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Workshop Manual

Audi A4 2001 ➤ ,

Audi A4 Cabriolet 2003 ➤ ,

Audi A6 1998 ➤ , Audi A6 2005 ➤ ,

Audi A8 2003 ➤

Servicing multitronic 01J and 0AN
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Edition 03.2019



List of Workshop Manual Repair Groups

Repair Group

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



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

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00 – Technical data

1 Repair instructions

(ARL006328; Edition 03.2019)

1.1 General repair instructions

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

A number of generally applicable instructions for the various repair procedures - which were previously repeated at numerous places in the Workshop Manual - are summarised here. They apply to the work described in this Manual.

Gearbox

- ◆ Observe rules for cleanliness when working on gearbox
⇒ [page 4](#) .
- ◆ Clean ATF lines and ATF cooler after performing repairs on the gearbox ⇒ multitronic 01J, front-wheel drive; Rep. gr. 37 ,
⇒ multitronic 0AN, front-wheel drive; Rep. gr. 37 .
- ◆ Components to be re-used must be cleaned, checked and if necessary renewed prior to installation
⇒ [“2 Assessing wear on gearbox components”, page 142](#) .

After fitting the gearbox, check the following fluid levels and top up if necessary:

- ◆ ATF level ⇒ multitronic 01J, front-wheel drive; Rep. gr. 37 ,
⇒ multitronic 0AN, front-wheel drive; Rep. gr. 37
- ◆ Gear oil in front final drive ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39
- ◆ Capacities and specifications ⇒ multitronic 01J, front-wheel drive; Rep. gr. 00 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 00

O-rings, seals, oil seals and gaskets

- ◆ Always renew O-rings, seals, oil seals and gaskets.
- ◆ After removing gaskets and seals, always inspect the contact surface on the housing or shaft for burrs resulting from removal or for other signs of damage.
- ◆ The open side of the oil seals faces toward the side with fluid filling.
- ◆ Lightly lubricate the outer circumference and sealing lip of seals with ATF before installing.
- ◆ Lightly lubricate O-rings with ATF or vaseline before installation to prevent them getting crushed during assembly.
- ◆ Use only ATF or vaseline on all parts running in ATF. Other lubricants will cause malfunction of the gearbox hydraulics.
- ◆ 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).
- ◆ Renew paper gaskets, clean all sealing surfaces thoroughly and remove previous gaskets completely.



Nuts, bolts

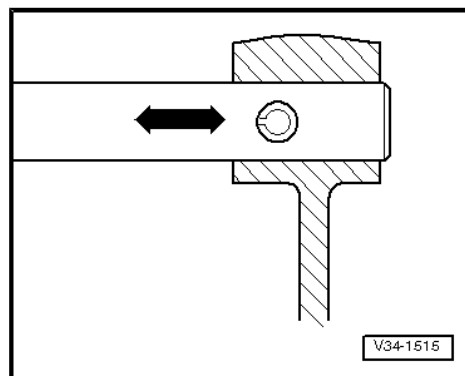
- ◆ Loosen bolts in reverse sequence to specified tightening sequence.
- ◆ Bolts and nuts which secure covers and housings should be loosened and tightened in diagonal sequence and in stages if no tightening sequence is specified.
- ◆ The tightening torques stated apply to non-oiled nuts and bolts.
- ◆ Always renew self-locking bolts and nuts.

Locking elements

- ◆ Do not over-stretch circlips.
- ◆ Always renew circlips which have been damaged or over-stretched.
- ◆ Circlips must be properly seated in the base of the groove.
- ◆ Renew spring pins. Installation position: slot must be in line with direction of force.

Bearings

- ◆ Lightly lubricate bearings with ATF before inserting.
- ◆ Fit bearings and shims loosely with vaseline only. Other types of lubricant will cause the gearbox hydraulics to malfunction.



1.2 Contact corrosion

General information:

- ◆ Contact corrosion can occur if unsuitable fasteners are used (e.g. 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 .

The following applies in particular to gearboxes:

- ◆ The housing of the multitronic gearbox 01J/0AN is made of a magnesium alloy (up to approx. 2004) or of aluminium (2005 onwards).
- ◆ Bolts and other components which are in direct contact with the gearbox housing are surface treated for compatibility with the housing material.
- ◆ On gearboxes made of magnesium, the bolts must always be renewed on the following bolted connections: gearbox cover to gearbox housing, final drive cover to gearbox housing and engine to gearbox.
- ◆ If incorrect components are used (bolts, nuts, washers etc.), this will cause contact corrosion. The gearbox housing will be damaged.
- ◆ The gearbox housing, gearbox cover and cover for final drive must also all be made of the same material.
- ◆ If you are not sure whether used parts can be re-installed, always fit new parts ⇒ Electronic parts catalogue .



Please note:

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



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2 Rules for cleanliness when working on the gearbox

- ◆ Thoroughly clean all joints and connections and the surrounding areas before disconnecting.
- ◆ Use cleaning fluid - D 009 401 04- to clean the gearbox and its components.
- ◆ Only use lint-free cloths for cleaning, such as the "WYPALL X70 / WORKHORSE" cloth from Kimberly-Clark Professional.
- ◆ After removal, place parts on a clean surface and cover them. Use sheeting or lint-free cloths.
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately.
- ◆ Only install clean components; replacement parts should only be unpacked immediately prior to installation.



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3 Common faults



Note

- ◆ Before commencing fault-finding, interrogate the event memory of the automatic gearbox control unit -J217- ⇒ Vehicle diagnostic tester.
- ◆ Also interrogate the event memory of the engine control unit, as fault messages from the engine control unit can lead to malfunctioning of the gearbox ⇒ Vehicle diagnostic tester.
- ◆ Before commencing fault-finding, check ATF level ⇒ multitronic 01J, front-wheel drive; Rep. gr. 37, ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 37.
- ◆ Use "Guided Fault Finding" mode ⇒ Vehicle diagnostic tester.
- ◆ Also use all the relevant "Technical product information" (TPI) in the ⇒ Technical Service Handbook (HST)
- ◆ When assessing complaints and abnormal wear, refer to the training documentation ⇒ EX 335 "multitronic", Part 2.

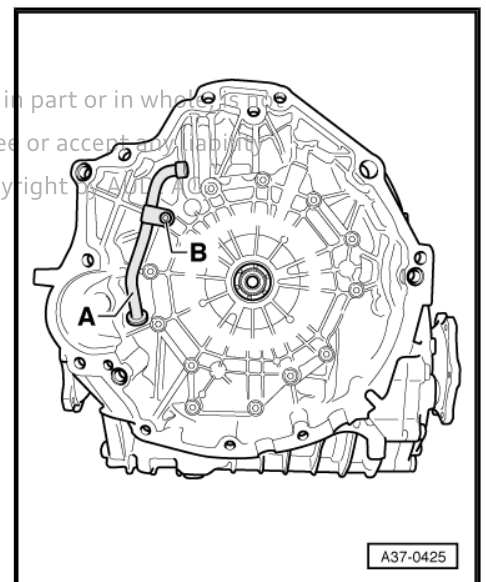
ATF emerges from gearbox housing

If ATF emerges at underside of gearbox housing, input shaft oil seal and/or ATF breather pipe may be leaking. The actual cause of the leak must be determined before any components are renewed ⇒ [page 19](#).



Note

If ATF emerges from the inspection hole behind ATF breather pipe -A- around bolt -B-, the gearbox is defective and must be renewed.



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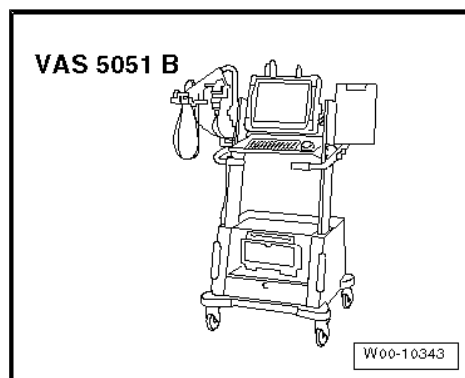


37 – Controls, housing

1 ATF purging procedure

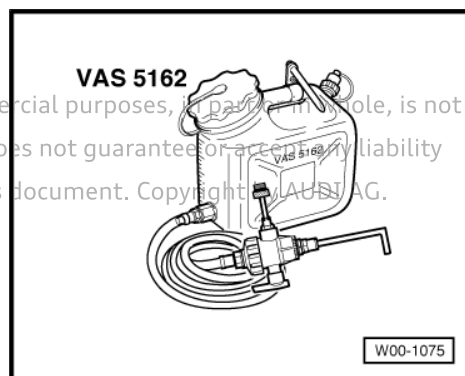
Special tools and workshop equipment required

- ♦ Vehicle diagnostic, testing and information system - VAS 5051B- with diagnosis lead

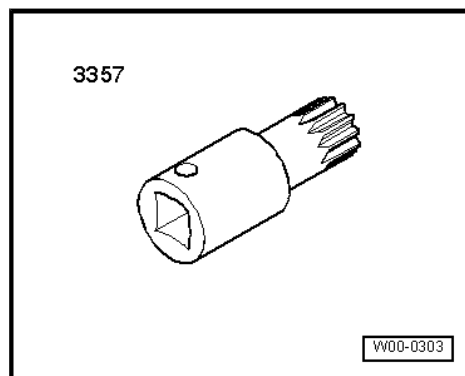


- ♦ ATF charging device for CVT gearboxes - VAS 5162-

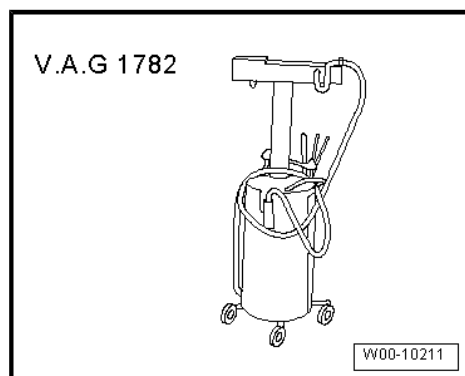
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- ♦ Socket - 3357-



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





- ◆ Safety goggles

Procedure

- Gearbox in vehicle

A normal ATF change involves replacing only approx. 55 ... 60 % of the total ATF in the gearbox.

The "ATF purging procedure" has to be employed if all the old ATF in the gearbox is to be removed.

ATF purging is always necessary when performing the following work:

- ◆ Renewing the input shaft
- ◆ Servicing the input shaft

This involves performing the road test twice, as described below, and then changing the ATF.

This is the only way to ensure complete renewal of the ATF in the gearbox.



Caution

Components in the gearbox will be damaged if the steps are not carried out exactly as described.

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- Fill up with ATF after installing gearbox
⇒ "1.2 Filling up with ATF (for ATF purging procedure)", page 9.



Caution

- ◆ ***After fitting the gearbox with a new clutch pack or a new input shaft, the vehicle diagnostic, testing and information system - VAS 5051B- must be used before driving the vehicle to check whether update programming is required in the automatic gearbox control unit - J217- .***
- ◆ ***Gearbox components will be damaged if update programming is necessary but is not carried out.***
- ◆ ***Gearbox components will be damaged if update programming is not necessary but is carried out nevertheless.***

Checking whether update programming is required in the automatic gearbox control unit - J217- :

- Vehicle diagnostic, testing and information system - VAS 5051B- must be connected.
- Using the vehicle diagnostic, testing and information system - VAS 5051B- , start the vehicle-specific Guided Functions.
- Select the vehicle.
- Select the following in the functions:

Line to be selected
[02 - Gearbox electronics 01J] or [02 - Gearbox electronics 0AN]
[J217 - Gearbox control unit for multitronic, functions]
[J217 - multitronic, update programming]



Note

This vehicle diagnostic, testing and information system - VAS 5051B- procedure ensures that update programming in the automatic gearbox control unit - J217- is only implemented when required.

- If necessary, perform update programming in the automatic gearbox control unit - J217- .

Purging ATF

1. ⇒ [“1.1 Draining ATF \(for ATF purging procedure\)”](#), [page 8](#) .
2. ⇒ [“1.2 Filling up with ATF \(for ATF purging procedure\)”](#), [page 9](#) .
3. ⇒ [“1.1 Draining ATF \(for ATF purging procedure\)”](#), [page 8](#) .
4. ⇒ [“1.2 Filling up with ATF \(for ATF purging procedure\)”](#), [page 9](#) .
5. Checking and correcting ATF level ⇒ multitronic 01J, front-wheel drive; Rep. gr. 37 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 37



Note

Observe all notes and test requirements for “Checking and correcting ATF level”.

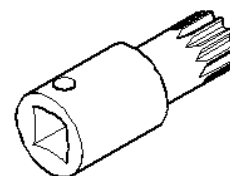
Checking the ATF level completes the purging procedure.

1.1 Draining ATF (for ATF purging procedure)

Special tools and workshop equipment required

- ◆ Socket - 3357-

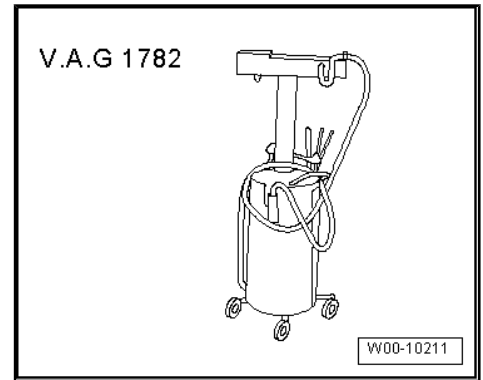
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VW00-0303



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



Caution

Do not run the engine or tow the vehicle when there is no ATF in the gearbox.

- Vehicle must be level (horizontal).



Note

Please observe requirements for disposal.

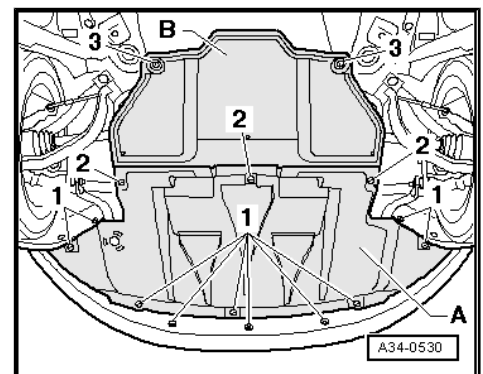
- Release fasteners -2- and -3- and detach rear noise insulation -B-.



Note

There are different types of noise insulation for the various vehicle models.

- Place used oil collection and extraction unit - V.A.G 1782- below gearbox.

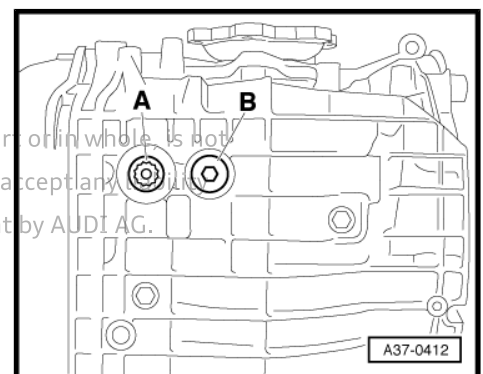


- Unscrew ATF drain plug -A- with multi-point bit - 3357- and drain off ATF.

- Re-tighten ATF drain plug.

• Tightening torque: 24 Nm

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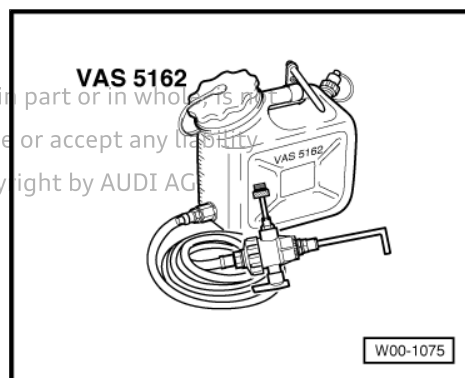
1.2 Filling up with ATF (for ATF purging procedure)

Special tools and workshop equipment required



◆ ATF charging device for CVT gearboxes - VAS 5162-

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Caution

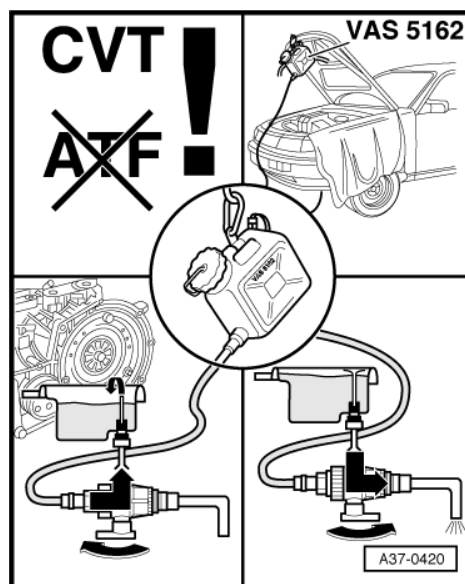
The gearbox will be damaged if an unapproved type of ATF is used.

The ATF required for the multitronic 01J/0AN gearbox is different from the fluid used in fixed-ratio automatic gearboxes. Use only the ATF for CVT gearboxes which is available as a replacement part; for ATF specifications refer to ➔ Electronic parts catalogue .



Note

- ◆ The illustration on the reservoir of the ATF charging device for CVT gearboxes - VAS 5162- displays a warning in the top left corner to use **ONLY** the ATF specially formulated for CVT gearboxes.
- ◆ The illustration also shows the steps to follow when filling up; these are also described below.





- Attach filled reservoir of ATF charging device for CVT gearboxes - VAS 5162- at the highest possible point on the vehicle.
- The stopcock on ATF charging device for CVT gearboxes - VAS 5162- must be closed.



Caution

- ◆ **The engine must not be started if only a little or no ATF remains in the gearbox after repair work or after excessive ATF leakage.**
- ◆ **In this case you need to fill the gearbox first with between 4.5 and 5 litres of ATF.**

- Place used oil collection and extraction unit - V.A.G 1782- below gearbox.
- Unscrew ATF inspection plug -B-.
- Screw connecting piece on stopcock of ATF charging device for CVT gearboxes - VAS 5162- into threaded hole for ATF inspection plug -B-.

- Turn stopcock in direction of filling hose -lower arrow-. ATF flows into gearbox.
- Fill gearbox with 5 litres of ATF.
- Move selector lever to position “P”, start engine and allow to run at idling speed.

Vehicles from model year 2005 onwards:

- Selector lever in position “P”.
- Press accelerator pedal to briefly rev engine up to at least 2500 rpm.

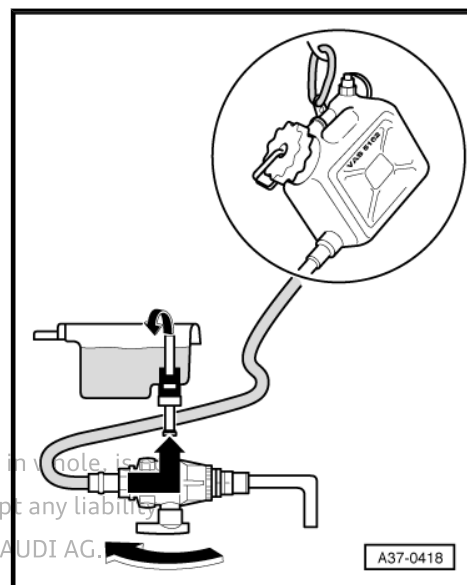
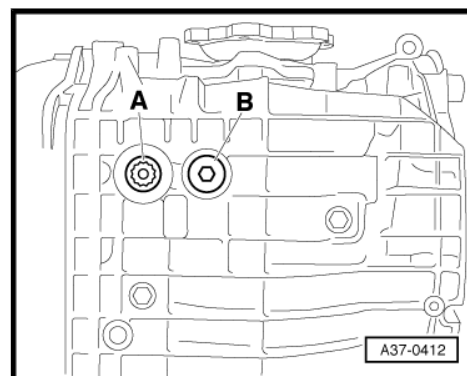
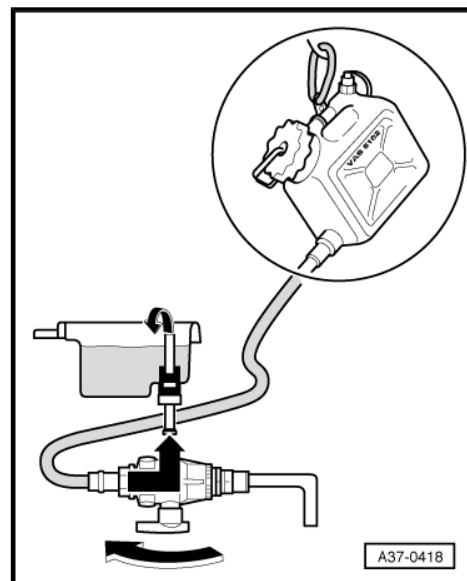


Caution

The engine has to be revved up in order to bleed air out of the ATF pump after carrying out repairs on the gearbox.

All model years:

- Press and hold brake pedal.
- Shift through all selector lever positions “P, R, N, D, S” and leave for approx. two seconds in each position with engine running at idling speed.
- Move selector lever to position “P” and allow engine to continue running at idling speed.

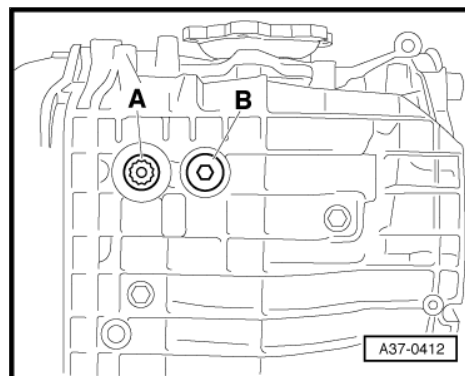




- Unscrew connecting piece on stopcock of ATF charging device for CVT gearboxes - VAS 5162- from opening for ATF inspection plug -B-.
- Allow surplus ATF to drain off.
- Screw in ATF inspection plug -B-.

Tightening torque

Component	Nm
ATF inspection plug	30



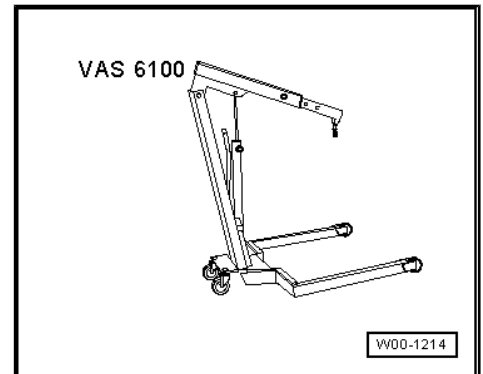
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2 Transporting gearbox

Special tools and workshop equipment required

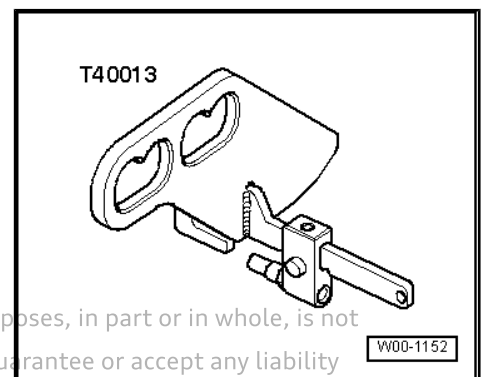
- ◆ Workshop hoist - VAS 6100-



- ◆ Lifting tackle - T40013-

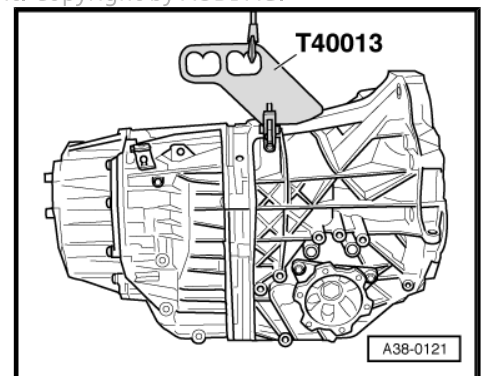


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Procedure

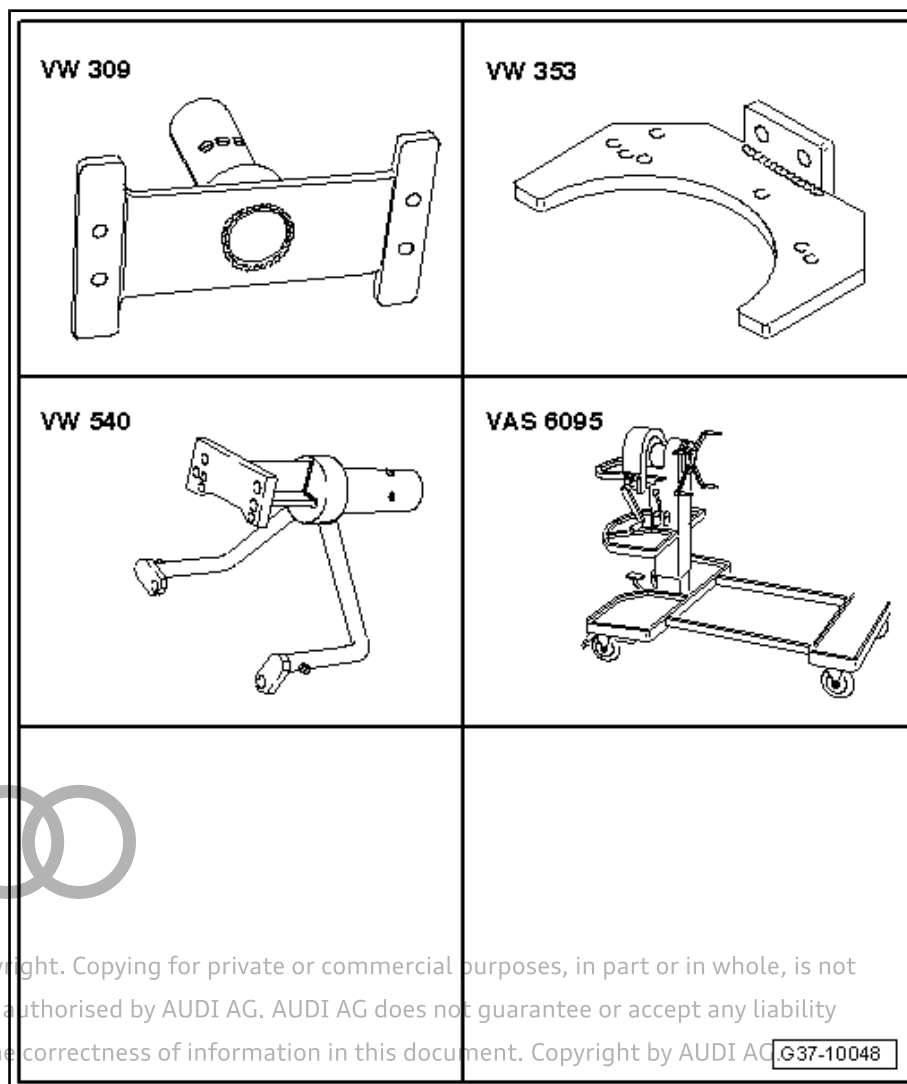
- Attach lifting aid - T40013- to upper web of gearbox housing and secure in place.
- Engage hook of workshop hoist - VAS 6100- in notch on lifting aid , as shown in illustration.
- Lift gearbox with workshop hoist - VAS 6100- and lifting aid - T40013- .





3 Securing gearbox to engine and gearbox support

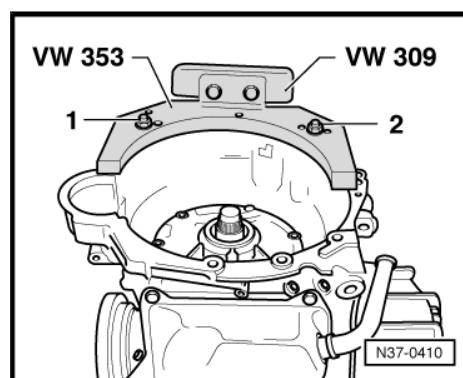
Special tools and workshop equipment required



- ◆ Support plate - VW 309-
- ◆ Gearbox support - VW 353-
- ◆ Engine and gearbox support - VW 540-
- ◆ Engine and gearbox support - VAS 6095-

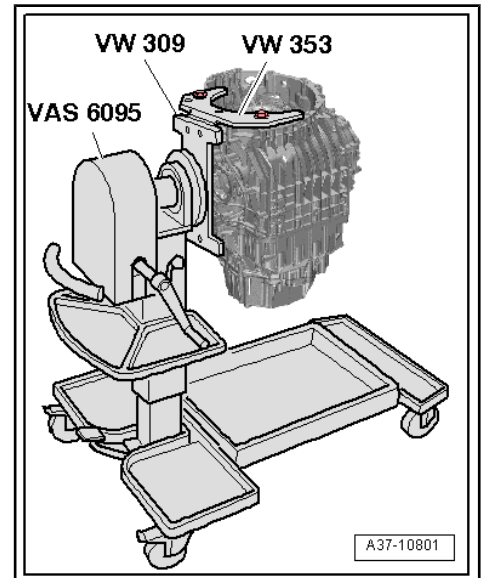
Securing gearbox in vertical position

- Secure gearbox support - VW 353- to gearbox with bolts -1- and -2-.
- Bolt support plate - VW 309- to gearbox support - VW 353- .



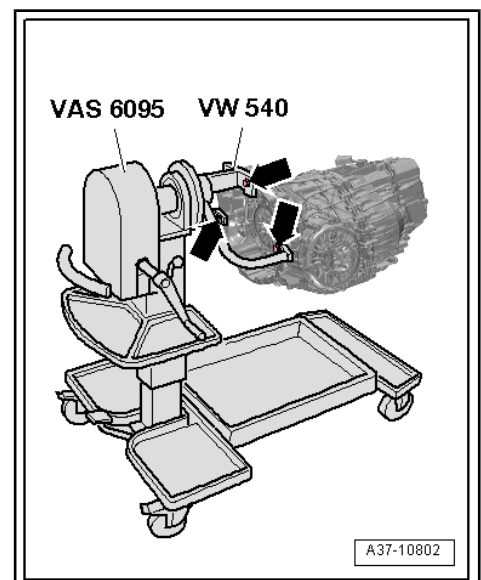


- Using workshop hoist - VAS 6100- , insert gearbox into engine and gearbox support - VAS 6095- .



Securing gearbox in horizontal position

- Bolt gearbox onto engine and gearbox support - VW 540- -arrows-.
- Using workshop hoist - VAS 6100- , insert gearbox into engine and gearbox support - VAS 6095- .



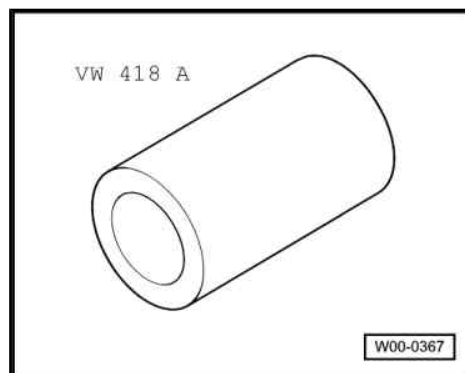
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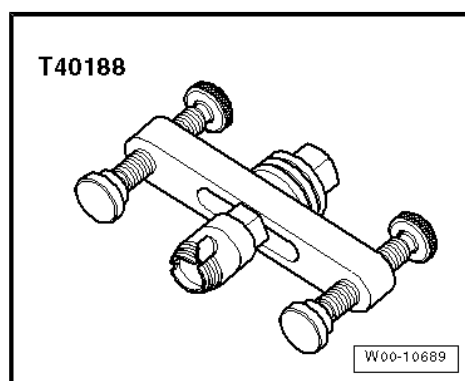
4 Renewing oil seal for selector shaft

Special tools and workshop equipment required

◆ Tube - VW 418 A-



◆ Oil seal extractor - T40188-



Removing

- Gearbox removed
- Mark installation position of gearbox selector lever -A- relative to selector shaft with waterproof pen.

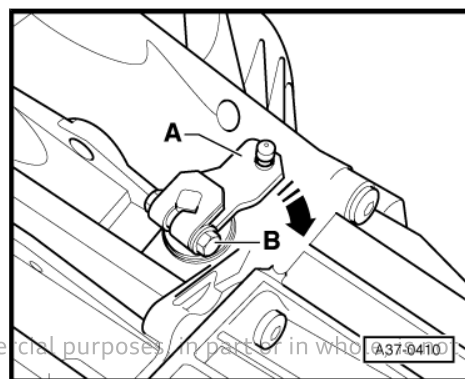


Note

- ◆ *Marking is essential, as the gearbox selector lever -A- is mounted with a 180° offset on certain models such as the Audi A8.*

- ◆ *The marking is to ensure that installation is performed correctly.*

- Fully remove bolt -B- and lift off gearbox selector lever -A-.

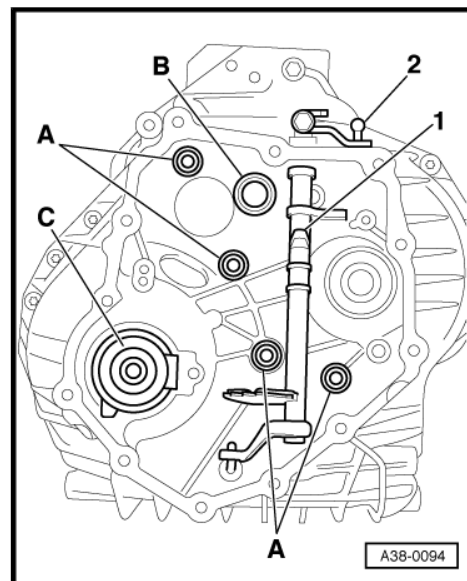




Caution

Risk of damage to selector shaft (shown here with hydraulic control unit removed).

- ◆ **The selector shaft must not be pressed into or pulled out of the gearbox.**
- ◆ **The shifting cam -1- on the selector shaft will break off if an upward or downward force is applied to the selector shaft.**
- ◆ **The gearbox must be renewed if the shifting cam is damaged.**

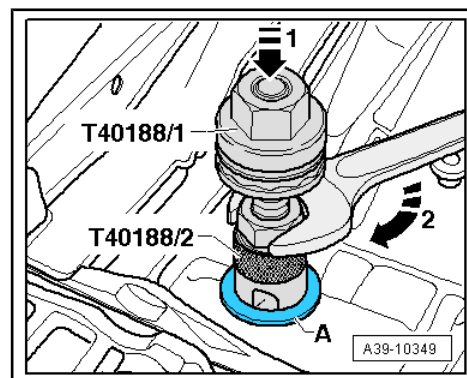


- Screw nut - T40188/1- onto puller - T40188/2- .
- Slide puller - T40188/2- over selector shaft.
- At the same time, press puller - T40188/2- firmly into oil seal -A- in direction of -arrow 1- and screw in -arrow 2-.



Note

- ◆ **The nut - T40188/1- was screwed onto the puller - T40188/2- so that greater hand pressure can be applied in the direction of -arrow 1-.**
- ◆ **The puller - T40188/2- cuts into the oil seal -A-.**
- ◆ **Ensure that sealing surfaces on gearbox and selector shaft are not damaged.**



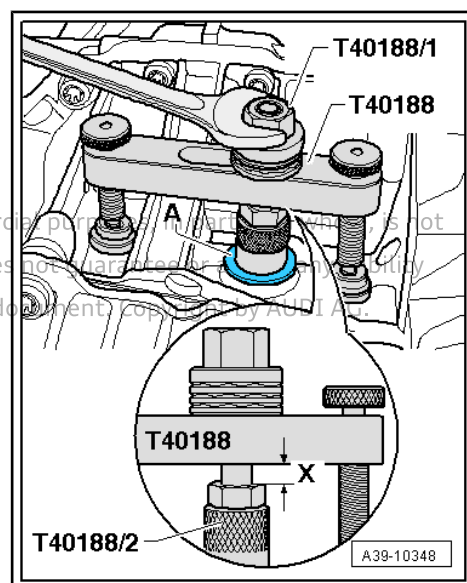
- Puller - T40188/2- must be seated very firmly in oil seal. If necessary, press in and turn puller - T40188/2- repeatedly.
- Set up cross member - T40188- and use screw feet at side to align horizontally.
- Cross member - T40188- must be aligned so that nut - T40188/1- can make flat contact.
- Distance -x- (approx. 8 mm) between lower edge of cross member and puller - T40188/2- must be maintained. If necessary, insert washers as spacers between gearbox and screw feet.



Note

The specified distance must be maintained so that the oil seal can be pulled up towards the cross member. The puller - T40188/2- will be damaged if it makes contact with the cross member before the oil seal has been removed completely.

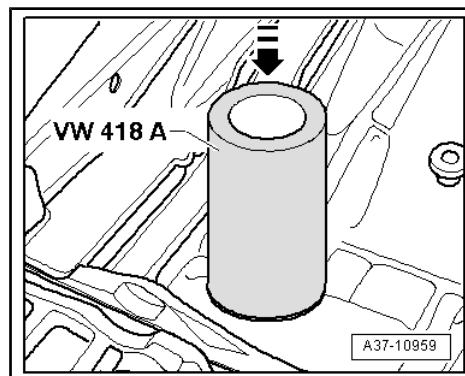
- Screw on nut - T40188/1- and pull out oil seal for selector shaft -A-.
- Clean opening and vacuum out swarf.





Installing

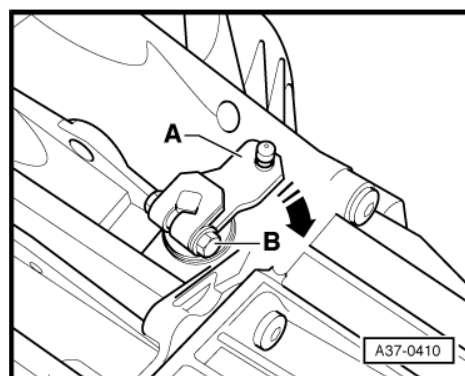
- Lightly lubricate outer circumference of new oil seal with ATF.
- Slip new oil seal over selector shaft and press in.
- Use tube - VW 418 A- to drive home oil seal.



- Fit gearbox selector lever -A- onto selector shaft in line with marking and tighten bolt -B-.

Tightening torque

Component	Nm
Gearbox selector lever to selector shaft	10



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5 Removing and installing ATF breather pipe

If ATF emerges at underside of gearbox housing, input shaft oil seal and/or ATF breather pipe may be leaking. The actual cause of the leak must be determined before renewing any components.

- ◆ The input shaft oil seal must be renewed if leaking
⇒ [page 37](#).
- ◆ The ATF breather pipe must be renewed if leaking.

Removing



Note

- ◆ Observe the general repair instructions ⇒ [page 1](#).
- ◆ Rules for cleanliness when working on the automatic gearbox
⇒ [page 4](#)

- Gearbox removed

Depending on the version, different ATF breather pipes can be fitted.

Version 1

- Unscrew bolt -B-.
- Pull ATF breather pipe -A- out of opening in gearbox.

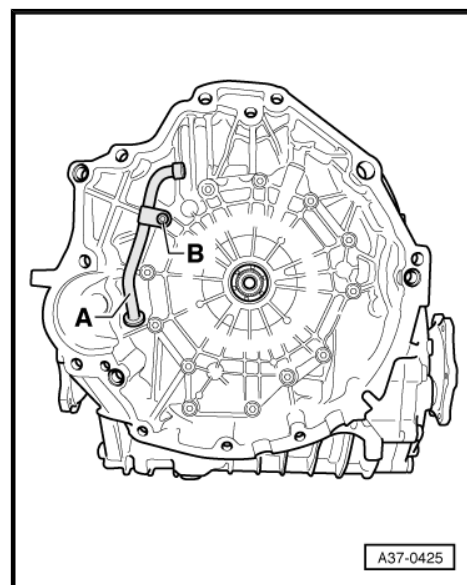
Installing

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

- Push in new ATF breather pipe -A- as far as stop.
- Secure ATF breather pipe to gearbox housing with retainer and bolt -B-.

Tightening torque

Component	Nm
ATF breather pipe to gearbox housing	25



A37-0425



Version 2



Note

This version has been installed or retrofitted in certain countries.

- Remove bolt -1-.
- Pull retaining clips -2- and -3- off gearbox.
- Pull ATF breather pipe -A- and breather pipe -B- out of opening in gearbox.

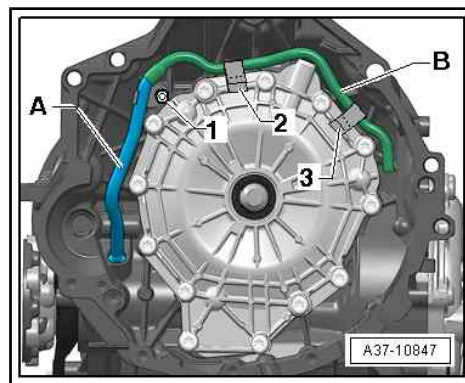
Installing

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

- Push in new ATF breather pipe -A- as far as stop.
- Breather pipe -B- must be pushed onto ATF breather pipe -A- as far as stop.
- Secure ATF breather pipe to gearbox housing with retainer and bolt -1-.
- Push retaining clips -2- and -3- all the way onto ribs on gearbox housing cover.
- Press breather pipe -B- inwards by hand in area between bolt -1- and retaining clip -2- to relieve tension on retaining clip -2-.

Tightening torque

Component	Nm
ATF breather pipe to gearbox housing	25



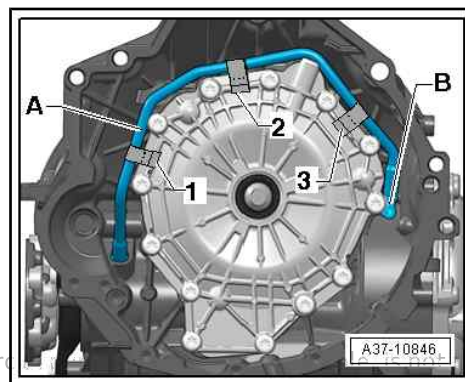
Version 3

- Pull retaining clips -1 to 3- off gearbox.
- Pull ATF breather pipe -A- out of opening in gearbox.

Installing

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

- Breather piece -B- must be inserted as far as stop.
- Push in new ATF breather pipe -A- and breather piece -B- as far as stop.
- Push retaining clips -1 to 3- all the way onto ribs on gearbox housing cover.
- Press breather pipe -A- inwards by hand in area between retaining clips to relieve tension on retaining clips.



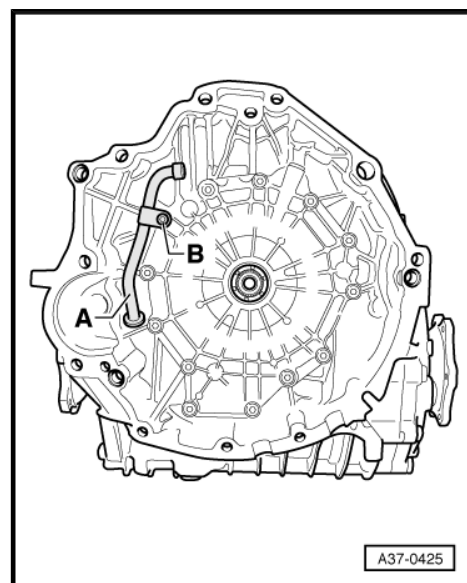


6 ATF leakage in area of gearbox housing, input shaft



Note

If ATF emerges from the inspection hole behind ATF breather pipe -A- around bolt -B-, the gearbox is defective and must be renewed.



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38 – Gears, control

1 Dismantling and assembling gearbox

1.1 Gearbox bearings and their designation - overview

A - Bearing "A"

- ❑ Ball bearing for input shaft
- ❑ Removing and installing
⇒ [page 48](#)

B - Bearing "B"

- ❑ Roller bearing for input shaft
- ❑ Can only be renewed together with input shaft

C - Bearing "C"

- ❑ Roller bearing for pulley set "I"
- ❑ Removing and installing
⇒ [page 111](#)

D - Bearing "D"

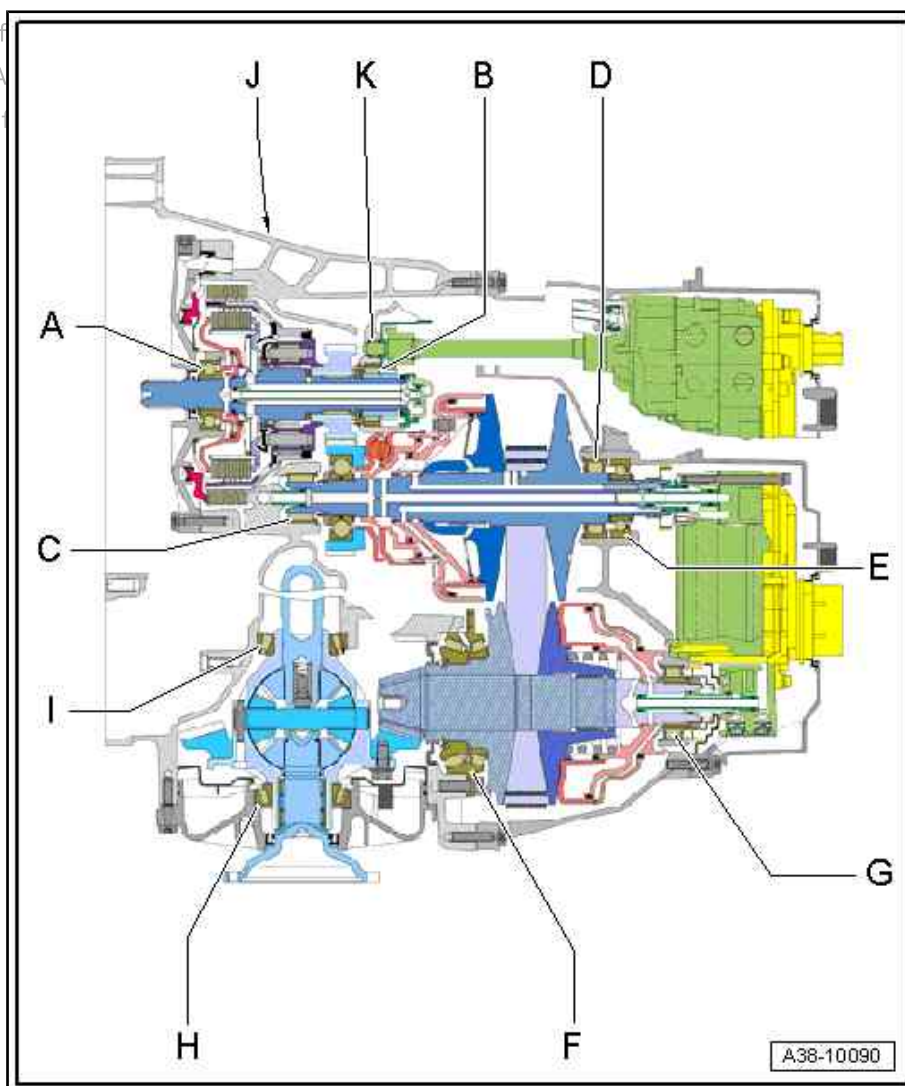
- ❑ Roller bearing for pulley set "I"
- ❑ Different versions: with or without inner race
- ❑ Removing and installing
⇒ [page 115](#)

E - Bearing "E"

- ❑ Ball bearing for pulley set "I"
- ❑ Removing and installing
⇒ [page 115](#)

F - Bearing "F"

- ❑ Tapered roller bearing for pinion shaft/pulley





G - Bearing "G"

- ☐ Roller bearing for pulley set "II"
- ☐ Cannot be renewed separately

H - Bearing "H"

- ☐ Bearing for differential
- ☐ Cannot be renewed separately

I - Bearing "I"

- ☐ Bearing for differential
- ☐ Cannot be renewed separately

J - Bearing "J"

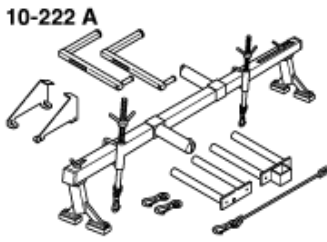
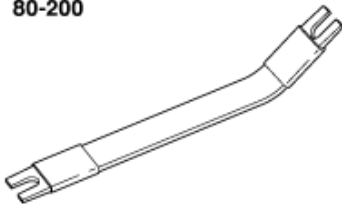
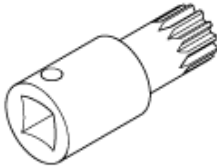
- ☐ Ball bearing for flange shaft (right-side)
- ☐ Removing and installing ⇒ [page 127](#)

K - Bearing "K"

- ☐ Bearing for ATF pump shaft
- ☐ Cannot be renewed separately

1.2 Removing and installing end cover (gearbox removed)

Special tools and workshop

 10-222 A	 80-200
 3357	 V.A.G 1383 A
	G38-0001



equipment required

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- ◆ Support bracket - 10-222 A-
- ◆ Removal lever - 80-200-
- ◆ Socket - 3357-
- ◆ Engine and gearbox jack - V.A.G 1383 A-
- ◆ Drip tray

Removing



Note

- ◆ *Rules for cleanliness when working on the automatic gearbox*
⇒ [page 4](#)
- ◆ *General repair instructions* ⇒ [page 1](#) .
- Gearbox removed
- Secure gearbox to engine and gearbox support ⇒ [page 14](#) .
- Remove bolts -arrows- and take off end cover.

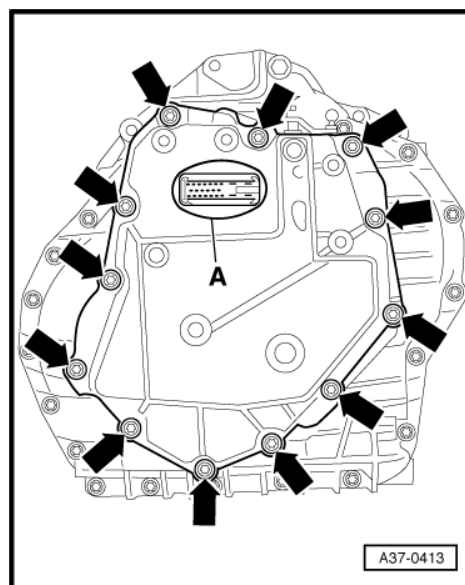
Installing

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



Note

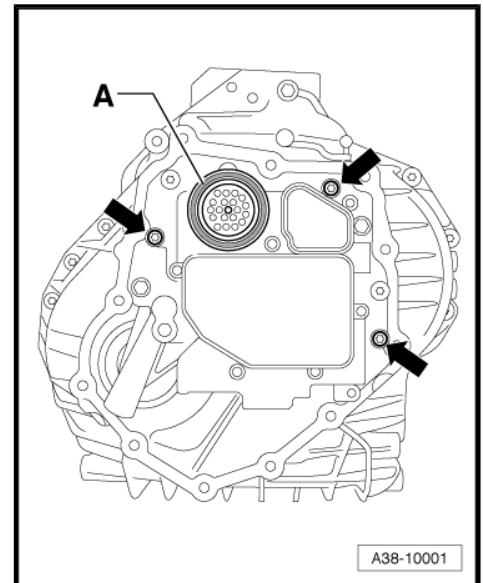
Renew oil seals, seals/gaskets and bolts for end cover.





