

Workshop Manual Audi TT 2007 ➤

Direct shift gearbox 02E, four-wheel drive

Edition 08.2008



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

Repair Group

00 - Technical data

30 - Clutch

34 - Controls, housing

35 - Gears, shafts

39 - Final drive - front differential



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

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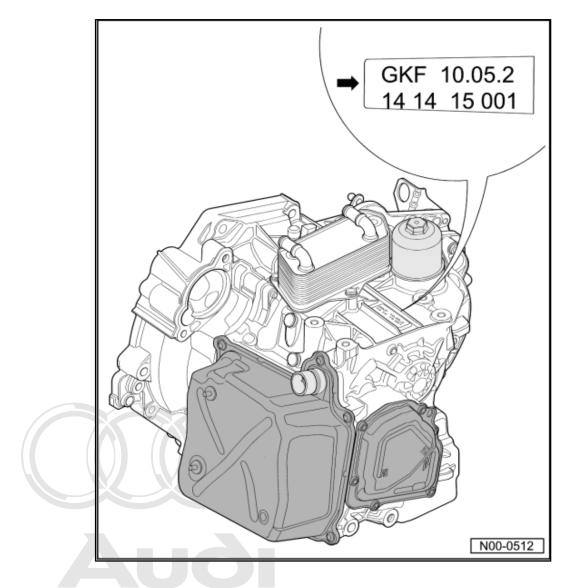


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Technical data 00 -

Gearbox identification

The "6-speed direct shift gearbox 02E (four-wheel drive)" is installed in the Audi TT 2007 $\,^{\blacktriangleright}$. Allocation $\,^{\triangleright}$ page $\,^{\square}$.



The gearbox code is located on the top of the gearbox, near the

gearbox oil coolerstected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability Example: with respect to the correctness of information in this document. Copyright by AUDI AG.

- ♦ GKF = gearbox code
- 10.05.2 = date of production: 10th May 2002
- The other figures are production-related.



Note

The gearbox code letters are also given on the vehicle data stickers.

2 Code letters, gearbox allocation, ratios, equipment

Direct shift gea	rbox	02E four-wheel drive		
Gearbox	Code letters	HXZ	JFP	JPZ
	Manufac- fro tured m to	05.06	05.08	11.06
Allocation	Model	Audi TT 2007 ►	Audi TT 2007 ►	Audi TT 2007 ►
	Engine	3.2 ltr 184 kW 6-cyl. MPI	2.0 ltr 147 kW 4-cyl. TFSI	3.2 ltr 184 kW 6-cyl. MPI
Ratios	Final drive I for 1st to 4th gear	72 : 15 = 4.800	69 : 17 = 4.059	72 : 15 = 4.800
Z ₂ : Z ₁	Final drive II for 5th/6th gear and reverse gear	72 : 20 = 3.600	69 : 22 = 3.136	72 : 20 = 3.600
	1st gear	44 : 15 = 2.933	45 : 13 = 3.462	44 : 15 = 2.933
	2nd gear	44 : 24 = 1.833	43 : 20 = 2.150	44 : 24 = 1.833
	3rd gear	39 : 30 = 1.300	41 : 28 = 1.464	39 : 30 = 1.300
	4th gear	39 : 40 = 0.975	41 : 38 = 1.079	39 : 40 = 0.975
	5th gear	34 : 33 = 1.030	35 : 32 = 1.093	34 : 33 = 1.030
	6th gear	33 : 40 = 0.825	35 : 38 = 0.921	33 : 40 = 0.825
	Reverse gear	22 : 14 x 32 : 15 = 3.352	22 : 14 x 33 : 13 = 3.352	22 : 14 x 32 : 15 = 3.352
Overall ratio i _{OV.} in top gear		2.970	2.888	2.970
Allocation: rear final drive	Designation	Rear final drive 02D ar	nd 0AV	

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Direct shift gea	rbox	02E four-wheel drive		
Gearbox Code letters		JUQ	JYX	KDE
	Manufac- fro tured m to	11.06	11.06	09.07
Allocation	Model	Audi TT 2007 ►	Audi TT 2007 ►	Audi TT 2007 ►
	Engine	3.2 ltr 184 kW 6-cyl. MPI	3.2 ltr 184 kW 6-cyl. MPI	3.2 ltr 184 kW 6-cyl. MPI
Ratios	Final drive I for 1st to 4th gear	72 : 15 = 4.800	72 : 15 = 4.800	72 : 15 = 4.800
Z ₂ : Z ₁	Final drive II for 5th/6th gear and reverse gear	72 : 20 = 3.600	72 : 20 = 3.600	72 : 20 = 3.600
	1st gear	44 : 15 = 2.933	44 : 15 = 2.933	44 : 15 = 2.933
	2nd gear	44 : 24 = 1.833	44 : 24 = 1.833	44 : 24 = 1.833
	3rd gear	39 : 30 = 1.300	39 : 30 = 1.300	39 : 30 = 1.300
	4th gear	39 : 40 = 0.975	39 : 40 = 0.975	39 : 40 = 0.975
	5th gear	34 : 33 = 1.030	34 : 33 = 1.030	34 : 33 = 1.030
	6th gear	33 : 40 = 0.825	33 : 40 = 0.825	33 : 40 = 0.825
	Reverse gear	22 : 14 x 32 : 15 = 3.352	22 : 14 x 32 : 15 = 3.352	22 : 14 x 32 : 15 = 3.352
Overall ratio i _{OV.} in top gear		2.970	2.970	2.970



Direct shift gearbox	02E four-wheel drive
Allocation: rear Designation final drive	Rear final drive 02D and 0AV

Direct shift gear	rbox	02E four-wheel drive		
Gearbox Code letters		KNL	KNN	KQA
	Manufac- fro tured m to	11.07	05.08	05.08
Allocation	Model	Audi TT 2007 →	Audi TT 2007 >	Audi TT 2007 ►
	Engine	3.2 ltr 184 kW 6-cyl. MPI	2.0 ltr 195, 199 kW 4-cyl. TFSI	3.2 ltr 184 kW 6-cyl. MPI
Ratios	Final drive I for 1st to 4th gear	72 : 15 = 4.800	62 : 13 = 4.769	72 : 15 = 4.800
Z ₂ : Z ₁	Final drive II for 5th/6th gear and reverse gear	72 : 20 = 3.600	62 : 18 = 3.444	72 : 20 = 3.600
	1st gear	Protected by 15p Fig. 1.933 ying fo	r priva38 r cdr3n=r2a 923 ses, i	n part 44n w15e,=s2e933
	2nd gear	permittad urbas authorized by Al with respect to the correctness	IDI AG4 5UD243G dogs 95 7uarani of information in this document. Co	ee or 204ept 27/ Liabilit 833
	3rd gear	39 : 30 = 1.300	35 : 25 = 1.400	39 : 30 = 1.300
	4th gear	39 : 40 = 0.975	32 : 31 = 1.032	39 : 40 = 0.975
	5th gear	34 : 33 = 1.030	28 : 26 = 1.077	34 : 33 = 1.030
	6th gear	33 : 40 = 0.825	27 : 31 = 0.871	33 : 40 = 0.825
	Reverse gear	22 : 14 x 32 : 15 = 3.352	22 : 14 x 27 : 13 = 3.264	22 : 14 x 32 : 15 = 3.352
Overall ratio iov. in top gear		2.970	3.000	2.970
Allocation: rear Designation final drive		Rear final drive 02D a	nd 0AV	

Direct shift ge	arbox	02E four-wheel drive		
Gearbox Code letters		KRF	LME	
	Manufac- fro tured m to	01.08	01.08	
Allocation	Model	Audi TT 2007 ►	Audi TT 2007 ►	
	Engine	2.0 ltr 195, 200 kW 4-cyl. TFSI	2.0 ltr 155 kW 4-cyl. TFSI	
Ratios	Final drive I for 1st to 4th gear	62 : 13 = 4.769	62 : 13 = 4.769	
Z ₂ : Z ₁	Final drive II for 5th/6th gear and reverse gear	62 : 18 = 3.444	62 : 18 = 3.444	
	1st gear	38 : 13 = 2.923	38 : 13 = 2.923	
	2nd gear	45 : 23 = 1.957	43 : 24 = 1.792	
	3rd gear	35 : 25 = 1.400	32 : 27 = 1.185	
	4th gear	32 : 31 = 1.032	29 : 35 = 0.829	
	5th gear	28 : 26 = 1.077	25 : 29 = 0.862	
	6th gear	27 : 31 = 0.871	24 : 35 = 0.686	
	Reverse gear	22 : 14 x 27 : 13 = 3.264	22 : 14 x 27 : 13 = 3.264	

Direct shift gearbox	02E four-wheel drive		
Overall ratio i _{ov.} in top gear	3.000	2.362	
Allocation: rear Designation final drive	Rear final drive 02D ar	nd 0AV	

2.1 Calculating ratio "i"

Example:

	6th gear	Final drive
Drive gear	ZG ₁ = 40	ZA ₁ = 20
Driven gear	ZG ₂ = 33	ZA ₂ = 72

 $i = Z_2 : Z_1 (Z_1 = number of teeth on drive gear, Z_2 = number of$ teeth on driven gear)

 i_G = gear ratio = ZG_2 : ZG_1 = 33 : 40 = 0.825

 $i_A = axle ratio = ZA_2 : ZA_1 = 72 : 20 = 3.6$

 i_{OV} = overall ratio = i_{OV} x i_{A} = 0.825 x 3.6 = 2.97



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3 **Capacities**

Gearbox capacity

Capacities	Direct shift gearbox 02E, four-wheel drive
Initial filling	6.9 ltr.
Oil change	approx. 5.5 ltr.
Change interval	⇒ Maintenance tables
Lubricant	Gear oil for direct shift gearbox 02E ⇒ Electronic parts catalogue



Note

- Use only the correct type of gear oil for the direct shift gearbox 02E (available as a replacement part). Other types of lubricant cause malfunctions and/or failure of the gearbox.
- You must also renew the gear oil filter when you change the gear oil <u>⇒ page 105</u> .
- Checking gear oil level and topping up ⇒ page 94
- Filling up with gear oil after repair ⇒ page 100

Bevel box capacity

Capacities	Bevel box
Initial filling	0.9 ltr.
Oil change	Filled for life, no change
Lubricant	Gear oil ⇒ Electronic parts catalogue .



Use only the correct type of gear oil (available as a replacement part) for the bevel box. Other types of oil cause malfunctions and/ or failure of the bevel box.

- Checking gear oil level and topping up ⇒ page 149
- Filling up with gear oil after repair ⇒ page 150



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4 Safety precautions

Observe the following precautions if tests have to be performed with the engine running.



WARNING

Accidents can be caused if a gear is inadvertently engaged while the engine is running.

Before working on the vehicle while the engine is running, shift the selector lever into position "P" and apply the handbrake.

Danger from toxic fumes!

When the engine is running, the exhaust system must always be connected to the exhaust gas extractor.



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Observe the following precautions if test equipment has to be used while road-testing the vehicle:



WARNING

Accidents can be caused if the driver is distracted by test equipment while road-testing, or if test equipment is not se-

Injuries can also be caused if the passenger's airbag is triggered in a collision.

- The use of test equipment while driving causes distraction.
- There is an increased risk of injury if test equipment is not secured.

TT Coupé:

Always secure testing equipment to the rear seat with a strap and have them operated from there by a second person.

TT Roadster:

- ♠ Move the passenger's seat to the rearmost position.
- Use only vehicle diagnosis and service information system -VÁS 5052- or ďiagnosis system -VAS 5053- .
- Test equipment may only be operated by the passenger; the tester -1- must be placed flat on the passenger's lap Convight by AUDI AG. as illustrated.

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Observe the following precautions to avoid possible injury and/or damage to electrical and electronic components:

Switch off ignition before disconnecting and connecting test equipment.



Caution

When disconnecting the battery there is a risk of serious damage to electronic components:

- Observe the correct procedure for disconnecting the bat-
- Always switch off the ignition before disconnecting the battery.

5 Notes on the direct shift gearbox 02E

5.1 General notes

Gearbox

The direct shift gearbox 02E is a dual-clutch gearbox, also referred to as "S tronic". It has the same basic construction as a 6-speed manual gearbox. The engine torque is transferred to the gearbox via the dual-mass flywheel. The two multi-plate "wet" clutches are controlled hydraulically and actuated alternately so that the gearbox is operated like an automatic gearbox, in other words the gears are engaged automatically (but can also be selected manually via the tiptronic function). There is no clutch pedal. For further information please refer to \Rightarrow Self-study programme No. 308; Direct shift gearbox 02E.

Selector mechanism

In selector lever position "P" the selector lever cable is used to engage the parking lock mechanically. All other gearshift commands and selector lever positions are transmitted via the CAN data bus from the selector lever -E313- (selector mechanism) to the mechatronic unit for dual clutch gearbox -J743- .

Gear oil (gearbox and final drive)

The direct shift gearbox and front final drive have a common filling of gear oil ⇒ page 94.



Note

Use only the correct type of gear oil for the direct shift gearbox 02E (available as a replacement part). Other types of oil will cause malfunctions and/or failure of the gearbox; for Part No. refer to ⇒ Electronic parts catalogue.

The bevel box has a separate oil filling ⇒ page 149.



Note

Use only the correct type of gear oil (available as a replacement part) for the bevel box. Other types of oil will cause malfunctions and/or failure of the bevel box; for Part No. refer to ⇒ Electronic parts catalogue.

Regulations for the disposal of oil

Drained oil must be disposed of properly.

- Improper disposal of used oil endangers the environment.
- It must not be mixed with solvents, brake fluid, coolant or similar.
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Variation of gear-change points for gradients

Additional gear-change maps automatically select the gearchange points for gradients according to accelerator pedal position and road speed.

 The gear-change map for extreme uphill gradients is matched to the engine power.

- The gear-change map for extreme downhill gradients is matched to the engine braking effect.
- By selecting a gear directly via the tiptronic mode, it is possible to make use of the engine braking effect available in a particular gear, for instance when driving downhill with a trailer.

5.2 Safety functions of gearbox control unit

In the event of a failure of one or more components or sensors. the control unit J743 will activate appropriate backup functions. This enables the gearbox to continue operating without damage. but will impair the operation and smoothness of the gearshifts.

Faults detected by the gearbox are classified in four different categories.

- The fault is stored in the memory and one of the backup programs is activated. The gear selection indicator in the instrument cluster will continue to show the currently engaged selector lever position in the normal way. The driver can continue to drive the vehicle (with certain restrictions), and the condition is not critical to the safety of the vehicle or to the gearbox itself. If at all, the driver will only notice the fault if he experiences driveability problems, and will then automatically contact an Audi Service Partner.
- Certain positions on the gear selection indicator in the instrument cluster start to flash. This is to inform the driver that this particular selector lever position is currently not available. Example: position "D" will start flashing if the selector lever is moved from position "R" to position "D" while the vehicle is still rolling backwards. To avoid damage to the gearbox, the mechatronic unit for dual clutch gearbox -J743prevents 1st gear from being engaged while the vehicle is moving backwards. 1st gear will only be engaged when the vehicle comes to a standstill.
- The complete gear selection indicator lights up and flashes; the currently engaged selector lever position is highlighted. This shows the driver that a temporary critical fault in the gearbox has been detected. Example: the gearbox has been overloaded or overheated, for instance by towing an excessively heavy load. The driver can continue to drive the vehicle when the gearbox has cooled off, but will need to avoid placing a heavy load on the transmission.
- The gear selection indicator flashes; the currently engaged selector lever position is no longer indicated. This shows the driver that a critical and permanent fault in the gearbox has been detected. It may no longer be possible to use all gears, so this condition is critical to the safety of the vehicle and to the gearbox itself. This display is intended to warn the driver that he should contact an Audi Service Partner.



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6 Notes on tow-starting and towing



Caution

Risk of damage to the gearbox.

- The selector lever must be in position "N" when the vehicle is towed.
- ◆ The vehicle must not be towed further than 50 km or at a speed in excess of 50 km/h.

It is not possible to start the engine by tow-starting, for instance if the battery is discharged or if the starter is not working.





Repair instructions 7

Proper tools and the maximum possible care and cleanliness are essential for satisfactory gearbox repairs. The usual basic safety precautions also naturally apply when carrying out repair work.

A number of generally applicable instructions for the various repair procedures are summarised here. They apply to the work described in this Manual.

Guided fault finding, vehicle self-diagnosis and testing system

♦ Before servicing the gearbox, the exact cause of the failure must be determined using the functions "Guided Fault Find-le, is not ing", "Vehicle Self-diagnosis" and "Test instruments" — Vehicle diagnosis, testing and information system VAS 5051.

Special tools

For a complete list of special tools used in this Workshop Manual ⇒ "Workshop equipment and special tools" .

Gearbox

- Do not run the engine or tow the vehicle with the oil pan removed or when there is no gear oil in the gearbox.
- When installing a replacement gearbox, check the gear oil level and top up as required ⇒ page 94 : capacities ⇒ page 5; specification ⇒ Electronic parts catalogue.
- When installing gearbox, ensure that dowel sleeves are fitted correctly.

O-rings, oil seals and gaskets

- ◆ Renew O-rings, oil seals and gaskets.
- After removing gaskets and seals, always inspect the contact surface on the housing or shaft for burrs resulting from removal or for other signs of damage.
- Renew gaskets: completely remove the old gasket and clean the sealing surfaces thoroughly.
- Lightly lubricate O-rings with gear oil before installation to prevent them being trapped and damaged during assembly.
- ◆ Lightly oil the outer circumference of oil seals and pack the space between the sealing lips -arrow- about half-full with sealing grease; for sealing grease refer to ⇒ Electronic parts catalogue.
- Do not use any other lubricants where gear oil is specified.
 Otherwise, there is a risk of problems occurring in the gearbox hydraulics.
- The open side of the oil seal should face the side containing the fluid.
- Observe rules for cleanliness ⇒ page 14.
- After installation, check gear oil level and top up as required
 ⇒ page 94 and ⇒ page 149 .

Locking elements

- Do not overstretch circlips; renew if necessary.
- ◆ Circlips must be properly seated in the base of the groove.

Nuts, bolts

- Slacken bolts in reverse sequence to the specified tightening sequence.
- Nuts and bolts which secure covers and housings should be loosened and tightened in diagonal sequence and in stages if no tightening sequence is specified.
- Renew self-locking nuts.
- ◆ Use a wire brush to clean the threads of bolts which are secured with locking fluid. Then install bolts with locking fluid; for locking fluid refer to ⇒ Electronic parts catalogue.
- The tightening torques stated apply to non-oiled nuts and bolts.
- Where instructions specify a torque setting plus an additional angle, these bolts must be tightened to the specified torque and then turned through the specified angle, e.g. 40 Nm + 90° (90° = a guarter turn).

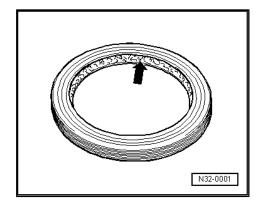
7.1 Contact corrosion!

Contact corrosion can occur if none approved fasteners are used mercial purposes, in part or in whole, is not on the vehicle (bolts, nuts, washers with a permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability on the vehicle (bolts, nuts, washers with a permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability of the correctness of information in this document. Copyright by AUDI AG.

For this reason, only fasteners with a special surface coating are fitted.

Rubber or plastic parts and adhesives also consist of non-conductive materials.

If you are not sure whether used parts can be re-installed, always fit new parts \Rightarrow Electronic parts catalogue.



Please note:

- Use only genuine spare parts: these have been fully tested and are compatible with aluminium.
- We recommend the use of accessories approved by Audi.
- Damage resulting from contact corrosion is not covered by the warranty.

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8 Rules for cleanliness

- Carefully clean connection points and the surrounding area with engine cleaner or brake cleaner and dry thoroughly before opening.
- Seal off open lines and connections with clean plugs or sealing caps immediately.
- Place removed parts on a clean surface and cover them over. Use only lint-free cloths.
- Carefully cover or seal open components if repairs cannot be completed immediately.
- Only install clean components: do not remove replacement parts from packaging until just before installation. permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG. Protect unplugged electrical connectors against dirt and mois-
- ture and make sure connections are dry when attaching.



30 – Clutch

Exploded view - servicing multiple clutch

- The clutch in the direct shift gearbox 02E consists of two sets of plates, or clutch packs, and is therefore referred to as a "multiple clutch". The larger clutch pack (located on the outside) is designated "K 1" (clutch 1), and controls the torque flow for reverse gear and gears "1", "3" and "5". The smaller set of plates (on the inside) is designated "K 2" (clutch 2), and controls the torque flow for gears "2", "4" and "66" by copyright. Copying for private or commercial purposes, in part or in whole, is not
- s authorised by AUDI AG. AUDI AG does not guarantee or accept any liability Any work performed on the multiple clutch requires extra careess of information in this document. Copyright by AUDI AG. because all the parts are balanced and matched together in production. If the components are rotated out of their original positions when repairing, this will cause imbalance and impair the smoothness of the gear-changes and reduce the service life of the unit.

Replacement parts

1 - Multiple clutch

With circlip



Caution

The clutch plates can slip out of position inside the multiple clutch unit. The multiple clutch unit must not be dismantled at present.

l₱the drive plate (which forms the upper section of the multiple clutch unit) becomes detached from the splines in the outer plate carrier, the clutch plates can slip out of position in the clutch. It will then no longer be possible to adjust the clutch correctlý.

The drive plate included with the replacement part is not secured with the large circlip; it is only a close fit inside the clutch.

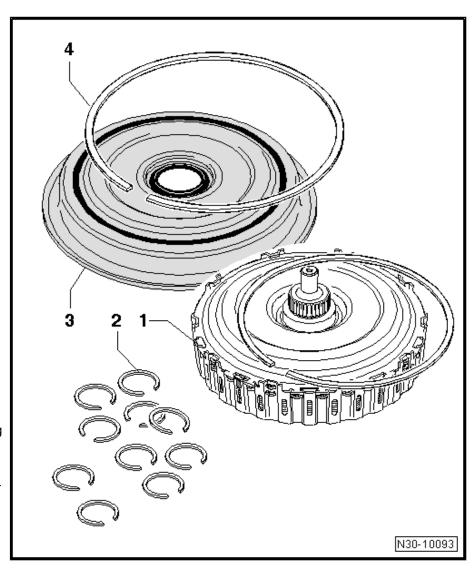
Removing and installing ⇒ page 17

2 - Circlips

- ☐ 10x, with different thicknesses for adjusting multiple clutch
- Determining correct thickness when installing multiple clutch ⇒ page 22

3 - Clutch end cover

4 - Corrugated ring



Audi TT 2007 ➤

Component parts of dismantled multiple clutch



Caution

The clutch plates can slip out of position inside the multiple clutch unit.

- This diagram showing the components of the multiple clutch is for information only. The multiple clutch unit must not be dismantled at present.
- If the drive plate becomes detached from the splines in the outer plate carrier, the clutch plates can slip out of position in the multiple clutch. It will then no longer be possible to adjust the clutch correctly.
- 1 Outer plate carrier with clutch housing.
- 2 Oil seals
 - □ 4x
- 3 Inner plate carrier

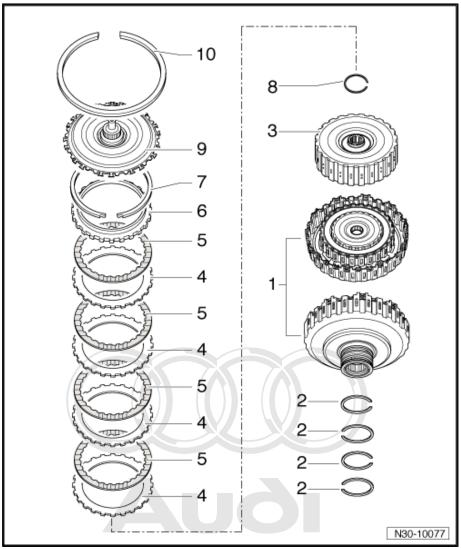


Caution

The clutch plates can slip out of position.

Whithe inner plate carrier is lifted or taken out, the plates can slip out of position inside the clutch. It will then no longer be possible to adjust the clutch correctly.

- 4 Outer plates
 - □ 4x
- 5 Inner plates
 - □ 4x
- 6 Thrust washer
- 7 Circlip
 - ☐ Fit a new circlip of the same thickness if the original circlip is removed in order to re-install the clutch plates.
- 8 Circlip
 - Determining correct thickness when installing multiple clutch
 ⇒ page 22
- 9 Drive plate
- 10 Circlip
 - □ Renew

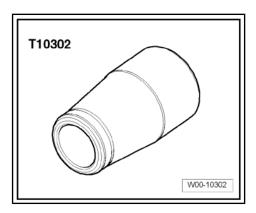


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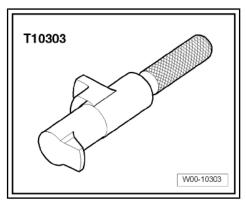
1.1 Removing and installing multiple clutch

Special tools and workshop equipment required

♦ Assembly sleeve -T10302-



Retaining pin -T10303-





Note

Assembly sleeve -T10302- must be cleaned before use; do not use an assembly sleeve if it is scratched.

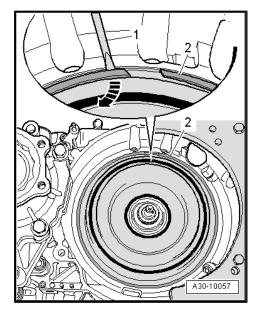
Removing

- Drain off gear oil ⇒ page 100.
- Remove direct shift gearbox: vehicles with 2.0 ltr. TFSI engine \Rightarrow page 53, vehicles with 3.2 ltr. MPI engine \Rightarrow page 66.
- Secure direct shift gearbox to engine and gearbox support in vertical position ⇒ page 81.
- Renew gear oil filter ⇒ page 105.

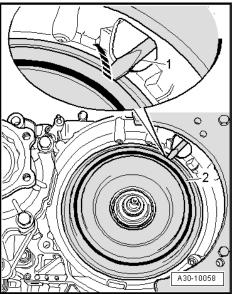


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 Pry out and detach corrugated ring -2- for clutch end cover using a screwdriver -1- -arrow-.



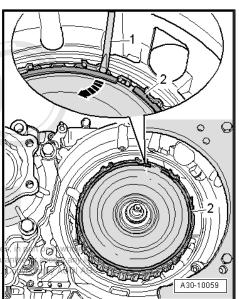
 Working through aperture for starter motor, pry out and detach clutch end cover -2- using a screwdriver -1- or other suitable lever -arrow-.



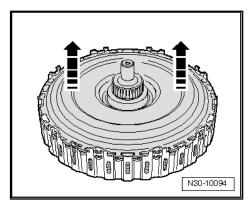
 Pry out circlip -2- for drive plate using a screwdriver -1--arrow-.



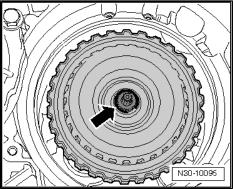
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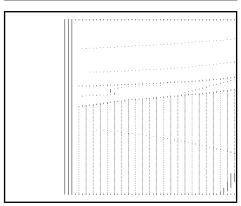
Detach drive plate -arrows-.



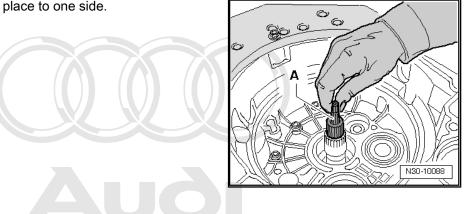
- Pry out circlip -arrow- using a screwdriver or long-nose pliers.



