

## Workshop Manual Audi TT 2007 ➤

7-speed dual clutch gearbox 0BH (S tronic)

Edition 09.2010



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Service

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### Repair Group

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- 34 Controls, housing
- 35 Gears; shafts pyright. 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
- 39 Final drive spefront differential ormation in this document. Copyright by AUDI AG.

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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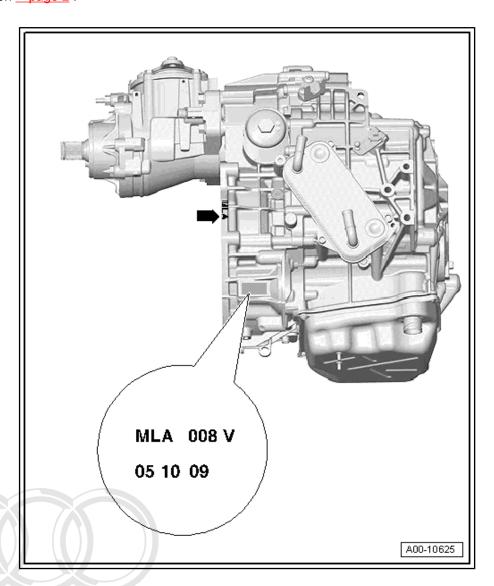
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#### Technical data 00 –

## Gearbox identification

The "7-speed dual clutch gearbox 0BH (S tronic)" is installed in the Audi TT 2007  $\blacktriangleright$ . Allocation  $\Rightarrow$  page 2 .



The gearbox code letters are located on the top of the gearbox near the starter and on the gearbox flange -arrow-.

#### Example:

- ♦ MLA = gearbox code
- 05.10.09 = date of production: 5 October 2009.
- in part or in whole, is not ◆perThe other figures are production-related arantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Note

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

#### 2 Code letters, gearbox allocation, ratios, equipment

Dual clutch gearbox		0BH four-wheel drive		
Gearbox	Code letters	MLA	MYD	
	Manufac- fro tured m to	09.10	09.10	
Allocation	Model	Audi TT 2007 ►	Audi TT 2007 ►	
	Engine	2.5 ltr 250 kW 5-cyl. TFSI	2.5 ltr 250 kW 5-cyl. TFSI	
Ratios	Final drive I for 1st, 4th, 5th and reverse gears	69 : 17 = 4.059	69 : 17 = 4.059	
Z <sub>2</sub> : Z <sub>1</sub>	Final drive II for 2nd, 3rd, 6th and 7th gears	69 : 20 = 3.450	69 : 20 = 3.450	
	1st gear	57 : 16 = 3.562	57 : 16 = 3.562	
	2nd gear	48 : 19 = 2.526	48 : 19 = 2.526	
	3rd gear	47 : 28 = 1.678	47 : 28 = 1.678	
	4th gear	47 : 46 = 1.022	47 : 46 = 1.022	
	5th gear	41 : 52 = 0.788	41 : 52 = 0.788	
	6th gear	35 : 46 = 0.761	35 : 46 = 0.761	
	7th gear	33 : 52 = 0.635	33 : 52 = 0.635	
	Reverse gear	48 : 19 x 53 : 48 = 2.789	48 : 19 x 53 : 48 = 2.789	
Overall ratio i <sub>OV.</sub> in top gear		2.191	2.191	
Allocation: rear final drive	Designation	Rear final drive 0BY		

#### Calculating ratio "i" 2.1

#### Example:

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	7th gear	Finals drive the core
Drive gear	ZG <sub>1</sub> = 52	ZA <sub>1</sub> = 20
Driven gear	ZG <sub>2</sub> = 33	ZA <sub>2</sub> = 69

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

iG = gear ratio = ZG<sub>2</sub> : ZG<sub>1</sub> = 33 : 52 = 0.635

 $i_A = axle ratio = ZA_2 : ZA_1 = 69 : 20 = 3.450$ 

 $i_{OV.}$  = overall ratio =  $i_{G}$  x  $i_{A}$  = 0.635 x 3.450 = 2.191

## 3 Capacities

### Gearbox capacity

Capacities	Dual clutch gearbox 0BH, four-wheel drive
Initial filling	7.0 ltr. + 0.1 ltr.
Oil change	approx. 5.5 ltr.
Change interval	⇒ Maintenance tables
Lubricant	Gear oil for dual clutch gearbox ⇒ Electronic parts catalogue



### Note

Use only the correct type of gear oil for dual clutch gearbox 0BH (available as a replacement part). Other types of lubricant cause malfunctions and/or failure of the gearbox.

- Checking gear oil level and topping up ⇒ page 63
- Filling up with gear oil after repair ⇒ page 69

#### Bevel box capacity

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

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#### Note

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 115
- Filling up with gear oil after repair ⇒ page 119

#### 4 Safety precautions

#### 4.1 When working on the vehicle

Observe the following precautions to avoid possible injury and/or damage to the vehicle:



#### **WARNING**

Accidents and injury 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.

Observe the following precautions to avoid possible injury and/or irreparable 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.
- Disconnect battery ⇒ Electrical system; Rep. gr. 27.

#### 4.2 When working on vehicles with start/ stop system

Please note the following when working on vehicles with start/stop system:



#### WARNING

Risk of injury due to automatic engine start on vehicles with start/stop system.

- On vehicles with activated start/stop system (this is indicated by a message in the instrument cluster display), the engine may start automatically on demand.
- Therefore it is important to ensure that the start/stop sys... tem is deactivated when performing repairs (switch off spec ignition, if required switch on ignition again).

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#### 4.3 When using test equipment while roadtesting the vehicle

Observe the following precautions if test equipment has to be used when road-testing the vehicle.



#### **WARNING**

Accidents can be caused if the driver is distracted by test equipment or if test equipment is not secured.

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

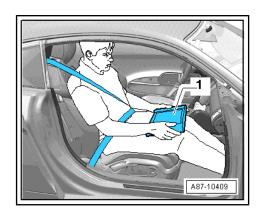
- The use of test equipment while driving causes distraction.
- There is an increased risk of injury if test equipment is not secured.

#### 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 diagnostic and service information system -VAS 5052- or diagnosis system -VAS 5053- .
- Test equipment may only be operated by the passenger; the tester -1- must be placed flat on the passenger's lap as illustrated.





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#### 5 Notes on dual clutch gearbox 0BH

#### 5.1 General notes

#### Gearbox

The layout of the dual clutch gearbox 0BH "S tronic" is basically similar to that of a 7-speed manual gearbox. The engine torque is transferred to the gearbox via the dual-mass flywheel. The two multi-plate 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 ⇒ Self-study programme No. 454; 7-speed dual clutch gearbox 0BT.

#### Selector mechanism

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

#### Gear oil (gearbox and bevel box)

The dual clutch gearbox "0BH" has a common oil system.

This oil system lubricates the gears and shafts, the final drive, the clutches and the mechatronic unit for dual clutch gearbox -J743-.



#### Note

Use only the correct type of gear oil for dual clutch gearbox "0BH" (available as a replacement part). Other types of oil will cause malfunctions and/or failure of the gearbox; for part number refer to ⇒ Electronic parts catalogue .

The bevel box has a separate oil filling  $\Rightarrow$  page 115.



#### 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 number refer to ⇒ Electronic parts catalogue .

#### When does the gear oil filter have to be changed?



#### Note

The gear oil filter does not always require replacement.

Do not change the filter if:

- The gear oil cooler or its O-rings have been renewed and no coolant has entered the oil system.
- Oil seals or O-rings have been renewed in the gearbox.
- The oil pan or mechatronic unit have been renewed.
- The maintenance interval has been reached.

The filter must be changed if:

- Metal particles are found in the oil.
- The clutch is burnt out or mechanically defective.

#### Disposal regulations for oils

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 sim-protected by copyright. Copyling 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
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#### Variation of gear-change points for gradients

An additional gear change map automatically selects gear changes for gradients depending on accelerator pedal position and driving speed.

- Gear change map for extreme uphill gradients is matched to engine output
- Gear change map for extreme downhill gradients is matched to the braking effect of the engine
- Increased engine braking effect can also be obtained by directly selecting a specific gear via the tiptronic function, e.g. when towing a trailer on downhill gradients

#### 5.2 Safety functions of gearbox control unit

In the event of a failure of one or more components/sensors, the gearbox control unit will activate appropriate backup functions. This ensures that the gearbox will not be damaged, however, the function and quality of the gear shifts will be impaired.

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

- 1) The fault is stored and a backup programme enables the vehicle to drive on (in some cases with restrictions). The driver will not be made aware of the problem, as it is not critical to driving safety or to the gearbox itself. The selector lever position display in the instrument cluster will continue to show the selector lever position currently engaged in the normal way. If at all, the driver will only notice the fault if he experiences driveability problems, and will then automatically contact an Audi Service Partner to identify the cause.
- 2) Certain positions on the selector lever position display 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" is not available when the selector lever is in position "R" and the vehicle is still rolling backwards. In this case, selector lever position "D" will start to flash on the selector lever position display in the instrument cluster. The gearbox control unit prevents the 1st gear from being engaged in order to avoid damage to the gearbox. 1st gear will be engaged once the vehicle has come to a standstill.
- 3) The complete selector lever position display in the instrument cluster is lit up and flashing. The current selector lever position is indicated in the instrument cluster (e.g. "D" is highlighted). This is an indication that the gearbox has been overloaded or the maximum temperature in the gearbox has been exceeded (overheating), e.g. towing a load that was too heavy.
- 4) If the complete selector lever position display in the instrument cluster is lit up and flashing, this means that a serious fault in the gearbox has been identified. The display in the in-

strument cluster no longer shows the current selector lever position. The defect is critical with regard to driving safety or the gearbox itself. It may no longer be possible to use all gears. The driver is made aware by the flashing gear selection indicator that he should immediately contact an Audi Service Partner.



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#### Notes on tow-starting and towing 6



#### Caution

When the vehicle is towed, the selector lever must be set to position "N" and the vehicle must not be towed for a distance of more than 50 km or at a speed in excess of 50 km/h, as the gearbox would otherwise be seriously damaged.

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### Note

It is not possible to start the engine by means of tow-starting, for instance in the case of insufficient battery charge or if the starter is not working.

#### 7 Repair instructions

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 cause of the fault should be identified as exactly as possible using the vehicle diagnostic tester via Guided Fault Finding, Vehicle Self-diagnosis and Test Instruments.

#### 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, the gear oil level must be checked and topped up if necessary  $\Rightarrow$  page 63 . For capacities refer to  $\Rightarrow$  page 3 , for specifications refer to  $\Rightarrow$ Electronic parts catalogue.
- When installing gearbox, ensure that dowel sleeves are fitted correctly.

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#### 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 fill the space between the sealing lips -arrow- about half full with sealing grease -G 052 128 A1- .
- Do not use any other lubricants where gear oil is specified. Otherwise, there is a risk of problems occurring in the gearbox

  Otherwise there is a risk of problems occurring in the gearbox

  Otherwise the convirient Conving for private or commercial purposes, in part or in whole, is not hydraulics Protected by copyright. Copyright or private or commercial perspector, in part of accept any liability permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability and accept any liability and accept any liability.
- The open side of the oil sear should face the side containing by AUDI AG. the fluid.
- Observe rules for cleanliness ⇒ page 12.
- After installing, check the gear oil level <u>⇒ page 63</u> or ⇒ page 115 and rectify as necessary.

#### Locking elements

- Do not over-stretch circlips.
- Renew circlips which have been damaged or over-tensioned.
- 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
- 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 quarter turn).

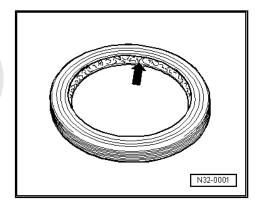
#### 7.1 Contact corrosion!

Contact corrosion can occur if non-approved fasteners are used on the vehicle (bolts, nuts, washers etc.).

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 ⇒ 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.

#### 7.2 Rules for cleanliness

- Carefully clean connection points and the surrounding area with engine cleaner or brake cleaner and dry thoroughly before opening.
- Use cleaning fluid -D 009 401 04- to clean the gearbox and its components.
- Use lint-free cloths for cleaning, such as the "WYPALL X70 / WORKHORSE" cloth from Kimberly-Clark Professional.
- Seal off open lines and connections immediately with clean plugs or sealing caps from engine bung set -VAS 6122- immediately.
- Place removed parts on a clean surface and cover them over. Use sheeting and paper. Use lint-free cloths.
- Carefully cover or seal open components if repairs cannot be carried out immediately.
- Only install clean components: do not remove replacement parts from packaging until just before installation.
- Protect unplugged electrical connectors against dirt and moisture and make sure connections are dry when attaching.



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## 8 Exploded view - dual clutch gearbox

#### 1 - Circlip

- For cover for multiple clutch
- □ Renew

#### 2 - Cover for multiple clutch

☐ There is currently no provision for repairs to the clutch

#### 3 - Circlip

☐ Renew

#### 4 - Shim

☐ There is currently no provision for repairs to the clutch

#### 5 - Tapered ring

☐ There is currently no provision for repairs to the clutch

#### 6 - Multiple clutch

☐ There is currently no provision for repairs to the clutch

#### 7 - Oil seal

- ☐ Installed in dual clutch gearbox (right-side), facing bevel box
- □ Removing and installing⇒ page 99

#### 8 - Breather pipe

- Pressed into gearbox
- Must be renewed if removed

#### 9 - Breather cap

☐ Fitted onto breather pipe

#### 10 - Screw plug

#### 11 - O-ring

Always renew

#### 12 - Gear oil cooler

☐ Removing and installing ⇒ page 73

#### 13 - Bolt

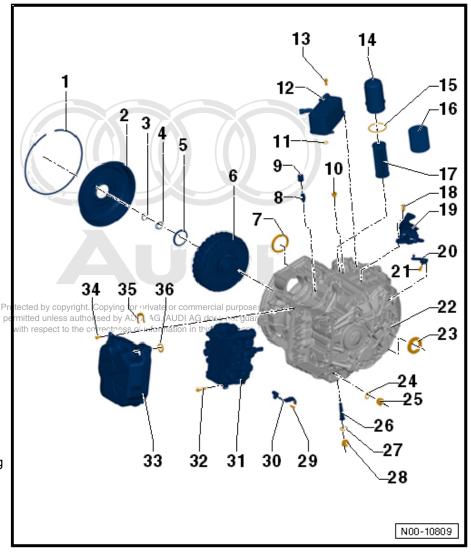
☐ 20 Nm and then turn 45° further

#### 14 - Filter housing

□ 20 Nm

### 15 - O-ring

Always renew



#### 16 - Heat shield

#### 17 - Gear oil filter

- Notes on oil filling and filter change ⇒ page 6
- □ Removing and installing ⇒ page 75

#### 18 - Bolt

☐ 10 Nm and then turn 45° further

#### 19 - Cable support bracket

- ☐ Secures selector lever cable to gearbox
- 20 Gearbox selector lever

#### 21 - Bolt

- □ 10 Nm and then turn 90° further
- 22 Gearbox

#### 23 - Oil seal

- □ For drive shaft (left-side)
- □ Removing and installing ⇒ page 95

#### 24 - Seal

Always renew

#### 25 - Oil drain plug

- ☐ 10 Nm and then turn 30° further
- ☐ For mechatronic unit

#### 26 - Overflow pipe

□ 3 Nm



#### Caution

Heep exactly to specified torque.

The overflow pipe can break between the thread and the collar.



#### Note

□ Draining and filling oil ⇒ page 69

#### 27 - Seal

Always renew

#### 28 - Oil drain plug

- □ 45 Nm
- For gearbox

#### 29 - Bolt

☐ Tightening torque ⇒ Item 29 (page 85)

#### 30 - Gearbox input speed sender -G182- / clutch temperature sender -G509-

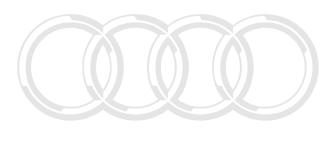
- ☐ The two senders are combined in one component and can only be renewed together
- □ Removing and installing ⇒ page 93

#### 31 - Mechatronic unit for dual clutch gearbox -J743-

□ Removing and installing ⇒ page 89

#### 32 - Bolt

☐ Tightening torque ⇒ Item 32 (page 85)





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- □ Always renew
- 33 Oil pan
  - □ With gasket
  - □ Removing and installing ⇒ page 86
  - □ Always renew
- 34 Bolt
  - ☐ Tightening torque ⇒ Item 34 (page 85)
  - □ Always renew
- 35 Securing clip
  - □ Always renew
- 36 O-ring
  - □ Always renew



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## 30 – Clutch

1 There is currently no provision for repairs to the clutch.



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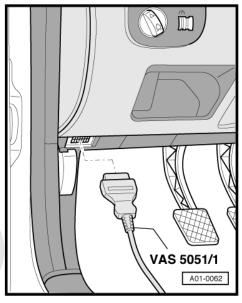
## Controls, housing

## Electrical/electronic components and fitting locations

#### Diagnostic connection

Fitting location: The diagnostic connection is located below the knee padding to the left of the steering wheel.

The components listed below can be tested with the Guided Fault Finding function in the vehicle diagnostic tester.



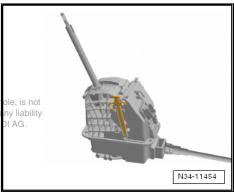
#### Selector lever lock solenoid -N110-

Fitting location: The selector lever lock solenoid -N110- is a component part of the shift unit.

The selector lever lock solenoid -N110- cannot be renewed separately. The shift unit must be renewed in the event of a fault

⇒ page 31 .

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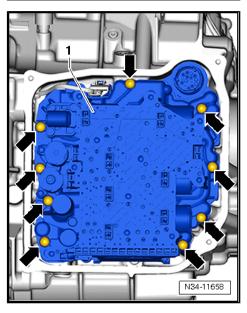


#### Mechatronic unit for dual clutch gearbox -J743-

Fitting location: The mechatronic unit for dual clutch gearbox -J743- -1- is bolted to the front of the gearbox housing -arrowsand covered by the gearbox oil pan.

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

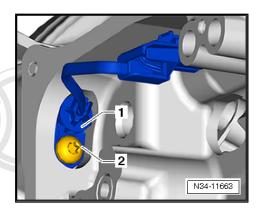
Removing and installing mechatronic unit for dual clutch gearbox -J743- <u>⇒ page 89</u>



#### Gearbox input speed sender -G182- / clutch temperature sender -G509-

Fitting location: The gearbox input speed sender -G182- / clutch temperature sender -G509- -1- is secured to the gearbox housing with bolt -2-.