Vehicles with wiring harness with round connector:

- Slide new twin-lip seal -A- onto connector of automatic gearbox control unit - J217- , with twin lips facing outwards.

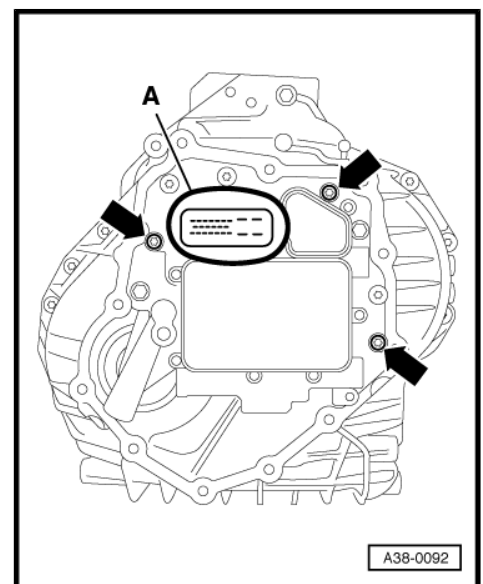


Vehicles with wiring harness with oval connector:

- Slide new twin-lip seal -A- onto connector of automatic gearbox control unit - J217- , with twin lips facing outwards.

Both versions:

- Clean sealing surfaces on gearbox housing and end cover.
- If any dowel sleeves were removed from gearbox housing or cover, these must be re-fitted in same places.



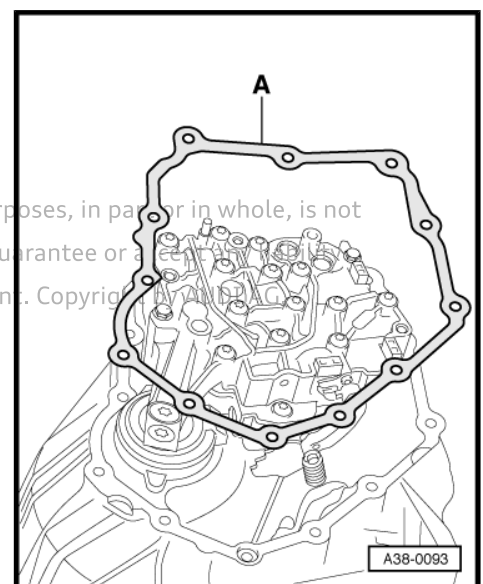
- Place new gasket for end cover -A- onto gearbox housing.



Note

Make sure dowel sleeves are correctly seated.

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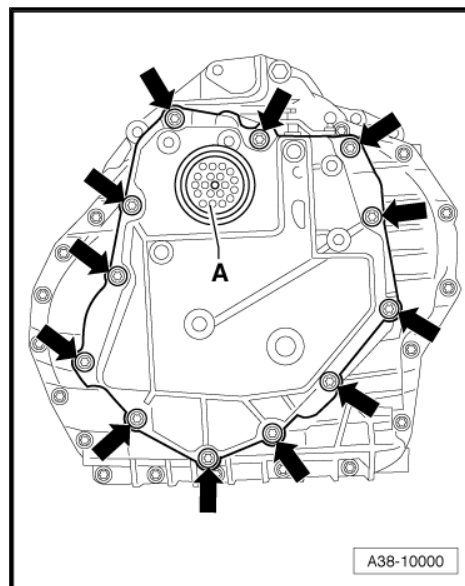




- Fit end cover and make sure that gasket does not move out of position.
- Fit new bolts -arrows-: tighten crosswise hand-tight to start with and then tighten to specified torque (see table on [⇒ page 26](#)).
- Check installation position of twin-lip seal -A-:
 - Twin-lip seal must be flush fitted (the sealing lips must not be kinked).
- Carefully check installation position of twin-lip oil seal -A-: It must be flush (twin-lips must not fold over).
- After installing gearbox, fill up ATF after repair and check ATF level ⇒ multitronic 01J, front-wheel drive; Rep. gr. 37 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 37 .

Tightening torques

Component	Nm
End cover to gearbox	15 + 90° 1)2)3)
• 1) Renew bolts. • 2) Tighten in diagonal sequence. • 3) 90° is equivalent to a quarter turn	



1.3 Removing and installing automatic gearbox control unit - J217-



Note

- ◆ *Observe the general repair instructions ⇒ [page 1](#) .*
- ◆ *Rules for cleanliness when working on the automatic gearbox ⇒ [page 4](#)*



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Removing

Gearbox installed in vehicle:

- Remove end cover ⇒ multitronic 01J, front-wheel drive; Rep. gr. 38 or ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 38 .

Gearbox removed:

- Remove end cover
⇒ ["1.2 Removing and installing end cover \(gearbox removed\)"](#),
[page 23](#) .

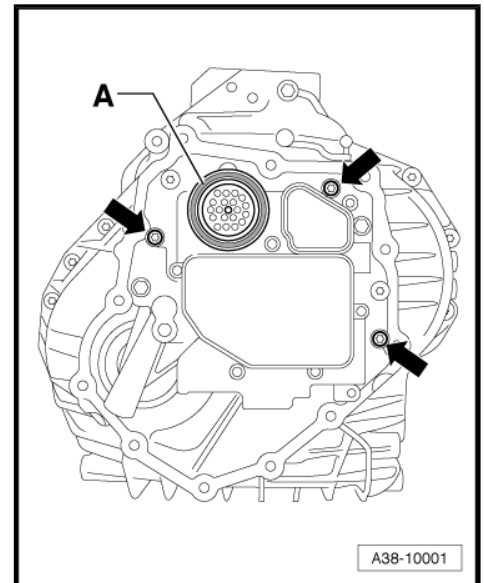
Both versions:

- Unscrew bolts -arrows- and pull out automatic gearbox control unit - J217- , taking care not to tilt it.
- Take twin-lip seal -A- off automatic gearbox control unit - J217- .



Note

Take care that control unit senders are not damaged when placing automatic gearbox control unit - J217- to side.



Installing

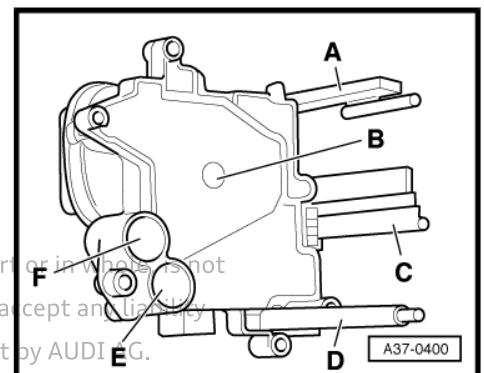
Installation is carried out in reverse sequence; note the following:



Note

Renew gaskets and O-rings.

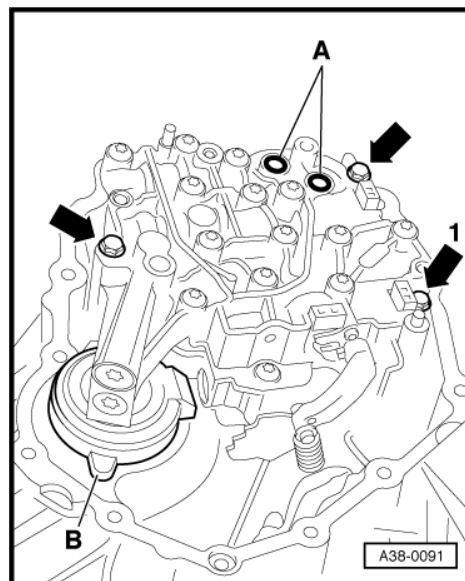
- Clean senders -A-, -C- and -D- to remove dirt and metal particles if necessary.
- Clean selector shaft ⇒ [page 30](#) .



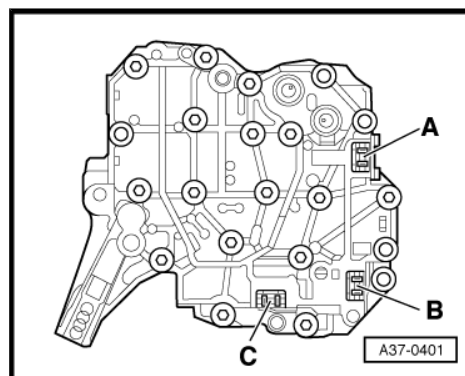
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- Before fitting automatic gearbox control unit -J217- , lubricate new O-rings -A- on hydraulic control unit with ATF.



- Bring automatic gearbox control unit - J217- into position, taking care not to tilt it.
- Connectors -A-, -B- and -C- on reverse side of control unit must plug into the hydraulic control unit.



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- Tighten bolts -arrows-.

Gearbox installed in vehicle:

- Install end cover ⇒ multitronic 01J, front-wheel drive; Rep. gr. 38 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 38 .

Gearbox removed:

- Install end cover
⇒ [“1.2 Removing and installing end cover \(gearbox removed\)”](#),
[page 23](#) .

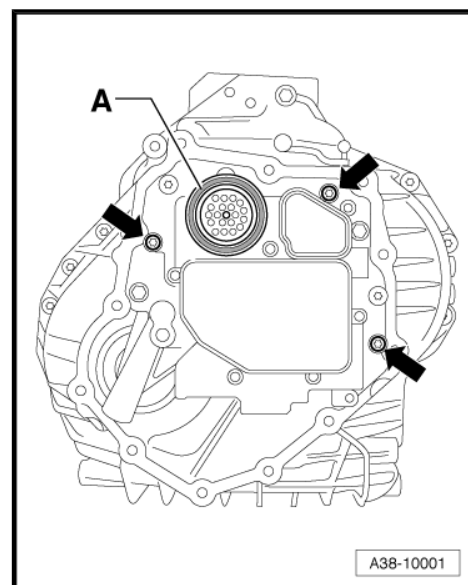
Tightening torque

Component	Nm
Automatic gearbox control unit - J217- to hydraulic control unit	10

After connecting the automatic gearbox control unit - J217- you must carry out the following steps:

- Encode the new automatic gearbox control unit - J217- .
- Adapt the automatic gearbox control unit - J217- .

To do so, use vehicle diagnostic, testing and information system - VAS 5051B- .



Caution

Before driving the vehicle, check the following points after renewing the automatic gearbox control unit - J217- to prevent damage to the gearbox:

- ◆ *Check the repair history of the vehicle to see whether the number of friction plates on the gearbox input shaft was changed from 6 to 7.*
- ◆ *If this is the case, use the vehicle diagnostic, testing and information system - VAS 5051B- to check whether update programming needs to be performed on the automatic gearbox control unit - J217- .*
- ◆ *Gearbox components will be damaged if update programming is necessary but is not carried out.*
- ◆ *Gearbox components will be damaged if update programming is not necessary but is carried out nevertheless.*

Checking whether update programming is required in the automatic gearbox control unit - J217- :

- Vehicle diagnostic, testing and information system - VAS 5051B- must be connected.
- Using the vehicle diagnostic, testing and information system - VAS 5051B- , start the vehicle-specific **Guided Functions**.
- Select the vehicle
- Select the following in the functions:

Line to be selected
02 - Gearbox electronics 01J or 02 - Gearbox electronics 0AN
J217 - Gearbox control unit for multitronic, functions
J217 - multitronic, update programming



Note

This vehicle diagnostic, testing and information system - VAS 5051B- procedure ensures that update programming in the automatic gearbox control unit - J217- is only implemented when required.

- If necessary, perform update programming in the automatic gearbox control unit - J217- .

1.4 Cleaning selector shaft



Note

- ♦ Observe the general repair instructions ⇒ [page 1](#) .
- ♦ Rules for cleanliness when working on the automatic gearbox ⇒ [page 4](#)

Procedure

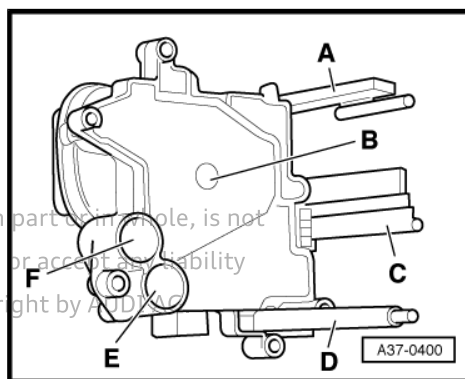
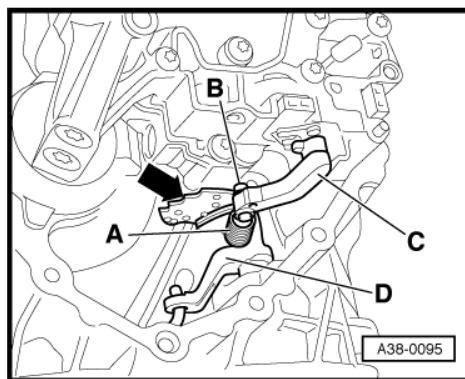
- Remove end cover ⇒ multitronic 01J, front-wheel drive; Rep. gr. 38 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 38 .
- Remove automatic gearbox control unit - J217- ⇒ [page 26](#) .
- Clean selector shaft detent -arrow-. Use lint-free cloths. When doing so, take particular care to remove metal swarf or the like from the contact surfaces of the magnets.



Note

Make sure that spring -A- and roller -B- are properly secured.

- Check roller -B- and spring -A- for damage; renew if necessary.
- Clean senders -A-, -C- and -D- to remove dirt and metal particles if necessary.
- Install automatic gearbox control unit - J217- ⇒ [page 26](#) .
- Install end cover ⇒ multitronic 01J, front-wheel drive; Rep. gr. 38 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 38 .



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1.5 Removing and installing hydraulic control unit



Note

- ◆ Observe the general repair instructions ➔ [page 1](#) .
- ◆ Rules for cleanliness when working on the automatic gearbox ➔ [page 4](#)
- ◆ Always renew contaminated or defective hydraulic control units.

Removing

- Remove end cover ➔ multitronic 01J, front-wheel drive; Rep. gr. 38 , ➔ multitronic 0AN, front-wheel drive; Rep. gr. 38 .
- Remove automatic gearbox control unit - J217- ➔ [page 26](#) .

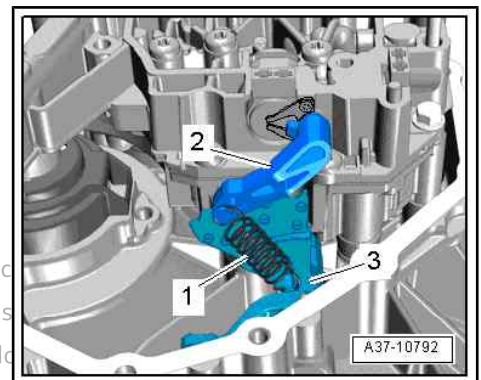


Caution

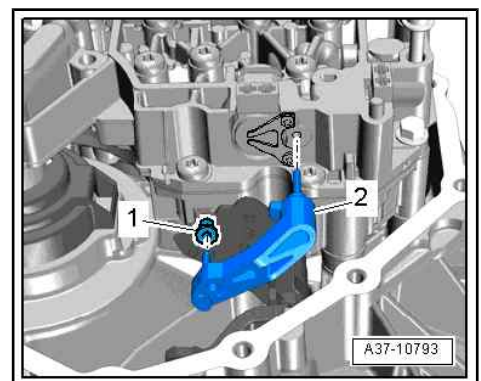
Risk of damage to spring.

Do not use sharp pliers or similar when inserting or removing spring.

The detent for the selector shaft will no longer function properly if the wire of the spring is damaged by incision or kinking.



- Unhook spring -1- from lever for selector shaft detent -2- and from selector shaft -3-.
- Pull lever for selector shaft detent -2- downwards out of hole in housing of hydraulic control unit. Pay attention to the roller -1- when doing this.





- Loosen bolts -arrows- and detach hydraulic control unit.



Caution

Never lift or suspend the hydraulic control unit by the long pump shaft on its rear side, otherwise the vanes inside the vane pump will be distorted and the pump will be damaged.



Note

Items -A and B- can be disregarded.

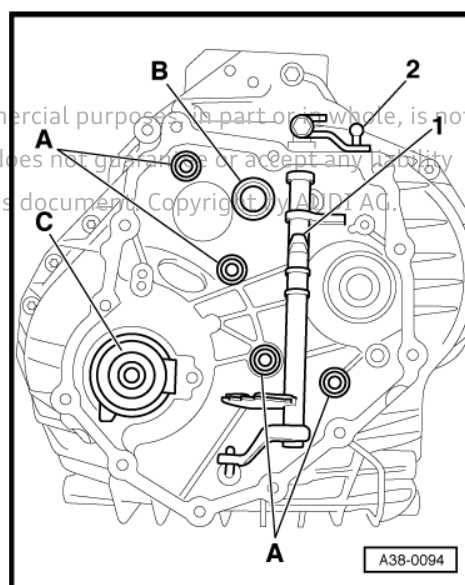
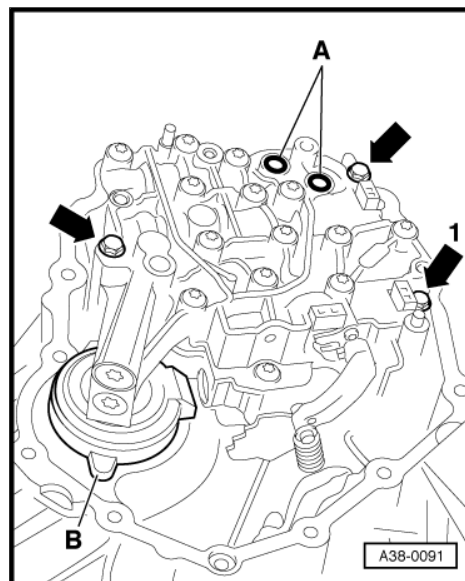


- Remove axial sealing elements -A- and -B- from gearbox.

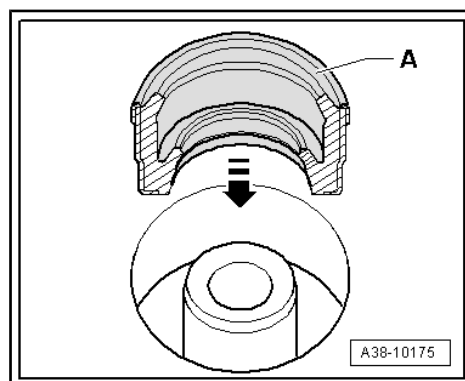
Installing

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

- Renew gaskets and O-rings.
- Renew axial sealing elements -A- (4x) and -B-.

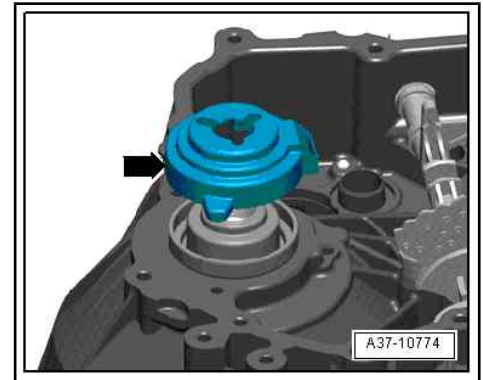


- Installation position: axial sealing elements -A- must be inserted with sealing lips facing upwards, as shown in sectional illustration.
- Coat axial sealing elements with ATF and insert in direction of -arrow-.

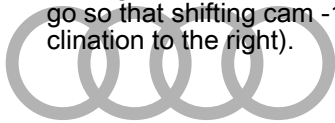




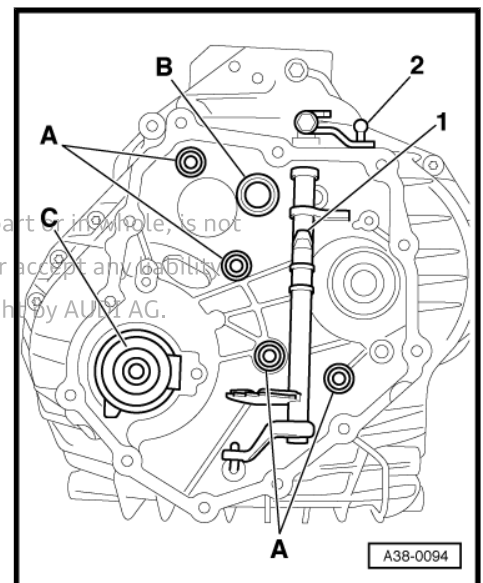
- Fit cover -arrow- on sender wheel "II".
- The locating element on the back of the cover must be inserted in the small hole on the surface of the gearbox.



- Push gearbox selector lever -2- anti-clockwise as far as it will go so that shifting cam -1- is almost vertical (with a slight inclination to the right).



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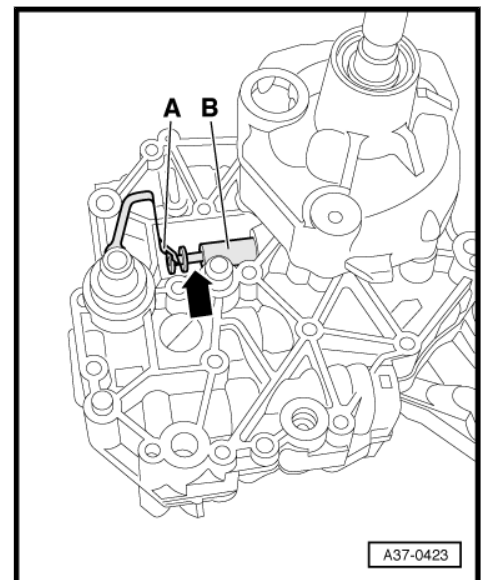


- Push control piston -B- on reverse side of hydraulic control unit all the way inwards (to the left) until it clips into securing spring -A-.
- Insert hydraulic control unit into gearbox. Align unit properly without tilting.



Note

When fitting the hydraulic control unit, make sure the shifting cam (-item 1- in illustration A38-0094 ➔ [page 33](#)) engages in the vacant groove -arrow- on the control piston -B-.





- Screw in bolts -arrows- hand-tight. One bolt -arrow 1- is shorter than the other two.
- Check that cover is correctly seated.
- The locating element -B- must be inserted in the hole provided on the gearbox.

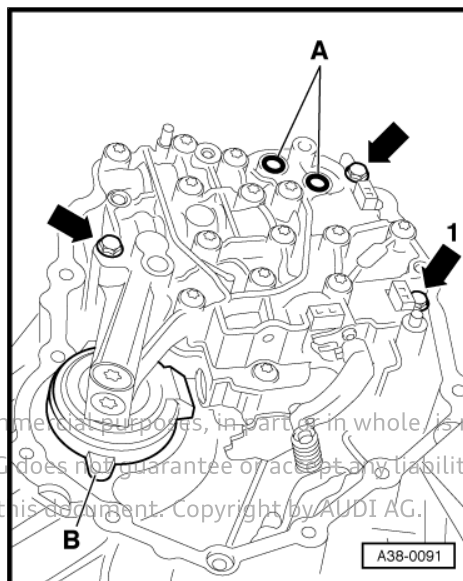


Note

Disregard -item B-.

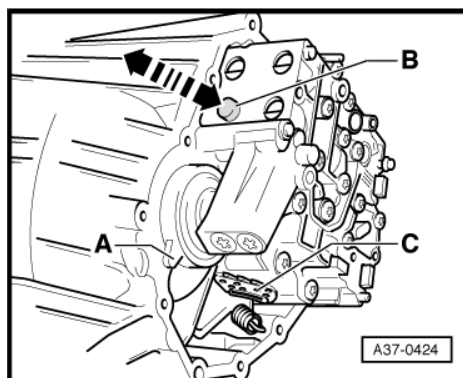


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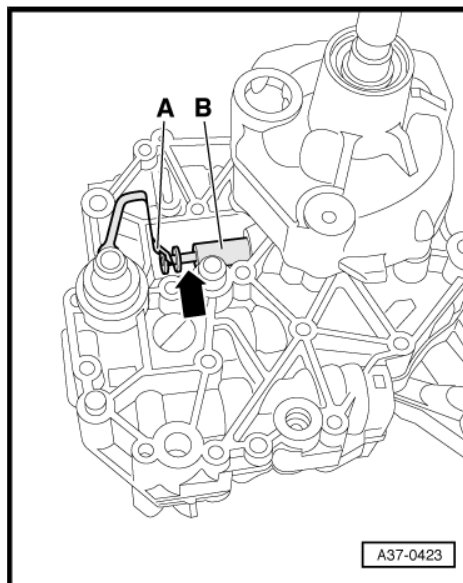
Checking operation of control piston

- Repeatedly turn selector shaft in both directions by moving either detent plate -C- or gearbox selector lever.
- The control piston -B- should travel in and out accordingly -arrow-.



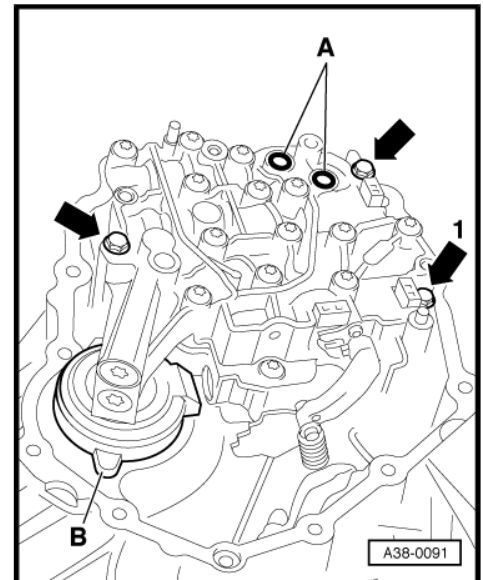
If control piston fails to move this means that shifting cam has not engaged in groove -arrow- of control piston on reverse side of hydraulic control unit. In that case:

- Detach hydraulic control unit again and re-install.





- Tighten bolts -arrows-.



Installing lever for selector shaft detent

- Push roller -1- onto lever for selector shaft detent (with collar facing lever for selector shaft detent).
- Push lever for selector shaft detent into hole in housing of hydraulic control unit.

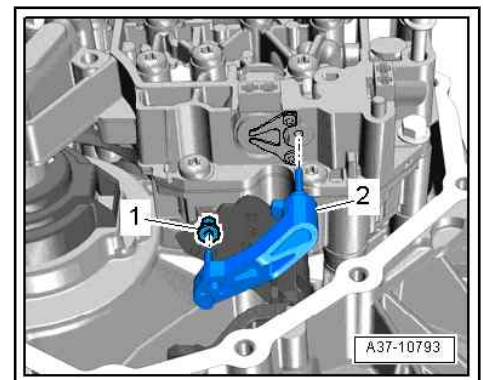


Caution

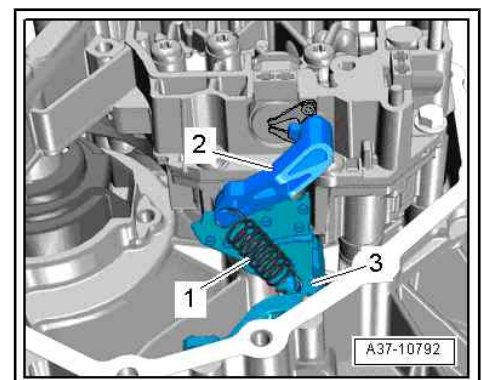
Risk of damage to spring.

Do not use sharp pliers or similar when inserting or removing spring.

The detent for the selector shaft will no longer function properly if the wire of the spring is damaged by incision or kinking.



- Hook spring -1- into selector shaft -3- and lever for selector shaft detent -2-.



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Note

For illustration purposes, the gearbox is shown without hydraulic control unit.

- Shift gearbox selector lever -2- all the way to the front then all the way to the back:

- The detent plate -arrow- moves backward and forward.
- As it moves, the roller -B- should be able to engage in the individual notches one-by-one.
- Lever for selector shaft detent -C- should follow the step movement backwards and forwards.
- Roller must be installed with the collar pointing downward, so that it cannot be pulled off upwards.
- Clean selector shaft ⇒ [page 30](#) .
- Install automatic gearbox control unit - J217- with new O-rings ⇒ [page 26](#) .
- Install end cover ⇒ multitronic 01J, front-wheel drive; Rep. gr. 38 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 38 .
- Fill up with ATF ⇒ [page 9](#) .
- After installing gearbox, check and correct ATF level ⇒ multitronic 01J, front-wheel drive; Rep. gr. 37 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 37 .

If hydraulic control unit has been renewed, carry out the following additional steps:

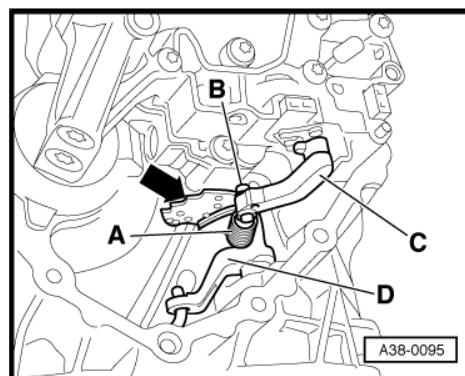
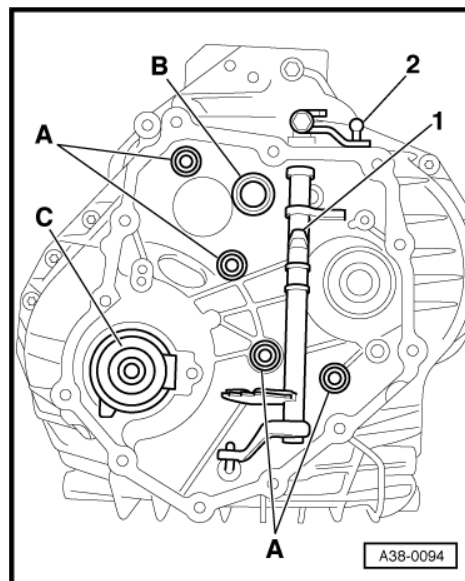
- Adapt the automatic gearbox control unit - J217- .
- Road-test vehicle.

To do so, use vehicle diagnostic, testing and information system - VAS 5051B- .

- Vehicle diagnostic, testing and information system - VAS 5051B- must be connected to vehicle.
- Using the vehicle diagnostic, testing and information system - VAS 5051B- , start the vehicle-specific Guided Functions.
- Select 02 - Gearbox electronics and run test program 02 - Replace hydraulic control unit.

Tightening torque

Component	Nm
Hydraulic control unit to gearbox housing	10



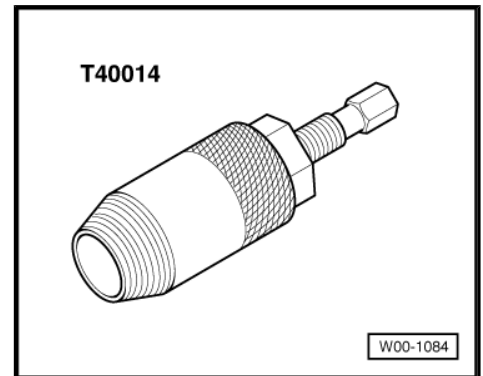


1.6 Renewing oil seal for input shaft

- ◆ If ATF emerges at underside of gearbox housing, input shaft oil seal and/or ATF breather pipe may be leaking. The actual cause of the leak must be determined before renewing any components.
- ◆ If leaking, the input shaft oil seal must be renewed.
- ◆ The ATF breather pipe must be renewed if leaking
⇒ [page 19](#) .

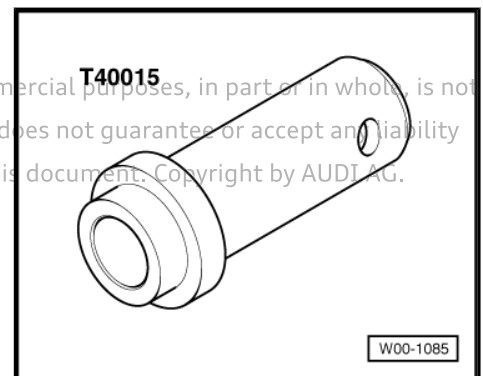
Special tools and workshop equipment required

- ◆ Oil seal extractor - T40014-



- ◆ Thrust piece - T40015-

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Procedure



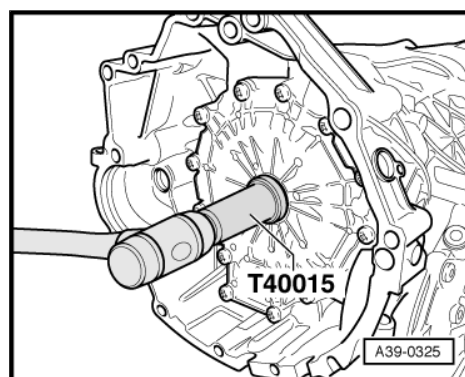
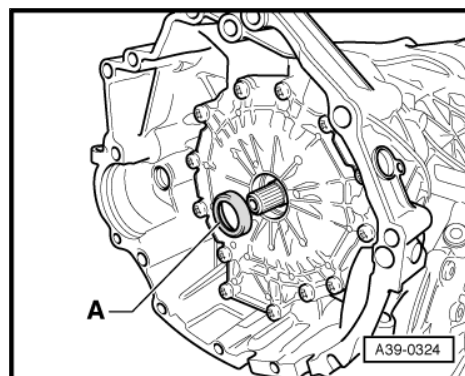
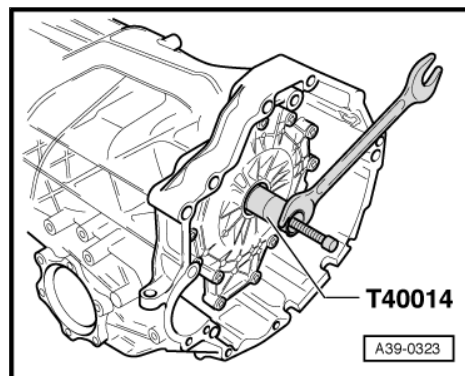
Note

- ◆ *Observe the general repair instructions ⇒ [page 1](#) .*
- ◆ *Rules for cleanliness when working on the automatic gearbox ⇒ [page 4](#)*
- Gearbox removed
- Screw oil seal extractor - T40014- into oil seal by hand until tool grips securely in seal. Then tighten tool using an open-end spanner.
- Screwing in the rear bolt of the oil seal extractor will allow you to pull the oil seal out a little.
- Then tighten again using open-end spanner so that oil seal extractor - T40014- once more engages securely in oil seal. Screw in the rear bolt of the extractor once more to pull the oil seal out a little further.
- Repeat procedure until oil seal is pulled out all the way.
- The input shaft must be installed in the gearbox when installing the oil seal.
- Lubricate new oil seal -A- with ATF.
- Carefully slide oil seal onto input shaft with open side facing gearbox (do not touch splines on shaft).



Note

- ◆ *Oil seal can be damaged if it touches splines on input shaft.*
- ◆ *Push oil seal as far as possible into cover to ensure that it remains straight when driving in.*
- Use thrust piece - T40015- to drive home oil seal.
- Fill up with ATF ⇒ [page 9](#) .
- After installing gearbox, check and correct ATF level ⇒ multitronic 01J, front-wheel drive; Rep. gr. 37 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 37 .

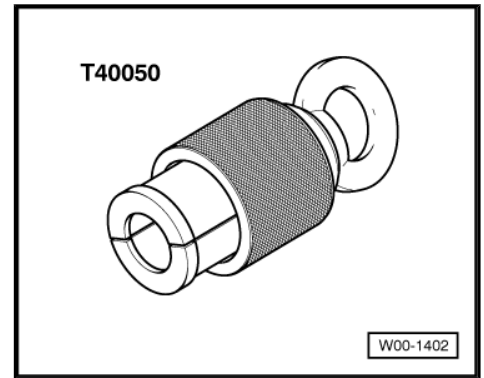


1.7 Removing and installing input shaft

Special tools and workshop equipment required



◆ Puller - T40050-



Removing

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Note

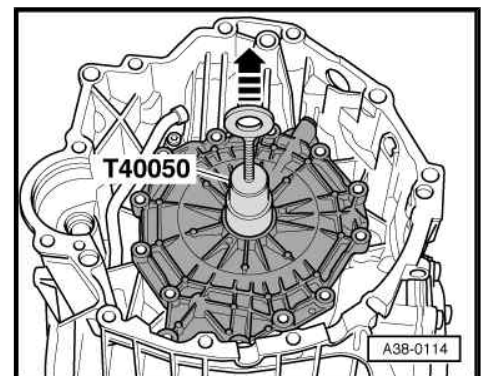
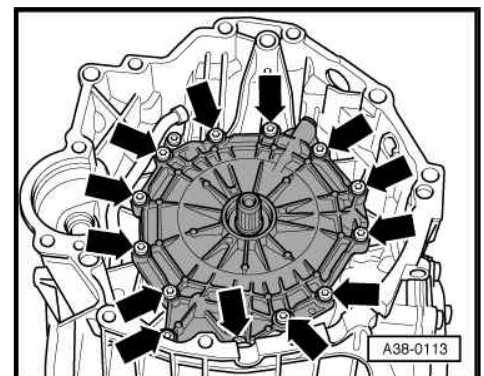
- ◆ *Observe the general repair instructions ➔ [page 1](#).*
- ◆ *Rules for cleanliness when working on the automatic gearbox ➔ [page 4](#)*
- Gearbox removed and mounted on assembly stand in vertical position ➔ [page 14](#).
- Drain ATF ➔ [page 8](#). To do so, swivel gearbox into installation position (horizontal).



Note

Gearbox must not be turned such that flange points downwards.

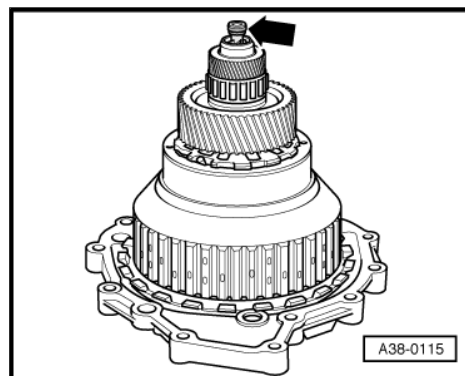
- Remove bolts -arrows-.
- Using a plastic hammer, carefully knock cover for input shaft to separate it from gasket.
- Apply puller - T40050- to input shaft.
- Check that puller - T40050- is positioned securely on input shaft.
- The circlip must be pushed all the way down.
- Pull input shaft together with cover and forward clutch out of gearbox housing -arrow- using puller - T40050-.





Caution

- ◆ *Do not put down input shaft on the protruding oil pipe -arrow-, as oil pipe would then become damaged.*
- ◆ *A damaged oil pipe will cause problems when moving off from a standstill or complete gearbox failure.*

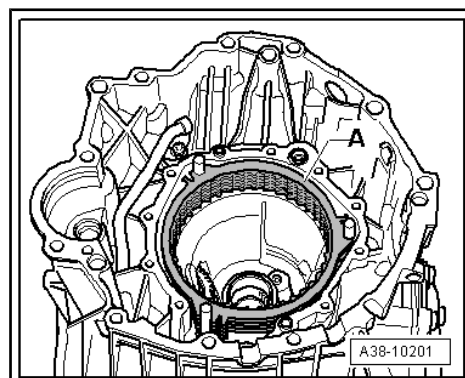


- Remove reverse gear clutch -A- ➔ [page 53](#) .

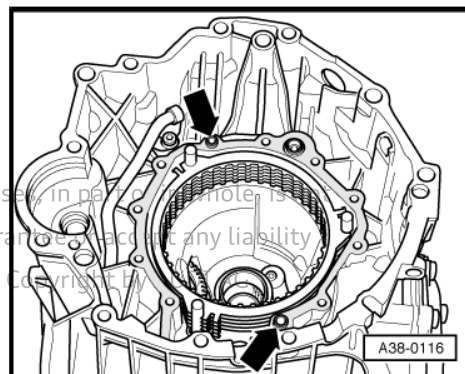
Installing

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

- Assess wear on gearbox components ➔ [page 142](#) .
- Clean sealing surfaces on gearbox housing and input shaft cover.
- Adjust and install reverse gear clutch -A- ➔ [page 53](#) .



- Check that all dowel sleeves -arrows- (for locating input shaft cover on gearbox housing) are securely fitted.



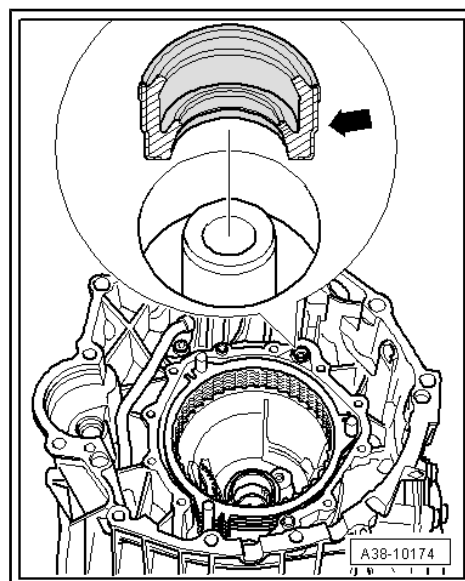
- Renew axial sealing element -arrow-.



Note

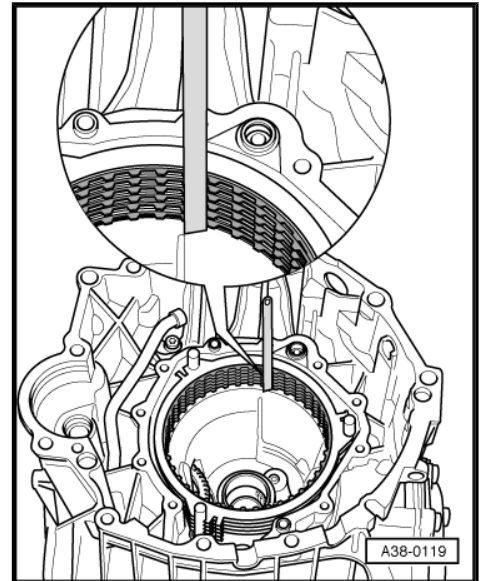
A sectional view of the axial sealing element is shown in order to illustrate the installation position.

- Installation position of axial sealing element: sealing lips face upwards towards input shaft cover.
- Place new paper gasket in position.





- Align plates of reverse gear clutch using a straight-edge or similar.
- The teeth must be set exactly in line.



- Check position of oil pipe -arrow- :
- With oil pipe fully inserted, distance -a- from end of oil pipe to input shaft should be 11.5 mm.

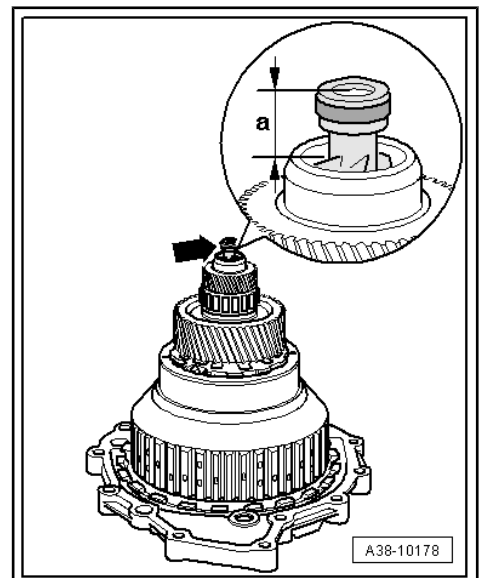
If the distance is less, the oil pipe may be damaged (the end could have broken off if the oil pipe was pushed in too far).

If the distance is larger, the oil pipe is not pushed in far enough.



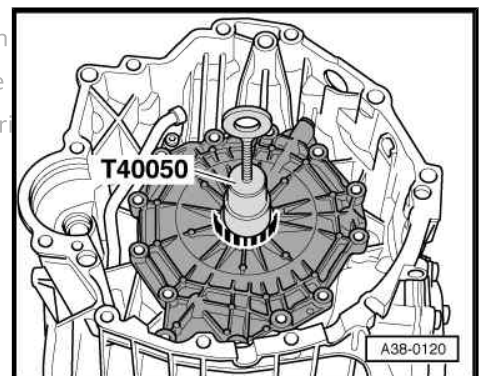
Caution

- ◆ *Do not put down input shaft on the protruding oil pipe -arrow-, as oil pipe would then become damaged.*
- ◆ *A damaged oil pipe will cause problems when moving off from a standstill or complete gearbox failure.*



- Insert complete input shaft assembly in gearbox housing.

- When doing this, rotate input shaft slightly in both directions -arrow- until all reverse gear clutch plates have engaged. Also lift input shaft slightly at the same time.
- Just before the input shaft is fully in position, rotate it anti-clockwise over the last few millimetres so that it engages in the teeth of the helical intermediate gearing.

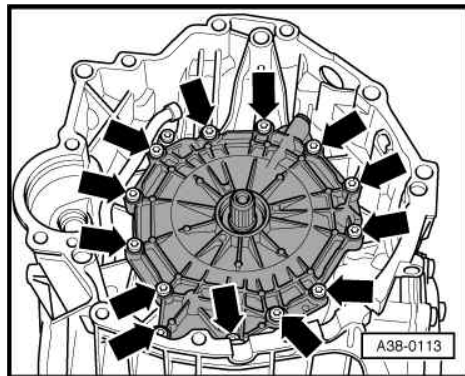




- Tighten new bolts -arrows- diagonally in stages.
- Fill up with ATF ⇒ [page 9](#) .
- After installing gearbox, check and correct ATF level ⇒ multitronic 01J, front-wheel drive; Rep. gr. 37 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 37 .

Tightening torque

Component	Nm
Input shaft cover to gearbox housing • Renew bolts	25



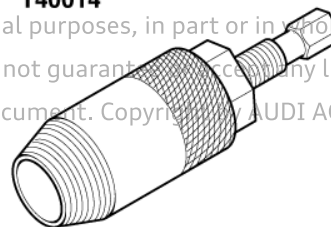
1.8 Removing and installing input shaft cover

Special tools and workshop equipment required

- ◆ Oil seal extractor - T40014-

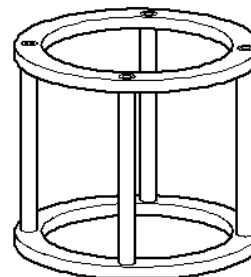
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T40014



- ◆ Thrust piece -T40099-

T40099

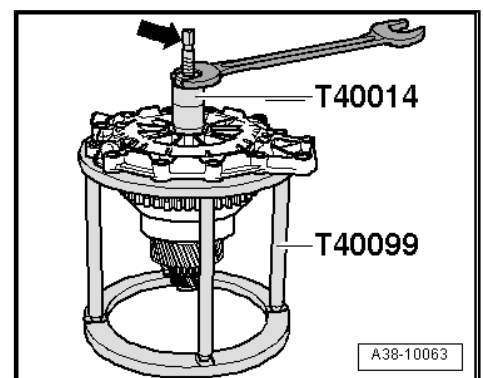
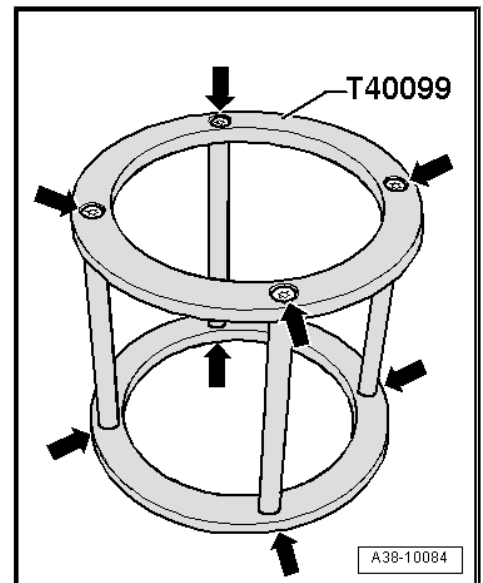
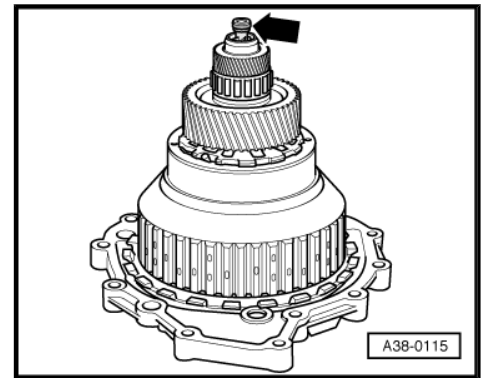


- ◆ Ice spray
- ◆ Protective gloves
- ◆ Safety goggles



Removing

- Input shaft is removed ⇒ [page 38](#)
- Pull out oil pipe -arrow- upwards so as to avoid damage.
- Check all 8 bolts -arrows- of thrust piece -T40099- .
- Bolts should have been screwed in flush to 25 Nm ⇒ Assembly instructions for thrust piece -T40099- .
- Place input shaft in thrust piece -T40099- .
- Screw oil seal extractor - T40014- into oil seal by hand until tool grips securely in seal. Then tighten tool using an open-end spanner.
- Screwing in the rear bolt -arrow- will allow you to pull the oil seal out a little.
- Then re-apply the open-ended wrench so that the oil seal extractor - T40014- firmly engages in the oil seal again and screw in the bolt to further extract the seal.
- Repeat procedure until oil seal is pulled out all the way.



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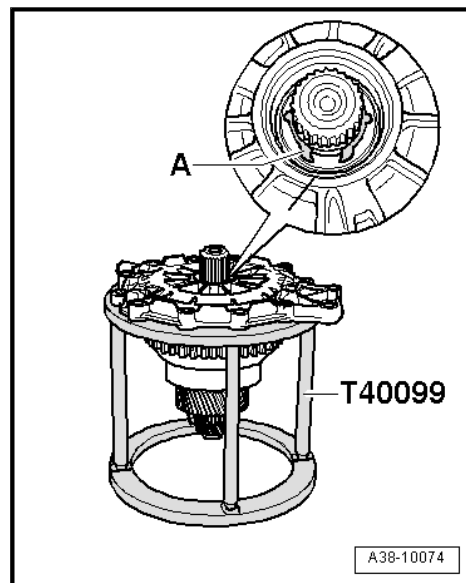


- Remove retaining ring from input shaft cover -A-.
- Measure and note down thickness of circlip once removed.