- Take multiple clutch out of gearbox.
- After removing multiple clutch, check whether clutch bell housing was damaged during removal.



- Pull out pump shaft -A- and place to one side.



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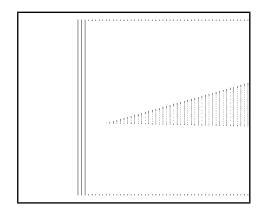
Installing



Caution

The clutch plates can slip out of position inside the multiple clutch unit.

- If the drive plate becomes detached from the splines in the outer plate carrier, the clutch plates can slip out of position in the multiple clutch. It will then no longer be possible to adjust the clutch correctly.
- To prevent the clutch plates from slipping inside the multiple clutch unit, keep the drive plate pressed into the outer plate carrier with both thumbs during all following steps.



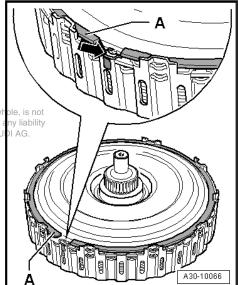


Note

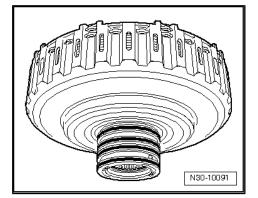
The circlip for the drive plate that is supplied with the replacement parts is fitted at a later stage.

- Take new circlip for drive plate out of packaging and place to one side.
- Take multiple clutch out of packaging, holding drive plate in position.
- First fit old circlip -A- for drive plate from removed multiple clutch.
- Installation position: the lug on the drive plate and the colourmarked splines on the outer plate carrier must be located between the ends of the circlip.
- Using a screwdriver, check that circlip is fully engaged.

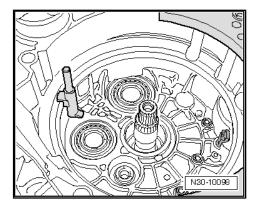
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- Check that the 4 oil seals on the hub on the underside of the multiple clutch are correctly seated; engage in position if necessary.
- Installation position: joints of seals should be offset



Apply retaining pin -T10303- to seat of clutch end cover as illustrated.

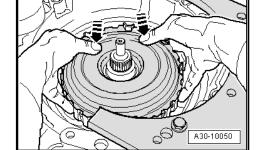


Install multiple clutch in clutch bell housing (turn and move up and down as required), at the same time keeping the drive plate pressed into the outer plate carrier with both thumbs -arrows-.



Note

Do not allow the multiple clutch to drop into the inner plate carrier.

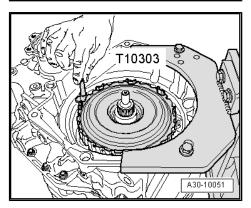


Have a second mechanic hold the retaining pin -T10303- as illustrated until the clutch end cover is installed.



Note

The multiple clutch must not be turned from this point onwards, as this would turn the retaining pin -T10303- out of position.

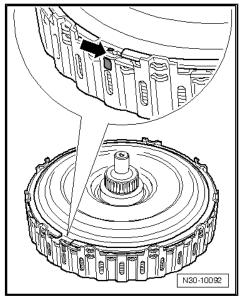


- Check whether the projecting lug -arrow- on the drive plate is positioned between the colour-marked splines on the outer plate carrier.
- If no marking is provided, use waterproof pen to mark position of drive plate in relation to outer rim of outer plate carrier as illustrated so it can be re-fitted in the same position.



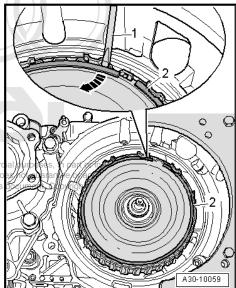
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When re-assembling, the lug on the drive plate must be located again at this marked position.





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Caution

The clutch plates can slip out of position inside the multiple clutch unit.

- ♦ If the inner plate carrier is taken out or lifted, the plates can slip out of position inside the clutch. It will then no longer be possible to adjust the clutch correctly.
- Lift out drive plate -arrows-; if necessary lever it carefully out of splines on outer plate carrier using a screwdriver.
- Place drive plate to one side.

Adjusting multiple clutch (determining thickness of circlip)

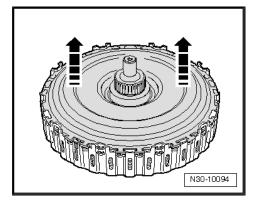
 Select the 2 mm thick circlip from the circlips supplied with the unit.

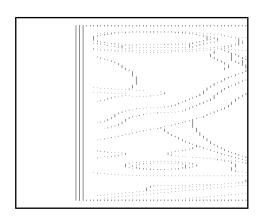


Note

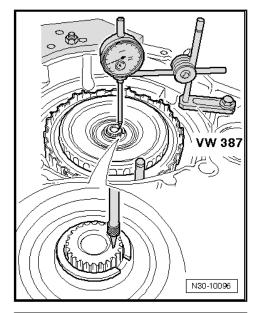
The 2 mm circlip is fitted provisionally for measurement purposes and will be replaced later with the final circlip of the required thickness.

- Fit circlip of 2 mm thickness -arrow-.





- Secure universal dial gauge bracket -VW 387- to gearbox flange.
- For 1st measurement, apply tip of dial gauge to end of input shaft as shown in illustration.
- Preload dial gauge to 2 mm and set to "0".
- Lift up multiple clutch as far as it will go.
- Note reading on dial gauge (= axial clearance of input shaft).



For 2nd measurement, apply tip of dial gauge to hub of inner plate carrier as shown in illustration.



Note

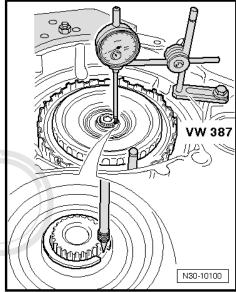
The tip of the dial gauge must not contact the circlip.

- Preload dial gauge to 2 mm and set to "0".
- Lift up multiple clutch as far as it will go.
- Take reading and note down measured value.

The thickness of the new circlip is calculated according to the following formula:

Circlip = 2nd measured value - 1st measured value + 1.85 (= constant value)

The thickness of the new circlips is graduated in steps of 0.1 mm. When selecting the required circlip, round up or down to the nearest 10th of a millimetre as required. In other words, values up to 0.049 are rounded down and values of 0.050 and above are rounded up.



Example:

- Calculated value for projected by copyright Carrying for private or commercial purposes, in part or in whole, is not calculated value for prewitch the same carrying for private or commercial purposes, in part or in whole, is not calculated value for prewitch the same carrying for private or commercial purposes, in part or in whole, is not calculated value for prewitch the same carrying for private or commercial purposes, in part or in whole, is not calculated value for prewitch the same carrying for private or commercial purposes, in part or in whole, is not calculated value for prewitch the same carrying for private or commercial purposes, in part or in whole, is not calculated value for prewitch the same carrying for private or commercial purposes, in part or in whole, is not calculated value for prewitch the same carrying for private or commercial purposes, in part or in whole, is not calculated value for prewitch the same carrying for private or carrying for carrying for private or carrying for carrying for carrying for private or carrying for car nearest 10th and selectricical with a thickness of 2.3 mm ocument. Copyright by AUDI AG.
- Calculated value for new circlip is 2.24 mm; round down to the nearest 10th and select circlip with a thickness of 2.2 mm.



Note

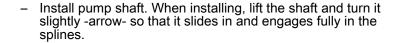
If the calculated thickness of the new circlip is exactly 2.0 mm, the circlip fitted previously for taking the measurement does not have to be removed.

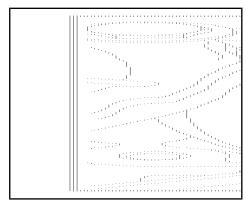
Remove provisionally fitted circlip (2 mm) and fit new circlip with thickness as calculated above.

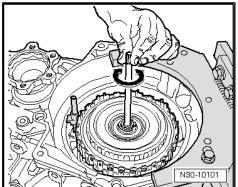


Note

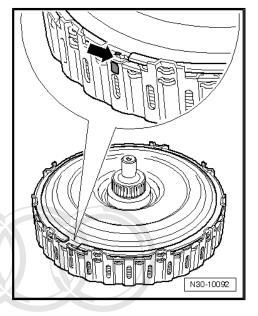
- Circlips must not be used more than once.
- The removed (provisional) circlip and all remaining circlips should be disposed of.







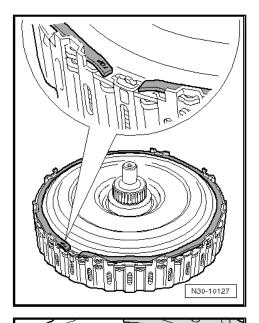
- Install drive plate in multiple clutch.
- The projecting lug -arrow- on the drive plate must be positioned between the colour-marked splines on the outer plate carrier, or the marks made earlier in this procedure.





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- Fit new circlip for drive plate.
- Installation position: the lug on the drive plate and the colourmarked splines on the outer plate carrier (or the corresponding marks made previously) must be located between the ends of the circlip.
- Using a screwdriver, check that circlip is fully engaged.
- Take out retaining pin -T10303- between multiple clutch and housing.





Caution

Leakage can occur at the contact surface of the clutch end cover.

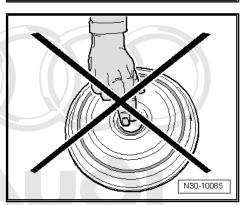
- Thoroughly degrease running surface -arrow- on drive plate for internal seal of clutch end cover.
- Clean the contact surface for the outer seal of the clutch end cover.



Caution

Leakage can occur at the internal seal for the clutch end cover.

To ensure that the internal seal remains absolutely free of grease, do not touch the seal with your hands.



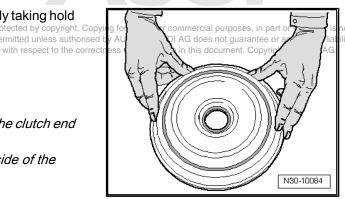
A30-10049

- Take the clutch end cover out of its packaging, only taking hold Protected by copyright. Copy permitted unless authorised of it on the outside as illustrated.
- Clean end of gearbox shaft.

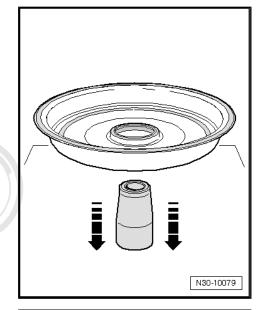


Note

- Using gear oil, lightly lubricate the outer seal for the clutch end cover only.
- If there are any stickers on the inside or the outside of the clutch end cover, remove them thoroughly.



- Place assembly sleeve -T10302- on a flat surface.
- The internal seal in the new clutch end cover must be preformed before installation; this is done by guiding the clutch end cover, with the outside downwards, horizontally and uniformly over the assembly sleeve -T10302-.
- Lift assembly sleeve -T10302- out of clutch end cover.



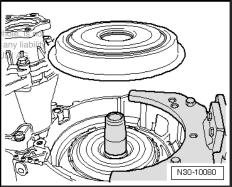
Fit assembly sleeve -T10302- over end of multiple clutch shaft.

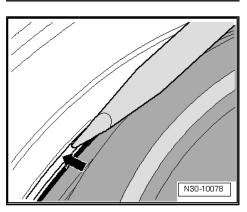


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Clutch end cover can be damaged.

- Do not attempt to drive on the clutch end cover with a hammer.
- Guide clutch end cover with the outside upwards horizontally over assembly sleeve -T10302- and press cover uniformly onto its seat.
- If necessary use a screwdriver to lever the clutch end cover carefully into its seat as illustrated -arrow- so that the corrugated ring can be fitted.
- Install corrugated ring for clutch end cover in gearbox housing, always holding the ring in place on the opposite side so that it remains in its groove.
- Using a screwdriver, check that corrugated ring is fully engaged.
- Install gearbox: vehicles with 2.0 ltr. TFSI engine
 ⇒ page 61 , vehicles with 3.2 ltr. MPI engine ⇒ page 74 .
- Fill up with gear oil for direct shift gearbox ⇒ page 100.
- Connect vehicle diagnostic, testing and information system -VAS 5051B- .
- Perform basic setting.



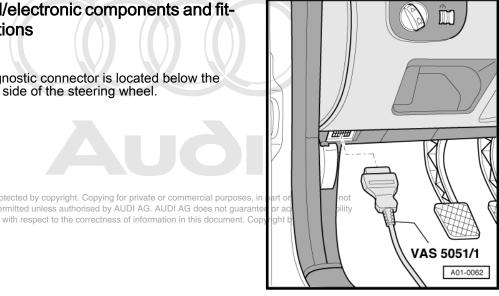


Electrical/electronic components and fitting locations

Diagnostic connector

Fitting location: The diagnostic connector is located below the knee padding on the left side of the steering wheel.

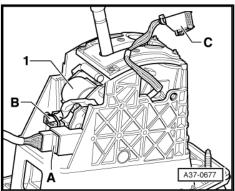




Selector lever lock solenoid -N110-

Fitting location: the selector lever lock solenoid -1- is located in the selector mechanism.

The solenoid is integrated in the selector mechanism; it is therefore not possible to renew only the solenoid on its own. It can only be removed or installed together with the selector mechanism ⇒ page 44.



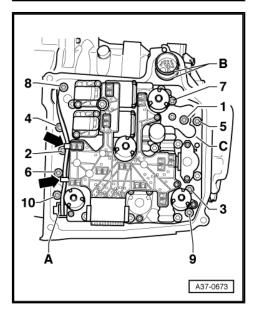
Mechatronic unit for dual clutch gearbox -J743-

Fitting location: the mechatronic unit for dual clutch gearbox -J743- is bolted to the front of the gearbox housing and covered by the gearbox oil pan.

The control unit is an integrated component of the mechatronic unit for dual clutch gearbox -J743- .

♦ Is checked via self-diagnosis

Removing and installing mechatronic unit for dual clutch gearbox -J743- ⇒ page 121.

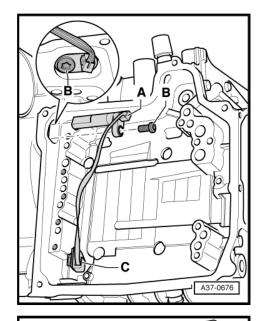


Gearbox input speed sender -G182- / oil temperature sender for multi-plate clutch -G509-

Fitting location: the gearbox input speed sender -G182- and clutch temperature sender -G509- -item A- are bolted to the gearbox housing below the mechatronic unit for dual clutch gearbox - J743- .

♦ Checked via self-diagnosis

Removing and installing gearbox input speed sender -G182- and clutch temperature sender -G509- ⇒ page 125.



В

Selector lever -E313- with tiptronic switch -F189- , switch for selector lever locked in position P -F319-

Fitting location: the selector lever -E313- with tiptronic switch - F189- and switch for selector lever locked in position P -F319- is integrated in the printed circuit -B- of the selector mechanism. These components cannot be renewed separately.

Checked via self-diagnosis

Selector lever -E313- with tiptronic switch -F189- and switch for selector lever locked in position P -F319- can only be removed and installed together with selector mechanism ⇒ page 44.

Selector lever position display -Y6-

Fitting location: integrated into instrument cluster



Note

The selector lever position display can only be renewed together with the instrument cluster.

If the selector lever position display flashes or lights up, please refer to safety functions of geapox control unit a page geapox gea

Removing and installing instrument cluster ⇒ Rep. Gr. 90° opyright by AUD

60 7 +20.5 °C 0.0 100km PRNDS VDO A37-0553

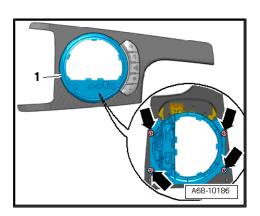
A37-0683

Selector lever display illumination bulb -L101-

Fitting location: in trim for selector lever boot -1-.

Is checked via self-diagnosis

Removing and installing selector lever display illumination bulb - L101- ⇒ page 39



Brake light switch -F-

Fitting location: the brake light switch -arrow- is located on pedal cluster.

♦ Is checked via self-diagnosis

Removing and installing brake light switch ⇒ Rep. Gr. 46



Note

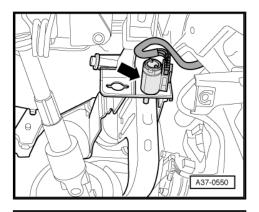
To ensure a secure fit, the switch may only be fitted once.

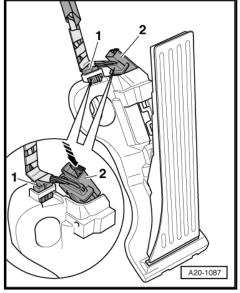
Kickdown switch -F8-

An adapted value from accelerator position sender -G79- and accelerator position sender 2 -G185- (integrated in accelerator pedal module) is stored in the engine control unit as the kickdown signal.

- ♦ Is checked via self-diagnosis
- Signal is transmitted from engine control unit to gearbox control unit via CAN bus.

Removing and installing accelerator pedal module ⇒ Rep. Gr.







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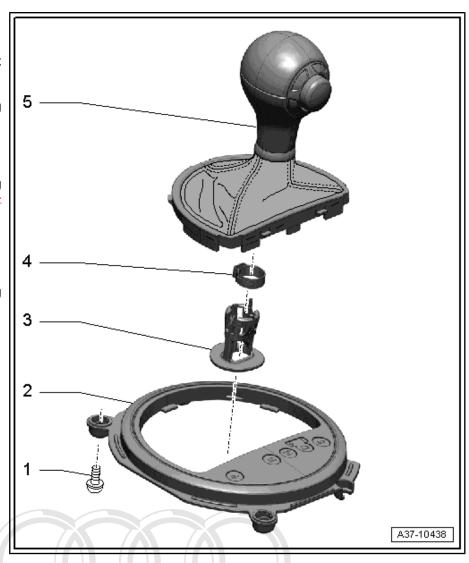
29

2 Exploded view - selector lever handle with interlock button (side), selector lever display illumination bulb -L101-

1 - Bolt

□ 1 Nm

- 2 Trim for selector lever boot with selector lever display illumination bulb -L101-
 - Removing and installing ⇒ page 39
- 3 Guide
- 4 Hose clip
 - □ Removing and installing ⇒ "2.1 Removing and installing selector lever handle with interlock button (side)", page 30
- 5 Selector lever handle
 - Removing and installing⇒ page 30

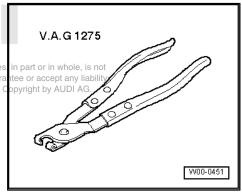


2.1 Removing and installing selector lever handle with interlock button (side)

Special tools and workshop equipment required

♦ Hose clip pliers -V.A.G 1275-

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◆ Cable tie

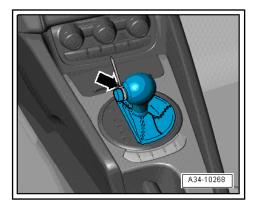
Removing

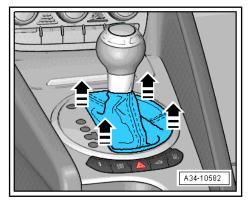


Note

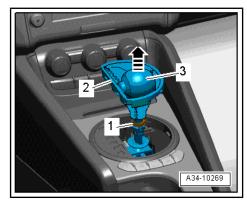
The selector lever handle is removed together with the selector lever boot.

- Apply handbrake.
- Protected hift selector, lever into position a Nurposes, in part or in whole, is not
- permitted unless authorised by AUDI AG. AUDI AG does not quarantee or accept any liability with U.Se a cable lie to secure the interlock button in pulled-out position -arrow-, as shown in the illustration.
 - Unclip selector lever boot on both sides and lift it off -arrows-.





- Turn selector lever boot -2- inside out over selector lever handle -3-.
- Release hose clip -1-.
- Pull off selector lever handle together with selector lever boot -arrow-, taking care not to touch interlock button.



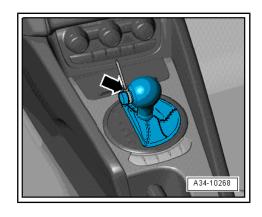
Installing

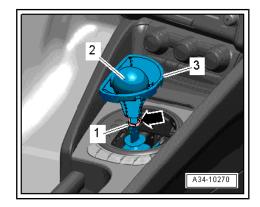
Installation is carried out in reverse sequence; note the following:



Note

- ♦ To install the selector lever handle, the interlock button must be pulled out as far as it will go and secured with either a cable tie-arrow- or with the assembly aid supplied with the new handle.
- If the interlock button was not secured, do not attempt to pull it out of the selector lever handle using mechanical tools. Instead, apply a compressed air gun to the bottom of the handle, blow out the interlock button and secure it in this position.
- Push selector lever handle fully onto selector lever.
- The interlock button faces the driver.
- The handle must engage in the annular groove on the selector lever.
- Remove cable tie or assembly aid.
- The interlock button mechanism should engage in the vertical groove on the selector lever. If not, press the interlock button into the selector lever handle.
- Bring hose clip -1- into correct position.
- The lug -arrow- on the hose clip faces front right.
- Clamp selector lever handle -2- on selector lever by tightening hose clip with hose clip pliers -V.A.G 1275- .
- Clip retainer frame -3- for selector lever boot onto trim for selector lever boot.







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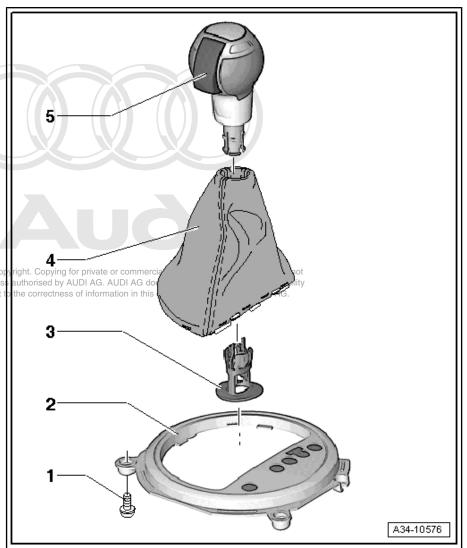
3 Exploded view - selector lever handle with interlock button (front), selector lever display illumination bulb -L101-

1 - Bolt

- □ 1 Nm
- 2 Trim for selector lever boot with selector lever display illumination bulb -L101-
 - Removing and installing ⇒ page 39
- 3 Guide

4 - Selector lever boot

- Detaching selector lever boot from selector lever handle ⇒ page 35
- 5 Selector lever handle with interlock button (front)
 - ⇒ "3.1 Removing and installing selector lever by c handle with interlock unless button (front)", <u>page 33</u>
 - ⇒ "3.3 Moving interlock button on selector lever handle into installation position", page 37



3.1 Removing and installing selector lever handle with interlock button (front)

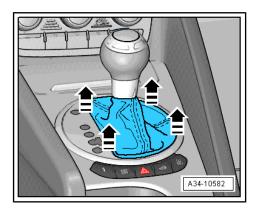
Removing



Note

The selector lever handle is removed together with the selector lever boot.

- Apply handbrake.
- Shift selector lever into position "N".
- Unclip selector lever boot on both sides and lift it off -arrows-.



- Turn selector lever boot -2- inside out over selector lever handle -3-.
- Turn locking ring in direction of -arrow- as far as stop.
- · Raised lug -b- on locking ring is misaligned from lug -a-.



Caution

Risk of damage to the selector mechanism.

Do not touch the interlock button -1- on the selector lever handle when pulling off the handle.

Otherwise the selector lever handle or the pull rod of the selector mechanism will be damaged when the handle is pulled off

 Pull off selector lever handle together with selector lever boot upwards -arrow-, taking care not to touch interlock button -1-.

Installing

Installation is carried out in reverse sequence; note the following:

- Turn locking ring in direction of -arrow- as far as stop.
- · Raised lug -b- on locking ring is misaligned from lug -a-.
- · Interlock button faces direction of travel.



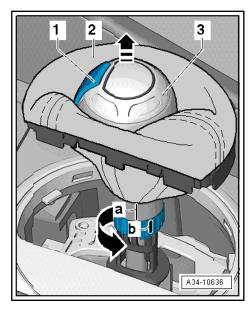
Caution

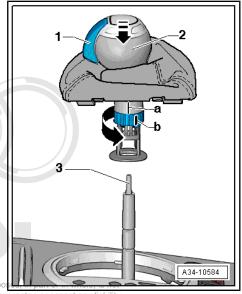
Risk of damage to the selector mechanism.

The interlock button -1- must protrude from the selector lever handle during installation. If the interlock button was pressed in by mistake when the handle was removed, the interlock button must be moved back to its installation position ⇒ page 37.

If the interlock button has been pressed in and the handle is installed with the interlock button in this position, the handle and the pull rod of the selector mechanism 3- will be damaged irreparably.

with respect to the correctness of information in this





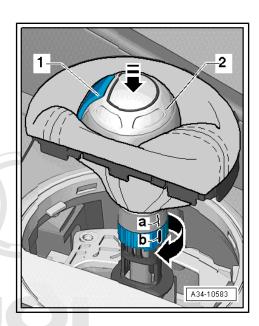
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- Carefully press selector lever handle fully into selector lever, taking care not to touch interlock button -1-.
- The handle must engage in the annular groove on the selector lever.

- Turn locking ring in direction of -arrow- as far as stop.
- It must be possible to turn the locking ring; press handle if necessary.
- Lug -a- must align with raised lug -b- on locking ring.



- The handle is not locked until the locking ring has been turned. Only then can you press the interlock button on the handle.
- There may be increased resistance when you press the interlock button for the first time after installation.
- Press interlock button -1- on selector lever handle.
- Fold selector lever boot down and clip it in.
- Check selector mechanism ⇒ page 43.

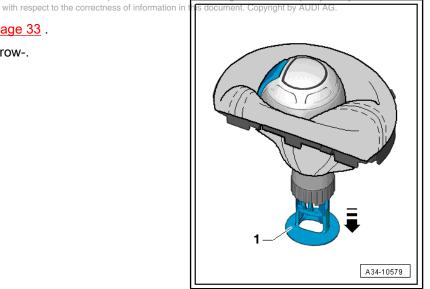


3.2 Detaching selector lever boot from selector lever handle otected by copyright. Copying for private or commercial purposes, in part or in whole, is not

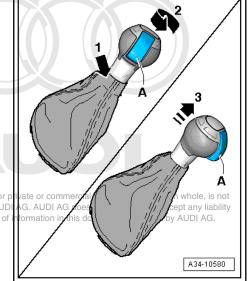
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Procedure:

- Remove selector lever handle ⇒ page 33.
- Pull guide -1- off in direction of -arrow-.



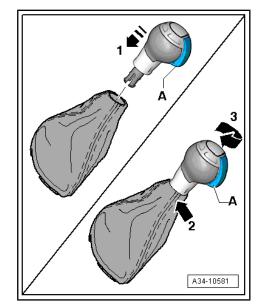
- Do not touch interlock button -A- when selector lever handle has been removed.
- Hold upper end of selector lever boot -arrow 1-.
- Turn selector lever handle in direction of -arrow 2- and pull it off -arrow 3-.



