

General repair notes, suggestions and criticism

Suggestions and criticism on this Repair Manual

This repair manual

This repair manual was developed for you. It should support you and offer you assistance. When you use ELSA , technicians from around the world have the ability to share their suggestions and criticism, "praise and blame" .

- Use the Feedback Button - **at the top in the Menu border** - .

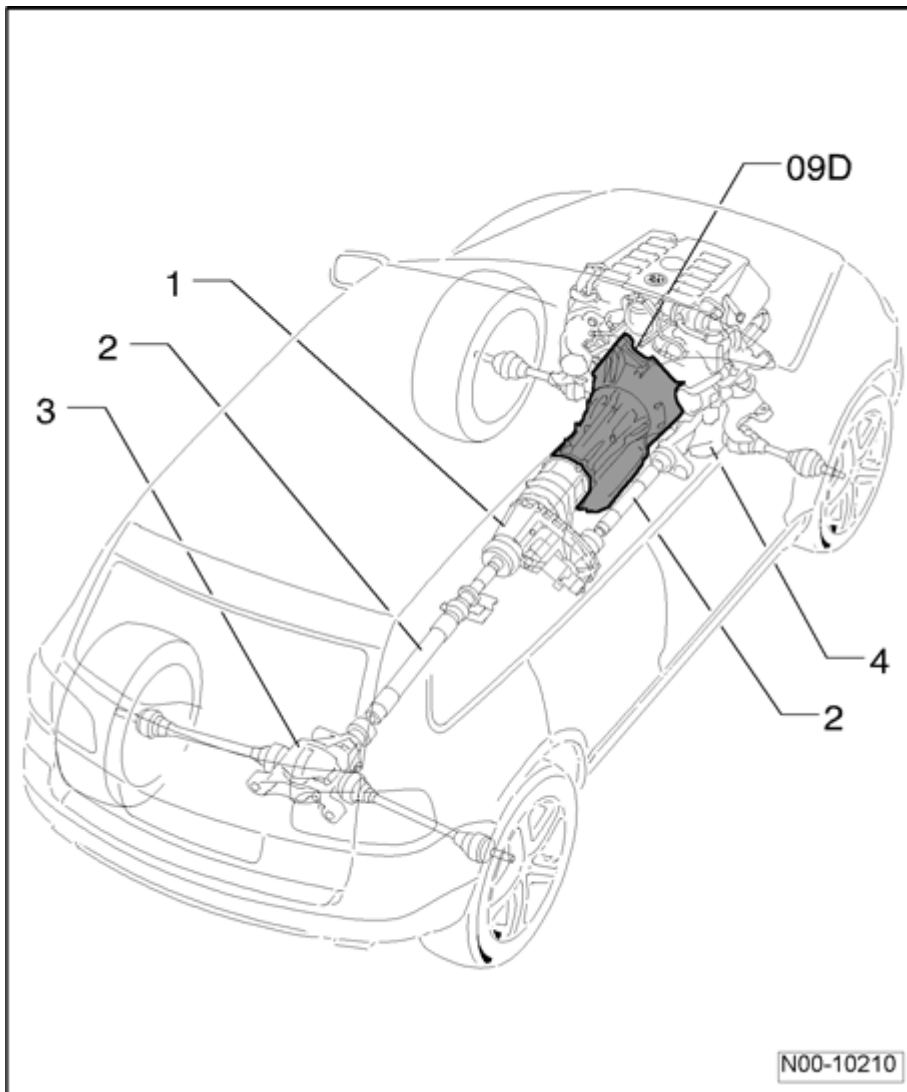
Information about 6 Spd. Automatic transmission 09D, general repair notes

Transmission construction and function

More information about the construction and function can be found in

⇒ Self-study program no. 89K303 6 Spd. Automatic Transmission 09D All Wheel Drive .

Drivetrain guide, overview



■ Transfer case

■

⇒ [Repair Manual, Rear Final Drive, Repair Group 34, Transfer case, removing and installing](#)

■

⇒ [Repair Manual, Rear Final Drive, Repair Group 34, Differential, removing and installing; Transport of differential](#)

■ Driveshafts

■

⇒ [Repair Manual, Rear Final Drive, Repair Group 39,](#)

- **Rear final drive**

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⇒ [Repair Manual, Rear Final Drive, Repair Group 39,](#)

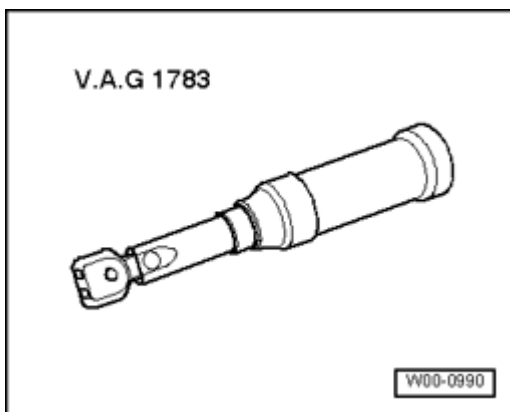
- **Front final drive**

-

⇒ [Repair Manual, Rear Final Drive, Repair Group 39,](#)

Tools

A complete list of special tools and equipment used in this repair manual is listed before each repair description and in: "Special tools catalog" .



With smaller bolts with minimal tightening torques, uncertainties often exist. Torque wrench 2 to 10 Nm V.A.G 1783 can be used on these bolts.

Transmission

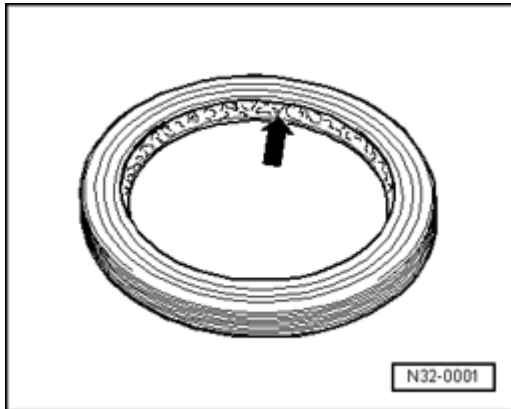
- If caps are removed from transmission or transmission has no oil, do not run engine and do

not tow vehicle.

- First, always clean connection points and vicinity and then loosen.
- When installing transmission, make sure alignment sleeves are correctly seated between engine and transmission.
- Place removed parts on a clean surface. Cover parts to prevent soiling. Use sheeting or paper. Use lint-free cloths only!
- Carefully cover or plug unpacked components if repairs cannot be performed immediately.
- Only install clean parts: Remove packing from replacement parts immediately prior to installation and not before.
- Do not run engine or tow vehicle with oil pan removed or when there is no ATF in the transmission.
- If the transmission is removed from the vehicle, secure the torque converter to prevent it from falling out.
- Before installing transmission, check torque converter position.
- Check ATF level after installing ⇒ [37-4, ATF level, checking and topping off](#) .

Gaskets, seals

- Always replace O-rings, gaskets and seals.
- Once a seal or gasket has been removed, check contact surface on housing or shaft for burrs and damage. Repair as necessary.



- Before installing a seal, lightly coat outer circumference and sealing lip with ATF, depending on the component location.
- Only use ATF for automatic transmission components. Other types of lubrication cause malfunctions to occur in the transmission hydraulics.
- Open side of seal faces oil.
- Check ATF level after installing ⇒ [37-4, ATF level, checking and topping off](#) .

Oil

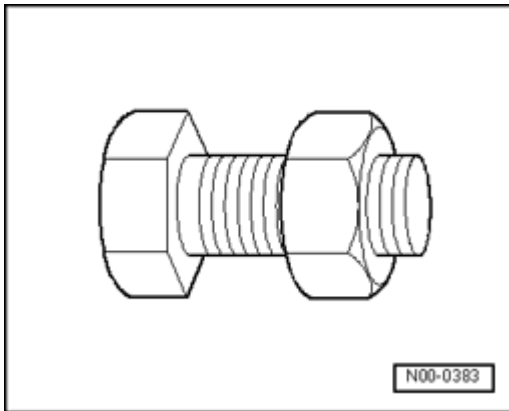
Caution!

Be cautious when dealing with oil. Dispose of drained oil properly. Consider this: One drop of oil can contaminate 1000 liters of drinking water.

Do not mix any additives with the oil, and do not add other oils.

Drained oil must not be used to fill again.

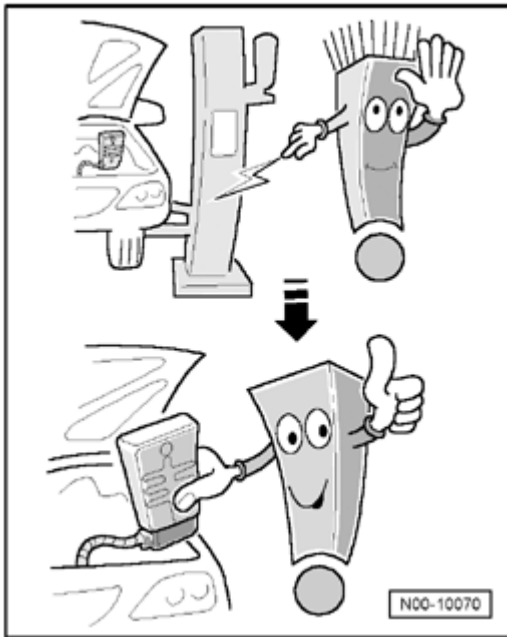
The oil is obtainable as a replacement part. The part number can be found in ⇒ *Electronic Parts Catalog "ETKA"* .



Nuts and bolts

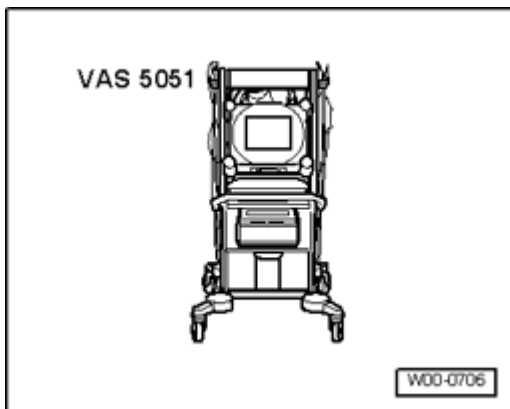
- Loosen and tighten bolts or nuts for securing covers and housings in diagonal sequence.
- The tightening torques stated apply to uncoiled bolts and nuts.
- Clean threads of bolts that were applied with locking fluid using a wire brush. Apply locking fluid AMV 185 101 A1 before reinstalling. (Part numbers are for reference only. Always check with your Parts Department for the latest part number information).
- Use thread tap to remove remains of locking fluid from all threaded holes in which self-locking bolts are to be installed. Otherwise there is a risk that the bolts will shear the next time they are removed.
- Replace self-locking bolts and nuts.
- The tightening torques stated apply to uncoiled nuts and bolts.

Electrical components



You have probably received a electrical shock at one time, when touching a metal item. The reason for this is the electrostatic charge that is built up in the human body. This charge can lead to malfunctions when contacting the electrical components of the transmission and the gear selector.

- Touch a grounded object, e.g. a water pipe or a lifting platform, before working on the electrical components! Do not make direct contact with connector contacts.



Guided fault finding, On Board Diagnostic (OBD) and measuring technology

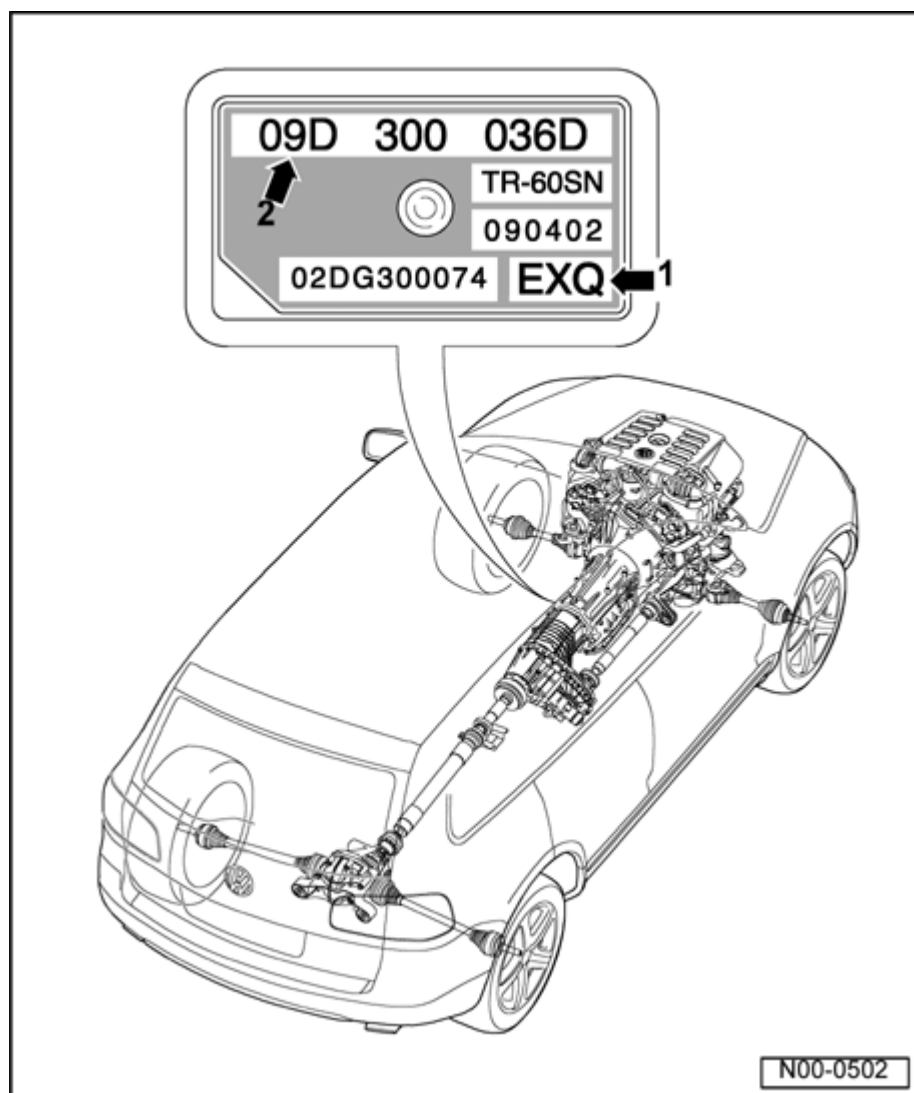
Before performing service work on the transmission, the cause of damage must be determined as exactly as possible via "Guided Fault Finding" .

Guided Fault Finding is performed using Vehicle Diagnosis, Testing and Information System VAS 5051 .

Transmission identification

The Touareg is equipped with a 6-speed Automatic Transmission 09D all-wheel drive. Allocation ⇒ [00-3, Code letters, assembly application](#) .

The transmission code letters are shown on the type plate on the lower left of the transmission.



Example:

- Code letters
- Automatic transmission 09D

The transmission code letters are also shown on the vehicle

data plates.

Code letters, assembly application

If replacement parts are required for a repair, always refer to transmission code letters of the automatic transmission.					
Automatic transmission			6-speed 09D All Wheel Drive		
Transmission	Code letters		"EXL"		"EXQ"
	Installed	from to	05.02 05.03		07.02 05.03
Application	Model	in	Touareg 2003 ➤		
	Engine		3.2 L - 162 kW V6		5.0 L - 230 kW V10 TDI
If replacement parts are required for a repair, always refer to transmission code letters of the automatic transmission.					
Automatic transmission			6-speed 09D All Wheel Drive		
Transmission	Code letters		EXP	GLK	HAP
	Installed	from to	07.02 08.03	07.02 02.04	01.04
Application	Model	in	Touareg 2003 ➤		
	Engine		3.2 L -177 kW V6		
If replacement parts are required for a repair, always refer to transmission code letters of the automatic transmission.					
Automatic transmission			6-speed 09D All Wheel Drive		
Transmission	Code letters		"FCS"		
	Installed	from to	07.02 05.03		
Application	Model	in	Touareg 2003 ➤		
	Engine		4.2 L - 228 kW V8		
If replacement parts are required for a repair, always refer to transmission code letters of the automatic transmission.					
Automatic transmission			6-speed 09D All Wheel Drive		
Transmission	Code letters		"GLD"	"HAQ" HAO does not exist, HAQ is always meant 11.04	"HZX" 10.05
	installed	from to	07.02 08.03		
	Model	in	Touareg 2003 ➤		

Application	Engine		5.0 L - 230 kW V10 TDI		
If replacement parts are required for a repair, always refer to transmission code letters of the automatic transmission.					
Automatic transmission			6-speed 09D All Wheel Drive		
Transmission	Code letters		GLH	GLJ	GTK
	installed	from to	07.02	07.02	01.03
Application	Model	in	Touareg 2003 ➤		
	Engine		4.2 L - 228 kW V8	3.2 L - 162 kW V6	5.0 L - 230 kW V10 TDI
If replacement parts are required for a repair, always refer to transmission code letters of the automatic transmission.					
Automatic transmission			6-speed 09D All Wheel Drive		
Transmission	Code letters		HAM	"HAU"	
	installed	from to	01.04	01.04	
Application	Model	in	Touareg 2003 ➤		
	Engine		3.2 L - 162 kW V6	4.2 L - 228 kW V8	
			3.2 L - 177 kW V6		
If replacement parts are required for a repair, always refer to transmission code letters of the automatic transmission.					
Automatic transmission			6-speed 09D All Wheel Drive		
Transmission	Code letters		"HPH"	HZV	JBR
	installed	from to	11.05	11.05	11.05
Application	Model	in	Touareg 2003 ➤		
	Engine		4.2L - 257 kW V8 - FSI	4.2 L - 228 kW V8	3.2 L - 177 kW VR6

Capacities

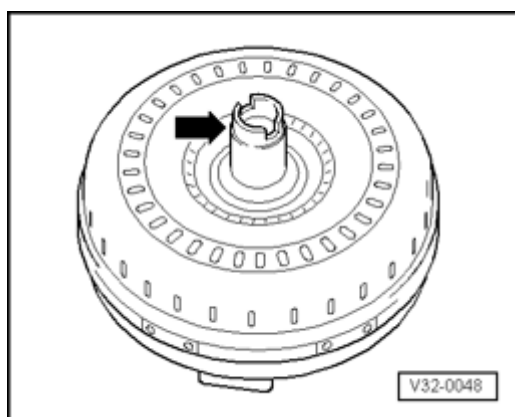


Further information about Volkswagen oils can be found in:
Fluid Capacity Chart

Capacities	Automatic transmission 09D
Initial filling at manufacturer	approx. 9 L (filled for life)
Lubricant	ATF Replacement part number: ⇒ <i>Electronic parts catalog "ETKA"</i>

Torque converter

Torque converter, checking

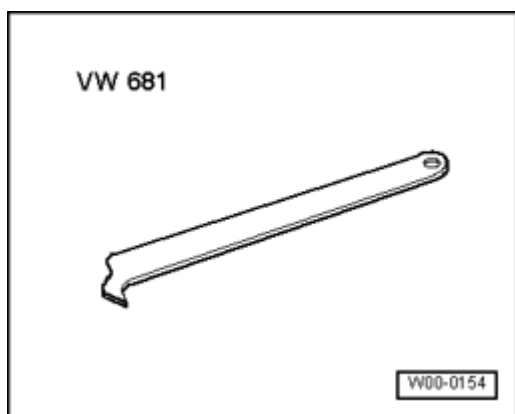


- Check converter hub for wear grooves - **arrow** - .

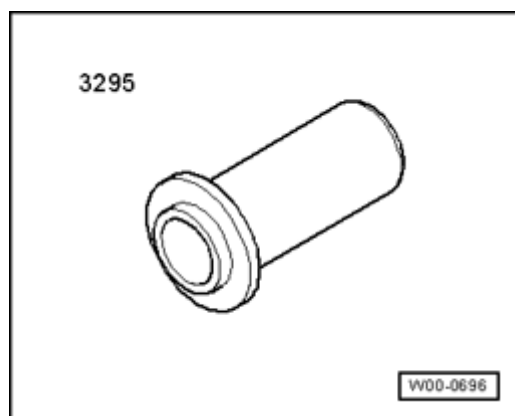
Torque converter is welded and must be replaced if damaged.

Torque converter gaskets, removing and installing

Special tools, testers and auxiliary items required



- Extractor lever VW 681



- Thrust piece 3295

Removing

- Insert extractor lever VW 681 directly behind the sealing lip of sealing ring, so that the contact ring which is behind it is not damaged.

Installing

- Coat outer circumference and sealing lips of sealing ring with ATF.

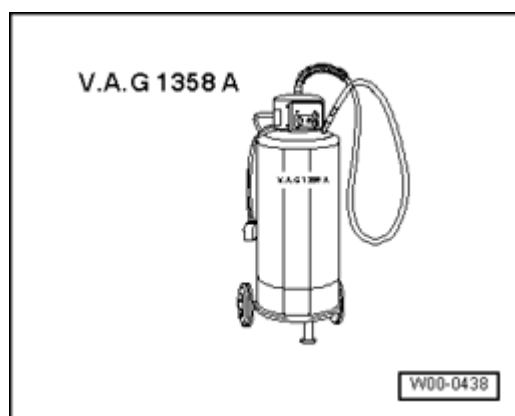
Installation position:

The open side of sealing ring faces transmission.

- Using thrust piece 3295, drive in sealing ring for torque converter up to thrust piece stop.

