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6-speed manual gearbox 02Q, front-wheel drive

Edition 04.2010



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

Repair Group

00 - Technical data

30 - Clutch

34 - Controls, housing

35 - Gears, shafts

39 - Final drive - differential



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

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Technical data 00 -

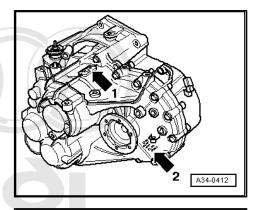
Gearbox identification

The 6-speed manual gearbox 02Q, front-wheel drive is installed in the Audi TT 2007 > in conjunction with the 2.0 ltr. FSI turbocharged engine.

Allocation <u>⇒ page 1</u>.

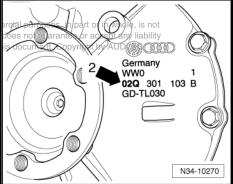
Location on gearbox

- Code letters and date of manufacture -arrow 1-
- Manual gearbox 02Q -arrow 2-



Manual gearbox 02Q -arrow-

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Code letters and date of manufacture of gearbox -arrow-

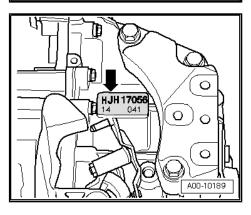
| Example: | HJH | 17 | 05 | 6 |
|----------|--------------|-----|-------|---------------------------------|
| | I | ı | I | I |
| | Code letters | Day | Month | Year of manufac- ture (2006) |

Additional data identify the factory where the unit was built.



Note

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



1.1 Code letters, allocation, transmission ratios, capacities

| Manual gearbox | | 6-speed 02Q | | |
|----------------|-------|----------------|----------------|----------------|
| Code letters | | HJH | JLZ | KDR |
| Manufactured | from | 05.05 | 08.06 | 06.07 |
| | to | 06.05 | 05.07 | 02.08 |
| Allocation | Model | Audi TT 2007 > | Audi TT 2007 > | Audi TT 2007 > |

| Manual gearbox | | 6-speed 02Q | | |
|--|---|-------------------------------|-------------------------------|-------------------------------|
| Code letters | | HJH | JLZ | KDR |
| | Engine | 2.0 ltr 147 kW FSI tur- bo | 2.0 ltr 147 kW FSI tur- bo | 2.0 ltr 147 kW FSI tur- bo |
| Ratio | Final drive I for 1st to 4th gear | 71 : 18 = 3.944 | 71 : 18 = 3.944 | 71 : 18 = 3.944 |
| Z ₂ : Z ₁ = i | Final drive II for 5th/6th gear and reverse gear | 71 : 23 = 3.087 | 71 : 23 = 3.087 | 71 : 23 = 3.087 |
| | 1st gear | 47 : 14 = 3.357 | 47 : 14 = 3.357 | 47 : 14 = 3.357 |
| | 2nd gear | 48 : 23 = 2.087 | 48 : 23 = 2.087 | 48 : 23 = 2.087 |
| | 3rd gear | 47 : 32 = 1.469 | 47 : 32 = 1.469 | 47 : 32 = 1.469 |
| | 4th gear | 46 : 40 = 1.150 | 46 : 40 = 1.150 | 46 : 40 = 1.150 |
| | 5th gear | 43 : 36 = 1.194 | 43 : 36 = 1.194 | 43 : 36 = 1.194 |
| | 6th gear | 39 : 40 = 0.975 | 39 : 40 = 0.975 | 39 : 40 = 0.975 |
| | Reverse gear | 34 : 23 x 14 : 14 = 3.990 | 34 : 23 x 14 : 14 = 3.990 | 34 : 23 x 14 : 14 = 3.990 |
| Overall ratio i _{OV.} in top gear | | 3.010 3.010 3.010 | | 3.010 |
| Gear oil capacity | | 2.3 litres | | |
| Clutch actuation | | Hydraulic | | |

The following data can be found in the ⇒ Electronic parts catalogue .

♦ Gear oil specification

- ◆ Allocation of drive shaft flange type
- Allocation of clutch type

| Manual gearbox | | 6-speed 02Q | | |
|--|---|---|---------------------------------|--|
| Code letters | | KNX | KZU | |
| Manufactured | from | 02.08 | 06.09 | |
| | to | 06.09 | | |
| Allocation | Model | Audi TT 2007 > | Audi TT 2007 > | |
| | Engine | 2.0 ltr 147 kW FSI tur- bo | 2.0 ltr 147 kW FSI tur- bo | |
| Ratio | Final drive I for 1st to 4th gear | 71 : 18 = 3.944 | 71 : 18 = 3.944 | |
| $Z_2: Z_1 = i$ | Final drive II for 5th/6th gear and reverse gear | 71 : 23 = 3.087 | 71 : 23 = 3.087 | |
| | 1st gear | 47 : 14 = 3.357 | 47 : 14 = 3.357 | |
| | 2nd gear | 48 : 23 = 2.087 | 48 : 23 = 2.087 | |
| | 3rd gear | 47 : 32 = 1.469 | 47 : 32 = 1.469 | |
| Protocted by convis | 4th gear | 46 : 40 = 1.150 | 46 : 40 = 1.150 | |
| Protected by copyr ight. Copyling for private or permitted unless authorised by 5th gear . | | DI AG 43 s n 36 u a ra 1 ide 94 accept | any lia 43 y: 36 = 1.194 | |
| with respect to the | ne correctness of informati 6th gear | on in this document. Copyright by At 39: 40 = 0.975 | 39 : 40 = 0.975 | |
| | Reverse gear | 34 : 23 x 14 : 14 = 3.990 | 34 : 23 x 14 : 14 = 3.990 | |
| Overall ratio i _{OV.} in top gear | | 3.010 | 3.010 | |
| Gear oil capacity | | 2.3 litres | | |
| Clutch actuation | | Hydraulic | | |

| Manual gearbox | 6-speed 02Q | | |
|----------------|-------------|-----|--|
| Code letters | KNX | KZU | |

The following data can be found in the \Rightarrow Electronic parts catalogue . \spadesuit Gear oil specification

- Allocation of drive shaft flange type
- Allocation of clutch type



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2 Transmission layout

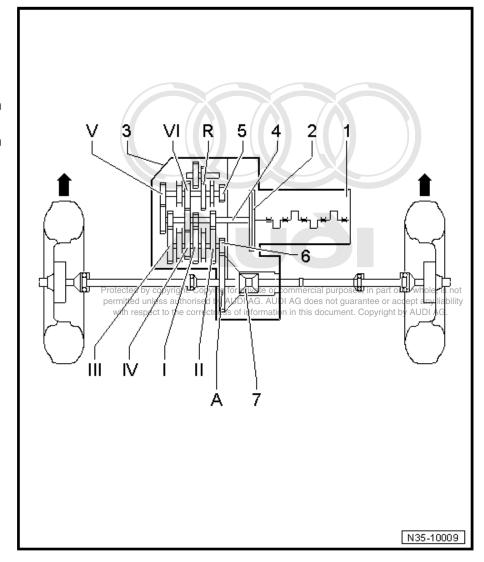
Identification



Note

-Arrows- point in direction of travel.

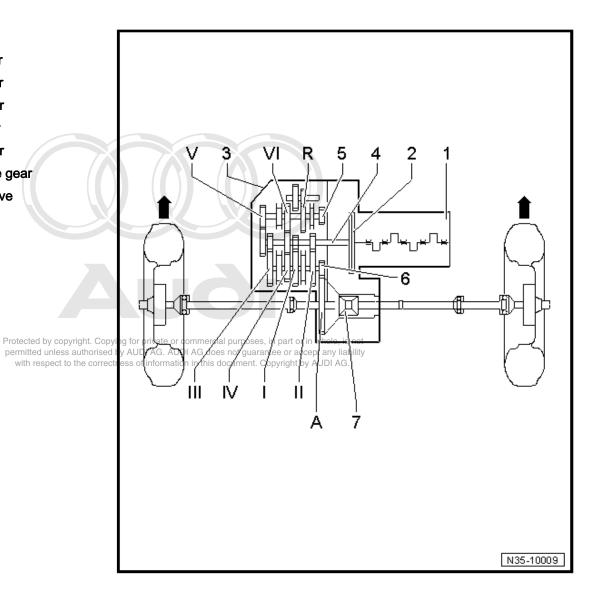
- 1 Engine
- 2 Clutch
- 3 Manual gearbox
- 4 Input shaft
- 5 Output shaft II for 5th, 6th and reverse gear
- 6 Output shaft I for 1st 4th
- 7 Differential

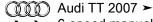


Ratio

Arrows point in direction of travel

- I 1st gear
- II 2nd gear
- III 3rd gear
- IV 4th gear
- V 5th gear
- VI 6th gear
- R Reverse gear
- A Final drive





3 Calculating ratio "i"

Example:

| | 6th gear | Final drive |
|-------------|----------------------|----------------------|
| Drive gear | ZG ₁ = 40 | ZA ₁ = 23 |
| Driven gear | ZG ₂ = 39 | ZA ₂ = 71 |

 $i = ZG_2 : ZG_1^{1}$

 $i_G = gear \ ratio = ZG_2 : ZG_1 = 39 : 40 = 0.975$

 i_A = axle ratio = ZA_2 : ZA_1 = 71 : 23 = 3.087

 i_{OV} = overall ratio = i_{G} x i_{A} = 0.975 x 3.087 = 3.010

1) Z_1 = No. of teeth on drive gear, Z_2 = No. of teeth on driven gear



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4 General 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.

4.1 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:

- The gearbox casing is made of a magnesium alloy.
- Use only genuine spare parts: these have been fully tested and are compatible with aluminium.
- We recommend the use of accessories approved by Audi.



Caution

Damage caused by contact corrosion is not covered under warranty.

4.2 Repair instructions

Special tools

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

Gearbox

- Thoroughly clean all joints and connections and the surrounding areas before dismantling.
- When installing the gearbox, ensure that the dowel sleeves between the engine and the gearbox are correctly located.
- For allocation of bolts and other components, refer to \Rightarrow Electronic parts catalogue.
- Clean contact surfaces when assembling mounting brackets private or commercial purposes, in part or in whole, is not and waxed components. The contact surfaces must be free of AG. AUDI AG does not guarantee or accept any liability wax and grease. with respect to the correctness of information in this document. Copyright by AUDI AG.
- After installing a replacement gearbox, check oil level and top up with gear oil as required ⇒ page 107.
- Capacities ⇒ page 1.
- Specifications ⇒ Electronic parts catalogue.

Oil seals, seals, O-rings and gaskets

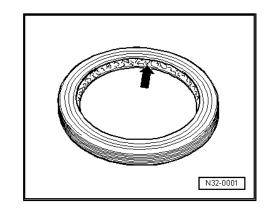
- Always renew oil seals, O-rings and gaskets.
- After removing gaskets and seals, always inspect the contact surface on the housing or shaft for burrs resulting from removal or for other signs of damage.
- Before installing oil seals, lightly oil the outer circumference of the seal and fill the space between the sealing lips -arrowabout half full with grease -G 052 128 A1- .
- The open side of the oil seal should face the side containing the fluid.
- When installing a new oil seal, position the seal in the housing so that the sealing lip does not contact the shaft in the same place as the old seal (make use of installation depth tolerances).
- Lightly lubricate O-rings with oil before installation to prevent them being trapped during assembly.
- Check oil level after installing new gaskets, O-rings and oil seals <u>⇒ page 107</u>.

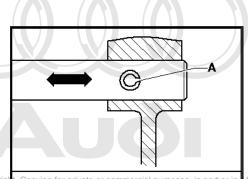


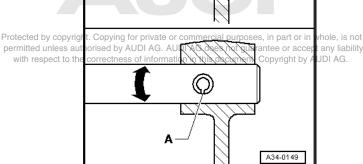
- Thoroughly clean joint surfaces on gearbox housing etc. before applying sealing paste.
- Apply sealing paste -AMV 188 200 03- evenly and not too
- Breather holes must remain free of sealing paste.

Locking elements

- Do not over-stretch circlips.
- Always renew circlips which have been damaged or overstretched.
- Circlips must be properly seated in the base of the groove.
- Renew spring pins. Position: the slit -A- should be in line with the line of force -arrow-.







Nuts, bolts

- Loosen the nuts and 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 and bolts.
- The tightening torques stated apply to non-oiled nuts and bolts.
- Threaded holes which take self-locking bolts or bolts coated with locking fluid must be cleaned (using a tap or similar). Otherwise there is a danger of the bolts shearing off the next time they are removed.
- For all threaded connections, ensure that (where applicable) the contact surfaces and the nuts and bolts are not coated with wax until after assembly is completed.

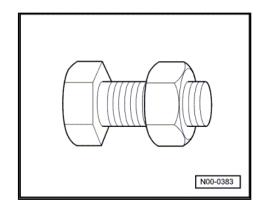
Bearings

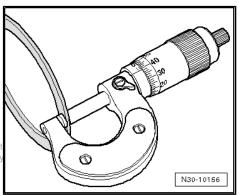
- Install new tapered roller bearings as supplied; do not lubricate additionally with oil.
- Lubricate all bearings (except tapered roller bearings) with gear oil before installing in gearbox.
- Use inductive heater -VAS 6414- to heat inner races of tapered roller bearings to approx. 100°C before installing. Press home onto stop when installing so there is no axial clearance.
- Do not interchange inner or outer races of bearings of the same size.
- If required, renew the tapered roller bearings on one shaft together and use new bearings from a single manufacturer.
- Install needle bearings so the lettering (side with thicker metal) faces towards the installing tool.

Shims

- Use a micrometer to measure the shims at several points. Different shim thicknesses make it possible to obtain the exact thickness required.
- Check for burrs and damage.
- ♦ Install only shims which are in perfect condition.

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Synchro-rings

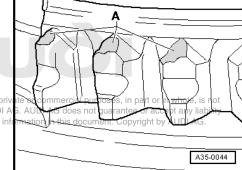
- Do not interchange synchro-rings. When reusing always fit to the same selector gear.
- Check for wear; renew if necessary.
- Check the grooves -arrow 1- on synchro-ring -A- and on inner ring for wear (flattened sections in grooves).
- Make sure that the coating of coated synchro-rings is not damaged.
- If an intermediate ring -B- is fitted, check the outer contact surface -arrow 2- and inner contact surface -arrow 3- of the intermediate ring for "scoring", "visible traces of wear" and "blue discolouration (caused by overheating)".
- Check chamfer on selector gear for scoring and visible traces of wear.
- Lubricate synchro rings with gear oil before installing.

Gear wheels

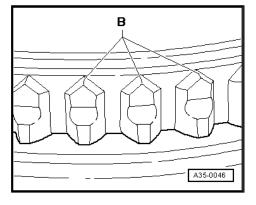
- Clean before pressing on.
- Use inductive heater -VAS 6414- to heat to approx. 100°C before installing. Press home onto stop when installing so there is no axial clearance.

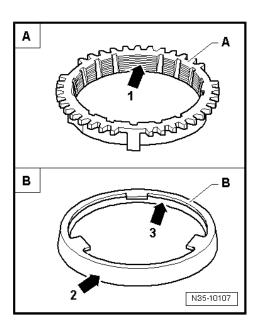
Selector gears and locking collars

- After installing, check 1st to 6th speed selector gears for minimal axial play and freedom of movement.
- ♦ Abnormal wear on synchro-ring or selector gear:
- A Worn chamfer on dog teeth of synchro-ring or selector gear.

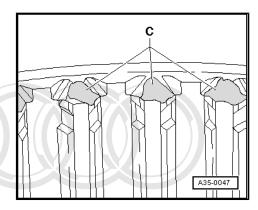


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- ♦ In comparison: intact synchro-ring or selector gear:
- B Intact chamfer on dog teeth of synchro-ring or selector gear.





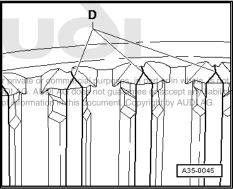
- ♦ Abnormal wear on locking collar:
- C Worn chamfer on internal splines of locking collar.



- ♦ In comparison: intact locking collar:
- D Intact chamfer on internal splines of locking collar.

Clutch actuation, clutch

- ♦ If the clutch pedal does not return to its initial position after Copying to releasing it (clutch pedal in rest position), youemust bleed theed by A clutch system (further measures ⇒ page 12). with respect to the correctness
- Ensure that the pressure plate is kept straight: loosen and tighten bolts consecutively in steps of 90°.
- If the clutch has burnt out, thoroughly clean the gearbox housing in area of clutch and parts of the engine facing the gearbox in order to prevent odours.
- Only blow out dual-mass flywheel with compressed air.
- Clutch pressure plates have an anti-corrosion coating and are greased. With the exception of the friction surface for the clutch plate, the pressure plate must not be cleaned. Otherwise the service life of the clutch will be considerably reduced.
- The friction surface of the pressure plate and the dual-mass flywheel must be cleaned (degreased) thoroughly.



30 – Clutch

Overview - clutch mechanism



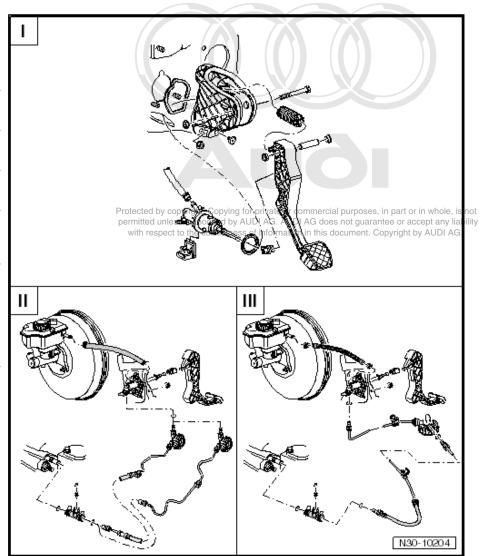
Note

If you suspect a defective clutch master cylinder or clutch slave cylinder, pay attention to

⇒ "1.1 Notes on removing and installing clutch master cylinder and slave cylinder", page 12 and perform

⇒ "1.2 Function check for clutch master cylinder and slave cylinder", page 13 prior to renewing.

- ⇒ "2 Exploded view pedal cluster, clutch master cylin-<u>der", page 15</u>
- ⇒ "2.1 Removing and installing over-centre spring", page 16
- ⇒ "2.2 Removing and installing clutch pedal", page 18
- ⇒ "2.3 Removing and installing mounting bracket", page 21
- ⇒ "2.4 Removing and installing clutch position sender G476", <u>page 23</u>
- ⇒ "2.5 Removing and installing clutch master cylinder", page 24
- ⇒ <u>"3 Exploded view hydraul-</u> ics (LHD)", page 27
- ⇒ "3.1 Removing and installing pipe/hose assembly or plastic pipe", page 29
- ⇒ "3.2 Bleeding clutch system", page 31
- ⇒ "4 Exploded view hydraulics (RHD)", page 33



Notes on removing and installing clutch 1.1 master cylinder and slave cylinder

Before renewing the clutch master cylinder or slave cylinder on the assumption that it is defective you must first carry out a function check



⇒ "1.2 Function check for clutch master cylinder and slave cylinder", page 13

- If the slave cylinder is removed from gearbox with the pipe/ hose assembly still attached, make sure you do not press the clutch pedal. Otherwise, the piston will be pressed out of the slave cylinder and be destroyed.
- After installing the slave cylinder, carefully press the clutch pedal. If you feel an unusually strong point of resistance when depressing the clutch pedal, you must not press it down further. The plunger of the slave cylinder is likely to have been guided past the clutch release lever. The slave cylinder would then be destroyed once pedal force exceeds approx. 300 N.

1.2 Function check for clutch master cylinder and slave cylinder

Before you renew the clutch master cylinder or slave cylinder you must - in the case of the following faults - first carry out the appropriate checks.

Noises when operating the clutch:

- First check the over-centre spring: clutch pedal switch for AUDI AG does not guarantee or accept any liability noise. rith respect to the correctness of information in this document. Copyright by AUDI AG.
- If you hear a noise, remove over-centre spring and repeat check.
- Renew relevant component.

After releasing clutch pedal it still remains depressed / does not return to its initial position.

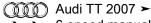
- Check whether the clutch pedal returns all the way to its initial position, thereby uncovering the vent opening in the master cylinder.
- The vent opening is integrated in the clutch master cylinder. It is not visible from the outside.
- The vent opening must be uncovered, otherwise the permanent self-bleeding function for the hydraulic clutch system will no longer be effective.
- Make the customer aware that the driver must NOT rest his/ her foot on the clutch pedal for long periods of time. This could impair the self-bleeding function of the clutch system as the vent opening in the master cylinder can no longer function.
- The self-bleeding function of the clutch system can be impaired if the footwell trim or floor mats get trapped, if the clutch pedal switch jams or if the driver rests his foot on the clutch pedal for long periods of time.

Check the complete hydraulic system for leaks.

- Check brake fluid level in brake fluid reservoir.
- Check clutch master cylinder and slave cylinder as well as the pipe/hose assembly including connections for external leaks (visual inspection).
- If you identify any leaks you must renew the leaking compo-
- Bleed clutch system ⇒ page 12.

Pedal forces:

approx. 140 N for complete service life of the clutch



High pedal force:

 Mechanical fault on pressure plate/clutch plate ⇒ page 39 or ⇒ page 45

Clutch does not disengage or does not disengage fully:

- ◆ Air in hydraulic system: bleed clutch system ⇒ page 12 and check hydraulic system for external and internal leaks.
- Clutch plate does not move smoothly on input shaft splines (due to corrosion or dirt, etc.)
- ◆ Foreign body in clutch system
- Mechanical fault on pressure plate/clutch plate ⇒ page 39 or ⇒ page 45
- Wrong components used or components forgotten when carrying out repair work (e.g. intermediate plate or dowel sleeves).



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2 Exploded view - pedal cluster, clutch master cylinder



Note

Lubricate all bearings and moving surfaces with grease -G 000 450 02-.

1 - Plenum chamber partition panel

With mounting for mounting bracket

2 - Gasket

- □ Renew
- Between mounting bracket and plenum chamber partition panel
- □ Self-adhesive
- Bond onto mounting bracket

3 - Mounting bracket

- For clutch pedal
- Removing and installing ⇒ page 21

4 - Bolt

5 - Over-centre spring

□ Removing and installing authorised by AUDI A

6 - Bearing bush

7 - Pivot pin

8 - Clutch pedal

- Removing and installing ⇒ page 18
- ☐ If fitting new pedal rubber, cut to required size as described ⇒ page 16

9 - Retaining clip

□ For operating rod on

clutch master cylinder

10 - Seal

- □ Renew
- Between master cylinder and mounting bracket

11 - Clutch master cylinder

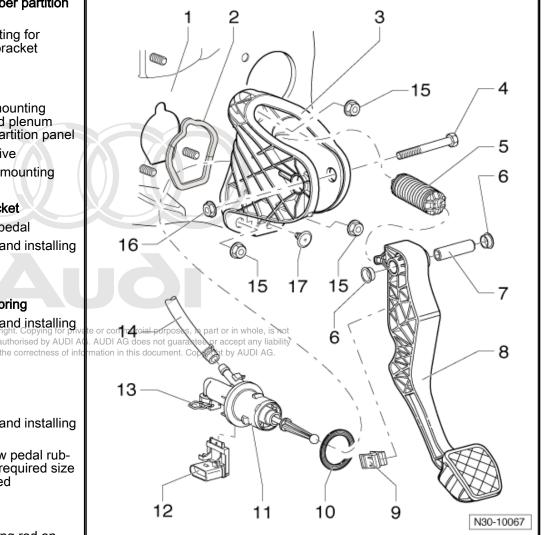
□ Removing and installing ⇒ page 24

12 - Clutch position sender -G476-

- □ Removing and installing ⇒ page 23
- ☐ Checking in "Guided Fault Finding" ⇒ Vehicle diagnosis, testing and information system VAS 5051

13 - Retaining clip

☐ To remove and install pipe/hose assembly, pull out clip as far as it will go



14 - Supply hose

- □ To brake fluid reservoir
- ☐ Made of rubber or plastic, depending on version
- ☐ Plastic supply hose with additional seals <u>⇒ page 28</u>

15 - Nut

- ☐ For securing mounting bracket to plenum chamber partition panel
- □ 20 Nm
- □ 3x
- □ Self-locking
- ☐ Renew

16 - Nut

- □ 25 Nm
- Self-locking
- ☐ Renew

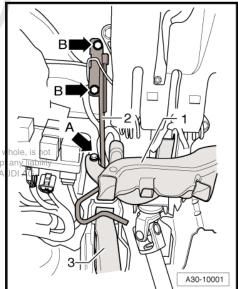
17 - Stop

☐ For clutch pedal

Crash bar - tightening torque

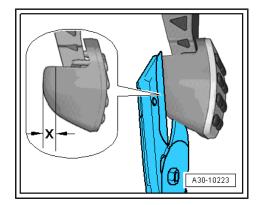
- Fit crash bar -2- and tighten 1 or 2 bolts (depending on version) -arrows B-.
- M6 10 Nm
- M8 20 Nm

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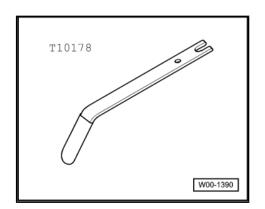
Renewing pedal rubber for clutch pedal

- Cut new clutch pedal rubber to size as illustrated.
- Dimension -x- = 20 mm



2.1 Removing and installing over-centre spring

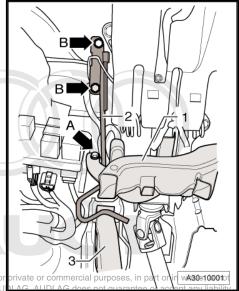
Special tools and workshop equipment required



♦ Grease -G 000 450 02-

Removing

- Clutch pedal mounting bracket fitted in vehicle
- Move driver's seat away from pedals.
- Remove storage compartment on driver's side ⇒ Rep. Gr.
- Unscrew bolt -arrow A- and remove footwell air outlet (front left) -1-.
- Unclip wiring harness at rear of footwell air outlet -1- and move clear to one side.
- Unbolt crash bar -2- (secured by one or two bolts -arrows B-, depending on version).



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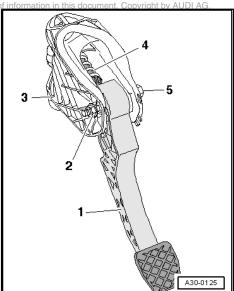
Unbolt clutch pedal -1- from mounting bracket -3-. To do this, remove nut -2- and pull out bolt -5-.



Note

The clutch pedal does not have to be detached from the operating rod on the clutch master cylinder.

Pivot clutch pedal down slightly and and take over-centre spring -4- out of mounting bracket.



Installing

• Tightening torque <u>⇒ page 15</u>

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



Note

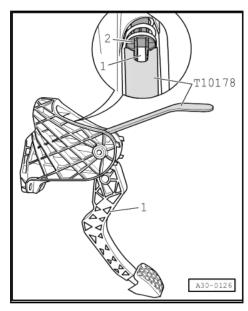
- ♦ Renew self-locking nut.
- ◆ Lubricate all bearings and contact surfaces with grease -G 000 450 02-.
- Fit over-centre spring -2- into mounting bracket from above while holding end of spring in correct position with assembly tool -T10178- .
- Socket -arrow- of over-centre spring must be in vertical position.
- Fit actuator on clutch pedal -A- into corresponding socket in over-centre spring -arrow-.
- Press clutch pedal slightly, push bolt through and tighten selflocking nut.
- Install crash bar ⇒ page 16.
- Install front footwell vent (left-side) ⇒ Rep. Gr. 80.
- Install storage compartment on driver's side ⇒ Rep. Gr. 68.

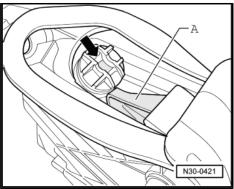
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted pleas authorized by ALDLIG AUDIAG loss not margine or accept any liability with respect to the property of the property of the protection of

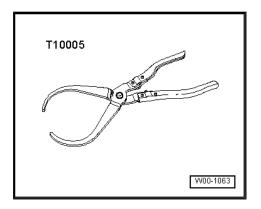
Special tools and workshop equipment required

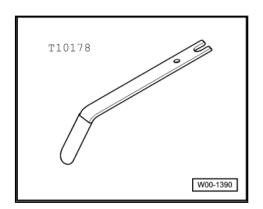
♦ Pliers -T10005-

2.2









♦ Grease -G 000 450 02-

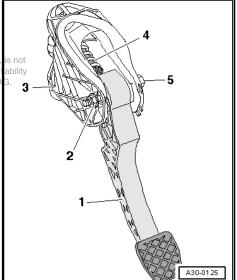
Removing

- Clutch pedal mounting bracket fitted in vehicle
- Move driver's seat away from pedals.
- Remove storage compartment on driver's side ⇒ Rep. Gr.
- Unscrew bolt -arrow A- and remove footwell air outlet (front left) -1-.
- Unclip wiring harness at rear of footwell air outlet -1- and move clear to one side.
- Unbolt crash bar -2- (secured by one or two bolts -arrows B-, depending on version).

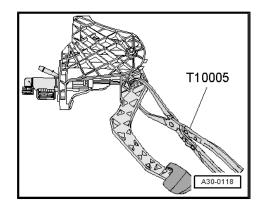


- Unbolt clutch pedal -1- from mounting bracket -3-. To do this, remove nut -2- and pull out bolt -5-.
- Pivot clutch pedal down slightly and and take over-centre spring -4-pout of mounting bracket wate or commercial purposes, in part or in whole,

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- Release retaining clip for operating rod on master cylinder using pliers -T10005-
- Remove clutch pedal.



Installing

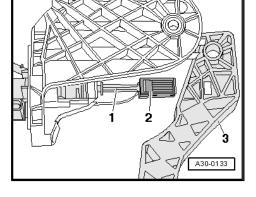
Tightening torque <u>⇒ page 15</u>

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



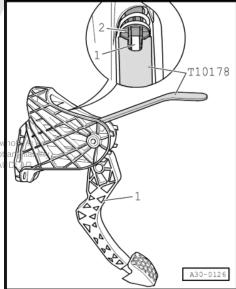
Note

- Renew self-locking nut.
- Lubricate all bearings and contact surfaces with grease -G 000 450 02- .
- Install retaining clip -2- on operating rod -1- of master cylinder.
- Press retaining clip into mounting on clutch pedal so that it snaps into place.
- Fit over-centre spring -2- into mounting bracket from above while holding end of spring in correct position with assembly tool -T10178-.





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- Socket -arrow- of over-centre spring must be in vertical posi-
- Fit actuator on clutch pedal -A- into corresponding socket in over-centre spring -arrow-.
- Press top of clutch pedal forwards against spring pressure of over-centre spring, push through bolt and tighten self-locking nut.



Note

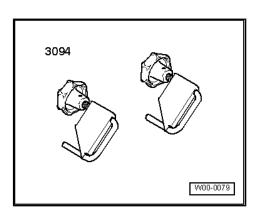
It is easier to press the clutch pedal against the spring if you pull back the bottom of the pedal carefully as you bring the top of the pedal into installation position.

- Install crash bar ⇒ page 16.
- Install front footwell vent (left-side) ⇒ Rep. Gr. 80.
- Install storage compartment on driver's side ⇒ Rep. Gr. 68.

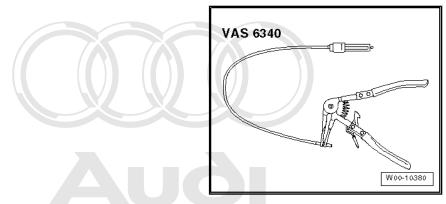
2.3 Removing and installing mounting bracket

Special tools and workshop equipment required

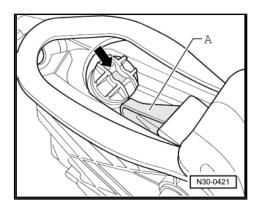
♦ Hose clamp, up to Ø 25 mm -3094-



♦ Hose clip pliers -VAS 6340-



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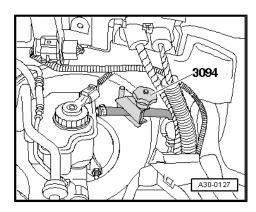


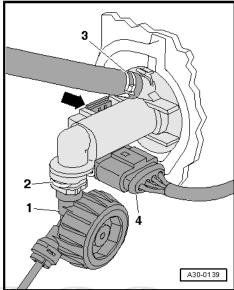
Removing

Note

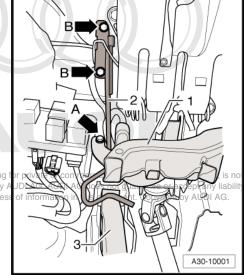
In the following steps make sure that no brake fluid escapes onto the longitudinal member or onto the gearbox below. If this does happen, clean the affected area thoroughly.

- Use hose clamp -3094- to clamp off supply hose to clutch master cylinder.
- Disconnect supply hose at clutch master cylinder (if necessary, release spring-type clip -3- using hose clip pliers -VAS 6340-).
- Release retaining clip -2- with a screwdriver and disconnect pipe/hose assembly -1- or plastic pipe from clutch master cylinder.
- Unclip and detach clutch position sender -G476- from clutch master cylinder -arrow-. Electrical connector -4- can remain connected.





- Move driver's seat to rear as far as possible and move steering wheel into uppermost position.
- Remove storage compartment on driver's side ⇒ Rep. Gr.
- Unscrew bolt -arrow A- and remove footwell air outlet (front
- Unclip wiring harness at rear of footwell air outlet -1- and move clear to one side.
- Unbolt crash bar -2- (secured by one or two bolts -arrows B-, depending on version).



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When working in the footwell, put cloths on the floor covering to protect it from possible brake fluid spills.

- Remove nuts -2-.
- Take out mounting bracket -1-.

Installing

Tightening torque ⇒ page 15

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





Note

- Renew self-locking nuts.
- Secure all hose connections with the correct hose clips (as original equipment); refer to ⇒ Electronic parts catalogue.
- Fit mounting bracket -1- and tighten nuts -2-.
- Install pipe/hose assembly or plastic pipe ⇒ page 29.
- Bleed clutch system ⇒ page 31.
- Install crash bar ⇒ page 16.
- Install front footwell vent (left-side) ⇒ Rep. Gr. 80.
- Install storage compartment on driver's side \Rightarrow Rep. Gr. 68.

Removing and installing clutch position 2.4 sender -G476-

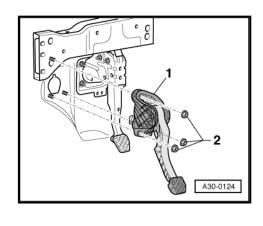
Removing

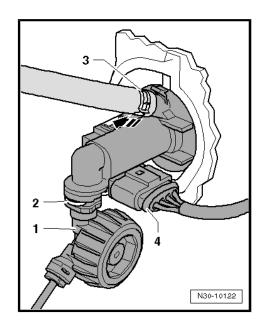
- Unplug electrical connector -4-.
- Unclip clutch position sender -G476- at clutch master cylinder in direction of -arrow- and remove.



Note

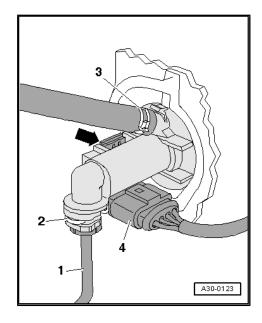
-Items 1, 2 and 3- can be disregarded.





Installing

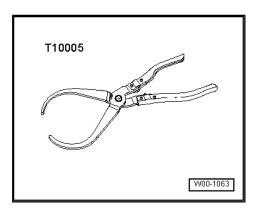
- Fit clutch position sender -G476- at clutch master cylinder and engage -arrow-.
- Attach electrical connector -4-.



2.5 Removing and installing clutch master cylinder

Special tools and workshop equipment required

♦ Pliers -T10005-



Removing

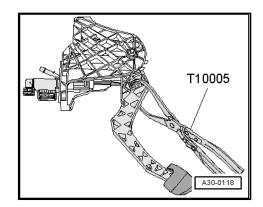


Note

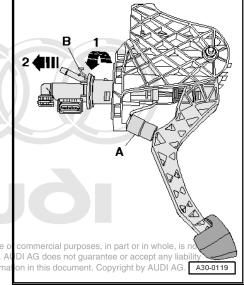
- If you suspect a defective clutch master cylinder, perform function test prior to renewing
 ⇒ "1.1 Notes on removing and installing clutch master cylinder and slave cylinder", page 12.
- ♦ When working in the footwell, put cloths on the floor covering to protect it from possible brake fluid spills.

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- Remove mounting bracket ⇒ page 21.
- Release retaining clip for operating rod on clutch pedal using pliers -T10005- .



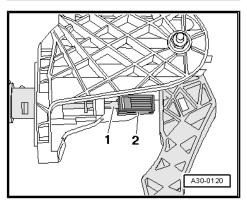
- Insert a spacer -A- between clutch pedal and stop, and press clutch pedal forward.
- Length of spacer = approx. 40 mm (e.g. $^{1}/_{2}$ " socket)
- Release retainer clip -B- and pull master cylinder out of mounting bracket -arrow 1- and -arrow 2-.



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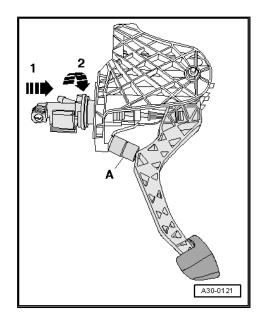
Installing

- Move clutch pedal back as far as stop until it is in normal position.
- Install retaining clip -2- on operating rod -1- for clutch master cylinder.

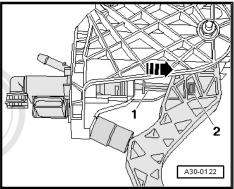


Audi TT 2007 ➤

- Insert a spacer -A- between clutch pedal and stop, and press clutch pedal forward.
- Length of spacer = approx. 40 mm (e.g. $^{1}/_{2}$ " socket)
- Secure master cylinder on mounting bracket -arrow 1- and -arrow 2-.



- Press operating rod -1- for master cylinder in direction of -arrow- so that retaining clip -2- snaps into place in clutch ped-
- Install mounting bracket <u>⇒ page 21</u>.