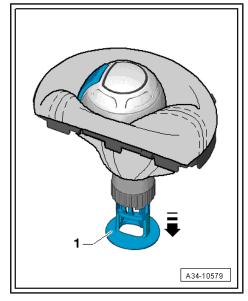
Protected by copyright. Copying for p permitted unless authorised by AUD with respect to the correctness of

Installing selector lever boot with selector lever handle:

- Do not touch interlock button -A- when selector lever handle has been removed.
- Insert selector lever handle in selector lever boot -arrow 1-(with interlock button turned 90° out of position towards left).
- Hold upper end of selector lever boot -arrow 2-.
- Turn selector lever handle in direction of -arrow 3-.



- Clip guide -1- upwards into handle in opposite direction of
- Install selector lever handle ⇒ page 33.



3.3 Moving interlock button on selector lever handle into installation position

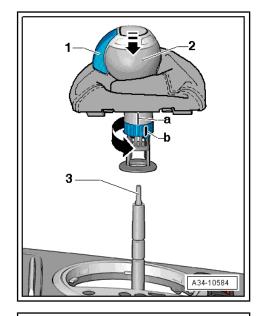
Special tools and workshop equipment required

♦ Release tool -T40203-

Selector lever handle with interlock button (front):

Installation position: the interlock button -1- must protrude from the selector lever handle.

If the interlock button has been pressed in, it must be moved back into its installation position so that the selector lever handle can be installed.



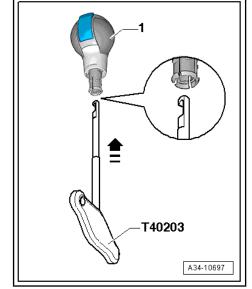
Carefully insert release tool -T40203- into selector lever handle -1- as far as stop.



Note

For illustration purposes, the handle is shown without selector lever boot.

Recess on release tool -T40203- should face interlock button, hook should point towards left.

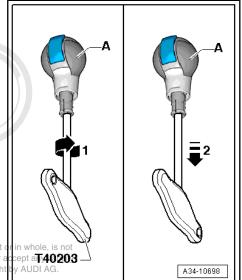




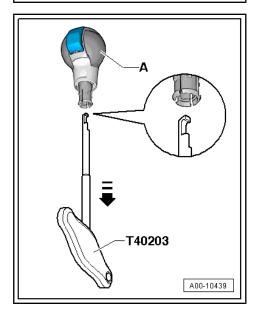
- Hold selector lever handle -A- and turn release tool -T40203-180° in direction of -arrow 1-.
- Hold handle and carefully pull out release tool -T40203--arrow 2-.



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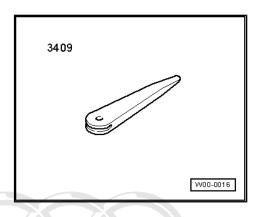
- When pulling out release tool -T40203-, interlock button -Aon selector lever handle is pressed out and locked in position.
- Do not touch interlock button on selector lever handle before installing handle so that interlock button is not pressed in again.



Removing and installing selector lev-4 er display illumination bulb -L101-

Special tools and workshop equipment required

♦ Removal wedge -3409-



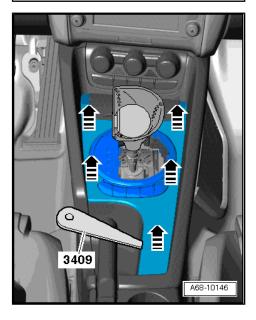
Removing

- Apply handbrake.
- Shift selector lever into position "N".
- Switch off ignition.
- Unclip selector lever boot on both sides and lift it off -arrows-.



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- Pull selector lever boot up and over handle.
- Using removal wedge -3409-, pry trim panel for centre console out of centre console -arrows-.
- Unplug electrical connectors and remove trim panel for centre console.

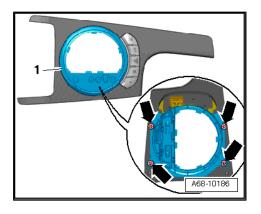


Remove bolts -arrows- and detach trim for selector lever boot
 -1- together with selector lever display illumination bulb L101- .

Installing

Installation is carried out in reverse sequence; note the following: Tightening torques:

- ⇒ "2 Exploded view selector lever handle with interlock button (side), selector lever display illumination bulb L101 ", page 30
- ⇒ "3 Exploded view selector lever handle with interlock button (front), selector lever display illumination bulb L101", page 33
- Make sure trim panel engages audibly in centre console.





5 Exploded view - selector mechanism



Note

Lubricate all bearings and moving surfaces with polycarbamide grease ⇒ Electronic parts catalogue .

1 - Support bracket

□ For selector lever cable

- 20 Nm and then turn 90° further
- □ 2x
- □ Renew

3 - Securing clip

□ Renew

4 - Bolt

□ 13 Nm

5 - Locking plate

□ Renew

6 - Selector lever cable

- Do not bend or kink
- Do not grease cable eye
- □ Renew selector lever cable if sleeves are damaged
- Removing and installing <u>⇒ page 46</u>
- Adjusting ⇒ page 50

7 - Nut

- □ 8 Nm
- □ 4x
- Selector mechanism to body

8 - Buffer stop for selector lever

Clipped onto selector mechanism

9 - Shift unit

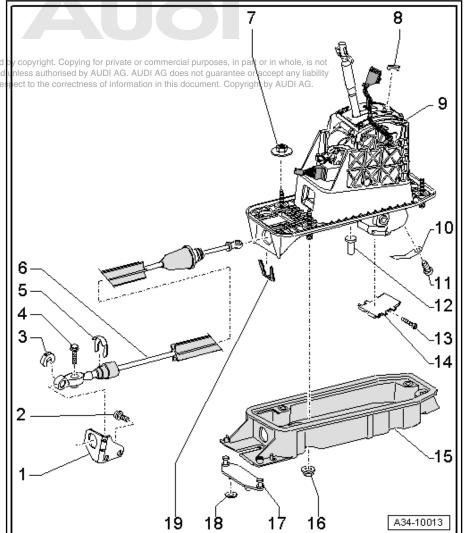
☐ With integrated printed circuit for selector mechanism (selector lever -E313-)



Caution

Electronic components of selector mechanism can be damaged by electrostatic discharge. 🗗 not touch printed circuit with bare hands.

- ☐ Incorporates tiptronic switch -F189- and selector lever lock solenoid -N110-
- Tiptronic switch -F189- and selector lever lock solenoid -N110- can be checked via "Guided Fault Finding" ⇒ Vehicle diagnosis, testing and information system VAS 5051



______ Audi TT 2007 ➤

- ☐ If tiptronic switch -F189- or selector lever lock solenoid -N110- are defective, renew shift unit
- Manual release of selector mechanism ⇒ page 42
- □ Removing and installing ⇒ page 51

10 - Detent spring

11 - Bolt

□ 3.5 Nm

12 - Pivot pin

13 - Bolt

□ 3.5 Nm

□ 4x

14 - Detent plate

15 - Cover for shift unit

□ With glued-on gasket

16 - Nut

□ 9 Nm

□ 4x

Self-locking

☐ Renew

17 - Bracket

18 - Lock washer

□ 2x

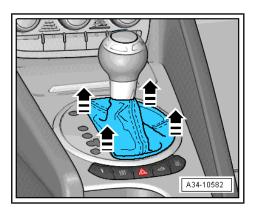
19 - Locking plate

- □ For selector lever cable
- ☐ Renew
- ☐ Installation position: angled end points towards shift unit

5.1 Manual release of selector mechanism

In the event of failure of the supply voltage to the selector lever or accept any liability lock solenoid (discharged: battery-or-defective: fuse); or if the solight by AUDI AG. enoid itself is defective, the selector lever cannot be shifted out of position "P". The vehicle then cannot be moved because the parking lock is engaged.

- Check fuses ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Check battery voltage ⇒ Electrical system; General information; Rep. Gr. 27.
- If no fault is found in the supply voltage, release the selector mechanism manually as follows:
- Unclip selector lever boot on both sides and lift it off -arrows-.
- Pull selector lever boot up and over handle.

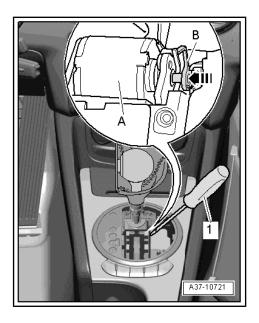




- Release selector lever lock solenoid -A- by pressing lever -B- inwards -arrow- with a screwdriver -1- and holding it in this position.
- The solenoid will then release the selector lever.
- Now press button on selector lever handle and shift selector lever out of "P".



However, if the selector lever is now moved back to "P", the selector lever lock solenoid will again lock it mechanically in position "P" and it will have to be released once again.



5.2 Checking selector mechanism and ignition key removal lock

- It should not be possible to operate the starter while the selector lever is in position "S", "D" or "R" or in the tiptronic position.
- If the selector lever is moved into position "N" while the vehicle is rolling at a speed above 5 km/h, the solenoid for the selector lever lock must not engage and block the selector lever. The selector lever can be shifted into a driving gear.
- If the selector lever is moved into position "N" while the vehicle is rolling at a speed below 5 km/h (almost at a standstill), the solenoid for the selector lever lock should only engage after a delay of approx. one second. The selector lever cannot be shifted out of position "N" until brake pedal is depressed.

Selector lever in position "P" and ignition switched off:

The ignition key can be removed.

Selector lever in any position other than "P" and ignition switched

The ignition key cannot be removed.

Selector lever in position "P", putton on selector lever pressed in on some selector lever pressed in one some selector lever pressed in one selector lever and ignition switched on: with respect to the correctness of information in this document. Copyright by AUDI AG.

Brake pedal not depressed:

The selector lever is locked with the button pressed in, and cannot be shifted out of position "P". The solenoid for selector lever lock blocks the selector lever.

Brake pedal depressed:

The solenoid for selector lever lock releases the selector lever and a gear can be engaged. Shift the selector lever slowly from position "P" through "R, N, D and S" and check whether the display in the instrument cluster shows the correct selector lever position in each case.

Selector lever in position "N", button on selector lever pressed in and ignition switched on:

Brake pedal not depressed:

The selector lever is locked and cannot be shifted out of position "N". The solenoid for selector lever lock blocks the selector lever.

Brake pedal depressed:

The solenoid for selector lever lock releases the selector lever and a gear can be engaged.



Note

- If you depress the brake pedal you can shift from "N" to "D" without pressing the button on the selector lever.
- However, to shift from "N" to "R" you do have to additionally press the button on the selector lever.

Selector lever in position "D", ignition switched on:

The selector lever is locked and cannot be shifted from "D" to "S".

Press button on selector lever:

The selector lever is released and can be shifted from "D" to "S".

Selector lever in position "D", ignition and lights switched on:

Shift selector lever into tiptronic gate:

The illuminated "D" symbol in the selector lever position display should go out and the "+" and "-" symbols should light up.

The selector lever position display in the instrument cluster should switch from "PRNDS" to "654321" when the selector lever is moved into the tiptronic gate.

Move the selector lever in the tiptronic gate to "+" and "-".

When you move the selector lever to "+" or "-", the display "654321" in the instrument cluster should move one gear up or down accordingly.

- If the selector mechanism or the ignition key removal lock does not operate as described, connect vehicle diagnostic, testing and information system -VAS 5051B-.
- "Interrogate fault memory all fault menus", trace and eliminate any faults displayed via "Guided Fault Finding".

5.3 Removing and installing selector mechanism

Removing

- Shift selector lever into position "P".
- Switch off ignition.
- Remove selector lever handle ⇒ page 30.
- Remove trim panel for centre console ⇒ Rep. Gr. 68.
- Remove ashtray \Rightarrow Rep. Gr. 68.



Direct shift gearbox 02E, four-wheel drive - Edition 08.2008

Unplug electrical connector -A-.



Note

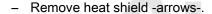
-Items 1, B, C- can be disregarded.

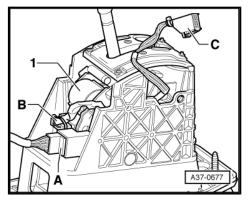
- Remove air cleaner housing (top and bottom sections) ⇒ Rep. Gr. 24.
- Detach locking plate -C-.
- Press securing clip -A- upwards and detach.
- Press selector lever cable off selector shaft lever -arrow- and pull out of support bracket -D-.

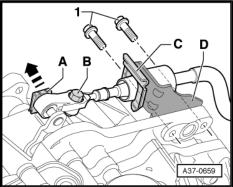


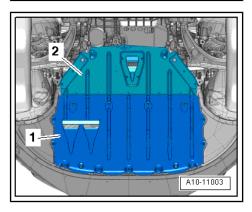
Note

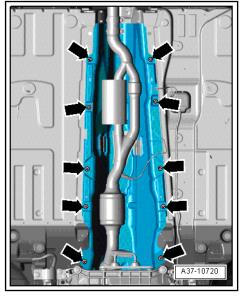
- Do not bend or kink the selector lever cable.
- -Items 1 and B- can be disregarded.
- Remove noise insulation: front -1- and rear -2- ⇒ Rep. Gr.
- Remove exhaust system ⇒ Rep. Gr. 26.
- Remove propshaft ⇒ Rear final drive 02D and 0AV; Rep. Gr.













A second mechanic is required to help detach the selector mechanism under the vehicle.

Unscrew nuts -arrows- (from above).



Note

-Items 1 and 2- can be disregarded.

 Detach selector mechanism together with selector lever cable from below.



Note

- ♦ Do not bend or kink the selector lever cable.
- ♦ It is also possible to remove the selector mechanism without the selector lever cable; to do so, you first have to detach the selector lever cable from the shift unit ⇒ "5.4 Removing and installing selector lever cable", page 46.

Installing

Tightening torques ⇒ page 41

Installation is carried out in reverse sequence; note the following:



Note

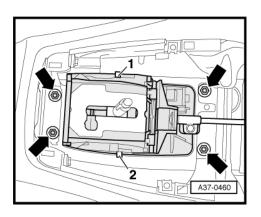
- ♦ Renew locking plate and securing clip for selector lever cable.
- ♦ Do not bend or kink the selector lever cable.
- Install heat shield ⇒ Rep. Gr. 66.
- Install propshaft ⇒ Rear final drive 02D and 0AV; Rep. Gr. 39.
- Install exhaust system and perform stress-free alignment ⇒
 Rep. Gr. 26.

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 permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
- Install ashtray ⇒ Rep. Gr. 68 respect to the correctness of information in this document. Copyright by AUDI AG.
- Install trim panel for centre console ⇒ Rep. Gr. 68.
- Install selector lever handle ⇒ page 30.
- Adjust selector lever cable ⇒ page 50.
- Check selector mechanism and ignition key removal lock
 ⇒ page 43
- Install noise insulation ⇒ Rep. Gr. 66.

5.4 Removing and installing selector lever cable

Removing

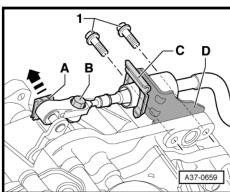
- Shift selector lever into position "P".
- Switch off ignition.

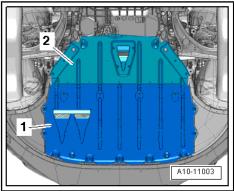


- Remove air cleaner housing (top and bottom sections) ⇒ Rep. Gr. 24.
- Detach locking plate -C-.
- Press securing clip -A- upwards and detach.
- Press selector lever cable off selector shaft lever -arrow- and pull out of support bracket -D-.



- Do not bend or kink the selector lever cable.
- -Items 1 and B- can be disregarded.
- Remove noise insulation: front -1- and rear -2- ⇒ Rep. Gr. 66 .
- Remove exhaust system ⇒ Rep. Gr. 26.
- Remove propshaft ⇒ Rear final drive 02D and 0AV; Rep. Gr. 39 .

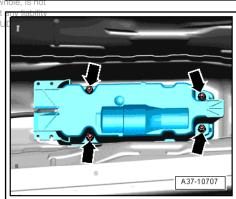


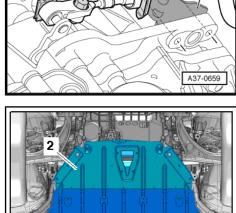


Remove heat shield -arrows-.



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- Carefully slide cover for shift unit together with sleeve along selector lever cable towards front of vehicle, taking care not to damage sleeve.





A37-10720



Caution

Electronic components of selector mechanism can be damaged by electrostatic discharge.

- Do not touch printed circuit -B- with bare hands.
- Touch vehicle earth with your hand (without gloves) to discharge any static electricity.
- Remove bolts -arrows-.
- Unclip retaining tabs on both sides and detach detent plate -A- from shift unit.
- Shift selector lever to position "S".
- Pull down locking plate -1- for selector lever cable and remove.
- Pull plastic retaining spring -2- forwards slightly and press pivot pin -3- upwards only as far as necessary -arroweded by copyright. Copyright of pin -3- upwards only as far as necessary -arrowed by copyright of permitted unless authorised with respect to the correct



Note

Ensure that pin is not pressed out completely.

Pull selector lever cable -4- out of shift unit.



Note

Do not bend or kink the selector lever cable.

Installing

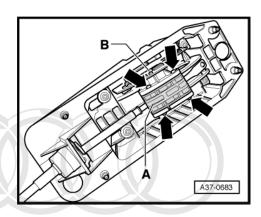
Tightening torques ⇒ page 41

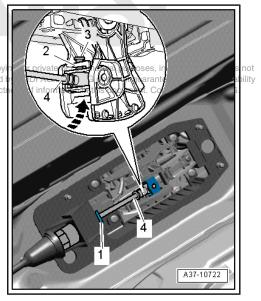
Installation is carried out in reverse sequence; note the following:



Note

- Renew locking plates and securing clip for selector lever ca-
- The selector lever cable must be renewed if the sleeves are damaged.



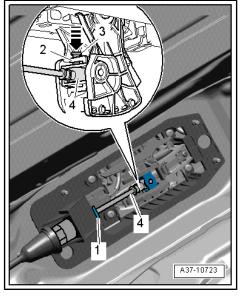


- Guide selector lever cable into cover for shift unit, taking care not to damage sleeve.
- Engage sleeve in cover for shift unit.



Check that the sleeve is seated correctly and not twisted.

- Insert end of selector lever cable -4- into joint on selector lever.
- Press pivot pin -3- downwards -arrow-.
- The plastic securing spring -2- should lock the pin in position.
- Secure selector lever cable to shift unit using new locking plate
 -1-.
- Installation position: angled end of locking plate faces shift unit.





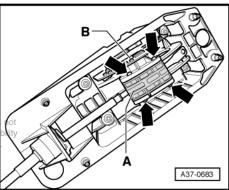
Caution

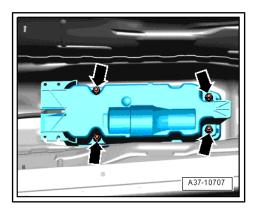
Electronic components of selector mechanism can be damaged by electrostatic discharge.

◆ Do not touch printed circuit -B- with bare hands.

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- Touch vehicle earth with your hand (without gloves) to dist by AUDI Accharge any static electricity.
- Clip detent plate -A- into position on both sides.
- Tighten bolts -arrows-.
- Hand-tighten cover for shift unit (with glued-on seal) to shift unit -arrows-, making sure that seal is seated correctly.
- Fit sleeve for selector lever cable in cover for shift unit.

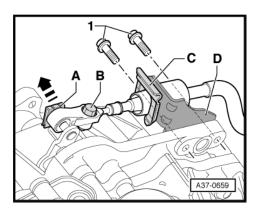


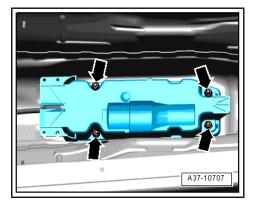


- Press selector lever cable onto selector shaft lever on gearbox in opposite direction of -arrow-.
- Fit securing clip -A- and press downwards to secure.
- Install locking plate -C-.
- Move selector lever from "S" to "P".



- ♦ Check that selector lever moves freely.
- If the selector mechanism is stiff, renew the selector lever cable or service the selector mechanism.
- Secure cover for shift unit -arrows-.
- Install heat shield ⇒ Rep. Gr. 66.
- Install propshaft ⇒ Rear final drive 02D and 0AV; Rep. Gr. 39.
- Install exhaust system and perform stress-free alignment ⇒ Rep. Gr. 26.
- Adjust selector lever cable ⇒ page 50.
- Check selector mechanism ⇒ page 43.
- Install noise insulation ⇒ Rep. Gr. 66 .





5.5 Adjusting selector lever cable

Procedure

 Remove air cleaner housing (top and bottom sections) ⇒ Rep. Gr. 24.



- Selector mechanism and selector lever cable operate smoothly when changing gears.
- Sleeve on selector lever cable is undamaged.
- Securing clip -A- is fitted correctly (pressed down and locked).



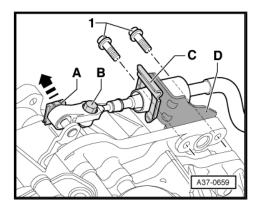
- If the selector mechanism is stiff, renew the selector lever cable or service the selector mechanism.
- The selector lever cable must be renewed if a sleeve is damaged.
- Shift selector lever into position "P".
- Slacken bolt -B-.
- Set selector shaft lever on gearbox to position "P".
- Push vehicle forwards until wheels lock so that detent lever in gearbox engages in parking lock gear.
- To release tension in selector lever cable, carefully move selector lever slightly forwards and backwards, without shifting into a different position.
- Tighten bolt -B-, taking care not to alter position of selector lever cable. Tightening torque \Rightarrow page 41

Checking adjustment of selector lever cable

- Keep button pressed, while pulling selector lever approx. 5 mitted thiese authorised by Attained "R" and document. Copyright by AUDI AG.
- Release selector lever.
- The selector lever should spring back into position "P" by itself.
- Shift selector lever into position "N".
- Keep button pressed, while pulling selector lever approx. 5 mm to the rear out of position "N". Then keep lever in this position, do not move it into "D".
- Release selector lever.
- The selector lever should spring back into position "N" by itself.
- Keep button pressed, while pushing selector lever approx. 5 mm to the front out of position "N". Then keep lever in this position, do not move it into "R".
- Release selector lever.
- The selector lever should spring back into position "N" by itself.
- Repeat the adjustment if the selector lever does not react as described.
- Check selector mechanism ⇒ page 43.

5.6 Removing and installing tiptronic switch

The tiptronic switch -F189- is integrated in the selector mechanism; it cannot be renewed separately.





The selector mechanism has to be renewed if the tiptronic switch -F189- is defective ⇒ page 44 .

5.7 Removing and installing selector lever lock solenoid -N110-

The selector lever lock solenoid -N110- is integrated in the selector mechanism; it cannot be renewed separately.



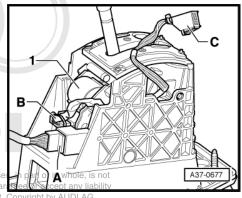
Note

The selector mechanism has to be renewed if the selector lever lock solenoid -N110- is defective ⇒ page 44.

5.8 Checking connectors on selector mechanism

Proceed as follows if malfunctions occur in the selector mechanism:

- Connect vehicle diagnostic, testing and information system -VAS 5051B-.
- "Interrogate fault memory all fault menus", trace and eliminate any faults displayed via "Guided Fault Finding".
- A 10-pin connector for wiring from selector mechanism to gearbox (with CAN wires)
- B 4-pin connector for wiring to selector lever lock solenoid -N110- and selector lever locked in position P switch -F319-
- C 10-pin connector for wiring to cover of selector mechanism

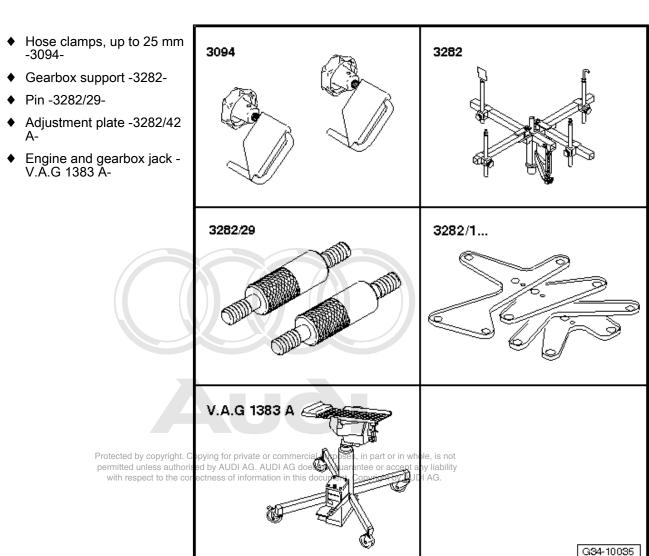


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Overview - removing and installing 6 gearbox

- ⇒ "6.1 Removing gearbox vehicles with 2.0 ltr. TFSI engine",
- ⇒ "6.2 Installing gearbox vehicles with 2.0 ltr. TFSI engine", page 61
- ⇒ "6.3 Removing gearbox vehicles with 3.2 ltr. MPI engine",
- ⇒ "6.4 Installing gearbox vehicles with 3.2 ltr. MPI engine", <u>page 74</u>

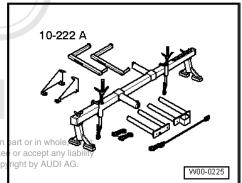
6.1 Removing gearbox - vehicles with 2.0 ltr. TFSI engine



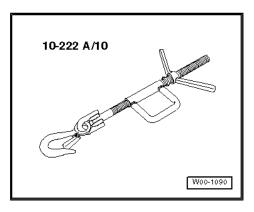
♦ Support bracket -10 - 222 A-



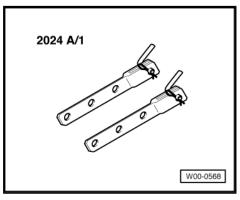
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♦ Hooks -10 - 222 A /10-



♦ Extension -2024 A /1-



♦ Engine bung set -VAS 6122-

Procedure



Note

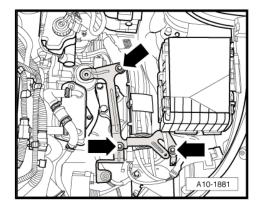
- ♦ Observe general repair instructions ⇒ page 11.
- ◆ Observe rules for cleanliness when working on the gearbox ⇒ page 14.
- ♦ Observe notes on direct shift gearbox 02E ⇒ page 8.
- ♦ All cable ties which are released or cut open during removal must be fitted in the same position when installing.
- Shift selector lever into position "P".



Caution

When disconnecting the battery there is a risk of serious damage to electronic components:

- Observe the correct procedure for disconnecting the bat-
- With the ignition switched off, disconnect battery earth cable ⇒ Rep. Gr. 27.
- Remove front exhaust pipe with catalytic converters and front silencer ⇒ Rep. Gr. 26.
- Remove radiator cowl ⇒ Rep. Gr. 19.
- Remove starter \Rightarrow Rep. Gr. 27.
- Remove both front wheels.
- Remove bolts -arrows- and detach bracket for air cleaner housing.



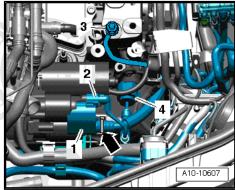
Disconnect earth wire -3-.



Caution

The control unit (mechatronic unit) can be damaged by electrostatic discharge.

- Do not touch contact pins in gearbox connector with bare hands.
- Touch vehicle earth with your hand (without gloves) to discharge any static electricity.
- Turn fastener anti-clockwise and unplug electrical connector -4- on gearbox. Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not





Note

-Items 1, 2- and -arrow- can be disregarded.