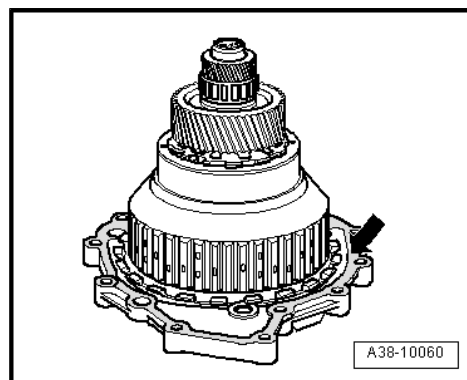


Note

When installing ball bearing, replace circlip with a new one of the same thickness.



- Clean sealing surface -arrow- of cover.



WARNING

Risk of burns

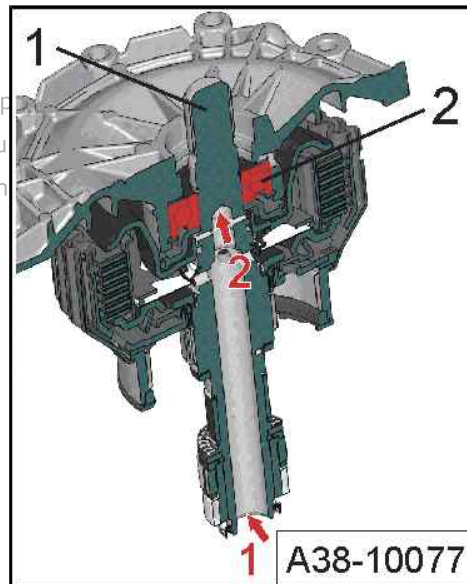
Wear protective gloves and safety goggles!

- Cool inside of hollow shaft -1- at seat -arrow 2- of bearing “A” -item 2- in illustration (ball bearing for input shaft), e.g. by applying ice spray through opening -arrow 1- left by removing oil pipe.



Note

- ◆ The illustration shows a sectional view of the shaft.
- ◆ The shaft has to be cooled so that cover and bearing “A” -item 2- (ball bearing for input shaft) can be pressed off more easily without damage.





- Clean surface of thrust piece -T40099- .
- Place input shaft in thrust piece -T40099- .
- Sealing surface of input shaft should be seated flush on the thrust piece.
- Make sure no objects (such as cable ties or dirt) are trapped between sealing surface of input shaft and surface of thrust piece -T40099- .



Caution

Metal particles or dirt will damage the sealing surface of the cover when pressing off and the cover will then have to be renewed.

- In addition, cool the shaft from the outside -arrow- e.g. with ice spray.



Note

The shaft must be cooled to facilitate pressing off of the cover with bearing "A" (ball bearing for input shaft) and to prevent damage.

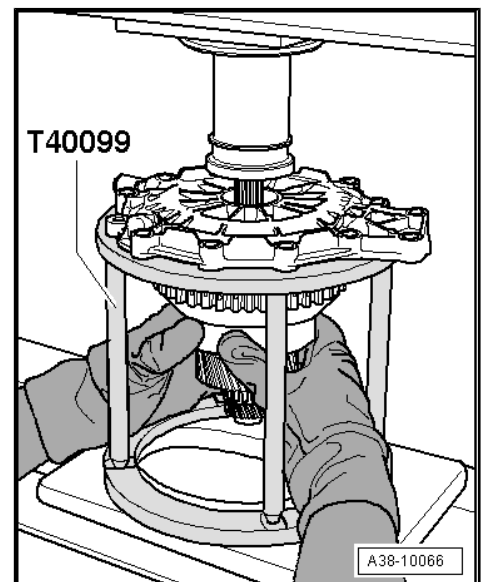
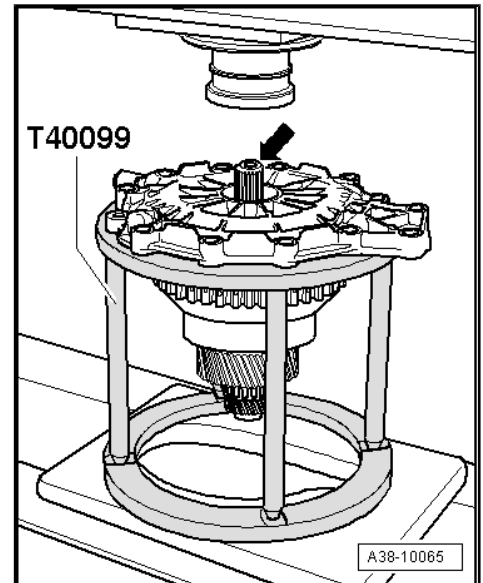
- Place input shaft together with thrust piece -T40099- on thrust plate of hydraulic press.



Note

The thrust piece -T40099- should rest as firmly as possible on the hydraulic press.

- Hold shaft from underneath and at the same time use hydraulic press to press shaft out of cover.



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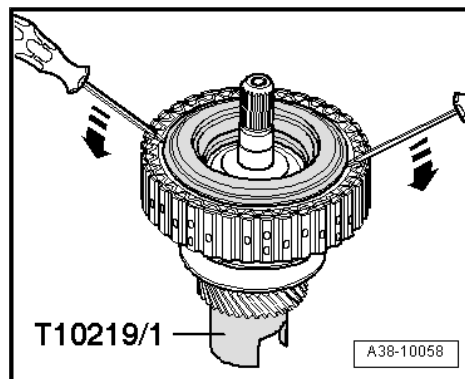


- Set down input shaft on assembly tool -T10219/1- .



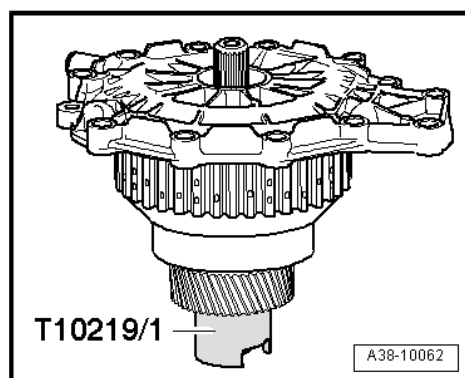
Note

Screwdriver and arrows can be disregarded.



Installing

- Renew bearing “A” (ball bearing for input shaft) in input shaft cover ➤ [page 48](#) .
- Place input shaft cover on input shaft and press on as far as possible by hand.



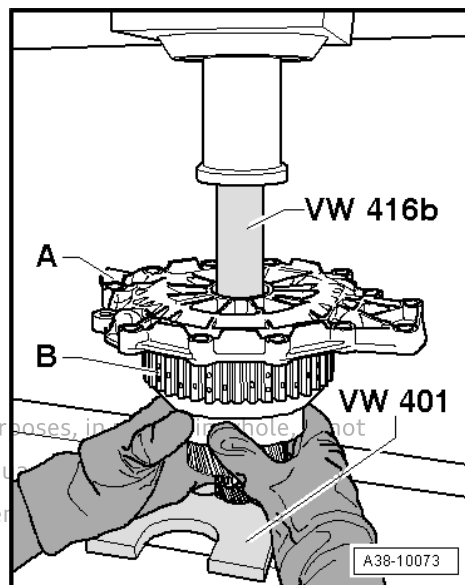
- Place input shaft -B- on thrust plate - VW 401- .



Caution

Take care to keep the input shaft straight and aligned centrally when positioning it beneath the press tool of the hydraulic press, as the input shaft may otherwise tilt to one side when pressure is applied to the cover.

- Use hydraulic press and tube - VW 416 B- to press input shaft cover -A- all the way home on the input shaft.



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Fitting retaining ring for input shaft cover

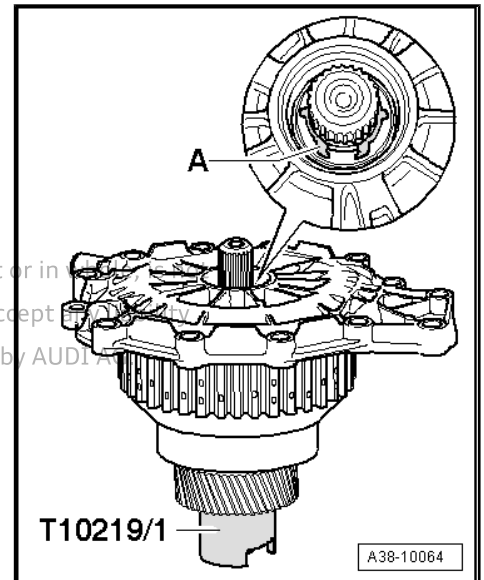
- Replace retaining ring -A- with a new one of the same thickness when installing.



Note

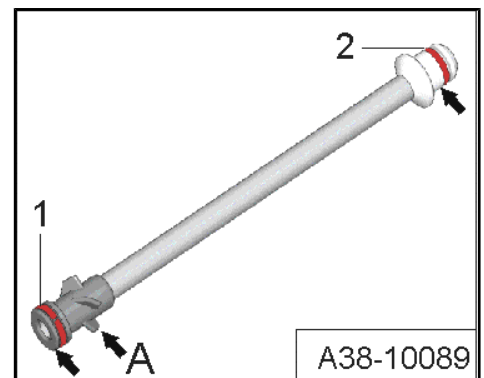
Check that retaining ring is seated properly.

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Installing oil pipe

- Assess wear on gearbox components ➔ [page 142](#) .
- Renew O-ring -2- on oil pipe.
- The oil pipe is pressed into the input shaft with the O-ring -2- first.
- You should feel oil pipe engage. Rotor vanes -arrow A- on oil pipe should be completely inside input shaft.



- Press oil pipe -arrow- down into input shaft as far as stop.
- With oil pipe fully inserted, distance from end of oil pipe to input shaft should be approx. 11.5 mm.

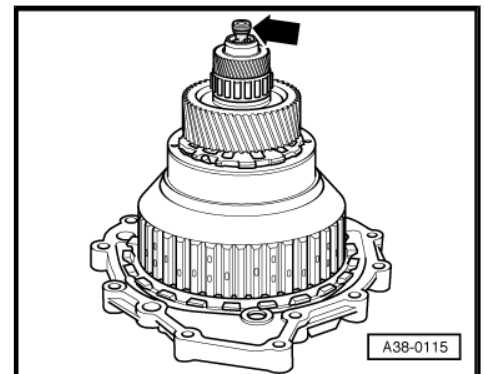
If the distance is less, the oil pipe may be damaged (the end could have broken off if the oil pipe was pushed in too far).

If the distance is larger, the oil pipe is not pushed in far enough.



Caution

- ◆ *Do not put down input shaft on the protruding oil pipe -arrow-, as oil pipe would then become damaged.*
- ◆ *A damaged oil pipe will cause problems when moving off from a standstill or complete gearbox failure.*





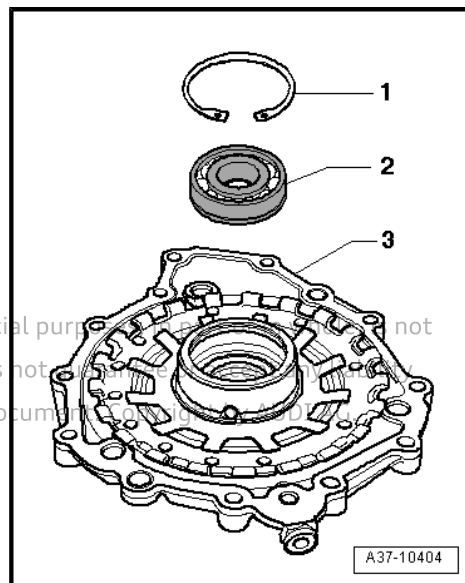
1.9 Renewing bearing "A" in input shaft cover

- Cover for input shaft is removed ⇒ [page 42](#) .

Exploded view

- 1 - Circlip; always measure and renew
- 2 - Bearing "A" (ball bearing for input shaft); always renew
- 3 - Input shaft cover

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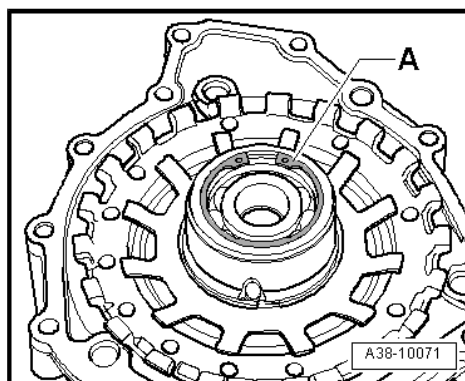
Removing

- Remove circlip -A-.
- Measure and note down thickness of circlip once removed.



Note

When installing ball bearing, replace circlip with a new one of the same thickness.

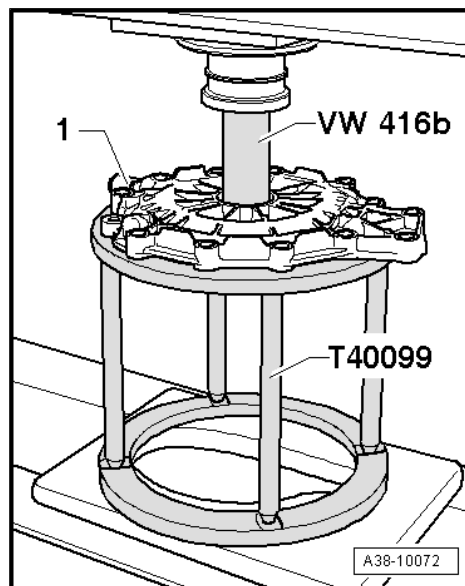


- Place input shaft cover -1- on thrust piece -T40099- and align underneath hydraulic press.
- Press bearing "A" (ball bearing for input shaft) out of input shaft cover using tube - VW 416 B- .



Note

- ◆ *In some cases, bearing "A" (ball bearing for input shaft) can be pressed out by hand without using the hydraulic press.*
- ◆ *The ball bearing must be renewed.*





Installing



Caution

Check the input shaft cover ➔ [page 145](#).

- If sealing surface or cover is damaged, renew input shaft cover.



Note

New input shaft covers are already fitted with a new bearing "A" (ball bearing for input shaft).

- If sealing surface and cover are not damaged, renew bearing "A" -item 2- (ball bearing for input shaft).
- Clean ball bearing seat in cover.

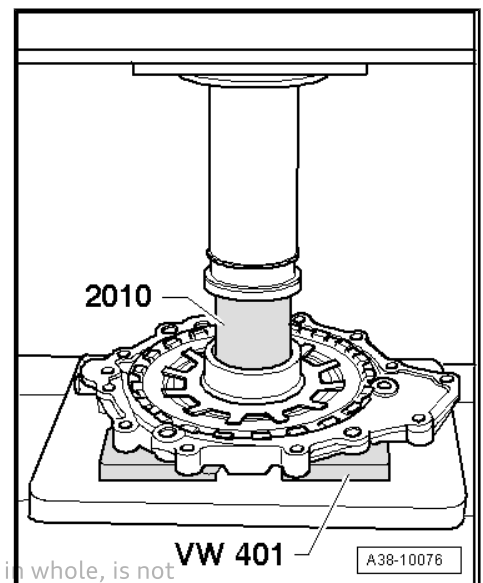
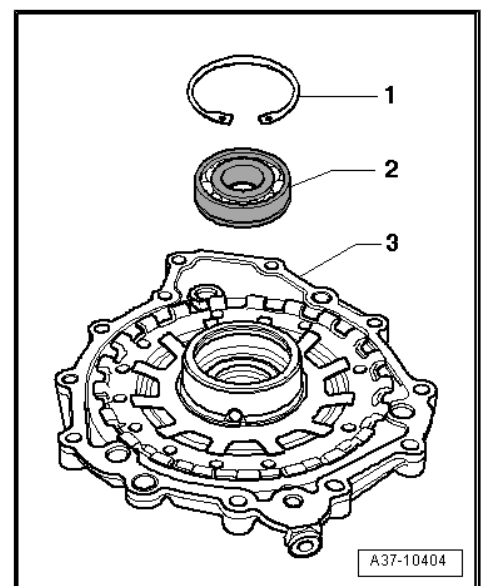
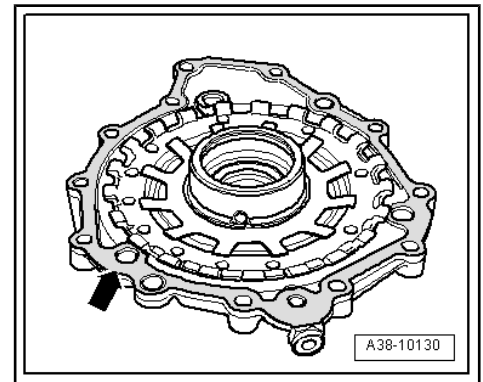


Caution

- *Note position of bearing "A" -item 2- (ball bearing for input shaft): Ball bearing cage must face downwards into cover. Open side of ball bearing must face upwards, i.e. balls in bearing must be visible when installing.*

- Fit ball bearing so that it is seated flush and then press in by hand straight and as far as possible.

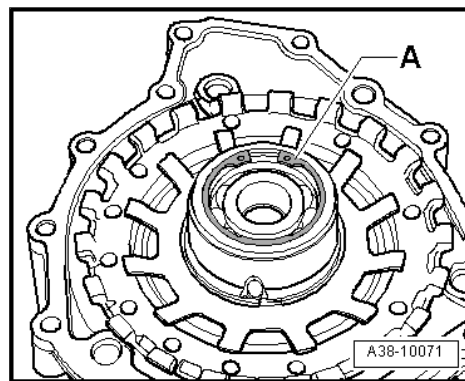
- Place input shaft cover on thrust plate - VW 401- .
- Press home using tube - 2010- .



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- Replace retaining ring -A- with a new one of the same thickness when installing.
- Check that circlip is seated correctly. If necessary, press in ball bearing further or use the next thinnest circlip.



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2 Servicing reverse gear clutch

1 - Corrugated washer

- ☐ Renew in the event of problems with the reverse gear clutch or if damaged

2 - Bottom shim

- ☐ Determining thickness "E₁" ➤ [page 53](#)
- ☐ The thickness of the bottom shim "E₁" must be at least 2.15 mm
- ☐ Renew in the event of problems with the reverse gear clutch or if damaged

3 - Friction plate

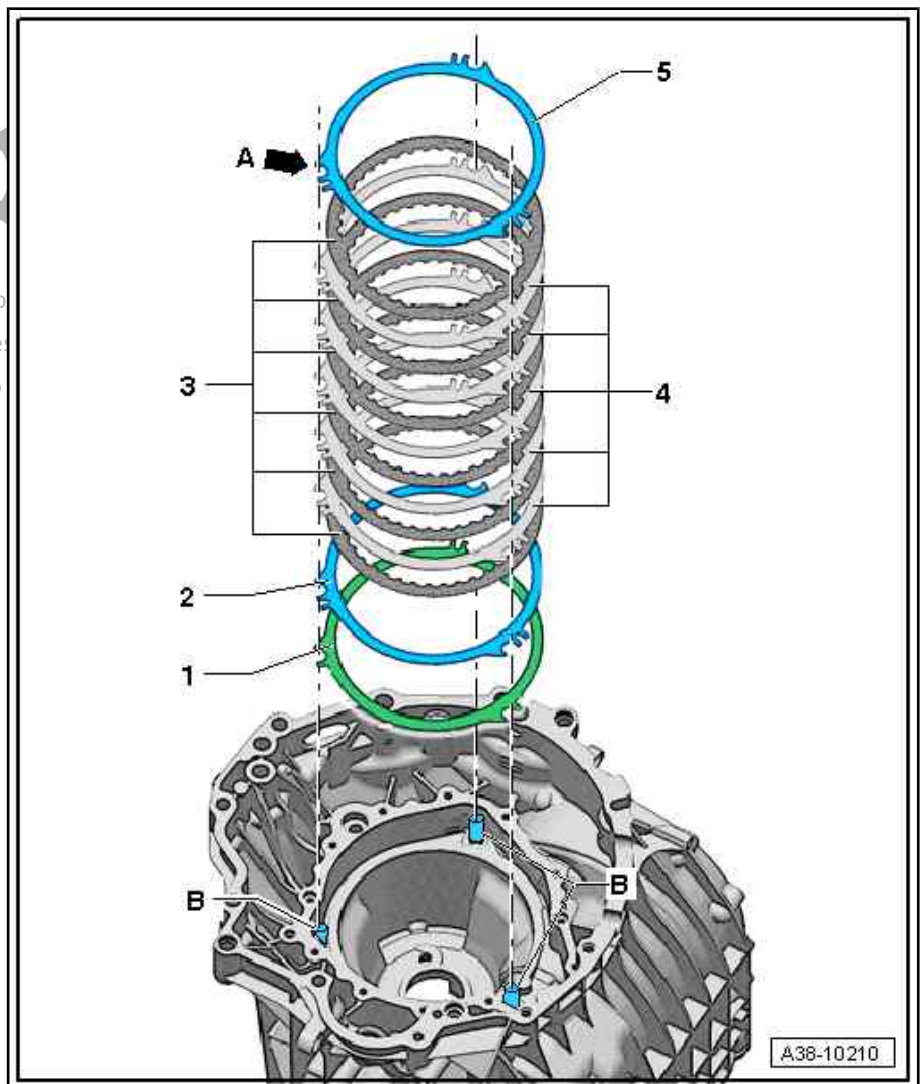
- ☐ 6x
- ☐ Renew in the event of problems with the reverse gear clutch or if damaged

4 - Outer plate

- ☐ 5x
- ☐ Renew in the event of problems with the reverse gear clutch or if damaged

5 - Top shim

- ☐ Determining thickness "E₂" ➤ [page 53](#)
- ☐ Renew in the event of problems with the reverse gear clutch or if damaged





2.1 Removing and installing reverse gear clutch

Removing



Note

- ◆ Observe the general repair instructions ⇒ [page 1](#) .
- ◆ Rules for cleanliness when working on the automatic gearbox ⇒ [page 4](#)
- Thoroughly clean all components prior to installation.
- Gearbox removed and mounted on assembly stand in vertical position ⇒ [page 14](#) .
- Remove input shaft ⇒ [page 38](#) .
- Take reverse gear clutch with corrugated washers -items 1 to 5- out of gearbox.
- Measure top shim -5- and bottom shim -2- and note down values.

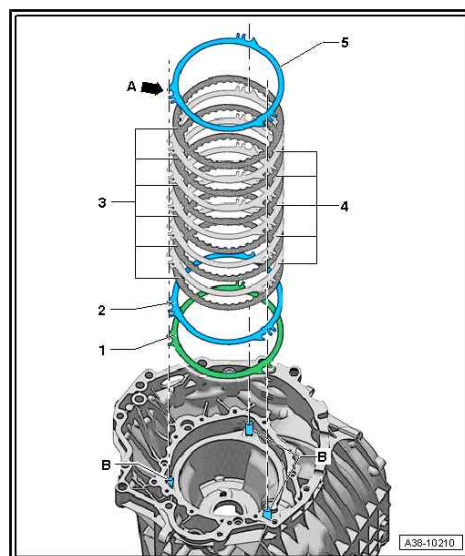
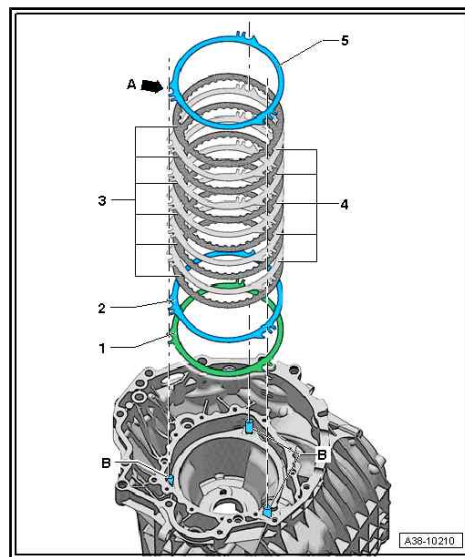


Note

The purpose of noting down the values for the originally fitted top shim -5- and bottom shim -2- is to provide a check/comparison for the newly determined shims as described below.

Installing

- Thoroughly clean all components prior to installation.
- Determine thickness of lower shim -2- and upper shim -5- ⇒ [page 53](#) .
- Fit corrugated washer -1- above guides -B-.
- Fit lower shim -2- of calculated thickness (thickness “E₁”) above guides -B-.
- Alternately insert first a friction plate -3- and then an outer plate -4- above guides -B-.
- Fit upper shim -5- of calculated thickness (thickness “E₂”) above guides -B-.



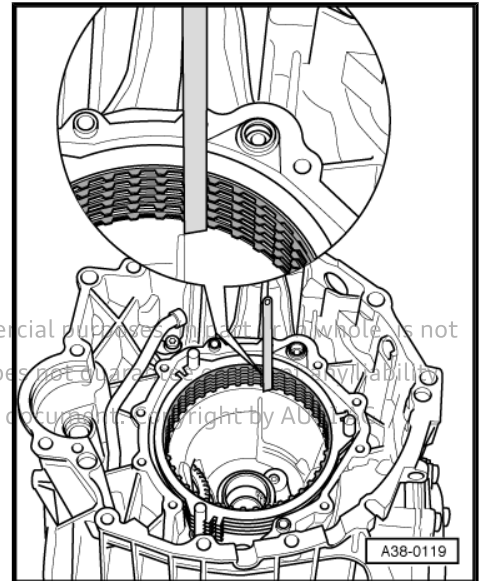
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- Align plates of reverse gear clutch using a straight-edge or similar.
- The teeth must be set exactly in line.
- Install input shaft ➤ [page 38](#) .



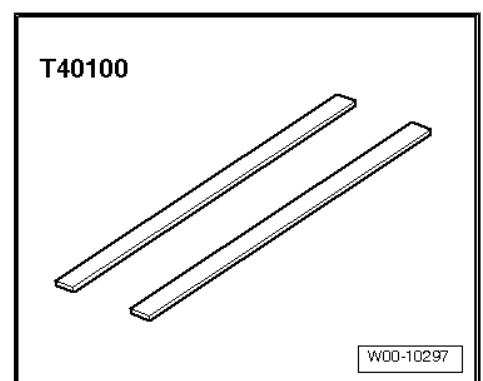
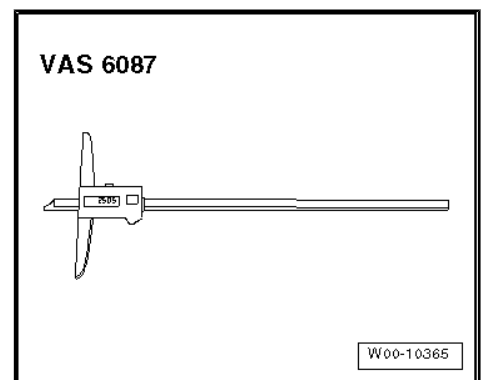
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2.2 Adjusting reverse gear clutch

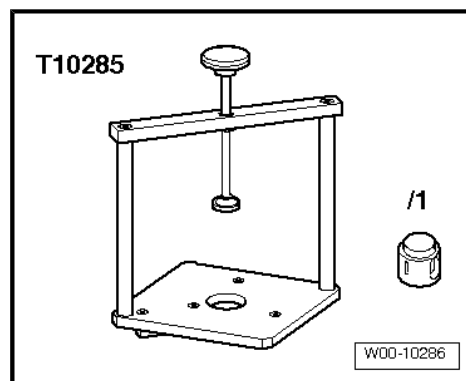
Special tools and workshop equipment required

- ◆ Digital depth gauge - VAS 6087-
- ◆ Digital caliper, 150 mm - VAS 6335-
- ◆ 2x ruler - T40100-





- ◆ Clean, flat measurement surface, e.g. compressor tool - T10285-



Adjusting reverse gear clutch by determining thickness of shims:



Note

- ◆ Observe the general repair instructions ⇒ [page 1](#) .
- ◆ Rules for cleanliness when working on the automatic gearbox ⇒ [page 4](#)

Requirements:

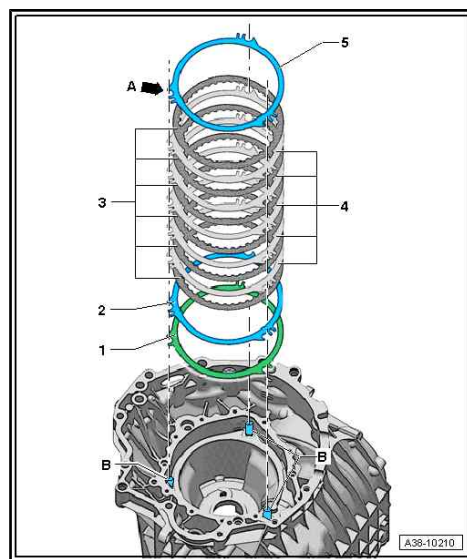
- Thoroughly clean all components prior to installation.
- Gearbox removed and mounted on assembly stand in vertical position ⇒ [page 14](#) .
- Reverse gear clutch with corrugated washer removed ⇒ [page 52](#) .



Note

The purpose of the following measurements is to determine the thickness of the top shim -5- and bottom shim -2- for setting the reverse gear clutch.

- To ensure accuracy, the surfaces of all tools and components must be absolutely clean when performing the following measurements.



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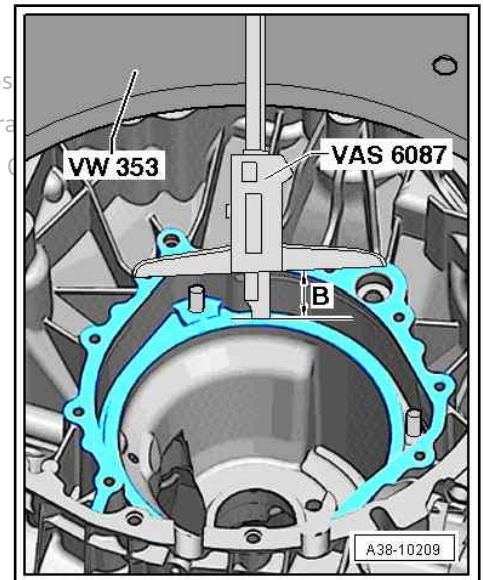
1. Calculating dimension -B- (measurement from sealing surface of input shaft to contact surface of corrugated washer):

- Clean contact surfaces and sealing surfaces on gearbox housing. Completely remove any remaining sealing material.
- Use digital depth gauge - VAS 6087- to measure from sealing surface of input shaft to contact surface of corrugated washer in gearbox housing.
- Note down measured value -B-.
- Repeat measurement at two other points on circumference and note down measured values.
- Calculate mean value M_B from the 3 measured values and note it down.

Mean value M_B = measured value $B_1 + B_2 + B_3$

Example:

Mean value M_B =
 $38.15 \text{ mm} + 38.14 \text{ mm} + 38.14 \text{ mm} : 3 = 38.143 \text{ mm}$



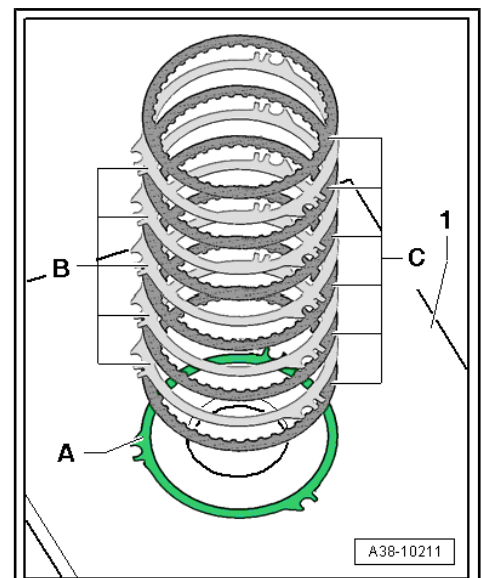
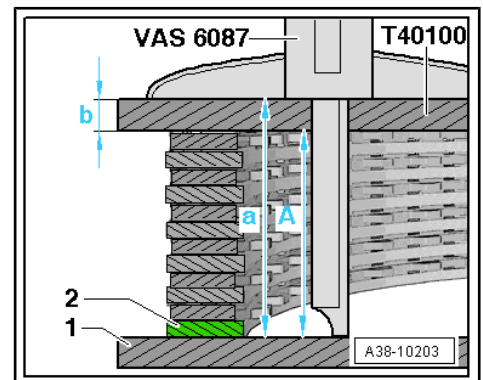
2. Calculating dimension -A-; measurement of compressed clutch pack:



Note

Corrugated washer -2- is fitted under clutch pack for measurement.

- Use a clean, flat measurement surface -1- as a base. Compressor tool - T10285- is used in the following description.
- First place corrugated washer -A- on measurement surface -1-.
- Then alternately place friction plates -C- (6x) and outer plates -B- (5x) one at a time on corrugated washer (all aligned in the same position).





- Make sure that all plates are accurately aligned one on top of the other.
- Place two rulers - T40100- on top of clutch pack.



Note

The weight of the rulers - T40100- presses the air out of the plates and exerts the specified 2.5 kg load on (compresses) the corrugated washer.

- Use digital depth gauge -VAS 6087- to measure down to working surface -1- and note down measured value -a-.
- When taking measurements, the digital depth gauge -VAS 6087- must make flush contact with both rulers -T40100- .
- Repeat measurement on opposite side of clutch pack and note down measured value 2.
- Move the two rulers - T40100- through 90°.
- Repeat measurements and note down measured values 3 and 4.
- Calculate mean value M_a from the four measured values and note it down.

$$\text{Mean value } M_a = \text{measured value } a1 + a2 + a3 + a44$$

Calculating dimension -A-:

- Measure and note down thickness -b- of rulers - T40100- .

Determining height of compressed clutch pack:

$$\text{Dimension -A-} = \text{Mean value } M_a - \text{-b-}$$

- Note down dimension -A- of compressed clutch pack

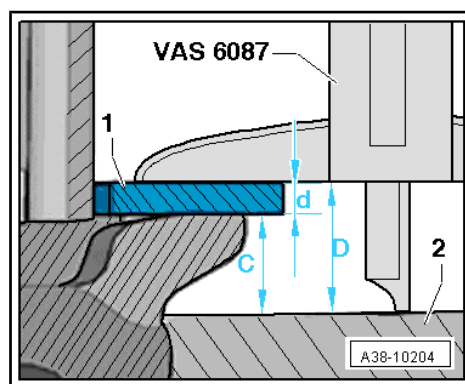
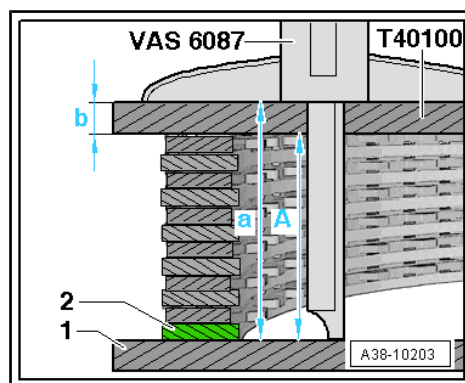
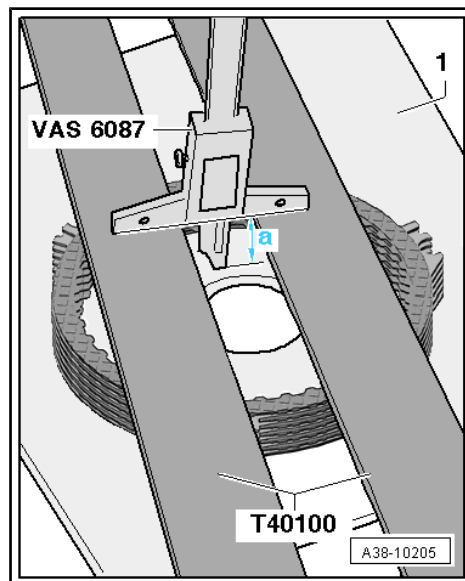
Example:

Already calculated: Mean value $M_B = 38.143 \text{ mm}$

Thickness -b- of rulers - T40100- = 7.47 mm

$$\text{Dimension -A-} = \text{Mean value } M_a - \text{-b-} = 38.143 \text{ mm} - 7.47 \text{ mm} = 27.98 \text{ mm}$$

3. Calculating dimension -C- (measurement from sealing surface of input shaft to piston of reverse gear clutch):



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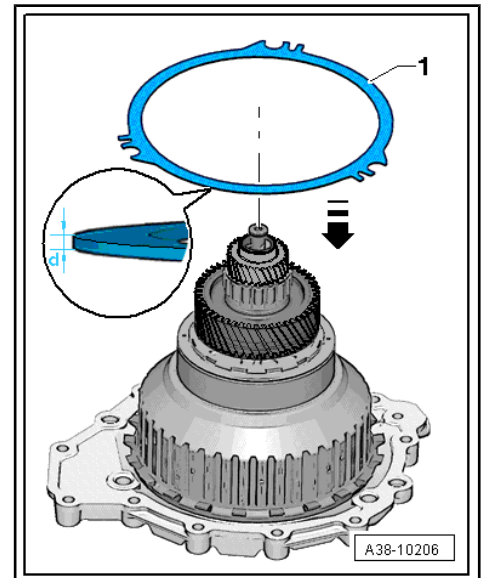


- Place a clean outer plate -1- on input shaft (removed from gearbox).



Note

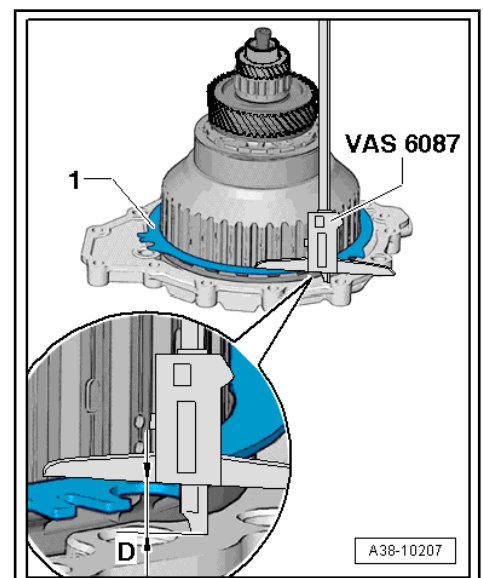
This causes the outer plate -1- to come to rest on the piston of the reverse gear clutch. The flat outer plate can be used to obtain a correct measurement to the highest point of the piston. The thickness -d- of the outer plate -1- is subsequently subtracted when calculating the height of the piston.



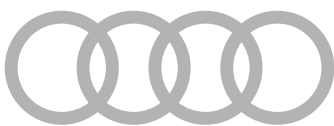
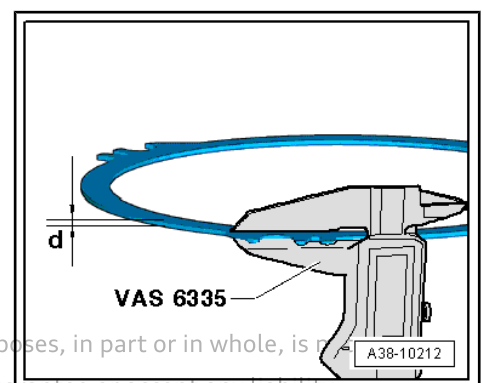
- Use digital depth gauge -VAS 6087- to measure to sealing surface of input shaft and note down measured value -D-.
- Repeat measurement at two other points on circumference and note down measured values.
- Calculate mean value M_D from the three measured values and note it down.

Mean value:

$$\text{Mean value } M_D = \text{measured value } D1 + D2 + D33$$



- Remove outer plate from input shaft and measure and note down thickness -d-.



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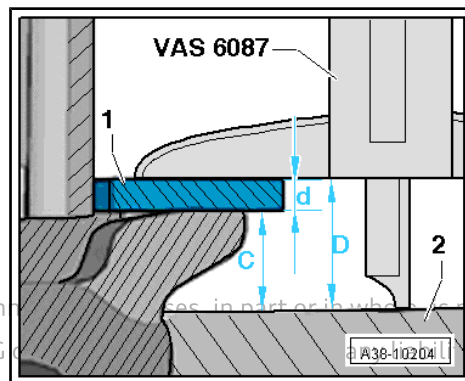
Calculate dimension -C- from sealing surface of input shaft to piston of reverse gear clutch:

- C- = Mean value M_D - Thickness -d- of outer plate fitted before measurement -1-
- Note down dimension -C-.



Example

Mean value M_D = 5.11 mm + 5.10 mm + 5.12 mm	5.11 mm
- Thickness -d- of outer plate -1- fitted before measurement	2.13 mm
= Dimension -C- from sealing surface of input shaft to piston of reverse gear clutch	= 2.98 mm



4. Calculating thickness "E" of both shims:

- Use the following method to calculate thickness of shims:

Calculating thickness of shims for reverse gear clutch Clearance at least 3.0 +/- 0.2 mm with 2.5 kg load (➔ page 58)		Calculated and fixed measured values
Measurement from sealing surface of input shaft to contact surface of corrugated washer in gearbox		Mean value M_B
Thickness of input shaft oil seal at gearbox housing	+	0.27 mm
Measurement from sealing surface of input shaft to piston of reverse gear clutch	-	Dimension "C"
Measurement of compressed clutch pack	-	Dimension "A"
Minimum clearance	-	3.0 mm
Calculated thickness of both shims	=	"E"
- The weight of the 2 rulers - T40100- when measuring the clutch pack produces the specified load of 2.5 kg on the clutch pack. - The thickness of the bottom shim "E₁" must be at least 2.15 mm		

Calculating:

$$"E" = M_B + 0.27 \text{ mm} - "C" - "A" - 3.0 \text{ mm}$$

- On the basis of the calculated value "E", select the thickness "E₁" of the lower shim according to table 1 ➔ page 60 .
- Calculate dimension "M₂" for calculating thickness of upper shim:
 $"M_2" = "E" - \text{Thickness "E}_1 \text{ of lower shim selected}$
- On the basis of the dimension "M₂", select the thickness "E₂" of the upper shim according to table 2 ➔ page 60 .



Note

Select correct shims from ⇒ Electronic parts catalogue .



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- Measure and note down the thicknesses of the two shims selected.

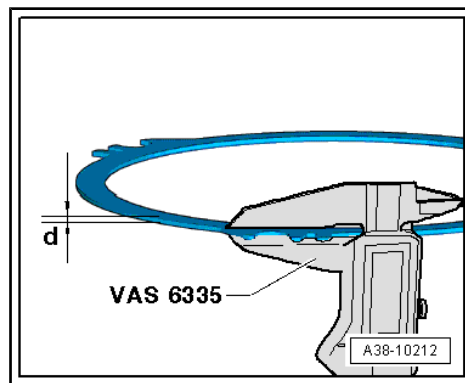


Note

Because of their tolerances, the actual thicknesses of the shims may differ slightly.

- Add the thicknesses of the two measured shims together and note down the value.

Thickness "E1 measured" + Thickness "E2 measured" = Thickness "E_{measured}"



Caution

Risk of problems driving vehicle away from a standstill after re-installing the gearbox.

The thickness of both the shims selected must be less than the calculated dimension "E".

Check calculation:

- (Thickness "E1 measured" + Thickness "E2 measured") = Thickness "E_{measured}"
- Thickness "E_{measured}" must be less than thickness "E"

- Install reverse gear clutch with selected shims ➔ [page 52](#) .

Table 1 Calculating thickness of lower shim	Thickness "E ₁ " of selected lower shim
"E" Measuring range in mm	Thickness (mm) +- 0.03
3.925 ... 4.174	2.15
4.175 ... 4.424	2.15
4.425 ... 4.674	2.65
4.675 ... 4.924	2.9
4.925 ... 5.174	3.15
5.175 ... 5.424	3.15
5.425 ... 5.674	2.65
5.675 ... 5.924	2.9
5.925 ... 6.174	3.15
6.175 ... 6.400	3.15



Table 2 Calculating thickness of upper shim	Thickness "E ₂ " of selected upper shim
Dimension "M ₂ " = "E" - Selected lower shim "E ₁ " Measuring range in mm	Thickness (mm) +/- 0.03
1.829 ... 2.024	1.9
2.025 ... 2.324	2.15
2.725 ... 2.774	2.65
2.775 ... 3.024	2.9
3.025 ... 3.120	3.15

Example:

The example is based on the following values:

◆ Mean value $M_B = 38.143 \text{ mm}$

◆ "A" = 27.98 mm

◆ "C" = 2.98 mm

"E" = $M_B + 0.27 \text{ mm} - \text{"C"} - \text{"A"} - 3.0 \text{ mm}$

"E" = $38.143 \text{ mm} + 0.27 \text{ mm} - 2.98 \text{ mm} - 27.98 \text{ mm} - 3.0 \text{ mm} = 4.453 \text{ mm}$

– Calculate thickness "E₁" of lower shim from table 1:

Thickness "E₁" = 2.65 mm

– Calculate dimension "M₂" for calculating thickness of upper shim:

"M₂" = "E" - Thickness "E₁" of lower shim selected

"M₂" = $4.453 \text{ mm} - 2.65 \text{ mm} = 1.803 \text{ mm}$

– Calculate thickness "E₂" of upper shim from table 2:

Thickness "E₂" = "not possible"

• As the value 1.803 mm in this example is outside the selectable measuring ranges in table 2 (upper shim ➤ [page 61](#)), the next thinnest lower shim "E₁" must be selected from table 1 (lower shim ➤ [page 60](#)).

– Select thickness "E₁" of next thinnest lower shim from table 1:

Thickness "E₁" = 2.15 mm

– Calculate dimension "M₂" for calculating thickness "E₂" of upper shim:

"M₂" = "E" - Thickness "E₁" of lower shim selected

"M₂" = $4.453 \text{ mm} - 2.15 \text{ mm} = 2.303 \text{ mm}$

– Calculate thickness "E₂" of upper shim from table 2:

"E₂" = 2.15 mm

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- Measure and note down the thicknesses of the two shims selected.

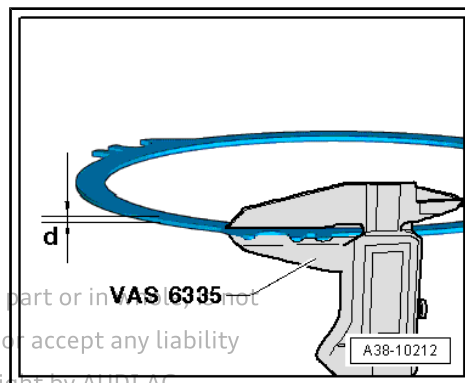


Note

Because of their tolerances, the actual thicknesses of the shims may differ slightly.

- Add together and note down the thicknesses of the two measured shims.

$$\text{"E1 measured"} + \text{"E2 measured"} = \text{"E_{measured}"}$$



Caution

Risk of problems driving vehicle away from a standstill after re-installing the gearbox.

The thickness of the two shims must be less than the calculated dimension "E".

Check calculation:

- *(Thickness "E1 measured" + Thickness "E2 measured") = Thickness "E_{measured}"*
- *Thickness "E_{measured}" must be less than thickness "E"*

The following values were calculated in the example:

◆ "E₁" = 2.15 mm

◆ "E₂" = 2.15 mm

◆ "E" = 4.453 mm

$$(\text{"E}_1 + \text{"E}_2) < \text{"E"}$$

$$(2.15 \text{ mm} + 2.15 \text{ mm}) = 4.3 \text{ mm} < 4.453 \text{ mm}$$

The shims have been correctly selected for this example.

- The reverse gear clutch can be installed.



3 Servicing input shaft with 7 friction plates



Caution

- ◆ ***If the wrong number of friction plates is installed during servicing, the input shaft will be damaged when the vehicle is re-started.***
- ◆ ***In such cases, there is a mismatch between the software configuration on the automatic gearbox control unit - J217- and the number of friction plates in the clutch pack.***

There are two types of gearbox, distinguished by different gearbox codes in the ⇒ Electronic parts catalogue :

1. Gearboxes which are serviced by fitting 7 friction plates

These gearboxes are installed in vehicles with the following engines:

TDI engines:	4 cyl. 1.9 ltr. TDI engine	4 cyl. 2.0 ltr. TDI engine	6 cyl. 2.5 ltr. TDI engine	6 cyl. 2.7 ltr. TDI engine
Petrol engines:	6-cyl. 3.0 ltr. MPI petrol engine	6-cyl. 3.2 ltr. FSI petrol engine	6-cyl. 2.8 ltr. FSI petrol engine	4-cyl. 2.0 ltr. TFSI engine

- ◆ ⇒ [“3.1 Exploded view - input shaft with 7 friction plates”, page 63](#)
- ◆ ⇒ [“3.2 Dismantling and assembling input shaft with 7 friction plates”, page 64](#)

2. Gearboxes which are serviced by fitting 6 friction plates

These gearboxes are fitted on vehicles with all other engines (except the engines listed under 1.).