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2

3

2

Exploded view - hydraulics (LHD) 3

1 - Brake fluid reservoir

2 - Hose clip (spring-type clip)

■ Not fitted in all vehicles

3 - Supply hose

- ☐ Made of rubber or plastic, depending on ver-
- Plastic supply hose with additional seals ⇒ page 28

4 - Clutch master cylinder

□ Removing and installing ⇒ page 24

5 - Clip

□ To remove and install pipe/hose assembly, pull out clip as far as it will go

6 - Seal or O-ring

- Renew damaged seals or O-rings
- Push onto pipe connec-
- Lubricate with brake fluid before installing
- ☐ Whether a seal or an Oring is used depends on the type of connection
- For correct version, refer to ⇒ Electronic parts catalogue

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7 - Retaining clip

☐ To remove and install retaining clip first detach clutch master cylinder from clutch pedal ⇒ page 18

8 - Clutch pedal

□ Removing and installing ⇒ page 18

9 - Nut

- ☐ For securing mounting bracket to plenum chamber partition panel
- ☐ Tightening torque ⇒ Item 15 (page 16)

10 - Pipe/hose assembly

- □ Removing and installing ⇒ page 29
- □ Different types depending on gearbox version
- ☐ For correct version, refer to ⇒ Electronic parts catalogue

11 - Bracket

- ☐ For pipe/hose assembly ⇒ Item 10 (page 27)
- Secured on body
- ☐ Identification of brackets ⇒ page 29

12 - Plastic pipe

□ Removing and installing ⇒ page 29

- ☐ Different types depending on gearbox version
- ☐ For correct version, refer to ⇒ Electronic parts catalogue

13 - Bracket

- ☐ For plastic pipe ⇒ Item 12 (page 27)
- Secured on body
- ☐ Identification of brackets <u>⇒ page 29</u>

14 - Seal or O-ring

- □ Renew damaged seals or O-rings
- ☐ Push onto pipe connection
- ☐ Lubricate with brake fluid before installing
- Whether a seal or an O-ring is used depends on the type of connection ⇒ page 28
- ☐ For correct version, refer to ⇒ Electronic parts catalogue

15 - Bleeder connection

16 - Clip

☐ To remove and install pipe/hose assembly or bleeder connection, pull out clip as far as it will go.

17 - Bleeder screw

- □ 4.5 Nm
- □ Bleeding clutch system ⇒ page 31

18 - Dust cap

19 - Clutch slave cylinder with release bearing

☐ Can only be renewed after removing gearbox

20 - Gearbox

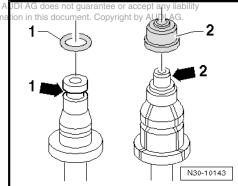
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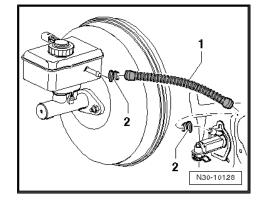
O-ring or seal for pipe/hose assembly or plastic pipe authorised by AUDI AG. A with respect to the correctness of information of the correctness of

- 1 O-ring
- ◆ Connection with annular groove -arrow 1-
- ♦ Check O-ring for damage and renew if necessary
- 2 Seal
- ♦ Connection with shoulder -arrow 2-
- Position seal -2- onto connection -arrow 2- before fitting

Vehicles with plastic supply hose -1-

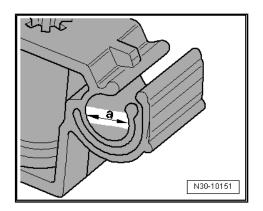
Seals -2- must be fitted in supply hose.





Identification of brackets

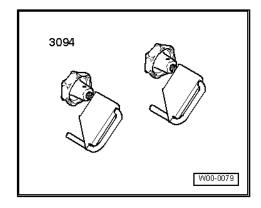
| Dimension "a" (mm) | Pipe version |
|--------------------|--------------------|
| 8 | Plastic pipe |
| 6 | Pipe/hose assembly |



Removing and installing pipe/hose as-3.1 sembly or plastic pipe

Special tools and workshop equipment required

♦ Hose clamps, up to Ø 25 mm -3094-

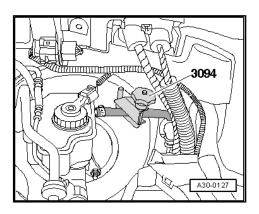


Removing

- Remove air cleaner housing completely ⇒ Rep. Gr. 23 or ⇒ Rep. Gr. 24.
- Use hose clamp -3094- to clamp off supply hose to clutch master cylinder.



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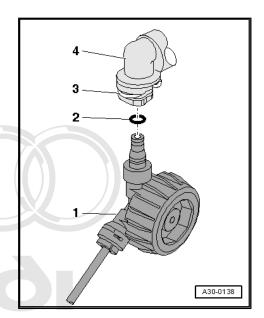
Note

- In the following steps make sure that no brake fluid escapes onto the longitudinal member or onto the gearbox below. If this does happen, clean the affected area thoroughly.
- ♦ Place a cloth underneath to catch escaping brake fluid.
- To detach at clutch master cylinder, release retaining clip -3with a screwdriver.
- Pull off pipe/hose assembly -1- or plastic pipe with O-ring -2and detach from bracket.



Caution

Do not depress clutch pedal after removing pipe/hose assembly or plastic pipe.

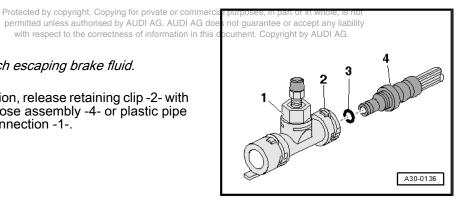




Note

Place a cloth underneath to catch escaping brake fluid.

 To detach at bleeder connection, release retaining clip -2- with a screwdriver and pull pipe/hose assembly -4- or plastic pipe with O-ring -3- off bleeder connection -1-.



Installing

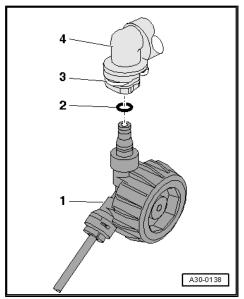
Installation is carried out in reverse sequence; note the following:



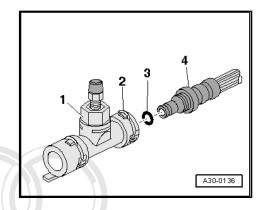
Note

For distinction between O-rings -2- and seals, refer to ⇒ page 28

- Check O-ring -2- for damage and renew if necessary.
- Press pipe/hose assembly -1- or plastic pipe onto connection on clutch master cylinder -4- so that retaining clip -3- snaps into place.
- Pull on pipe to check it is secure.



- Check O-ring -3- for damage and renew if necessary.
- Press pipe/hose assembly -4- or plastic pipe onto bleeder connection so that retaining clip -2- snaps into place.
- Pull on pipe to check it is secure.
- Bleed clutch system ⇒ page 31.



3.2 Bleeding clutch system

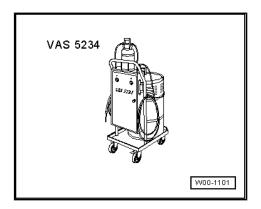


Note

- The clutch system must be bled after performing work on the hydraulic clutch mechanism.
- In the following steps make sure that no brake fluid escapes onto the longitudinal member or onto the gearbox below. ommercial purposes, in part or in whole, is not
- Before bleeding clutch system it to plus brake fluid reservoir to does not guarantee or accept any liability "max," marking with brake fluid respect to the correctness of information in this document. Copyright by AUDI AG. "max." marking with brake fluid.

Special tools and workshop equipment required

◆ Brake filling and bleeding equipment -VAS 5234-

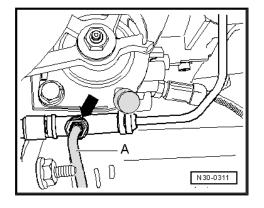


♦ Brake fluid specification ⇒ Rep. Gr. 47.

Procedure

- Tightening torque ⇒ page 27
- Remove air cleaner housing completely ⇒ Rep. Gr. 23 or ⇒ Rep. Gr. 24.

- Pull clutch pedal back to its normal rest position.
- Connect brake filling and bleeding equipment -VAS 5234- to brake fluid reservoir.
- Remove protective cap from bleeder screw -arrow- and connect hose -A- from bleeder bottle to bleeder screw.
- Switch on bleeding equipment.
- · Operating pressure 2.0 bar
- Now open bleeder screw approx ¹/₄ turn and allow 100 cm³ of brake fluid to run out.
- With bleeder screw open, pump clutch pedal rapidly all the way in and out by hand 15 to 20 times (approx. 2 times per second).
- Close bleeder screw.
- Switch off brake filling and bleeding equipment -VAS 5234and relieve pressure from bleeding equipment.
- Now press clutch pedal slowly all the way in and out 10 times.
- Check that clutch system is functioning properly.
- Disconnect bleeder hose and fit protective cap.
- Remove brake filling and bleeding equipment -VAS 5234from brake fluid reservoir 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
- Installvairreleaner-housing ⇒ inReptioGr.th23 on ⇒t ReptioGr. A24 AG.



Exploded view - hydraulics (RHD) 4

1 - Brake fluid reservoir

2 - Seal

- ☐ For plastic supply hose
- ☐ Seals must be fitted in supply hose.

3 - Supply hose

- Made of rubber or plastic, depending on ver-
- ☐ Plastic supply hose with additional seals ⇒ Item 2 (page 33)

4 - Clutch master cylinder

□ Removing and installing ⇒ page 24

5 - Clip

□ To remove and install pipe, pull out clip as far as it will go

6 - Seal or O-ring

- Matched to type of connection ⇒ page 28
- ☐ For correct version, refer to ⇒ Electronic parts catalogue
- □ Renew damaged seals or O-rings
- ☐ Push onto pipe connec-
- ☐ Lubricate with brake fluid before installing

7 - Retaining clip

☐ To remove and install retaining clip first detach master cylinder from clutch pedal <u>⇒ page 18</u>

8 - Clutch pedal

- 9 Nutitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
 - For securing mounting bracket to plenum chamber partition panel
 - □ 20 Nm

10 - Retainer

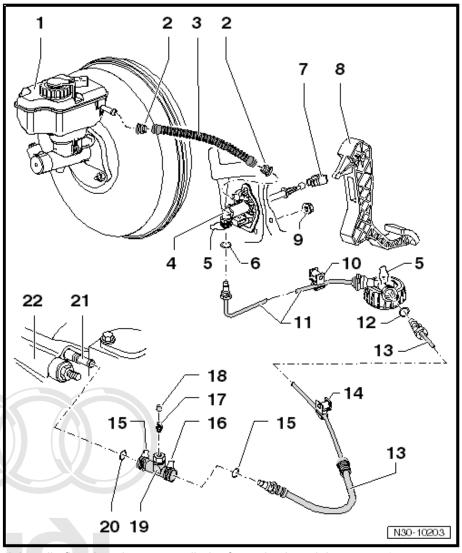
Secured on body

11 - Pipe

☐ For correct version, refer to ⇒ Electronic parts catalogue

12 - Seal or O-ring

- ☐ Matched to type of connection ⇒ page 28
- ☐ For correct version, refer to ⇒ Electronic parts catalogue
- □ Renew damaged seals or O-rings
- Push onto pipe connection
- ☐ Lubricate with brake fluid before installing



| 13 - Pipe/hose assembly |
|---|
| ☐ For correct version, refer to ⇒ Electronic parts catalogue |
| 14 - Bracket |
| ☐ Secured to bracket for ABS/EDL |
| 15 - Seal or O-ring |
| ☐ Matched to type of connection ⇒ page 28 |
| ☐ For correct version, refer to ⇒ Electronic parts catalogue |
| ☐ Renew damaged seals or O-rings |
| Push onto pipe connection |
| ☐ Lubricate with brake fluid before installing |
| 16 - Clip |
| ☐ To remove and install pipe/hose assembly or bleeder connection, pull out clip as far as it will go. |
| 17 - Bleeder screw |
| ☐ Bleeding clutch system ⇒ page 31 |
| □ 4.5 Nm |
| 18 - Dust cap |
| 19 - Bleeder connection |
| 20 - O-ring |
| ☐ Renew O-ring if damaged |
| ☐ Push onto pipe connection |
| ☐ Lubricate with brake fluid before installing |
| 21 - Clutch slave cylinder with release bearing |
| Can only be renewed after removing gearbox |
| □ Removing and installing ⇒ page 36 |
| 22 - Gearbox |
| |



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Exploded view - clutch release mechanism, slave cylinder 5

1 - Gearbox

□ Removing and installing ⇒ page 82

2 - Input shaft oil seal

□ Renewing ⇒ page 152

3 - Clutch slave cylinder with release bearing

- □ Slave cylinder and release bearing are one unit and can only be renewed together
- Do not wash out bearing; wipe clean only
- ☐ If bearing is noisy, renew together with slave cylinder
- □ Removing and installing ⇒ page 36
- □ For some slave cylinders, divided supply line ⇒ page 35

4 - Bolt

- ☐ 12 Nm for metal clutch slave cylinder
- 15 Nm for plastic clutch slave cylinder
- □ 3x
- ☐ Renew
- ☐ Tighten bolts carefully in several small steps and in diagonal sequence; make sure that mounting lugs on slave cylinder do not break off

N30-10002

5 - O-ring

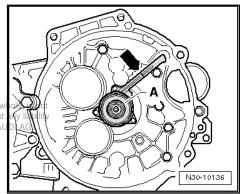
- Renew if damaged
- □ Push onto pipe connection
- ☐ Lubricate with brake fluid before installing

Clutch slave cylinder -A- with divided supply line

On some versions the supply line for the slave cylinder is divided -arrow-.

For correct version, refer to ⇒ Electronic parts catalogue

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5.1 Removing and installing clutch slave cylinder together with release bearing



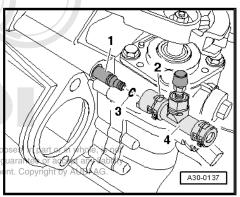
Note

Slave cylinder and release bearing are one unit and can only be renewed together.

Removing

- Gearbox removed ⇒ page 82.
- Release retaining clip -2- with a screwdriver and pull bleeder connection -4- off slave cylinder -1-.

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- Remove bolts -arrows-.
- Take off slave cylinder together with release bearing -A-.

Installing

Tightening torque ⇒ page 35

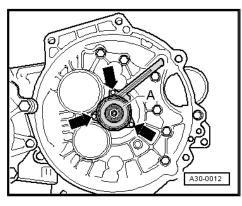
Installation is carried out in reverse sequence; note the following:

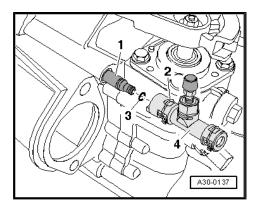


Caution

Tighten securing bolts for slave cylinder in small steps. Otherwise mounting lugs -arrows- can be damaged.

- Secure clutch slave cylinder with release bearing -arrows-.
- Check O-ring -3- for damage and renew if necessary.
- Press bleeder connection -4- onto connection on clutch slave cylinder -1- so that retaining clip -2- snaps into place.
- Pull on bleeder connection to check it is secure.
- Bleed clutch system ⇒ page 31.





Clutch identification 6

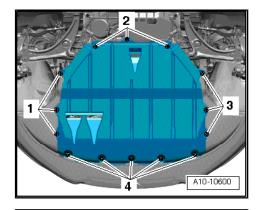


Note

The clutch fitted in the vehicle is supplied by either "Sachs" or

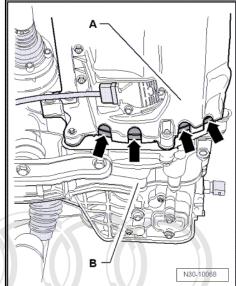
With gearbox installed, the clutch version fitted can be distinguished as follows:

- Release fasteners -1 ... 4- and remove centre noise insulation.



A number of recesses -arrows- are located in lower area of sump between engine -A- and gearbox -B-.

- Check the contour of the flywheel visible through the recesses.

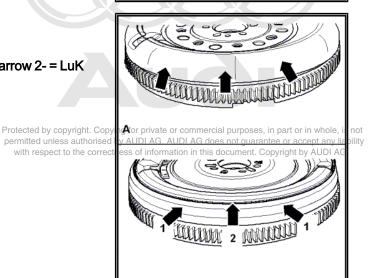


A - round contour -arrows- = Sachs version clutch

Exploded view - Sachs version clutch ⇒ page 39

B - square contour -arrows 1- and annular groove -arrow 2- = LuK version clutch

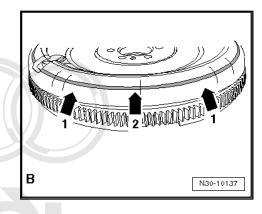
Exploded view - LuK version clutch ⇒ page 45



N30-10069

Round contour -arrows 1- and annular groove -arrow 2- = LuK version clutch

Exploded view - LuK version clutch ⇒ page 45



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7 Exploded view - Sachs version clutch



Note

The dual-mass flywheel, pressure plate and clutch plate are matched together; components from another manufacturer must not be installed on the same vehicle.

1 - Dual-mass flywheel

- □ Removing and installing ⇒ Rep. Ğr. 13
- Ensure that dowel pins fit tightly
- □ Contact surface for clutch lining must be free of grooves, oil and grease
- Observe instructions for removal ⇒ page 41

2 - Clutch plate

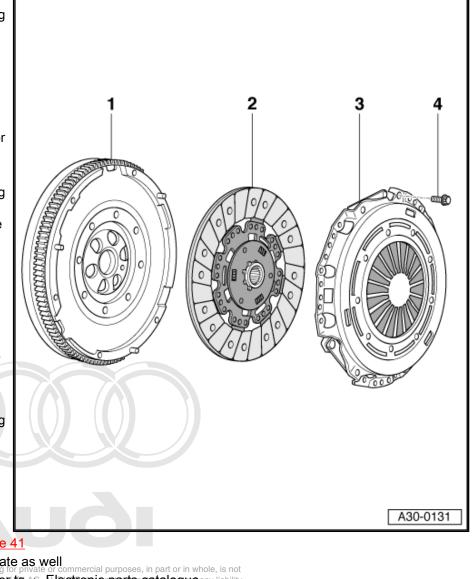
- □ Removing and installing
- □ Always renew pressure plate as well
- ☐ Installation position ⇒ page 44
- □ For diameter of clutch plate, refer to ⇒ Electronic parts catalogue

3 - Pressure plate

- With adjustment mechanism
- Identification ⇒ page 40
- Removing and installing
- ☐ Checking ends of diaphragm spring ⇒ page 40
- Checking springs and riveting <u>⇒ page 40</u>
- Checking wire ring or sheet-metal ring ⇒ page 41
- □ Always renew clutch plate as well
- ☐ For correctiversion, refer to ﷺ Electronic parts catalogue any liability
- Contact surface for clutch lining must be free of grooves, oil and grease

4 - Bolt

- ☐ M6 13 Nm
- ☐ M7 20 Nm
- Loosen and tighten bolts consecutively in steps of 90°

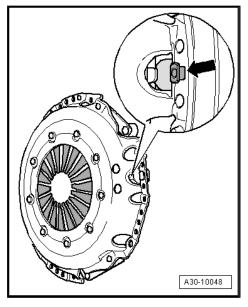


Identification of self-adjusting Sachs version clutch

Pressure plate with stop mechanism (position sensor) -arrow-.

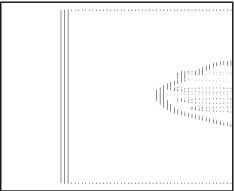


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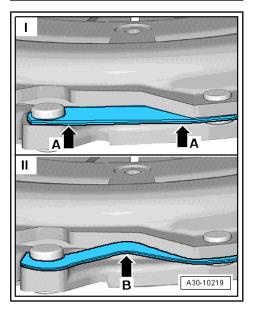
Checking ends of diaphragm spring

Wear up to half the thickness of the diaphragm spring -arrows- is permissible.

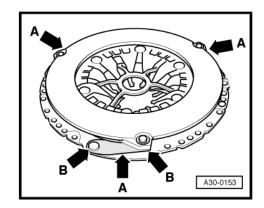


Checking springs and riveting

- I Springs OK
- Slight kinking on the outside -arrows A- is normal on production parts.
- II Springs damaged
- Renew pressure plate if springs are broken or badly bent -arrow B-.

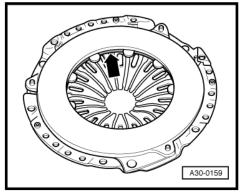


- Check that rivets -arrows B- are secure at all springs -arrows A-.
- Renew pressure plate if rivets -arrows B- are loose.



Checking wire ring or sheet-metal ring

- Check wire ring or sheet-metal ring -arrow- in pressure plate for damage.
- Renew pressure plate if wire ring or sheet-metal ring is broken.



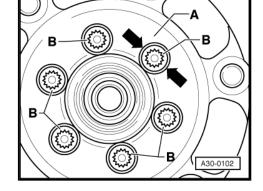
Instructions for removing dual-mass flywheel



Note

Do not use an impact wrench or pneumatic wrench to remove bolts -B-: this would severely damage the dual-mass flywheel. The bolts must always be removed by hand.

- Rotate dual-mass flywheel -A- so that the bolts are aligned centrally behind the holes -arrows-.
- When removing the bolts, make sure that none of the bolt heads contacts the dual-mass flywheel, as this would damage the flywheel when the bolts are unscrewed further.

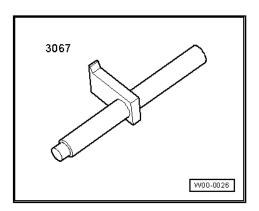


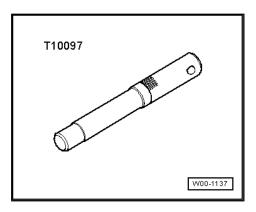
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Tith lespect to the **Removing** and installing, clutch (Sachs version)

Special tools and workshop equipment required

◆ Counterhold tool -3067-





♦ Grease for clutch plate splines -G 000 100-



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Removing

Gearbox removed ⇒ page 82.

To prevent the pressure plate from becoming distorted during removal (causes clutch grab when driving off), always adhere to the following procedure when unbolting the pressure plate:

- Apply counter-hold tool -3067- in order to loosen bolts.
- Working clockwise, loosen all six bolts consecutively in steps of 90° (1/4 turn) until the pressure plate is released.
- Stop -2- with pin -1- should come loose when the bolts are slackened.
- If the stop does not come loose, push the pin towards the dualmass flywheel.
- Take off pressure plate and clutch plate

Installing

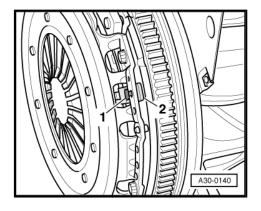
Tightening torque ⇒ page 39

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



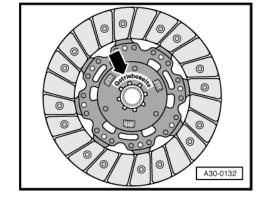
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- The dual-mass flywheel, pressure plate and clutch plate are matched together; components from another manufacturer must not be installed on the same vehicle.
- Always renew clutch plate and pressure plate together and select the correct parts according to engine code ⇒ Electronic parts catalogue .
- If the clutch has burnt out, thoroughly clean the gearbox housing in area of clutch and parts of the engine facing the gearbox in order to prevent odours.
- Clean input shaft splines and (in the case of a used clutch) plate) the hub splines. Remove corrosion and apply only a very thin coating of grease -G 000 100- to the splines. Then move clutch plate backwards and forwards on input shaft until hub moves freely on shaft. It is important to remove excess grease.
- ♦ Clutch pressure plates have an anti-corrosion coating and are greased. With the exception of the friction surface for the clutch plate, the pressure plate must not be cleaned. Otherwise the service life of the clutch will be considerably reduced.
- Pressure plate contact surface and clutch plate lining must make full contact with flywheel. Only then insert bolts.
- Only blow out dual-mass flywheel with compressed air.
- The friction surface of the pressure plate and the dual-mass flywheel must be cleaned (degreased) thoroughly.
- Check that dowel sleeves for centralising engine/gearbox are in the cylinder block; install if necessary.
- If the dowel sleeves are not fitted, this will lead to gear-change problems, clutch malfunction and in some cases gearbox noise (gears will make rattling noises).

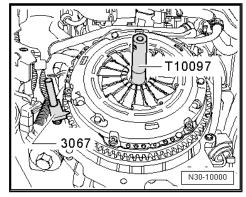


Installation position of clutch plate

 Marking "Getriebeseite" (gearbox side) and the protruding spring cage face towards gearbox.

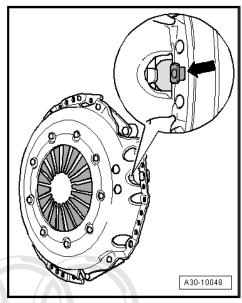


- Use counterhold tool -3067-.
- Fit pressure plate onto dowel pins.
- Use centring mandrel -T10097- to centralise clutch plate.



To prevent the pressure plate from becoming distorted during installation (causes clutch grab when driving off), always adhere to the following procedure when installing the pressure plate:

- Make sure that the stop pin (position sensor) -arrow- is free to move.
- Screw in all 6 bolts evenly by hand until bolt heads make contact with pressure plate.
- Working clockwise, tighten all six bolts consecutively in steps of 90° (¹/₄ turn) until the housing makes contact with the flywheel.
- The stop pin -arrow- should then lift away from the pressure plate.
- Working clockwise, tighten all 6 bolts to final torque consecutively. Tightening torque ⇒ Item 4 (page 39)





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8 Exploded view - LuK version clutch



Note

The dual-mass flywheel, pressure plate and clutch plate are matched together; components from another manufacturer must not be installed on the same vehicle.

1 - Dual-mass flywheel

- □ Removing and installing ⇒ Rep. Ğr. 13
- Ensure that dowel pins fit tightly
- □ Contact surface for clutch lining must be free of grooves, oil and grease
- Observe instructions for removal ⇒ page 47

2 - Clutch plate

- Removing and installing ⇒ page 47
- □ Always renew SAC pressure plate as well
- ☐ Installation position: marking "Getriebeseite" (gearbox side) faces towards gearbox
- □ For diameter of clutch plate, refer to ⇒ Electronic parts catalogue

3 - SAC pressure plate

- ☐ "SAC" = self adjusting clutch
- □ Always renew clutch plate as well
- Removing and installing ⇒ page 47
- ☐ Checking position of adjuster ring on new SAC pressure plate ⇒ page 49
- ☐ Checking ends of diaphragm spring ⇒ page 40 ed unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
- □ Checking spring connection and rivets ⇒ page 46
- □ Checking metal ring ⇒ page 46
- Contact surface for clutch lining must be free of grooves, oil and grease

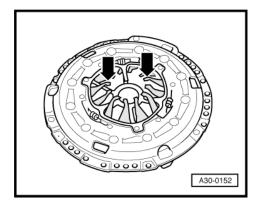
4 - Bolt Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not

- ☐ M6 13 Nmespect to the correctness of information in this document. Copyright by AUDI AG.
- ☐ M7 20 Nm
- □ Loosen and tighten bolts consecutively in steps of 90°

A30-0150

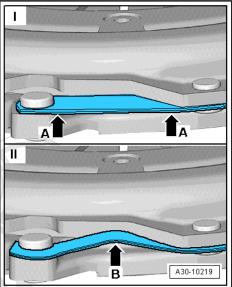
Checking ends of diaphragm spring

 Wear up to half the thickness of the diaphragm spring -arrows- is permissible.

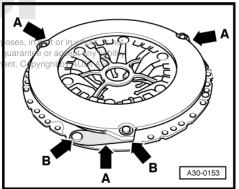


Checking springs and riveting

- I Springs OK
- Slight kinking on the outside -arrows A- is normal on production parts.
- II Springs damaged
- Renew pressure plate if springs are broken or badly bent -arrow B-.

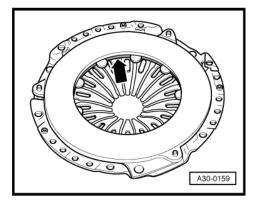


- Check that rivets -arrows B- are secure at all springs -arrows A-.
- Renew pressure plate if rivers tea brows B. Care no acceptate or commercial pur permitted unless authorised by AUDI AG. AUDI AG does not with respect to the correctness of information in this document.



Checking metal ring

- Check metal ring -arrow- in pressure plate for damage.
- · Renew pressure plate if metal ring is broken.



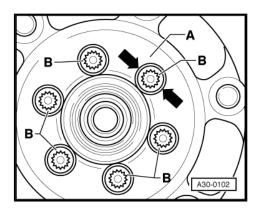
Instructions for removing dual-mass flywheel



Note

Do not use an impact wrench or pneumatic wrench to remove bolts -B-: this would severely damage the dual-mass flywheel. The bolts must always be removed by hand.

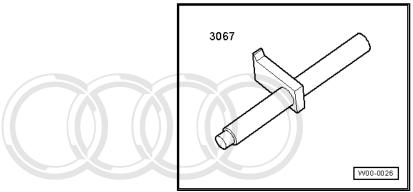
- Rotate dual-mass flywheel -A- so that the bolts are aligned centrally behind the holes -arrows-.
- When removing the bolts, make sure that none of the bolt heads contacts the dual-mass flywheel, as this would damage the flywheel when the bolts are unscrewed further.



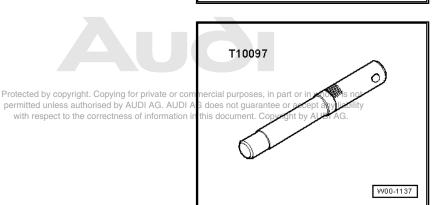
8.1 Removing and installing clutch (LuK version)

Special tools and workshop equipment required

◆ Counterhold tool -3067-



◆ Centring mandrel -T10097-



♦ Grease for clutch plate splines -G 000 100-

Removing

- Gearbox removed ⇒ page 82.
- Apply counter-hold tool -3067- in order to loosen bolts.

To prevent the pressure plate from becoming distorted during removal (causes clutch grab when driving off), always adhere to the following procedure when unbolting the pressure plate:

- Working clockwise, loosen all six bolts consecutively in steps of 90° (¹/4 turn) until the pressure plate is released.
- Take off pressure plate and clutch plate.

Installing

Tightening torque ⇒ page 45

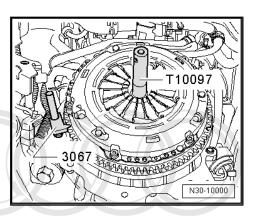
Installation is carried out in reverse sequence; note the following:



Note



- ♦ Always renew clutch plate and pressure plate together and select the correct parts according to engine code ⇒ Electronic parts catalogue.
- ◆ Checking position of adjuster ring on new pressure plate ⇒ page 49
- If the clutch has burnt out, thoroughly clean the gearbox housing in area of clutch and parts of the engine facing the gearbox in order to prevent odours.
- Clean input shaft splines and (in the case of a used clutch plate) the hub splines. Remove corrosion and apply only a very thin coating of grease -G 000 100- to the splines. Then move clutch plate backwards and forwards on input shaft until hub moves freely on shaft. It is important to remove excess grease.
- ♦ Clutch pressure plates have an anti-corrosion coating and are greased. With the exception of the friction surface for the clutch plate, the pressure plate must not be cleaned. Otherwise the service life of the clutch will be considerably reduced.
- Pressure plate contact surface and clutch plate lining must make full contact with flywheel. Only then insert bolts.
- Only blow out dual-mass flywheel with compressed air.
- ◆ The friction surface of the pressure plate and the dual-mass flywheel must be cleaned (degreased) thoroughly.
- ♦ Check that dowel sleeves for centralising engine/gearbox are in the cylinder block; install if necessary.
- If the dowel sleeves are not fitted, this will lead to gear-change problems, clutch malfunction and in some cases gearbox noise (gears will make rattling noises).



Checking position of adjustment mechanism (new SAC pressure plates only)

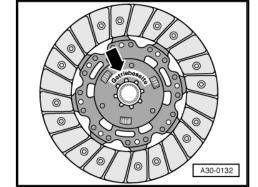
- The two edges -A- of the adjuster ring should be located between the two notches -arrows B-.
- If the adjuster ring is in a different position on a new pressure plate, the pressure plate and clutch plate must not be installed.
- The position of the adjuster ring can be outside the notches on used clutches.



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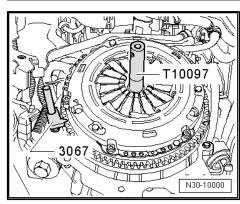
The marking "Getriebeseite" (gearbox side) faces towards the gearbox

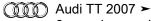


- Use counterhold tool -3067-.
- Fit pressure plate onto dowel pins.
- Use centring mandrel -T10097- to centralise clutch plate.

To prevent the pressure plate from becoming distorted during installation (causes clutch grab when driving off), always adhere to the following procedure when installing the pressure plate:

- Screw in all 6 bolts evenly by hand until bolt heads make contact with pressure plate.
- Working clockwise, tighten all six bolts consecutively in steps of 90° (1/4 turn) until the housing makes contact with the flywheel.
- Working clockwise, tighten all 6 bolts to final torque consecutively. Tightening torque ⇒ Item 4 (page 45)





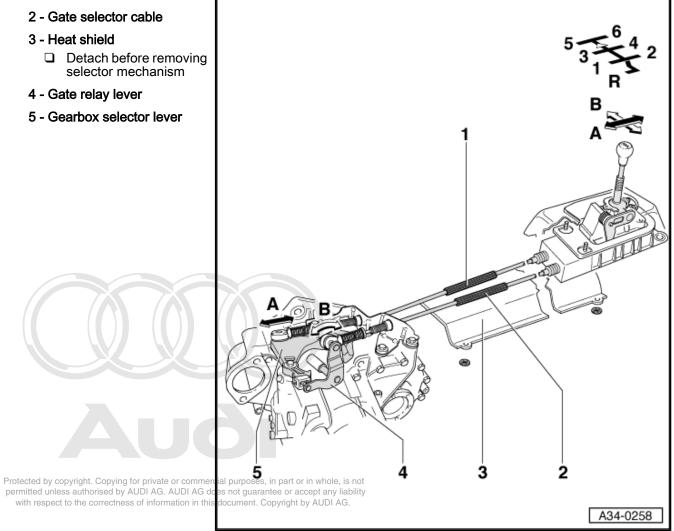
34 – Controls, housing

Overview - selector mechanism

- ◆ ⇒ "1.1 Exploded view gear knob and covers", page 52
- ♦ "1.2 Removing and installing gear knob with gear lever boot
 ", page 53
- ♦ "1.3 Exploded view gear lever and selector housing for vehicles with vehicle ID No. up to 8J-7-013000", page 55
- \$\times\$ "1.4 Exploded view gear lever and selector housing for vehicles with vehicle ID No. from 8J-7-013001 onwards", page 58
- ◆ "1.5 Dismantling and assembling selector mechanism for vehicles with vehicle ID No. from 8J-7-013001 onwards", page 59
- ◆ = "1.6 Removing and installing selector mechanism",
 page 63
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 **Telephone 1.5 Provided Prov
- ⇒ permitted unless authorised by AUDIAG AUDIAG does not guarantee or accept any liability cable up to model year 2007", page 68
- ♦ "1.8 Exploded view gearbox selector lever and gate relay lever up to model year 2007", page 70
- ♦ "1.9 Exploded view gear selector cable and gate selector cable from model year 2008 onwards", page 72
- ♦ ± "1.10 Removing and installing gear selector cable and gate selector cable", page 77
- ♦ "2 Adjusting selector mechanism", page 79
- -Arrow A- gear selection movement
- -Arrow B- gate selection movement

- 1 Gear selector cable
- 2 Gate selector cable
- 3 Heat shield
 - Detach before removing selector mechanism
- 4 Gate relay lever
- 5 Gearbox selector lever



1.1 Exploded view - gear knob and covers

1 - Gear knob with gear lever boot

- Cannot be separated from each other
- Renew together
- □ Removing and installing ⇒ page 53
- □ Detaching from trim panel for centre console ⇒ page 53
- □ Disconnecting from securing frame <u>⇒ page 53</u>

2 - Clip

- Secures gear knob to gear lever
- □ Secure with hose clip pliers -V.A.G 1275-

3 - Trim panel for centre console

- □ Remove and install together with gear knob ⇒ page 53
- □ Detaching from gear lever boot ⇒ page 53

4 - Securing frame

- □ Detaching from trim panel for centre console

5 - Washer

□ 4x

6 - Bolt

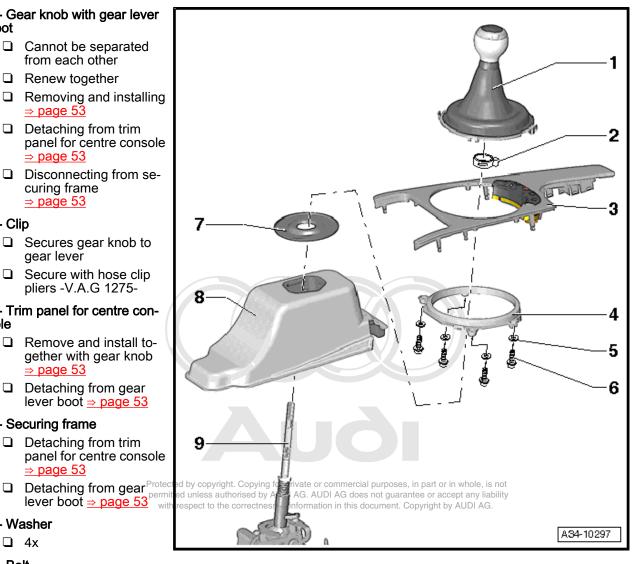
- □ 1.5 Nm
- □ 4x

7 - Noise insulation plate

8 - Noise insulation

9 - Gear lever

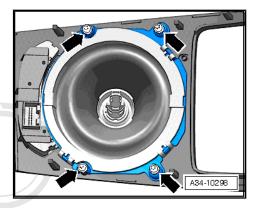
Adjusting selector mechanism ⇒ page 79





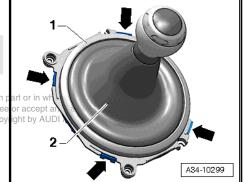
Detaching trim panel for centre console and securing frame for gear lever boot

- Remove bolts -arrows-.
- Detach trim panel from securing frame



Detaching securing frame and gear lever boot

Carefully release tabs -arrows- and lift off securing frame -1from gear lever boot -2-.



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1.2 Removing and installing gear knob with gear lever boot

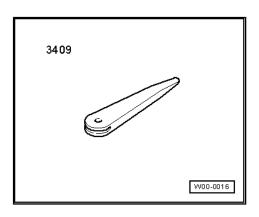


Note

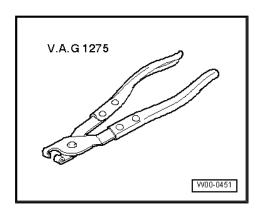
The gear knob is removed together with the gear lever boot and the cover for the centre console.

Special tools and workshop equipment required

♦ Removal wedge -3409-



Hose clip pliers -V.A.G 1275-



Removing

- Open ashtray.
- Carefully lever off trim panel from centre console -arrows-.



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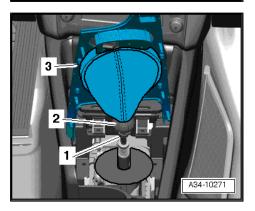


- Unplug electrical connector on trim panel.
- Pull trim panel -3- up and over gear knob.
- Open clip -1- and pull off gear knob -2- together with gear lever boot and trim panel -3-.
- Detach gear lever boot and trim panel for centre console -3-<u>⇒ page 53</u> .