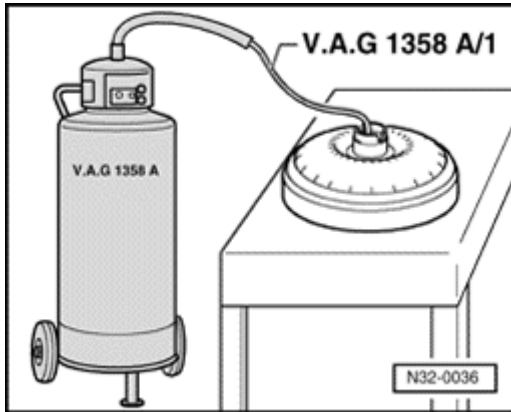
Torque converter, draining

Special tools, testers and auxiliary items required



- Oil extraction device V.A.G 1358 A
- Oil extraction sensor V.A.G 1358 A/1

In case of soiling of the ATF via shavings or during a major transmission overhaul, torque converter must be drained as follows:



- Extract ATF from torque converter using oil extractor V.A.G 1358 A and oil extractor probe V.A.G 1358 A .

Torque converter, installing

- Press torque converter hub through oil seal as far as first stop.
- Lightly press torque converter inwards and turn until slots on torque converter hub engage in drive lugs on ATF pump gear and torque converter slides in a noticeable distance.

Caution!

If the torque converter is not properly installed, the drive lugs on the torque converter and the ATF pump will be severely damaged when the transmission is attached to the engine.

- After "feeling" the converter slide in as far as top, pull it back about 5 mm.

This brings the sealing lip back into its "correct location" if it was disturbed during installation.

Before tightening the connecting bolts of the engine/transmission, check that the torque converter can be turned behind the drive plate, and keep checking when tightening the bolts.

If the torque converter cannot be turned, it should be assumed that it is not properly installed. The drive plate surface and the ATF pump will be damaged.

- After installing transmission, check ATF level and top off
⇒ [37-4, ATF level, checking and topping off](#) .

"Tester" , connecting

Volkswagen offers various testers, for example:

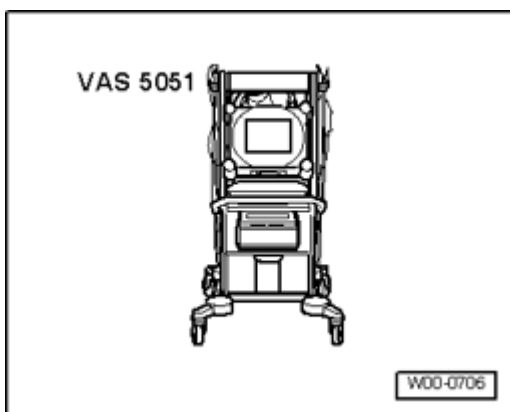
- Vehicle Diagnosis, Testing and Information System VAS 5051
- Vehicle Diagnosis, Testing and Information System VAS 5051B
- Tester VAS 5051/11A
- Vehicle Diagnosis and Service Syst. VAS 5052
- Diagnosis System VAS 5053

The operation of this "tester" is described in the respective operating instructions.

The following description is based on the Vehicle Diagnosis, Testing and Information System VAS 5051 ⇒ [37-1, Vehicle Diagnosis, Testing, and Information System VAS 5051 , connecting](#) .

Vehicle Diagnosis, Testing, and Information System VAS 5051 , connecting

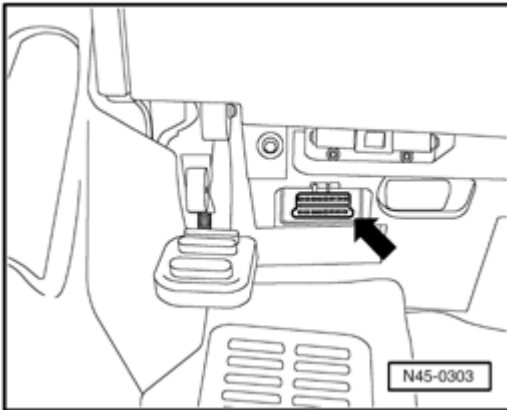
Special tools, testers and auxiliary items required



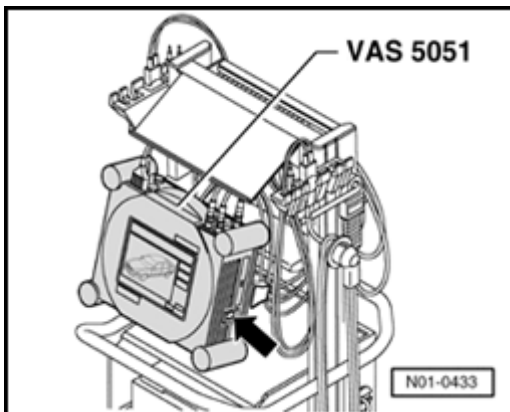
- Vehicle Diagnosis, Testing and Information System VAS 5051

Warning!

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



- Plug connector of diagnostic cable VAS 5051/1 or VAS 5051/3 into vehicle Data Link Connector (DLC).



- Turn on tester - **arrow** - .

"Tester" is ready for operation when you can select between fields/buttons Guided Functions and Guided Fault Finding at "right" of display.

Depending on equipment and tester version, additional functions may be "displayed" , for example:

- ElsaWin
- Measuring Technique
- On Board Diagnostic (OBD)

"Tester" is not ready for operation.

- Switch on ignition.
- Touch a field/button on display to start desired function.

Selector mechanism, servicing

Warning!

Shift selector lever into position "P" and engage foot operated parking brake before working with the engine running.

Selector mechanism, checking

In selector lever positions "R" , "D" and "S" , the starter motor will not operate.

For speeds exceeding 5 km/h and shifting into selector lever position "N" , the shift lock solenoid must not engage to lock selector lever. Selector lever can be shifted into driving gear.

For speeds below 5 km/h (almost standstill) and shifting into selector lever position "N" , the shift lock solenoid must only engage after approx. 1 second. Selector lever can only be shifted out of position "N" with the brake pedal operated.

Selector lever in position "P" and ignition switched on

- Brake pedal not depressed:

Selector lever is locked and cannot be switched out of position "P" with press button depressed Solenoid for selector lever lock blocks selector lever.

- Brake pedal depressed:

Solenoid for selector lever lock releases selector lever. It is possible to shift into a driving gear. Switch selector lever slowly through from "P" to "S" ; while doing this check whether selector lever position in instrument cluster matches selector lever position.

Selector lever in position "N" and ignition switched on

- Brake pedal not depressed:

Selector lever is locked and cannot be switched out of position "N" with press button depressed Solenoid for selector lever lock blocks selector lever.

- Brake pedal depressed:

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

Selector lever in "Tiptronic" position

- Move selector lever into Tiptronic gate:

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

The selector lever display in instrument cluster must change from "P R N D S" to "6 5 4 3 2 1" when selector lever is moved in Tiptronic gate.

Ignition and light switched on

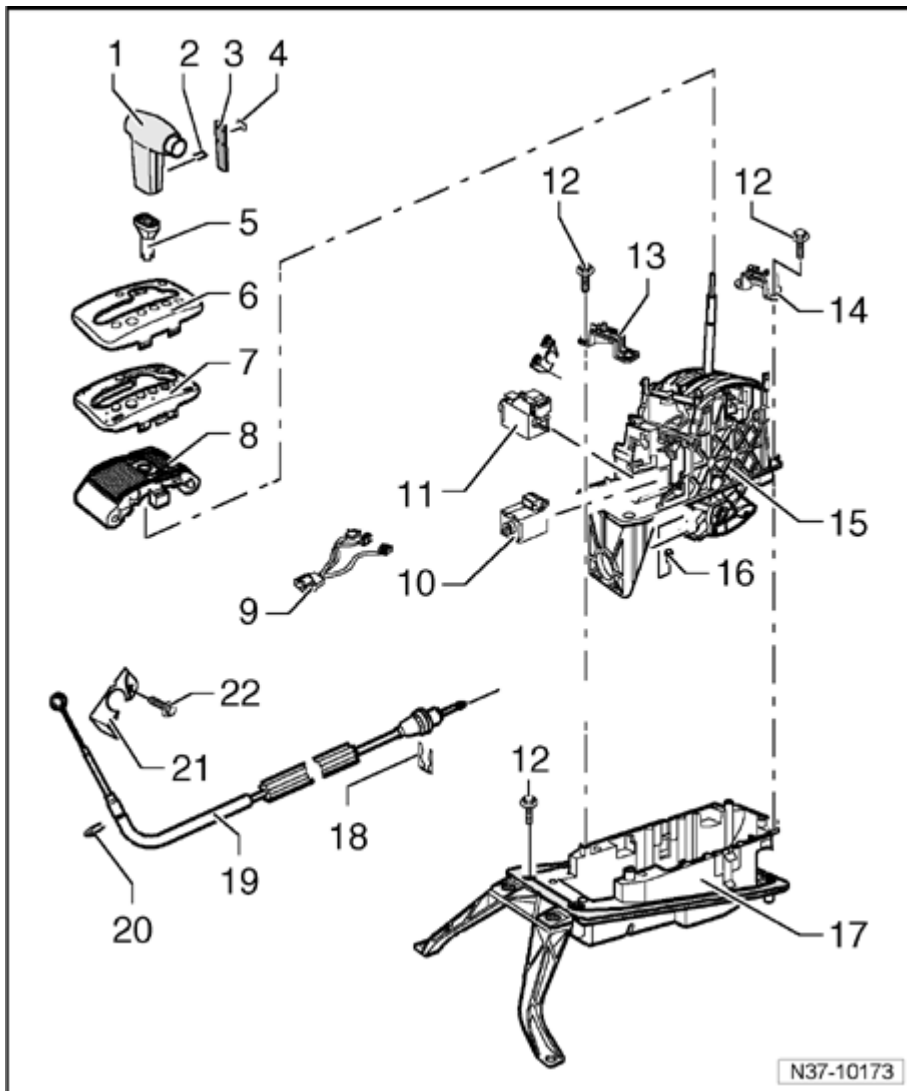
Respective symbol in selector mechanism cover lights up.

Transmission Range (TR) Display

Simultaneous lighting of all segments of Transmission Range (TR) selector lever display indicates transmission in emergency running mode.

- Check and adjust selector lever cable ⇒ [37-2, Selector lever cable, checking and adjusting](#) .

Selector mechanism, disassembling and assembling



- **Selector lever handle**

- Removing and installing ⇒ [37-2, Selector lever handle, removing and installing](#)

- **Clip**

- Trim strip

- **Emblem**

- Self-adhesive

- **Sleeve**

- **Cover**

- With selector indicator

- **Printed circuit board**

- With Tiptronic Switch F189

- **Frame**

- With cover strips
- With "opposite pole" /signal magnet for Tiptronic Switch F189

- **Harness**

- Removing and installing ⇒ [37-2, Selector Lever Park Position Lock Switch F319 , removing and installing](#)

- **Shift lock solenoid N110**

- Removing and installing ⇒ [37-2, Shift lock solenoid N110 , removing and installing](#)

- **Selector lever park position solenoid N380**

- Removing and installing ⇒ [37-2, Shifting selector lever out of P without electricity \(Manual release\)](#)

- **Bolt, 20 Nm**

- Qty. 4

- **Bracket**

- **Bracket**

- **Selector mechanism**

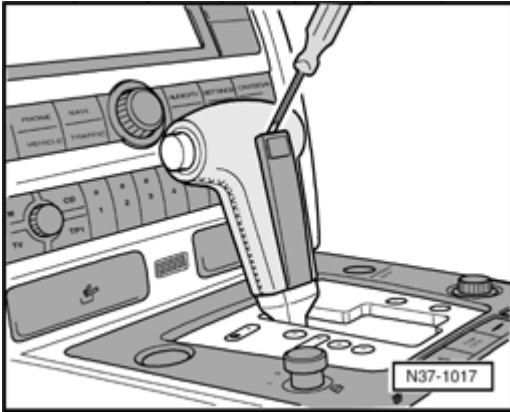
- With shift lock solenoid N110 and selector lever park position solenoid N380
- Can be removed upward

- **Bolt**
 - Adjusting ⇒ [37-2, Adjusting](#)
- **Mounting bracket/cover**
 - Can only be removed downward
- **Lock washer**
 - Always replace
- **Selector lever cable**
 - Is removed together with selector mechanism ⇒ [Item - 15 -](#)
 - Adjusting ⇒ [37-2, Adjusting](#)
- **Lock washer**
 - Always replace
- **Mounting bracket**
 - For selector lever cable on transmission
- **Bolt, 23 Nm**
 - Self-locking
 - Always replace
 - The threaded holes in transmission for bolts must always be cleaned. (e.g. with a thread tap)

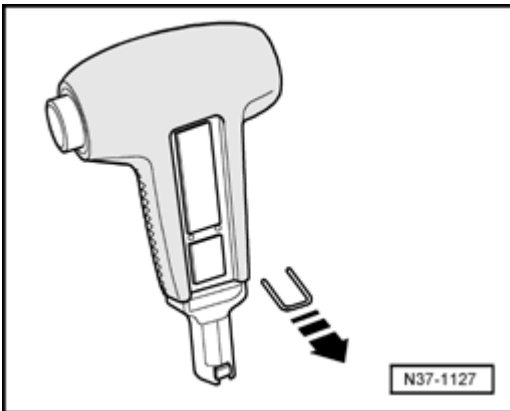
Selector lever handle, removing and installing

Removing

To ensure the handle is not damaged adhere to this sequence:



- Pry out selector.

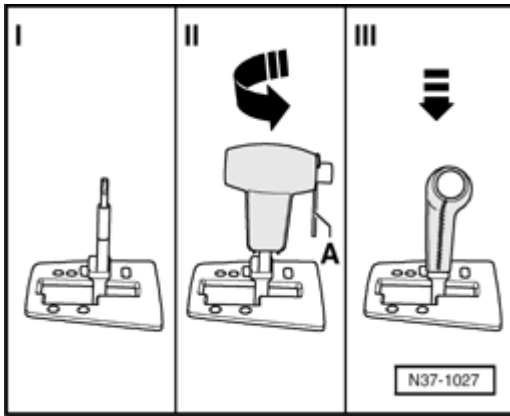


- Remove bracket from handle.
- Pull button passed pressure point until it is locked in position.
- Remove handle from selector lever.

Installing

If the handle is replaced, do not remove the assembly aid from the new handle under any circumstances!

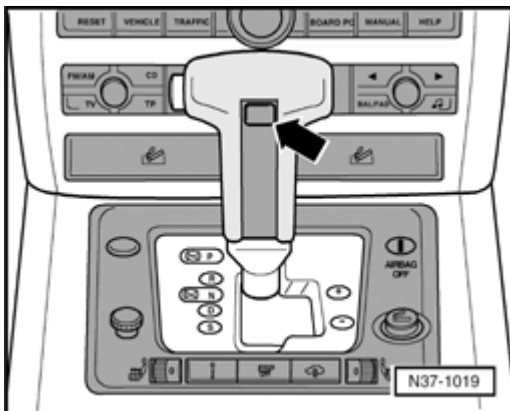
If the button is inadvertently pressed into the handle, hold handle vertically and at the bottom (!). Carefully blow button outwards again using compressed air until it can be pulled out over the pressure point by hand.



- Re-install assembly aid - **A** - (enclosed with new handle).
- Push in clip.
- Press selector into handle again.
- Place selector lever in position "N" .
- I - Guide sleeve carefully through cover strip and cross slide lying underneath.
- Make certain that the sleeve is carefully guided through the cover strip when inserting. If carelessly pushing the sleeve in, the cover strip will break.
- II - Install handle lengthwise until stop, then turn.

Installation position: Button facing driver.

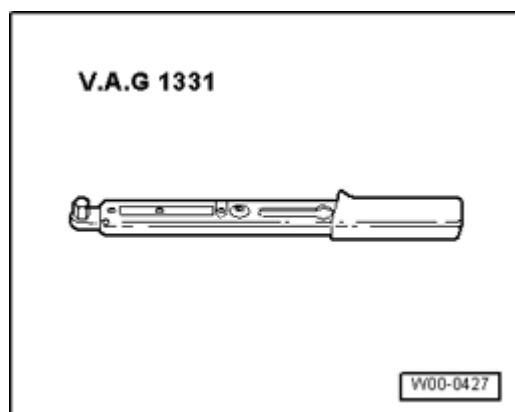
- III - Press handle on selector lever up to stop until it engages noticeably.
- Remove assembly aid - **A** - , operate switch and remove sleeve upward.



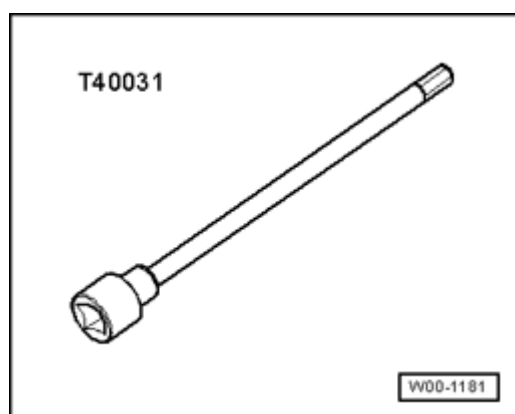
- Remove protective foil on adhesive surface and affix label - **arrow** - .

Selector lever cable, checking and adjusting

Special tools, testers and auxiliary items required



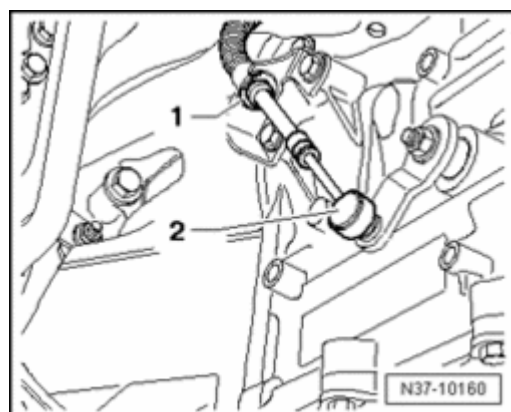
- Torque wrench V.A.G 1331



- Socket and key T40031

Checking

- Place selector lever in position "P" .
- Remove noise insulation on bottom of transmission.

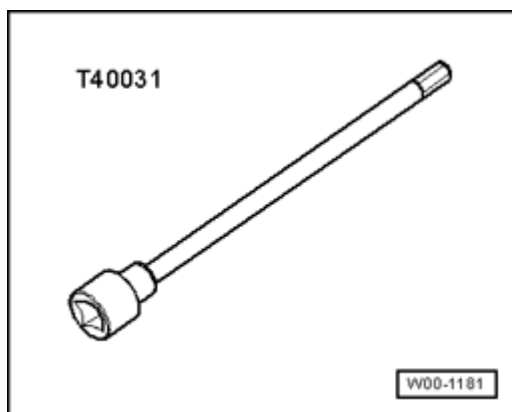


- Pull selector lever cable - **2** - from lever/selector shaft.

- Shift selector lever from "P" to "S" .
 - Selector mechanism and selector lever cable must have freedom of movement during this, replace selector lever cable or shift mechanism if necessary.
- Place selector lever in position "P" .
- Shift lever/switch rod at transmission in "P" position. Catch must engage in parking lock gear, both front wheels are locked (cannot be turned together in one direction).
 - It must be possible to push selector lever cable onto lever/shift rod, if necessary adjust selector lever cable.
- Carefully press selector lever cable onto selector shaft lever. Do not bend lever/selector shaft when doing this, otherwise shifting can no longer be adjusted precisely.
- Adjust selector lever cable ⇒ [37-2, Adjusting](#) .

Adjusting

Special tools, testers and auxiliary items required



- Socket and key T40031
 - Selector lever cable is disconnected from selector shaft lever.
- Place selector lever in position "S" .
 - Move selector shaft lever to position "D" on transmission.
 - Remove selector lever handle ⇒ [37-2, Selector lever handle, removing and installing](#) .

- The procedure for disconnecting batteries must absolutely be obeyed.
- Disconnect battery Ground (GND) strap with ignition switched off

⇒ *Repair Manual, Electrical Equipment, Repair Group 27,*

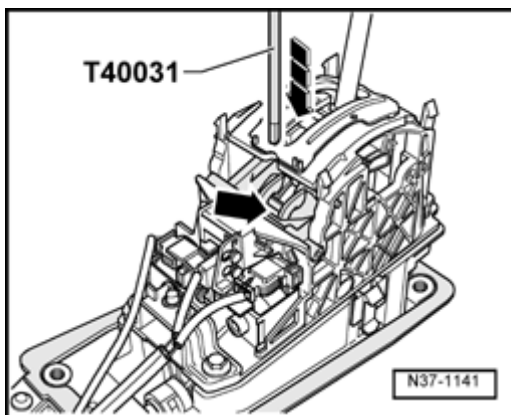
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- Remove ashtray and remove shift mechanism cover from center console

⇒ [*Repair Manual, Body Interior, Repair Group 68,*](#)

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- Remove cover from shift mechanism ⇒ [*37-2, Cover, removing and installing*](#) .
- Remove frame from shift mechanism ⇒ [*37-2, Frame, removing and installing*](#) .