- ◆ ⇒ [“4.1 Exploded view - input shaft with 6 friction plates”, page 79](#)
- ◆ ⇒ [“4.2 Dismantling and assembling input shaft with 6 friction plates”, page 80](#)

3.1 Exploded view - input shaft with 7 friction plates



Caution

- ◆ ***Please note the distinction between input shafts with 6 and 7 friction plates ⇒ [page 63](#).***



1 - Input shaft oil seal

- ☐ Renewing ➔ [page 37](#)

2 - Retaining ring for input shaft cover

- ☐ Replace with one of same thickness

3 - Input shaft cover

- ☐ After removing cover, renew bearing "A" (ball bearing for input shaft) in input shaft cover ➔ [page 48](#)

4 - Piston

- ☐ Assessing wear level ➔ [page 142](#)

5 - Thrust plate

- ☐ Assessing wear level ➔ [page 142](#)

6 - Corrugated washer

7 - Top shim

- ☐ Determining thickness ➔ [page 72](#)
- ☐ Renew

8 - Friction plate

- ☐ 7x
- ☐ Renew

9 - Outer plate

- ☐ 6x
- ☐ Renew

10 - Bottom shim

- ☐ Determining thickness ➔ [page 72](#)
- ☐ Renew

11 - Input shaft cylinder

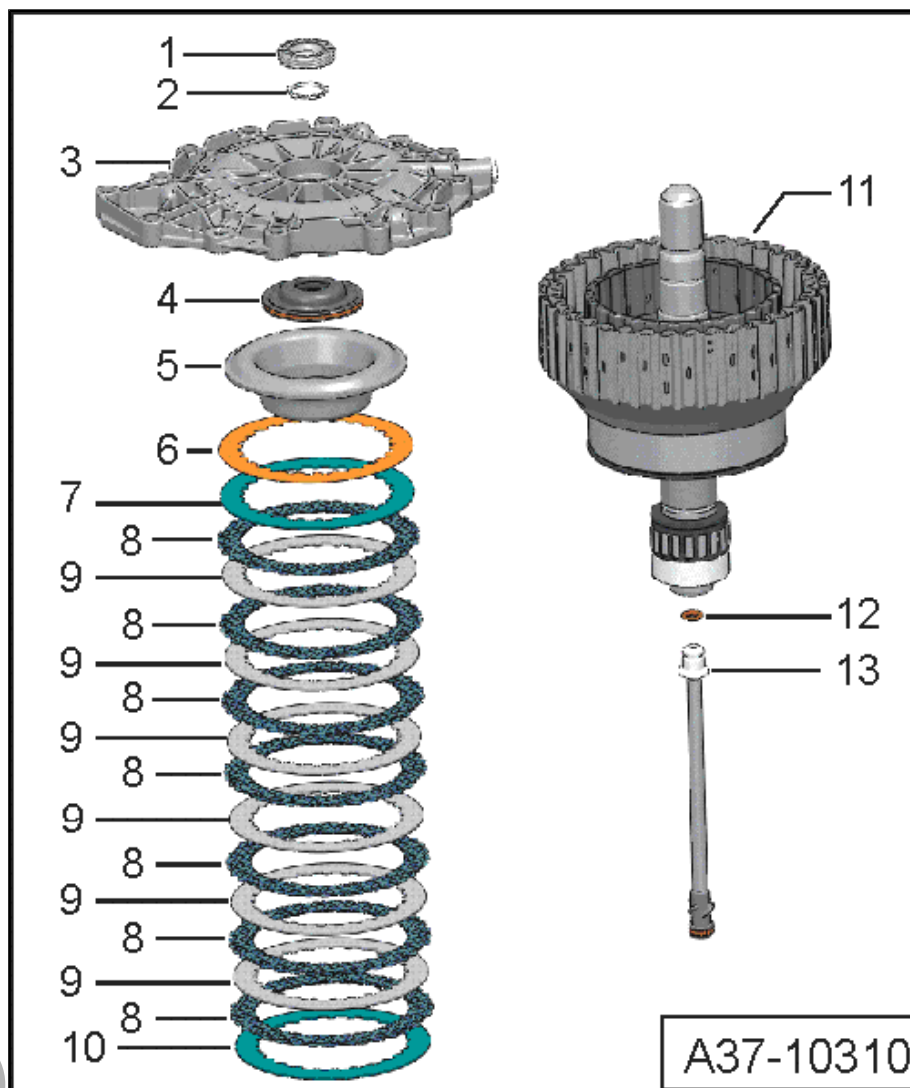
- ☐ Assessing wear level ➔ [page 142](#)

12 - O-ring

- ☐ Renew

13 - Oil pipe

- ☐ Assessing wear level ➔ [page 142](#)



3.2 Dismantling and assembling input shaft with 7 friction plates

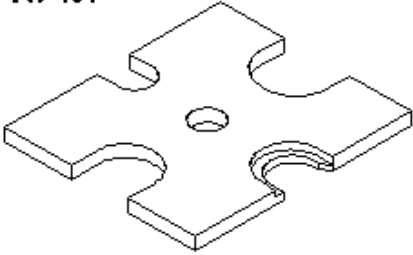
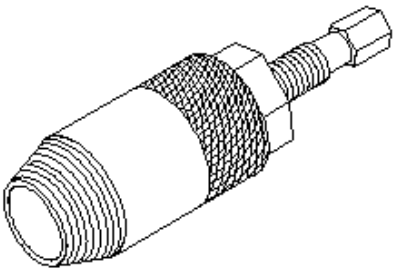
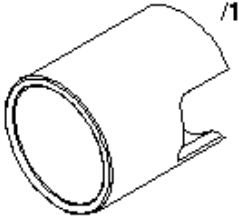
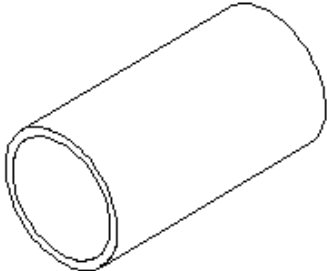


Caution

- ◆ Please note the distinction between input shafts with 6 and 7 friction plates ➔ [page 63](#).



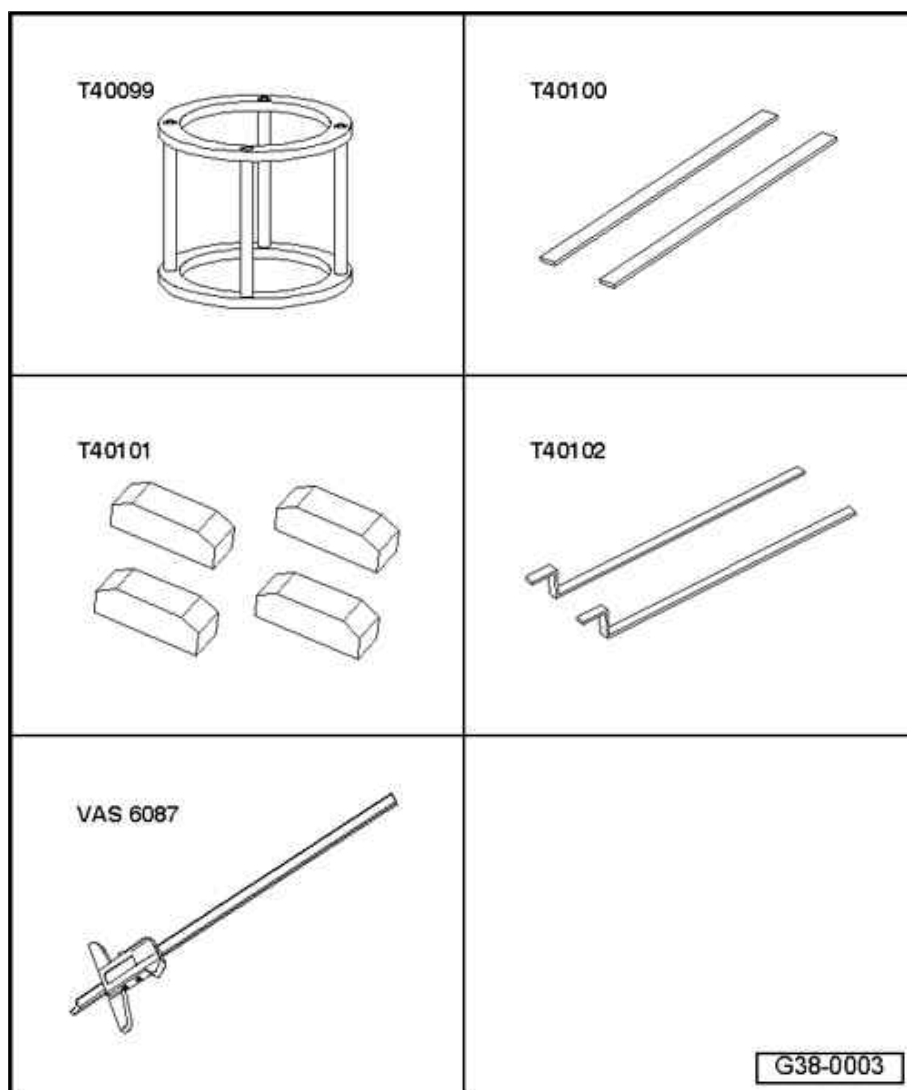
Special tools and workshop equipment required

VW 401 	T40014 
T10219 	2010 
VW 416b 	G38-10000

- ◆ Thrust plate - VW 401-
- ◆ Oil seal extractor - T40014-
- ◆ Assembly tool -T10219/1-
- ◆ Tube - 2010-
- ◆ Tube - VW 416 B-



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- ◆ Thrust piece - T40099-
- ◆ 2x ruler - T40100-
- ◆ Gauge block (1 set contains 4) - T40101-
- ◆ Feeler gauges (1 set contains 2) - T40102-
- ◆ Digital depth gauge - VAS 6087-
- ◆ Protective gloves
- ◆ Ice spray

Dismantling input shaft

- Gearbox removed

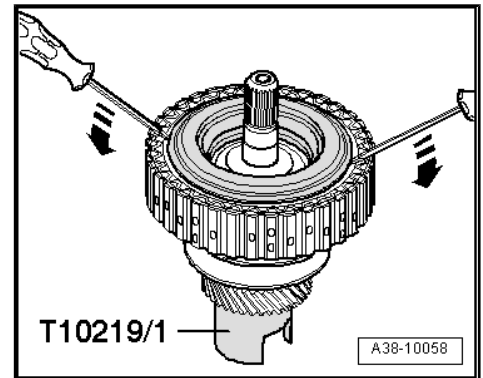


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- ◆ Observe the general repair instructions ⇒ [page 1](#) .
- ◆ Rules for cleanliness when working on the automatic gearbox
⇒ [page 4](#)
- Remove input shaft ⇒ [page 38](#) .
- Remove cover from input shaft ⇒ [page 42](#) .



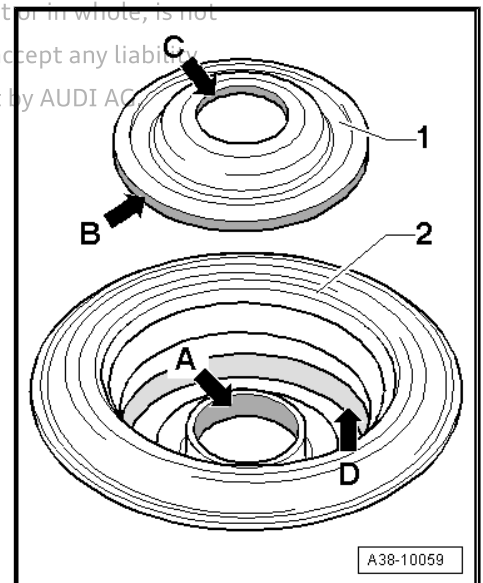
- Set down input shaft on assembly tool -T10219/1- .
- Use two screwdrivers -arrows- to carefully lift pressure plate with piston.



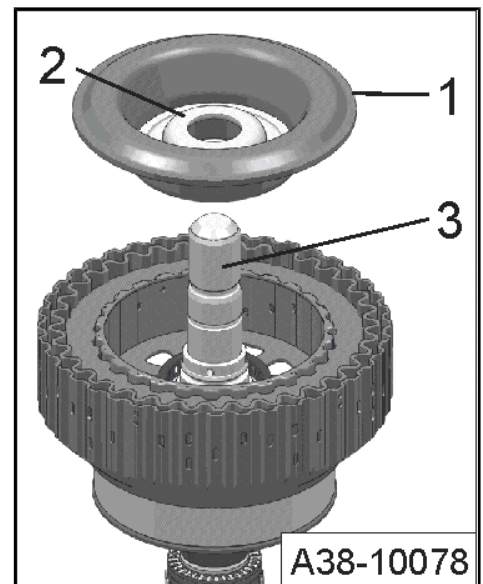
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Caution

- *The inner contact and sealing surfaces -arrow A- of the pressure plate and the piston -arrow C- must not be allowed to make contact with the shaft on removal/installation.*
- *The contact and sealing surfaces must not exhibit the slightest signs of damage such as scratches or scoring caused by dismantling/assembly.*
- *In the event of damage, the pressure plate or piston must be renewed.*



- Carefully guide the pressure plate -1- with piston -2- upwards over the shaft -3-.
- When doing so, the inner contact surfaces of the pressure plate -1- and of the piston -2- must not make contact with the shaft.





Removing clutch pack

- Remove corrugated washer -5- (washer must be re-used).
- Take top shim -4- out of input shaft cylinder -A-.
- Measure thickness of shim -4- and note down value.
- Take all friction plates -2- and outer plates -3- out of input shaft cylinder -A-.



Note

Older input shaft versions have only 6 friction plates and 5 outer plates. These must also be replaced with a new clutch pack with 7 friction plates and 6 outer plates ⇒ Electronic parts catalogue .

- Remove bottom shim -1- from input shaft cylinder -A-.
- Measure thickness of shim -1- and note down value.

Assembling input shaft



Caution

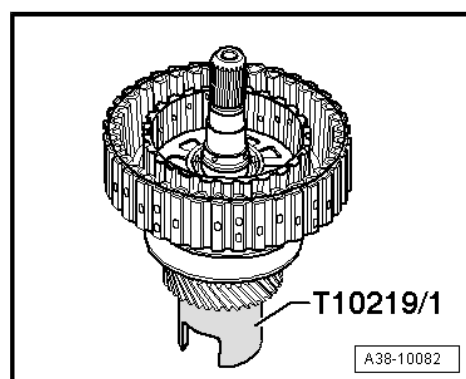
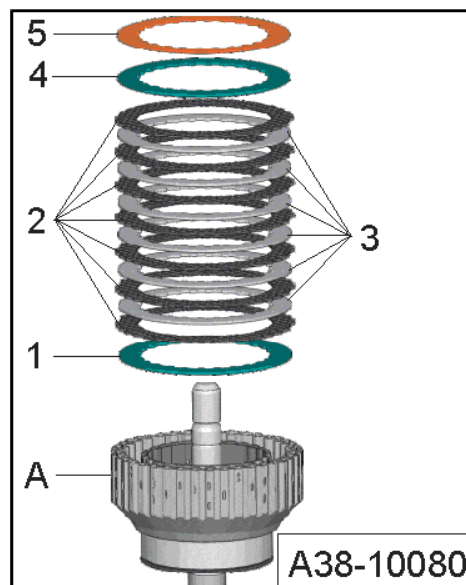
Assess wear on gearbox components prior to assembly ⇒ [page 142](#) .

- Renew bearing “A” (ball bearing for input shaft) in input shaft cover ⇒ [page 48](#) .
- Adjust input shaft and determine clearance ⇒ [page 72](#) .



Caution

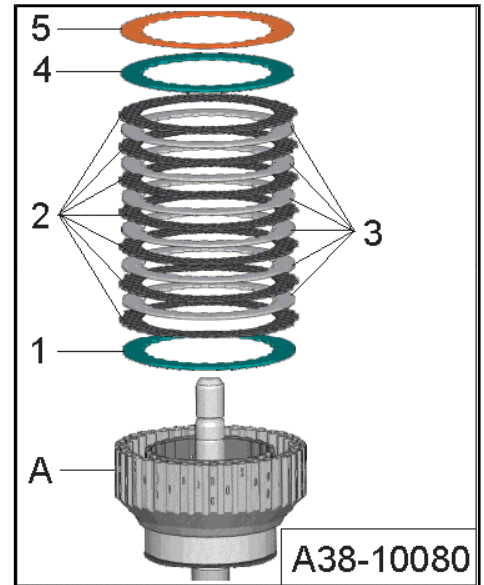
- **Always renew old used shims, outer plates and friction plates. They must not be re-installed otherwise proper operation of the input shaft cannot be assured (due to the worn surface).**
- **The corrugated washer must be re-used.**



- Set down input shaft on assembly tool -T10219/1- .



- Insert chosen bottom shim -1- in input shaft cylinder -A-.
- Now build up the clutch pack by alternately inserting one friction plate -2- (total of 7) followed by one outer plate -3- (total of 6, thickness 1.9 mm), ensuring that they are aligned together.



Alignment of friction plates:



Note

Illustration shows friction plates with old linings.



Caution

- *The friction plates must be aligned together when installed, i.e. the areas with no external teeth -arrows- must be stacked on top of each other. This is the only way to ensure correct adjustment. If necessary, mark the input shaft cylinder to ensure proper alignment on installation.*

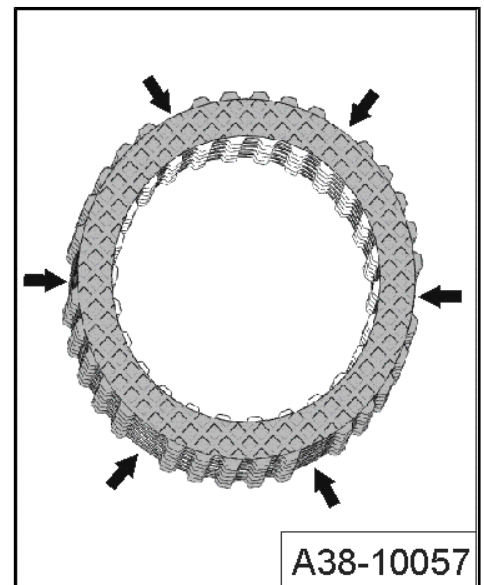


Note

Older input shaft versions have only 6 friction plates and 5 outer plates. These must also be replaced with a new clutch pack with 7 friction plates and 6 outer plates.

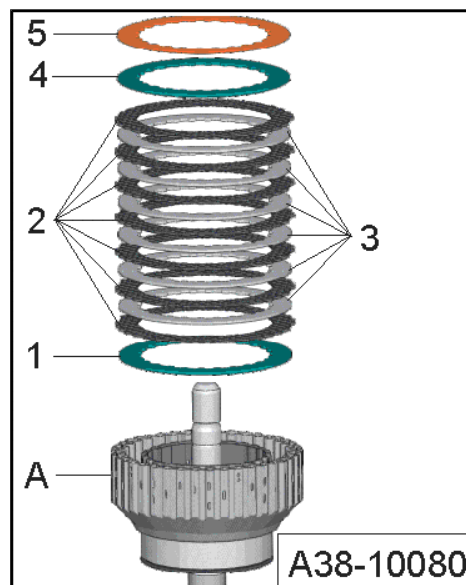
Electronic parts catalogue

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- Insert chosen top shim -4- in input shaft cylinder -A-.
- Finally insert corrugated washer -5-.

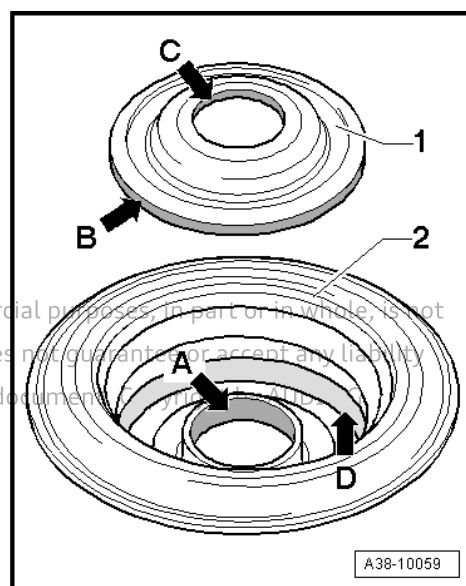


- Press home piston -1- in pressure plate -2-.

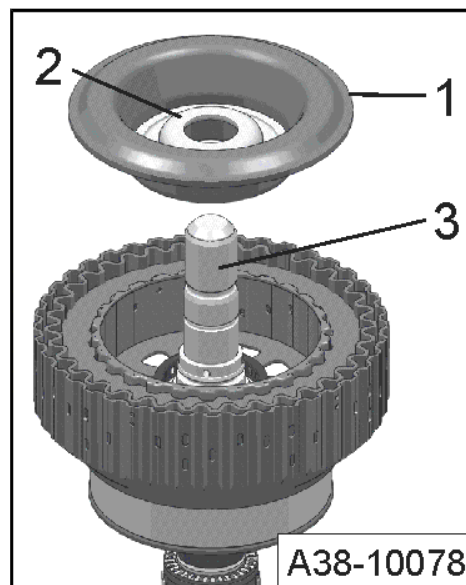


Caution

- *The inner contact and sealing surfaces -arrow A- of the pressure plate and the piston -arrow C- must not be allowed to make contact with the shaft on removal/installation.*
- *The contact and sealing surfaces must not exhibit the slightest signs of damage such as scratches or scoring caused by dismantling/assembly.*
- *In the event of damage, the pressure plate or piston must be renewed.*



- Carefully guide pressure plate -1- with piston -2- downwards over shaft -3-.
- When doing so, the inner contact surfaces of the pressure plate -1- and of the piston -2- must not make contact with the shaft.
- Evenly press home the pressure plate with piston in the input shaft.



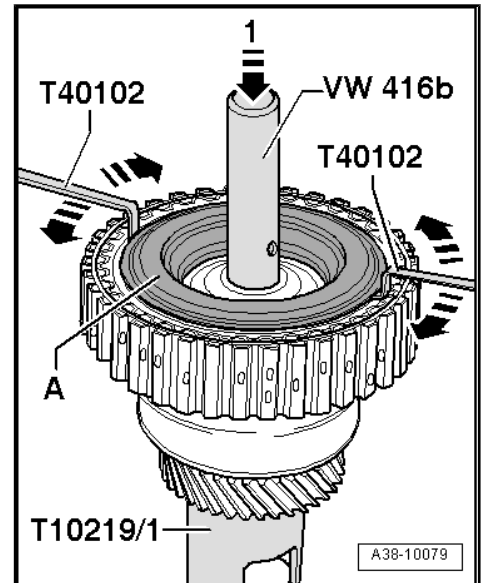


Checking clearance with feeler gauge -T40102-

- Insert the two feeler gauges -T40102- underneath the pressure plate -A-.
- Have a second mechanic use the tube - VW 416 B- to press down the pressure plate -A- as far as it will go -arrow 1-.
- Move the two feeler gauges -T40102- back and forth in a circle beneath the pressure plate in direction of -arrow-.
- Apply the two feeler gauges -T40102- on opposite sides.
- Take care to keep the feeler gauges -T40102- straight.
- The entire circular area must be checked.
- The two feeler gauges -T40102- must always move freely without any resistance whatsoever.

If the feeler gauges -T40102- cannot be moved in direction of -arrow- without becoming blocked:

- Repeat the input shaft adjustment procedure ➔ [page 72](#) .

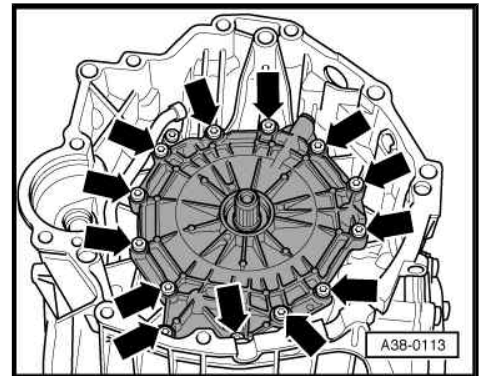


Caution

It is essential to obtain a successful result when checking the clearance with the feeler gauges -T40102-, as gearbox problems will otherwise be encountered when driving off from a standstill.

If the feeler gauges -T40102- move freely in direction of -arrow-:

- Fit input shaft cover ➔ [page 42](#) .
- Install input shaft ➔ [page 38](#) .



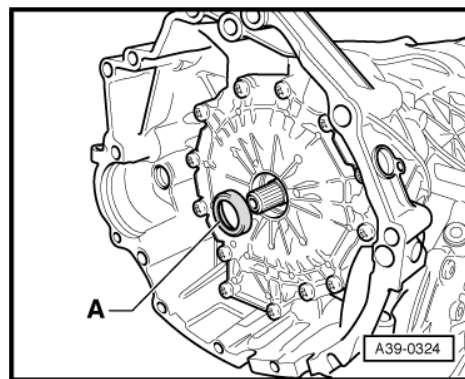


- Fit oil seal for input shaft -A- ➔ [page 37](#) .
- Fill up with ATF
➔ ["1.2 Filling up with ATF \(for ATF purging procedure\)", page 9](#) .



Caution

- ◆ *The ATF required for the multitronic 01J/0AN gearbox is different from the fluid used in fixed-ratio automatic gearboxes. Only the ATF available as a replacement part for the CVT gearbox may be used in the planetary gearbox; ATF specifications ➔ multitronic 01J, front-wheel drive; Rep. gr. 00 , ➔ multitronic 0AN, front-wheel drive; Rep. gr. 00 .*
- ◆ *After installing gearbox, make sure to perform ATF purging procedure ➔ ["1 ATF purging procedure", page 6](#) .*



3.3 Adjusting input shaft with 7 friction plates and determining clearance

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Note

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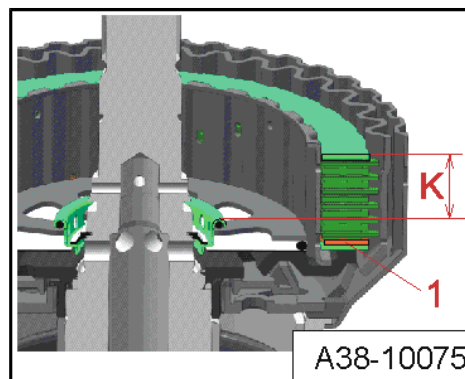
- ◆ *Observe the general repair instructions ➔ [page 1](#) .*
- ◆ *Rules for cleanliness when working on the automatic gearbox ➔ [page 4](#)*
- Thoroughly clean all components prior to installation.

Measuring the clutch

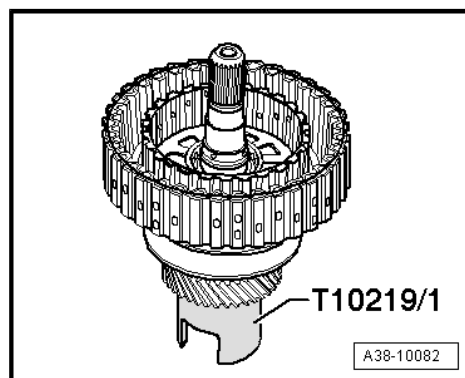


Note

- ◆ *This measurement determines the distance -K- on the clutch from the top shim to the stop ring at the shaft (contact surface of pressure plate).*
- ◆ *The corrugated washer -1- is fitted beneath the clutch pack for the measurement.*



- Set down input shaft on assembly tool -T10219/1- .



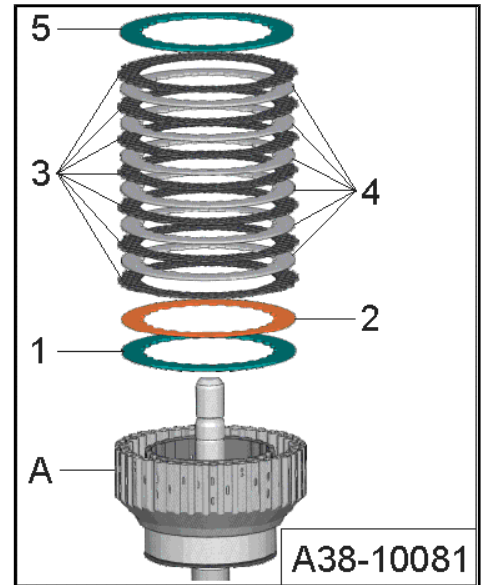


- Insert new bottom shim -1- of same thickness as old shim in cylinder of input shaft -A-.
- Then insert corrugated washer -2-.

i Note

The corrugated washer is only fitted at the bottom for measurement. On assembly it is fitted at the top again.

- Now build up the clutch pack by alternately inserting one friction plate -3- (total of 7) followed by one outer plate -4- (total of 6, thickness 1.9 mm), ensuring that they are aligned together.



Alignment of friction plates:

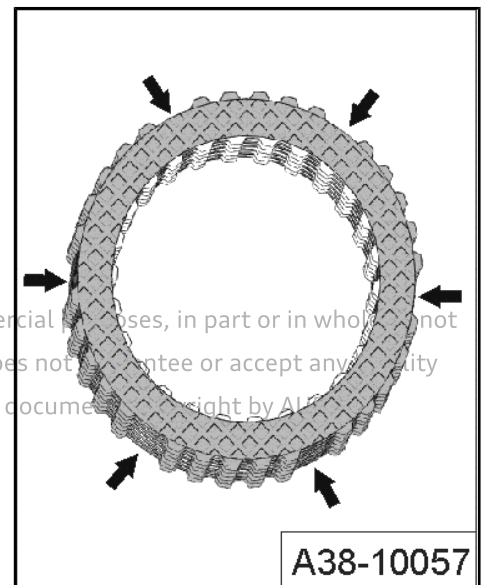
i Note

Illustration shows friction plates with old linings.



Caution

- **The friction plates must be aligned together when installed, i.e. the areas with no external teeth -arrows- must be stacked on top of each other. This is the only way to ensure correct adjustment. If necessary, mark the input shaft cylinder to ensure proper alignment on installation.**

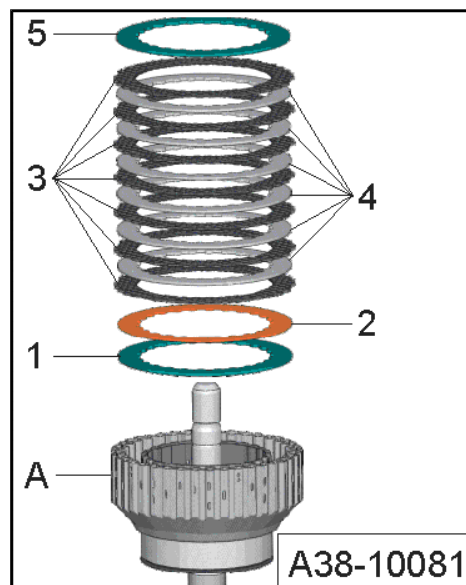


i Note

Older input shaft versions have only 6 friction plates and 5 outer plates. These must be replaced with a new clutch pack with 7 friction plates and 6 outer plates ⇒ Electronic parts catalogue .



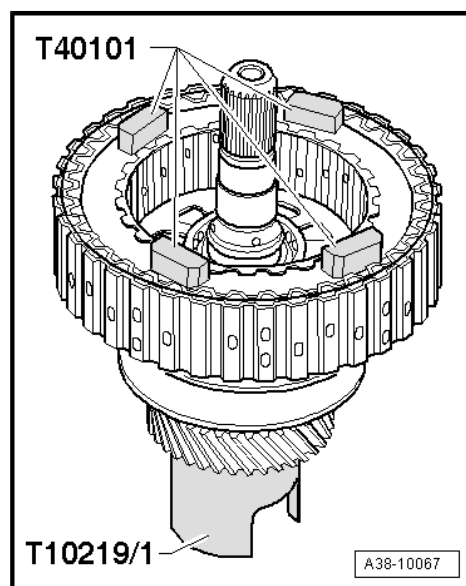
- Finally insert new upper shim -5- of same thickness as old shim in input shaft.



Note

To ensure accuracy, the surfaces of all tools and components must be absolutely clean when performing the following measurements.

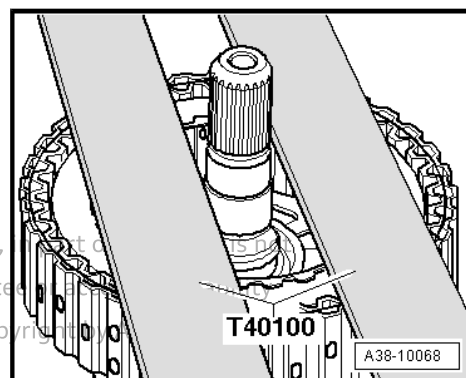
- Place the four gauge blocks -T40101- on the top shim.



- Place a ruler -T40101- over the centre of each pair of gauge blocks -T40100- .

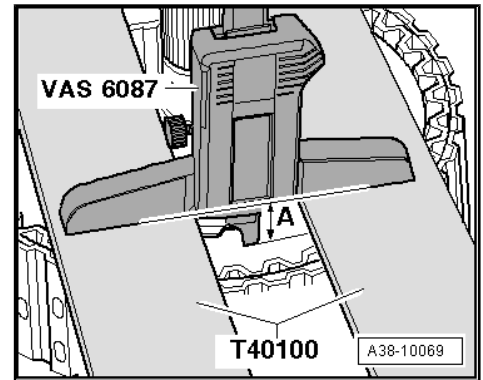


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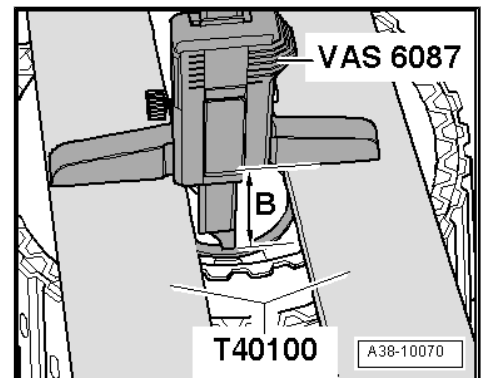




- Use digital depth gauge -VAS 6087- to measure down to shim and note down measured value -A-.
- When taking measurements, the digital depth gauge -VAS 6087- must make flush contact with both rulers -T40100- .



- Then use digital depth gauge -VAS 6087- to measure down to contact ring on shaft (contact surface of pressure plate) and note down measured value -B-.



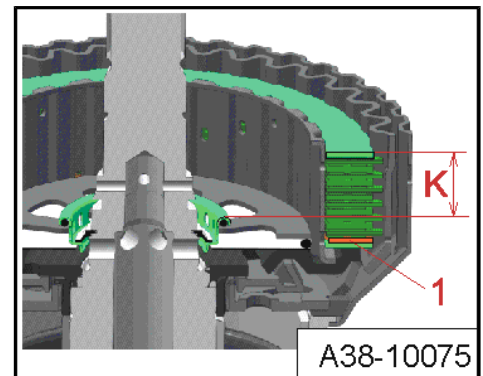
- Subtract the two measured values “B – A” to obtain the distance -K- of the clutch.

Calculating distance -K- of clutch: “B – A = K”



Note

The corrugated washer -1- is fitted beneath the clutch pack for the measurement.



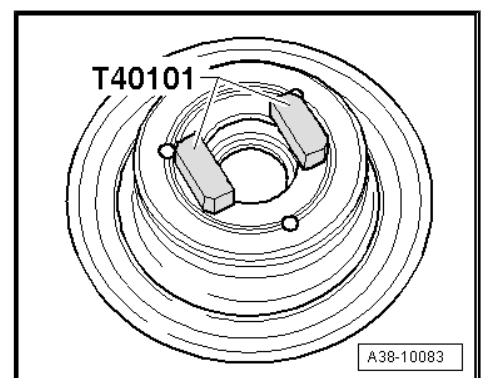
- Repeat the measurement on the opposite side of the input shaft and again determine the distance -K- of the clutch.
- Move the four gauge blocks -T40101- and the two rulers -T40100- through 90° on the input shaft and repeat the measurements.

- Take the four values determined for the distance -K- of the clutch and calculate the mean value M_K .

Mean value: “(value 1 + value 2 + value 3 + value 4) : 4 = M_K ”

Measuring the pressure plate

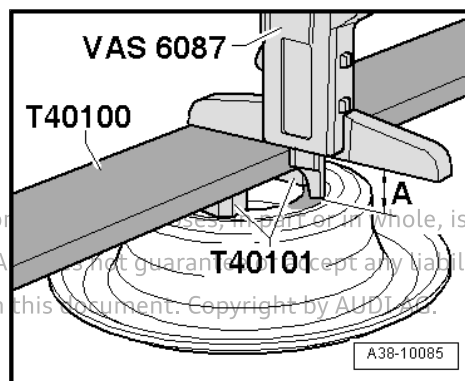
- First check for damage and renew if necessary.
- Turn the pressure plate over and set it down on a flat, clean surface.
- Place the two gauge blocks -T40101- on the cleaned contact surface of the pressure plate.
- The gauge blocks -T40101- must make full contact with the clean contact surface and not rest on the edge.





- Place the rulers -T40100- over the centre of the gauge blocks -T40101- .
- Use digital depth gauge -VAS 6087- to measure down to upper contact surface and note down measured value -A-.

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- Use digital depth gauge -VAS 6087- to measure down to lower contact surface and note down measured value -B-.
- Subtract the two measured values “B – A” to obtain the distance “D” of the two contact surfaces on the pressure plate.

Calculation of distance “D” on pressure plate: “B – A = D”

- Repeat the measurement at 2 further points on the pressure plate, offset by 120° in each case.
- Calculate the mean value for the pressure plate M_D from the three measured values.

Mean value: “(value 1 + value 2 + value 3) : 3 = M_D ”

Determining the clearance

- Determine clearance using the following formula:

Mean value of pressure plate measurements “ M_D ”
(value 1 + value 2 + value 3) : 3

- Mean value of clutch measurements “ M_K ”
(value 1 + value 2 + value 3 + value 4) : 4

= Clearance

Clearance = “ M_D ” – “ M_K ”

Clearance specification: 1.8 ± 0.2 mm.

If specification is not obtained:

A - Measured value too low:

- Insert appropriately thinner shim. It may also be necessary to renew the bottom shim.
- Check clearance again after inserting new shim ⇒ [page 72](#) .

B - Measured value too high:

- Insert appropriately thicker shim. It may also be necessary to renew the bottom shim.
- Check clearance again after inserting new shim ⇒ [page 72](#) .

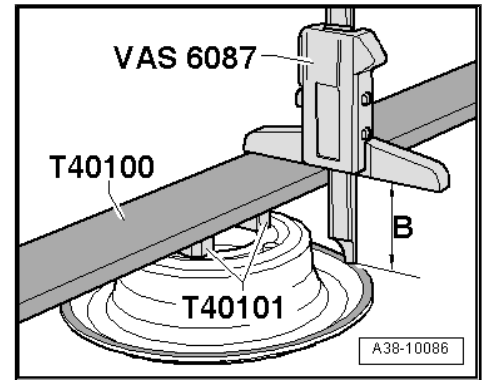
The following shims are available:

Available shims [thickness in mm]		
1.90	2.15	2.65
2.90	3.15	



Note

The clearance can be adjusted by means of the top and bottom shims.





If specification is obtained:

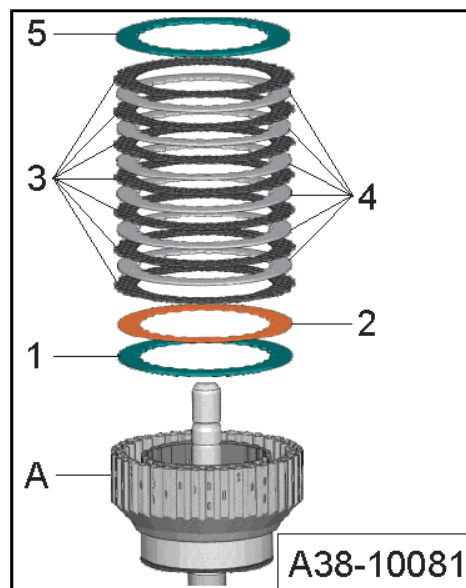
- Take all shims, friction plates, outer plates and the corrugated washer -5-, -4-, -3-, -2- and -1- out of input shaft cylinder -A-.



Caution

This step is necessary as the corrugated washer -2- is fitted above the bottom shim -1- only when adjusting the input shaft. When assembling the input shaft, the corrugated washer is fitted at the top.

- Assemble the input shaft ➔ [page 68](#) .



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4 Servicing input shaft with 6 friction plates



Caution

- ◆ ***If the wrong number of friction plates is installed during servicing, the input shaft will be damaged when the vehicle is re-started.***
- ◆ ***In such cases, there is a mismatch between the software configuration on the automatic gearbox control unit - J217- and the number of friction plates in the clutch pack.***

There are two types of gearbox, distinguished by different gearbox codes in the ⇒ Electronic parts catalogue :

1. Gearboxes which are serviced by fitting 7 friction plates

These gearboxes are installed in vehicles with the following engines:

TDI engines:	4 cyl. 1.9 ltr. TDI engine	4 cyl. 2.0 ltr. TDI engine	6 cyl. 2.5 ltr. TDI engine	6 cyl. 2.7 ltr. TDI engine
Petrol engines:	6-cyl. 3.0 ltr. MPI petrol engine	6-cyl. 3.2 ltr. FSI petrol engine	6-cyl. 2.8 ltr. FSI petrol engine	4-cyl. 2.0 ltr. TFSI engine

- ◆ ⇒ [“3.1 Exploded view - input shaft with 7 friction plates”, page 63](#)
- ◆ ⇒ [“3.2 Dismantling and assembling input shaft with 7 friction plates”, page 64](#)

2. Gearboxes which are serviced by fitting 6 friction plates

These gearboxes are fitted on vehicles with all other engines (except the engines listed under 1.).

- ◆ ⇒ [“4.1 Exploded view - input shaft with 6 friction plates”, page 79](#)
- ◆ ⇒ [“4.2 Dismantling and assembling input shaft with 6 friction plates”, page 80](#)

4.1 Exploded view - input shaft with 6 friction plates



Caution

- ◆ ***Please note the distinction between input shafts with 6 and 7 friction plates ⇒ [page 79](#).***



1 - Input shaft oil seal

- ❑ Renewing ⇒ [page 37](#)

2 - Retaining ring for input shaft cover

- ❑ Replace with one of same thickness

3 - Input shaft cover

- ❑ After removing cover, renew bearing "A" (ball bearing for input shaft) in input shaft cover ⇒ [page 48](#)

4 - Piston

- ❑ Assessing wear level ⇒ [page 142](#)

5 - Thrust plate

- ❑ Assessing wear level ⇒ [page 142](#)

6 - Corrugated washer

7 - Top shim

- ❑ Determining thickness ⇒ [page 88](#)
- ❑ Renew

8 - Friction plate

- ❑ 6x
- ❑ Renew

9 - Outer plate

- ❑ 5x
- ❑ Renew

10 - Bottom shim

- ❑ Determining thickness ⇒ [page 88](#)
- ❑ Renew

11 - Input shaft cylinder

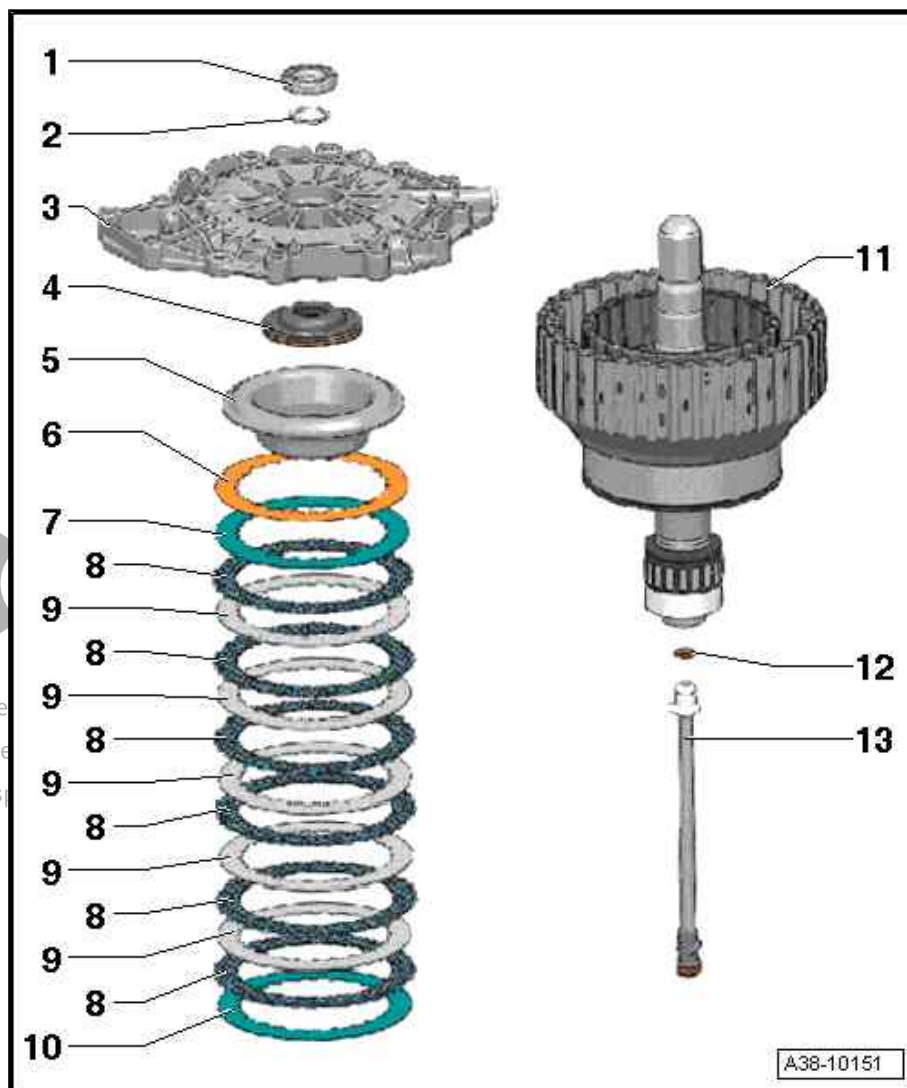
- ❑ Assessing wear level ⇒ [page 142](#)

12 - O-ring

- ❑ Renew

13 - Oil pipe

- ❑ Assessing wear level ⇒ [page 142](#)



4.2 Dismantling and assembling input shaft with 6 friction plates



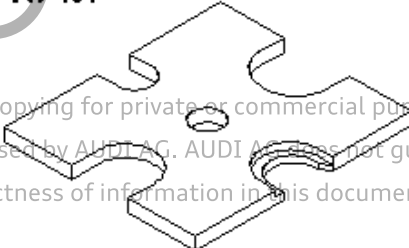
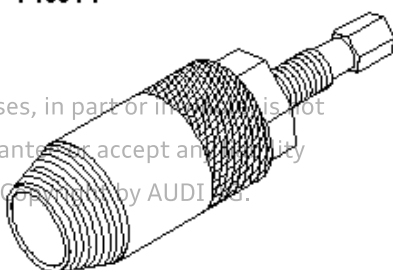
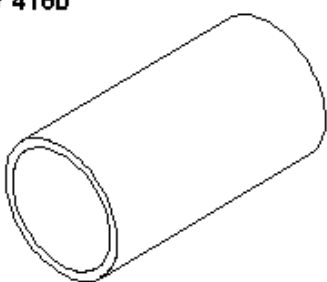
Caution

- ◆ Please note the distinction between input shafts with 6 and 7 friction plates ⇒ [page 79](#)

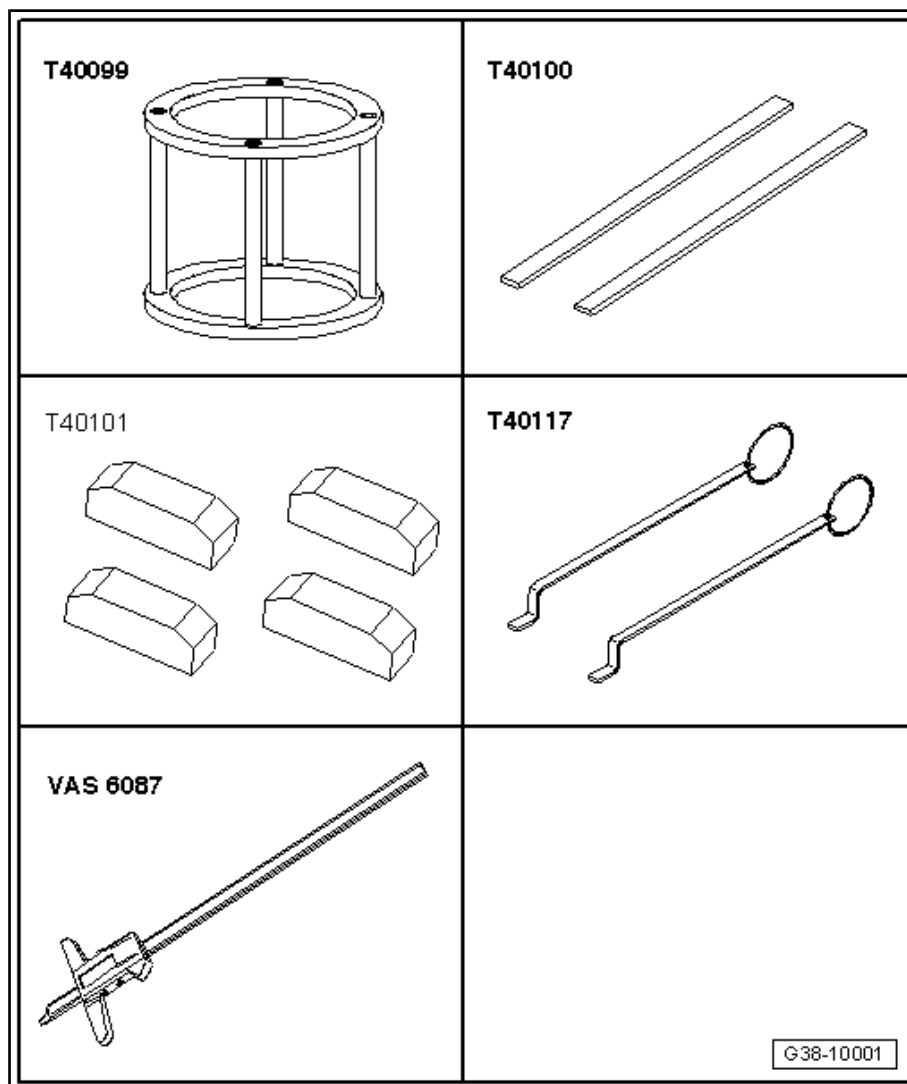


Special tools and workshop equipment required

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VW 401 	T40014 
T10219 	2010 
VW 416b 	 G38-10000

- ◆ Thrust plate - VW 401-
- ◆ Oil seal extractor - T40014-
- ◆ Assembly tool -T10219/1-
- ◆ Tube - 2010-
- ◆ Tube - VW 416 B-



- ◆ Thrust piece - T40099-
- ◆ 2x ruler - T40100-
- ◆ Gauge block (1 set contains 4) - T40101-
- ◆ Feeler gauge (2x) -T40117-
- ◆ Digital depth gauge - VAS 6087-
- ◆ Protective gloves
- ◆ Ice spray

Procedure

- Gearbox removed

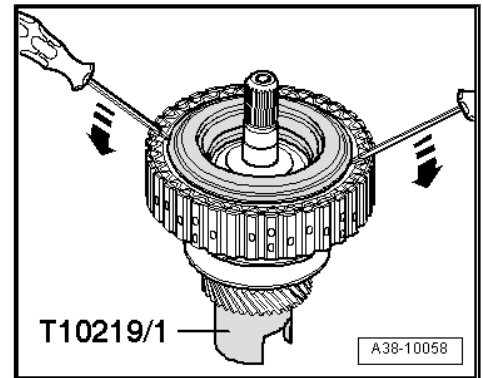


Note

- ◆ *Observe the general repair instructions ⇒ [page 1](#).*
 - ◆ *Rules for cleanliness when working on the automatic gearbox ⇒ [page 4](#)*
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- Remove input shaft ⇒ [page 38](#) .
 - Remove cover from input shaft ⇒ [page 42](#) .



- Set down input shaft on assembly tool -T10219/1- .
- Use two screwdrivers -arrows- to carefully lift pressure plate with piston.