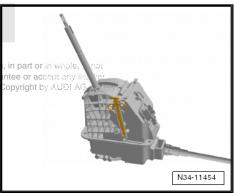
Removing and installing gearbox input speed sender -G182- / oil temperature sender for multi-plate clutch -G509- ⇒ page 93.



Selector lever sensors control unit -J587- with selector lever -E313-, tiptronic switch -F189-, selector lever locked in position P switch -F319-

Fitting location: The components are integrated in the printed cirpurpose cuit of the shift unit; they cannot be renewed separately DI AG does not gua

The shift unit must be renewed if one of the components is defective  $\Rightarrow$  page 31.



#### 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.

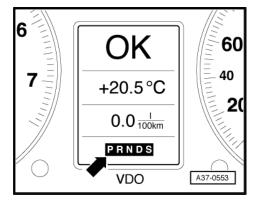
If the selector lever position display flashes or lights up, please refer to safety functions of gearbox control unit ⇒ page 7.

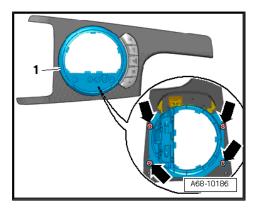
Removing and installing instrument cluster ⇒ Electrical system; Rep. gr. 90

#### Selector lever display illumination bulb -L101-

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

Removing and installing selector lever display illumination bulb -L101- ⇒ page 26

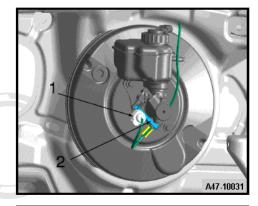




#### Brake light switch -F-

Fitting location: The brake light switch -2- is located on the brake master cylinder.

Removing and installing brake light switch ⇒ Brake system; Rep. gr. 45.

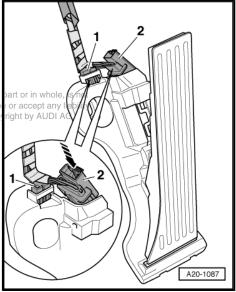


#### Kick-down switch -F8-

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

Signal is transmitted from engine control unit to gearbox con-

trol unit via CAN busrotected by copyright. Copying for private or commercial purposes, in permitted unless authorised by AUDI AG. AUDI AG does not guarante Removing and installing accelerator pedal module matibuel supplyint. Copysystem, petrol engines; Rep. gr. 20.



# 2 Exploded view - selector lever handle, 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 26

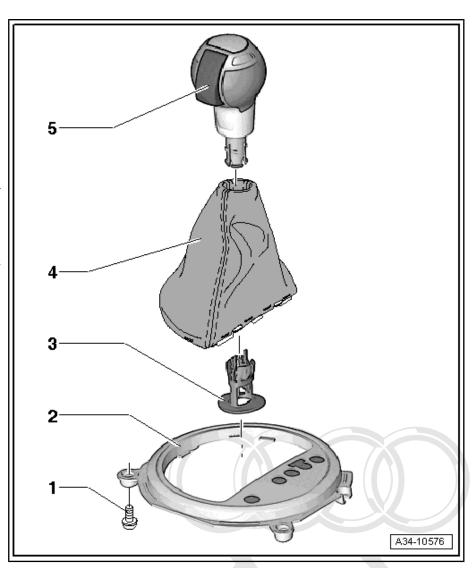
#### 3 - Guide

#### 4 - Selector lever boot

 Detaching selector lever boot from selector lever handle ⇒ page 22

#### 5 - Selector lever handle

- ⇒ "2.1 Removing and installing selector lever handle", page 20
- ⇒ "2.3 Moving interlock button on selector lever handle into installation position", page 24

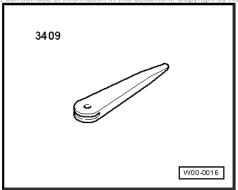


# 2.1 Removing and installing selector lever handle

Special tools and workshop equipment required

Removal wedge -3409-

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#### 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 using removal wedge -3409- 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 moved away 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

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 moved away from dug DAG does not gr
- Interlock button faces direction of travel.



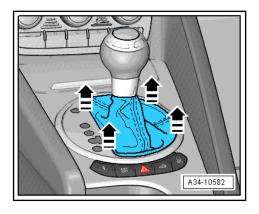
#### Caution

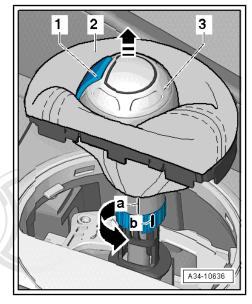
Risk of damage to the selector mechanism.

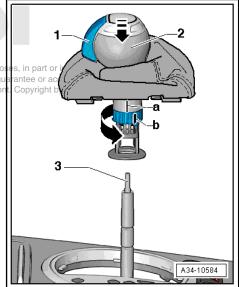
The interlock button -1- must protrude from the selector lever handle during installation. If the interlock button was pressed in by mistake when the handle was removed, the interlock button must be moved back to its installation position *⇒ page 24 .* 

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.

- 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.





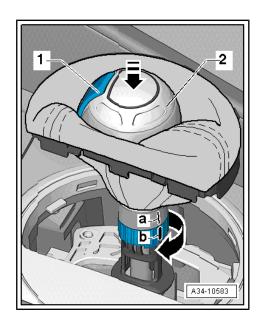


- Turn locking ring in direction of -arrow- as far as stop.
- It must be possible to turn the locking ring; press handle if necessary.
- · Lug -a- must align with raised lug -b- on locking ring.



#### Note

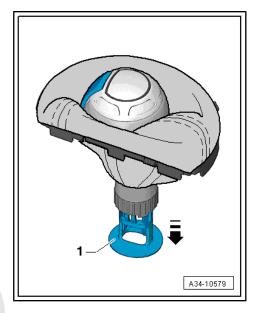
- ♦ The handle is not locked until the locking ring has been turned. Only then can you press the interlock button on the handle.
- There may be increased resistance when you press the interlock button for the first time after installation.
- Press interlock button -1- on selector lever handle.
- Fold selector lever boot down and clip it in.
- Check selector mechanism ⇒ page 30.



## 2.2 Detaching selector lever boot from selector lever handle

#### Procedure:

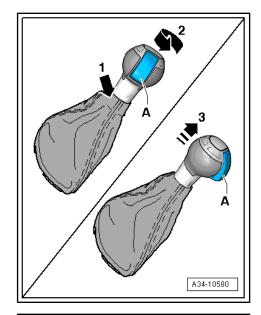
- Remove selector lever handle ⇒ page 20.
- Pull guide -1- off in direction of -arrow-.





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- 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-.



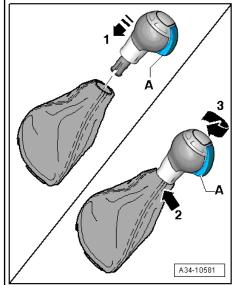
#### Installing selector lever boot with selector lever handle:

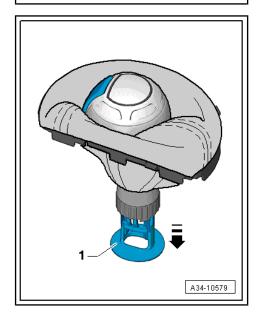
- Do not touch interlock button -A- when selector lever handle has been removed.
- Insert selector lever handle in selector lever boot -arrow 1-(with interlock button turned 90° out of position towards left).
- Hold upper end of selector lever boot -arrow 2-.
- Turn selector lever handle in direction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



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- Clip guide -1- upwards into handle in opposite direction of -arrow-
- Install selector lever handle ⇒ page 20.







#### 2.3 Moving interlock button on selector lever handle into installation position

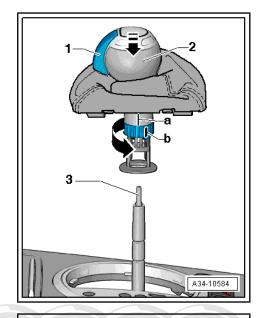
#### Special tools and workshop equipment required

♦ Release tool -T40203-

#### Selector lever handle with interlock button:

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.



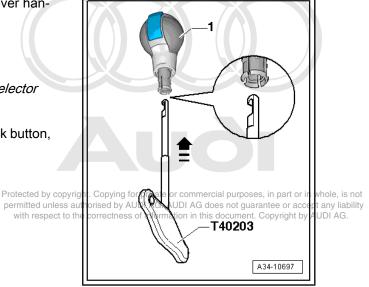
Carefully insert release tool -T40203- into selector lever handle -1- as far as stop.



#### 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.



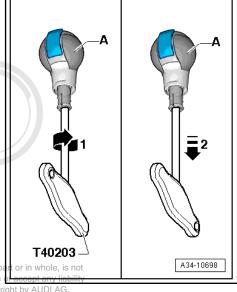
- Hold selector lever handle -A- and turn release tool -T40203-180° in direction of -arrow 1-.
- Hold handle and carefully pull out release tool -T40203--arrow 2-.

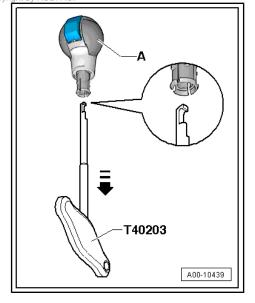




on selector lever handle is pressed out and locked in position.
Do not touch interlock button on selector lever handle before installing handle so that interlock button is not pressed in again.

When pulling out release tool -T40203-, interlock button -A-

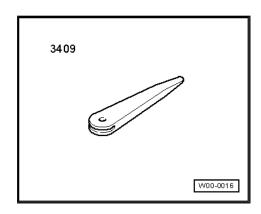




#### Removing and installing selector lev-3 er display illumination bulb -L101-

#### Special tools and workshop equipment required

♦ Removal wedge -3409-

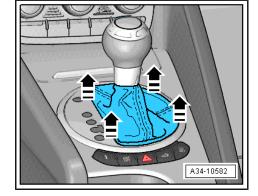


#### Removing

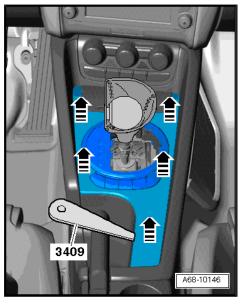
- Apply handbrake.
- Shift selector lever into position "N".
- Switch off ignition.
- Unclip selector lever boot on both sides using removal wedge -3409- and lift it off -arrows-.



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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.

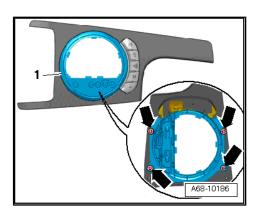


Remove bolts -arrows- and detach trim for selector lever boot -1- together with selector lever display illumination bulb -L101- .

#### Installing

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

- ⇒ "2 Exploded view selector lever handle, selector lever display illumination bulb L101 ", page 20
- Make sure trim panel engages audibly in centre console.





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## 4 Exploded view - selector mechanism

#### 1 - Nut

- □ 8 Nm
- Secures selector mechanism to body
- □ 4x

#### 2 - Shift unit

- □ With integrated printed circuit for selector mechanism ( selector lever -E313- )
- □ Incorporates the following components: selector lever sensors control unit -J587- with selector lever -E313-, tiptronic switch -F189-, selector lever locked in position P switch -F319- and selector lever lock solenoid -N110-
- ☐ Can be checked via
  ☐ Guided Fault Find☐ ing function using vehicle diagnostic tester
- Selector lever sensors control unit -J587- with selector lever -E313-, tiptronic switch -F189-, selector lever locked in position P switch -F319- and selector lever lock solenoid -N110- can only be renewed together with shift unit as a complete unit ⇒ page 31

□ Selector lever cable can only be renewed together with complete shift unit ⇒ page 31

- Manual release of selector mechanism ⇒ page 28
- □ Removing and installing ⇒ page 31
- Do not grease selector lever cable

#### 3 - Cable support bracket

- □ For selector lever cable
- 4 Gearbox selector lever

#### 5 - Bolt

- □ 15 Nm
- □ For adjusting selector lever cable

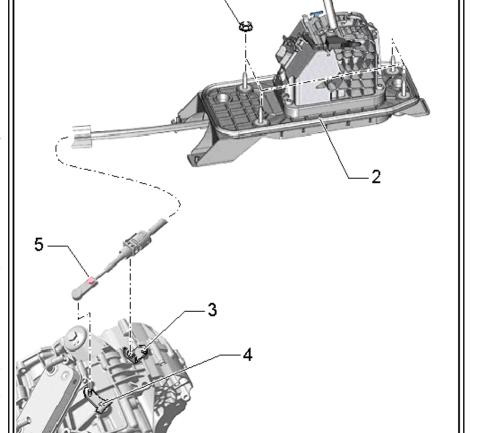


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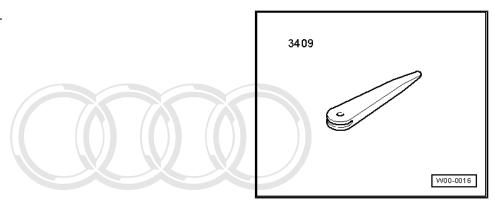


# 4.1 Operating manual release of selector mechanism from position "P"

Special tools and workshop equipment required



Removal wedge -3409-



- The selector lever lock solenoid -N110-locks the selector lever in position "P". The selector lever can then only be shifted out of position "P" when the ignition is on / the engine is running, the brake pedal is depressed and the button on the selector lever handle is pressed ⇒ page 30.
- irposes, in part or in whole, is not In the event of a fault in the power supply to the selector lever guarantee or accept any liability lock solenoid (discharged battery or defective fuse) or if the cument. Copyright by AUDÍ AG. solenoid is defective, the selector lever cannot be shifted out of position "P". The vehicle cannot be moved because the parking lock is engaged.

#### In this case:

- Check fuses ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Check battery voltage ⇒ Electrical system; General information; Rep. gr. 27.

If fault finding has not been successful and selector lever can still not be shifted from "P" the solenoid can be released manually. However, if the selector lever is then moved back to "P" it will remain locked in position "P" once again.

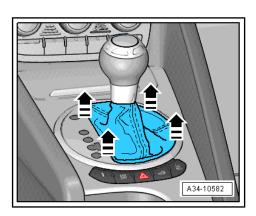
#### **Procedure**

- Unclip selector lever boot on both sides using removal wedge -3409- and lift it off -arrows-.
- Pull selector lever boot up and over handle.



#### Note

The selector lever handle does not have to be removed in order to operate the manual release mechanism.





Use a screwdriver -1- or similar to release selector lever lock solenoid in direction of -arrow- and hold in this position.



#### Caution

If component parts of the shift unit are damaged, the shift unit has to be renewed as a complete unit.

- The solenoid will then release the selector lever.
- With solenoid released, press interlock button on selector lever handle and shift selector lever out of "P".



#### Note

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

#### 4.2 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.
- When travelling at speeds above 5 km/h and shifting into selector lever position "N", 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.
- When travelling at speeds below 5 km/h (almost stationary) and shifting into selector lever position "N", the solenoid for the selector lever lock should only engage after about 1 second. 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 off:

The ignition key cannot be removed.

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

Brake pedal not depressed:

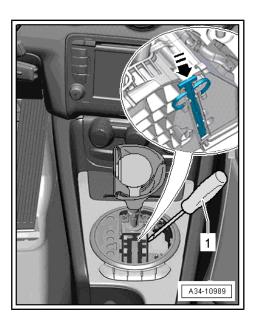
When button is pressed in, selector lever is locked and cannot be shifted out of position "P". The solenoid for selector lever lock blocks the selector lever.

Brake pedal depressed:

Solenoid for selector lever lock releases selector lever. It is possible to shift into a driving gear. Shift selector lever slowly from ht. Copying for private or commercial purposes, in part or in whole, is not position "P" through "R, N, D and S" and check whether the set through "R, N, D and S" and check whether the set through "R, N, D and S" and check whether the set through "R, N, D and S" and check whether the set through "R, N, D and S" and check whether the set through "R, N, D and S" and check whether the set through "R, N, D and S" and check whether the set through "R, N, D and S" and check whether through "R, N, D and S" and check whether through "R, N, D and S" and Check whether "R, N, D and S" and Check w correctness of information in this document. Copyright by AUDI AG. lector lever position 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:



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:

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



#### Note

When brake pedal is depressed, it is also possible to shift from position "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 position "D" to "S".

Press button on selector lever:

The selector lever is released and can be shifted from position "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 on the shift unit should go out and the "+" and "-" symbols should light up.

The selector lever position display in the instrument cluster should switch from "PRNDS" to "7654321" when the selector lever is moved into the tiptronic gate.

- Move the selector lever in the tiptronic gate to phig and phing 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

  When you move the selector lever to "+" orin," spthe displayness of information in this document. Copyright by AUDI AG. "7654321" in the instrument cluster should move one gear up or down accordingly.
- If the selector mechanism or the ignition key removal lock does not function as described:
- ⇒ "4.4 Adjusting and checking selector lever cable",
- Check vehicle via Guided Fault Finding function using vehicle diagnostic tester.

#### 4.3 Removing and installing selector mechanism

#### Removing

- Remove selector lever handle ⇒ page 20.
- Switch off ignition.
- Remove centre console trim panel ⇒ General body repairs, interior; Rep. gr. 68.
- Remove ashtray ⇒ General body repairs, interior; Rep. gr.

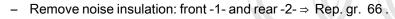
Unplug electrical connector -1- between shift unit and vehicle wiring harness.



#### Note

-Item 2- can be disregarded.

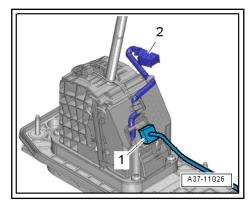
- Remove air cleaner housing ⇒ Injection and ignition system; Rep. gr. 24.
- Prise selector lever cable -arrow- off gearbox selector lever using an open-end spanner or similar.
- Compress locking mechanism on selector lever cable -arrows- and lift cable out of cable support bracket.
- Raise vehicle.

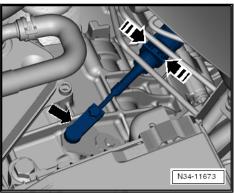


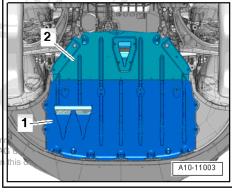
- Remove exhaust system ⇒ Engine, mechanics; Rep. gr. 26.
- Remove propshaft ⇒ Rear final drive 02D, 0AV, 0BR and 0BY; Rep. gr. '39'.

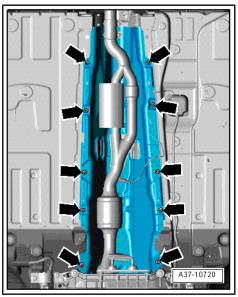


Remove heat shield -arrows-.













### Note

The assistance of a second mechanic is required to detach the shift unit from below.