- Loosen clamping bolt approx. one turn on selector lever cable.
- Carefully push selector lever cable onto the lever/selector shaft. When doing this, take care not to bend the lever/selector shaft, otherwise the selector mechanism will no longer be able to be adjusted correctly.
- Center selector lever by slightly moving selector lever forward and backward in position "D" without leaving position "D" .
- Tighten clamping screw to 10 Nm in this position. Socket insert T40031 can be used for this.

Further installation is in reverse order of removal.

- Install ashtray and selector mechanism cover in center console

⇒ [Repair Manual, Body Interior, Repair Group 68,](#)

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- Connect battery.
- Observe work sequence after connecting the battery

⇒ [Repair Manual, Electrical Equipment, Repair Group 27,](#)

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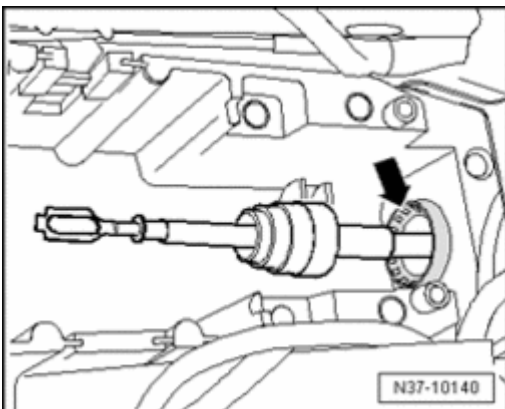
Selector lever cable, removing and installing

Note:

- *Tying a line to the cable before removing it, will make it possible to thread the cable back in when installing ⇒ [Topic 00-1](#) .*

Removing

- Remove shift mechanism ⇒ [37-2, Selector mechanism, removing and installing](#) .

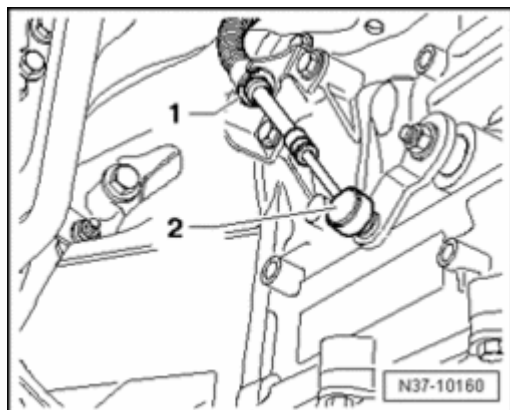


- Push boot - **arrow** - forward and out from shift unit.

To remove selector lever cable, the transfer case only needs to be lowered.

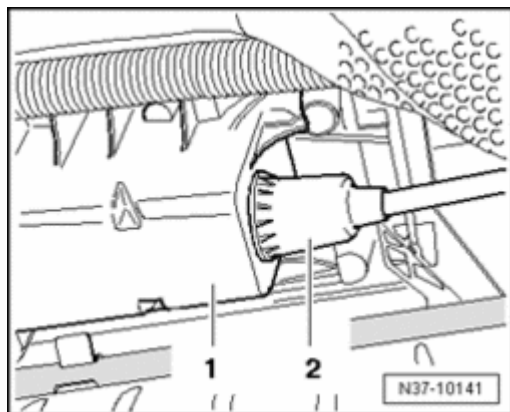
- Lower transfer case

⇒ [Repair Manual, Rear Final Drive, Repair Group 34, Transfer case, removing and installing](#)



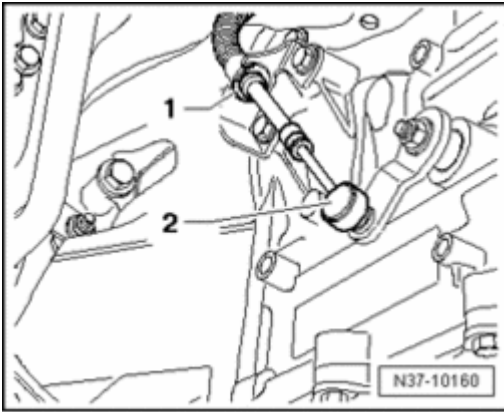
- Remove locking washer - **1** - .
- Pull selector lever cable - **2** - from lever/selector shaft.

Installing



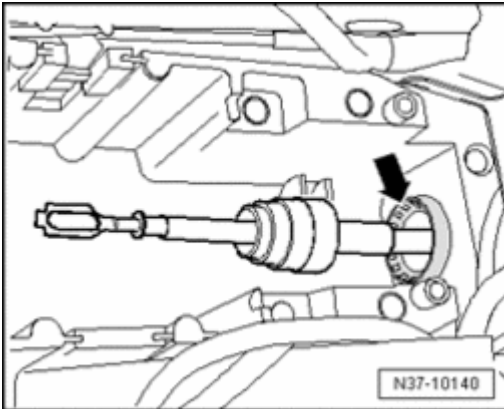
- Insert selector lever cable into shift unit - **1** - .
- Seat sleeve - **2** - so that it makes full contact against shift unit.
- Install the transfer case

⇒ [Repair Manual, Rear Final Drive, Repair Group 34,](#)



- Carefully press selector lever cable - **2** - onto selector shaft lever. Do not bend lever/selector shaft when doing this, otherwise shifting can no longer be adjusted precisely.

- Replace lock washer - **1** - .



- Seat boot - **arrow** - so that it makes full contact against shift unit.

- Install shift mechanism ⇒ [37-2, Selector mechanism, removing and installing](#) .

Cover, removing and installing

Removing

- Remove selector lever handle ⇒ [37-2, Selector lever handle, removing and installing](#) .

- The procedure for disconnecting the battery must absolutely be obeyed.

- Disconnect battery Ground (GND) strap with ignition switched off

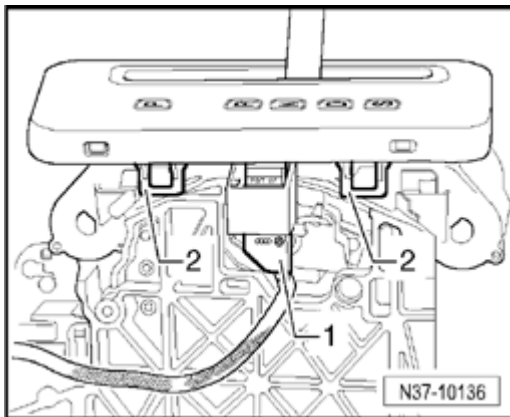
⇒ *Repair Manual, Electrical Equipment, Repair Group 27,*

.

- Remove cover from center console

⇒ [Repair Manual, Body Interior, Repair Group 68,](#)

.



- Disconnect connector - **1** - .

- Carefully pull off retaining clips - **2** - on left and right from frame.

Installing

Installation is in reverse order of removal. Note the following:

- Install cover to center console

⇒ [Repair Manual, Body Interior, Repair Group 68,](#)

.

- Connect battery

⇒ *Repair Manual, Electrical Equipment, Repair Group 27,*

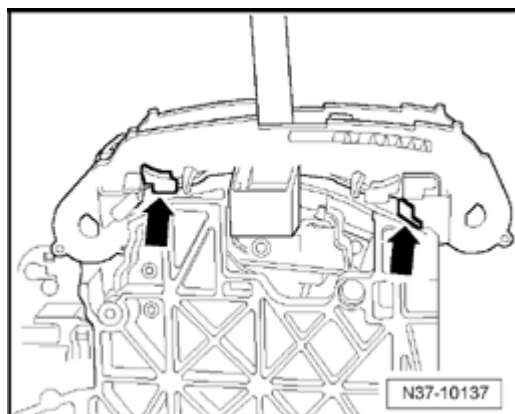
.

- Install selector lever handle ⇒ [37-2, Selector lever handle, removing and installing](#) .

Frame, removing and installing

Removing

- Remove cover ⇒ [37-2, Cover, removing and installing](#) .



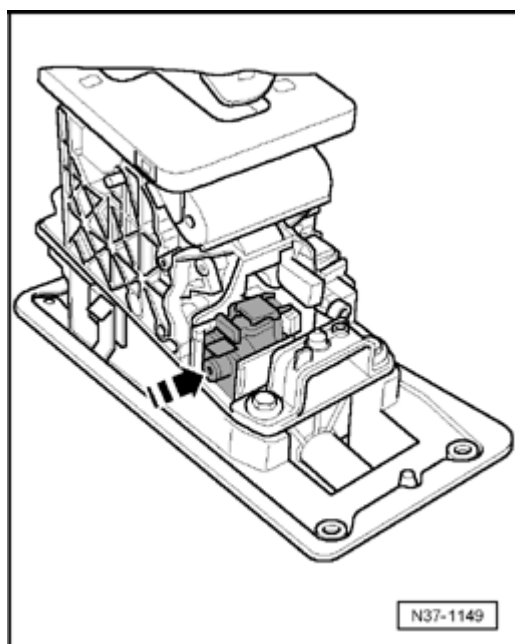
- Pull retaining clips - **arrows** - outward on left and right and remove frame upward.

Installing

Installation is in reverse order of removal.

- Install cover ⇒ [37-2, Cover, removing and installing](#) .

Shifting selector lever out of "P" without electricity (Manual release)



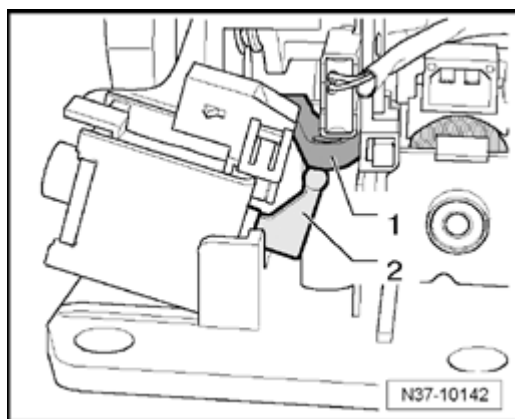
- Press solenoid core in direction of - **arrow** - from above with a "long, thin" screwdriver.

The handle does not need to be removed for this.

Selector lever park position solenoid N380 , removing and installing

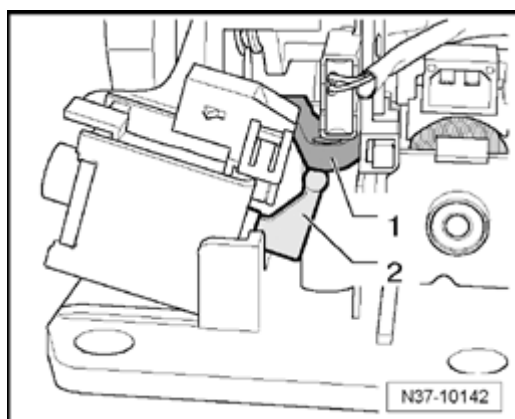
Removing

- Remove shift mechanism ⇒ [37-2, Selector mechanism, removing and installing](#) .
- Release connector and pull off.

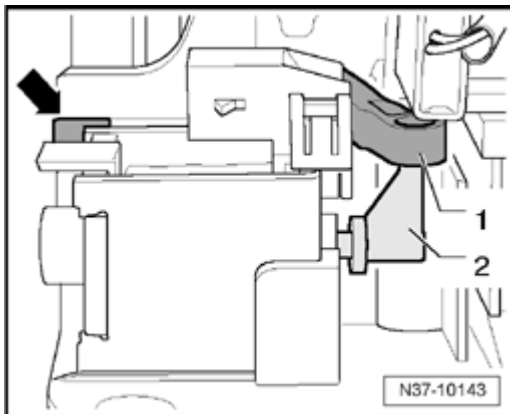


- Release solenoid from its mounting and pull it upward and out from locking lever - **1** - and shift mechanism.

Installing



- Set solenoid lever - **2** - vertically.
- Set solenoid into mount of shift mechanism at a slight angle.
- Attach lever - **2** - to locking lever - **1** - .

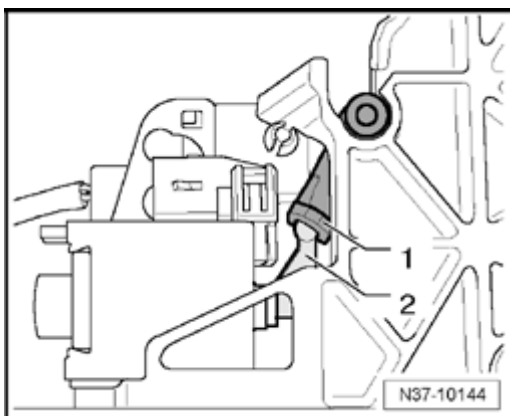


- Push solenoid into shift mechanism until limit stop, and it is locked into its mounting - **arrow** - .
- Make sure that the solenoid is locked in its mount - **arrow** - up to the limit stop and lever - **2** - engages locking lever - **1** - .

Shift lock solenoid N110 , removing and installing

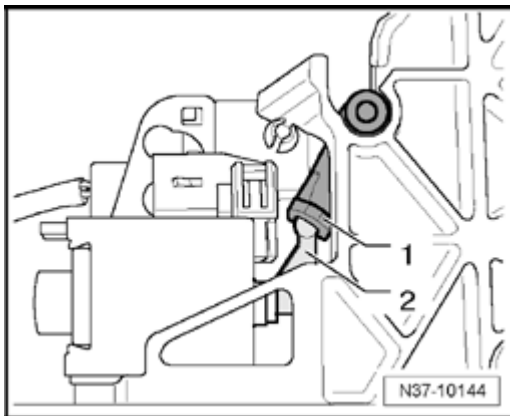
Removing

- Remove shift mechanism ⇒ [37-2, Selector mechanism, removing and installing](#) .
- Release connector and remove

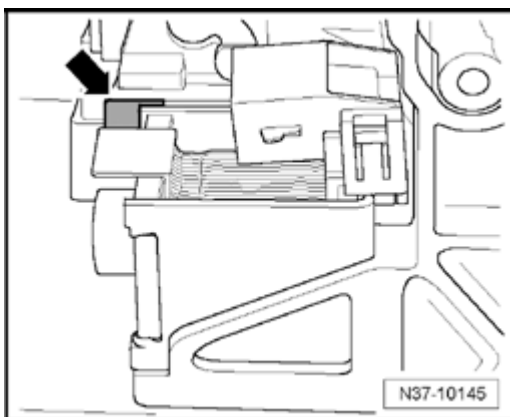


- Release solenoid from its mounting and pull straight out from locking lever - **1** - and shift mechanism.

Installing



- Set solenoid lever - **2** - upward vertically.
- Push solenoid into mount of shift mechanism from front.
- Attach lever - **2** - to locking lever - **1** - .

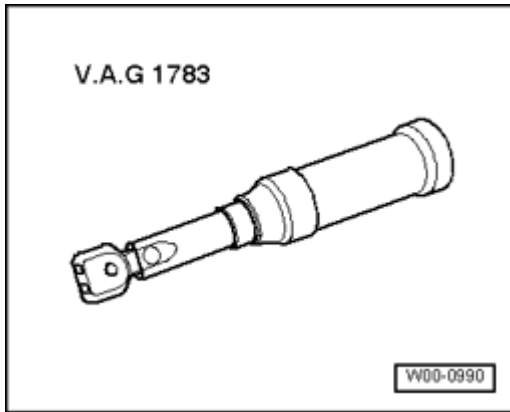


- Push solenoid into shift mechanism until limit stop, and it is locked into its mounting - **arrow** - .
- Make sure that the solenoid is locked in its mount - **arrow** - up to limit stop and lever engages locking lever.

Selector Lever Park Position Lock Switch F319 , removing and installing

The Tiptronic switch F189 is integrated into the wiring harness for both solenoids.

Special tools, testers and auxiliary items required



- Torque wrench V.A.G 1783

Removing

- Remove selector lever handle ⇒ [37-2, Selector lever handle, removing and installing](#) .
- The procedure for disconnecting the battery must absolutely be obeyed.
- Disconnect battery Ground (GND) strap with ignition switched off

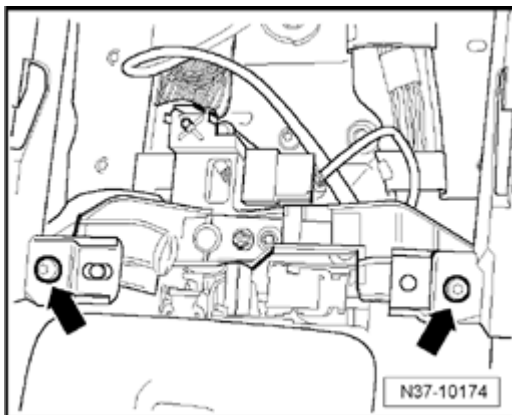
⇒ *Repair Manual, Electrical Equipment, Repair Group 27,*

.

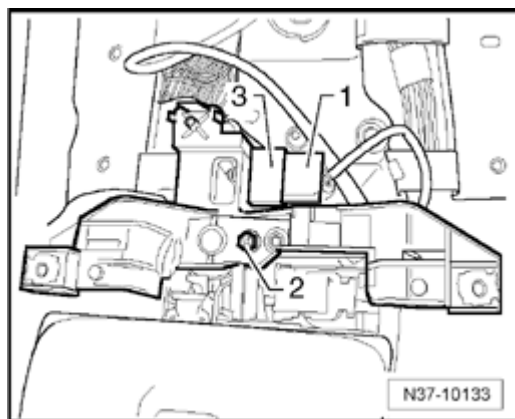
- Remove cover from center console

⇒ [Repair Manual, Body Interior, Repair Group 68,](#)

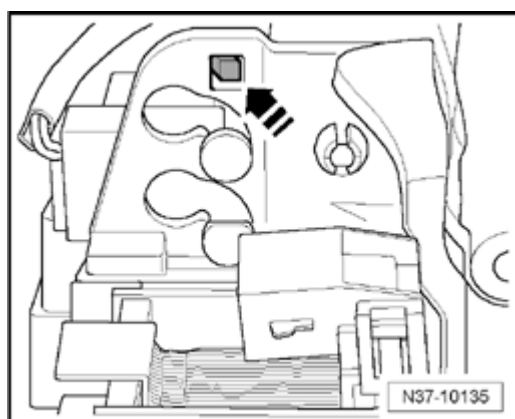
.



- Remove bolts - **arrows** - from center console.



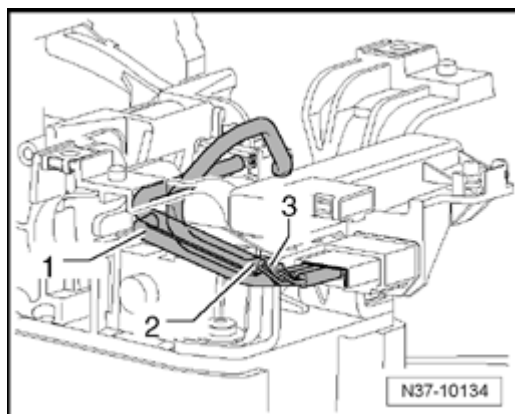
- Release connector - **1** - and remove.
- Remove bolt - **2** - and remove retainer.
- Pull connector - **3** - out from retainer.
- Disconnect connectors from solenoids.



- Press securing lever toward right and pull button upward out of shift mechanism.

Installing

Installation is in reverse order of removal. Note the following:



- Route wiring harnesses - **1** - to - **3** - as shown in illustration.

- 1 - Wiring harness to shift lock solenoid N110
- 2 - Wiring harness to selector lever park position solenoid N380
- 3 - Wiring harness to Selector Lever Park Position Lock Switch F319



- Press connector - **3** - into retainer.
- Fasten bolt - **2** - .
- Connect connector - **1** - .
- Install cover to center console

⇒ [Repair Manual, Body Interior, Repair Group 68,](#)

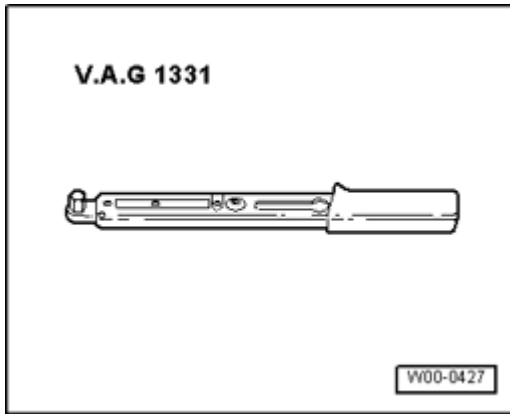
- Connect battery

⇒ *Repair Manual, Electrical Equipment, Repair Group 27,*

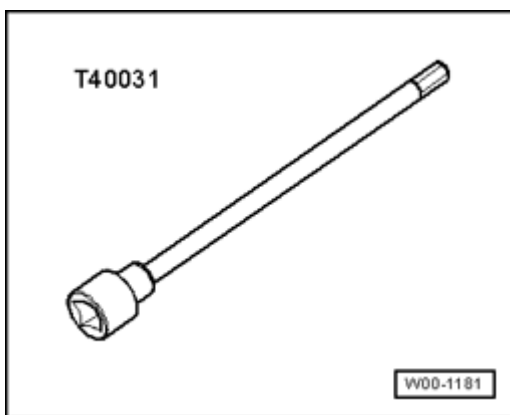
- Install selector lever handle ⇒ [37-2, Selector lever handle, removing and installing](#) .

Selector mechanism, removing and installing

Special tools, testers and auxiliary items required



- Torque wrench V.A.G 1331



- Socket and key T40031

Removing

- Remove selector lever handle ⇒ [37-2, Selector lever handle, removing and installing](#) .
- Pull pull-rod up and shift selector lever to position "S" .