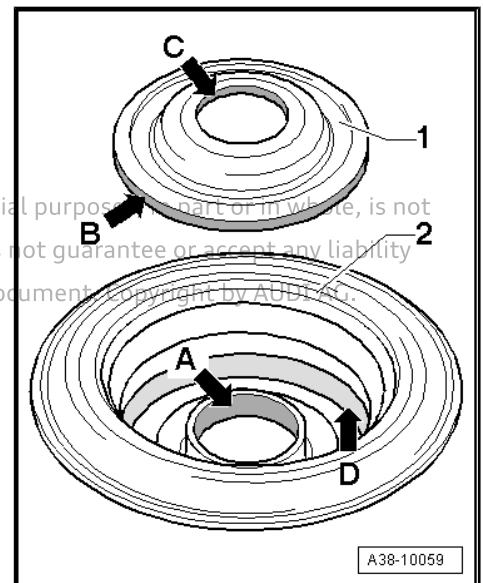


To prevent damage:

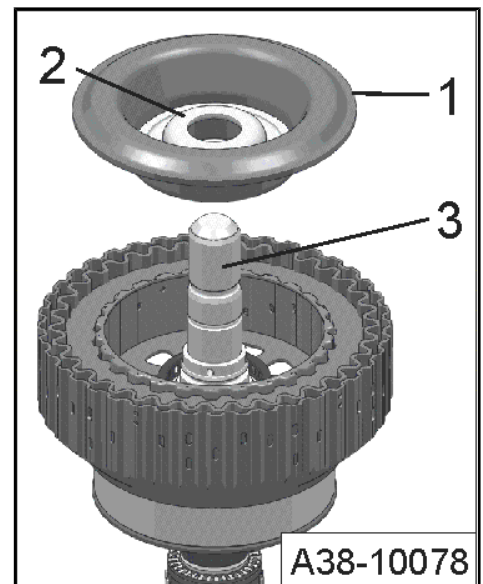


Caution

- **The inner contact and sealing surfaces -arrow A- of the pressure plate and the piston -arrow C- must not be allowed to make contact with the shaft on removal/installation.**
- **The contact and sealing surfaces must not exhibit the slightest signs of damage such as scratches or scoring caused by dismantling/assembly.**
- **In the event of damage, the pressure plate or piston must be renewed.**



- Carefully guide the pressure plate -1- with piston -2- upwards over the shaft -3-.
- When doing so, the inner contact surfaces of the pressure plate -1- and of the piston -2- must not make contact with the shaft.





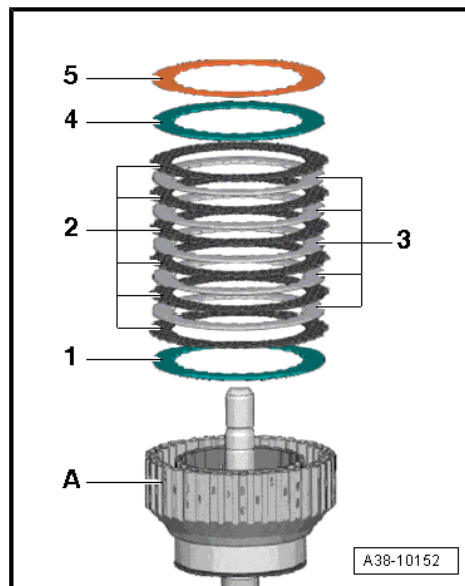
Removing clutch pack

- Remove corrugated washer -5- (washer must be re-used).
- Take top shim -4- out of input shaft cylinder -A-.
- Measure thickness of shim -4- and note down value.
- Take all friction plates -2- and outer plates -3- out of input shaft cylinder -A-.
- Remove bottom shim -1- from input shaft cylinder -A-.
- Measure thickness of shim -1- and note down value.



Caution

- **Always renew old used shims, outer plates and friction plates. They must not be re-installed otherwise proper operation of the input shaft cannot be assured (due to the worn surface).**
- **The corrugated washer must be re-used.**



Assembling input shaft



Caution

**Assess wear on gearbox components prior to assembly
⇒ [page 142](#) .**

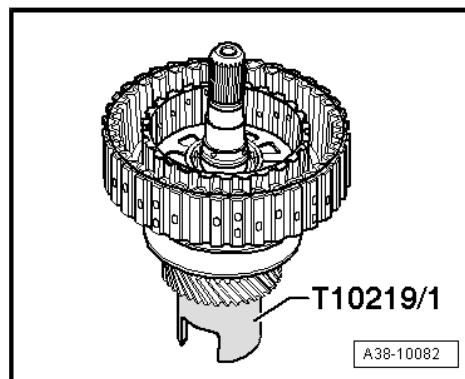
- Renew bearing “A” (ball bearing for input shaft) in input shaft cover ⇒ [page 48](#) .
- Adjust input shaft and determine clearance ⇒ [page 88](#) .



Caution

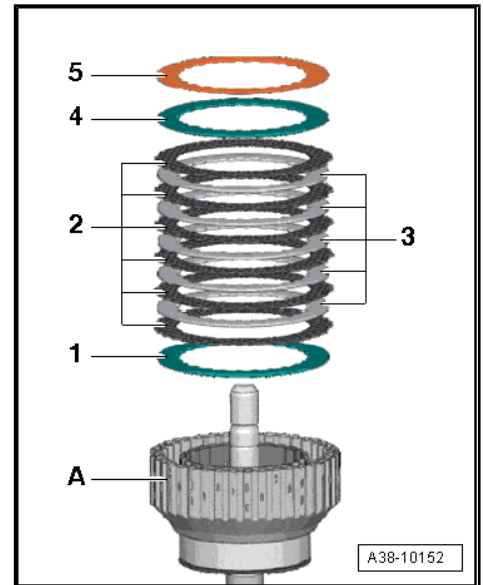
- **Always renew old used shims, outer plates and friction plates. They must not be re-installed otherwise proper operation of the input shaft cannot be assured (due to the worn surface).**
- **The corrugated washer must be re-used.**

- Set down input shaft on assembly tool -T10219/1- .





- Insert chosen bottom shim -1- in input shaft cylinder -A-.
- Now build up the clutch pack by alternately inserting one friction plate -2- (total of 6) followed by one outer plate -3- (total of 5, thickness 1.9 mm), ensuring that they are aligned together.

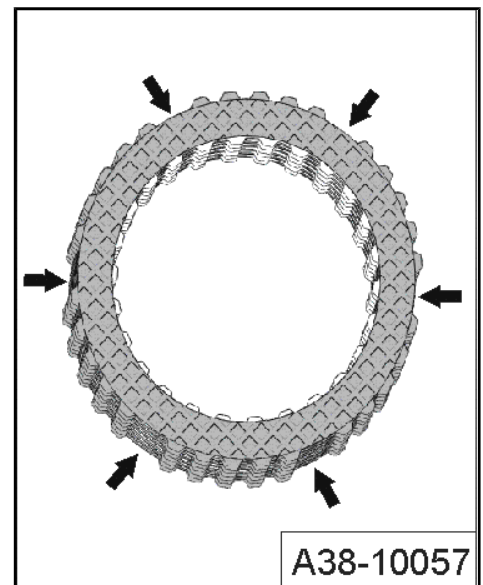


Alignment of friction plates:

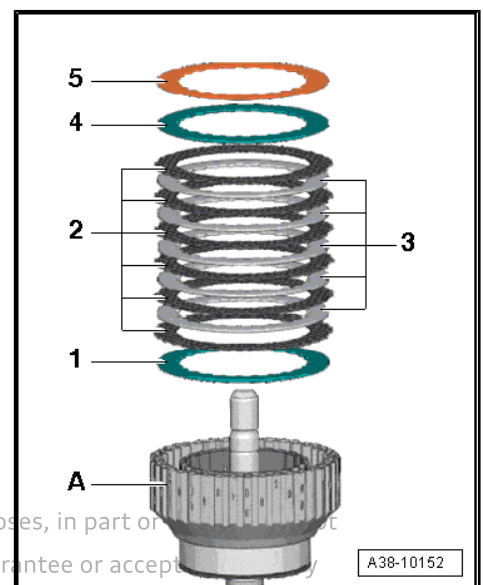


Caution

- *The friction plates must be aligned together when installed, i.e. the areas with no external teeth -arrows- must be stacked on top of each other. This is the only way to ensure correct adjustment. If necessary, mark the cylinder to ensure proper alignment on installation.*



- Insert chosen top shim -4- in input shaft cylinder -A-.
- Finally insert corrugated washer -5-.



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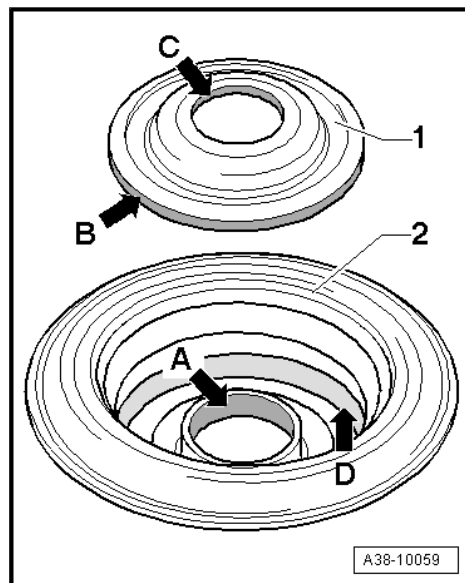


- Press home piston -1- in pressure plate -2-.



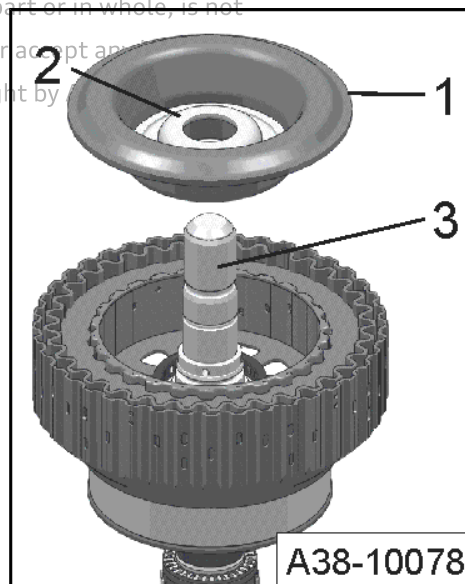
Caution

- *The inner contact and sealing surfaces -arrow A- of the pressure plate and the piston -arrow C- must not be allowed to make contact with the shaft on removal/installation.*
- *The contact and sealing surfaces must not exhibit the slightest signs of damage such as scratches or scoring caused by dismantling/assembly.*
- *In the event of damage, the pressure plate or piston must be renewed.*



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- Carefully guide pressure plate -1- with piston -2- downwards over shaft 3.
- When doing so, the inner contact surfaces of the pressure plate -1- and of the piston -2- must not make contact with the shaft.
- Evenly press home the pressure plate with piston in the input shaft.





Checking clearance with feeler gauge -T40117-

- Insert the two feeler gauges -T40117- underneath the pressure plate -A-.
- Have a second mechanic use the tube - VW 416 B- to press down the pressure plate -A- as far as it will go -arrow 1-.
- Move the two feeler gauges -T40117- back and forth in a circle beneath the pressure plate in direction of -arrow-.
- Apply the two feeler gauges -T40117- on opposite sides.
- Take care to keep the feeler gauges -T40117- straight.
- The entire circular area must be checked.
- The two feeler gauges -T40117- must always move freely without any resistance whatsoever.

If the feeler gauges -T40117- cannot be moved in direction of -arrow- without becoming blocked:

- Repeat the input shaft adjustment procedure ➔ [page 88](#) .

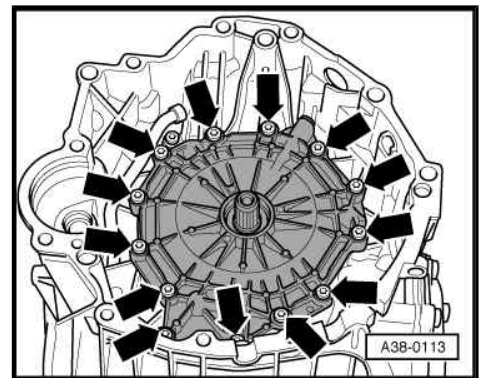
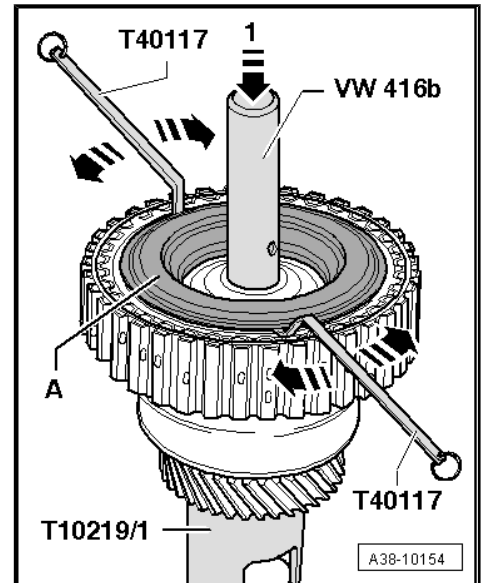


Caution

It is essential to obtain a successful result when checking the clearance with the feeler gauges -T40117-, as gearbox problems will otherwise be encountered when driving off from a standstill.

If the feeler gauges -T40117- move freely in direction of -arrow-:

- Fit input shaft cover ➔ [page 42](#) .
- Install input shaft ➔ [page 38](#) .



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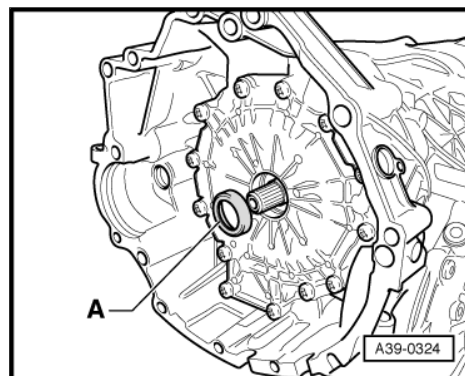


- Fit oil seal for input shaft -A- ➔ [page 37](#) .
- Fill up with ATF
➔ ["1.2 Filling up with ATF \(for ATF purging procedure\)", page 9](#) .



Caution

- ◆ *The ATF required for the multitronic gearboxes 01J and 0AN is different from the fluid used in fixed-ratio automatic gearboxes. Only the ATF available as a replacement part for the CVT gearbox may be used in the planetary gearbox; ATF specifications ➔ multitronic 01J, front-wheel drive; Rep. gr. 00 , ➔ multitronic 0AN, front-wheel drive; Rep. gr. 00 .*
- ◆ *After installing gearbox, make sure to perform ATF purging procedure ➔ ["1 ATF purging procedure", page 6](#) .*



4.3 Adjusting input shaft with 6 friction plates and determining clearance



Note

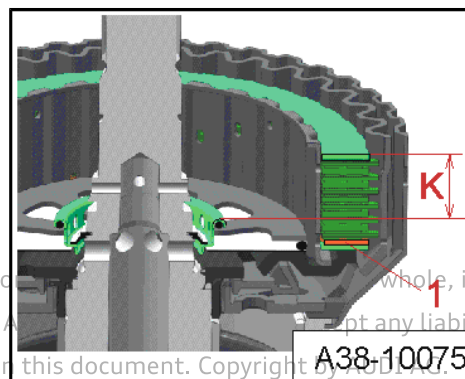
- ◆ *Observe the general repair instructions ➔ [page 1](#) .*
- ◆ *Rules for cleanliness when working on the automatic gearbox ➔ [page 4](#)*
- Thoroughly clean all components prior to installation.

Measuring the clutch

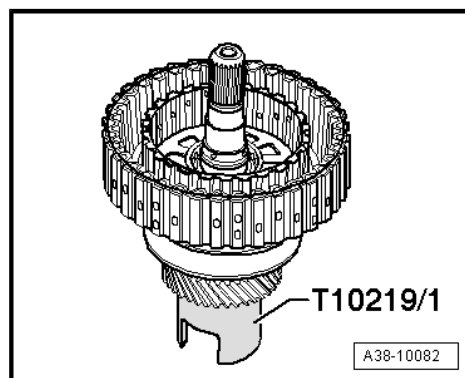


Note

- ◆ *This measurement determines the distance -K- on the clutch from the top shim to the stop ring at the shaft (contact surface of pressure plate).*
- ◆ *The corrugated washer -1- is fitted beneath the clutch pack for the measurement.*



- Set down input shaft on assembly tool -T10219/1- .





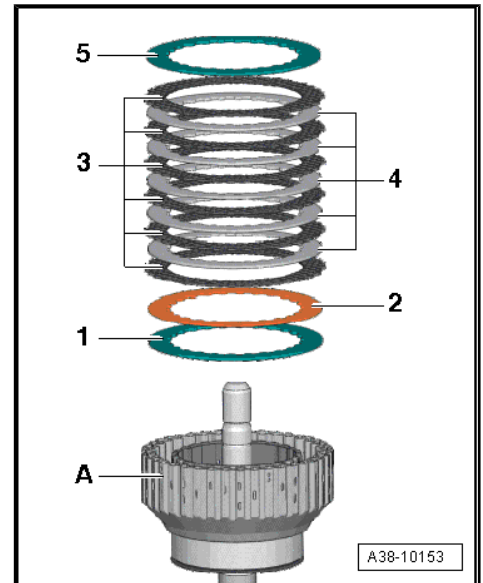
- Insert new lower shim -1- of same thickness as old shim in input shaft cylinder -A-.
- Then insert corrugated washer -2-.



Note

The corrugated washer is only fitted at the bottom for measurement. On assembly it is fitted at the top again.

- Now build up the clutch pack by alternately inserting one friction plate -3- (total of 6) followed by one outer plate -4- (total of 5, thickness 1.9 mm), ensuring that they are aligned together.

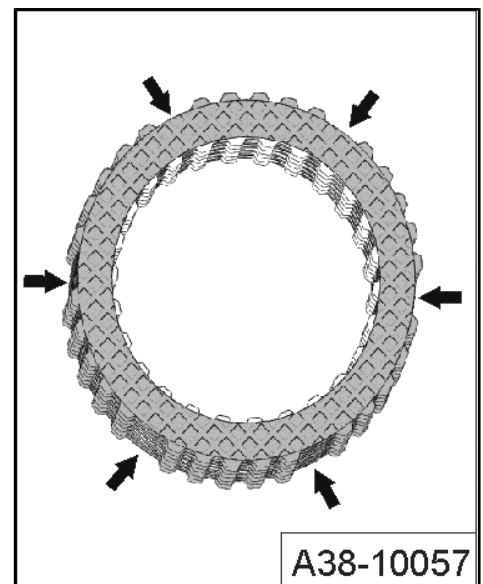


Alignment of friction plates:



Caution

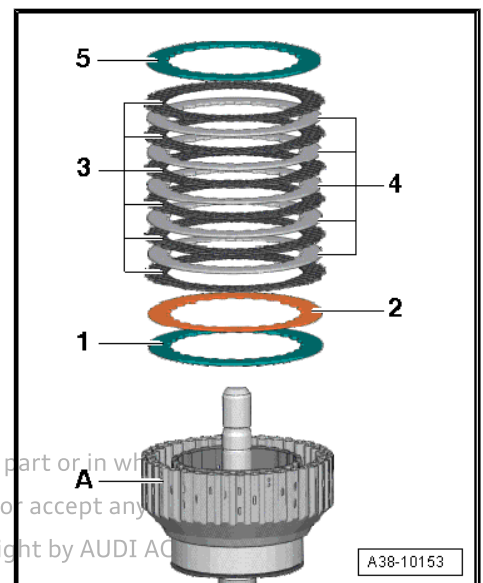
- *The friction plates must be aligned together when installed, i.e. the areas with no external teeth -arrows- must be stacked on top of each other. This is the only way to ensure correct adjustment. If necessary, mark the cylinder to ensure proper alignment on installation.*



- Finally insert new upper shim -5- of same thickness as old shim in input shaft.



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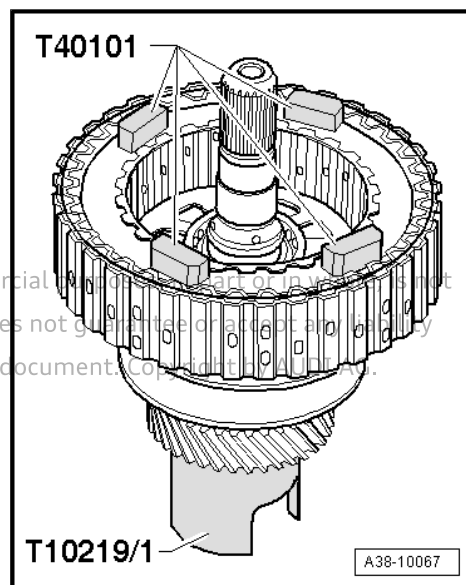


Note

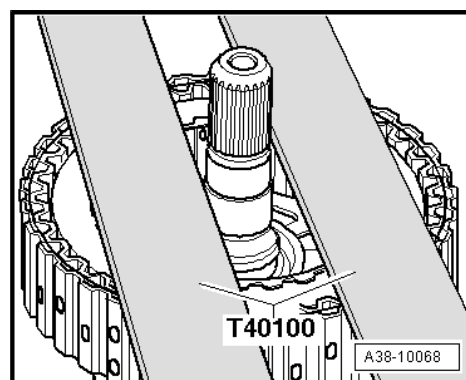
To ensure accuracy, the surfaces of all tools and components must be absolutely clean when performing the following measurements.

- Place the four gauge blocks -T40101- on the top shim.

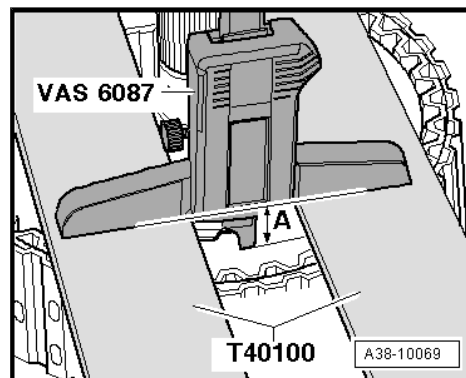
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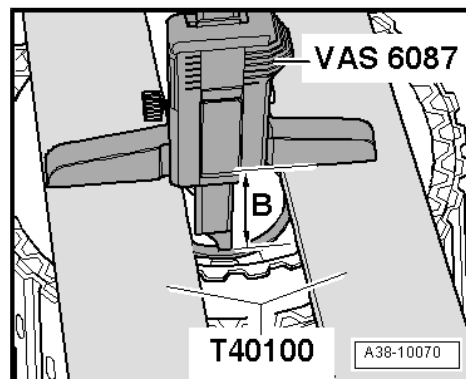
- Place a ruler -T40101- over the centre of each pair of gauge blocks -T40100- .



- Use digital depth gauge -VAS 6087- to measure down to shim and note down measured value -A-.
- When taking measurements, the digital depth gauge -VAS 6087- must make flush contact with both rulers -T40100- .



- Then use digital depth gauge -VAS 6087- to measure down to contact ring on shaft (contact surface of pressure plate) and note down measured value -B-.





- Subtract the two measured values “B – A” to obtain the distance -K- of the clutch.

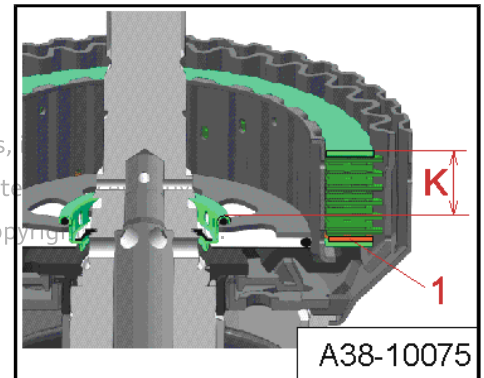
Calculating distance -K- of clutch: “B – A = K”



Note

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The corrugated washer -1- is fitted beneath the clutch pack for the measurement.

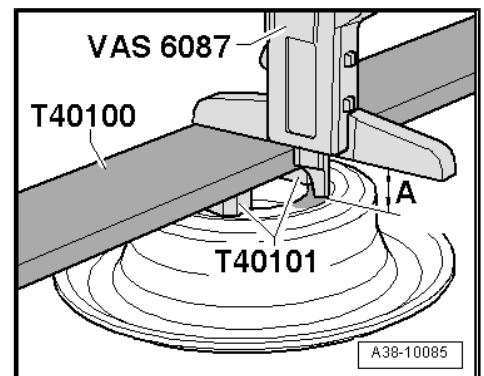
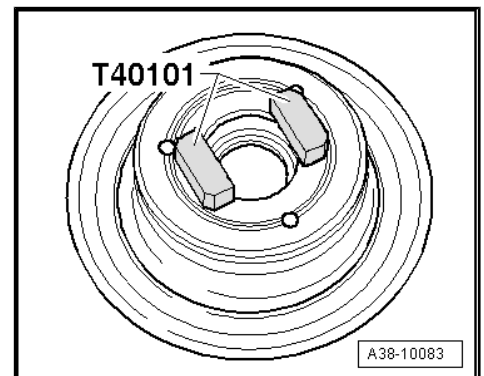


- Repeat the measurement on the opposite side of the input shaft and again determine the distance -K- of the clutch.
- Move the four gauge blocks -T40101- and the two rulers -T40100- through 90° on the input shaft and repeat the measurements.
- Take the four values determined for the distance -K- of the clutch and calculate the mean value M_K .

Mean value: “(value 1 + value 2 + value 3 + value 4) : 4 = M_K ”

Measuring the pressure plate

- First check for damage and renew if necessary
⇒ Fig. ““Checking piston and pressure plate for wear””, page 143 .
- Turn the pressure plate over and set it down on a flat, clean surface.
- Place the two gauge blocks -T40101- on the cleaned contact surface of the pressure plate.
- The gauge blocks -T40101- must make full contact with the clean contact surface and not rest on the edge.
- Place the rulers -T40100- over the centre of the gauge blocks -T40101- .
- Use digital depth gauge -VAS 6087- to measure down to upper contact surface and note down measured value -A-.





- Use digital depth gauge -VAS 6087- to measure down to lower contact surface and note down measured value -B-.
- Subtract the two measured values “B – A” to obtain the distance “D” of the two contact surfaces on the pressure plate.

Calculation of distance “D” on pressure plate: “B – A = D”

- Repeat the measurement at 2 further points on the pressure plate, offset by 120° in each case.
- Calculate the mean value for the pressure plate M_D from the three measured values.

Mean value: “(value 1 + value 2 + value 3) : 3 = M_D ”

Determining the clearance

- Determine clearance using the following formula:

	Mean value of pressure plate measurements “ M_D ” (value 1 + value 2 + value 3) : 3
–	Mean value of clutch measurements “ M_K ” (value 1 + value 2 + value 3 + value 4) : 4
=	Clearance

Clearance = “ M_D ” – “ M_K ”

Clearance specification: 1.4 ± 0.2 mm.

If specification is not obtained:

A - Measured value too low:

- Insert appropriately thinner shim. It may also be necessary to renew the bottom shim.
- Check clearance again after inserting new shim ⇒ [page 88](#) .

B - Measured value too high:

- Insert appropriately thicker shim. It may also be necessary to renew the bottom shim.
- Check clearance again after inserting new shim ⇒ [page 88](#) .

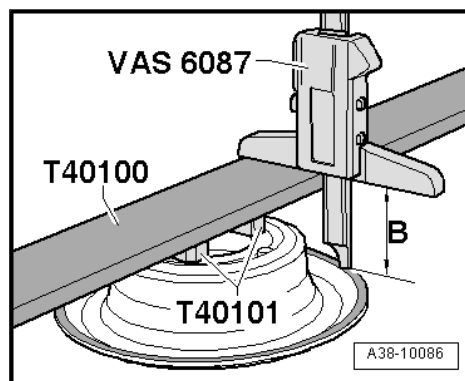
The following shims are available:

Available shims [thickness in mm]		
1.90	2.15	2.65
2.90	3.15	



Note

The clearance can be adjusted by means of the top and bottom shims.





If specification is obtained:

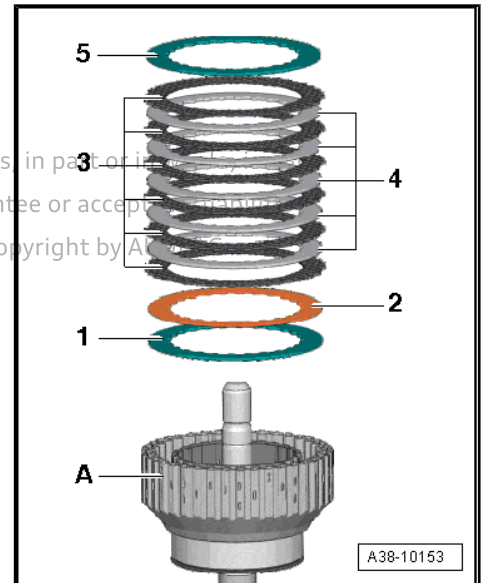
- Take all shims, friction plates, outer plates and the corrugated washer -5-, -4-, -3-, -2- and -1- out of input shaft cylinder -A-.



Caution

This step is necessary as the corrugated washer -2- is fitted above the bottom shim -1- only when adjusting the input shaft. When assembling the input shaft, the corrugated washer is fitted at the top.

- Assemble the input shaft ➔ [page 84](#) .





5 Exploded view - chain and pulley set "I"

Part 1

1 - ATF filter

- ☐ Different versions
- ☐ Removing and installing ⇒ [page 118](#)

2 - Bearing "D"

- ☐ Roller bearing for pulley set "I"
- ☐ Different versions: with or without inner race
- ☐ Removing and installing ⇒ [page 115](#)

3 - Bearing "E"

- ☐ Ball bearing for pulley set "I"
- ☐ Removing and installing ⇒ [page 115](#)

4 - Intermediate housing

- ☐ Removing and installing ⇒ ["5.1 Removing and installing chain and pulley set I", page 96](#)

5 - Bolt

- ☐ Different types and lengths according to version
- ☐ Renew bolts
- ☐ Steel bolt, 25 Nm
- ☐ Aluminium bolt, 10 Nm + tighten 90° (1/4 turn) further

6 - Sender wheel "II"

- ☐ Always renew after removal
- ☐ Removing and installing ⇒ ["5.1 Removing and installing chain and pulley set I", page 96](#)

7 - Oil pipe

- ☐ Take care not to damage sealing surfaces
- ☐ Removing and installing ⇒ ["5.1 Removing and installing chain and pulley set I", page 96](#)

8 - Cover

- ☐ For sender wheel "II"

9 - Axial sealing element

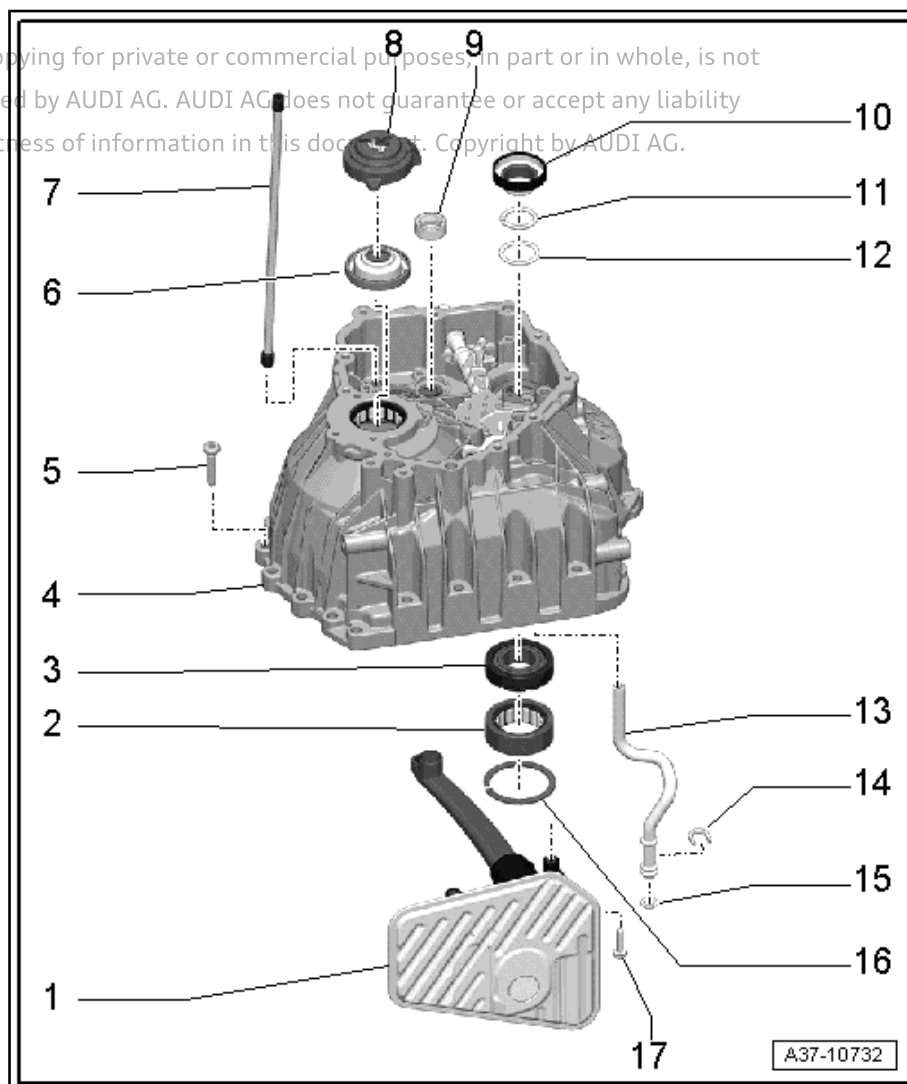
- ☐ For ATF filter
- ☐ Renew

10 - Sender wheel "I"

- ☐ Always renew after removal
- ☐ Removing and installing ⇒ ["5.1 Removing and installing chain and pulley set I", page 96](#)

11 - Circlip

- ☐ Renew





- ☐ Must be measured again to fit after renewing pulley set "I" ➔ [page 108](#)
- ☐ Must be properly seated in the base of the groove
- ☐ Installation position: the drillings in the eyes are tapered. The smaller side faces upwards

12 - Shim

- ☐ Must be measured again to fit after renewing pulley set "I" ➔ [page 108](#)

13 - Oil pipe

14 - Retaining clip

- ☐ For oil pipe

15 - O-ring

- ☐ Renew

16 - Circlip

- ☐ For ball bearing and roller bearing

17 - Bolt

- ☐ 10 Nm

Part 2

1 - Gearbox housing

- ☐ With pulley set "II"

2 - Dowel sleeve

3 - Gasket

- ☐ Renew

4 - Pulley set "II"

- ☐ Cannot be renewed separately

5 - Dowel sleeve

6 - Suction-jet pump

- ☐ Removing and installing
➔ [page 125](#)

7 - Guide rail

- ☐ Clipped onto oil pipe
-item 10-
- ☐ Install with chain inserted

8 - O-ring

- ☐ For oil pipe
- ☐ Renew

9 - Bolt

- ☐ 10 Nm

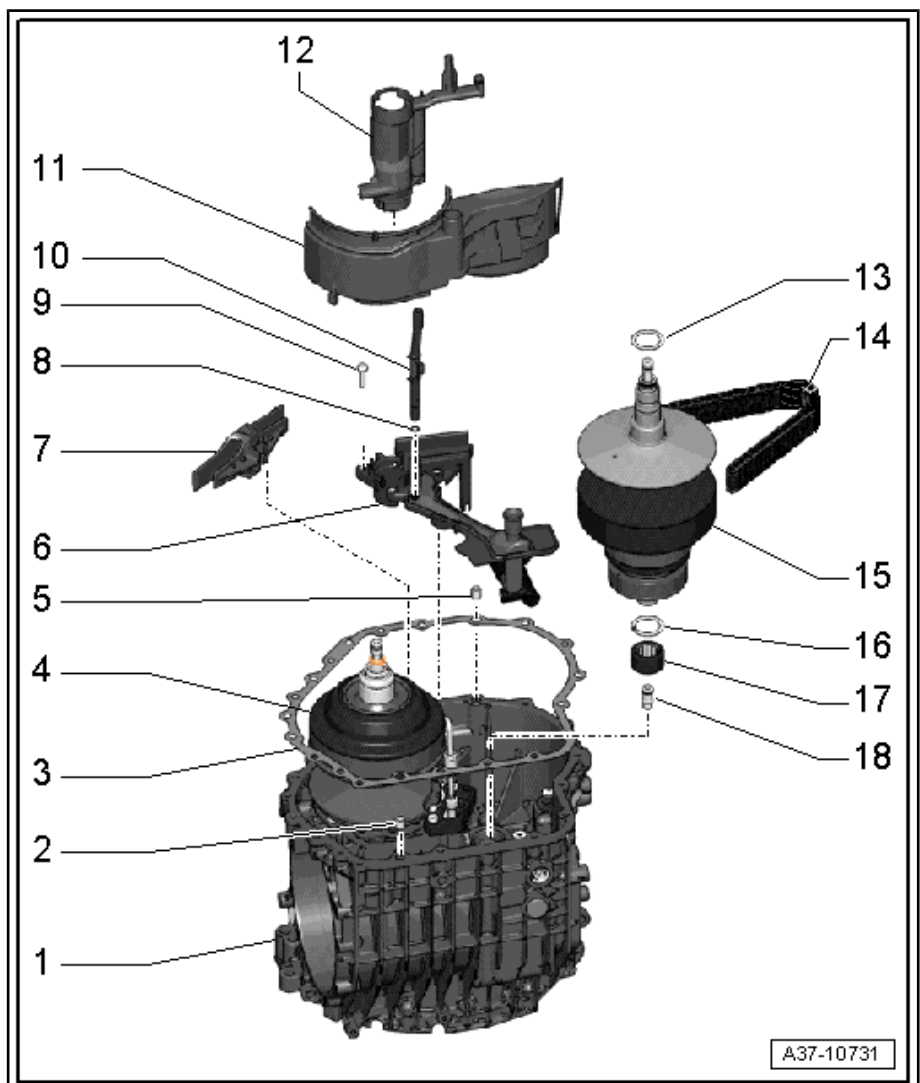
10 - Oil pipe

11 - Oil guide "I"

12 - Oil guide "II"

13 - Thrust washer

- ☐ Mark with paint
- ☐ Do not interchange with
shim ➔ [Item 12 \(page 95\)](#)





14 - Chain

- ❑ Removing and installing ⇒ [page 96](#)

15 - Pulley set "I"

- ❑ Removing and installing ⇒ [page 96](#)
- ❑ Renewing ⇒ [page 107](#)
- ❑ After renewing unit, circlip ⇒ [Item 11 \(page 94\)](#) and shim ⇒ [Item 12 \(page 95\)](#) must be measured again to fit ⇒ ["5.2 Renewing pulley set I", page 107](#)

16 - Circlip

- ❑ For bearing "C"

17 - Bearing "C"

- ❑ Roller bearing for pulley set "I"
- ❑ Removing and installing ⇒ [page 111](#)

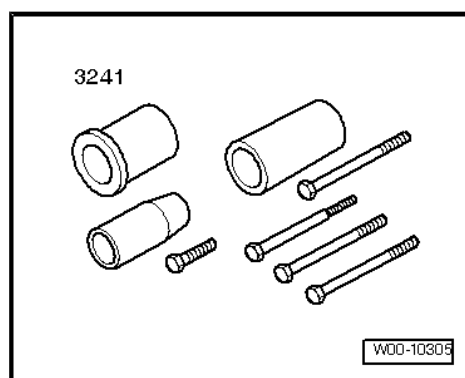
18 - Oil pipe

- ❑ With rectangular section seal
- ❑ Removing and installing ⇒ ["5.2 Renewing pulley set I", page 107](#)

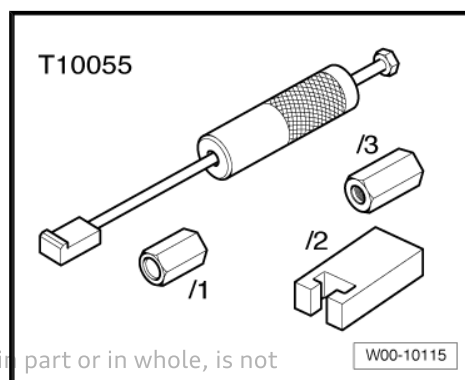
5.1 Removing and installing chain and pulley set "I"

Special tools and workshop equipment required

- ◆ Fitting sleeves - 3241-



- ◆ Puller - T10055-



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- ◆ Compressor tool -T40130-
- ◆ Thrust piece -T40131-
- ◆ Puller -T40132-
- ◆ Compressed air hose for tyre valves

Removing

Proceed as follows:

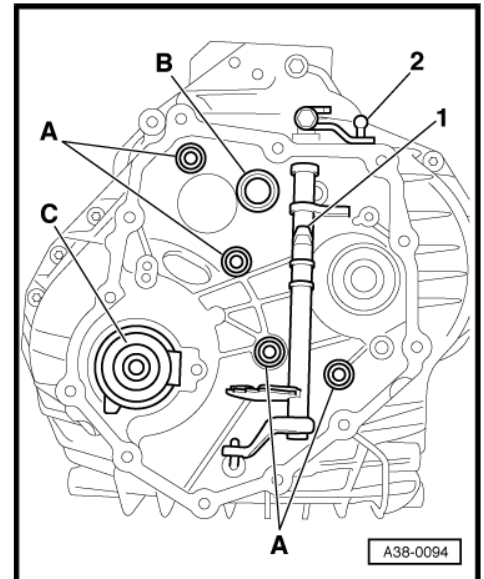


- Remove gearbox ⇒ multitronic 01J, front-wheel drive; Rep. gr. 37 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 37 .
- Secure gearbox to assembly stand ⇒ [page 14](#) .
- Remove end cover ⇒ multitronic 01J, front-wheel drive; Rep. gr. 38 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 38 .
- Remove automatic gearbox control unit - J217- ⇒ [page 26](#) .
- Remove hydraulic control unit ⇒ [page 31](#) .
- Remove axial sealing elements -A- (4x) and -B-.



Note

The axial sealing elements must be renewed.



- Remove cover -arrow- from sender wheel "II".



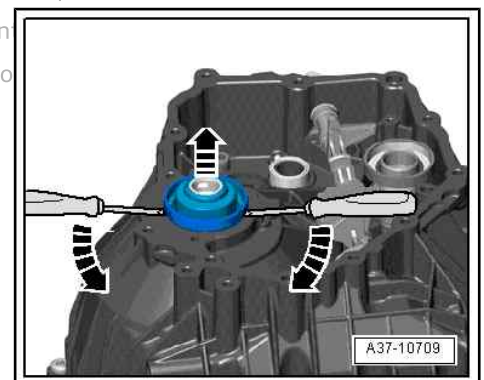
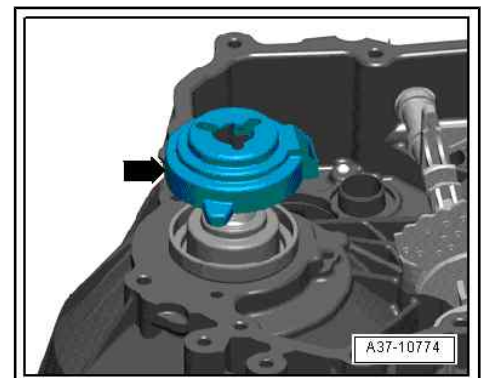
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- Use 2 screwdrivers to lever off sender wheel "II" -arrows-



Note

The sender wheel must be renewed.





- Use puller -T40132- and puller - T10055- to remove sender wheel "I".

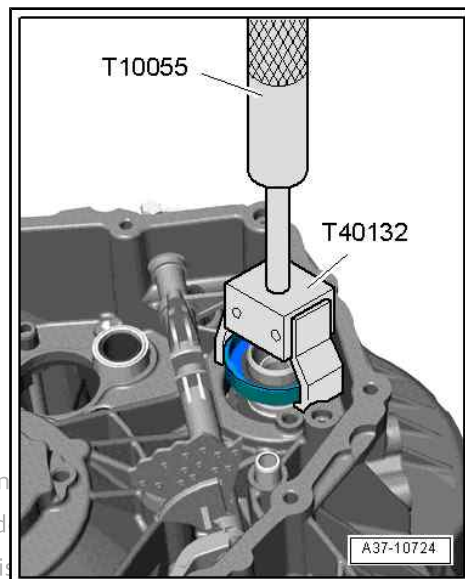


Note

The sender wheel must be renewed.



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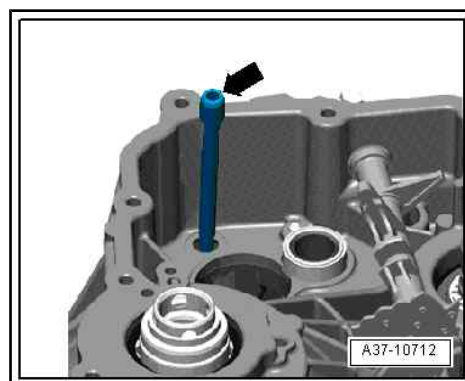


- Lift out oil pipe -arrow- by hand.



Note

Do not use a tool to avoid damaging the sealing surfaces.



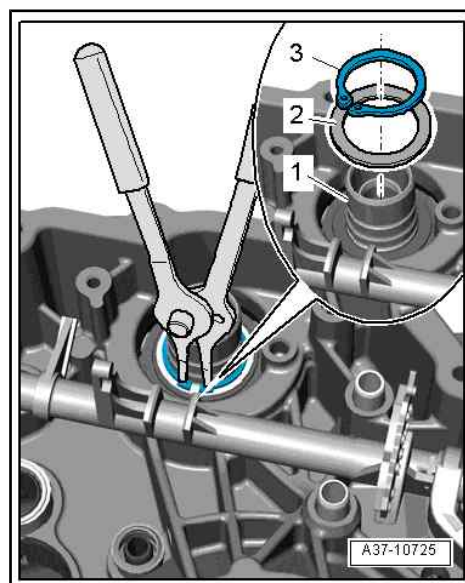
- Remove circlip -3- from shaft -item 1- for pulley set "I".
- Mark and remove shim -2-.



Caution

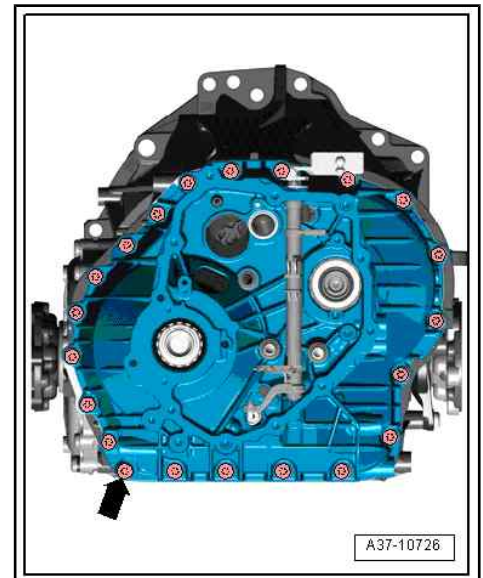
There is a risk that parts may be interchanged.

- ◆ **Make sure not to interchange thrust washer ⇒ Item 13 (page 95) and shim -2- underneath circlip -3-.**
- ◆ **Attach shim -2- to circlip -3- by means of a cable tie to prevent the parts from being interchanged.**





- Remove bolts for intermediate housing -arrow-; note different lengths and mark installation position of bolts if necessary.
- Detach intermediate housing.



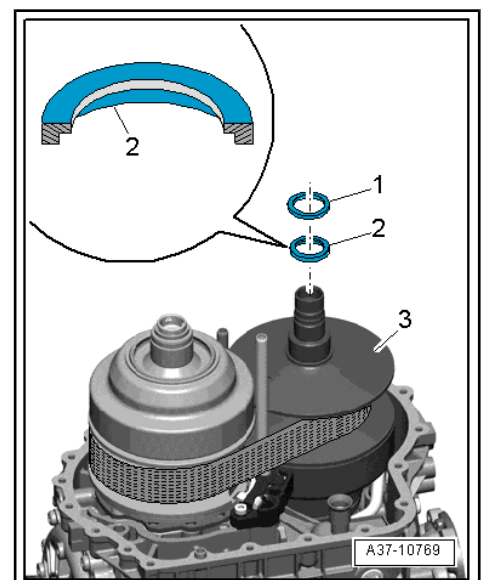
- Mark thrust washer -1- and remove from pulley set "I" -item 3-.
- Remove spacer -2- (only fitted on certain versions!) from pulley set "I".



Caution

There is a risk that parts may be interchanged.

- ◆ **Make sure not to interchange thrust washer -1- and shim ➔ Item 12 (page 95) underneath circlip.**
- ◆ **Mark thrust washer -1- with paint.**

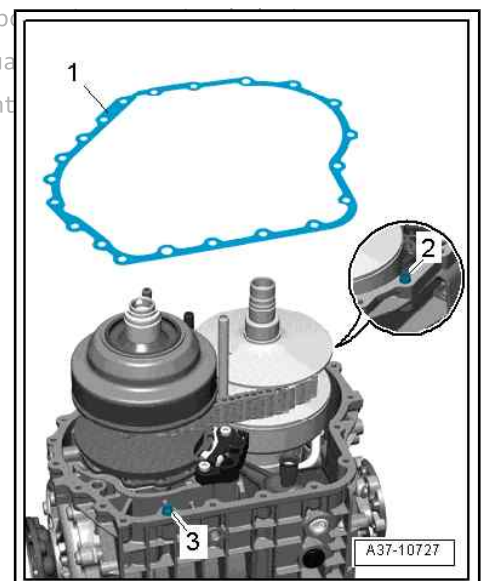


- Remove gasket -1- for intermediate housing.
- Remove dowel sleeve -3-.