- Remove nuts -arrows- in vehicle interior.
- Detach shift unit together with selector lever cable by pulling them off downwards.



#### Note

Do not bend or kink the selector lever cable.

#### Installing

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

- Tightening torques ⇒ "4 Exploded view - selector mechanism", page 28
- Fit selector lever cable in cable support bracket -arrows-.
- Then carefully press ball socket of selector lever cable -arrow- onto gearbox selector lever.



#### Note

- ♦ Do not bend or kink the selector lever cable.
- Do not grease the selector lever cable.
- Install heat shield ⇒ General body repairs, exterior; Rep. gr.
- Install propshaft ⇒ Rear final drive 02D 0AV 0BR and 0BY:

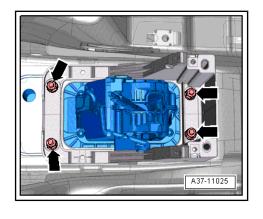
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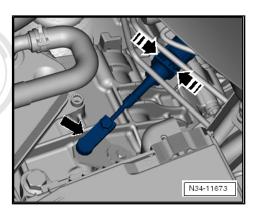
  Install exhaust system so it is free of stress ⇒ Engine, mechanics; Rep. gr. 26.
- Install ashtray ⇒ General body repairs, interior; Rep. gr. 68.
- Install centre console trim panel ⇒ General body repairs, interior; Rep. gr. 68.
- Install selector lever handle ⇒ page 20.
- Adjust selector lever cable ⇒ page 33.
- Check selector mechanism and ignition key removal lock ⇒ page 30 .
- Install noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66.
- Install air cleaner housing ⇒ Injection and ignition system; Rep. gr. 24.

#### 4.4 Adjusting and checking selector lever cable

#### Adjusting selector lever cable

Remove air cleaner housing ⇒ Injection and ignition system; Rep. gr. 24.





- Selector mechanism and selector lever cable operate smoothly when changing gears.
- Sleeve on selector lever cable is undamaged.

The selector lever cable must be adjusted if:

- The selector lever cable has been detached from the gearbox.
- The engine and/or gearbox have been removed and installed.
- The selector lever cable has been removed and installed with the selector mechanism.
- The position of the engine/gearbox assembly has been altered, e.g. installed so it is free of stress.
- Shift selector lever into position "P".
- Loosen bolt -arrow- for adjustment of selector lever cable.
- Move gearbox selector lever into position "P" on gearbox. To check this position, press gearbox selector lever towards rear of vehicle as far as stop.



#### Note

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

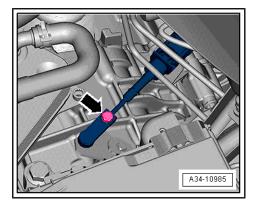
- To release tension in selector lever cable, carefully move selector lever slightly forwards and backwards, without shifting into a different position.
- Tight bolt for cable adjustment -arrow- to 15 Nm without altering position of selector lever cable.

## Checking adjustment of selector lever cable

- Keep button pressed, while pulling selector lever approx. 5 mm to the rear out of position "P". Then keep lever in this position, do not move it into "R".
- 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" sition, do not move it into "D" sition into "D" sition, do not move it into "D" sition into "D
- Release selector lever.

  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.
- 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 30.

#### 4.5 Removing and installing selector lever sensors control unit -J587- with selector



## lever -E313-, tiptronic switch -F189- and selector lever locked in position P switch -F319-

The components are integrated in the shift unit; they cannot be renewed separately. The shift unit must be renewed in the event of a fault  $\Rightarrow$  page 31.

#### 4.6 Removing and installing selector lever lock solenoid -N110-

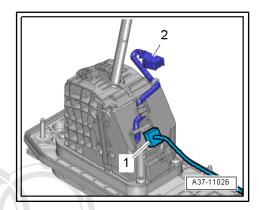
The selector lever lock solenoid -N110- is integrated in the shift unit and cannot be renewed separately. The shift unit must be renewed in the event of a fault ⇒ page 31.

#### 4.7 Checking connectors on selector mechanism

Before servicing or checking the connectors, the cause of the fault should be identified via Guided Fault Finding using the vehicle diagnostic tester.

Before checking the connectors, all the control units in the vehicle should be checked for entries in the event memory using the vehicle diagnostic tester; repair faults as necessary.

- Check connectors according to ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Electrical connector for wiring from shift unit to gearbox (with CAN bus wire) and to selector lever lock solenoid -N110and selector lever locked in position P switch -F319-
- Electrical connector for wiring to trim for selector lever boot





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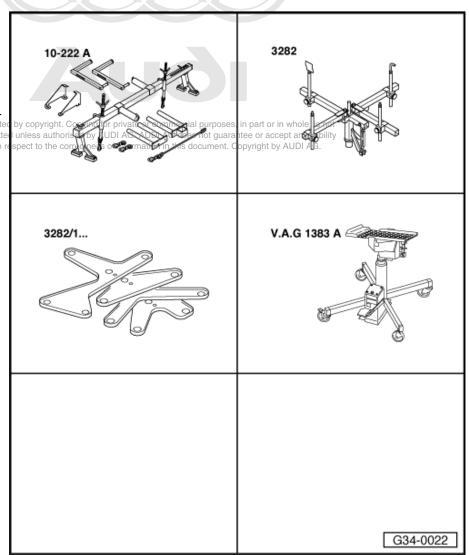
## 5 Removing and installing gearbox

- ♦ ⇒ "5.1 Removing gearbox", page 36
- ◆ ⇒ "5.2 Installing gearbox", page 48

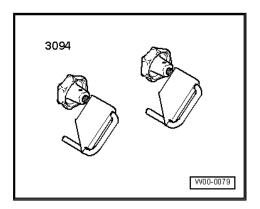
## 5.1 Removing gearbox

# Special tools and workshop equipment required

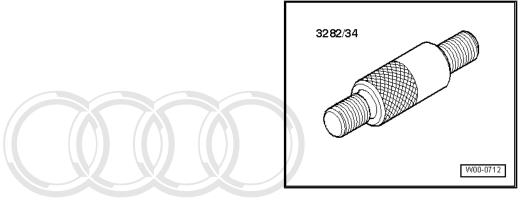
- Support bracket -10 222
   A-
- ♦ Gearbox support -3282-
- ♦ Adjustment plate -3282/61-
- Engine and gearbox jackmitte V.A.G 1383 A-



♦ Hose clamps, up to 25 mm -3094-



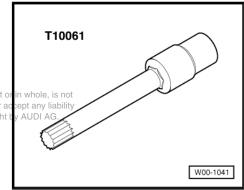
Bolt -3282/34-



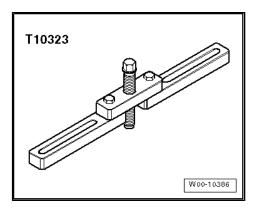
◆ Socket, multi-point bit -T10061-



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Support bridge -T10323-



♦ High-temperature grease -G 052 133 A2-

#### **Procedure**



## Note

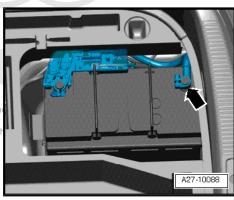
- Observe the general repair instructions ⇒ page 10.
- Observe rules for cleanliness when working on the gearbox *⇒ page 12* .
- Observe notes on dual clutch gearbox 0BH <del>⇒ page 6</del>.
- All cable ties which are released or cut open during removal must be fitted in the same position when installing.
- Shift selector lever into position "P".
- Bring wheels into straight-ahead position.
- Switch off ignition.

#### Caution

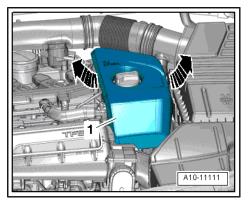
When disconnecting the battery there is a risk of serious damage to electronic components:

- ♦ Observe the correct procedure for disconnecting the bat-
- With ignition switched off, disconnect earth wire -arrow- from battery ⇒ Electrical system; Rep. gr. 27.

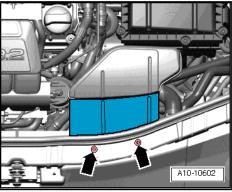




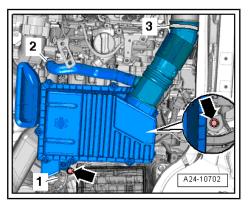
- Lift off engine cover panel -1-.



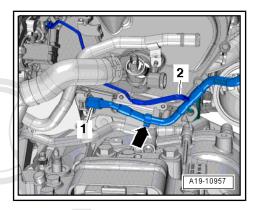
Remove bolts -arrows- and detach air duct.



Remove air cleaner housing and bracket for air cleaner housing ⇒ Injection and ignition system; Rep. gr. 24.



- Detach vacuum hose -2-.
- Release vacuum hose -1- from retainer -arrow- and disconnect from brake servo vacuum pump.



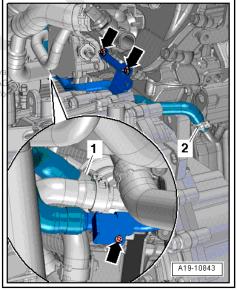
- Remove nuts and bolt -arrows- securing coolant pipe (leftside).
- Carefully tie up coolant pipe (left-side).



## Note

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Do not loosen hose clips -1- and -2-. The coolant hoses remain attached to the coolant pipe.

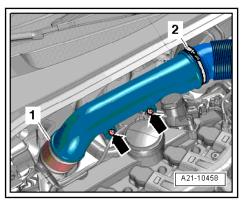


- Remove bolts -arrows-.
- Release hose clip -1- and detach air pipe.



## Note

-Item 2- can be disregarded.

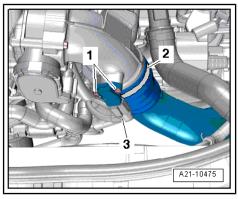


- Release hose clip -2- securing air pipe (left-side).

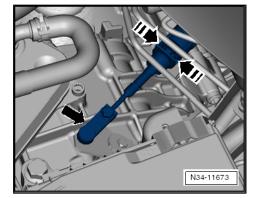


## Note

-Items 1 and 3- can be disregarded.



- Prise selector lever cable off gearbox selector lever -arrowusing an open-end spanner or similar.
- Compress locking mechanism on selector lever cable -arrows- and lift cable out of cable support bracket.
- Do not bend or kink the selector lever cable.



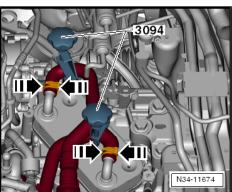
Clamp off coolant hoses leading to gear oil cooler using hose clamps -3094- and disconnect hoses -arrows-.

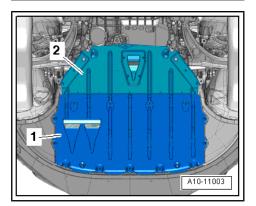


## Note

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

- Lift vehicle and remove both front wheels.
- Remove front noise insulation -1- ⇒ General body repairs, exterior; Rep. gr. 66.

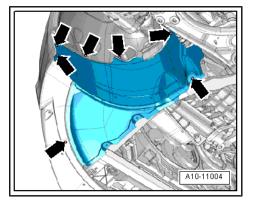




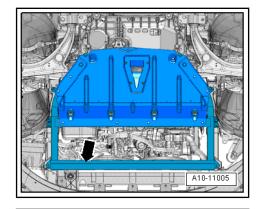
Remove bottom section of wheel housing liner -arrows- on both sides ⇒ General body repairs, exterior; Rep. gr. 66.



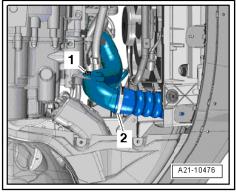
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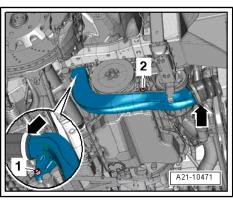
Remove frame -arrow- for noise insulation together with noise insulation (rear) ⇒ General body repairs, exterior; Rep. gr.



Remove bolt -1-. Release hose clip -2- and remove air pipe (left-side) ⇒ Engine, mechanics; Rep. gr. 21.

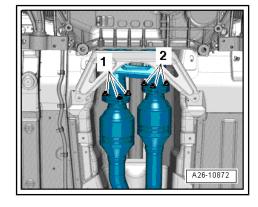


Remove bolts -1- and -2-. Release hose clips -arrows- and remove air pipe (right-side) ⇒ Engine, mechanics; Rep. gr. 21.



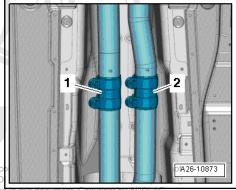
- Remove nuts -1- and -2-.





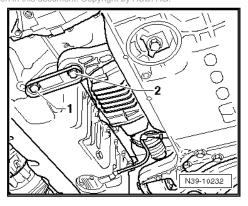
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Unfasten clamps -1- and -2- and remove both catalytic con-

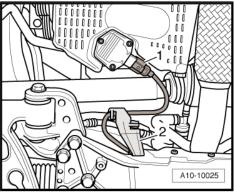


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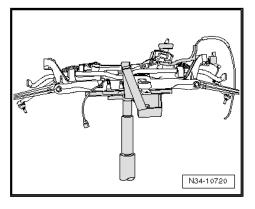
Remove bolts -1- and -2- securing pendulum support to gearbox.



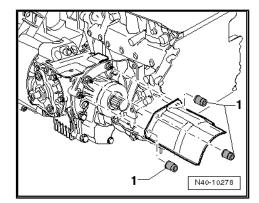
Unplug electrical connector -1- at oil level and oil temperature sender -G266- .



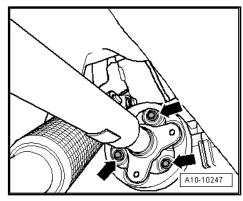
Remove subframe with steering box (fit locating pins -T10096- ) ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40.



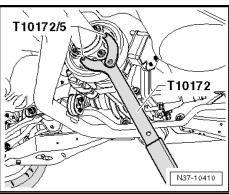
- Remove nuts -1- and detach heat shield for drive shaft (right-
- Unbolt drive shafts (left and right) from gearbox and tie up ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr.
- Mark position of flexible coupling relative to bevel box flange for re-installation.



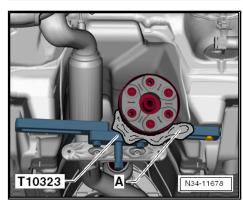
- Unbolt propshaft from bevel box -arrows-.



If necessary, counterhold at rear final drive when loosening and tightening propshaft bolts.



- Secure support bridge -T10323- to inner rear threaded hole for subframe with one bolt.
- This can be done with the subframe securing bolt.
- Lay a cloth -A- on support bridge and place propshaft on cloth.



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#### Caution

Risk of damage to oil seal -arrow- in propshaft flange.

 Push propshaft as far back as possible, keeping it horizontal.



## Note

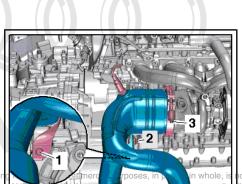
If seal is damaged propshaft must be renewed.

Remove bolts -1- and -2- and detach bracket for starter catalytic converter.



## Note

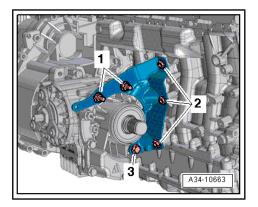
-Item 3- can be disregarded.



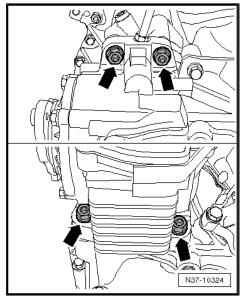
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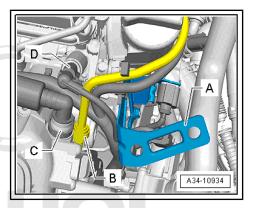
Remove bolts -1, 2, 3- and detach bracket for bevel box.



- Remove bolts -arrows- securing bevel box to gearbox.
- Carefully press bevel box off gearbox using a suitable lever and take out from below.
- Detach profiled bonnet seals from top edges of body flanges.



Bracket -A- and pipes/wiring -B ... D- must be detached in order to engage hook -10 - 222 A /20- in engine lifting eye (front left).



- Set up support bracket -10 222 A- on body flanges using the following equipment:
- ◆ 2x rack -10 222 A /1-
- ♦ 2x adapter -10 222 A /3-
- ◆ 2x spindle -10 222 A /11-
- ♦ Shackle -10 222 A /12-
- ♦ Hook -10 222 A /20-
- One spindle -10 222 A /11- faces forward, the other to the rear.



## **WARNING**

#### Risk of accident.

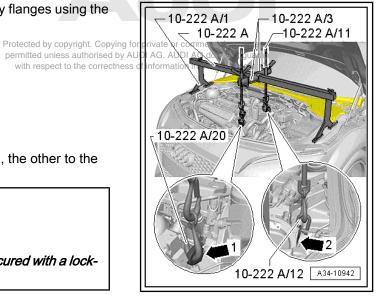
- ♦ Hook -10 222 A /20- must always be secured with a locking pin.
- Hook front spindle -10 222 A /11- with hook -10 222 A /20onto engine lifting eye (front left) -arrow 1-.
- Hook rear spindle -10 222 A /11- with shackle -10 222 A / 12- onto engine lifting eye (rear left) -arrow 2-.
- Take up weight of engine with spindles but do not lift.
- Detach wiring from bracket -A- at front of gearbox.
- Then unscrew nuts -arrow- from oil pan securing bolts and detach bracket -A-.
- Unscrew earth wire -B- from bottom starter securing bolt -C-.
- Remove starter ⇒ Electrical system; Rep. gr. 27.

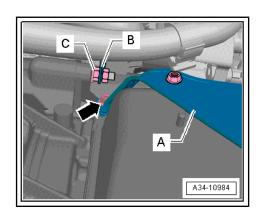


#### Caution

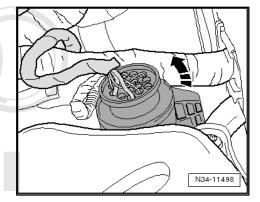
Mechatronic unit for dual clutch gearbox -J743- can be damaged by electrostatic discharge.

- ◆ Do not touch contact pins in connector for mechatronic unit for dual clutch gearbox -J743- with bare hands.
- Touch an earthed metal object, such as a heater radiator or lifting platform with your hand (without gloves) to discharge static electricity.





Turn fastener anti-clockwise -arrow- and unplug and detach electrical connector on gearbox.

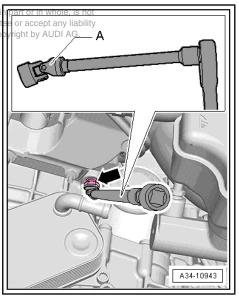


Remove all engine/gearbox securing bolts which are accessi-poses, ble from above. Use 12-point jointed socket attachment As or guaran similar to loosen bolt -arrow-near gear off filter.