Installing

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

- Push gear knob onto gear lever until it contacts stop.
- Secure gear knob to gear lever with a new clip -1-, using hose clip pliers -V.A.G 1275- .



1.3 Exploded view - gear lever and selector housing for vehicles with vehicle ID No. up to 8J-7-013000

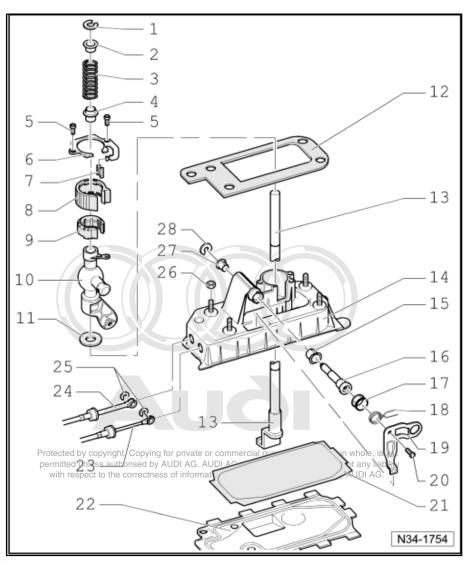


Note

Lubricate all bearings and moving surfaces with grease -G 000 450 02- .

1 - Securing clip

- Removing and installing ⇒ page 57
- 2 Bush
- 3 Spring
- 4 Bush
- 5 Bolt
 - □ 6 Nm
- 6 Cover
- 7 Damper
 - □ For spring ⇒ Item 18 (page 55)
- 8 Damper
- 9 Bearing shell
- 10 Gear lever guide
- 11 Damping washer
- 12 Gasket
 - ☐ Between selector housing and floor
 - Self-adhesive
 - Glue onto selector housing
- 13 Gear lever
- 14 Selector housing
- 15 Bearing bush
- 16 Pivot pin
- 17 Guide bush
 - Press onto selector housing
- 18 Spring
 - ☐ Installing <u>⇒ page 57</u>
- 19 Gate selector lever
- 20 Bolt
 - □ 5 Nm
- 21 Gasket
 - □ Renew
- 22 Floor plate
 - Bend tabs open to remove
 - □ Renew



23 - Gate selector cable

- □ Removing and installing ⇒ page 77
- Adjusting ⇒ page 79

24 - Gear selector cable

- □ Removing and installing ⇒ page 77
- Adjusting ⇒ page 79

25 - Securing clip

- ☐ Renew
- □ Removing ⇒ page 56

26 - Nut

- □ 8 Nm
- □ 4x

27 - Bearing bush

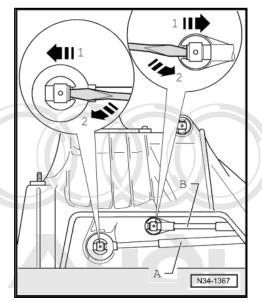
Only fits in one position

28 - Securing clip

☐ Renew

Detaching securing clip for gear selector cable -A- and gate selector cable -B-

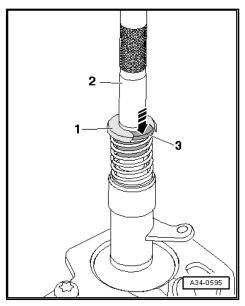
Use screwdriver to lift tab -arrow 1- and lever off securing clip -arrow 2-.



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Removing and installing securing clip

- Hold gear lever -2- in position.
- Press spacer bush -3- in direction indicated -arrow-.
- Take off securing clip -1-.



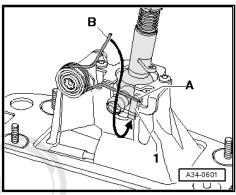
Installing spring

- Insert arm -A- of spring in guide -1- from above.
- Pull down arm -B- of spring and insert it in the guide from be-



Note

The gate selector lever is removed to give a better illustration.





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1.4 Exploded view - gear lever and selector housing for vehicles with vehicle ID No. from 8J-7-013001 onwards



Note

- Lubricate bearings and moving surfaces with grease -G 000 450 02-.
- Dismantling and assembling selector mechanism → page 59

1 - Floor plate

- ☐ Bend tabs open to remove
- Always renew

2 - Gasket

□ Renew

3 - Gear lever

Can be removed and installed without removing gear lever guide ⇒ Item 15 (page 59)

4 - Damping washer

Push onto gear lever as far as stop -arrow-

5 - Retaining clip

- ☐ Take care not to damage selector cables when removing.
- □ Renew

6 - Gate selector cable

- □ Lever off gate selector lever
- Press onto gate selector lever inside selector mechanism
- Installation position ⇒ page 50

7 - Bush

8 - Gear selector cable

- □ Lever off gear lever guide
- □ Press onto gear lever guide inside selector mechanism
- □ Installation position: page 50 t. 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 with respect to the correctness of information in this document. Copyright by AUDI AG.

9 - Damper

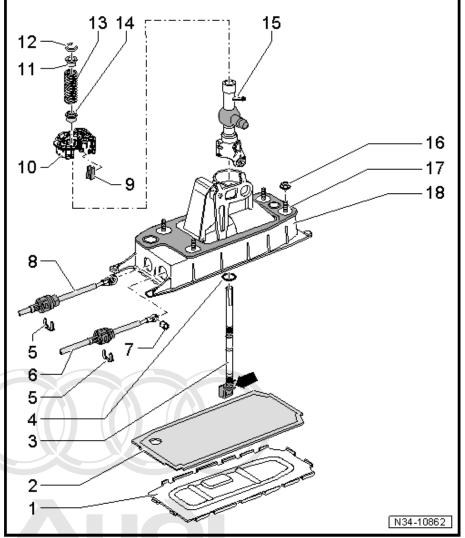
10 - Bearing shell

- ☐ Will be damaged during removal
- □ Renew

11 - Bush

12 - Securing clip

□ Removing and installing ⇒ page 57

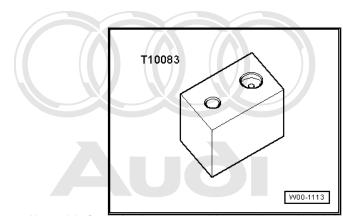


- 13 Spring
- 14 Bush
- 15 Gear lever guide
- 16 Nut
 - □ 4x
- M6 8 Nm
- M8 25 Nm
- 17 Gasket
 - Between selector housing and floor
 - □ Self-adhesive
 - ☐ Glue onto selector housing
- 18 Selector housing
 - With spring and gate selector lever
 - ☐ Spring and gate selector lever cannot be removed

1.5 Dismantling and assembling selector mechanism for vehicles with vehicle ID No. from 8J-7-013001 onwards

Special tools and workshop equipment required

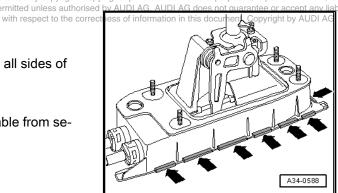
◆ Thrust block -T10083-



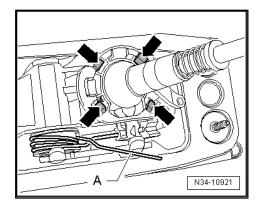
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Dismantling

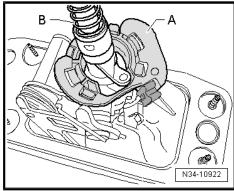
- Remove selector mechanism ⇒ page 63
- Using a screwdriver, bend open tabs -arrows- on all sides of floor plate and remove floor plate.
- Remove gasket from selector housing.
- Remove gear selector cable and gate selector cable from selector housing ⇒ page 58.



- Lift top spring arm -A- over tab on gate selector lever.
- Using a screwdriver, press lugs -arrows- on ball socket towards ball on gear lever guide; if necessary, break off lugs.



- Prise ball socket -A- out of selector housing together with gear lever guide and gear lever -B-.
- Then press ball socket -A- off ball on gear lever guide and remove.





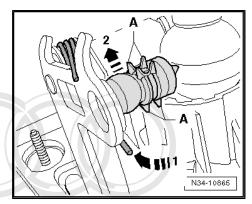
Note

- Note guides -A- when performing the following steps.
- They must not be allowed to break off.
- Swivel bottom spring arm -arrow 1- onto stop on shoulder of gate selector lever.



Caution

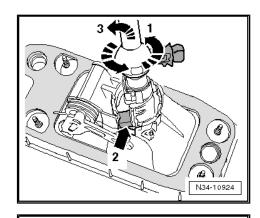
During the following steps, the bottom spring arm (-arrow 1-) can become dislodged and snap downwards off the shoulder of the gate selector lever.



- Pull gear lever guide upwards as far as stop and at the same time pull ball-head pin -arrow 2- out of gate selector lever.
- Press spring -arrow 1- carefully off the spoulder of the spoul selector lever. with respect to the correctness of information in this document. Copyright by AUDI AG.

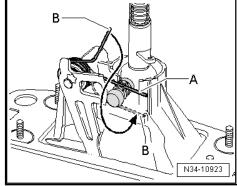
The spring arms will then compress "diagonally".

- Then turn gear lever guide in direction of -arrow 1-.
- The pin -arrow 2- should be positioned in the recess on the selector housing.
- Next, swivel gear lever guide out in direction of -arrow 3- together with gear lever.

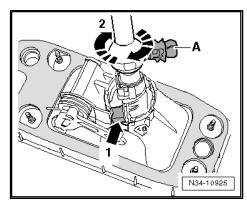


Assembling selector mechanism

- Release spring arms -A- and -B-.
- Spring arms -A- and -B- must point in opposite directions. (Shown here with gear lever guide installed.)

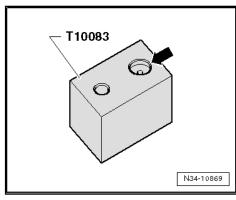


- Insert gear lever guide into selector housing together with gear lever.
- Pin -arrow 1- should be positioned just inside recess on selector housing.
- Turn gear lever guide in direction of -arrow 2- until ball-head pin -A- is above recess on selector housing.



- Position selector housing with gear lever guide onto thrust block -T10083- .
- The gear lever guide rests in the larger recess -arrow- in the Protected by stopping the copying of parate or commercial purposes, in part or in whole, is not
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 •with The gear lever guide should protrude out of the selector housing as far as the stop.



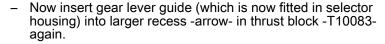
- Insert arm -A- of spring in guide from above.
- Pull arm -B- of spring downwards and insert it next to the guide (towards ball head).

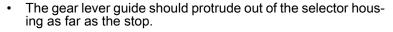


Note

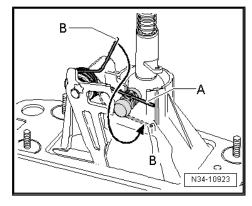
For illustration purposes, only part of the gate selector lever is shown.

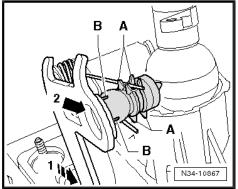
- Carefully take selector housing off thrust block -T10083- together with gear lever guide.
- Move gate selector lever rearwards as far as stop in direction of -arrow 1-.
- Grease ball-head pin.
- Press ball-head pin into gate selector lever -arrow 2-.
- Guides -A- and tabs -B- must not be damaged.

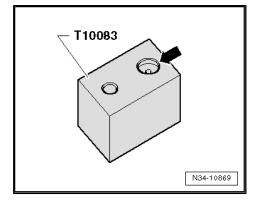


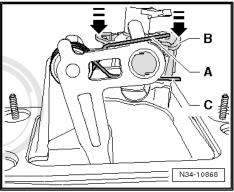


- Lift top spring arm -A- over pin on gate selector lever.
- Use a new ball socket -B-.
- Grease ball socket and ball of gear lever guide.
- Press ball socket onto ball of gear lever guide as far as stop.
- Remove selector housing from thrust block -T10083-
- Press ball socket into selector housing in direction of -arrows-.





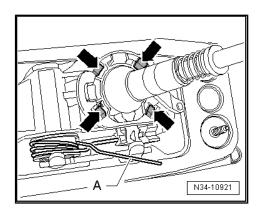






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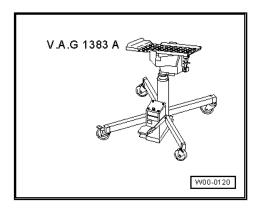
- All four lugs -arrows- must engage.
- Lift top spring arm -A- over pin on gate selector lever into guide.
- Insert bottom spring arm into guide.
- Fit gear lever, gear selector cable, gate selector cable and floor plate \Rightarrow page 58 .
- Install selector mechanism ⇒ page 63.



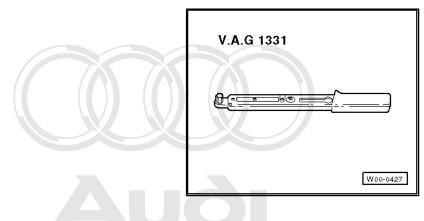
1.6 Removing and installing selector mechanism

Special tools and workshop equipment required

♦ Engine and gearbox jack -V.A.G 1383 A-



♦ Torque wrench -V.A.G 1331-

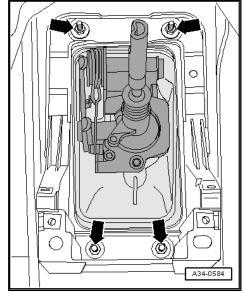


Grease -G 000 450 02-

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Removing

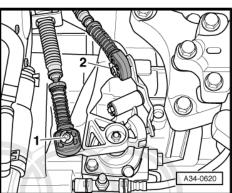
- Remove gear knob together with trim panel for centre console ⇒ page 53 .
- Remove centre console ⇒ Rep. Gr. 68.
- Remove noise insulation panels above selector mechanism.
- Remove nuts -arrows-.



- Remove complete air cleaner housing ⇒ Rep. Gr. 24 (does not apply to engine codes BWA and BPY).
- Detach securing clip -1- for gear selector cable and pull cable off pin.

Metal gate relay lever:

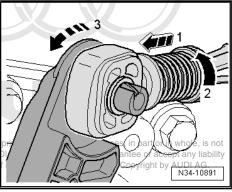
Detach securing clip -2- for gate selector cable from gate relay lever and pull cable off pin.

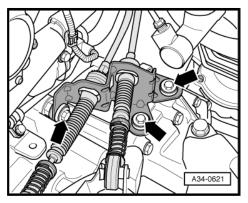


Plastic gate relay lever:

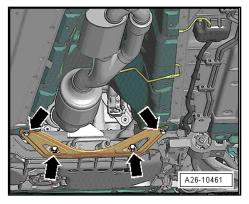
- To prevent damage to gate selector cable, cable end-piece must be detached from gate selector cable before removing relay lever.
- Pull locking mechanism forwards in direction of -arrow 1- onto stop and then turn to left in direction of -arrow 2- to lock.
- Then press gate relay lever forwards (in direction of -arrow 3-).

- Detach cable end-piece only when gate relay lever is removed by A with respect to the correctness ⇒ page 76 .
- Remove two bolts and one flange nut -arrows- and detach cable support bracket from gearbox.





Unbolt bracket for exhaust system and cross piece -arrows-.

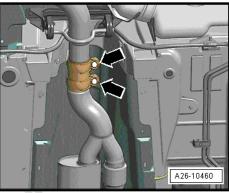


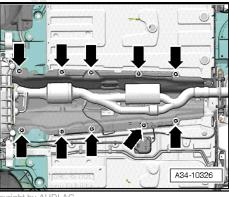


Note

To prevent damage, the flexible joints in the front exhaust pipe must not be bent further than 10°.

- Support front exhaust pipe and catalytic converter with engine and gearbox jack -V.A.G 1383 A- .
- Disconnect exhaust system at clamp -arrows-.
- Remove bolts -arrows-.
- Lower front exhaust pipe with catalytic converter slightly.
- Unclip Lambda probe wire and remove heat shield towards rear.
- Swing selector housing down and remove with selector ca-



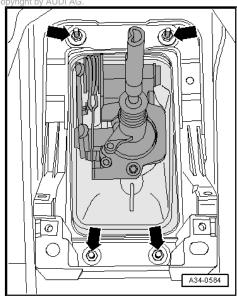


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Installing

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

Install selector mechanism and tighten nuts -arrows-. Tightening torque ⇒ Item 16 (page 59)

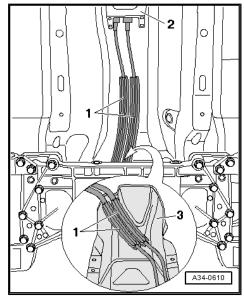


- Route cables -1- from selector mechanism -2- to gearbox as follows:
- The cables must run parallel and must not be crossed.
- The cables must be routed in the slot provided in heat shield

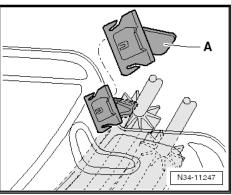


Note

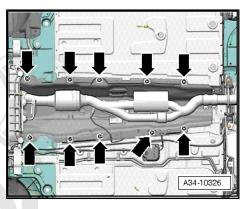
The enlargement shows the heat shield from above.



The cables and heat shield are held in the correct positions by clip -A-.

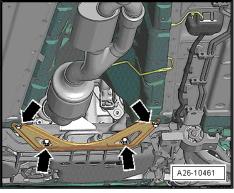


Secure heat shield -arrows-.

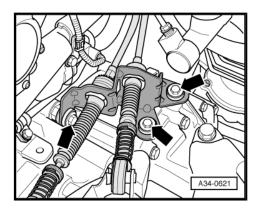


Assemble exhaust system so it is free of stress and install cross piece -arrows- ⇒ Engine, mechanics; Rep. Gr. 26.

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Attach cable support bracket to gearbox -arrows-. Tightening torque <u>⇒ page 68</u>



- Spread a small amount of grease -G 000 450 02- onto pins -arrows- of gearbox selector lever -1- and, if necessary, gate relay lever -2-.
- If they are removed, always renew securing clip -3- and, on vehicles with metal gate relay lever, securing clip -4-.
- Fit gear selector cable and secure with securing clip -3-.

Metal gate relay lever:

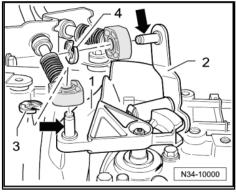
- Fit gate selector cable and secure with securing clip -4-.

Plastic gate relay lever

Insert gate selector cable in cable end-piece.

Continued for all vehicles:

- Adjust selector mechanism ⇒ page 79.
- Fit noise insulation above selector mechanism and install centrerconsole ⇒thRep bGrUD68. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- Install gear knob together with boot ⇒ page 53.
- Install air cleaner housing ⇒ Rep. Gr. 24 (does not apply to engine codes BWA and BPY).



1.7 Exploded view - gear selector cable and gate selector cable up to model vear 2007



Note

Lubricate all bearings and moving surfaces with grease -G 000 450 02-.

1 - Securing clip

2 - Cable end-piece

- □ Secures gate selector cable to gate relay lever
- □ Allocation ⇒ page 69
- □ Release to adjust selector mechanism ⇒ page 80

3 - Securing clip

4 - Cable end-piece

- Secures gear selector cable to gearbox selector lever
- □ Allocation ⇒ page 69
- Release to adjust selector mechanism ⇒ page 80
- 5 Bush
- 6 Grommet

7 - Gear selector cable

- Removing and installing ⇒ page 77
- From vehicle ID No. 8J-7-013001 onwards: modified attachment on gear lever inside selecfor mechanism ⇒ Item 8 (page 58)
- Adjusting ⇒ page 79

8 - Securing clips

Discontinued for vehicle ID No. 8J-7-013001 onwards <u>⇒ page 58</u>

13 12 5 6

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9 - Retaining clips

10 - Gate selector cable

- □ Removing and installing ⇒ page 77
- ☐ From vehicle ID No. 8J-7-013001 onwards: modified attachment on gate selector lever inside selector mechanism ⇒ Item 6 (page 58)
- Adjusting ⇒ page 79

11 - Bolt

- □ 20 Nm
- □ 2x

12 - Cable support bracket

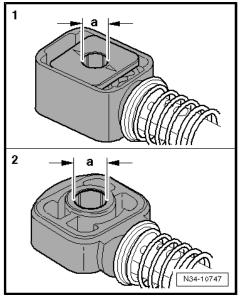
13 - Nut

□ 20 Nm

Identification of cable end-pieces

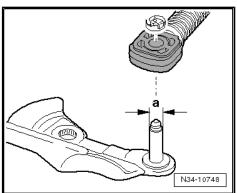
The holes in the cable end-pieces have different diameters.

| Cable end-piece for: | Dimension "a" |
|--|---------------|
| 1 Gear selector cable to gearbox selector lever from 06.06 onwards | 8.5 mm |
| 2 Gear selector cable to gearbox selector lever up to 05.06 | 10 mm |
| 2 Gate selector cable to metal gate relay lever | 8 mm |



From 06.06 onwards: smaller diameter of mounting pin for cable end-piece (on gear selector cable)

| Mounting pin for cable end-piece (on gear selector cable) | Dimension "a" |
|---|---------------|
| Up to 05.06 | 10 mm |
| From 06.06 onwards | 8.5 mm |





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1.8 Exploded view - gearbox selector lever and gate relay lever up to model year 2007



Note

Lubricate all bearings and moving surfaces with grease -G 000 450 02-.

1 - Selector mechanism cover 6 8 9 10 Removing and installing (with gearbox installed) ⇒ page 156 2 - Selector shaft Removing and installing (with gearbox installed) ⇒ page 156 11 3 - Bush 4 - Securing clip □ Removing ⇒ page 71 5 - Oil seal □ Renewing ⇒ page 154 6 - Securing clip yright. Copying for pri **5**r commercial purposes, AUDI AG does not guarar 7 - Cable end-piece with respect to the correctness of its ation in this document. Cop Secures gear selector cable to gearbox selector lever ⇒ Item 4 (page 68) 3 □ Allocation ⇒ page 69 8 - Nut □ 23 Nm Self-locking □ Renew 12 9 - Gearbox selector lever With damper weight 13 ☐ Install so that gap in splines aligns with selector shaft

15

14

A34-0625

☐ Different diameters of mounting pin for cable end-piece <u>⇒ page 69</u>

10 - Securing clip

11 - Cable end-piece

⇒ page 71☐ Installation position⇒ page 71

- ☐ Secures gate selector cable to gate relay lever ⇒ Item 2 (page 68)
- □ Allocation ⇒ page 69
- ☐ Release to adjust selector mechanism ⇒ page 80

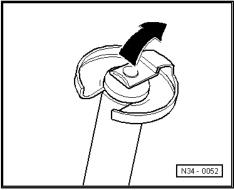
12 - Gate relay lever

☐ Installation position ⇒ page 71

- 13 Slide block
- 14 Bush
- 15 Angled rod
 - ☐ For adjusting selector mechanism ⇒ page 79

Removing securing clip for gate relay lever

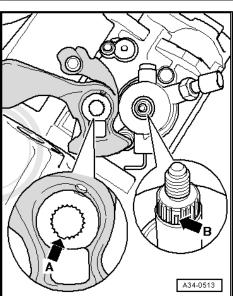
- Lift clip -arrow-.



Installing gearbox selector lever

When installing gearbox selector lever, make sure that the gap in the splines -arrow A- aligns with the wider spline -arrow Bon the selector shaft.

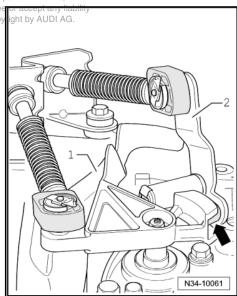




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Installation position: gearbox selector lever/gate relay lever document. Copy

- 1 Gearbox selector lever with damper weight
- 2 Gate relay lever locates in guide rail of gearbox selector lever via slide block -arrow-.
- Coat guide rail and slide block -arrow- with grease -G 000 450 02- .



1.9

Exploded view - gear selector cable and gate selector cable from model year 2008 onwards

Note

Lubricate all bearings and moving surfaces with grease -G 000 450 02-.

1 - Gearbox

2 - Clip

- Not fitted on all versions
- ☐ For gate relay lever from 08.2008 onwards
- Detaching and fitting⇒ page 76

3 - Gearbox selector lever

- □ Fitting ⇒ page 74
- ☐ Installation position ⇒ page 74
- After installing, adjust selector mechanism
 ⇒ page 79

4 - Cable end-piece

- Secures gear selector cable to gearbox selector lever
- Allocation ⇒ page 73
- Detaching from gear selector cable⇒ page 74

5 - Securing clip

- □ Removing ⇒ page 75
- ☐ Renew

6 - Nut

- □ Self-locking
- ☐ Renew
- □ 23 Nm

7 - Retaining clip

☐ Renew

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8 - Gear selector cable

- □ Detaching and securing at gearbox selector lever ⇒ page 75
- □ Removing and installing ⇒ page 77
- Adjusting ⇒ page 79

9 - Gate selector cable

- ☐ Removing and installing ⇒ page 77
- Adjusting ⇒ page 79

10 - Selector housing

11 - Retaining clips

☐ Renew

12 - Retaining clip

- □ Renew
- 13 Cable support bracket
- 14 Bolt
 - □ 20 Nm
 - □ 2x
- 15 Grommet
- 16 Bush
- 17 Nut
 - □ 20 Nm

18 - Gate relay lever

- Made of plastic
 - ☐ Different versions available; for correct version refer to ⇒ Electronic parts catalogue
 - □ Installation position ⇒ page 74
 - ☐ Detaching and securing gate relay lever (with detent catch) at gearbox selector lever <u>⇒ page 75</u>
 - □ Detaching and securing gate relay lever (with clip) at gearbox selector lever ⇒ page 76

19 - Slide block

☐ Installation position ⇒ page 74

20 - Cable end-piece

- ☐ Secures gate selector cable to gate relay lever
- □ Allocation ⇒ page 69
- □ Detaching from gate selector cable ⇒ page 74

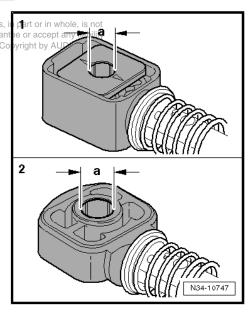
21 - Angled rod

☐ For adjusting selector mechanism ⇒ page 79

Identification of cable end-pieces. Copying for private or commercial purposes.

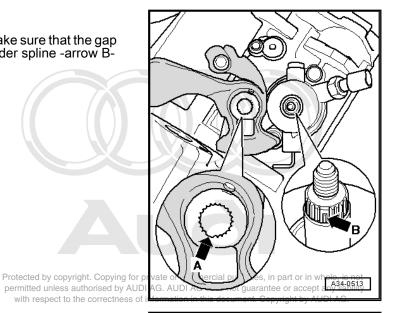
The holes in the cable end pieces have different diameters a document. Co

| Cable end-piece for: | Dimension "a" |
|---|---------------|
| -1- Gear selector cable to gearbox selector lever | 8.5 mm |
| -2- Gate selector cable to gate relay lever | 10 mm |



Installing gearbox selector lever

 When installing gearbox selector lever, make sure that the gap in the splines -arrow A- aligns with the wider spline -arrow Bon the selector shaft.



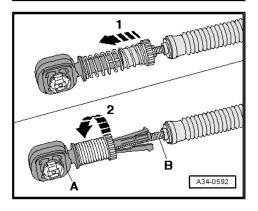
with respect to the correctness of installation position: gearbox selector lever/gate relay lever

- 1 Gearbox selector lever
- 2 Clip or detent catch (depending on version)
- 3 Gate relay lever locates in guide rail of gearbox selector lever via slide block -arrow-.
- Coat guide rail and slide block -arrow- with grease -G 000 450 02-.

1 2 A 3 A 3 A - 10858

Detaching cable end-pieces from gear selector cable and gate selector cable

- Pull locking mechanism forwards -arrow 1- onto stop and then turn to left -arrow 2- to lock.
- Take cable -B- out of cable end-piece -A-.





Detaching and securing gear selector cable at gearbox selector lever

Detaching

- Lift up tab and detach securing clip -3- for gear selector cable from gearbox selector lever -1-.
- Pull gear selector cable -2- off pin -arrow-.

Securing



Note

- Renew securing clip for gear selector cable.
- Apply a small quantity of grease at G 000 450 02 sto the pin whole, is not -arrow-ermitted 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.
- Push gear selector cable -2- onto gearbox selector lever -1and secure with securing clip -3-.

Detaching and securing gate relay lever (with detent catch) at gearbox selector lever -arrow 1-

Detaching

Press in detent -arrow 1- as far as stop and remove gate relay lever together with cable end-piece (move relay lever in normal direction of operation).



Note

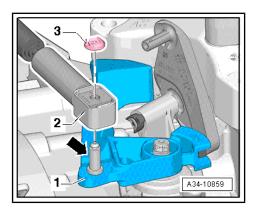
-Arrow 2- can be disregarded.

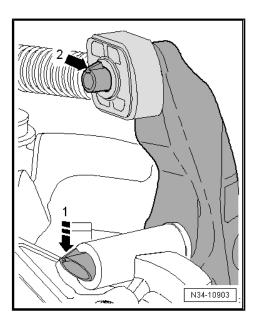
Securing



To install, lubricate bearings and moving surfaces with grease -G 000 450 02-.

- Press cable end-piece onto gate relay lever ⇒ page 76.
- Insert gate relay lever with cable end-piece as far as stop.
- Gate relay lever is secured by detent -arrow 1-.
- Cable end-piece is secured by detent -arrow 2-.
- Ensure that components engage securely.





Detaching and securing gate relay lever (with clip) at gearbox selector lever -arrow 1-

Detaching

Remove clip -arrow 1- and take off gate relay lever together with cable end-piece.

Securing



Note

Lubricate all bearings and moving surfaces with grease -G 000 *450 02- .*

- Insert gate relay lever with cable end-piece as far as stop.
- Press on clip -arrow 1-, making sure it engages securely.

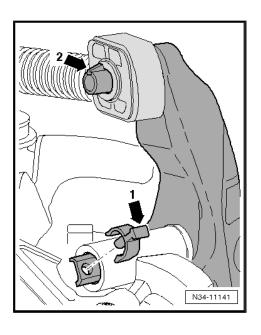


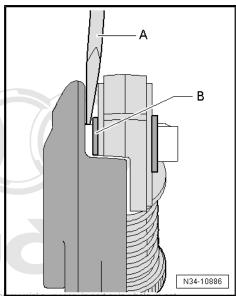
Note

-Arrow 2- can be disregarded.

Levering cable end-piece for gate selector cable off gate relay

- Gate relay lever removed
- Apply plain slot screwdriver -A- between bush -B- and gate relay lever.

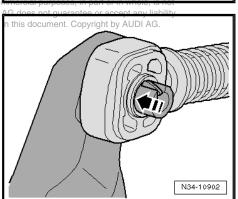




Pressing cable end-piece for gate selector cable onto gate relay mation lever

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- Gate relay lever removed
- Press on cable end-piece only at bush -arrow-.
- Cable end-piece must move freely on gate relay lever.
- Cable end-piece must be behind detent.
- Ensure that components engage securely.

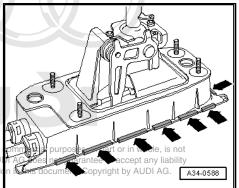


1.10 Removing and installing gear selector cable and gate selector cable

Removing

- Remove selector mechanism ⇒ page 63.
- Using a screwdriver, bend open tabs -arrows- for selector mechanism on floor plate and remove floor plate.
- Remove gasket.

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Vehicles with vehicle ID No. up to 8J-7-013000:

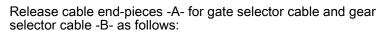
- Detach securing clips -1- and -4- and pull both cables off pins.

Vehicles with vehicle ID No. from 8J-7-013001 onwards:

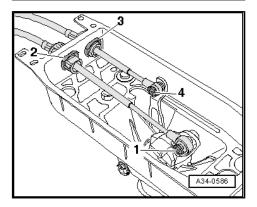
- Prise gear selector cable and gate selector cable off pins.

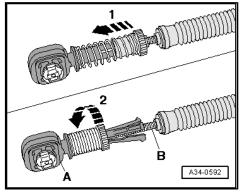
Continued for all vehicles:

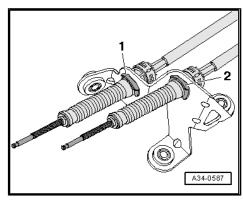
Take off securing clips -2 ... 3- and detach gear selector cable and gate selector cable from selector housing.



- Push locking sleeve forwards as far as stop -arrow 1-.
- Turn locking sleeve clockwise as far as stop -arrow 2- so that it engages.
- Detach cable end-pieces from cables.
- Pull off securing clips -1- and -2-.
- Detach cable support bracket from cables.







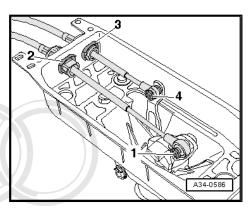
Installing

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

 Secure gear selector cable and gate selector cable to selector housing with securing clips -1 ... 4-.

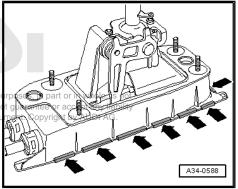
Vehicles with vehicle ID No. from 8J-7-013001 onwards:

Press gear selector cable and gate selector cable onto pins.



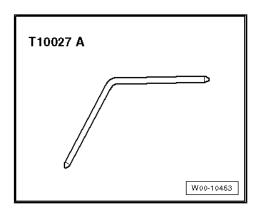
Continued for all vehicles:

- Fit new gasket and secure new floor plate to selector mechanism by bending over tabs -arrows-.
- Install selector mechanism ⇒ page 63.
- Adjust selector mechanism page 79 pright. Copying for private or commercial permitted unless authorised by AUDI AG. AUDI AG does not with respect to the correctness of information in this doc



Special tools and workshop equipment required

♦ Locking pin -T10027 A-



Requirements for adjustment

- Gear selector linkage must be in proper condition and undamaged.
- Selector mechanism must move freely.
- Gearbox, clutch and clutch mechanism must be in proper condition.
- Gearbox in neutral.

Adjusting

- Open ashtray.
- Carefully lever off trim panel from centre console -arrows-.
- Pull trim panel up and over gear knob.



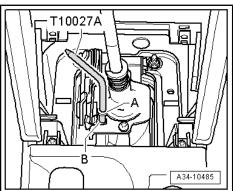
- With gearbox in neutral, guide gear lever to the left into 1st/ 2nd gear gate.
- Lift noise insulation plate.

Protected by Tchenguide locking pin on Tri 10027 A esthrough hole in As and into permitted uhole was rised 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.

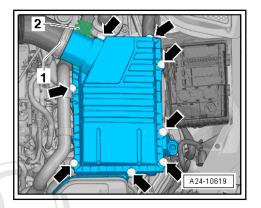


Note

The noise insulation panels are removed to give a better illustration.



Remove complete air cleaner housing ⇒ Rep. Gr. 24 (does not apply to engine codes BWA and BPY).



Release cable end-pieces -A- for gate selector cable and gear selector cable -B- as follows:

- Push locking sleeve forwards as far as stop -arrow 1-.
- Turn locking sleeve clockwise as far as stop -arrow 2- so that it engages.



Note

It should be possible to move selector cable -B- in the cable endpiece. permitted unless authorised by AUDI AG. AUDI AG does not guara with respect to the correctness of information in this document. C

Gearbox in neutral.

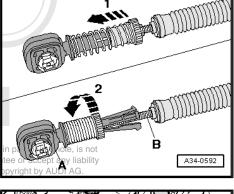
Lock the selector shaft as follows:

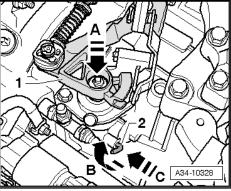
- Press down gearbox selector lever -1- in direction of arrow -A-.
- At the same time press and turn angled rod -2- in direction of arrows -B- and -C- until it engages.

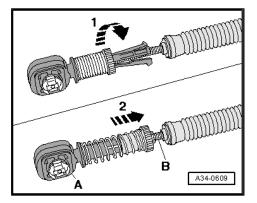
The selector shaft is then locked and can no longer be moved.

- Check that gate selector cable and gear selector cable -B- are located in cable end-pieces -A- without tension.
- Release locking sleeve -arrow 1-.
- Allow locking sleeve to slide onto stop -arrow 2-.

Cable adjustment is now complete.







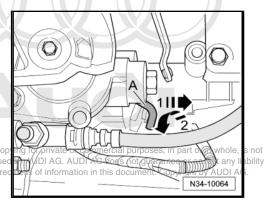
- Turn angled rod -A- back to initial position in direction of -arrow 2- and pull out of gearbox in direction of -arrow 1-.
- Pull locking pin -T10027 A- out of selector mechanism.

Checking gear lever setting

- With the gearbox in neutral, the gear lever should rest in the 3rd/4th gear gate.
- Depress clutch.
- Select all gears several times. Pay particular attention to the uthorise operation of the reverse gear locking mechanism. with respect to the corre
- The gear lever should return by itself from the reverse gear gate to the 3rd/4th gear gate.

If the gear lever sticks or baulks repeatedly when engaging a gear, perform the adjustment procedure again.

- Fit cover and trim panel for centre console.
- Install air cleaner housing ⇒ Rep. Gr. 24 (does not apply to engine codes BWA and BPY).



3 Removing and installing gearbox

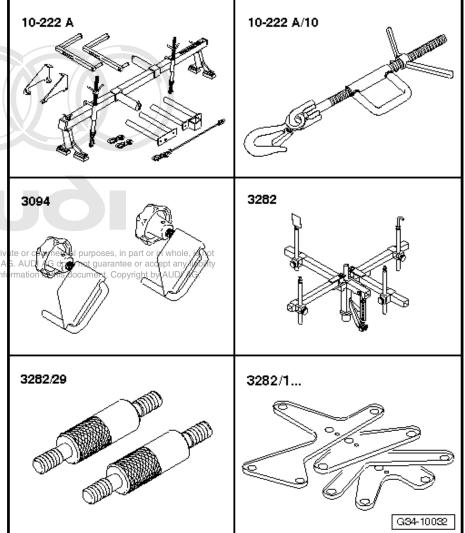
- ⇒ "3.1 Removing gearbox on vehicles with 2.0 ltr. FSI turbocharged engine", page 82
- \Rightarrow "3.2 Installing gearbox on vehicles with 2.0 ltr. FSI turbocharged engine", page 93
- ⇒ "3.3 Transporting gearbox", page 99

3.1 Removing gearbox on vehicles with 2.0 ltr. FSI turbocharged engine

Special tools and workshop equipment required

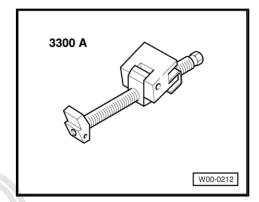
- ♦ Support bracket -10-222A-
- ♦ Rack -10 222 A /1-
- ♦ Hooks -10 222 A /10-
- ◆ Hose clamps, up to Ø 25 mm -3094-
- ♦ Gearbox support -3282-
- ♦ Pin -3282/29-
- ♦ Adjustment plate -3282/52-
- ♦ Safety support -3282/59-
- ◆ Adjustment plate -3282/33-

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Special tools and workshop equipment required

♦ Engine support -3300 A-



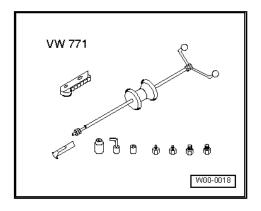
♦ Support -T10036-



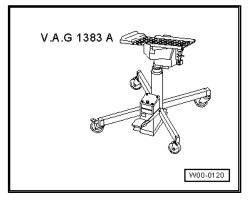
T10036 whole, is not W00-0945 ot any liability

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Adapter -VW 771/40-



♦ Engine and gearbox jack -V.A.G 1383 A-



- ♦ Bolt M6×20 (2x)
- Bolt M10×20
- Grease -G 000 450 02-
- Grease for clutch plate splines -G 000 100-

Procedure



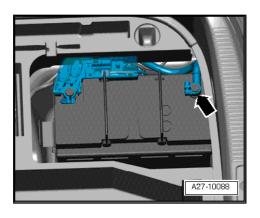
Caution

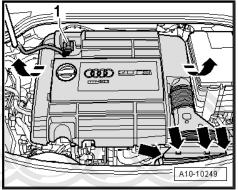
When disconnecting the battery there is a risk of serious damage to electronic components:

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

Vehicles with air filter element incorporated in engine cover panel (engine codes BWA and BPY)

Remove engine cover panel with air filter element ⇒ Rep. Gr.
 24 .