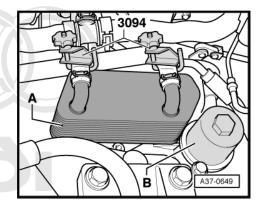
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 Clamp off coolant hoses at gearbox oil cooler with hose clamps -3094- and disconnect hoses from gear oil cooler -A-.

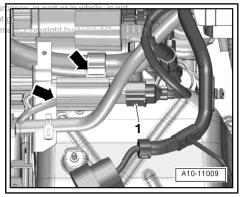


Note

Seal off open lines and connections with clean plugs or sealing caps to prevent dirt from entering.



Move wiring harnesses -arrowsd clear and disengage electrinercial purchase cal connector -1- at bracket with respect to the correctness of information in this document.

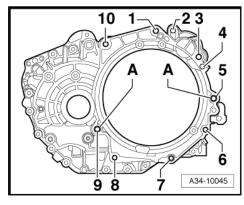


Remove all engine/gearbox securing bolts which are accessible from above.

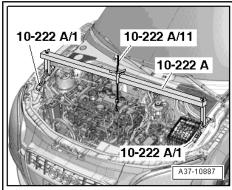


Note

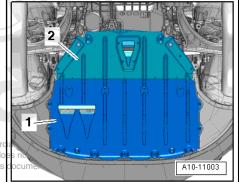
Bolt -item 3- is located in aperture for starter.



- Set up support bracket -10 222 A- on body flanges.
- Hook spindle of support bracket into engine lifting eye (leftside).
- Take up weight of engine with spindle; do not lift.

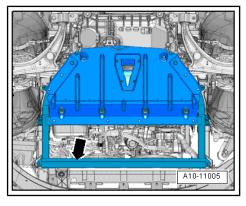


Remove noise insulation (front) -1- ⇒ Rep. Gr. 66.

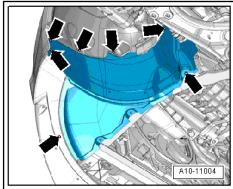


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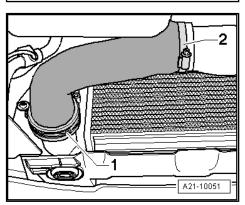
Remove noise insulation frame -arrow - and noise insulation $(rear) \Rightarrow Rep. Gr. 66$.



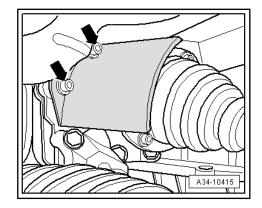
- Remove noise insulation (left-side) -arrows-.



- Release hose clips -1- and -2- and remove air intake pipe.



- Unbolt heat shield for drive shaft (right-side) from bevel box -arrows-.
- Unbolt drive shaft (left-side) from gearbox flange.
- Unbolt drive shaft (right-side) from bevel box flange.



For vehicles equipped with front left vehicle level sender -G78-

Unscrew bolt -1- at front left vehicle level sender -G78-.

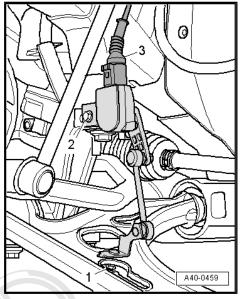


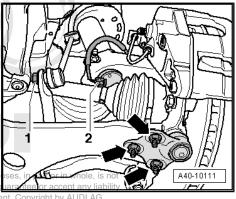
Note

- -Items 2 and 3- can be disregarded.
- On vehicles with "Audi magnetic ride (AMR)" a front right vehicle lever sender -G289- may also be fitted on the right side of the vehicle. Proceed with it in the same manner as with the front left vehicle level sender -G78-.

All vehicles:

- Mark installation position of nuts -arrows- on both sides with a felt-tip pen.
- Remove nuts -arrows- securing swivel joint on both sides ⇒ Rep. Gr. 40.
- Disengage swivel joints from wishbones.





with respect to the correctness of information in this docu Swivel suspension strut (left-side) outwards and support with extension -2024 A /1- as shown in illustration.

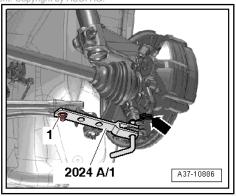
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WARNING

Risk of accident if parts of support are not properly secured.

- Secure locking pin and wishbone with retaining clip -arrow- and nut -1-.
- Repeat procedure on right side of vehicle.



permitted unless autho

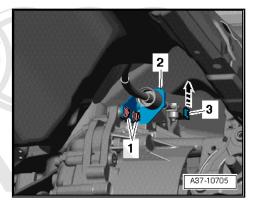
with respect to the co

- Remove bolts -1- for support bracket.
- Pull off securing clip -3- -arrow- and detach selector lever cable from gearbox.



Note

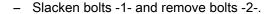
-Item 2- can be disregarded.

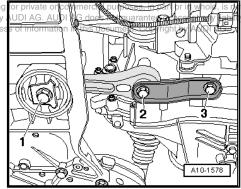


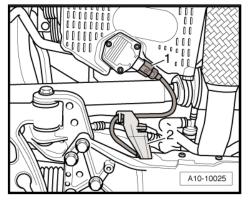
Caution

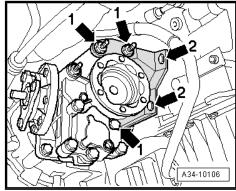
Risk of damage to seal in propshaft flange.

- Slackening off bolts for pendulum support/subframe causes engine/gearbox assembly to swing forwards slightly.
- Remove bolts -1, 2, 3- and detach pendulum support.
- Unplug electrical connector -1- at oil level and oil temperature sender -G266- .
- Unclip bracket -2- for electrical wiring leading to oil level and oil temperature sender -G266- at subframe.

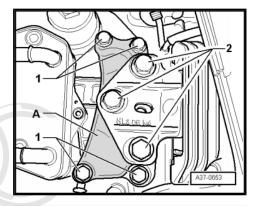






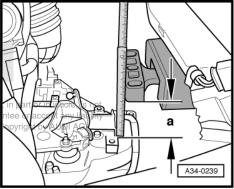


Remove bolts -1- and -2- and detach gearbox support -A-.

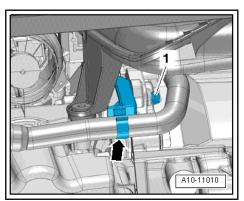


- Lower engine/gearbox assembly using spindle of support bracket -10 222 A- until distance -a- is obtained between gearbox housing and gearbox mounting.
- Dimension -a- = 100 ... 110 mm





Remove bolt -1- and move bracket with coolant hose -arrowto side.



To remove the direct shift gearbox 02E, set up gearbox support -3282- with adjustment plate -3282/42A- and place on engine and gearbox jack -V.A.G 1383 A-.

- Align arms of gearbox support according to holes in adjustment plate -3282/42A- .
- Secure support elements as illustrated on adjustment plate -3282/42A- . However, use "retainer plate with drilling" as front support element.
- Place engine and gearbox jack -V.A.G 1383 A- underneath vehicle.
- The arrow symbol on the adjustment plate points in the direction of travel.
- Align gearbox support -3282- parallel with gearbox.
- Screw pin -3282/29- into gearbox.
- Secure "retainer plate with drilling" firmly to gearbox as illustrated -arrow-.
- Insert last support element in gearbox as illustrated.
- pemit Support gearbox by lifting from underneath with engine and gearbox jack -V.A.G 1383 A- .
- Remove remaining engine/gearbox securing bolts.
- Press gearbox off dowel sleeves.
- Carefully lower gearbox using engine and gearbox jack -V.A.G 1383 A-, taking care not to trap wiring or other connections.
- While lowering gearbox, change position of gearbox using spindles on gearbox support -3282- .

6.2 Installing gearbox - vehicles with 2.0 ltr. TFSI engine

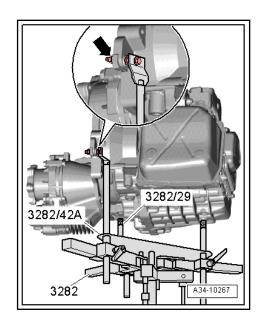
Procedure

Installation is carried out in reverse sequence; note the following:

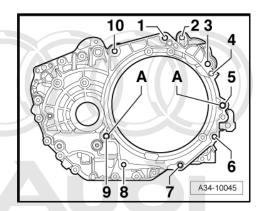


Note

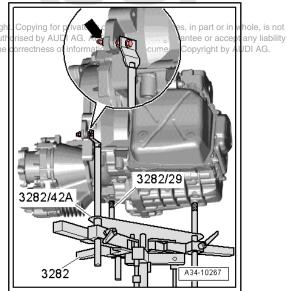
- Renew bolts which are tightened by turning through a specified angle.
- Renew seals, gaskets and self-locking bolts and nuts.
- Renew locking plate and securing clip for selector lever cable.
- Hose connections and air pipes and hoses must be free from oil and grease before fitting.
- Secure all hose connections with the correct hose clips (as original equipment); refer to ⇒ Electronic parts catalogue.
- To ensure that the charge air hoses can be connected securely, you must spray the screws on used screw-type clips with rust remover prior to installation.
- Re-attach all cable ties at the same locations when re-installing.
- Tightening torques ⇒ page 65
- Check needle bearing in crankshaft ⇒ Rep. Gr. 13.
- Clean splines of input shaft and hub; remove corrosion.



- Grease splines with a very small amount of grease for clutch plate splines; for grease for clutch plate splines refer to ⇒ Electronic parts catalogue . It is important to remove excess grease.
- Check that dowel sleeves -A- are correctly seated in cylinder block.



- Carefully raise gearbox using engine and gearbox jack -V.A.G 1383 A- and position correctly using gearbox support 3282
- Join gearbox to engine, taking care not to trap wiring or to the connections.

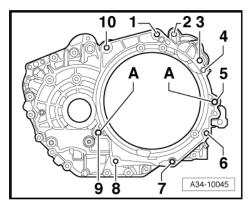


Secure gearbox to engine.



Note

Bolt -item 3- is only accessible through opening of removed start-



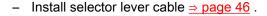
Install assembly mountings (note correct sequence) ⇒ page 85 .

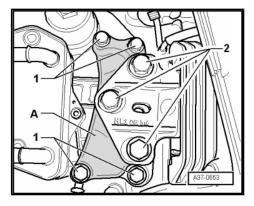


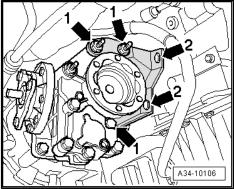
WARNING

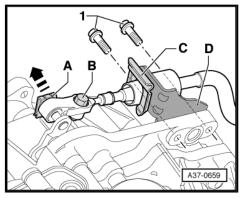
Do not remove support bracket -10-222 A- until all bolts for the assembly mounting have been tightened to specified torque and the subframe is installed.

- Detach gearbox support -3282- from gearbox.
- Tighten bolts securing bracket for bevel box \Rightarrow page 137.







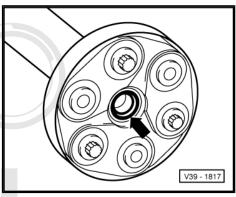




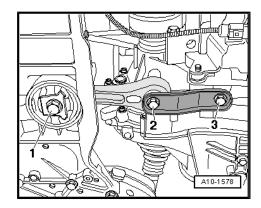
Caution

The seal -arrow- in the propshaft flange can be damaged.

- ♦ Press engine/gearbox assembly towards bulkhead; the bevel box pin must be guided carefully into the propshaft flange when doing this.
- Push propshaft horizontally onto guide pin \Rightarrow Rear final drive 02D and 0AV; Rep. Gr. 39 .



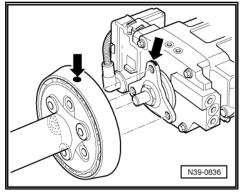
Install pendulum support ⇒ page 93.



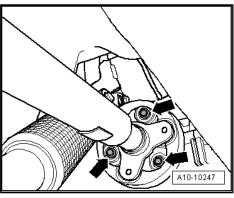


Note

Take note of the markings that were made on the propshaft and flange when removing. These must align with each other again -arrows-.



- Secure propshaft with flexible coupling to flange on bevel box -arrows- ⇒ Rear final drive 02D and 0AV; Rep. Gr. 39 (counterhold triangular flange with suitable lever).
- Install exhaust system so it is free of stress ⇒ Rep. Gr. 26.
- Install starter ⇒ Rep. Gr. 27.
- Install radiator cowl ⇒ Rep. Gr. 19.
- Install swivel joints and drive shafts ⇒ Rep. Gr. 40.
- On vehicles with electronic damping control (Audi magnetic ride), re-adapt reference position \Rightarrow Vehicle diagnosis, testing and information system VAS 5051.
- On vehicles with automatic headlight range control, perform basic setting for headlights ⇒ Rep. Gr. 94.





A10-1796

- Adjust assembly mountings ⇒ Rep. Gr. 10.
- Detach support bracket -10 222 A- from engine.
- Observe correct procedure after connecting battery ⇒ Rep. Gr. 27.
- Adjust selector lever cable ⇒ page 50.
- Install noise insulation frame ⇒ Rep. Gr. 66.
- Check gear oil level and top up as required ⇒ page 94.
- Check coolant level ⇒ Rep. Gr. 19.

Tightening torques (installing gearbox)

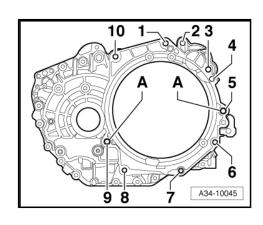


Note

- Tightening torques apply only to lightly greased, oiled, phosphated or black-finished nuts and bolts.
- Additional lubricant such as engine or gear oil may be used, but do not use graphite lubricant.
- Do not use parts which have been degreased.
- Tolerance for tightening torques ±15%.

Securing direct shift gearbox to 2.0 ltr. TFSI engine

Item	Bolt	Nm
1, 3 ¹⁾	M12x55	80
2	M10x45 For securing starter ⇒ Rep. Gr. 27	40
4	M10x40 For securing starter ⇒ Rep. Gr. 27	40
5	M12x65	80
6, 7, 8	M10x50	40
9	M12x70	80
10	M12x55	80
Α	Dowel sleeves for centralising	
1)	Bolt -item 3- is only accessible through opening of removed starter.	



Additional tightening torques

⇒ "9 Exploded view - assembly mountings", page 83 ,
⇒ Fig. " Bracket for bevel box for vehicles with 2.0 ltr. TFSI engine: tightening torque and sequence " , page 137

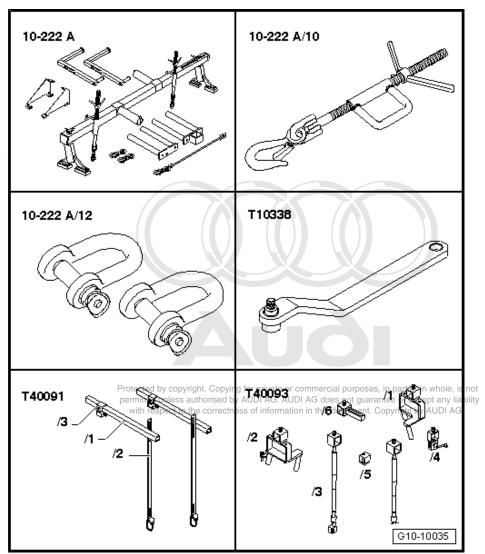




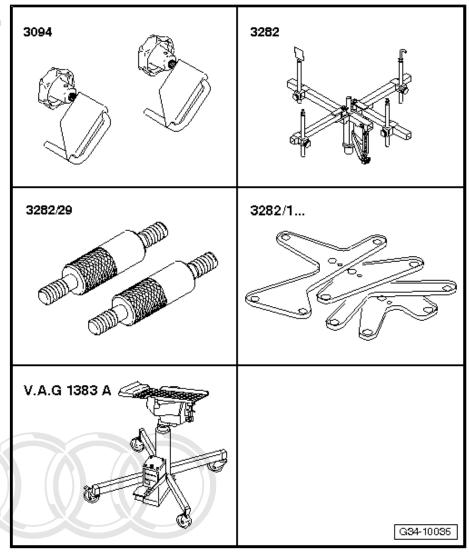
6.3 Removing gearbox - vehicles with 3.2 ltr. MPI engine

Special tools and workshop equipment required

- Support bracket -10 222
- Hooks -10 222 A /10-
- Shackle -10 222 A /12-
- Bracket -T10338-
- Engine support bracket, basic set -T40091-
- Engine support bracket, supplementary set -T40093-



- Hose clamps, up to 25 mm -3094-
- Gearbox support -3282-
- Pin -3282/29-
- Adjustment plate -3282/42
- Engine and gearbox jack -V.A.G 1383 A-
- Engine bung set -VAS



Procedure



Note

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- Observe general repair instructions AUDIGE days not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- Observe rules for cleanliness when working on the gearbox
- Observe notes on direct shift gearbox 02E ⇒ page 8.
- All cable ties which are released or cut open during removal must be fitted in the same position when installing.
- Shift selector lever into position "P".

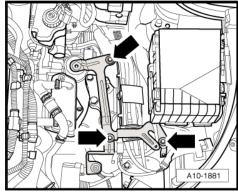


Caution

When disconnecting the battery there is a risk of serious damage to electronic components:

Observe the correct procedure for disconnecting the bat-

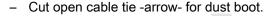
- With the ignition switched off, disconnect battery earth cable ⇒ Rep. Gr. 27.
- Remove air cleaner housing (top and bottom sections) ⇒ Rep. Gr. 24.
- Remove bolts -arrows- and detach bracket for air cleaner housing.



- Detach locking plate -C-.
- Press securing clip -A- upwards and detach.
- Press selector lever cable off selector shaft lever -arrow- and pull out of support bracket -D-.



- Do not bend or kink the selector lever cable.
- -Items 1 and B- can be disregarded.



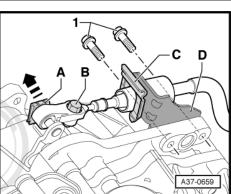
- Unplug electrical connector -2-.
- Push back dust boot -1- and disconnect B+ wire from starter solenoid.
- $\textbf{Disconnect earth}_{\textbf{PWIE}} \textbf{ext} \textbf{3}_{\textbf{7}}. \textbf{copyright. Copying for private or commercial purposes, in part of the private of the pr$ with respect to the correctness of information in this document

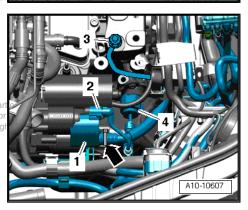


Caution

The control unit (mechatronic unit) can be damaged by electrostatic discharge.

- Do not touch contact pins in gearbox connector with bare hands.
- Touch vehicle earth with your hand (without gloves) to discharge any static electricity.
- Turn fastener anti-clockwise and unplug electrical connector -4- on gearbox.



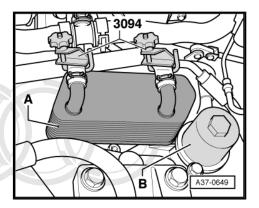


Clamp off coolant hoses at gearbox oil cooler with hose clamps -3094- and disconnect hoses from gear oil cooler -A-.



Note

Seal off open lines and connections with clean plugs or sealing caps to prevent dirt from entering.

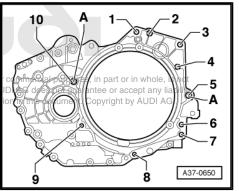


Remove all engine/gearbox securing bolts which are accessible from above.

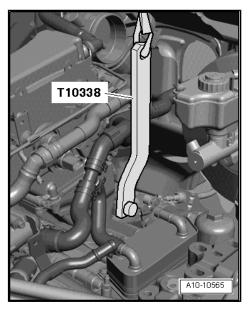


Note

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Secure bracket -T10338- to vacant tapped hole at rear left of engine.



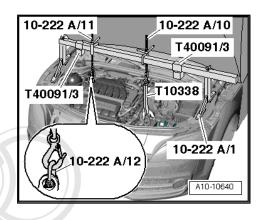
- Aud 6uA
- Set up support bracket -10 222 A- on body flanges using the following equipment:
- ♦ Rack -10 222 A /1- (2x)
- ♦ Hook -10 222 A /10- (spindle faces towards rear)
- ◆ Spindle -10 222 A /11- (spindle faces towards front)
- ♦ Shackle -10 222 A /12-
- ◆ Connecting piece -T40091/3- (2x)
- Hook spindle -10 222 A /11- with shackle -10 222 A /12onto engine lifting eye (right-side).
- Attach hook -10 222 A /10- to bracket -T10338- .
- Partly take up weight of engine/gearbox assembly via the spindles.
- Attach adapters -T40093/3-2- (left-side) and -T40093/3-3- (right-side) to supports -T40093/3-.
- Disconnect earth wire from longitudinal member (left-side).
- Remove securing bolt for front section of longitudinal member purpose (both sides).
 permitted unless authorised by AUDI AG. AUDI AG does not gua with respect to the correctness of information in this document.
- Bolt adapters -arrow- to longitudinal members, using bolts removed previously.

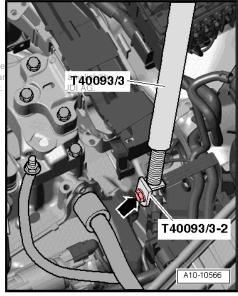


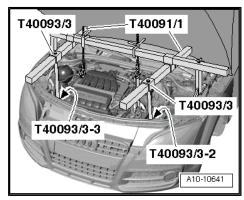
Note

Illustration shows left side of vehicle.

 Insert square bars -T40091/1- into connecting pieces -T40091/3- and supports -T40093/3- as illustrated.







- Fit connecting pieces -T40093/4- onto square bars.
- Insert support -T40091/2- with slide -T40093/5- into the two connecting pieces -T40093/4-.

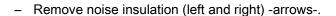


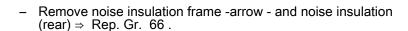
WARNING

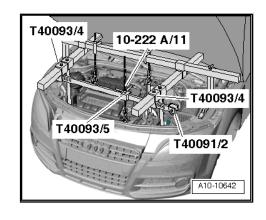
Accidents can be caused if parts of the support bracket are not correctly secured.

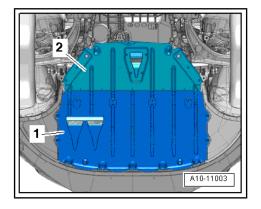
- Secure support -T40091/2- using retaining pins and split pins of the connecting pieces -T40093/4-
- Secure connecting pieces and supports using clamping bolts.
- Attach spindle -10 222 A /11- to slide and engine lifting eye.
- Take up weight of engine/gearbox assembly by tightening the 3 spindles evenly.
- Remove both front wheels.
- Remove noise insulation (front) -1- ⇒ Rep. Gr. 50.

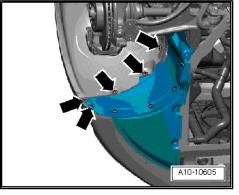
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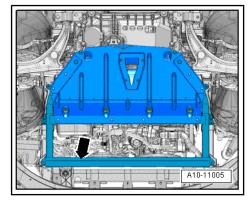












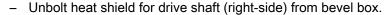


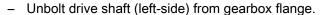
Caution

Risk of damage to seal in propshaft flange.

- Slackening off bolts for pendulum support/subframe causes engine/gearbox assembly to swing forwards slightly.
- Remove bolts -1, 2, 3- and detach pendulum support.
- Unplug electrical connector -1- at oil level and oil temperature sender -G266- .
- Unclip bracket -2- for electrical wiring leading to oil level and oil temperature sender -G266- at subframe.
- Locate subframe in position to avoid unnecessary wheel alignment ⇒ Rep. Gr. 40.
- Remove subframe ⇒ Rep. Gr. 40 .

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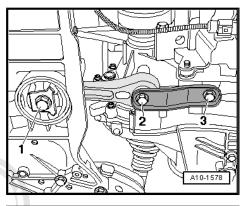
- Unbolt drive shaft (right-side) from bevel box flange.
- Tie up drive shafts with cable ties.

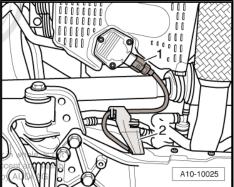


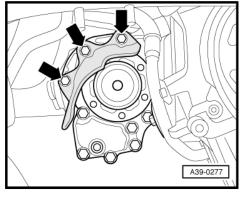
Note

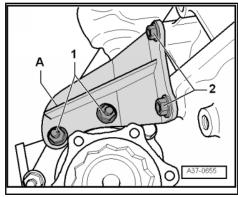
Make sure you do not damage surface coating on drive shafts.

- Remove bolts -1- and -2- and detach bracket -A- for bevel box.
- Remove secondary air pump ⇒ Rep. Gr. 26.

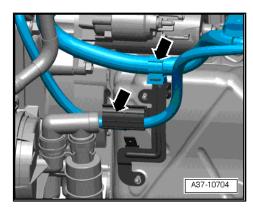




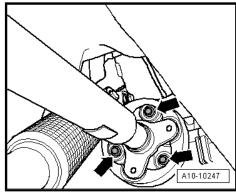




Release electrical wiring at front of gearbox -arrows-.



- Mark position of flexible coupling and bevel box flange in relation to one another.
- Unbolt propshaft with flexible coupling from bevel box -arrows- (counterhold triangular flange with suitable lever).





Caution

The seal -arrow- in the propshaft flange can be damaged.

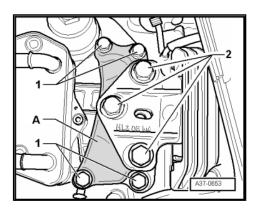
Push propshaft towards the rear and to the right as far as possible.

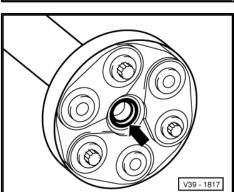


Note

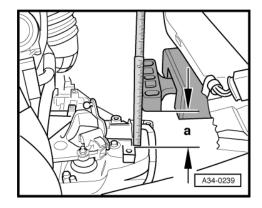
If seal is damaged propshaft must be renewed urposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Tie up propshaft.
- Remove bolts -1- and -2- and detach gearbox support -A-.





- Lower engine/gearbox assembly using spindle of support bracket -10 - 222 A- until distance -a- is obtained between gearbox housing and gearbox mounting.
- Dimension -a- = 100 ... 110 mm



To remove the direct shift gearbox 02E, set up gearbox support -3282- with adjustment plate -3282/42A- and place on engine and gearbox jack -V.A.G 1383 A- .

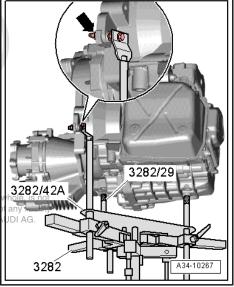
- Align arms of gearbox support according to holes in adjustment plate -3282/42A-.
- Secure support elements as illustrated on adjustment plate
 -3282/42A- . However, use -retainer plate with drilling- as front support element.
- Place engine and gearbox jack -V.A.G 1383 A- underneath vehicle.
- The arrow symbol on the adjustment plate points in the direction of travel.
- Protected by copyright. Copying for private or commercial purposes, in part or in

 Align gearbox: support a 3282 paralle with gearbox: not guarantee or accer
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- Screw pin -3282/29- into gearbox.
- Secure -retainer plate with drilling- firmly to gearbox as illustrated -arrow-.
- Insert last support element in gearbox as illustrated.
- Support gearbox by lifting from underneath with engine and gearbox jack -V.A.G 1383 A- .
- Remove remaining engine/gearbox securing bolts.
- Press gearbox off dowel sleeves.
- Pull gearbox off engine, first from bevel box side and then from front side.
- Carefully lower gearbox using engine and gearbox jack -V.A.G
 1383 A-, taking care not to trap wiring or other connections.
- While lowering gearbox, change position of gearbox using spindles on gearbox support -3282- .

