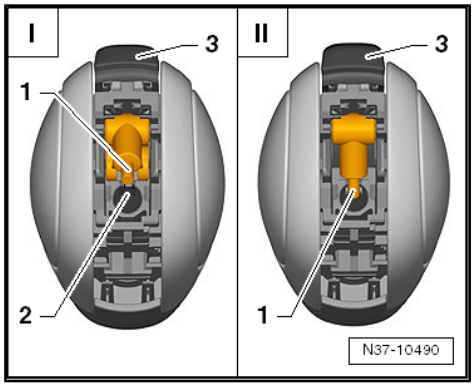
– Carefully unclip trim of handle -A- upwards.



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

-I- Pushbutton in pressed position

-II- Pushbutton in installation position



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.*

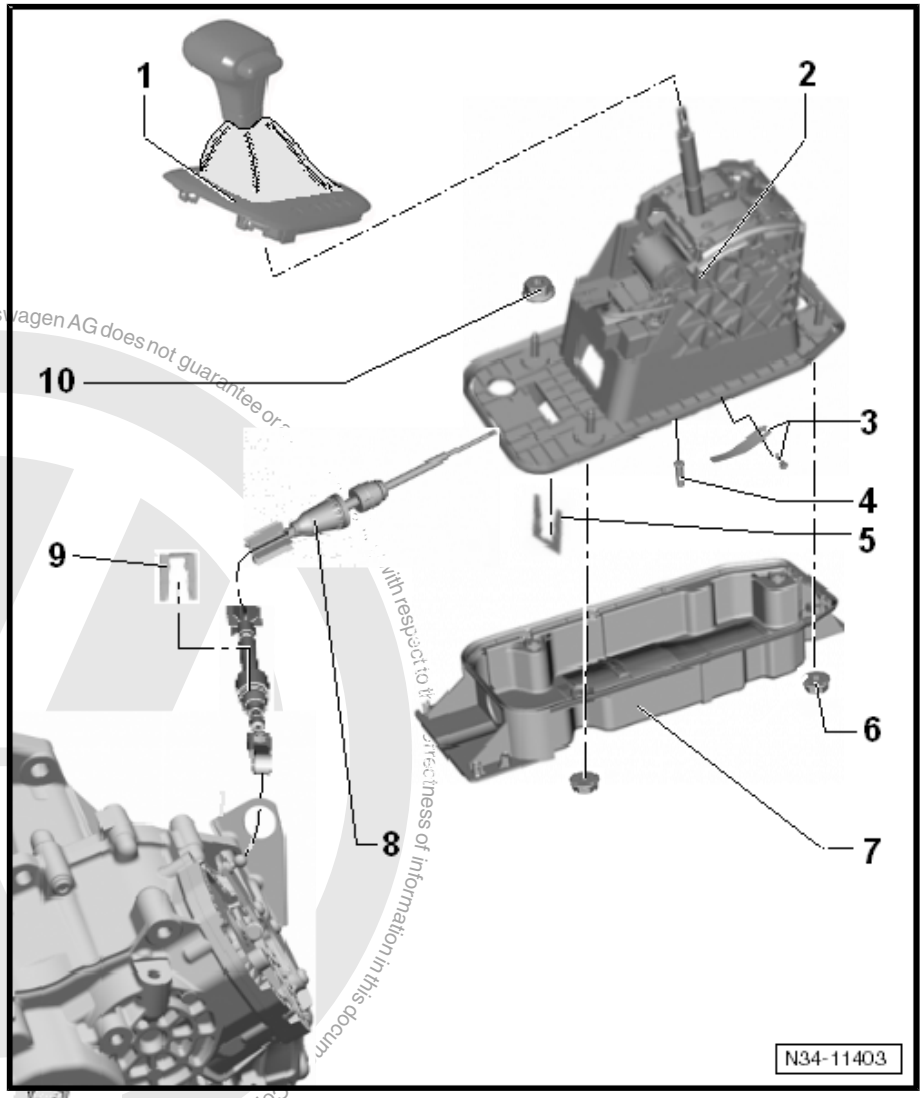
6 Selector mechanism up to 02.2009

WARNING

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

Selector mechanism from 03.2009 onwards ⇒ page 45

6.1 Overview of selector mechanism up to 02.2009



1 - Selector cover with knob

- ❑ Do not remove knob without reason. For emergency release, only the cover needs to be unclipped ⇒ page 27 .
- ❑ Before removal of handle, pull button out past its pressure point. Secure button with a cable tie or tape. This will prevent the button from being accidentally pressed into the knob.
- ❑ If button is pressed into removed handle
- – Always pull out button past the felt pressure point before installing knob.

2 - Selector mechanism with selector lever

- ❑ Removing and installing ⇒ page 34

3 - Bolt with spring

- ❑ 3 Nm

4 - Pin

- ❑ Removing ⇒ page 34
- ❑ 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 43

9 - Hexagon nut with washer

- ❑ 8 Nm
- ❑ Qty. 4

6.2 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 Bowden cable from gearbox ⇒ page 34 .

– Remove exhaust system below heat shield ⇒ Rep. gr. 26 ; Removing and installing parts of exhaust system .

– Remove heat shield beneath vehicle.

– Remove 4 nuts for selector mechanism »from above«.

Torque setting for nuts: 8 Nm

– After installing, check cable ⇒ page 42 .

6.3 Removing and installing selector lever cable

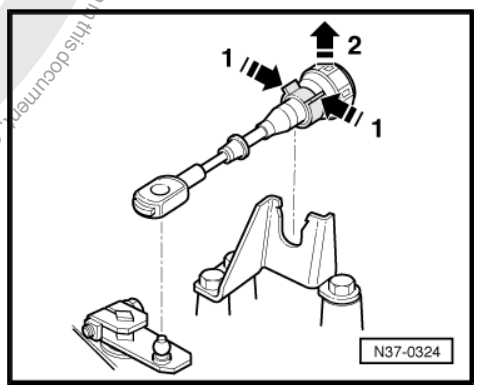
Note

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

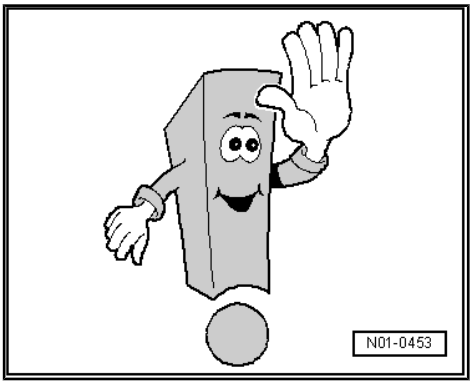
Removing

– Move selector lever to position „S“ position.

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



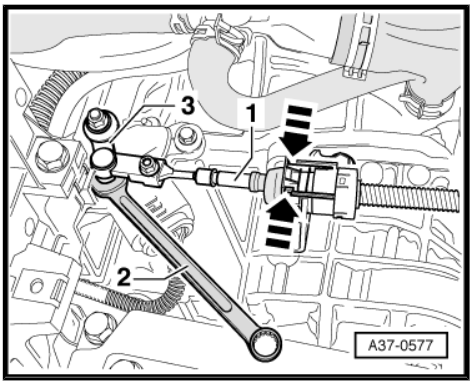
Work with care to avoid bending cable. Do not use pliers, or the retaining tabs on the cable support bracket may break off.

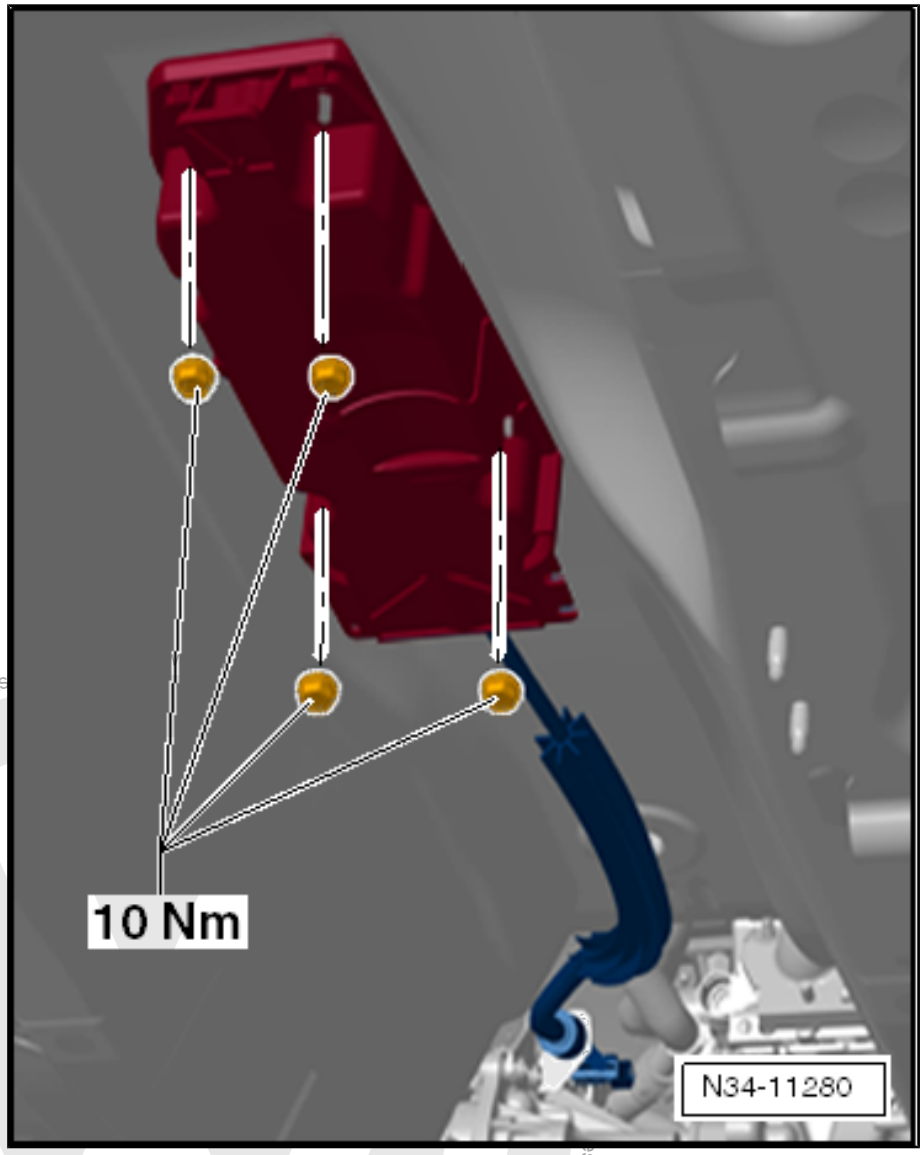


– Lever cable -1- off lever -3- using an open jaw spanner -2-.
– Raise vehicle.

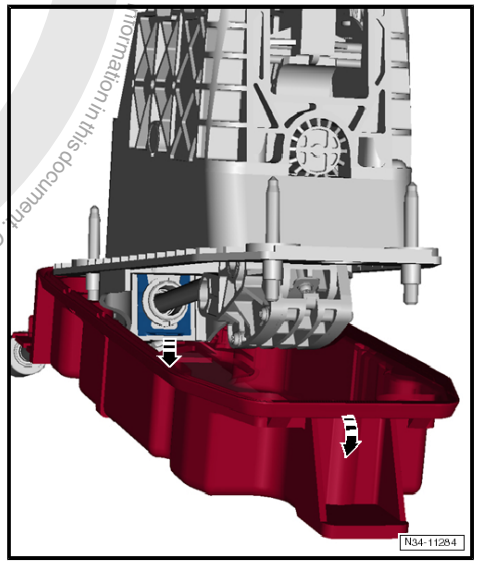
To remove cable and/or selector mechanism, first remove heat shield and, if necessary, parts of exhaust system now ⇒ Rep. gr. 26 ; Removing and installing parts of exhaust system .

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

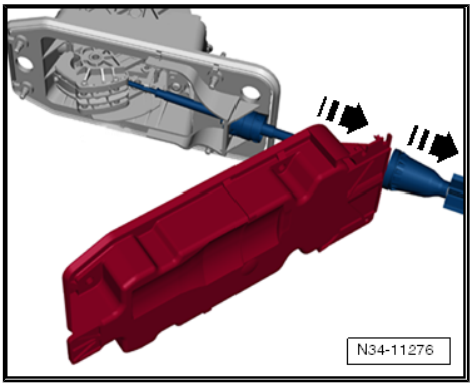




– Remove securing clip. Always renew securing clip.

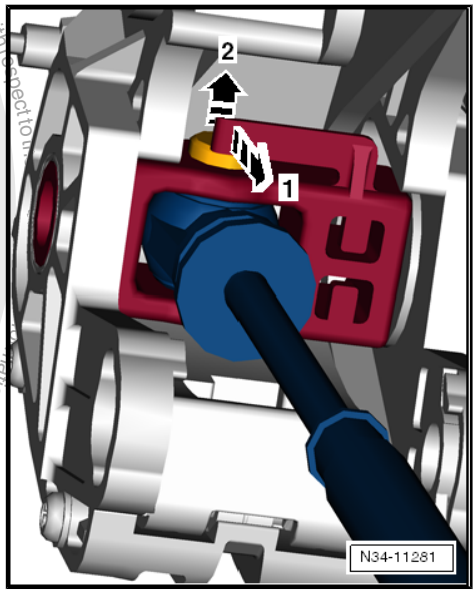


-Selector housing- is pushed forwards slightly on cable.

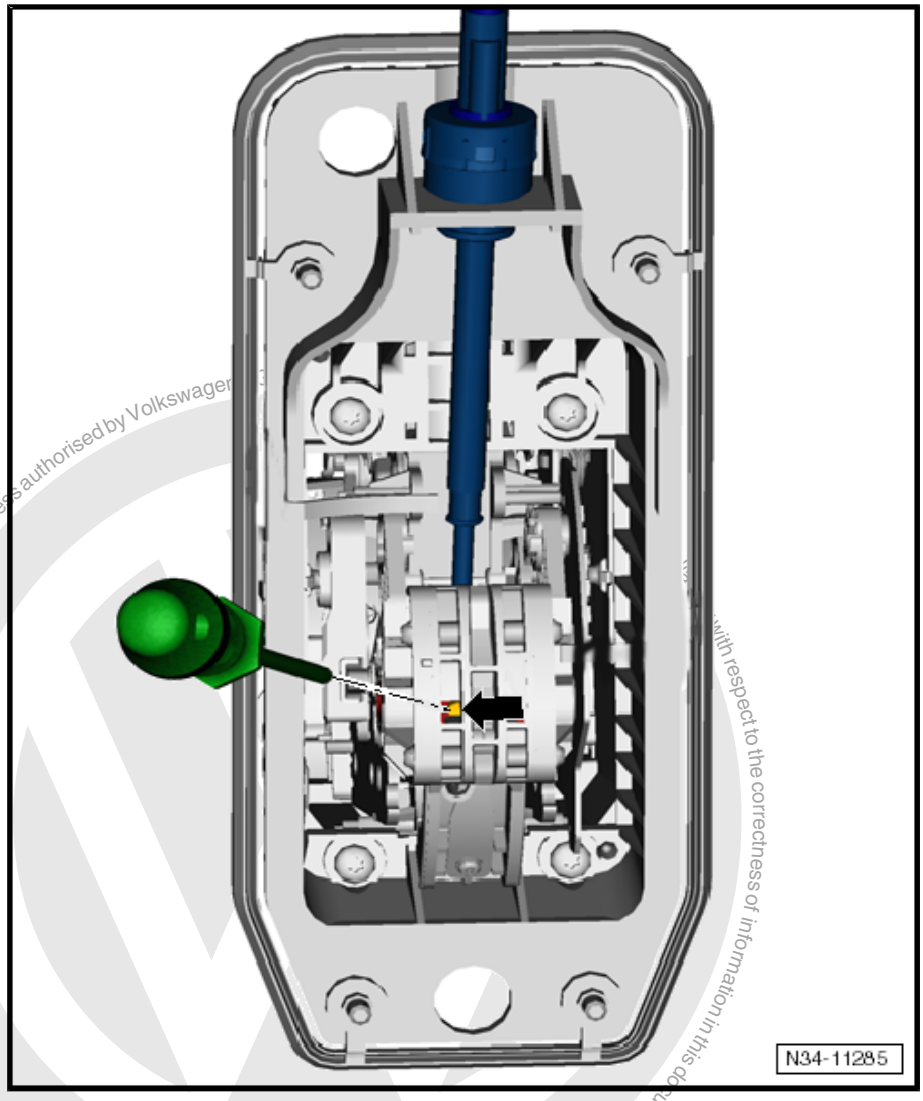


To remove cable, securing tab must be pushed forwards -1-.

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

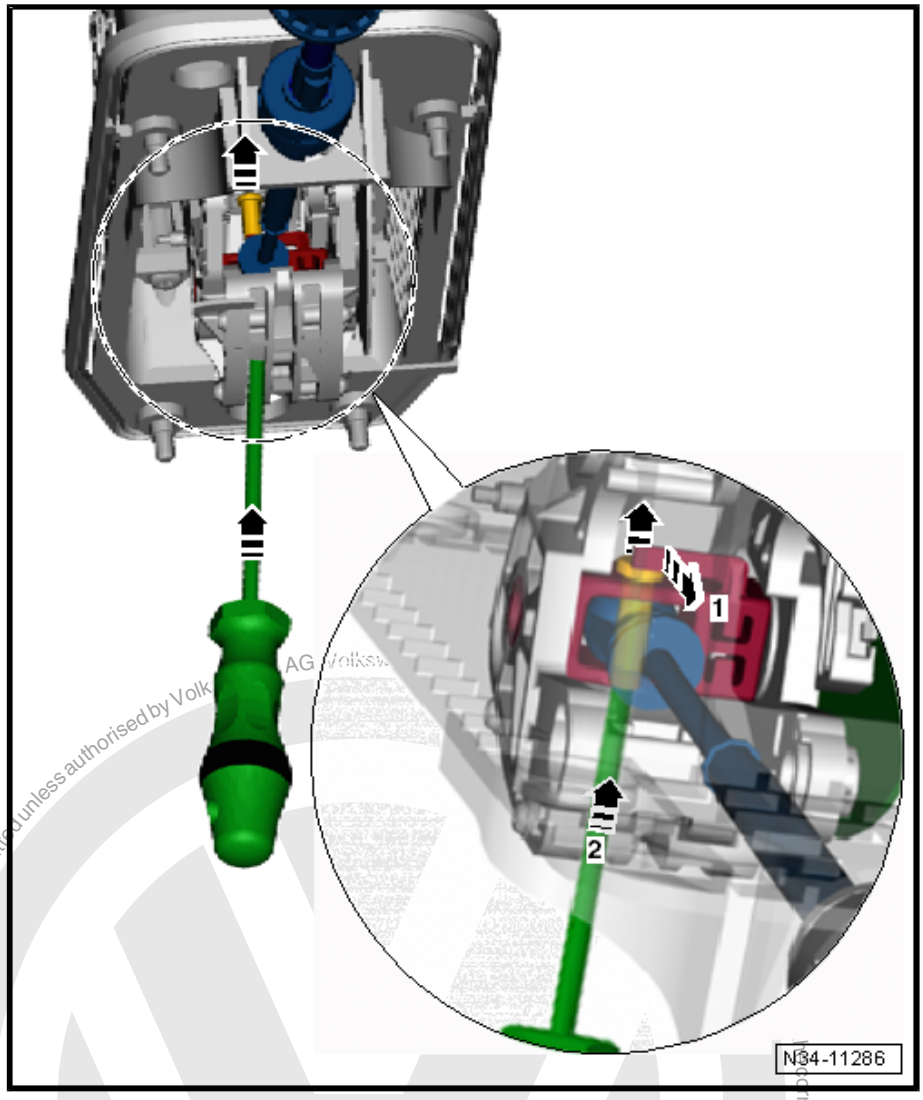


– Please insert -screwdriver- from underneath whilst pushing securing tab forwards.



Clarification:

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



– Remove selector lever cable.

Remove selector housing from cable.

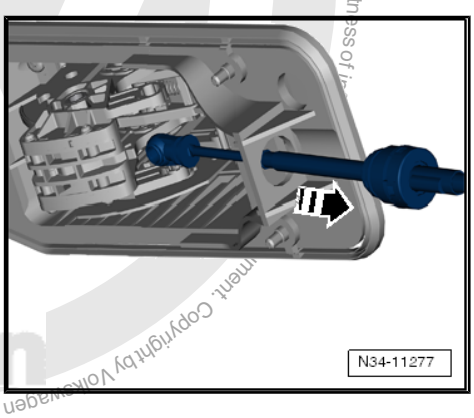
Installing

Do not grease cable.

– Route selector lever cable free of tension, insert in cable support bracket on gearbox but do not yet secure.

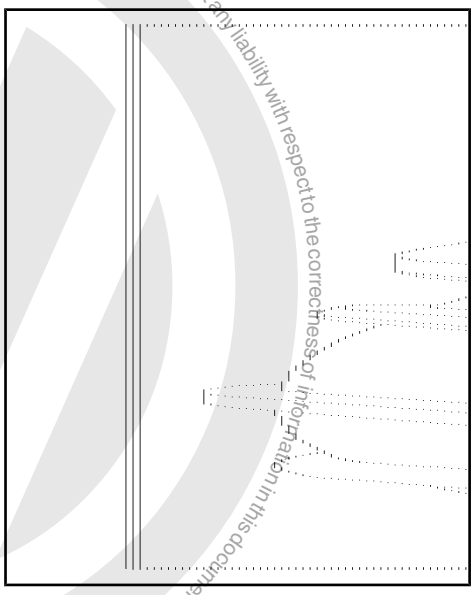
– Ensure that selector lever cable is properly routed during installation.

– Also clip cable into retainer. Ensure that retainer does not contact gearbox oil cooler.

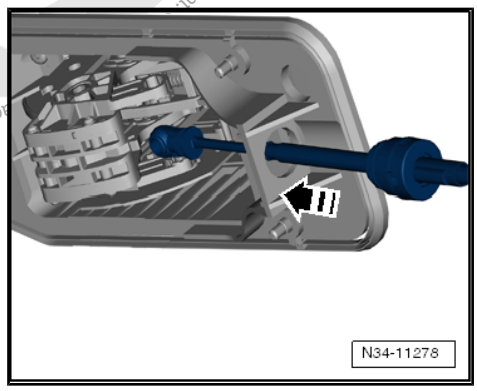


-Nuts- 8 Nm

– Put selector housing onto cable.

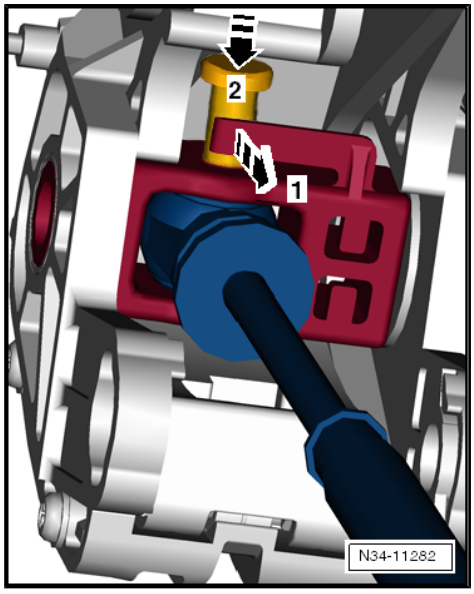


– Insert selector lever cable into selector mechanism.

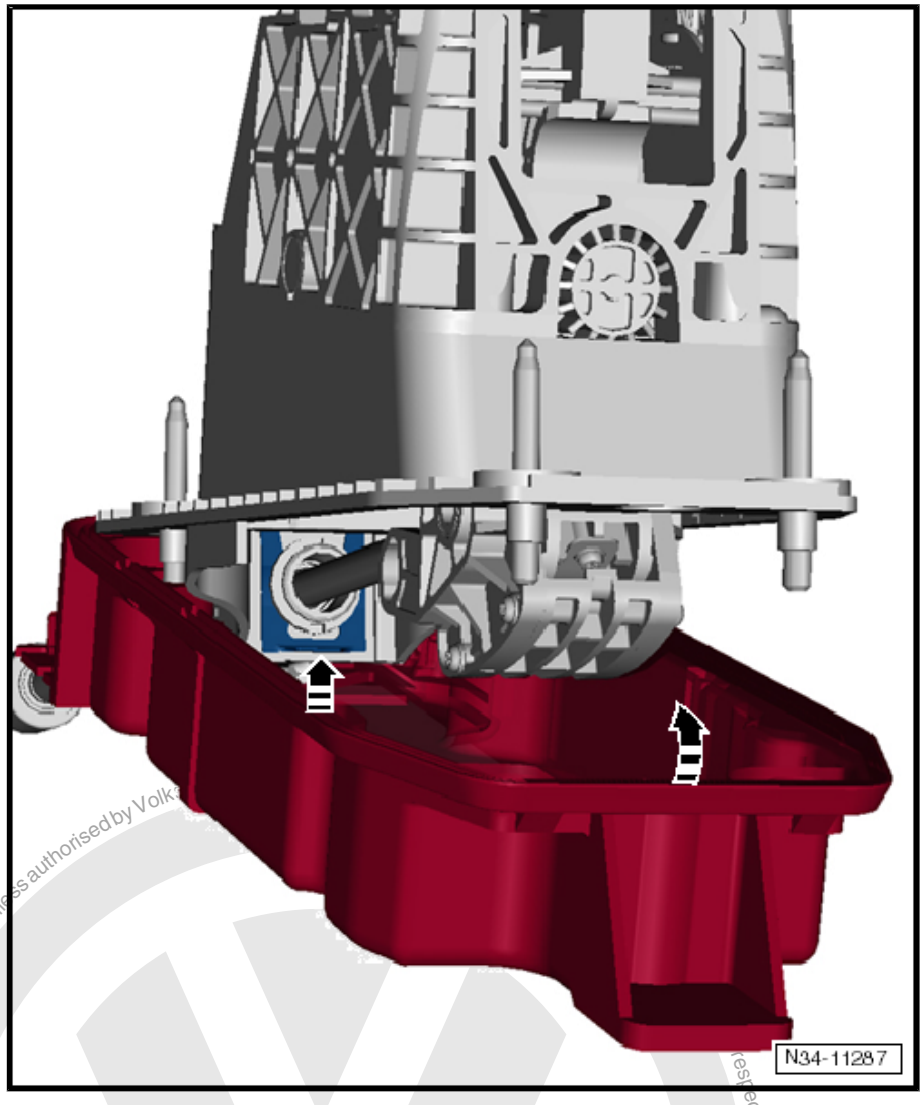


– Insert cable into bearing and insert pin from above, downwards through eye.

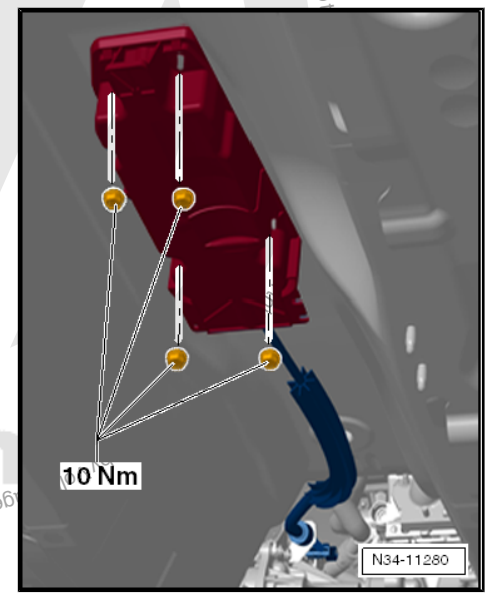
When you have checked freedom of movement of cable ⇒ page 42 , insert securing clip.



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



– Install selector housing, heat shield and exhaust system.
– Adjust selector lever cable after installing ⇒ page 42 .



6.4 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.

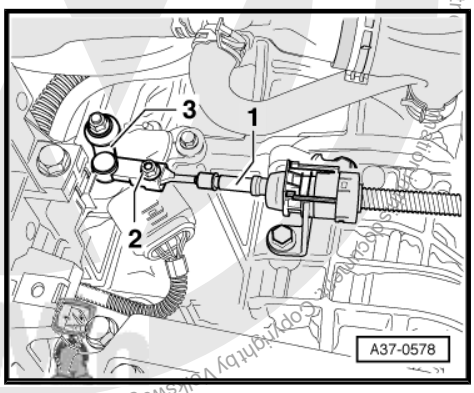
Then the selector lever cable must be adjusted ⇒ page 43 .

Do not grease the connections of the cable!

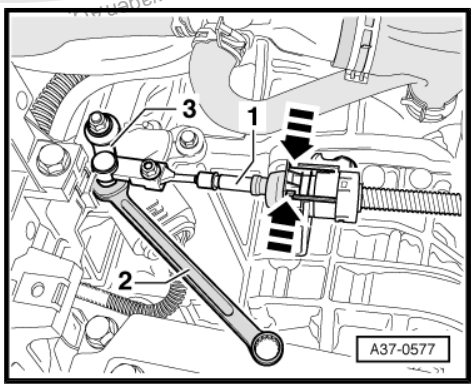
Checking

– Move selector lever to position »P« position.

– Loosen bolt -2- of the Bowden cable -1-.

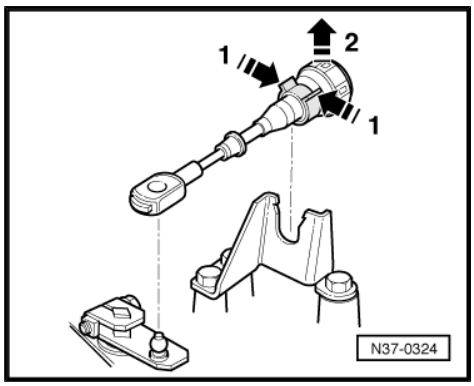


– Lever cable -1- from selector shaft lever -3- using an open jaw spanner -2-.



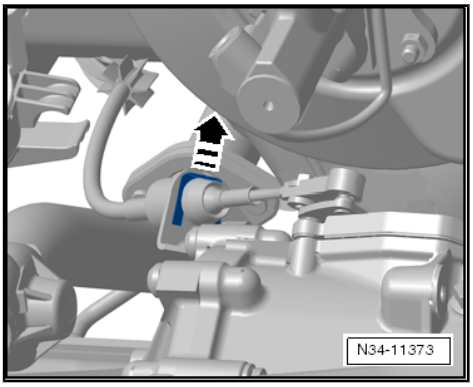
Vehicles up to 02.2009

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



Vehicles from 03.2009 onwards

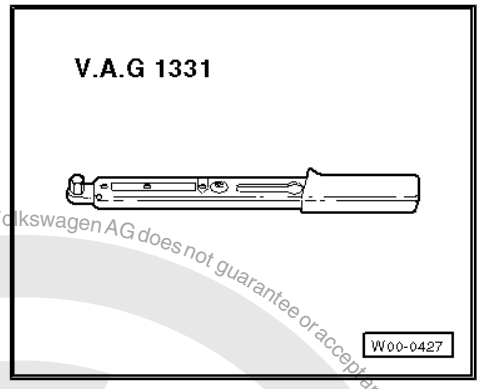
– Remove securing clip.
– Move selector lever repeatedly from »P« to »S« and back to »P«.
• Selector lever must move easily.
– Reinstall cable.
– Adjust cable ⇒ page 43 .



6.5 Adjusting selector lever cable

Special tools and workshop equipment required

♦ Torque wrench -V.A.G 1331-



The selector lever cable must always be adjusted whenever

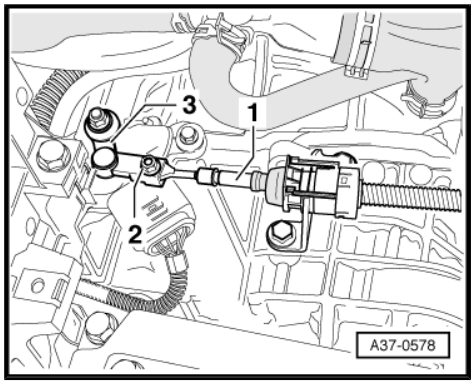
♦ The selector lever cable has been removed from the gearbox.
♦ The engine and/or gearbox has been removed and installed.
♦ Parts of the assembly mounting have been removed and installed.
♦ The cable itself or the selector mechanism has been removed and installed.
♦ The position of the engine and gearbox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

Adjusting

– Move selector lever to „P“ position.

Adjuster screw -2- must be »loosened«.

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



WARNING

Be sure that the parking lock is engaged.

– To do this, turn both front wheels simultaneously »under the car« in the same direction until the parking lock can be head to engage.

• The parking lock is engaged when both front wheels cannot be turned in the same direction at the same time.

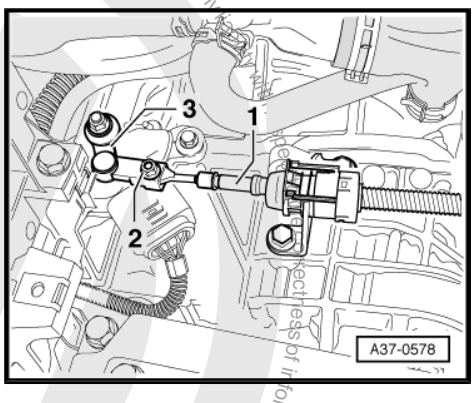
– Gently push knob of selector lever forwards and backwards but under no circumstances must you shift out of „P“.

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

– Tighten adjusting screw -arrow- to 13 Nm.

– Tighten bolt -2- to 15 Nm.

This completes the adjustment.



7 Selector mechanism from 03.2009 onwards

WARNING

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

Selector mechanism in vehicles up to 02.2009 ⇒ page 33

7.1 Overview of selector mechanism in vehicles from 03.2009 onwards

1 - Handle with selector cover

- ❑ Do not remove knob without reason. Only unclip cover for emergency release ⇒ page 27 .
- ❑ Removing and installing ⇒ page 28

2 - Selector lever and selector mechanism with selector lever cable

- ❑ With selector lever lock solenoid -N110-
- ❑ Cable must not be greased
- ❑ Removing and installing ⇒ page 46
- ❑ Checking ⇒ page 42
- ❑ Adjusting ⇒ page 43

3 - Bolt

- ❑ 8 Nm

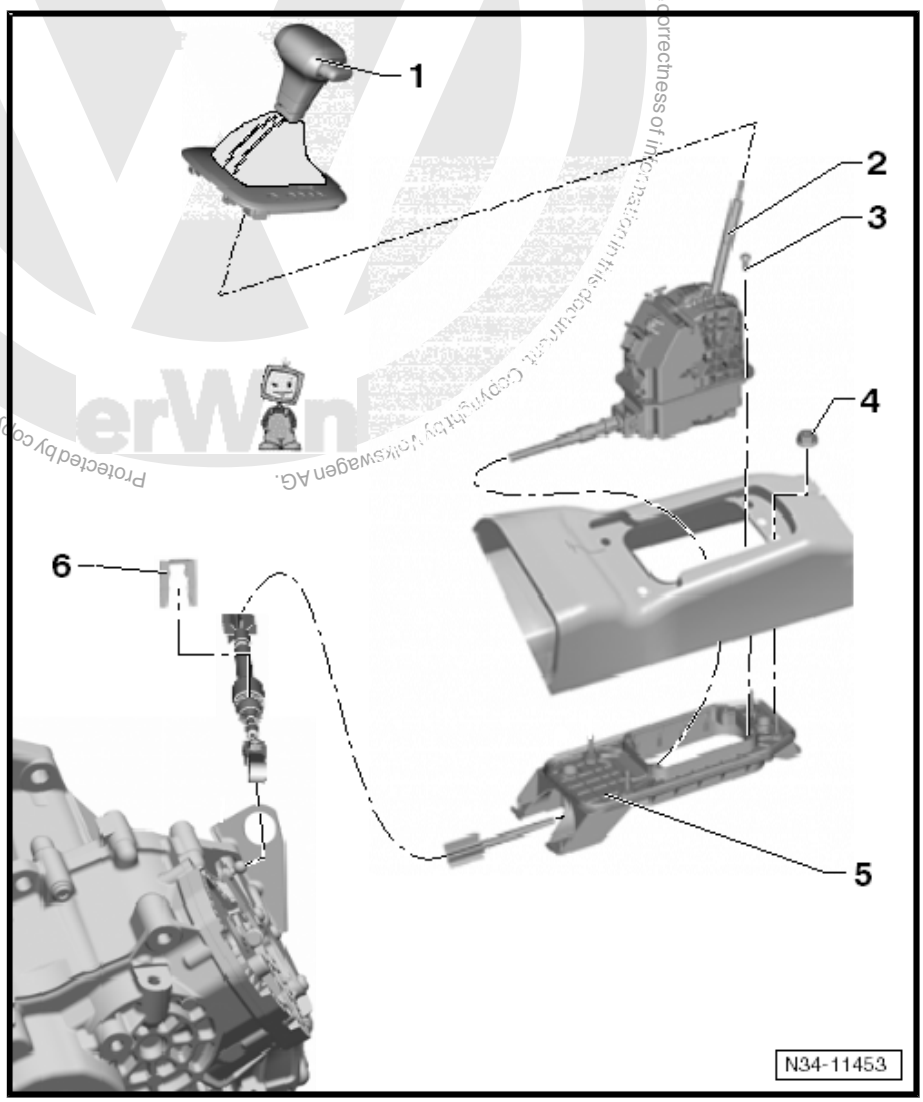
4 - Hexagon flange nut

- ❑ 8 Nm
- ❑ Qty. 4

5 - Selector housing

6 - Securing clip

- ❑ Always renew after removing

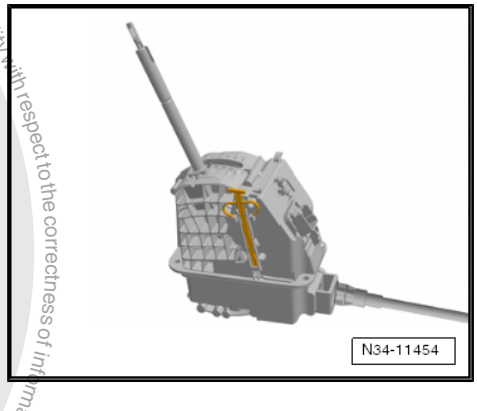


7.2 Removing and installing selector lever and selector mechanism with selector lever cable from 03.2009 onwards

Brief description

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

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

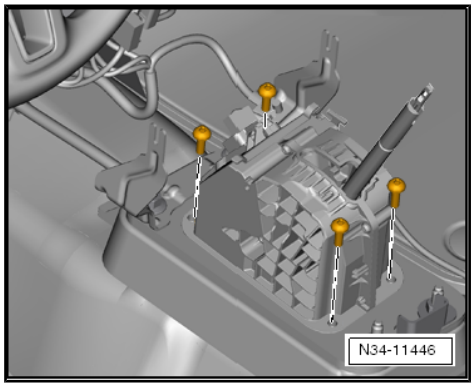


Note

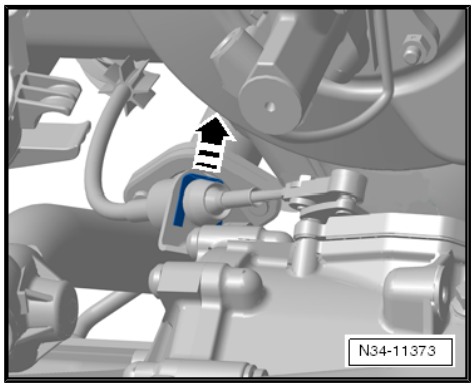
Following installation, cable must be checked for ease of movement and be adjusted.

– Move selector lever to position „P“ position.
– Remove selector lever knob ⇒ page 28 .
– Remove centre console ⇒ Rep. gr. 68 .
– Remove 4 bolts.

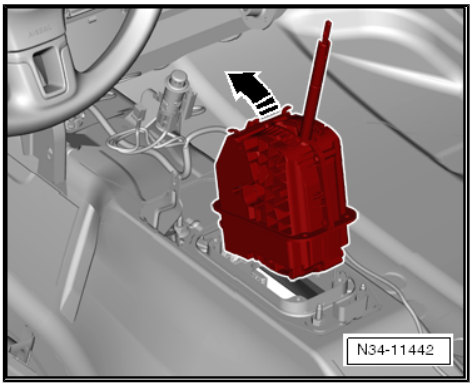
Torque setting 8 Nm.



– Remove securing clip.
– Securing clips for selector lever cable must always be renewed.
– Remove cable from ball head.
– To remove cable and/or selector mechanism, heat shield must now be removed and, if necessary, parts of exhaust system.
– Remove heat shield.



– Remove selector mechanism.



Install in reverse order of removal.

– Before reinstalling cable, set „P“ in vehicle and on gearbox.
– Before you put on ball head: check cable ⇒ page 42 .
– Install parts of ⇒ exhaust system; Rep. gr. 26 .
– Install heat shield ⇒ Rep. gr. 66 .
– Adjust selector lever cable after installing ⇒ page 43 .

8 Checking selector mechanism

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

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

Over 5 km/h

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

Under 5 km/h

When the selector lever is shifted to „N“, the selector lever lock solenoid must lock the selector lever only after ca 1 second. Selector lever cannot be shifted out of „N“ position until brake pedal is depressed.

8.1 Selector lever in „P“ position and ignition switched on

- Brake pedal is not depressed:

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

- Brake pedal is depressed:

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

8.2 Selector lever in „N“ position and ignition switched on

- Brake pedal is not depressed:

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

- Brake pedal is depressed:

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

8.3 Selector lever in position „Tiptronic“

– Shift selector lever into Tiptronic gate.

The illumination of the „D“ symbol in the selector mechanism cover must go out. „+“ and „-“ symbols must light up.

Symbols in the dash panel insert must change from „P R N D S“ to „6 5 4 3 2 1“.

8.4 Ignition and light switched on

The respective symbol in the shift mechanism cover lights up.

8.5 Selector lever position display

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

9 Removing and installing gearbox, Golf 2004 ►

Removing gearbox, Golf 2004 with 1.6 l - 75 kW, 1.6 l - 85 kW (FSI) and 2.0 l - 110 kW (FSI) engines ⇒ page 49

Installing gearbox, Golf 2004 with 1.6 l - 75 kW, 1.6 l - 85 kW (FSI) and 2.0 l - 110 kW (FSI) engines ⇒ page 55

Removing gearbox, Golf 2004 with 2.5 l - 110 kW and 125 engines ⇒ page 55

Installing gearbox, Golf 2004 with 2.5 l - 110 kW and 125 engines ⇒ page 63

Torque settings, Golf 2004 ‣ ⇒ page 64

9.1 Removing gearbox, Golf 2004 with 1.6 l - 75 kW, 1.6 l - 85 kW (FSI) and 2.0 l - 110 kW (FSI) engines

– Before beginning with removal, »if possible« print out a diagnosis log. Before sending back removed gearbox in the usual manner, secure log to gearbox.

Brief description

The gearbox is removed downwards as a unit. The engine remains in the vehicle.

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

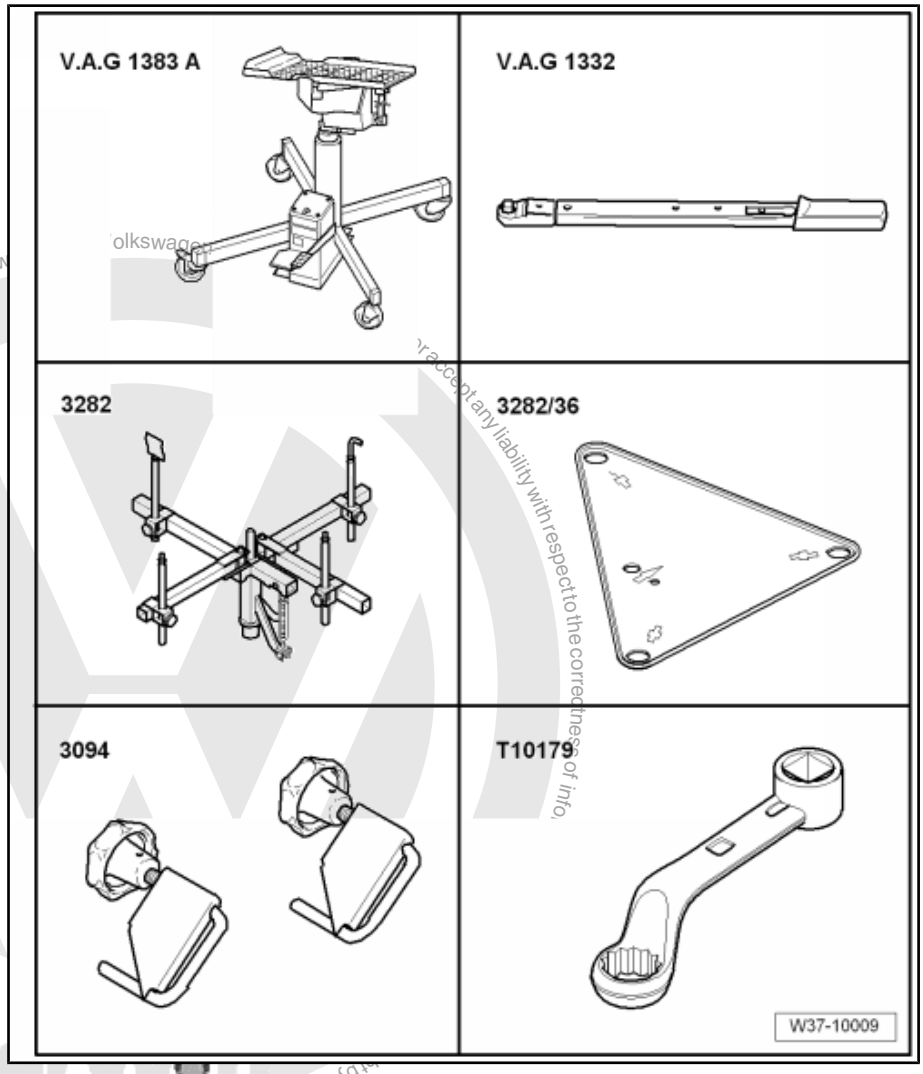
Noise insulation is removed and drive shafts are pressed off »from below«. Gearbox is lowered using gearbox jack.