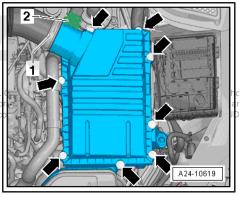




Vehicles with air cleaner housing on left side of engine compartment

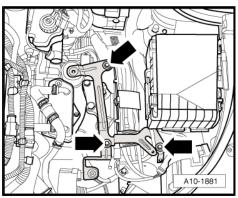
- Remove air cleaner housing completely ⇒ Rep. Gr. 24.

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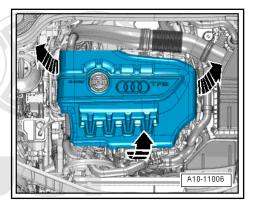


ole, is not any liability

 Remove bolts -arrows- and detach bracket for air cleaner housing.



Carefully pull off engine cover panel -arrows-. Pull out engine cover panel evenly, without jerking.



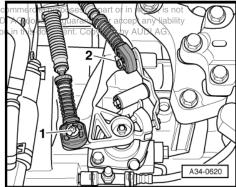
Continued for all vehicles

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- Detach securing clip -1- and pull cable end-piece off pinss of information

Metal gate relay lever:

Detach securing clip -2- and pull cable end-piece off gate relay



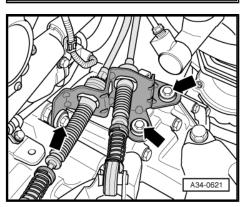
Plastic gate relay lever:

- To prevent damage to gate selector cable, cable end-piece must be detached from gate selector cable before removing relay lever.
- Pull locking mechanism forwards in direction of -arrow 1- onto stop and then turn to left in direction of -arrow 2- to lock.
- Then press gate relay lever forwards (in direction of -arrow 3-).
- Detach cable end-piece only when gate relay lever is removed ⇒ page 76 .

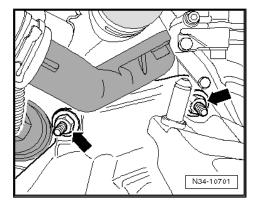
N34-10891

Continued for all vehicles:

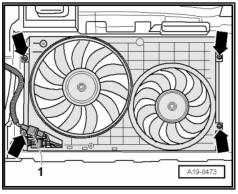
Detach cable support bracket from gearbox -arrows-; then move to one side and tie up together with selector cables.



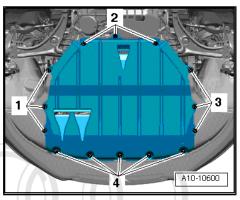
Unscrew top engine/gearbox securing bolts -arrows-.



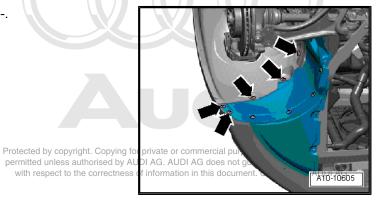
Remove the two top bolts on radiator cowl -top arrows-.



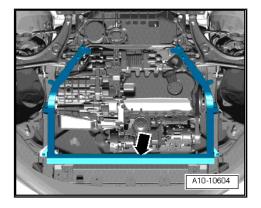
- Raise vehicle.
- Remove noise insulation (centre) by releasing fasteners -1 ... 4-.



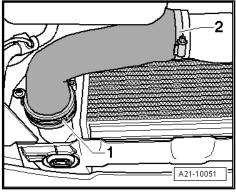
Remove noise insulation (left-side) -arrows-.



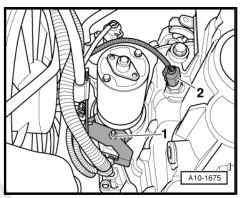
Remove noise insulation frame -arrow-.



Slightly lift retaining clip -1- and loosen hose clip -2- to remove air hośe.



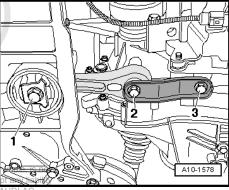
- Unplug electrical connector -2- for reversing light switch -F4- .
- Remove nut -1- and detach bracket from stud together with electrical wiring.
- Move bracket and wiring clear to the side.
- Remove bottom bolt securing starter -1-.



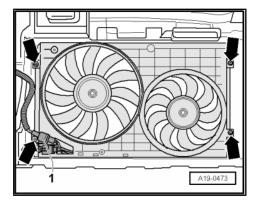
Unscrew bolts -1 ... 3- and remove pendulum support.



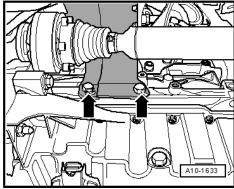
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- Detach electrical connector -1-.
- Remove remaining bolts -bottom arrows- and take out radiator cowl from below.



Unbolt heat shield for drive shaft (right-side) -arrows-.

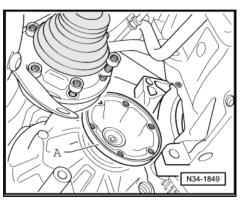


Unbolt drive shafts (left and right) from gearbox flange shafts

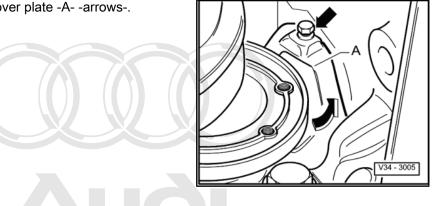


Note

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



If fitted, remove small flywheel cover plate -A- -arrows-.



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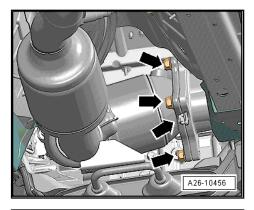
- Remove nuts -arrows-.
- Detach catalytic converter from turbocharger and secure catalytic converter to prevent it from falling to the ground.

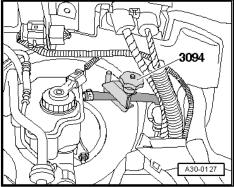


Note

To prevent damage, the flexible joints in the front exhaust pipe must not be bent further than 10° .

Using hose clamp -3094-, clamp off supply hose to master cylinder.







Note

In the following steps make sure that no brake fluid escapes onto the starter or onto the gearbox below. If this does happen, clean the affected area thoroughly.

- Pull clip -arrow- out as far as stop.
- Pull plastic pipe -A- out of bleeder connection for clutch slave cylinder and seal end of pipe.

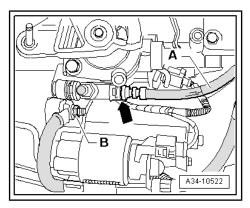


Caution

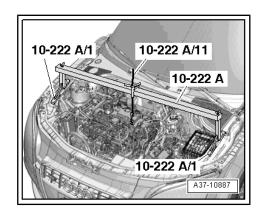
Do not operate clutch pedal after disconnecting pipe/hose assembly.

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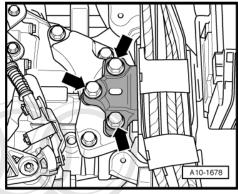
- Remove/inutspB+tandcdetach earthowire this document. Copyright by AUDI AG.
- Then remove upper securing bolt from starter -B-.
- Place starter to side onto longitudinal member.



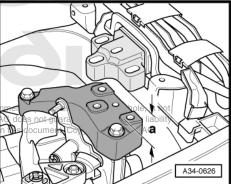
- Set up support bracket -10 222 A- together with racks -10 -222 A /1- on wing mounting flanges.
- Engage hook of spindle -10 222 A /11- in engine lifting eye (left-side).
- Partly take up weight of engine with spindle, but do not lift.



Remove bolts on gearbox mounting -arrows-.

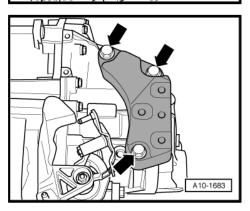


- By adjusting spindles on support bracket -10 222 A-, lower gearbox by distance -a-.
- Dimension -a- = 60 mm



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Unbolt gearbox bracket from gearbox -arrows-.

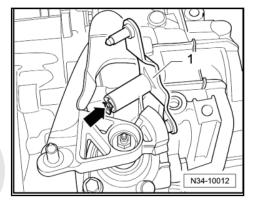


Metal gate relay lever -1-:

- Pull off securing clip -arrow- and remove gate relay lever -1-.

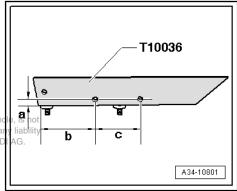
Plastic gate relay lever -1-:

- Removing gate relay lever (with detent catch) ⇒ page 75
- Removing gate relay lever (with clip) ⇒ page 75

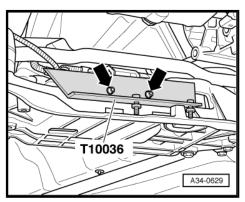


Continued for all vehicles:

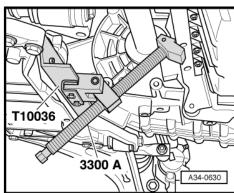
- Drill two 7 mm diameter holes in support -T10036-, as illustrated (if holes have not already been drilled).
- Dimension -a- = 11 mm.
- Dimension -b- = 98 mm
- Dimension -c- = 70 mm Protected by copyright. Copying for private or commercial purposes, in part or in wh permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept with respect to the correctness of information in this document. Copyright by AUI



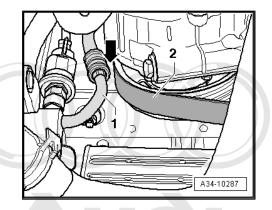
Bolt support -T10036- onto subframe -arrows- using two M6×20 bolts.



Bolt engine support -3300 A- onto support -T10036-.



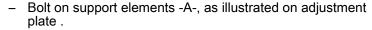
- Press engine towards front of vehicle using spindle of engine support -3300 A-. Pay special attention to the following points:
- The air conditioner compressor -2- must not contact refrigerant line -1- -arrow-.
- Alternator must not make contact with refrigerant line.
- Pressure pipe must not make contact with radiator.



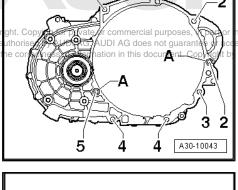
- Move drive shaft (left-side) towards the rear as far as possible.
- Remove engine/gearbox connecting bolts (bottom) -4-.

To remove gearbox "02Q" set up gearbox support -3282- with Protected by copy adjustment plate -3282/33-. permitted unless

- Fit gearbox support -3282- into engine/gearbox jack -V.A.G 1383A- .
- Align arms of gearbox support according to holes in adjustment plate.

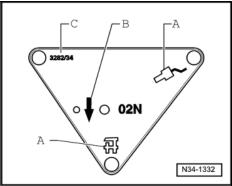


- Screw in pin -3282/29- instead of support element -C-.
- Place engine/gearbox jack under vehicle; arrow symbol -B- on adjustment plate points to front of vehicle.
- Align adjustment plate and gearbox parallel to one another.



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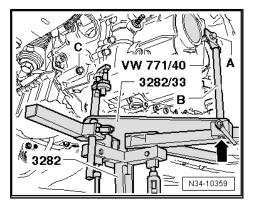
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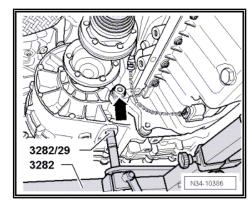
- Secure adapter -VW 771/40- in tapped hole of gearbox housing, as shown in illustration.
- Screw pin -3282/29- into hole for bolt that secures pendulum support to gearbox (see next illustration).
- Secure gearbox to gearbox support -3282- with bolt M10x20

Make sure pin -B- is flush at bottom with guide of gearbox support -3282- -arrow-.

Remove engine/gearbox connecting bolt -C-.

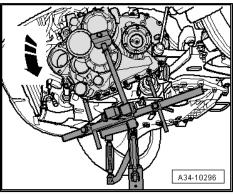


- Remove last engine/gearbox connecting bolt -arrow-.
- Press gearbox off engine (dowel sleeves).



- Tilt gearbox to the front by turning spindle of gearbox support -3282- in direction of -arrow-.
- Then tilt gearbox to the left by turning spindle of gearbox support -3282- .
- Guide gearbox past subframe, push forwards slightly and and lower out carefully.
- Transporting gearbox ⇒ page 99.

Installing gearbox ⇒ page 93.



3.2 Installing gearbox on vehicles with 2.0 Itr. FSI turbocharged engine

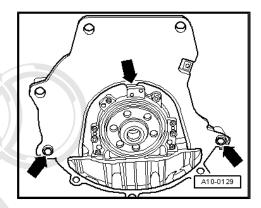
Installation is carried out in reverse sequence; note the following:



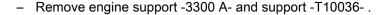
Note

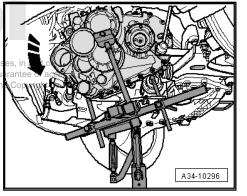
- Renew self-locking nuts and bolts when performing assembly work.
- Renew oil seals, gaskets, O-rings and bolts which are tightened by turning through a specified angle.
- Secure all hose connections with the correct hose clips (as original equipment); refer to ⇒ Electronic parts catalogue.
- All cable ties which are released of cut open during removal oes not guarantee or accept any liability must be fitted in the same position when installing comation in this document. Copyright by AUDI AG.
- Clean input shaft splines and (in the case of a used clutch) plate) the hub splines. Remove corrosion and apply only a very thin coating of grease for clutch plate splines -G 000 100- to the splines. Then move clutch plate backwards and forwards on input shaft until hub moves freely on shaft. It is important to remove excess grease.
- When renewing the gearbox, the gearbox selector lever must be transferred to the new assembly.
- Check that dowel sleeves for centralising engine/gearbox are in the cylinder block; install if necessary.
- ♦ If the dowel sleeves are not fitted, this will lead to gear-change problems, clutch malfunction and in some cases gearbox noise (gears will make rattling noises).
- Use thread tap to remove any remaining locking fluid from all threaded holes which will accommodate self-locking bolts.

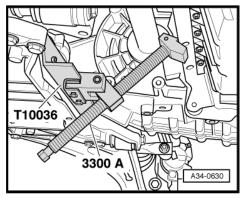
- Audi TT 2007 ➤
- Make sure that the intermediate plate is engaged on the sealing flange and fitted on the dowel sleeves -arrows-.
- Check release bearing for wear. Renew slave cylinder and release bearing if necessary ⇒ page 36.
- Check that clutch plate is centralised <u>⇒ page 47</u>



- Tilt gearbox to the front by turning spindle of gearbox support -3282- in direction of -arrow-.
- Raise gearbox carefully and move to installation position using
- gearbox support -3282- Protected by copyright. Copying for private or commercial purport Align gearbox with engine and specification of the correctness of information in this document.
- Secure gearbox and starter to engine. Tightening torque ⇒ page 98
- Insert drive shaft (left-side) into gearbox flange.







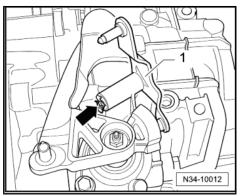
Lubricate bearings and moving surfaces of gate relay lever -1- with grease -G 000 450 02-.

Metal gate relay lever -1-

Insert gate relay lever -1- and secure with securing clip -arrow-.

Plastic gate relay lever -1-

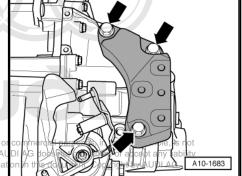
- Fit gate relay lever (with detent catch) \Rightarrow page 75.
- Fit gate relay lever (with clip) ⇒ page 75.



N34-10009

Continued for all vehicles:

Install gearbox bracket ⇒ page 101.



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Align engine/gearbox in installation position. To do so, tighten spindles of support bracket -10 - 222 A- until gearbox bracket -1- makes contact with gearbox mounting -2-.



Note

Gearbox mounting and gearbox bracket must be parallel to avoid causing damage to thread of gearbox bracket.

Install gearbox mounting ⇒ page 101.



Note

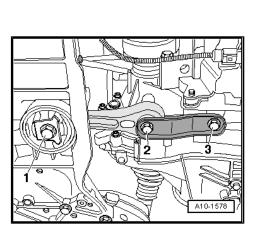
When installing gearbox ensure engine/gearbox mountings are installed stress-free ⇒ Rep. Gr. 10.



WARNING

Do not remove support bracket -10 - 222 A- until all bolts securing the left-hand engine/gearbox mounting have been tightened to the specified torque.

Install pendulum support ⇒ page 101.

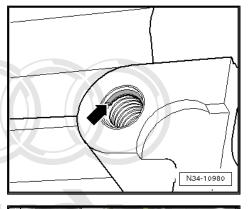


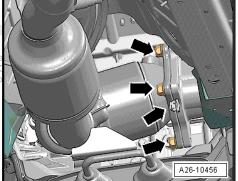




Note

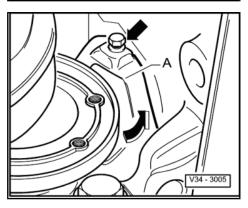
- Gearboxes manufactured from 28 05 7 onwards have thread inserts (e.g. "Heli-Coil") in the bolt holes for the pendulum support.
- ◆ These can be recognised by the shoulder on the first thread turn -arrow-.
- ◆ Please use the correct securing bolts and observe the specified tightening torques ⇒ <u>Item 2 (page 101)</u>.
- Secure catalytic converter to turbocharger -arrows- ⇒ Engine, mechanics; Rep. Gr. 26.

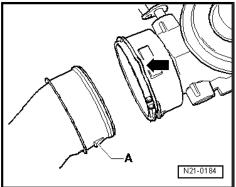




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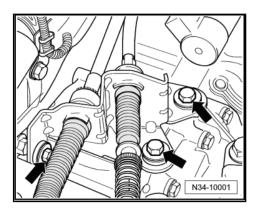
- If fitted, install small cover plate -A- at rear of bevel box -arrow- ⇒ page 98.
- Secure drive shafts (left and right) to gearbox ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 40.
- Install heat shield for drive shaft (right-side) -arrows-⇒ page 98
- Install radiator cowl ⇒ Rep. Gr. 19 .
- Install starter ⇒ Rep. Gr. 27.
- Plug in connector at reversing light switch -F4- .
- Install air intake hose. Make sure retaining clip -arrow- snaps onto retaining lug -A-.
- Install pipe/hose assembly or plastic pipe ⇒ page 29.
- Bleed clutch system ⇒ page 31.





6-speed manual gearbox 02Q, front-wheel drive - Edition 04.2010

Install cable support bracket on gearbox ⇒ page 68.



- Spread a small amount of grease -G 000 450 02- onto pins -arrows- of gearbox selector lever -1- and gate relay lever -2-.
- Push gear selector cable onto pin -arrow- and secure with securing clip -3-.

Metal gate relay lever -2-

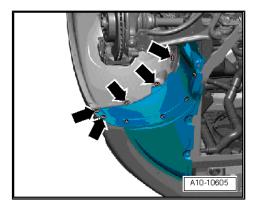
- Apply a small quantity of grease -G 000 450 02- to pin -arrow- of gate relay lever -2-.
- Push gate selector cable onto pin -arrow- and secure with securing clip -4-.

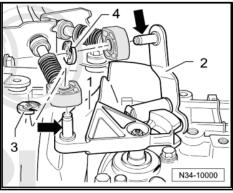


Insert gate selector cable in cable yend piece ying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG. Continued for all vehicles

- Adjust selector mechanism ⇒ page 79.
- Raise vehicle.
- Check gear oil level in gearbox ⇒ page 107.
- Install noise insulation frame -arrow- ⇒ Rep. Gr. 50.
- A10-10604

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





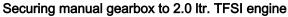
- Install noise insulation (centre) -fasteners 1 ... 4-.
- Install engine cover panel.
- Install air cleaner housing ⇒ Rep. Gr. 24.
- Connect battery. Follow the steps required after connecting the battery ⇒ Rep. Gr. 27.

Tightening torques (installing gearbox)



Note

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



| Item | Bolt | Nm |
|------|---|--------------------------------|
| 1 2 | M12×55 ♦ With stud M8 | 80 |
| 3 | M12×70 ◆ Installed from engine side | 80 |
| 4 | M10×50 | 40 |
| 5 | M10×105 | pern 40 d unless author |
| 6 7 | M12×165 ♦ With stud M8 ♦ Also secures | 80 |
| | starter to gear- box | |
| A, B | Dowel sleeves | for centralising |

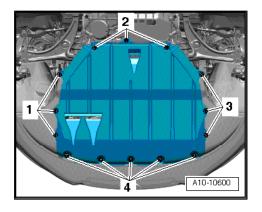


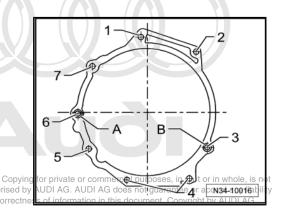
Further tightening torques

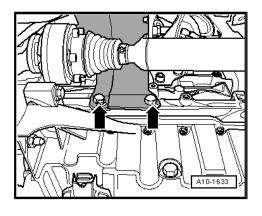
| Component | Nm |
|--------------------------------|----|
| Small cover plate for flywheel | 10 |

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

- Tighten bolts -arrows- to 25 Nm.



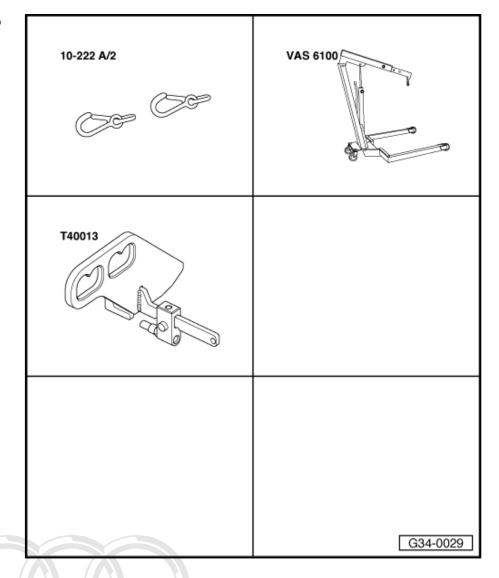




3.3 Transporting gearbox

Special tools and workshop equipment required

- ♦ Hook -10 222 A /2-
- Workshop hoist -VAS 6100-
- ♦ Lifting aid -T40013-

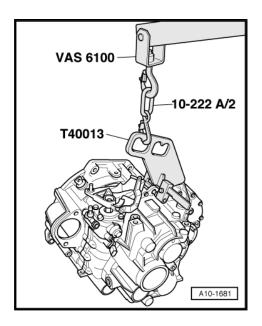




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3.3.1 **Procedure**

- Attach lifting aid -T40013- to gearbox and engage locking mechanism.
- Hook workshop hoist -VAS 6100- onto lifting aid using hooks -10 222 A /2- .





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Exploded view - assembly mountings 4

1 - Bolt

- Gearbox bracket to gearbox
- 60 Nm + 90°
- □ Renew

2 - Bolts

Pendulum support to gearbox



Note

- Gearbox with thread inserts in conjunction with bolts of property class 10.9:
 - □ 50 Nm + 90°
- Gearbox without thread inserts with bolts of property class 8.8:
 - 40 Nm + 90°
 - Always renew

3 - Engine support

4 - Bolt

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- ☐ Engine support to the corr gine
- Tightening torque ⇒ Rep. Gr. 10

5 - Engine mounting

6 - Bolt

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

7 - Connecting bracket

8 - Bolt

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

9 - Bolt

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

10 - Bolt

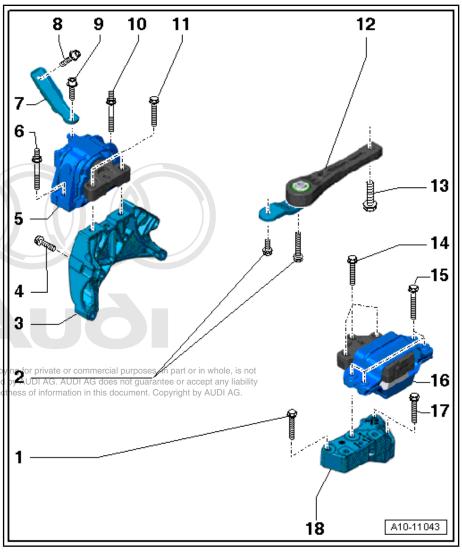
- Engine mounting to body
- ☐ Tightening torque ⇒ Rep. Gr. 10

11 - Bolts

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

12 - Pendulum support

☐ Removing and installing <u>⇒ page 105</u>



13 - Bolt

- Pendulum support to subframe
- □ 100 Nm + 90°
- □ Renew

14 - Bolt

- Gearbox mounting to gearbox bracket
- □ 60 Nm + 90°
- □ Renew

15 - Bolt

- Gearbox mounting to body
- □ 40 Nm + 90°
- □ Renew

16 - Gearbox mounting

- □ Removing ⇒ page 102
- ☐ Installing <u>⇒ page 105</u>

17 - Bolt

- ☐ Gearbox bracket to gearbox
- □ 60 Nm + 90°
- □ Renew

18 - Gearbox bracket





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Gearbox with thread inserts (e.g. "HeliCoil") for securing pendua pect to a lum support



Note

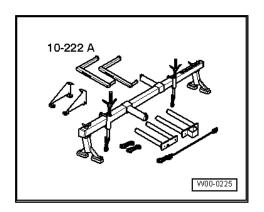
- Gearboxes manufactured from 28 05 7 onwards always have thread inserts (e.g. "HeliCoil") in the bolt holes for the pendulum support.
- These can be recognised by the shoulder on the first thread turn -arrow-.
- Different securing bolts and tightening torques *⇒ Item 2 (page 101)*

N34-10980

Removing gearbox mounting - vehicles 4.1 with 2.0 ltr. TFSI engine

Special tools and workshop equipment required

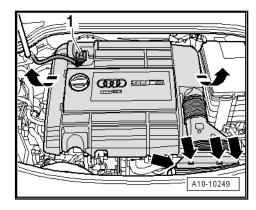
♦ Support bracket -10 - 222 A-



Removing

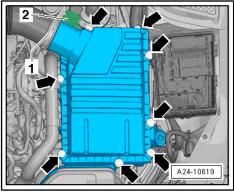
Vehicles with air filter element incorporated in engine cover panel (engine codes BWA and BPY)

Remove engine cover panel with air filter element ⇒ Rep. Gr. 24 .

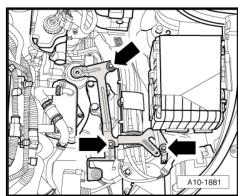


Vehicles with air cleaner housing on left side of engine compartment

- Remove air cleaner housing completely ⇒ Rep. Gr. 24.

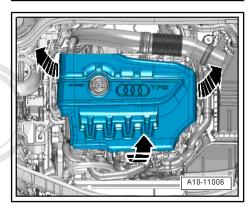


Remove bolts -arrows- and detach bracket for air cleaner housing.



Carefully pull off engine cover panel -arrows-. Pull out engine cover panel evenly, without jerking.

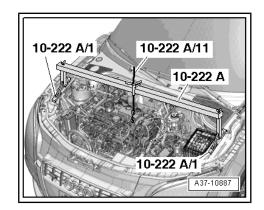
Continued for all vehicles



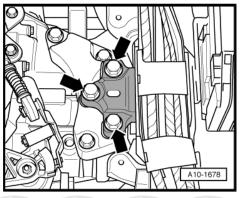


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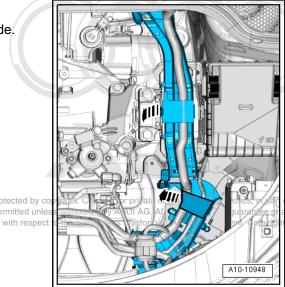
- Set up support bracket -10 222 A- on wing mounting flanges.
- Engage hook of spindle -10 222 A /11- in engine lifting eye (left-side).
- Take up weight of engine evenly with spindles; do not lift.



Remove bolts -arrows-.



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

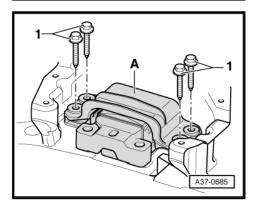


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- Remove bolts -1- and detach gearbox mounting -A-. Install gearbox mounting ⇒ page 105.



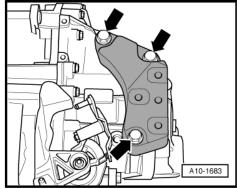
4.2 Installing gearbox mounting

Installing

• Tightening torques <u>⇒ page 101</u>

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

- First secure gearbox bracket to gearbox -arrows-.



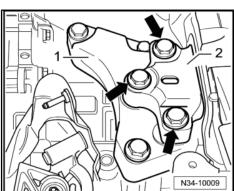
- Pull gearbox up with spindle on support bracket -10 222 Auntil gearbox bracket -1- contacts support arm of gearbox mounting -2-.
- Hand-tighten bolts -arrows- initially.



Caution

Screw in bolts straight when fitting as otherwise the threads in the support arm of the gearbox mounting will be damaged.

The gearbox bracket -1- and the support arm of the gearbox mounting -2- must be aligned in absolutely parallel position before fitting the bolts -arrows-. If necessary, push the gearbox up at the rear with a trolley jack.



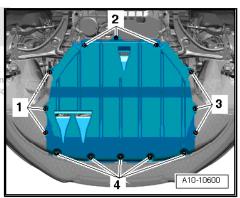
- Only tighten bolts after subframe has been installed ⇒ Rep. Gr. 40 and assembly mountings aligned ⇒ Rep. Gr. 10
- Detach support bracket -10 222 A- from engine.
- Install air cleaner housing ⇒ Rep. Gr. 23 or ⇒ Rep. Gr. 24.

4.3 Removing and installing pendulum support

Removing

Release fasteners -1 ... 4- and remove centre noise insulation.

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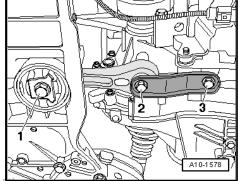


Unscrew bolts -1 ... 3- and remove pendulum support.

Installing

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

Tightening torques ⇒ "4 Exploded view - assembly mountings", page 101

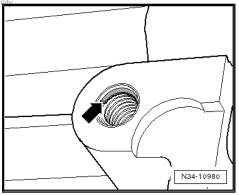


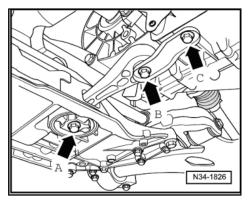
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Note

- Gearboxes manufactured from 28 05 7 onwards have thread inserts (e.g. "HeliCoil") in the bolt holes for the pendulum support.
- These can be recognised by the shoulder on the first thread turn -arrow-.
- Please use the correct securing bolts and observe the specified tightening torques ⇒ Item 2 (page 101).
- First secure pendulum support to gearbox -arrow B- and -arrow C-, then on subframe -arrow A-.





Checking oil level in manual gearbox 5

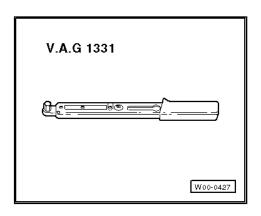
Special tools and workshop equipment required

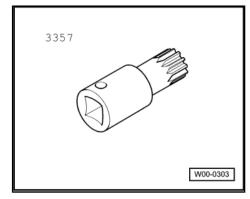
◆ Torque wrench -V.A.G 1331-





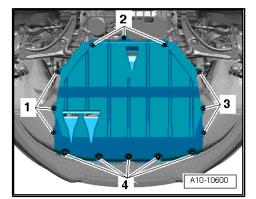
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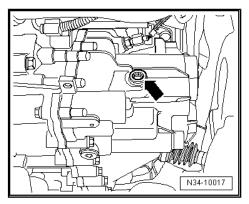


or

- 17 mm socket (hexagon key)
- Vehicle must be horizontal when checking oil level.
- Raise vehicle.
- Remove noise insulation (centre) by releasing fasteners -1 ... 4-.

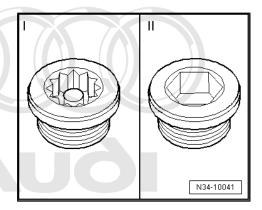


- Remove oil filler plug -arrow-.
- Specification: oil level up to bottom lip of filler hole
- Top up with gear oil if necessary; specification \Rightarrow page 1.
- Screw in oil filler plug -arrow- with new seal.
- Tighten oil filler plug to specified torque.



Tightening torques

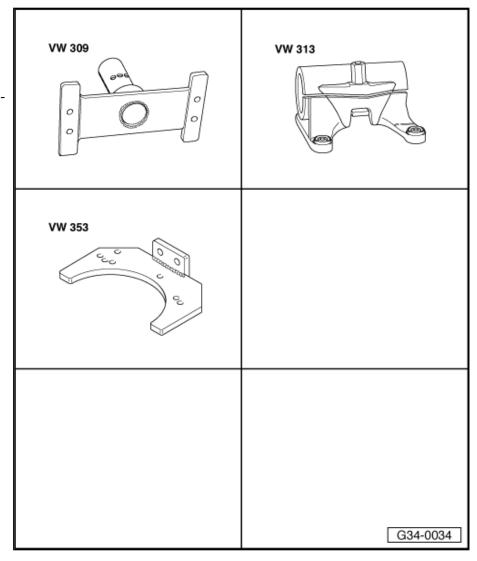
| Component | Nm |
|--|----|
| Oil filler/ oil drain plug -l- with multi-point socket | 45 |
| Oil filler/oil drain plug -II- with hexagon socket | 30 |



Securing gearbox to assembly stand in original AG. 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. 5.1

Special tools and workshop equipment required

- Support plate -VW 309-
- Support clamp -VW 313-
- Gearbox support -VW 353-

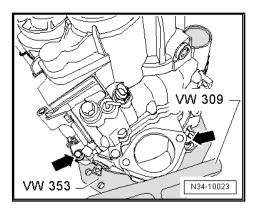


Secure gearbox to assembly stand with bolts -arrows-.



Note

If one of the bolt holes is not flush with the gearbox support, please insert a washer (or washers) between the bolt hole and the gearbox support .





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6 Dismantling and assembling gearbox

- ◆ ⇒ "6.1 General layout of gearbox", page 110
- ♦ ⇒ "6.2 Exploded view", page 111
- ♦ "6.3 Exploded view gearbox housing and selector mechanism", page 112
- ◆ ⇒ "6.4 Exploded view input shaft, output shafts, differential and selector rods", page 114
- ⇒ "6.6 Dismantling and assembling gearbox (version with circlip A for input shaft sealing cap)", page 126

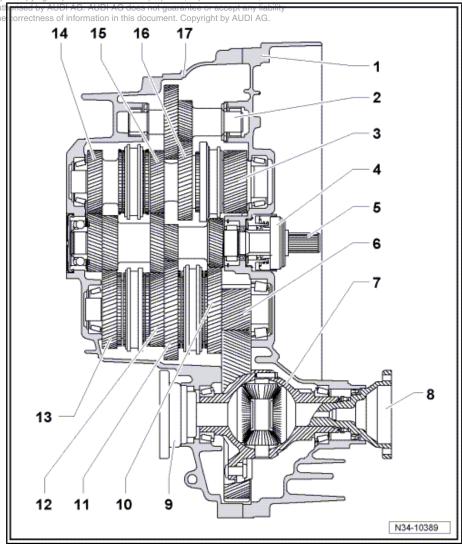
6.1 General layout of gearbox

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1 - Clutch housing permitted unless authority with respect to the

2 - Reverse shaft

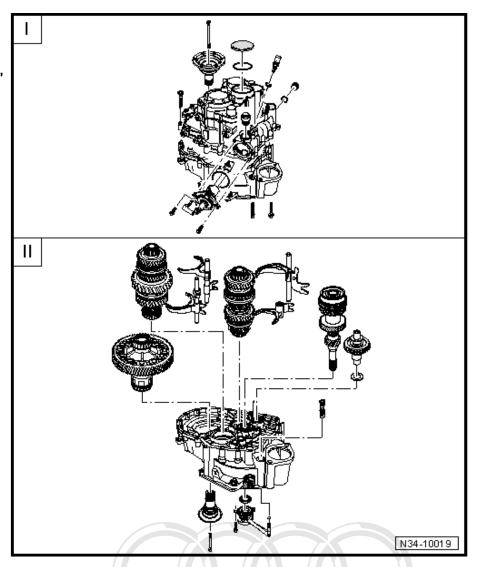
- 3 Output shaft for 5th, 6th and reverse gear
- 4 Slave cylinder with release bearing
- 5 Input shaft
- 6 Output shaft for 1st 4th gear
- 7 Differential
- 8 Flange shaft (right-side)
- 9 Flange shaft (left-side)
- 10 2nd speed selector gear
- 11 1st speed selector gear
- 12 4th speed selector gear
- 13 3rd speed selector gear
- 14 5th speed selector gear
- 15 6th speed selector gear
- 16 Reverse selector gear
- 17 Gearbox housing



6.2 **Exploded view**

I - Exploded view - gearbox housing and selector mechanism ⇒ page 112

II - Exploded view - input shaft, output shafts, differential and selector rods ⇒ page 114

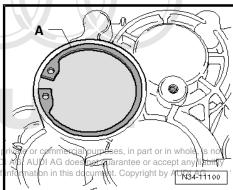


Sealing cap for input shaft with circlip -A-

On gearboxes manufactured from 21 01 8 onwards, the sealing cap for the input shaft is secured by a circlip -A-.