6.4 Installing gearbox - vehicles with 3.2 ltr. MPI engine

Procedure

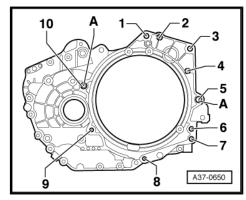
Installation is carried out in reverse sequence; note the following:



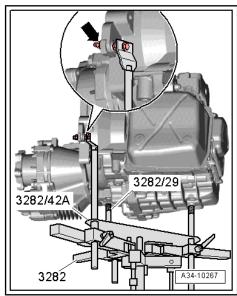


Note

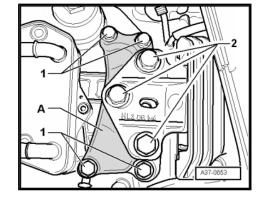
- Renew bolts which are tightened by turning through a specified angle.
- Renew seals, gaskets and self-locking bolts and nuts.
- Renew locking plate and securing clip for selector lever cable.
- Secure all hose connections with the correct hose clips (as original equipment); refer to ⇒ Electronic parts catalogue.
- Re-attach all cable ties at the same locations when re-instal-
- Tightening torques ⇒ page 78
- Check needle bearing in crankshaft ⇒ Rep. Gr. 13.
- Clean splines of input shaft and hub; remove corrosion.
- Grease splines with a very small amount of grease for clutch plate splines; for grease for clurch plate splines refer porcial purposes, in part or in whole, is not plate splines; for grease for clurch plate splines and purposes, in part or in whole, is not plate splines; in portant to remove excessment. Copyright by AUDI AG.
- Check that dowel sleeves -A- are correctly seated in cylinder block.



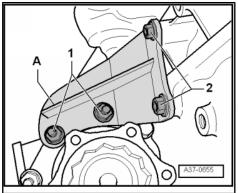
- Carefully raise gearbox using engine and gearbox jack -V.A.G 1383 A- and position correctly using gearbox support -3282-.
- Join gearbox to engine, taking care not to trap wiring or other connections.
- Secure gearbox to engine.



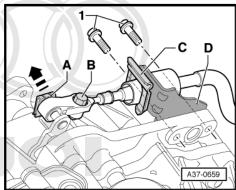
- Install assembly mountings (note correct sequence)
 ⇒ page 85
- Detach gearbox support -3282- from gearbox.



Install bracket for bevel box ⇒ page 137.



- Install selector lever cable ⇒ page 46.
- Install subframe ⇒ Rep. Gr. 40 .



 Λ

Caution

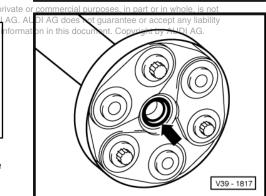
The seal -arrow- in the propshaft flange can be damaged.

Press engine/gearbox assembly towards bulkhead; the bevel box pin must be guided carefully into the propshaft flange when doing this.

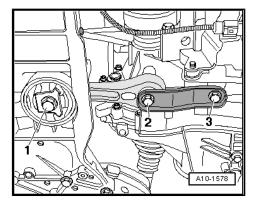
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 Push propshaft horizontally onto guide pin ⇒ Rear final drive 02D and 0AV; Rep. Gr. 39.



Install pendulum support ⇒ page 93.



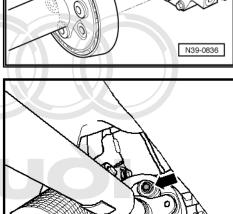


Note

Take note of the markings that were made on the propshaft and flange when removing. These must align with each other again -arrows-.

- Secure propshaft with flexible coupling to flange on bevel box -arrows-⇒ Rear final drive 02D and 0AV; Rep. Gr. 39 (counterhold triangular flange with suitable lever).
- Install exhaust system and perform stress-free alignment ⇒ Rep. Gr. 26.
- Install drive shafts ⇒ Rep. Gr. 40.





- Adjust assembly mountings ⇒ Rep. Gr. 10.
- Detach support bracket -10 222 A- from engine.
- Observe correct procedure after connecting battery \Rightarrow Rep. Gr. 27 .
- On vehicles with electronic damping control (Audi magnetic ride), re-adapt reference position

 Vehicle diagnosis, testing and information system VAS 5051.
- On vehicles with automatic headlight range control, perform basic setting for headlights ⇒ Rep. Gr. 94.
- Adjust selector lever cable ⇒ page 50.
- Install noise insulation frame ⇒ Rep. Gr. 66.
- Check gear oil level and top up as required ⇒ page 94.
- Check coolant level ⇒ Rep. Gr. 19.

Tightening torques (installing gearbox)

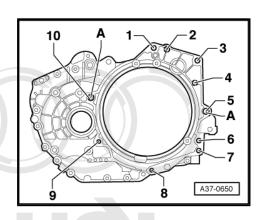


Note

- ♦ Tightening torques apply only to lightly greased, oiled, phosphated or black-finished nuts and bolts.
- Additional lubricant such as engine or gear oil may be used, but do not use graphite lubricant.
- ♦ Do not use parts which have been degreased.
- ♦ Tolerance for tightening torques ±15%.

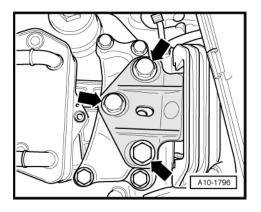
Securing direct shift gearbox to 3.2 ltr. MPI engine

Item	Bolt	Nm
1, 3, 6	M12x55	80
2, 4	M10x45 For securing starter ⇒ Rep. Gr. 27	40
5, 10	M12x65	80
7, 8	M10x50	40
9	M10x45	40
Α	Dowel sleeves	for centralising



- Additional tightening torques
 - ⇒ "9 Exploded view assembly mountings", page 83,
 - ⇒ page 137

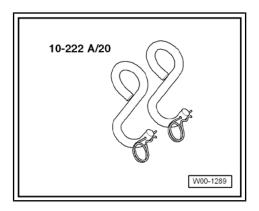
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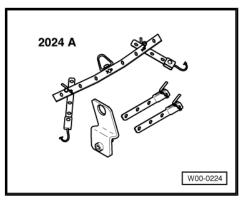
Transporting the direct shift gearbox 7

Special tools and workshop equipment required

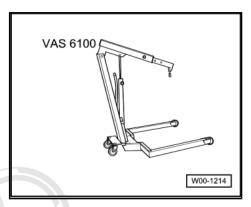
♦ Adapter -10 - 222 A /20-



♦ Hook of lifting tackle -2024 A-



♦ Workshop hoist -VAS 6100-





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Procedure

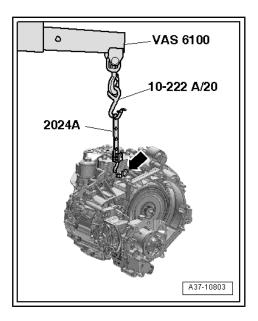
- Engage hook of lifting tackle -2024 A- at gearbox lifting eye and secure with retaining clip -arrow-.
- Engage workshop hoist -VAS 6100- in hook of lifting tackle -2024 A- with adapter -10 222 A /20- .



Caution

The gearbox oil cooler can be damaged when the gearbox is transported.

Guide gearbox as required when transporting.



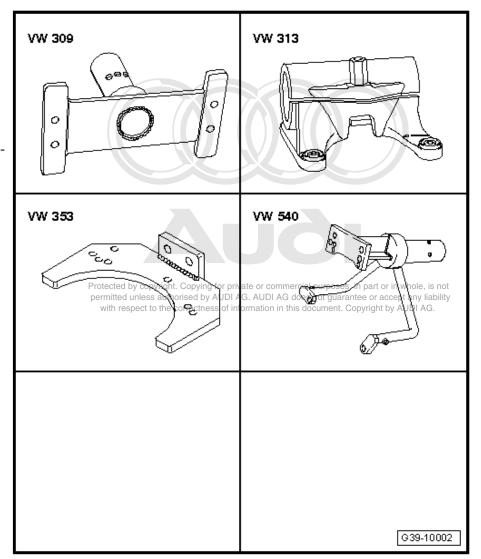


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Securing gearbox to engine and gearbox support 8

Special tools and workshop equipment required

- Support plate -VW 309-
- Support clamp -VW 313-,
- Engine and gearbox support -VAS 6095-
- ♦ Gearbox support -VW 353-
- Engine and gearbox support -VW 540-



Securing gearbox in horizontal position

- Secure gearbox to engine and gearbox support -VW 540--arrows-.
- Using workshop hoist -VAS 6100-, insert gearbox into support clamp -VW 313- or engine and gearbox support -VAS 6095- .



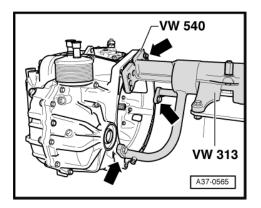
WARNING

The gearbox can swing round suddenly in the support clamp - VW 313- .

The centre of gravity of the gearbox is outside the pivot centre of the support clamp. A second mechanic is therefore required to hold the gearbox housing when the gearbox is rotated in the clamp.

Oil can escape when the gearbox is rotated in the support clamp.

The breathers on the gearbox housing must be sealed off if the gearbox (with oil filling) is turned on the engine and gearbox support so that the oil pan faces upwards.

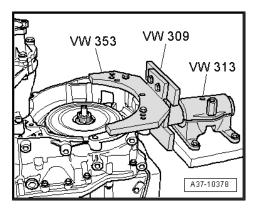


Securing gearbox in vertical position

Secure gearbox to gearbox support -VW 353- and fit into support clamp -VW 313- or engine and gearbox support -VAS 6095- using support plate -VW 309-.



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9 Exploded view - assembly mountings

1 - Bolt

- Gearbox support to gearbox
- 40 Nm and then turn 90° further
- ☐ Renew

2 - Bolts

- Pendulum support to gearbox
- Different lengths
- 50 Nm and then turn 90° further
- ☐ Renew

3 - Engine support

□ Different versions ⇒ Electronic parts catalogue

4 - Bolt

- ☐ Engine support to engine
- Different lengths
- Tightening torque ⇒ Rep. Gr. 10

5 - Engine mounting

■ With support arm

6 - Bolt

- Engine mounting to body
- Tightening torque ⇒ Rep. Gr. 10

7 - Connecting bracket

8 - Bolt

- □ Connecting bracket to body
- ☐ Tightening torque ⇒ Rep. Gr. 10

9 - Bolt

- Connecting bracket to engine mounting
- ☐ Tightening torque ⇒ Rep. Gr. 10

10 - Bolt

- ☐ Engine mounting to body
- ☐ Tightening torque ⇒ Rep. Gr. 10

11 - Bolts

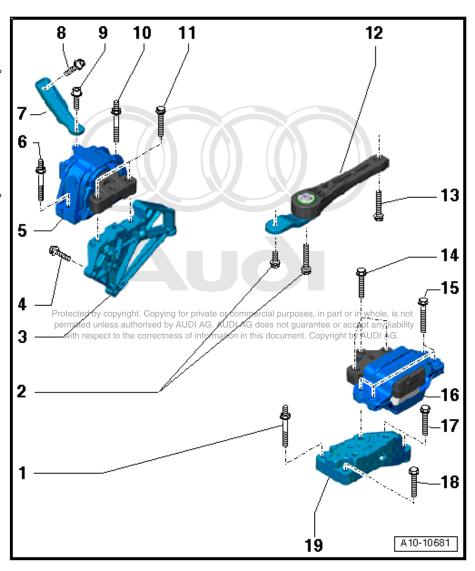
- ☐ Engine mounting to engine support
- ☐ Tightening torque ⇒ Rep. Gr. 10

12 - Pendulum support

□ Removing and installing ⇒ page 93

13 - Bolt

□ Pendulum support to subframe



	100 Nm and then turn 90° further
	Renew
14 - E	Bolt
	Gearbox mounting to gearbox support
	60 Nm and then turn 90° further
	Renew
15 - E	Bolt
	Gearbox mounting to body
	40 Nm and then turn 90° further
	Renew
16 - 0	Gearbox mounting
	With support arm
	Removing and installing:
♦ Ve	ehicles with 2.0 ltr. TFSI engine <mark>⇒ page 85</mark>
♦ V	ehicles with 3.2 ltr. MPI engine <mark>⇒ page 88</mark>
	Tightening torque and sequence <u>⇒ page 85</u>
17 - E	3olt Solt
	Gearbox support to gearbox
	40 Nm and then turn 90° further
	Renew
18 - E	Bolt
	Gearbox support to gearbox
	40 Nm and then turn 90° further
	Renew
19 - 0	Gearbox support
	Removing and installing:
♦ V	ehicles with 2.0 ltr. TFSI engine ⇒ page 85
♦ Ve	ehicles with 3.2 ltr. MPI engine <u>⇒ page 88</u>



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☐ Tightening sequence ⇒ page 85

Assembly mounting on gearbox side: tightening sequence

- Fit gearbox support -A- between gearbox and support arm of gearbox mounting.
- Bolt gearbox support to gearbox.
- Pull gearbox up to support arm of gearbox mounting using spindle of support bracket -10 222 A- .
- Screw in bolts -2- initially hand-tight.



Caution

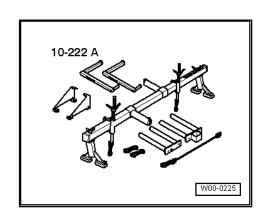
The threads in the gearbox support can be damaged if the bolts are not inserted straight.

- ◆ Before fitting the bolts -2-, the gearbox support and the support arm of the gearbox mounting must be aligned absolutely parallel. If necessary, push the gearbox up at the rear with a trolley jack.
- Only tighten bolts after subframe has been installed ⇒ Rep. Gr. 40 and assembly mountings aligned ⇒ Rep. Gr. 10.

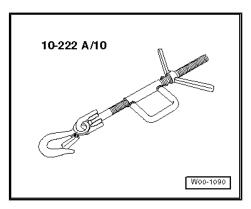
9.1 Removing and installing gearbox Prote mounting and gearbox, supports, Tinyehin whole, is not permittle sewith 200 lttl TFSI engine guarantee or accept any liability with epect with 200 lttl TFSI engine guarantee or accept any liability with epect with 200 lttl TFSI engine guarantee or accept any liability with expectations and the second second

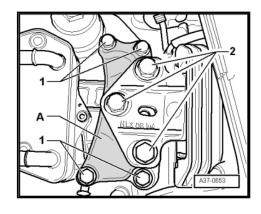
Special tools and workshop equipment required

♦ Support bracket -10 - 222 A-



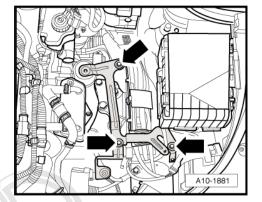
♦ Hooks -10 - 222 A /10-



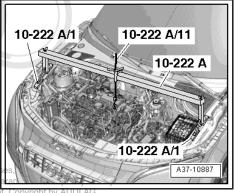


Removing

- Remove air cleaner housing (top and bottom sections) ⇒ Rep. Gr. 24.
- Remove bolts -arrows- and detach bracket for air cleaner housing.

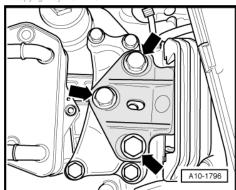


- Set up support bracket -10 222 A- on body flanges.
- Hook spindle of support bracket into engine lifting eye (leftside).
- Take up weight of engine with spindle; do not lift.



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Remove bolts -arrows-.



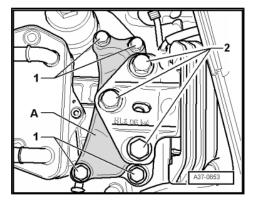
Removing gearbox support:



Note

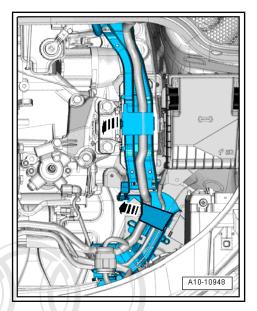
The gearbox support does not have to be removed when removing the gearbox mounting.

- Remove bolts -1-.
- Lower engine/gearbox assembly slightly via the spindle.
- Detach gearbox support -A-.



Removing gearbox mounting:

- Open retainers for wiring duct -arrows- and press electrical wiring to the side.
- Unclip wiring duct.



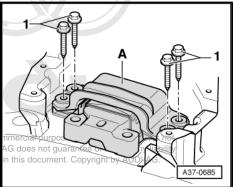
- Remove bolts -1- and detach gearbox mounting -A-.

Installing

Installation is carried out in reverse sequence; note the following:

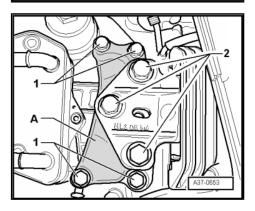
- Tightening torques ⇒ page 83
- Secure gearbox mounting -A-.

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If gearbox support -A- has been removed:

- Install gearbox support -A-.



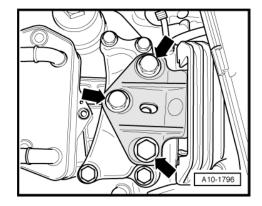
 Pull gearbox up with spindle on support bracket until gearbox support contacts support arm of gearbox mounting.



Caution

The threads in the gearbox support can be damaged if the bolts are not inserted straight.

Before fitting the bolts -arrows-, the gearbox support and the support arm of the gearbox mounting must be aligned absolutely parallel. If necessary, push the gearbox up at the rear with a trolley jack.

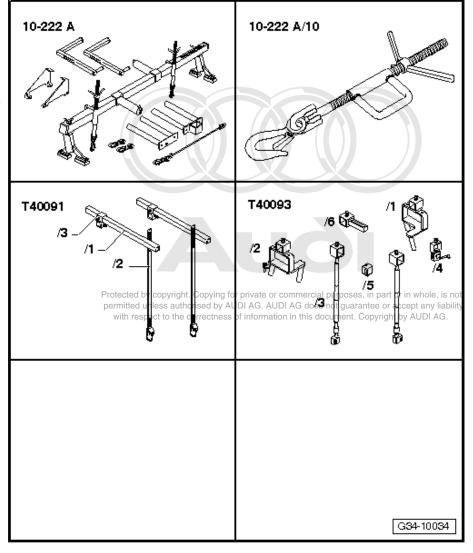


- Adjust assembly mountings ⇒ Rep. Gr. 10.
- Secure support arm of gearbox mounting to gearbox support.
- Detach support bracket -10 222 A- from engine.

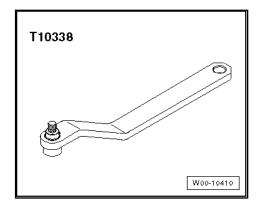
9.2 Removing and installing gearbox mounting and gearbox support - vehicles with 3.2 ltr. MPI engine

Special tools and workshop equipment required

- Support bracket -10 222
 A-
- ♦ Hooks -10 222 A /10-
- Engine support bracket, basic set -T40091-
- Engine support bracket, supplementary set -T40093-

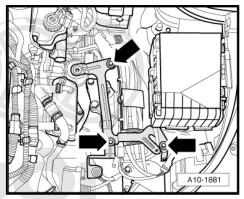


♦ Bracket -T10338-

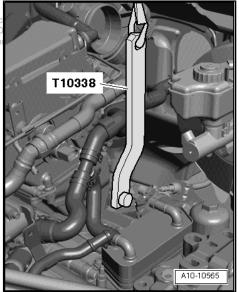


Removing

- Remove air cleaner housing (top and bottom sections) ⇒ Rep.
- Remove bolts -arrows- and detach bracket for air cleaner housing.



Secure bracket -T10338- to vacant tapped hole at rear left of Protected by copyright. Copying for private or opermitted unless authorised by AUDI AG. AUI engine. with respect to the correctness of information



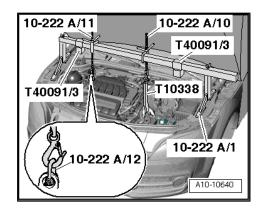
- Set up support bracket -10 222 A- on body flanges using the following equipment:
- Rack -10 222 A /1- (2x)
- Hook -10 222 A /10- (spindle faces towards rear)
- Spindle -10 222 A /11- (spindle faces towards front)
- Shackle -10 222 A /12-
- Connecting piece -T40091/3- (2x)
- Hook spindle -10 222 A /11- with shackle -10 222 A /12onto engine lifting eyer (right-side) cial purposes, in part or in whole, is not
- Milles authorised by AUDI AG, AUDI AG does not quarentee a sceept any liability Attach nook c10 m 222 A 10 to bracket in 119338 by AUDI AG.
- Partly take up weight of engine/gearbox assembly via the spindles.
- Attach adapters -T40093/3-2- (left-side) and -T40093/3-3-(right-side) to supports -T40093/3-.
- Disconnect earth wire from longitudinal member (left-side).
- Remove securing bolt for front section of longitudinal member (both sides).
- Bolt adapters -arrow- to longitudinal members, using bolts removed previously.

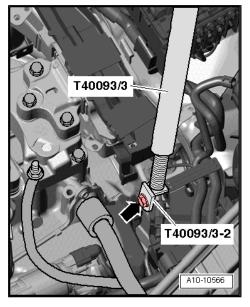


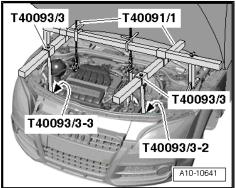
Note

Illustration shows left side of vehicle.

Insert square bars -T40091/1- into connecting pieces -T40091/3- and supports -T40093/3- as illustrated.







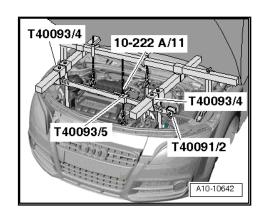
- Fit connecting pieces -T40093/4- onto square bars.
- Insert support -T40091/2- with slide -T40093/5- into the two connecting pieces -T40093/4-.

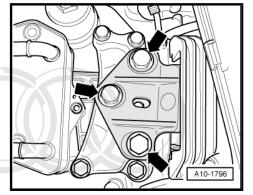


WARNING

Accidents can be caused if parts of the support bracket are not correctly secured.

- ♦ Secure support -T40091/2- using retaining pins and split pins of the connecting pieces -T40093/4- .
- Secure connecting pieces and supports using clamping bolts.
- Attach spindle -10 222 A /11- to slide and engine lifting eye.
- Take up weight of engine/gearbox assembly by tightening the 3 spindles evenly.
- Remove bolts -arrows-.





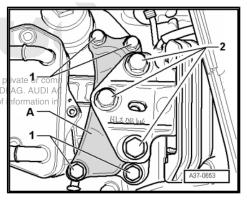
Removing gearbox support:



Note

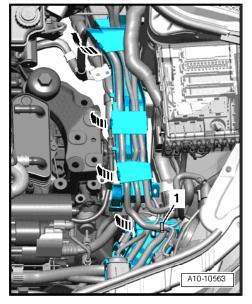
The gearbox support does not have to be removed when removed by copyright. Copying for p ing the gearbox mounting. with respect to the correctness of

- Remove bolts -1-.
- Lower engine/gearbox assembly slightly via the spindle.
- Detach gearbox support -A-.



Removing gearbox mounting:

- Open retainers for wiring duct -arrows-.
- Cut open cable tie -1- and push electrical wiring to one side.
- Unclip wiring duct.



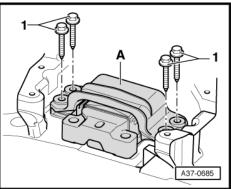
Remove bolts -1- and detach gearbox mounting -A-.

Installing

• Tightening torques <u>⇒ page 83</u>

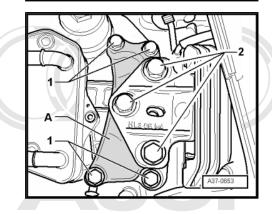
Installation is carried out in reverse sequence; note the following:

- Secure gearbox mounting -A-.



If gearbox support -A- has been removed:

- Install gearbox support -A-.



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Pull gearbox up with spindle on support bracket until gearbox support contacts support arm of gearbox mounting.



Caution

The threads in the gearbox support can be damaged if the bolts are not inserted straight.

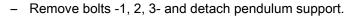
- Before fitting the bolts -arrows-, the gearbox support and the support arm of the gearbox mounting must be aligned absolutely parallel. If necessary, push the gearbox up at the rear with a trolley jack.
- Adjust assembly mountings ⇒ Rep. Gr. 10.
- Secure support arm of gearbox mounting to gearbox support.
- Detach support bracket -10 222 A- from engine.



Removing

Remove noise insulation: front -1- and rear -2- ⇒ Rep. Gr. 66 .

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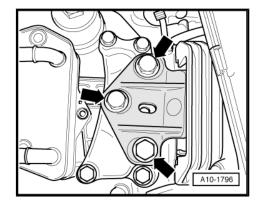


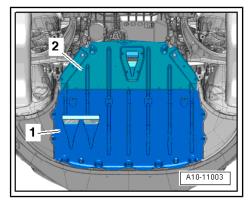
Installing

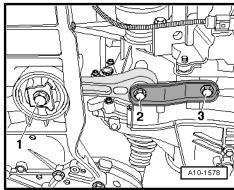
Tightening torques ⇒ page 83

Installation is carried out in reverse sequence; note the following:

- First secure pendulum support to gearbox (bolts -2- and -3-), then on subframe -1-.
- Install noise insulation ⇒ Rep. Gr. 66.







Overview - gear oil in direct shift gearbox

Inspection plug for gear oil

Inspection plug -arrow 1-

• 45 Nm

10

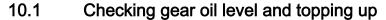
· Renew seal

Overflow pipe -arrow 2-

• 3 Nm

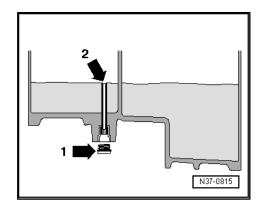
Overview:

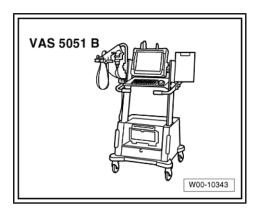
- ◆ ⇒ "10.1 Checking gear oil level and topping up", page 94
- ♦ "10.2 Draining gear oil and filling up after repairs", page 100



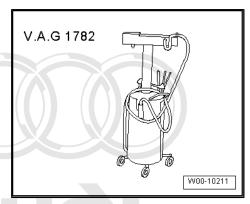
Special tools and workshop equipment required

 Vehicle diagnostic, testing and information system -VAS 5051B-

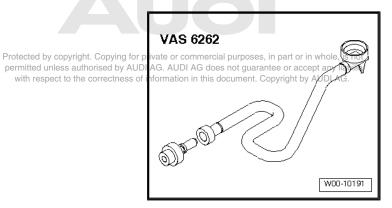




◆ Used oil collection and extraction unit -V.A.G 1782-

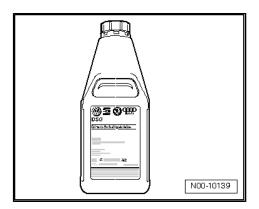


Adapter for oil filling -VAS 6262-





- Safety goggles
- ◆ Protective gloves (acid resistant)
- ◆ Gear oil for direct shift gearbox 02E, Part No. ⇒ Electronic parts catalogue



Procedure



Note

- ♦ Observe general repair instructions ⇒ page 11.
- ◆ Observe rules for cleanliness when working on the gearbox ⇒ page 14.
- ◆ Observe notes on direct shift gearbox 02E, "Regulations for the disposal of oil" ⇒ page 8.
- Use only the correct type of gear oil for the direct shift gearbox 02E (available as a replacement part). Other types of lubricant cause malfunctions and/or failure of the gearbox.