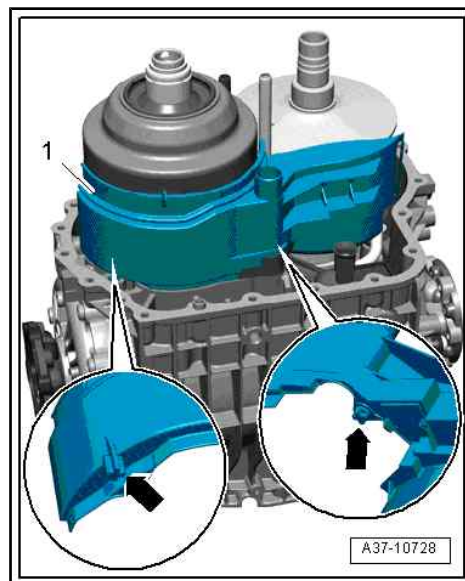
Note

- ◆ *Dowel sleeve -3- must be removed so that support bracket -T40130/1- can be attached to gearbox.*
- ◆ *Dowel sleeve -2- can remain inserted in gearbox.*

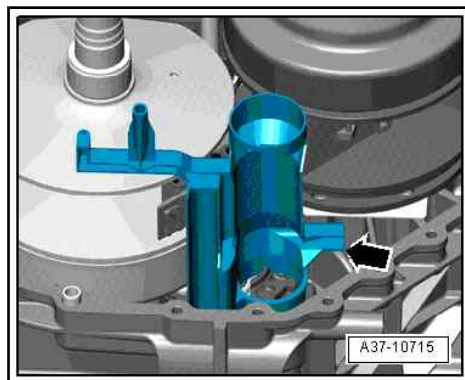




- Carefully disengage retaining pins -arrows- and detach oil guide "I" -item 1-.



- Lift out oil guide "II" -arrow-.



Measure height of chain:



Note

The height of the chain pins is used as a measure of chain height.

- Measure height -a- of chain pin -1-.



Note

- ♦ *Illustration shows sectional view of chain and chain pin -1-.*
- ♦ *The following two procedures differ according to the chain height.*

Gearboxes with chain height -a- = 34 mm:

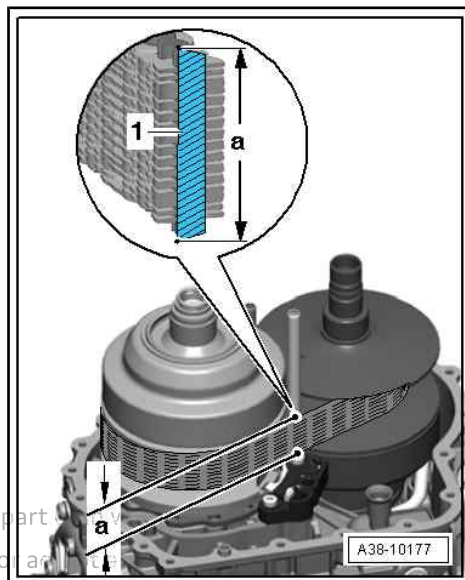
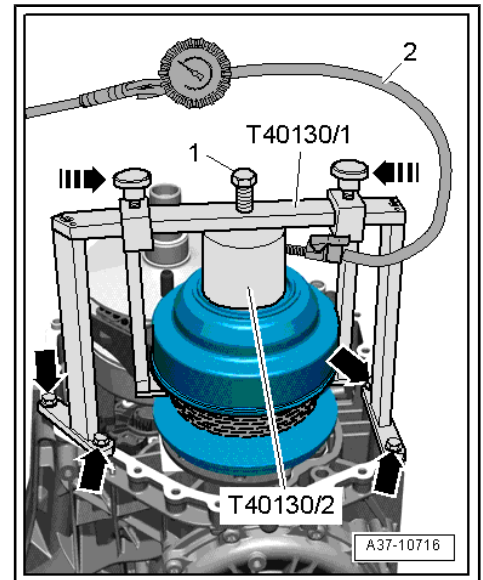


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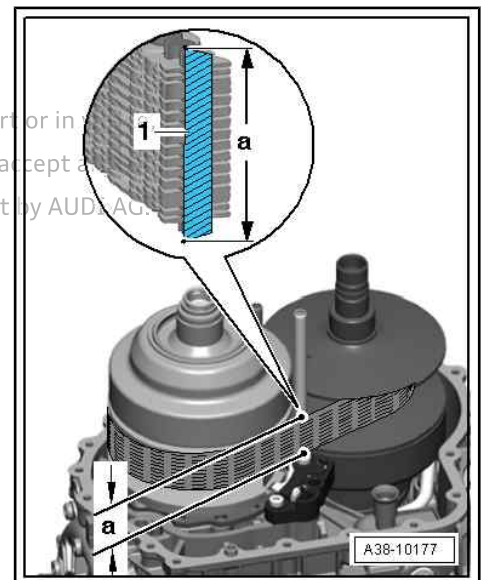


- Place adapter -T40130/2- on pulley set "II".
- Check that O-rings in adapter -T40130/2- are correctly positioned. Both O-rings must be present.
- O-rings in adapter -T40130/2- and sealing surfaces on pulley set must be clean and coated with ATF.
- Align support bracket -T40130/1- centrally on adapter -T40130/2- and bolt support bracket onto gearbox housing -bottom arrows-, as shown in illustration.
- Screw in bolt -1- until adapter -T40130/2- is pressed against pulley set "II".
- Connect compressed air hose -2- for tyre valves to adapter -T40130/2- and apply approx. 3 bar.
- The pulley set should open and the chain should relax.
- Slide in the two arresters in the direction of the -arrows- to secure the top side of the pulley.
- Lock the arresters in this position using the knurled screws, taking care not to trap the chain.



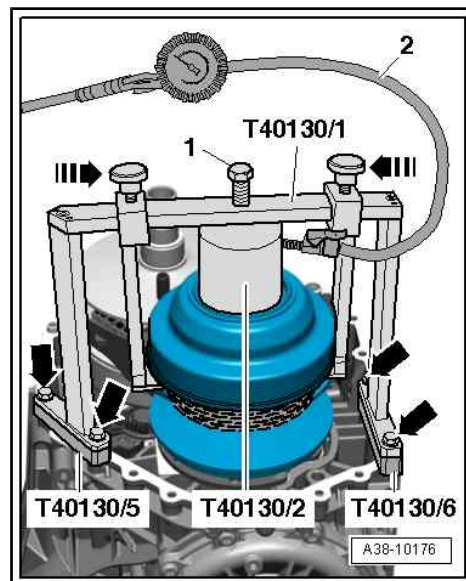
Gearboxes with chain height -a- = 38 mm:

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- Place adapter -T40130/2- on pulley set "II".
- Check that O-rings in adapter -T40130/2- are correctly positioned. Both O-rings must be present.
- O-rings in adapter -T40130/2- and sealing surfaces on pulley set must be clean and coated with ATF.
- Align support bracket -T40130/1- centrally on adapter -T40130/5- with spacers -T40130/6- and bolt support bracket onto gearbox housing -bottom arrows-, as shown in illustration.
- Screw in bolt -1- until adapter -T40130/2- is pressed against pulley set "II".
- Connect compressed air hose -2- for tyre valves to adapter -T40130/2- and apply approx. 3 bar.
- The pulley set should open and the chain should relax.
- Slide in the two arresters in the direction of the -arrows- to secure the top side of the pulley.
- Lock the arresters in this position using the knurled screws, taking care not to trap the chain.



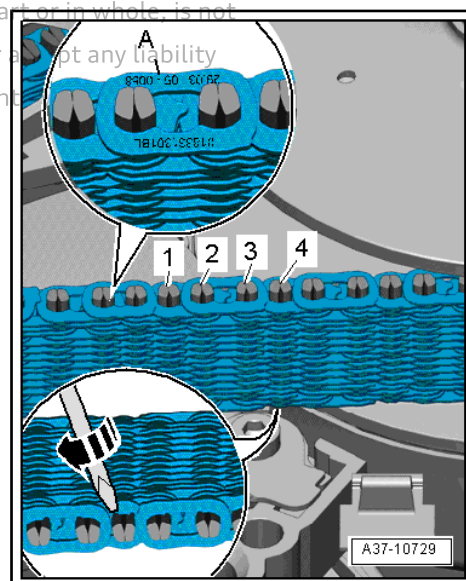
Continued for gearboxes with any chain height:

- Turn chain until link with production date stamp -A- is visible.
- Open chain at fourth chain pin away from link with date stamp.
- Place cloth under chain to prevent welding spots from falling into gearbox.
- Break off welding spots on both halves of the fourth chain pin -arrow- on bottom of chain.
- Lift out the two-piece chain pin.

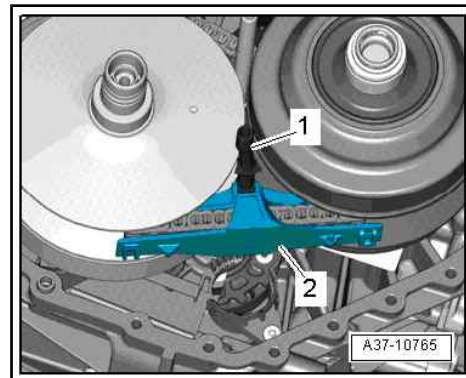


Caution

Do not kink the chain (risk of damage).



- Mark installation position of guide rail -2- for refitting.
- Unclip guide rail at oil pipe -1- and detach chain and guide rail.





- Lift out pulley set “I” -arrow-.

Installing

- Tightening torques ➔ [page 94](#)



Caution

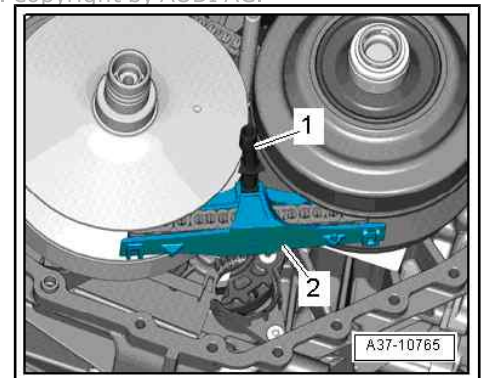
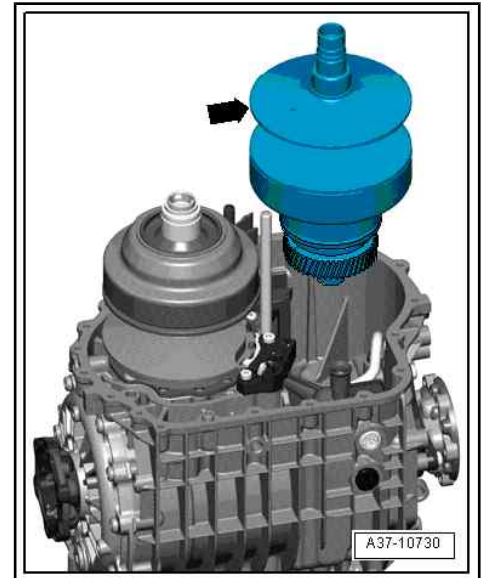
- ◆ Assess wear on bearing “D” and bearing “E” ➔ [page 145](#).
- ◆ Assess wear on chain, pulley sets “I” and “II”, bearing “C” and suction-jet pump ➔ [page 147](#).



Note

If pulley set “I” is renewed, shim and circlip must be measured again to fit ➔ [page 108](#).

- Carefully insert pulley set “I” -arrow- into roller bearing.
- Splines must engage in splines on input shaft.
- Clean chain and remove any swarf between the links.
- Clip guide rail -2- onto oil pipe -1- with chain inserted (refer to marking made upon removal to facilitate installation).



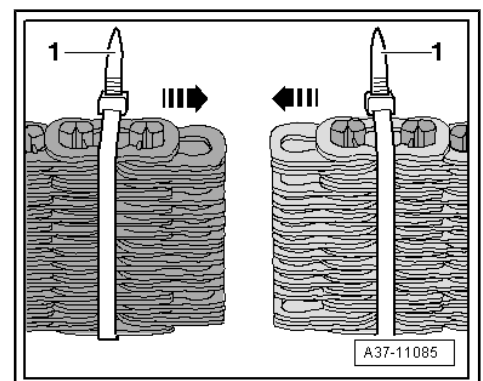
- Feed chain through until the two open ends meet.
- Tension open ends of chain with a cable tie -1- at each end, as shown in illustration.



Note

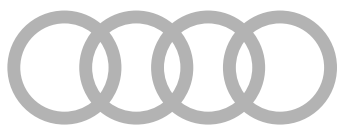
Tensioning with cable ties keeps the links parallel and firmly in position and ensures they are straight when they are joined.

- Join chain -arrows- so that all of the links are sitting straight and parallel to each other.

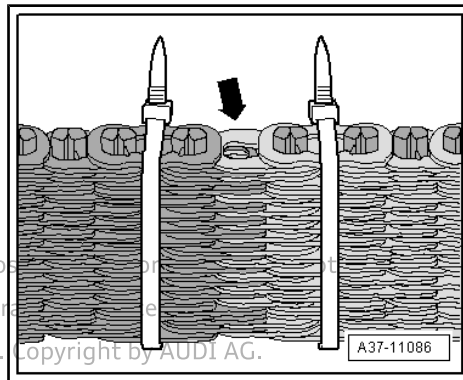




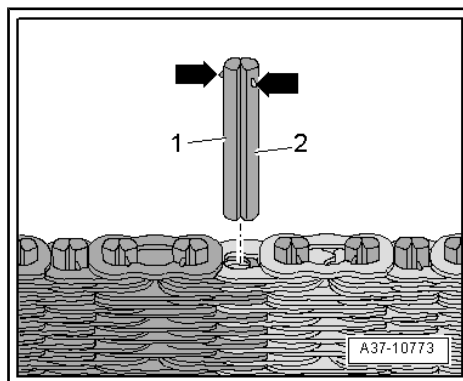
- The distance between the links -arrow- varies for design reasons.



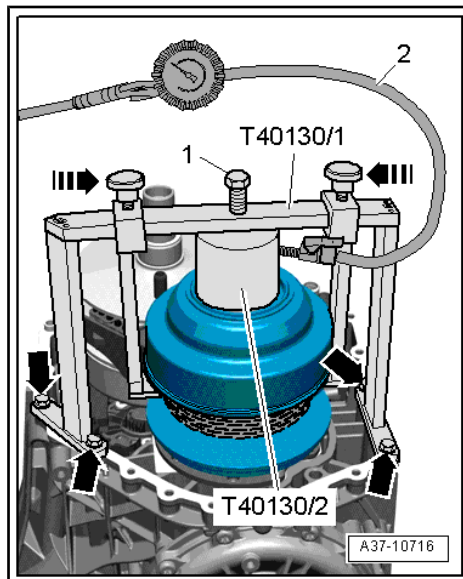
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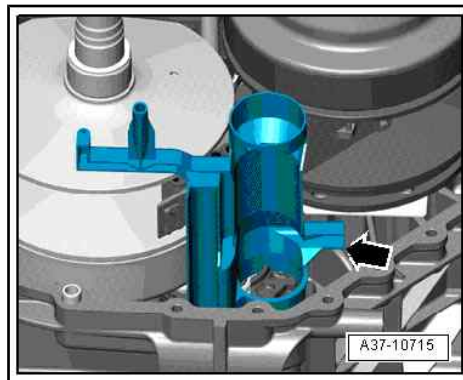
- Insert the two halves of the chain pin -1- and -2- from above, as shown in illustration.
- The welding spots which are still intact -arrows- should be nearest the top.
- The welding spots which were broken off the chain pin should be nearest the bottom.
- The two halves of the chain pin are asymmetrical in shape.
- Remove cable ties attached to chain.



- Release knurled screws and slide arresters outwards in opposite direction of -arrows-.
- Disconnect compressed air hose -2- for tyre valves from adapter -T40130/2-.
- Release air from adapter -T40130/2- via compressed air valve.
- This is done by pressing down the valve needle with a small screwdriver.
- The pulley set should close and the chain should tighten.

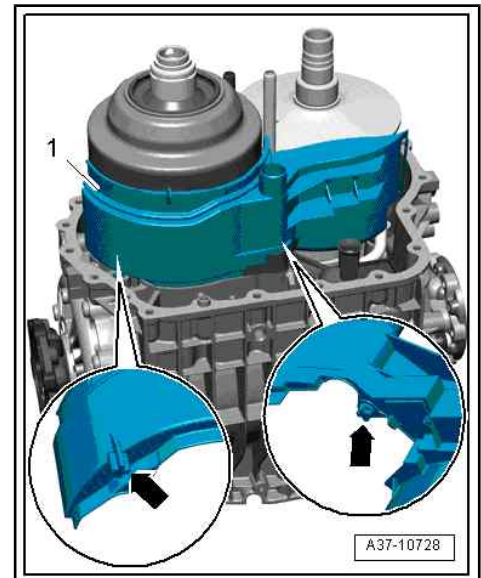


- Insert oil guide "II" -arrow-.





- Insert oil guide "I" -item 1-.
- Retaining pins -arrows- must fit into holes on gearbox housing.



- Fit spacer -2- (if one was installed). Note installation position, as illustrated in sectional view.
- Fit thrust washer -1- onto pulley set "I" -item 3- according to marking made upon removal.



Note

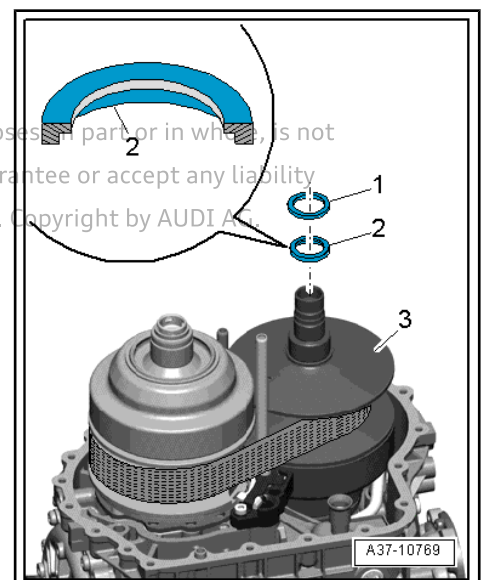
If a spacer -2- was fitted on pulley set "I", it should only be installed again if the existing bearing "D" (with inner race) has not been renewed. A spacer must not be installed in conjunction with a bearing "D" which does not have an inner race.



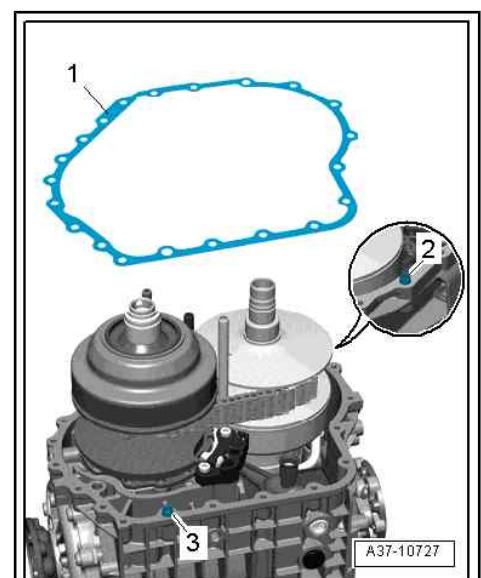
Caution

There is a risk that parts may be interchanged.

- ◆ **Make sure not to interchange thrust washer -1- and shim ➔ Item 12 (page 95) underneath circlip.**

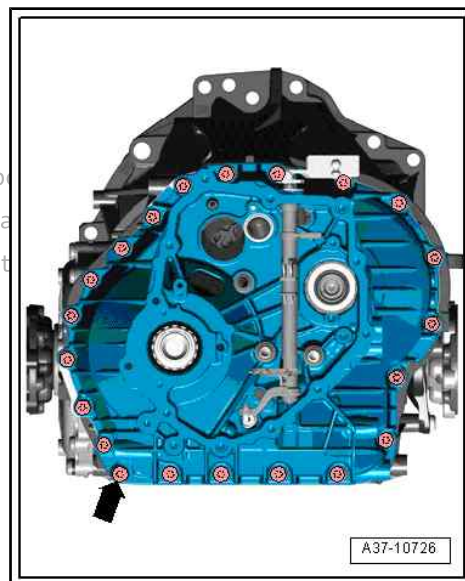


- Fit gasket -1- for intermediate housing.
- Check that dowel sleeves -2 and 3- are fitted and insert if necessary.





- Fit intermediate housing.
 - Screw in bolts -arrow- for intermediate housing and tighten diagonally in stages.
 - The bolts can have different lengths, depending on the version.
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Note

If the same pulley set "I" has been reinstalled, the existing shim and a new circlip (of the same thickness as the previous circlip) should be fitted.

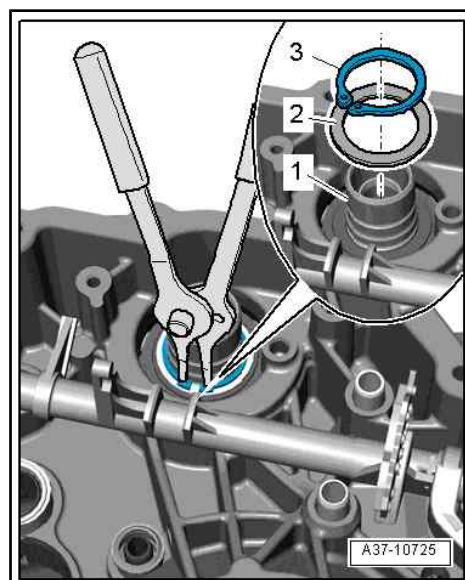
- Turn gearbox housing on assembly stand so that pulley set "I" rests against intermediate housing under its own weight.



Note

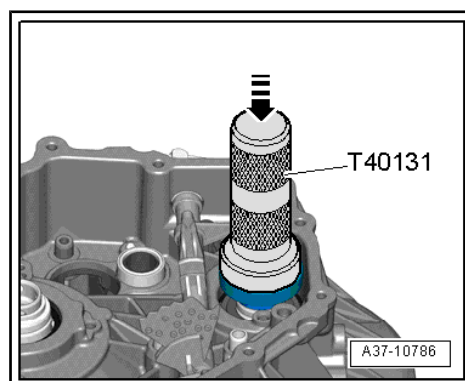
This allows the circlip -3- to be inserted in the groove on the shaft and ensures that the bearing is not damaged when the sender wheel "I" is subsequently fitted.

- Fit marked shim -2- onto shaft for pulley set "I" -item 1-.
- Insert new circlip -3- into groove on shaft for pulley set and press home.
- Note installation position: the drillings in the eyes of the circlip are tapered. The smaller side faces upwards.
- The circlip must be properly seated in the base of the groove.



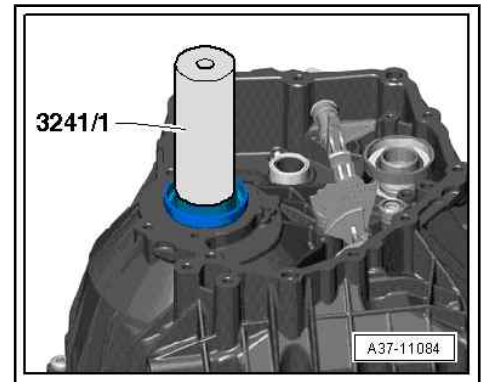
Note

- ◆ *The following illustration is shown with the intermediate housing on top, contrary to the true gearbox position.*
- ◆ *Always renew sender wheels "I" and "II".*
- Using a rubber-headed hammer, carefully knock new sender wheel "I" with press tool -T40131- -arrow- all the way onto shaft.





- Pull assembly aid -3241/2- out of fitting sleeve - 3241/1- .
- Using a rubber-headed hammer, carefully knock new sender wheel “II” with fitting sleeve - 3241/1- all the way onto shaft.
- Turn gearbox on assembly stand so that intermediate housing is facing upwards again.

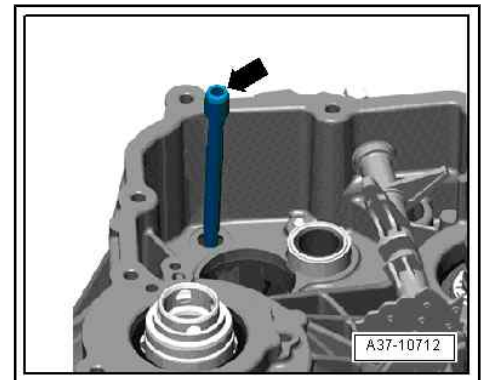


- Insert oil pipe -arrow- by hand.

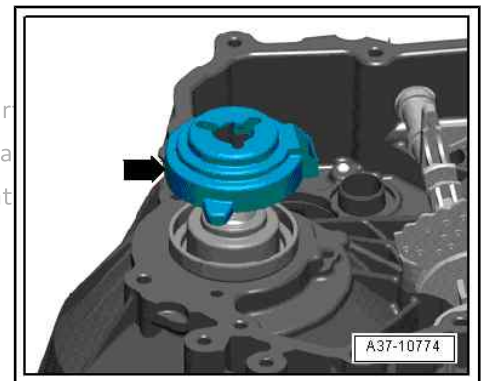


Note

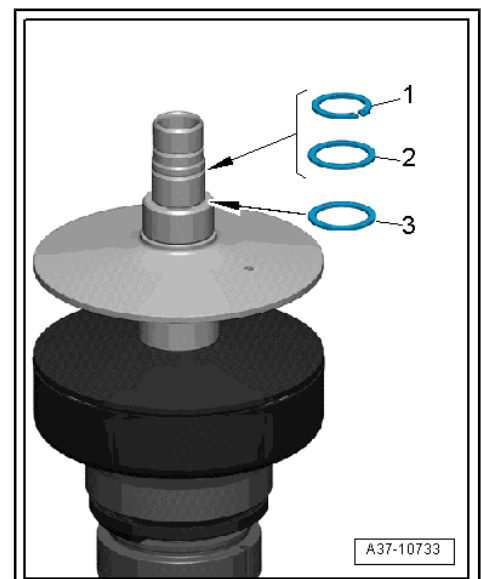
Do not use a tool to avoid damaging the sealing surfaces.



- Fit cover -arrow- on sender wheel “II”.
 - The locating element on the back of the cover must be inserted in the small hole on the surface of the gearbox.
- Install hydraulic control unit ➔ [page 31](#) .
- Install automatic gearbox control unit - J217- ➔ [page 26](#) .
- Install end cover ➔ multitronic 01J, front-wheel drive; Rep. gr. 38 , ➔ multitronic 0AN, front-wheel drive; Rep. gr. 38 .
- Install gearbox ➔ multitronic 01J, front-wheel drive; Rep. gr. 37 , ➔ multitronic 0AN, front-wheel drive; Rep. gr. 37 .



5.2 Renewing pulley set “I”





Note



- ◆ If pulley set "I" is renewed, the following steps are necessary:
- ◆ Bearings "D" and "E" for pulley set "I" must be renewed
⇒ [page 115](#).
- ◆ Bearing "C" must be checked for wear and renewed if necessary ⇒ [page 111](#).
- ◆ Shim -2- and circlip -1- must be measured again to fit
⇒ [page 108](#).
- ◆ The existing shim -3- should always be refitted.
- ◆ If a spacer -2- was fitted on the existing pulley set "I", the spacer should not be refitted. The spacer is only required for bearing "D" with inner race; this is always replaced by bearing "D" without inner race.

Procedure

- Remove chain and pulley set "I" ⇒ [page 96](#).
- Check wear on bearing "C" for pulley set "I" ⇒ [page 147](#); if necessary, renew bearing "C" ⇒ [page 111](#).
- Renew bearings "D" and "E" for pulley set "I" ⇒ [page 115](#).

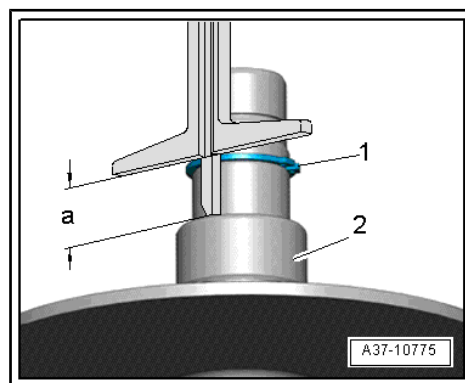
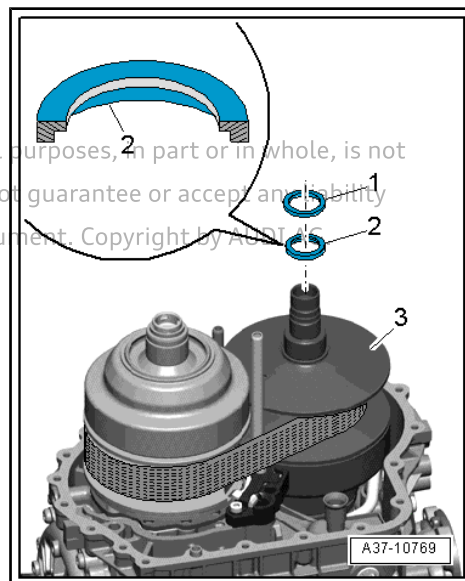
Determining thickness of shim and circlip

- Insert existing (old) circlip -1- for pulley set "I" into groove on existing (old) pulley set "I" -item 2-.
- Note installation position: the drillings in the eyes of the circlip are tapered. The smaller side faces upwards.
- The circlip must be properly seated in the base of the groove.
- Determine and note "dimension -a- (old)" as shown in illustration.



Note

"Dimension -a- (old)" is measured from the top side of the circlip to the contact surface.





- Insert existing (old) circlip for pulley set “I” in groove on new pulley set “I”.
- Note installation position: the drillings in the eyes of the circlip are tapered. The smaller side faces upwards.
- The circlip must be properly seated in the base of the groove.
- Determine and note “dimension -a- (new)” as shown in illustration.

If difference between “dimension -a- (old)” and “dimension -a- (new)” is less than 0.2 mm:

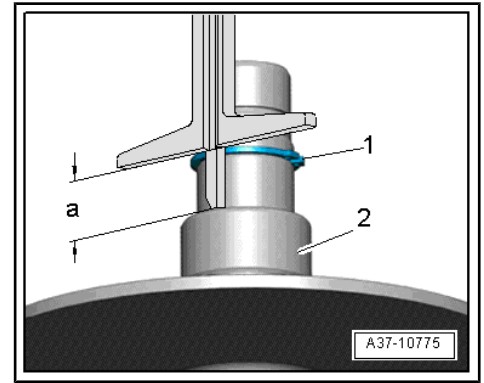
- Reinstall new circlip (of same thickness as old circlip) and existing shim with new pulley set “I”.

If difference between “dimension -a- (old)” and “dimension -a- (new)” is greater than 0.2 mm:

- Determine dimension of new shim as follows:

Example 1: “dimension -a- (new)” is greater than “dimension -a- (old)”

“Dimension -a- (new)”	34.90 mm
“Dimension -a- (old)”	– 34.55 mm
Difference -a-	= + 0.35 mm





Note

- ◆ *Dimension -b- is the total thickness of circlip -1- and shim -2-.*
- ◆ *"Dimension -b- (old)" is the previous total thickness; "dimension -b- (new)" is the new total thickness.*

Determining "dimension -b- (old)":

Existing circlip	1.90 mm
Existing shim	1.60 mm
"Dimension -b- (old)"	= 3.50 mm

Determining "dimension -b- (new)":

Formula: "dimension -b- (new)" = "dimension -b- (old)" + difference -a-

"Dimension -b- (old)"	3.50 mm
Difference -a-	+ 0.35 mm
"Dimension -b- (new)"	= 3.85 mm

- From the available shims and circlips, choose the combination that comes nearest to "dimension -b- (new)".

Available shims and circlips [thickness in mm]	
Shims	Circlips
1.40	1.80
1.60	1.85
1.80	1.90
2.00	1.95
2.20	

Determining thickness of shim/circlip combination

New circlip	1.85 mm
New shim	+ 2.00 mm
"Dimension -b- (new)"	= 3.85 mm

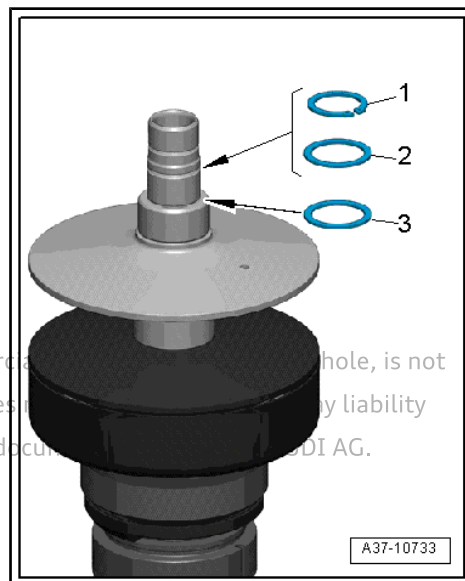


Note

The total thickness of the new shim and the new circlip must not exceed "dimension -b- (new)".

Example 2: "dimension -a- (new)" less than "dimension -a- (old)"

"Dimension -a- (new)"	34.40 mm
"Dimension -a- (old)"	– 34.85 mm
Difference -a-	= – 0.45 mm





Note

- ◆ *Dimension -b- is the total thickness of circlip -1- and shim -2-.*
- ◆ *"Dimension -b- (old)" is the previous total thickness; "dimension -b- (new)" is the new total thickness.*

Determining "dimension -b- (old)":

Existing circlip	1.90 mm
Existing shim	2.00 mm
"Dimension -b- (old)"	= 3.90 mm

Determining "dimension -b- (new)":

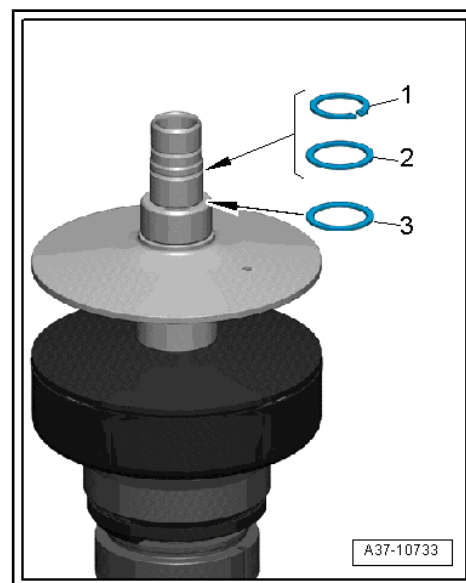
Formula: "dimension -b- (new)" = "dimension -b- (old)" – difference -a-	
"Dimension -b- (old)"	3.90 mm
Difference -a-	– 0.45 mm
"Dimension -b- (new)"	= 3.45 mm

- From the available shims and circlips, choose the combination that comes nearest to "dimension -b- (new)".

Available shims and circlips [thickness in mm]	
Shims	Circlips
1.40	1.80
1.60	1.85
1.80	1.90
2.00	1.95
2.20	

Determining thickness of shim/circlip combination

New circlip	1.85 mm
New shim	+ 1.60 mm
Dimension -b- "(new)"	= 3.45 mm



Note

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The total thickness of the new shim and the new circlip must not exceed "dimension -b- (new)".

Assembling

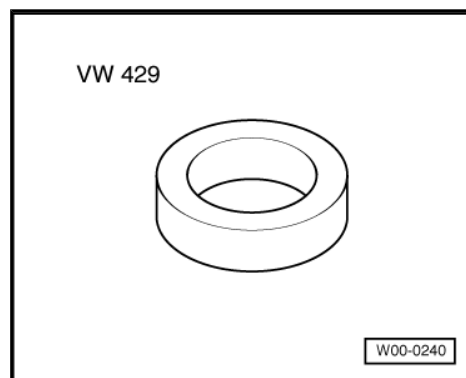
- Install new chain and new pulley set "I" ➔ [page 96](#) .

5.3 Removing and installing bearing "C" for pulley set "I"

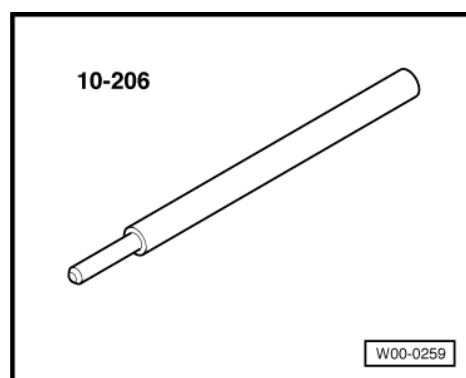
Special tools and workshop equipment required



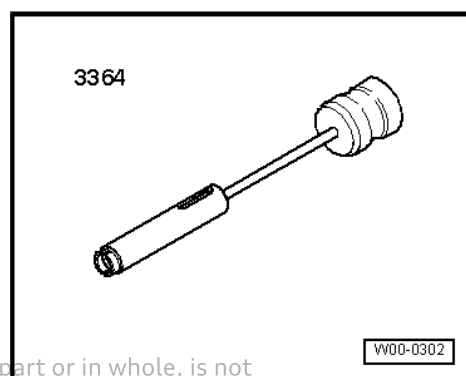
◆ Thrust ring - VW 429-



◆ Drift - 10 - 206-



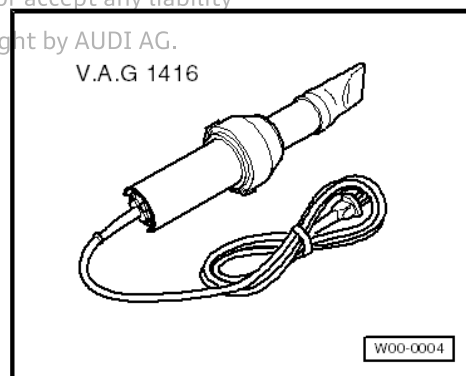
◆ Valve stem seal puller - 3364-



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◆ Hot air blower - V.A.G 1416-

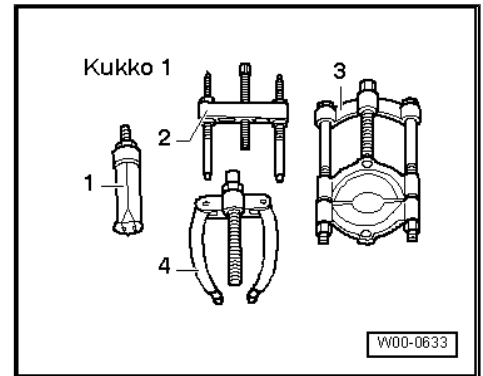
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◆ Thrust piece -T40145-



- ◆ Support bridge, commercially available, e.g. KUKKO 22-1



- ◆ Inner puller, commercially available, e.g. SCHREM 20 ... 29.5

Removing

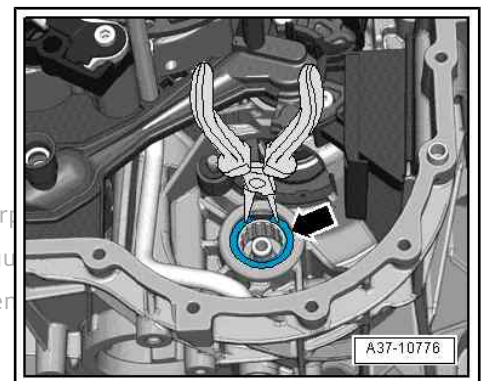
- Remove chain and pulley set "I" ➤ [page 96](#) .
- Remove suction-jet pump ➤ [page 125](#) .



Note

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The suction-jet pump must be removed to prevent it from being damaged when heating the gearbox housing.

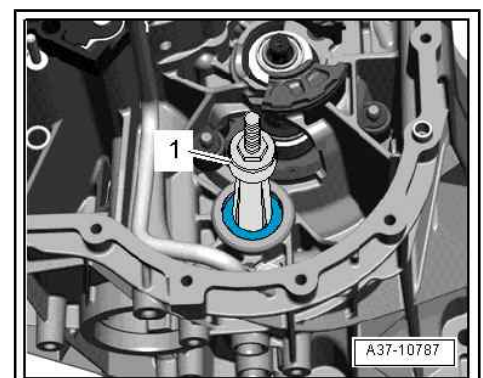
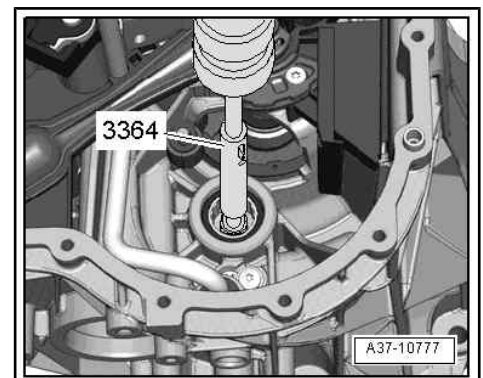
- Remove circlip -arrow-.
- Attach valve stem seal puller - 3364- to oil pipe, as shown in illustration.
- If necessary, carefully tap puller onto oil pipe using a plastic hammer.



Note

The claws of the valve stem seal puller - 3364- cannot be closed completely.

- Carefully pull out oil pipe using valve stem seal puller - 3364- .
- Insert inner puller, commercially available, e.g. SCHREM 20 ... 29.5 -item 1- into bearing "C" and tighten.



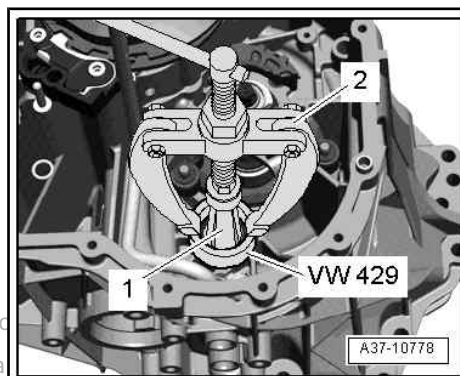
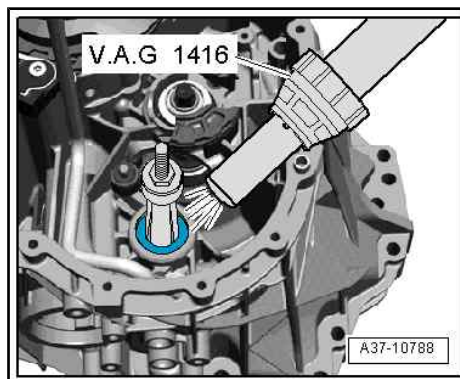


WARNING

Risk of burns!

- ◆ *Wear protective gloves.*

- Heat area of gearbox housing around bearing “C” for pulley set “I” to approx. 180 °C using hot air blower - V.A.G 1416- .
- Place thrust ring - VW 429- onto gearbox housing and align centrally around bearing “C” for pulley set “I”.
- Secure support bridge, commercially available, e.g. KUKKO 22-1 -item 2- to inner puller, commercially available, e.g. SCHREM 20 ... 29.5 -item 1- and support against thrust ring - VW 429- .
- Use chilling spray or similar to cool bearing “C” for pulley set “I” at several points.
- Pull bearing “C” for pulley set “I” out of gearbox housing in a straight line using support bridge, commercially available, e.g. KUKKO 22-1.



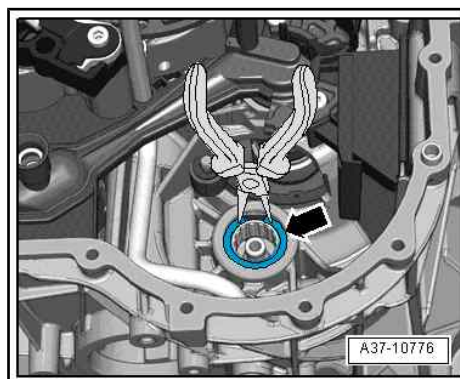
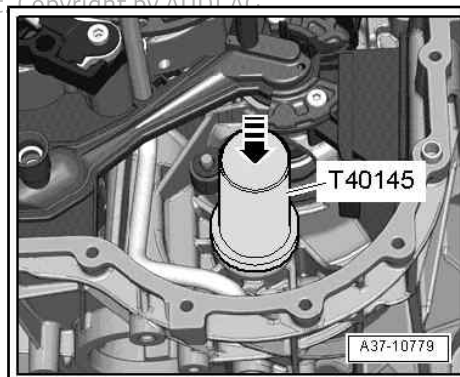
Installing



Caution

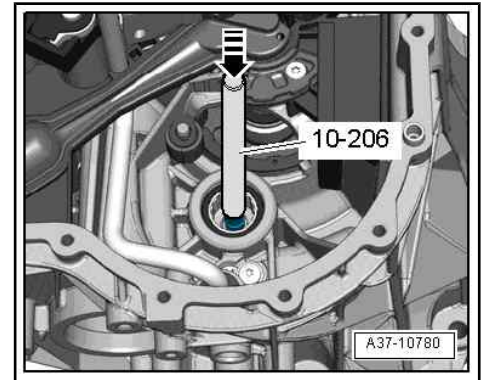
Assess wear on bearing “C” ➔ page 147 .

- Carefully drive in bearing “C” for pulley set “I” -arrow- as far as stop using thrust piece -T40145- .
- Installation position: flat, smooth side with inscription faces upwards towards thrust piece.
- Insert circlip -arrow-.





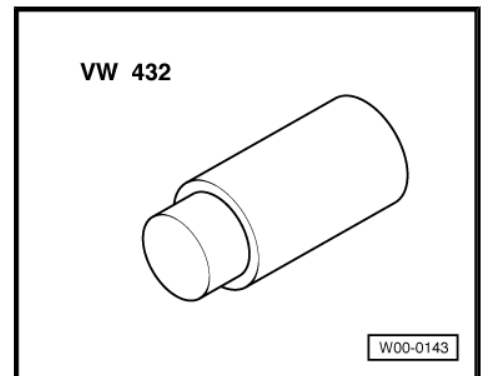
- Carefully drive in oil pipe -arrow- as far as stop using drift - 10 - 206- .
- Collar of oil pipe must make contact with gearbox housing all around its circumference.
- Install suction-jet pump ➔ [page 125](#) .
- Install chain and pulley set "I" ➔ [page 96](#) .



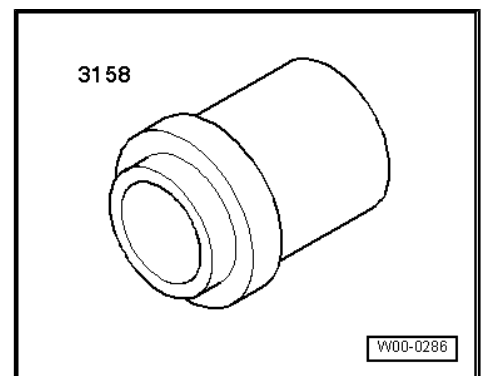
5.4 Renewing bearings "D" and "E" for pulley set "I"

Special tools and workshop equipment required

- ◆ Thrust piece - VW 432-



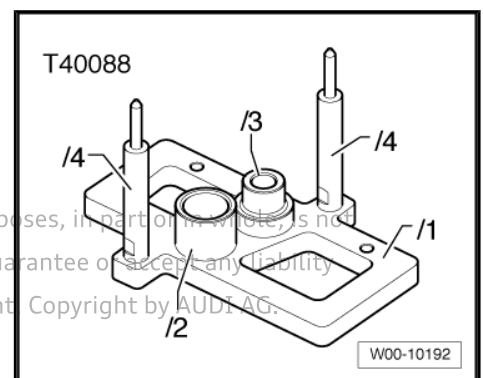
- ◆ Drift sleeve - 3158-



- ◆ Sleeve -T40088/2- from assembly tool - T40088-



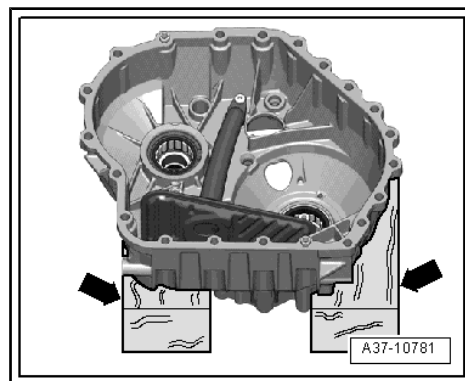
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Removing

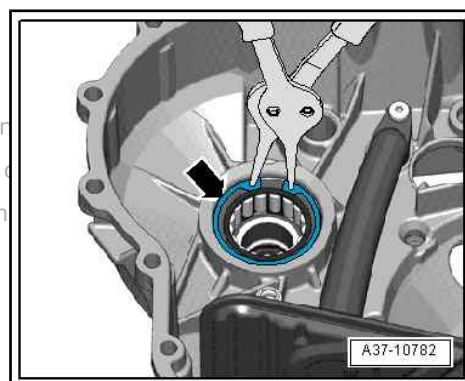
- Intermediate housing removed ⇒ [page 94](#)
- Place intermediate housing down on two wooden blocks -arrows- to prevent damage to selector shaft and sealing surface.



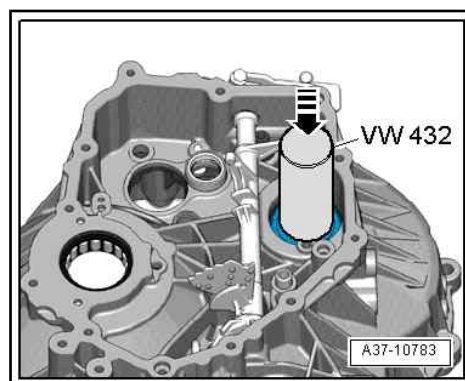
- Remove circlip -arrow-.



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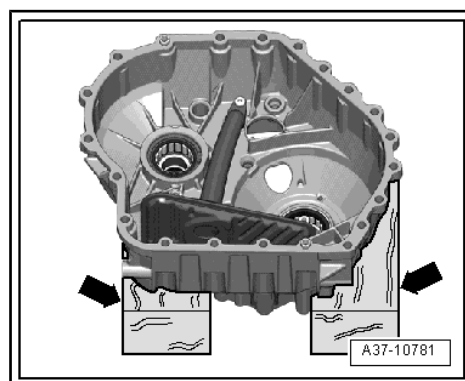


- Turn intermediate housing over.
- Drive out bearings “D” and “E” for pulley set “I” in direction of -arrow- using thrust piece - VW 432- .



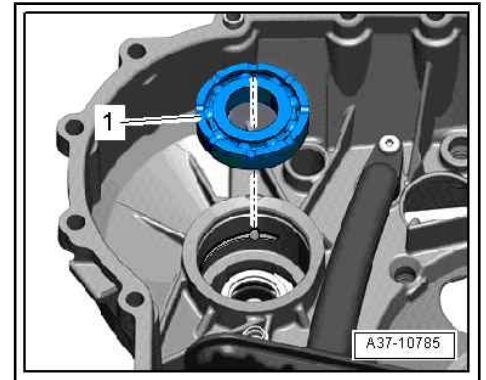
Installing

- Place intermediate housing down on two wooden blocks -arrows- to prevent damage to selector shaft and sealing surface.
- Bearing “E” must always be renewed after removal.