Note

The subframe is not to be removed.

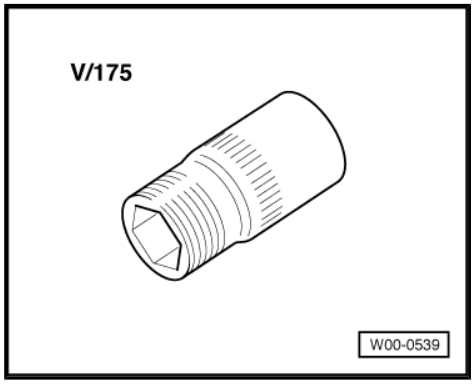
Special tools and workshop equipment required

- Engine and gearbox jack -V.A.G 1383 A-
- Torque wrench -V.A.G 1332-
- Gearbox support -3282-
- Adjustment plate -3282/36-
- Hose clamps to 25 mm -3094-
- Socket -T10179-

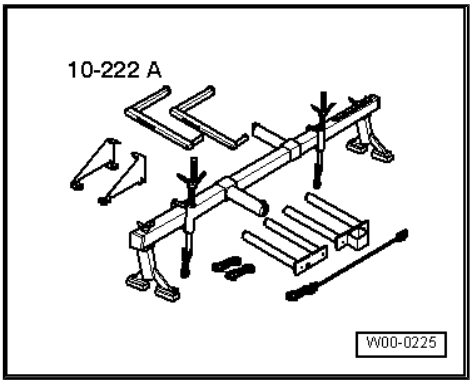


Special tools and workshop equipment required

- Insert -V/175-



- Support bracket -10 - 222 A-



- Adapter -10 - 222 A /13-

The following description shows the gearbox with the 2-litre petrol engine (FSI). Deviations from other engine types in the Golf are minimal. However, torque settings for bolting gearbox to engine go into detail »as usual« (large and small engines, FSI and multi-point injection engines).

– Before beginning with removal, »if possible« print out a diagnosis log. Before sending back removed gearbox in the usual manner, secure log to gearbox.

Removing:

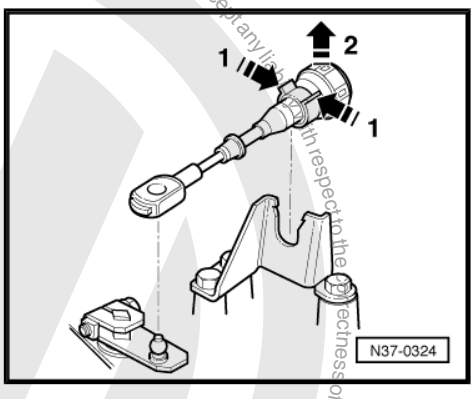
– Raise vehicle. All 4 supports of lifting platform must be at same height.

– Move selector lever to position »P« position.

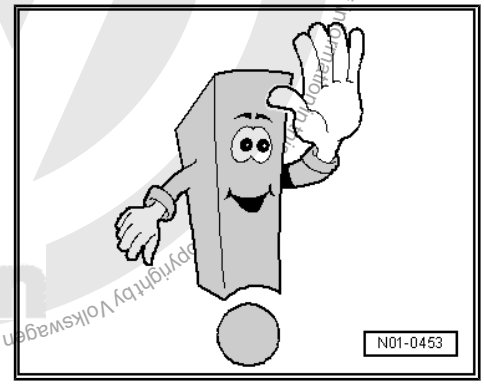
– Remove battery and battery carrier ⇒ Rep. gr. 27 ; Disconnecting and connecting battery; Removing and installing battery .

– Remove engine cover and air cleaner with intake hose.

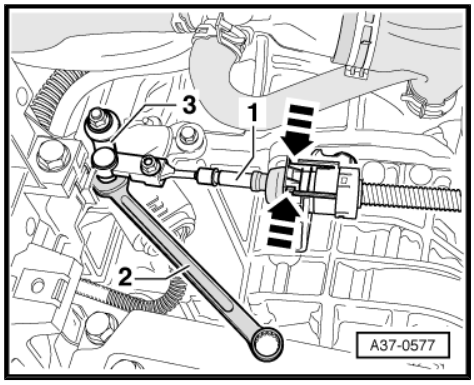
– In order to remove selector lever cable from gearbox, first release cable -1- and then remove it from cable support bracket -2-.



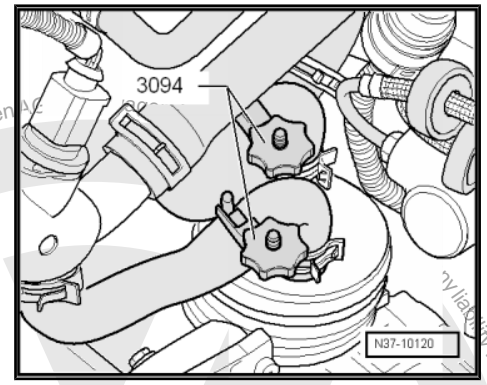
Work with care to avoid bending cable. Do not use pliers, or the retaining tabs on the cable support bracket may break off.



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

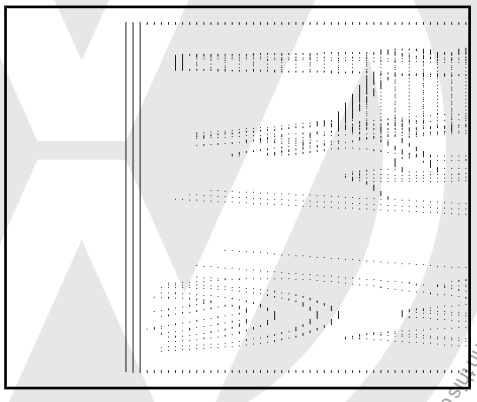


– Place hose clamps up to Ø 25 mm -3094- onto the hoses and remove hoses from the ATF cooler.
– Disconnect electrical connections to gearbox and starter.
– Remove upper starter motor bolt.



– Set up support bracket -10 - 222 A- and support engine and gearbox. Do not raise.
– Remove upper connecting bolts between engine and gearbox.

Bolts may be installed with a socket -T10179- . When tightening, however, observe the lower tightening torque ⇒ page 64 .

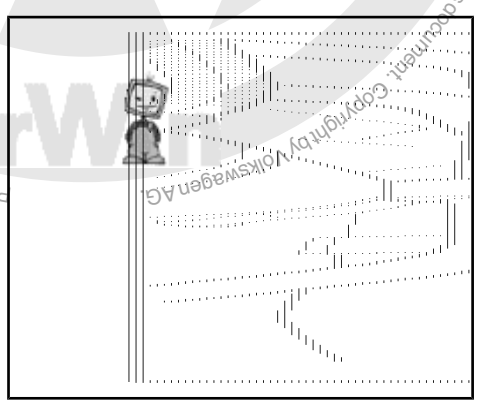


– Merely remove the six bracket bolts -A-.

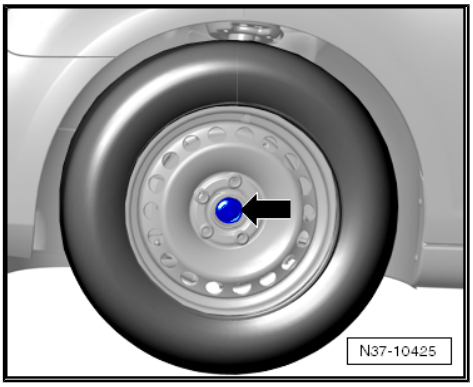
During installation, first bolt bracket to gearbox with 40 Nm torque.

When the two bracket bolts are tightened to vehicle, a screwdriver may be inserted between the two bolts to adjust to »previous seating«. These two larger bolts are tightened to 60 Nm.

The bracket is removed later.



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



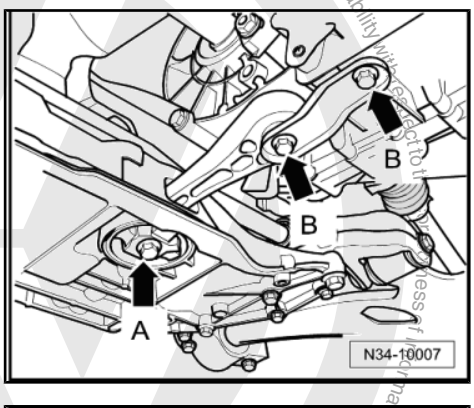
Note

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 AAR2600i .

– Remove noise insulation tray.
– If heat shield is installed over right drive shaft, remove it from engine.
– Remove vacuum pump with bracket and lines. »The pump is located near the ATF filler pipe«.
– Now pull electrical connectors off gearbox.
– Remove starter ⇒ Rep. gr. 27 ; Removing and installing starter .

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

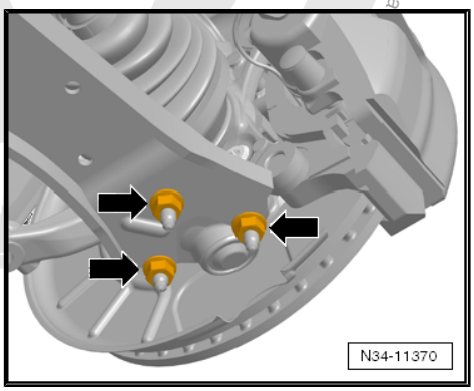
On installation, first tighten -B-, then -A-. Torque settings ⇒ Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .



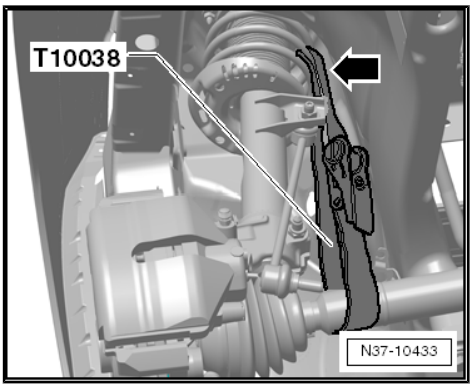
– Unbolt suspension links from suspension struts on both sides.

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

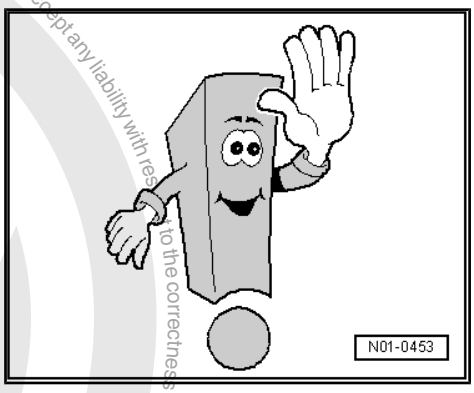
– Press both drive shafts out of gearbox. For procedure, refer to ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR2600i .
– Remove left drive shaft.



– Raise right shaft as far as possible and secure in this position.



– Now remove assembly mounting bracket. To do this, lower engine and gearbox slightly via support bracket -10 - 222 A- spindles.

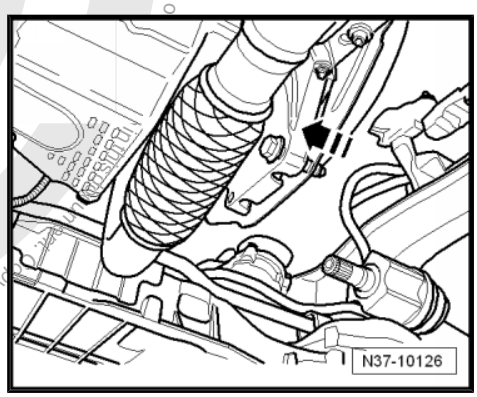


Four turns are sufficient.

– If exhaust system retainer is present on gearbox, remove it.
– Remove lower connecting bolts between engine and gearbox.
– Leave an easily accessible bolt in for safety purposes.
– Start with the two lower bolts.

Note

On some smaller engines up to 1.6 litres, one of the lower -bolts- can be backed out of the gearbox but not removed from the hole.



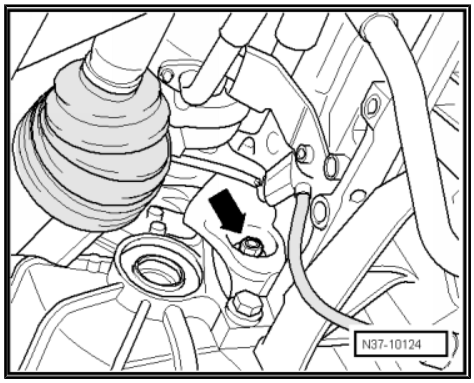
– If this bolt must be removed, first remove front exhaust pipe.

⇒ Rep. gr. 26 ; Removing and installing parts of the exhaust system

The hole for removing the torque converter nut is covered with a rubber cap on the rear of the engine.

– Remove this cap.

– Remove six -torque converter nuts- with insert -V/175- .



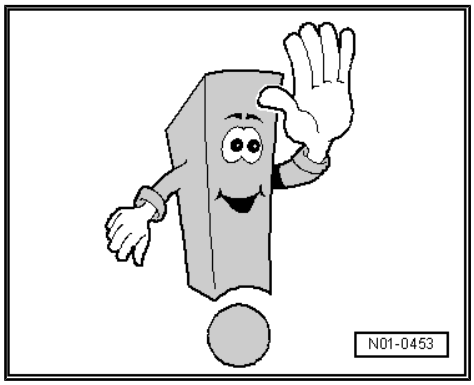
Note

Continue turning the engine carefully!

– Before you now remove final connecting bolt, support gearbox with engine and gearbox jack -V.A.G 1383 A- , gearbox support -3282- and adjustment plate -3282 /36- .
– Only now is the final bolt removed.
– Carefully push gearbox off engine.

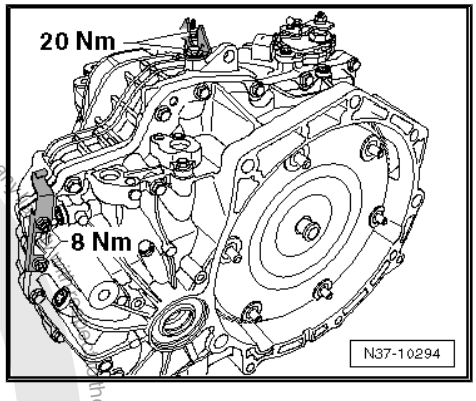
Note

Observe torque converter. It must be removed together with gearbox.



– When lowering, observe clearance between left drive shaft and subframe. If necessary, adjust gearbox support -3282- slightly.

– Keep in mind that if a new gearbox is installed, parts such as cable support bracket and retainer for gate selector cable must be transferred.



9.2 Installing gearbox, Golf 2004 with 1.6 l - 75 kW, 1.6 l - 85 kW (FSI) and 2.0 l - 110 kW (FSI) engines

– Check whether dowel sleeves are pressed into engine flange.

– Check seating of plate between engine and gearbox. The plate must make contact with the engine along its entire perimeter when it is pressed gently with both hands against the engine. If the top does not contact the engine, it is not properly engaged in the engine block.

Continue installation in reverse order of removal.

– Renew all bolts of left assembly mounting.

– First screw in all bolts by hand.

During installation, first bolt bracket to gearbox with 40 Nm + 90° torque.

When the two bracket bolts are tightened to vehicle, a screwdriver may be inserted between the two bolts to adjust to »previous seating«. These two larger bolts are tightened to 60 Nm + 90°.

Torque settings, gearbox to engine ⇒ page 64

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 .

– Adjust selector lever cable ⇒ page 43 .

– After installing, check ATF level ⇒ page 134 .

– 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 Removing gearbox, Golf 2004 with 2.5 l - 110 kW and 125 kW engines

– Before beginning with removal, »if possible« print out a diagnosis log. Before sending back removed gearbox in the usual manner, secure log to gearbox.

Brief description

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

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

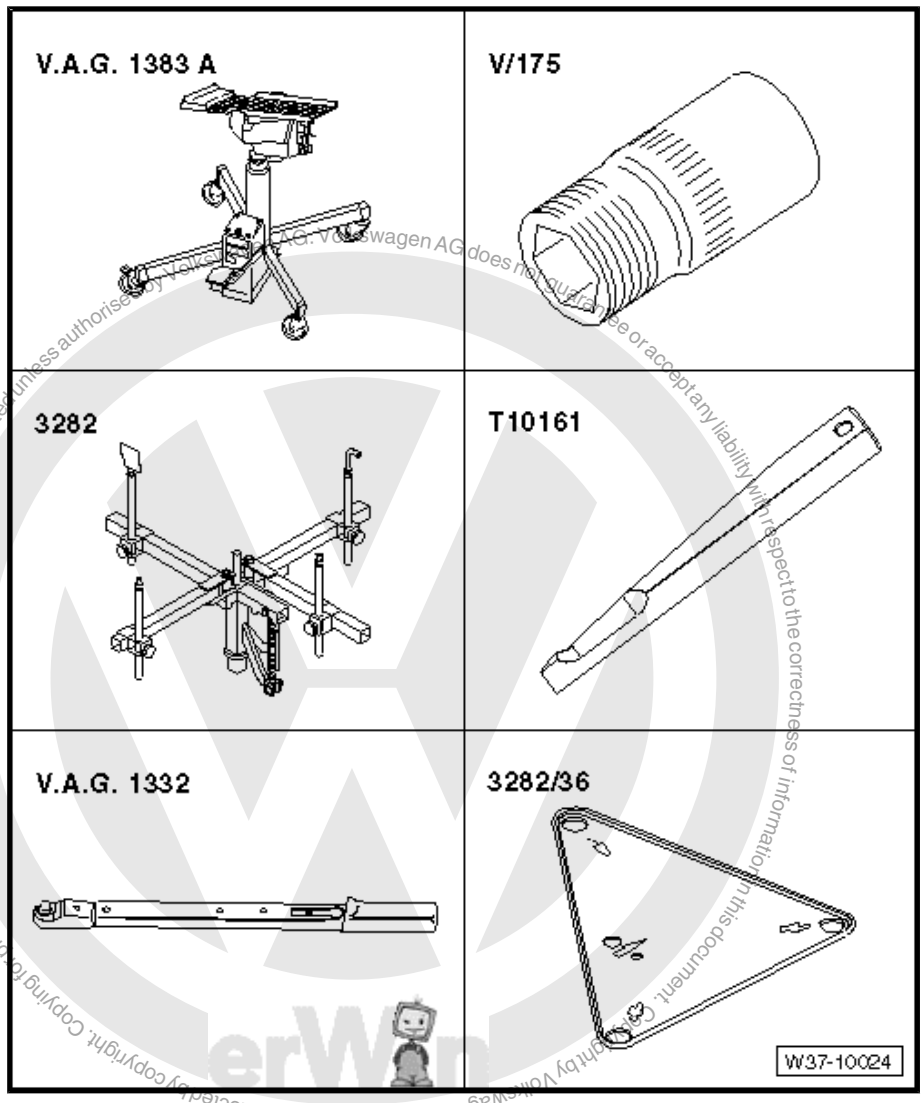
Noise insulation is removed and drive shafts are pressed off »from below«. Gearbox is lowered using gearbox jack.

Note

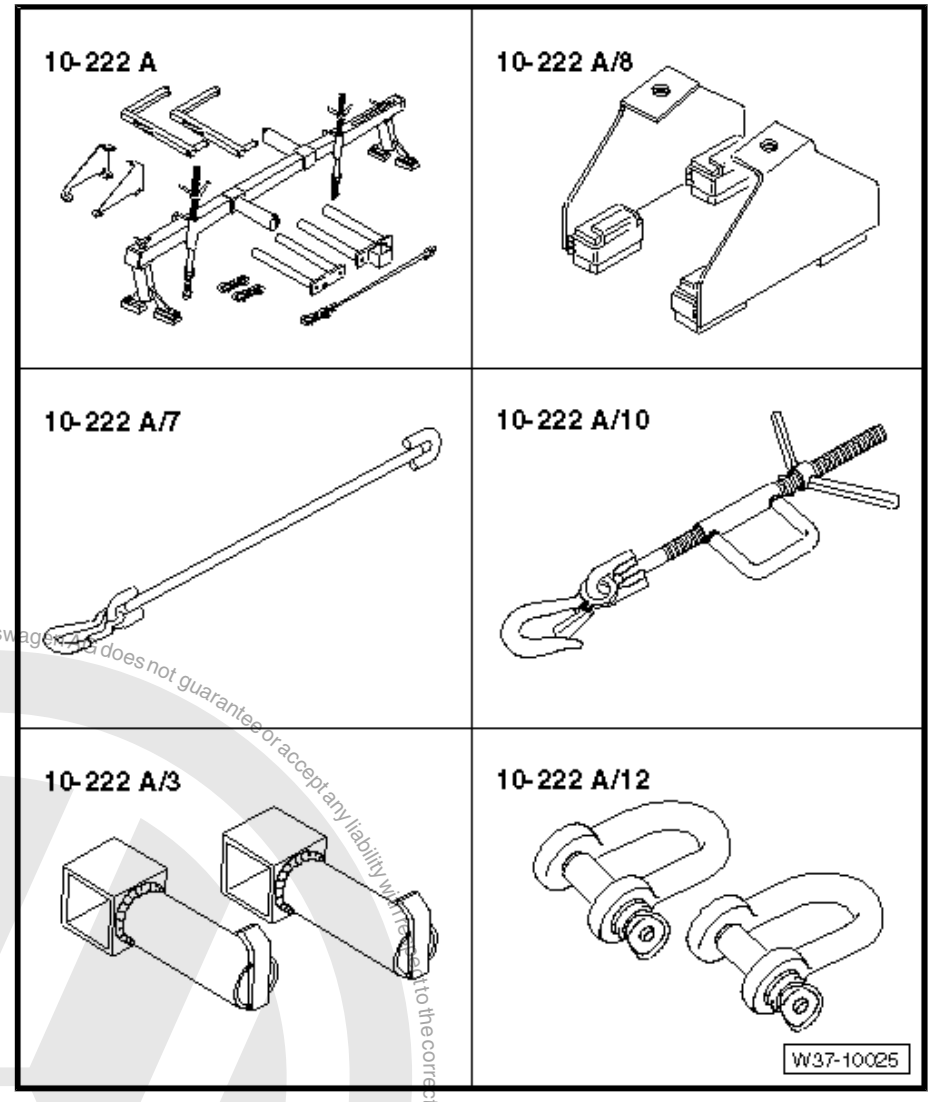
The subframe is not to be removed.

Special tools and workshop equipment required

- Engine and gearbox jack - V.A.G 1383 A-
- Torque wrench -V.A.G 1332-
- Gearbox support -3282-
- Adjustment plate -3282 /36-
- Insert -V/175-
- Wedge -T10161-

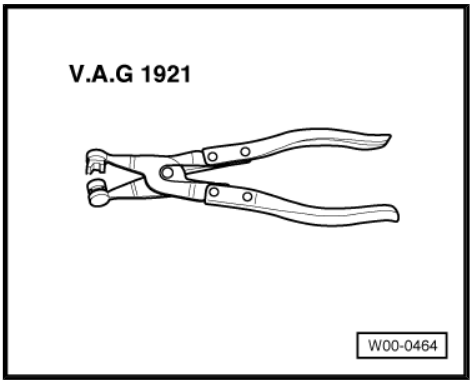


- Support bracket -10 - 222 A-
- Adapter -10 - 222 A /8-
- Adapter -10 - 222 A /3-
- Hook -10 - 222 A /10-
- Shackle -10 - 222 A /12-
- Adapter -10 - 222 A /7-



Special tools and workshop equipment required

- Hose clamp pliers -V.A.G 1921-



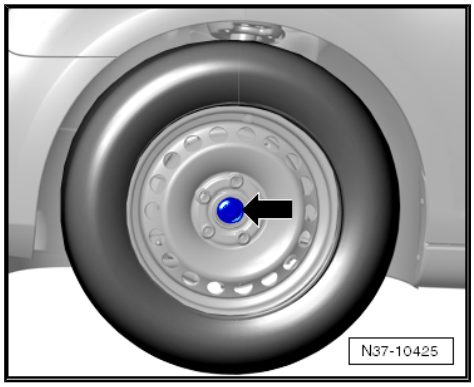
Removing:

– Before beginning with removal, »if possible« print out a diagnosis log. Before sending back removed gearbox in the usual manner, secure log to gearbox.

– Move selector lever to position »P« position.

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

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

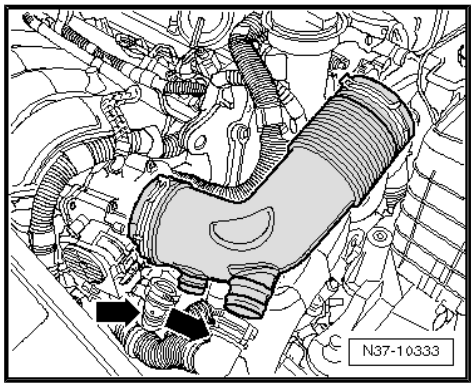


Note

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 AAR2600i .

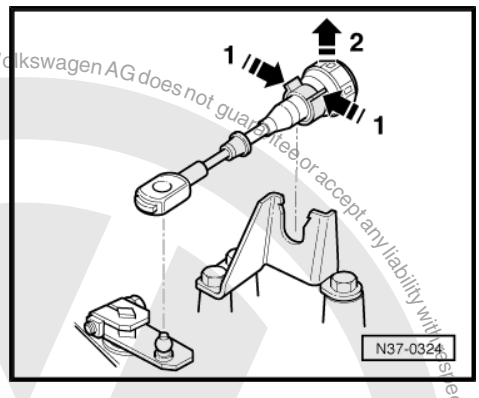
– Remove air filter with engine cover.

– Pull off hoses -arrows- and remove intake hose from throttle valve unit.

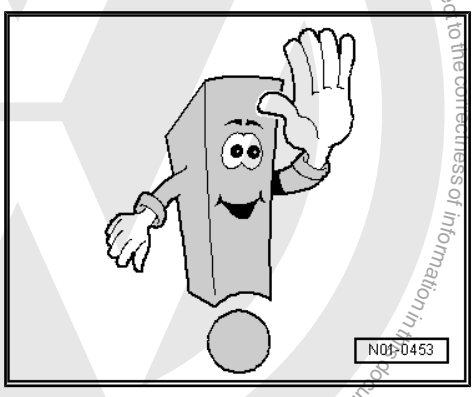


– Remove battery and battery carrier ⇒ Rep. gr. 27 ; Disconnecting and connecting battery; Removing and installing battery .

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

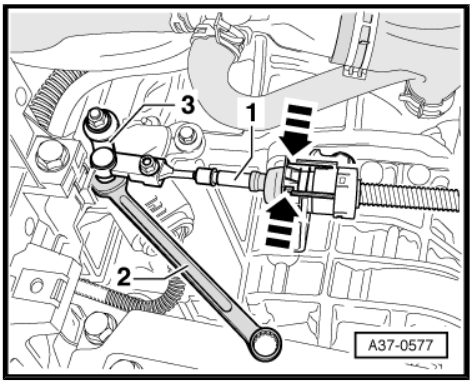


Work with care to avoid bending cable. Do not use pliers, or the retaining tabs on the cable support bracket may break off.



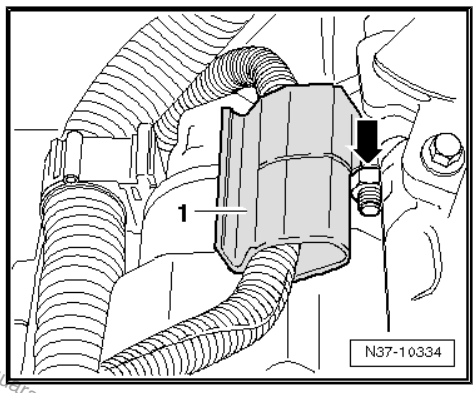
– Lever cable -1- off lever -3- using an open jaw spanner -2-.
– Disconnect electrical connections to gearbox and starter.

♦ Multifunction switch
♦ Starter motor
♦ Earth strap to bracket

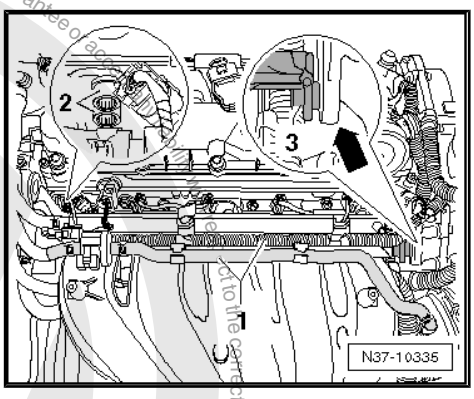


– Remove wiring retainer -1- from starter bolt -1-.
– Remove upper starter motor bolt.
– Remove upper connecting bolts between engine and gearbox.

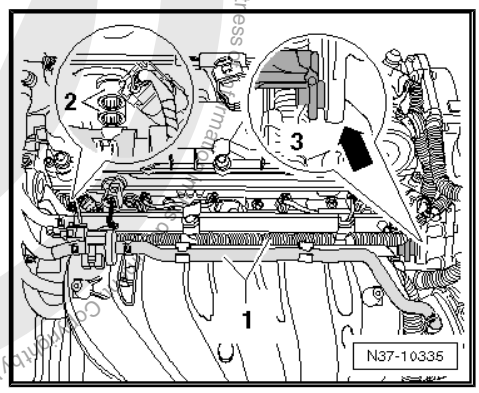
To support engine and gearbox:



– Remove wiring -1- from transportation bracket -3-.



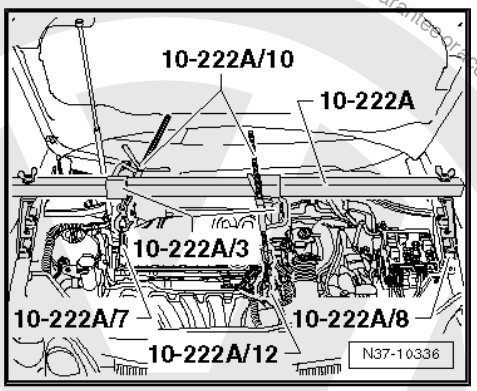
– Unbolt transportation bracket -3- from engine -2- and pull out of eye -arrow-.
– Attach a shackle -10 - 222 A /12- in »this« eye.



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

– Extend right hook -10 - 222 A /10- using adapter -10 - 222 A / 7- .

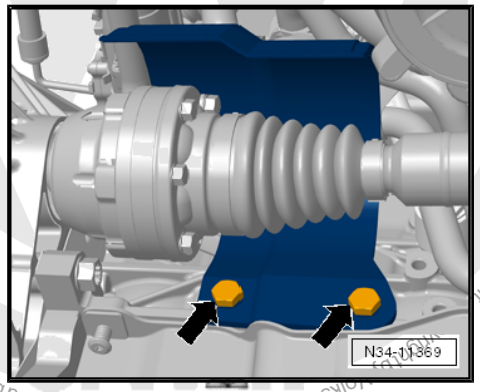
The hook faces downwards and will later be hooked into the engine block.



– Remove noise insulation tray.

– Remove lower part of left wheel housing liner.

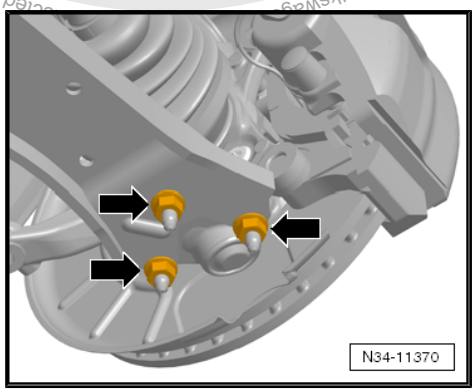
– Remove heat shield above right drive shaft.



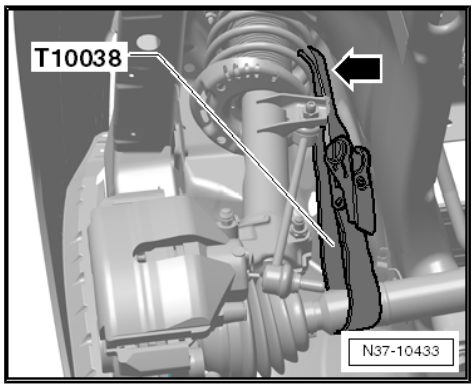
– Unbolt suspension links from suspension struts on both sides.

– Press both drive shafts out of gearbox. For procedure, refer to ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR2600i .

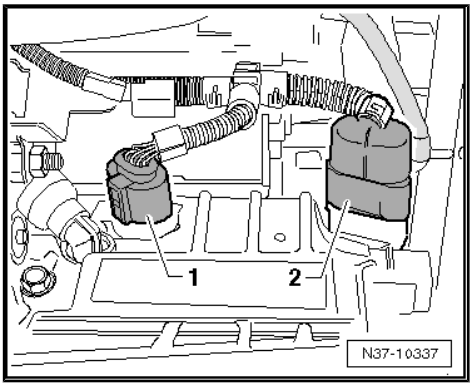
– Remove left drive shaft.



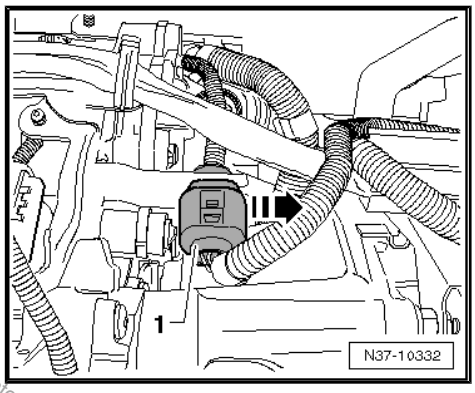
– Raise right shaft as far as possible and secure in this position.



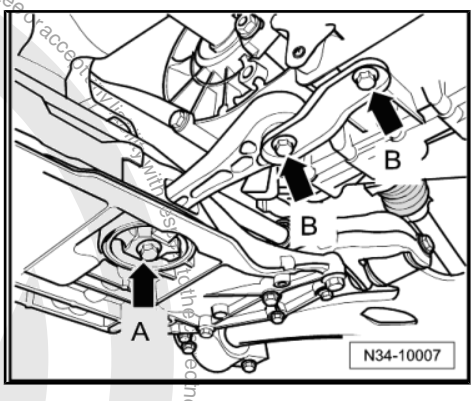
– Now pull electrical connectors -1- and -2- off gearbox.



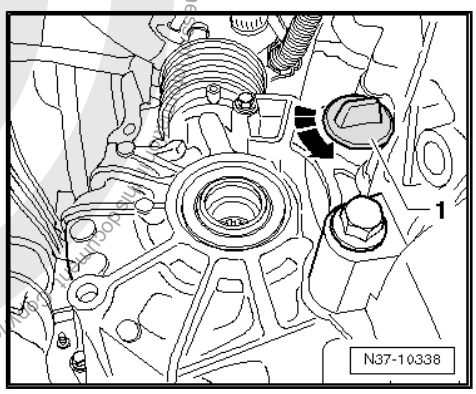
– Pull connector beneath starter -1- out of retainer and separate.
– Unbolt retainer from lower starter bolt.
– Remove lower starter bolt and remove starter.



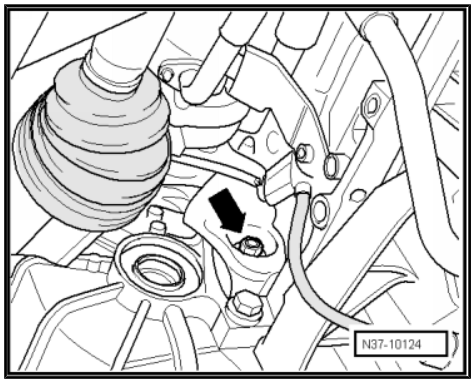
– Remove ⇒ pendulum support, first -A- and then -B-.
– Drain coolant.



– Turn cap -1- in direction of arrow and remove.



– Remove six -torque converter nuts- with insert -V/175- .



Note

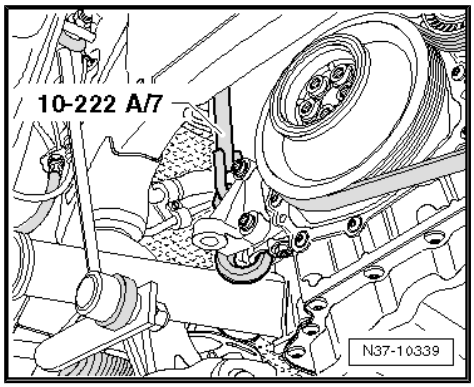
Continue turning the engine carefully!

– Hook adapter -10 - 222 A /7- into engine block.

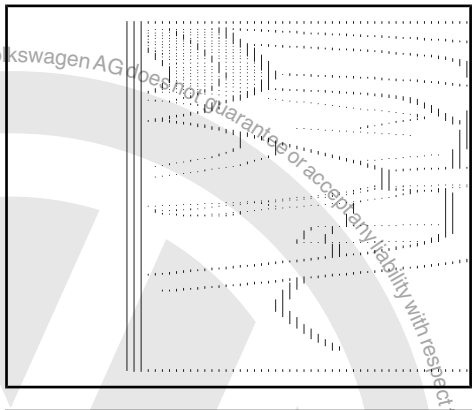
– Pull coolant hoses off ATF cooler.

Tighten right spindle one turn (more is not necessary).

– Support engine and gearbox with left spindle. Do not raise.



– Remove bracket -A-.



– Now remove assembly mounting bracket. To do this, lower engine and gearbox slightly via left spindle of support bracket -10 - 222 A- .

Six turns are sufficient.

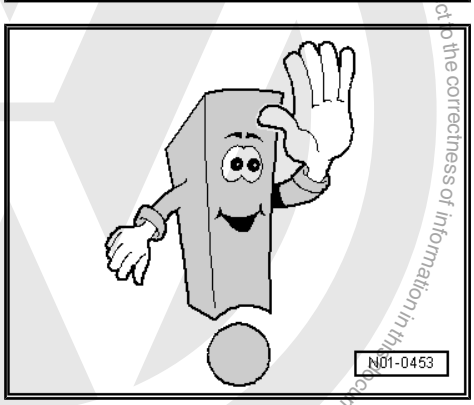
– Remove lower connecting bolts between engine and gearbox.

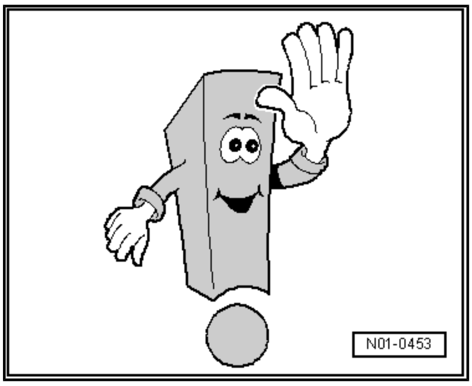
– Leave an easily accessible bolt in for safety purposes.

– Before you now remove final connecting bolt, support gearbox with engine and gearbox jack -V.A.G 1383 A- , gearbox support -3282- and adjustment plate -3282 /36- .

– Only now is the final bolt removed.

– Carefully push gearbox off engine.

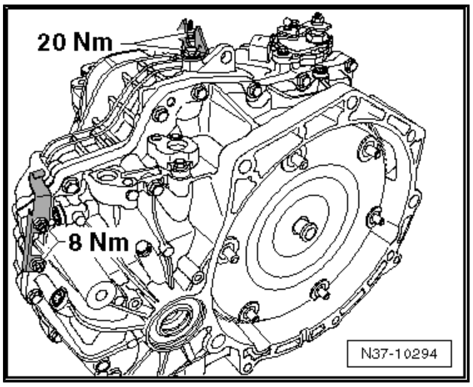




Note

Observe torque converter. It must be removed together with gearbox.

– Keep in mind that if a new gearbox is installed, parts such as cable support bracket and retainer for gate selector cable must be transferred.



9.4 Installing gearbox, Golf 2004 with 2.5 l - 110 kW and 125 engines

– Check whether dowel sleeves are pressed into engine flange.

– Check seating of plate between engine and gearbox. The plate must make contact with the engine along its entire perimeter when it is pressed gently with both hands against the engine. If the top does not contact the engine, it is not properly engaged in the engine block.

Continue installation in reverse order of removal.

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 .

– Renew all bolts of left assembly mounting.

– First screw in all bolts by hand.

During installation, first bolt bracket to gearbox with 40 Nm + 90° torque.

When the two bracket bolts are tightened to vehicle, a screwdriver may be inserted between the two bolts to adjust to »previous seating«. These two larger bolts are tightened to 60 Nm + 90°.

Torque settings, gearbox to engine ⇒ page 64

– Adjust selector lever cable ⇒ page 43 .

– After installing, check ATF level ⇒ page 134 .

– 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`.

9.5 Torque settings, gearbox to engine

Golf 2004 with 1.6 l - 75 kW and 2.0 l - 110 kW (FSI) engines
⇒ page 64

Golf 2004 with 1.6 l - 85 kW (FSI) engine ⇒ page 65

Golf 2004 with 2.5 l - 110 kW and 125 kW engines ⇒ page 66

9.5.1 Torque settings, Golf 2004 with 1.6 l - 75 kW and 2.0 l - 110 kW (FSI) engines

1 - Direction of travel

A - Bolt for 2.0 l - 110 kW (FSI) engine

B - Bolt for 1.6 l -75 kW engine

- Drive plate to torque converter

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

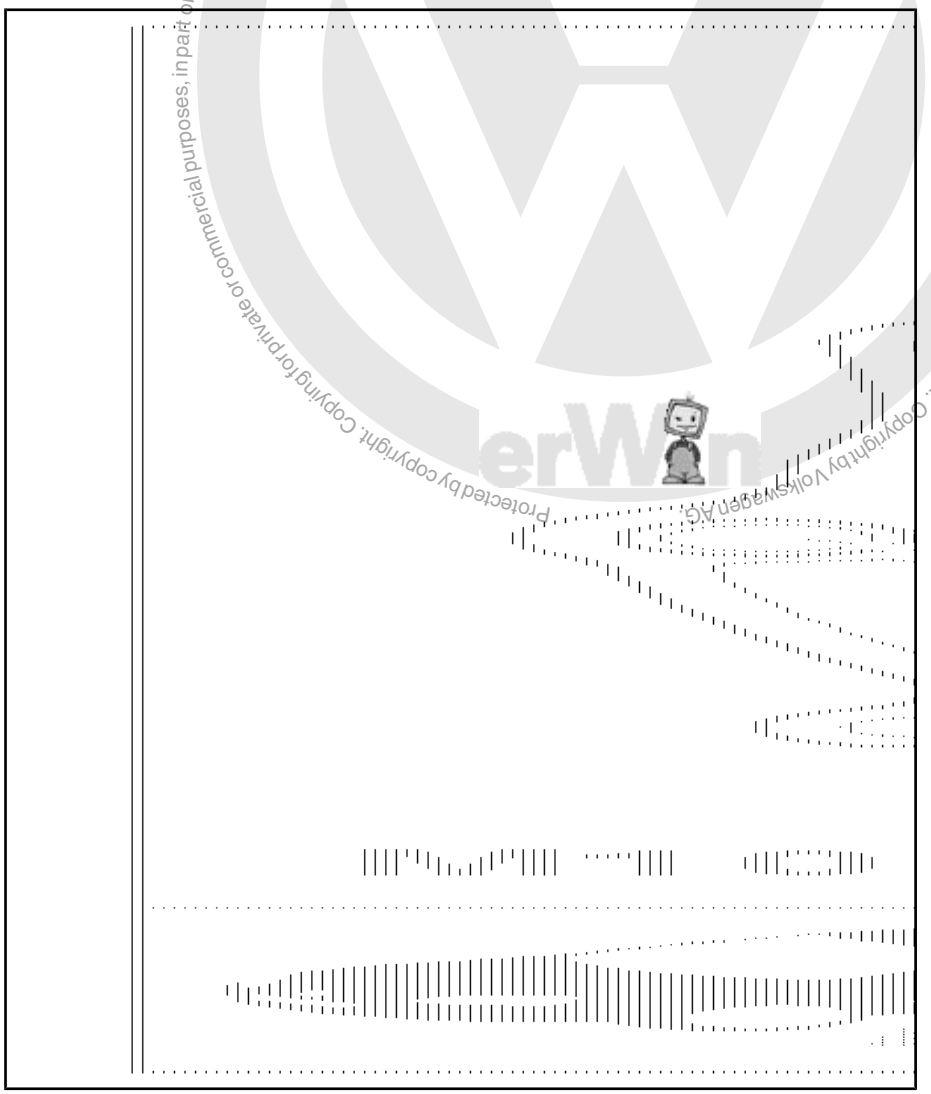
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

- M10 bolts ⇒ M10

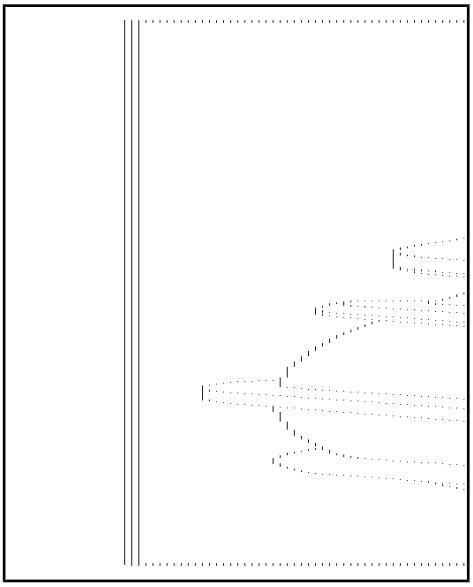
- ❑ 40 Nm
- ❑ These bolts are located in lower flange

- Two dowel sleeves in engine -arrows-



– Ensure that retainer does not contact gearbox oil cooler.