WARNING

Hot gearbox oil can cause burns.

- ♦ Wear safety goggles.
- ♦ Wear protective gloves (acid resistant).

Accidents can be caused if a gear is inadvertently engaged while the engine is running.

Before working on the vehicle while the engine is running, shift the selector lever into position "P" and apply the handbrake.



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Risk of damage to the gearbox.

- The engine must NOT be started if there is only little or no oil left in the gearbox after repair work or after excessive loss of oil.
- After repair work or after excessive loss of oil, put in a suitable amount of gear oil before proceeding.
- · Gearbox not in backup mode (emergency running mode)
- Vehicle must be on a 4-pillar lifting platform or standing over an inspection pit so it is absolutely horizontal.

- · Selector lever in position "P", handbrake applied.
- Exhaust hoses of an exhaust gas extractor (switched on) must be connected.
- · Engine idling.
- · Air conditioner and heating system switched off.

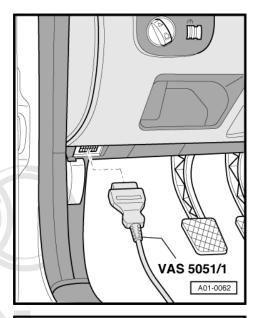
Reading off gear oil temperature



Note

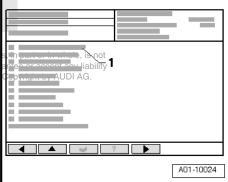
- ♦ The gear oil level varies according to the oil temperature: if the oil temperature is too low, this will result in overfilling; if it is too high this will result in underfilling.
- An incorrect gear oil level will impair the function of the gearbox.

Connect vehicle diagnostic, testing and information system -VAS 5051B-; select vehicle self-diagnosis and vehicle system "02 - Gearbox electronics".



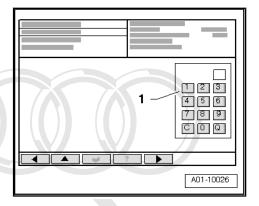
Display on -VAS 5051B-:

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Display on -VAS 5051B-:

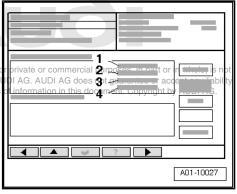
- 1 Enter display group
- Using keypad -1- press buttons 1 9 for "Display group 019" and confirm entry by pressing o button.



Display on -VAS 5051B-:

- Read off gear oil temperature in display zone -1-.
- Specification at commencement of test: Not higher than 30 ° C, otherwise allow gearbox to cool down.

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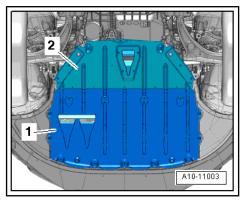


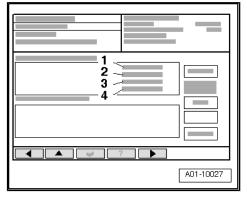
Checking gear oil level

- Tightening torques ⇒ page 94
- Remove noise insulation: front -1- and rear -2- ⇒ Rep. Gr. 66 .
- Press and hold brake pedal.
- With brake pedal depressed, select all gear positions "P, R, N, D, S" one after the other at idling speed, maintaining each position for at least 3 seconds.
- Place used oil collection and extraction unit -V.A.G 1782- below gearbox.

Display on -VAS 5051B-:

- Read off gear oil temperature in display zone -1-.
- Specification: 35 °C.





Unscrew inspection plug -B- when specified temperature is reached.



Note

-Item A- can be disregarded.



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The gear oil that has collected in the overflow pipe -arrow 2will drain off first.



Note

Regardless of the gear oil level itself, a certain amount of gear oil will always drain off when inspection plug -arrow 1- is opened.

Check that overflow pipe is securely screwed into inspection plug opening.



Note

The gear oil level cannot be checked reliably if the overflow pipe is loose.

The gear oil level is correct if a small amount of oil drains out when the oil temperature is between 35 and 45 °C (the oil level rises as the oil temperature continues to increase).



Note

- Every 30 seconds a small surge of oil will come out of the overflow pipe, regardless of the oil level (this is caused by the intermittent supply of cooling oil to the multiple clutch). This surge of oil is not relevant when checking the gear oil level and can be disregarded.
- Do not re-use drained-off gear oil.
- If gear oil level is OK <u>⇒ page 99</u>.

Filling up with gear oil

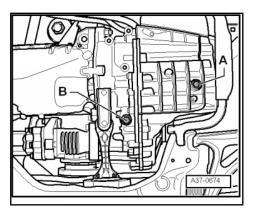
If no gear oil drains out when the oil temperature is between 35°C and 45°C, top up gear oil as follows.

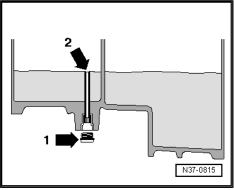


Caution

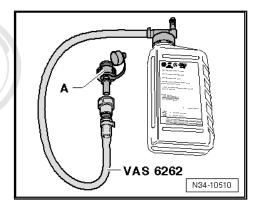
Take care not to mix the gear oil with different types of oil.

- Check that the adapter for oil filling -VAS 6262- is clean. The gear oil for the direct shift gearbox must not be mixed with different types of oil.
- Screw container of gear oil for direct shift gearbox onto adapter for oil filling -VAS 6262- .





- Screw adapter for oil filling -VAS 6262- -item A- hand-tight into opening for inspection plug.
- Hold container with adapter for oil filling -VAS 6262- as high as possible over gearbox and let gear oil run into gearbox.
- To check whether enough oil has run into direct shift gearbox, detach quick-release coupling on adapter for oil filling -VAS 6262- at regular intervals and plug the connection with a finger or a clean plug.



The gear oil that has collected in the overflow pipe arrow 2-part or in will drain off first itted unless authorised by AUDI AG. AUDI AG does not guarantee or acce with respect to the correctness of information in this document. Copyright by



Note

Regardless of the gear oil level, a certain amount of gear oil will always drain off.

The gear oil level is correct if a small amount of oil drains out when the oil temperature is between 35 and 45 °C (the oil level rises as the oil temperature continues to increase).



Note

- Every 30 seconds a small surge of oil will come out of the overflow pipe, regardless of the oil level (this is caused by the intermittent supply of cooling oil to the multiple clutch). This surge of oil is not relevant when checking the gear oil level and can be disregarded.
- ♦ Do not re-use drained-off gear oil.
- Check the gear oil temperature on vehicle diagnostic, testing and information system -VAS 5051B- while filling the gearbox with oil. Stop filling and allow the gearbox to cool down if the temperature exceeds 45 °C.
- If gear oil level is OK ⇒ page 99.

Final steps

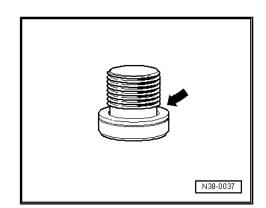
Tightening torques ⇒ page 94

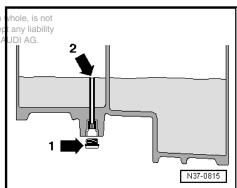


Note

Renew seal -arrow- for inspection plug.

Unscrew adapter for oil filling -VAS 6262- from gearbox.





Tighten inspection plug -B-.



Note

-Item A- can be disregarded.

- Install noise insulation ⇒ Rep. Gr. 66.
- Exit from function "Measured values" by pressing L button.
- Press "End output".
- Switch off ignition and unplug diagnostic connector.

Draining gear oil and filling up after re-10.2

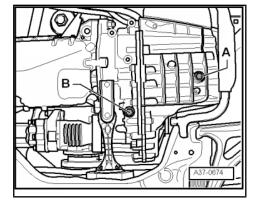
Special tools and workshop equipment required

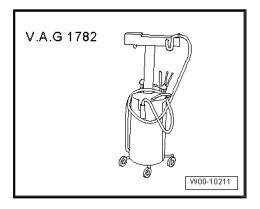
◆ Used oil collection and extraction unit -V.A.G 1782-

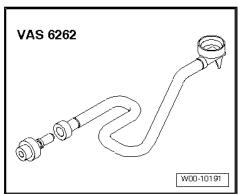


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Adapter for oil filling -VAS 6262-



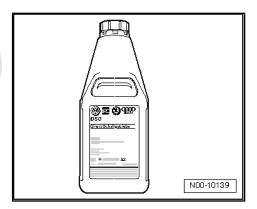




- Safety goggles
- Protective gloves (acid resistant)



Gear oil for direct shift gearbox 02E, Part No. ⇒ Electronic parts catalogue





Procedure

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Note

- Observe general repair instructions ⇒ page 11.
- Observe rules for cleanliness when working on the gearbox
- Observe notes on direct shift gearbox 02E, "Regulations for the disposal of oil" ⇒ page 8.
- Use only the correct type of gear oil for the direct shift gearbox 02E (available as a replacement part). Other types of lubricant cause malfunctions and/or failure of the gearbox.



WARNING

Hot gearbox oil can cause burns.

- Wear safety goggles.
- Wear protective gloves (acid resistant).



Caution

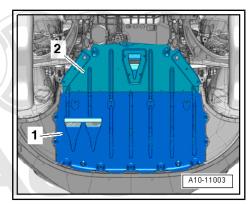
Risk of damage to the gearbox.

- The engine must not be started when there is no oil in the gearbox.
- Gearbox not in backup mode (emergency running mode)
- Vehicle must be on a 4-pillar lifting platform or standing over an inspection pit so it is absolutely horizontal.
- Selector lever in position "P", handbrake applied.
- Engine not running.

10.

Draining off gear oil

- Renew gear oil filter ⇒ page 105.
- Remove noise insulation: front -1- and rear -2- ⇒ Rep. Gr.
- Place used oil collection and extraction unit -V.A.G 1782- below gearbox.



- Unscrew inspection plug -A- and remove together with sealght. Copy -B-. with respect to the correc
- The gear oil that has collected in the overflow pipe -C- will drain off first.
- Unscrew overflow pipe and allow remaining gear oil to drain.

Filling up with gear oil

Screw overflow pipe into inspection plug opening and tighten to specified torque.



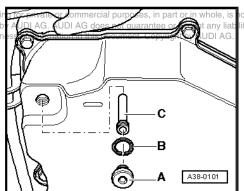
Caution

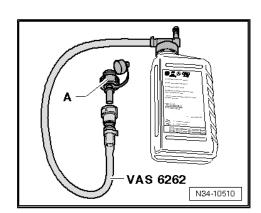
Take care not to mix the gear oil with different types of oil.

- Check that the adapter for oil filling -VAS 6262- is clean. The gear oil for the direct shift gearbox must not be mixed with different types of oil.
- Screw container of gear oil for direct shift gearbox onto adapter for oil filling -VAS 6262- .
- Screw adapter for oil filling -VAS 6262--item A- hand-tight into opening for inspection plug.
- Hold container with adapter for oil filling -VAS 6262- as high as possible over gearbox and fill 5.5 litres of gear oil into gearbox.
- Start engine and run at idling speed.
- Depress brake pedal and select all gear positions "P, R, N, D, S" one after the other at idling speed, maintaining each position for at least 3 seconds.
- Shift selector lever into position "P".
- Check gear oil level and top up as required <u>⇒ page 94</u>.

After changing gear oil:

- Connect vehicle diagnostic, testing and information system -VAS 5051B- to vehicle.
- Select Guided Functions for gearbox.
- Perform the "Basic setting" program.



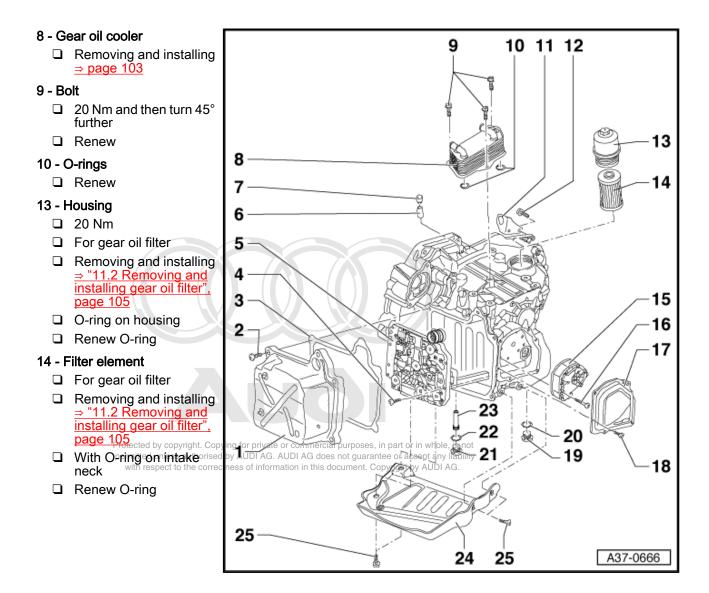


11 Exploded view - gear oil cooler and gear oil filter



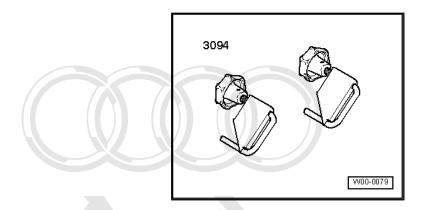
Note

-Items 1 ... 7, 15 ... 18, 24, 25- can be disregarded here. For description see *⇒ "1 Exploded view - oil pan, mechatronic unit, gear oil pump", page 116* .



11.1 Removing and installing gear oil cooler

Special tools and workshop equipment required



Removing



hot.

WARNING

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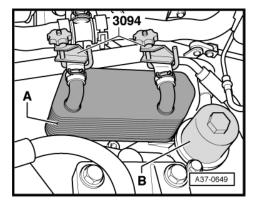
- Risk of scalding from hot steam and hot cooling for the correctness

 The cooling system is under pressure when the engine is
- ♦ Cover filler cap on expansion tank with a cloth and open carefully to release pressure.
- Open filler cap on expansion tank.
- Remove air cleaner housing (top and bottom sections) ⇒ Rep. Gr. 24.
- Mark coolant hoses leading to gear oil cooler to ensure correct connection when installing.
- Clamp off coolant hoses at gearbox oil cooler with hose clamps -3094- and disconnect hoses from gear oil cooler -A-.



Note

Seal off open lines and connections with clean plugs or sealing caps to prevent dirt from entering.



- Remove bolts -A-.
- Detach gear oil cooler -B- together with two O-rings -C- from gearbox.



Caution

Do not allow coolant to drip into gearbox.

Installing

• Tightening torque <u>⇒ page 103</u>

Installation is carried out in reverse sequence; note the following:



Note

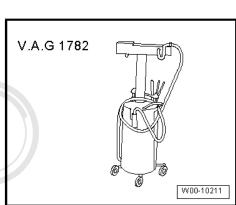
- ♦ Renew bolts for gear oil cooler.
- ♦ Renew O-rings.
- Install air cleaner housing (top and bottom sections) ⇒ Rep. Gr. 24.
- Check gear oil level and top up as required ⇒ page 94.
- Check coolant level ⇒ Rep. Gr. 19 .



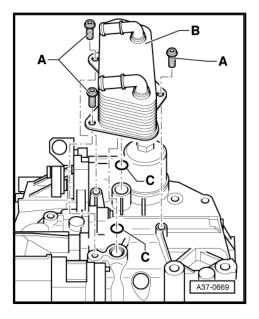
Special tools and workshop equipment required

♦ Used oil collection and extraction unit -V.A.G 1782-









Removing

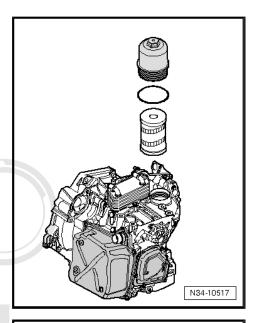
- Remove air cleaner housing (top and bottom sections) ⇒ Rep. Gr. 24.
- Place used oil collection and extraction unit -V.A.G 1782- under gearbox.
- Unscrew housing for gear oil filter.



Note

To allow the gear oil to drain back into the gearbox from the housing for the gear oil filter, tilt the housing slightly in its seat before removing it.

Then lift out filter element slowly.





Note

Protected by copyright. Copying for private or commercial purposes, if the O-ring on the intakenneck learnow is of the intakenneck learnow. not come off together with the filter element, you must remove it no. Con from the gearbox separately.

Installing

Tightening torque <u>⇒ page 103</u>

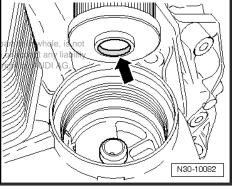
Installation is carried out in reverse sequence; note the following:

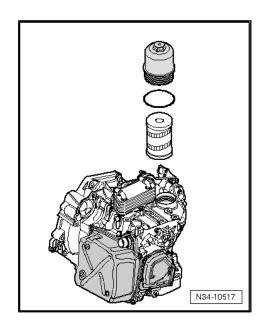


Note

Renew filter element and O-ring on housing for gear oil filter.

- Lightly lubricate O-ring on intake neck -arrow- of filter element with gear oil.
- Install filter element with intake neck facing downwards.
- Lightly lubricate O-ring on housing of gear oil filter with gear
- Tighten filter housing.
- Check gear oil level and top up as required <u>⇒ page 94</u>.







12 Overview - removing and installing bevel box

Overview:

- ◆ ⇒ "12.1 Removing and installing bevel box vehicles with 2.0 ltr. TFSI engine", page 107
- ⇒ "12.2 Removing and installing bevel box vehicles with 3.2 ltr. MPI engine", page 110

12.1 Removing and installing bevel box - vehicles with 2.0 ltr. TFSI engine

Special tools and workshop equipment required

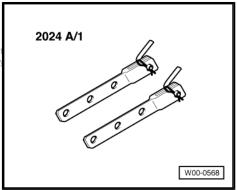
♦ Socket and extended bit -T10107-



T10107 W00-1151

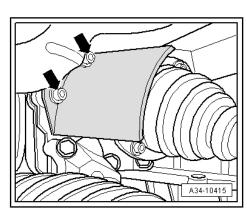
Extension -2024 A /1-

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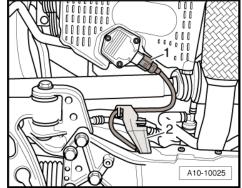


Removing

- Remove front exhaust pipe with catalytic converters and front silencer ⇒ Rep. Gr. 26.
- Drain off engine oil ⇒ Maintenance; Booklet 810.
- Remove front right wheel.
- Unbolt heat shield for drive shaft (right-side) from bevel box -arrows-.
- Unbolt drive shaft (right-side) from bevel box flange.



- Unplug electrical connector -1- at oil level and oil temperature sender -G266- .
- Unclip bracket -2- for electrical wiring leading to oil level and oil temperature sender -G266- at subframe.



- Remove nuts -arrows- securing swivel joint (right-side) ⇒ Rep. Gr. 40.
- If fitted, unscrew nut on bracket for front left vehicle level sender -G78- .
- Disengage swivel joint from wishbone.



Note

Illustration shows installation position at front suspension (leftside).

Swivel suspension strut (right-side) outwards and support with extension -2024 A /1-, as shown in illustration.



WARNING

Risk of accident if parts of support are not properly secured.

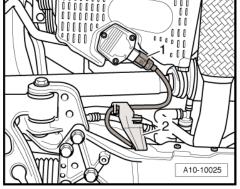
Secure locking pin and wishbone with retaining clip -arrow- and nut -1-.

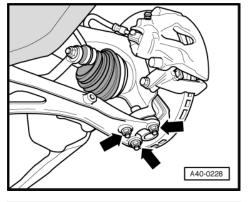


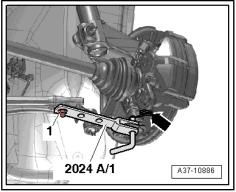
Note

Illustration shows installation position at front suspension (leftside).

Slacken bolts -1- and remove bolts -2-.

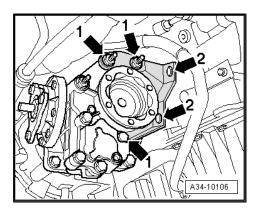




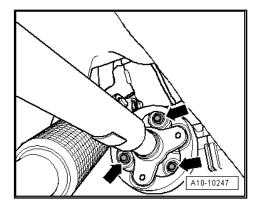




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- Mark position of flexible coupling and bevel box flange in relation to one another.
- Unbolt propshaft with flexible coupling from bevel box -arrows- (counterhold triangular flange with suitable lever).

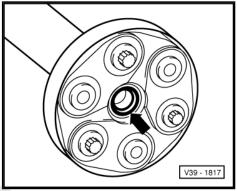




Caution

The seal -arrow- in the propshaft flange can be damaged.

♦ Push propshaft towards the rear and to the right as far as possible.

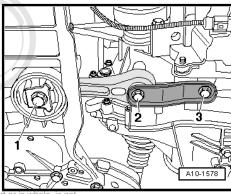


- Remove bolts -2- and -3- for pendulum support.
- Push engine/gearbox assembly forward slightly and then pull propshaft off bevel box.



Note

-Item 1- can be disregarded.



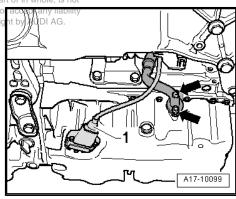
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Unscrew bolts -arrow-itted etach a diffretum fine from turb och arger antee with respect to the correctness of information in this document. Copyr and press to right side.

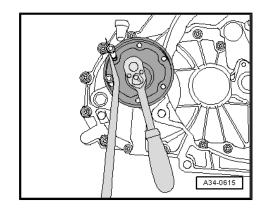


Note

-Item 1- can be disregarded.



Using socket and extended bit -T10107-, remove bolt securing flange shaft (right-side). To do so, screw two bolts into flange and counterhold flange shaft with suitable lever.



- Remove bolts -arrows- securing bevel box to gearbox.
- Pull bevel box together with flange shaft (right-side) off gearbox.

Installing

Tightening torques
 ⇒ "2 Exploded view - flange shaft, oil seals and bracket on bevel box", page 136

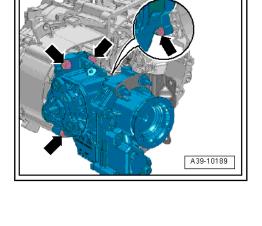
Installation is carried out in reverse sequence; note the following:

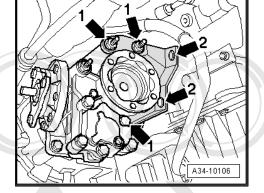


Caution

The oil seal between the bevel box and the gearbox can be damaged.

- ◆ Turn flange shaft while fitting bevel box with flange shaft (right-side) onto gearbox.
- Bolt bevel box to gearbox.
- Install flange shaft (right-side) ⇒ page 138.
- Tighten bolts securing bracket for bevel box ⇒ page 137.
- Install front exhaust pipe with catalytic converters and front silencer ⇒ Rep. Gr. 26.
- Install oil return line for turbocharger ⇒ Rep. Gr. 21.
- Install drive shaft (right-side) ⇒ Rep. Gr. 40.
- Check gear oil level and top up as required ⇒ page 149.
- Top up engine oil ⇒ Maintenance; Booklet 810.



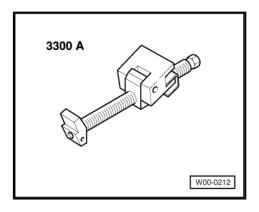


12.2 Removing and installing bevel box - vehicles with 3.2 ltr. MPI engine

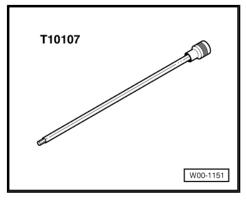
Special tools and workshop equipment required

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♦ Engine support -3300 A-

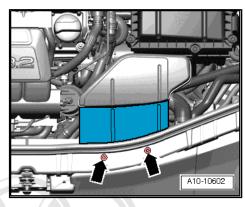


♦ Socket and extended bit -T10107-

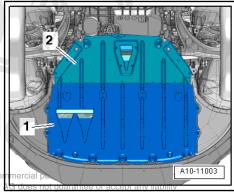


Removing

- Remove air cleaner housing (top section) ⇒ Rep. Gr. 24.
- Remove bolts -arrows- and detach air duct.



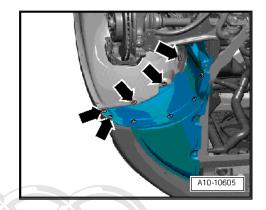
Remove noise insulation: front -1- and rear -2- ⇒ Rep. Gr. 66.



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Remove noise insulation (left and right) -arrows-.



- Remove front right wheel.
- Unbolt heat shield for drive shaft (right-side) from bevel box -arrows-.
- Unbolt drive shaft (right-side) from gearbox flange.
- Lift drive shaft (right-side) up and secure with cable tie.

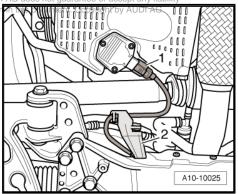


Note

Make sure you do not damage surface coating on drive shaft.

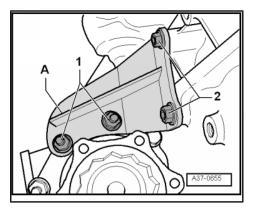
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- Unplug electrical connector -1- at oil level and oil temperature matter sender -G266- .
- Unclip bracket -2- for electrical wiring leading to oil level and oil temperature sender -G266- at subframe.



A39-0277

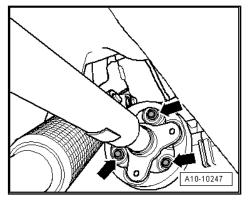
Remove bolts -1- and -2- and detach bracket -A- for bevel box.



- Mark position of flexible coupling and bevel box flange in relation to one another.
- Unbolt propshaft with flexible coupling from bevel box -arrows- (counterhold triangular flange with suitable lever).



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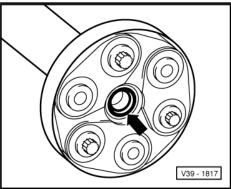




Caution

The seal -arrow- in the propshaft flange can be damaged.

Push propshaft towards the rear and to the right as far as possible.

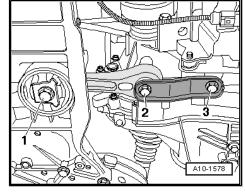


- Remove bolts -2- and -3- for pendulum support.
- Push engine/gearbox assembly forward slightly and then pull propshaft off bevel box.

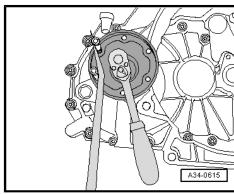


Note

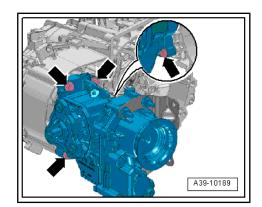
-Item 1- can be disregarded.



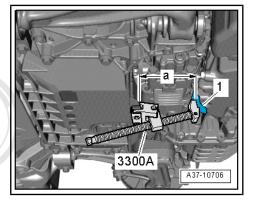
Using socket and extended bit -T10107-, remove bolt securing flange shaft (right-side). To do so, screw two bolts into flange and counterhold flange shaft with suitable lever.



Remove bolts -arrows- securing bevel box to gearbox.