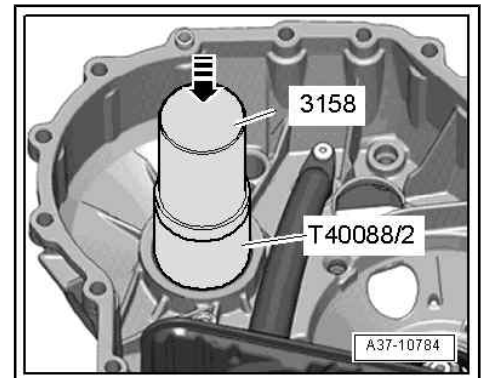




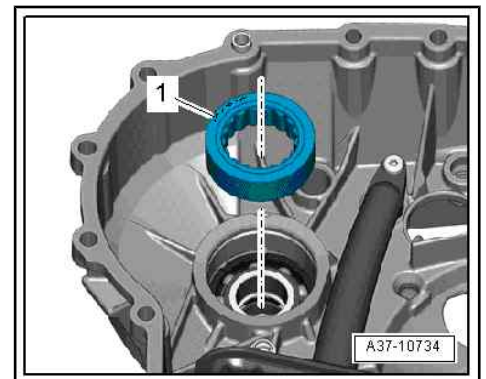
- Fit new bearing “E” (ball bearing for pulley set “I”) -item 1- in intermediate housing.
- Oil grooves in outer bearing race face upwards.



- Drive in bearing “E” (ball bearing for pulley set “I”) in direction of -arrow- as far as stop using -T40088/2- from assembly tool - T40088- and drift sleeve - 3158- .



- Fit new bearing “D” (roller bearing for pulley set “I”) -item 1- in intermediate housing.
- Installation position: side with inscription faces upwards.

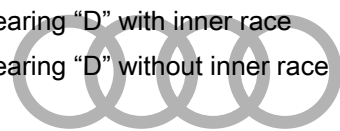


Note

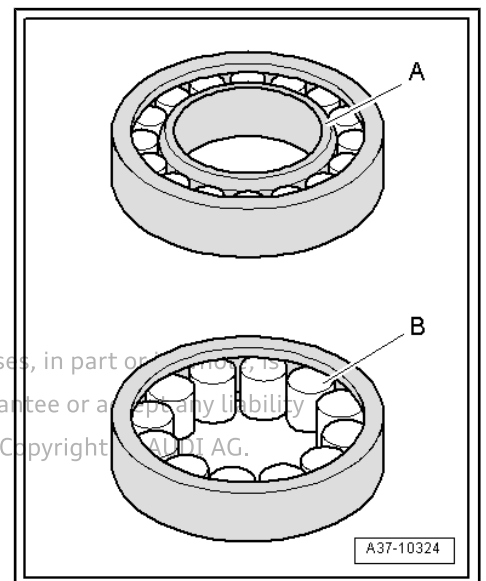
Different bearings are fitted, depending on the version:

A - Bearing “D” with inner race

B - Bearing “D” without inner race

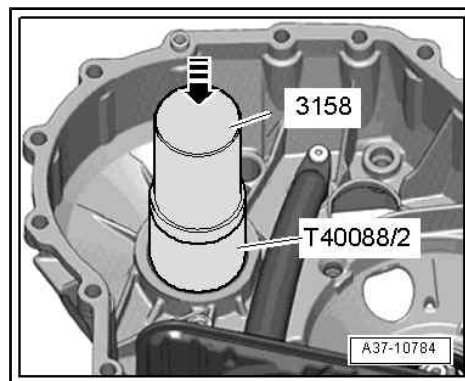


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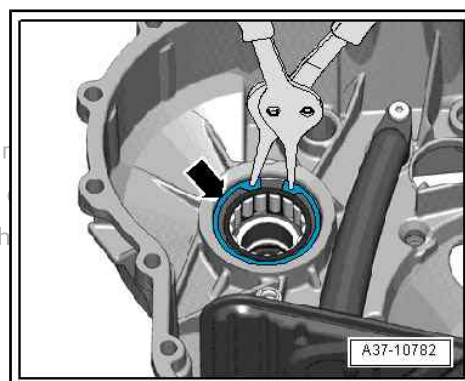
- Drive in bearing "D" (roller bearing for pulley set "I") in direction of -arrow- as far as stop using -T40088/2- from assembly tool - T40088- and drift sleeve - 3158- .



- Fit circlip -arrow- (press home if necessary).



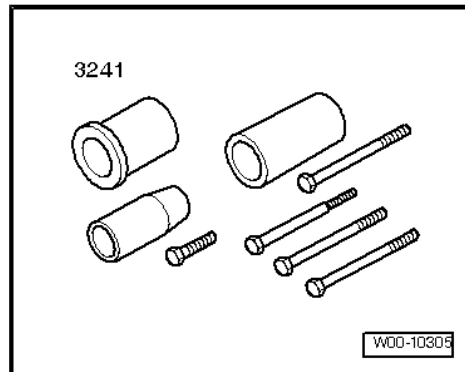
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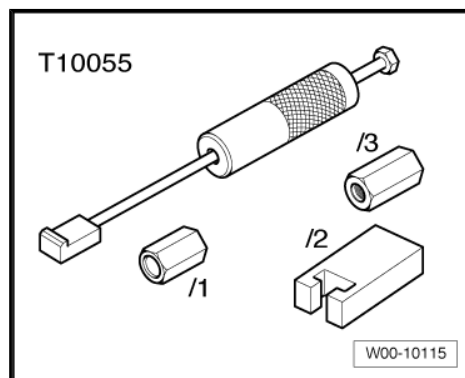
5.5 Removing and installing ATF filter

Special tools and workshop equipment required

- ◆ Fitting sleeves - 3241-



- ◆ Puller - T10055-



- ◆ Thrust piece -T40131-

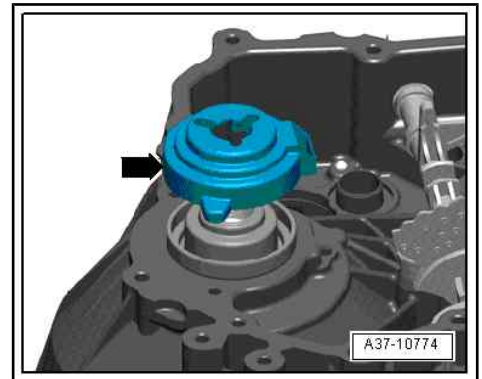
- ◆ Puller -T40132-



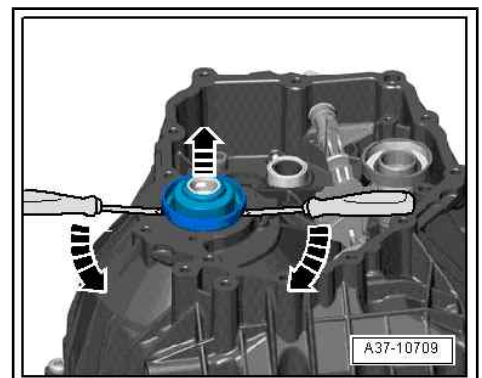
Removing

Proceed as follows:

- Remove gearbox ⇒ multitronic 01J, front-wheel drive; Rep. gr. 37 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 37 .
- Secure gearbox to assembly stand ⇒ [page 14](#) .
- Remove end cover ⇒ multitronic 01J, front-wheel drive; Rep. gr. 38 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 38 .
- Remove automatic gearbox control unit - J217- ⇒ [page 26](#) .
- Remove hydraulic control unit ⇒ [page 31](#) .
- Remove cover -arrow- from sender wheel “II”.



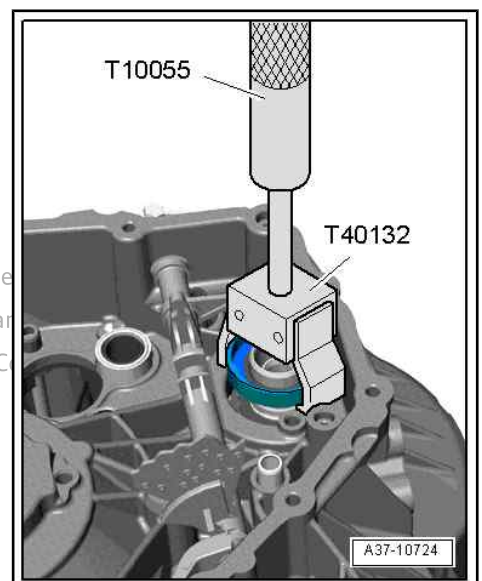
- Use 2 screwdrivers to lever off sender wheel “II” -arrows-.



- Use puller -T40132- and puller - T10055- to remove sender wheel “I”.



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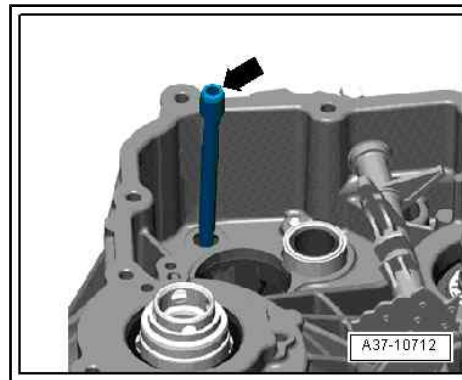


- Lift out oil pipe -arrow- by hand.



Note

Do not use a tool to avoid damaging the sealing surfaces.



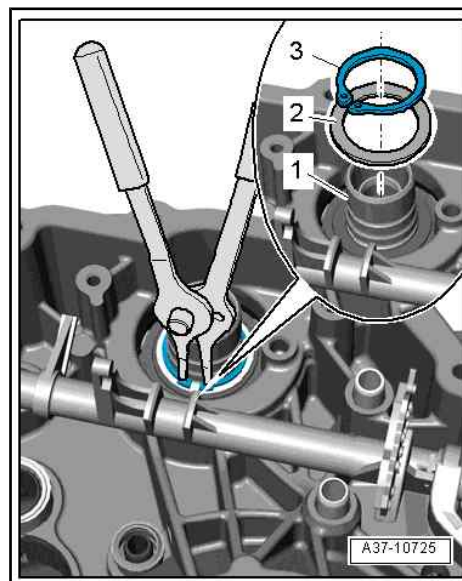
- Remove circlip -3- from shaft -item 1- for pulley set "I".
- Mark and remove shim -2-.



Caution

There is a risk that parts may be interchanged.

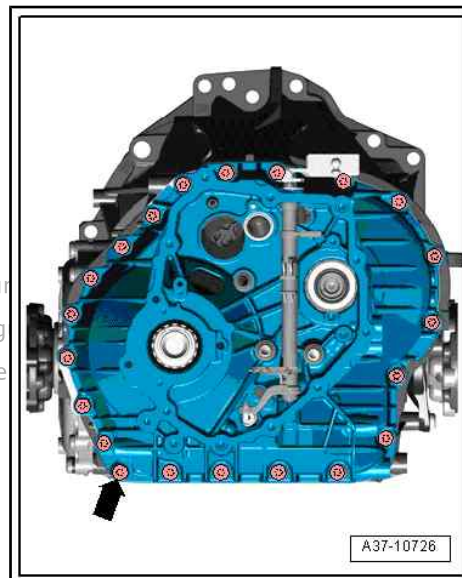
- ◆ **Make sure not to interchange thrust washer**
⇒ Item 13 (page 95) and shim -2- underneath circlip -3-.
- ◆ **Attach shim -2- to circlip -3- by means of a cable tie to**
prevent the parts from being interchanged.



- Remove bolts for intermediate housing; note different lengths and mark installation position of bolts if necessary.
- Detach intermediate housing.



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i Note

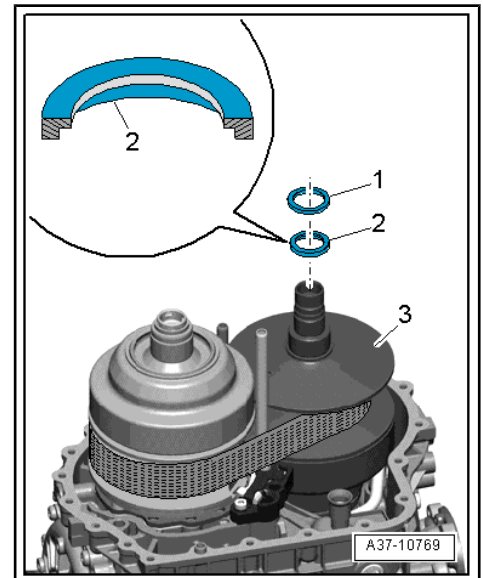
- ◆ Thrust washer -1- remains on pulley set "I" -item 3-.
- ◆ Spacer -2- (only installed on certain versions) also remains on pulley set "I" -item 3-.



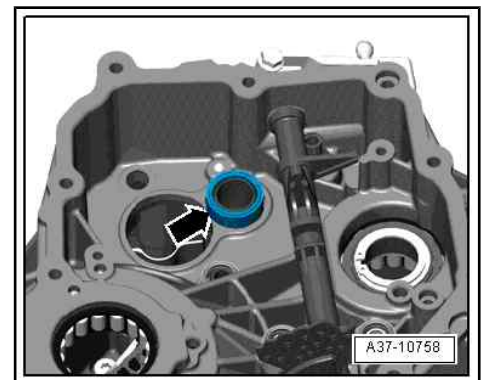
Caution

There is a risk that parts may be interchanged.

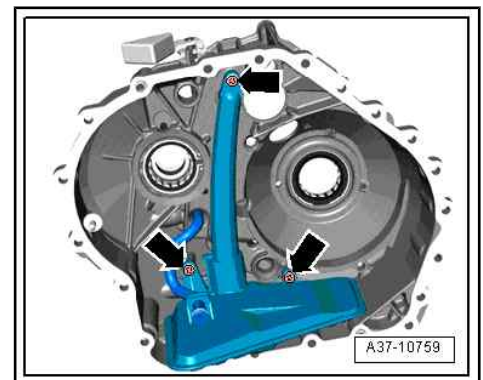
- ◆ **Make sure not to interchange thrust washer -1- and shim**
⇒ **Item 12 (page 95) underneath circlip.**



- Remove axial sealing element -arrow- for ATF filter from intermediate housing.



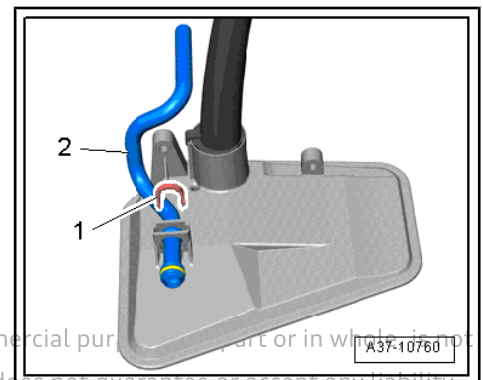
- Turn intermediate housing over.
- Remove bolts -arrows- and detach ATF filter together with oil pipe.



- Unclip retaining clip -1- and guide oil pipe -2- out of filter housing.

Installing

- Tightening torques ⇒ [page 94](#)
- Insert oil pipe -2- into filter housing, as shown in illustration, and secure with retaining clip -1-.

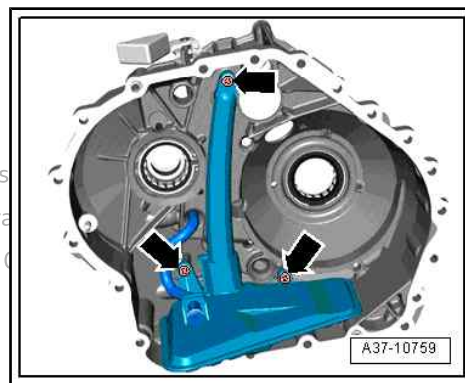


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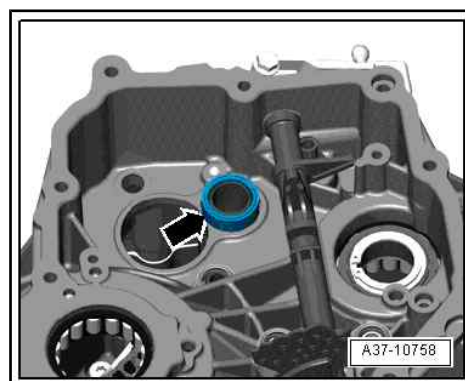


- Secure ATF filter together with oil pipe -arrows-.

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- Turn intermediate housing over.
- Fit axial sealing element -arrow- for ATF filter.



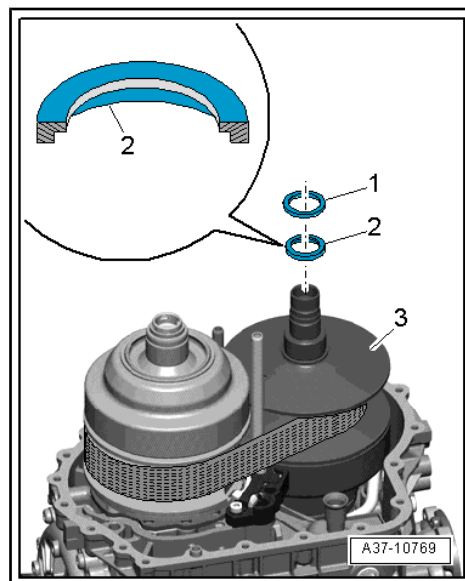
- Check that thrust washer -1- and spacer -2- (only installed on certain versions) are fitted on pulley set "1" -item 3-. Note installation position.



Caution

There is a risk that parts may be interchanged.

- ◆ **Make sure not to interchange thrust washer -1- and shim ➔ Item 12 (page 95) underneath circlip.**

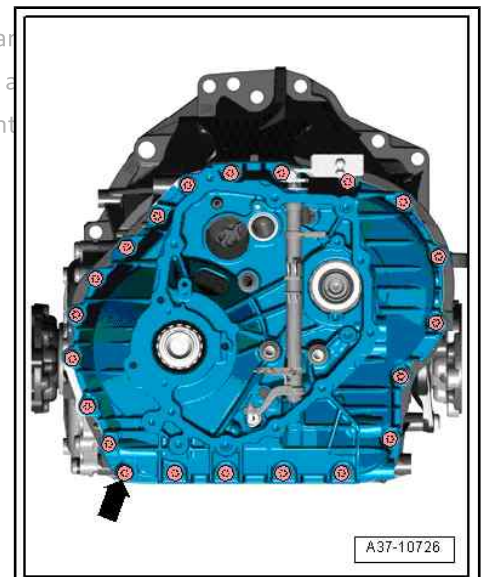
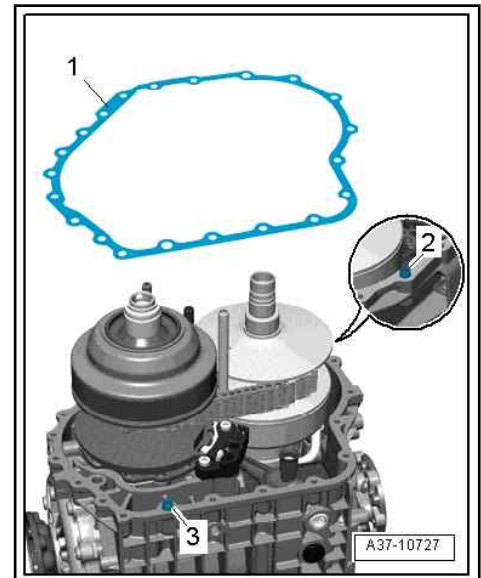




- Fit gasket -1- for intermediate housing.
- Check that dowel sleeves -2 and 3- are fitted and insert if necessary.



- Fit intermediate housing.
- Screw in bolts -arrow- for intermediate housing and tighten diagonally in stages.
- The bolts can have different lengths, depending on the version.

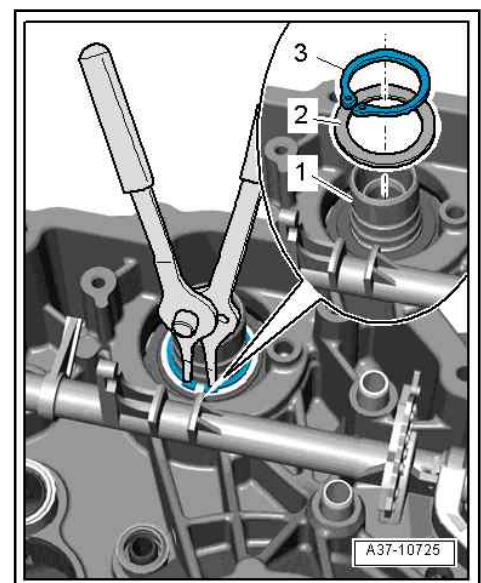


- Turn gearbox housing on assembly stand so that pulley set "I" rests against intermediate housing under its own weight.

Note

This allows the circlip -3- to be inserted in the groove on the shaft and ensures that the bearing is not damaged when the sender wheel "I" is subsequently fitted.

- Fit marked shim -2- onto shaft for pulley set "I" -item 1-.
- Insert new circlip -3- into groove on shaft for pulley set and press home.
- Note installation position: the drillings in the eyes of the circlip are tapered. The smaller side faces upwards.
- The circlip must be properly seated in the base of the groove.

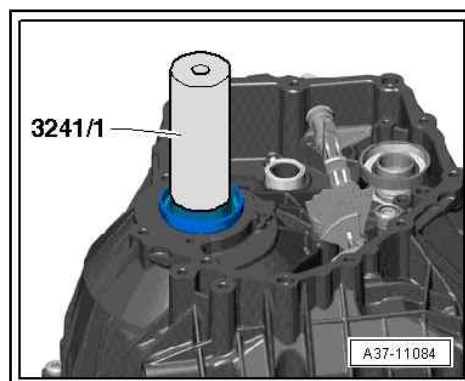
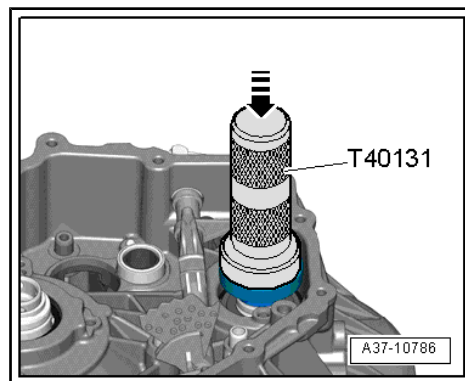




Note

The following illustration is shown with the intermediate housing on top, contrary to the true gearbox position.

- Using a rubber-headed hammer, carefully knock sender wheel "I" with press tool -T40131- -arrow- all the way onto shaft.
- Pull assembly aid -3241/2- out of fitting sleeve - 3241/1- .
- Using a rubber-headed hammer, carefully knock new sender wheel "II" with fitting sleeve - 3241/1- all the way onto shaft.
- Turn gearbox on assembly stand so that intermediate housing is facing upwards again.

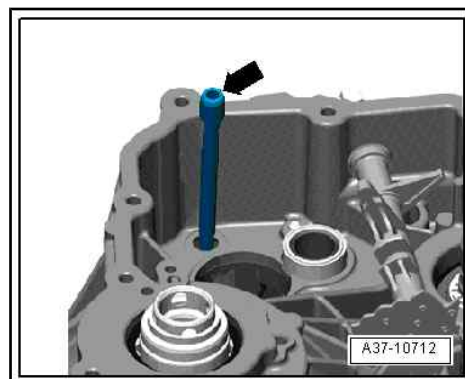


- Insert oil pipe -arrow- by hand.



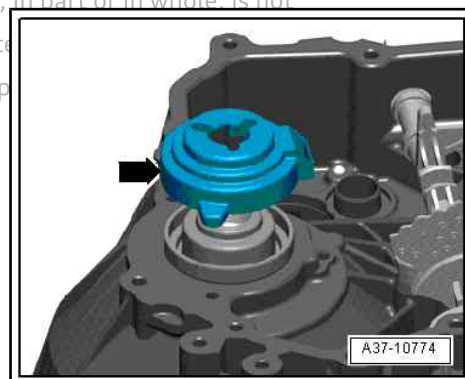
Note

Do not use a tool to avoid damaging the sealing surfaces.



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- Fit cover -arrow- on sender wheel "II".
- Install hydraulic control unit ➔ [page 31](#) .
- Install automatic gearbox control unit - J217- ➔ [page 26](#) .
- Install end cover ➔ multitronic 01J, front-wheel drive; Rep. gr. 38 , ➔ multitronic 0AN, front-wheel drive; Rep. gr. 38 .
- Install gearbox ➔ multitronic 01J, front-wheel drive; Rep. gr. 37 , ➔ multitronic 0AN, front-wheel drive; Rep. gr. 37 .



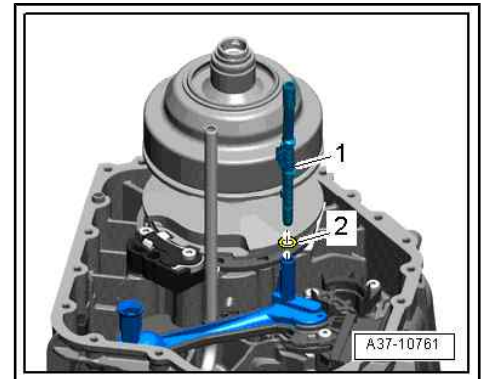


5.6 Removing and installing suction-jet pump

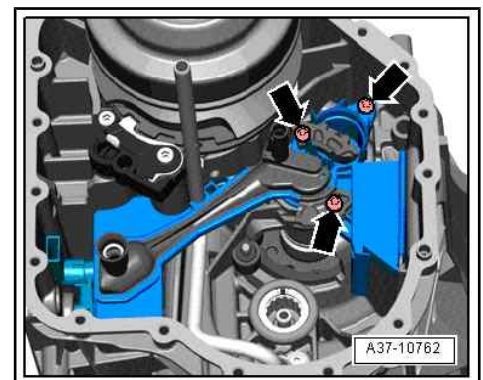
Removing

Proceed as follows:

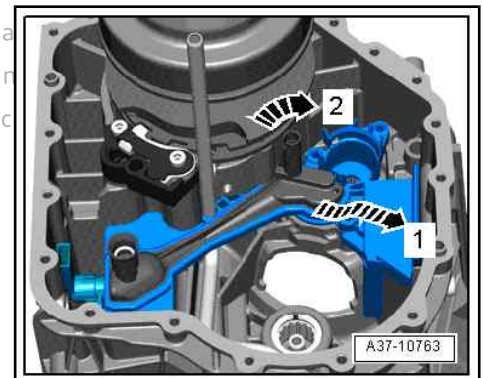
- Remove input shaft ➔ [page 38](#) .
- Remove chain and pulley set "I" ➔ [page 96](#) .
- Pull off oil pipe -1-.
- Remove O-ring -2- from oil pipe.



- Remove bolts -arrows-.



- Pull suction-jet pump out of guide and then pull slightly to the side -arrow 1-.
- Tilt suction-jet pump out of retainer -arrow 2-.

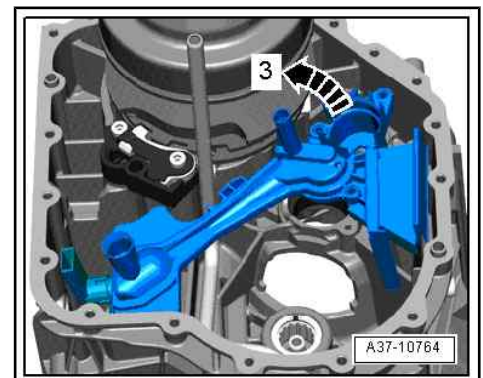


- Lift out suction-jet pump -arrow 3-.

Installing

- Tightening torques ➔ [page 94](#)

Installation is carried out in reverse sequence.





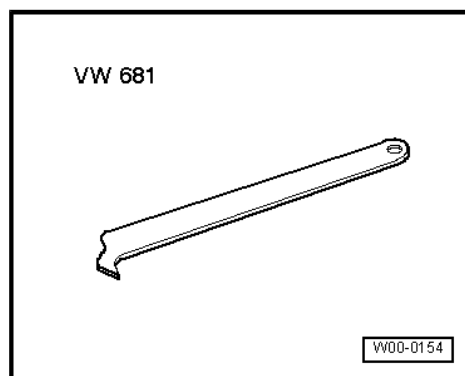
39 – Final drive - differential

1 Servicing front final drive

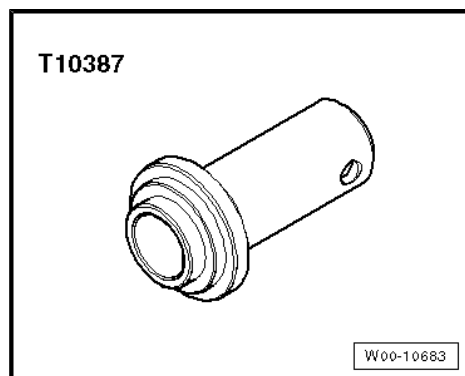
1.1 Renewing oil seal for flange shaft (left-side)

Special tools and workshop equipment required

◆ Extractor lever - VW 681-



◆ Thrust piece - T10387-



Procedure

- Gearbox installed

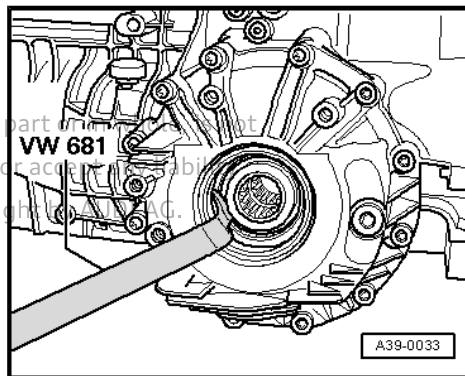
– Remove flange shaft (left-side) ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39, ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39

– Pull out flange shaft oil seal using extractor tool - VW 681-



Note

Take care not to damage area on seat of oil seal.





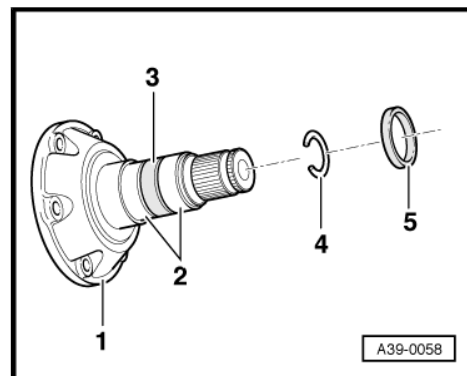
Assembling flange shaft with polygon bearing

- 1 - Flange shaft
- 2 - Needle bearing (polygon bearing)
- 3 - Spacer ring
- 4 - Circlip
- 5 - Not fitted



Note

- ◆ *If the polygon bearings do not run smoothly with the flange shaft removed, this does not necessarily indicate that the bearings are defective. A test for noisy bearings can only be performed with the bearings installed.*
- ◆ *Inspect for signs of damage to polygon bearings (such as cracking in outer race).*
- ◆ *Renew flange shaft if polygon bearings are damaged*
- Lightly lubricate outer circumference and sealing lip of oil seal with gear oil.
- Installation position: open side of oil seal points towards gear-box



Note

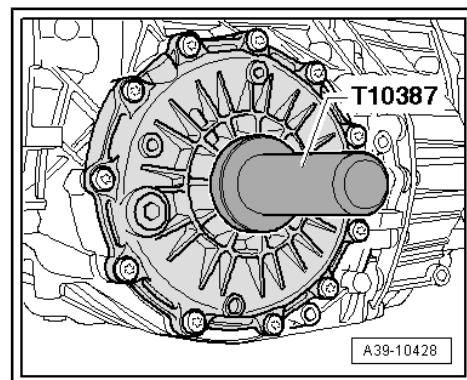
Take care to keep oil seal straight when driving in.

- Use thrust piece - T10387- to evenly drive in new oil seal for flange shaft (left-side) as far as thrust piece will go.



Note

- ◆ *Driving-in depth (standard): 5.5 mm beneath surface of cover*
- ◆ *When carrying out a repair, the oil seal is driven in to a depth of 6.5 mm using thrust piece - T10387- , so that the new seal does not bear on the same contact surface on the used flange shaft.*
- Install flange shaft (left-side) ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39 permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of the information in this document. Copyright by AUDI AG.
- Check gear oil in front final drive ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39 .



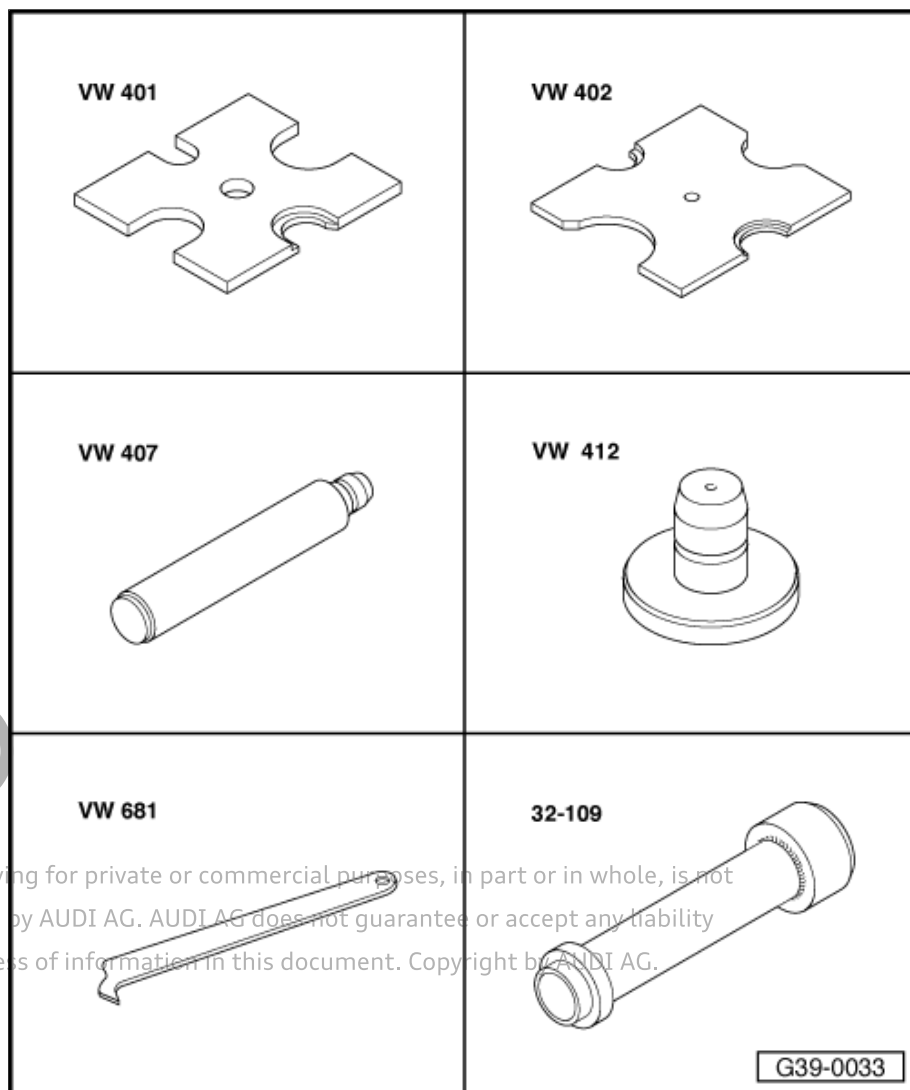
1.2 Renewing oil seal for flange shaft (right-side) and bearing "J"



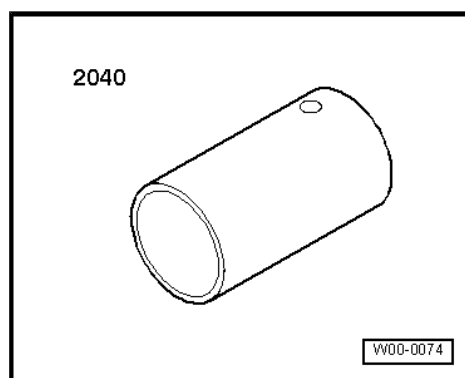
Special tools and workshop equipment required



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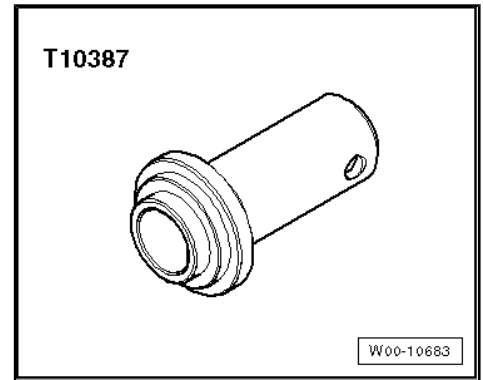


- ◆ Thrust plate - VW 401-
- ◆ Thrust plate - VW 402-
- ◆ Press tool - VW 407-
- ◆ Press tool - VW 412-
- ◆ Extractor lever - VW 681-
- ◆ Tube - 32 - 109-
- ◆ Tube - 2040-





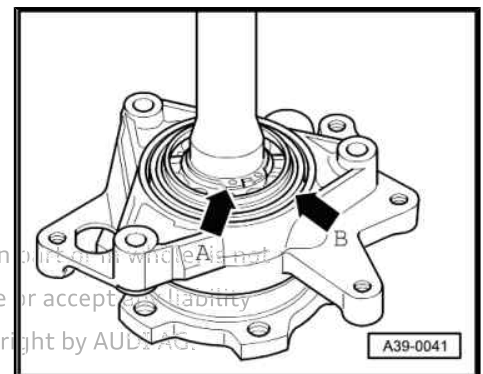
◆ Thrust piece - T10387-



Procedure

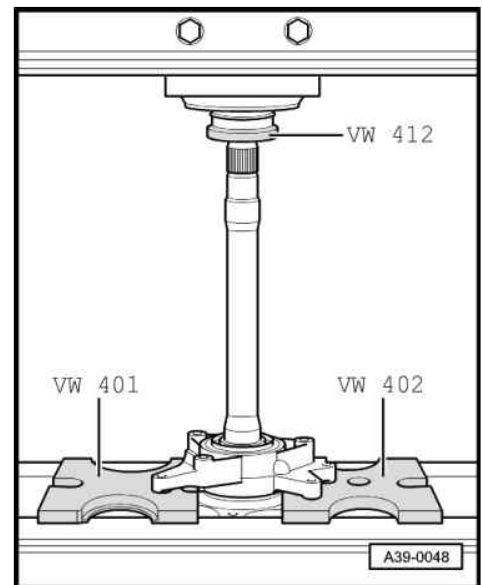
- Remove flange shaft (right-side) ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39, ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39.
- Remove circlip -arrow A- for ball bearing.

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Removing oil seal

- Press flange shaft out of mounting bracket for flange shaft, as shown in illustration.
- Pull flange shaft oil seal out of mounting bracket using oil seal extractor lever - VW 681- .



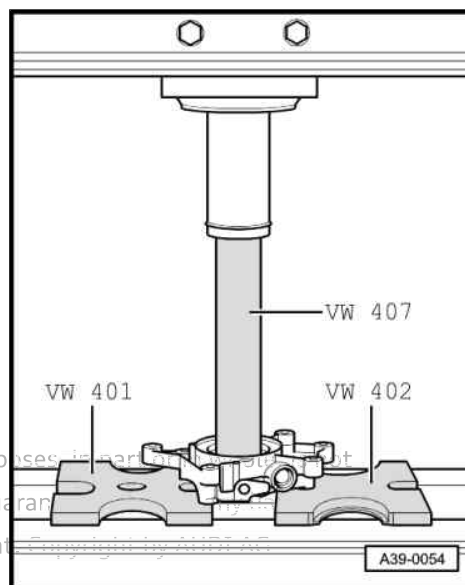


Removing bearing "J" (ball bearing for right flange shaft)

- Press ball bearing out of mounting bracket.

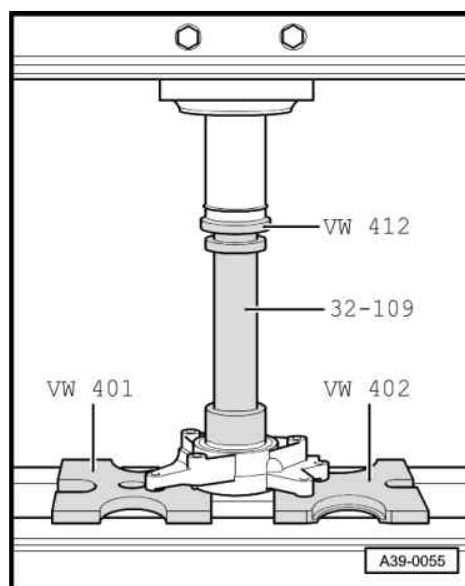


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Installing bearing "J" (ball bearing for right flange shaft)

- Press new ball bearing into mounting bracket.





Installing oil seal

- Lightly lubricate outer circumference and sealing lip of oil seal with gear oil.
- Installation position: open side of oil seal points towards gear-box



Note

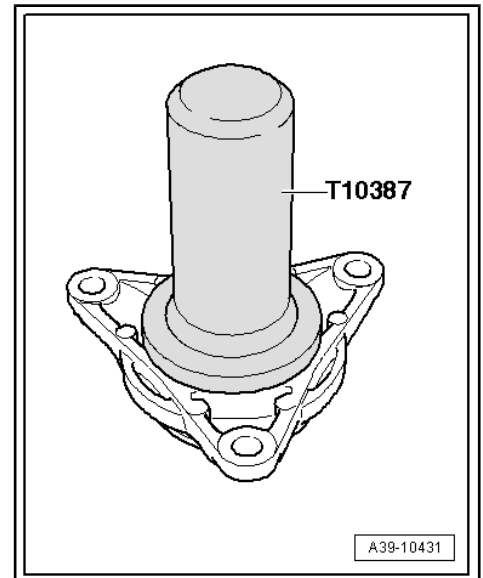
Take care to keep oil seal straight when driving in.

- Use thrust piece - T10387- to evenly drive in new oil seal for flange shaft (right-side) as far as thrust piece will go.



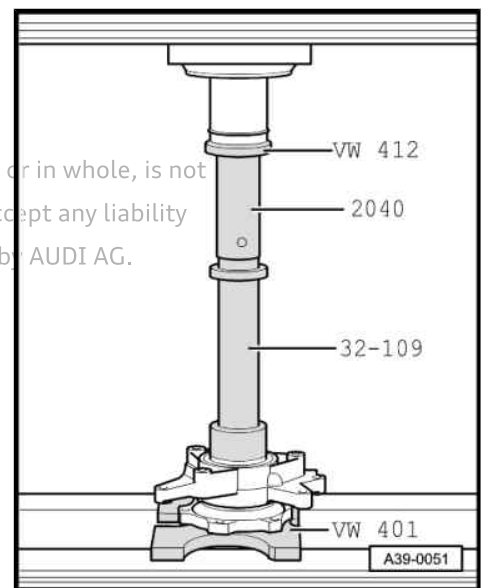
Note

- ◆ *Driving-in depth (standard): 5.5 mm beneath surface of cover*
- ◆ *When carrying out a repair, the oil seal is driven in to a depth of 6.5 mm using thrust piece - T10387- , so that the new seal does not bear on the same contact surface on the used flange shaft.*

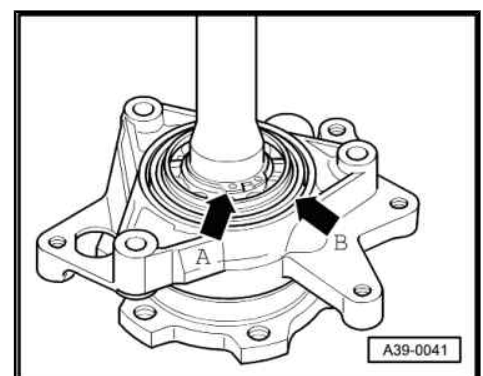


- Press mounting bracket with ball bearing onto flange shaft.

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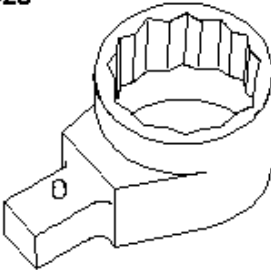
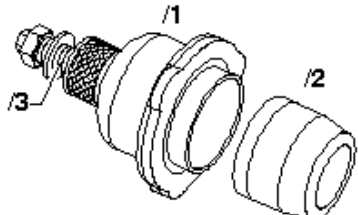
- Fit circlip -arrow A-.
- Install flange shaft (right-side) ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39 .
- Check gear oil in front final drive ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39 .



1.3 Renewing oil seal for pinion shaft



Special tools and workshop equipment required

V.A.G 1331 	T10023 
T40107 	
	G39-10021

◆ Torque wrench - V.A.G 1331-

◆ Insert tool - T10023-

◆ Press tool - T40107-

◆ Assembly lever

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◆ Cleaning solution - D 009 401 04-

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Removing

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- Oil seal for pinion shaft can be renewed with gearbox installed.
- Drain off ATF ⇒ [page 8](#) .
- Remove differential ⇒ [page 141](#) .
- Remove flange shaft (right-side) ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39 .



Note

Flange shaft (right-side) does not have to be removed completely if not readily accessible on the vehicle. In this case, it is sufficient to pull it slightly out of the gearbox housing until there is enough room to remove and install the oil seal.

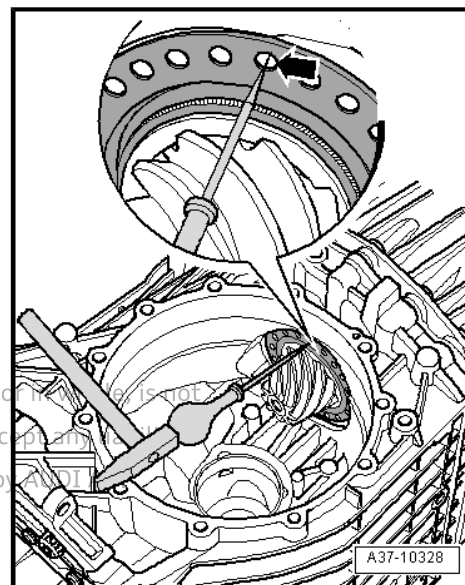


Caution

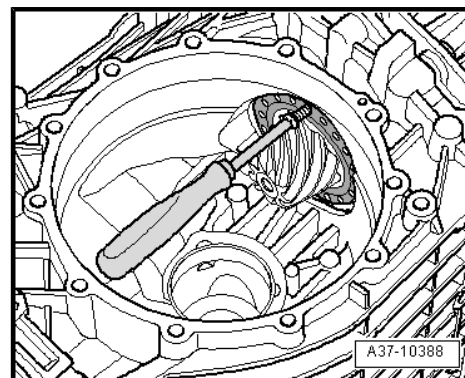
- *When carrying out the following work, the surface of the pinion shaft must not be allowed to come into contact with hard objects. Even the slightest scratches or damage at the sealing surface of the pinion shaft will cause leaks, in which case the entire gearbox will have to be renewed.*

- Position an awl at one of the holes in the side of the pinion shaft oil seal and make a small hole -arrow- for fitting a self-tapping screw in the oil seal.

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- Screw a self-tapping screw with a large head into the hole in the oil seal.



- Make a notch -arrow- in the centre of a sturdy assembly lever -1- to take up the self-tapping screw.
- Apply assembly lever to self-tapping screw.

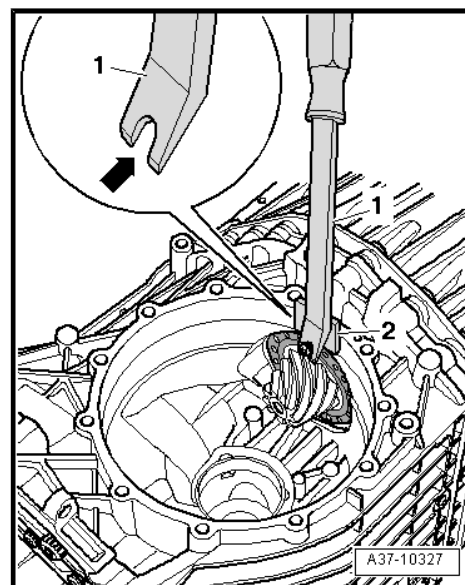


Caution

For protection, insert a suitable piece of wood or plastic -2- between the assembly lever and gearbox housing.

- *Take care not to damage the housing.*

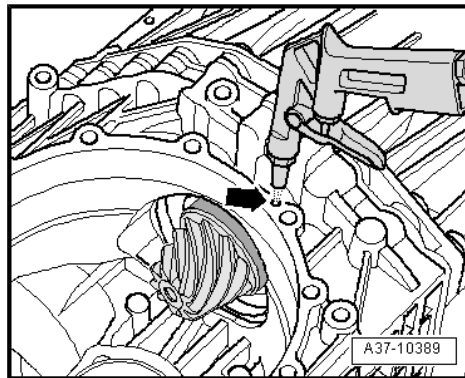
- Pull out the oil seal.



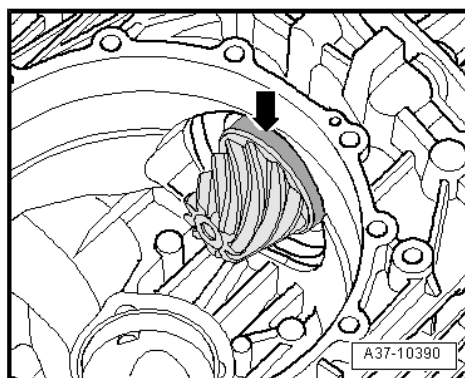


Installing

- Assess wear of pinion shaft ➔ [page 150](#) .
- Use compressed air to clean breather passage -arrow-. When doing so, place a cloth on inside of breather passage.



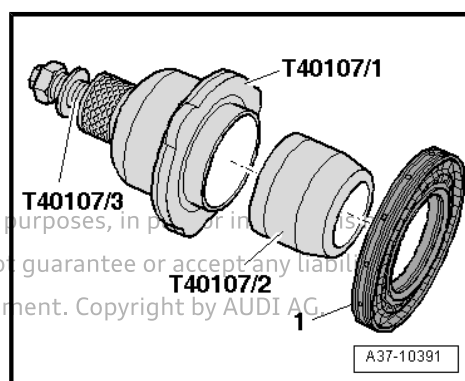
- Clean sealing surface -arrow- of pinion shaft with cleaning fluid - D 009 401 04- and a soft cloth (turn pinion shaft while doing so).
- Gearbox selector lever must not be in position “P”.
- Remove stubborn deposits with fingernail; never use tools.



Caution

- **Never clean pinion shaft mechanically with tools or polishing paste. Even the slightest scratches or damage at the sealing surface of the pinion shaft will cause leaks, in which case the entire gearbox will have to be renewed.**

- Lightly lubricate outer circumference of oil seal with ATF.
- Check assembly aid -T40107/2- for cracks or burrs. Do not use assembly aid if damaged.
- Attach assembly aid -T40107/2- to thrust sleeve -T40107/1- and slip oil seal -1- onto thrust sleeve.
- Closed side of oil seal faces tool.
- Detach assembly aid -T40107/2- .
- Position thrust sleeve -T40107/1- with oil seal -1- on pinion shaft.