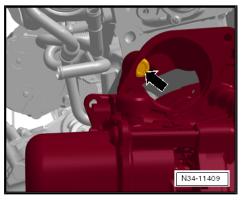


## Note

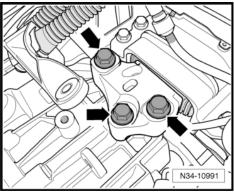
- This bolt -arrow- can only be removed from the engine.
- To renew the bolt, remove the gearbox and drive the bolt out from the flange side.



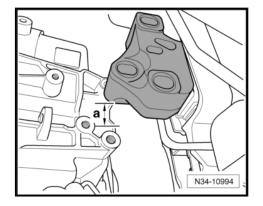
One bolt is located in the aperture for the starter -arrow-. This can be removed using socket, multi-point bit -T10061- .



Remove bolts -arrows- from gearbox mounting.



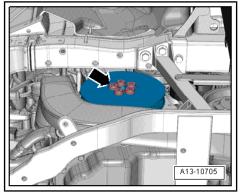
Dimension -a- = 100 ... 110 mm





#### Note

Vibration damper -C- must not make contact with longitudinal member.



To remove dual clutch gearbox 0BH, set up gearbox support -3282- with adjustment plate -3282/61- and fit onto engine and gearbox jack -V.A.G 1383 A- .

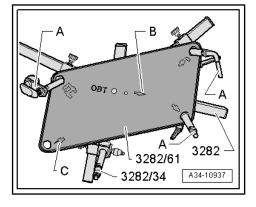
- Align arms of gearbox support according to holes in adjustment plate.
- Screw in support elements -A-, as illustrated on adjustment plate . However, use pin -3282/34- as support element on right side (rear). This support element is outside the adjustment plate.

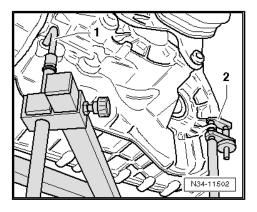


#### Note

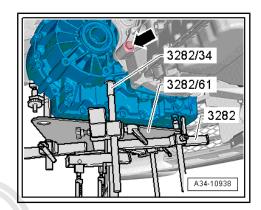
The support element -C- on the adjustment plate is not used.

- Place engine and gearbox jack -V.A.G 1383 A- underneath vehicle.
- The arrow symbol -B- on the adjustment plate points in the direction of travel.
- Align gearbox support 73282 parallel with gearbox or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
- Insert hook -1- in mounting on dual clutch gearbox.
- Secure safety support -2- in mounting on dual clutch gearbox.

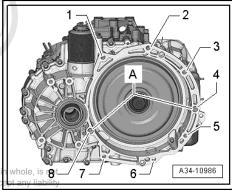




- Screw pin -3282/34- into gearbox.
- Support gearbox by lifting from underneath with engine and gearbox jack -V.A.G 1383 A- .
- Remove engine/gearbox securing bolt -arrow-.



- Remove last securing bolt -4- between engine and gearbox.
- Press gearbox off dowel sleeves on engine.
- 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- .



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## 5.2 Installing gearbox

#### **Procedure**

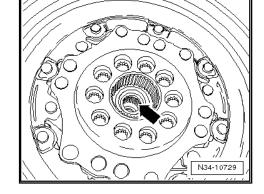
Installation is carried out in reverse sequence; note the following:



## Note

- The special tools required are listed in the procedure for "Removing gearbox" ⇒ page 36.
- ♦ Renew bolts which are tightened by turning through a specified angle.
- ♦ Renew self-locking nuts and bolts, and O-rings, seals, and gaskets.
- 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 52

- Check needle bearing -arrow- in crankshaft. If it is damaged or has visible blue discolouration, it must be renewed ⇒ Engine, mechanics; Rep. gr. 13.
- If it is not damaged, lubricate lightly with high-temperature grease -G 052 133 A2- .
- The end of the gearbox shaft (not the splines) should also be greased lightly.

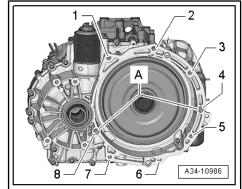


If not already fitted, install dowel sleeves -A- for centralising engine/gearbox in cylinder block.



#### Note

If the dowel sleeves are not fitted, the resulting misalignment of the engine and gearbox will destroy the needle bearing in the crankshaft.



- The bevel box must be detached if a new or exchange gearbox is being installed.
- Do do this, remove bolts -arrows- and carefully press bevel box off gearbox using a suitable lever.
- 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.



#### Note

- It should be possible to bring the engine and gearbox together by hand so that the two flanges make contact all round.
- If this is not the case, readjust the gearbox support so that the engine and gearbox are fully in line.

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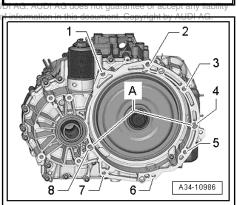
Secure gearbox to engine.



## Note

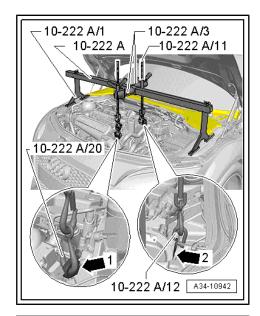
Bolt -item 3- is only accessible through opening of removed start-

Detach gearbox support -3282- from gearbox.



N37-10324

- Raise engine/gearbox assembly using spindles of support bracket -10 - 222 A-
- Align engine/gearbox assembly in installation position. To do so, raise engine/gearbox assembly until gearbox makes full contact with gearbox mounting.





#### Caution

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

- Before fitting the bolts -arrows-, the gearbox and the gearbox mounting must be aligned so they are parallel. It necessary, press gearbox up with engine and gearbox jack .
- Check adjustment of assembly mountings; adjust if necessary ⇒ Engine, mechanics; Rep. gr. 10.
- Tighten new bolts -arrows- securing gearbox mounting to gearbox to specified torque ⇒ page 57.



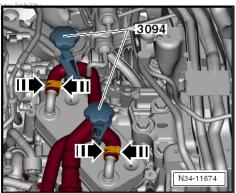
## **WARNING**

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.

Install starter ⇒ Electrical system; Rep. gr. 27.

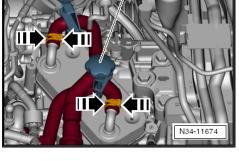
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- Connect coolant hoses to gear oil cooler arrows and take off to Al hose clamps -3094- .
- Install bevel box and bracket for bevel box ⇒ page 81.
- Secure drive shafts (left and right) to gearbox ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40.
- Install heat shield for drive shaft (right-side) ⇒ page 84.



N34-10991







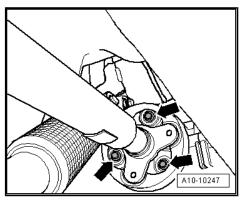
#### Caution

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

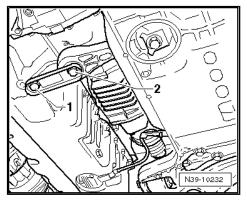
Press engine/gearbox assembly towards plenum chamber partition panel; at the same time carefully inserting guide pin on bevel box into propshaft flange.

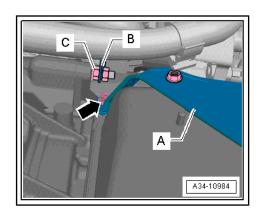
- V39 1817
- Bolt flexible coupling on propshaft onto output flange of bevel box -arrows- ⇒ Rear final drive 02D, 0AV, 0BR and 0BY; Rep. gr. 39.
- Install subframe ⇒ Running gear, front-wheel drive and fourwheel drive; Rep. gr. 40.

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- Tighten new bolts -1- and -2- securing pendulum support to gearbox to specified torque ⇒ page 57.
- Install exhaust system so it is free of stress ⇒ Engine, mechanics; Rep. gr. 26.
- On vehicles with electronic damping control (Audi magnetic ride), re-adapt reference position ⇒ Vehicle diagnostic, testing and information system VAS 5051.
- On vehicles with automatic headlight range control, perform basic setting for headlights ⇒ Electrical system; Rep. gr. 94.
- Detach support bracket -10 222 A- from engine.
- Plug in connector for mechatronic unit on gearbox and lock connector.
- Then install bracket -A- on gearbox -arrow-.
- Attach pipes/wiring to bracket -A- at front of gearbox.
- Then connect earth wire -B- at bottom starter securing bolt
- Install air pipes ⇒ Engine, mechanics; Rep. gr. 21.
- Observe measures which have to be taken after connecting the battery ⇒ Electrical system; Rep. gr. 27.
- Connect selector lever cable to dual clutch gearbox ⇒ page 31 .
- Adjust selector lever cable ⇒ page 33.
- Check coolant level ⇒ Engine, mechanics; Rep. gr. 19.

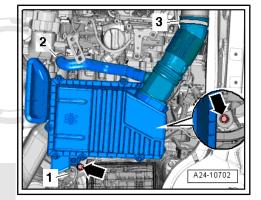




Install bracket for air cleaner housing and air cleaner housing
 Injection and ignition system; Rep. gr. 24.

Perform remaining installation operations in reverse order of removal.

- Check gear oil level and top up as required <u>⇒ page 63</u>
- Install frame for noise insulation ⇒ General body repairs, exterior; Rep. gr. 50.
- Fit wheels ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 44.



## **Tightening torques**



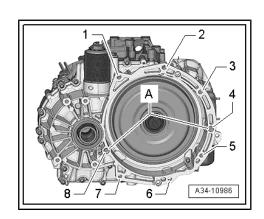
#### Note

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- ♦ Tightening torques apply only to lightly greased, oiled, is document. Copyright by AUDI AG. 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 is ± 15%.

## Securing gearbox to engine (illustration shows gearbox flange):

Item	Bolt	Nm
1	M12 x 65	80
2	M12 x 70	80
3 <sup>1)</sup>	M12 x 70	80
4	M12 x 70	80
5	M10 x 60	40
6	M10 x 60	40
7	M10 x 60	40
82)	M12 x 95	80
Α	Dowel sleeves for centralising	
1)	Bolt -item 3- is only accessible through opening of removed starter.	
2)	Bolt -item 8- is installed from engine side.	



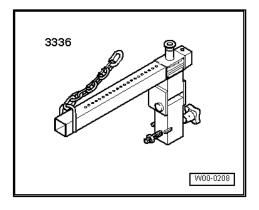
Additional tightening torques

⇒ "8 Exploded view - assembly mountings", page 57 and ⇒ page 83

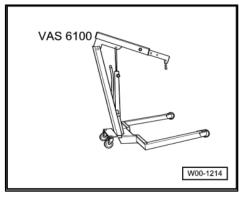
#### Transporting dual clutch gearbox 6

## Special tools and workshop equipment required

♦ Gearbox lifting tackle -3336-

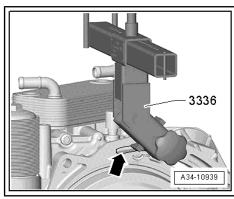


Workshop hoist -VAS 6100-



#### **Procedure**

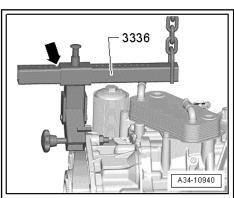
Bolt gearbox lifting tackle to gearbox. Engage in recess in housing -arrow-.



With bevel box removed, adjust support arm at sliding attachment by means of locking pin as shown -arrow-.

Number of holes visible = 4

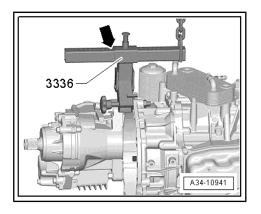
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With bevel box installed, adjust support arm at sliding attachment by means of locking pin as shown -arrow-.

Number of holes visible = 8

Lift gearbox with workshop hoist and gearbox lifting tackle .



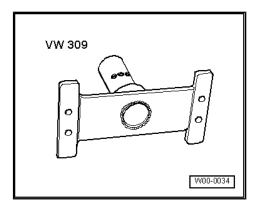


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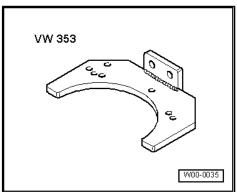
## Securing gearbox to engine and 7 gearbox support

Special tools and workshop equipment required

♦ Support plate -VW 309-

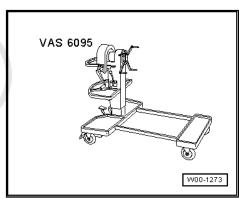


Gearbox support -VW 353-



♦ Engine and gearbox support -VAS 6095-





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#### Securing gearbox to assembly stand

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



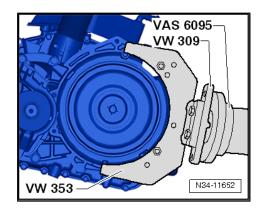
#### **WARNING**

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 breather 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 breather faces downwards.





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#### Exploded view - assembly mountings 8

#### 1 - Bolt

- ☐ Engine mounting to en-
- Tightening torque ⇒ Engine, mechanics; Rep. gr. 10

#### 2 - Bolt

- ☐ Engine mounting to engine
- Tightening torque ⇒ Engine, mechanics; Rep. gr. 10

#### 3 - Bolt

- ☐ Engine mounting to body
- ☐ Tightening torque ⇒ Engine, mechanics; Rep. ğr. 10

#### 4 - Bracket

□ For activated charcoal filter

#### 5 - Bolt

☐ Tightening torque ⇒ Engine, mechanics; Rep. gr. 10

## 6 - Nut

☐ Tightening torque ⇒ Engine, mechanics; Rep. gr. 10

#### 7 - Engine mounting

- □ Checking adjustment ⇒ Engine, mechanics; Rep. gr. 10
- □ Adjusting ⇒ Engine, mechanics; Rep. gr. 10
- □ Removing and installing ⇒ Engine, mechanics; Rep. gr. 10

#### 8 - Connecting bracket

#### 9 - Bolt Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not

- Connecting the active to a UDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- ☐ Tightening torque ⇒ Engine, mechanics; Rep. gr. 10

#### 10 - Bolt

- Connecting bracket to engine mounting
- ☐ Tightening torque ⇒ Engine, mechanics; Rep. gr. 10

## 11 - Bolt

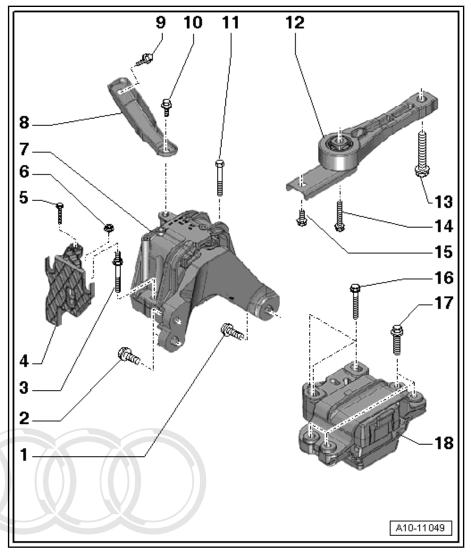
- Engine mounting to body
- ☐ Tightening torque ⇒ Engine, mechanics; Rep. gr. 10

## 12 - Pendulum support

□ Removing and installing ⇒ page 62

#### 13 - Bolt

Pendulum support to subframe



#### Audı 7-speed dual clutch gearbox 0BH (S tronic) - Edition 09.2010

	100 Nm and then turn 90° further
	Do not tighten until pendulum support has been bolted to gearbox
	Always renew
14 - E	Bolt
	Pendulum support to gearbox
	60 Nm and then turn 90° further
	Always renew
15 - E	Bolt
	Pendulum support to gearbox
	60 Nm and then turn 90° further
	Always renew
16 - E	Bolt
	Gearbox mounting to gearbox
	60 Nm and then turn 90° further
	Always renew
17 - Bolt	
	Gearbox mounting to body
	40 Nm and then turn 90° further
	Always renew
18 - 0	Gearbox mounting
	Checking adjustment ⇒ Engine, mechanics; Rep. gr. 10
	Adjusting ⇒ Engine, mechanics; Rep. gr. 10
	Removing and installing <u>⇒ page 58</u>

#### Assembly mounting on gearbox side: tightening sequence

☐ Tightening torque and sequence ⇒ page 58

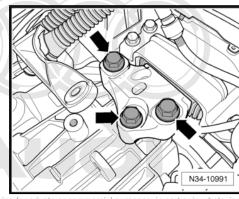
- Pull gearbox up to support arm of gearbox mounting using spindles of support bracket -10 - 222 A- ⇒ page 50.
- Hand-tighten bolts -arrows- initially.



## Caution

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

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



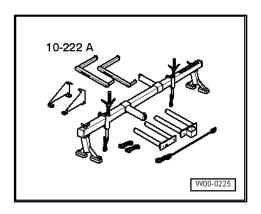
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Only tighten bolts after subframe has been installed ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 and assembly mountings have been aligned ⇒ Engine, mechanics; Rep. gr. 10.

# 8.1 Removing and installing gearbox mounting

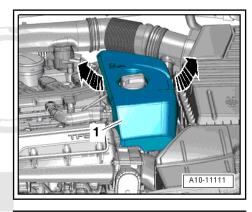
Special tools and workshop equipment required

♦ Support bracket -10 - 222 A-

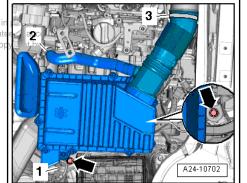


#### **Procedure**

- Lift off engine cover panel -1-.



Remove air cleaner housing and bracket for air cleaner housing ⇒ Injection and ignition system; Repg grpri24 or commercial purposes, permitted unless authorised by AUDI AG. AUDI AG does not guarant with respect to the correctness of information in this document. Co



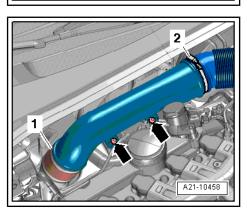
- Remove bolts -arrows-.
- Release hose clip -1- and detach air pipe.



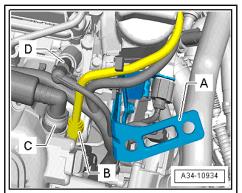
## Note

-Item 2- can be disregarded.

Detach profiled bonnet seals from top edges of body flanges.



Bracket -A- and pipes/wiring -B ... D- must be detached in order to engage hook -10 - 222 A /20- in engine lifting eye (front left).



