

Audi 100 1991 ➤

Automatic gearbox 01K Front-wheel drive									
Gearbox ID	CDS	CDT	CDU	CJE	CRC	CRD	CRE	CYR	DAA
	DCF								

Edition 04.1998



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List of Workshop Manual Repair GroupsList of Workshop Manual Repair Groups

Audi 100 1991 ➤

Automatic gearbox 01K Front-wheel drive

Repair Group

00 - Technical data

32 - Torque converter

37 - Controls, Housing

38 - Gears, Hydraulic controls

39 - Final drive, Differential

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

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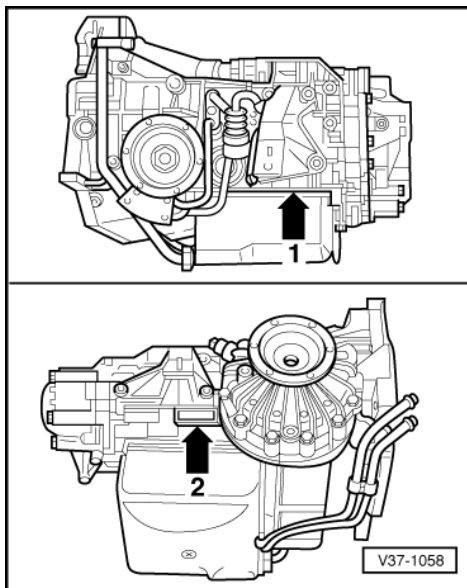
00 - Technical data

1 - Gearbox identification

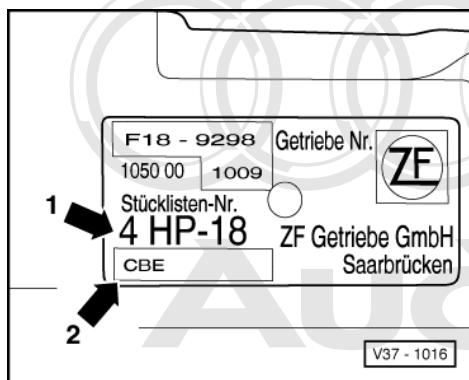
1.1 - Gearbox identification

The "automatic 4-speed gearbox 01K FWD" is fitted in combination with the 5 cyl. and 6 cyl. engine in the Audi 100 1991 ä. Assignment => Technical Data, Page **2**.

Location on gearbox



-> The code letters of automatic gearbox 01K FWD are marked on the type plate below the left-hand gearbox support -arrow 1- and below the right-hand gearbox support -arrow 2-.



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-> **Code letters** -> arrow 2- and designation of automatic gearbox 01K FWD -arrow 1-.

Note:

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



2 - Code letters, mechanical unit allocation, transmission ratios, equipment

2.1 - Code letters, mechanical unit allocation, transmission ratios, equipment

Automatic gearbox, FWD

Automatic gearbox		01K			
Gearbox	Engine code	DAA 1)2)3)	CDU 4)	CRD 1)2)	CDT 4)
	Production from to	07.95 -	07.92 03.94	04.94 -	03.92 03.94
Torque converter	Engine code	Z11	Q12	Q12	F11
Ratios	1st gear	2.580	2.580	2.580	2.580
	2nd gear	1.407	1.407	1.407	1.407
	3rd gear	1.000	1.000	1.000	1.000
	4th gear	0.742	0.742	0.742	0.742
	Reverse gear	2.882	2.882	2.882	2.882
Allocation	Model	Audi 100 1991 ä (A6)	Audi 100 1991 ä	Audi 100 1991 ä (A6)	Audi 100 1991 ä
	Engine	2.4 l - 110 kW	2.6 l - 110 kW	2.6 l - 110 kW	2.8 l - 128 kW

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- 1) Without ATF filler pipe
- 2) No procon-ten attachment
- 3 Thailand
- 4) With ATF filler pipe (automatic gearbox; possibly converted to new filling system)