-Nuts- 8 Nm



9.5.2 Torque settings, Golf 2004 with 1.6 l - 85 kW (FSI) engine

1 - Direction of travel

- Drive plate to torque converter

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

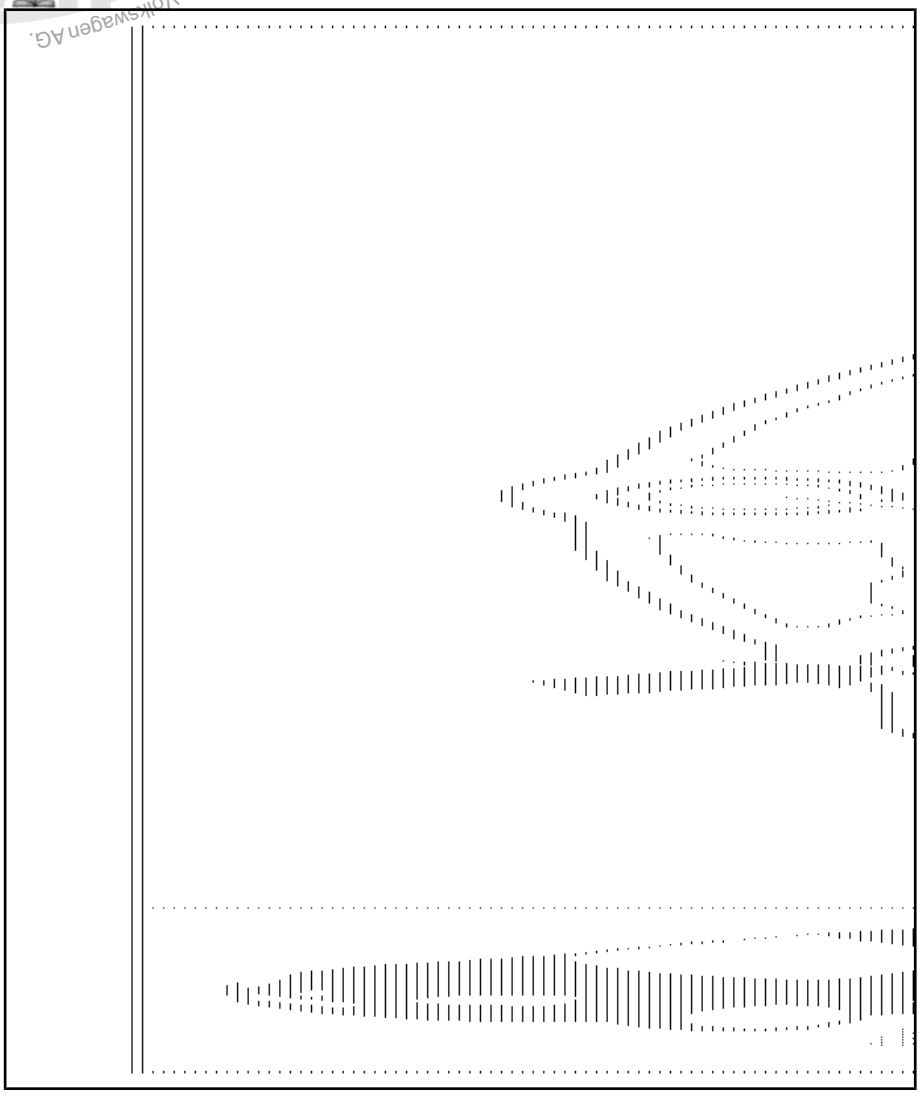
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

- M10 bolts ⇒ M10

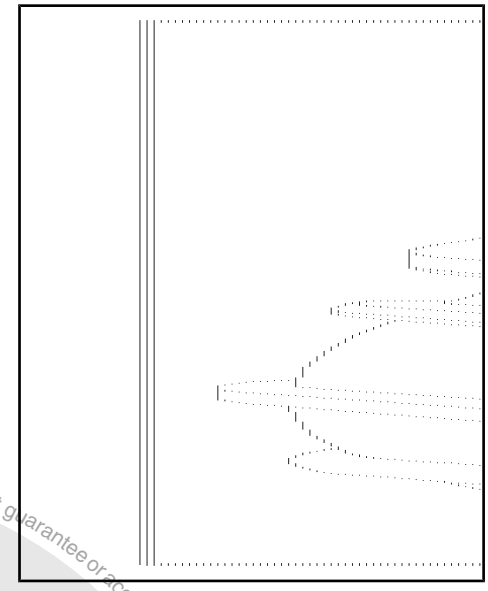
- ❑ 40 Nm
- ❑ These bolts are located in lower flange

- Two dowel sleeves in engine -arrows-



– Ensure that retainer does not contact gearbox oil cooler.

-Nuts- 8 Nm



9.5.3 Specified torques, Golf 2004 with 2.5 l - 110 kW and 125 kW engines

1 - Direction of travel

- Drive plate to torque converter

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

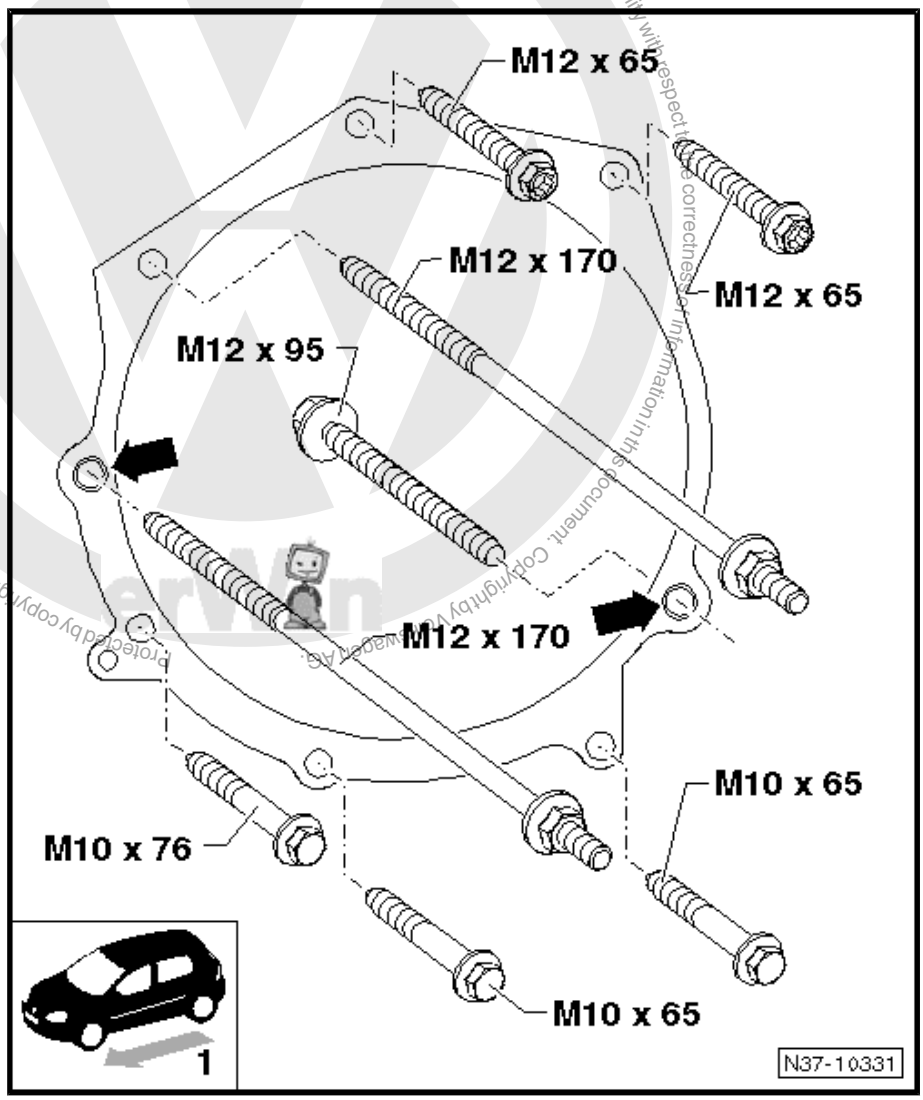
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179-.

- M10 bolts ⇒ M10

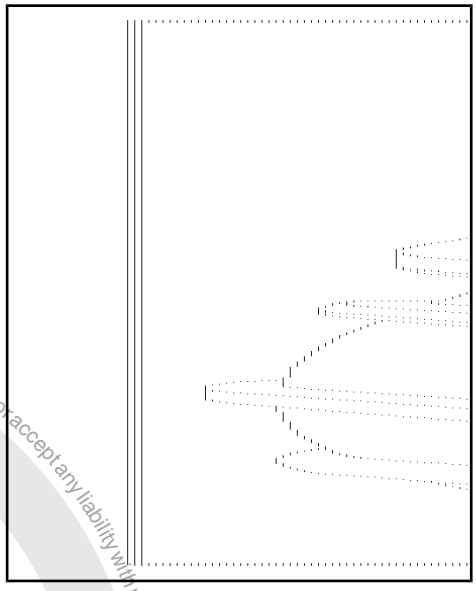
- ❑ 40 Nm
- ❑ These bolts are located in lower flange

- Two dowel sleeves in engine -arrows-



– Ensure that retainer does not contact gearbox oil cooler.

-Nuts- 8 Nm



10 Removing and installing gearbox, Golf Plus 2005 ►

Removing gearbox, Golf Plus 2005 with 1.6 l - 75 kW, 1.6 l - 85 kW (FSI) and 2.0 l - 110 kW (FSI) engines ⇒ page 68

Installing gearbox, Golf Plus 2005 with 1.6 l - 75 kW, 1.6 l - 85 kW (FSI) and 2.0 l - 110 kW (FSI) engines ⇒ page 74

Torque settings, Golf Plus 2005 ‣ ⇒ page 75

10.1 Removing gearbox, Golf Plus 2005

– Before beginning with removal, »if possible« print out a diagnosis log. Before sending back removed gearbox in the usual manner, secure log to gearbox.

Brief description

The gearbox is removed downwards as a unit. The engine remains in the vehicle.

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

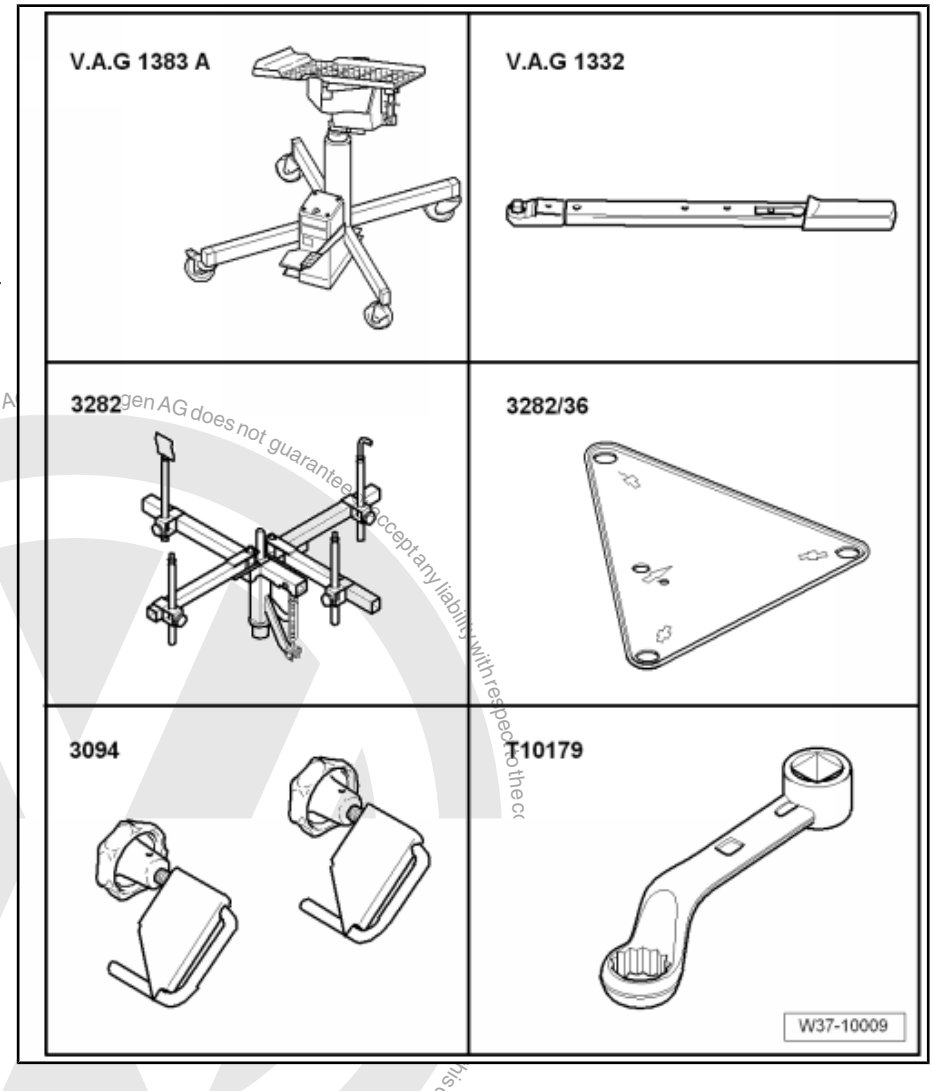
Noise insulation is removed and drive shafts are pressed off »from below«. Gearbox is lowered using gearbox jack.

Note

The subframe is not to be removed.

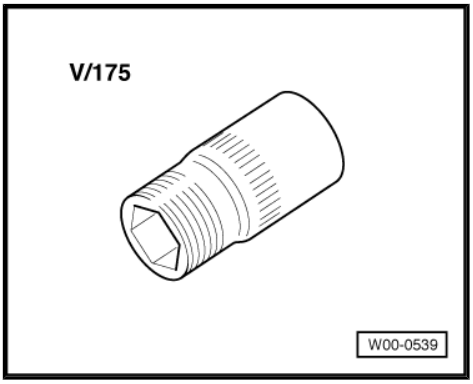
Special tools and workshop equipment required

- Engine and gearbox jack -V.A.G 1383 A-
- Torque wrench -V.A.G 1332-
- Gearbox support -3282-
- Adjustment plate -3282 /36-
- Hose clamp to Ø 25 mm -3094-
- Socket -T10179-

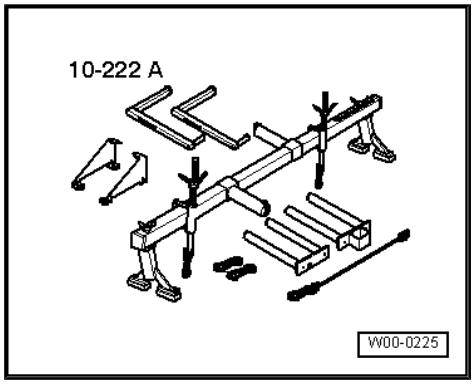


Special tools and workshop equipment required

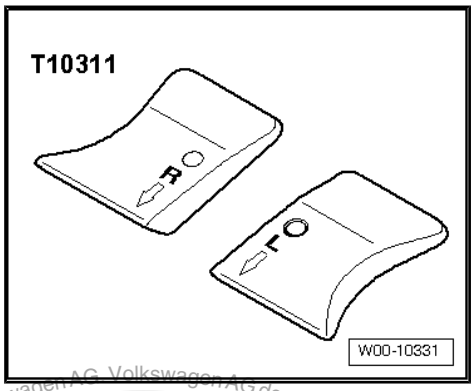
- Insert -V/175-



- Support bracket -10 - 222 A-



- Adapter -10 - 222 A /8-



- Wing supports -T10311-

The following description shows the gearbox with the 2-litre petrol engine (FSI). Deviations from other engine types in the Golf are minimal. However, torque settings for bolting gearbox to engine go into detail »as usual« (large and small engines, FSI and multi-point injection engines).

– Before beginning with removal, »if possible« print out a diagnosis log. Before sending back removed gearbox in the usual manner, secure log to gearbox.

Removing:

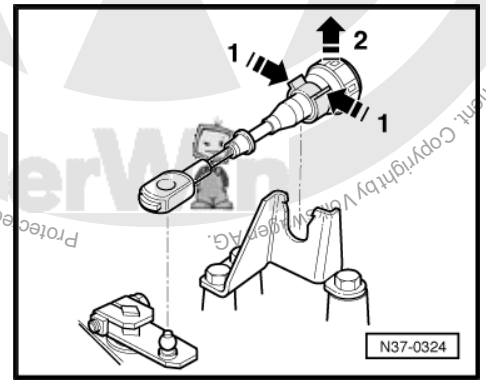
– Raise vehicle. All 4 supports of lifting platform must be at same height.

– Move selector lever to position »P« position.

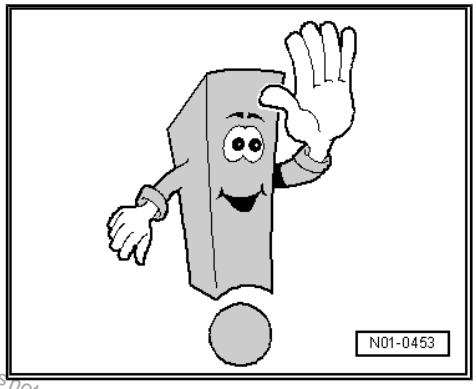
– Remove battery and battery carrier ⇒ Rep. gr. 27 ; Disconnecting and connecting battery; Removing and installing battery .

– Remove engine cover and air cleaner with intake hose.

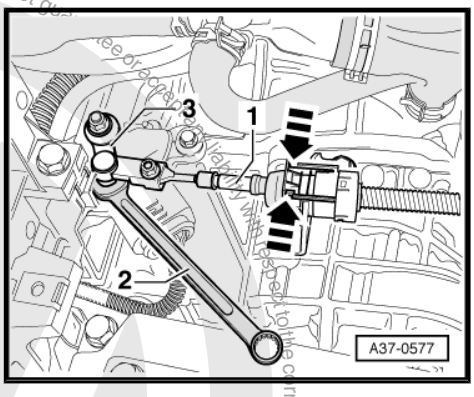
– In order to remove selector lever cable from gearbox, first release cable -1- and then remove it from cable support bracket -2-.



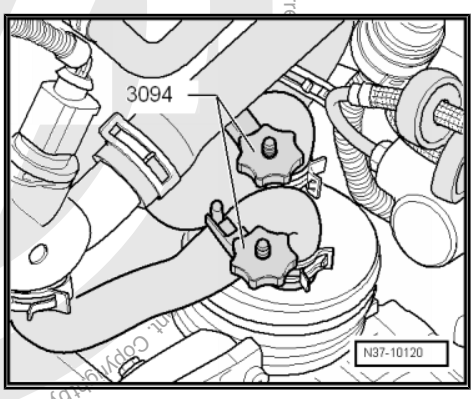
Work with care to avoid bending cable. Do not use pliers, or the retaining tabs on the cable support bracket may break off.



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



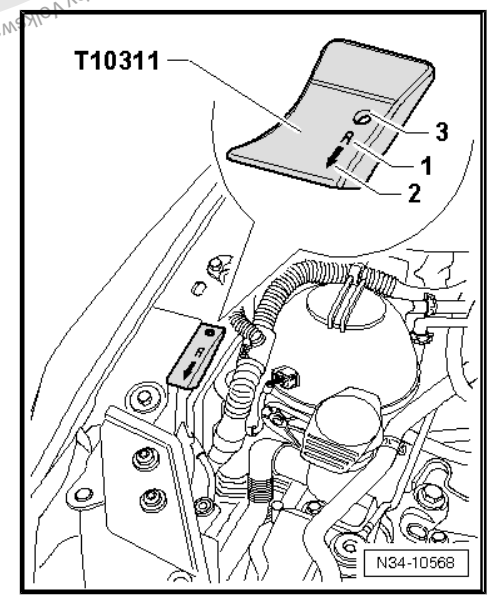
– Place hose clamps up to Ø 25 mm -3094- onto the hoses and remove hoses from the ATF cooler.
– Disconnect electrical connections to gearbox and starter.
– Remove upper starter motor bolt.



– Now push wing supports -T10311- between wing and body on both sides.

The figure shows the right support.

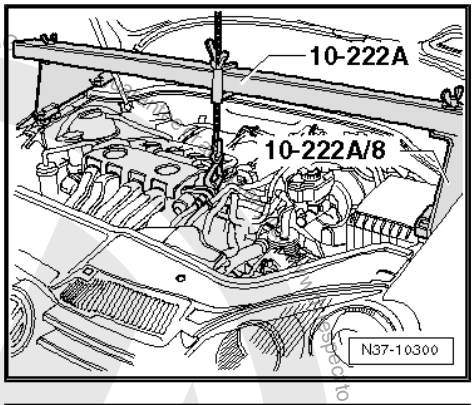
The supports are marked with „L“ for left and „R“ for right. Arrow points in direction of travel.



– Set up support bracket -10 - 222 A- and support engine and gearbox. Do not raise.

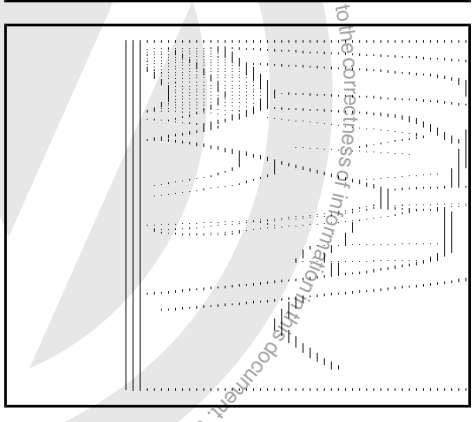
– Remove upper connecting bolts between engine and gearbox.

Bolts may be installed with a socket -T10179- . When tightening, however, observe the lower tightening torque ⇒ page 75 .



– Merely remove the six bracket bolts -A-.

The bracket is removed later.

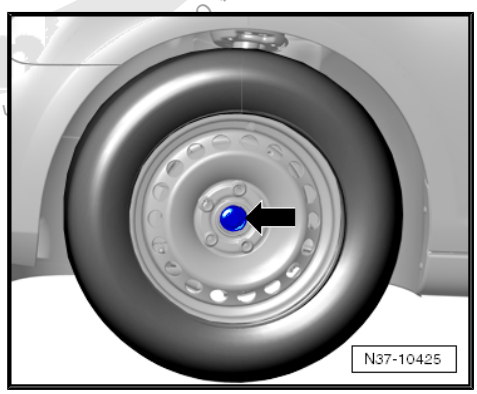


Note

Do not set vehicle on the ground ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR2600i .

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

– Remove noise insulation tray.

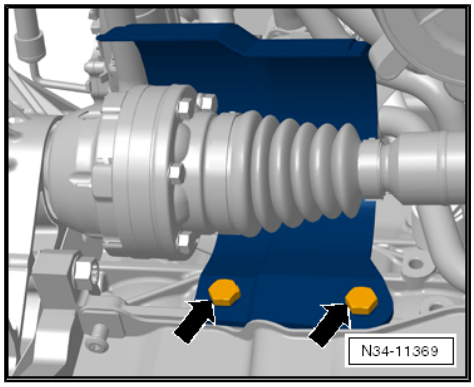


– If heat shield is installed over right drive shaft, remove it from engine.

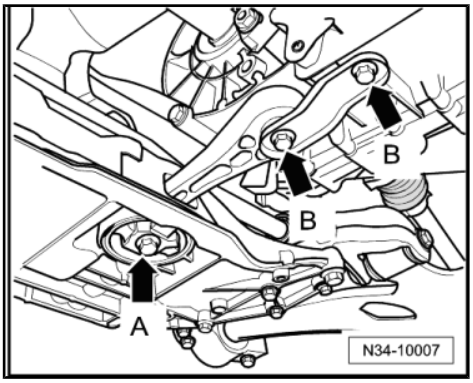
– Remove vacuum pump with bracket and lines. »The pump is located near the ATF filler pipe«.

– Now pull electrical connectors off gearbox.

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



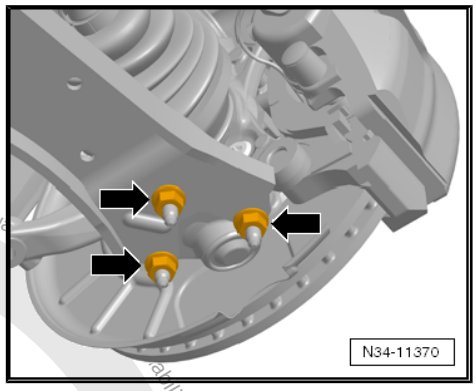
– Remove ⇒ pendulum support, first -A- and then -B-.



– Unbolt suspension links from suspension struts on both sides.

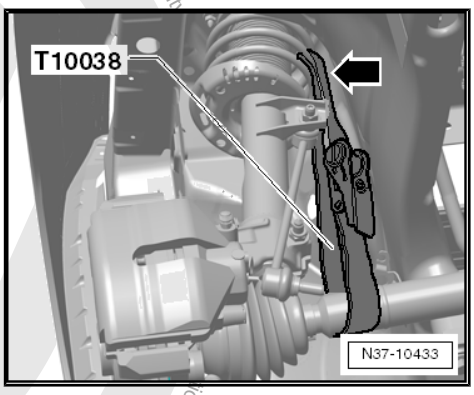
Torque settings for suspension link bolts ⇒ Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .

– Press both drive shafts out of gearbox. For procedure, refer to ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR2600i .



– Remove left drive shaft.

– Raise right shaft as far as possible and secure in this position.



– Now remove assembly mounting bracket. To do this, lower engine and gearbox slightly via support bracket -10 - 222 A- spindles.

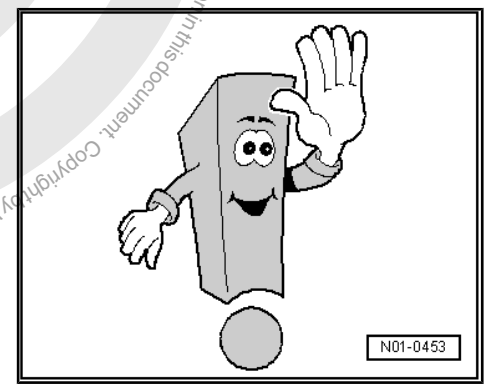
Four turns are sufficient.

– If exhaust system retainer is present on gearbox, remove it.

– Remove lower connecting bolts between engine and gearbox.

– Leave an easily accessible bolt in for safety purposes.

– Start with the two lower bolts.



Note

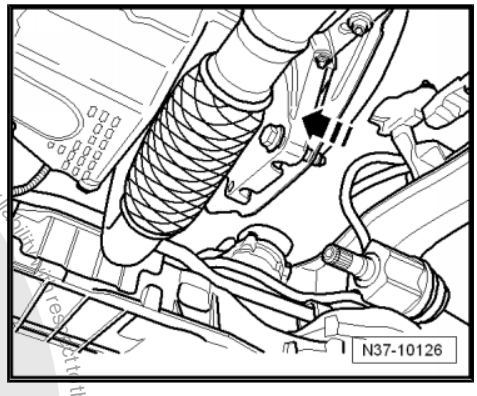
On some smaller engines up to 1.6 litres, one of the lower -bolts- can be backed out of the gearbox but not removed from the hole.

– If this bolt must be removed, first remove front exhaust pipe.

⇒ Rep. gr. 26 ; Removing and installing parts of the exhaust system

The hole for removing the torque converter nut is covered with a rubber cap on the rear of the engine.

– Remove this cap.

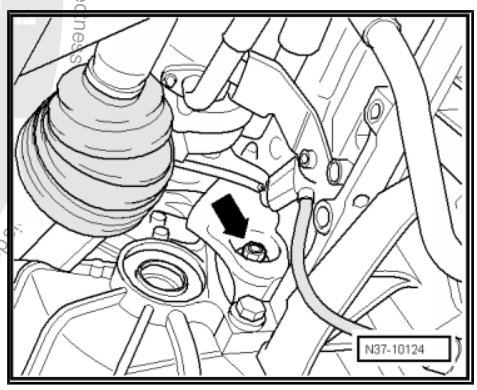


– Remove six -torque converter nuts- with insert -V/175- .

Note

Continue turning the engine carefully!

– Before you now remove final connecting bolt, support gearbox with engine and gearbox jack -V.A.G 1383 A- , gearbox support -3282- and adjustment plate -3282 /36- .



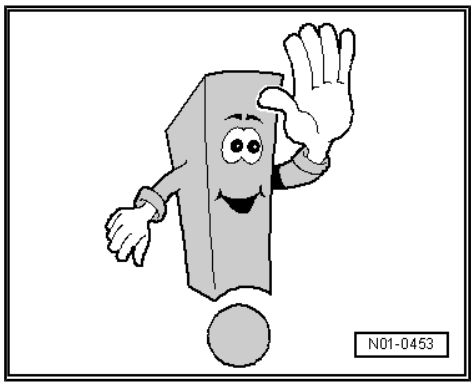
– Only now is the final bolt removed.

– Carefully push gearbox off engine.

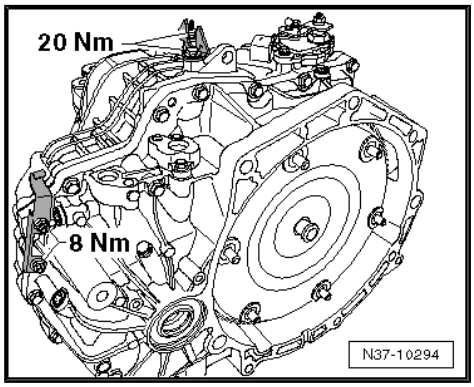
Note

Observe torque converter. It must be removed together with gearbox.

– When lowering, ensure clearance of gearbox to subframe. If necessary, adjust gearbox support -3282- slightly.



– Keep in mind that if a new gearbox is installed, parts such as cable support bracket and retainer for gate selector cable must be transferred.



10.2 Installing gearbox, Golf Plus 2005

– Check whether dowel sleeves are pressed into engine flange.

– Check seating of plate between engine and gearbox. The plate must make contact with the engine along its entire perimeter when it is pressed gently with both hands against the engine.

If the top does not contact the engine, it is not properly engaged in the engine block.

Continue installation in reverse order of removal.

– Renew all bolts of left assembly mounting.
– First screw in all bolts by hand.

During installation, first bolt bracket to gearbox with 40 Nm + 90° torque.

When the two bracket bolts are tightened to vehicle, a screwdriver may be inserted between the two bolts to adjust to »previous seating«. These two larger bolts are tightened to 60 Nm + 90°.

Torque settings, gearbox to engine ⇒ page 75 .

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 .

– Adjust selector lever cable ⇒ page 43 .
– After installing, check ATF level ⇒ page 134 .
– 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 Torque settings, gearbox to engine

Golf Plus 2005 with 1.6 l - 75 kW and 2.0 l - 110 kW (FSI) engines ⇒ page 76

Golf Plus 2005 with 1.6 l - 85 kW (FSI) engine ⇒ page 77

Golf Plus 2005 with 2.5 l - 110 kW engine ⇒ page 78

10.3.1 Torque settings, Golf Plus 2005 with 1.6 l - 75 kW and 2.0 l - 110 kW (FSI) engines

1 - Direction of travel

A - Bolt for 2.0 l - 110 kW (FSI) engine

B - Bolt for 1.6 l -75 kW engine

- Drive plate to torque converter

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

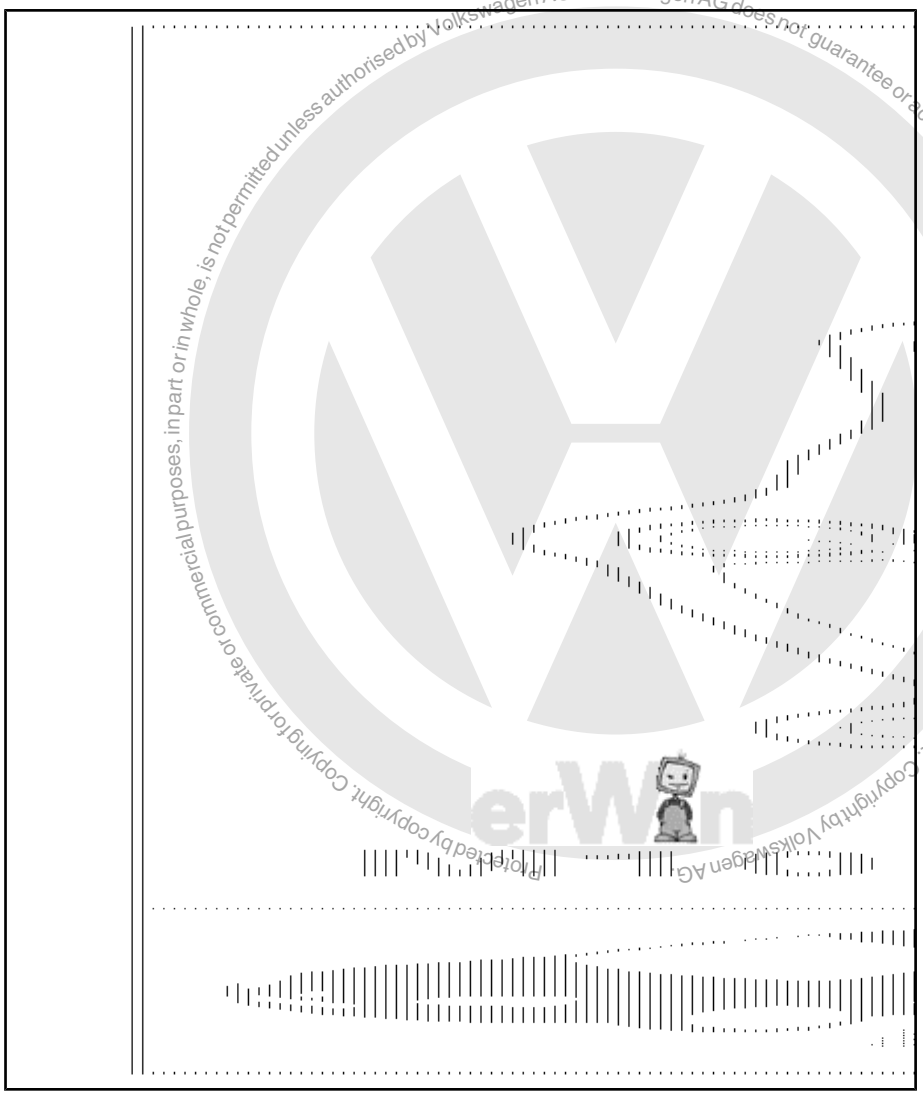
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

- M10 bolts ⇒ M10

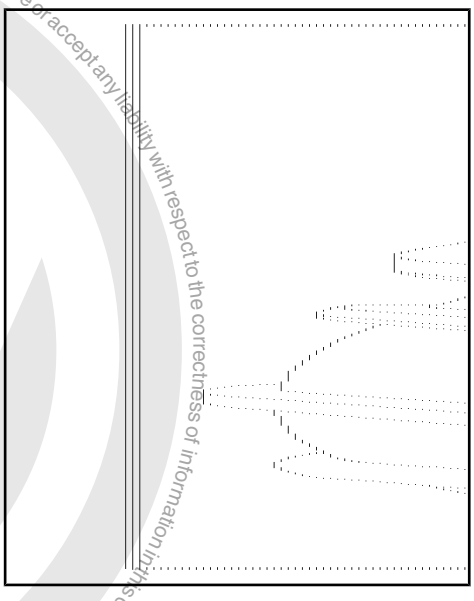
- ❑ 40 Nm
- ❑ These bolts are located in lower flange

- Two dowel sleeves in engine -arrows-



– Ensure that retainer does not contact gearbox oil cooler.

-Nuts- 8 Nm



10.3.2 Torque settings, Golf Plus 2005 with 1.6 l - 85 kW (FSI) engine

1 - Direction of travel

- Drive plate to torque converter

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

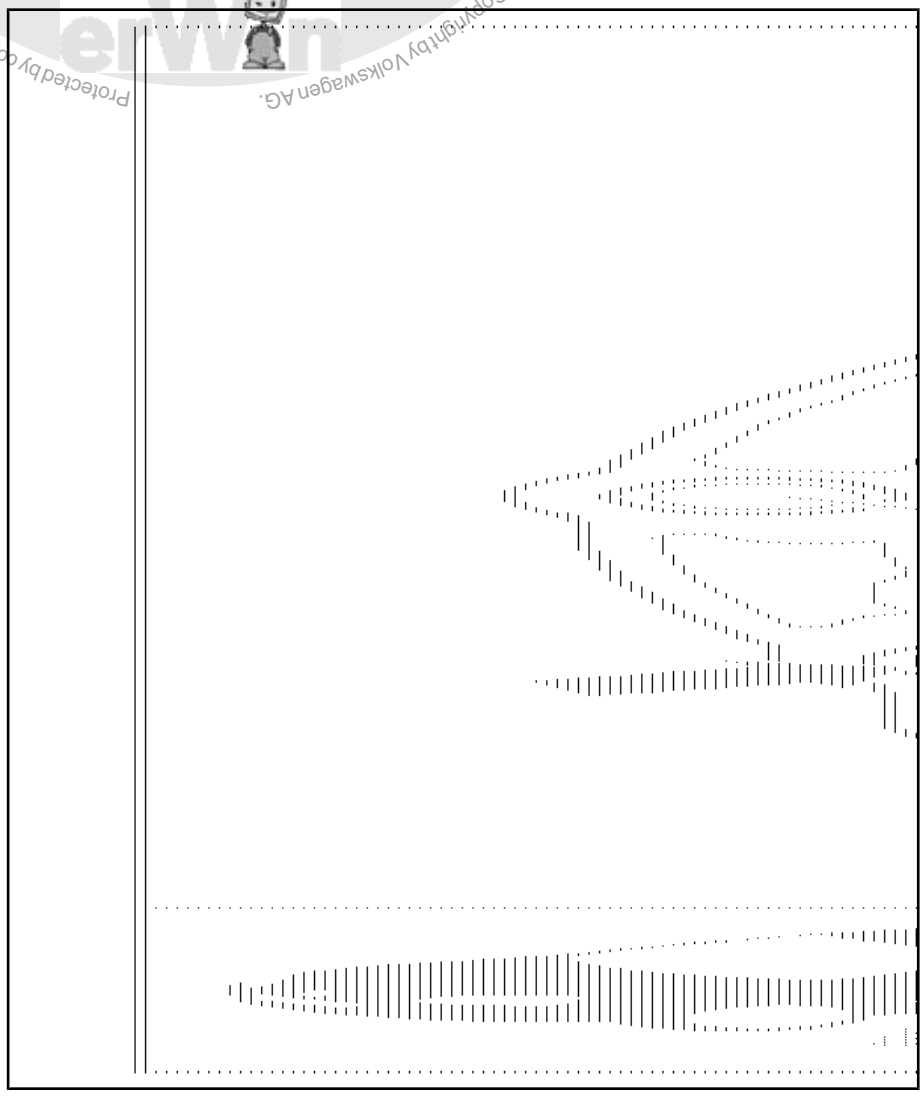
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

- M10 bolts ⇒ M10

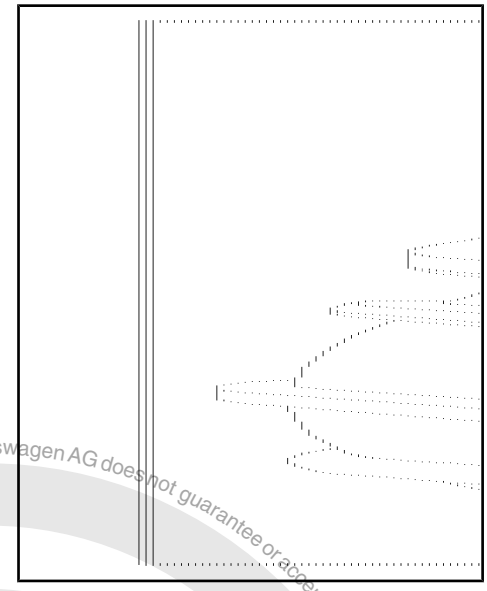
- ❑ 40 Nm
- ❑ These bolts are located in lower flange

- Two dowel sleeves in engine -arrows-



– Ensure that retainer does not contact gearbox oil cooler.

-Nuts- 8 Nm



10.3.3 Torque settings, Golf Plus 2005 with 2.5 l - 110 kW engine

1 - Direction of travel

- Drive plate to torque converter

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

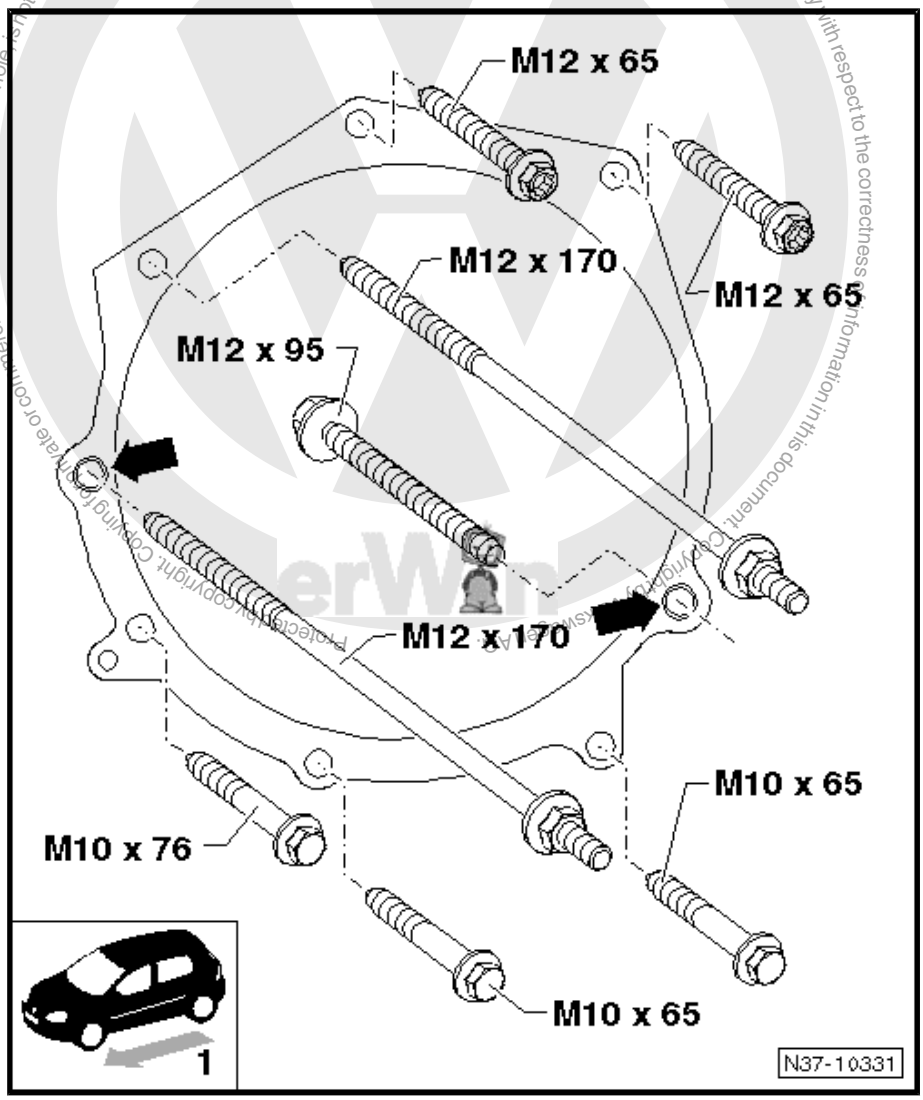
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

- M10 bolts ⇒ M10

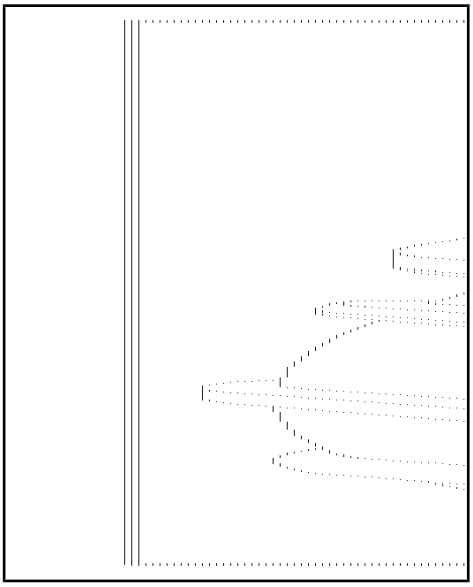
- ❑ 40 Nm
- ❑ These bolts are located in lower flange

- Two dowel sleeves in engine -arrows-



– Ensure that retainer does not contact gearbox oil cooler.

-Nuts- 8 Nm



11 Removing and installing gearbox, Touran 2003 ►

Removing gearbox, Touran 2003 with 1.6 l - 85 kW, 2.0 l - 85 kW, 2.0 l - 110 kW and 1.8 l - 110 kW engines ⇒ page 80 .

Installing gearbox, Touran 2003 with 1.6 l - 85 kW, 2.0 l - 85 kW, 2.0 l - 110 kW and 1.8 l - 110 kW engines ⇒ page 84

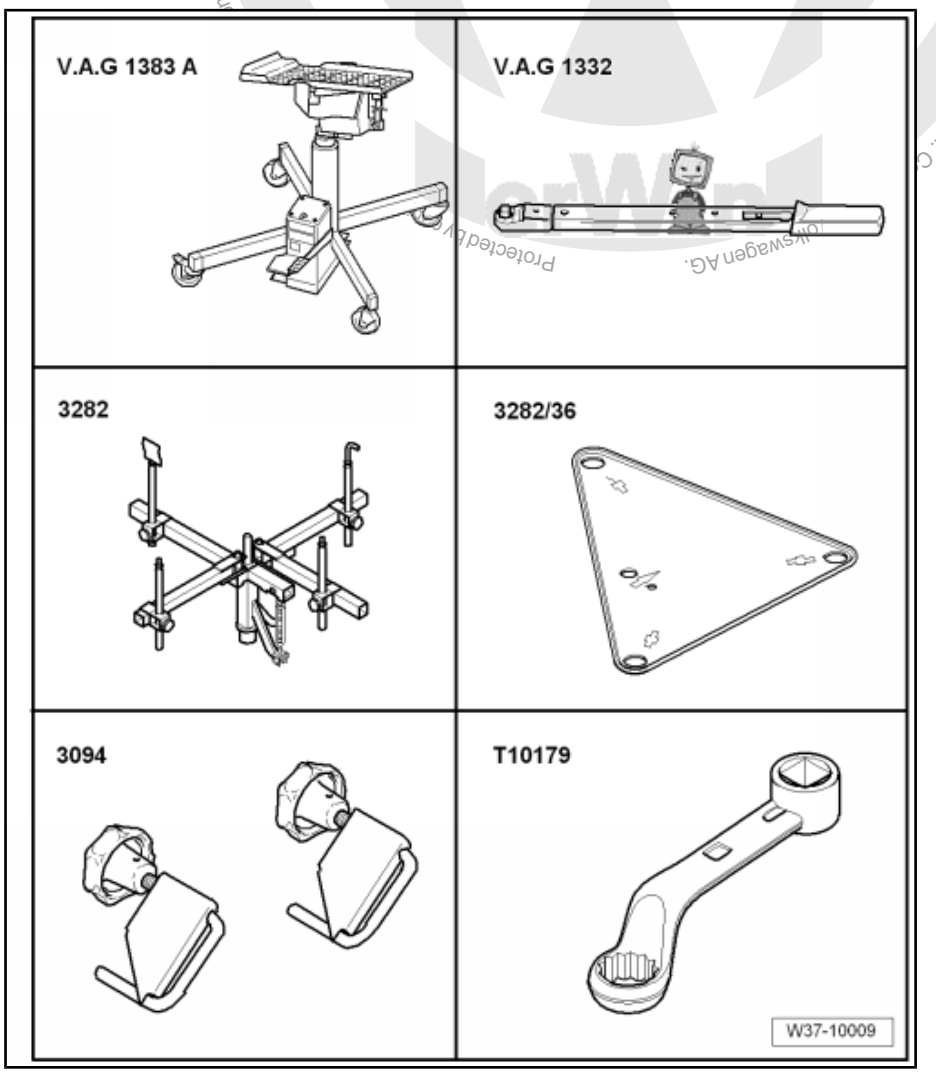
Torque settings, Touran 2003 ⇒ page 85

11.1 Removing gearbox, Touran 2003

– Before beginning with removal, »if possible« print out a diagnosis log. Before sending back removed gearbox in the usual manner, secure log to gearbox.