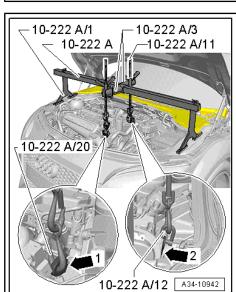
- Set up support bracket -10 222 A- on body flanges using the following equipment:
- ◆ 2x rack -10 222 A /1-
- ♦ 2x adapter -10 222 A /3-
- 2x spindle -10 222 A /11-
- ♦ Shackle -10 222 A /12-
- ♦ Hook -10 222 A /20-
- One spindle -10 222 A /11- faces forward, the other to the rear.



## **WARNING**

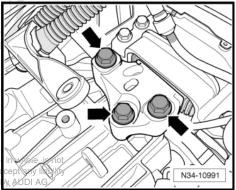
#### Risk of accident.

- ♦ Hook -10 222 A /20- must always be secured with a locking pin.
- Hook front spindle -10 222 A /11- with hook -10 222 A /20onto engine lifting eye (front left) -arrow 1-.
- Hook rear spindle -10 222 A /11- with shackle -10 222 A / 12- onto engine lifting eye (rear left) -arrow 2-.
- Take up weight of engine with spindles but do not lift.
- Remove bolts -arrows- from gearbox mounting.

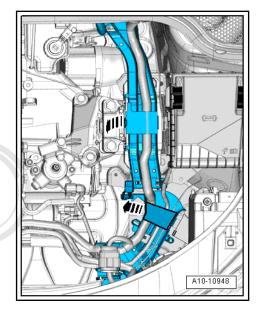




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- Open retainers for wiring duct -arrows- and press electrical wiring to the side.
- Unclip wiring duct.



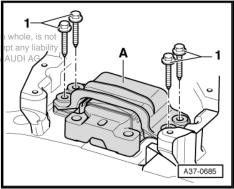
- Remove bolts -1- and detach gearbox mounting -A-.

#### Installing

Installation is carried out in reverse seguence, note the following yright by

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Tightening torques ⇒ page 57



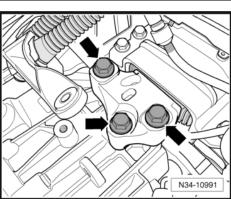
- Hand-tighten bolts -arrows- initially.



## Caution

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

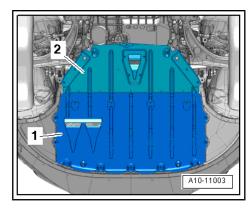
- Before fitting the bolts -arrows-, the gearbox and the sup-port arm of the gearbox mounting must be aligned abso-lutely parallel. If necessary, push the gearbox up, e.g. with a trolley jack.
- Adjust assembly mountings ⇒ Engine, mechanics; Rep. gr.
- Secure support arm of gearbox mounting to gearbox.
- Detach support bracket -10 222 A- from engine.
- Install air cleaner housing ⇒ Injection and ignition system; Rep. gr. 24.



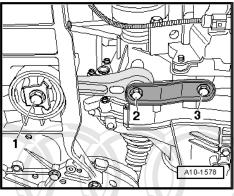
#### 8.2 Removing and installing pendulum support

### Removing

Remove noise insulation panels -1- (front) and -2- (rear) ⇒ General body repairs, exterior; Rep. gr. 66.



Remove bolts -1, 2, 3- and detach pendulum support.



## Installing

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

Tightening torques <u>⇒ page 57</u>

then on subframe (bolt -1-).

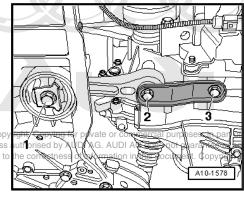


## Note

Renew securing bolts for pendulum support.

Protected by cop permitted unless First secure pendulum support to gearbox (bolts -2 and 3-1), respect to

Install noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66.



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# 9 Gear oil in dual clutch gearbox - overview

## Inspection plug for gear oil

Inspection plug -arrow 1-

- 45 Nm
- · Renew seal

Overflow pipe -arrow 2-

• 3 Nm

#### Overview:

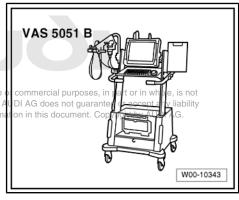
- ◆ ⇒ "9.1 Checking gear oil level and topping up", page 63
- ◆ ⇒ "9.2 Draining and filling gear oil", page 69

## 9.1 Checking gear oil level and topping up

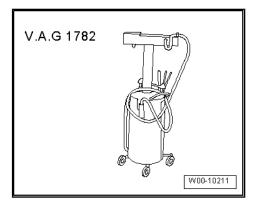
## Special tools and workshop equipment required

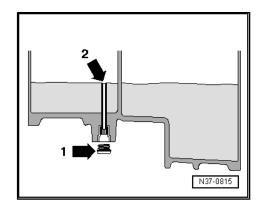
 Vehicle diagnostic, testing and information system -VAS 5051B-

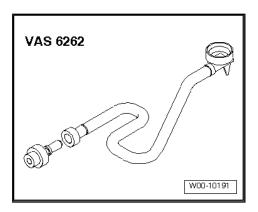
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♦ Used oil collection and extraction unit -V.A.G 1782-







- Safety goggles
- ◆ Protective gloves (acid resistant)
- ◆ Gear oil for dual clutch gearbox; for part number refer to ⇒ Electronic parts catalogue



#### **Procedure**



## Note

- ♦ Observe the general repair instructions <u>⇒ page 10</u>.
- ♦ Observe rules for cleanliness when working on the gearbox or 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 with respect to the correctness of information in this document. Copyright by AUDI AG.
- ◆ Observe notes on dual clutch gearbox, "Disposal regulations for oils" <u>⇒ page 6</u>.
- Use only the correct type of oil for the dual clutch gearbox (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 vehicle while engine is running, shift selector lever into position "P" and apply handbrake.



#### Caution

## 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 absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Selector lever in position "P", handbrake applied.
- Extraction hoses of an exhaust gas extractor connected and extractor switched on.
- Engine idling.
- Air conditioner and heating system switched off.

## Reading off gear oil temperature

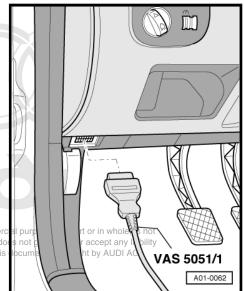


#### Note

- 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 gear-
- The oil temperature must not be higher than 45°C at the commencement of the test.
- Test temperature: 35 45 °C

Connect vehicle diagnostic, testing and information system -VAS 5051B- and identify vehicle in Guided Functions.

- Select Dual clutch gearbox
- Select Check oil level.
- Specification at commencement of test: Not higher than 45° C, otherwise allow gearbox to cool down.

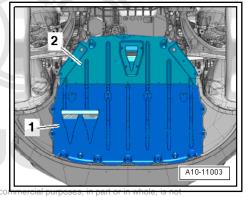


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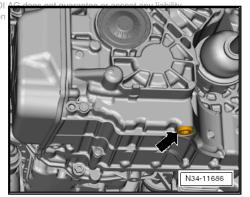
## Checking gear oil level

- Tightening torques <u>⇒ page 63</u>
- Remove noise insulation panels -1- (front) and -2- (rear)  $\Rightarrow$  General body repairs, exterior; Rep. gr. 66 .
- Place used oil collection and extraction unit -V.A.G 1782- below gearbox.

Engine running at idling speed and selector lever in "P".



Protected by copyright. Copying for private or c permitted unless authorised by AUDI AG. AUDI Remove inspection plug -arrow-. with respect to the correctness of information



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 ⇒ page 68.

## Filling up with gear oil

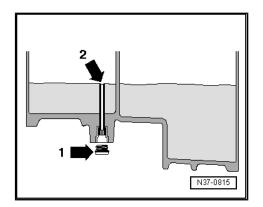
If no gear oil drains out when the oil temperature is between 35°C and 45°C, top up gear oil as follows.



#### Caution

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

- Check that the adapter for oil filling -VAS 6262- is clean. The gear oil for the dual clutch gearbox must not be mixed with other types of oil.
- Shake container before opening.
- Screw container of dual clutch gearbox oil onto adapter for oil Protected 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 filling -VAS 6262- . with respect to the correctness of information in this document, Copyright by AUDI AG.





Screw adapter for oil filling -VAS 6262- -item A- hand-tight into opening for inspection plug.



#### Note

If the adapter for oil filling cannot be screwed in with the frame for the noise insulation in place, push the engine/gearbox assembly slightly towards the right.

- Hold container with adapter for oil filling -VAS 6262- as high as possible over dual clutch gearbox and let gear oil run into gearbox.
- To check whether enough oil has run into dual clutch 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 2will drain off first.



#### 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).



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- with respect to the correctness of information in this document. Copyright by A 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 68.

#### Final steps

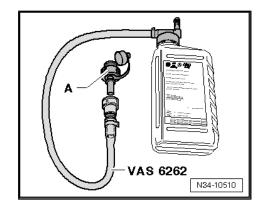
Tightening torques ⇒ page 63

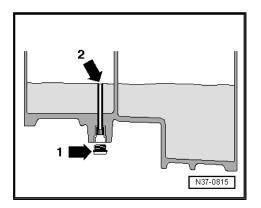


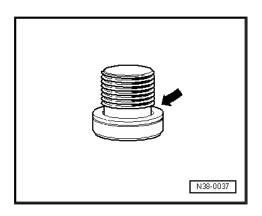
## Note

Renew seal -arrow- for inspection plug.

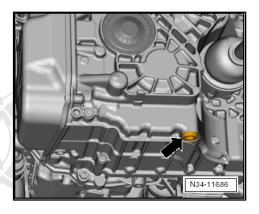
Unscrew adapter for oil filling -VAS 6262- from gearbox.







- Tighten inspection plug -arrow-.
- Install noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66.
- Switch off ignition and unplug diagnostic connector.



#### Draining and filling gear oil 9.2

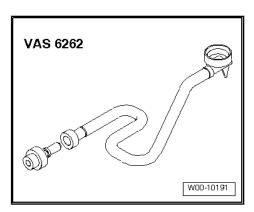
# Special tools and workshop equipment required

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

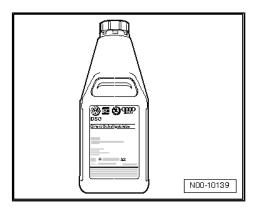
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Adapter for oil filling -VAS 6262-



- Safety goggles
- Protective gloves (acid resistant)
- Gear oil for dual clutch gearbox; for part number refer to ⇒ Electronic parts catalogue



### **Procedure**



#### Note

- ♦ Observe the general repair instructions ⇒ page 10.
- ◆ Observe rules for cleanliness when working on the gearbox ⇒ page 12.
- Observe notes on dual clutch gearbox 0BH, "Disposal regulations for oils" ⇒ page 6.
- ♦ Use only the correct type of oil for the dual clutch gearbox (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).



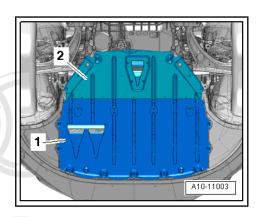
#### Caution

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 absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Selector lever in position "P", handbrake applied.
- · Engine not running.

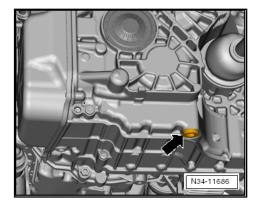
# Draining off gear oil

- Remove noise insulation panels -1- (front) and -2- (rear) ⇒ General body repairs, exterior; Rep. gr. 66.
- Place used oil collection and extraction unit -V.A.G 1782- below gearbox.



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- Remove inspection plug -arrow-.
- The gear oil that has collected in the overflow pipe will drain off first.
- Unscrew overflow pipe and allow gear oil to drain.



Remove oil drain plug -arrow- from mechatronic unit.



# Note

- Use a suitable strip of metal or similar to catch the gear oil as it comes out and allow it to run into the used oil collection and extraction unit .
- Approx. 1.2 ltrs. of oil will now drain out.
- Fit new seal on oil drain plug of mechatronic unit and tighten to specified torque ⇒ Item 25 (page 14).

# Filling up with gear oil

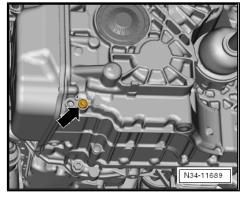
Screw overflow pipe -arrow- back in as far as stop and tighten Protected Sympyright. Copying for private or commercial purposes, in part or in whole, is not

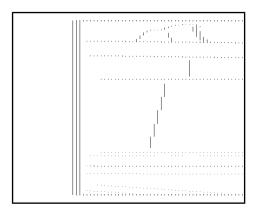


#### ctness of information in this document. Copyright by AUDI AG. Caution

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

- Check that the adapter for oil filling -VAS 6262- is clean. The gear oil for the dual clutch gearbox must not be mixed with other types of oil.
- Shake container before opening.
- Screw container of gear oil for dual clutch gearbox onto adapter for oil filling -VAS 6262- .







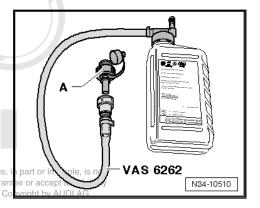
Screw adapter for oil filling -VAS 6262- -item A- hand-tight into opening for inspection plug.



# Note

If the adapter for oil filling cannot be screwed in with the frame for the noise insulation in place, push the engine/gearbox assembly slightly towards the right.

- Hold container with adapter for oil filling -VAS 6262- as high as possible over dual clutch gearbox and let 5 5 tr gear of purposes, run into gearbox run into gearbox. with respect to the correctness of information in this document. C
- 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".
- Do not switch off engine
- Check gearbox oil level and top up if necessary <u>⇒ page 63</u>.

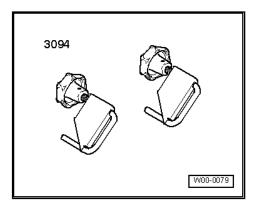


## 10 Removing and installing gear oil cooler and gear oil filter

#### 10.1 Removing and installing gear oil cooler

Special tools and workshop equipment required

♦ Hose clamps, up to 25 mm -3094-



# Removing

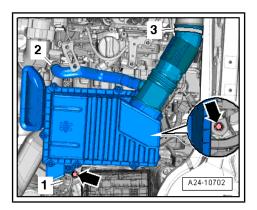


# **WARNING**

Risk of scalding from hot steam and hot coolant.

- 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 ⇒ Injection and ignition system; Rep. gr. 24.

Piete: Place dint-free cloths on gear oil cooler and gearbox to catch permitescaping coolant UDI AG. AUDI AG does not guarantee or accept any liab with respect to the correctness of information in this document. Copyright by AUDI AG.

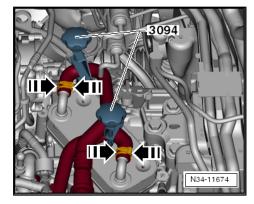


Clamp off coolant hoses leading to gear oil cooler using hose clamps -3094- and disconnect hoses -arrows-.



# Note

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



- Remove bolts -arrows- and detach gear oil cooler -A-.

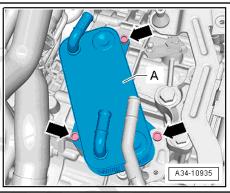


#### Caution

Do not allow coolant to drip into gearbox.

# Installing

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



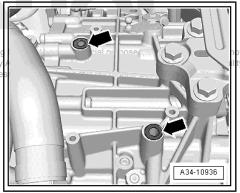


# Note

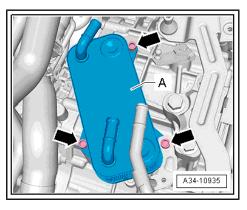
Renew O-rings -arrows-.

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If the sealing surface on the gear oil cooler is damaged, the gear oil cooler must be renewed.



- Carefully fit gear oil cooler -A-, paying attention to sealing surface and O-rings.
- Fit bolts -arrows- and tighten to specified torque ⇒ Item 13 (page 13)
- Connect coolant hoses to gear oil cooler and remove hose clamps -3094- .
- Install air cleaner housing ⇒ Injection and ignition system; Rep. gr. 24.
- Check gear oil level and top up as required ⇒ page 63.
- Check coolant level ⇒ Engine, mechanics; Rep. gr. 19.



#### 10.2 Removing and installing gear oil filter

On some vehicles it is not possible to remove the gear oil filter with the gearbox in the vehicle. The gear oil filter comes into contact with the cylinder head. In this case the gearbox must be detached from the engine.

If the cylinder head has a flattened surface in the vicinity of the gear oil filter, the filter can be removed and installed with the gearbox in the vehicle.

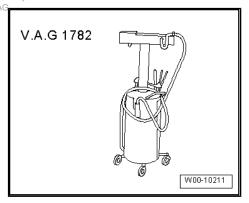


# Note

- The gear oil filter does not normally have to be renewed.
- When does the gear oil filter have to be changed? ⇒ page 6

Special tools, and workshop, equipment required is not guarantee or accept any liability

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



# Removing

- Remove air cleaner housing ⇒ Injection and ignition system; Rep. gr. 24.
- Place used oil collection and extraction unit -V.A.G 1782- below gearbox.



# Note

- A residual amount of oil remains in the filter. This comes out when the filter housing is unscrewed.
- Before unscrewing the filter housing, cover the area round the oil filter with a sufficient number of cloths.
- To allow the gear oil to drain back into the gearbox from the gear oil filter housing, tilt the housing slightly in its seat before removing it.

- First unscrew filter housing -1- approx. 7 turns.
- Wait approx. 10 seconds.

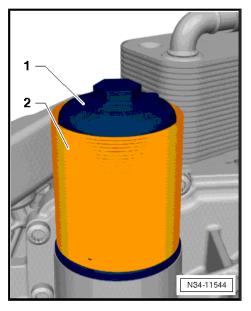
This will enable the oil in the filter housing to drain back into the gearbox.

- Now detach filter housing (but not before).
- Renew heat shield -2- if missing or damaged.

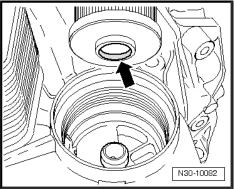
# Installing

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

- Thorough clean off any oil that has spilled on gearbox.



- Install gear oil filter with collar -arrow- facing downwards.
- Screw in filter housing and tighten to 20 Nm.
- Check gear oil level and top up as required ⇒ page 63.