Gearbox	Engine code		DAA	CDU	CRD	CDT
Intermediate drive for Front final drive	No. of teeth	Input gear	27	27	27	27
		Intermediate gear	35	35	35	33
		Output gear	36	36	36	34
	Ratio		1.333	1.333	1.333	1.259
Front final drive	No. of teeth	Pinion shaft	12	12	12	12
		Crown wheel	39	39	39	39
	Ratio		3.250	3.250	3.250	3.250
Drive shaft flange ø			130 mm	130 mm	130 mm	130 mm

Automatic gearbox		01K			
Gearbox	Engine code	CRC 1)2)	CJE 1)2)5)	CYR 1)2)	CDS 4)
	Production from to	04.94 10.95	08.94 -	10.95 -	02.93 03.94
Torque converter	Engine code	F11	F11	F11	Q12
Ratios	1st gear	2.580	2.580	2.580	2.580
	2nd gear	1.407	1.407	1.407	1.407
	3rd gear	1.000	1.000	1.000	1.000
	4th gear	0.742	0.742	0.742	0.742
	Reverse gear	2.882	2.882	2.882	2.882

Automatic gearbox		01K			
Allocation	Model	Audi 100 1991 ä (A6)	Audi 100 1991 ä (A6)	Audi 100 1991 ä (A6)	Audi 100 1991 ä
	engine	2.8 I - 128 kW	2.8 I - 128 kW	2.8 I - 128 kW 2.8 I - 142 kW	2.5 I TDI 85 kW

- 1) Without ATF filler pipe
- 2) No procon-ten attachment
- 4) With ATF filler pipe (automatic gearbox; possibly converted to new filling system)
- 5) China, CIS, USA

Gearbox	Engine code		CRC	CJE	CYR	CDS
Intermediate drive for Front final drive	No. of teeth	Input gear	27	27	27	27
		Intermediate gear	33	35	33	33
		Output gear	34	36	34	34
	Ratio		1.259	1.333	1.259	1.259
Front final drive	No. of teeth	Pinion shaft	12	12	12	13
		Crown wheel	39	39	39	35
	Ratio		3.250	3.250	3.250	2.692
Drive shaft flange ø			130 mm	130 mm	130 mm	130 mm

Automatic gearbox			01K			
Gearbox	Engine code		CRE 1)2)	DCF 1)2)		
	Production	from to	05.94 -	01.96 -		
Torque converter	Engine code		Q12	E19		
Ratios	1st gear		2.580	2.580		
	2nd gear		1.407	1.407		
	3rd gear		1.000	1.000		
	4th gear		0.742	0.742		
	Reverse gear		2.882	2.882		
Allocation	Model		Audi 100 1991 ä (A6)	Audi 100 1991 ä (A6)		
	Engine		2.5 I TDI 85 kW	2.5 I TDI 103 kW		

- 1) Without ATF filler pipe
- 2) No procon-ten attachment

Gearbox	Engine code		CRE	DCF		
Intermediate drive for Front final drive	No. of teeth	Input gear	27	27		
		Intermediate gear	33	34		
		Output gear	34	33		
	Ratio		1.259	1.222		
Front final drive	No. of teeth	Pinion shaft	13	11		
		Crown wheel	35	30		
	Ratio		2.692	2.727		



Drive shaft flange ø	130 mm	130 mm	
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3 - Capacities

3.1 - Capacities

Planetary gearbox

Capacities	Planetary gearbox	Automatic gearbox
Fresh fill	7.0 ltr.	01K FWD
Oil change	approx. 2.7 l 1)	
Lubricant	VW-ATF G 052 162 ..	

1) Change interval

=> Maintenance Manual, Description of work; Automatic gearbox; Changing ATF

VW-ATF G 052 162 .. is colourless or yellow. It is available as a replacement part in the following container sizes:

- ♦ 0.5 l - Replacement part-No. G 052 162 A1
- ♦ 1.0 l - Replacement part-No. G 052 162 A2

Notes:

- ♦ Exclusive use is to be made for vehicles 07.95 ▶ of VW-ATF with part no. G 052 162 .. (colour: colourless/yellow) may be used.
- ♦ Remaining stocks of ATF Dexron can still be used up for vehicles ▶ 06.95. Thereafter also use ATF with Part No. G 052 162 .. (colour: colourless/yellowish).
- ♦ It is not permitted to use additives!