Note:

- *The procedure for disconnecting the battery must absolutely be obeyed.*

- Disconnect battery Ground (GND) strap with ignition switched off

⇒ *Repair Manual, Electrical Equipment, Repair Group 27,*

.

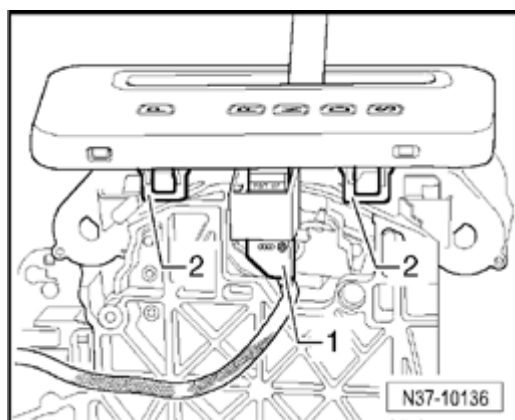
- Remove center console

⇒ [Repair Manual, Body Interior, Repair Group 68,](#)

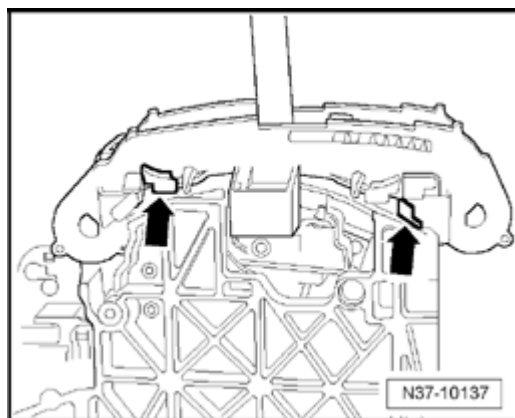
- Remove sound insulation from center console.



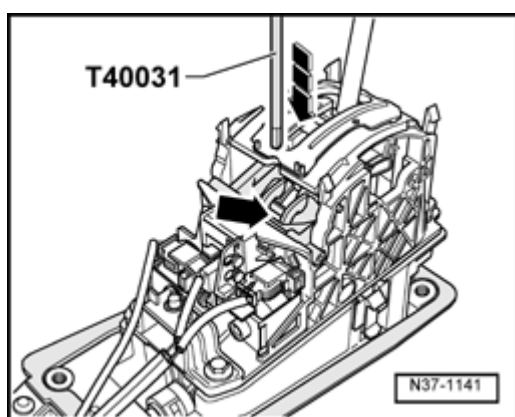
- Release connector - **1** - and pull off.
- Remove bolt - **2** - and remove retainer.
- Pull connector - **3** - out from retainer.



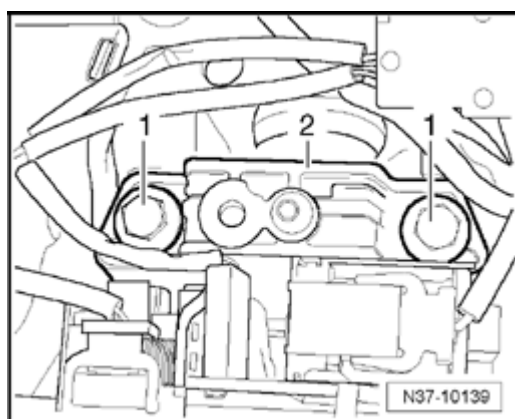
- Disconnect connector - **1** - .
- Carefully pull off retaining clips - **2** - on left and right from frame.



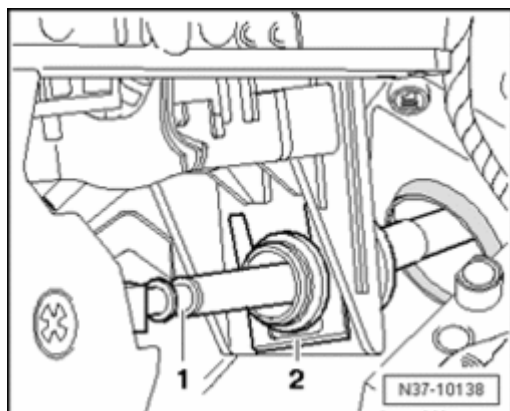
- Pull retaining clips - **arrows** - outward on left and right and remove frame upward.



- Remove clamping bolt at selector lever cable using socket and key T40031 .



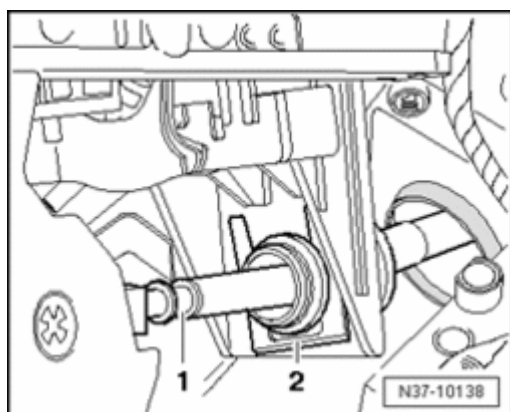
- Remove bolts - **1** - and remove front retainer - **2** - for shift mechanism.
- Remove rear retainer for shift mechanism.
- Remove shift mechanism with selector lever cable slightly rearward.



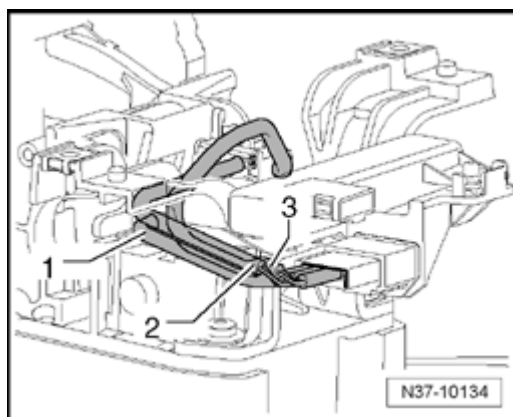
- Remove lock washer - **2** - from selector lever cable - **1** - and pull shift mechanism off from selector lever cable.

Installing

Installation is in reverse order of removal. Note the following:

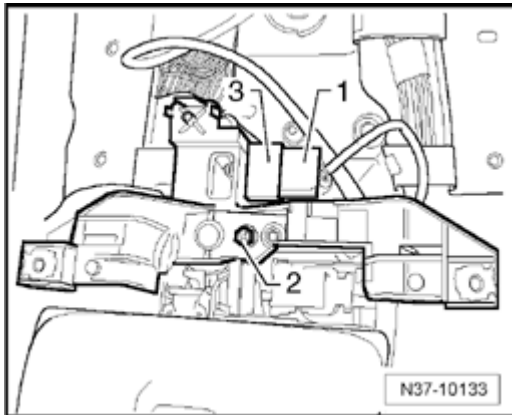


- Attach selector lever cable - **1** - and fasten using a new lock washer - **2** - .
- Fasten front and rear retainers for shift mechanism ⇒ [Item - 12 -](#) .



- Route wiring harnesses - **1** - to - **3** - as shown in the illustration.

- 1 - Wiring harness to shift lock solenoid N110
- 2 - Wiring harness to selector lever park position solenoid N380
- 3 - Wiring harness to Tiptronic switch F189



- Press connector - **3** - into retainer.
- Fasten bolt - **2** - .
- Connect connector - **1** - .
- Adjust selector lever cable ⇒ [37-2, Selector lever cable, checking and adjusting](#) .
- Install center console

⇒ [Repair Manual, Body Interior, Repair Group 68,](#)

.

- Connect battery

⇒ [Repair Manual, Electrical Equipment, Repair Group 27,](#)

.

- Install selector lever handle ⇒ [37-2, Selector lever handle, removing and installing](#) .

Transmission, removing and installing

Transmission (vehicles with V6 gasoline engines, V8 gasoline engines and V10 TDI engines), removing and installing

Description:

The automatic transmission - **09D** - is removed together with the engine, front final drive and transfer case. The procedure for this is described in the engine assembly group.

For all engine variations of the Touareg, including the one that is being serviced, it is advisable to remove the "lower connecting bolts" of the engine/transmission, even before the removal of the gear set. When possible, the torque converter fasteners should also be mounted early on. This applies when removing, as well as when installing the transmission.

It gives two variations; separating engine and transmission from each other on the scissor lift table VAS 6131 :

First version

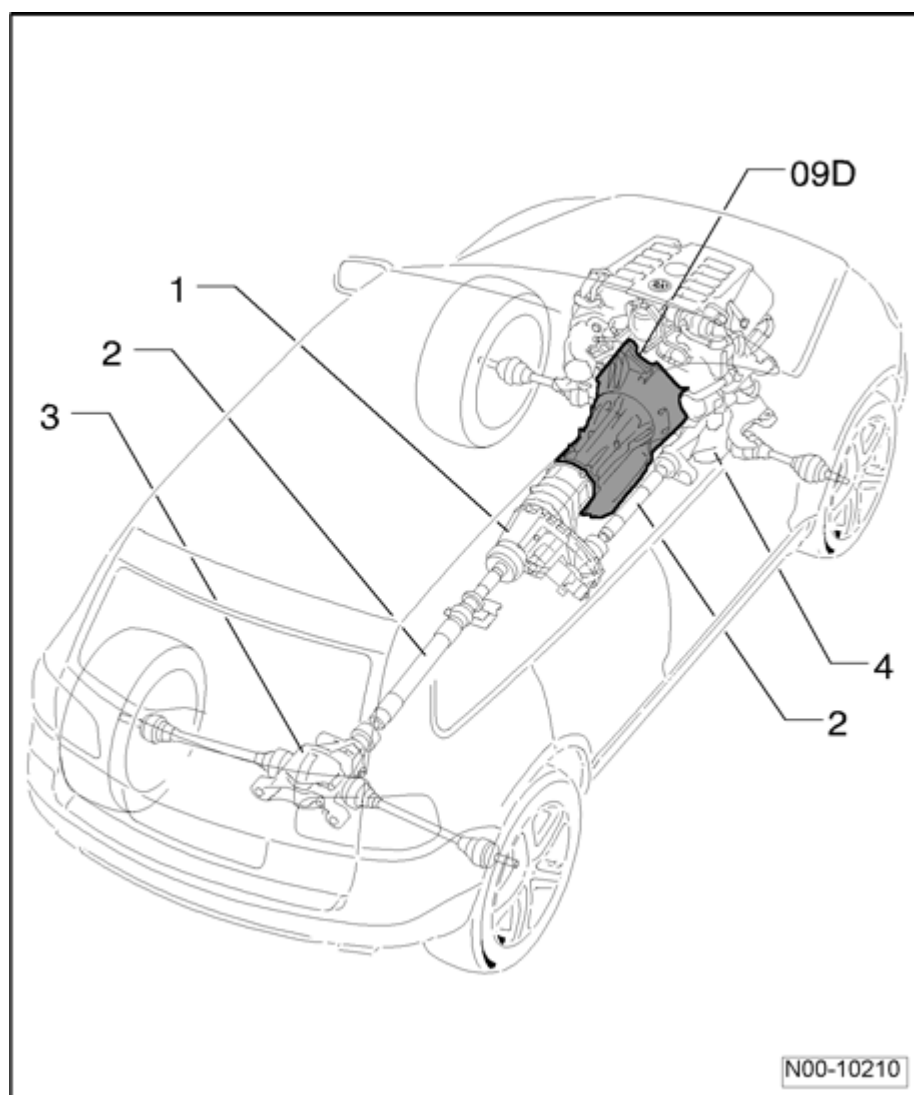
The automatic transmission - **09D** - and transfer case - **1** - remain fastened to each other. They can be removed from engine together, for example, for removing and installing the torque converter.

For this, only disconnect front driveshaft - **2** - from transfer case. This way, when separating, the engine can be placed on one side of scissor lift table VAS 6131 and both transmissions on other side.

Second version

First, the transfer case is removed from the table, then the automatic transmission. This way, repairs can be performed on the automatic transmission. For this, first the front driveshaft must be loosened on both sides, the transfer case - **1** - must be flanged off and removed from table. Then, flange off automatic transmission from engine and remove it from the table, if necessary.

This "second version" is described here.

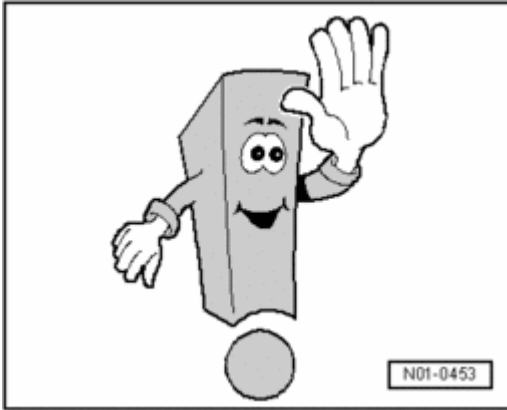


- **Transfer case**

- Precautions and tightening torques for servicing the transfer case and driveshafts

⇒ [*Repair Manual, Rear Final Drive, Repair Group 34,*](#)

- **Driveshafts, front and rear**
- **Rear final drive**
- **Front final drive**



Removing

- For all engine variations, it is advisable to remove the "lower connecting bolts" of the engine/transmission, even before the removal of the gear set.

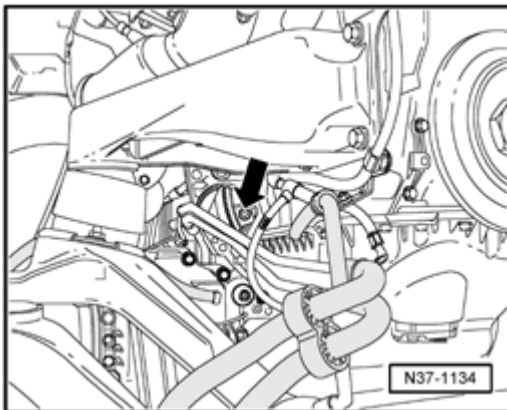
When possible, the torque converter fasteners should also be mounted early on.

- Remove engine with transmission

⇒ *Repair Manual, Engine Mechanical, Repair Group 10,*

.

Vehicles with V6 and V8 gasoline engines



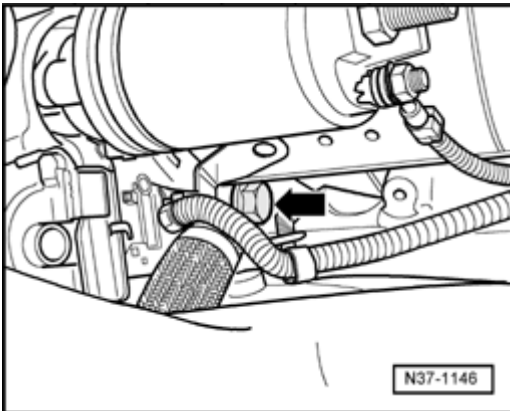
- Remove starter motor

⇒ *Repair Manual, Electrical Equipment , Repair Group 27,*

.

- Remove torque converter from drive plate.

Vehicles with V10 TDI

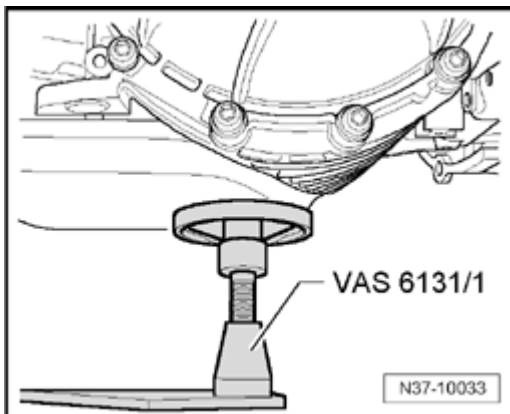


- Remove starter cable so far until bolt - **arrow** - can be removed

⇒ *Repair Manual, Electrical Equipment, Repair Group 27,*

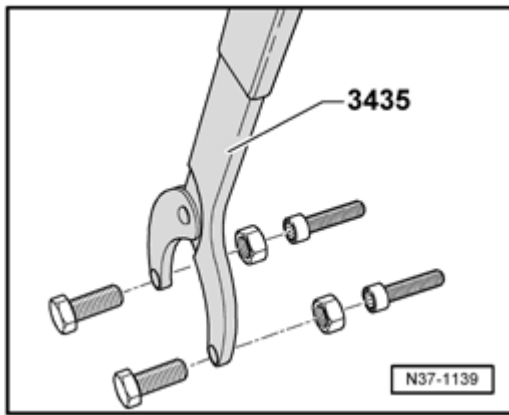
.

On these models, the torque converter fasteners and the lower engine/transmission bolts should be installed with the gear set mounted.



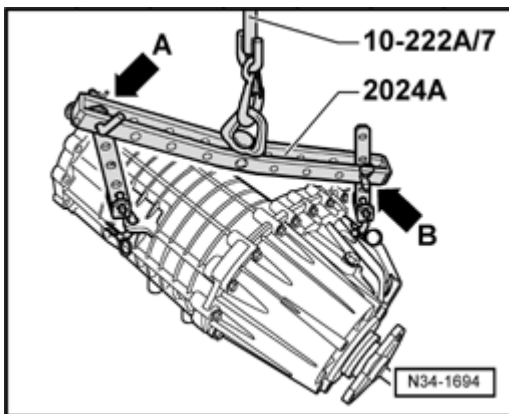
Make sure that at least two plates VAS 6131/1 on the lifting table are placed under oil pan as support for automatic transmission.

- Remove driveshaft between transfer case and front final drive.
- To counter-hold the driveshaft, the counter-hold tool T10172 can be used.

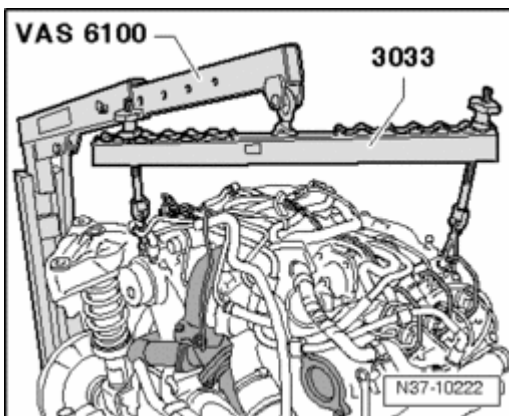


- The counter-holder 3435 with two bolts up to M10 is also recommended.

or: Retainer T10172



- Support transfer case with crane.



- Separate transfer case and set aside

⇒ *Repair Manual, Rear Final Drive, Repair Group 34,*

.

Before engine and transmission are separated from each

other, secure engine from tipping over.

- If a second crane is not available, separate the engine and transmission and then support the engine with available materials.
- Support transmission with crane ⇒ [37-3, Transmission, transporting](#) .
- Loosen ATF lines ⇒ [37-5, ATF lines and ATF cooler](#) .
- Remove all connecting bolts for engine/transmission.
- Carefully press transmission off engine.
- Make sure that the converter is also pressed from drive plate with transmission.

Installing

Installation is in reverse order of removal.

- Check adjustment of selector lever cable and adjust if necessary ⇒ [37-2, Selector lever cable, checking and adjusting](#) .

After installation, check the ATF level, if necessary top off ⇒ [37-4, ATF level, checking and topping off](#) and check the vehicle alignment

⇒ *Repair Manual, Suspension, Wheels, Steering, Repair Group 44,*

.

Tightening torques, vehicles with V6 gasoline engine ⇒ [Topic 37-3](#) .

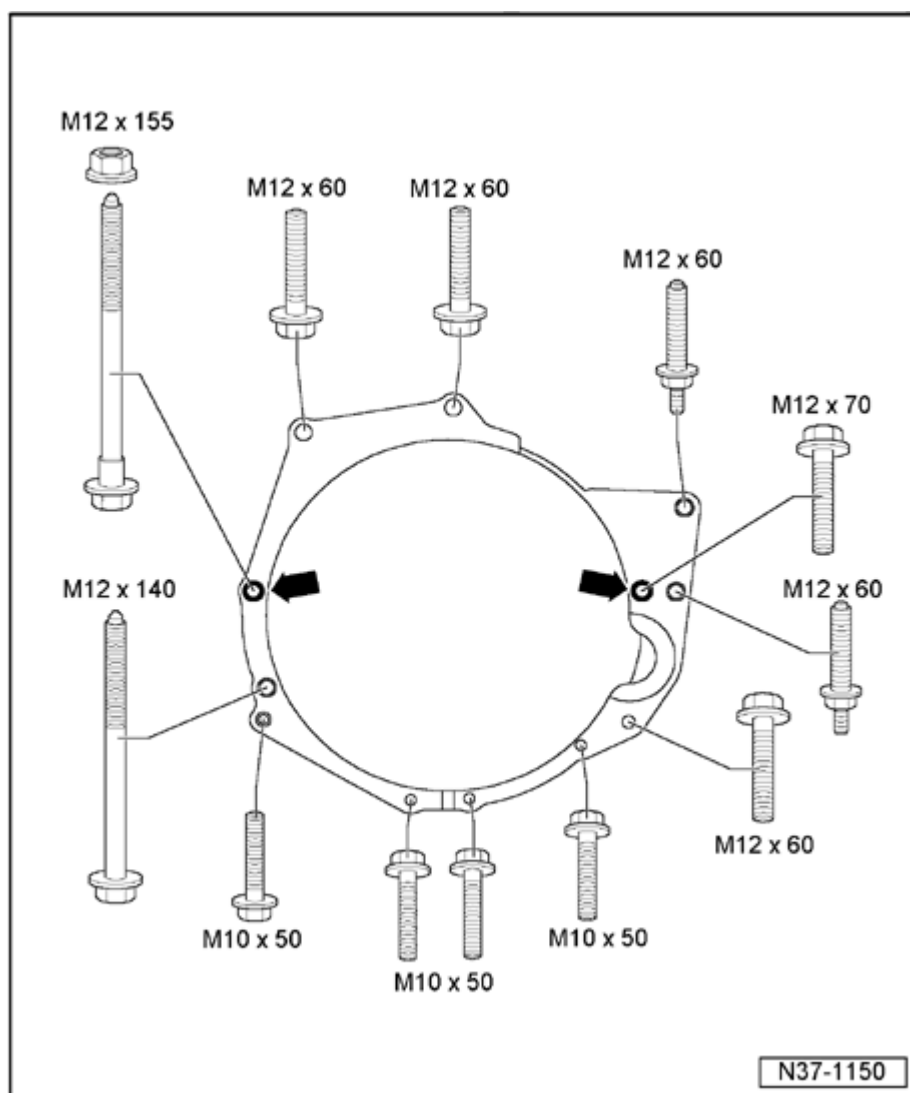
Tightening torques, vehicles with V8 FSI gasoline engine (FSI) ⇒ [Topic 37-3](#) .