- ⇒ "6.5 Dismantling and assembling gearbox (version without circlip A for input shaft sealing cap)", page 115
- ⇒ "6.6 Dismantling and assembling gearbox (version with circlip A for input shaft sealing cap)", page 126

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6-speed manual gearbox 02Q, front-wheel drive - Edition 04.2010

Exploded view - gearbox housing and selector mechanism

1 - Bolt

6.3

□ Tightening torque ⇒ Item 12 (page 210)

2 - Flange shaft with spring

- Removing and installing <u>⇒ page 115</u>
- Assembling ⇒ page 210

3 - Circlip

- □ For sealing cap ⇒ Item 4 (page 112)
- ☐ Fitted in gearboxes manufactured from 21 01 8 onwards

4 - Sealing cap

- Secured by circlip in gearboxes manufactured from 21 01 8 onwards
- □ Removing and installing (without circlip)
 - ⇒ page 115
- □ Removing and installing (with circlip)
 - ⇒ page 126
- □ Select correct components from ⇒ Electronic parts catalogue.

5 - Circlip

For grooved ball bearing on input shaft ⇒ Item 1 (page 162)

6 - Reversing light switch -F4-

□ 20 Nm

7 - Seal

☐ Renew

8 - Oil drain plug

- ☐ Tightening torque ⇒ page 108
- Note the different versions

9 - Seal

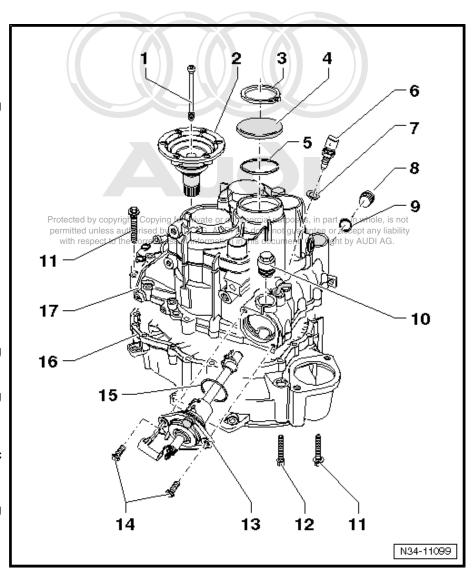
□ Renew

10 - Locking bolt

- For selector shaft
- □ 45 Nm

11 - Bolt

- With captive washer
- ☐ 15 Nm + 90°
- □ Renew
- □ Correct allocation of replacement bolts ⇒ page 113



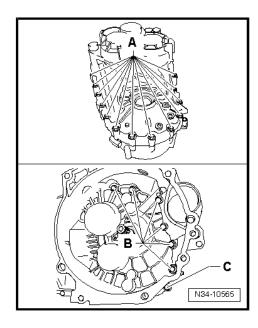
- 12 Bolt
 - Without washer
 - ☐ 15 Nm + 90°
 - ☐ Renew
 - ☐ Correct allocation of replacement bolts <u>⇒ page 113</u>
- 13 Selector mechanism
 - ☐ Dismantling and assembling ⇒ page 154
 - ☐ Removing with gearbox in vehicle ⇒ page 156
- 14 Bolt
 - □ 20 Nm
 - □ Renew
- 15 O-ring
 - ☐ Renew
- 16 Clutch housing
 - □ Servicing ⇒ page 148
- 17 Gearbox housing
 - ☐ Servicing <u>⇒ page 138</u>

Correct allocation of replacement bolts

- A Bolt with captive washer
- B Bolt without washer
- C Bolt with captive washer



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Audi TT 2007 ➤

6.4 Exploded view - input shaft, output shafts, differential and selector rods

1 - Output shaft for 1st - 4th gear

- Dismantling and assembling ⇒ page 170
- ☐ Installation position ⇒ page 115

2 - Selector rod with selector fork for 1st and 2nd gear

- ☐ Installation position ⇒ page 115
- 3 Selector rod with selector fork for 3rd and 4th gear
 - ☐ Installation position ⇒ page 115

4 - Output shaft for 5th, 6th and reverse gear

- ☐ Dismantling and assembling ⇒ page 191
- ☐ Installation position ⇒ page 115

5 - Selector rod with selector fork for 5th and 6th gear

☐ Installation position by copyr ⇒ page 115 permitted unless a

6 - Reverse gear selector fork

☐ Installation position⇒ page 115

7 - Input shaft

- ☐ Dismantling and assembling ⇒ page 164
- Always renew grooved ball bearing on input shaft

⇒ Item 6 (page 163)

8 - Reverse shaft

■ With thrust washer

9 - Thrust washer

10 - Bleeder connection

Connect to slave cylinder ⇒ Item 14 (page 114)

11 - Clutch housing

Servicing ⇒ page 148

12 - Input shaft oil seal

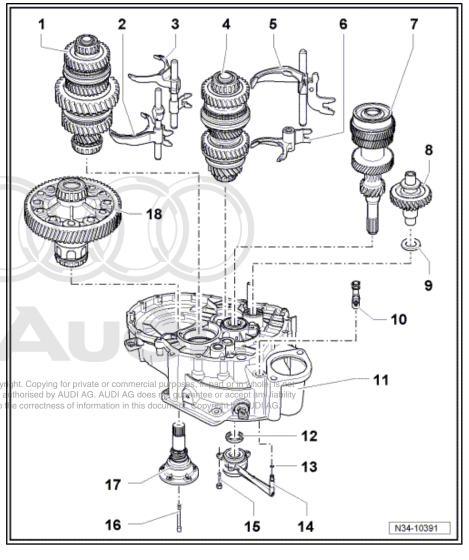
13 - O-ring

- ☐ Renew
- ☐ Push onto pipe connection
- ☐ Lubricate with brake fluid before installing

14 - Slave cylinder with release bearing

15 - Bolt

☐ Tightening torque ⇒ Item 4 (page 35)



16 - Countersunk bolt

☐ Tightening torque ⇒ Item 12 (page 210)

17 - Flange shaft with spring

- □ Removing and installing ⇒ page 115
- □ Assembling ⇒ page 210

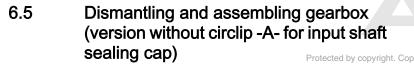
18 - Differential

□ Dismantling and assembling ⇒ page 210

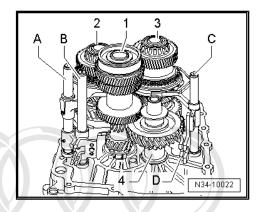
Installation position of shafts and selector rods in gearbox

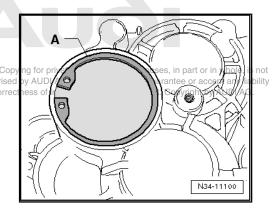
- 1 Input shaft
- 2 Output shaft for 1st 4th gear
- 3 Output shaft for 5th, 6th and reverse gear
- 4 Reverse shaft
- A Selector rod for 3rd and 4th gear
- B Selector rod for 1st and 2nd gear
- C Selector rod for 5th and 6th gear
- D Reverse gear selector fork 1)

¹⁾ In gearboxes manufactured from 25 05 9 onwards: mounted on selector rod for 5th/6th gear selector fork -item C-. Identification of different types of reverse gear selector forks ⇒ page 160



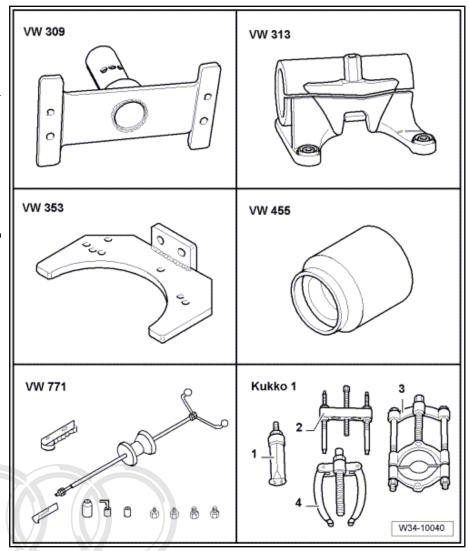
Removing and installing gearbox housing, selector mechanism, correcting the shaft, output shafts, differential and selector rods





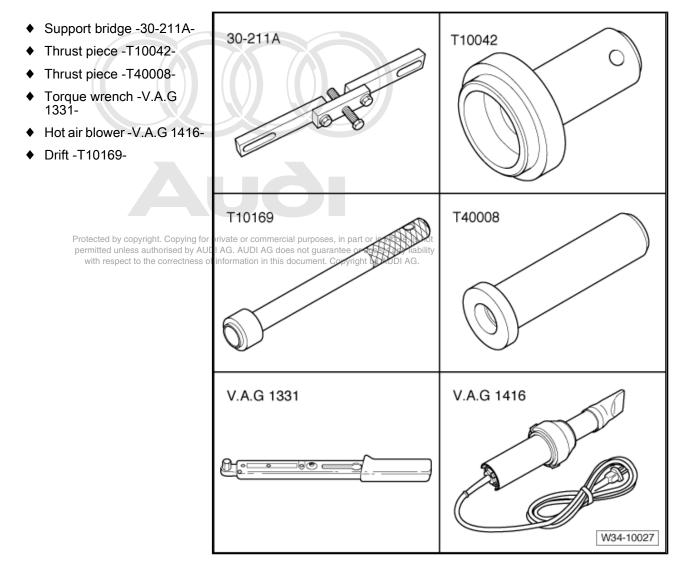
Special tools and workshop equipment required

- Support plate -VW 309-
- Support clamp -VW 313-
- Gearbox support -VW 353-
- Installing sleeve -VW 455-
- Multi-purpose tool -VW
- -1- Internal puller -Kukko 21/01-
- -3- Splitter -Kukko 17/0-
- -4- Counter-support -Kukko 22/1-



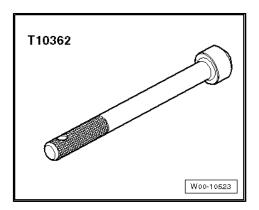


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or

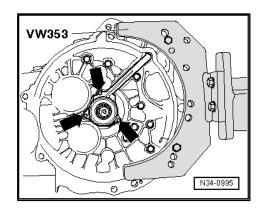
◆ Drift -T10362- <u>⇒ page 145</u>



Dismantling gearbox

- Remove gearbox <u>⇒ page 82</u>.
- Secure gearbox to assembly stand ⇒ page 108.
- Turn gearbox on assembly stand with oil drain plug downwards.
- Place drip tray below gearbox.

- Drain gear oil.
- Remove slave cylinder with release bearing -arrows-.



Make sure that the selector shaft is not locked in position by the angled rod -arrow- while carrying out the following steps.

- Put selector shaft in neutral position.
- Remove reversing light switch -F4- -1-.
- Remove locking bolt -2-.
- Remove bolts -3-.
- Pull selector shaft -4- out of gearbox housing.
- Remove flange shafts (left and right).
- Unscrew bolts -B- securing gearbox housing from inside clutch housing.



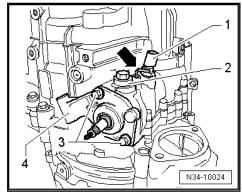
Note

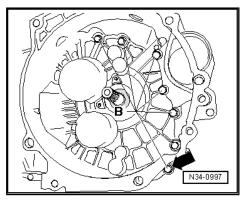
One of the bolts -arrow- is outside the joint flange.

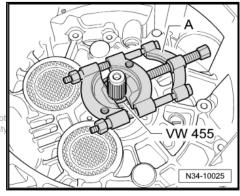


- Tighten splitter -A-, e.g. -Kukko 17/0- behind splines on input shaft.
- The rear side of the splitter must be in contact with installing sleeve -VW 455- (zero play).

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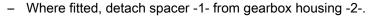


- Pierce rubber in centre of sealing cap -C- with a screwdriver .
- Pull sealing cap out of gearbox housing.
- A Counter-support -Kukko 22/1-
- B Internal puller 8 ... 12 mm, e.g. -Kukko 21/01-



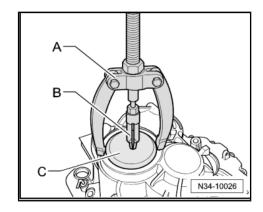
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not **Detach:circlip:**•Confrom input(shaft grooved ball-bearing:as:follows:

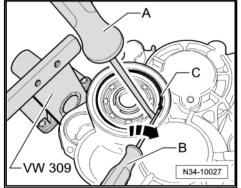
- Hold one end of circlip with screwdriver -A-.
- Lever other end of circlip out of slot in grooved ball bearing in direction of -arrow- with 2nd screwdriver -B-.
- Lever circlip out further by repositioning screwdriver -B-.

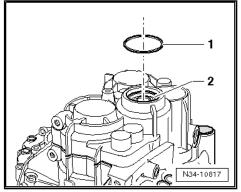


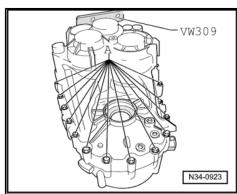
When renewing the gearbox housing, check whether the spacer has to be re-installed ⇒ page 122.

Remove gearbox housing/clutch housing securing bolts -A-.







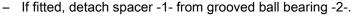


- Screw adapter -VW 771/40- into threaded hole in gearbox housing.
- Using hot air blower -V.A.G 1416-, heat area around seat of input shaft ball bearing in gearbox housing for approx. 10 minutes to approx. 100°C.
- Using multi-purpose tool -VW 771/1-, pull gearbox housing off clutch housing in direction of -arrow-.

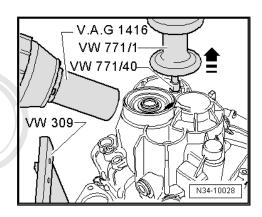


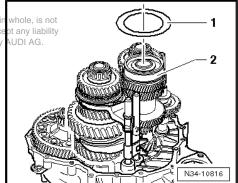
Note

If necessary, carefully apply a lever to the protruding flanges on alternate sides of the gearbox housing, taking care not to damage the sealing surfaces.

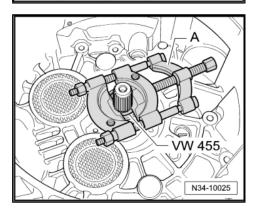


s, in part or When renewing the gearbox housing check whether the arantee or acc spacer has to be re-installed page 122 mation in this document. Copyright by





Remove splitter -A- and installing sleeve -VW 455- from input shaft.



A second mechanic is required for removing the shafts from the clutch housing.

- Lift up differential -1- with your left hand. With your right hand, lift 1st - 4th gear output shaft together with selector rods -2--arrow A-.
- At the same time, the second mechanic must lift the input shaft, reverse shaft and 5th/6th gear output shaft -3- out of the clutch housing together with the selector rods -arrow B-.



Note

If required, the differential can be put back in the clutch housing after lifting the shafts.

Drive out input shaft oil seal with sleeve -30-21-.



Note

Always renew grooved ball bearing on input shaft *⇒ Item 6 (page 163)* .

Assembling gearbox

- Tightening torques ⇒ page 112
- A new grooved ball bearing has been pressed onto the input per Shaft : Item 6 (page 163) AUDI AG does not guarantee or accept any liability
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 Insert input shaft -1-, output shaft for 5th, 6th and reverse gear -2- together with selector rod -3-, selector fork -4- and reverse shaft -5-.

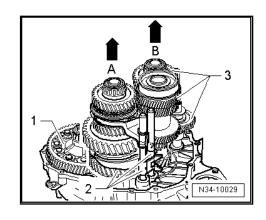


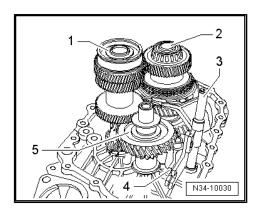


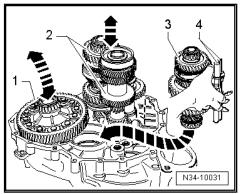
Note

A second mechanic is required for installing the shafts in the clutch housing.

- Take 1st 4th gear output shaft -3- with selector rods -4- in your right hand as illustrated.
- Lift differential slightly with your left hand.
- At the same time, have the second mechanic lift the input shaft and output shaft for 5th, 6th and reverse gear -2- slightly, together with the reverse shaft.
- Now insert 1st 4th gear output shaft in direction of -arrow-.
- The teeth of the input shaft, output shafts and final drive gear/ differential must mesh.
- Now, together with second mechanic, locate shafts and differential in their bearing seats.









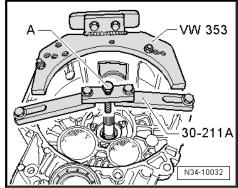
Secure support bridge -30 - 211 A- for input shaft to clutch housing.



Note

Illustration shows clutch housing turned through 180° for clarity.

Screw in bolt -A- until input shaft lifts slightly.





Note

Bottom spacer

- On some gearboxes, grooved ball bearing for input shaft -Aand bearing mounting -B- are flattened on one side.
- Check grooved ball bearing for input shaft and gearbox hous-

Grooved ball bearing for input shaft and gearbox housing

Without flattened sides on grooved ball bearing -A- and bearing mounting -B- ⇒ page 122

With flattened sides on grooved ball bearing -A- and bearing mounting -B- ⇒ page 123

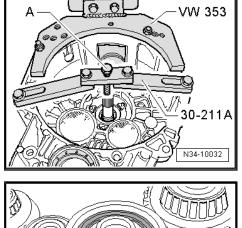
From gearbox manufacturing date 10 04 6 to approx. 20 01 8:

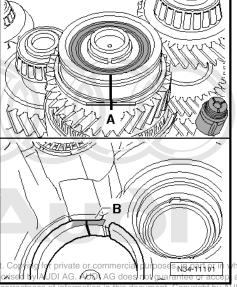
A spacer is fitted on either side of grooved ball bearing for input

| naft <u>⇒ Item 6 (page 163)</u> . Protected | | |
|---|------------------|--------------------|
| | | permitted unl |
| Top spacer | Outside diameter | 78.6 mmwith respec |

Outside diameter

85 mm

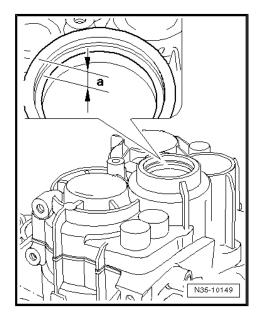




any liability

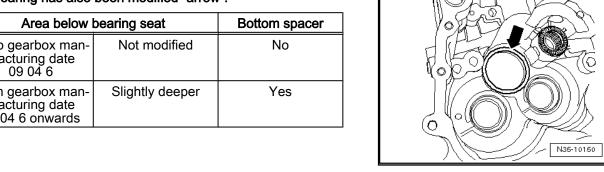
Measuring area above seat for grooved ball bearing

| Area above grooved ball bearing | Dimension "a" | Top spacer |
|---|---------------|------------|
| Up to gearbox man- ufacturing date 09 04 6 | 10 mm | No |
| From gearbox man- ufacturing date 10 04 6 onwards | 10.7 mm | Yes |

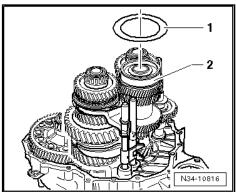


In the gearbox housing, the area below the seat for the grooved ball bearing has also been modified -arrow-.

| Area below bearing seat | | Bottom spacer |
|---|-----------------|---------------|
| Up to gearbox man- ufacturing date 09 04 6 | Not modified | No |
| From gearbox man- ufacturing date 10 04 6 onwards | Slightly deeper | Yes |

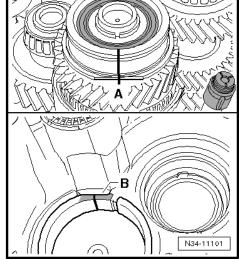


If necessary, fit a spacer (outside diameter = 85 mm) -1- onto grooved ball bearing -2-.



Gearboxes with flattened sides on grooved ball bearing for input shaft -A- and bearing mounting -B-:

- A spacer must not be fitted above or below the grooved ball bearing cted 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
- Flattened sides LAcon grooved ball bearing and bearing AUDI AG. mounting -B- in gearbox housing must be aligned.
- Mark flattened sides with paint.
- Copy markings onto top area of grooved ball bearing and top area of bearing mounting on gearbox housing (> next illustra-
- Using hot air blower -V.A.G 1416-, heat area around seat of input shaft ball bearing in gearbox housing for approx. 10 minutes to approx. 100°C.

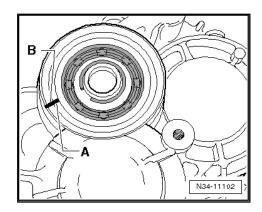




Note

- Heating is necessary to ensure that grooved ball bearing is not damaged when installing gearbox housing.
- ♦ Apply sealing paste -AMV 188 200 03- evenly to sealing surface of clutch housing.

Align marking -A- on grooved ball bearing with marking -B- on gearbox housing and fit gearbox housing.

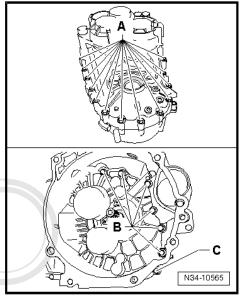


Continued for all gearboxes:

Fit gearbox housing and tighten new bolts -A-, -B- and -C- to specified torque.

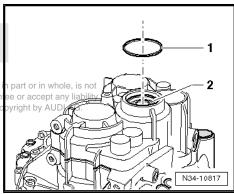
Allocation of bolts:

- A Bolt with captive washer
- B Bolt without washer
- C Bolt with captive washer

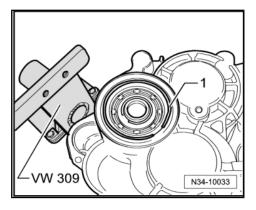


If a spacer was fitted on the grooved ball bearing before installing the gearbox housing, a spacer -1- (outer diameter = 78.6 mm) must also be fitted after installing the gearbox housing -2- <u>⇒ page 122</u>.

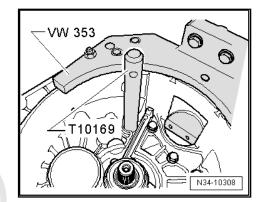
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- Install circlip -1- for input shaft grooved ball bearing.
- Detach support bridge -30 211 A-.



- If stop sleeve for selector shaft has been removed, drive it in now using drift -T10169- (drive in until drift contacts stop).
- Turn gearbox on assembly stand so that opening for selector shaft faces up.



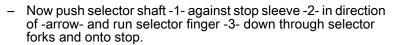
Insert selector shaft -1- into bottom mounting -2- and into selector forks -3-.



Note

The sealing cap is removed to give a better illustration.

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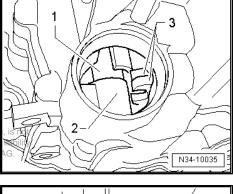
- Selector mechanism cover -4- should be parallel to joint surface on gearbox housing.
- Selector shaft should move up and down easily (gate selector movement).

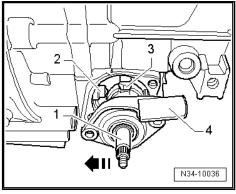


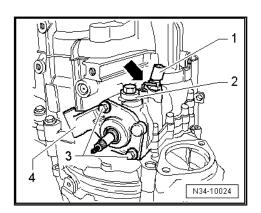
Note

If the selector mechanism cover is not parallel with the joint surface, the selector shaft is not seated in its bottom mounting.

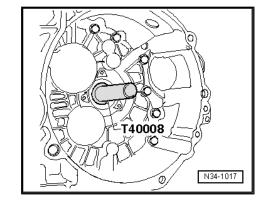
- Tighten bolts -3- for selector mechanism cover -4-.
- Screw in locking bolt -2-; angled rod -arrow- must be released.
- Install reversing light switch -F4- -1-.
- Install both flange shafts with springs, thrust washers and tapered rings.



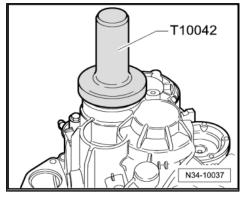




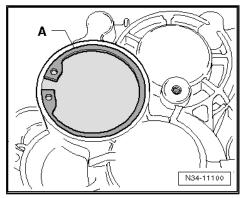
- Drive in input shaft oil seal so it is flush.
- Install slave cylinder with release bearing <u>⇒ page 36</u>.
- Select all gears.



Drive sealing cap into gearbox housing onto stop.



6.6 Dismantling and assembling gearbox (version with circlip -A- for input shaft sealing cap)



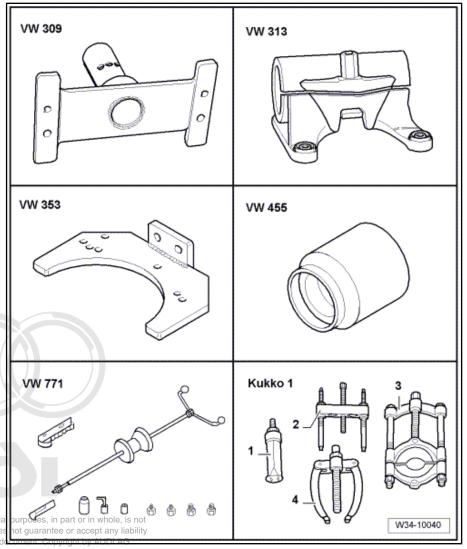
Removing and installing gearbox housing, selector mechanism, input shaft, output shafts, differential and selector rods



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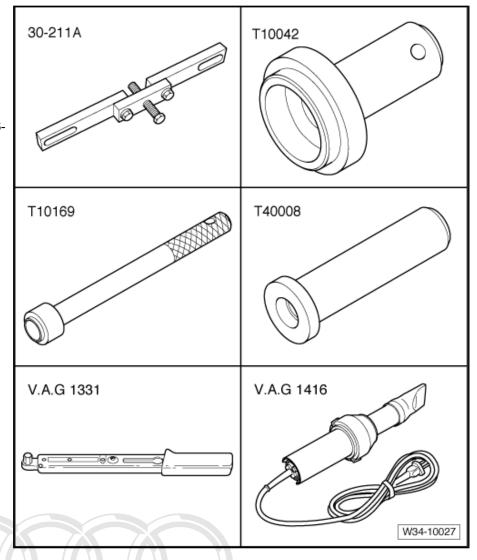
Special tools and workshop equipment required

- ◆ Support plate -VW 309-
- Support clamp -VW 313-
- Gearbox support -VW 353-
- Installing sleeve -VW 455-
- Multi-purpose tool -VW
- ◆ -1- Internal puller -Kukko 21/01-
- -3- Splitter -Kukko 17/0-
- -4- Counter-support -Kukko 22/1-



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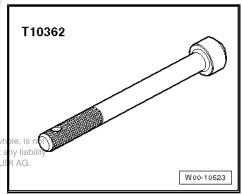
- Support bridge -30-211A-
- Thrust piece -T10042-
- Thrust piece -T40008-
- Torque wrench -V.A.G 1331-
- Hot air blower -V.A.G 1416-
- Drift -T10169-



Or drift -T10362- <u>⇒ page 145</u>

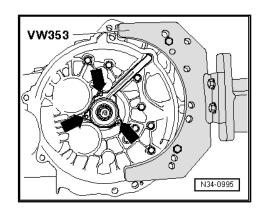


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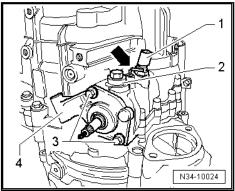


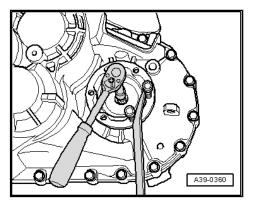
- Gearbox mounted on assembly stand <u>⇒ page 108</u>.
- Turn gearbox on assembly stand so that oil drain plug faces downwards.
- Place drip tray underneath.
- Drain off gear oil.

Remove clutch slave cylinder with release bearing -arrows-.



- Make sure that the selector shaft is not locked in position by the angled rod -arrow- when carrying out the following steps.
- Put selector shaft in neutral position.
- Remove locking bolt -2-.
- Then remove bolts -3-.
- Remove reversing light switch -F4- -1-.
- Pull selector shaft -4- out of gearbox housing.
- Remove flange shafts (left and right).



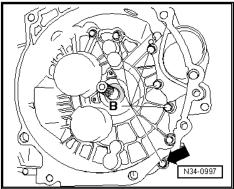


Remove bolts -B- securing gearbox housing from inside clutch housing.



Note

One of the bolts -arrow- is outside the joint flange.

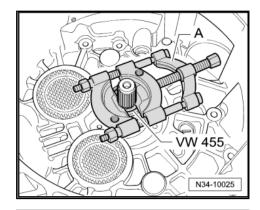




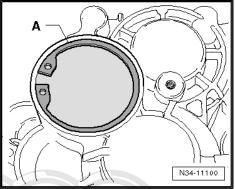
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- Lock input shaft by fitting installing sleeve -VW 455- over input shaft and against clutch housing.
- Tighten splitter -A-, e.g. -Kukko 17/0- behind splines on input shaft.

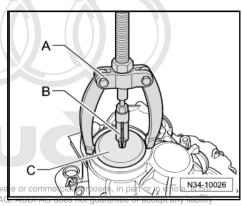
The rear side of the splitter must be in contact with installing sleeve (zero play).



Remove circlip -A- for input shaft sealing cap.

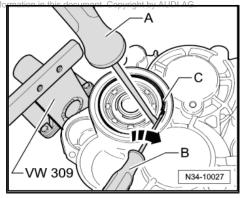


- Pierce rubber in centre of sealing cap -C- with a screwdriver.
- Pull sealing cap out of gearbox housing.
- A Counter-support, e.g. -Kukko 22/1-
- B Internal puller 8 ... 12 mm , e.g. -Kukko 21/01-

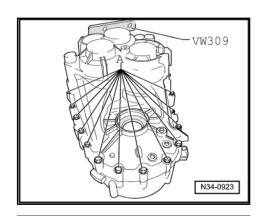


Protected by copyright. Copying for private permitted unless authorised by AUDI AC Detach circlip -C- from input shaft grooved ball bearing as follows:

- Hold one end of circlip with screwdriver -A-.
- Lever other end of circlip out of slot in ball bearing -arrow- with 2nd screwdriver -B-.
- Lever circlip out further by repositioning screwdriver -B-.



Remove gearbox housing/clutch housing securing bolts -A-.



V.A.G 1416 VW 771/1

/W 771/40

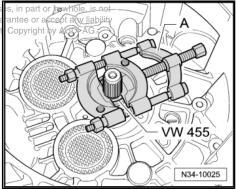
- Screw adapter VW 771/40 into threaded hole in gearbox hous-
- Using hot air blower -V.A.G 1416- , heat area around seat of input shaft ball bearing in gearbox housing for approx. 10 minutes to approx. 100°C.
- Using multi-purpose tool VW 771/1, pull gearbox housing off clutch housing in direction of -arrow-.



Note

If necessary, carefully apply a lever to the protruding flanges on alternate sides of the gearbox housing, taking care not to damage the sealing surfaces.

Remove splitter -A- and installing sleeve of VW 455 at from input purpo authorised by AUDI AG. AUDI AG does not gu shaft. with respect to the correctness of information in this document



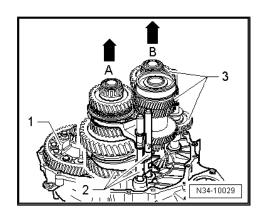




Note

A second mechanic is required for removing the shafts from the clutch housing.

- Lift up differential -1- with your left hand.
- With your right hand, lift 1st 4th gear output shaft together with selector rods -2- -arrow A-.
- At the same time, the second mechanic must lift the input shaft, reverse shaft and 5th/6th gear output shaft -3- out of the clutch housing together with the selector rods -arrow B-.





Note

If required, the differential can be put back in the clutch housing after lifting the shafts.

Drive out input shaft oil seal using sleeve -30-21-



Note

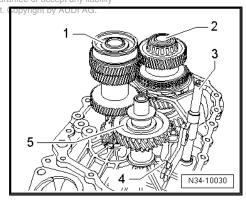
Always renew grooved ball bearing on input shaft *⇒ Item 8 (page 163)*

Assembling gearbox

- Tightening torques <u>⇒ page 112</u>
- A new grooved ball bearing has been pressed onto the input shaft ⇒ Item 8 (page 163)

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 permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability
- Insert input shaft -1-, output shaft for 5th and 6th gear i-2hito-cument. gether with selector rod -3-, selector fork -4- and reverse shaft -5-.

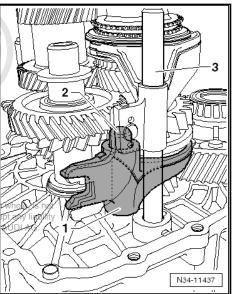


Up to gearbox manufacturing date 24 05 9:

- Bearing for reverse gear selector fork:
- Fit reverse gear selector fork -1- on shaft -2- behind selector rod for 5th/6th gear -3-.

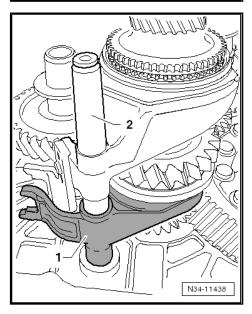


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From gearbox manufacturing date 25 05 9 onwards

- Bearing for reverse gear selector fork:
- Fit reverse gear selector fork -1- on selector rod with selector fork for 5th/6th gear -2-.



Continued for all gearboxes:

Install differential -1-.



Note

A second mechanic is required for installing the shafts in the clutch housing.

- Take 1st 4th gear output shaft -3- with selector rods -4- in your right hand as illustrated.
- Lift differential slightly with your left hand.
- At the same time, have the second mechanic lift the input shaft and output shaft for 5th, 6th and reverse gear -2- slightly, together with the reverse shaft.
- Now insert 1st 4th gear output shaft in direction of -arrow-.
- The teeth of the input shaft, output shafts and final drive gear/ differential must mesh.
- Now, together with second mechanic, locate shafts and differential in their bearing seats.
- Secure support bridge -30-211A- for input shaft to clutch housing.



Note

Illustration shows clutch housing turned through 180° for clarity.

Screw in bolt -A- until input shaft lifts slightly.

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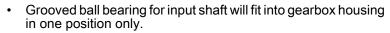


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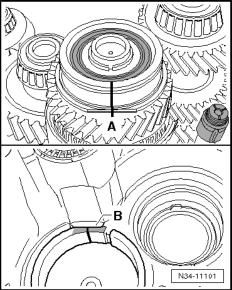
VW 353





The grooved ball bearing and the bearing mounting are flattened on one side.

- If the sides are flattened -A- and -B-, a spacer must not be fitted above or below the grooved ball bearing \Rightarrow page 168.
- Flattened sides -A- on grooved ball bearing and bearing mounting -B- in gearbox housing must be aligned.
- Mark flattened sides with paint.
- Copy markings onto top area of grooved ball bearing and top area of bearing mounting on gearbox housing (⇒ next illustration).
- Using hot air blower -V.A.G 1416-, heat area around seat of input shaft ball bearing in gearbox housing for approx. 10 minutes to approx. 100°C.







Note

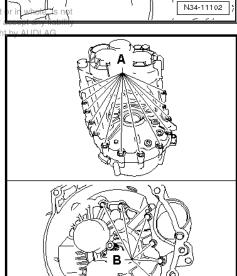
- Heating is necessary to ensure that grooved ball bearing is not damaged when installing gearbox housing.
- ♦ Align marking -A- on grooved ball bearing with marking -B- on gearbox housing and fit gearbox housing.
- Apply sealing paste -AMV 188 200 03- evenly to sealing surface of clutch housing.

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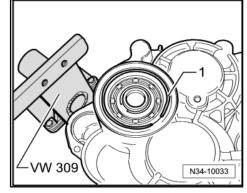
Fit gearbox housing and tighten new bolts -A-, -B- and -C- to specified torque.

Allocation of bolts:

- A Bolt with captive washer
- B Bolt without washer
- C Bolt with captive washer



- Install circlip -1- for input shaft grooved ball bearing.
- Attach support bridge -30 211 A- for input shaft.
- If stop sleeve for selector shaft has been removed, drive it in now ⇒ page 145 (drive in until tool reaches stop).



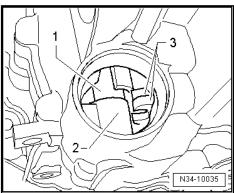
N34-10565

- Turn gearbox on assembly stand so that opening for selector shaft faces up.
- Insert selector shaft -1- into bottom mounting -2- and into selector forks -3-.



Note

The sealing cap is removed to give a better illustration.



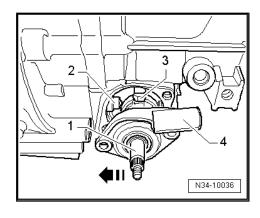
- Now push selector shaft -1- against stop sleeve -2- in direction of -arrow- and run selector finger -3- down through selector forks and onto stop.
- Selector mechanism cover -4- should be parallel to joint surface on gearbox housing.
- Selector shaft should move up and down easily (gate selector movement).

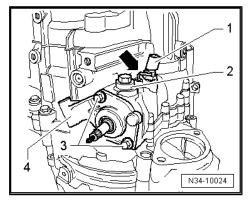


Note

If the selector mechanism cover is not parallel with the joint surface, the selector shaft is not seated in its bottom mounting.

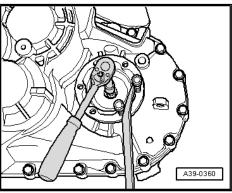
- Tighten bolts -3- for selector mechanism cover -4-.
- Screw in locking bolt -2-; angled rod -arrow- must be released.
- Install reversing light switch -F4- -1-



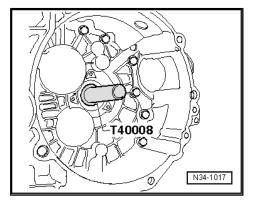


Install flange shafts together with springs, thrust washers and tapered rings.

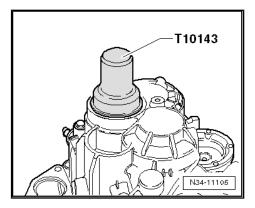
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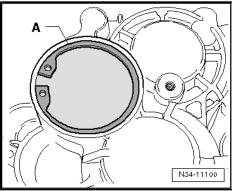
- Drive in input shaft oil seal so it is flush.
- Install clutch slave cylinder with release bearing <u>⇒ page 36</u>.
- Select all gears.



Drive sealing cap into gearbox housing onto stop.



Secure sealing cap with circlip -A-.





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7 Exploded view - gearbox housing



Note

Mounting gearbox on assembly stand ⇒ page 108.