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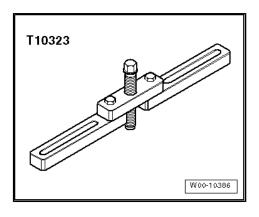
#### 11 Removing and installing bevel box

- ◆ ⇒ "11.1 Removing bevel box", page 77
- ⇒ "11.2 Installing bevel box", page 81

#### 11.1 Removing bevel box

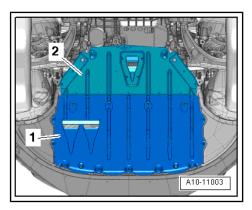
Special tools and workshop equipment required

♦ Support bridge -T10323-



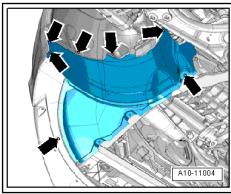
# **Procedure**

- Lift vehicle and remove both front wheels.
- Remove front noise insulation -1- ⇒ General body repairs, exterior; Rep. gr. 66.



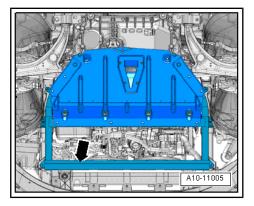
Remove bottom section of wheel housing liner -arrows- on both sides ⇒ General body repairs, exterior; Rep. gr. 66.



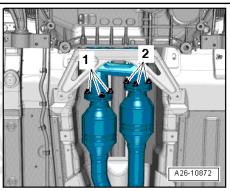


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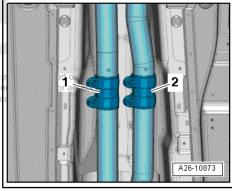
Remove frame -arrow- for noise insulation together with noise insulation (rear) ⇒ General body repairs, exterior; Rep. gr. 50.



Remove nuts -1- and -2-.

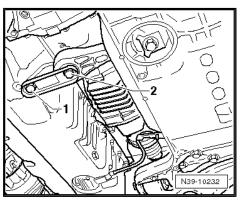


Unfasten clamps -1- and -2- and remove both catalytic converters.

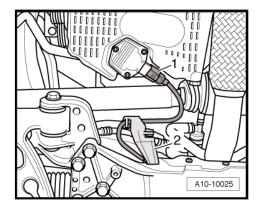


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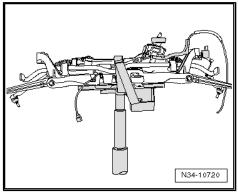




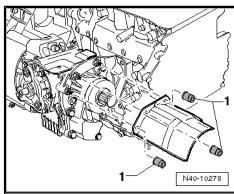
Unplug electrical connector -1- at oil level and oil temperature sender -G266- .



Remove subframe with steering box (fit locating pins -T10096-) ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr.

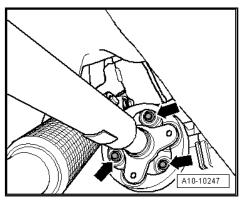


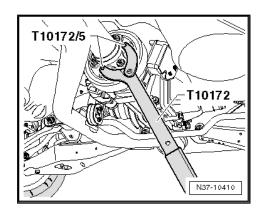
- Remove nuts -1- and detach heat shield for drive shaft (rightside).
- Unbolt drive shaft (right-side) from gearbox and tie up ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40.
- Mark position of flexible coupling relative to bevel box flange for re-installation.



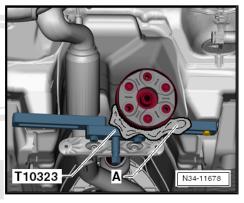
Unbolt propshaft from bevel box -arrows-







- Secure support bridge -T10323- to inner rear threaded hole for subframe with one bolt.
- This can be done with the subframe securing bolt.
- Lay a cloth -A- on support bridge and place propshaft on cloth.





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Risk of damage to oil seal -arrow- in propshaft flange.

Push propshaft as far back as possible, keeping it horizontal.



# Note

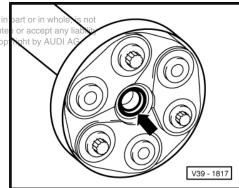
If seal is damaged propshaft must be renewed.

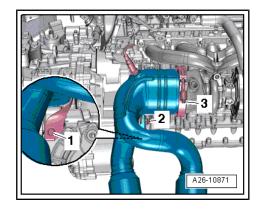
Remove bolts -1- and -2- and detach bracket for starter catalytic converter.



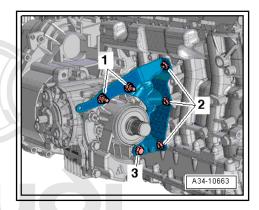
# Note

-Item 3- can be disregarded.

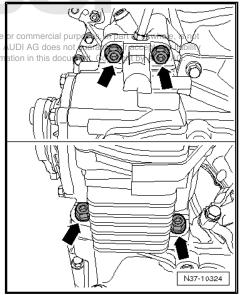




Remove bolts -1, 2, 3- and detach bracket for bevel box.



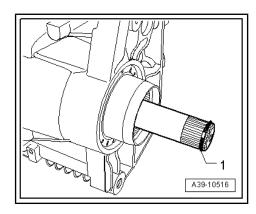
- Remove bolts -arrows- securing bevel box to gearbox.
- Carefully press bevel box off gearbox using a suitable lever for private and take out from below. with respect to the correctness of inform



#### 11.2 Installing bevel box

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

- Fit new circlip -1- on stub shaft on gearbox side.



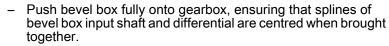
- MUN I
- Grease splines of stub shaft.
- Select correct type of grease from ⇒ Electronic parts catalogue.
- Fit new circlip -arrow A- and new O-ring -arrow B- on stub shaft on drive shaft side.



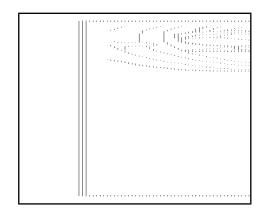
#### Caution

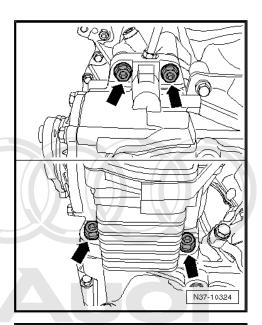
Risk of damage to gearbox or bevel box.

- ◆ To enable the circlip on the stub shaft to engage properly in the differential bevel gear, strike the end face of the stub shaft with a plastic hammer.
- Do not attempt to pull the bevel box onto the gearbox by force by tightening the securing bolts.



- Also bring splines of stub shaft and bevel gear in differential into alignment by turning stub shaft if necessary.
- If the splines are correctly positioned and the components are located centrally, the bevel box will slide against the gearbox onto the stop.
- Secure bevel box with new bolts -arrows-: first tighten hand-tight in diagonal sequence and then tighten to final setting ⇒ page 83.
- Tighten bolts securing bracket for bevel box ⇒ page 83.
- Install drive shaft (right-side) ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40.
- Install heat shield for drive shaft (right-side) ⇒ page 84.







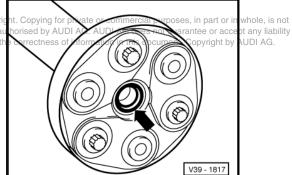
# Caution

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

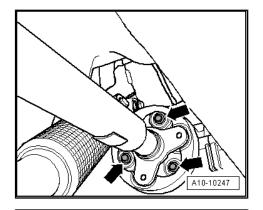
Press engine/gearbox assembly towards bulkhead, at the same time carefully inserting guide pin on bevel box into propshaft flange.

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- Bolt flexible coupling on propshaft onto output flange of bevel box -arrows- ⇒ Rear final drive 02D, 0AV, 0BR and 0BY; Rep. gr. 39.
- Install subframe ⇒ Running gear, front-wheel drive and fourwheel drive; Rep. gr. 40.



- Tighten new bolts -1- and -2- securing pendulum support to gearbox to specified torque ⇒ page 57.
- Install exhaust system so it is free of stress ⇒ Engine, mechanics; Rep. gr. 26.
- On vehicles with electronic damping control (Audi magnetic ride), re-adapt reference position ⇒ Vehicle diagnostic, testing and information system VAS 5051.
- On vehicles with automatic headlight range control, perform basic setting for headlights ⇒ Electrical system; Rep. gr. 94.

Perform remaining installation operations in reverse order of removal.

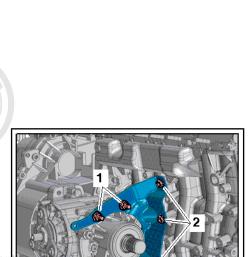
- Install frame for noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 50.
- Fit wheels ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 44.
- Check gear oil level in bevel box ⇒ page 115.

# **Tightening torques**

Bolts securing bevel box to dual clutch gearbox 40 Nm and Renew bolts then turn 90° further

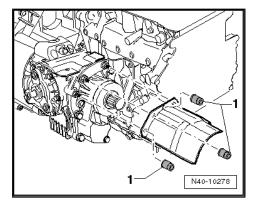
# Bracket for bevel box - tightening torque and sequence

- Tighten bolts in 5 stages as follows:
- 1. Screw in bolts -1 ... 3- (hand-tight).
- 2. Pre-tighten bolts -2- to 8 Nm.
- 3. Tighten bolts -1- and -3- initially to 8 Nm.
- Protected by copyright. Copying for private or commercial purposes, in part or in **Tighten bolts**nit**2d**. **toe40**. **Nm**sed by AUDI AG. AUDI AG does not guarantee or accept with respect to the correctness of information in this document. Copyright by A 4.
- 5. Tighten bolts -1- and -3- to 40 Nm.



# Heat shield for drive shaft (right-side) - tightening torque

- Tighten nuts -1- to 25 Nm.





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#### 35 – Gears, shafts

Exploded view - oil pan, mechatronic unit for dual clutch gearbox -1 J743-



-Items 1 ... 28- can be disregarded here.

# 29 - Bolt

□ 10 Nm

30 c Gearbox input speed ate or c sender -G182-/ clutch temperature sender -G509-

Removing and installing ⇒ page 93

# 31 - Mechatronic unit for dual clutch gearbox -J743-

- With O-ring on connec-
- Renew O-ring
- Removing and installing ⇒ page 89

#### 32 - Bolt

- ☐ Tightening torque and sequence ⇒ page 86
- Always renew

### 33 - Oil pan

- With gasket
- □ Removing and installing ⇒ page 86
- Always renew

# 34 - Bolt

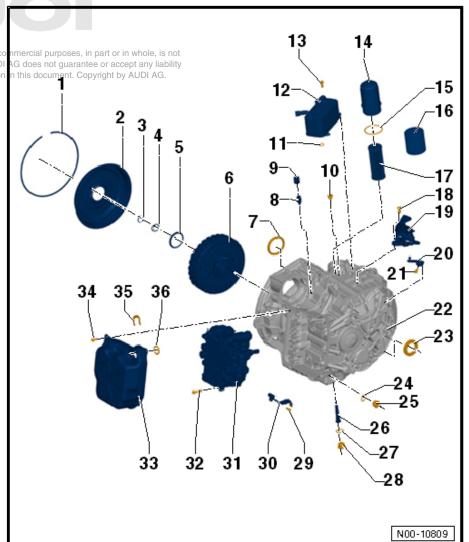
- 8 Nm and then turn 60° further
- Always renew

# 35 - Securing clip

Always renew

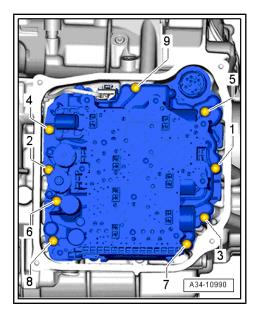
#### 36 - O-ring

Always renew



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

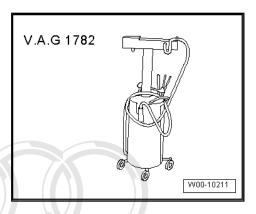
- Tighten new bolts -1 ... 9- in 3 stages in the sequence shown:
- 1. Screw in bolts onto stop by hand.
- 2. Tighten bolts to 8 Nm.
- 3. Turn bolts 45° further.



# 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.

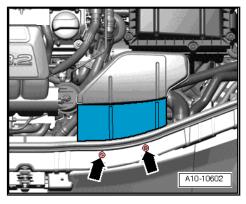
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# Note

- ◆ Observe the general repair instructions <u>⇒ page 10</u>.
- ◆ Observe rules for cleanliness when working on the gearbox ⇒ page 12.

Remove bolts -arrows- and detach air duct.



- Release hose clip -2- securing air pipe (left-side).

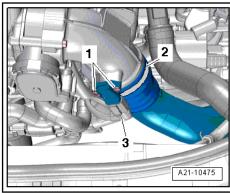


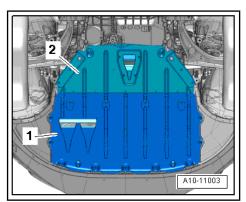
# Note

-Items 1 and 3- can be disregarded.

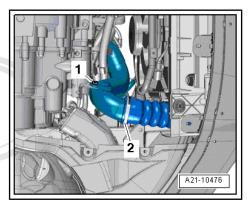
- Raise vehicle.







- Remove bolt -1-. Release hose clip -2- and remove air pipe (left-side) ⇒ Engine, mechanics; Rep. gr. 21.
- Drain off gear oil <u>⇒ page 69</u>.





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- Detach wiring from bracket -A- at front of gearbox.
- Then unscrew nuts -arrow- from oil pan securing bolts and detach bracket -A-.



# Note

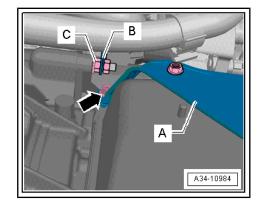
-Items B- and -C- can be disregarded.

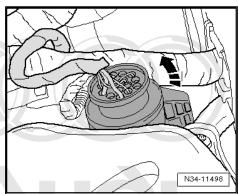


#### Caution

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 an earthed metal object, such as a heater radiator or lifting platform with your hand (without gloves) to discharge static electricity.
- Turn fastener anti-clockwise -arrow- and unplug and detach electrical connector on gearbox.
- Place used oil collection and extraction unit -V.A.G 1782- below gearbox.



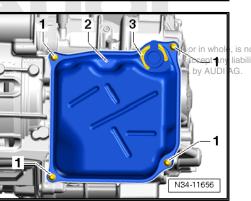


- Remove securing clip -3-.
- Loosen bolts -1- securing oil pan -2- in diagonal sequence and remove.
- Detach oil pan -2- (if necessary, knock oil pan loose by striking lightly with a rubber-headed hammer).



# Note

- Allow remaining gear oil in oil pan to drain off into used oil collection and extraction unit -V.A.G 1782-.
- ♦ Always renew bolts -1-, oil pan -2- and securing clip -3-.



#### Installing

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



# Note

- Renew oil pan and bolts for oil pan.
- Renew O-ring -arrow- on connector for mechatronic unit for dual clutch gearbox -J743- .
- A new mechatronic unit is supplied already fitted with a new
- Clean sealing surface on gearbox housing; it must be free from oil and grease.
- Lightly lubricate O-ring on connector for mechatronic unit for dual clutch gearbox -J743- with gear oil.
- Fit new oil pan -2- and tighten new bolts -1- in diagonal sequence and in several stages.



#### Note

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

Install new securing clip -3-.

Angled side of securing clip faces gearbox.

- Plug in connector for mechatronic unit on gearbox and lock connector.
- Then install bracket -A- on gearbox -arrow-.
- Attach pipes/wiring to bracket -A- at front of gearbox.
- Install air pipe (left-side) ⇒ Engine, mechanics; Rep. gr. 21.
- Fill up with gear oil <u>⇒ page 69</u> and check gear oil level
- Install noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66.

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

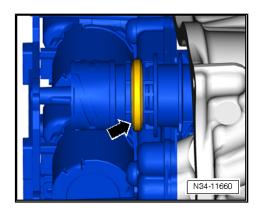
#### Removing

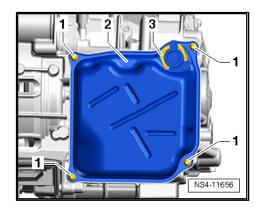


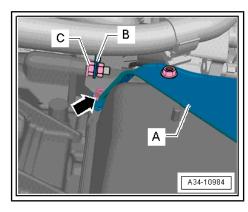
#### Caution

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.











# Note

- ♦ Observe the general repair instructions <u>⇒ page 10</u>.
- ◆ Observe rules for cleanliness when working on the gearbox ⇒ page 12.
- Remove oil pan ⇒ page 86 .



#### Caution

The mechatronic unit can be damaged by electrostatic discharge.

- Do not touch the contact pins in the connector with bare hands.
- Touch an earthed metal object, such as a heater radiator or lifting platform with your hand (without gloves) to discharge static electricity.



#### Caution

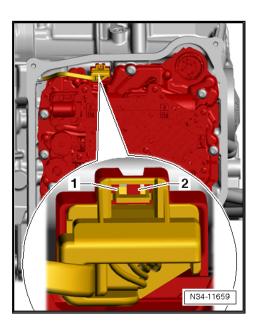
Pr**The electrical wiring can be damaged**urposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability

- In the printed this saturous ed by Abbi Ad. Abbi Ad does not guarantee of accept any habit ♦th **Do:not pull on the electrical wiring.** ment. Copyright by AUDI AG.
- Work very carefully and do not use force. The catch on connector -2- can break off. If this happens, the mechatronic unit for dual clutch gearbox -J743- must be renewed.
- Using a small screwdriver, carefully release connector -1- 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.



Remove bolts -arrows-.



# Note

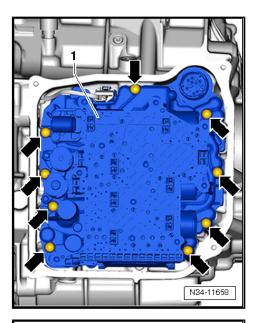
The 9 bolts are of equal length and must be renewed.

Carefully detach mechatronic unit -1-.



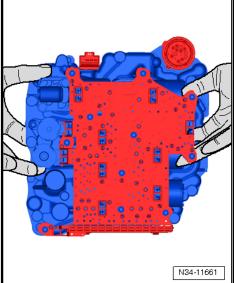
# Caution

When handling the mechatronic unit only take hold of the housing and the solenoid valves; put it down on the housing and the solenoid valves.



# Handling mechatronic unit

- Take out mechatronic unit for dual clutch gearbox -J743- .



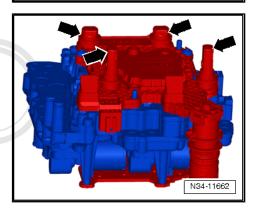
# Putting down the mechatronic unit correctly

Put down the mechatronic unit so that the sensors -arrowsface upwards.