Tightening torques, vehicles with V8 gasoline engine (TSI) ⇒ [Topic 37-3](#) .

Tightening torques, vehicles with V10 TDI ⇒ [Topic 37-3](#) .

Torque specifications

Vehicles with V6 gasoline engine

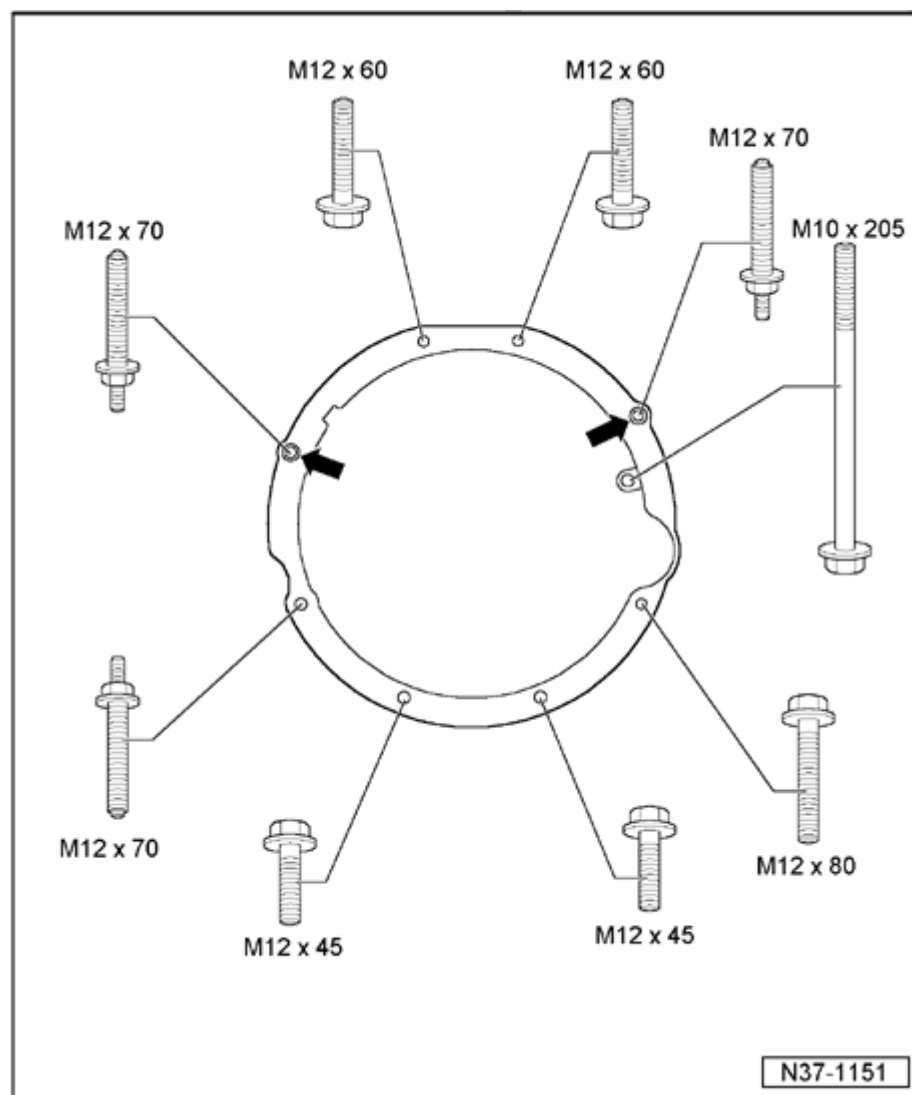


Alignment sleeves - **arrows** -

Bolt	Component location by "clock"	Nm
M 12 x 60	11.00 o'clock	80
M 12 x 60	12.00 o'clock	80
M 12 x 60 with bracket	2.00 o'clock	80
M 12 x 70	3.00 o'clock	80
M 12 x 60 in starter	3.00 o'clock	65
M 12 x 60 at starter	3.30 o'clock	65
M 10 x 50	4:00 o'clock 5:30 o'clock 6:30 o'clock 8:00 o'clock	45

M 12 x 140	8.00 o'clock	80
M 12 x 155 with nut	9.00 o'clock	80
Drive plate to converter		85

Vehicles with V8 FSI engine (FSI)

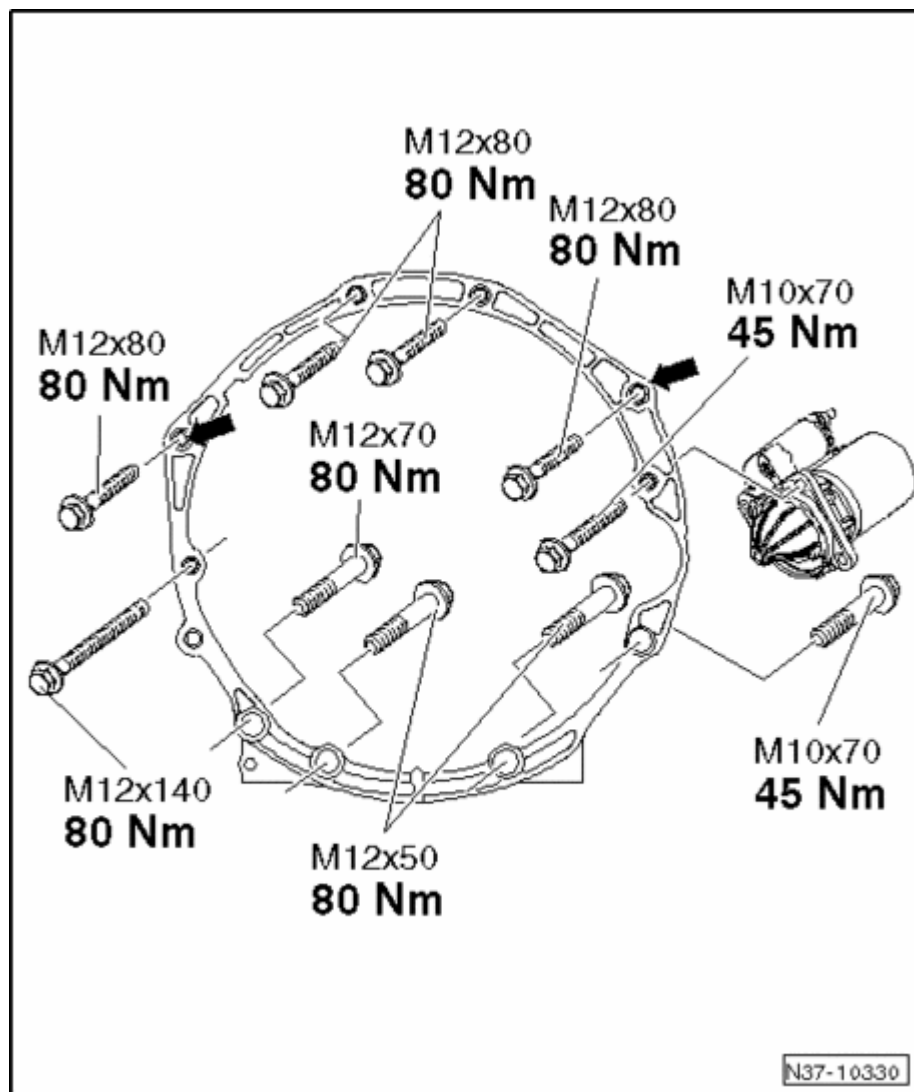


Alignment sleeves - **arrows** -

Bolt	Component location by "clock"	Nm
M 12 x 60 (Qty. 2)	12.00 o'clock	80
M 12 x 70 with bracket	2.00 o'clock	80
M 10 x 205 at starter	2.30 o'clock	45
M 12 x 80	4.00 o'clock	65

M 12 x 45	5.00 o'clock	80
M 12 x 45	7.00 o'clock	80
M 12 x 70 with bracket	8.00 o'clock	80
M 12 x 70 with bracket	10.00 o'clock	80
Drive plate to converter		85

Vehicles with V8 Turbo gasoline engine (TSI)



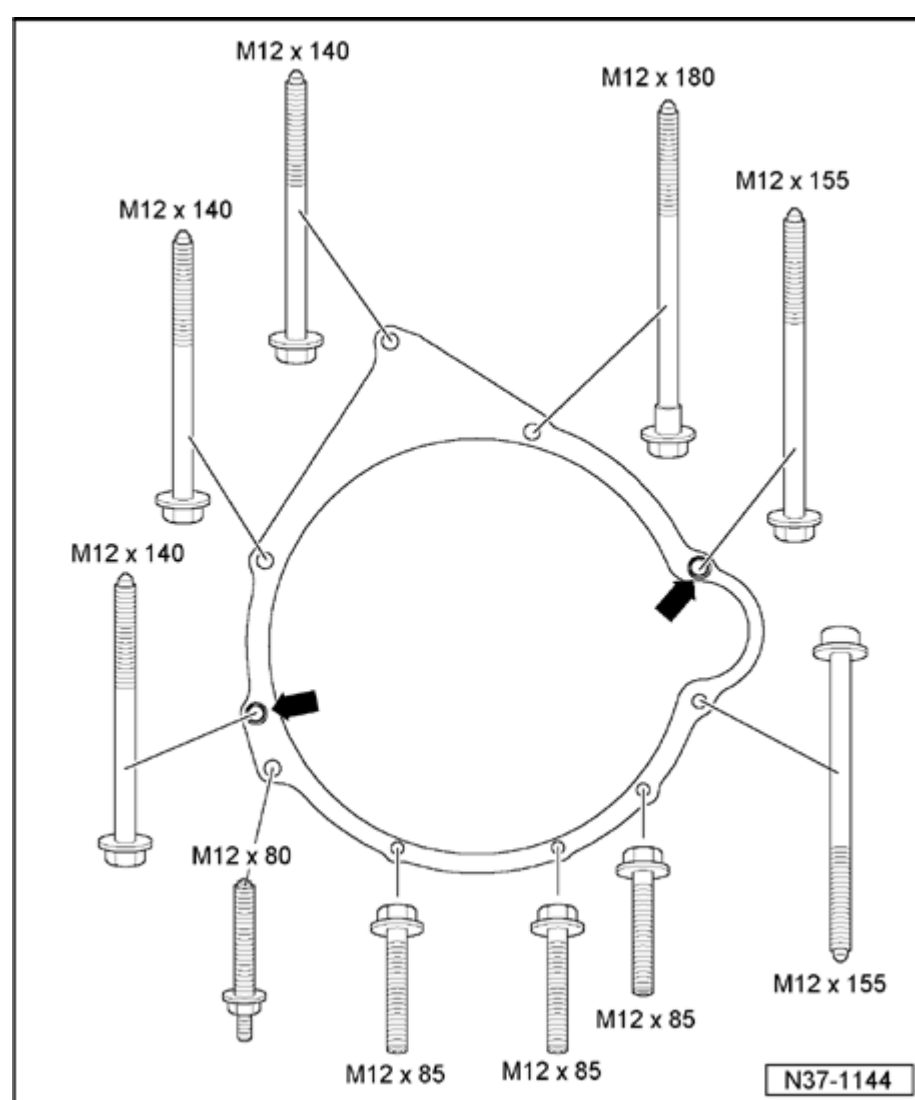
Alignment sleeves - **arrows** -

Drive plate to torque converter "qty. 6" 85 Nm.

Bolt	Component location by "clock"	Nm
M 12 x 85	12.00 o'clock	80
M 12 x 85	1.00 o'clock	80

M 12 x 85	2.00 o'clock	80
M 10 x 70 (Qty. 2)	03:00:00 AM o'clock 04:00:00 AM o'clock (starter)	65 65
M 10 x 70	5:00 o'clock 6:00 o'clock 7:00 o'clock	45 45 45
M 12 x 85	8.30 o'clock	80
M 12 x 70	9.30 o'clock	80
Drive plate to torque converter "Qty. 6"		85

Vehicles with V10 TDI



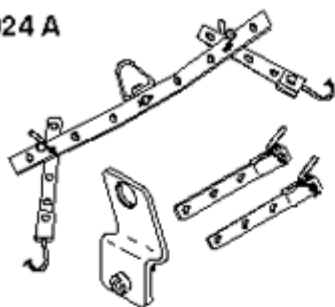
Alignment sleeves - **arrows** -

Bolt	Component location by "clock"	Nm
M 12 x 140	12.00 o'clock	80

M 12 x 180	1.00 o'clock	80
M 12 x 155	2:00 o'clock 3:30 o'clock (starter)	65 65
M 12 x 85	4:00 o'clock 5:00 o'clock 7:00 o'clock	80 80 80
M 12 x 80 with bracket	8.00 o'clock	80
M 12 x 140	8:30 o'clock 10:00 o'clock	80 80
Drive plate to converter		60

Transmission, transporting

2024 A



T10059



VAS 6100

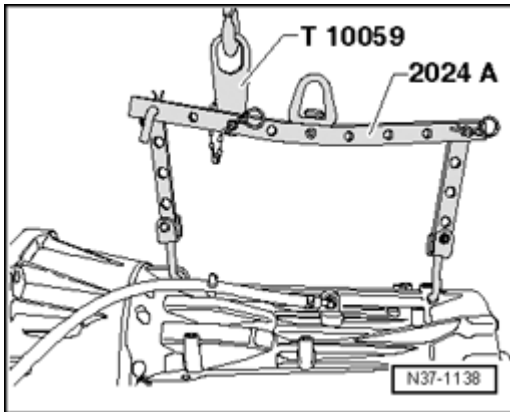


W37-10011

Special tools, testers and auxiliary items required

- Lifting tackle 2024 A

- Shackle T10059
- Workshop crane VAS 6100



- Fasten engine sling 2024 A with shackle T10059 to shop crane VAS 6100 , as shown in the illustration.

Input shaft side:

1. Hole for hook in position 1 of engine sling .

Output shaft side:

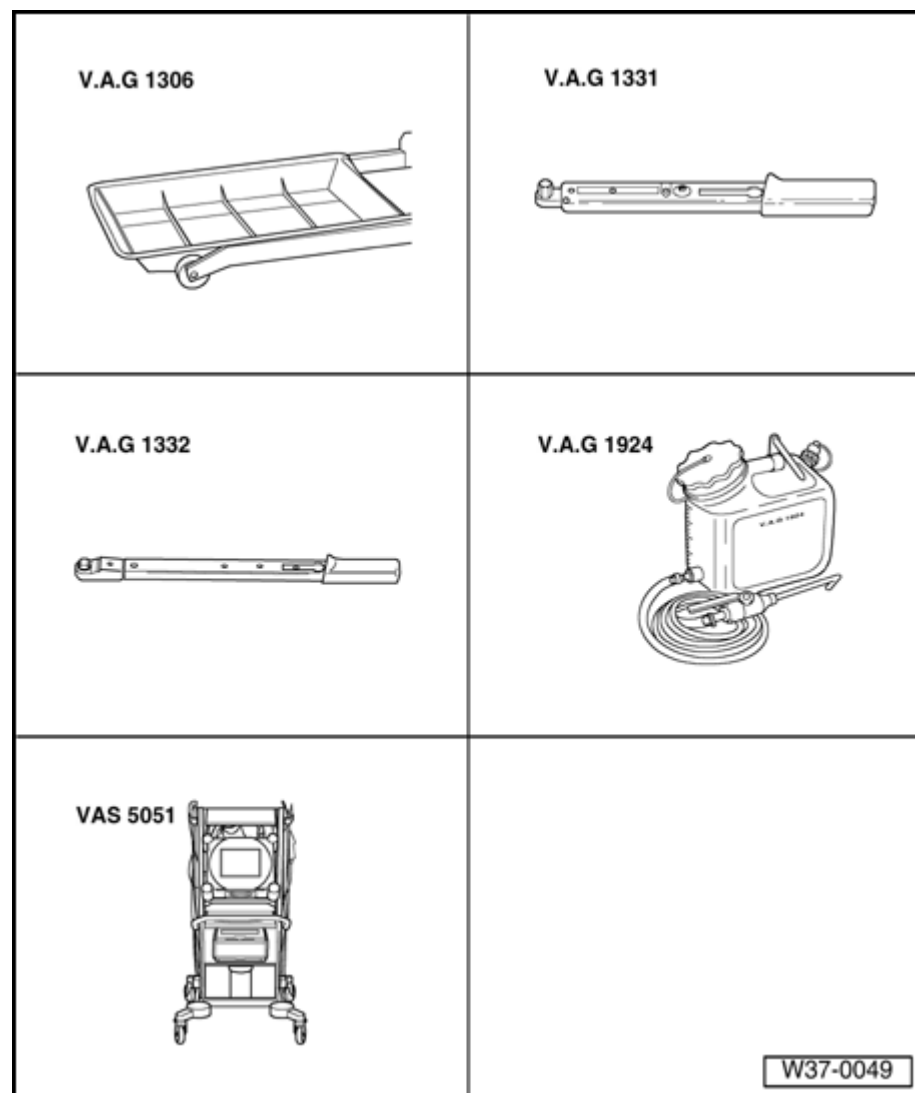
1. Hole for hook in position 8 of engine sling .

Shackle:

In position 3, input shaft side, of engine sling .

Caution!

The hooks and locating pins must be secured with locking pins.

ATF level, checking and topping off**ATF level, checking*****Warning!******Wear eye protection.*****Special tools, testers and auxiliary items required**

- Drip tray V.A.G 1306
- Torque wrench V.A.G 1331
- Torque wrench V.A.G 1332
- ATF filler tool V.A.G 1924 To

check ATF level, older ATF filler tools must be modified. The filling hook must be shortened in width to 20 mm. This is the only way possible to insert it into the ATF check hole. Deburr and clean the hook after cutting it.

- Vehicle diagnostic, testing, and information system VAS 5051
- Diagnostic cable, 3 m with voltage supply VAS 5051/1 or Diagnostic cable, 5 m without voltage supply VAS 5051/3

Description

The test is performed according to the overflow principle depending on ATF temperature.

If during a repair, the ATF circulation to the cooler was opened, this inspection must be performed twice.
Important: After the first inspection the ATF must be heated to at least 100 ° C - Test drive with measuring device!
After the ATF cools off again, inspect the ATF level again as described here.

- Use the following illustration ⇒ [Topic 37-4](#) to ascertain which is the ATF check plug.

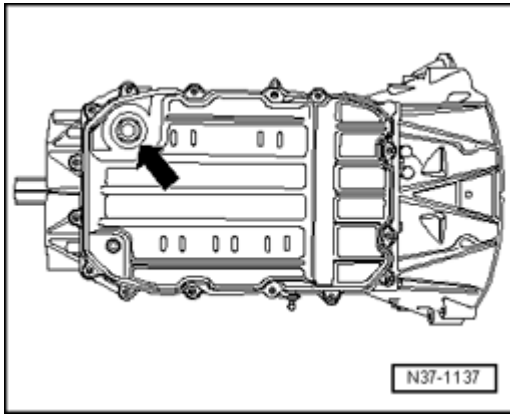
The ATF level will vary according to temperature of the ATF.

Checking ATF level at too low ATF temperature leads to overfilling.

Performing ATF level check when ATF temperature is too high will cause insufficient filling.

Warning!

If the ATF level is too high or too low it will adversely affect the operation of the transmission.

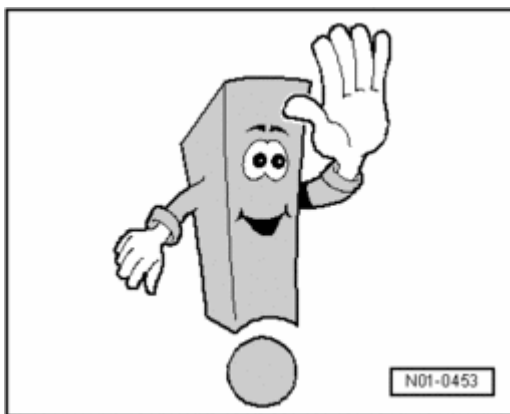


ATF check plug - **arrow** -

- ATF fill level is affected by ATF temperature.

ATF level, checking

Test requirements:



- Transmission not in emergency running mode, ATF temperature not above approx. 30 ° C.
- Vehicle is level
- Selector level at "P"

At start of test, ATF temperature must not be more than 30 ° C.