1 - Gearbox housing

- ☐ If renewed: Adjust output shafts and differential <u>⇒ page 216</u> permitted unl
- Modifications in area of mounting for grooved ball bearing on input shaft
 - ⇒ Item 3 (page 162)
- □ Select correct components from ⇒ Electronic parts catalogue

2 - Sealing cap

- □ Removing ⇒ page 142
- □ Driving in ⇒ page 143

3 - Oil drain plug

- ☐ Note the different versions <u>⇒ page 139</u>
- Tightening torque ⇒ page 108

4 - Seal

☐ Renew

5 - Oil filler plug

- Note the different versions <u>⇒ page 139</u>
- □ Tightening torque ⇒ page 108

6 - Angled rod

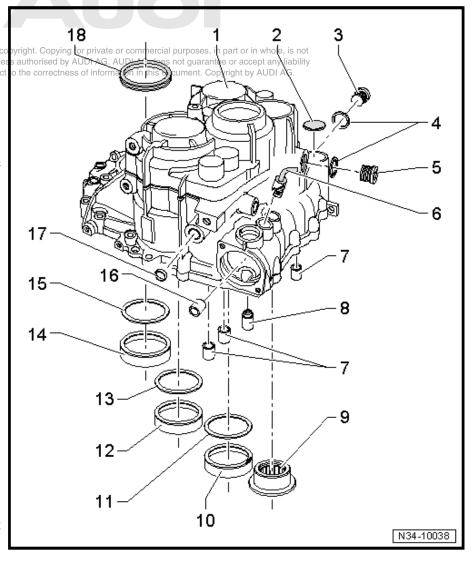
- □ For adjusting selector mechanism <u>⇒ page 79</u>
- Can be renewed without dismantling gearbox
- □ Removing ⇒ page 143
- ☐ Installation position ⇒ page 143
- □ Driving in ⇒ page 143

7 - Bearing bush for selector rods

- □ Pulling out ⇒ page 144
- □ Driving in ⇒ page 144

8 - Stop sleeve

- □ Pressing out (gearbox dismantled) ⇒ page 144
- ☐ Driving out (gearbox not dismantled) ⇒ page 144
- ☐ Identification of different types of stop sleeve <u>⇒ page 145</u>
- ☐ Driving in stop sleeve with shoulder <u>⇒ page 145</u>
- □ Driving in stop sleeve without shoulder ⇒ page 145



9 - Needle bearing

- □ For reverse shaft
- □ Always renew after removing
- □ Pulling out ⇒ page 145
- □ Pressing in ⇒ page 146

10 - Tapered roller bearing outer race

- ☐ For 5th/6th and reverse gear output shaft
- □ Removing and installing ⇒ page 191
- ☐ If renewed: Adjust 5th/6th and reverse gear output shaft <u>⇒ page 200</u>

11 - Shim

- ☐ For 5th/6th and reverse gear output shaft
- ☐ Table of adjustments ⇒ page 216

12 - Tapered roller bearing outer race

- ☐ For 1st 4th gear output shaft
- □ Removing and installing ⇒ page 173
- ☐ If renewed: Adjust 1st 4th gear output shaft <u>⇒ page 184</u>

13 - Shim

- ☐ For 1st 4th gear output shaft
- ☐ Table of adjustments ⇒ page 216

14 - Tapered roller bearing outer race

- For differential
- □ Removing and installing ⇒ page 210
- ☐ If renewed: adjust differential ⇒ page 216

15 - Shim

- For differential
- ☐ Table of adjustments ⇒ page 216

16 - Bearing bush

- □ For selector shaft
- □ Pulling out ⇒ page 146
- ☐ Driving in ⇒ page 146

17 - Sealing plug

- □ Driving out ⇒ page 146
- □ Driving in ⇒ page 147

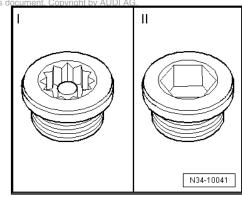
18 - Oil seal for flange shaft (left-side)

□ Renewing ⇒ page 205

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Different versions of oil filler/oil drain plug

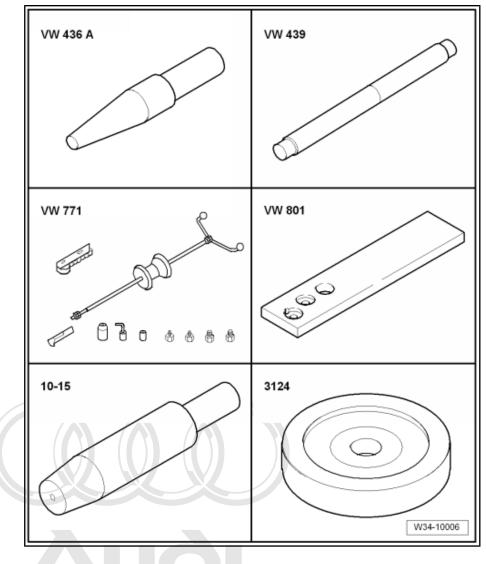
- I Oil filler/ oil drain plug with multi-point socket
- II Oil filler/ oil drain plug with hexagon socket



7.1 Servicing gearbox housing

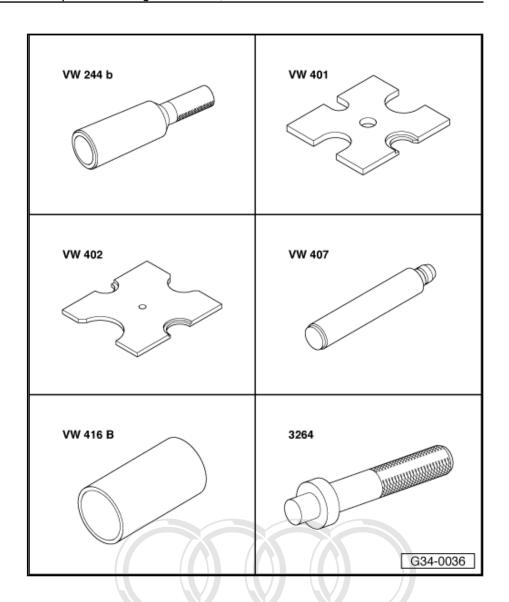
Special tools and workshop equipment required

- ♦ Guide pin -VW 436 A-
- ◆ Assembly tool -3439-
- Multi-purpose tool -VW 771-
- ◆ Support plate -VW 801-
- ♦ Guide pin -10 15-
- Thrust piece -3124-



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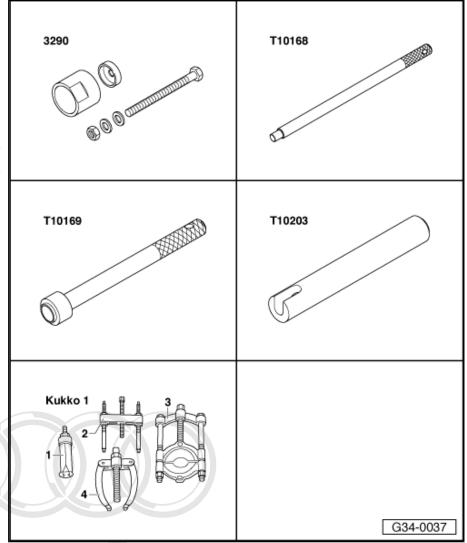
- ♦ Drift sleeve -VW 244 B-
- Thrust plate -VW 401-
- ♦ Thrust plate -VW 402-
- Press tool -VW 407-
- Tube -VW 416 B-
- ♦ Punch -3264-



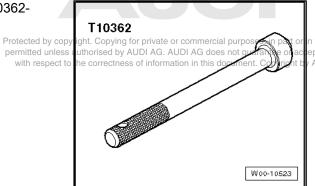


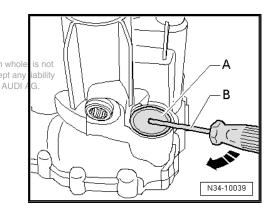
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- ♦ Assembly tool -3290-
- ♦ Drift -T10168-
- ♦ Drift -T10169-
- ♦ Thrust piece -T10203-
- → -1- Internal puller
 14.5 ... 18.5 mm -Kukko
 21/2- and internal puller
 23.5 ... 30 mm -Kukko
- -4- Counter-support -Kukko 22/2-



♦ Drift -T10362-



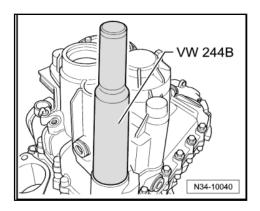


Removing sealing cap

 Pierce rubber in centre of sealing cap with a screwdriver -B- and pry off sealing cap -in direction of arrow-

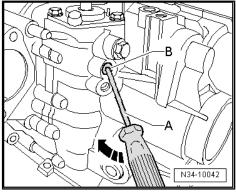
Driving in sealing cap

- Drive in sealing cap as far as stop.



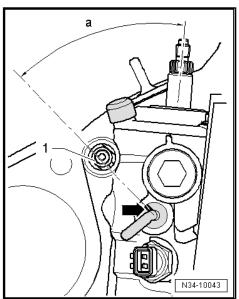
Removing angled rod for selector shaft

- Shear off pin in released position.
- Insert screwdriver -A- in bore for angled rod -B-.
- Pry out angled rod -arrow-.



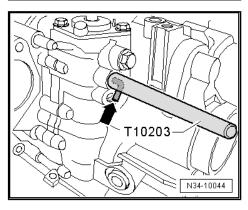
Installation position of angled rod

- Marking on angled rod -arrow- must face towards connection on clutch slave cylinder -1-.
- ProtecteAngleyrant must be approx 45° roial 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.



Driving in angled rod for selector shaft

- The angled rod -arrow- must be in the released position when driving in.
- Drive in angled rod until tool contacts stop.



Pulling out bearing bush for selector rod

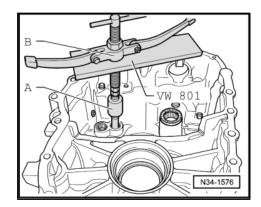
A - Internal puller 14.5 ... 18.5 mm, e.g. -Kukko 21/2-

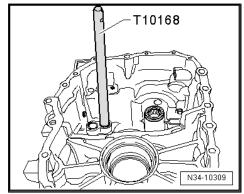
B - Counter-support, e.g. -Kukko 22/2-



Driving in selector rody**bush** 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

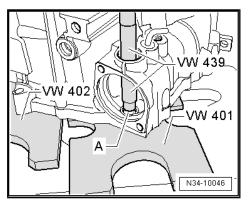
Drive in selector rode bush funtil took contacts stop ht by AUDI AG.





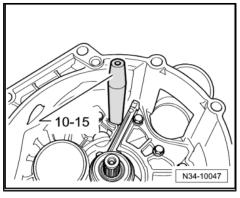
Pressing out stop sleeve (gearbox dismantled)

- Place gearbox housing on thrust plates -VW 401- and -VW 402- so that the dowel sleeves in the gearbox housing do not become damaged.
- Press out stop sleeve -A-.



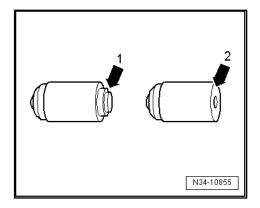
Driving out stop sleeve (gearbox not dismantled)

- Locking bolt and selector shaft removed
- Turn gearbox so that stop sleeve does not drop into gearbox.
- Drive out stop sleeve using guide pin -10 15-.



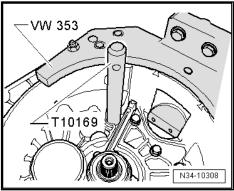
Identification of different types of stop sleeve

- Depending on version, a stop sleeve with shoulder -arrow 1-⇒ page 145 or without shoulder -arrow 2- ⇒ page 145 may be fitted.
- $Select \ correct \ components \ from \Rightarrow \ Electronic \ parts \ catalogue \ .$



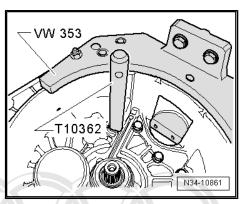
Driving in stop sleeve with shoulder as far as tool stop

· Gearbox housing bolted to clutch housing



Driving in stop sleeve without shoulder as far as tool stop

Gearbox housing bolted to clutch housing



Pulling needle bearing for reverse shaft out of gearbox housing

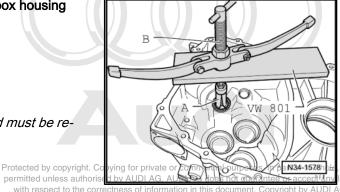
A - Internal puller 23.5 ... 30 mm, e.g. -Kukko 21/4-

B - Counter-support , e.g. -Kukko 22/2-



Note

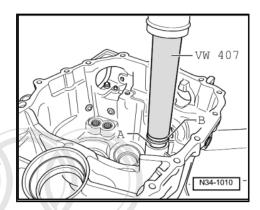
The needle bearing is destroyed during removal and must be renewed.



with respect to the correctness of information

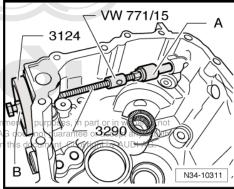
Pressing needle bearing for reverse shaft into gearbox housing

- Before pressing in, place reverse shaft thrust washer -B- on needle bearing -A-.
- Place tube -VW 416 B- directly under bearing mounting to support gearbox housing.



Pulling out selector shaft bush

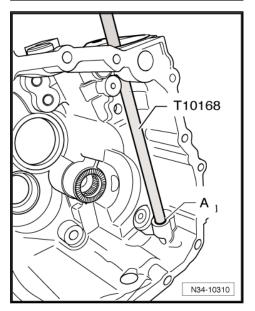
- Hold spindle of assembly tool -3290- tight and turn nut -B-.
- A Internal puller 14.5 ... 18.5 mm, e.g. -Kukko 21/2-



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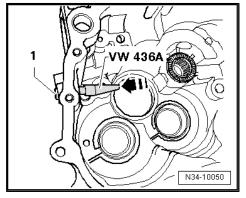
Driving in selector shaft bearing bush

- Drive in selector shaft bush -A- until flush.



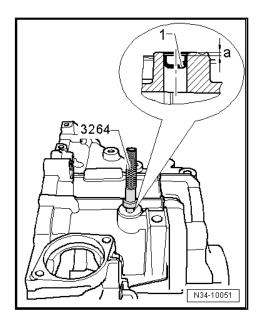
Driving out plug

- Drive out plug -1- from inside of gearbox housing -arrow-.



Driving in plug

Drive in plug -1- using punch -3264- to a depth of approx. 3 mm (distance -a- below surface of housing).





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8 Exploded view - clutch housing

1 - Bearing bush

- For selector shafts
- □ Pulling out ⇒ page 150
- □ Driving in ⇒ page 151

2 - Reverse gear selector fork

- ☐ Installed up to gearbox manufacturing date 24 05 9 ⇒ page 149
- ☐ Shaft cannot be removed with workshop tools
- ☐ Up to gearbox manufacturing date 24 05 9: press in new shaft if a new clutch housing is fitted ⇒ page 151
- Discontinued from gearbox manufacturing date 25 05 9 onwards; reverse gear selector fork is then mounted together with selector fork for 5th/6th gear ⇒ page 133
- ☐ For correct version, refer to ⇒ Electronic parts catalogue

3 - Needle bearing

- □ For reverse shaft
- □ Always renew after removing
- ☐ Pulling out <u>⇒ page 151</u>
- Pressing in <u>⇒ page 151</u>

4 - Dowel sleeve

□ 2x

5 - Clutch housing

☐ If renewed: Adjust output shafts and differential ⇒ page 216

6 - Input shaft oil seal

□ Renewing ⇒ page 152

When gearbox is dismantled, oil seal can be removed with sleeve -30-21-.

7 - Oil seal

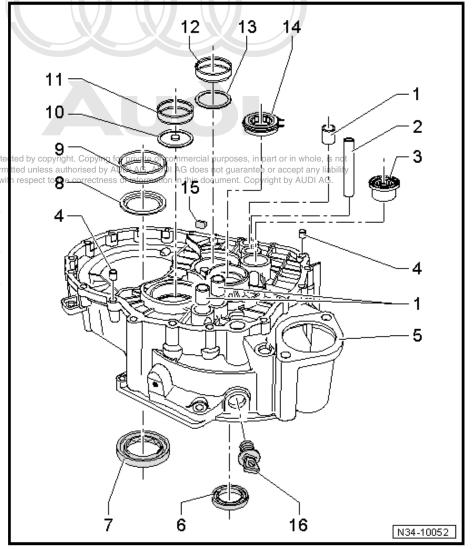
- □ For flange shaft
- □ Renewing ⇒ page 206

8 - Shim

- For differential
- □ Installation position: Shoulder on inside diameter faces towards oil seal ⇒ Item 7 (page 148)

9 - Tapered roller bearing outer race

For differential

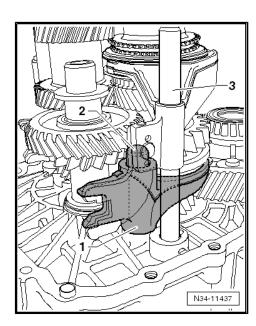


| ☐ Removing and installing ⇒ page 210 |
|--|
| ☐ If renewed: adjust differential ⇒ page 217 |
| 10 - Oil deflector plate |
| ☐ Installation position: Shoulder on drilling faces towards output shaft |
| 11 - Tapered roller bearing outer race |
| ☐ For 1st - 4th gear output shaft |
| □ Removing and installing ⇒ page 173 |
| ☐ If renewed: Adjust 1st - 4th gear output shaft ⇒ page 184 |
| 12 - Tapered roller bearing outer race |
| ☐ For 5th/6th and reverse gear output shaft |
| □ Removing and installing ⇒ page 191 pyright. Copying for private or commercial purposes, in part or in whole, is not |
| ☐ If renewed: Adjust 5th/6th and reverse gear output shaft ☐ page 200 arantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG. |
| 13 - Shim |
| ☐ For 5th/6th and reverse gear output shaft |
| □ 0.65 mm thick |
| 14 - Roller bearing |
| ☐ For input shaft |
| ☐ Removing and installing <u>⇒ page 164</u> |
| 15 - Magnet |
| ☐ Held in place by joint surface of housing |
| 16 - Can |

Reverse gear selector fork shaft in gearboxes manufactured up to 24 05 9

■ Not fitted on all clutch housings

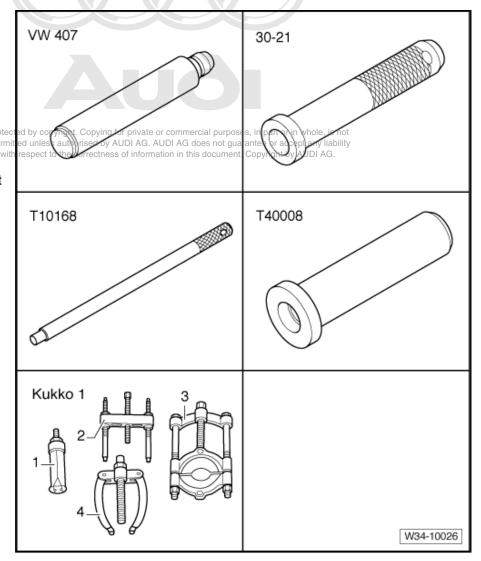
Fit reverse gear selector fork -1- on shaft -2- behind selector rod for 5th/6th gear -3-.



8.1 Servicing clutch housing

Special tools and workshop equipment required

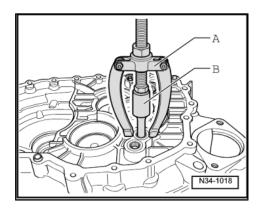
- Press tool -VW 407-
- Sleeve -30 21-
- Drift -T10168-
- Thrust piece -T40008-
- -1- Kukko internal puller perm 21/2 and 21/4
- -4- Kukko counter-support 22/1 and 22/2



Pulling out bearing bush for selector rod

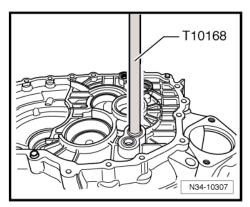
A - Counter-support, e.g. -Kukko 22/1-

B - Internal puller 14.5 ... 18.5 mm , e.g. -Kukko 21/2-



Driving in selector rod bush

- Drive in bush until tool contacts stop.



Pulling needle bearing out of clutch housing

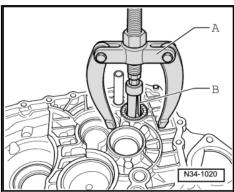
A - Counter-support , e.g. -Kukko 22/2-

B - Internal puller 23.5 ... 30 mm , e.g. -Kukko 21/4-



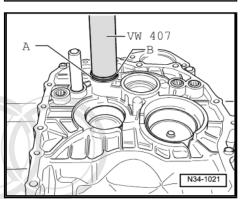
Note

The needle bearing is destroyed during removal and must be renewed.



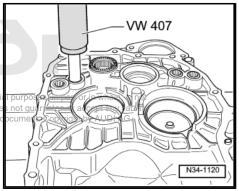
Pressing needle bearing -A- into clutch housing

Before pressing in, place reverse shaft thrust washer -B- on needle bearing -A-.



Pressing reverse gear selector fork shaft into clutch housing

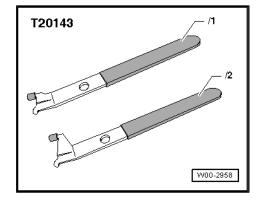
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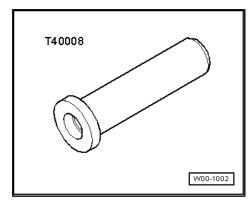
Renewing input shaft oil seal 9

Special tools and workshop equipment required

◆ Extractor tool -T20143/1-



Thrust piece -T40008-



♦ Sealing grease -G 052 128 A1-

Procedure

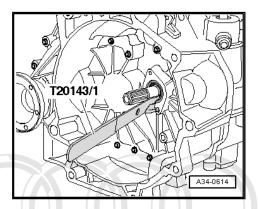
- Gearbox removed ⇒ page 82.
- Remove clutch slave cylinder with release bearing <u>⇒ page 36</u> .
- Pry out input shaft oil seal using extractor tool -T20143/1-.

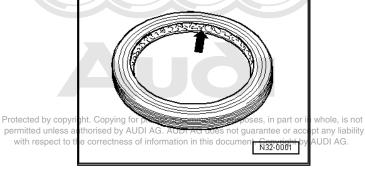


Note

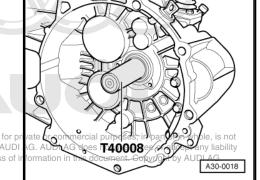
Take care not to damage contact surface for oil seal on input shaft.

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





- Drive in oil seal until flush using thrust piece -T40008-.
- Install clutch slave cylinder with release bearing ⇒ page 36.



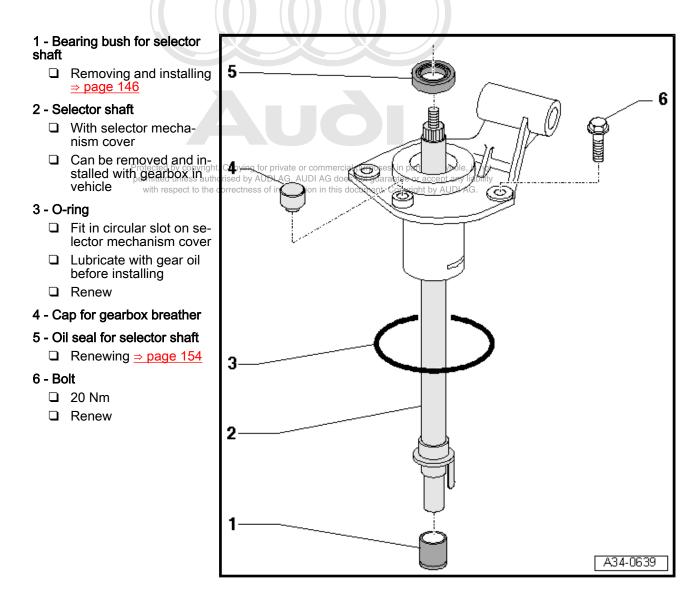
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10 Exploded view - selector mechanism in gearbox



Note

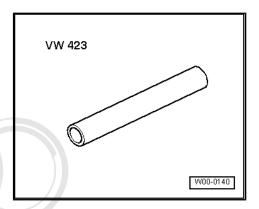
Lubricate all bearings and moving surfaces with grease -G 000 450 02- .



Renewing oil seal for selector shaft 10.1

Special tools and workshop equipment required

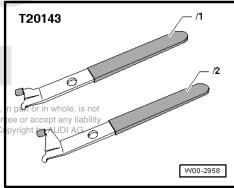
◆ Tube -VW 423-



◆ Extractor tool -T20143/1-



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♦ Sealing grease -G 052 128 A1-

Procedure

Remove complete air cleaner housing ⇒ Rep. Gr. 24 (does not apply to engine codes BWA and BPY).

Plastic gate relay lever -1-:

- Pull locking mechanism forwards in direction of -arrow 1- onto stop and then turn to left in direction of -arrow 2- to lock.
- Press gate relay lever forwards (in direction of -arrow 3-) and at the same time pull gate selector cable out of cable endpiece.
- Removing gate relay lever (with detent catch) ⇒ page 75
- Removing gate relay lever (with clip) ⇒ page 75

N34-10891

Metal gate relay lever:

Detach circlip -2- and push gate relay lever -3- sideways out of bearing.

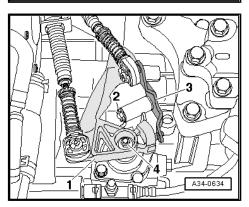
Continued for all vehicles:



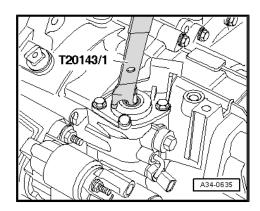
Note

If the gearbox bracket makes it impossible to remove the gate relay lever, remove the gate selector cable from the gate relay lever. Guide the slide block out of gearbox selector lever.

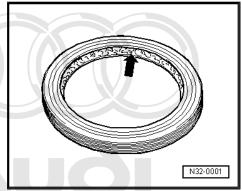
Remove nut -4- and take out gearbox selector lever -1-.



Pry out oil seal using extractor tool -T20143/1-.



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



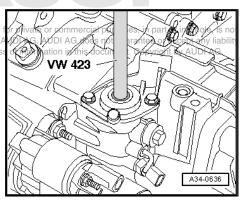
- Drive in oil seal with tube -VW 423- as far as the stop.
- Install gearbox selector lever and gate relay lever page 70 ked by ⇒ page 72.



Note

The gearbox selector lever can only be installed in one position.

Install air cleaner housing ⇒ Rep. Gr. 24 (does not apply to engine codes BWA and BPY).



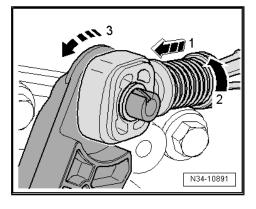
10.2 Removing and installing selector shaft

Removing

Remove complete air cleaner housing ⇒ Rep. Gr. 24 (does not apply to engine codes BWA and BPY).

Plastic gate relay lever -1-:

- Pull locking mechanism forwards in direction of -arrow 1- onto stop and then turn to left in direction of -arrow 2- to lock.
- Press gate relay lever forwards (in direction of -arrow 3-) and at the same time pull gate selector cable out of cable end-
- Removing gate relay lever (with detent catch) <u>⇒ page 75</u>
- Removing gate relay lever (with clip) ⇒ page 75



Metal gate relay lever:

Detach securing clip -2- and push gate relay lever -3- sideways out of bearing.

Continued for all vehicles:



Note

If the gearbox bracket makes it impossible to remove the gate relay lever, remove the gate selector cable from the gate relay lever. Guide the slide block out of gearbox selector lever.

- Remove nut -4- and take out gearbox selector lever -1-.
- Put selector shaft in neutral position.



Caution

Make sure that the selector shaft is not locked in position by the angled rod -arrow- when carrying out the following steps.

- Remove reversing light switch -F4- -1-.
- Remove locking bolt -2-.
- Remove bolts -3-.
- Pull selector shaft with selector mechanism cover -4- out of gearbox housing.

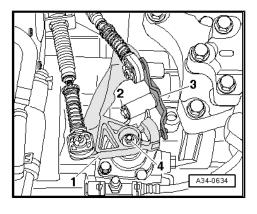
Installing

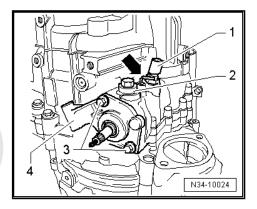
- Tightening torques ⇒ page 112, ⇒ page 154
- Now push selector shaft 1- against stop sleeve 2- in direction in wh of -arrow- and run selector finger -3 Adown through selector accept a forks and ontonstoped to the correctness of information in this document. Copyright by AUD
- Selector mechanism cover -4- should be parallel to joint surface on gearbox housing.
- Selector shaft should move up and down easily (gate selector movement).

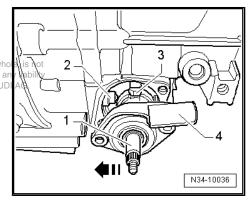


Note

If the selector mechanism cover is not parallel with the joint surface, the selector shaft is not seated in its bottom mounting.







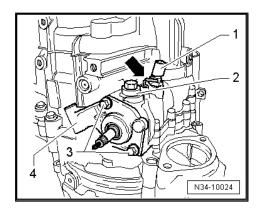
- Tighten bolts -3- for selector mechanism cover -4-.
- Screw in locking bolt -2-; angled rod -arrow- must be released.
- Install reversing light switch -F4- -1-.
- Install gearbox selector lever and gate relay lever ⇒ page 70 / ⇒ page 72 .



Note

The gearbox selector lever can only be installed in one position.

Install air cleaner housing ⇒ Rep. Gr. 24 (does not apply to engine codes BWA and BPY).





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11 Exploded view - selector forks

1 - Damper rubber

- Pull out of selector rod and install by hand
- 2 Selector rod with selector fork for 1st and 2nd gear
- 3 Selector rod with selector fork for 3rd and 4th gear

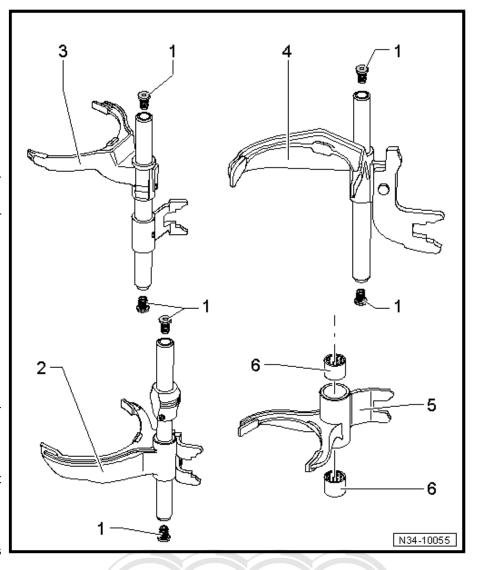
4 - Selector rod with selector fork for 5th and 6th gear

☐ From gearbox manufacturing date 25 05 9 onwards: also serves as bearing for reverse gear selector fork

5 - Reverse gear selector fork

- □ Ball sleeve is not fitted from gearbox manufacturing date 06 03 6
 ⇒ Item 6 (page 159)
- Gradually discontinued
- Different types of reverse gear selector forks are fitted according to version
- ☐ From gearbox manufacturing date 25 05 9 onwards: mounted on selector rod for 5th/6th gear selector fork
- ☐ Identification of different types of reverse gear selector forks

 ⇒ page 160
- ☐ For correct version, refer to ⇒ Electronic parts catalogue



6 - Ball sleeve

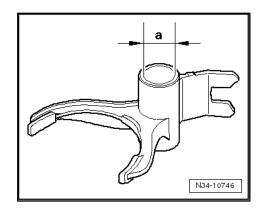
- ☐ Ball sleeve is not fitted from gearbox manufacturing date 06 03 6
- □ Gradually discontinued
- ☐ For correct version, refer to ⇒ Electronic parts catalogue
- □ Pulling out <u>⇒ page 161</u>
- □ Pressing in ⇒ page 161



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Identification of different types of reverse gear selector forks

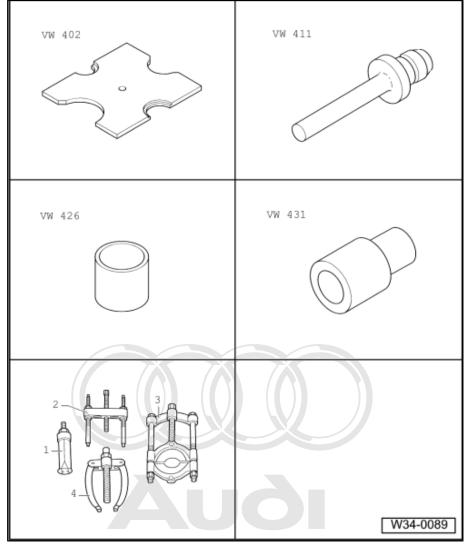
| Dimension "a" (mm) | Gearbox manufactur- ing date | Reverse gear selector fork | Mounting |
|-----------------------|------------------------------------|----------------------------|--|
| 24 | Up to 05 03 6 | With ball sleeve | On reverse gear selector fork |
| 18 | From 06 03 6 to 24 05 9 | Without ball sleeve | shaft <u>⇒ page 149</u> |
| 15 | From 25 05 9 onwards | Without ball sleeve | On selector rod with selector fork for 5th and 6th gear ⇒ page 133 |



11.1 Dismantling and assembling selector forks

Special tools and workshop equipment required

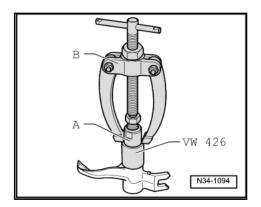
- ♦ Thrust plate -VW 402-
- ♦ Press tool -VW 411-
- ♦ Tube -VW 423-
- ♦ Thrust piece -VW 431-
- -1- Kukko internal puller 21/3
- -4- Kukko 22/1 countersupport



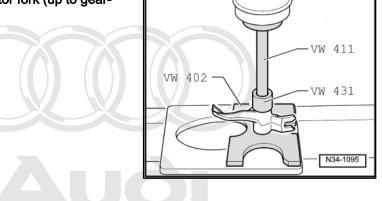
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Pulling out ball sleeve for reverse gear selector fork (up to gear-box manufacturing date 05 03 6)

- A Internal puller 18 ... 23 mm, e.g. -Kukko 21/3-
- B Counter-support , e.g. -Kukko 22/1-



Pressing in ball sleeve for reverse gear selector fork (up to gear-box manufacturing date 05 03 6)



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35 — Gears, shafts

Exploded view - input shaft



Note

- Mounting gearbox on assembly stand ⇒ page 108.
- Refer to technical data when installing new gears ⇒ page 1.
- Lubricate all bearings on input shaft with gear oil before installing.

1 - Circlip

- □ For grooved ball bearing on input shaft
 - ⇒ Item 6 (page 163)
- □ Removing and installing ⇒ page 115

2 - Spacer

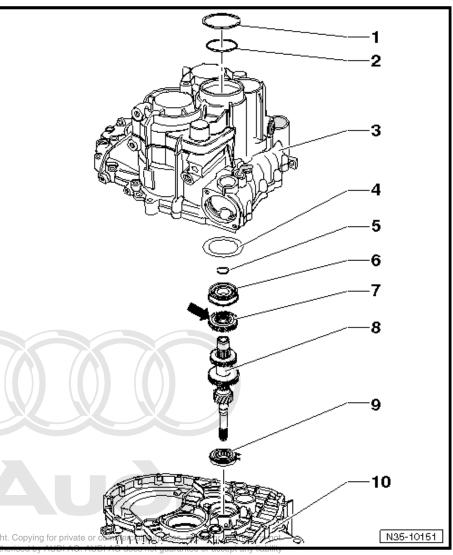
- ☐ Outside diameter = 78.6
- ☐ Can only be fitted on modified gearbox housing (from gearbox manufacturing date 10 04 6 to approx. 20 01 8) ⇒ page 168
- ☐ For correct version, refer to ⇒ Electronic parts catalogue

3 - Gearbox housing

- ☐ From gearbox manufacturing date 10 04 6 to approx. 20 01 8: modified in area of seat for grooved ball bearing \Rightarrow Item 6 (page 163) to match spacers ⇒ Item 2 (page 162) and
 ⇒ Item 4 (page 162) ⇒ page 168
- □ From gearbox manufacturing date approx. 21 01 8 onwards, grooved ball bearing and bearing seat have flattened sides
- ☐ For correct version, reof information in this document. Copyright by AUDI AG fer to ⇒ Electronic parts catalogue

4 - Spacer

- ☐ Outside diameter = 85 mm
- ☐ Can only be fitted on modified gearbox housing (from gearbox manufacturing date 10 04 6 to approx. 20 01 8) ⇒ page 168
- ☐ For correct version, refer to ⇒ Electronic parts catalogue



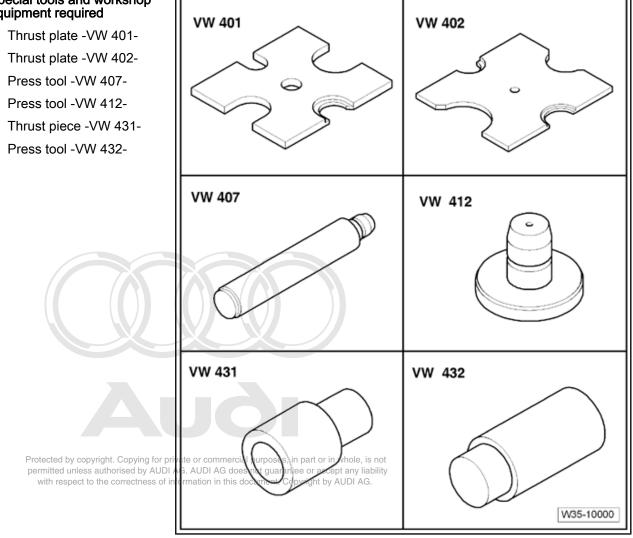
| 5 | _ | Circli | מ |
|---|---|--------|---|
| • | | | |

10 - Clutch housing

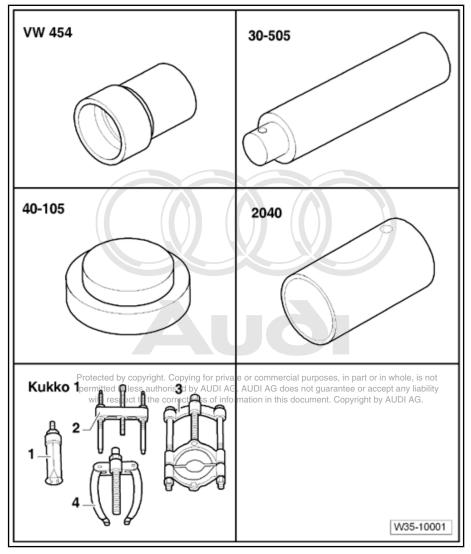
| | ··-·· F |
|--------|--|
| | When grooved ball bearing \Rightarrow Item 6 (page 163) or input shaft \Rightarrow Item 8 (page 163) are renewed: determine thickness of required circlip \Rightarrow page 167 |
| 6 - G | rooved ball bearing |
| | Always renew |
| | Pulling off ⇒ page 165 |
| | Installation position ⇒ page 166 |
| | Pressing on grooved ball bearing without rubber ring ⇒ page 166 |
| | Pressing on grooved ball bearing with rubber ring <u>⇒ page 166</u> |
| | From gearbox manufacturing date approx. 21 01 8 onwards, grooved ball bearing and bearing seat have flattened sides <u>⇒ page 168</u> |
| 7 - 5t | h gear wheel |
| | Pressing off ⇒ page 166 |
| | Installation position: Circular slot -arrow- faces towards grooved ball bearing ⇒ Item 6 (page 163) |
| | Pressing on ⇒ page 166 |
| 8 - In | put shaft |
| | With 3rd/4th and 6th gear wheels |
| 9 - R | oller bearing |
| | With circlip |
| | Pulling out <u>⇒ page 167</u> |
| | Pressing in a page 167 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 Installation₀position₃cCirclip₁in₁bearing₅faces.towards input₁shaft |
| | |

1.1 Dismantling and assembling input shaft

Special tools and workshop equipment required

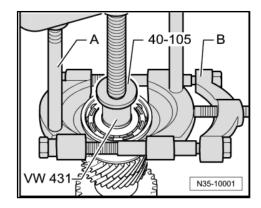


- ◆ Press tool -VW 454-
- Mandrel -30 505-
- Thrust plate -40 105-
- Tube -2040-
- -1- Internal puller -Kukko 21/5-
- -2- Puller -Kukko 18/1-
- -3- Splitter 12 ... 75 mm -Kukko 17/1- and splitter 22 ... 115 mm -Kukko 17/2-
- -4- Counter-support -Kukko 22/2-



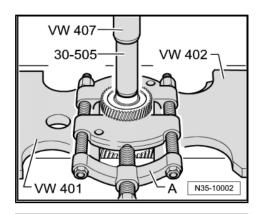
Pulling off grooved ball bearing

- Remove circlip on input shaft.
- Before setting up puller, position thrust piece -VW 431- and thrust plate -40 105- on input shaft.
- Apply splitter -B- at circular slot for circlip in bearing.
- A Puller , e.g. -Kukko 18/1-
- B Splitter 12...75 mm , e.g. -Kukko 17/1-



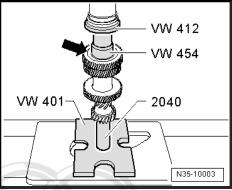
Pressing off 5th gear wheel

A - Splitter 22...115 mm, e.g. -Kukko 17/2-



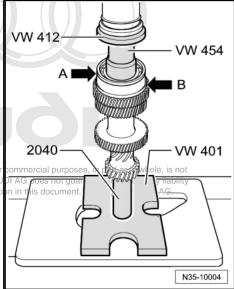
Pressing on 5th gear wheel

Slot -arrow- on gear wheel must face upwards.