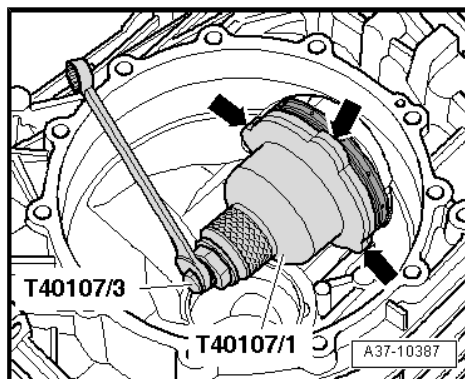
- Move gearbox selector lever to position “P” (all the way back).
- Turn nut on spindle -T40107/3- all the way back.
- Screw spindle -T40107/3- all the way in using an open-end spanner.



Note

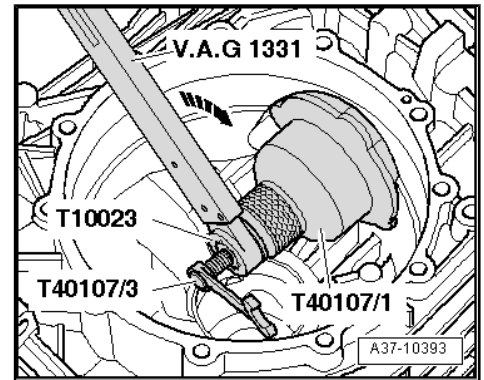
The spindle is now securely attached to the pinion shaft.

- Move thrust sleeve -T40107/1- to correct position.
- Lugs -arrows- on outer edge of thrust sleeve must engage in recesses on gearbox housing.

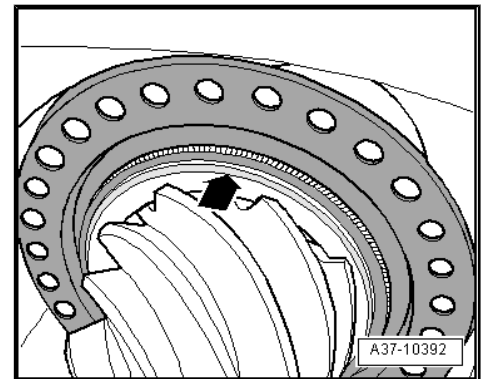




- Press oil seal with thrust sleeve into gearbox housing. To do so, tighten nut with torque wrench - V.A.G 1331- and insert tool - T10023- to 17 Nm.
- The oil seal must now be allowed to settle for 2 minutes.
- After waiting 2 minutes, unscrew nut and detach thrust sleeve in direction of travel.



- Check that externally visible sealing lip of oil seal is seated on cylindrical sealing surface of pinion shaft and not on chamfer -arrow-. Press in oil seal further if necessary.
- Install flange shaft (right-side) ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39 .
- Install differential and cover for front final drive ⇒ [page 141](#) .

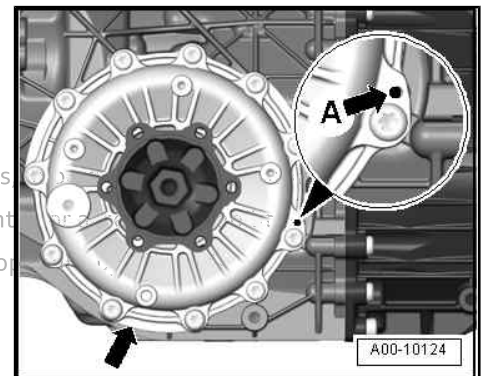


i Note

- ◆ *When gearbox is removed:*
- ◆ *As it will be necessary to road-test the vehicle, the gearbox must be re-installed for the leak check ⇒ multitronic 01J, front-wheel drive; Rep. gr. 37 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 37 .*
- Fill up with ATF ⇒ [page 9](#) .
- Road-test vehicle at length and then check that there are no leaks at breather hole -arrow A- on cover for front final drive.

i Note

- ◆ *On some gearboxes, the breather hole is covered by a guard plate.*
- ◆ *On new covers for front final drive, the breather hole has been moved to the lowest bolt -arrow- (internal oil duct). Leaks can therefore only be seen at bottom of cover for front final drive.*
- Repair work must be repeated if oil emerges at breather hole.

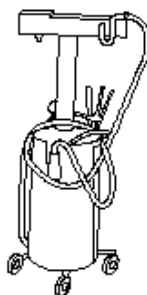


1.4 Removing and installing flange shaft (left-side)

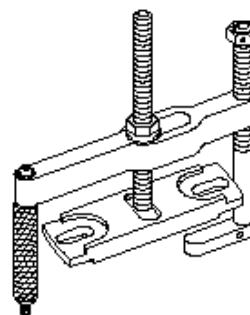


Special tools and workshop equipment required

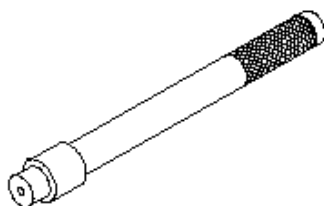
V.A.G 1782



T10037



VW 295



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G39-10026

- ◆ Used oil collection and extraction unit - V.A.G 1782-
- ◆ Puller - T10037-
- ◆ Drift - VW 295-

Removing



Note

- ◆ *Removing and installing flange shaft (left-side) with gearbox installed in vehicle ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39 or ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39.*
- ◆ *Observe the general repair instructions ⇒ [page 1](#).*
- ◆ *Rules for cleanliness when working on the automatic gearbox ⇒ [page 4](#)*
- Gearbox removed and mounted on assembly stand ⇒ [page 14](#).



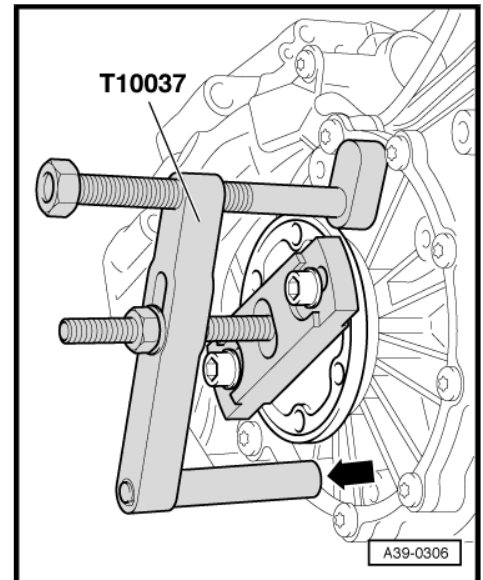
- Place used oil collection and extraction unit - V.A.G 1782- below gearbox.
- Bolt bottom support of puller - T10037- onto cover for front final drive -arrow-.



Note

In order to prevent damage to the needle bearings (polygon bearings) or the differential during removal, the flange shaft must be kept straight when removing (pull out evenly).

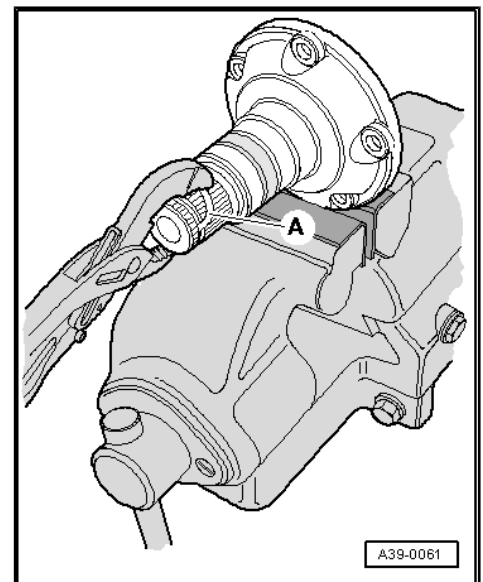
- Remove flange shaft (left-side) using puller - T10037- .



Installing

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

- Circlip for flange shaft must always be renewed.
- Clamp flange shaft into vice with jaw protectors to renew circlip for flange shaft.
- Use new circlip -A- to press old circlip out of groove in flange shaft.
- Clean flange shaft.
- Check oil seal for flange shaft (left-side) and renew if necessary ⇒ [page 126](#) .
- Drive in flange shaft using drift - VW 295- .
- Check gear oil level in front final drive ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39 or ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39 .



Caution

Risk of damage to gearbox

The two gearbox versions multitronic 01J and 0AN require different types of gear oil. Only the correct type of gear oil for the respective gearbox (available as a replacement part) may be used in the front final drive ⇒ Electronic parts catalogue .



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1.5 Removing and installing cover for front final drive

Removing



Note

- ◆ *Removing and installing cover for front final drive with gearbox installed ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39*
- ◆ *Observe the general repair instructions ⇒ [page 1](#) .*
- ◆ *Rules for cleanliness when working on the automatic gearbox ⇒ [page 4](#)*
- Remove flange shaft (left-side) ⇒ [page 135](#) .
- Use new circlip -A- to press old circlip out of groove in flange shaft.



Caution

Make sure that flange shaft (right-side) is installed before removing cover for front final drive. The differential may otherwise drop out of the gearbox housing.

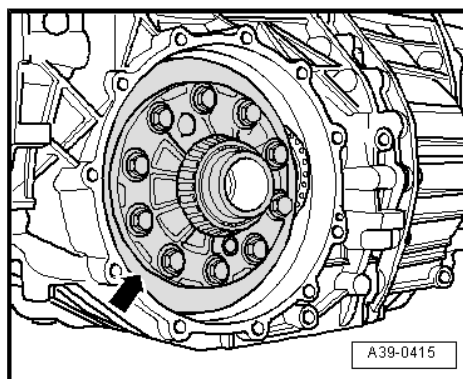
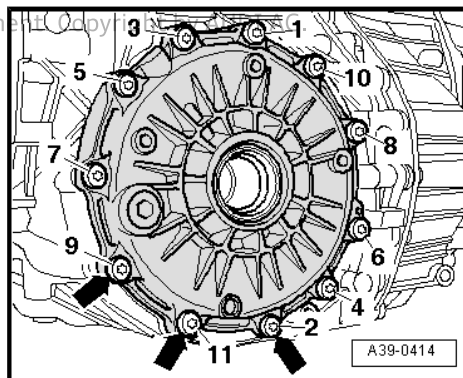
- Unscrew bolts for cover for front final drive in sequence -11 ... 1-.



Caution

- ◆ *Detach cover for front final drive slowly and carefully from gearbox housing. The differential may otherwise fall out of the gearbox.*
- ◆ *A differential which has fallen to the ground can no longer be installed. Renew gearbox if differential has fallen to the ground.*
- ◆ *Make sure that bearing races and shims for differential do not drop out of gearbox housing and cover for front final drive.*
- ◆ *Bearing races and shims cannot be re-allocated to their original positions by the workshop if they have dropped out.*

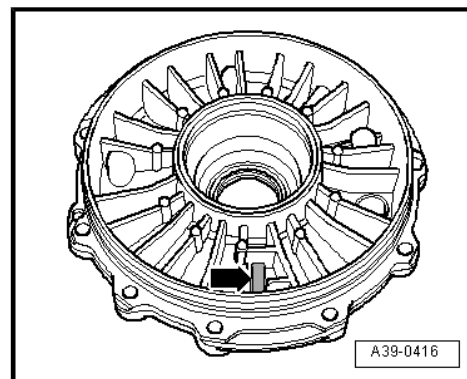
- Secure differential -arrow- to prevent it falling out.



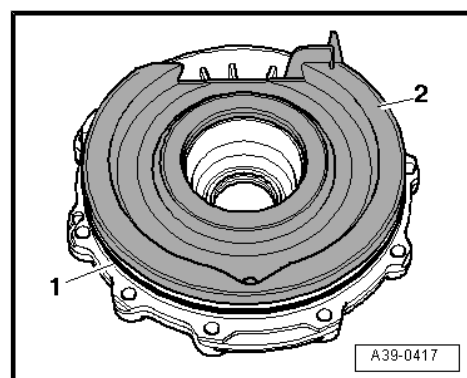


Installing

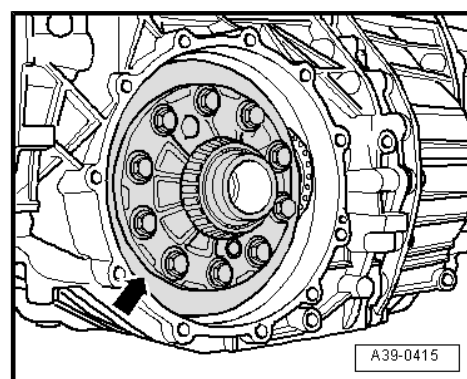
- Check that magnet is fitted under plastic cover in cover for front final drive.



- Renew O-ring -1- in cover for front final drive.
- Make sure cover -2- is securely seated.



- Check that differential -arrow- is correctly seated in gearbox.

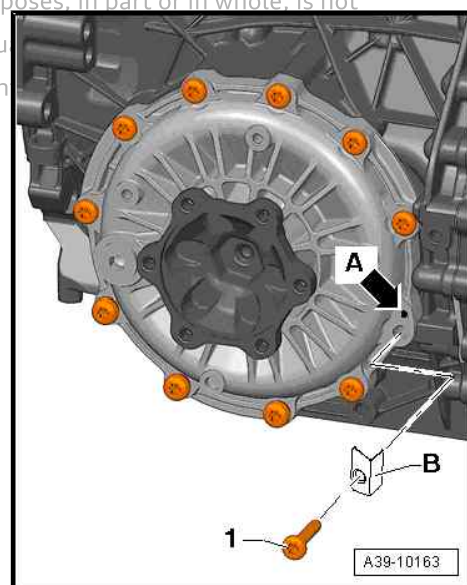


- Fit cover for front final drive onto gearbox housing.
- Renew all bolts in cover for front final drive.
- If fitted, insert heat shield -B- between cover for final drive and bolt -1-.



Note

The guard plate -B- serves to protect the breather hole -arrow A- against the ingress of dirt and water.





Tightening sequence:



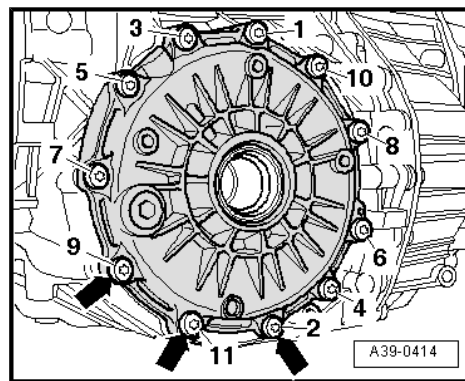
Caution

- ◆ *Fit the three bolts with spacers at the positions shown -arrows-.*
- ◆ *Use only the correct bolts (same as original equipment) ⇒ Electronic parts catalogue .*



Note

On certain gearboxes, spacers are not fitted at the points indicated by the -arrows-; in this case make sure to fit the bolts without spacers.



- Tighten bolts securing cover for front final drive in two stages in the sequence shown:

1. Initially hand-tighten bolts in sequence -1 ... 11-.
2. Tighten bolts in sequence -1 ... 11- in several stages to final torque.

- Check oil seal for flange shaft (left-side) and renew if necessary ⇒ [page 126](#) .
- Install flange shaft (left-side) ⇒ [page 135](#) .
- Fill up with gear oil and check gear oil level in front final drive ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39 .



Caution

Risk of damage to gearbox

The two gearbox versions multitronic 01J and 0AN require different types of gear oil. Only the correct type of gear oil for the respective gearbox (available as a replacement part) may be used in the front final drive ⇒ Electronic parts catalogue .

Tightening torque

Component	Nm
Cover for front final drive to gearbox housing	25 ¹⁾
Oil filler plug to cover for front final drive	30 ¹⁾
• 1) Renew bolts.	



1.6 Removing and installing differential

Removing



Caution

- ◆ *Detach cover for front final drive slowly and carefully from gearbox housing. The differential may otherwise fall out of the gearbox.*
- ◆ *A differential which has fallen to the ground can no longer be installed. Renew gearbox if differential has fallen to the ground.*
- ◆ *Make sure that bearing races and shims for differential do not drop out of gearbox housing and cover for front final drive.*
- ◆ *Bearing races and shims cannot be re-allocated to their original positions by the workshop if they have dropped out.*

When gearbox is installed:

- Remove cover for front final drive ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39 .

When gearbox is removed:

- Remove cover for front final drive ⇒ [page 138](#) .

Both versions:

- Carefully take out differential -arrow-.

Installing

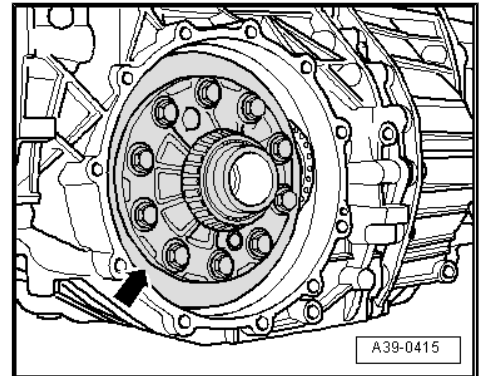
- Carefully install differential -arrow-.

When gearbox is installed:

- Install cover for front final drive ⇒ multitronic 01J, front-wheel drive; Rep. gr. 39 , ⇒ multitronic 0AN, front-wheel drive; Rep. gr. 39 .

When gearbox is removed:

- Fit cover for front final drive ⇒ [page 138](#) .



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2 Assessing wear on gearbox components

Overview:

- ◆ ⇒ [“2.1 Assessing wear on input shaft”, page 142](#)
- ◆ ⇒ [“2.2 Assessing wear on bearings D, E and G”, page 145](#)
- ◆ ⇒ [“2.3 Assessing wear on chain, pulley sets I and II, bearing C and suction-jet pump”, page 147](#)
- ◆ ⇒ [“2.4 Assessing pinion shaft wear”, page 150](#)

2.1 Assessing wear on input shaft

1 - Bearing “A” in input shaft cover

- ☐ Always renew bearing “A” after removing input shaft cover

3 - Input shaft cover

- ☐ Checking ⇒ [page 145](#)

4 - Piston

- ☐ Checking for wear ⇒ [page 143](#)

5 - Thrust plate

- ☐ Checking for wear ⇒ [page 143](#)

8 - Friction plates

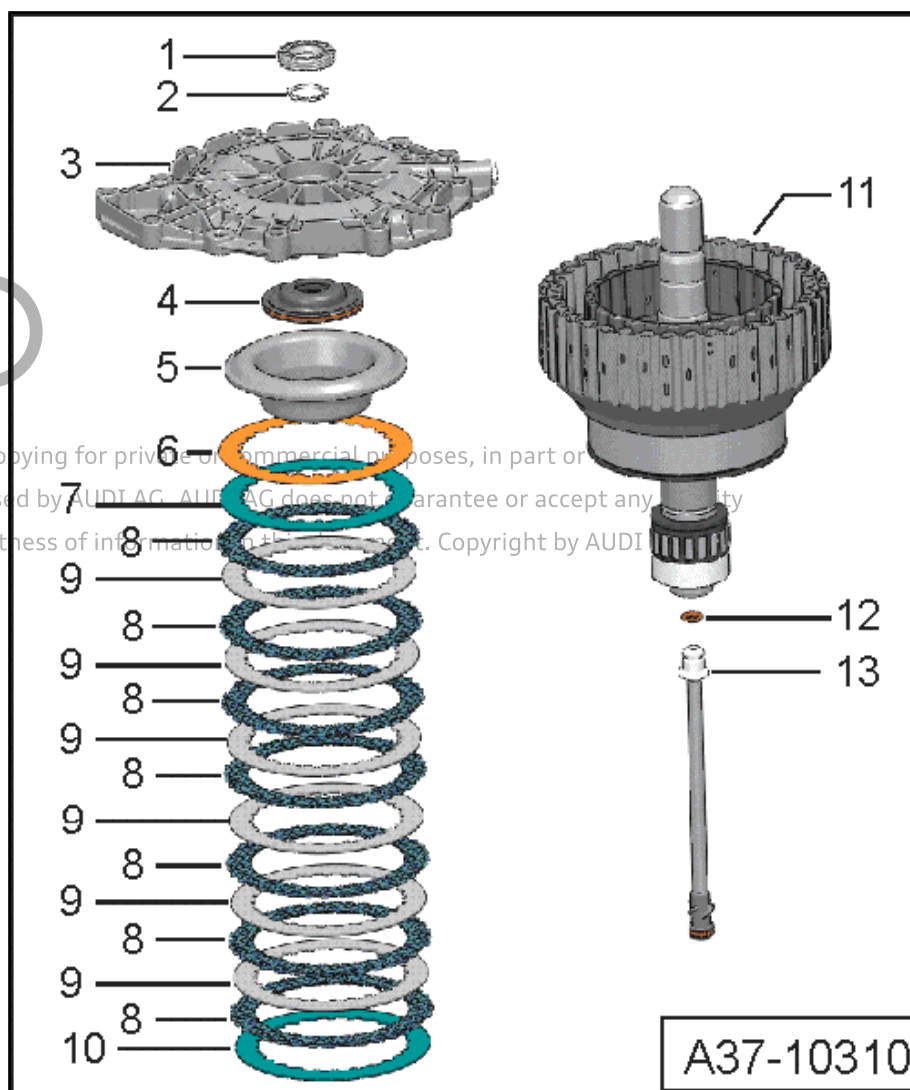
- ☐ Checking version and number ⇒ [page 144](#)

11 - Input shaft cylinder

- ☐ Checking contact and sealing surfaces for wear ⇒ [page 143](#)
- ☐ Checking for traces of scoring by friction plates ⇒ [page 144](#)

13 - Oil pipe

- ☐ Checking for wear ⇒ [page 144](#)





Checking piston and pressure plate for wear

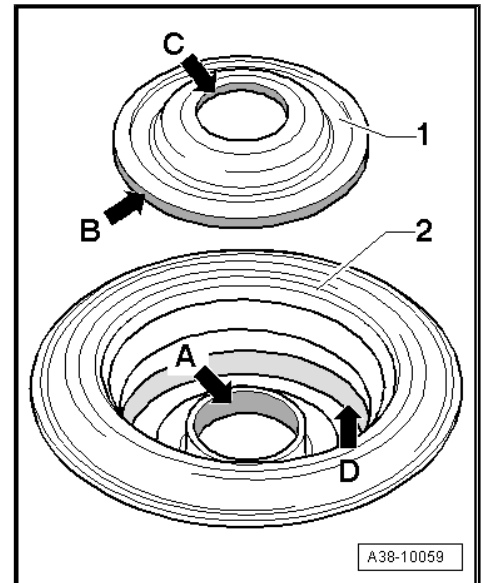
- Pull piston -1- out of pressure plate -2-.

Checking pressure plate -2-

- Check contact/sealing surface -arrow A- of pressure plate for wear.
- Check contact/sealing surface -arrow D- of pressure plate for wear.
- If the contact/sealing surface -arrow A- is scored or scratched, the pressure plate -2- must be renewed.
- If the contact/sealing surface -arrow D- is scored or scratched, the pressure plate -2- and the piston -1- must be renewed.

Checking piston -1-

- Check oil seal -arrow B- on outer circumference of piston -1- for damage.
- Check contact surface -arrow C- on inner circumference of piston -1- on shaft.
- If the oil seal -arrow B- is damaged or the contact surface -arrow C- of the piston is scored or scratched or of uneven thickness due to wear, the piston -1- must be renewed.



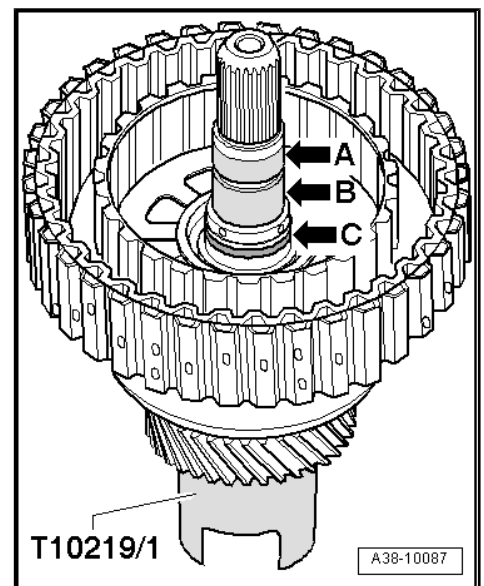
Checking contact and sealing surfaces of input shaft cylinder for wear

- Check contact/sealing surface -arrow A- of input shaft for wear.



Note

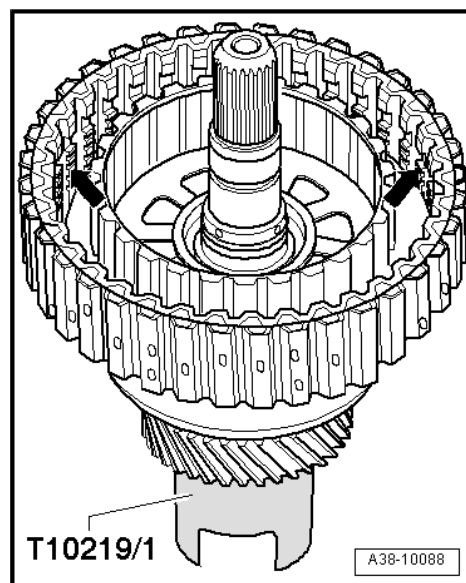
- ◆ The oil seal in the input shaft cover provides a seal on this sealing surface -arrow A-.
- ◆ Slight scoring caused by the oil seal is normal.
- Check contact surface -arrow B- of bearing "A" (ball bearing for input shaft) in input shaft cover for wear.
- Check oil seal -arrow C- on shaft for damage.
- If oil seal -arrow C- is damaged or contact surfaces -arrow B- or -arrow A- on shaft are severely scored, the entire input shaft must be renewed.





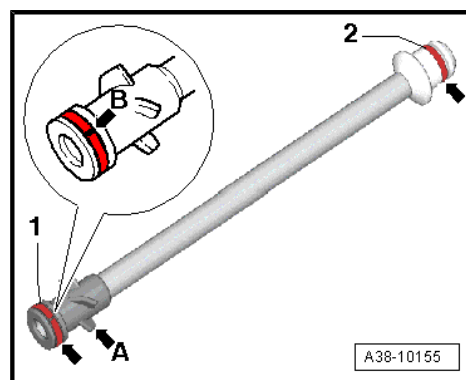
Checking for scoring caused by friction plates on inner circumference of input shaft cylinder

- Check inner circumference of input shaft cylinder for scoring caused by friction plates -arrows-.
- If scoring by friction plates -arrows- is found on inner circumference of input shaft cylinder, the entire input shaft must be renewed.



Assessing wear on oil pipe

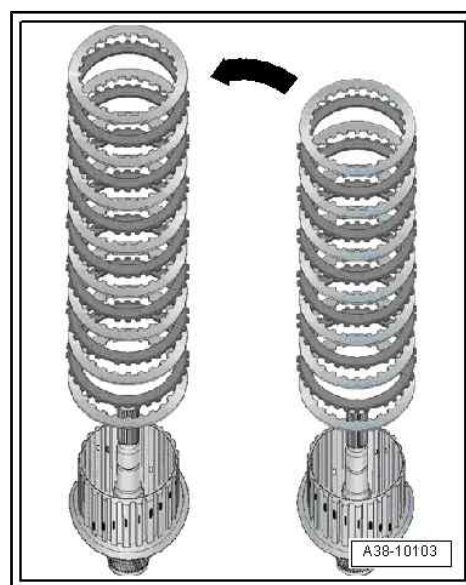
- Check oil seal -1- on oil pipe for damage.
- There should be a gap on the seal -arrow B-.
- If gap -arrow B- is completely closed, oil pipe must be renewed.
- Check contact surfaces -arrows- and rotor vanes -arrow A- on oil pipe for wear and damage.
- Oil pipe must be renewed if oil seal -1- or rotor vanes -arrow A- are damaged or if contact surfaces -arrow- are severely scored.
- O-ring -2- must be renewed.
- Check contact surface of oil pipe in suction-jet pump
⇒ [page 147](#) .



Checking number and version of friction plates

The following modifications can be made depending on the gear-box type and version and on the type of problem:

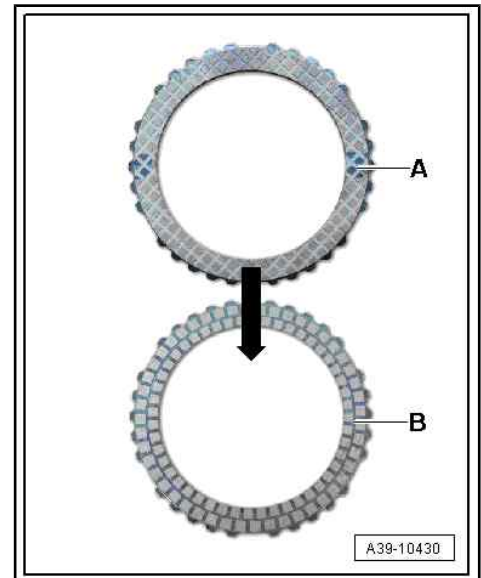
- ◆ On input shafts with 6 friction plates: renewal of friction plates (installation of a newer version with 7 friction plates)



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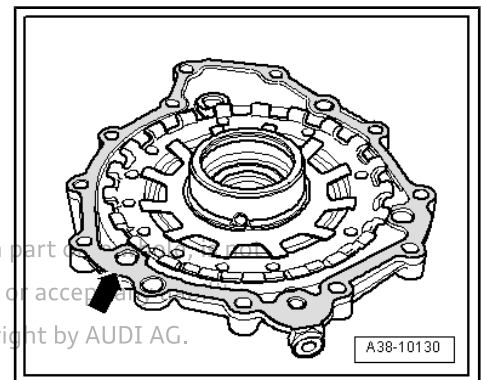


- ◆ On input shafts with rectangular friction plate lining patterns -A-: renewal of friction plates (installation of a newer version with trapezoidal lining patterns -B-)



Checking input shaft cover

- Check the sealing surface of the cover -arrow- and the cover itself for damage.
- The sealing surface must not exhibit any signs of damage.
- The input shaft cover must not be broken or cracked.
- If sealing surface or cover is damaged, renew input shaft cover.



2.2 Assessing wear on bearings “D”, “E” and “G”



2 - Bearing "D"

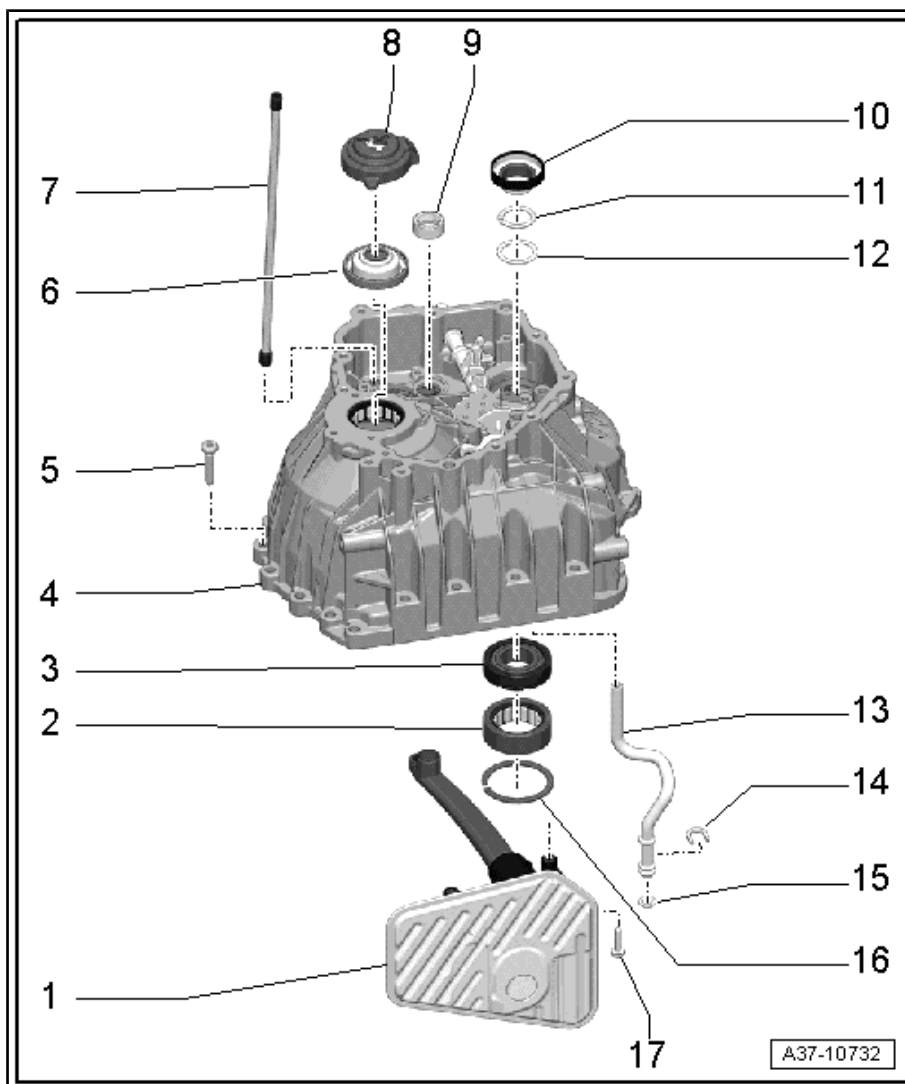
- ☐ Roller bearing for pulley set "I"
- ☐ Different versions: with or without inner race
- ☐ Checking ⇒ [page 146](#)

3 - Bearing "E"

- ☐ Ball bearing for pulley set "I"
- ☐ Checking ⇒ [page 147](#)

4 - Intermediate housing

- ☐ With bearing "G" (roller bearing for pulley set "II")
- ☐ Checking bearing "G" ⇒ [page 147](#)
- ☐ Checking running surface for bearing "G" ⇒ [page 149](#)



Checking bearing "D" (roller bearing for pulley set "I")

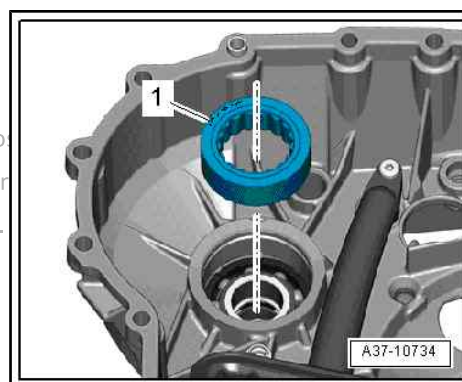


Note

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Bearing "D" is available in two versions: without inner bearing race or with inner bearing race.

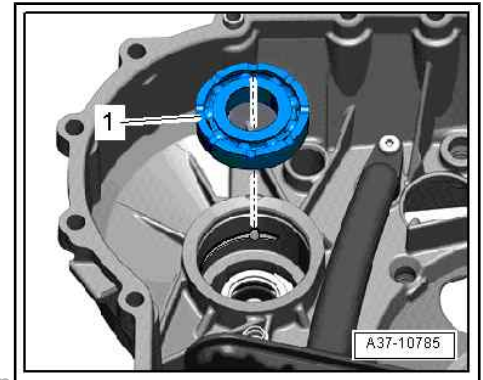
- Check bearing "D" -item 1- for damage (illustration shows version without inner race):
- The roller bearings should not exhibit any signs of damage on the surface.
- There must be no cracks or chips on the bearing cage.
- Run your fingernail over the entire running surface to assess the damage on the roller bearings.
- Any very slight scores or damage that cannot be felt with the fingernail can be disregarded.
- If you feel any scores or damage with your fingernail, or if your nail catches, renew bearing "D".
- Also check running surface on pulley set "I" ⇒ [page 149](#) .





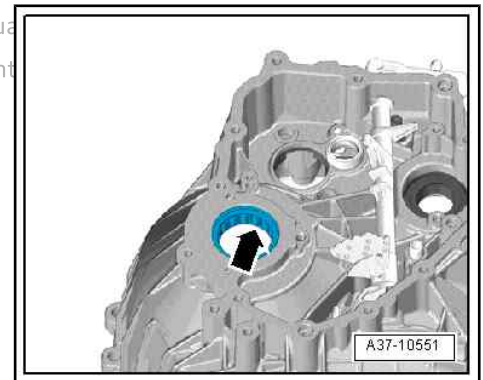
Checking bearing "E" (ball bearing for pulley set "I")

- Check bearing "E" -item 1- for damage:
 - The balls and running surfaces should not exhibit any signs of damage.
 - The ball bearing should run smoothly when the shaft is rotated.
- Also check running surface on pulley set "I" ➔ [page 149](#) .



Checking bearing "G" (roller bearing for pulley set "II")

- Check bearing "G" -item 1- for damage:
 - The roller bearings should not exhibit any signs of damage on the surface.
 - There must be no cracks or chips on the bearing cage.
- Run your fingernail over the entire running surface to assess the damage on the roller bearings.
- Any very slight scores or damage that cannot be felt with the fingernail can be disregarded.
- If bearing "G" is damaged, the gearbox must be renewed.
- Also check running surface for bearing "G" on pulley set "II" ➔ [page 149](#) .



2.3 Assessing wear on chain, pulley sets "I" and "II", bearing "C" and suction-jet pump



4 - Pulley set "II"

- ☐ Checking tapered pulleys ➔ [page 148](#)
- ☐ Checking running surface for bearing "G" ➔ [page 149](#)
- ☐ Cannot be renewed separately

6 - Suction-jet pump

- ☐ Checking ➔ [page 150](#)

7 - Guide rail

- ☐ Check; renew if scored

14 - Chain

- ☐ Checking ➔ [page 150](#)

15 - Pulley set "I"

- ☐ Checking tapered pulleys ➔ [page 149](#)
- ☐ Checking running surface for bearing "D" ➔ [page 149](#)

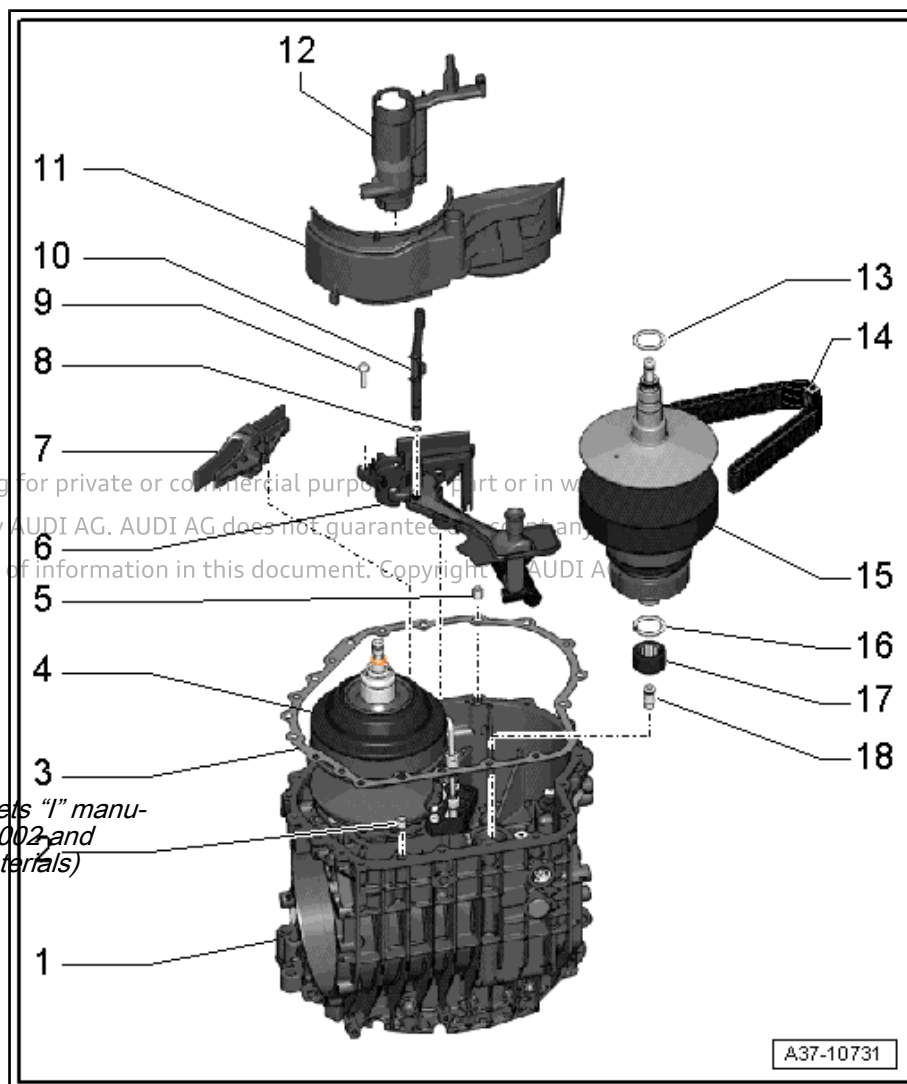


Note

Always renew pulley sets "I" manufactured between 10.2002 and 08.2003 (improved materials)

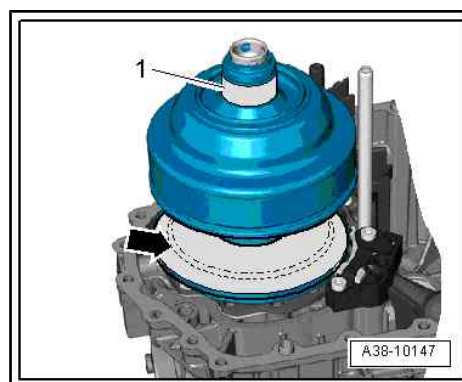
17 - Bearing "C"

- ☐ Roller bearing for pulley set "I"
- ☐ Checking ➔ [page 150](#)



Checking tapered pulleys for pulley set "II"

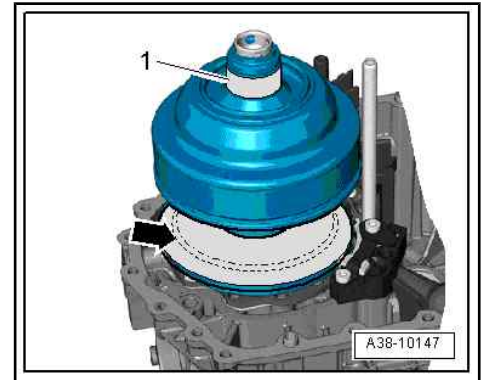
- Check that tapered pulleys -arrow- for pulley set "II" are smooth with no traces of scoring.
- Run your fingernail from inside to outside over entire surface of tapered pulley to assess damage on running surface.
- Any very slight scores or damage that cannot be felt with the fingernail can be disregarded.
- If you feel any scores or damage with your fingernail, or if your nail catches, renew gearbox.
- Perform an additional visual inspection.
- The gearbox must be renewed if there are any individual scores which appear polished (mirrored) with black edges.





Checking running surface for bearing "G" for pulley set "II"

- Running surface -1- for bearing "G" should be in as-new condition.
- Run your fingernail from inside to outside over entire surface to assess damage on running surface.
- Any very slight scores or damage that cannot be felt with the fingernail can be disregarded.
- If you feel any scores or damage with your fingernail, or if your nail catches, renew gearbox.



Checking tapered pulleys for pulley set "I"

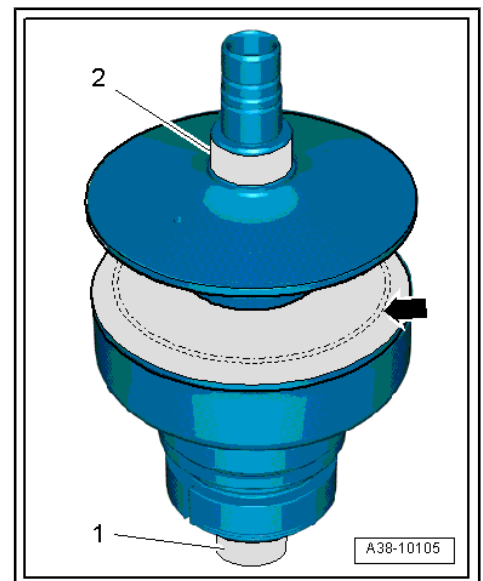
- Check that tapered pulleys -arrow- for pulley set "I" are smooth with no traces of scoring.



Note

-Items 1 and 2- can be disregarded.

- Run your fingernail from inside to outside over entire surface of tapered pulley to assess damage on running surface.
- Any very slight scores or damage that cannot be felt with the fingernail can be disregarded.
- If you feel any scores or damage with your fingernail, or if your nail catches, renew pulley set "I".
- Perform an additional visual inspection.
- Pulley set "I" must be renewed if there are any individual scores which appear polished (mirrored) with black edges.



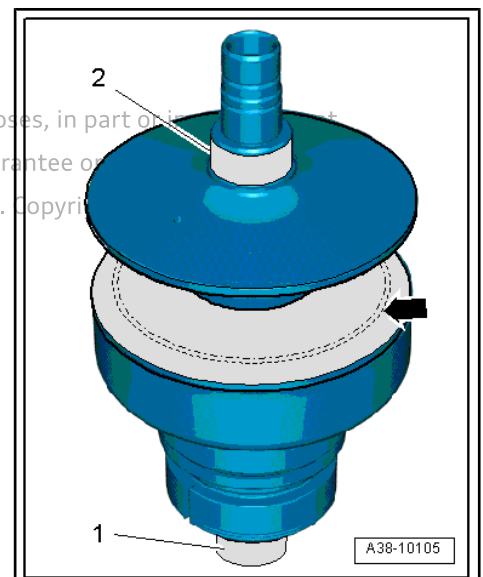
Checking running surfaces for bearing "C" and bearing "D" (roller bearings for pulley set "I")



Note

Disregard -arrow-

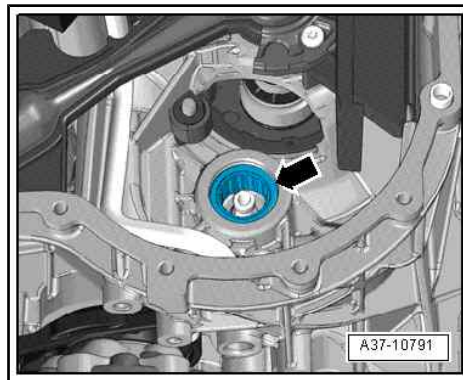
- Running surfaces -2- for bearing "C" and -1- for bearing "D" should be in as-new condition.
- Run your fingernail from inside to outside over entire surface to assess damage on running surface.
- Any very slight scores or damage that cannot be felt with the fingernail can be disregarded.
- If you feel any scores or damage with your fingernail, or if your nail catches, renew pulley set "I".





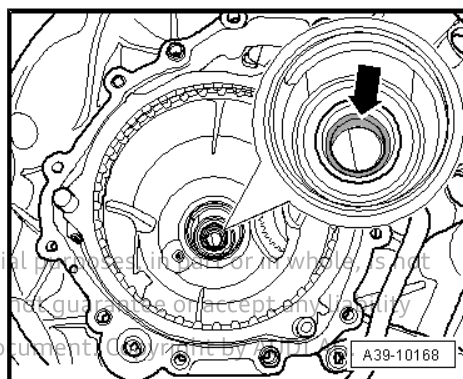
Checking bearing "C" (roller bearing for pulley set "I")

- Check bearing "C" -item 1- for damage:
 - The roller bearings should not exhibit any signs of damage on the surface.
 - There must be no cracks or chips on the bearing cage.
- Run your fingernail over the entire running surface to assess the damage on the roller bearings.
- Any very slight scores or damage that cannot be felt with the fingernail can be disregarded.
- If you feel any scores or damage with your fingernail, or if your nail catches, renew bearing "C".
- Also check running surface on pulley set "I" ➔ [page 149](#) .



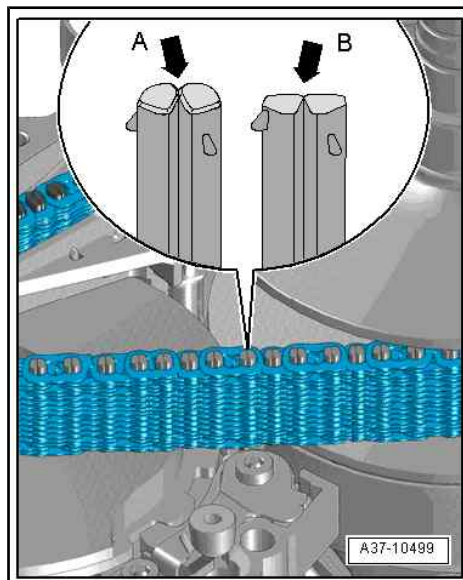
Checking suction-jet pump

- Input shaft removed ➔ [page 38](#)
- Check contact surface -arrow- of oil pipe in suction-jet pump through opening in gearbox housing for scoring, scratches or damage.
- The contact surface of the oil pipe in the suction-jet pump -arrow- should not have tangible step-shaped scores or scratches.
- If the oil pipe has caused tangible step-shaped scores or damage to the contact surface, the suction-jet pump must be renewed.
- Check the oil pipe in addition ➔ [page 142](#) .



Checking chain

- Check that end faces of chain pins are still convex in shape with round edges -arrow A-.
- If edges of chain pins have become abraded or sharp, or if burrs have formed (due to wear or a slipping chain) -arrow B-, chain must be renewed.
- Also check running surface on pulley set "I" ➔ [page 149](#) and pulley set "II" ➔ [page 148](#) .



2.4 Assessing pinion shaft wear

- Differential removed ➔ multitronic 01J, front-wheel drive; Rep. gr. 39 , ➔ multitronic 0AN, front-wheel drive; Rep. gr. 39
- Oil seal removed ➔ [page 131](#)

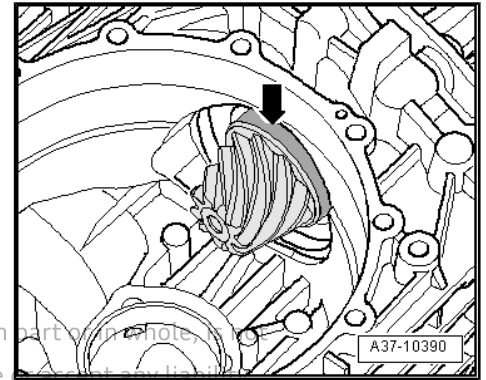


- Check sealing surface of pinion shaft for scratches, rust pitting or other signs of damage.
- There should be no scratches or scoring on the sealing surface of the pinion shaft.



Note

Even the slightest scratches or damage to the sealing surface of the pinion shaft will cause leaks, even with a new oil seal.



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