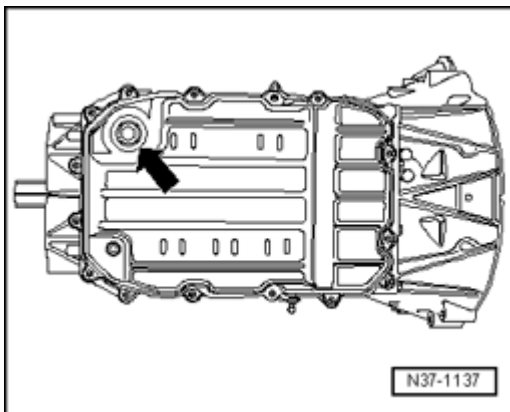
- Secure container of ATF filler tool V.A.G 1924 to vehicle.

- Connect VAS 5051 and advance program until "Function/component selection" is displayed ⇒ [37-1, Tester , connecting](#) .

- Then press "Powertrain (Repair Group 01; 10 to 26; 28 to

39)".

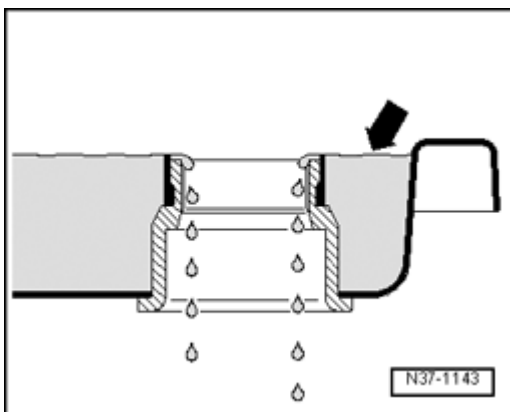
- Then "Automatic transmission 09D" .
- Press "Functions" .
- Press "Check ATF level" .
- Press → .
- Start engine.
- Depress brake.
- Shift selector level into each position for at least 2 seconds. Then, place selector lever in position "P" .
- Raise vehicle.
- Place appropriate receptacle underneath transmission.
- Press → .



- Remove sealing plug in oil pan - **arrow** - to check ATF.

At

Test temperature: 35 ° C to 45 ° C



The ATF level - **arrow** - is OK, if ATF drips steadily.

Only a small amount of ATF should come out of the inspection hole when engine is running.

- Tighten ATF inspection plug to 70 Nm. The ATF test ends.
- Switch off engine.

If during a repair, the ATF circulation to the cooler was opened, this inspection must be performed twice.

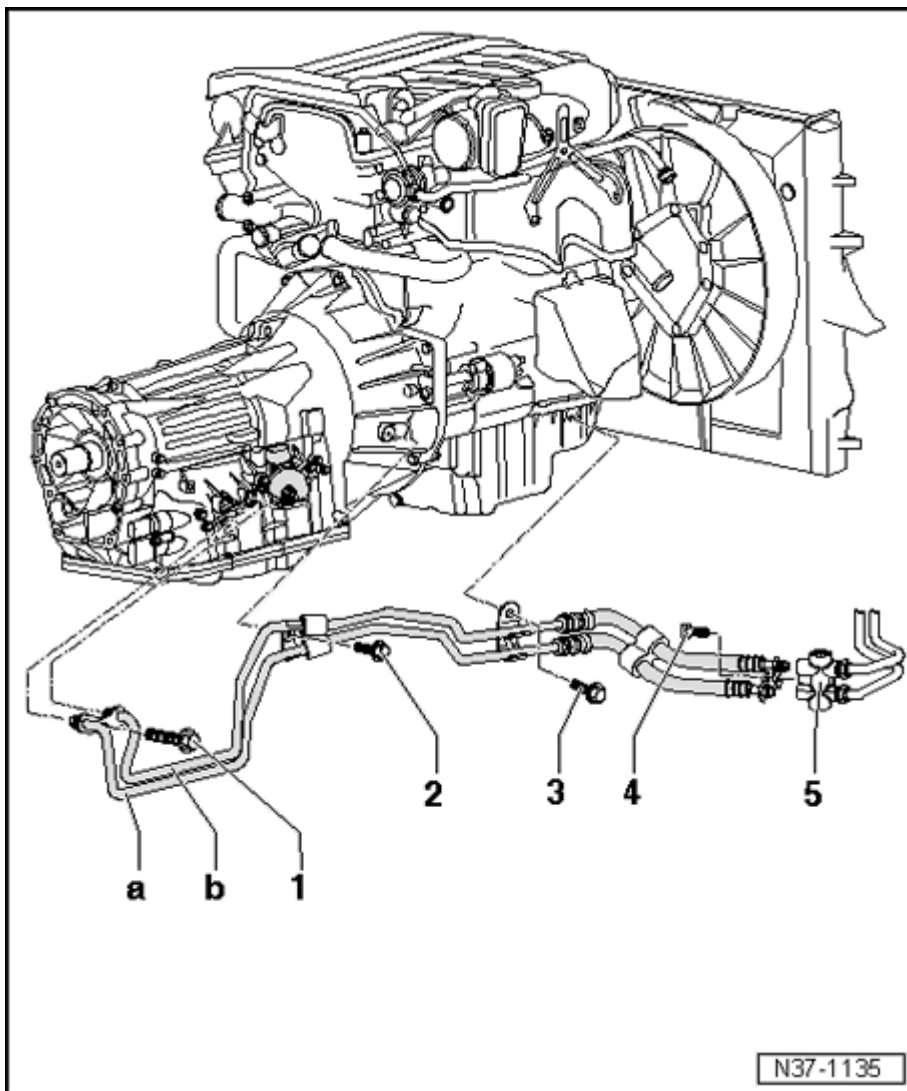
Important: After the first inspection the ATF must be heated to at least 100 ° C - Test drive with measuring device!

After the ATF cools off again, inspect the ATF level again as described here.

ATF lines and ATF cooler

- Assembly overview, vehicles with V6 gasoline engine a ⇒ [37-5, ATF lines \(vehicles with V6 gasoline engine\), assembly overview](#)
- Assembly overview, vehicles with V8 gasoline and V10 diesel engine ⇒ [37-5, ATF lines \(vehicles with V8 and V10 diesel engine\), assembly overview](#)

ATF lines (vehicles with V6 gasoline engine), assembly overview



1 - Bolt, 25 Nm

- Before tightening bolt, push in line onto stop by hand

2 - Bolt, 10 Nm

3 - Bolt, 10 Nm

4 - Bolt, 10 Nm

- Before tightening bolt, push in line onto stop by hand

5 - Thermostat

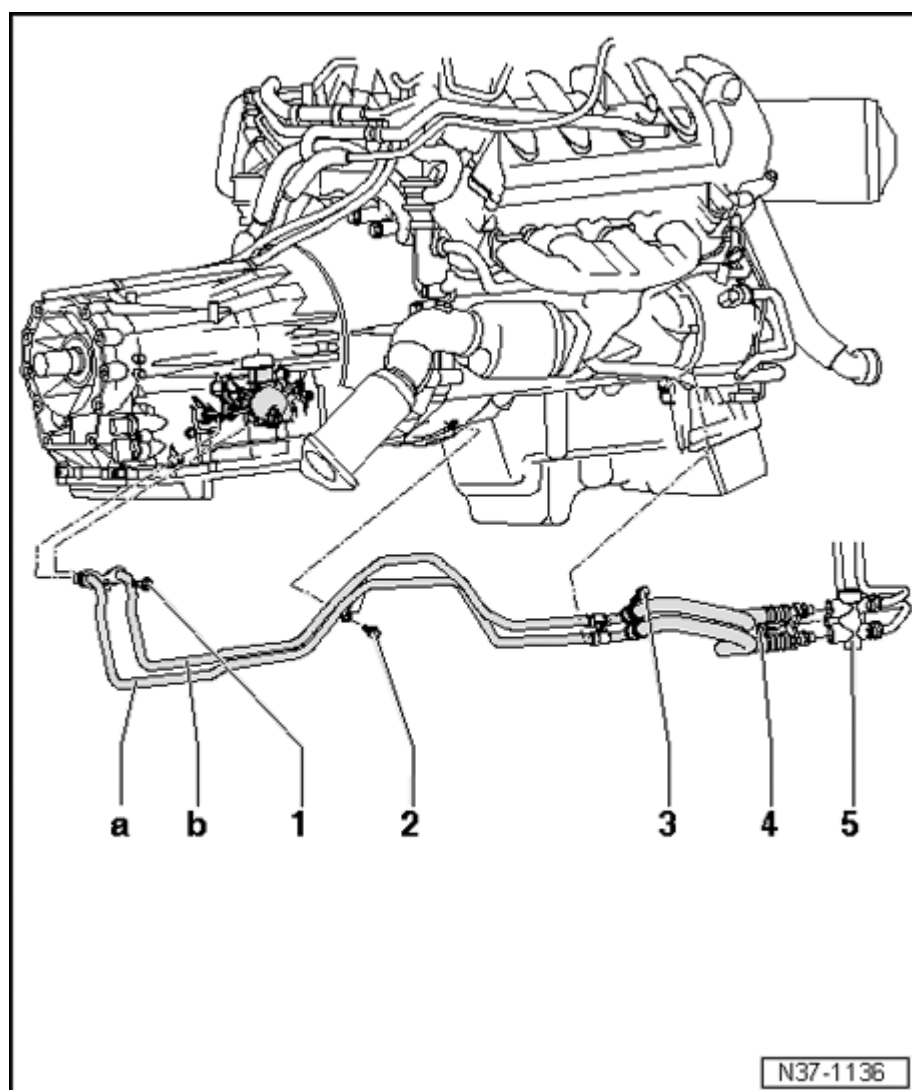
a - ATF line

- Moisten O-rings with ATF

b - ATF line

- Moisten O-rings with ATF

**ATF lines (vehicles with V8 and V10 diesel engine),
assembly overview**



1 - Bolt, 25 Nm

- Before tightening bolt, push in line onto stop by hand

2 - Bolt, 8 Nm**3 - Bolt, 8 Nm****4 - Bolt, 10 Nm**

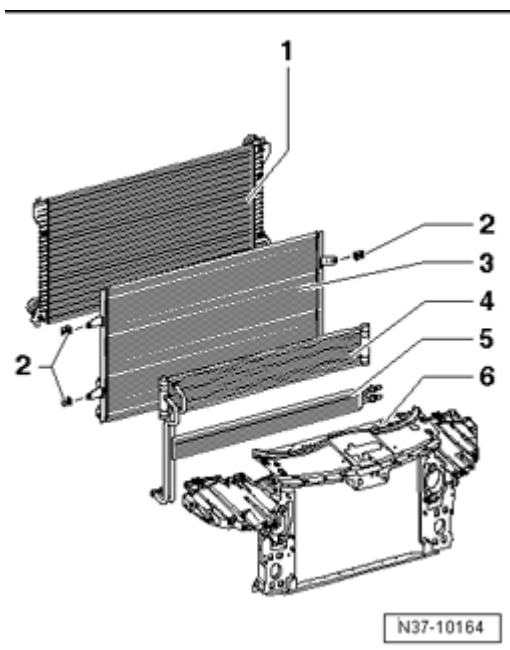
- Before tightening bolt, push in line onto stop by hand

5 - Thermostat**a - ATF line**

- Moisten O-rings with ATF

b - ATF line

- Moisten O-rings with ATF

ATF lines and ATF cooler, removing and installing**Removing****Overview of cooler**

- 1 - Cooler for coolant
- 2 - Retaining clamps
- 3 - Condenser

4 - ATF cooler

5 - Cooler for power steering

6 - Lock carrier

- Remove noise insulation under engine

⇒ [Repair Manual, Body Exterior, Repair Group 50,](#)

.

- Remove front bumper

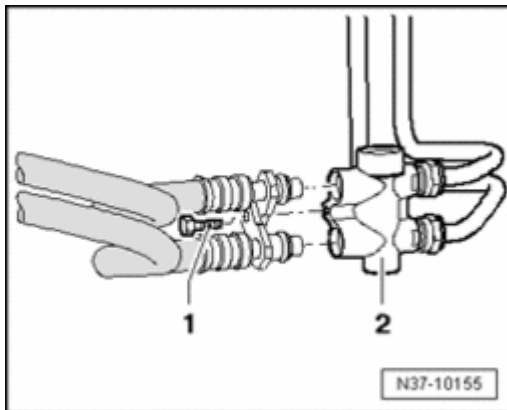
⇒ [Repair Manual, Body Exterior, Repair Group 63,](#)

.

- Bring lock carrier into service position

⇒ [Repair Manual, Body Exterior, Repair Group 50,](#)

.

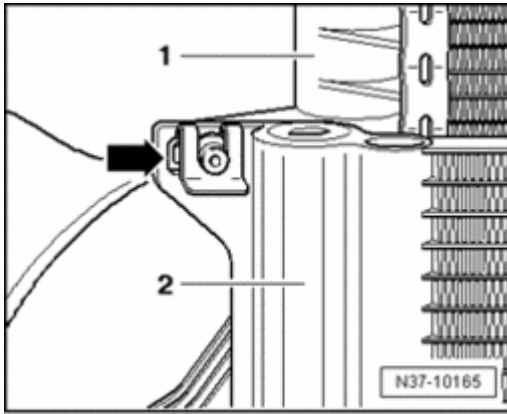


- Remove bolt - **1** - and pull ATF lines out from thermostat
- **2** - .

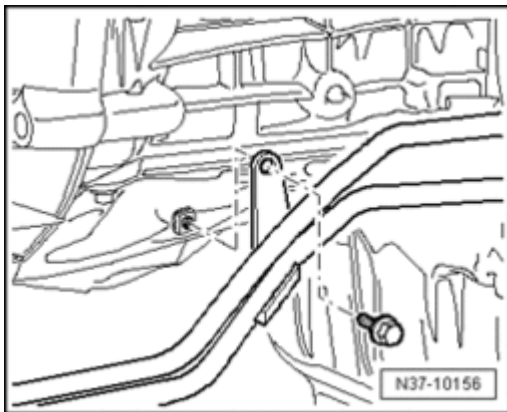
- Plug ATF lines and thermostat with clean plugs.

- Remove front ATF lines to ATF cooler at thermostat - **2** -
. For this, counterhold at thermostat.

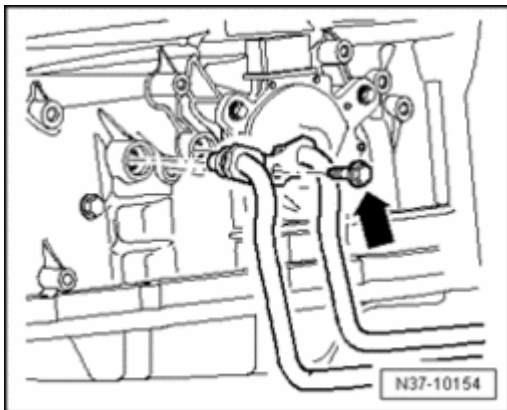
- Plug ATF lines and thermostat with clean plugs.



- Loosen clamps - **arrow** - for condenser - **1** - and ATF cooler - **2** - .
- Remove ATF cooler with lines.
- Remove ATF lines at ATF cooler. For this, counterhold at ATF cooler.
- Plug ATF lines and ATF cooler with clean plugs.
- Remove bolt for ATF line retainer on right of engine.



- Remove bolt for ATF line retainer on transmission.

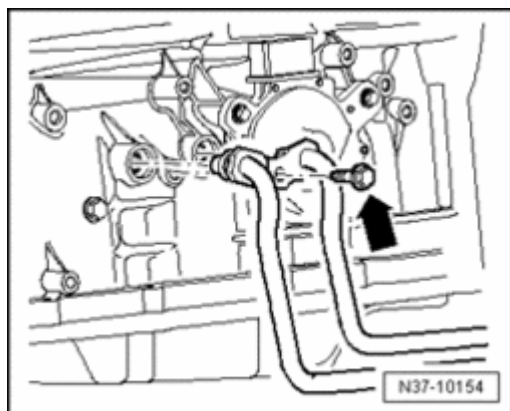


- Remove ATF lines from transmission.
- Plug ATF lines and transmission with clean plugs.

Installing

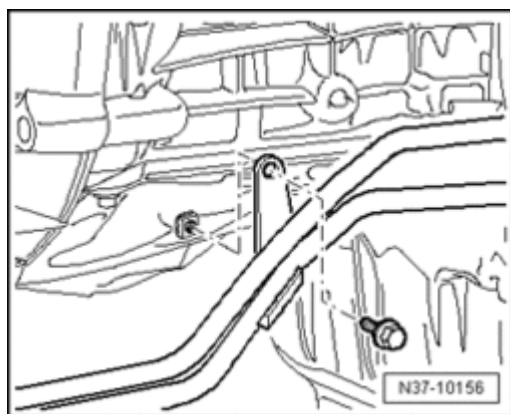
Installation is in reverse order of removal. Note the following:

- Moisten O-rings with ATF.

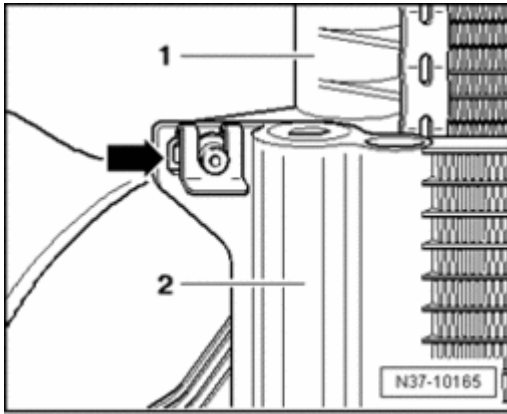


- Remove plugs and insert ATF lines into transmission up to limit stop.

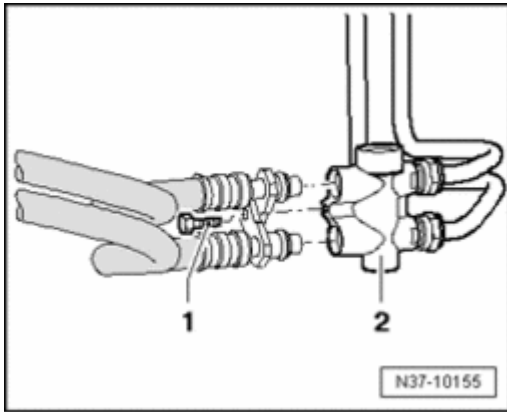
- Fasten bolt



- Fasten bolt for ATF line retainer on transmission.
- Fasten bolt for ATF line retainer on right of engine.
- Remove plugs and fasten ATF lines at ATF cooler and thermostat.



- Install condenser - **1** - and ATF cooler - **2** - .
- Install clamps - **arrow** - .



- Remove plugs, insert ATF lines completely into thermostat - **2** - and fasten bolt - **1** - .
- Automatic transmission fluid (ATF) level, checking and topping off ⇒ [37-4, ATF level, checking](#) .
- Check connections of ATF lines for leaks while checking ATF level.
- Install lock carrier

⇒ [Repair Manual, Body Exterior, Repair Group 50.](#)

.

- Install front bumper

⇒ [Repair Manual, Body Exterior, Repair Group 63.](#)

.

- Install noise insulation under engine

⇒ [Repair Manual, Body Exterior, Repair Group 50.](#)

.

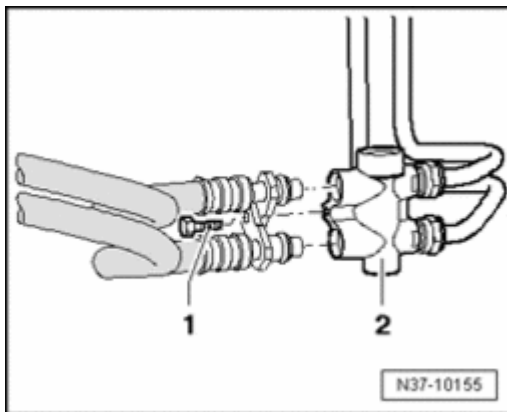
ATF lines and ATF cooler, cleaning

If the ATF is dirty or a replacement transmission is being installed, blow through the ATF cooler and ATF lines with compressed air (max. 10 bar).

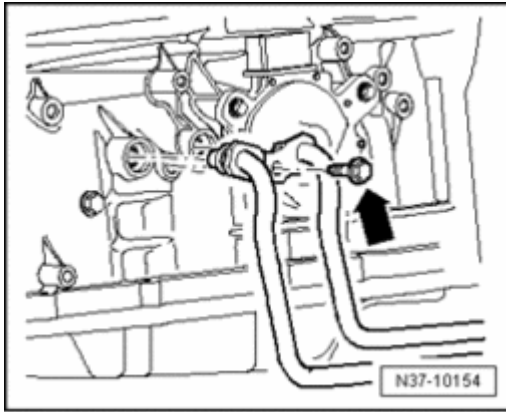
Warning!

Wear eye protection.

- Thoroughly clean area surrounding connections at ATF line/transmission, ATF line/thermostat and ATF line/ATF cooler.



- Remove bolt - **1** - and remove ATF lines from thermostat
- **2** - .
- Remove front ATF lines to ATF cooler at thermostat - **2** - . For this, counterhold at thermostat.
- Remove and empty ATF cooler ⇒ [37-5, ATF lines and ATF cooler, removing and installing](#) .