Installation position of grooved ball bearing; pressing on grooved ball bearing without rubber ring

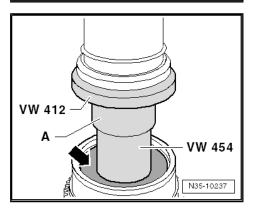
- Installation position of grooved ball bearing: Slot for circlip faces upwards -arrow A- and shoulder -arrow B- must face towards 5th gear wheel.
- Then determine thickness of required circlip ⇒ page 167 and install circlip.



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Pressing on grooved ball bearing with rubber ring

- If grooved ball bearing is fitted with a rubber ring -arrow-, press tool -VW 454- must be applied so that shoulder -A- faces towards press tool -VW 412- .
- Then determine thickness of required circlip ⇒ page 167 and install circlip.

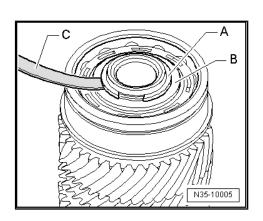


Determining thickness of circlip

- Install a 1.86 mm thick circlip -A- in slot on input shaft and press circlip upwards.
- Measure gap between grooved ball bearing -B- and fitted circlip -A- using feeler gauge -C-.
- Remove circlip fitted for measurement.
- Determine thickness of required circlip according to table; for part number refer to > Electronic parts catalogue.

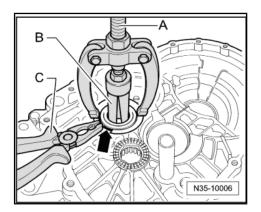
The following circlips are available:

| Measured value (mm) | Circlip thickness (mm) | Axial clearance (mm) |
|---------------------|------------------------|----------------------|
| 0.01 0.05 | 1.86 | 0.01 0.05 |
| 0.05 0.07 | 1.89 | 0.01 0.05 |
| 0.07 0.10 | 1.92 | 0.01 0.05 |
| 0.10 0.13 | 1.95 | 0.01 0.05 |
| 0.13 0.16 | 1.98 | 0.01 0.05 |



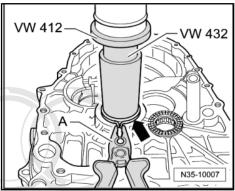
Pulling roller bearing out of clutch housing

- When pulling out, compress circlip -arrow- for roller bearing using pliers -C-.
- A Counter-support, e.g. -Kukko 22/2-
- B Internal puller 30 ... 37 mm, e.g. -Kukko 21/5-



Pressing roller bearing into clutch housing

- When pressing in, compress circlip -arrow- for roller bearing using pliers -A-.
- Remove pliers before roller bearing seats in its final position.
- The circlip must engage in the groove in the clutch housing.





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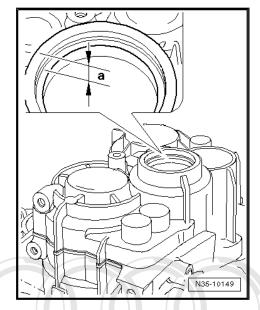
1.2 Modifications in area of grooved ball bearing

From gearbox manufacturing date 10 04 6 to approx. 20 01 8:

One spacer above and one spacer below bearing seat for grooved ball bearing ⇒ Item 6 (page 163).

Above bearing seat:

| Bearing seat | | Spacer above bear- ing seat |
|--|---|--------------------------------|
| Up to gearbox man- ufacturing date 09 04 6 | Dimension "a" = 10 mm | No |
| From gearbox manufacturing date 10 04 6 to 20 01 8 | Dimension "a" = 10.7 mm | Yes |
| From gearbox man- ufacturing date ap- prox. 21 01 8 on- wards | Below bearing seat: Flattened side for grooved ball bearing | No |

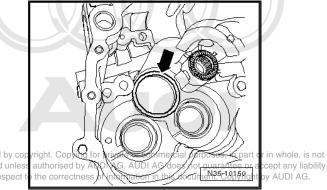


Below bearing seat -arrow-:

From gearbox manufacturing date 10 04 6 to approx. 20 01 8 slightly deeper

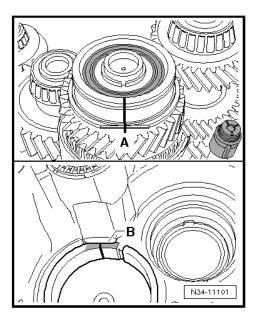
The bearing seat for the grooved ball bearing -arrow- is slightly deeper to accommodate the spacer \Rightarrow Item 4 (page 162) below the bearing ⇒ Item 6 (page 163).

| Below bea | aring seat | Spacer below ing seat | bear- |
|--|---|-----------------------|--|
| Up to gearbox man- ufacturing date 09 04 6 | Not modified | No | Protected by co permitted unles with respect |
| From gearbox man- ufacturing date 10 04 6 to 20 01 8 | Slightly deeper | Yes | |
| From gearbox man- ufacturing date ap- prox. 21 01 8 on- wards | Flattened side -B- for grooved ball bearing -A- | No | |



From gearbox manufacturing date approx. 21 01 8 onwards, grooved ball bearing -A- and bearing seat -B- have flattened sides

If sides are flattened, a spacer must not be fitted above or below grooved ball bearing.





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Exploded view - output shaft for 1st -

i

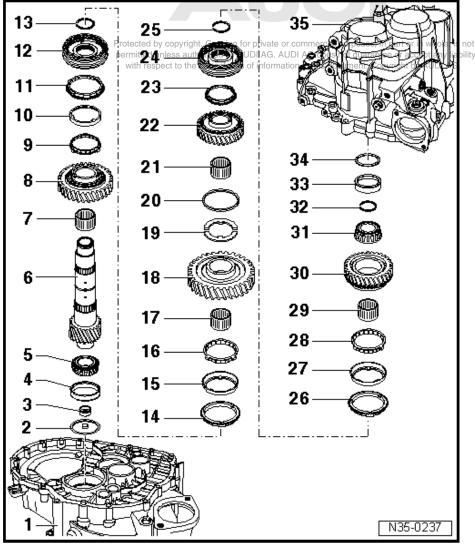
2

Note

♦ Mounting gearbox on assembly stand <u>⇒ page 108</u>

4th gear

- ♦ Carry out output shaft adjustment <u>⇒ page 184</u> if the output shaft or tapered roller bearings have been renewed.
- ◆ Refer to technical data ⇒ page 1 when installing new gears or a new output shaft.
- Always renew both tapered roller bearings together.
- 1 Clutch housing
- 2 Oil deflector plate
- 3 Dished washer
 - ☐ Pulling out <u>⇒ page 177</u>
 - □ Pressing in ⇒ page 177
- 4 Tapered roller bearing outer race
 - □ Pulling out ⇒ page 177
 - ☐ Pressing in⇒ page 178
- 5 Tapered roller bearing inner race
 - □ Pressing off⇒ page 179
 - ☐ Pressing on ⇒ page 179
- 6 Output shaft for 1st 4th gear
 - Adjusting ⇒ page 184
- 7 Needle bearing for 2nd gear
- 8 2nd speed selector gear
- 9 Synchro-ring (inner ring for 2nd gear)
 - ☐ Checking for wear ⇒ page 179
 - ☐ Check lugs for scoring
 - ☐ Installation position
 ⇒ page 180
- 10 Outer ring for 2nd gear
 - Renew if scored or if there are visible traces of wear
 - ☐ Fit on synchro-ring ⇒ Item 9 (page 170)
 - ☐ Installation position ⇒ page 180
- 11 2nd gear synchro-ring
 - □ Checking for wear ⇒ page 179
 - ☐ Installation position ⇒ page 180



| 12 - L | ocking collar/synchronising hub for 1st and 2nd gear |
|---------------|---|
| | Press off together with 2nd speed selector gear after removing circlip ⇒ Item 13 (page 171) ⇒ page 178 |
| | Dismantling ⇒ page 180 |
| | Assembling locking collar/synchronising hub <u>⇒ page 180</u> and <u>⇒ page 180</u> |
| | Installation position ⇒ page 181 |
| | Pressing on ⇒ page 181 |
| 13 - 0 | Circlip |
| 14 - 1 | Ist gear synchro-ring |
| | Checking for wear <u>⇒ page 179</u> |
| | Assemble so that the recesses engage on the locking pieces on the locking collar ⇒ <u>Item 12 (page 170)</u> |
| 15 - (| Outer ring for 1st gear |
| | Renew if scored or if there are visible traces of wear |
| | Insert in synchro-ring <u>⇒ Item 14 (page 171)</u> |
| | Installation position <u>⇒ page 181</u> |
| 16 - 8 | Synchro-ring (inner ring for 1st gear) |
| | Checking for wear <u>⇒ page 179</u> |
| | Check lugs for scoring |
| | Installation position <u>⇒ page 181</u> |
| 17 - N | Needle bearing for 1st gear |
| 18 - 1 | Ist speed selector gear |
| | Installation position <u>⇒ page 182</u> |
| 19 - 1 | Thrust washer for 1st and 4th gear |
| | 2x |
| | Insert lug on thrust washer in hole on output shaft |
| 20 - 0 | Circlip 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 Holds thrust washers soldtem 19 (page 1771) in position on output shaft AG. |
| | Needle bearing |
| | For 4th gear |
| 22 - 4 | 4th speed selector gear |
| 23 - 4 | 4th gear synchro-ring |
| | Checking for wear <u>⇒ page 182</u> |
| 24 - L | ocking collar/synchronising hub for 3rd and 4th gear |
| | Pull off together with 4th speed selector gear after removing circlip ⇒ Item 25 (page 171) ⇒ page 178 |
| | Dismantling ⇒ page 180 |
| | Installation position: Locking collar/synchronising hub ⇒ page 182 |
| | Assembling locking collar/synchronising hub <u>⇒ page 180</u> and <u>⇒ page 180</u> |
| | Pressing on ⇒ page 182 |
| 25 - 0 | Circlip |
| 26 - 3 | Brd gear synchro-ring |
| | Checking for wear <u>⇒ page 179</u> |
| 27 - (| Outer ring for 3rd gear |
| | Renew if scored or if there are visible traces of wear |
| | Insert in synchro-ring ⇒ Item 26 (page 171) |
| | Installation position - page 181 |

Audi TT 2007 ➤

35 - Gearbox housing

| 28 - S | Synchro-ring (inner ring for 3rd gear) |
|---------------|--|
| | Checking for wear <u>⇒ page 179</u> |
| | Check lugs for scoring |
| | Installation position ⇒ page 181 |
| 29 - N | Needle bearing |
| | For 3rd gear |
| 30 - 3 | Brd speed selector gear |
| | Installation position <u>⇒ page 182</u> |
| 31 - 1 | Tapered roller bearing inner race |
| | Pulling off ⇒ page 178 |
| | Pressing on ⇒ page 183 |
| 32 - 0 | Circlip |
| | When tapered roller bearing \Rightarrow Item 31 (page 172) or output shaft \Rightarrow Item 6 (page 170) are renewed: determine thickness of required circlip \Rightarrow page 183 |
| 33 - 1 | Tapered roller bearing outer race |
| | Pulling out ⇒ page 183 |
| | Pressing in <u>⇒ page 183</u> |
| 34 - 8 | Shim |
| | Determining thickness ⇒ page 184 |

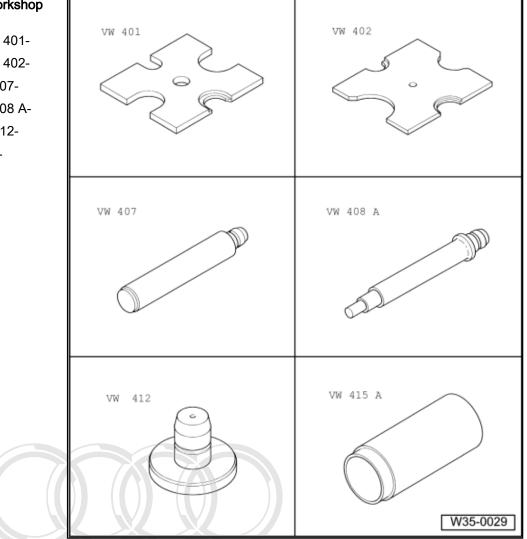


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2.1 Dismantling and assembling output shaft for 1st - 4th gear

Special tools and workshop equipment required

- ♦ Thrust plate -VW 401-
- ♦ Thrust plate -VW 402-
- ♦ Press tool -VW 407-
- ♦ Press tool -VW 408 A-
- ♦ Press tool -VW 412-
- ♦ Tube -VW 415 A-

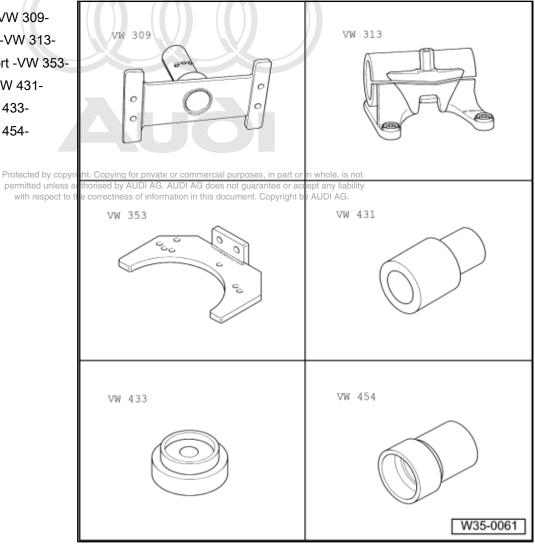




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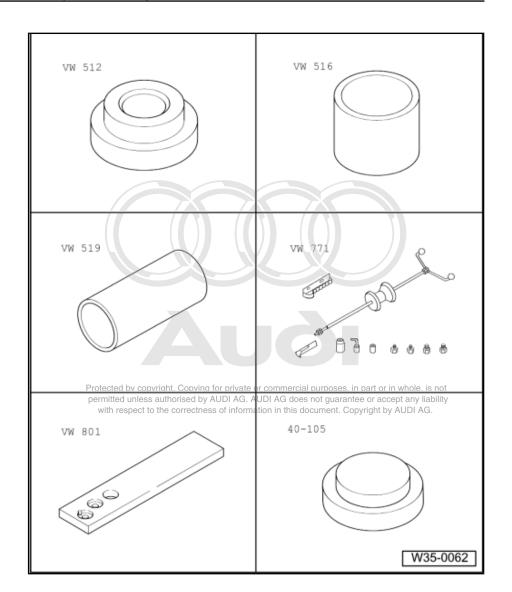


- Support plate -VW 309-
- Support clamp -VW 313-
- Gearbox support -VW 353-
- Thrust piece -VW 431-
- Press tool -VW 433-
- Press tool -VW 454-

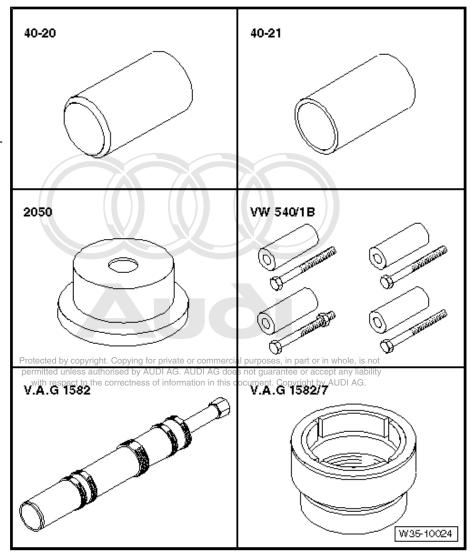




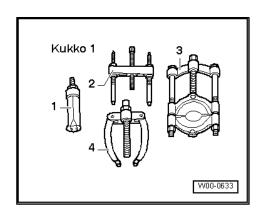
- ♦ Thrust pad -VW 512-
- Tube -VW 516-
- Tube -VW 519-
- Multi-purpose tool -VW 771-
- ♦ Support plate -VW 801-
- ♦ Thrust plate -40 105-

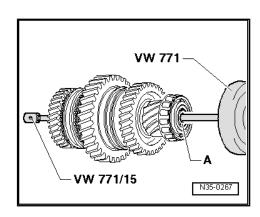


- Drift sleeve -40-20-
- Press tool -40-21-
- Thrust piece -2050-
- Sleeve from engine and gearbox support supple-ment -VW 540/1 B-
- Tapered roller bearing puller -V.A.G 1582-
- Adapter -V.A.G 1582/7-



-1- Internal puller -Kukko 21/7-





- -1- Internal puller -Kukko 21/8-
- ◆ -2- Puller -Kukko 18/2-
- -3- Splitter -Kukko 17/2-
- -4- Counter-support -Kukko 22/2-

Pulling dished washer -A- out of output shaft

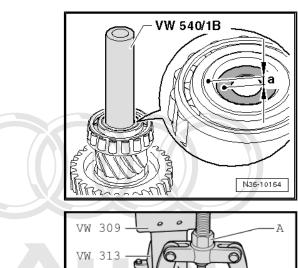
Pressing dished washer into output shaft

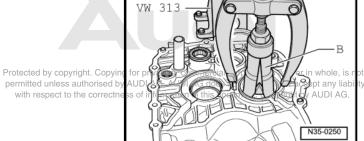
Dimension "a" = 2 mm

Pulling out tapered roller bearing outer race

A - Counter-support -Kukko 22/2-

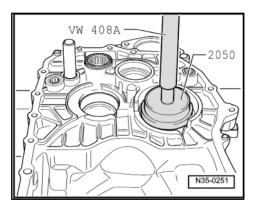
B - Internal puller 56 ... 70 mm -Kukko 21/8-





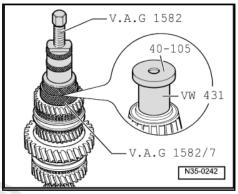
Pressing tapered roller bearing outer race into clutch housing

Support clutch housing with drift sleeve -40 - 20- directly below bearing mounting.



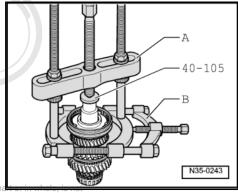
Pulling off tapered roller bearing inner race

- Remove circlip.
- Before setting up puller, position thrust piece -VW 431- and thrust plate -40 105- on input shaft.



Pulling off 3rd and 4th gear locking collar/synchronising hub with 4th speed selector gear

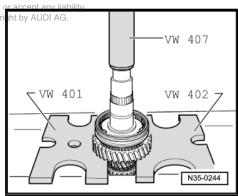
- Remove circlip before pulling off.
- A Puller , e.g. -Kukko 18/2-
- B Splitter 22...115 mm, e.g. -Kukko 17/2-



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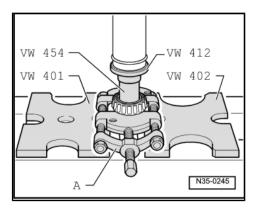
Pressing off 1st and 2nd gear-locking collar/synchronising hubent. Copyrig with 2nd speed selector gear

- Remove circlip.
- Press off selector gear and locking collar/synchronising hub together.

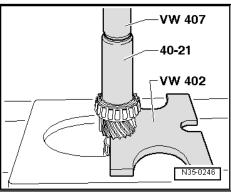


Pressing off tapered roller bearing inner race

A - Splitter 22...115 mm , e.g. -Kukko 17/2-



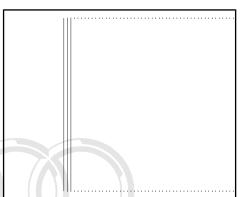
Pressing on tapered roller bearing inner race



Checking inner ring for 1st, 2nd and 3rd gear for wear

Press inner ring against tapered seat on selector gear and measure gap -a- using a feeler gauge.

| Gap -a- | Installation depth | Wear limit |
|--------------------------|--------------------|------------|
| 1st, 2nd and 3rd gear | 0.75 1.25 mm | 0.3 mm |

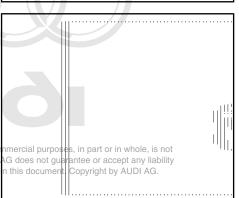


Checking 1st, 2nd and 3rd gear synchro-rings for wear

- Press synchro-ring, outer ring and inner ring onto tapered seat on selector gear and measure gap -a- using a feeler gauge.

| Gap -a- | Installation depth | Wear limit |
|--------------------------|--------------------|------------|
| 1st, 2nd and 3rd gear | 1.2 1.8 mm | 0.5 mm |

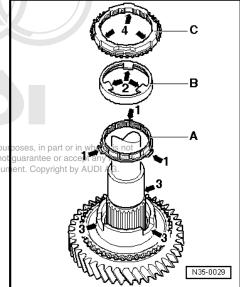
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Installation position of outer ring, inner ring and synchro-ring of 2nd gear

- Place inner ring -A- on 2nd speed selector gear.
- The angled lugs -arrows 1- point towards outer ring -B-.
- Fit outer ring -B-.
- · Lugs -arrows 2- engage in slots -arrows 3- on selector gear.
- Fit synchro-ring -C-.
- Slots -arrows 4- engage on Jugs -arrows 1- convinner ting b As does not seem to be seem to be

with respect to the correctness of information in this docum

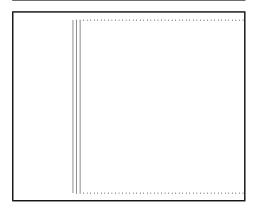


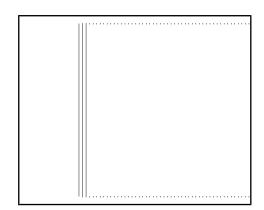
Dismantling and assembling 1st/2nd gear and 3rd/4th gear locking collar/synchronising hub

- Take off springs -1- before dismantling.
- 1 Spring
- 2 Locking piece
- 3 Locking collar
- 4 Synchronising hub
- To assemble, slide locking collar over synchronising hub.
- On 3rd and 4th gear the wider collar of the synchronising hub and the shoulder on the locking collar face in the same direction
- Installation position: Narrower recesses in synchronising hub align with recesses in locking collar

Assembling 1st/2nd gear and 3rd/4th gear locking collar/synchronising hub

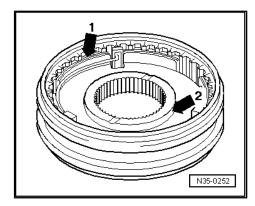
- · Locking collar is pushed over synchronising hub.
- Insert locking pieces and install springs offset at 120°.
- · Angled end of spring must locate in hollow locking piece.





Installation position of 1st and 2nd gear locking collar/synchronising hub

Identification groove -arrow 1- and narrow shoulder -arrow 2on synchronising hub point towards 1st gear.



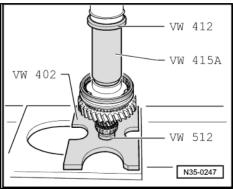
Pressing on 1st and 2nd gear locking collar/synchronising hub

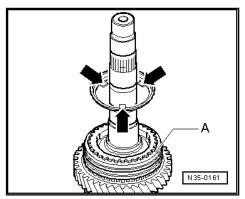
Then install circlip.



Installation, position of in 1st or 3rd gear outer pring in part or in whole, is not

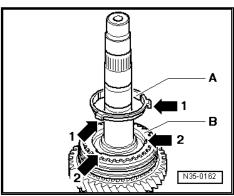
Lugs arrows face towards locking collar/synchronising hub





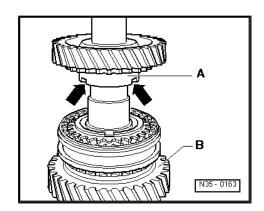
Installation position of synchro-ring -A- (inner ring for 1st or 3rd gear)

Lugs -arrows 1- locate in recesses -arrows 2- in synchro-ring



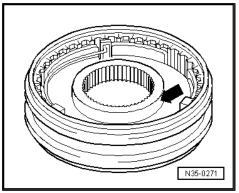
Installation position of 1st and 3rd speed selector gear

The higher shoulder -A- faces towards 2nd or 4th gear -B-. The recesses in the shoulder -arrows- engage on the lugs on the outer ring ⇒ page 181.



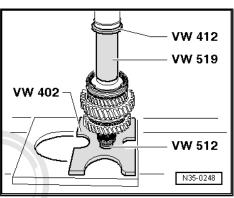
Installation position of 3rd and 4th gear locking collar/synchronising hub

The wider shoulder on the synchronising hub -arrow- faces towards 3rd gear.



Pressing on 3rd and 4th gear locking collar/synchronising hub

- Then install circlip.



Checking synchro-ring for 4th gear for wear

Press synchro-ring onto tapered seat on selector gear and measure gap -a- with a feeler gauge.

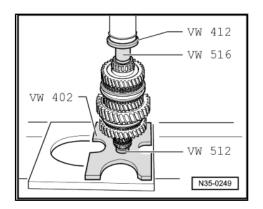
| Gap -a- | Installation depth | Wear limit |
|----------|--------------------|------------|
| 4th gear | 1.0 1.7 mm | 0.5 mm |

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Pressing on tapered roller bearing inner race

Determine thickness of required circlip ⇒ page 183 and install circlip.



Determining thickness of circlip

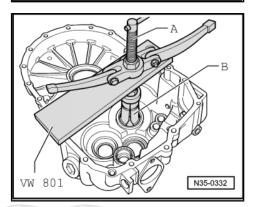
Determine the thickest circlip that will just fit and install it. For part number refer to > Electronic parts catalogue.

The following circlips are available:

| Circlip thickness (mm) | | |
|------------------------|------|------|
| 1.79 | 1.83 | 1.86 |
| 1.89 | 1.92 | 1.95 |
| 1.98 | | |

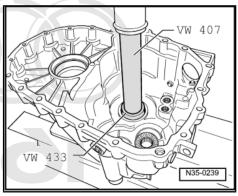
Pulling tapered roller bearing outer race out of gearbox housing

- A Counter-support , e.g. -Kukko 22/2-
- B Internal puller 46 ... 58 mm , e.g. -Kukko 21/7-



Pressing tapered roller bearing outer race into gearbox housing

- Fit shim below outer race.
- Place thrust piece -2050- directly under bearing mounting to support gearbox housing.

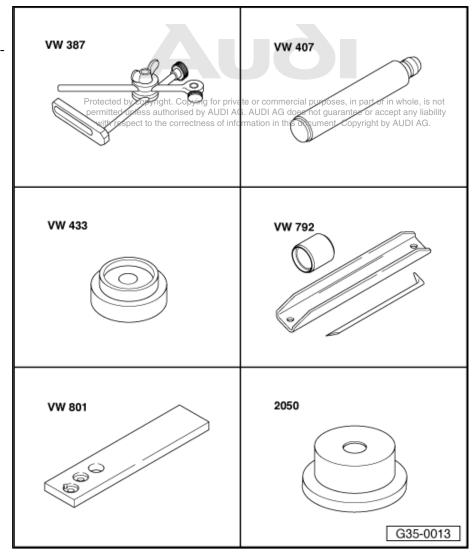


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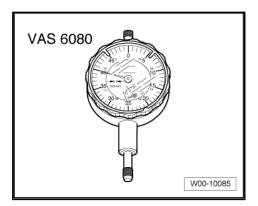
2.2 Adjusting output shaft for 1st - 4th gear

Special tools and workshop equipment required

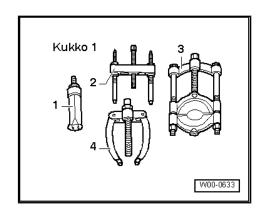
- Universal dial gauge bracket -VW 387-
- ♦ Press tool -VW 407-
- ◆ Press tool -VW 433-
- ♦ Assembly tool -VW 792-
- ♦ Support plate -VW 801-
- ♦ Thrust piece -2050-



◆ Dial gauge -VAS 6080-



◆ -1- Kukko internal puller 21/7



◆ -4- Kukko 22/2 counter-support

Re-adjustment of the output shaft is required if the following components have been renewed:

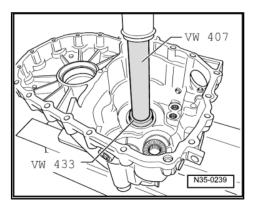
- Gearbox housing
- Clutch housing
- ♦ Output shaft for 1st 4th gear
- ◆ Tapered roller bearings for output shaft

Table of adjustments ⇒ page 216

Adjusting

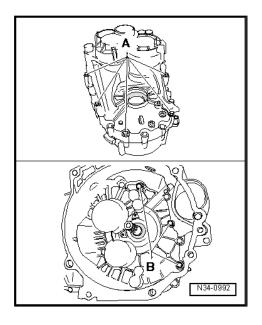
- Gearbox mounted on assembly stand ⇒ page 108.
- Sealing surfaces of clutch and gearbox housings must be free of sealant.
- When taking measurements, install only the shaft to be measured.
- Press tapered roller bearing outer race with shim (thickness 1.70 mm) into gearbox housing. Support gearbox housing with thrust piece -2050- directly below bearing mounting.
- Fit complete 1st to 4th gear output shaft into clutch housing.

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Fit gearbox housing and tighten bolts -A- and -B- diagonally to correct torque.





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VW 387

N35-0240

- Set up measuring tools and secure with bolt -arrow- to clutch housing.
- Set dial gauge -VAS 6080- (3 mm measuring range) to "0" with 1 mm preload.
- Loosen clutch housing/gearbox housing securing bolts diagonally until output shaft is free to move in gearbox housing.
- Read off play on gauge and note reading (example: 0.14 mm).



Note

If no play is indicated on the dial gauge when the clutch housing/ gearbox housing securing bolts are loosened, fit a 1.95 mm shim (part number -084 409 383 AS-), or if necessary a 2.20 mm shim (part number -084 409 383 BD-) for performing the measurement.

Determining thickness of required shim:

The specified bearing preload is attained by subtracting the measured value (0.14 mm) from the inserted shim (1.70 mm) and adding a constant value for preload (0.20 mm).

Example:

| Inserted shim | 1.70 mm |
|------------------------------------|---------|
| Measured value | 0.14 mm |
| + Preload (constant value) | 0.20 mm |
| Thickness of shim | 1.76 mm |

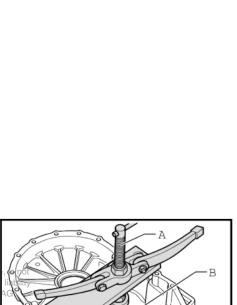
Select a shim of the required thickness from the table. For part numbers refer to ⇒ Electronic parts catalogue.

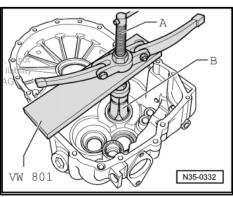
The following shims are available:

| Thickness of shims in mm | | | |
|--------------------------|------|------|------|
| 1.45 | 1.70 | 1.95 | 2.20 |
| 1.50 | 1.75 | 2.00 | 2.25 |
| 1.55 | 1.80 | 2.05 | |
| 1.60 | 1.85 | 2.10 | |
| 1.65 | 1.90 | 2.15 | |

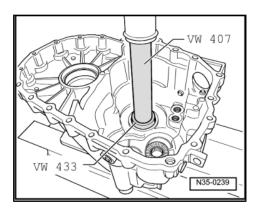
The exact shim thickness required can be obtained by combining shims of different thicknesses.

- Detach gearbox housing and pull tapered roller bearing outer race out of gearbox housing.
- A Counter-support, e.g. -Kukko 22/2-
- B Internal pullerit46unle 58ummed by gUDK ikk D2477es not guarantee or accept an with respect to the correctness of information in this document. Copyright by AUDI
- Remove previously fitted shim (1.70 mm thick) from gearbox housing.



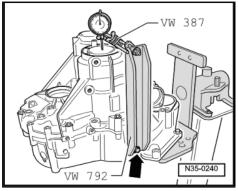


Press in tapered roller bearing outer race together with the correct shim (in example 1.75 mm). Support gearbox housing with thrust piece -2050- directly below bearing mounting.



Checking adjustment

- Required shim installed (thickness as determined above)
- Set up measuring tools and secure with bolt -arrow- to gearbox
- Set dial gauge -VAS 6080- (3 mm measuring range) to "0" with 1 mm preload.
- Loosen clutch housing/gearbox housing securing bolts diagonally until output shaft is free to move in gearbox housing.
- If the correct shim has been selected, the dial gauge should now indicate a value of 0.15 ... 0.25 mm.



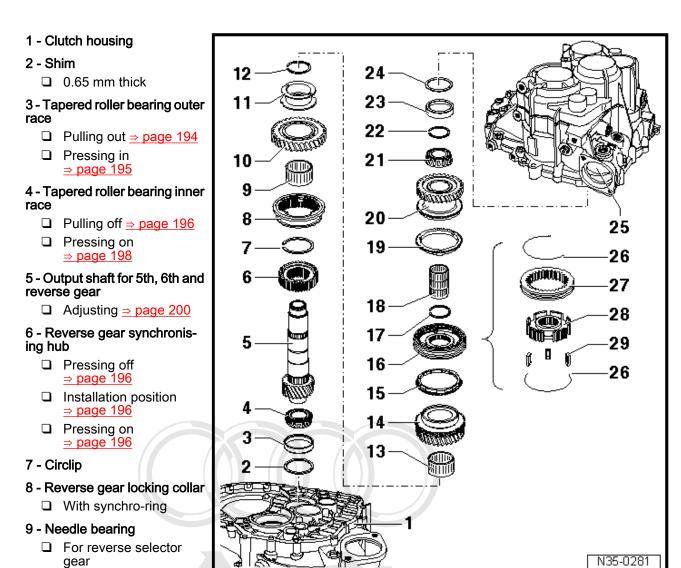


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Exploded view - output shaft for 5th, 3 6th and reverse gear



- Mounting gearbox on assembly stand ⇒ page 108.
- Carry out output shaft adjustment ⇒ page 200 if the output shaft or tapered roller bearings have been renewed .
- Refer to technical data ⇒ page 1 when installing new gears or a new output shaft.
- ♦ Always renew both tapered roller bearings together.