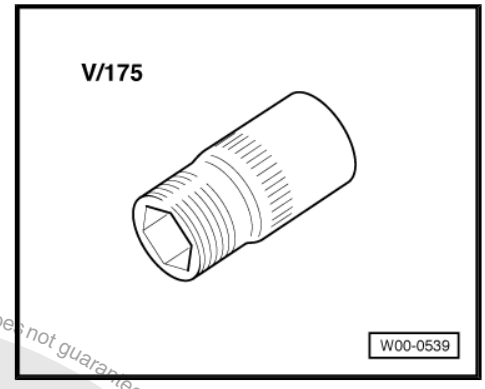
Special tools and workshop equipment required

- Engine and gearbox jack -V.A.G 1383 A-
- Torque wrench -V.A.G 1332-
- Gearbox support -3282-
- Adjustment plate -3282 /36-
- Hose clamp to Ø 25 mm -3094-
- Socket -T10179-

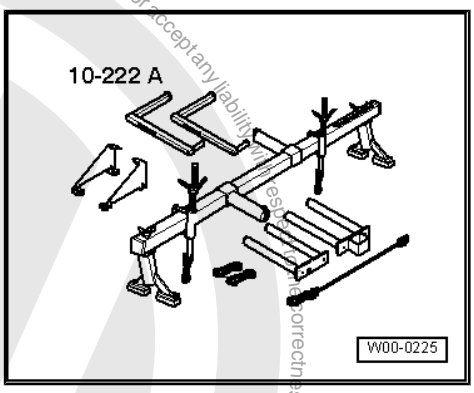


Special tools and workshop equipment required

- Insert -V/175-



- Support bracket -10 - 222 A-



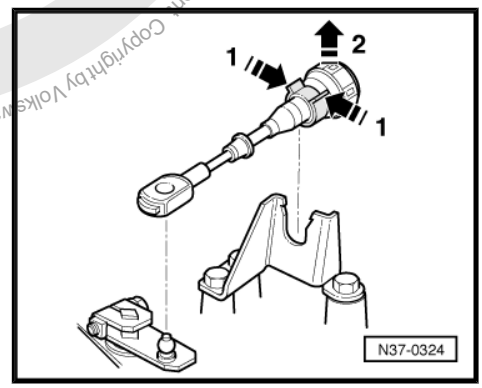
- Adapter -10 - 222 A /22-

Removing:

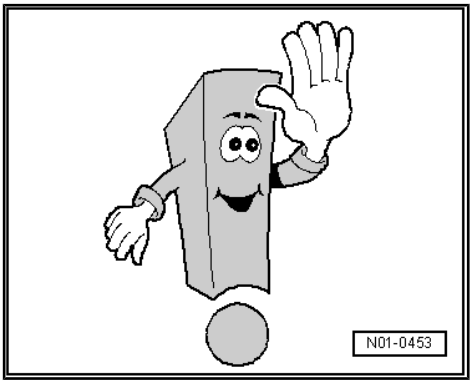
– Move selector lever to position »P« position.

– Remove battery and battery carrier ⇒ Rep. gr. 27 ; Disconnecting and connecting battery; Removing and installing battery .

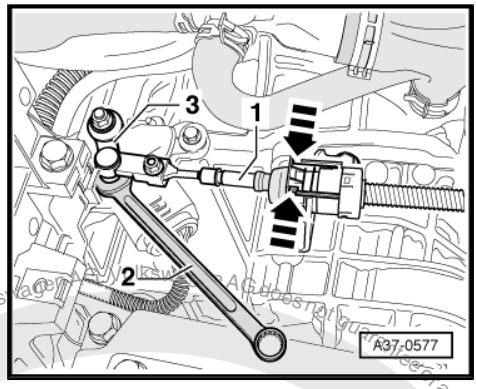
– In order to remove selector lever cable from gearbox, first release cable -1- and then remove it from cable support bracket -2-.



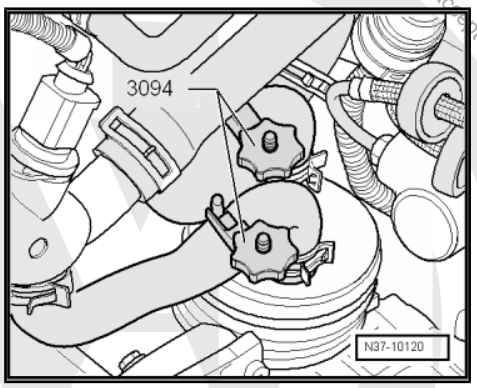
Work with care to avoid bending cable. Do not use pliers, or the retaining tabs on the cable support bracket may break off.



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

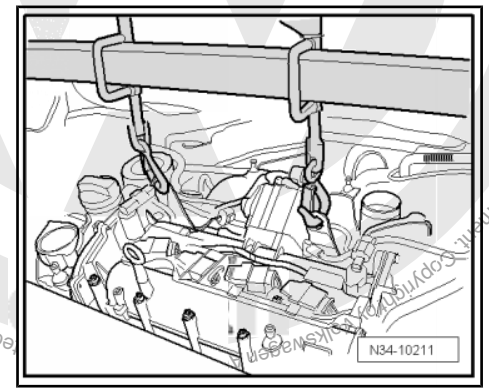


– Place hose clamps up to Ø 25 mm -3094- onto the hoses and remove hoses from the ATF cooler.
– Remove engine cover and air filter.
– Disconnect electrical connections to gearbox.
– Remove upper starter motor bolt.



– Set up support bracket -10 - 222 A- and support engine and gearbox. Do not raise.
– Remove upper connecting bolts between engine and gearbox.

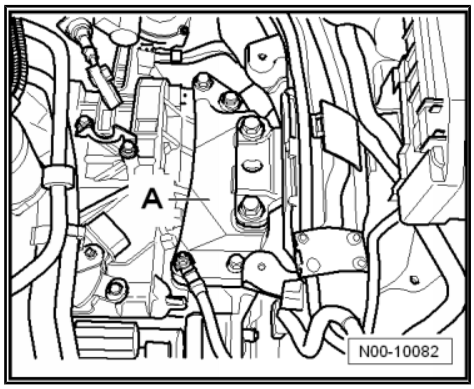
Bolts may be installed with a socket -T10179- . When tightening, however, observe the lower tightening torque ⇒ page 85 .



– Merely remove the six bracket bolts -A-.

The bracket will be removed later.

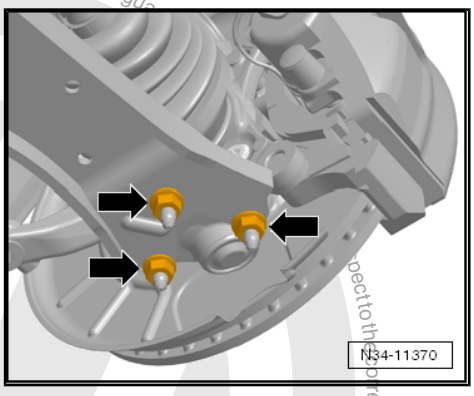
– Remove noise insulation tray.
– Remove vacuum pump with bracket and lines. »The pump is located near the ATF filler pipe«.
– Now pull electrical connectors off gearbox.
– Remove starter. The lower bolt has a nut which must be unscrewed first ⇒ Rep. gr. 27 ; Removing and installing starter .



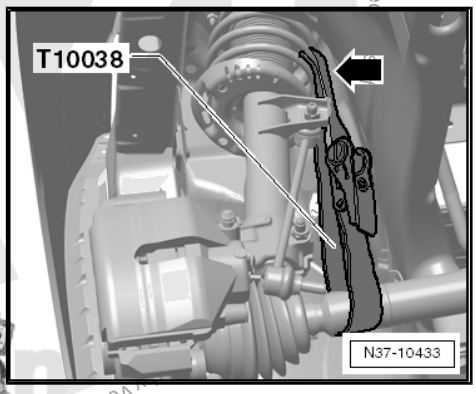
– Unbolt suspension links from suspension struts on both sides.

– Press both drive shafts out of gearbox. For procedure, refer to ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR2600i .

– Remove left drive shaft.



– Raise both shafts as far as possible and secure in this position.

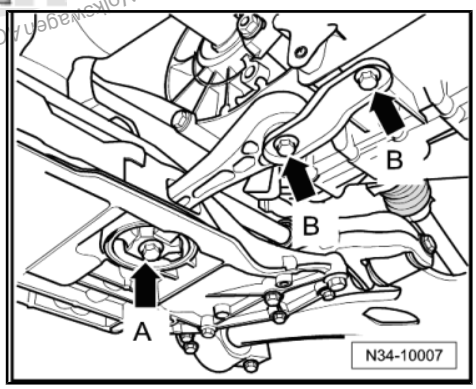


– Remove ⇒ pendulum support, first -A- and then -B-.

(On installation, first tighten -B-, then -A-.)

– Now remove assembly mounting bracket. To do this, lower engine and gearbox slightly via support bracket -10 - 222 A- spindles.

Five turns are sufficient. The left drive shaft should be tied up.



– Remove lower connecting bolts between engine and gearbox.

– Leave an easily accessible bolt in for safety purposes.

– Start with the two lower bolts.

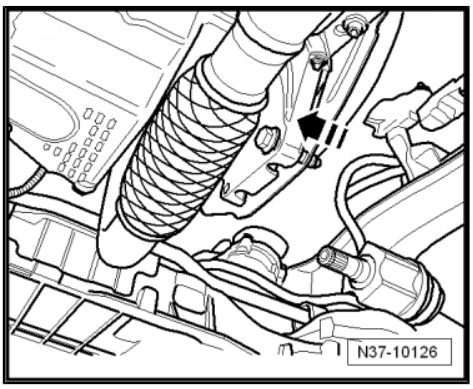
One of the lower -bolts- cannot be removed from the bore.

– To remove this bolt, remove front exhaust pipe.

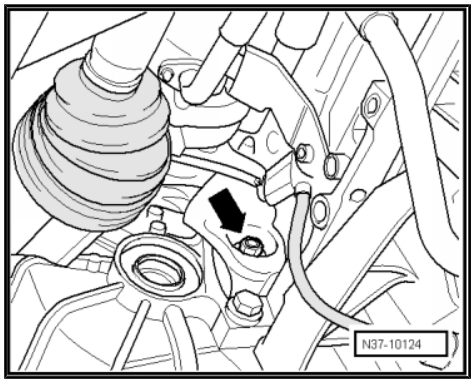
⇒ Rep. gr. 26 ; Removing and installing parts of the exhaust system

The torque converter nut bore is concealed with a rubber cap on the rear of the engine.

– Remove this cap.



– Remove six -torque converter nuts- with insert -V/175- .



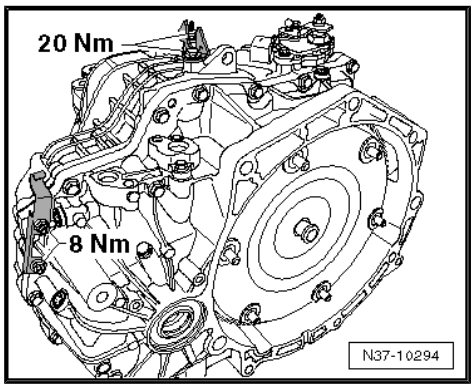
Note

Continue turning the engine carefully!

– Before you now remove final connecting bolt, support gearbox with engine and gearbox jack -V.A.G 1383 A- , gearbox support -3282- and adjustment plate -3282 /36- .
– Only now is the final bolt removed.
– Carefully push gearbox off engine.
– When lowering, observe the area of the left drive shaft. If necessary, adjust gearbox support -3282- slightly.

Please note the left drive shaft on installation; if necessary, press the suspension strut out slightly.

– Keep in mind that if a new gearbox is installed, parts such as cable support bracket and retainer for gate selector cable must be transferred.



11.2 Installing gearbox, Touran 2003

– Check whether dowel sleeves are pressed into engine flange.
– Check seating of plate between engine and gearbox. The plate must make contact with the engine along its entire perimeter when it is pressed gently with both hands against the engine. If the top does not contact the engine, it is not properly engaged in the engine block.

Continue installation in reverse order of removal.

– Renew all bolts of left assembly mounting.
– First screw in all bolts by hand.

During installation, first bolt bracket to gearbox with 40 Nm + 90° torque.

When the two bracket bolts are tightened to vehicle, a screwdriver may be inserted between the two bolts to adjust to »previous seating«. These two larger bolts are tightened to 60 Nm + 90°.

Torque settings, gearbox to engine ⇒ page 85 .

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 .

– Adjust selector lever cable ⇒ page 43 .
– After installing, check ATF level ⇒ page 134 .
– 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 Torque settings, gearbox to engine

Touran 2003 with 1.6 l - 85 kW (FSI) engine ⇒ page 85

Touran 2003 with 2.0 l - 85 kW (FSI) and 1.8 l - 110 kW (FSI) engines ⇒ page 86

Touran 2003 with 2.0 l - 110 kW (FSI) engine ⇒ page 87

11.3.1 Torque settings, Touran 2003 with 1.6 l - 85 kW (FSI) engine

- Drive plate to torque converter

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

- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

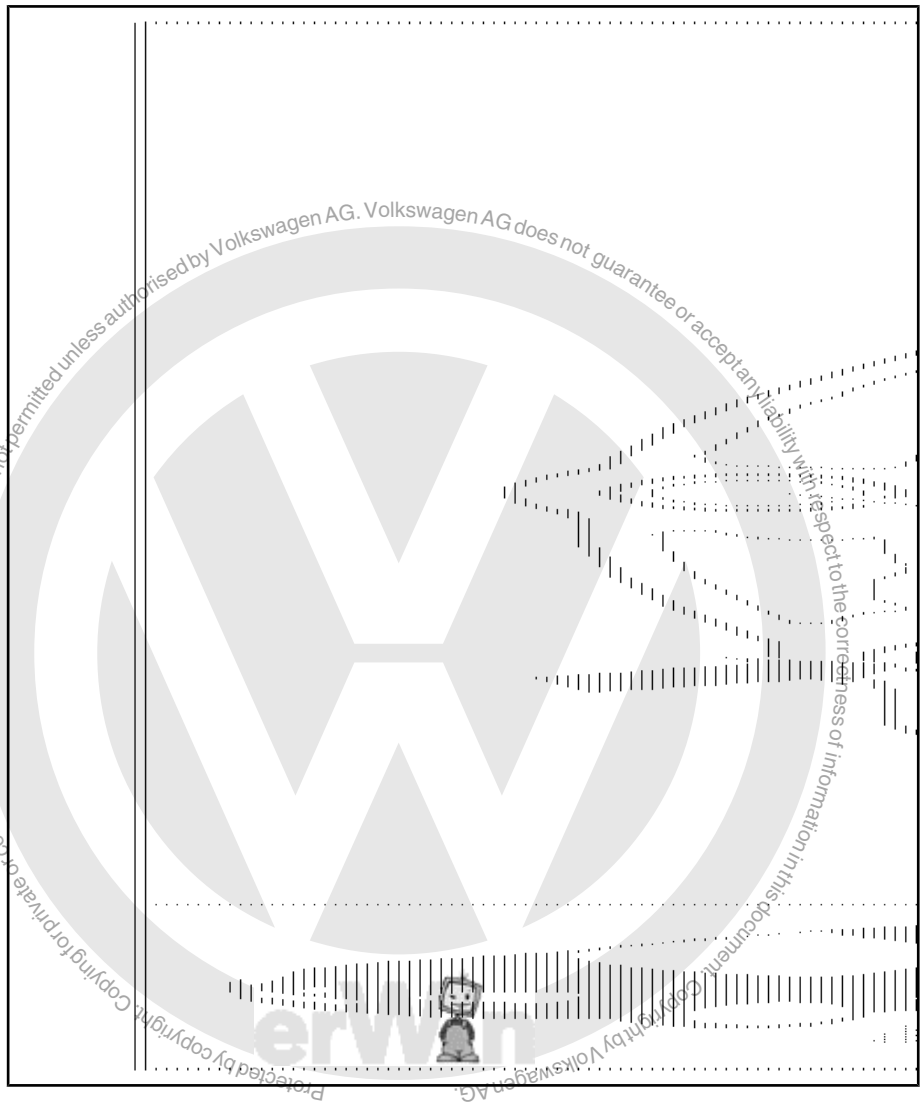
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

- M10 bolts ⇒ M10

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

- Two dowel sleeves in engine -arrows-



11.3.2 Torque settings, Touran 2003 with 2.0 l - 85 kW (FSI) and 1.8 l - 110 kW (FSI) engines

- Drive plate to torque converter

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

- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

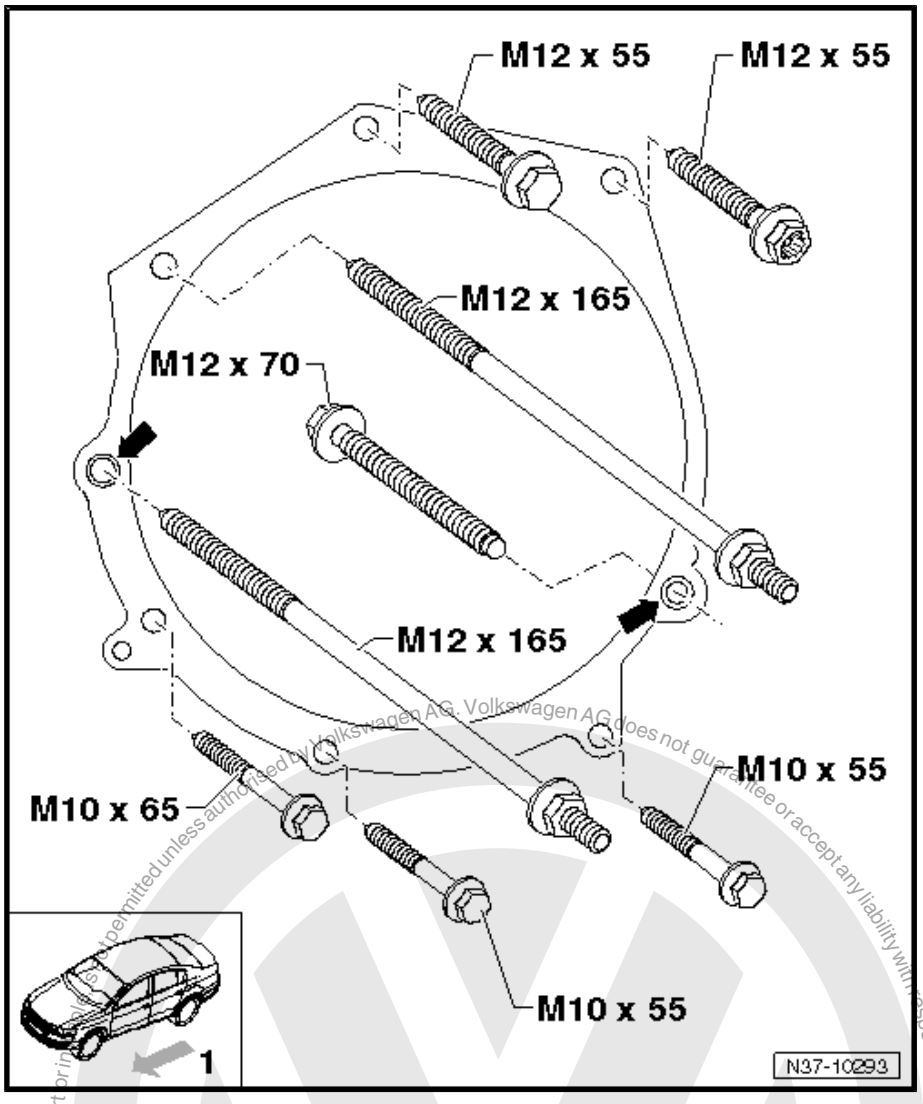
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

- M10 bolts ⇒ M10

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

- Two dowel sleeves in engine -arrows-



11.3.3 Torque settings, Touran 2003 with 2.0 l - 110 kW (FSI) engine

- Drive plate to torque converter

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

- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

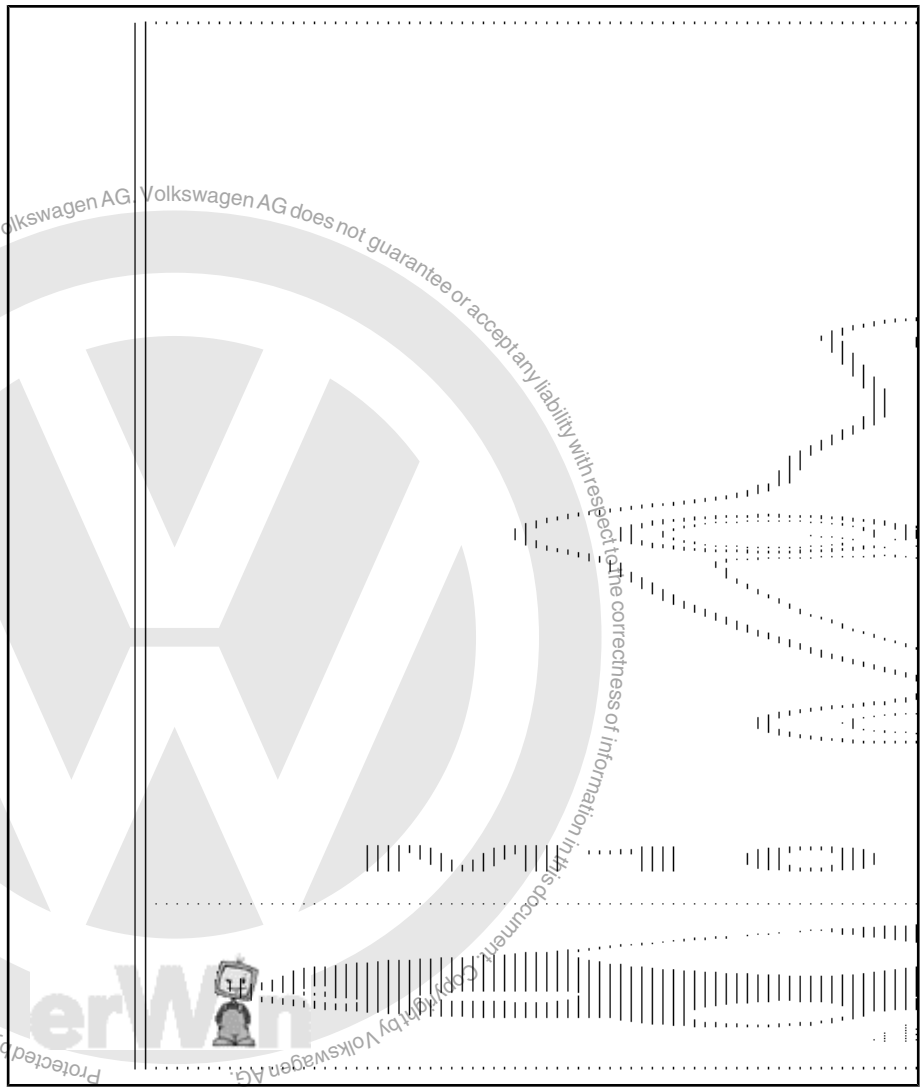
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

- M10 bolts ⇒ M10

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

- Two dowel sleeves in engine -arrows-



12 Removing and installing gearbox, Passat 2003 ►

Removing gearbox, Passat with 1.6 l - 85 kW and 2.0 l - 110 kW engines ⇒ page 88

Installing gearbox, Passat with 1.6 l - 85 kW and 2.0 l - 110 kW engines ⇒ page 94

Torque settings ⇒ page 95

Removing gearbox, Passat with 1.8 l - 118 kW and 2.0 l - 147 kW engines ⇒ page 96 .

Installing gearbox, Passat with 1.8 l - 118 kW and 2.0 l - 147 kW engines ⇒ page 102

Torque settings ⇒ page 103

12.1 Removing gearbox, Passat with 1.6 l - 85 kW and 2.0 l - 110 kW engines

– Before beginning with removal, »if possible« print out a diagnosis log. Before sending back removed gearbox in the usual manner, secure log to gearbox.

Brief description

The gearbox is removed downwards as a unit. The engine remains in the vehicle.

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

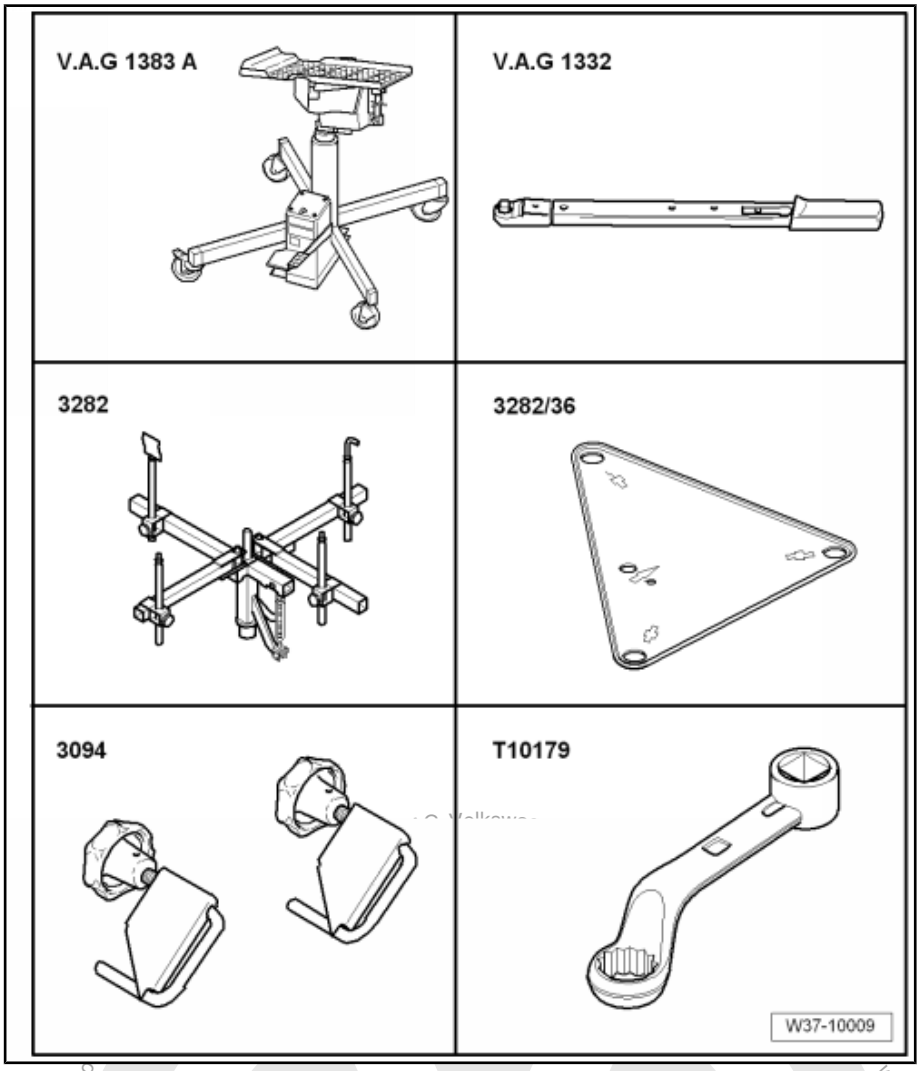
Noise insulation is removed and drive shafts are pressed off »from below«. Gearbox is lowered using gearbox jack.

Note

The subframe is not to be removed.

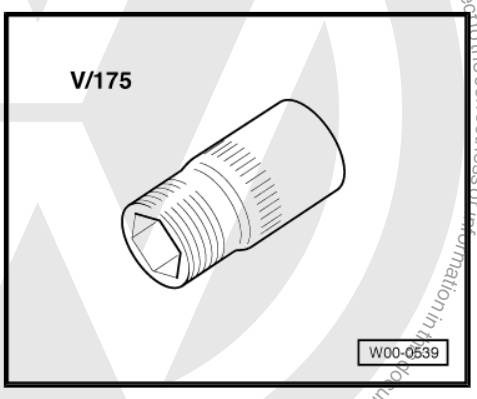
Special tools and workshop equipment required

- Engine and gearbox jack -V.A.G 1383 A-
- Torque wrench -V.A.G 1332-
- Gearbox support -3282-
- Adjustment plate -3282 /36-
- Hose clamp to Ø 25 mm -3094-
- Socket -T10179-

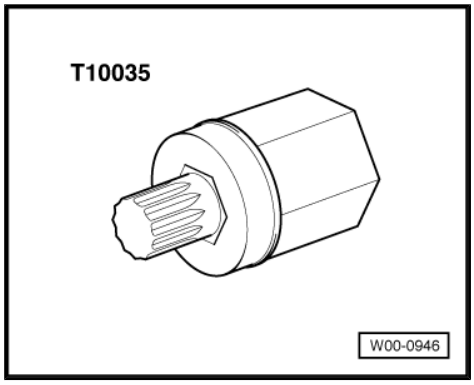


Special tools and workshop equipment required

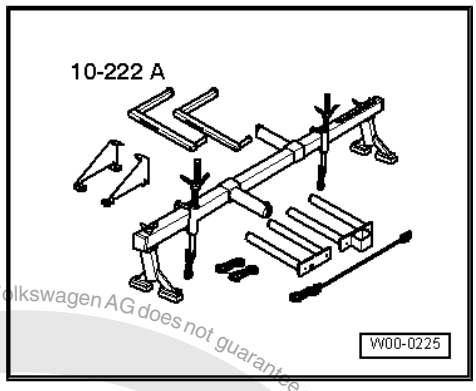
- Insert -V/175-



- Socket -T10035-



- Support bracket -10 - 222 A-



- Adapter -10 - 222 A /13-

– »If possible«, print out a diagnosis log for this vehicle before removal. Secure diagnosis log on removed gearbox before returning it in the usual way.

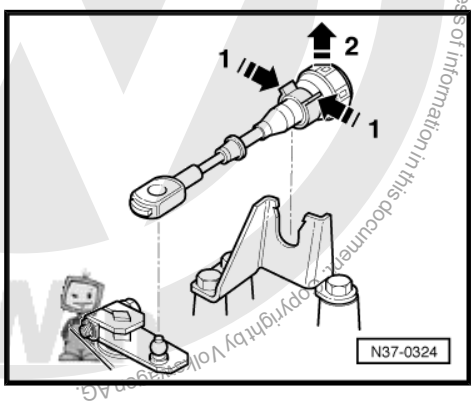
– Raise vehicle.

– Move selector lever to position »P« position.

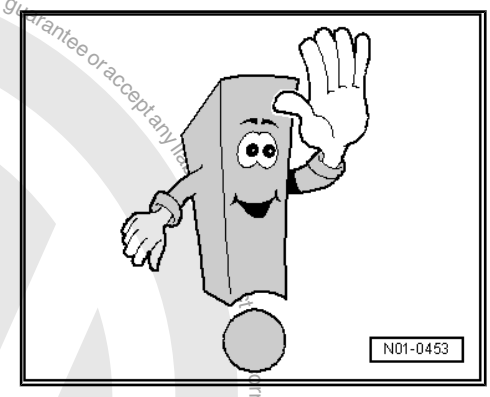
– Remove battery and battery carrier ⇒ Rep. gr. 27 ; Disconnecting and connecting battery; Removing and installing battery .

– Remove engine cover and air cleaner with intake hose.

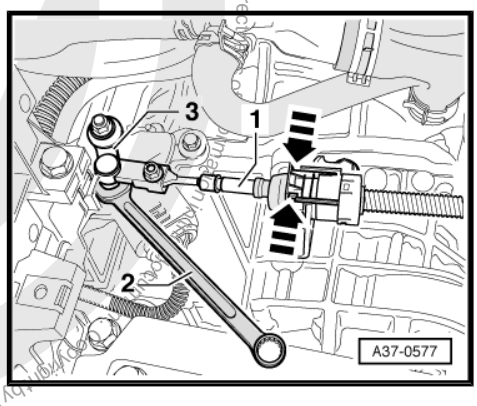
– In order to remove selector lever cable from gearbox, first release cable -1- and then remove it from cable support bracket -2-.



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



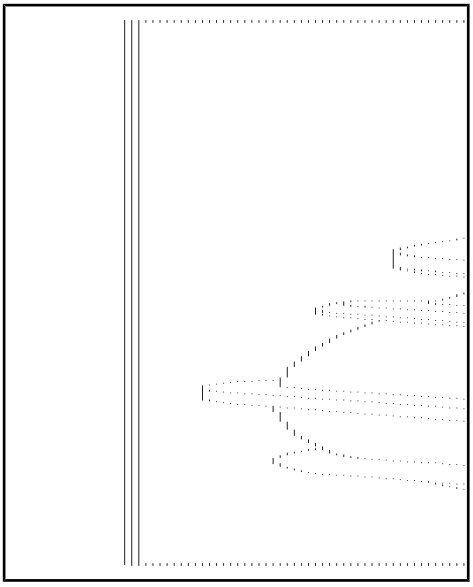
– Lever cable -1- off lever -3- using an open jaw spanner -2-.



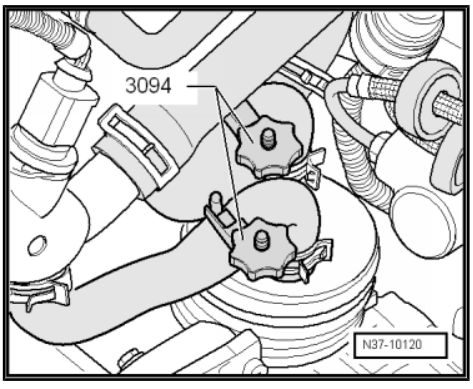
– Press cable out of additional retainer on gearbox.
– Disconnect electrical connections to gearbox and starter.
♦ Multifunction switch
♦ Starter motor
♦ Earth strap to bracket
– Remove upper starter motor bolt.
– When working with tools, observe connection for multifunction switch.
– Remove upper connecting bolts between engine and gearbox.

Bolts may be installed with a socket -T10179- . When tightening, however, observe the lower tightening torque ⇒ page 95 .

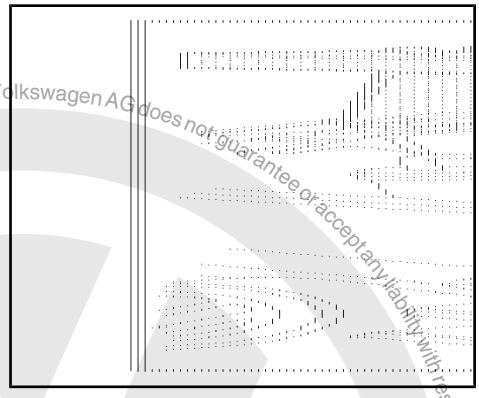
Socket -T10035- simplifies the work.



– Place hose clamps up to Ø 25 mm -3094- onto the hoses and remove hoses from the ATF cooler.

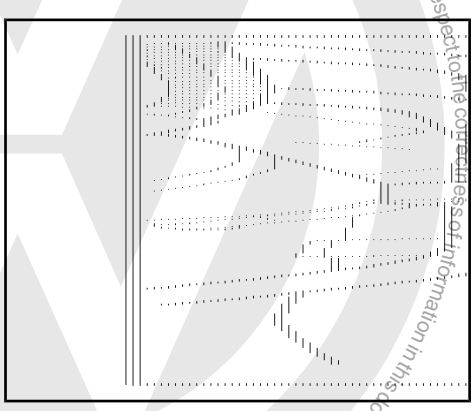


– Set up support bracket -10 - 222 A- and support engine and gearbox. Do not raise.

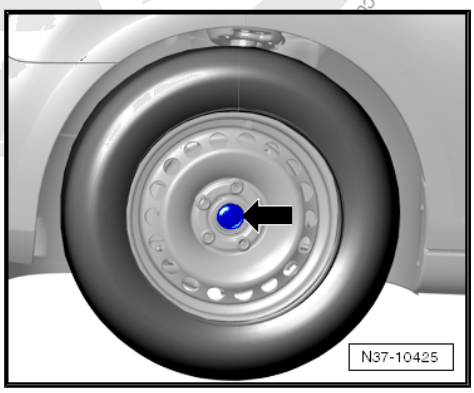


– Remove all six bracket bolts -A-.

The bracket will be removed later after lowering gearbox.



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

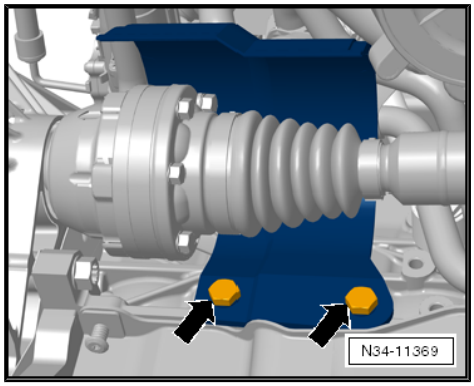


Note

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 AAR2600i .

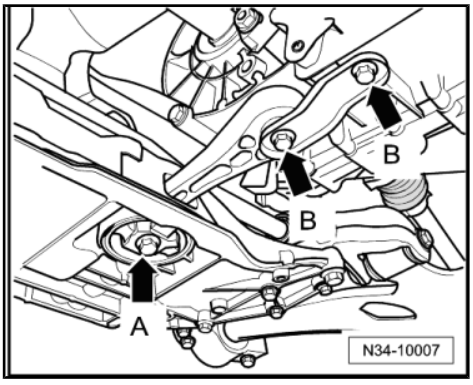
– Remove noise insulation tray.

– If heat shield is installed over right drive shaft, remove it from engine.
– Pull both electrical connectors off gearbox.
– Remove lower part of left wheel housing liner.
– Remove starter ⇒ Rep. gr. 27 ; Removing and installing starter .



– 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 .

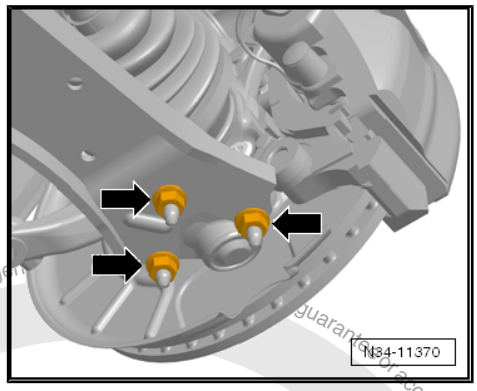


– Unbolt suspension links from suspension struts on both sides.

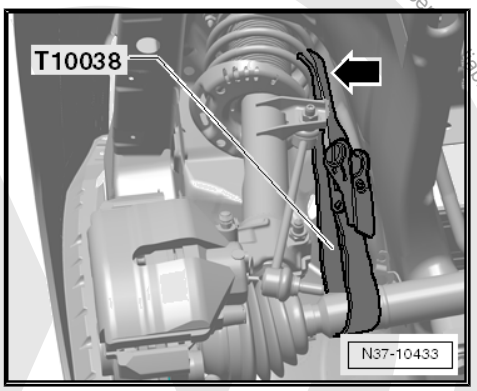
Torque settings for suspension link bolts ⇒ Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .

– Press both drive shafts out of gearbox. For procedure, refer to ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR2600i .

– Remove left drive shaft.



– Raise right shaft as far as possible and secure in this position.



– Now remove assembly mounting bracket. To do this, lower engine and gearbox slightly via support bracket -10 - 222 A- spindles.

Six turns are sufficient.

– If exhaust system retainer is present on gearbox, remove it.

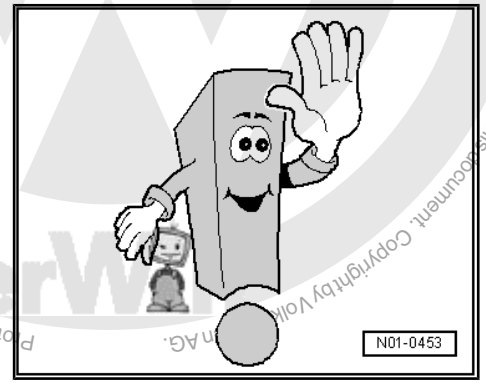
– Remove lower connecting bolts between engine and gearbox.

– Leave an easily accessible bolt in for safety purposes.

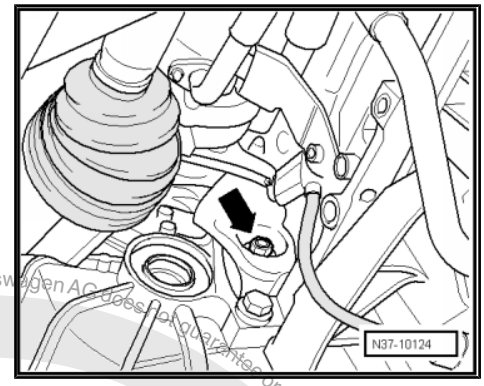
– Start with the two lower bolts.

The hole for removing the torque converter nut is covered with a rubber cap on the rear of the engine.

– Remove this cap.



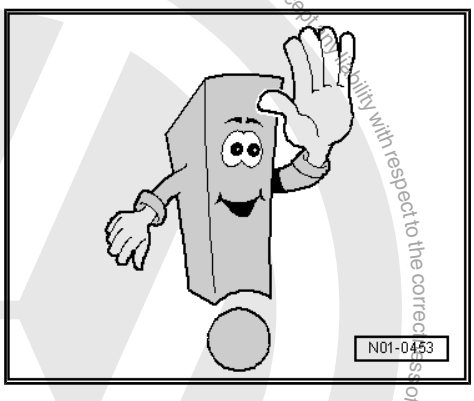
– Remove six -torque converter nuts- with insert -V/175- .



Note

Continue turning the engine carefully!

– Before you now remove final connecting bolt, support gearbox with engine and gearbox jack -V.A.G 1383 A- , gearbox support -3282- and adjustment plate -3282 /36- .
– Only now is the final bolt removed.
– Carefully push gearbox off engine.

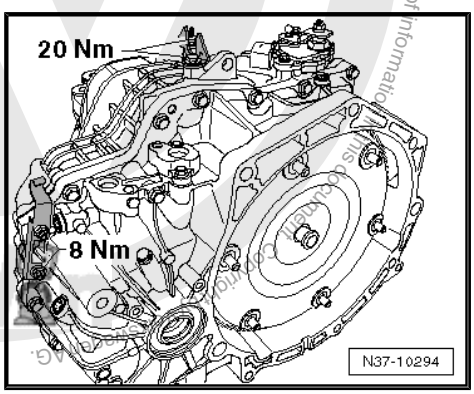


Note

Observe torque converter. It must be removed together with gearbox.

– When lowering, observe clearance between left drive shaft and subframe. If necessary, adjust gearbox support -3282- slightly.

– Keep in mind that if a new gearbox is installed, parts such as cable support bracket and retainer for gate selector cable must be transferred.



12.2 Installing gearbox, Passat with 1.6 l - 85 kW and 2.0 l - 110 kW engines

– Check whether dowel sleeves are pressed into engine flange.
– Check seating of plate between engine and gearbox. The plate must make contact with the engine along its entire perimeter when it is pressed gently with both hands against the engine. If the top does not contact the engine, it is not properly engaged in the engine block.

Continue installation in reverse order of removal.

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 .

– Renew all bolts of left assembly mounting.
– First screw in all bolts by hand.

During installation, first bolt bracket to gearbox with 40 Nm + 90° torque.

When the two bracket bolts are tightened to vehicle, a screwdriver may be inserted between the two bolts to adjust to »previous seating«. These two larger bolts are tightened to 60 Nm + 90°.

– Adjust selector lever cable ⇒ page 43 .
– After installing, check ATF level ⇒ page 134 .
– 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`.