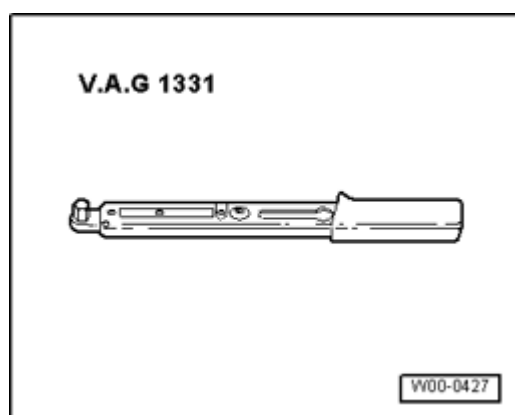


- Remove ATF lines from transmission.
- Place a hose on an ATF line for transmission/thermostat and secure it with a hose clamp. Place the other end of the hose into an appropriate container.
- Blow through ATF line with compressed air.
- Change hose over to other ATF line and repeat sequence.
- Moisten O-rings with ATF.
- ATF lines and ATF cooler, installing ⇒ [37-5, ATF lines and ATF cooler, removing and installing](#) .

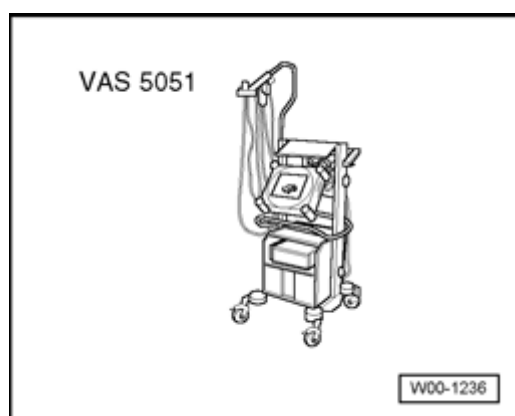
Transmission Control Module (TCM) J217

Transmission control module (TCM) J217 , removing and installing

Special tools, testers and auxiliary items required



- Torque wrench V.A.G 1331



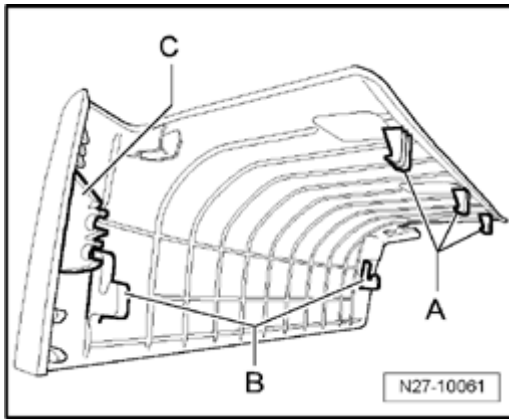
- Vehicle diagnostic, testing, and information system VAS 5051

Removing

- Before removing transmission control module (TCM) J217 , the control module identification as well as the coding must be queried from the control module.

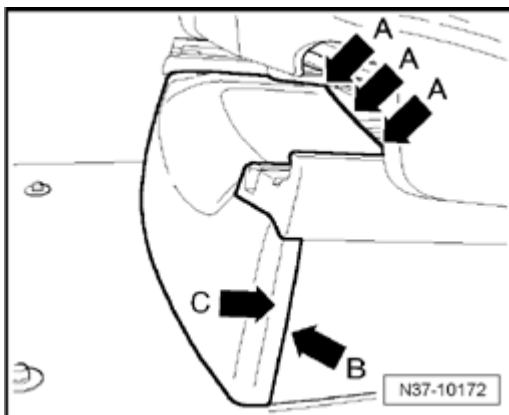
Note:

- *To prevent damage to the front trim under the right front seat, the retaining tabs on the trim are displayed in the following illustration.*



- The retaining tabs - **A** - grab behind a cross member under the seat. The trim must be pushed down and back at the same time. Hold the trim in this position and pull upward in the area of the retaining tabs - **A** - to release them.
- The retaining tabs - **B** - grab in the recesses of the cross member in front of the seat. These are released by pushing down and pulling forward.
- The retaining tabs - **C** - are clipped into the side trim of the seat and are released by pulling forward.

- Move seat to the most rear and upward position.



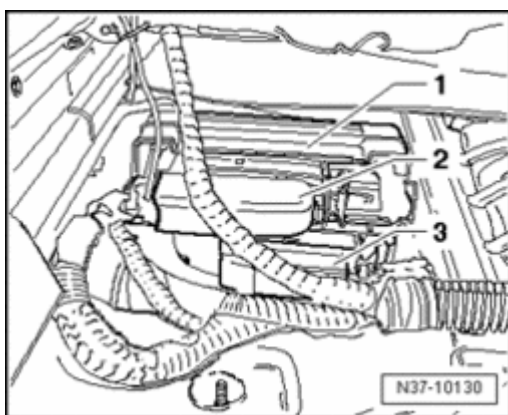
- Release retaining tabs "A" - **arrows A** - by pressing down and pushing rearward at the same time. In this position, lift the trim in the area of the retaining tabs "A" - **arrows A** - .

- Press trim down and pull forward at the same time. Thereby the retaining tabs "B" - **arrows B** - and "C" - **arrows C** - are released.

- Move seat to the most front and upward position.

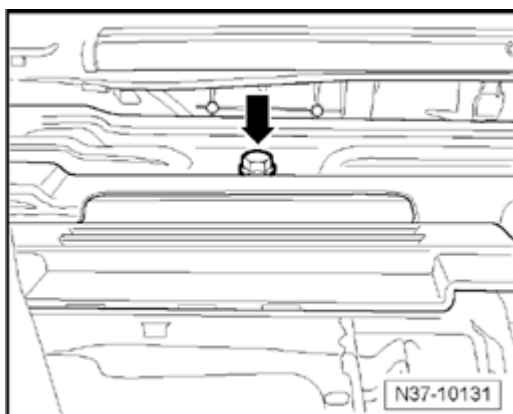
- The procedure for disconnecting batteries must absolutely be obeyed.
- Disconnect battery Ground (GND) strap with ignition switched off

⇒ *Repair Manual, Electrical Equipment, Repair Group 27,*

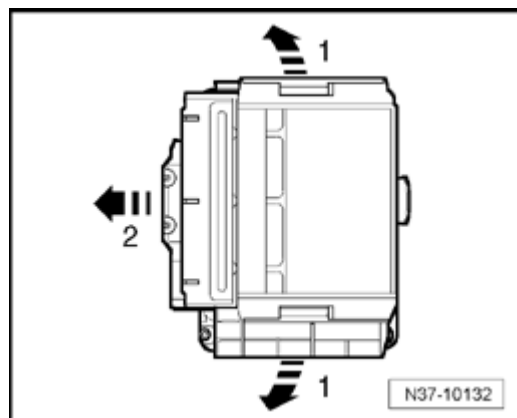


Located in housing - **1** - is transmission control module J217 and the differential control module J646 .

- Release and pull off connectors from differential control module J646 - **2** - and transmission control module J217 - **3** - .



- Remove bolt - **arrow** - and remove housing with control modules from mounting.



- Pull retaining tabs outward - **arrows 1** - and pull control module out from housing - **arrow 2** - .

Installing

Installation is in reverse order of removal. Note the following:

- Verify the previous coding, and code new control module.
- Install seat trim

⇒ [Repair Manual, Body Interior, Repair Group 72,](#)

.

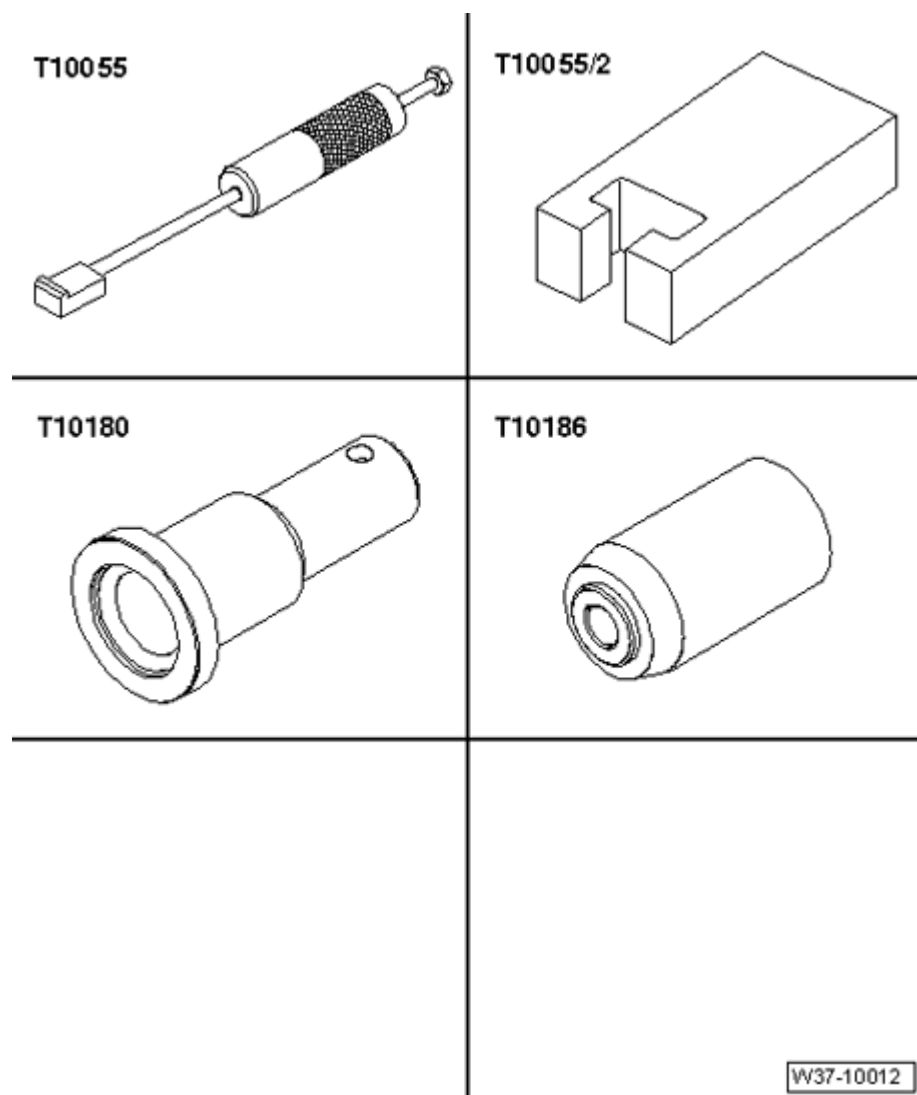
- Observe work sequence after connecting the battery

⇒ [Repair Manual, Electrical Equipment, Repair Group 27,](#)

.

Seals, replacing

Output shaft seal, replacing

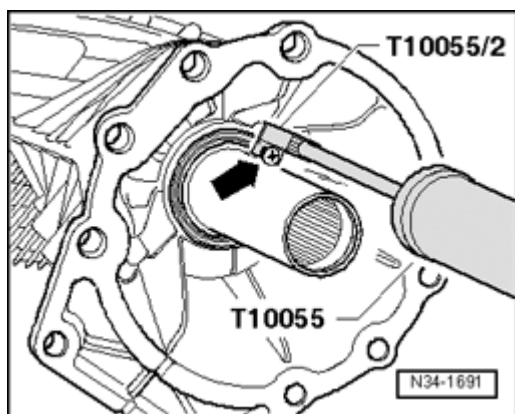


Special tools, testers and auxiliary items required

- Puller T10055
- Adapter T10055/2
- Press Tool For Shaft Seal T10180
- Thrust piece T10186

Removing

- Remove transfer case ⇒ [37-3, Transmission, removing and installing](#) .

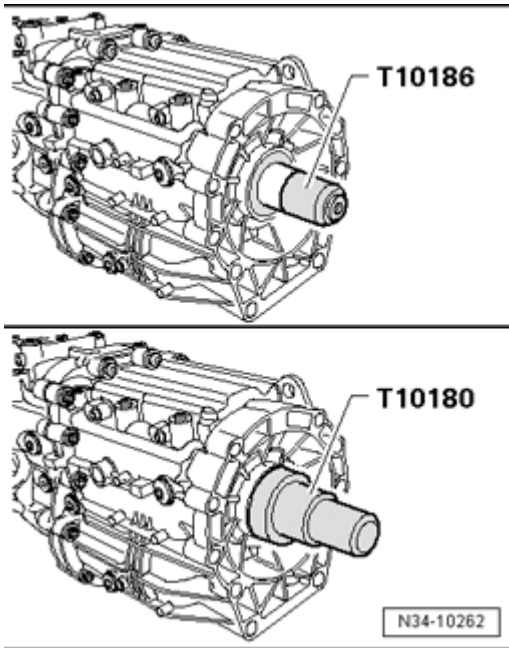


- To pull out seal, install a sheet metal screw of approx. 4 mm diameter into seal - **arrow** - .
 - Install sheet metal screw in so that it jams between seal and metal ring.
 - Do not screw in sheet metal screw too far to avoid damaging bearing behind it.
- Pull out seal with puller T10055 .

Installing



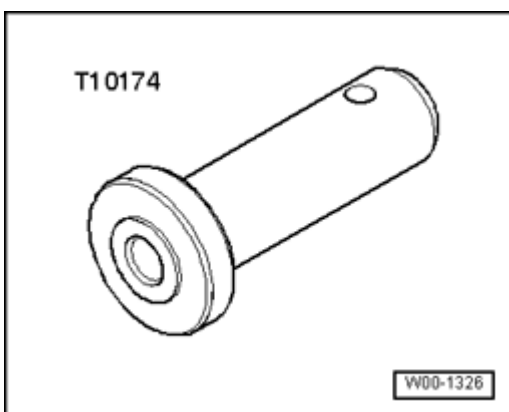
- The new seal must be coated with ATF, especially at the sealing lips.



- First place Press Tool For Shaft Seal T10180 onto output shaft, so that the seal cannot be damaged.
- Then, drive in the new seal up to the limit stop using Press Tool For Shaft Seal T10180 . When doing this, do not cant sealing ring.
- Then check ATF level and top off ⇒ [37-4, ATF level, checking and topping off](#) .

Selector shaft seals, replacing

Special tools, testers and auxiliary items required



- Thrust piece T10174
- Scriber

- Be careful when using scriber to removing seals.

- Apply ATF to circumference and space between sealing lips of the new seal.

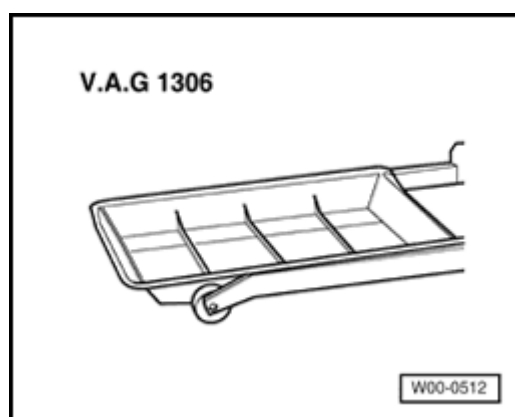
Installation position:

The open side of the sealing ring faces transmission.

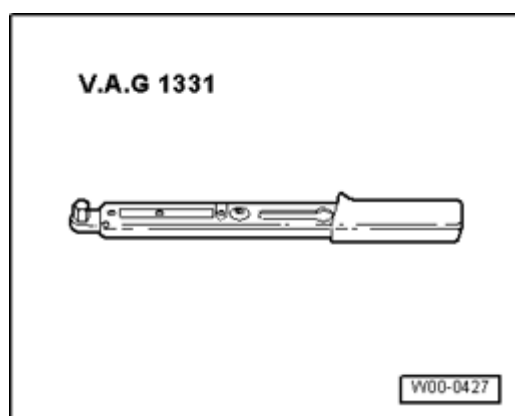
- Drive in new seals using thrust piece T10174 , thereby not distorting the seal.
- Multi-function transmission range (TR) switch, installing and adjusting ⇒ [38-5, Multi-Function Transmission Range \(TR\) Switch F125 , removing, installing and adjusting](#) .

Oil pan, removing and installing

Special tools, testers and auxiliary items required



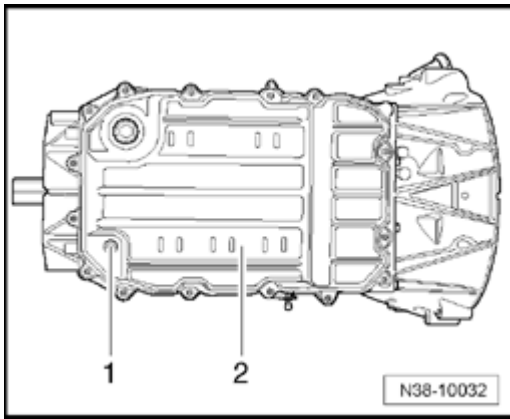
- Drip tray V.A.G 1306



- Torque wrench V.A.G 1331

Removing

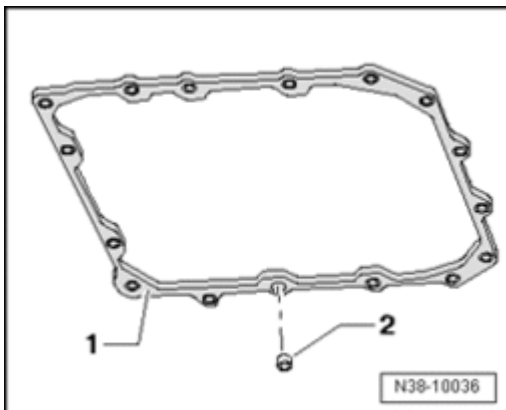
- Remove noise insulation for transmission.
- Place drip tray V.A.G 1306 underneath.



- Remove oil drain plug - **1** - .
- Drain ATF.
- Loosen oil pan bolts - **1** - in a diagonal pattern and remove oil pan.

Installing

- Clean all magnets in depressions of the oil pan. Ensure that the magnets are in full contact with the oil pan.



- Install oil pan with a new gasket - **1** - .
- Make sure that all spacer sleeves - **2** - are located completely in the new gasket - **1** - .
- Tighten oil pan bolts in diagonal sequence and in stages ⇒ [38-1, Torque specifications](#) .

Replace drain plug seal.

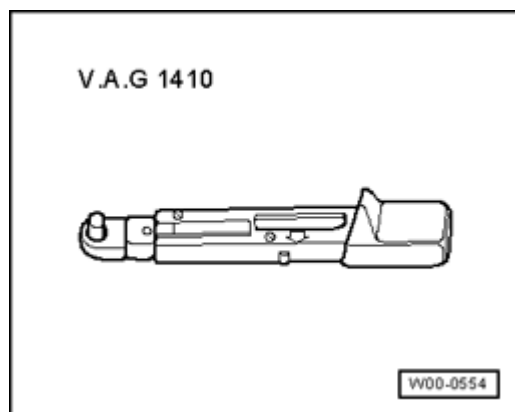
- Tighten oil drain plug ⇒ [38-1, Torque specifications](#) .
- After installation, fill with ATF, check ATF level, and top off ⇒ [37-4, ATF level, checking](#) .

Torque specifications

Drain plug	28 Nm
Oil pan bolts	8 Nm

ATF strainer, removing and installing

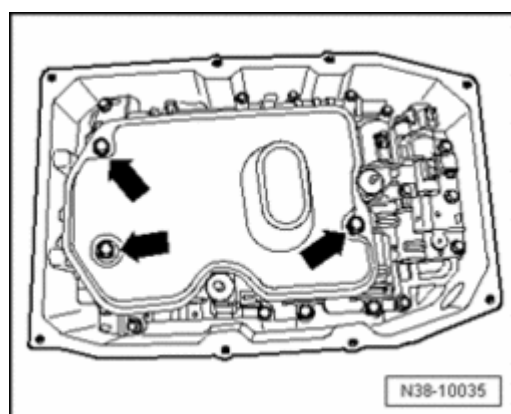
Special tools, testers and auxiliary items required



- Torque wrench V.A.G 1410
- 3 threaded studs M6 x 70 (self-fabrication)

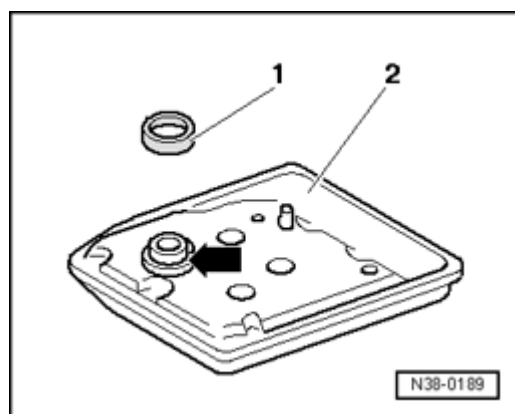
Removing

- Remove oil pan ⇒ [38-1, Oil pan, removing and installing](#) .

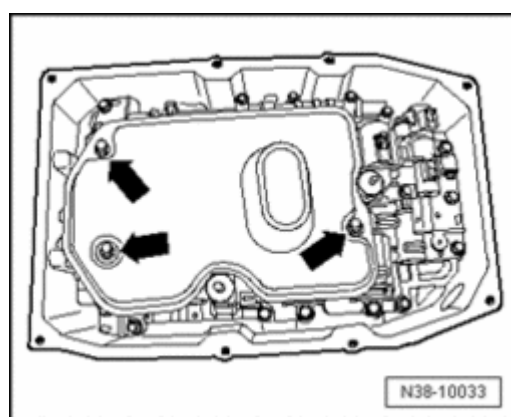


- Remove bolts - **arrows** - .
- Pull off oil strainer.