#### Installing

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

Tightening torques ⇒ page 85



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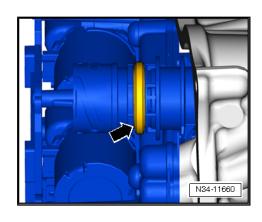
# Note

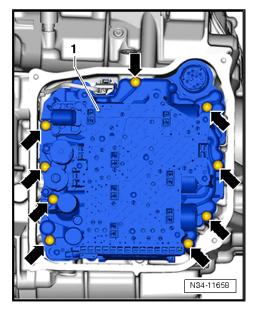
- Renew bolts for mechatronic unit for dual clutch gearbox -J743-.
- ♦ When re-installing, renew O-ring -arrow- on connector for mechatronic unit for dual clutch gearbox -J743-.
- ♦ The O-ring is supplied with the replacement unit if the mechatronic unit for dual clutch gearbox -J743- is being renewed.
- Before touching the mechatronic unit, touch an earthed metal object, such as a heater radiator or lifting platform with your hand (without gloves) to discharge static electricity.



#### Caution

- When handling the mechatronic unit only take hold of the housing and the solenoid valves; put it down on the housing and the solenoid valves.
- Carefully fit mechatronic unit -1- into gearbox.
- The electrical wiring for -G182- and -G509- must not become trapped.
- Tighten new bolts -arrows- hand-tight in diagonal sequence.
- Tighten bolts for mechatronic unit for dual clutch gearbox -J743- ⇒ page 86.





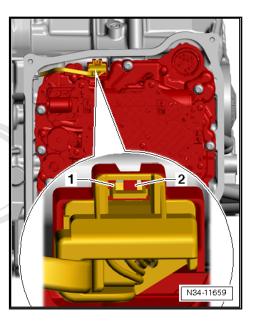


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# Caution

- Work very carefully and do not use force. The catch on connector -2- can break off. If this should happen, the connector will not be secure and the mechatronic unit for dual clutch gearbox -J743- must be renewed.
- Plug in and lock connector -1- on -G182- and -G509-
- Then check that catch -2- is not damaged.
- Install oil pan <del>⇒ page 86</del>.
- Fill up with gear oil ⇒ page 69 and check gear oil level <u>⇒ page 63</u> .
- Perform basic setting with vehicle diagnostic, testing and information system -VAS 5051B- .



Removing and installing gearbox inputes, in part or in whole, is not permitted unless aumonsed by AUDI AG does not guarantee or accept any liability speed sender 4618225/oil temperature Copyright by AUDI AG. 1.3 sender for multi-plate clutch -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.



# Note

- Observe the general repair instructions ⇒ page 10.
- Observe rules for cleanliness when working on the gearbox *⇒ page 12* .
- Remove oil pan <del>⇒ page 86</del>.
- Remove mechatronic unit for dual clutch gearbox -J743-<u>⇒ page 89</u> .

# Do not pull on the electrical wiring.

Remove bolt -2- and pull out sender -1-.

# Installing

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

Tightening torques ⇒ page 85

The old sender should only be re-installed if:

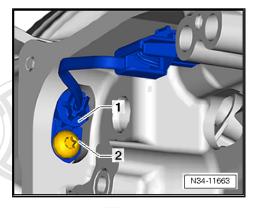
- The sender is in proper working condition.
- The wire was not pulled when removing the sender.

Otherwise install a new sender.

- Lightly lubricate -G182- and -G509- -1- with gear oil.
- Tighten bolt -2-.
- Install mechatronic unit for dual clutch gearbox -J743-⇒ page 89 .
- Install oil pan <del>⇒ page 86</del>.

- Install oil pan ⇒ page 86.

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  Fill up with gear oil ⇒ page 69 and check gear oil ever of the correctness of information in this document. Copyright by AUDI AG. ⇒ page 63
- Perform basic setting with vehicle diagnostic, testing and information system -VAS 5051B-.

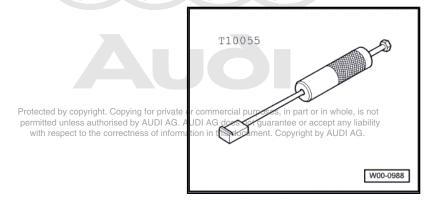


#### Final drive - front differential 39 –

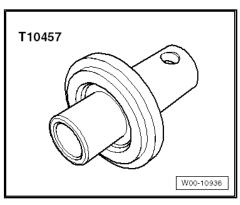
- Renewing oil seals with dual clutch 1 gearbox installed
- 1.1 Renewing oil seal (left-side)

Special tools and workshop equipment required

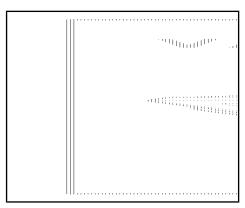
♦ Puller -T10055-



♦ Thrust piece -T10457-



♦ Drip tray for workshop hoist -VAS 6208-



◆ Electric drill (commercially available)

# Removing oil seal

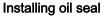
Remove drive shaft (left-side)  $\Rightarrow$  Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40 .

- Apply grease to drill bit -3- so that drilling swarf adheres to drill
- Only drill into the metal ring -1- (approx 3 mm); otherwise the gearbox can be damaged.
- Seal off opening for drive shaft on gearbox with a clean cloth
- Carefully drill a hole in the outer metal ring -1- of the oil seal using a drill bit -3- of 2 to 4 mm dia.
- N39-10592
- Screw a self-tapping screw (approx. 4 mm dia.) into the hole drilled in the oil seal. To avoid damaging the bearing behind, do not screw in the self-tapping screw too far.
- Pull out oil seal using puller -T10055- and adapter -T10055/2-.

No metal particles must be allowed to enter the gearbox or the opening for the drive shaft; if necessary, vacuum out particles before proceeding.

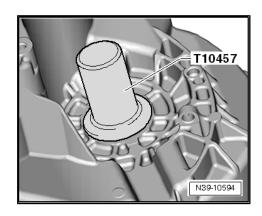
- Carefully remove cloth, taking care not to let metal particles drop into gearbox.
- Thoroughly clean gearbox and opening for drive shaft.

If it was only possible to remove the metal ring, carefully prise out the rest of the oil seal using a screwdriver.



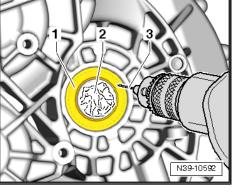
Installation is carried out in reverse sequence; note the following:

- Lightly lubricate outer circumference and sealing lips of oil seal with gear oil. Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not
- Installation position: Topic in side up to the correctness of information in this document. Copyright by AUDI AG.
- Fit oil seal by hand, keeping it straight and pushing it in as far as it will go, so that oil seal is held in gearbox housing.
- Drive oil seal in onto stop using thrust piece -T10457- . Make sure seal remains straight.
- Install drive shaft (left-side) ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40.
- Check gear oil level and top up as required ⇒ page 63.



#### 1.2 Renewing stub shaft oil seal (right-side) with bevel box installed

Special tools and workshop equipment required

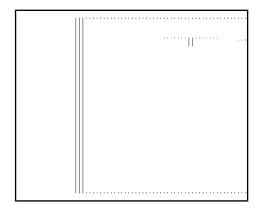


T10055/2

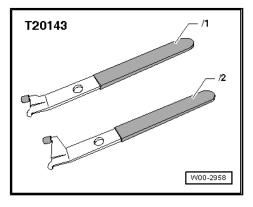
10055

N39-10593

♦ Thrust piece -T10143-



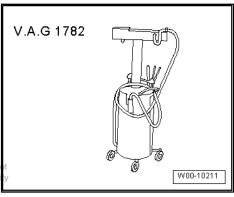
♦ Extractor tool -T20143-



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



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Sealing grease -G 052 128 A1-



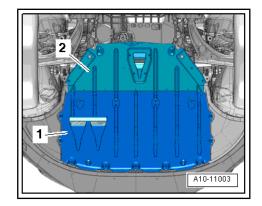
# Note

- The oil seal can be renewed with the gearbox installed.
- Observe the general repair instructions ⇒ page 10.
- Observe rules for cleanliness when working on the gearbox *⇒ page 12* .

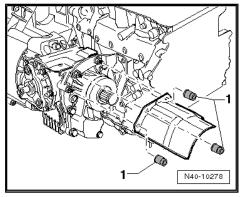
# Removing oil seal

- Raise vehicle.

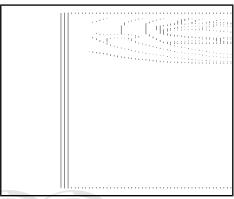
Remove noise insulation panels -1- and -2- ⇒ General body repairs, exterior; Rep. gr. 66.



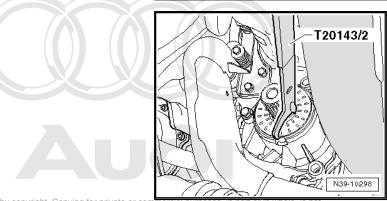
Remove nuts -1- and detach heat shield for drive shaft (rightside).



- Remove drive shaft (right-side) ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40.
- Remove circlip -arrow A- and O-ring -arrow B- from stub shaft.
- Place used oil collection and extraction unit -V.A.G 1782- or drip tray below bevel box.



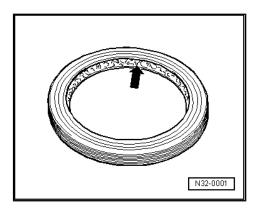
Pry out oil seal.



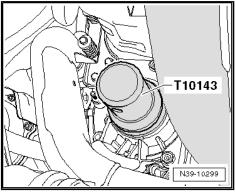
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# Installing oil seal

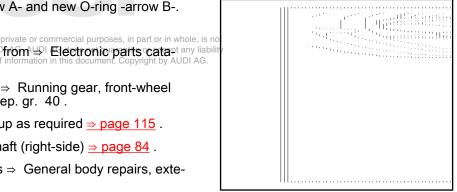
Lightly oil outer circumference of new oil seal and fill space between sealing lips -arrow- about half full with sealing grease -G 052 128 A1- .



Drive in new oil seal onto stop (take care to keep oil seal straight).



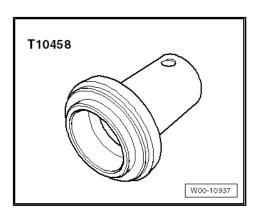
- Then install new circlip -arrow A- and new O-ring -arrow B-.
- Grease splines of stub shaft.
- Select correct type of grease from Electronic parts catant any liabil locuse with respect to the correctness of information in this document. Copyright by AUDI AG. logue.
- Install drive shaft (right-side) ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 40.
- Check gear oil level and top up as required <u>⇒ page 115</u>.
- Install heat shield for drive shaft (right-side) ⇒ page 84.
- Install noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66.

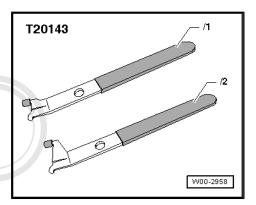


# 1.3 Renewing oil seal between dual clutch gearbox and bevel box with gearbox installed

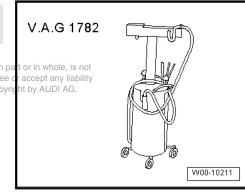
# Special tools and workshop equipment required

♦ Thrust piece -T10458-





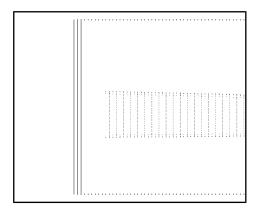
Used oil collection and extraction unit -V.A.G 1782-



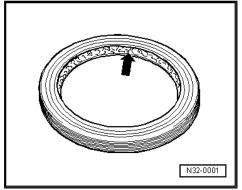
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#### **Procedure**

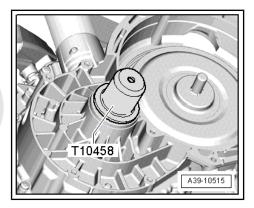
- Remove bevel box ⇒ page 77.
- Place used oil collection and extraction unit -V.A.G 1782- below gearbox.
- Pry out oil seal from dual clutch gearbox using extractor tool -T20143/1- or -T20143/2- .



 Lightly oil outer circumference of new oil seal and fill space between sealing lips -arrow- about half full with sealing grease
 G 052 128 A1- .



- Carefully drive in oil seal as far as stop using thrust piece -T10458- .
- Install bevel box ⇒ page 81.
- Check gear oil level and top up as required ⇒ page 63.





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#### 2 Exploded view - oil seals in bevel box and stub shaft bearings in bevel box

#### 1 - Oil seal Between bevel box and dual clutch gearbox □ Renewing (with bevel box removed) ⇒ page 108 9 2 - Oil seal ☐ For stub shaft (rightside), on gearbox side Renewing (with bevel box removed) or private or commercial purposes, in part or in whole, is not <u>⇒ page 103</u> permit d unless authorised by AUD AG. AUDI AG does not guarantee or accept any liability o o forma 3 - Bevel box with spect to the conlectne this document. Copyright by AUDI AG. Removing and installing ⇒ page 77 4 - Oil seal For stub shaft on out-10 side of bevel box □ Renewing (with bevel box installed) 13 ⇒ page 96 ☐ Renewing (with bevel 14 box removed) ⇒ page 103 5 - Circlip Always renew □ Fit in annular groove in stub shaft 6 - O-ring Always renew ☐ Fit in annular groove in N39-10300 stub shaft

# 7 - Stub shaft (right-side)

□ Removing and installing ⇒ page 106

# 8 - Needle bearing (polygon bearing)

- Does not turn easily when 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 106

# 9 - Circlip

- Always renew
- ☐ Fit in annular groove in stub shaft

#### 10 - Nut

- □ 480 Nm
- □ Removing ⇒ page 112
- ☐ Install with locking fluid; for locking fluid refer to ⇒ Electronic parts catalogue
- □ Installing ⇒ page 114
- Always renew

# 11 - Output flange

□ For bevel box

#### 12 - Oil seal

- □ For output flange on bevel box
- ☐ Renewing <u>⇒ page 110</u>

#### 13 - Bolt

- □ 25 Nm
- ☐ Tighten diagonally

# 14 - Pinion housing

- □ With shaft bevel gear
- ☐ Drive in carefully on alternate sides
- ☐ Observe bolt holes; pinion housing fits only in one position

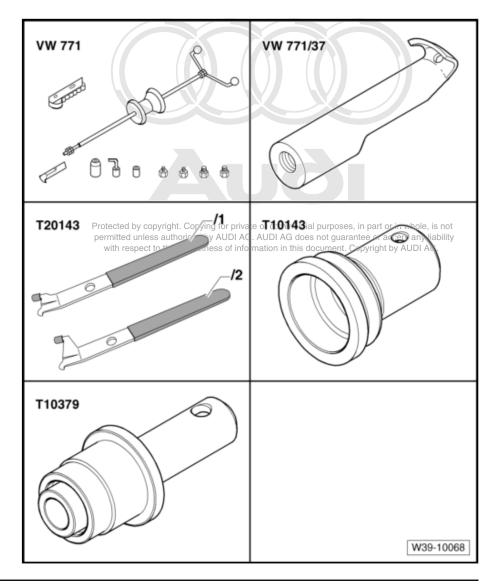
# 15 - O-ring

- ☐ To renew, unscrew bolts <u>⇒ Item 13 (page 103)</u> and carefully lever off pinion housing at projecting webs on outside edge
- ☐ Do not remove nut ⇒ Item 10 (page 102) and output flange ⇒ Item 11 (page 102)

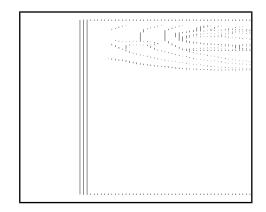
#### 2.1 Renewing oil seals for stub shaft (right-side) with bevel box removed

# Special tools and workshop equipment required

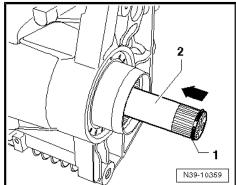
- Multi-purpose tool -VW
- Extractor hook -VW 771/37-
- ◆ Extractor tool -T20143-
- Thrust piece -T10143-
- Thrust piece -T10379-



- Bevel box removed  $\Rightarrow$  page 77.
- Remove circlip -arrow A- and O-ring -arrow B- from stub shaft.



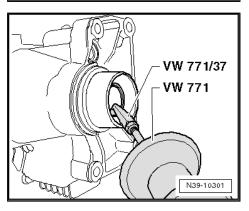
- Detach circlip -1- from stub shaft -2-.
- Carefully knock out stub shaft -2- in direction of arrow using a plastic hammer.



Pull out stub shaft oil seal on gearbox side.



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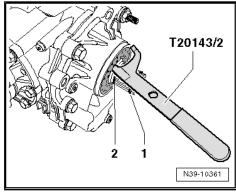


Lever out stub shaft oil seal on drive shaft side.

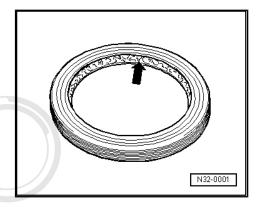


# Note

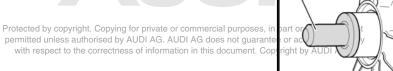
Items -1- and -2- can be disregarded.



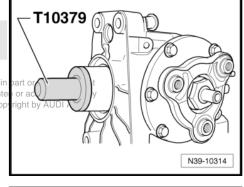
Lightly oil outer circumference of new oil seal and fill space between sealing lips -arrow- about half full with sealing grease -G 052 128 A1- .



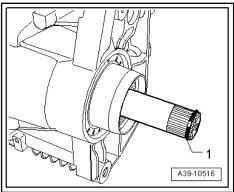
- Drive in oil seal on gearbox side as far as stop.
- Carefully drive stub shaft into bevel box using plastic hammer.



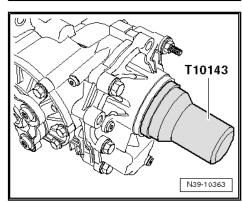
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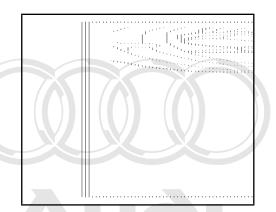
- Fit new circlip -1- on stub shaft on gearbox side.



- Drive in oil seal on drive shaft side as far as stop.



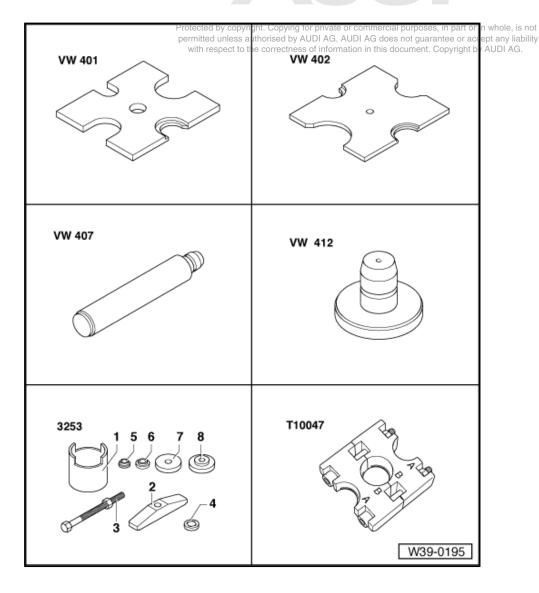
- Then install new circlip -arrow A- and new O-ring -arrow B-.
- Grease splines of stub shaft.
- Select correct type of grease from ⇒ Electronic parts catalogue .
- Install bevel box ⇒ page 81.
- Fill up gear oil in bevel box ⇒ page 119.