- Secure engine support -3300 A- to subframe.
- Apply spindle of engine support -3300 A- to oil pan, using a suitable rubber block -1- between spindle and oil pan.
- Press engine towards front of vehicle using spindle of engine support -3300 A- until distance -a- is obtained.
- Dimension -a- = 160 mm
- Pull bevel box together with flange shaft (right-side) off gearbox.



 Pivot bevel box and guide out between engine sump and subframe as shown in illustration.

Installing

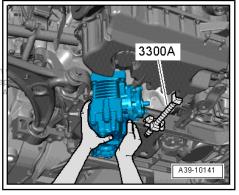
• Tightening torques page 107 pying for private or commercial purposes, in part or in Installation is carried out in reverse sequence; note the following right by

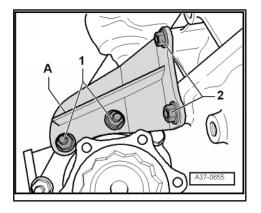


Caution

The oil seal between the bevel box and the gearbox can be damaged.

- ◆ Turn flange shaft while fitting bevel box with flange shaft (right-side) onto gearbox.
- Bolt bevel box to gearbox.
- Install flange shaft (right-side) ⇒ page 138.
- Install bracket for bevel box ⇒ page 137.



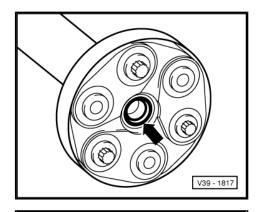


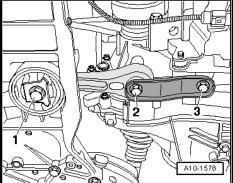


Caution

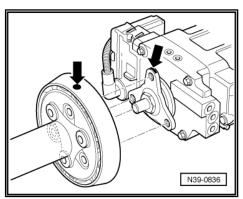
The seal -arrow- in the propshaft flange can be damaged.

- ◆ Push engine/gearbox assembly towards bulkhead, at the same time guiding pin on bevel box carefully into propshaft flange.
- Push propshaft horizontally onto guide pin $\Rightarrow\,$ Rear final drive 02D and 0AV; Rep. Gr. 39 .
- Bolt pendulum support to gearbox ⇒ page 93.

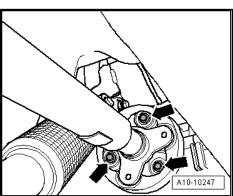




Take note of the markings that were made on the propshaft and flange when removing. These must align with each other again -arrows-.



- Secure propshaft with flexible coupling to flange on bevel box -arrows- ⇒ Rear final drive 02D and 0AV; Rep. Gr. 39 (counterhold triangular flange with suitable lever).
- Install drive shaft (right-side) ⇒ Rep. Gr. 40.
- Check gear oil level and top up as required <u>⇒ page 149</u>





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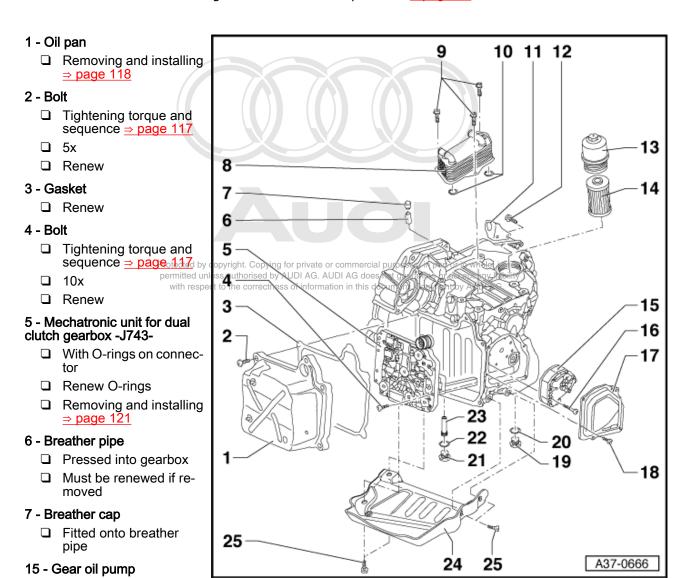
35 – Gears, shafts

Exploded view - oil pan, mechatronic unit, gear oil pump



Note

- -Items 8 ... 14- can be disregarded here. For description see *⇒ "11 Exploded view - gear oil cooler and gear oil filter", page 103* .
- -Items 19 ... 23- can be disregarded here. For description see ⇒ page 94.



16 - Bolt

- ☐ Tightening torque and sequence <u>⇒ page 118</u>
- Different bolts according to version

Removing and installing

■ Install with new gasket

⇒ page 126

□ Renew

17 - Cover for gear oil pump

- With gasket
- □ Renew
- □ Removing and installing <u>⇒ "1.4 Removing and installing gear oil pump"</u>, page 126

18 - Bolt

- ☐ Tightening torque and sequence ⇒ page 118
- □ 4x
- ☐ Renew

24 - Guard plate

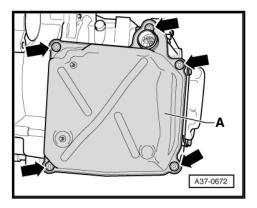
Depending on version

25 - Bolt

- □ 32 Nm
- $\begin{tabular}{l} \blacksquare \begin{tabular}{l} \verb|Prodex| ted by copyright. Copying for private or commercial purposes, in part or in whole, is not a superior of the product of$ permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

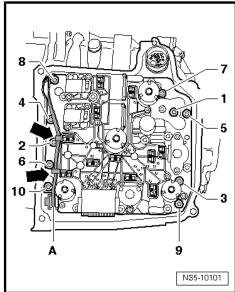
Oil pan - tightening torque and sequence

- Tighten bolts -arrows- diagonally in stages to 16 Nm.



Mechatronic unit for dual clutch gearbox -J743-: tightening torque and sequence

- Tighten bolts in the sequence -1 ... 10- in 2 stages as follows:
- 1. Tighten bolts to 5 Nm.
- 2. Turn bolts 90° further.



Gear oil pump - tightening torque and sequence

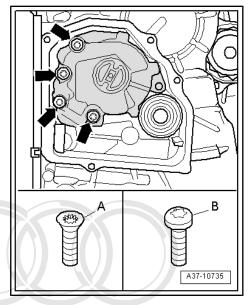
Tighten bolts -arrows- in diagonal sequence (different bolts according to version):

Countersunk-head bolts -A-:

- Tighten countersunk-head bolts to 8 Nm.

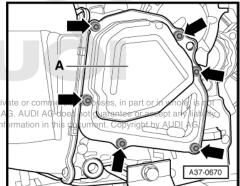
Pan-head bolts -B-:

- Tighten pan-head bolts in 2 stages as follows:
- Tighten bolts to 8 Nm.
- 2. Turn bolts 90° further.



Cover -A- for gear oil pump - tightening torque and sequence

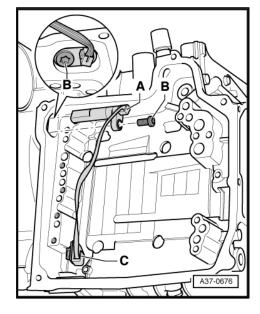
Tighten bolts -arrows- diagonally in stages to 8 Nm.



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Gearbox input speed sender -G182- and clutch temperature sender -G509-

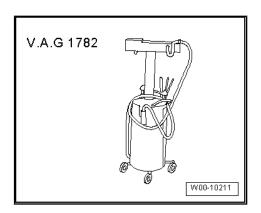
- Gearbox input speed sender -G182- and clutch temperature sender -G509-
 - Removing and installing ⇒ page 125
- B Bolt
 - 10 Nm
- C Electrical connector



1.1 Removing and installing oil pan

Special tools and workshop equipment required

◆ Used oil collection and extraction unit -V.A.G 1782-



Removing



Caution

Risk of damage to the gearbox.

◆ Do not run the engine or tow the vehicle with the oil pan removed or when there is no gear oil in the gearbox.



Note

- Observe the general repair instructions ⇒ page 11.
- Observe rules for cleanliness when working on the gearbox *⇒ page 14* .

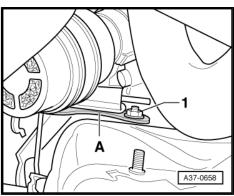


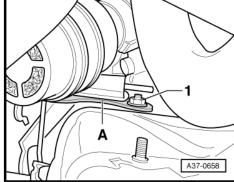
Caution

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When disconnecting the battery there is a risk of serious damage to electronic components. Ith respect

- Observe the correct procedure for disconnecting the bat-
- With the ignition switched off, disconnect battery earth cable ⇒ Rep. Gr. 27.
- Drain off gear oil ⇒ page 100.
- Unscrew nut -1- at front of oil pan and press bracket -A- upwards.

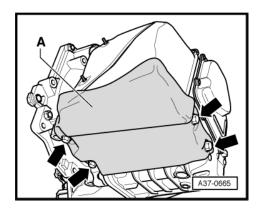




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If fitted, remove guard plate -A- from gearbox -arrows-.

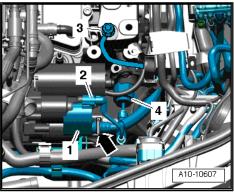




Caution

Mechatronic unit for dual clutch gearbox -J743- can be damaged by electrostatic discharge.

- Do not touch contact pins in connector for mechatronic unit for dual clutch gearbox -J743- with bare hands.
- Touch vehicle earth with your hand (without gloves) to discharge any static electricity.
- Turn fastener anti-clockwise and unplug electrical connector -4- on gearbox.

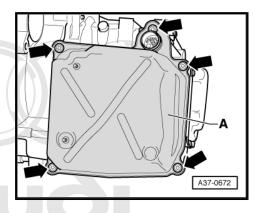




Note

-Items 1, 2, 3- can be disregarded.

- Place used oil collection and extraction unit -V.A.G 1782- under gearbox.
- Slacken bolts -arrows- in diagonal sequence.
- Detach oil pan -A- together with oil pan gasket, allowing remaining gear oil in oil pan to drain off into used oil collection and extraction unit -V.A.G 1782- .



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A37-0672

Installing

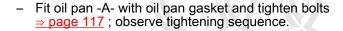
Tightening torque ⇒ page 117

Installation is carried out in reverse sequence; note the following:



Note

- Renew gasket and bolts for oil pan.
- Renew O-rings -arrows- on connector for mechatronic unit for dual clutch gearbox -J743- .
- Clean sealing surfaces; they must be free from oil and grease.
- Lightly lubricate O-rings on connector for mechatronic unit for dual clutch gearbox -J743- with gear oil

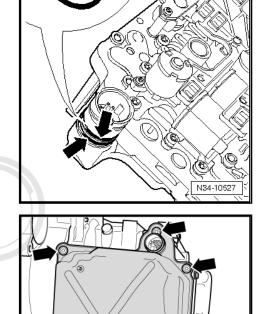




Note

Make sure no electrical wiring is trapped when fitting oil pan.

- Fill up with gear oil ⇒ page 100 and check gear oil level <u>⇒ page 100</u> . Protected by copyright. Copying for private or commercial purposes, in part
- Observe correct procedure after connecting battery es Reparantee or with respect to the correctness of information in this document. Copyright



1.2 Removing and installing mechatronic unit for dual clutch gearbox -J743-

Removing



Caution

Risk of damage to the gearbox.

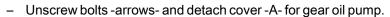
♦ Do not run the engine or tow the vehicle with the oil pan removed or when there is no gear oil in the gearbox.



- Observe the general repair instructions ⇒ page 11.
- Observe rules for cleanliness when working on the gearbox *⇒ page 14* .
- Remove oil pan ⇒ page 118.

Remove noise insulation (left-side) -arrows-.

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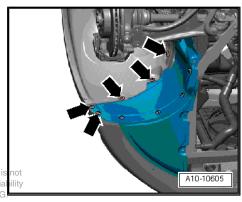


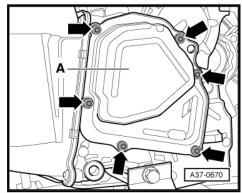


Caution

Risk of irreparable damage to mechatronic unit.

The long sender "arm" will be damaged when the mechatronic unit is pulled out if the cover for the gear oil pump is not removed.







Caution

The mechatronic unit can be damaged by electrostatic dis-

- Do not touch the contact pins in the connector with bare hands.
- Touch vehicle earth with your hand (without gloves) to discharge any static electricity.



Caution

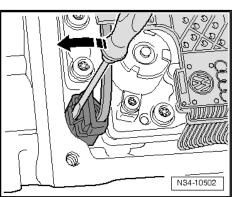
The electrical wiring can be damaged.

- Do not pull on the electrical wiring.
- Using a small screwdriver -arrow-, carefully release electrical connector for gearbox input speed sender -G182- and clutch temperature sender -G509- and unplug connector.

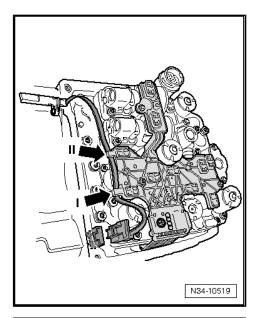


Note

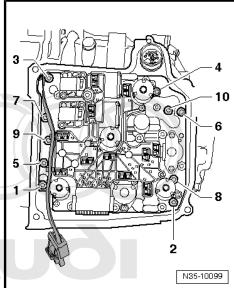
-G182- and -G509- will have to be renewed if the electrical wiring is damaged.



 Release wiring leading to -G182- and -G509- from retaining tabs on mechatronic unit -arrows I and II-.



- Remove bolts in the sequence -1 ... 10-.



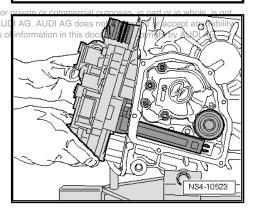
- Carefully pull the mechatronic unit out of the gearbox housing by AUT AG. AUDI AG d until the long sender "arm" is clear of the gearbox housing prectness of information in this
- Carefully swivel out mechatronic unit downwards.



Caution

The mechatronic unit can be damaged.

◆ Take care not to break off the lugs on the sender "arm".





Caution

The mechatronic unit can be damaged.

Do not lift the mechatronic unit by the sender "arm" or put down the unit so it rests on the sender arm.



Note

The mechatronic unit must be renewed if the sender "arm" is damaged.

Installing

Tightening torques ⇒ page 116

Installation is carried out in reverse sequence; note the following:



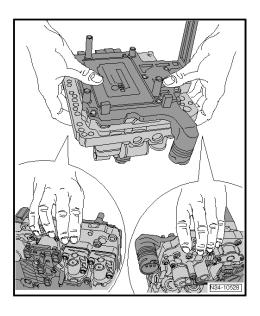
Note

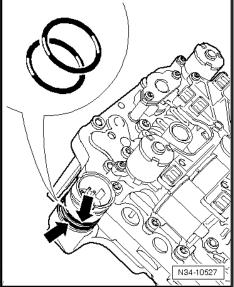
- Renew bolts for mechatronic unit for dual clutch gearbox -J743- and for cover for gear oil pump.
- ♦ Renew cover for gear oil pump.
- When re-installing, renew O-rings -arrows- on connector for mechatronic unit for dual clutch gearbox -J743-.
- ♦ The O-rings are supplied with the replacement unit if the mechatronic unit for dual clutch gearbox -J743- is being renewed.

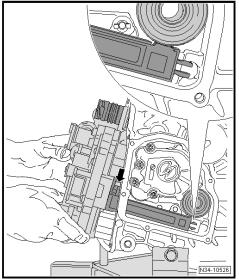


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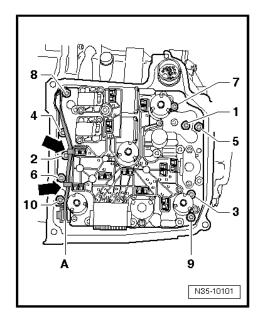
- Carefully fit mechatronic unit for dual clutch gearbox -J743- in gearbox housing.
- The mechatronic unit must be fitted onto the dowel pins -arrow-.
- The "sender arm" must fit in the guide in the gearbox housing as shown in the detail view.
- The electrical wiring for -G182- and -G509- must not become trapped.



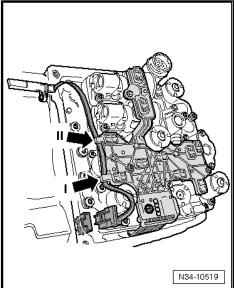




Tighten bolts for mechatronic unit for dual clutch gearbox - $J743- \Rightarrow page 117$.



- Engage electrical wire in top retaining tab first -arrow II-, then in bottom tab -arrow I-.
- Attach connector for -G182- and -G509-, and check that it is properly engaged.
- Install oil pan ⇒ page 118.
- Attach electrical connector for mechatronic unit for dual clutch gearbox -J743- and turn retainer to secure connector.
- Install cover for gear oil pump ⇒ page 126.
- Fill up with gear oil ⇒ page 100 and check gear oil level ⇒ page 100 .
- Perform basic setting with vehicle diagnostic, testing and information system -VAS 5051B- .



1.3 otected by corrected by cor with respect speed sender a G182 cand clutch temperature sender -G509-

Removing



Caution

Risk of damage to the gearbox.

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



- Observe the general repair instructions ⇒ page 11.
- Observe rules for cleanliness when working on the gearbox *⇒ page 14* .

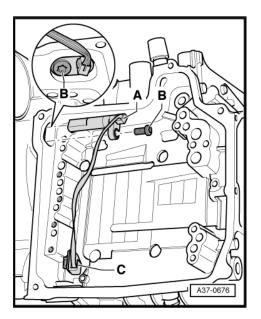
- Remove oil pan <u>⇒ page 118</u>.
- Remove mechatronic unit for dual clutch gearbox -J743-⇒ page 121 .
- Remove bolt -B-.
- Pull gearbox input speed sender -G182- and clutch temperature sender -G509- -item A- out of gearbox together with wiring

Installing

Tightening torques ⇒ page 116, ⇒ page 118

Installation is carried out in reverse sequence; note the following:

- Lightly lubricate -G182- and -G509- with gear oil.
- Insert -G182- and -G509- in opening on side of gearbox and secure with bolt ⇒ page 118.
- Install mechatronic unit for dual clutch gearbox -J743-⇒ page 121 .
- Install oil pan <u>⇒ page 118</u>.
- Fill up with gear oil ⇒ page 100 and check gear oil level ⇒ paloe 100 opyright. Copying for private or commercial purposes, in part of including part of the pa
- Perform basic setting with vehicle diagnostic, testing and information system -VAS 5051B-.



1.4 Removing and installing gear oil pump

Removing



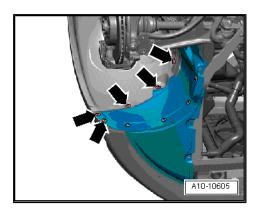
Caution

Risk of damage to the gearbox.

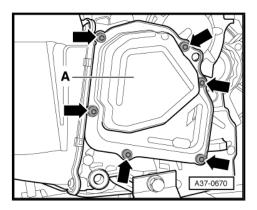
Do not run the engine or tow the vehicle with the oil pan removed or when there is no gear oil in the gearbox.



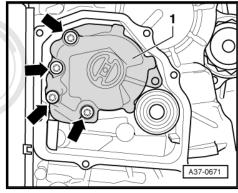
- Observe rules for cleanliness when working on the gearbox *⇒ page 14* .
- Observe the general repair instructions ⇒ page 11.
- Drain off gear oil ⇒ page 100 and leave used oil collection and extraction unit -V.A.G 1782- in position below gearbox.
- Remove noise insulation (left-side) -arrows-.



Remove bolts -arrows- and detach cover -A- for gear oil pump, allowing remaining gear oil in cover to drain off into used oil collection and extraction unit -V.A.G 1782- .



Remove bolts -arrows- and detach cover for gear oil pump

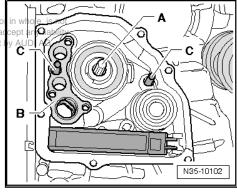


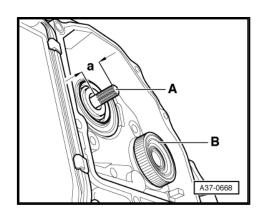
Installing

Protected by copyright. Copying for private or commercial purposes, in part or Tightening torques 118 rised by AUDI AG. AUDI AG does not guarantee or a Installation is carried out in reverse sequence; note the following:

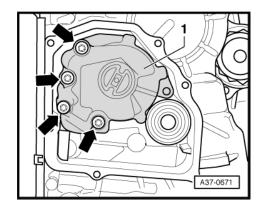


- Renew bolts for gear oil pump and for cover for gear oil pump.
- Renew gasket -B- and cover for gear oil pump.
- Check that dowel sleeves -C- are fitted in gearbox housing.
- Slide drive shaft -A- for gear oil pump into gearbox as far as stop, turning shaft slightly as required.
- If drive shaft -A- for gear oil pump is inserted correctly, dimension -a- = approx. 23 mm.
- If necessary, carefully remove any metal particles on sender wheel -B- (the sender wheel must not be demagnetised).
- Remove paper gasket between gear oil pump and gearbox.
- Remove remaining pieces of paper gasket and clean inside of gearbox.
- Clean sealing surfaces; they must be free from oil and grease.
- Fit new paper gasket between gear oil pump and gearbox, if necessary, apply gear oil to hold it in place while assembling.

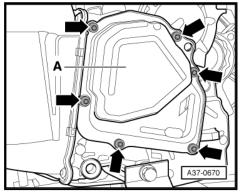




Fit gear oil pump -1- onto drive shaft and secure with bolts ⇒ page 118 .



- Clean sealing surface between gearbox housing and cover for gear oil pump.
- Fit cover -A- for gear oil pump and secure with bolts ⇒ page 118 .
- Fill up with gear oil ⇒ page 100 and check gear oil level ⇒ page 100 .





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Final drive - front differential 39 –

Exploded view - flange shaft and oil seals on gearbox

1 - Gearbox

2 - Oil seal on gearbox

- Between bevel box and gearbox
- □ Renewing ⇒ page 131

3 - Nut

□ 20 Nm

4 - Selector shaft lever

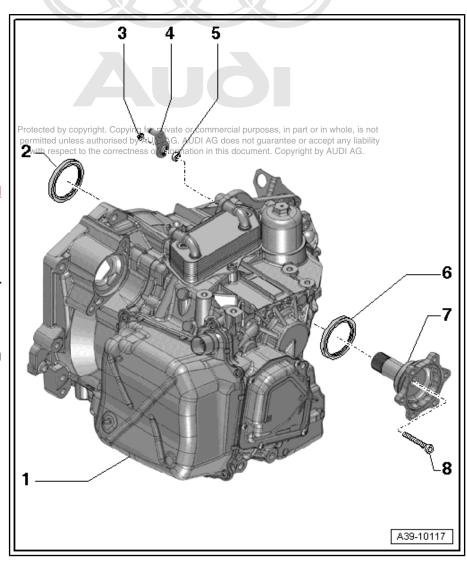
- Renewing ⇒ "1.4 Renewing oil seal for selector shaft", page 133
- 5 Oil seal for selector shaft
 - □ Renewing ⇒ page 133
- 6 Oil seal for flange shaft (leftside)
 - □ Renewing ⇒ page 130

7 - Flange shaft (left-side)

□ Removing and installing ⇒ page 129

8 - Bolt

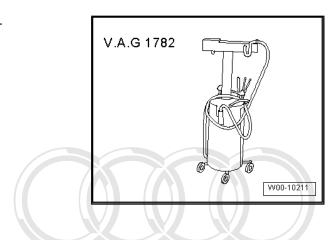
- □ 30 Nm
- □ Renew



Removing and installing flange shaft 1.1 (left-side)

Special tools and workshop equipment required

Used oil collection and extraction unit -V.A.G 1782-



Removing



Note

- ♦ Observe general repair instructions ⇒ page 11.
- ◆ Observe rules for cleanliness when working on the gearbox ⇒ page 14.
- Remove drive shaft (left-side) ⇒ Rep. Gr. 40 .

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- Place used oil collection and extraction unit -V.A.G 1782- below gearbox.
- Remove bolt securing flange shaft (left-side). To do so, screw two bolts into flange and counterhold flange shaft with suitable lever.
- Pull out flange shaft and spring.

Installing

Tightening torque ⇒ page 129

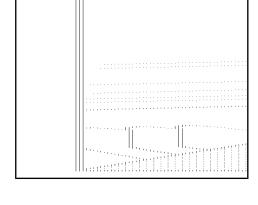
Installation is carried out in reverse sequence; note the following:

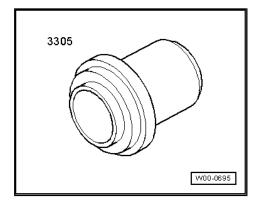
- Push flange shaft in against spring pressure securing bolt.
- Install drive shaft (left-side) ⇒ Rep. Gr. 40.
- Check gear oil level and top up as required ⇒ page 94.

1.2 Renewing oil seal for flange shaft (left-side)

Special tools and workshop equipment required

Thrust piece -3305-



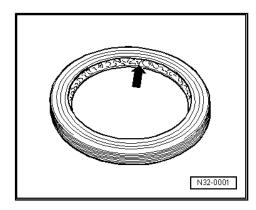


Procedure

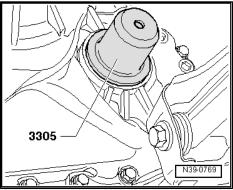


Note

- ♦ The oil seal can be renewed with the gearbox installed.
- ◆ Observe general repair instructions ⇒ page 11.
- ◆ Observe rules for cleanliness when working on the gearbox ⇒ page 14.
- Remove flange shaft (left-side) ⇒ page 129.
- Pry out oil seal with assembly lever.
- Lightly oil outer circumference of new oil seal.
- Pack space between sealing lip and dust lip -arrow- half full with sealing grease ⇒ Electronic parts catalogue.



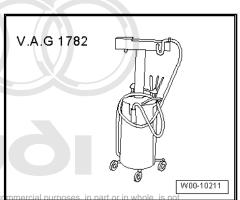
- Drive in oil seal onto stop using thrust piece -3305-. Take care to keep seal straight when installing.
- Install flange shaft (left-side) ⇒ page 129.
- Check gear oil level and top up as required ⇒ page 94.



1.3 Renewing oil seal between bevel box and gearbox (on gearbox)

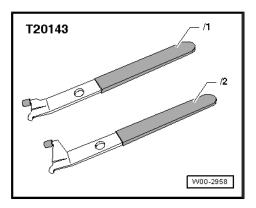
Special tools and workshop equipment required

◆ Used oil collection and extraction unit -V.A.G 1782-

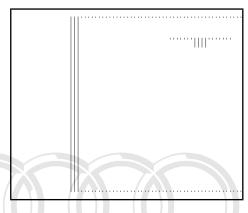


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Extractor tool -T20143-



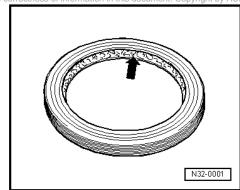
Thrust piece -T10243-



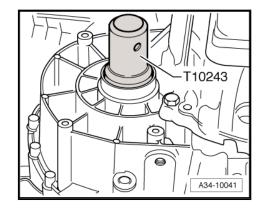
Procedure

- Remove bevel box "12.1 Removing and installing bevel box - vehicles with 2.0 ltr. TFSI engine", page 107,

 ⇒ "12.2 Removing and installing bevel box - vehicles with
 - 3.2 ltr. MPI engine", page 110
- Place used oil collection and extraction unit -V.A.G 1782- below gearbox.
- Pry out oil seal from gearbox with extractor tool -T20143/4 by or pyright. Copying for private or commercial purposes, in part or in whole, is not -T20143/2- . permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctr
- Lightly oil outer circumference of new oil seal.
- Pack space between sealing lip and dust lip -arrow- half full with sealing grease ⇒ Electronic parts catalogue.