12.3 Torque settings, gearbox to engine

Specified torques for 1.6 l - 85 kW engine ⇒ page 95

Specified torques for 2.0 l - 110 kW engine ⇒ page 96

12.3.1 Specified torques for 1.6 l - 85 kW engine

1 - Direction of travel

- Drive plate to torque converter

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

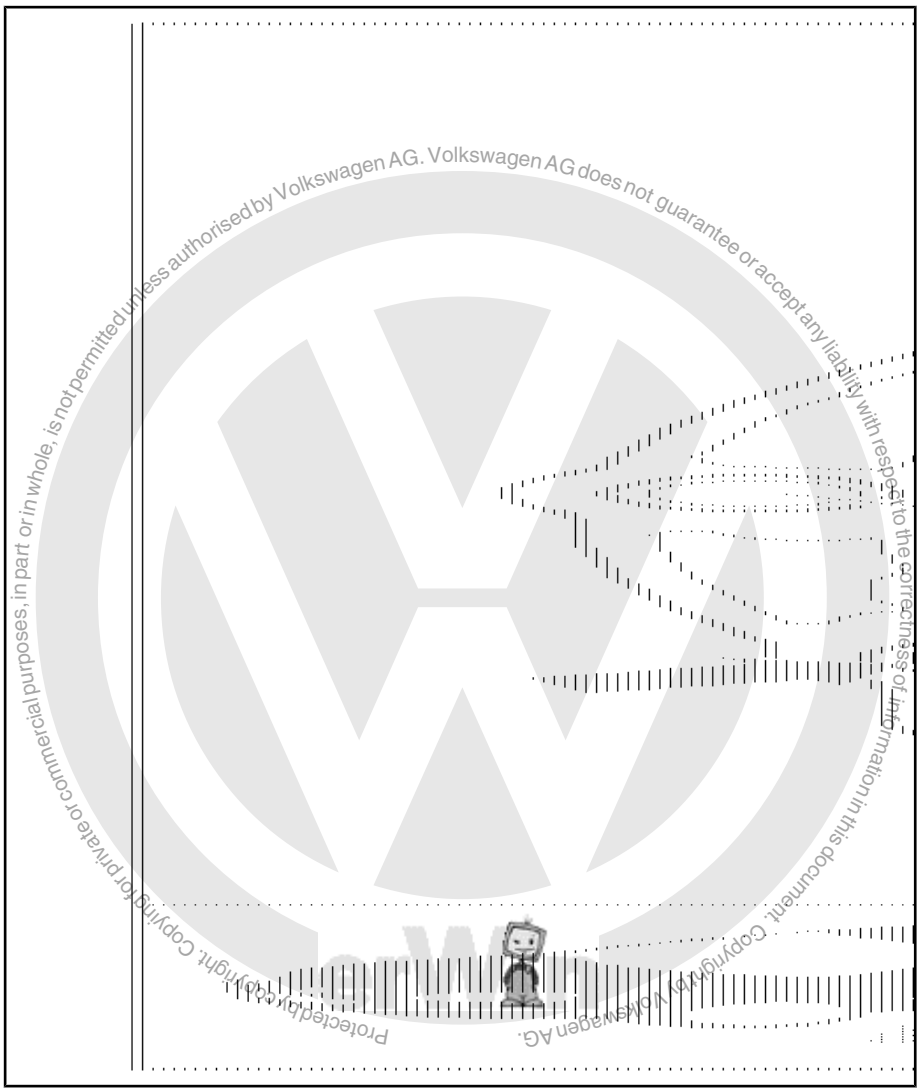
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

- M10 bolts ⇒ M10

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

- Two dowel sleeves in engine -arrows-



12.3.2 Specified torques for 2.0 l - 110 kW engine

1 - Direction of travel

A - Bolt for 2.0 l - 110 kW (FSI) engine

B - Bolt for other engines

- Drive plate to torque converter

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

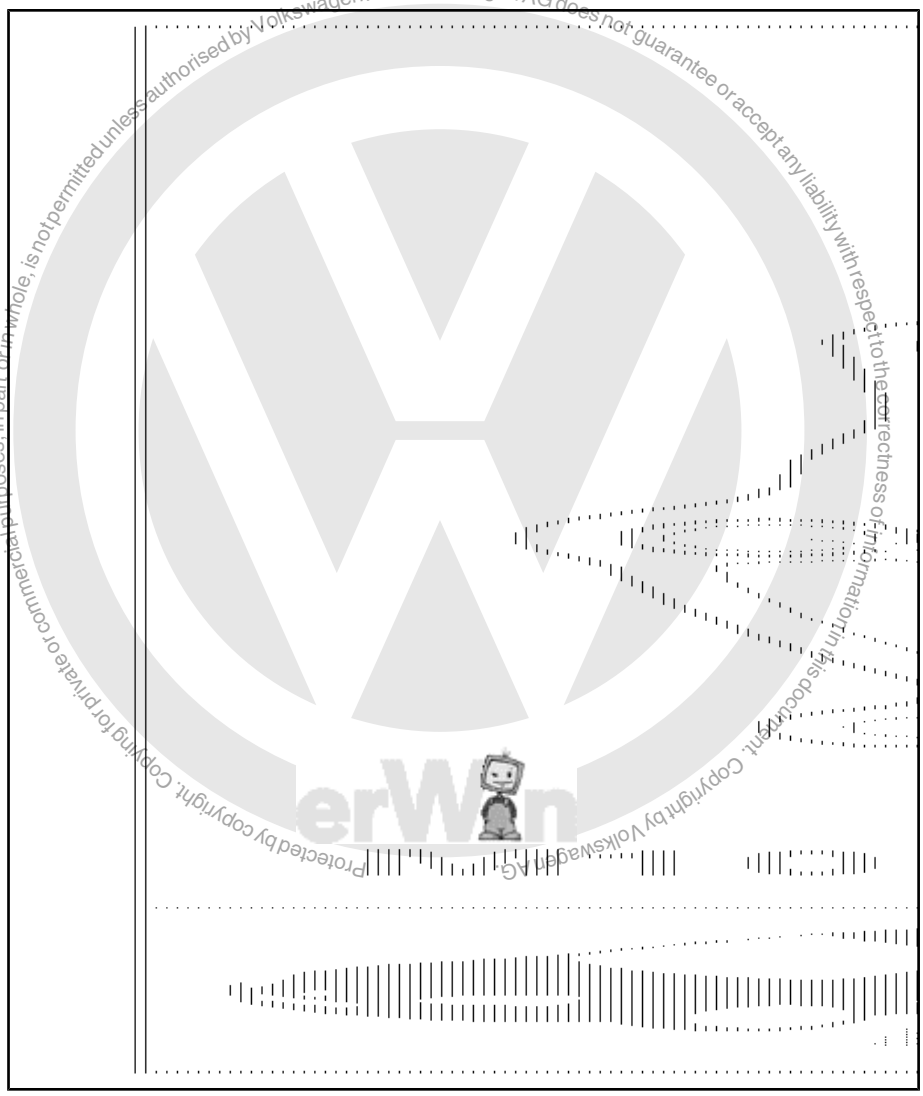
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

- M10 bolts ⇒ M10

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

- Two dowel sleeves in engine -arrows-



12.4 Removing gearbox, Passat with 1.8 l - 118 kW and 2.0 l - 147 kW engines

– Before beginning with removal, »if possible« print out a diagnosis log. Before sending back removed gearbox in the usual manner, secure log to gearbox.

Brief description

The gearbox is removed downwards as a unit. The engine remains in the vehicle.

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

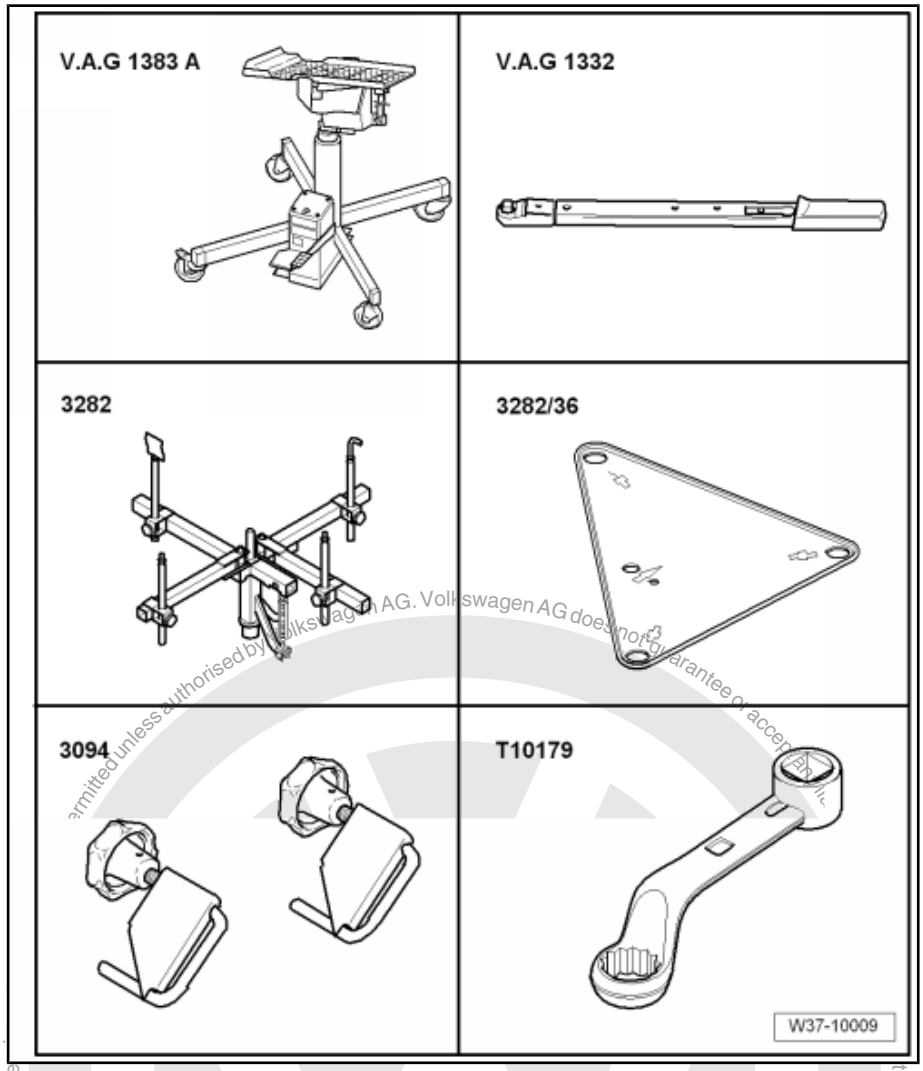
Noise insulation is removed and drive shafts are pressed off »from below«. Gearbox is lowered using gearbox jack.

Note

The subframe is not to be removed.

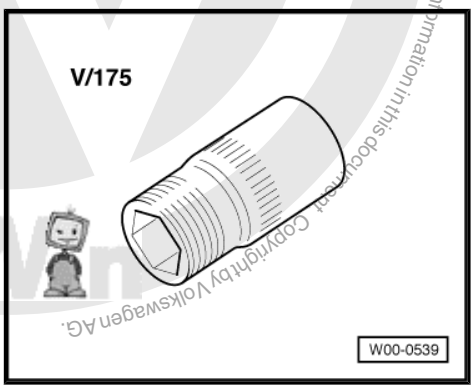
Special tools and workshop equipment required

- Engine and gearbox jack -V.A.G 1383 A-
- Torque wrench -V.A.G 1332-
- Gearbox support -3282-
- Adjustment plate -3282 /36-
- Hose clamp to Ø 25 mm -3094-
- Socket -T10179-

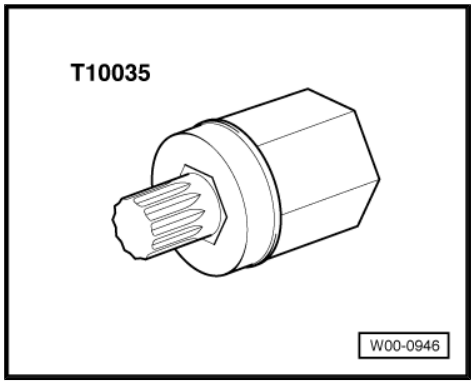


Special tools and workshop equipment required

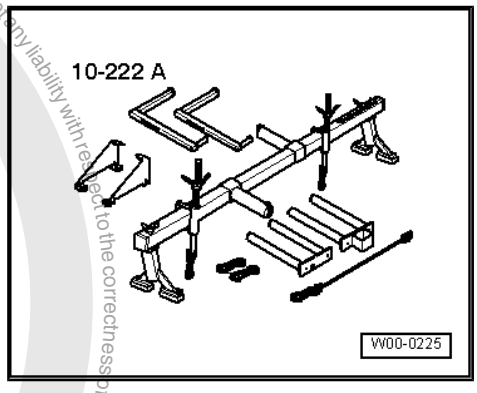
- Insert -V/175-



- Socket -T10035-



- Support bracket -10 - 222 A-



- Adapter -10 - 222 A /13-

– Before beginning with removal, »if possible« print out a diagnosis log. Before sending back removed gearbox in the usual manner, secure log to gearbox.

– Raise vehicle.

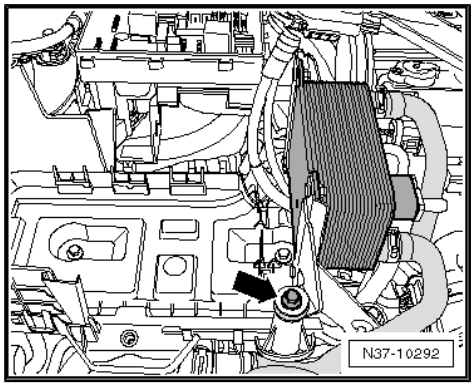
– Move selector lever to position »P« position.

– Remove engine cover and air cleaner with intake hose.

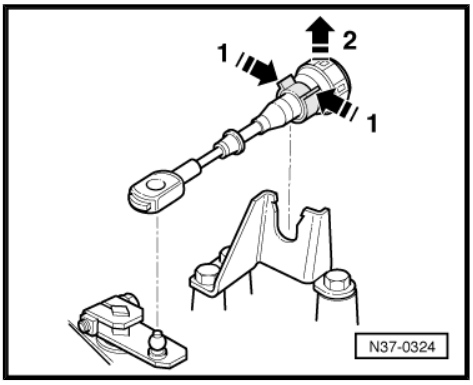
– Remove battery ⇒ Rep. gr. 27 ; Disconnecting and connecting battery; Removing and installing battery .

– Unbolt ATF cooler from battery carrier, pull off and set to side.

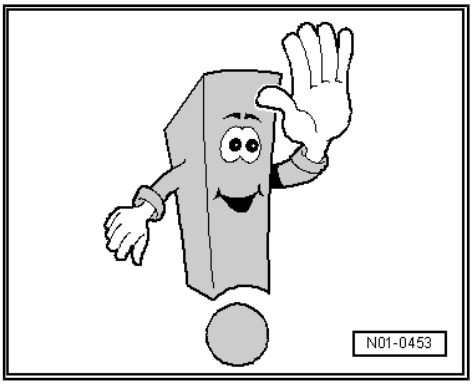
– Remove battery carrier.



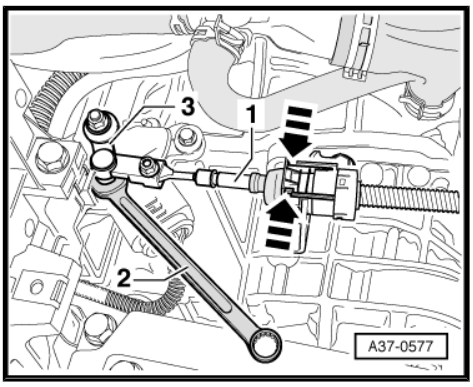
– In order to remove selector lever cable from gearbox, first release cable -1- and then remove it from cable support bracket -2-.



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



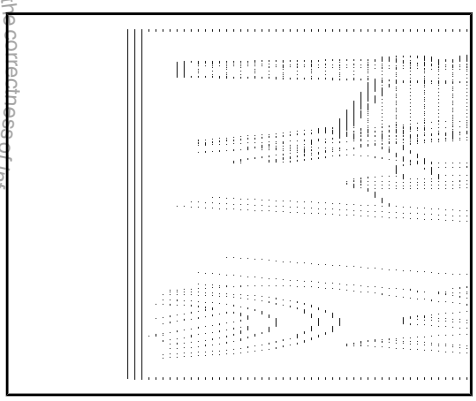
– Lever cable -1- off lever -3- using an open jaw spanner -2-.
– Unbolt upper line retainer from gearbox.
– Unbolt lower line retainer from gearbox.
– Unbolt ATF lines from gearbox.
– Disconnect electrical connections to gearbox and starter.
♦ Multifunction switch
♦ Starter motor
♦ Earth strap to bracket
– Remove upper starter motor bolt.
– Remove upper connecting bolts between engine and gearbox.



Bolts may be installed with a socket -T10179- . When tightening, however, observe the lower tightening torque ⇒ page 103 .

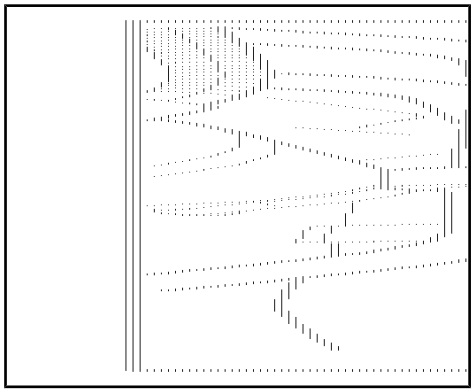
Socket -T10035- simplifies the work.

– Set up support bracket -10 - 222 A- and support engine and gearbox. Do not raise.

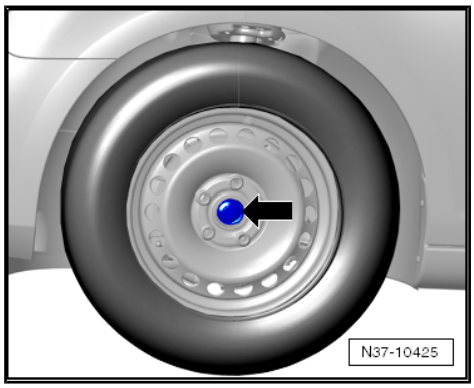


– Remove all six bracket bolts -A-.

The bracket will be removed later after lowering gearbox.



– 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 AAR2600i .

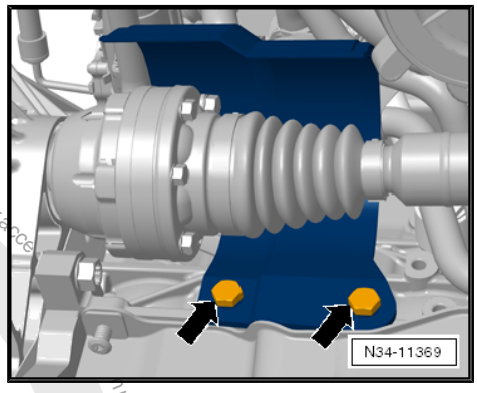
– Remove noise insulation tray.

– If heat shield is installed over right drive shaft, remove it from engine.

– Pull both electrical connectors off gearbox.

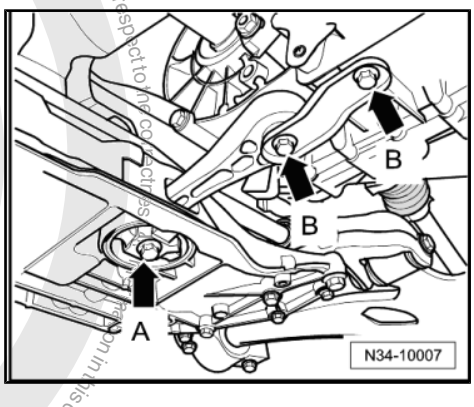
– Remove lower part of left wheel housing liner.

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



– 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 .

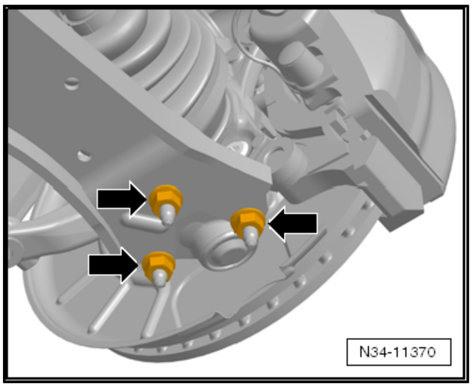


– Unbolt suspension links from suspension struts on both sides.

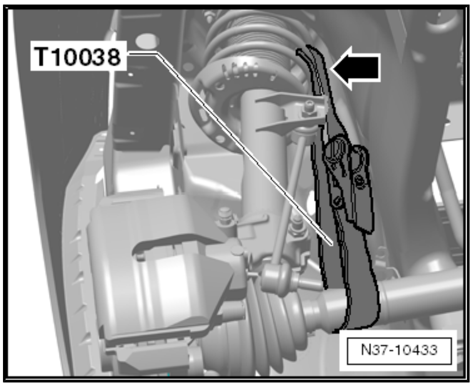
Torque settings for suspension link bolts ⇒ Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .

– Press both drive shafts out of gearbox. For procedure, refer to ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR2600i .

– Remove left drive shaft.



– Raise right shaft as far as possible and secure in this position.



– Now remove assembly mounting bracket. To do this, lower engine and gearbox slightly via support bracket -10 - 222 A- spindles.

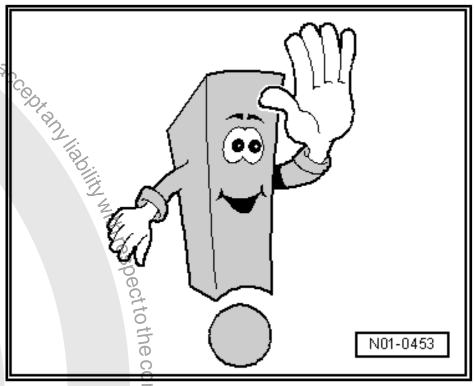
Six turns are sufficient.

– If exhaust system retainer is present on gearbox, remove it.

– Remove lower connecting bolts between engine and gearbox.

– Leave an easily accessible bolt in for safety purposes.

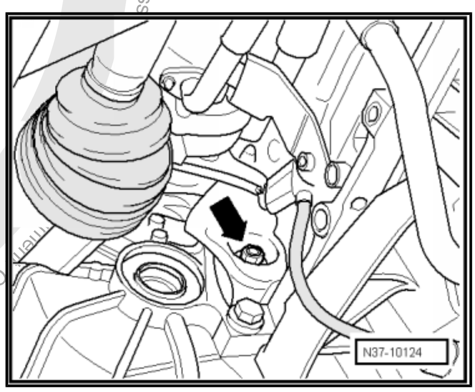
– Start with the two lower bolts.



The hole for removing the torque converter nut is covered with a rubber cap on the rear of the engine.

– Remove this cap.

– Remove six -torque converter nuts- with insert -V/175- .



Note

Continue turning the engine carefully!

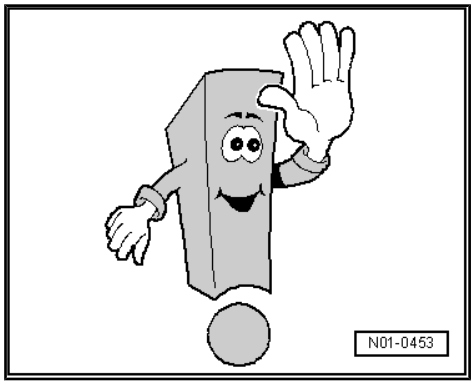
– Before you now remove final connecting bolt, support gearbox with engine and gearbox jack -V.A.G 1383 A- , gearbox support -3282- and adjustment plate -3282 /36- .

– Only now is the final bolt removed.

– Carefully push gearbox off engine.

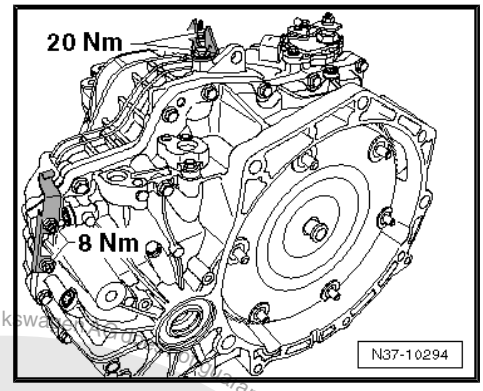
Note

Observe torque converter. It must be removed together with gearbox.



– When lowering, ensure clearance of gearbox to subframe. If necessary, adjust gearbox support -3282- slightly.

– Keep in mind that if a new gearbox is installed, parts such as cable support bracket and retainer for gate selector cable must be transferred.



12.5 Installing gearbox, Passat with 1.8 l - 118 kW and 2.0 l - 147 kW engines

– Check whether dowel sleeves are pressed into engine flange.

– Check seating of plate between engine and gearbox. The plate must make contact with the engine along its entire perimeter when it is pressed gently with both hands against the engine. If the top does not contact the engine, it is not properly engaged in the engine block.

Continue installation in reverse order of removal.

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 .

Torque settings ⇒ page 103 .

– Renew all bolts of left assembly mounting.

– First screw in all bolts by hand.

During installation, first bolt bracket to gearbox with 40 Nm + 90° torque.

When the two bracket bolts are tightened to vehicle, a screwdriver may be inserted between the two bolts to adjust to »previous seating«. These two larger bolts are tightened to 60 Nm + 90°.

– Renew seals on ATF lines.

– Tighten ATF lines on gearbox ⇒ page 129 .

– Tighten both line brackets ⇒ page 129 .

– Adjust selector lever cable ⇒ page 43 .

– After installing, check ATF level ⇒ page 134 .

– 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.

12.6 Torque settings, gearbox to engine

12.6.1 Specified torques for 1.8 l 118 kW TFSI engine

1 - Direction of travel

- Drive plate to torque converter

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

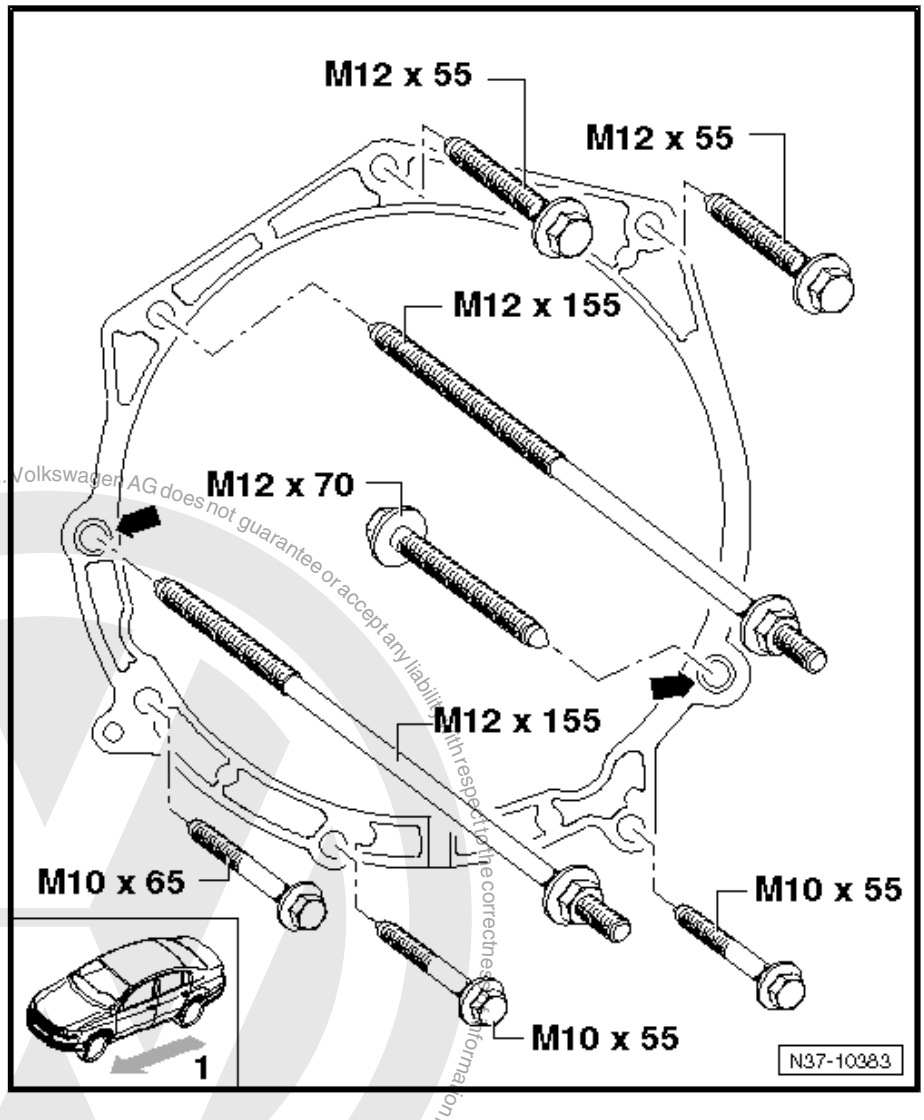
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

- M10 bolts ⇒ M10

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

- Two dowel sleeves in engine -arrows-



12.6.2 Specified torques for 2.0 l 147 kW TFSI engine

1 - Direction of travel

- Drive plate to torque converter

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

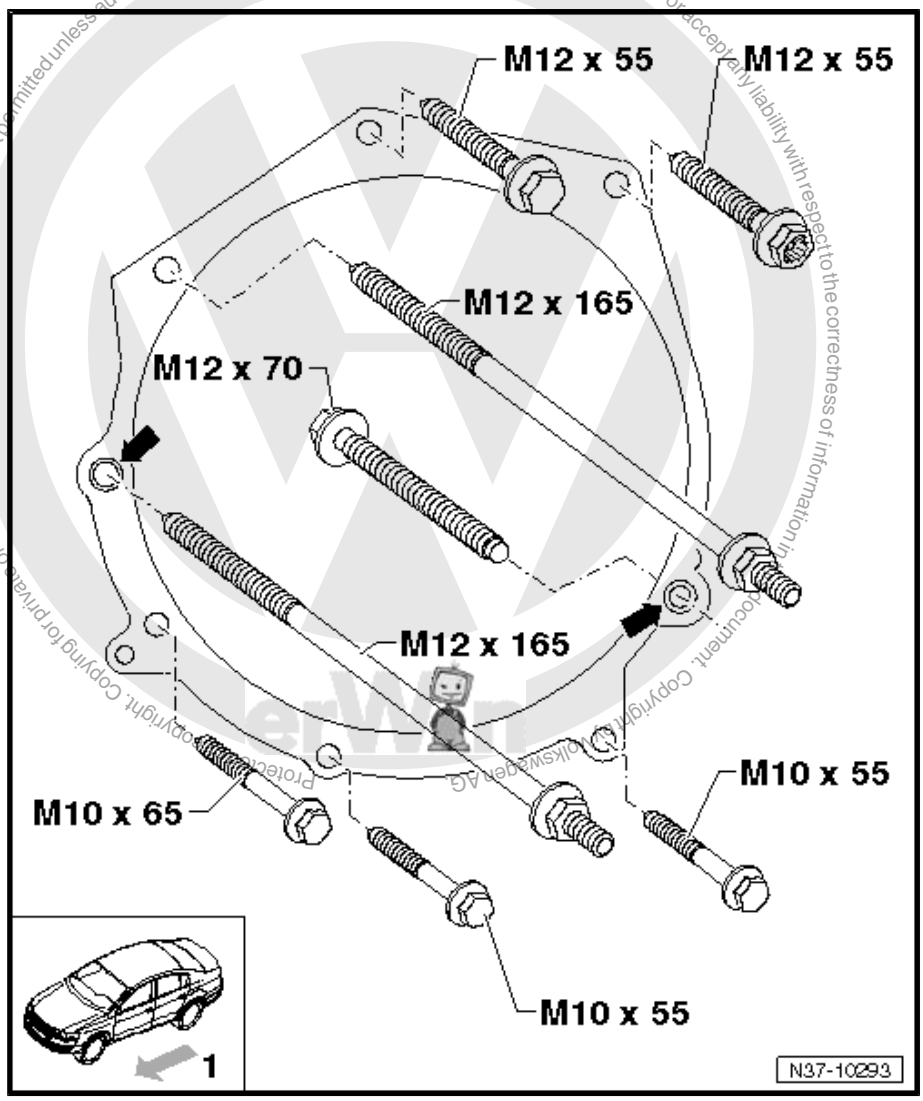
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

- M10 bolts ⇒ M10

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

- Two dowel sleeves in engine -arrows-



13 Removing and installing gearbox, Passat CC 2009 ►, CC 2010 ►

Removing gearbox, Passat CC 2009, CC 2010 with 2.0 l 147 kW TFSI engine ⇒ page 105 .

Installing gearbox, Passat CC 2009, CC 2010 with 2.0 l 147 kW TFSI engine ⇒ page 113

Torque settings ⇒ page 114

13.1 Removing gearbox, Passat CC 2009, CC 2010 with 2.0 l 147 kW TFSI engine

– Before beginning with removal, »if possible« print out a diagnosis log. Before sending back removed gearbox in the usual manner, secure log to gearbox.

Brief description

The gearbox is removed downwards as a unit. The engine remains in the vehicle.

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

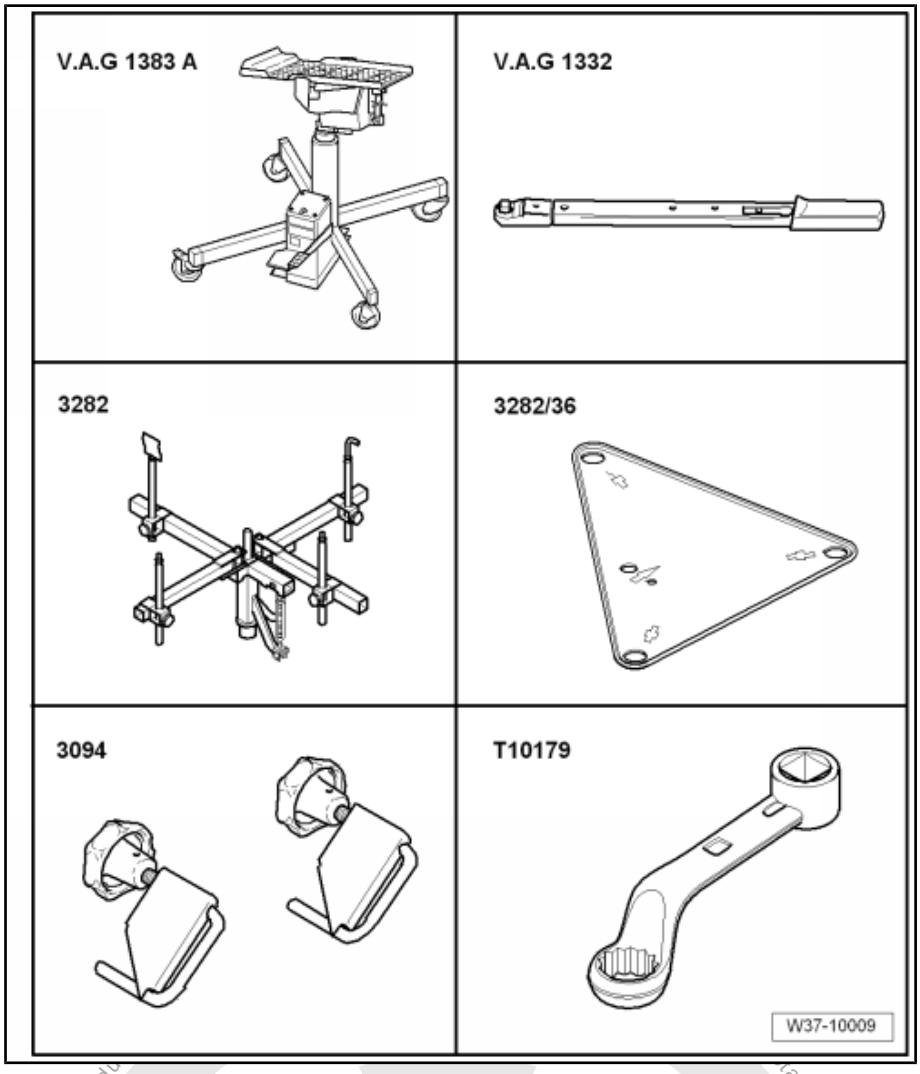
Noise insulation is removed and drive shafts are pressed off »from below«. Gearbox is lowered using gearbox jack.

Note

The subframe is not to be removed.

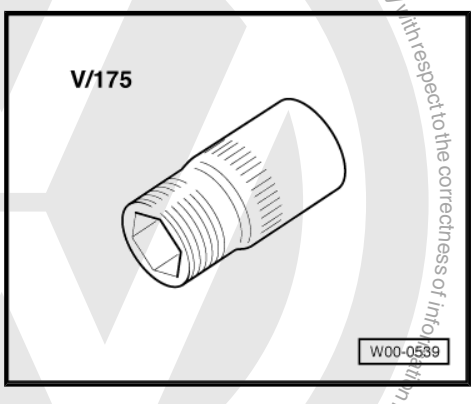
Special tools and workshop equipment required

- Engine and gearbox jack -V.A.G 1383 A-
- Torque wrench -V.A.G 1332-
- Gearbox support -3282-
- Adjustment plate -3282 /36-
- Hose clamp to Ø 25 mm -3094-
- Socket -T10179-

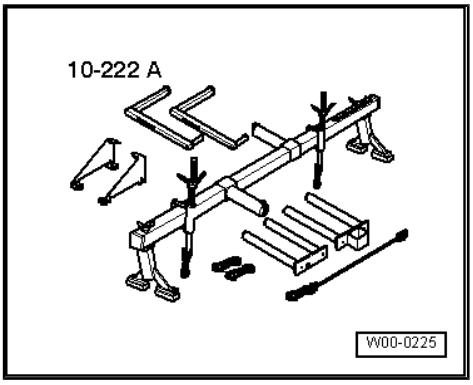


Special tools and workshop equipment required

- Insert -V/175-



- Support bracket -10 - 222 A-



- 2 adapters -10 - 222 A /3-
- Shackle -10 - 222 A /12-
- Tensioning strap -T10038-
- Wedge -T10161-
- Bracket -T10346-

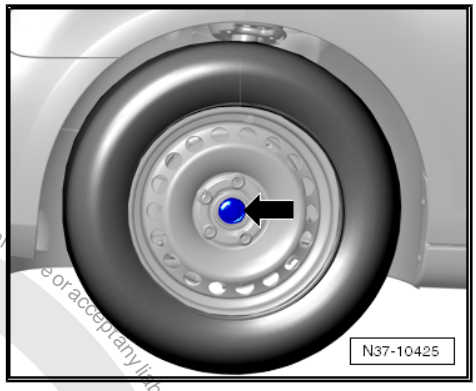
– Move selector lever to position »P« position.

– Turn steering to straight-ahead position.

– Pull out ignition key and engage steering wheel lock.

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

– Raise vehicle.



Note

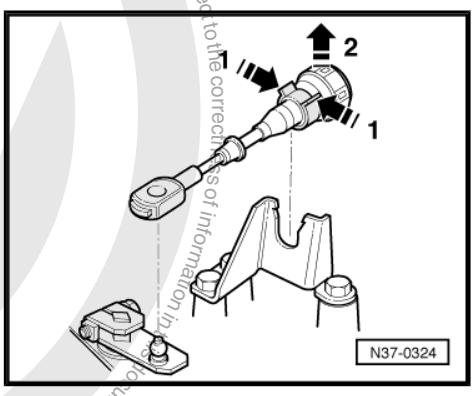
After this, do not set vehicle on the ground any more ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR2600i .

– Remove engine cover and air cleaner with intake hose.

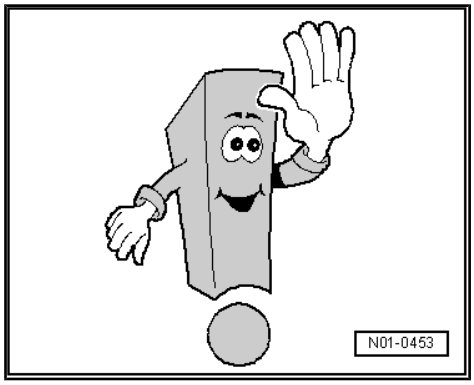
– Remove battery ⇒ Rep. gr. 27 ; Disconnecting and connecting battery; Removing and installing battery .

– Remove battery carrier.

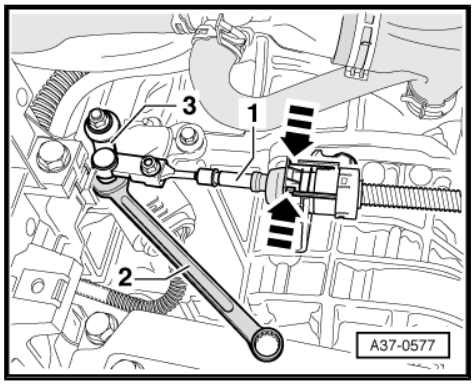
– In order to remove selector lever cable from gearbox, first release cable -1- and then remove it from cable support bracket -2-.



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



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

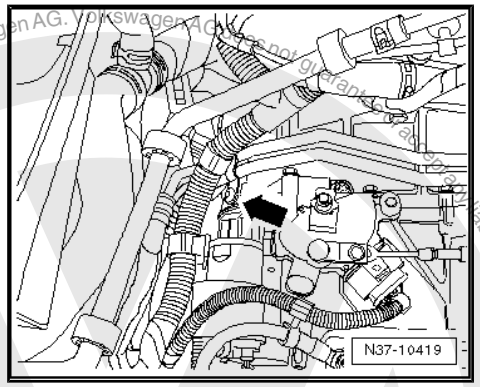


WARNING

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 coolant reservoir.
– Place hose clamps up to Ø 25 mm -3094- onto the hoses and remove hoses from the ATF cooler.
– Disconnect electrical connections to gearbox and starter.
♦ Multifunction switch
♦ Starter motor
♦ Earth strap to bracket

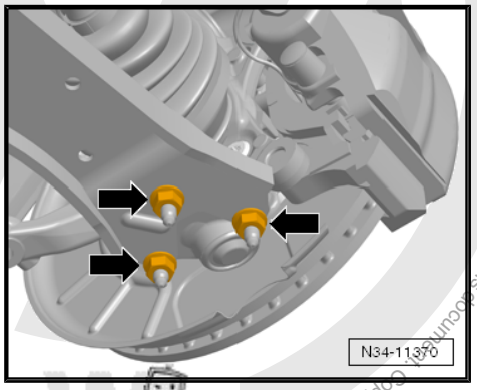
– Unbolt ATF line from gearbox.
– Remove upper starter motor bolt.
– Raise vehicle.
– Remove noise insulation tray.
– Remove lower part of left wheel housing liner.
– If heat shield is installed over right drive shaft, remove it from engine.
– Unbolt „vehicle level sender“ from suspension link. ⇒ Rep. gr. 40 ; Removing and installing front/right vehicle level sender -G78/G289- .



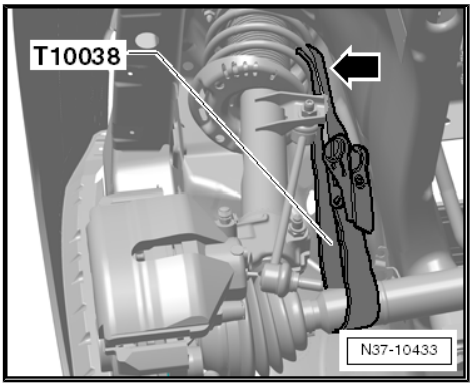
– Unbolt suspension links from suspension struts on both sides.

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

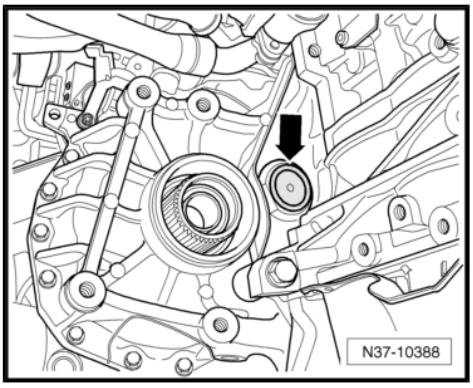
– Press both drive shafts out of gearbox. For procedure, refer to ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR2600i .
– Remove left drive shaft.



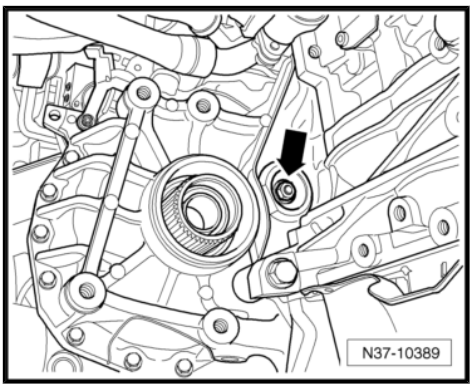
– Raise right drive shaft as far as possible and secure to suspension strut in this position.
– Pull both electrical connectors off gearbox.
– Unbolt wire retainer from lower starter bolt.
– Remove lower starter bolt and remove starter.
– Remove lower connecting bolts between engine and gearbox.
– Leave an easily accessible bolt in for safety purposes.
– Start with the two lower bolts.



– Pull out plug.



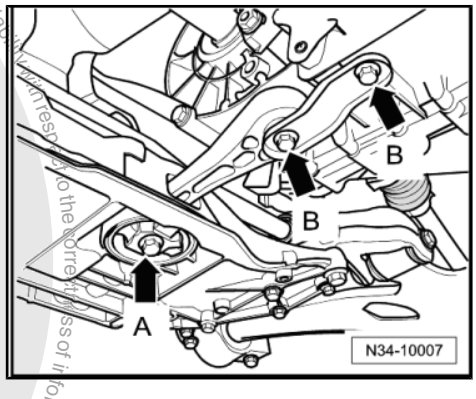
– Remove six -torque converter nuts- with insert -V/175- .



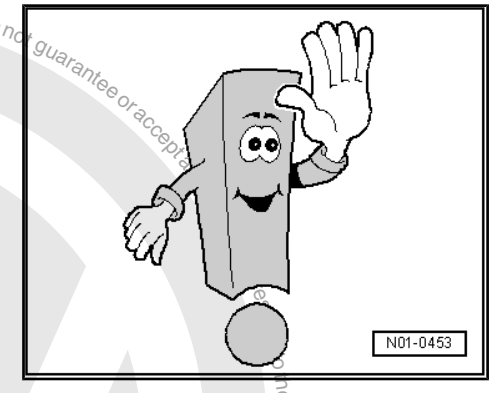
Note

Continue turning the engine carefully!

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

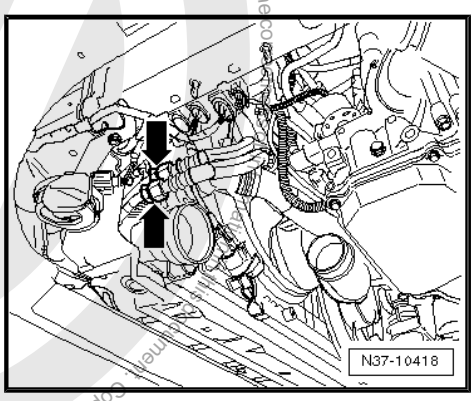


On installation, first tighten -B-, then -A-. Torque settings ⇒ Rep. gr. 40 ; Assembly overview - subframe, anti-roll bar, suspension links .