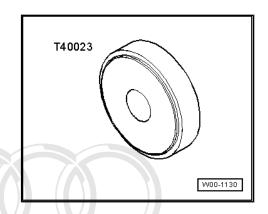
#### Renewing needle bearing (polygon bearing) on stub shaft of bevel box 2.2

#### Special tools and workshop equipment required

- Thrust plate -VW 401-
- Thrust plate -VW 402-
- Press tool -VW 407-
- Press tool -VW 412-
- Assembly tool -3253/5-
- Clamp -T10047-

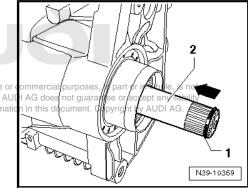


♦ Thrust piece -T40023-



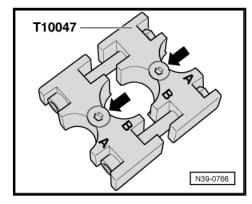
#### Removing

- Remove bevel box ⇒ page 77.
- Detach circlip -1- from stub shaft -2-.
- Carefully knock out stub shaft -2- in direction of arrow using a plastic hammer.



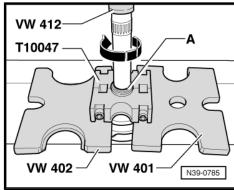
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- Assemble assembly tool -T10047-, as shown in illustration.
- · Marks "B" on both parts of tool face each other.
- The stepped shoulders -arrows- must then be below the bearing.
- Screw parts together as far as stop.



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

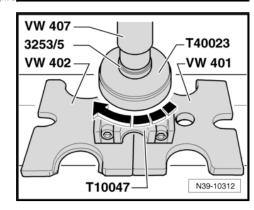
#### Installing



Assemble assembly tool -T10047-, as shown in illustration.

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- 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.
- Carefully drive in stub shaft as far as stop using plastic hammer.



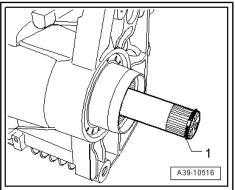
N39-0766

T10047

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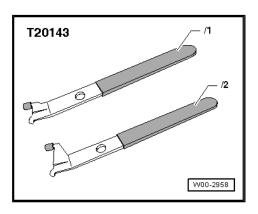
- Fit new circlip -1- on stub shaft.
- Install bevel box ⇒ page 81.
- Fill up gear oil in bevel box ⇒ page 119.



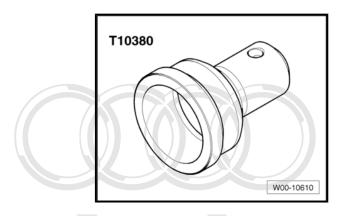
#### 2.3 Renewing oil seal between bevel box and dual clutch gearbox (on bevel box)

Special tools and workshop equipment required

♦ Extractor tool -T20143-

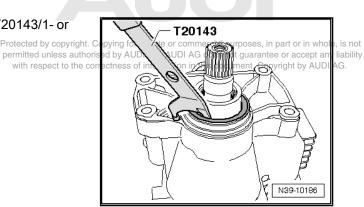


◆ Thrust piece -T10380-

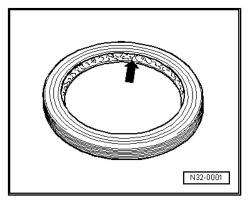


#### **Procedure**

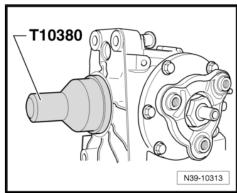
- Bevel box removed  $\Rightarrow$  page 77.
- Pull oil seal out of bevel box using extractor tool -T20143/1- or -T20143/2- . Protected by copyright. C



Lightly oil outer circumference of new oil seal and fill space between sealing lips -arrow- about half full with sealing grease -G 052 128 A1- .



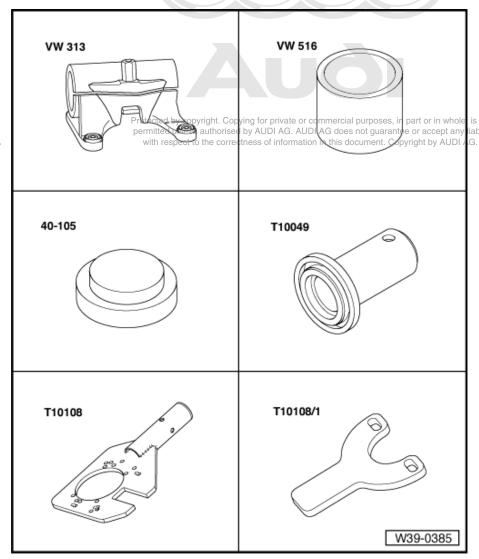
- Drive in oil seal as far as stop using thrust piece -T10380-.
- Install bevel box ⇒ page 81.



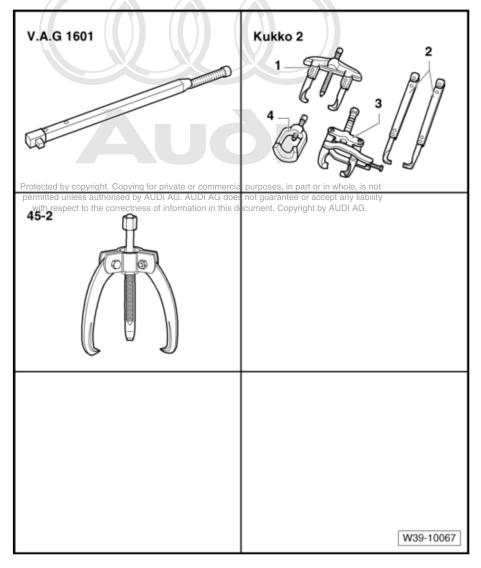
### 2.4 Renewing output flange oil seal on bevel box (bevel box removed)

# Special tools and workshop equipment required

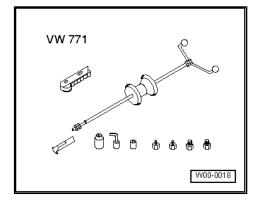
- ♦ Support clamp -VW 313-
- ♦ Tube -VW 516-
- ◆ Thrust plate -40-105-
- ♦ Thrust piece -T10049-
- ♦ Gearbox support -T10108-
- Support plate -T10108/1-



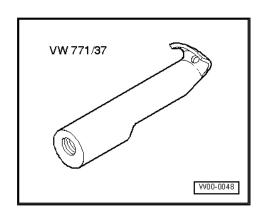
- Torque wrench -V.A.G 1601-
- -1- Two-arm puller -Kukko 20/10-
- Three-arm puller -Kukko 45-2-



♦ Multi-purpose tool -VW 771-



#### Extractor hook -VW 771/37-



- Sealing grease -G 052 128 A1-
- Bolts (2x) M 10 x 30
- ♦ Nuts (4x) M 12 x 10

#### Removing

- Remove bevel box  $\Rightarrow$  page 77.
- Locate bevel box on hole marked -5- -arrow- in gearbox support -T10108- .

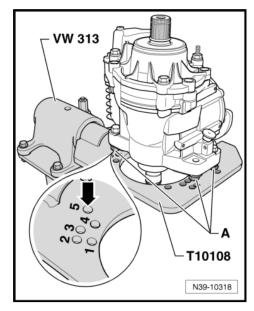
A - Place nuts M 12 x 10 (4x) between bevel box and gearbox support . Nuts function as spacers.

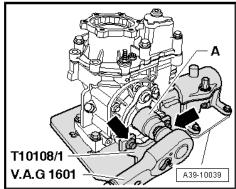
- Then align bevel box with hole opposite and secure.
- Place drip tray underneath.
- Drain gear oil out of bevel box.



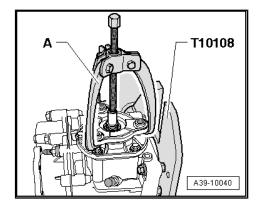
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- Lock bevel box output flange with support plate -T10108/1- by screwing in two M 10 x 30 bolts -arrows-.
- Unscrew hexagon nut for output flange.
- A 36 mm socket for 3/4" drive
- Swing bevel box so that output flange points upwards.

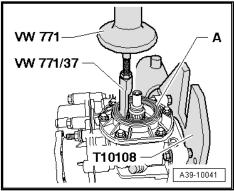




- Pull output flange off shaft bevel gear of bevel box.
- A Three-arm puller, e.g. -Kukko 45-2-

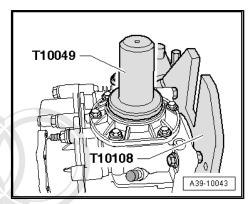


- Pull out oil seal -A- for output flange.
- Clean residual locking fluid from thread of shaft bevel gear.

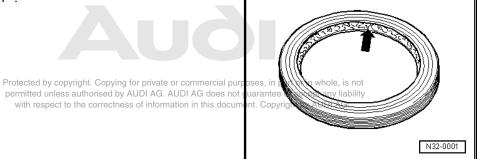


### Installing

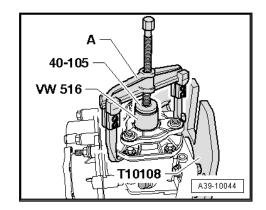
- Lightly oil outer circumference of new oil seal.
- Drive in oil seal as far as stop using thrust piece -T10049- .



Pack space between sealing lip and dust lip half-full with sealing grease -G 052 128 A1- .



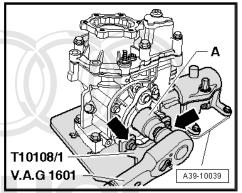
- Δυδι
- Apply puller hooks to underside of pinion housing and draw in output flange.
- A Two-arm puller, e.g. -Kukko 20/10-
- Coat thread of new nut for output flange with locking fluid; for locking fluid refer to ⇒ Electronic parts catalogue.



#### Tightening new hexagon nut for output flange to specified torque

Tightening torque ⇒ Item 10 (page 102)

- A 36 mm socket for 3/4" drive
- Install bevel box ⇒ page 81.
- Fill up gear oil in bevel box ⇒ page 119.



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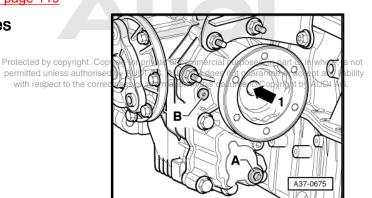
#### 3 Gear oil in bevel box

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

- ⇒ "3.1 Overview of tightening torques", page 115
- ⇒ "3.2 Checking gear oil level", page 115
- ⇒ "3.3 Topping up gear oil", page 116
- ⇒ "3.4 Draining gear oil and filling up after repairs", page 119

#### 3.1 Overview of tightening torques

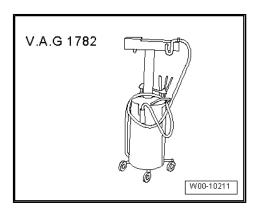
- A Oil drain plug
  - Tightening torque: 15 Nm
- B Oil filler plug
  - · Tightening torque: 15 Nm
  - · Always renew plugs -A- and -B-.



#### 3.2 Checking gear oil level

Special tools and workshop equipment required

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



Safety goggles



#### Note

- Observe the general repair instructions ⇒ page 10.
- Observe rules for cleanliness when working on the gearbox *⇒ page 12 .*
- Comply with notes on dual clutch gearbox 0BH "Disposal regulations for oils" ⇒ page 6.

#### **Procedure**

- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Selector lever in position "P", handbrake applied.
- Engine not running.

- Remove noise insulation panels -1- (front) and -2- (rear) ⇒ General body repairs, exterior; Rep. gr. 66.
- Place used oil collection and extraction unit -V.A.G 1782- below bevel box.



#### **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
   ⇒ page 116 . For Part No. refer to ⇒ Electronic parts catalogue .
- Tightening torque <u>⇒ page 115</u>



#### Note

Renew screw plug for oil filler hole.

Install noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66.

## 3.3 Topping up gear oil

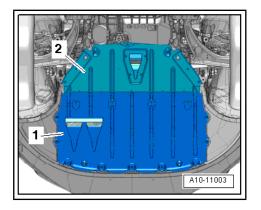
Special tools and workshop equipment required

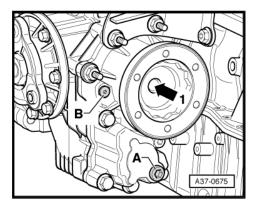
◆ Used oil collection and extraction unit -V.A.G 1782-

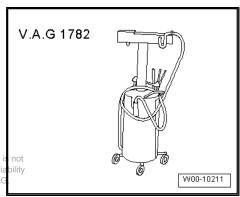


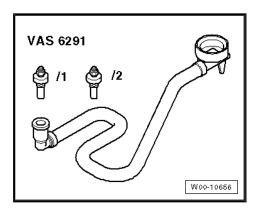
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♦ Charging device -VAS 6291-





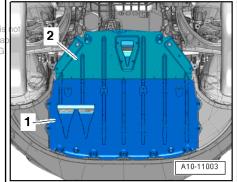




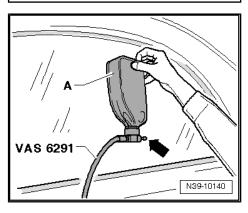
- Adapter -VAS 6291/2-
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Selector lever in position "P", handbrake applied.
- Engine not running.

#### **Procedure**

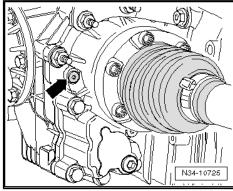
- Remove noise insulation panels -1- (front) and -2- (rear)  $\Rightarrow$  General body repairs, exterior; Rep. gr. 66 .
- For topping up use charging device VAS 6291+guarantee or accept any li of information in this document. Copyright by AUDI AG



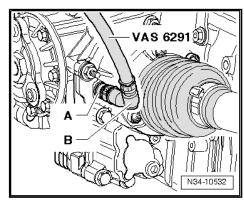
- Run hose of charging device -VAS 6291- behind right drive shaft and through right wheel housing to outside.
- Place used oil collection and extraction unit -V.A.G 1782- below bevel box.



Remove oil filler plug -arrow- in bevel box.

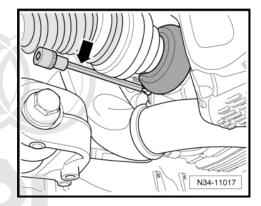


- Screw in adapter -A- -VAS 6291/2- as far as stop.

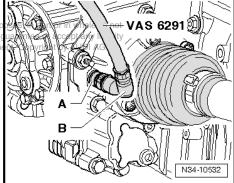


A hexagon key can be used for this.

-Arrow- = hexagon key, 5 mm, commercially available.

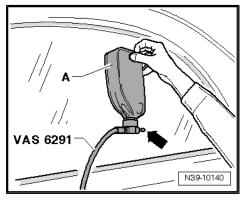


- Connect elbow joint -B- onto adapter -A-, making sure it engages.
- The hose must not hang down respect to the correctness of information in this docur



- Make sure that valve -arrow- is closed.
- Screw oil container -A- onto charging device -VAS 6291- .
- Open valve -arrow- and hold up oil container as shown in illustration.

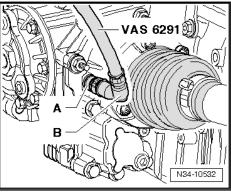
The bevel box will now be filled.





#### Note

- The bevel box is filled correctly when oil starts to emerge at adapter -A-.
- If no oil comes out, continue filling.
- When oil comes out at adapter -A-, put down oil container so that excess oil can drain back into container.



- As soon as oil stops flowing back into container, remove charging device by pressing catch in direction of -arrow-.
- Unscrew adapter -VAS 6291/2-.
- Screw in »old« oil filler plug and tighten lightly.
- Start engine, engage a gear and allow gearbox to turn for approx. 2 minutes.
- Switch off engine and remove oil filler plug.
- Check oil level and fill gear oil up to bottom lip of filler hole again if necessary.
- Screw in new oil filler plug.
- Tighten plug to specified torque ⇒ page 115.

Thoroughly clean off any oil that has spilt onto bevel box.

Install noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66.

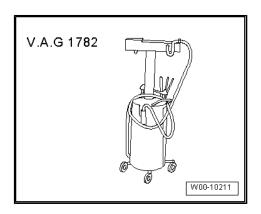
## 3.4 Draining gear oil and filling up after re-



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-

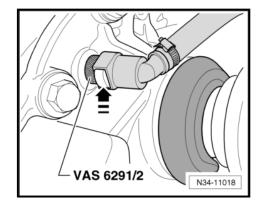


♦ Safety goggles

#### **Procedure**

- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Selector lever in position "P", handbrake applied.
- Engine not running.





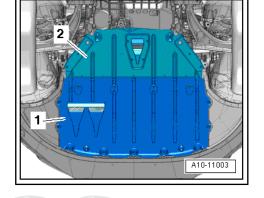
- Remove noise insulation panels -1- (front) and -2- (rear) ⇒ General body repairs, exterior; Rep. gr. 66.
- Place used oil collection and extraction unit -V.A.G 1782- below gearbox.



#### **WARNING**

Hot gear oil can cause burns.

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



- Remove oil drain plug -A-.
- Drain gear oil.
- Tighten new oil drain plug -A-.
- Remove screw plug from oil filler hole -B-.
- Fill up gear oil in bevel box <u>⇒ page 116</u>. For Part No. refer to ⇒ Electronic parts catalogue .
- Specification: gear oil level up to bottom lip of filler hole.
- Tightening torques <u>⇒ page 115</u>

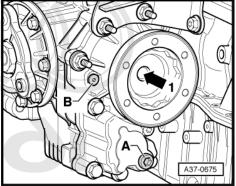


### Note

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Renew oil drain plug and oil filler plug.

Install noise insulation panels ⇒ General body repairs, exterior; Rep. gr. 66.



#### **Propshaft** 4

Description of propshaft  $\Rightarrow\,$  Rear final drive 02D, 0AV, 0BR and 0BY; Rep. gr.  $\,$  39 .



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#### 5 Rear final drive

Description of rear final drive  $\Rightarrow$  Rear final drive 02D, 0AV, 0BR and 0BY; Rep. gr. 39 .



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