Installing



- Push new gasket - **1** - onto intake flange of oil strainer - **2** - and wet with ATF.



The threaded studs M6 x 70 - **arrows** - are needed to guide oil strainer.

- Install 3 threaded studs M6 x 70 into valve body by hand.
- Place oil strainer onto threaded studs .
- Carefully press suction collar into opening at valve body up to stop.
- Fasten bolts - **arrows** - for oil strainer ⇒ [38-2, Torque specifications](#) .
- Install oil pan ⇒ [38-1, Oil pan, removing and installing](#) .
- After installation, fill with ATF, check ATF level, and top off ⇒ [37-4, ATF level, checking](#) .

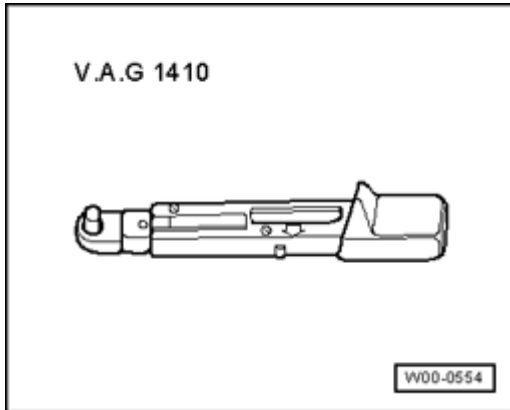
Torque specifications

Oil strainer bolts	10 Nm
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Automatic Transmission Hydraulic Pressure Sensor 1 G193 and Automatic Transmission Hydraulic Pressure Sensor 2 G194 , removing and installing

Senders must always be replaced together.

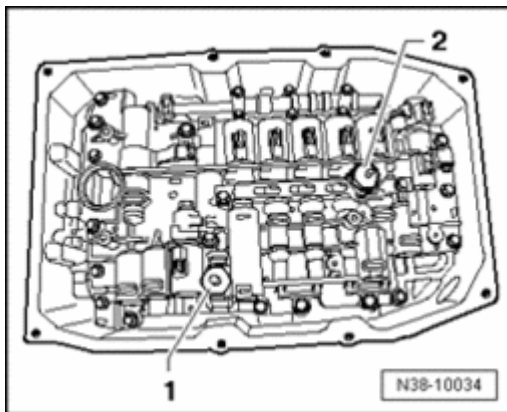
Special tools, testers and auxiliary items required



- Torque wrench V.A.G 1410

Removing

- If still installed, remove oil pan ⇒ [38-1, Oil pan, removing and installing](#) and oil strainer ⇒ [38-2, ATF strainer, removing and installing](#) .

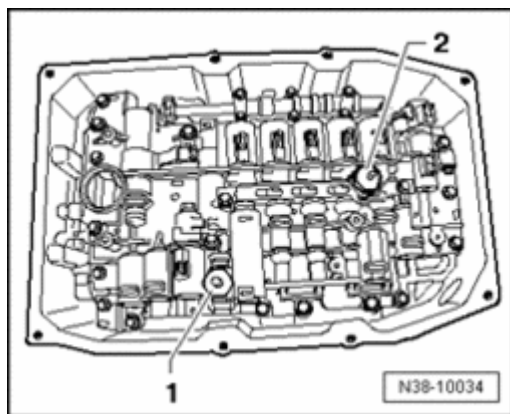


- Carefully pull off connectors for Automatic Transmission Hydraulic Pressure Sensor 1 G193 - **1** - and Automatic Transmission Hydraulic Pressure Sensor 2 G194 - **2** - .

- Remove both sensors.

Installing

Sensors must always be replaced together.



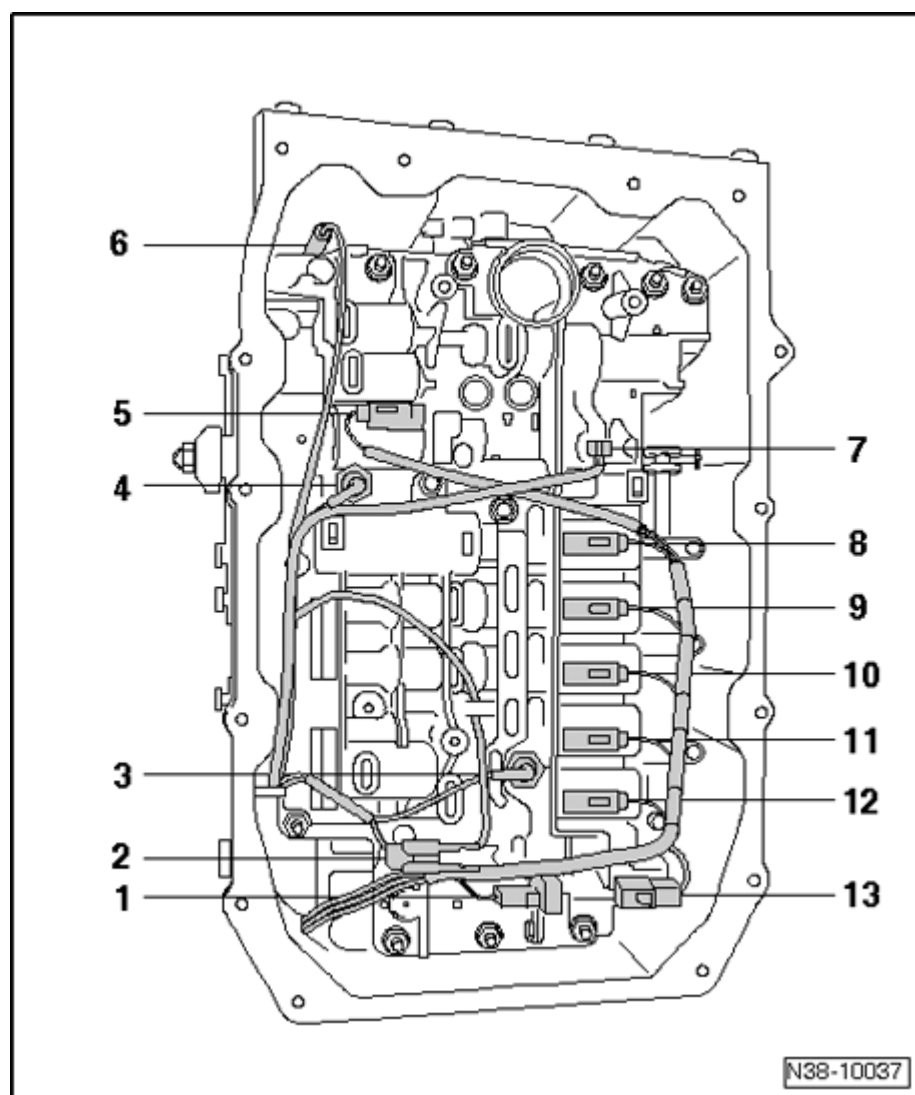
- Install 2 new sensors and fasten to 5 Nm.
- Push connectors onto sensors - **1** - and - **2** - up to stop.

The connectors must engage.

- Install oil strainer ⇒ [38-2, ATF strainer, removing and installing](#) and oil pan ⇒ [38-1, Oil pan, removing and installing](#) .
- After installation, fill with ATF, check ATF level, and top off ⇒ [37-4, ATF level, checking](#) .

Valve body, overview

The valve body and/or the lines can be removed and installed with transmission either removed or installed.



- Solenoid Valve 2 N89
- Connector for Transmission Output Speed (RPM) Sensor G195
 - The sensor is located behind valve body
- Automatic Transmission Hydraulic Pressure Sensor 2 G194

- Removing and installing ⇒ [38-3, Automatic Transmission Hydraulic Pressure Sensor 1 G193 and Automatic Transmission Hydraulic Pressure Sensor 2 G194 , removing and installing](#)

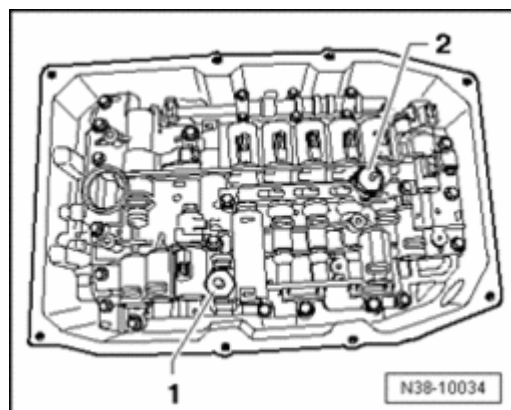
- **Automatic Transmission Hydraulic Pressure Sensor 1 G193**
 - Removing and installing ⇒ [38-3, Automatic Transmission Hydraulic Pressure Sensor 1 G193 and Automatic Transmission Hydraulic Pressure Sensor 2 G194 , removing and installing](#)

- **Solenoid Valve 4 N91**
- **Transmission Input Speed (RPM) Sensor G182**
- **Transmission Fluid Temperature Sensor G93**
- **Solenoid Valve 6 N93**
- **Solenoid Valve 3 N90**
- **Solenoid Valve 5 N92**
- **Solenoid Valve 10 N283**
- **Solenoid Valve 1 N88**

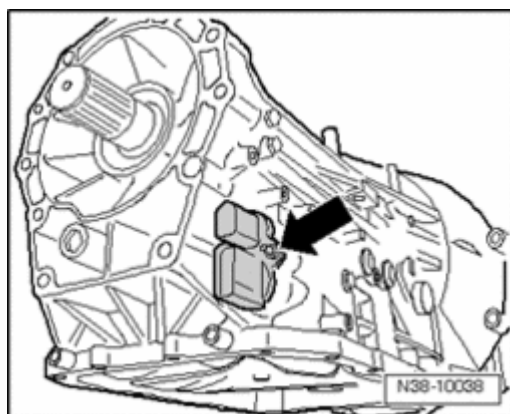
More information on component functions and troubleshooting component failures can be found in
⇒ Self-study program no. 89K303 6 Spd. Automatic Transmission 09D All Wheel Drive .

Valve body, removing and installing

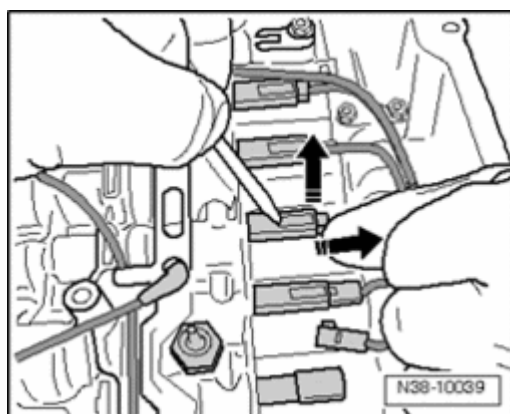
- If still installed, remove oil pan ⇒ [38-1, Oil pan, removing and installing](#) and oil strainer ⇒ [38-2, ATF strainer, removing and installing](#) .



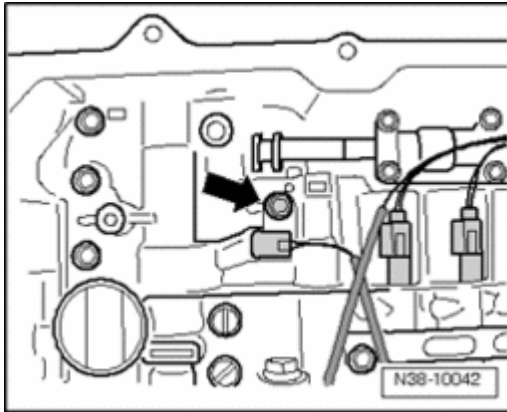
- Carefully disconnect connectors for Automatic Transmission Hydraulic Pressure Sensor 1 G193 - **1** - and Automatic Transmission Hydraulic Pressure Sensor 2 G194 - **2** - .



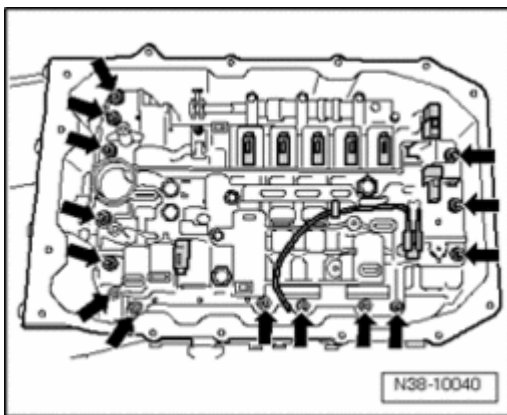
- Disconnect connector - **arrow** - .



- Carefully release connector and pull off.

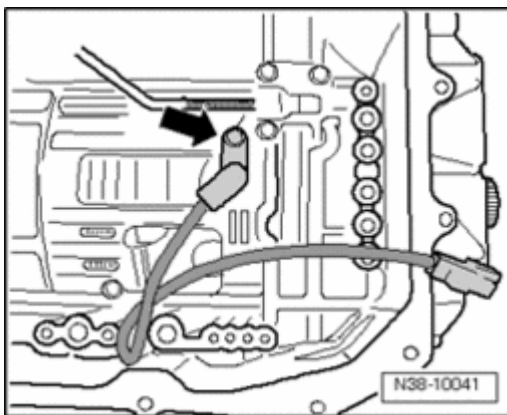


- The Transmission Fluid Temperature Sensor G93 must be tightened to 10 Nm.



- Remove valve body bolts in diagonal sequence.

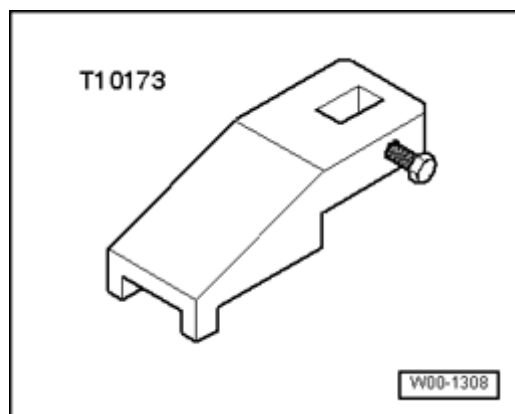
Tightening torque: 8 Nm plus an additional 90 ° .



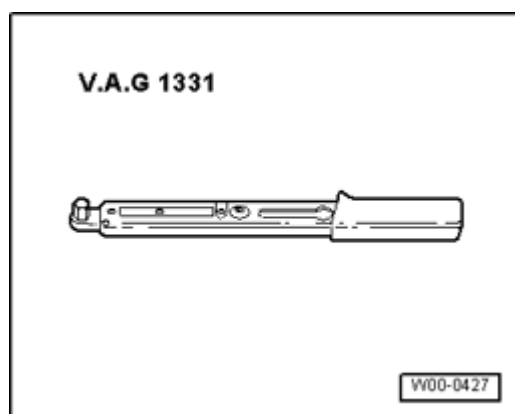
- The Transmission Output Speed (RPM) Sensor G195 must be tightened to 10 Nm.
- Installation is in reverse order of removal.
- After installation, fill with ATF, check ATF level, and top off ⇒ [37-4, ATF level, checking](#) .

Multi-Function Transmission Range (TR) Switch F125 , removing, installing and adjusting

Special tools, testers and auxiliary items required



- Setting Gauge T10173

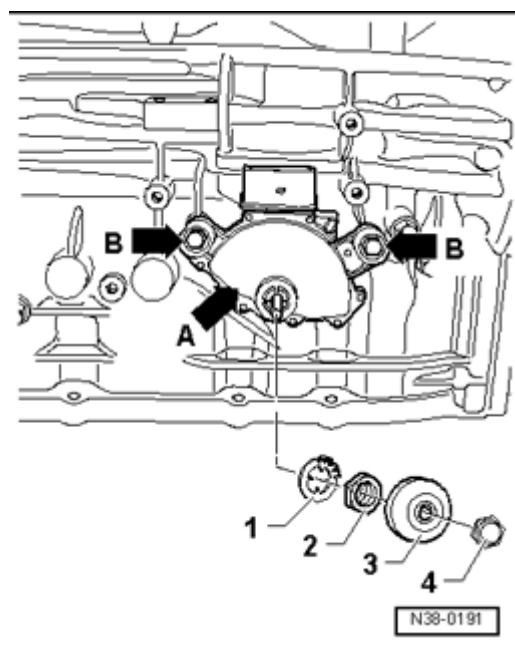


- Torque wrench V.A.G 1331

Removing

For reasons of clarity, the transmission is shown removed throughout this procedure.

- Place selector lever in position "P" .



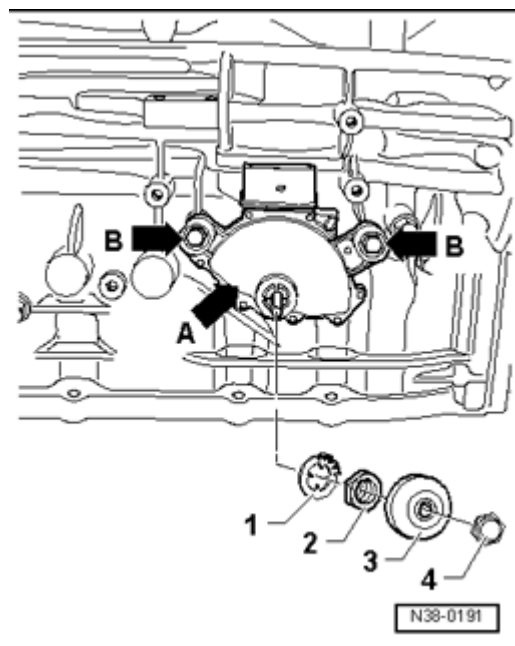
- Remove cap nut - **4** - .
- Remove cover - **3** - from selector shaft.
- Carefully bend back hooks of lock washer - **1** - using a screwdriver.

If one hook breaks off, the washer must be replaced.

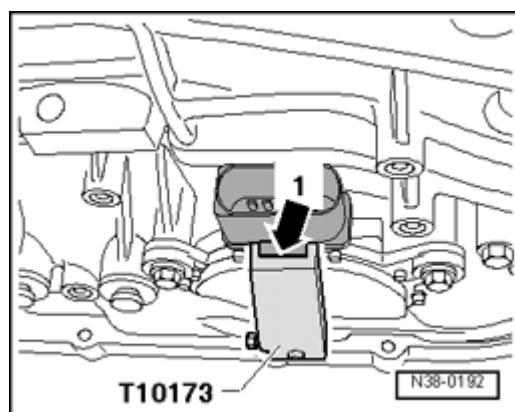
- Remove nut - **2** - and lock washer - **1** - from selector shaft.
- Disconnect connector from Multi-Function Transmission Range (TR) Switch F125 .
- Remove bolts - **arrows B** - and remove multi-function transmission range switch - **arrow A** - from selector shaft.

Installing and adjusting

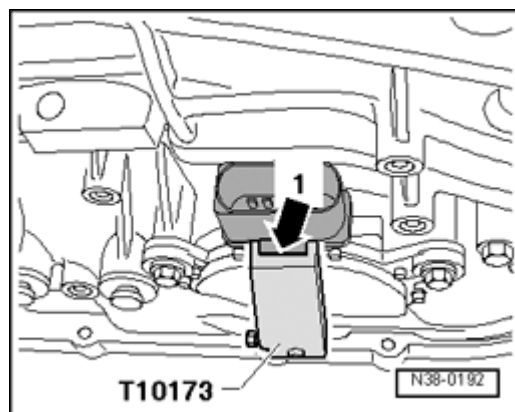
- Move selector shaft lever to position "N" on transmission.
- Connect Multi-Function Transmission Range (TR) Switch F125 to shift rod.



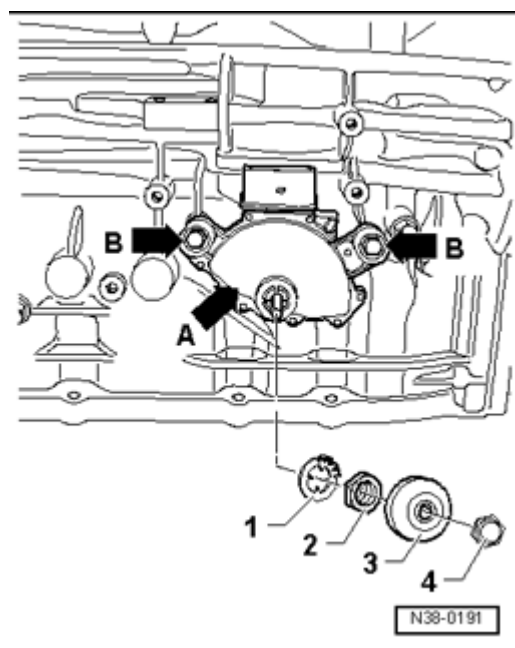
- Fasten bolts - **arrows B** - hand tight for multi-function transmission range (TR) switch F125 .



- Place setting gauge T10173 onto selector shaft.
- Unhook selector lever cable.



- Turn multi-function transmission range (TR) switch - **A** - so far until tab on connector - **arrow 1** - engages the groove of setting gauge T10173 .



- Fasten bolts - **arrows** - for multi-function transmission range (TR) switch F125 to 6 Nm.
- Remove setting gauge T10173 from selector shaft.
- Hook selector lever cable in.

Further installation is in reverse order of removal.

- Check adjustment of selector lever cable ⇒ [37-2, Selector lever cable, checking and adjusting](#) .