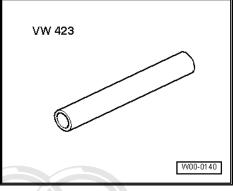
- Drive in oil seal as far as stop using thrust piece -T10243- .
- Install bevel box ⇒ "12.1 Removing and installing bevel box - vehicles with 2.0 ltr. TFSI engine", page 107, ⇒ "12.2 Removing and installing bevel box - vehicles with 3.2 ltr. MPI engine", page 110.
- Check gear oil level and top up as required ⇒ page 94.



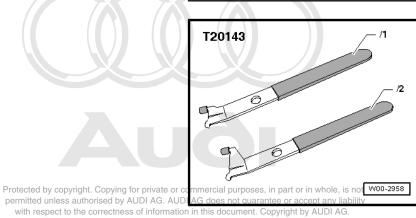
1.4 Renewing oil seal for selector shaft

Special tools and workshop equipment required

♦ Tube -VW 423-

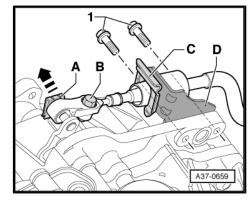


◆ Extractor tool -T20143-

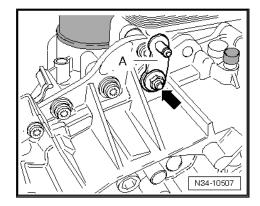


Procedure

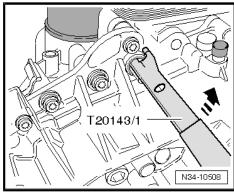
- Tightening torque ⇒ page 129
- Detach selector lever cable from selector shaft lever ⇒ page 46 .



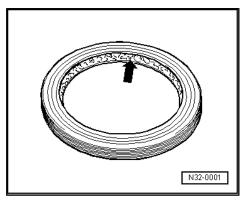
- Remove nut -arrow-.
- Carefully pry selector shaft lever -A- off selector shaft.



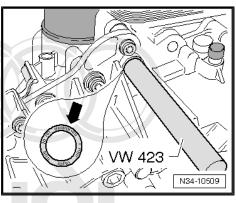
Prise out oil seal with extractor tool -T20143/1-.



- Lightly oil outer circumference of new oil seal.
- Pack space between sealing lip and dust lip -arrow- half full with sealing grease ⇒ Electronic parts catalogue.

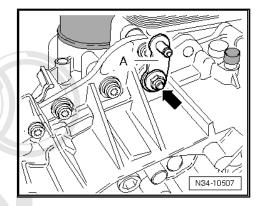


- Drive in oil seal onto stop using tube -VW 423- . Take care to keep oil seal straight when installing.
- · Closed side of seal -arrow- faces outwards.



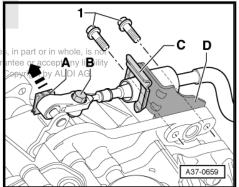
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- Fit selector shaft lever on selector shaft and secure in place
- Selector shaft lever can only be fitted in one correct position onto splines.



- Install selector lever cable ⇒ page 46.
- Adjust selector lever cable ⇒ page 50.

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Exploded view - flange shaft, oil seals and bracket on bevel box 2

1 - Nut

- □ 480 Nm
- ☐ Renew

2 - Output flange on bevel box

3 - Output flange cap

□ Renew if damaged

4 - Oil seal

- ☐ For output flange on bevel box
- □ Renewing ⇒ page 144

5 - Oil seal on bevel box

- Between gearbox and bevel box
- □ Renewing ⇒ page 142

6 - Bevel box

- □ Removing and installing:
- Vehicles with 2.0 ltr. TFSI engine ⇒ page 107
- Vehicles with 3.2 ltr. MPI engine ⇒ page 110

7 - Oil drain plug

- □ For bevel box
- □ 60 Nm

8 - Oil seal

- ☐ For flange shaft (rightside) on bevel box (out-
- □ Renewing ⇒ page 139

9 - Screw plug

- ☐ For oil filler hole at bevel box
- □ 15 Nm
- □ Renew

10 - Bolt

- Bevel box to gearbox
- 40 Nm and then turn 45° further
- □ 4x
- □ Renew

11 - Breather pipe

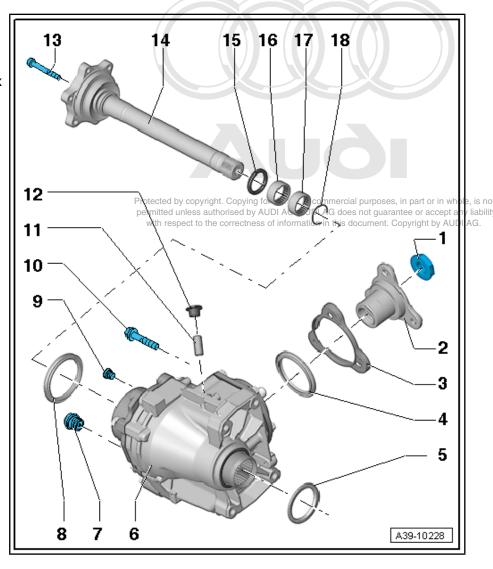
12 - Breather cap

13 - Bolt

- □ 30 Nm
- □ Renew

14 - Flange shaft (right-side)

□ Removing and installing ⇒ page 138



15 - Seal

□ Renew

16 - Needle bearing (polygon bearing)

- ☐ Does not turn easily when flange shaft is removed; this does not indicate a fault
- ☐ Acoustic check can only be performed when installed
- ☐ Check for damage such as cracking in outer race
- □ Renewing ⇒ page 141

17 - Needle bearing (polygon bearing)

- Does not turn easily when flange shaft is removed; this does not indicate a fault
- □ Acoustic check can only be performed when installed
- ☐ Check for damage such as cracking in outer race
- □ Renewing ⇒ page 141

18 - Circlip

☐ Renew

Bracket for bevel box for vehicles with 2.0 ltr. TFSI engine: tightening torque and sequence

- Tighten bolts in 3 stages as follows:
- Screw in bolts -1- (hand-tight).
- Tighten bolts -2- to 40 Nm.
- Tighten bolts -1- to 40 Nm.

A34-10106

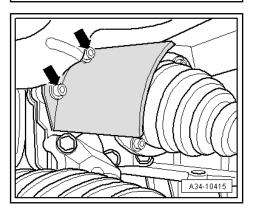
Bracket -A- for bevel box for vehicles with 3.2 ltr. MPI engine: tightening torque and sequence

- Tighten bolts in 4 stages as follows:
- 1 Screw in bolts -1- and -2- hand-tight.
- 2 Pre-tighten bolts -1- to 3 Nm.
- 3 Tighten bolts -2- to 35 Nm.
- Tighten bolts -1- to 45 Nm. 4 -

Heat shield for drive shaft (right-side) for vehicles with 2.0 ltr. TFSI engine: tightening torque

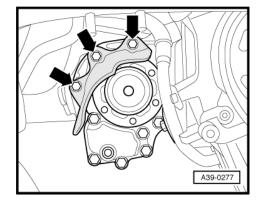
Tighten bolts -arrows- to 25 Nm.

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Heat shield for drive shaft (right-side) for vehicles with 3.2 ltr. MPI engine: tightening torque

Tighten bolts -arrows- to 25 Nm.

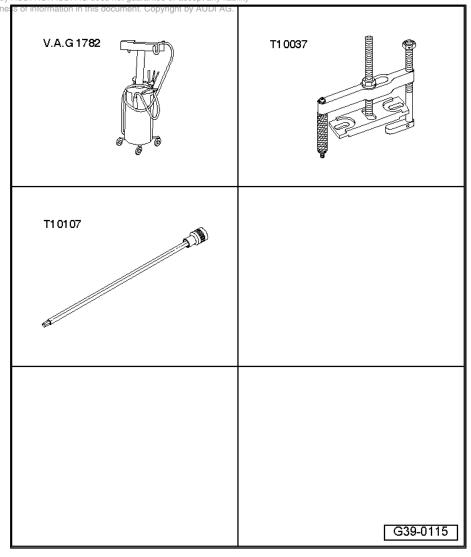


2.1 Removing and installing flange shaft (right-side)

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Special tools and workshop ectne equipment required

- Used oil collection and extraction unit -V.A.G 1782-
- Puller -T10037-
- Socket and extended bit -T10107-



Removing



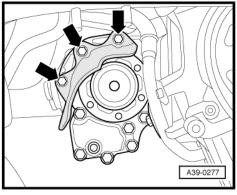
Note

- Observe general repair instructions ⇒ page 11.
- Observe rules for cleanliness when working on the gearbox
- Remove drive shaft (right-side) ⇒ Rep. Gr. 40.
- Unbolt heat shield for drive shaft (right-side) -arrows-.

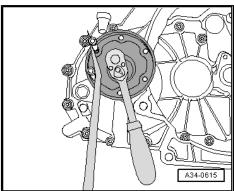


Note

Illustration shows heat shield for vehicles with 3.2 ltr. MPI engine.



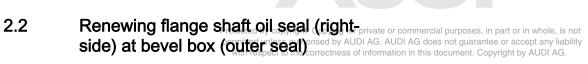
- Place used oil collection and extraction unit -V.A.G 1782- below gearbox.
- Using socket and extended bit -T10107-, remove bolt securing flange shaft (right-side). To do so, screw two bolts into flange and counterhold flange shaft with suitable lever.



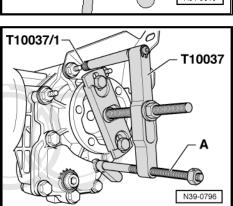
- Attach puller -T10037- to flange shaft (right-side).
- Use knurled nut -T10037/1- and lower support -A- to align puller -T10037- parallel with flange.
- Pull out flange shaft.

Installing

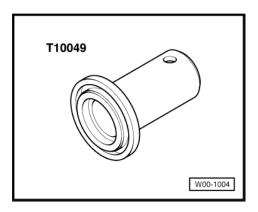
- Tightening torque ⇒ page 136, ⇒ page 137, ⇒ page 138 Installation is carried out in reverse sequence; note the following:
- Carefully drive in flange shaft (while turning).
- Secure flange shaft.
- Install drive shaft (right-side) ⇒ Rep. Gr. 40.
- Check gear oil level and top up as required ⇒ page 149



Special tools and workshop equipment required



♦ Thrust piece -T10049-

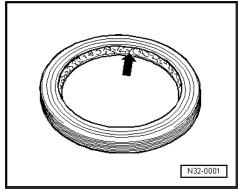


Procedure

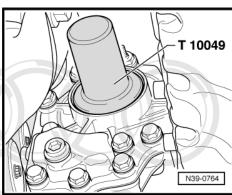


Note

- ♦ The oil seal can be renewed with the gearbox installed.
- ♦ Observe general repair instructions <u>⇒ page 11</u>.
- ◆ Observe rules for cleanliness when working on the gearbox ⇒ page 14.
- Remove flange shaft (right-side) ⇒ page 138.
- Pry out flange shaft oil seal using assembly lever.
- Lightly oil outer circumference of new oil seal.
- Pack space between sealing lip and dust lip -arrow- half full with sealing grease ⇒ Electronic parts catalogue.



- Drive oil seal in onto stop using thrust piece -T10049- .
- Install flange shaft (right-side) ⇒ page 138.
- Check gear oil level and top up as required ⇒ page 149.

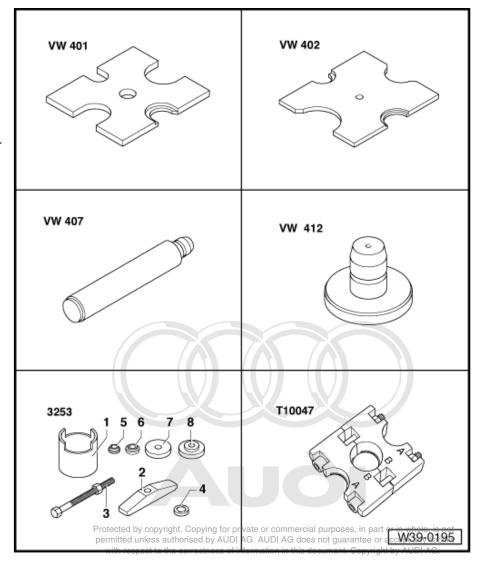


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2.3 Renewing needle bearings (polygon bearings) for flange shaft (right-side)

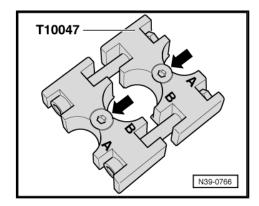
Special tools and workshop equipment required

- ♦ Thrust plate -VW 401-
- Thrust plate -VW 402-
- ♦ Press tool -VW 407-
- Press tool -VW 412-
- Assembly tool -VAS 3253-
- Clamp -T10047-

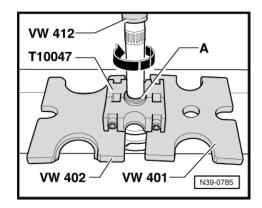


Procedure

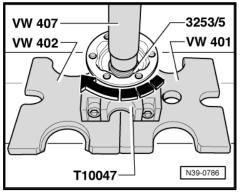
- Remove flange shaft (right-side) ⇒ page 138.
- Assemble assembly tool -T10047-, as shown in illustration.
- Marks "B" on both parts of tool face each other.
- The stepped shoulders -arrows- must then be below the bear-
- Screw parts together as far as stop.



- Remove circlip -A-.
- Rotate shaft when pressing off -arrow- to prevent contact surface of needle bearings on shaft from being damaged.



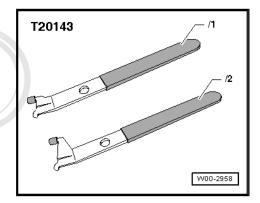
- Rotate shaft when pressing on -arrow- to prevent contact surface of needle bearings on shaft from being damaged.
- Secure needle bearings in position with new circlip.
- Install flange shaft (right-side) ⇒ page 138.



2.4 Renewing oil seal between gearbox and bevel box (on bevel box)

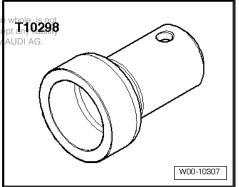
Special tools and workshop equipment required

♦ Extractor tool -T20143-



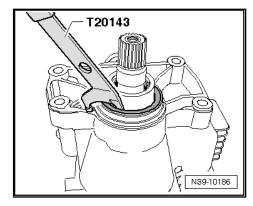
◆ Thrust piece -T10298-

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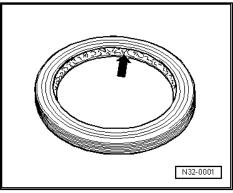


Procedure

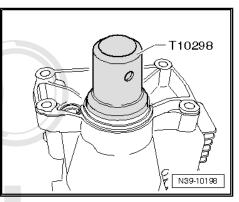
- Remove bevel box: vehicles with 2.0 ltr. TFSI engine ⇒ page 107, vehicles with 3.2 ltr. MPI engine ⇒ page 110.
- Pry out oil seal from bevel box with extractor tool -T20143/1or -T20143/2- .



- Lightly oil outer circumference of new oil seal.
- Pack space between sealing lip and dust lip -arrow- half full with sealing grease ⇒ Electronic parts catalogue.



- Drive in oil seal as far as stop using thrust piece -T10298- .
- Install bevel box: vehicles with 2.0 ltr. TFSI engine ⇒ page 107 , vehicles with 3.2 ltr. MPI engine ⇒ page 110 .

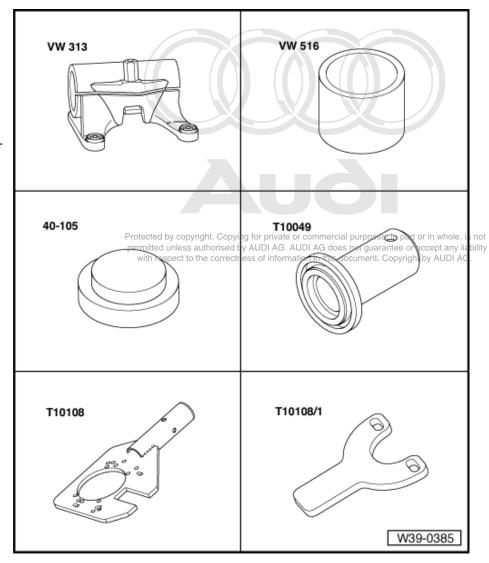


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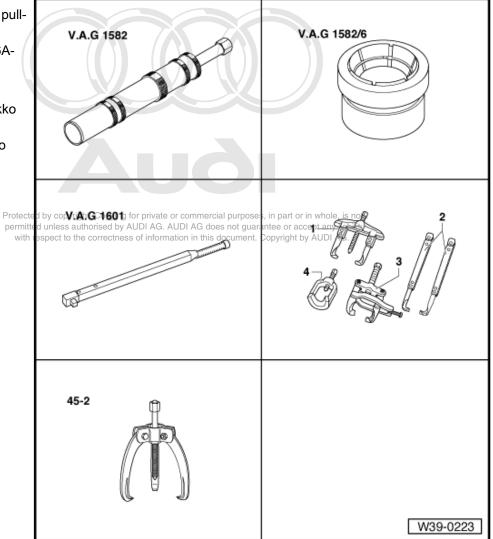
2.5 Renewing oil seal for output flange on bevel box

Special tools and workshop equipment required

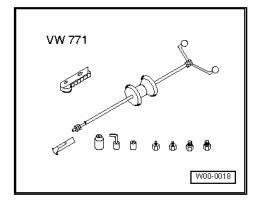
- ◆ Support clamp -VW 313-
- ♦ Tube -VW 516-
- ♦ Thrust plate -40-105-
- ♦ Thrust piece -T10049-
- ♦ Gearbox support -T10108-
- ◆ Support plate -T10108/1-



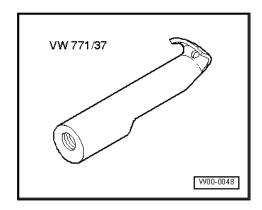
- ◆ Tapered roller bearing pull-er -V.A.G 1582-
- ♦ Adapter -V.A.G 1582/6A-
- Torque wrench -V.A.G 1601-
- -1- Two-arm puller Kukko 20/10
- Three-arm puller Kukko 45/2



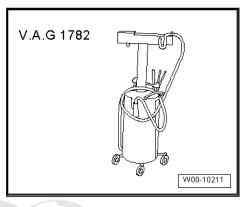
♦ Multi-purpose tool -VW 771-



Extractor tool -VW 771/31-



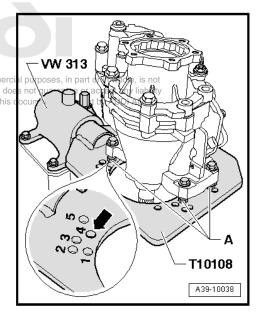
◆ Used oil collection and extraction unit -V.A.G 1782-



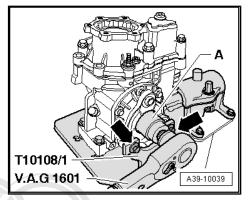
- Bolt M10x30 (2x)
- Nut M12x10 (4x)

Procedure

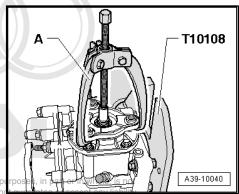
- Tightening torque <u>⇒ page 136</u>
- Remove bevel box: vehicles with 2.0 ltr. TFSI engine ⇒ page 107, vehicles with 3.2 ltr. MPI engine ⇒ page 110.
- Place nut M12x10 -item A- between bevel box and gearbox support -T10108- and fit bevel box on hole marked "4" -arrow- in gearbox support.
- Then align the bevel box with the three remaining holes and secure (place nuts -A- in between ed by copyright. Copyring for private or commerce permitted unless authorised by AUDI AG. AUDI AG do
- Place used oil collection and extraction unit -V.A.G 1782 min in this derneath.
- Drain gear oil out of bevel box.



- Lock output flange for bevel box in position using support plate -T10108/1- and bolts M10x30 (2x) -arrows-.
- Unscrew nut for output flange.
- A Socket attachment, 36 mm
- Swing bevel box so that output flange points upwards.



- Remove output flange from shaft bevel gear of bevel box.
- A Three-arm puller Kukko 45/2



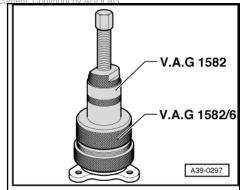
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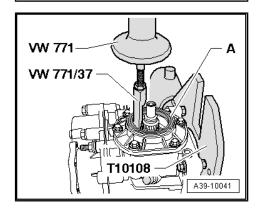


Note

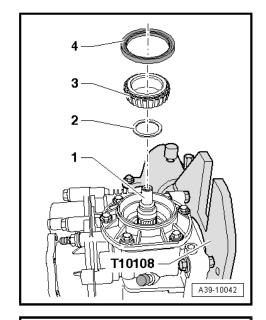
When pulling off the output flange, the tapered roller bearing inner race remains fitted on the output flange and must be pulled off the output flange separately.

- Place thrust plate -40 105- on output flange.
- Pull off inner race for tapered roller bearing from output flange using tapered roller bearing puller -V.A.G 1582- and adapter -V.A.G 1582/6A- .
- Pull out oil seal -A- for output flange.
- Clean residual locking fluid from thread of shaft bevel gear.

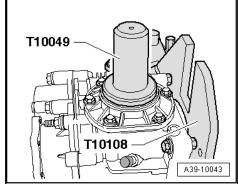




- Make sure that the shim -2- adjusting the bearing preload of the shaft bevel gear -1- is still fitted.
- Insert inner race for tapered bearing roller -3- into outer race in bevel box.
- Lightly lubricate outer circumference of new oil seal -4- for output flange.



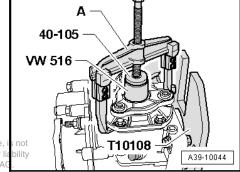
- Drive in oil seal as far as stop using thrust piece -T10049-.
- Pack space between sealing lip and dust lip half full with sealing grease; for sealing grease refer to ⇒ Electronic parts catalogue.



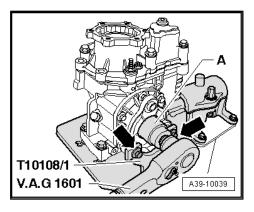
- Apply puller hooks to bottom of pinion housing and draw in output flange.
- A Two-arm puller Kukko 20/10



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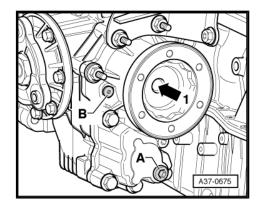
- Coat thread of new nut for output flange with locking fluid and tighten; for locking fluid refer to ⇒ Electronic parts catalogue.
- Install bevel box: vehicles with 2.0 ltr. TFSI engine ⇒ page 107, vehicles with 3.2 ltr. MPI engine ⇒ page 110.
- Top up gear oil in bevel box \Rightarrow page 150.



Overview - gear oil in bevel box 3

The bevel box is secured to the side of the gearbox and has a separate oil filling.

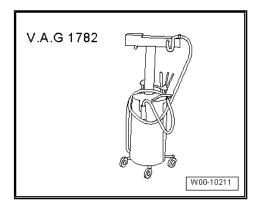
- A Oil drain plug
 - Tightening torque ⇒ page 136
- B Oil filler plug
 - Tightening torque ⇒ page 136



3.1 Checking gear oil level and topping up

Special tools and workshop equipment required

♦ Used oil collection and extraction unit -V.A.G 1782-



Safety goggles



Note

- Observe general repair instructions ⇒ page 11.
- Observe rules for cleanliness when working on the gearbox *⇒ page 14* .
- Observe notes on direct shift gearbox 02E, "Regulations for the disposal of oil" ⇒ page 8.

Procedure

- Vehicle must be on a 4-pillar lifting platform or standing over an inspection pit so it is absolutely horizontal.
- Selector lever in position "P", handbrake applied.
- Engine not running.

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- Audi
- Remove noise insulation: front -1- and rear -2- ⇒ Rep. Gr. 66.
- Place used oil collection and extraction unit -V.A.G 1782- below gearbox.



WARNING

Hot gear oil can cause burns.

- ♦ Wear safety goggles.
- ♦ Wear protective gloves (acid resistant).
- Remove screw plug from oil filler hole -B-.
- Specification: gear oil level up to bottom lip of filler hole.
- If oil level is too low, put in gear oil for bevel box. For Part No. refer to ⇒ Electronic parts catalogue.

Assembling

Tightening torque ⇒ page 136

Assembly is carried out in reverse sequence; note the following:



Note

Renew screw plug for oil filler hole.

Install noise insulation ⇒ Rep. Gr. 66.

3.2 Draining gear oil and filling up after repairs



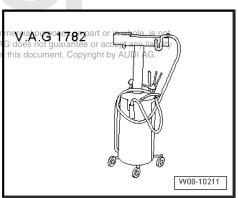
Note

The gear oil in the bevel box only needs to be drained if repairs are required. An oil change is not normally required.

Special tools and workshop equipment required

Used oil collection and extraction unit -V.A.G 1782-

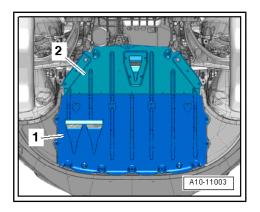
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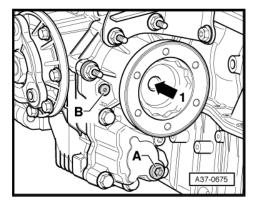


Safety goggles

Procedure

 Vehicle must be on a 4-pillar lifting platform or standing over an inspection pit so it is absolutely horizontal.





- Selector lever in position "P", handbrake applied.
- Engine not running.
- Remove noise insulation: front -1- and rear -2- ⇒ Rep. Gr.
- Place used oil collection and extraction unit -V.A.G 1782- below gearbox.



WARNING

Hot gear oil can cause burns.

- ♦ Wear safety goggles.
- Wear protective gloves (acid resistant).
- Remove oil drain plug -A-.
- Drain gear oil.
- Tighten oil drain plug -A-.
- Remove screw plug from oil filler hole -B-.
- Fill up with gear oil for bevel box. For Part No. refer to ⇒ Electronic parts catalogue.
- Specification: gear oil level up to bottom lip of filler hole.

Assembling

Tightening torques ⇒ page 136

Assembly is carried out in reverse sequence; note the following:



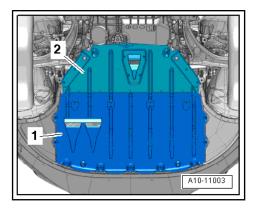
Note

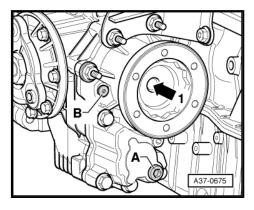
Renew screw plug for oil filler hole.

Install noise insulation ⇒ Rep. Gr. 66.



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4 Propshaft

Description of propshaft \Rightarrow Rear final drive 02D and 0AV; Rep. Gr. 39 .



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Rear final drive 5

Description of rear final drive \Rightarrow Rear final drive 02D and 0AV; Rep. Gr. 39 .



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