Note

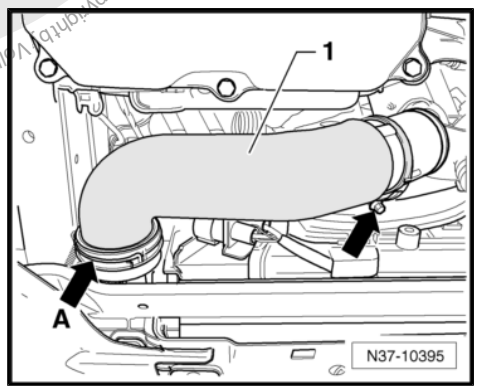
- *To remove upper engine/gearbox securing bolts, it is necessary first to unbolt the ATF lines from the gearbox. ATF will run between the engine and the intermediate plate.*
- *To prevent this, first separate the lines -arrows- under the vehicle so that the ATF drains out »below«.*



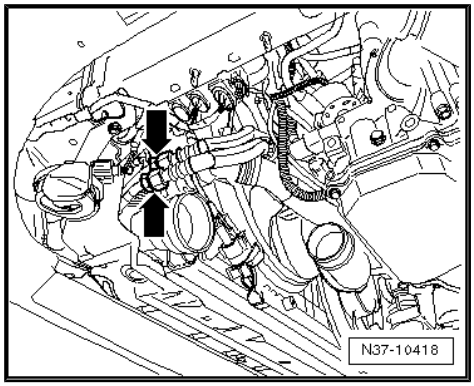
– Raise vehicle.

– Remove charge air hose -1-.

– Place drip tray under gearbox.



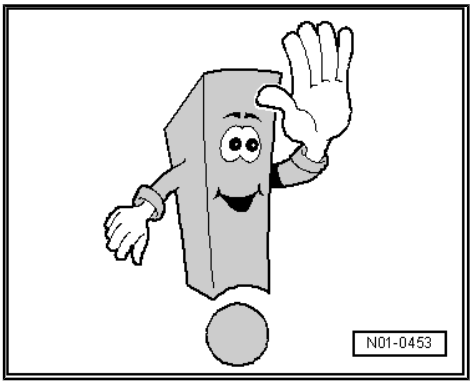
– Separate both ATF lines.



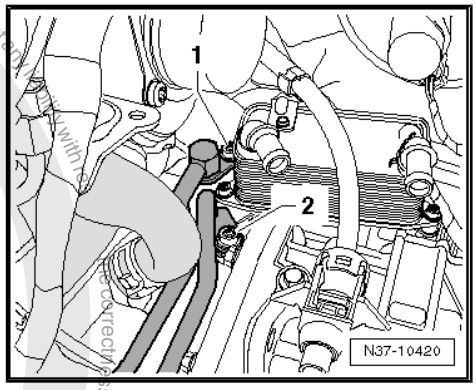
Leave the drip tray for workshop hoist -VAS 6208- under the gearbox; more ATF will run out.

– Lower vehicle.

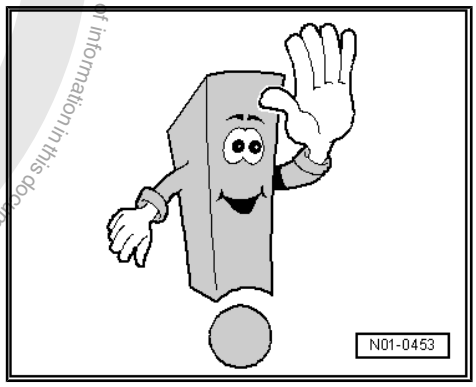
– Cover the area of the ATF line connections and the ATF cooler on the gearbox with cloths.



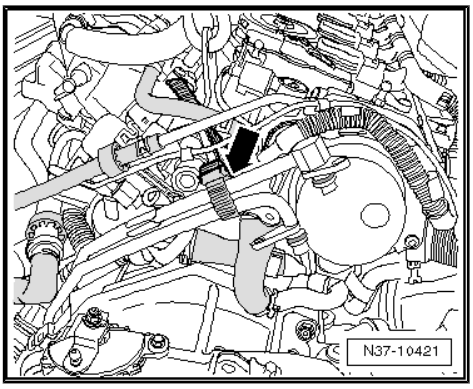
– Remove bolts -1- and -2- but do not pull off lines yet.



– Pull off line -2- and raise as quickly as possible so that ATF in line can run out below into drip tray.



– Pull of line -1- and raise; then secure both lines in this position using, for example, a cable tie.



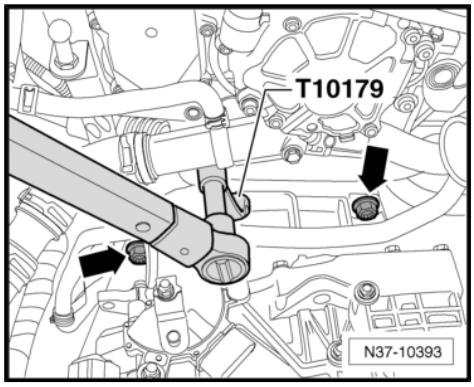
Note

The lines will not be removed.

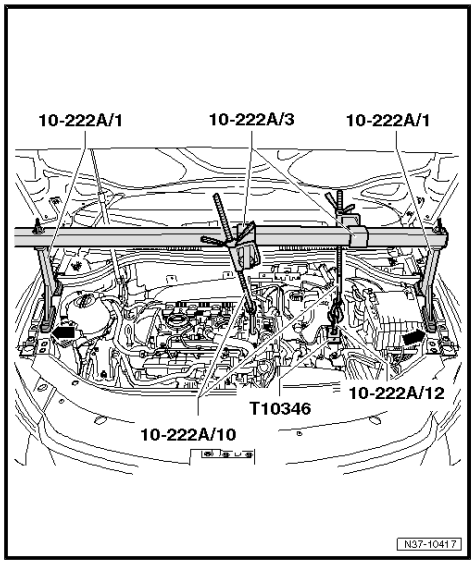
– Seal ATF lines and holes in gearbox with appropriate plugs.

– Remove upper connecting bolts between engine and gearbox.

Bolts may be installed with a socket -T10179- . When tightening, however, observe the lower tightening torque ⇒ page 103 .

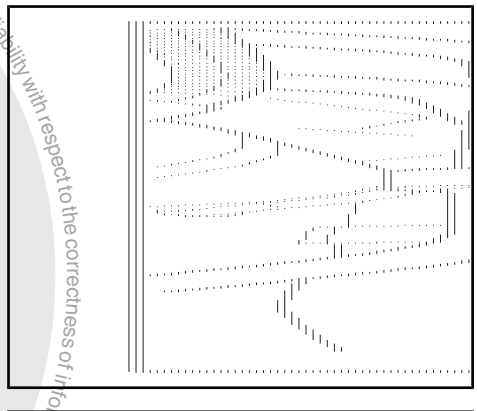


– Set up support bracket -10 - 222 A- and support engine and gearbox. Do not raise.



– Remove all six bracket bolts -A-.

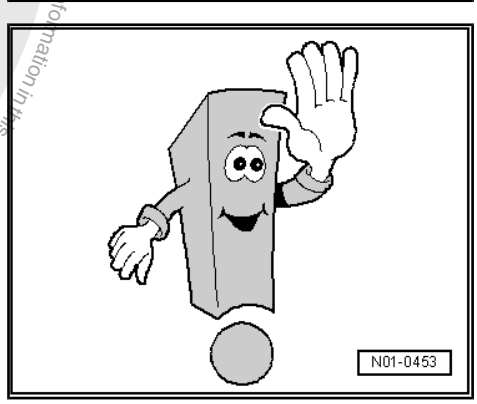
The bracket will be removed later after lowering gearbox.



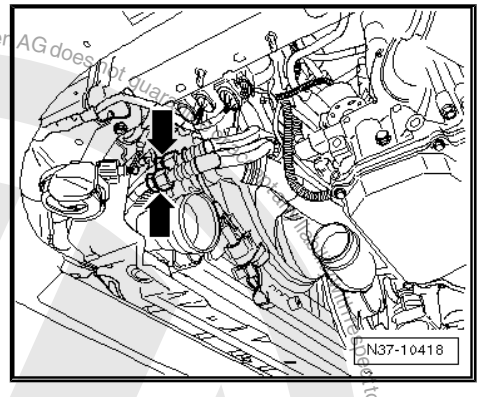
– Now remove assembly mounting bracket. To do this, lower engine and gearbox slightly via support bracket -10 - 222 A- spindles.

Six turns are sufficient.

– Raise vehicle.



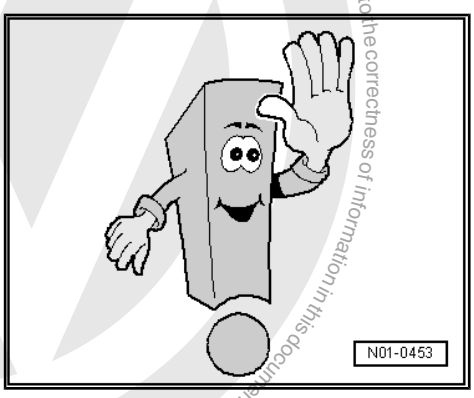
– Connect ATF lines with new seals and tighten. Torque setting: ⇒ page 114 .
– Before you now remove final connecting bolt, support gearbox with engine and gearbox jack -V.A.G 1383 A- , gearbox support -3282- and adjustment plate -3282 /36- .
– Only now is the final bolt removed.
– Carefully push gearbox off engine.



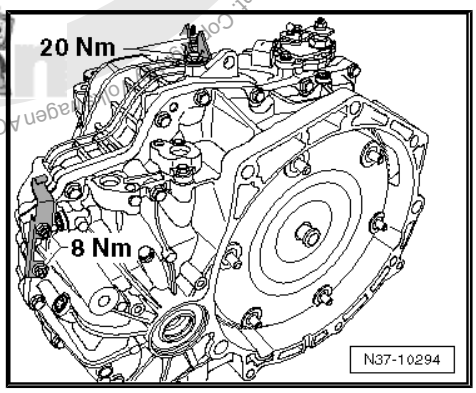
Note

Observe torque converter. It must be removed together with gearbox.

– When lowering, ensure clearance of gearbox to subframe. If necessary, adjust gearbox support -3282- slightly.



– Keep in mind that if a new gearbox is installed, parts such as cable support bracket and retainer for gate selector cable must be transferred.



13.2 Installing gearbox, Passat CC 2009, CC 2010 with 2.0 l 147 kW TFSI engine

– Thoroughly clean up ATF which has escaped.
– Check whether dowel sleeves are pressed into engine flange.
– Check seating of plate between engine and gearbox. The plate must make contact with the engine along its entire perimeter when it is pressed gently with both hands against the engine. If the top does not contact the engine, it is not properly engaged in the engine block.

Continue installation in reverse order of removal.

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 .

Torque settings ⇒ page 114 .

– Renew all bolts of left assembly mounting.
– First screw in all bolts by hand.

When installing bracket, first bolt it to gearbox.

When the two bracket bolts are tightened to vehicle, a screwdriver may be inserted between the two bolts to adjust to »previous seating«.

– Renew seals on ATF lines.
– Tighten ATF lines on gearbox.

Torque settings ⇒ page 114 .

– Adjust selector lever cable ⇒ page 43 .
– After installing, check ATF level ⇒ page 134 .
– 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`.

13.3 Torque settings, gearbox to engine

13.3.1 Specified torques for 2.0 l 147 kW TFSI engine

1 - Direction of travel

- Drive plate to torque converter

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

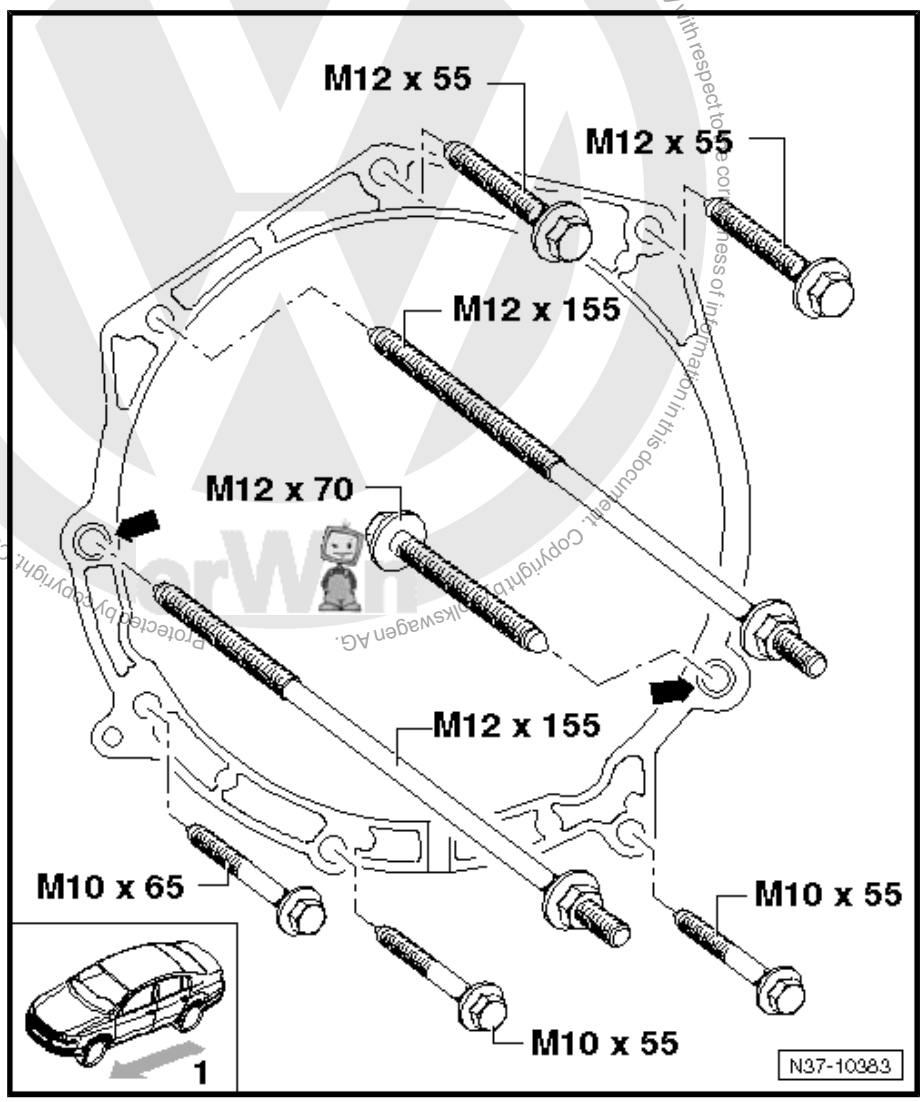
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

- M10 bolts ⇒ M10

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

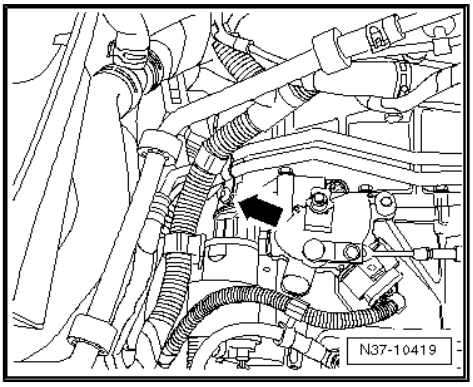
- Two dowel sleeves in engine -arrows-



Specified torques

Component	Torque setting
Gearbox bracket to gearbox (4 x M10 bolts)	40 Nm + 90°
Gearbox bracket to gearbox mounting (2 x M12 bolts)	60 Nm + 90°
Bracket for ATF lines to gearbox ⇒ page 115	9 Nm
ATF lines to ATF cooler ⇒ page 115	25 Nm
ATF lines to gearbox Observe bolt lengths ⇒ page 115	25 Nm

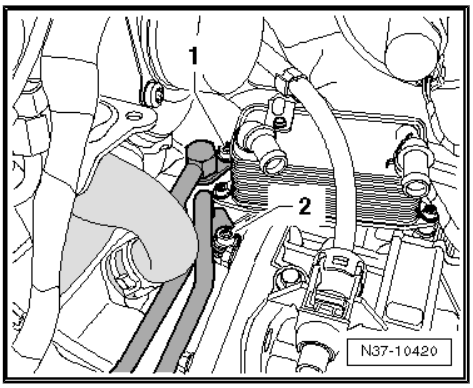
Bracket for ATF lines to gearbox



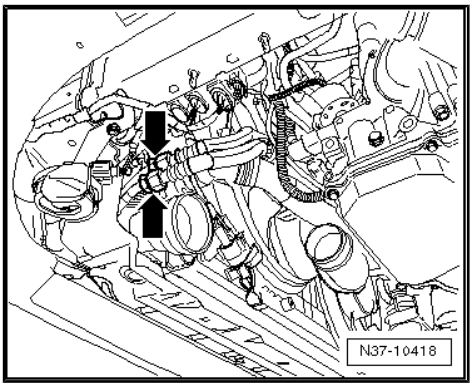
ATF line to gearbox

Bolt -1- = M8 x 45

Bolt -2- = M8 x 38



ATF lines to ATF cooler



14 Removing and installing gearbox, Golf 2009 ►

Removing gearbox, Golf 2009 with 2.5 l - 125 kW engine
⇒ page 116 .

Installing gearbox, Golf 2009 with 2.5 l - 125 kW engine
⇒ page 124

Torque settings ⇒ page 125

14.1 Removing gearbox, Golf 2009 with 2.5 l - 125 kW engine

– Before beginning with removal, »if possible« print out a diagnosis log. Before sending back removed gearbox in the usual manner, secure log to gearbox.

Brief description

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

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

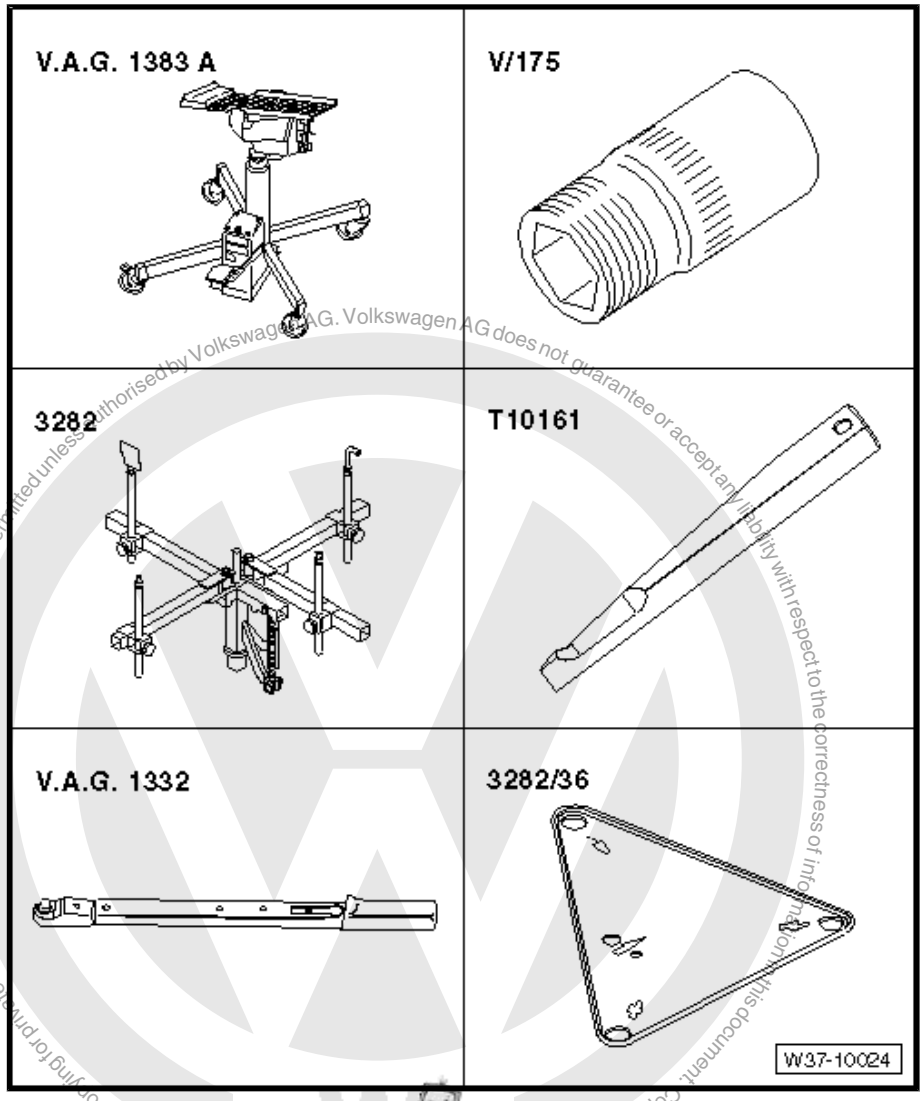
Noise insulation is removed and drive shafts are pressed off »from below«. Gearbox is lowered using gearbox jack.

Note

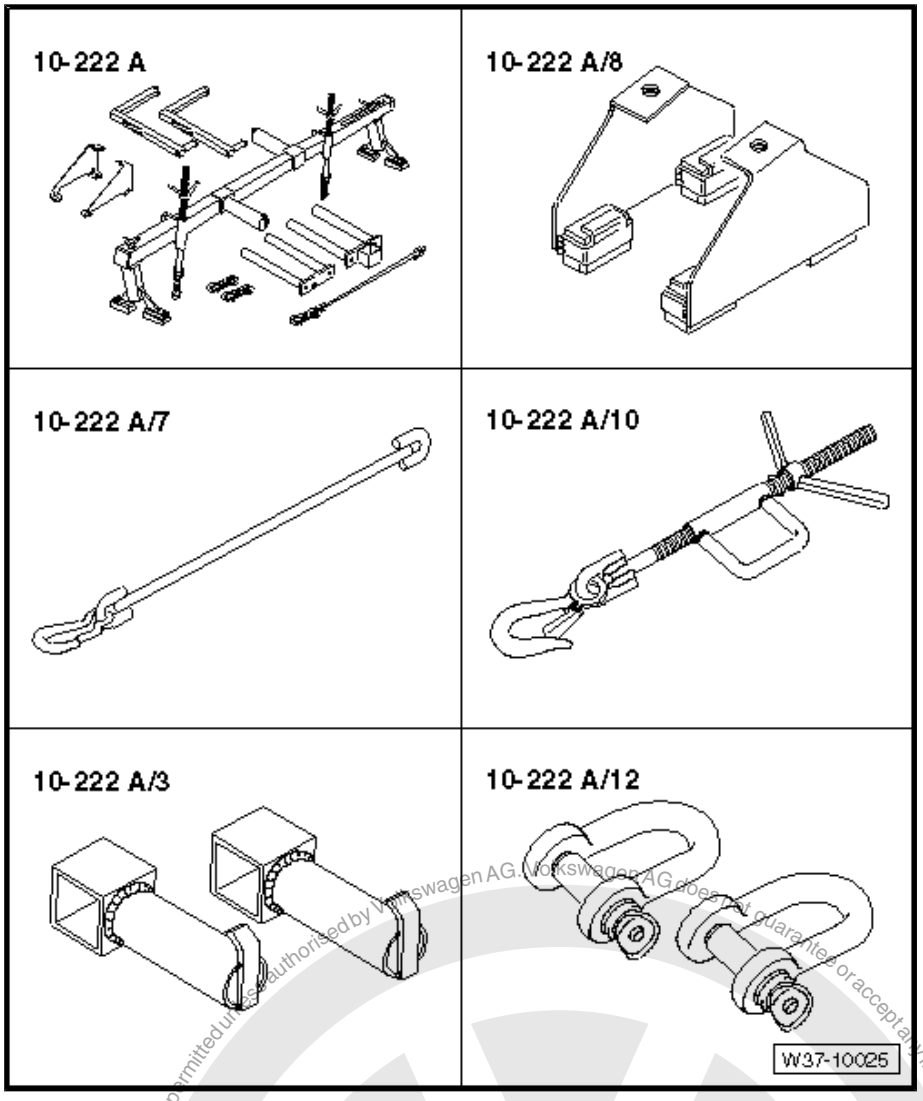
The subframe is not to be removed.

Special tools and workshop equipment required

- Engine and gearbox jack -V.A.G 1383 A-
- Torque wrench -V.A.G 1332-
- Gearbox support -3282-
- Adjustment plate -3282/36-
- Insert -V/175-
- Wedge -T10161-

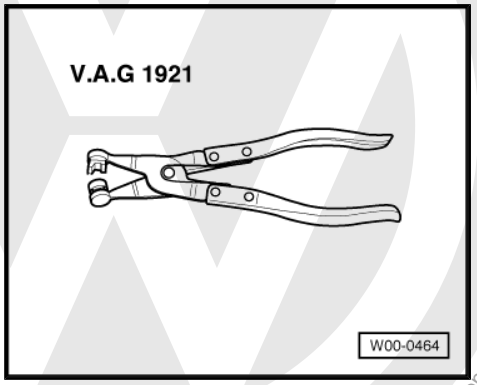


- Support bracket -10 - 222 A-
- Adapter -10 - 222 A /8-
- Adapter -10 - 222 A /3-
- Hook -10 - 222 A /10-
- Shackle -10 - 222 A /12-
- Adapter -10 - 222 A /7-



Special tools and workshop equipment required

- Hose clamp pliers -V.A.G 1921-

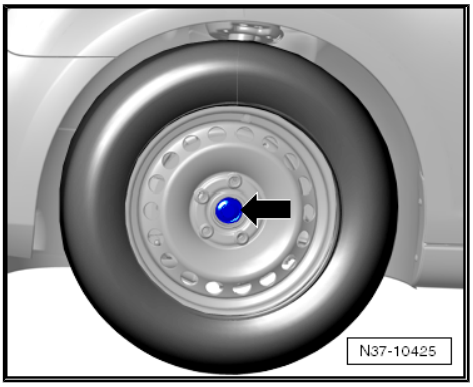


Removing:

– Move selector lever to position »P« position.

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

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

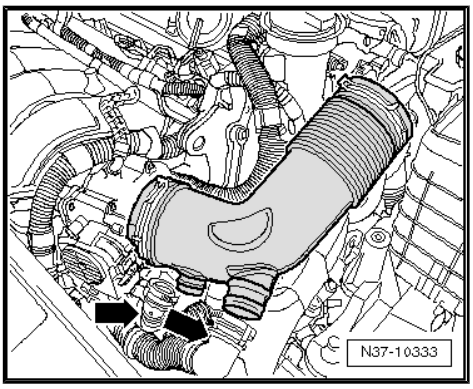


Note

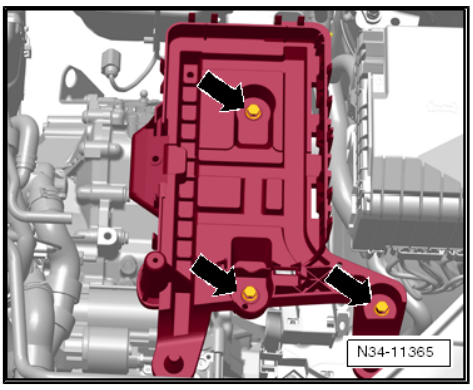
After this, do not set vehicle on the ground any more ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR2600i .

– Remove air filter with engine cover.

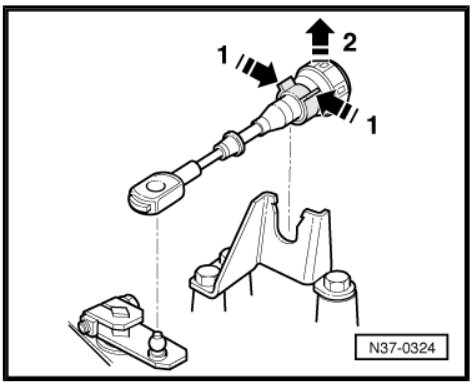
– Pull off hoses -arrows- and remove intake hose from throttle valve unit.



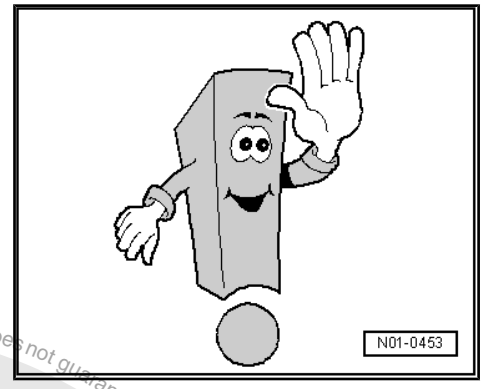
– Remove battery and battery carrier ⇒ Rep. gr. 27 ; Disconnecting and connecting battery; Removing and installing battery .



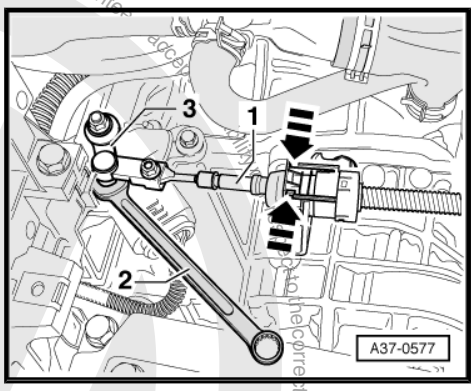
– In order to remove selector lever cable from gearbox, first release cable -1- and then remove it from cable support bracket -2-.



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

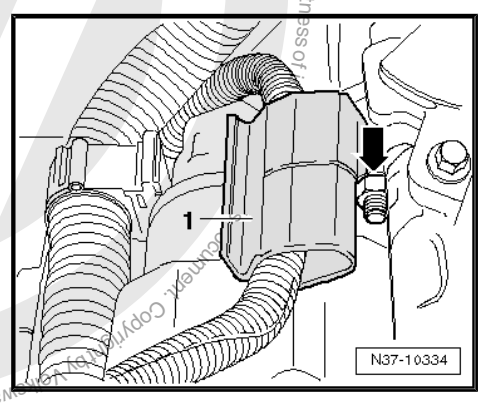


– Lever cable -1- off lever -3- using an open jaw spanner -2-.
– Disconnect electrical connections to gearbox and starter.
♦ Multifunction switch
♦ Starter motor
♦ Earth strap to bracket

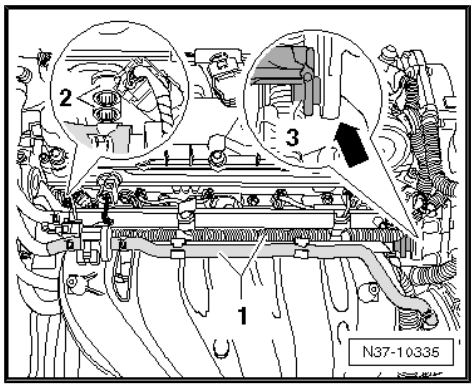


– Remove wiring retainer -1- from starter bolt -1-.
– Remove upper starter motor bolt.
– Remove upper connecting bolts between engine and gearbox.

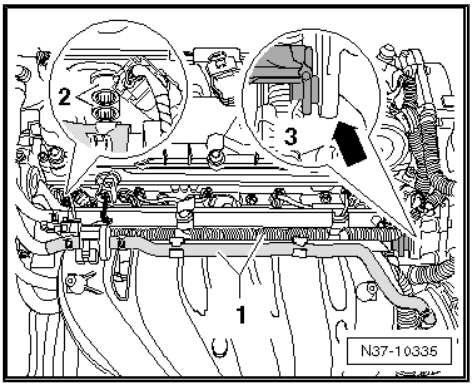
To support engine and gearbox:



– Remove wiring -1- from transportation bracket -3-.



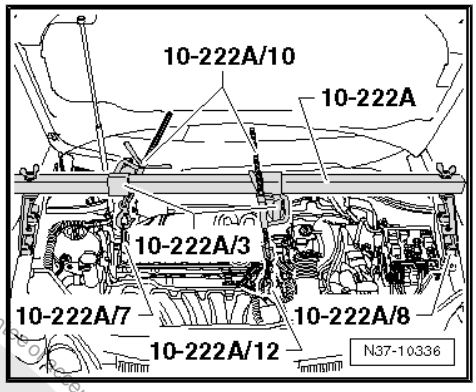
– Unbolt transportation bracket -3- from engine -2- and pull out of eye -arrow-.
– Attach a shackle -10 - 222 A /12- in »this« eye.



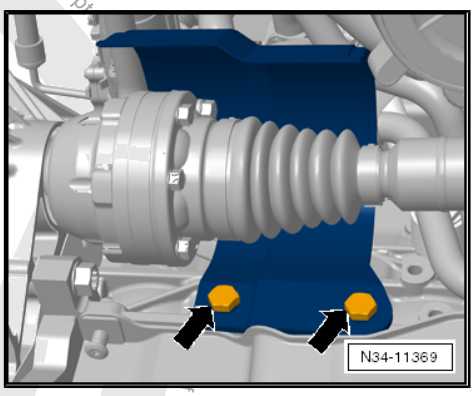
– Set up support device -10 - 222 A- .
– Extend right hook -10 - 222 A /10- using adapter -10 - 222 A / 7- .

The hook faces downwards and will later be hooked into the engine block.

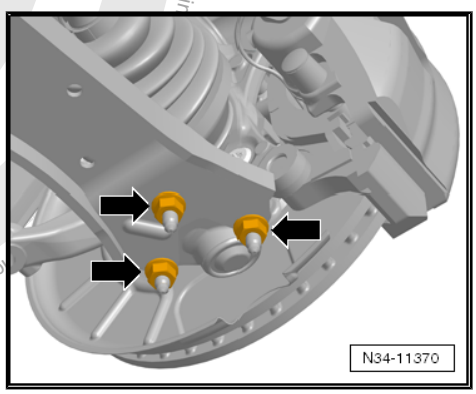
– Remove noise insulation tray.
– Remove lower part of left wheel housing liner.



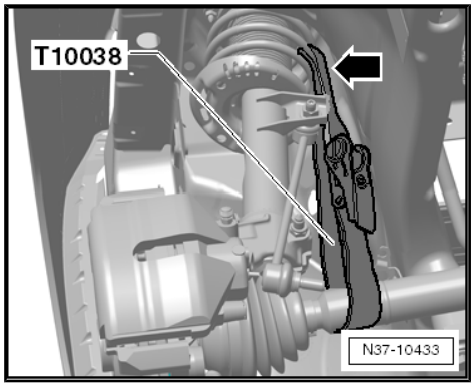
– Remove heat shield above right drive shaft.



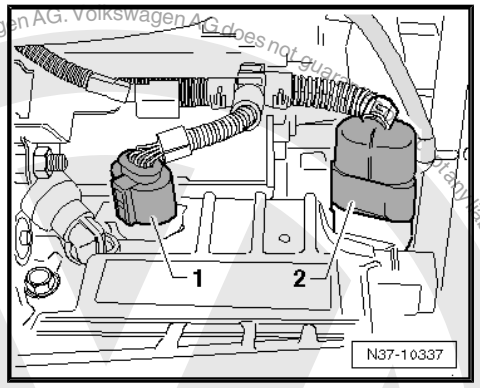
– Unbolt suspension links from suspension struts on both sides.
– Press both drive shafts out of gearbox. For procedure, refer to ⇒ Rep. gr. 40 ; Repairing drive shafts; Removing and installing drive shafts; Removing drive shafts with triple-roller joint AAR2600i .
– Remove left drive shaft.



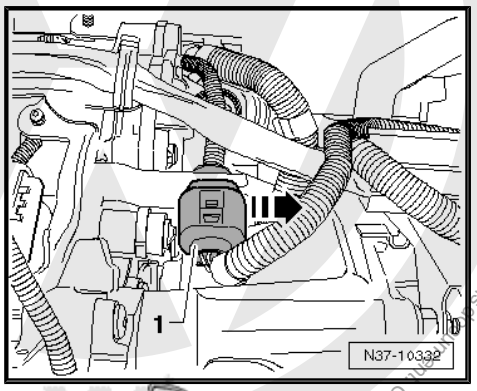
– Raise right shaft as far as possible and secure in this position.



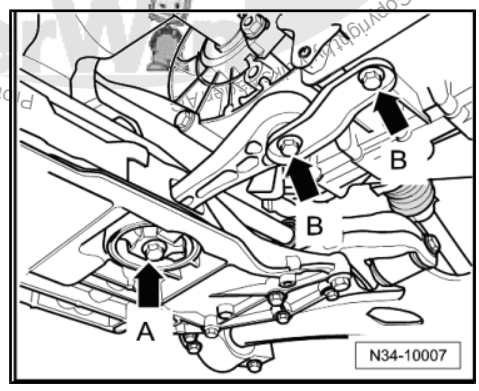
– Now pull electrical connectors -1- and -2- off gearbox.



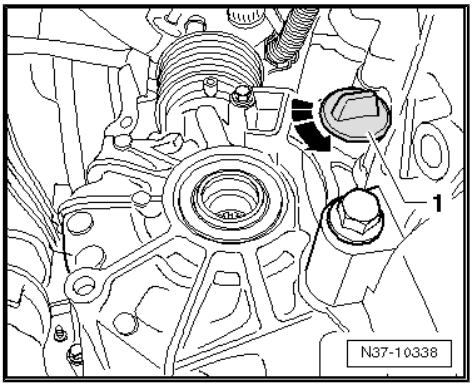
– Pull connector beneath starter -1- out of retainer and separate.
– Unbolt retainer from lower starter bolt.
– Remove lower starter bolt and remove starter.



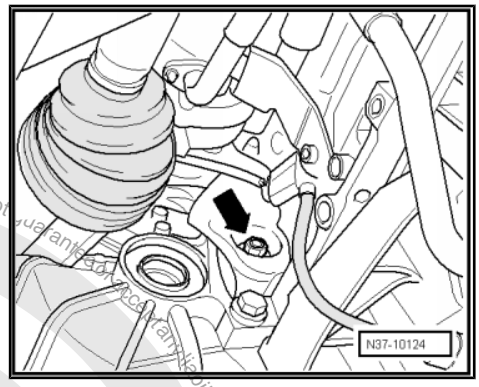
– Remove ⇒ pendulum support, first -A- and then -B-.
– Drain coolant.



– Turn cap -1- in direction of arrow and remove.



– Remove six -torque converter nuts- with insert -V/175- .



Note

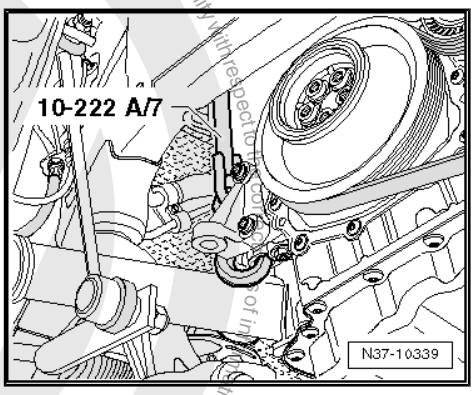
Continue turning the engine carefully!

– Hook adapter -10 - 222 A /7- into engine block.

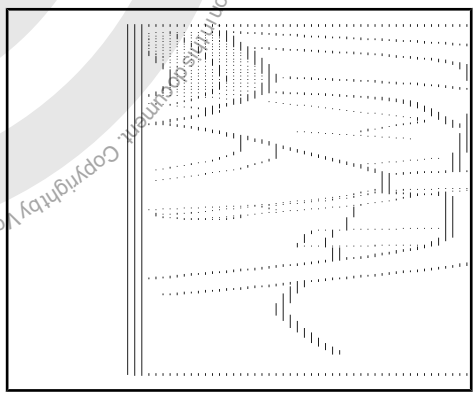
– Pull coolant hoses off ATF cooler.

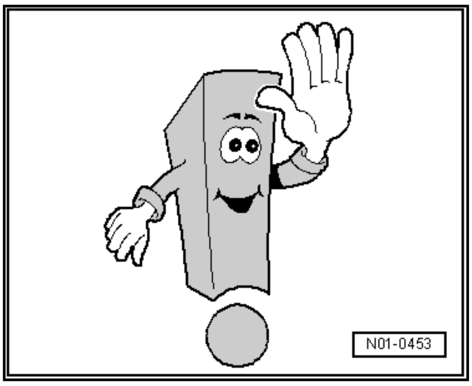
Tighten right spindle one turn (more is not necessary).

– Support engine and gearbox with left spindle. Do not raise.



– Remove bracket -A-.





– Now remove assembly mounting bracket. To do this, lower engine and gearbox slightly via left spindle of support bracket -10 - 222 A- .

Six turns are sufficient.

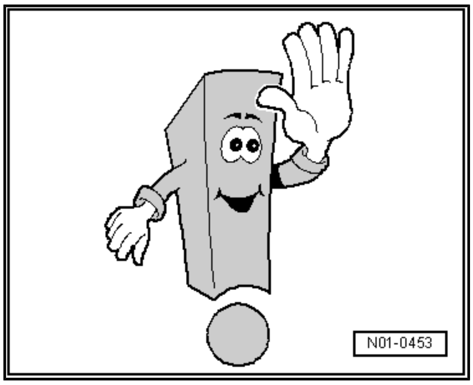
– Remove lower connecting bolts between engine and gearbox.

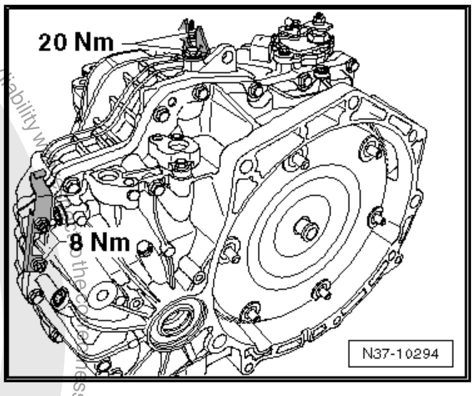
– Leave an easily accessible bolt in for safety purposes.

– Before you now remove final connecting bolt, support gearbox with engine and gearbox jack -V.A.G 1383 A- , gearbox support -3282- and adjustment plate -3282 /36- .

– Only now is the final bolt removed.

– Carefully push gearbox off engine.





Note

- *Observe torque converter. It must be removed together with gearbox.*
- *Keep in mind that if a new gearbox is installed, parts such as cable support bracket and retainer for gate selector cable must be transferred.*

14.2 Installing gearbox, Golf 2009 with 2.5 l - 125 kW engine

– Check whether dowel sleeves are pressed into engine flange.

– Check seating of plate between engine and gearbox. The plate must make contact with the engine along its entire perimeter when it is pressed gently with both hands against the engine. If the top does not contact the engine, it is not properly engaged in the engine block.

Continue installation in reverse order of removal.

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 .

– Renew all bolts of left assembly mounting.

– First screw in all bolts by hand.

During installation, first bolt bracket to gearbox with 40 Nm + 90° torque.

When the two bracket bolts are tightened to vehicle, a screwdriver may be inserted between the two bolts to adjust to »previous seating«. These two larger bolts are tightened to 60 Nm + 90°.

Torque settings, gearbox to engine ⇒ page 125

– Adjust selector lever cable ⇒ page 43 .

– After installing, check ATF level ⇒ page 134 .

– 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`.

14.3 Torque settings, Golf 2009 with 2.5 l - 125 kW engine

1 - Direction of travel

- Drive plate to torque converter

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

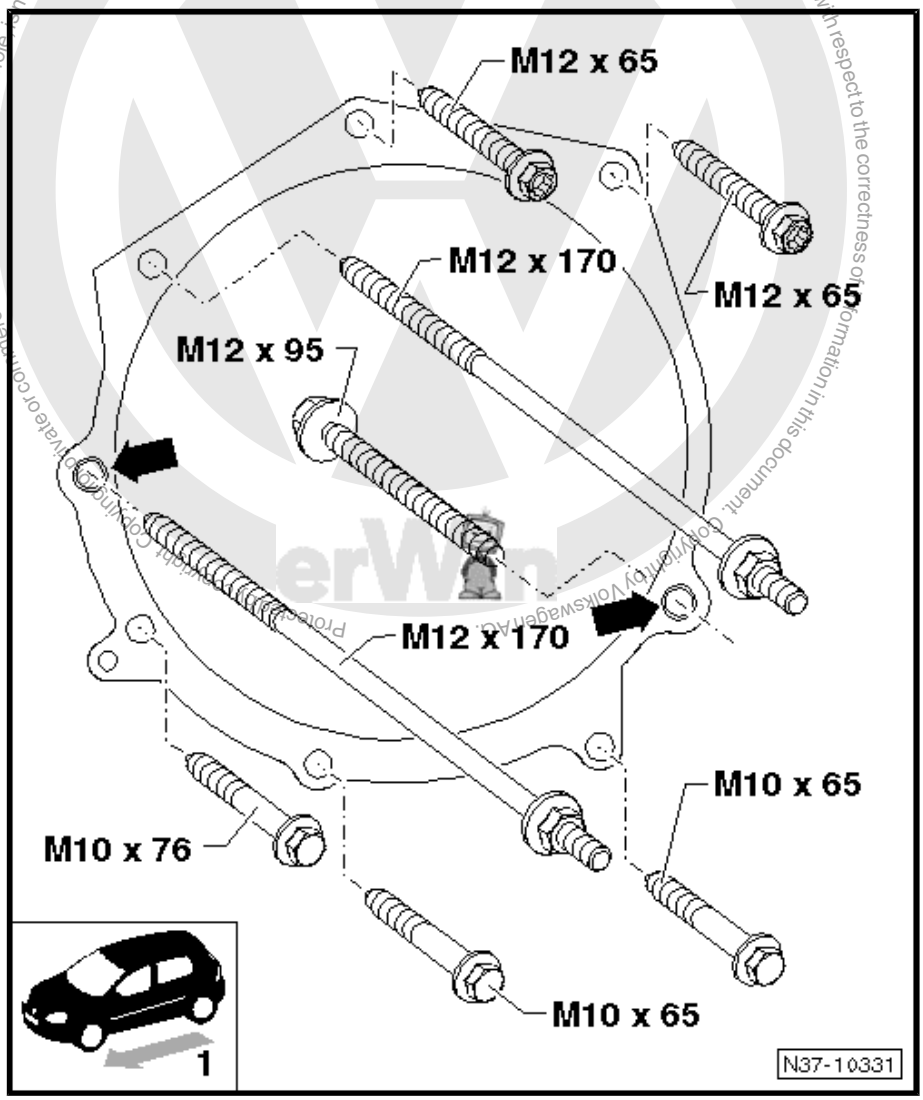
- M12 bolts ⇒ M12

- ❑ 80 Nm
- ❑ 65 Nm if you use socket -T10179- .