- 10 Reverse selector gear
- 11 Sleeve
 - ☐ Press off with reverse selector gear and page 195 purposes, in part or in whole, is not
 - ☐ Installation position: Wide shoulder of sleeve faces towards reverse selector gear
 - □ Pressing on ⇒ page 197

| 12 - Ci | irclip |
|---------|--|
| 13 - Ne | eedle bearing |
| | For 6th gear |
| 14 - 6t | h speed selector gear |
| 15 - 6t | h gear synchro-ring |
| | Checking for wear <mark>⇒ page 197</mark> |
| 16 - Lo | ocking collar with synchronising hub for 5th and 6th gear |
| | Press off together with 6th speed selector gear after removing circlip ⇒ Item 17 (page 190) ⇒ page 195 |
| | Dismantling ⇒ page 197 |
| | Assembling locking collar/synchronising hub ⇒ page 197 and ⇒ page 197 |
| | Pressing On manager 198 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 |
| 17 - Ci | rcliph respect to the correctness of information in this document. Copyright by AUDI AG. |
| | eedle bearing |
| | For 5th gear |
| | h gear synchro-ring |
| | Checking for wear <u>⇒ page 197</u> |
| 20 - 5t | h speed selector gear |
| 21 - Ta | apered roller bearing inner race |
| | Pulling off <u>⇒ page 195</u> |
| | Pressing on ⇒ page 198 |
| 22 - Ci | • |
| | When tapered roller bearing <u>⇒ Item 21 (page 190)</u> or output shaft <u>⇒ Item 5 (page 189)</u> are renewed: determine thickness of required circlip <u>⇒ page 198</u> |
| 23 - Ta | apered roller bearing outer race |
| | Pulling out <u>⇒ page 199</u> |
| | Pressing in <mark>⇒ page 199</mark> |
| 24 - Sł | |
| | Determining thickness <u>⇒ page 200</u> |
| 25 - G | earbox housing |
| 26 - Sp | pring |
| | Installation position <u>⇒ page 197</u> |
| 27 - Lo | ocking collar |
| 28 - Sy | ynchronising hub |
| 29 - Lo | ocking piece |
| | 3x |

☐ Installation position ⇒ page 197

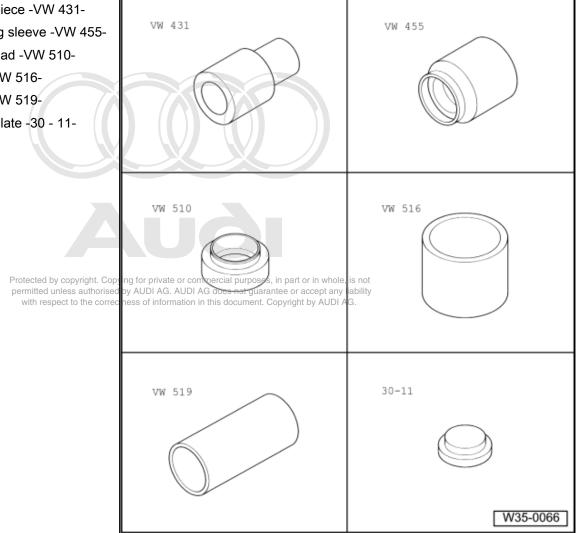


Dismantling and assembling output shaft for 5th, 6th and reverse gear 3.1

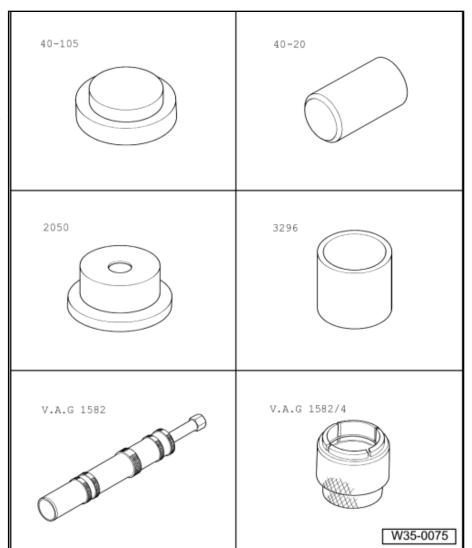
Special tools and workshop equipment required VW 402 VW 401 ♦ Thrust plate -VW 401-Thrust plate -VW 402-Press tool -VW 407-Press tool -VW 408 A-Press tool -VW 412-Tube -VW 415 A-VW 407 VW 408 A Protected by copyright. Copying for private or commercial purposes, in part or in who e, is not permitted unless authorised by AUDI AG. AUDI AG does not quarassee or accept any liability with respect to the correctness of information in this document. Coloright by AUDI AG. VW 415 A VW 412 W35-0029



- Thrust piece -VW 431-
- Installing sleeve -VW 455-
- Thrust pad -VW 510-
- Tube -VW 516-
- Tube -VW 519-
- Thrust plate -30 11-



- ♦ Thrust plate -40 105-
- Drift sleeve -40 20-
- Thrust piece -2050-
- Tube -3296-
- Tapered roller bearing puller -V.A.G 1582-
- ♦ Adapter -V.A.G 1582/4-

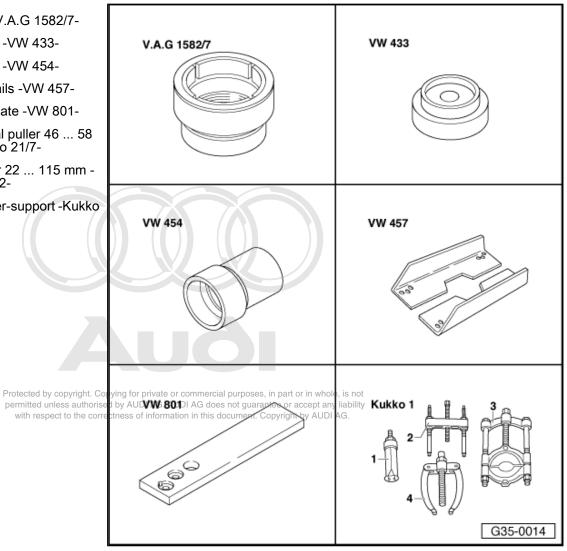




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- Adapter -V.A.G 1582/7-
- Press tool -VW 433-
- Press tool -VW 454-
- Support rails -VW 457-
- Support plate -VW 801-
- -1- Internal puller 46 ... 58 mm -Kukko 21/7-
- -3- Splitter 22 ... 115 mm -Kukko 17/2-
- -4- Counter-support -Kukko



Pulling out tapered roller bearing outer race

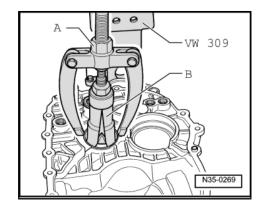
A - Counter-support -Kukko 22/2-

B - Internal puller 46 ... 58 mm -Kukko 21/7-



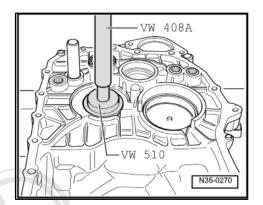
Note

After pulling out, check shim for damage and renew if necessary.



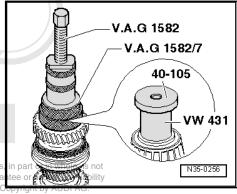
Pressing tapered roller bearing outer race into clutch housing

- Fit shim below outer race.
- Support clutch housing with drift sleeve -40 20- directly below bearing mounting.



Pulling off tapered roller bearing inner race

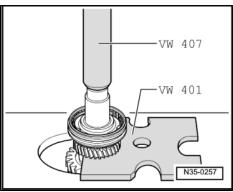
- Remove circlip.
- Before setting up puller, position thrust piece -VW 431- and thrust plate -40 105- on output shaft.



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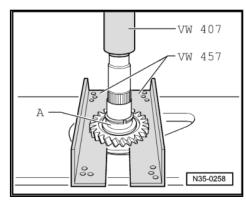
Pressing off 5th and 6th gear synchronising hub/locking collar with 6th speed selector gear

Remove circlip before pressing off.



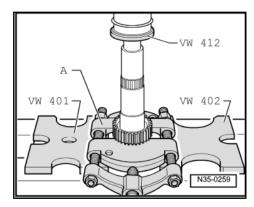
Pressing off sleeve -A- with reverse selector gear

- Remove circlip before pressing off.



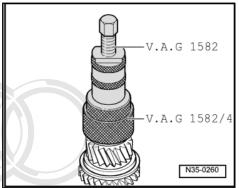
Pressing off reverse gear synchronising hub

- Remove circlip before pressing off.
- A Splitter 22...115 mm , e.g. -Kukko 17/2-



Pulling off tapered roller bearing inner race

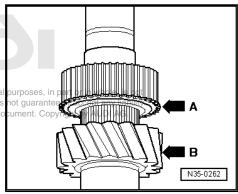
Before applying puller, place thrust plate -30 - 11- on output shaft.



Installation position of reverse gear synchronising hub

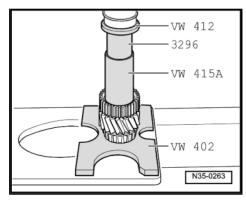
Stop -arrow A- for reverse gear locking collar faces towards gear teeth on output shaft -arrow B-.

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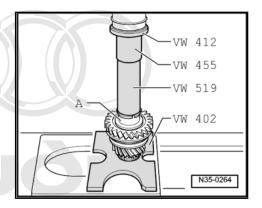
Pressing on reverse gear synchronising hub

Then install circlip.



Pressing on sleeve -A-

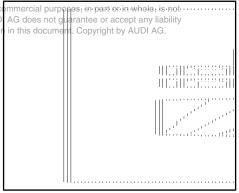
- Installation position: Wide shoulder faces towards reverse selector gear
- Then install circlip.



Checking 5th and 6th gear synchro-ring for wear pyright. Copying for private or opermitted unless authorised by AUDI AG. AUD

Push synchro-ring against tapered surface on selector gear information and measure gap -a- with feeler gauge.

| Gap -a- | Installation depth | Wear limit | |
|------------------|--------------------|------------|--|
| 5th and 6th gear | 1.0 1.7 mm | 0.5 mm | |

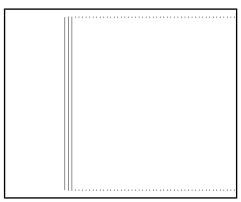


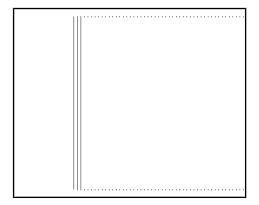
Dismantling and assembling 5th and 6th gear locking collar/synchronising hub

- Take off springs -1- before dismantling.
- 1 Spring
- 2 Locking piece
- 3 Locking collar
- 4 Synchronising hub
- To assemble, slide locking collar over synchronising hub.
- Installation position: Narrower recesses for locking pieces in synchronising hub align with recesses in locking collar

Assembling 5th and 6th gear locking collar/synchronising hub

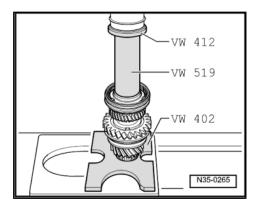
- Locking collar is pushed over synchronising hub.
- Insert locking pieces and install springs offset at 120°.
- · Angled end of spring must locate in hollow locking piece.





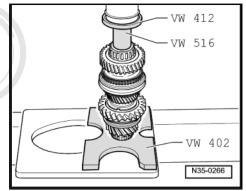
Pressing on 5th and 6th gear locking collar/synchronising hub

- Then install circlip.



Pressing on tapered roller bearing inner race

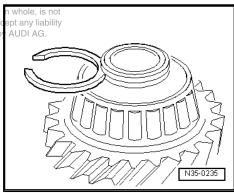
Then determine thickness of required circlip ⇒ page 198 and install circlip.



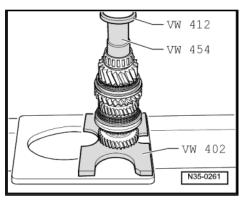
Determining thickness of circlip ht. Copying for private or commercial purposes, in part of permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accommendation of the commencial purposes.

- Determine the thickest circlip that will just fit and install it. For yight by part number refer to > Electronic parts catalogue.

| | Circlip thickness (mm |) |
|------|-----------------------|------|
| 1.79 | 1.83 | 1.86 |
| 1.89 | 1.92 | 1.95 |
| 1.98 | | |

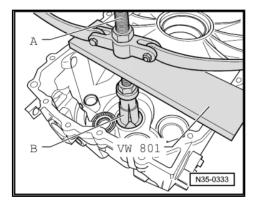


Pressing on tapered roller bearing inner race



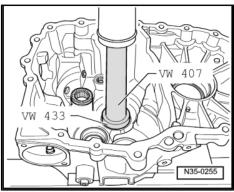
Pulling tapered roller bearing outer race out of gearbox housing

- A Counter-support , e.g. -Kukko 22/2-
- B Internal puller 46...58 mm , e.g. -Kukko 21/7-



Pressing tapered roller bearing outer race into gearbox housing

Place thrust piece -2050- directly under bearing mounting to support gearbox housing.



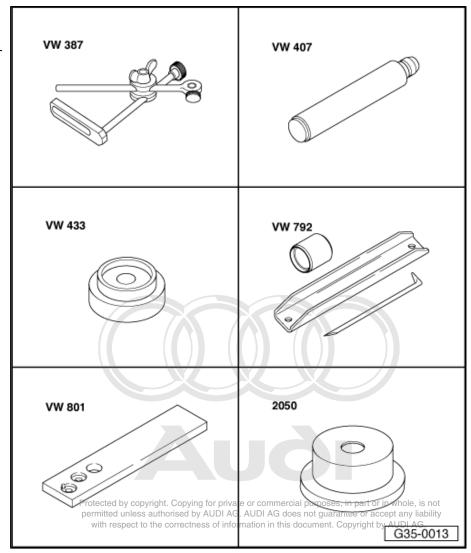


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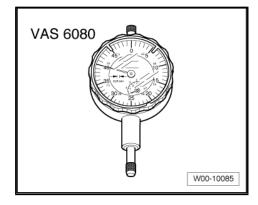
3.2 Adjusting output shaft for 5th, 6th and reverse gear

Special tools and workshop equipment required

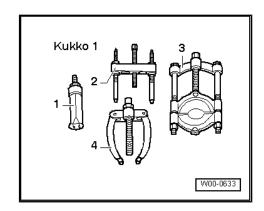
- Universal dial gauge bracket -VW 387-
- Press tool -VW 407-
- Press tool -VW 433-
- Assembly tool -VW 792-
- Support plate -VW 801-
- Thrust piece -2050-



Dial gauge -VAS 6080-



-1- Internal puller 46 ... 58 mm -Kukko 21/7-



- ◆ -4- Kukko 22/2 counter-support
- ◆ -4- Counter-support -Kukko 22/2-

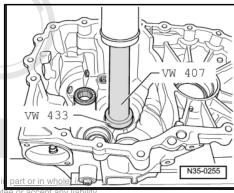
Re-adjustment of the output shaft is required if the following components have been renewed:

- Gearbox housing
- Clutch housing
- ◆ Output shaft for 5th, 6th and reverse gear
- Tapered roller bearings

Table of adjustments ⇒ page 216

Adjusting

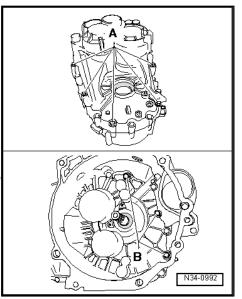
- Gearbox mounted on assembly stand ⇒ page 108.
- Sealing surfaces of clutch and gearbox housings must be free of sealant.
- When taking measurements, install only the shaft to be meas-
- Press tapered roller bearing outer race with shim (thickness 1.70 mm) into gearbox housing. Support gearbox housing with thrust piece -2050- directly below bearing mounting.
- Now insert complete 5th/6th/reverse gear output shaft in clutch housing.



Protected by copyright. Copying for private or commercial purposes, permitted unless authorised by AUDI AG. AUDI AG does not guaran with respect to the correctness of information in this document. Copyright by AUDI AG Fit gearbox housing and tighten bolts -A- and -B- diagonally to correct torque.



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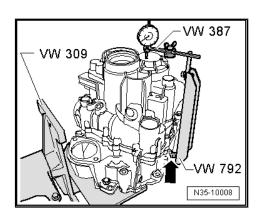


- Attach measuring equipment. Put washers of a total thickness of 8 mm on bolt -arrow- securing assembly device -VW 792to clutch housing.
- Set dial gauge -VAS 6080- (3 mm measuring range) to "0" with 1 mm preload.
- Loosen clutch housing/gearbox housing securing bolts diagonally until output shaft is free to move in gearbox housing.
- Read off play on gauge and note reading (example: 0.25 mm).



Note

If no play is indicated on the dial gauge when the clutch housing/ gearbox housing securing bolts are loosened, fit a 1.95 mm shim (part number -084 409 383 AS-), or if necessary a 2.20 mm shim (part number -084 409 383 BD-) for performing the measurement



Determining thickness of required shim:

The specified bearing preload is attained by subtracting the measured value (0.25 mm) from the inserted shim (1.70 mm) and adding a constant value for preload (0.20 mm).

Example:

| | / |
|----------------------------|---|
| Inserted shim | 1.70 mm |
| - Measured value | 0.25 mm |
| + Preload (constant value) | 0.20 mm |
| Thickness of shim | 1.65 mm |

Select a shim of the required thickness from the table. For part number refer to ⇒ Electronic parts catalogue.

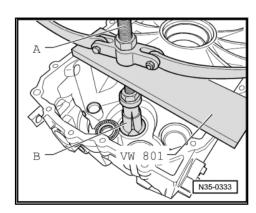
The following shims are available:

| Thickness of shims in mm | | | |
|--------------------------|---------|----------------------------------|--|
| 1.50 | 1.70 pe | Trinted and Control of | ying for private or community of the private of |
| 1.55 | 1.75 | with respect to the correct 1.95 | tness of information in 2.15 |
| 1.60 | 1.80 | 2.00 | 2.20 |
| 1.65 | 1.85 | 2.05 | 2.25 |

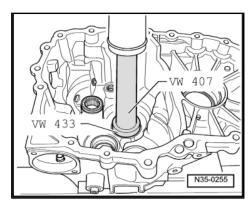
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The exact shim thickness required can be obtained by combining shims of different thicknesses.

- Detach gearbox housing and pull tapered roller bearing outer race out of gearbox housing.
- A Counter-support, e.g. -Kukko 22/2-
- B Internal puller 46...58 mm, e.g. -Kukko 21/7-
- Remove inserted shim (1.70 mm thick) from gearbox housing.

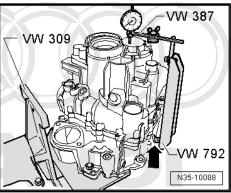


Press in tapered roller bearing outer race together with the correct shim (in example 1.65 mm). Support gearbox housing with thrust piece -2050- directly below bearing mounting.



Checking adjustment

- Required shim installed (thickness as determined above)
- Attach measuring equipment. Put washers of a total thickness of 8 mm on bolt -arrow- securing assembly device -VW 792to clutch housing.
- Set dial gauge -VAS 6080- (3 mm measuring range) to "0" with 1 mm preload.
- Loosen clutch housing/gearbox housing securing bolts diagonally until output shaft is free to move in gearbox housing.
- If the correct shim has been selected, the dial gauge should now indicate a value of 0.15 \dots 0.25 mm.



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Final drive - differential 39 –

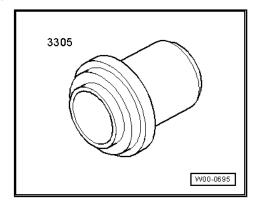
Renewing flange shaft oil seals

- Renewing flange shaft oil seal (left-side) ⇒ page 205.
- ◆ Renewing flange shaft oil seal (right-side) ⇒ page 206.

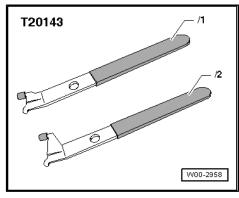
1.1 Renewing flange shaft oil seal (left-side)

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♦ Thrust piece -3305-



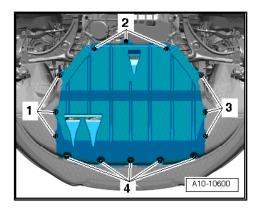
◆ Extractor tool -T20143/2-



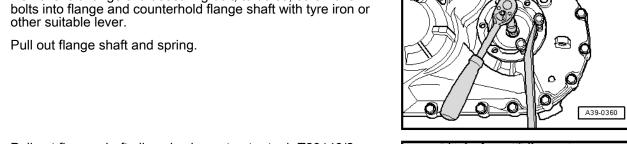
- ♦ Drip tray
- ♦ Sealing grease -G 052 128 A1-

Removing

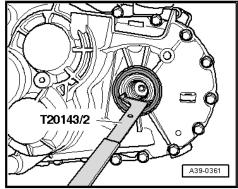
- Gearbox in vehicle
- Raise vehicle.
- Remove noise insulation (centre) by releasing fasteners -1 ... 4-.
- Remove front left wheel.



- Remove drive shaft (left-side) ⇒ Rep. Gr. 40.
- Place drip tray under gearbox.
- Remove left flange shaft securing bolt; to do so, screw two

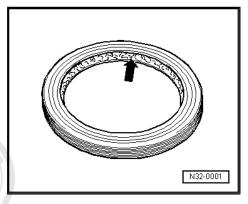


Pull out flange shaft oil seal using extractor tool -T20143/2-.



Installing

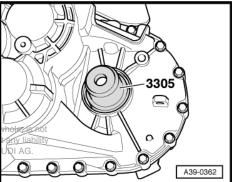
- Lightly oil outer circumference of new oil seal.
- Pack space between sealing lip and dust lip -arrow- half full with sealing grease -G 052 128 A1- .



- Drive in new oil seal as far as stop using thrust piece -3305-(keep oil seal straight while installing).
- Push flange shaft in towards gearbox housing and tighten to specified torque ⇒ Item 12 (page 210).

The remaining installation steps are carried out in the reverse sequence; note the following points:

- Install drive shaft (left-side) ⇒ Running gear, front-wheel drive and four-wheel drivey Repol Grop40 for private or commercial purposes, in part or in permitted unless authorised by AUDI AG. AUDI AG does not guarantee or acce
- Fill up oil in gearbox and check oils level popage hand unent. Copyright by
- Install noise insulation (centre).



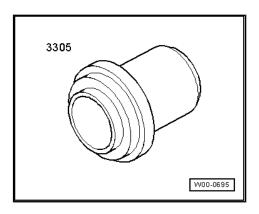
1.2 Renewing flange shaft oil seal (rightside)

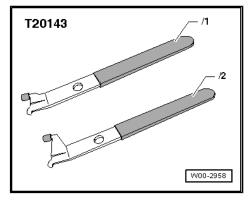
Special tools and workshop equipment required

♦ Thrust piece -3305-

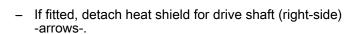


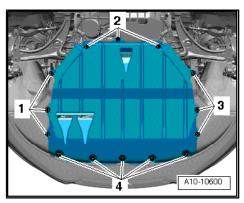
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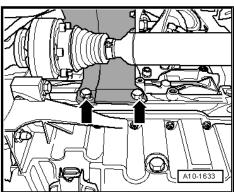




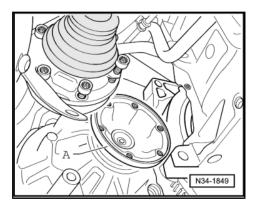
- ♦ Drip tray
- Sealing grease -G 052 128 A1-
- Gearbox in vehicle
- Raise vehicle.
- Remove noise insulation (centre) by releasing fasteners -1 ... 4-.



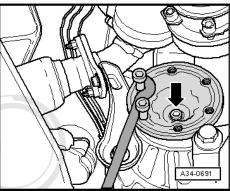




- Remove drive shaft (right-side) from gearbox flange shaft
- Secure drive shafts with wire, taking care not to damage surface protection.

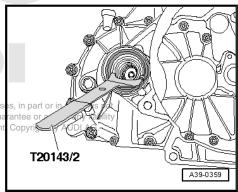


- Remove flange shaft securing bolt -arrow-. To do so, screw two bolts into flange and counterhold flange shaft with tyre iron or other suitable lever.
- Place drip tray below gearbox.
- Pull out flange shaft and spring.



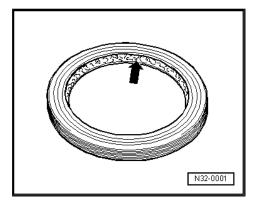
Pull out flange shaft oil seal using extractor tool -T20143/2- .



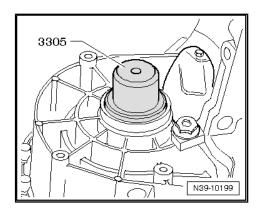


Installing

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

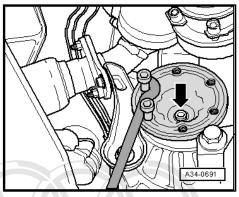


Drive in new seal onto stop (take care to keep seal straight).

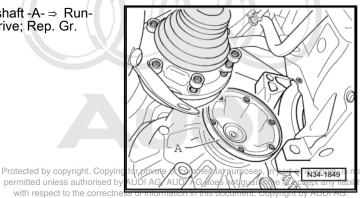


Secure flange shaft with countersunk bolt -arrow- and tighten to specified torque ⇒ Item 12 (page 210).

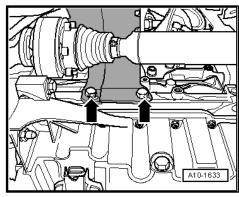
The remaining installation steps are carried out in the reverse sequence; note the following points:



Bolt drive shaft (right-side) to gearbox flange shaft -A- ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 40 .



- If previously removed, install heat shield for drive shaft (rightside) -arrows- and tighten to 25 Nm.
- Fill up oil in gearbox and check oil level <u>⇒ page 107</u>.

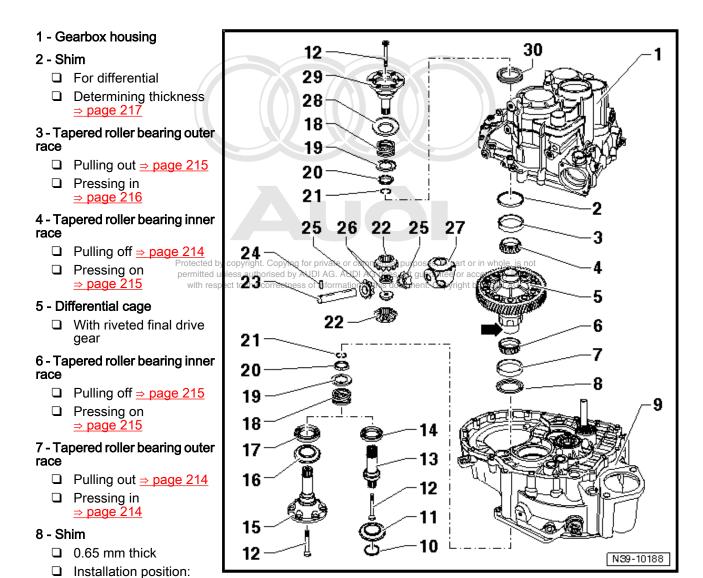


2 Exploded view - differential



Note

- ♦ Mounting gearbox on assembly stand <u>⇒ page 108</u>.
- Heat tapered roller bearing inner race to 100°C before installing.
- ♦ Always renew both tapered roller bearings together.
- ◆ Adjust differential ⇒ page 217 if tapered roller bearings, differential cage, gearbox housing or clutch housing are being renewed.



Shoulder on inside diameter faces towards oil seal ⇒ Item 14 (page 211)

9 - Clutch housing

- 10 Not fitted
- 11 Not fitted
- 12 Countersunk bolt
 - □ 33 Nm

| 6-speed manual gearbox 02Q, front-wheel drive - Edition |
|--|
| ☐ Screws into threaded piece ⇒ Item 26 (page 211) |
| 13 - Not fitted |
| 14 - Not fitted |
| 15 - Flange shaft (right-side) |
| 16 - Protective ring |
| Lever protective ring off flange shaft by applying a screwdriver on alternate sides ⇒ Item 15 (page 211). Press on protective ring by hand as far as stop |
| ☐ Protective ring must engage in flange shaft |
| 17 - Oil seal |
| □ For flange shaft □ Renewing (with gearbox installed) ⇒ page 206 |
| 18 - Spring for flange shaft Producted nstalled behind flange shaftercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability 19 in Thrust washer iness of information in this document. Copyright by AUDI AG. Installation position: Shoulder towards spring, lugs (if included) towards tapered ring |
| |
| 20 - Tapered ring ☐ Installation position: Taper towards differential cage |
| 21 - Circlip Holds tapered ring, thrust washer and spring in position when flange shaft is removed |
| 22 - Sun wheel |
| ☐ Installing ⇒ page 216 |
| 23 - Differential pinion pin □ Drive out with drift □ Installing ⇒ page 216 |
| 24 - Spring pin |
| □ Secures differential pinion pin □ Removing and installing ⇒ page 216 |
| 25 - Planet pinion |
| ☐ Installing ⇒ page 216 |
| 26 - Threaded piece ☐ Installing ⇒ page 216 |
| 27 - One-piece thrust washer Lubricate with gear oil before installing |

28 - Protective ring

- ☐ Lever off protective ring on alternate sides using screwdriver
- ☐ Installation position: Recess faces away from tapped holes in flange shaft
- Press on protective ring by hand as far as stop
- ☐ Protective ring must engage in flange shaft

29 - Flange shaft (left-side)

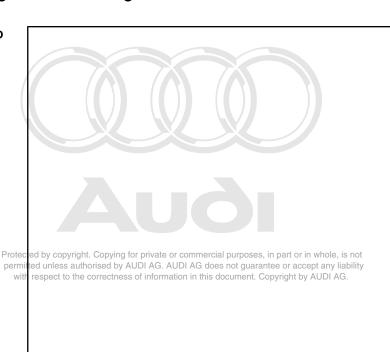
30 - Oil seal

- □ For flange shaft
- ☐ Renewing with gearbox installed <u>⇒ page 205</u>

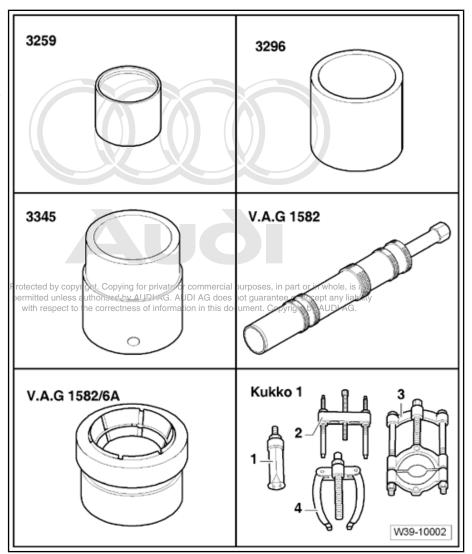
Dismantling and assembling differential 2.1

Special tools and workshop equipment required

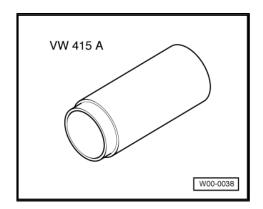
- Thrust plate -VW 402-
- Press tool -VW 408 A-
- Press tool -VW 412-
- Thrust plate -40 105-
- Thrust plate -3005-

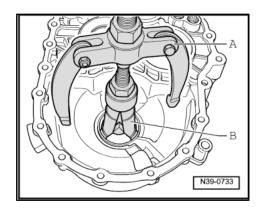


- ♦ Tube -3259-
- Tube -3296-
- Wheel bearing tube -3345-
- Tapered roller bearing puller -V.A.G 1582-
- ♦ Adapter -V.A.G 1582/6A-
- -1- Internal puller 46 ... 58 mm -Kukko 21/7-
- ♦ -2- Puller -Kukko 18/1-
- -3- Splitter 12 ... 75 mm -Kukko 17/1-
- ◆ -4- Counter-support -Kukko 22/2-



◆ Tube -VW 415 A-





Pulling tapered roller bearing outer race out of clutch housing

A - Counter-support, e.g. -Kukko 22/2-

B - Internal puller 46 ... 58 mm , e.g. -Kukko 21/7-

Clamp internal puller
 B- firmly between tapered roller bearing outer race and shim.

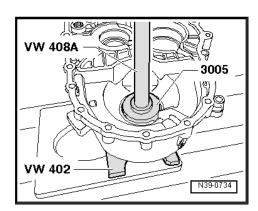


Note

After pulling out, check shim for damage and renew if necessary.

Pressing tapered roller bearing outer race into clutch housing

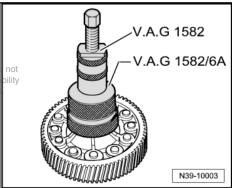
- First install shim.
- Collar on inside diameter of thrust plate -3005- faces towards outer race.



Pulling off tapered roller bearing inner race

Before applying puller, place thrust plate -40 - 105- on differential cage.

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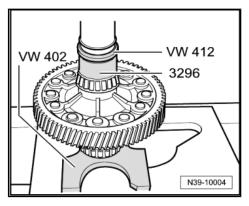
Pressing on tapered roller bearing inner race



WARNING

Wear protective gloves.

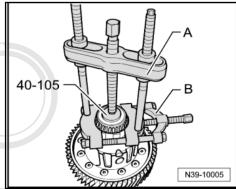
Heat tapered roller bearing inner race to approx. 100°C before pressing on.



Pulling off tapered roller bearing inner race

A - Puller , e.g. -Kukko 18/1-

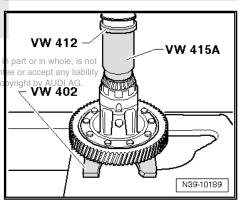
B - Splitter 12...75 mm, e.g. -Kukko 17/1-



Pressing on tapered roller bearing inner race

Cage with bearing rollers must rotate freely when pressing on.

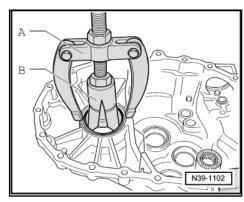
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Pulling tapered roller bearing outer race out of gearbox housing

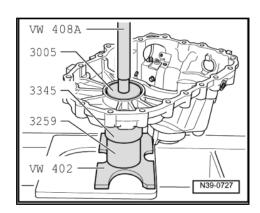
A - Counter-support, e.g. -Kukko 22/2-

B - Internal puller 46 ... 58 mm, e.g. -Kukko 21/7-



Pressing tapered roller bearing outer race into gearbox housing

Support gearbox housing with tube -3345- directly below bearing mounting.

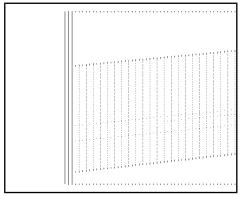


Removing and installing spring pin for differential pinion pin Removing:

- Cover tapered roller bearing inner race to avoid damage and keep metal particles out of the bearing.
- Drive out spring pin with chisel, inserting chisel into annular groove.

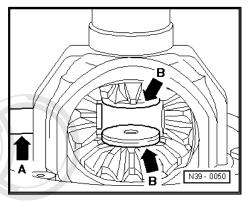
Installing:

Drive spring pin onto stop in differential cage.



Installing bevel gears

- Lubricate one-piece thrust washer with gear oil and install.
- Install both sun wheels and secure (e.g. with flange shaft).
- Fit planet pinions (180° apart) and pivot into position.
- Push differential pinion pin -arrow A- in as far as first planet pinion.
- Fit threaded pieces -arrows B- in sun wheels.
- Installation position: Stepped shoulder towards sun wheel
- Drive differential pinion pin into final position and secure with spring pin.



2.2 Table of adjustments



Note

If repairs have been carried out on the gearbox, it is only neces not guarantee or accept any liability sary to adjust the output shaft for 1st 4th gear; the output shaft locument. Copyright by AUDI AG. for 5th, 6th and reverse gear or the differential if components have been renewed which have a direct effect on the adjustment of the gearbox. Please refer to the following table to avoid unnecessary adjustments.

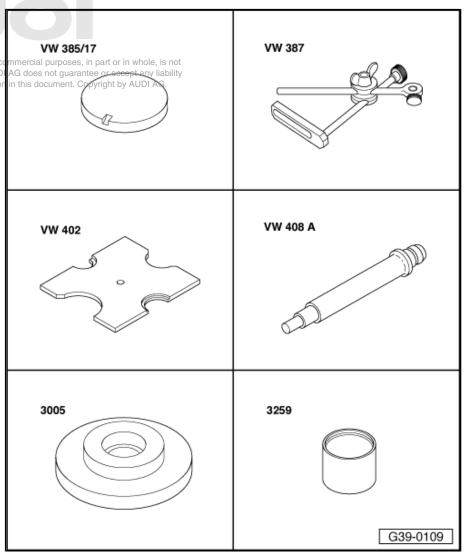
| Components renewed: | Compon | Components requiring adjustment: | | |
|---------------------------------|--|---|----------------------------|--|
| | Output shaft for 1st - 4th gear ⇒ page 184 | Output shaft for 5th, 6th and reverse gear ⇒ page 200 | Differential ⇒ page 217 | |
| Gearbox housing | х | х | х | |
| Clutch housing | х | х | х | |
| Output shaft for 1st - 4th gear | х | | | |

| Components renewed: | Components requiring adjustment: | | |
|---|----------------------------------|---|---|
| Output shaft for 5th, 6th and reverse gear | | х | |
| Differential cage | | | х |
| Tapered roller bearings for input shaft | | | |
| Tapered roller bearings for 1st - 4th gear output shaft | х | | |
| Tapered roller bearings for 5th/6th and reverse gear output shaft | | х | |
| Tapered roller bearings for differential | | | х |

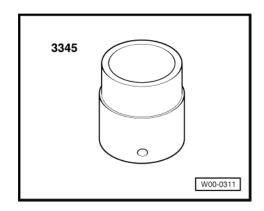
Adjusting differential 2.3

Special tools and workshop equipment required

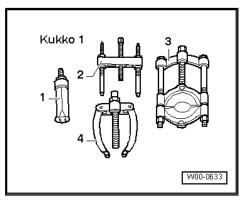
- ♦ End plate -VW 385/17-
- ◆errUniversal dialsgauge brack brack with revW 387-orrectness of information
- ♦ Thrust plate -VW 402-
- ♦ Press tool -VW 408 A-
- Thrust plate -3005-
- Tube -3259-



Wheel bearing tube -3345-



-1- Internal puller 46 ... 58 mm -Kukko 21/7-



- -4- Counter-support -Kukko 22/2-
- Dial gauge -VAS 6080-



VAS 6080 W00-10085

- Dial gauge extension, 30 mm

The differential must be re-adjusted when the following components have been renewed: 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

- Gearbox nousing guarantee or accept any list Gearbox nousing guarantee or accept any list Gearbox nousing
- Clutch housing
- Differential cage
- ◆ Tapered roller bearings for differential

Table of adjustments ⇒ page 216

Adjusting:



Note

The tapered roller bearing inner and outer races are paired. Do not interchange.

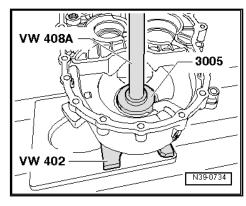
- Press tapered roller bearing outer race with shim (0.65 mm) into clutch housing.
- Collar on inside diameter of thrust plate -3005- faces towards outer race.
- Press tapered roller bearing outer race without shim into gearbox housing.
- Install differential in clutch housing.
- Fit gearbox housing and tighten 5 bolts to specified torque \Rightarrow Item 11 (page 112) and \Rightarrow Item 12 (page 112).
- Press differential towards clutch housing; hold in this position and turn eight times.
- Press differential towards gearbox housing; hold in this position and turn eight times.
- Attach dial gauge -VAS 6080- and set to "0" with a preload of
- A Dial gauge extension, 30 mm
- Move differential up and down and note play indicated on dial gauge (in this example: 0.70 mm).

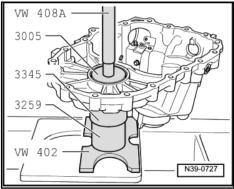
Determining thickness of required shim:

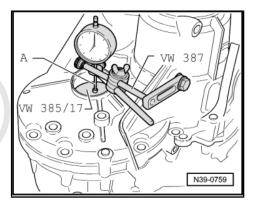
The specified bearing preload is obtained by adding a constant figure (0.25 mm) to the reading indicated.

Example:

| Measured value | 0.70 mm |
|----------------------------|---------|
| + Preload (constant value) | 0.25 mm |
| Thickness of shim = | 0.95 mm |







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- Take off gearbox housing.
- Pull tapered roller bearing outer race out of gearbox housing.
- A Counter-support, e.g. -Kukko 22/2-
- B Internal puller 46 ... 58 mm , e.g. -Kukko 21/7-
- Select a shim of the required thickness from the table. For part numbers refer to ⇒ Electronic parts catalogue.
- Insert shim of correct thickness.

The following shims are available:

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|-----------------|---------------|
| permitted unle | ss authorised |

| Thickness of shims in mm | | | | |
|--------------------------|------|------|------|--|
| 0.65 | 0.85 | 1.05 | 1.25 | |
| 0.70 | 0.90 | 1.10 | | |
| 0.75 | 0.95 | 1.15 | | |
| 0.80 | 1.00 | 1.20 | | |

The exact shim thickness required can be obtained by combining shims of different thicknesses.

If the size of the shim required is larger than those listed in the table, install two shims amounting to the correct value. Insert the thicker shim first.

Press outer race in again and tighten gearbox housing bolts to specified torque ⇒ page 112.