- M10 bolts ⇒ M10

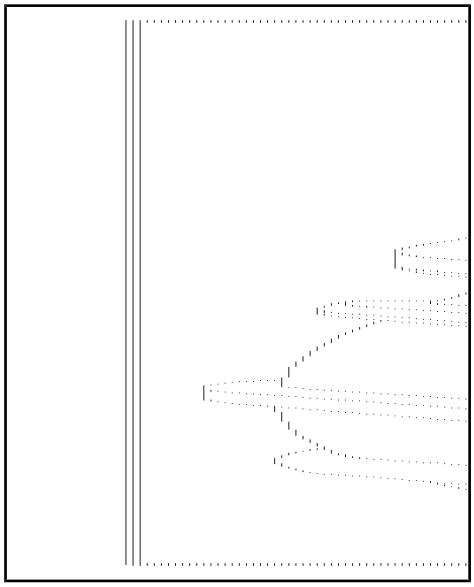
- ❑ 40 Nm
- ❑ These bolts are located in lower flange

- Two dowel sleeves in engine -arrows-



– Ensure that retainer does not contact gearbox oil cooler.

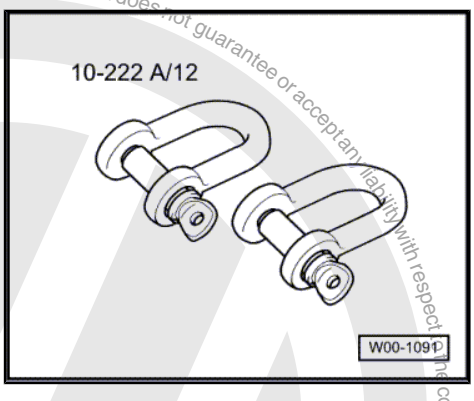
-Nuts- 8 Nm



15 Transporting gearbox

Special tools and workshop equipment required

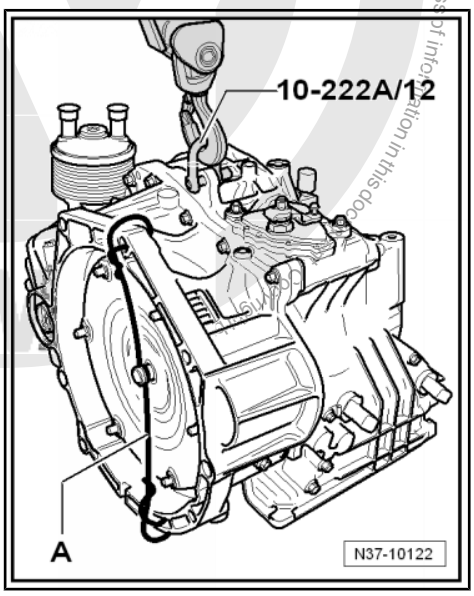
- Shackle -10 - 222 A /12-



Shackle 10-222 A/12 can be used to transport the gearbox and set up gearbox support 3282.

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

– Keep in mind that there is oil in the gearbox. Do not turn gearbox with breather downwards during transport or while on repair stand. Oil will run out.



16 ATF cooler for 1.6 l - 85 kW and 2.0 l - 110 kW engines

16.1 Assembly overview - ATF cooler

1 - Gearbox housing

2 - Seal

- ❑ Always renew

3 - ATF cooler

- ❑ Installation position: ⇒ page 128 .

4 - Seal

- ❑ Always renew

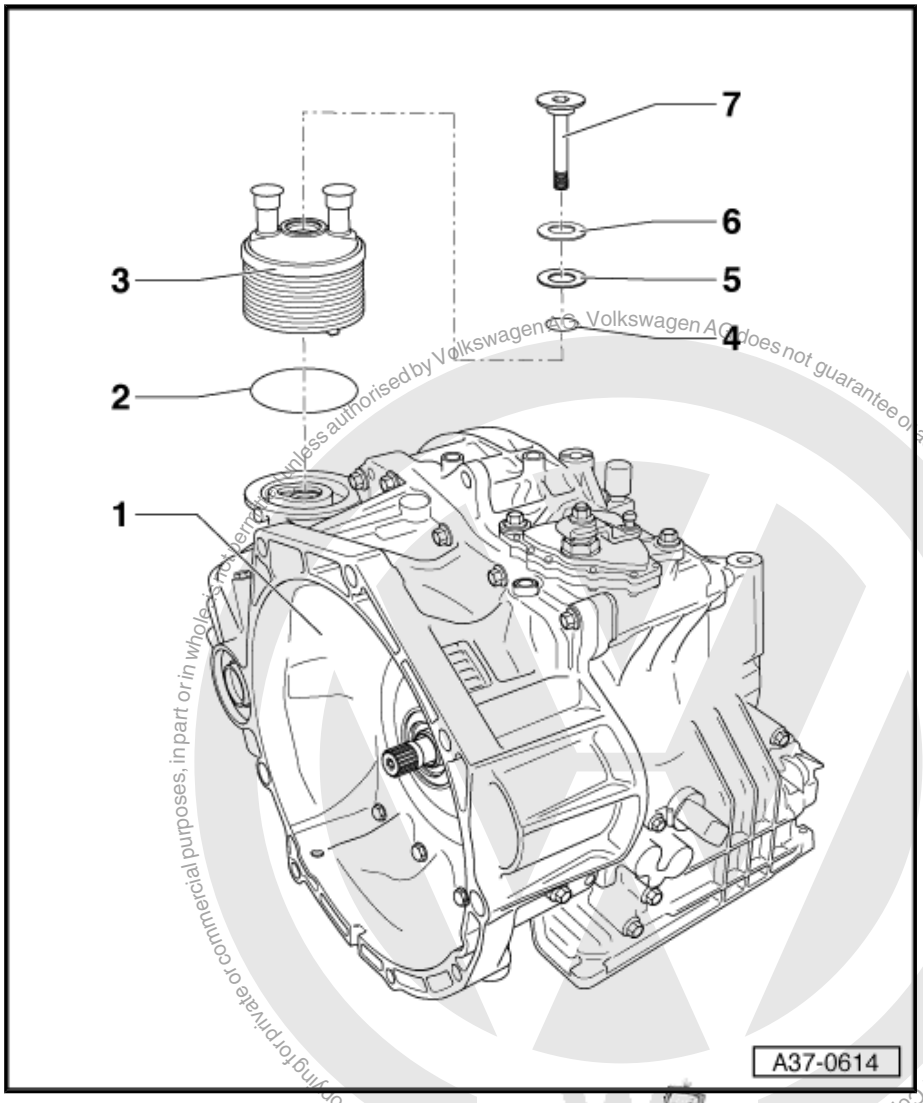
5 - Washer

6 - Dished washer

- ❑ Position: convex side faces bolt ⇒ Item 7 (page 128)

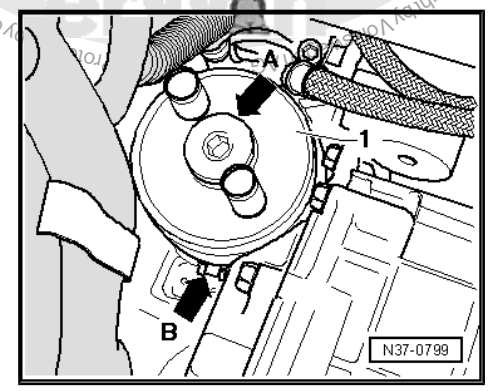
7 - Bolt

- ❑ 36 Nm



Position: ATF cooler

– When installing ATF cooler -1-, insert lug -arrow B- into recess in gearbox housing.



17 ATF lines, ATF water cooler and additional ATF cooler, Passat with 2.0 l TFSI engine

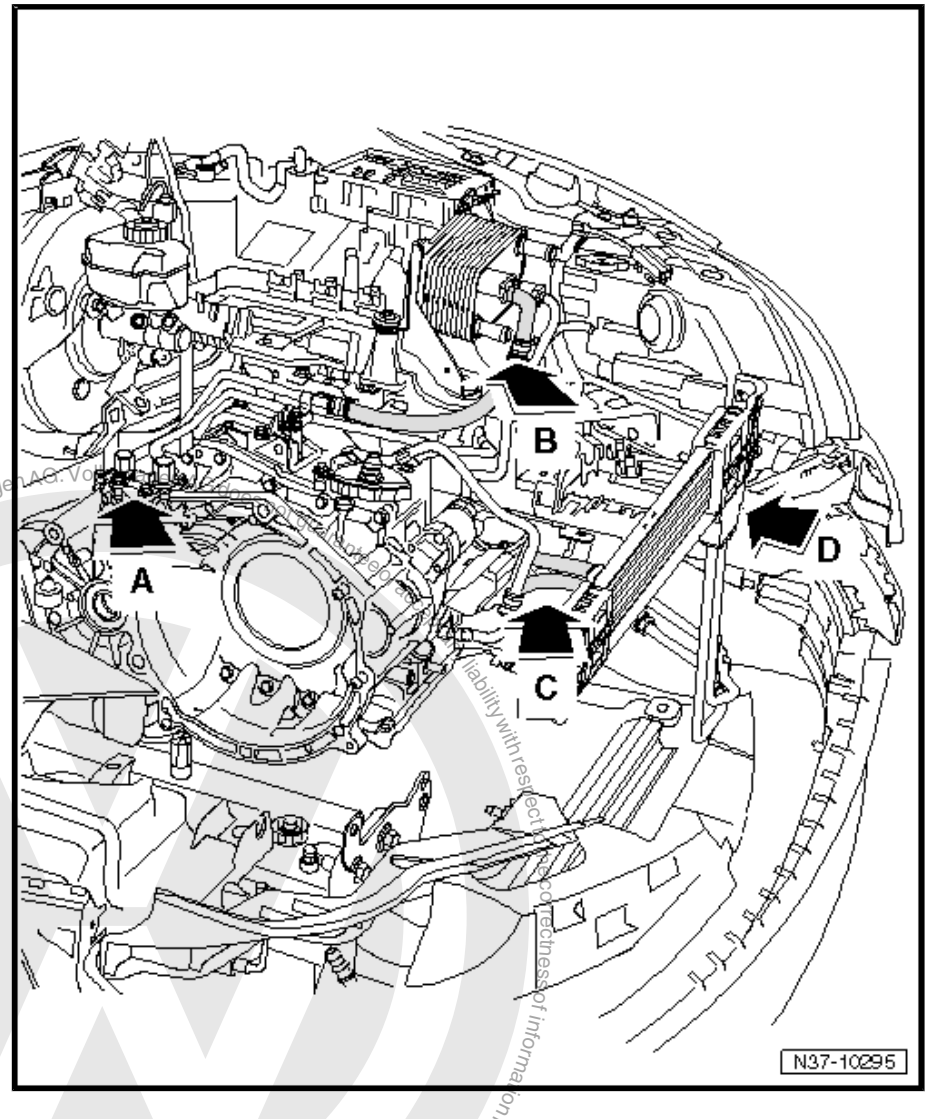
17.1 Overview

A - ATF lines on gearbox
⇒ page 130

B - »External« ATF heat exchanger ⇒ page 131

C - ATF lines ⇒ page 132

D - Additional ATF cooler
⇒ page 133

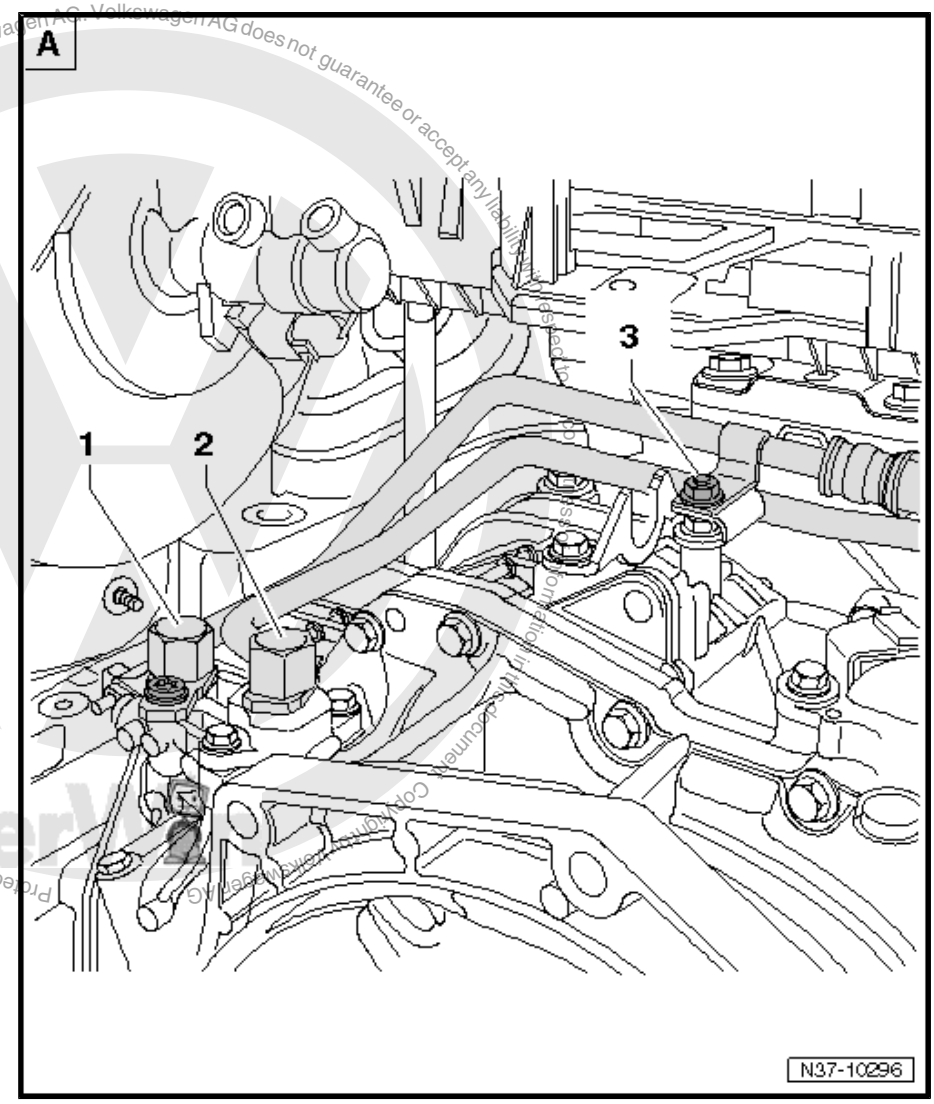


17.1.1 ATF lines on gearbox

1 - ATF line
- ❑ Always renew oil seal
- ❑ 20 Nm

2 - ATF line
- ❑ Always renew oil seal
- ❑ 20 Nm

3 - Nut
- ❑ 9 Nm



17.1.2 External ATF heat exchanger

1 - Bolt
- ❑ 8 Nm

2 - Nut
- ❑ 9 Nm

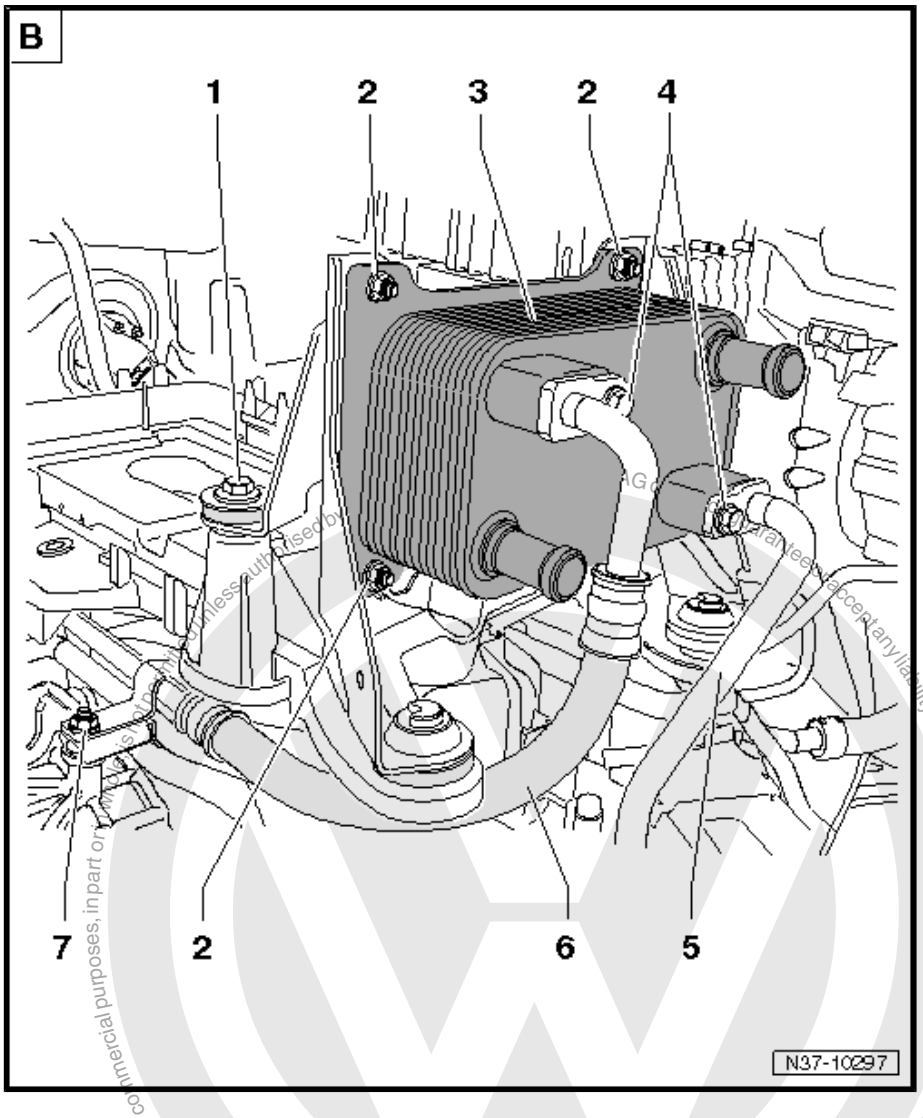
3 - External ATF cooler

4 - Bolt
- ❑ 9 Nm

5 - ATF line
- ❑ »Supply.«
- ❑ Always renew oil seal

6 - ATF line
- ❑ »Return«
- ❑ Always renew oil seal

7 - Nut
- ❑ 9 Nm



17.1.3 ATF lines

1 - ATF line

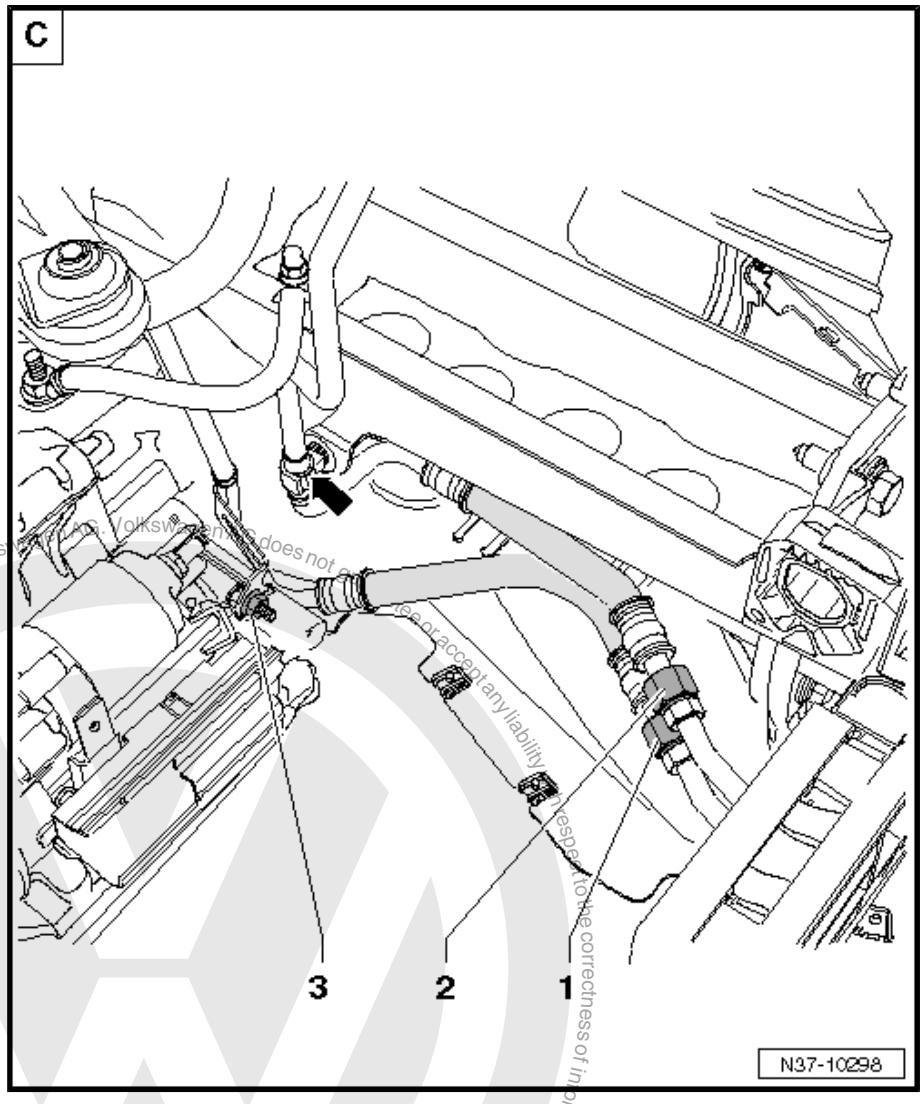
- »Return« from additional cooler.
- 25 Nm

2 - ATF line

- »Supply« to additional cooler.
- 25 Nm

3 - Nut

- 9 Nm



17.1.4 Additional ATF cooler

1 - Additional ATF cooler

- ❑ To remove and install, remove front bumper cover ⇒ Rep. gr. 63 ; Assembly overview - front bumper cover

2 - Bolt

- ❑ 5 Nm

3 - Bolt

- ❑ 9 Nm

4 - ATF line

- ❑ »Return«
- ❑ Always renew oil seal

5 - ATF line

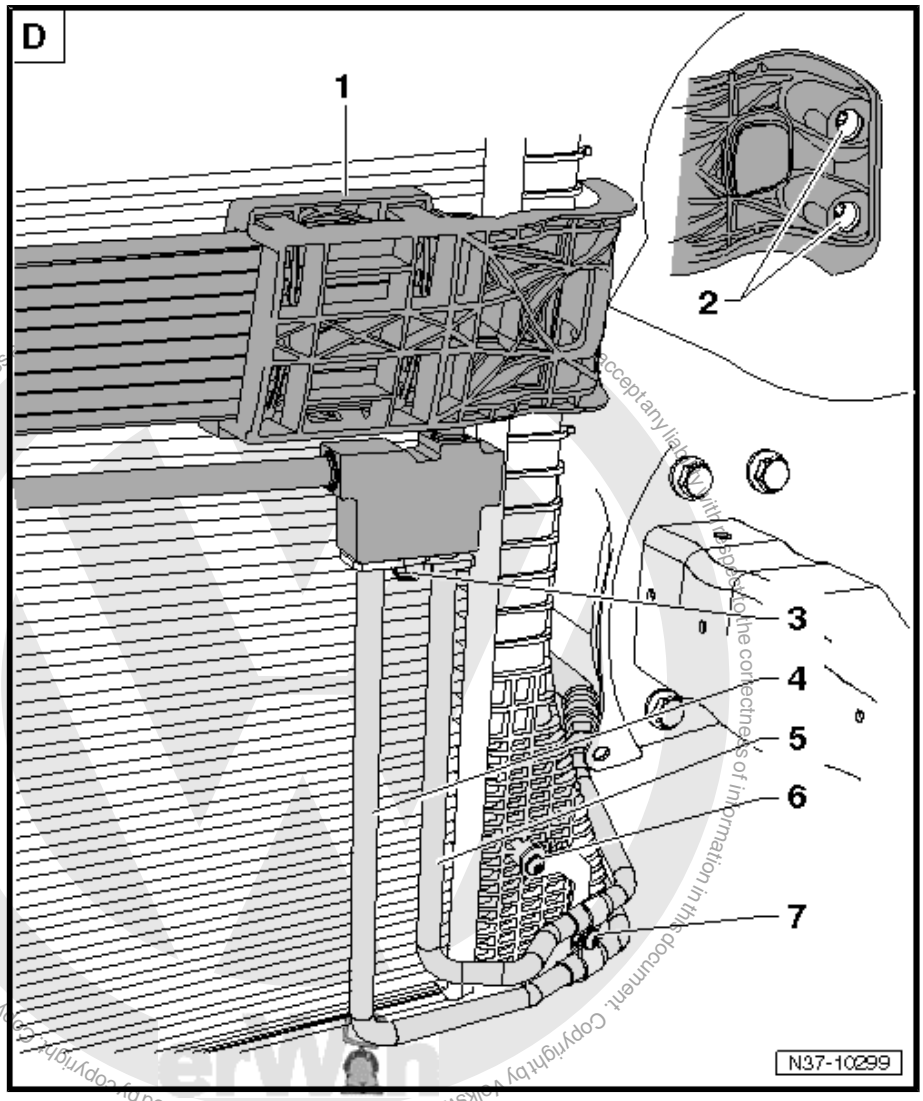
- ❑ »Supply.«
- ❑ Always renew oil seal

6 - Bolt

- ❑ 5 Nm

7 - Bolt

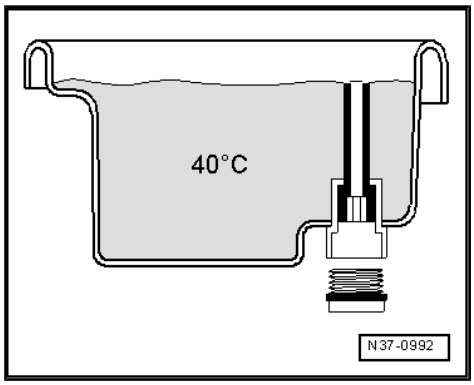
- ❑ 9 Nm



18 Checking ATF level and topping up

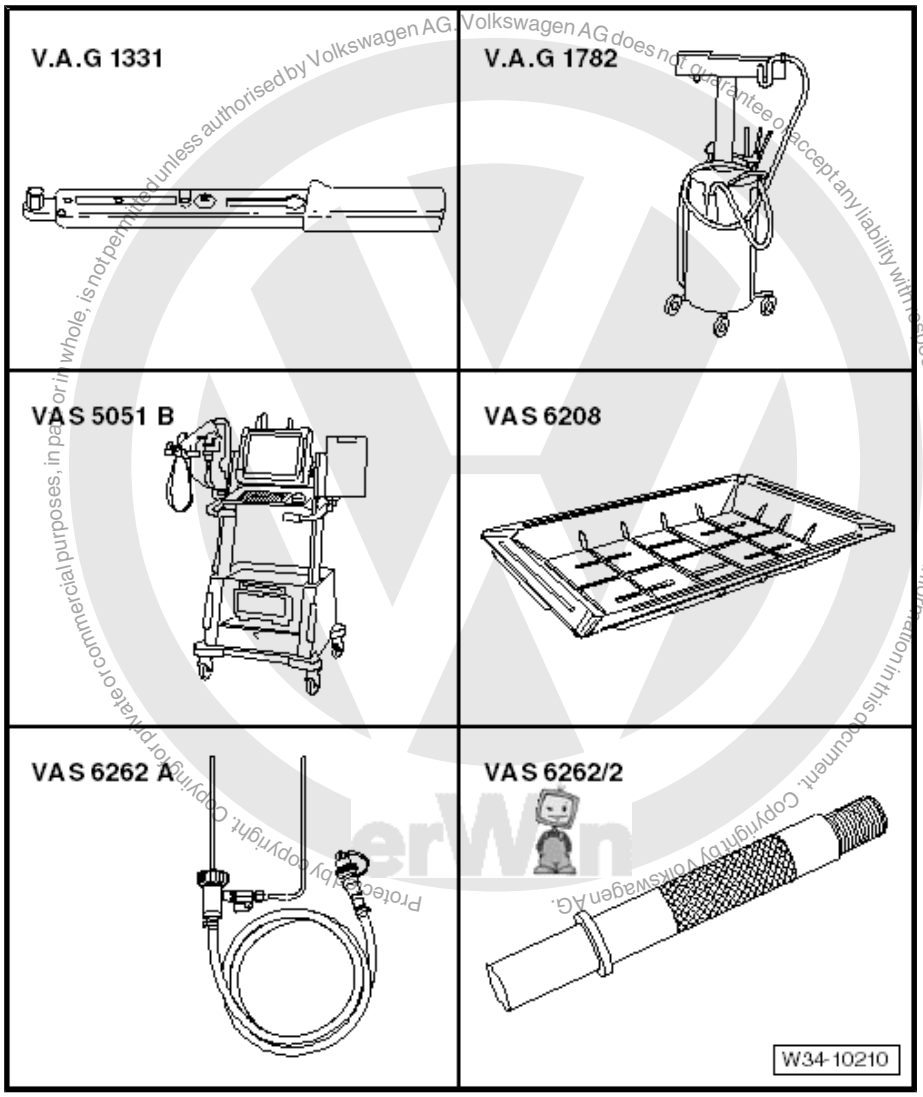
Observe these notes as well.

- About this workshop manual ⇒ page 1
- About ATF ⇒ page 1
- About »filler pipe« ⇒ page 2
- If necessary, the breather pipe of the adapter for oil filling -VAS 6262 A- has to be shortened ⇒ page 135 .



Special tools and workshop equipment required

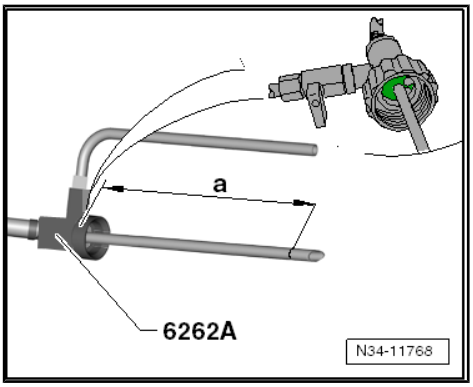
- Torque wrench -V.A.G 1331-
- Used oil collection and extraction unit -V.A.G 1782-
- Vehicle diagnosis, testing and information system -VAS 5051-
- Drip tray for workshop hoist -VAS 6208-
- Adapter for filling oil -VAS 6262 A-
- Adapter -VAS 6262/2-



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.

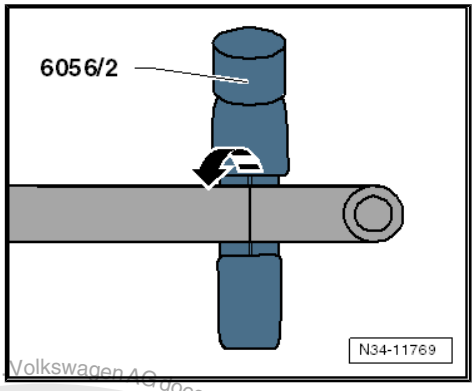
Dimension -a- = 210 mm



Note

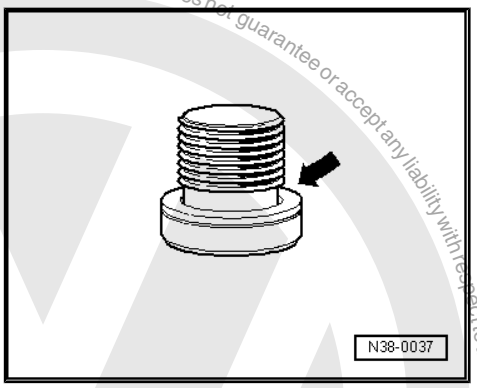
The dimension -a- is measured from the shaft (green area in the counting glass) of the adapter for oil filling -VAS 6262 A- .

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



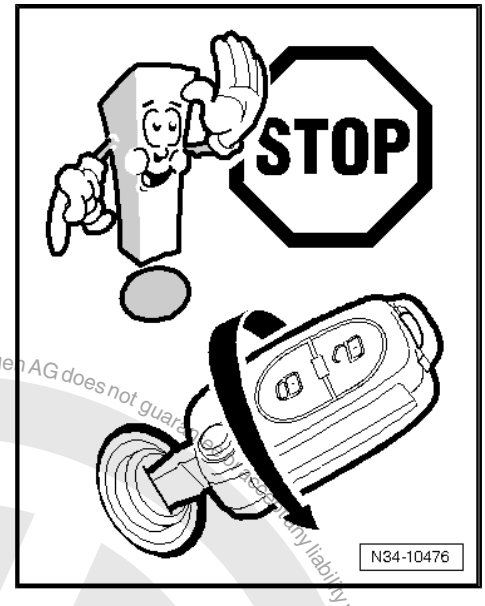
If ATF must be added, use only ATF listed in ⇒ Electronic parts catalogue ⇒ ETKA .

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

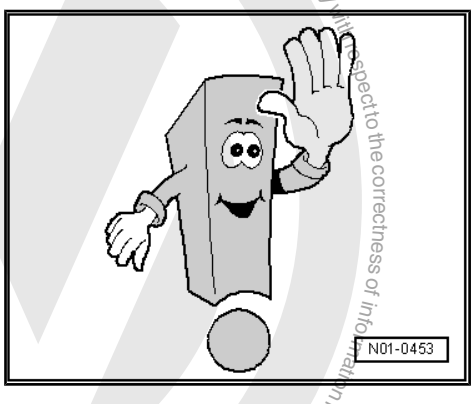


18.1 Checking ATF level

– Switch off engine.



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



- Gearbox is not in emergency running mode and ATF temperature is 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 16 .

– Press `Guided functions` »on right«.

– Then select vehicle, the gearbox and `Check ATF level`.

– Press →.

– Start engine.

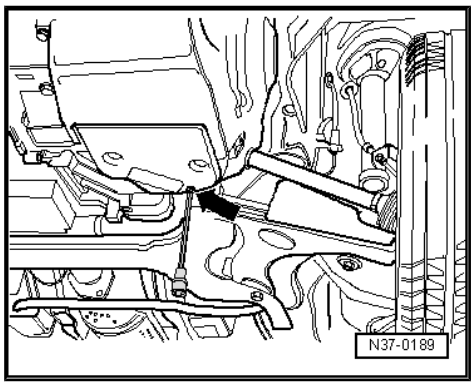
– Raise vehicle.

– Place drip tray under gearbox.

– Press →.

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

– Remove inspection plug for ATF level from oil pan.



The ATF present in the overflow pipe runs out.

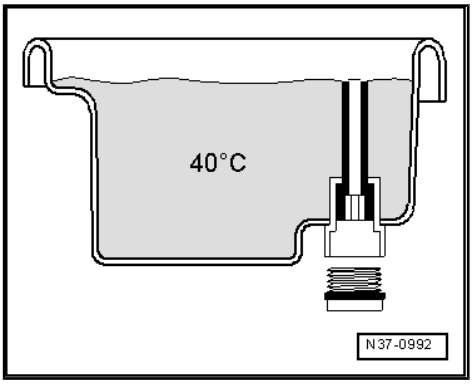
If ATF drips out of drilling:

ATF does not need topping up.

– Fit new seal to plug and tighten to 27 Nm. This concludes the ATF check.

If no ATF drips out of inspection hole:

– Top up ATF ⇒ page 137 .



18.2 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 135 .

– 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:

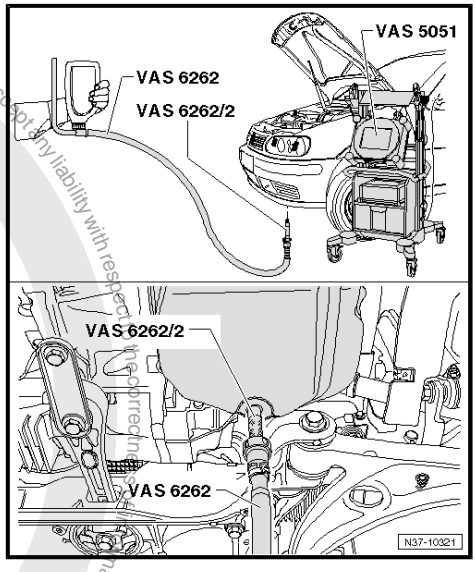
ATF does not need topping up.

– Drain ATF until it drips.

– Fit new seal to plug and tighten to 27 Nm. This concludes the ATF check.

If no ATF drips out:

– Add another litre ⇒ page 137 .

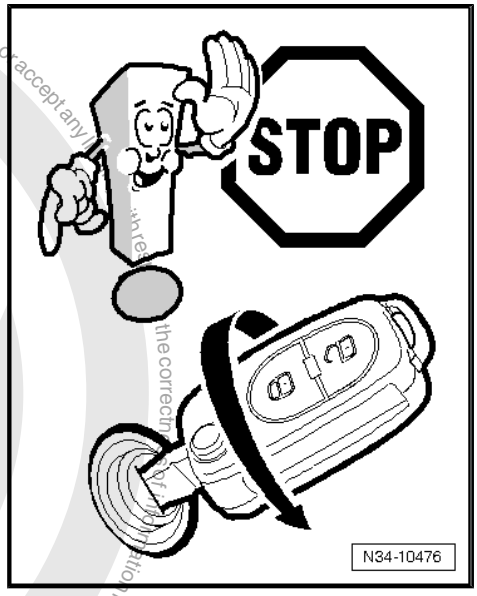


WARNING

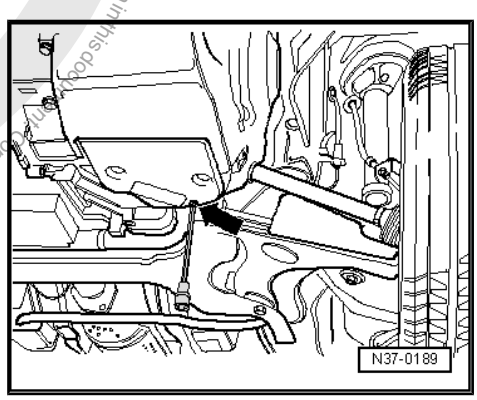
An ATF level which is too low or too high will impair the function of the gearbox. But if the gearbox was 2 litres low, it must be carefully inspected. There is probably a »major« leak.

18.3 Draining and filling ATF

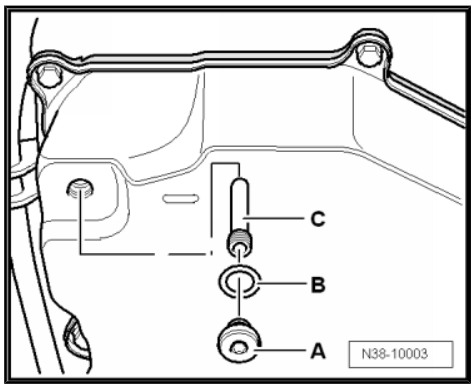
– Switch off engine.



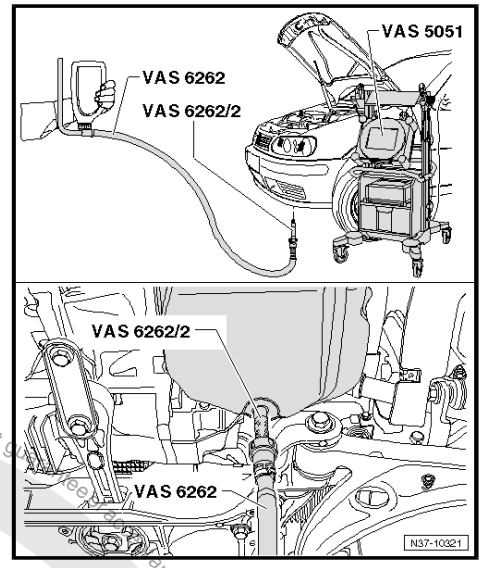
– Remove inspection plug for ATF level from oil pan -arrow-.



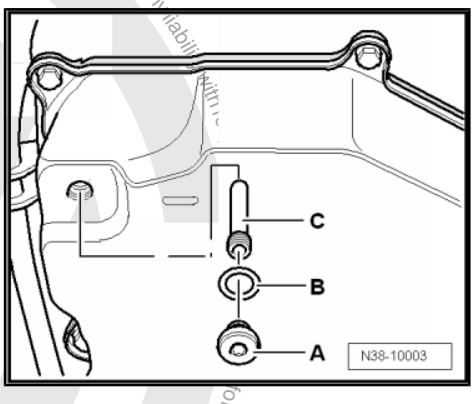
– Unscrew and remove ATF inspection plug -A-.
– Always renew oil seal -B-.
– Unscrew and remove overflow pipe -C-.
– Drain ATF.
– Screw in overflow pipe -C- ⇒ page 154 .



– 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 135 .
– Add 3 litres of ATF ⇒ Electronic parts catalogue ⇒ ETKA through filler pipe.



– 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 134 .

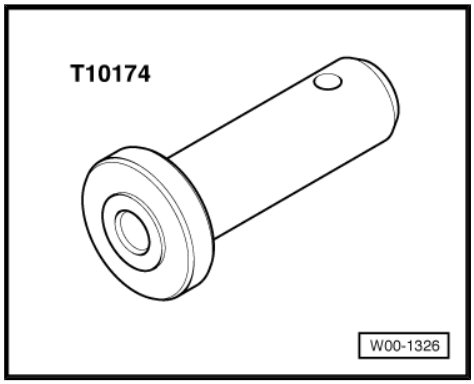


38 – Gears, control

1 Renewing oil seal for selector shaft

Special tools and workshop equipment required

- Thrust piece -T10174-

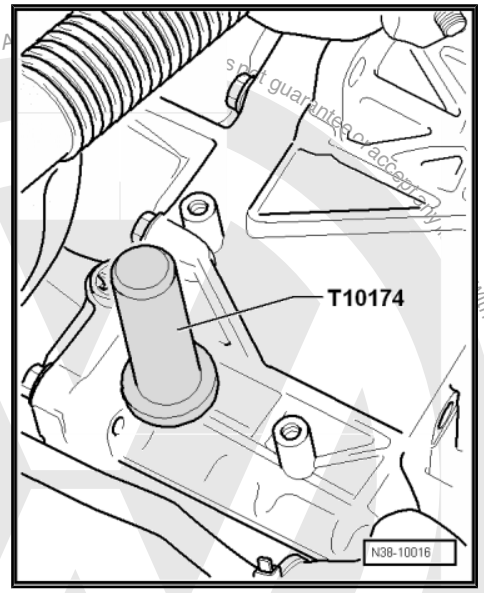


– Remove multifunction switch -F125- .

– Carefully lever out selector shaft seal using a screwdriver. Do not damage selector shaft.

– Drive in new seal to stop with thrust piece -T10174-. Do not cant oil seal in the process.

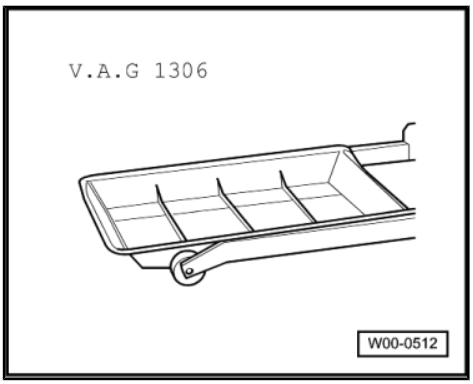
– Adjust multifunction switch -F125- .



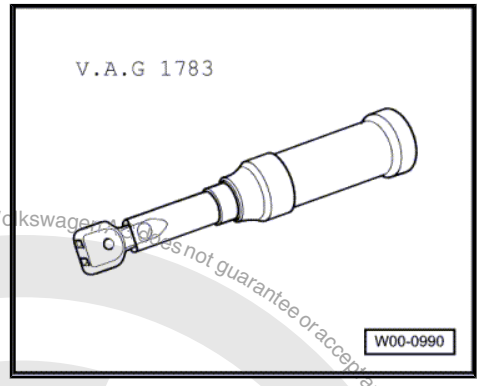
2 Removing and installing ATF pan

Special tools and workshop equipment required

- Drip tray -V.A.G 1306-

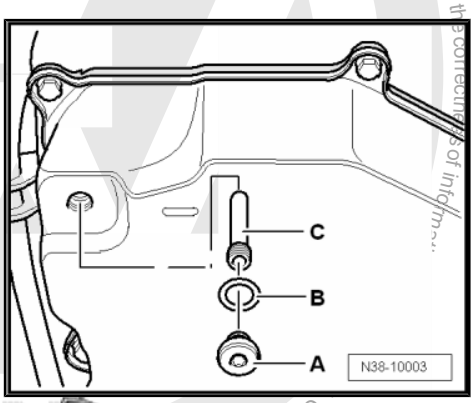


- Torque wrench -V.A.G 1783-

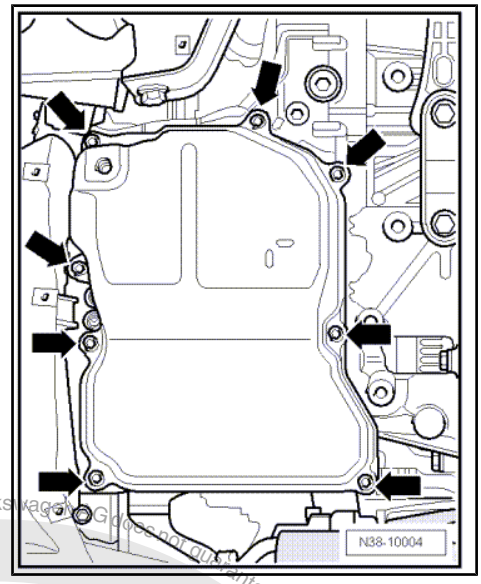


2.1 Removing

– Remove noise insulation below engine.
– Place drip tray -V.A.G 1306- 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.



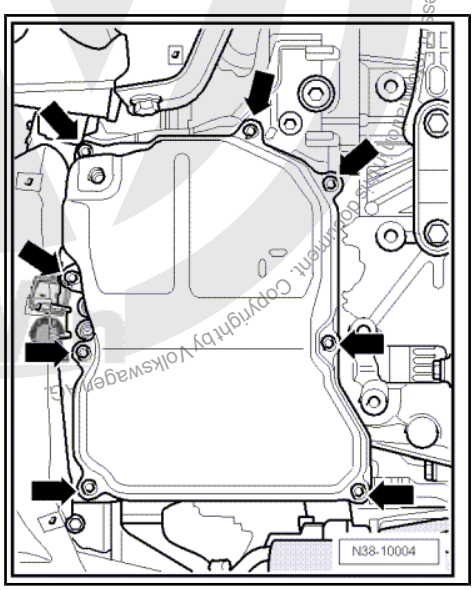
2.2 Installing

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

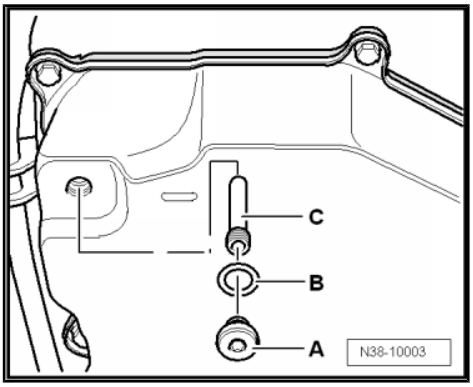
– Clean the two magnets in recesses of oil pan. Ensure that magnets are seated correctly in pan.
– Check that seal is undamaged and all spacer sleeves (qty. 8) are present.

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; torque specification ⇒ page 154 .



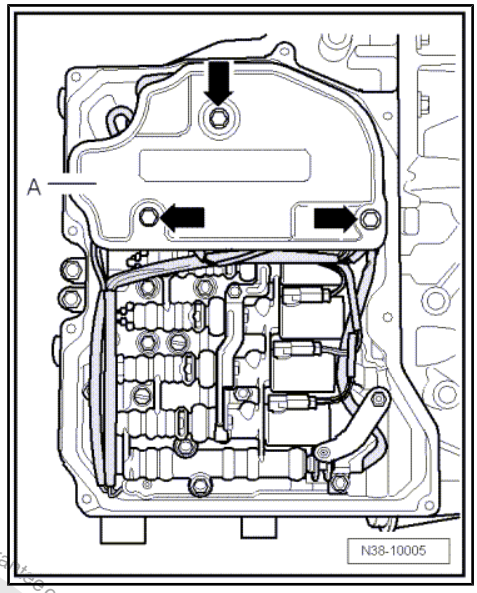
– Screw in overflow pipe -C-; torque specification ⇒ page 154 .
– Fill with ATF; check ATF level and top up ⇒ page 134 .



3 Removing and installing ATF strainer

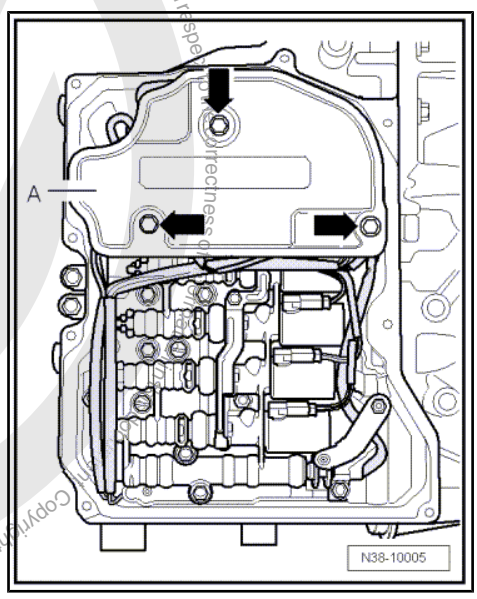
3.1 Removing

– Remove oil pan ⇒ page 141 .
– 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.
– Fit oil strainer -A- and tighten bolts; torque settings ⇒ page 154 .
– Install oil pan ⇒ page 141 .
– Fill with ATF; check ATF level and top up ⇒ page 134 .



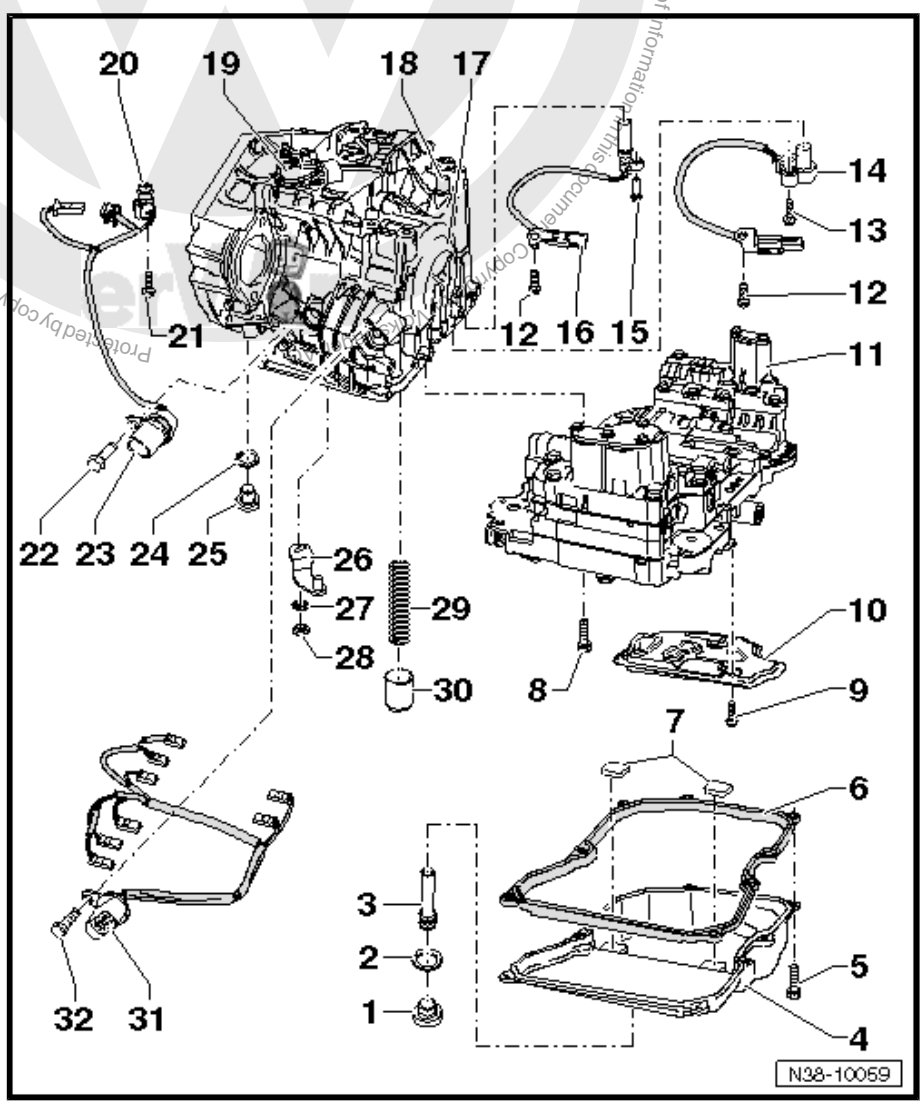
4 Removing and installing valve body

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 134 .

4.1 Overview - valve chest



1 - ATF inspection plug

- ❑ Checking ATF level and topping up ⇒ page 134
- ❑ Torque setting ⇒ page 154

2 - Seal

- ❑ Always renew

3 - Overflow pipe

- ❑ Unscrew to drain ATF
- ❑ Torque setting ⇒ page 154

4 - Oil pan

- ❑ Removing and installing ⇒ page 141

5 - Bolt

- ❑ Tighten oil pan bolts diagonally in several stages.
- ❑ Torque setting ⇒ page 154

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 151
- ❑ Always renew bolts
- ❑ Torque setting ⇒ page 154

9 - Bolt

- ❑ Qty. 3
- ❑ For securing strainer to valve body
- ❑ Torque setting ⇒ page 154

10 - ATF strainer

- ❑ Removing and installing ⇒ page 144

11 - Valve body

- ❑ Removing ⇒ page 147
- ❑ Installing ⇒ page 150
- ❑ Allocation ⇒ Electronic parts catalogue „ETKA“

12 - Bolt

- ❑ Torque setting ⇒ page 154

13 - Bolt

- ❑ Torque setting ⇒ page 154

14 - Gearbox input speed sender -G182-

- ❑ Removing and installing ⇒ page 156

15 - Bolt

- ❑ Torque setting ⇒ page 154

16 - Gearbox output speed sender -G195-

- ❑ Removing and installing ⇒ page 157

17 - Gearbox housing

- ❑ Shown here without gearbox oil cooler

18 - Breather cap

19 - Multifunction switch -F125-

- ❑ Removing ⇒ page 23
- ❑ Installing ⇒ page 24
- ❑ Adjusting ⇒ page 25

20 - Gearbox oil temperature sender -G93-

- ❑ Integrated into wiring harness
- ❑ Torque setting ⇒ page 154
- ❑ Removing and installing ⇒ page 155
- ❑ Cable routing ⇒ page 152 .

21 - Bolt

- ❑ Torque setting ⇒ page 154

22 - Bolt

- ❑ Torque setting ⇒ page 154

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 155
- ❑ Cable routing ⇒ page 152 .
- ❑ Allocation ⇒ Electronic parts catalogue „ETKA“

24 - Seal

- ❑ Always renew

25 - ATF drain plug

- ❑ Torque setting ⇒ page 154

26 - Selector lever

27 - Washer

28 - Nut

- ❑ Location: centring collar faces washer ⇒ Item 27 (page 147)
- ❑ Torque setting ⇒ page 154

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 155
- ❑ Cable routing ⇒ page 152 .

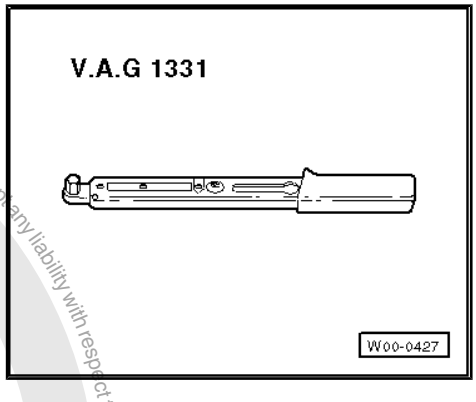
32 - Bolt

- ❑ Torque setting ⇒ page 154

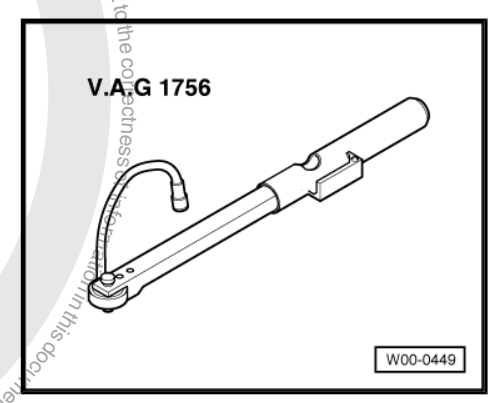
4.2 Removing valve body

Special tools and workshop equipment required

- ♦ Torque wrench -V.A.G 1331-

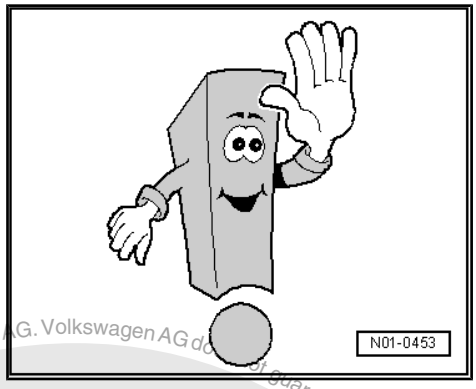


- ♦ Angle wrench -V.A.G 1756-



– Remove oil pan ⇒ page 141 .
– Remove ATF strainer ⇒ page 144 .
– Pull connectors off solenoid valves ⇒ Item 1 (page 153) through ⇒ Item 8 (page 153) .

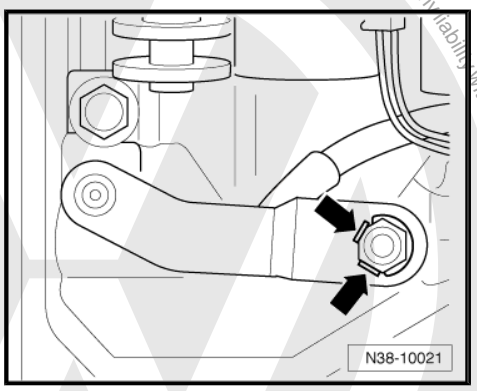
A flat-blade screwdriver with a shaft diameter of 2.5 mm is well suited to release connector housing on solenoid valves.



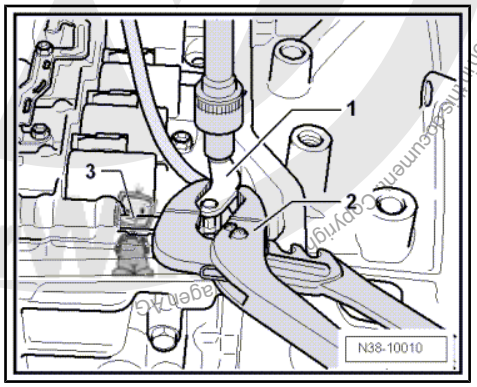
Caution

If connector or connector housing is damaged, the wiring harness or solenoid valve must be renewed.

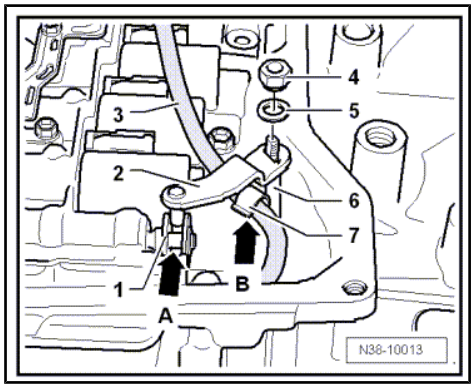
- Separate connectors ⇒ Item A (page 153) and ⇒ Item B (page 153) .
- Unbolt retainer for connectors ⇒ Item 1 (page 154) and ⇒ Item 2 (page 154) .
- Unscrew gearbox oil temperature sender -G93- ⇒ Item 3 (page 154) and carefully pull out of valve body.
- Bend back securing tab on selector lever, if fitted.



- 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- .

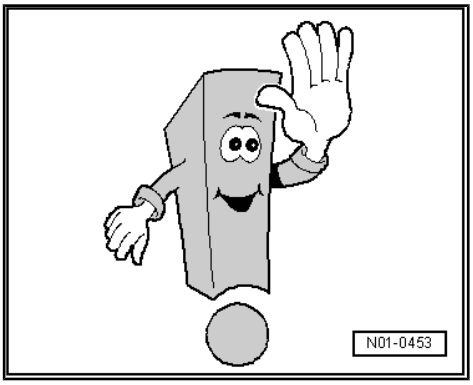


- Note spool valve -A- on valve body into which selector lever engages so that this is not damaged.



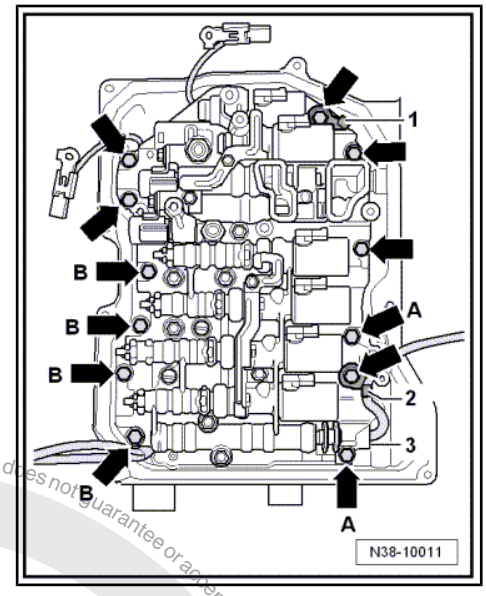
The spool valve is very »sensitive«. Even the slightest damage will lead to faults in operation.

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

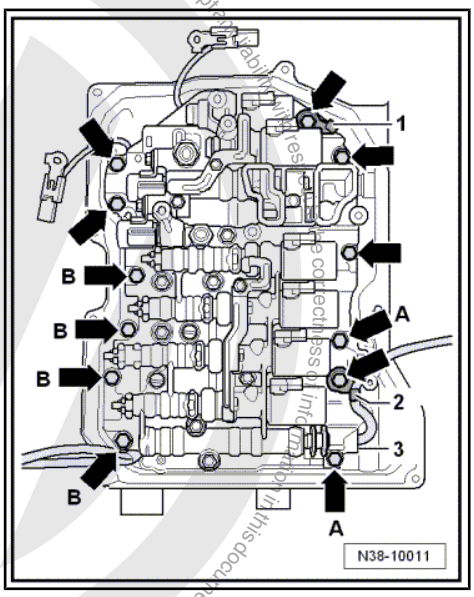


– Loosen marked bolts (Qty. 12) -arrows-.

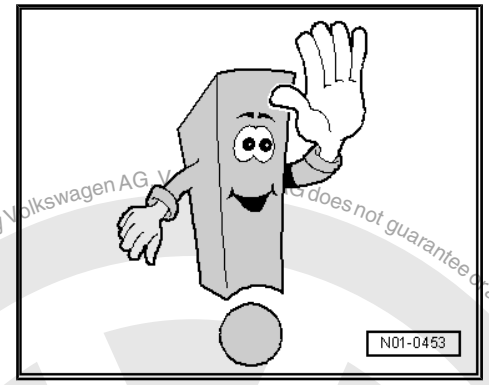
> **Caution**
>
> *If other bolts are loosened, the valve body will warp.*



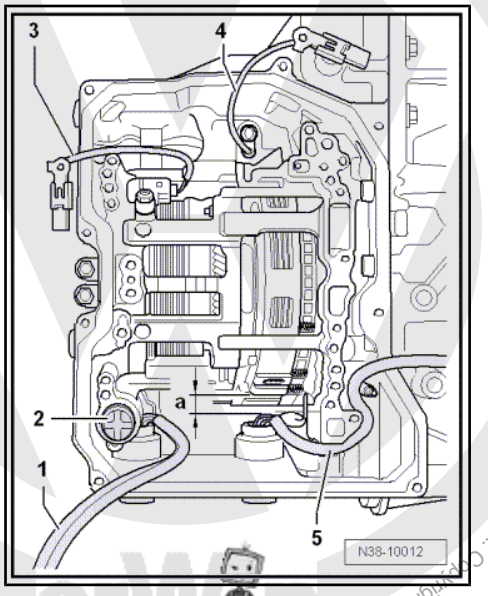
– Unbolt brackets -1- and -2-.



– Unbolt valve body and remove.



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

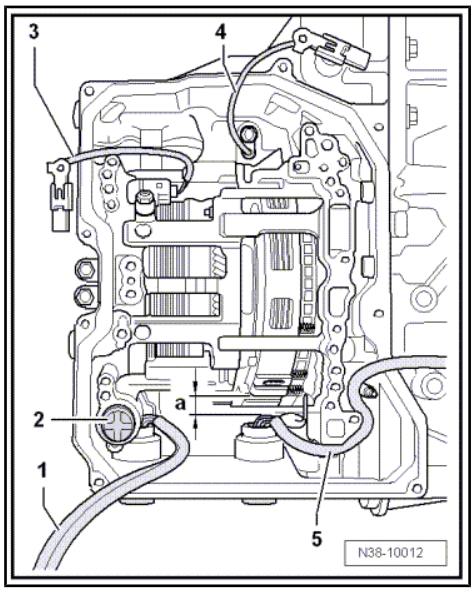


4.3 Installing valve body

So that no wiring is pinched during installation:

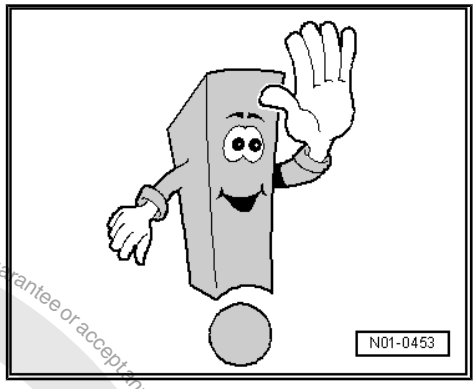
– Route wires -1-, -3-, -4- and -5- as shown in figure and fix them in place.

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.



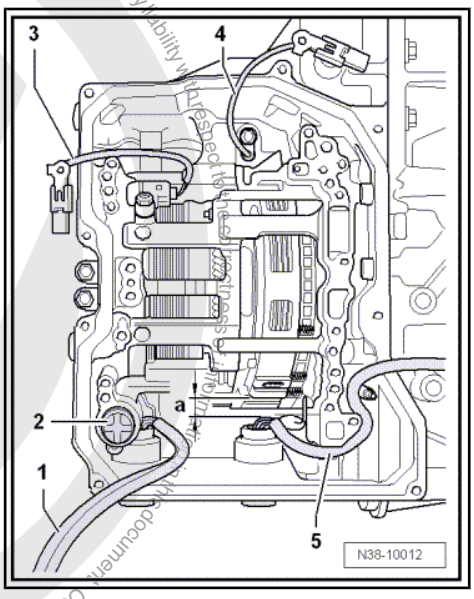
The valve body is secured with bolts of 3 different lengths.

– Before installing valve body, sort bolts by length.



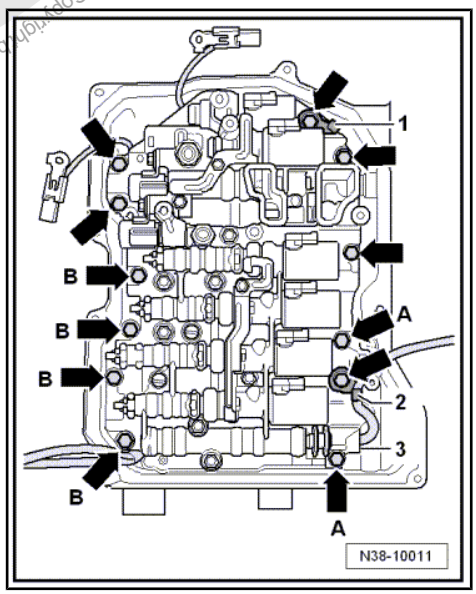
– Coat damper piston -2- with ATF and insert with spring.

– Carefully insert valve body and start 2 bolts.



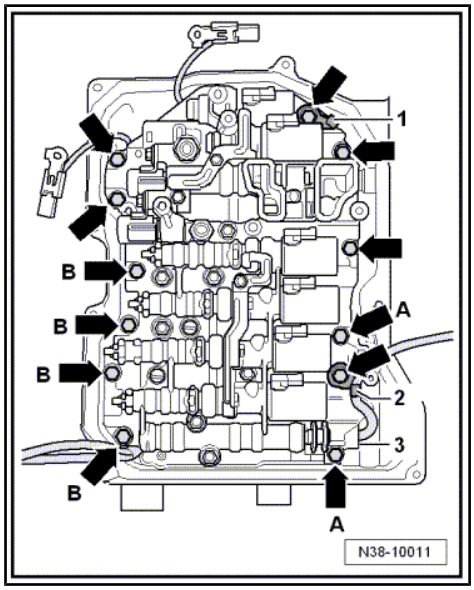
Lengths of bolts and location on valve body

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

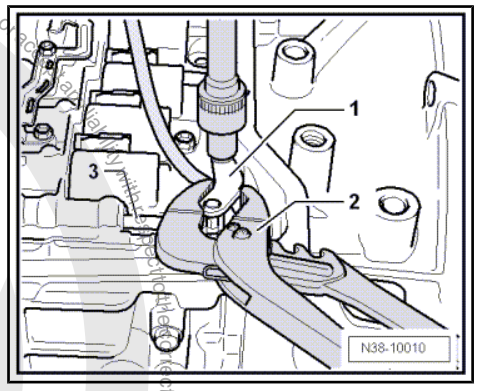


– Check that no wire is pinched.

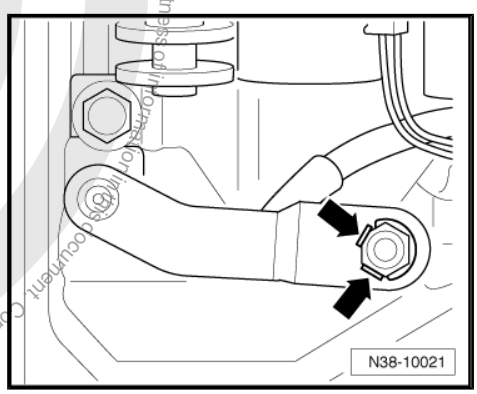
– First fit remaining bolts and retainers -1- and -2- and tighten by hand.
– Install gearbox oil temperature sender -G93- and tighten; torque settings ⇒ page 154 .
– Push connector (Qty. 8) onto solenoid valves ⇒ page 152 .
– Tighten retainer for connectors ⇒ page 152 ; torque setting ⇒ page 154 .
– Push on connectors ⇒ Item A (page 153) and ⇒ Item B (page 153) .
– Tighten valve body diagonally from centre outwards; torque setting ⇒ page 154 .
– Install selector lever.



– Tighten selector lever nut -1- to specified torque ⇒ page 154 .
– In the process, carefully grip selector lever -1- with pliers -2- so that torque is not transferred to multifunction switch -F125- .



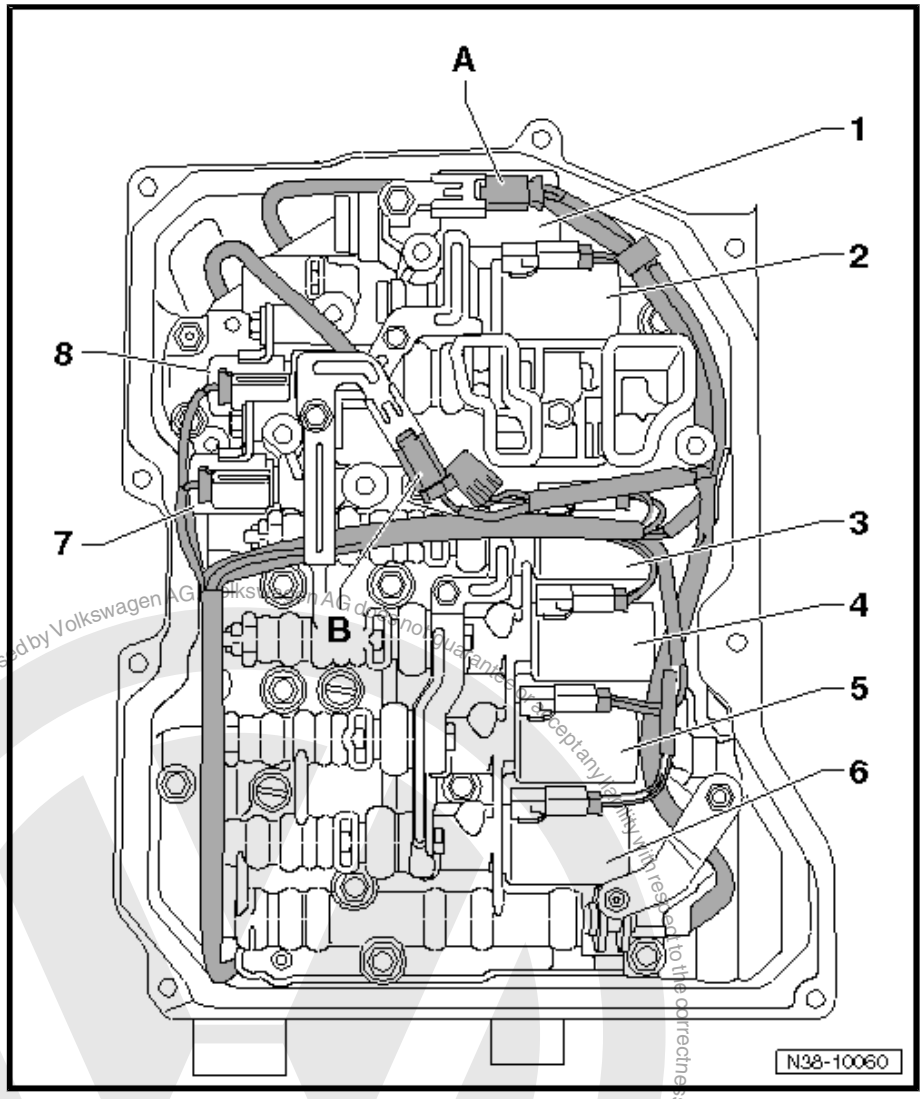
– Bend up securing tab on nut.
– Install ATF strainer ⇒ page 144 .
– Install oil pan ⇒ page 141 .
– Fill with ATF; check ATF level and top up ⇒ page 134 .
– Connect -VAS 5051- and continue to switch until „Function/ component selection“ is displayed.
– Then press „Drive (Repair group 01; 10...26; 28...39)“.
– 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 input 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 154

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

- ❑ Torque setting
  ⇒ page 154

3 - Gearbox oil temperature sender -G93-

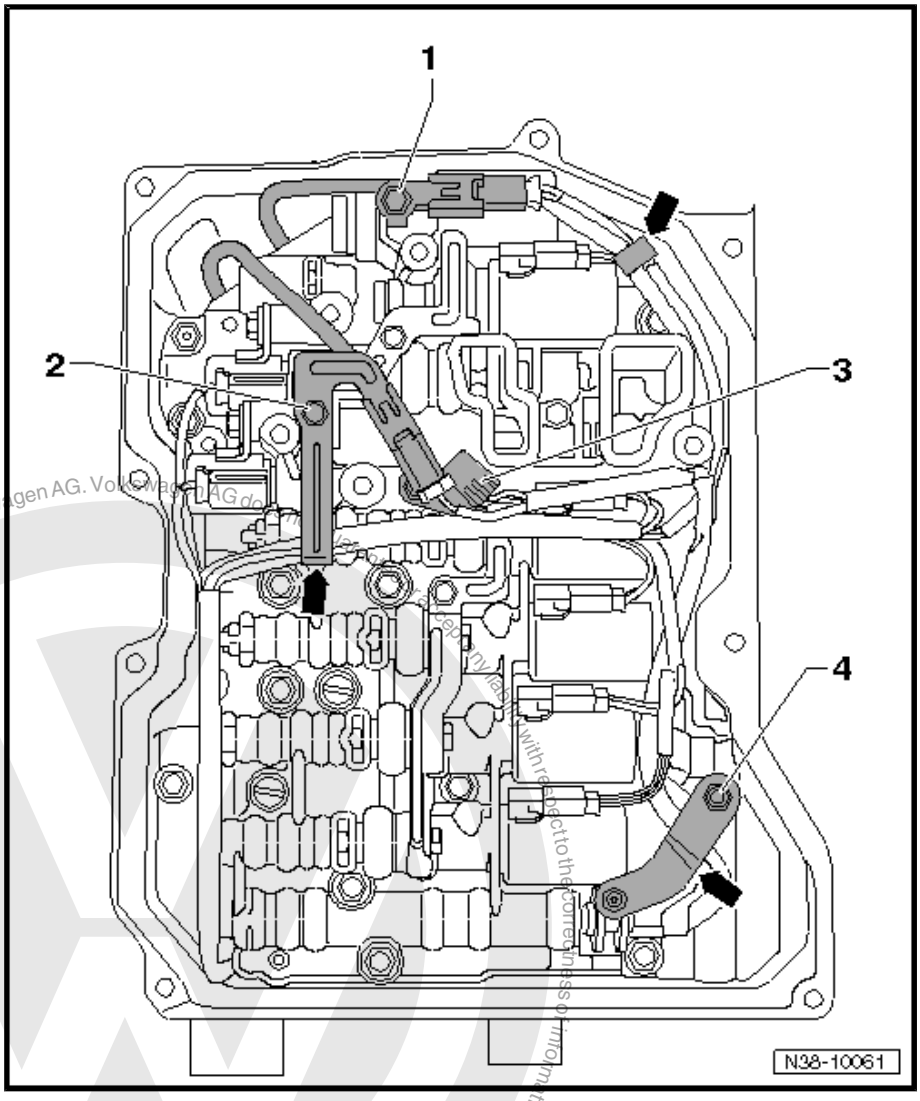
- ❑ Colour of wire on sender: orange/orange

4 - Selector lever

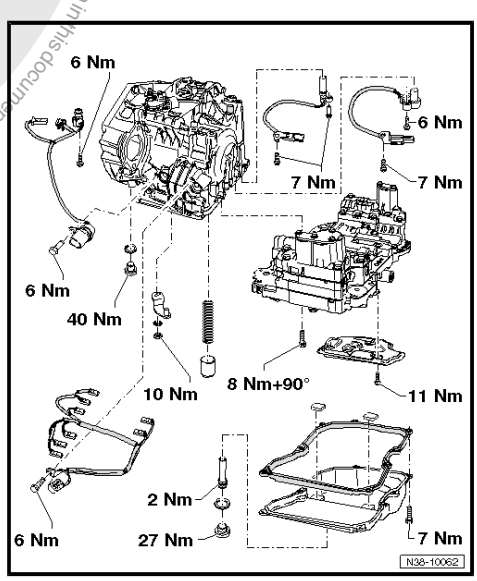
- ❑ Torque setting
  ⇒ page 154

Pfeile -

- ❑ Wire are fixed in place »here«



4.4 Specified torques



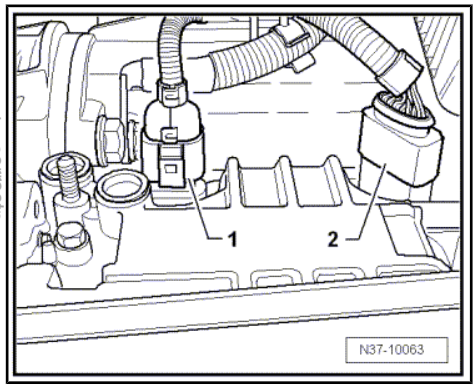
5 Removing and installing wiring harness for solenoid valves and senders

5.1 Removing

– Drain ATF ⇒ page 138 .
– Remove oil pan ⇒ page 141 .
– Remove ATF strainer ⇒ page 144 .
– Remove valve body ⇒ page 147 .
– 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 154 .
– Install valve body ⇒ page 150 .
– Install ATF strainer ⇒ page 144 .
– Install oil pan ⇒ page 141 .
– Fill with ATF; check ATF level and top up ⇒ page 134 .

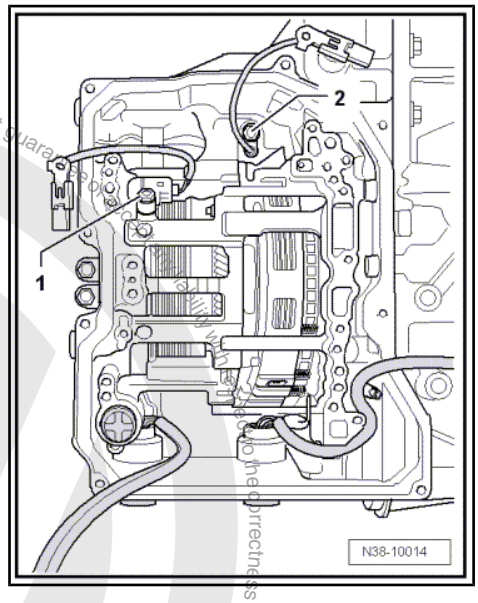
6 Removing and installing gearbox input speed sender -G182-

6.1 Removing

– Remove valve body ⇒ page 147 .

– Unscrew bolt -1- from gearbox input speed sender -G182- .

– Pull sender out of gearbox.



6.2 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 154 .

– Install valve body ⇒ page 150 .

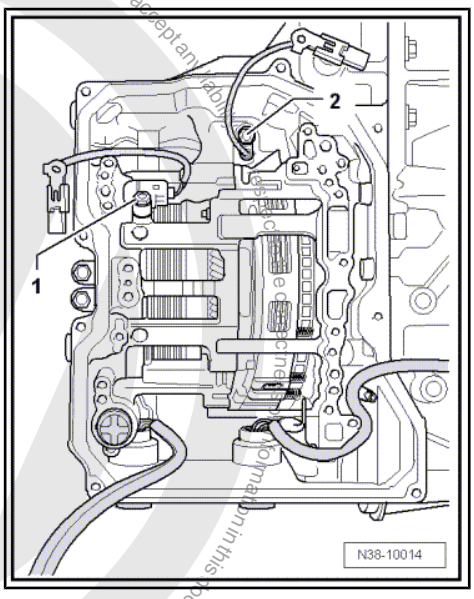
7 Removing and installing gearbox output speed sender -G195-

7.1 Removing

– Remove valve body ⇒ page 147 .

– Unscrew bolt -2- from gearbox output speed sender -G195- .

– Pull sender out of gearbox.



7.2 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 154 .

– Install valve body ⇒ page 150 .

Torque settings ⇒ page 154

39 – Final drive - differential

1 Renewing oil seals for flange shafts

Brief description

Flange shaft O-rings can be replaced with gearbox in situ.

Left drive shaft is removed completely.

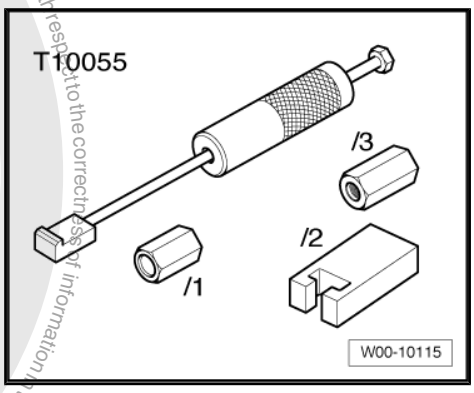
Right drive shaft remains in vehicle and is only detached from gearbox.

– Right drive shaft remains in wheel bearing; use thrust piece -T10177- . Remove left drive shaft; use thrust piece -T10176- .

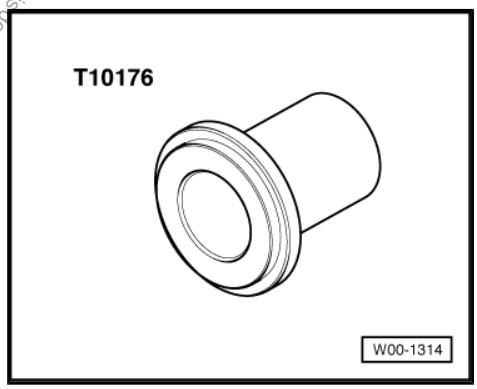
1.1 Renewing oil seal for left flange shaft

Special tools and workshop equipment required

♦ Puller -T10055-



♦ Thrust piece -T10176-

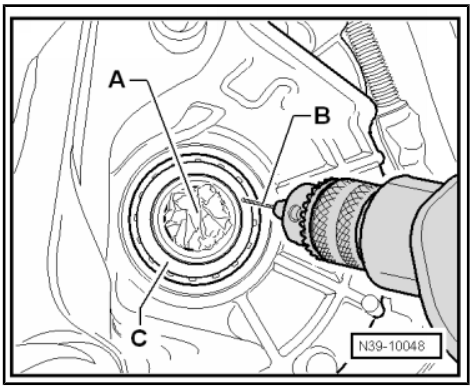


Removing

– Remove left drive shaft ⇒ Rep. gr. 40 ; Removing and installing drive shafts .

– Seal drive shaft aperture on transmission with a clean cloth -A-.

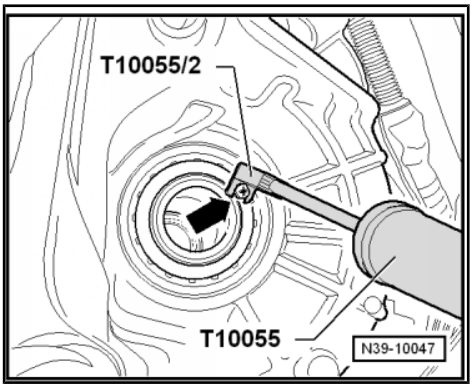
– Carefully drill a hole (size 2 to 4 mm) -B- into outer sheet metal ring -C- of oil seal.



Note

- *Grease drill bit -B- so that swarf adheres to it.*
- *Drill only through sheet metal ring -C- because gearbox may otherwise be damaged.*

– 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 carefully clean gearbox and drive shaft aperture.*
- *No iron chips must enter gearbox or drive shaft aperture; vacuum up chips if necessary.*
- *If only the sheet metal ring of seal could be pulled out, carefully lever out rest of seal with a screwdriver.*

Installing

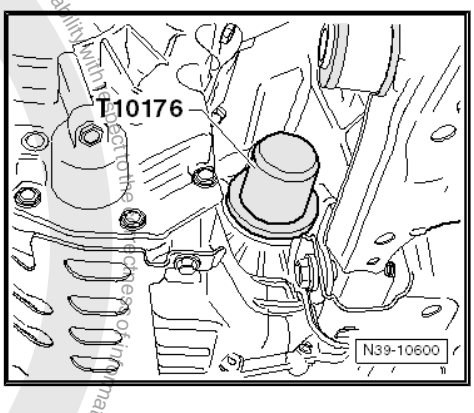
Install in reverse order of removal. During this step, observe the following:

– Apply ATF to circumference and sealing lips of new oil seal.

Installation position:

Open side of oil seal faces gearbox.

– Drive in new seal onto stop with thrust piece -T10176- . Do not cant oil seal.



– Install drive shaft ⇒ Rep. gr. 40 ; Removing and installing drive shafts .

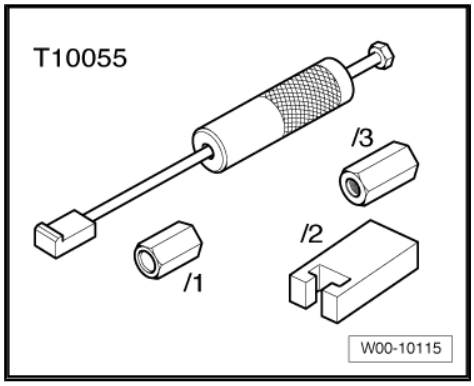
– Finally, check ATF level and top up ⇒ page 134 .

– Install noise insulation.

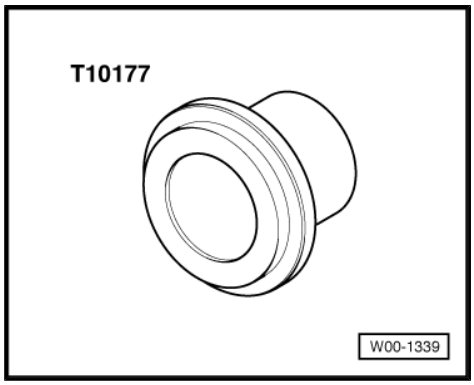
1.2 Renewing seal for right flange shaft

Special tools and workshop equipment required

- Puller -T10055-



- Thrust piece -T10176-



Removing

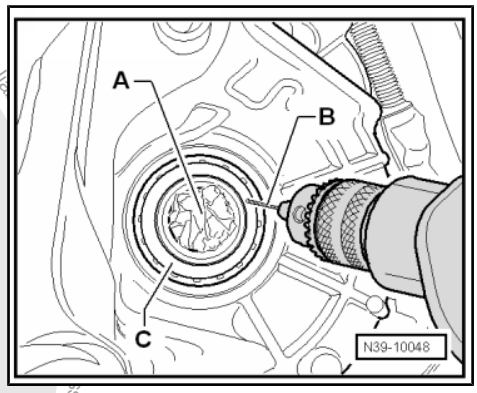
– Remove noise insulation.

– Remove right drive shaft from gearbox ⇒ Rep. gr. 40 ; Removing and installing drive shafts .

– Raise drive shaft as high as possible and secure. Take care not to damage paint on drive shaft in the process.

– Seal drive shaft aperture on transmission with a clean cloth -A-.

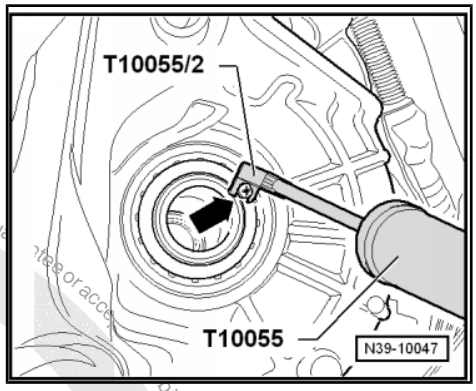
– Carefully drill a hole (size 2 to 4 mm) -B- into outer sheet metal ring -C- of oil seal.



Note

- *Grease drill bit -B- so that swarf adheres to it.*
- *Drill only through sheet metal ring -C- because gearbox may otherwise be damaged.*

– 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 carefully clean gearbox and drive shaft aperture.*
- *No iron chips must enter gearbox or drive shaft aperture; vacuum up chips if necessary.*
- *If only the sheet metal ring of seal could be pulled out, carefully lever out rest of seal with a screwdriver.*

Installing

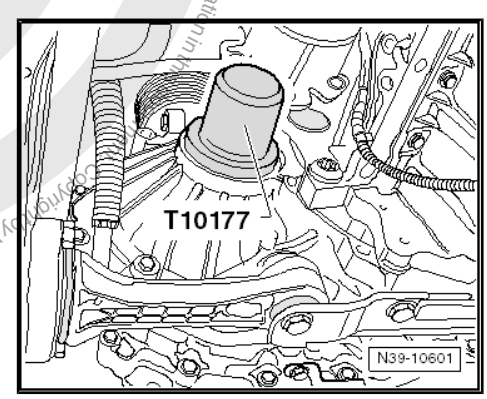
Install in reverse order of removal. During this step, observe the following:

– Apply ATF to circumference and sealing lips of new oil seal.

Installation position:

Open side of oil seal faces gearbox.

– Drive in new seal onto stop with thrust piece -T10177- . Do not cant oil seal.



– Install drive shaft ⇒ Rep. gr. 40 ; Removing and installing drive shafts .

– Finally, check ATF level and top up ⇒ page 134 .

– Install noise insulation.