Checking and changing ATF level => Page **42**.

Front final drive

Capacities	Front final drive	Automatic gearbox
Fresh fill	approx. 0.7 l	01K FWD
Oil change	Filled for life No change	
Lubricant	Gear oil SAE 75 W 90 G 052 145 .. (synthetic oil)	

Gear oil SAE 75 W 90 G 052 145 .. (synthetic oil) is available in the following sizes:

- ♦ 0.5 l - Replacement part-No. G 052 145 A1
- ♦ 1.0 l - Replacement part-No. G 052 145 A2

Checking gear oil level in front final drive => Page **89**.

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4 - Repair instructions

4.1 - Repair instructions

The maximum possible care and cleanliness and proper tools are essential to ensure satisfactory and successful gearbox repairs. The usual basic safety precautions also, naturally apply when carrying out vehicle repairs.

A number of generally applicable instructions for individual repair operations, which are otherwise mentioned at various points in the Workshop Manual, are summarised here. They apply to this Workshop Manual.

Special tools

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

=> Booklet; Special tools, Workshop equipment

Gearbox

- ◆ Do not run engine or tow vehicle with oil pan removed or when there is no ATF in the gearbox.
- ◆ Check and if necessary correct the following levels on replacing automatic gearbox: ATF in planetary gearbox => Page 4 .
- ◆ If the gearbox is removed from the vehicle, secure the torque converter to prevent it dropping out.
- ◆ Thoroughly clean all connections and the surrounding areas before disconnecting.
- ◆ Before installing the gearbox, check the installed depth of the torque => Page 10 .
- ◆ When installing gearbox, ensure that the dowel sleeves are fitted correctly.
- ◆ Place removed parts on a clean surface and cover. Use sheeting and paper. Do not use fluffy cloths!
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately.
- ◆ Only install clean components: Only remove replacement parts from packaging immediately prior to installation.
- ◆ Rules for cleanliness when working on the automatic gearbox => Page 53 .

O-rings, seals, gaskets

- ◆ Always renew O-rings, 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.
- ◆ When installing oil seals, lightly coat outer edge and sealing lips with vaseline.
- ◆ Coat O-rings with Vaseline before installing to prevent the rings from being crushed when inserting.
- ◆ Always use Vaseline only in small amounts. Other greases will cause malfunctions in controls of hydraulic gearbox.
- ◆ The open side of the seals must face the fluid against which the seal is to serve.
- ◆ After installation, check and, if necessary, correct the following levels in the area affected: ATF in planetary gearbox => Page 4 .

Locking elements

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

Nuts, bolts

- ◆ Slacken the bolts in reverse sequence to the specified tightening sequence.
- ◆ Nuts and bolts which secure covers and housings should be slackened and tightened crosswise in stages if no tightening sequence is specified.
- ◆ Renew self-locking nuts.
- ◆ Use a wire brush to clean the threads of bolts screwed in with a locking agent. Then apply AMV 185 101 A1 when inserting.
- ◆ The tightening torques stated apply to non-oiled nuts and bolts.

Mounting

- ◆ Install needle bearings with the lettering on the bearing (the side with thicker metal) facing towards the drift or other tool used for installing.



- ♦ Lubricate bearings with gear oil or ATF, depending on fitting location.
- ♦ Do not interchange inner or outer races of bearings of the same size.
- ♦ Always replace the taper roller bearings on one shaft together and use new bearings from a single manufacturer.
- ♦ Heat inner races of taper roller bearings to approx. 100 °C before installing. Press in onto stop when installing so there is no axial clearance.

Shims

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

Valve body

- ♦ Renew the valve body if any of the selector elements are scorched.

Self-diagnosis

- ♦ Before performing repairs to the automatic gearbox, determine the cause of the fault as precisely as possible using the self-diagnosis.

=> Automatic Gearbox 01F and 01K Self-Diagnosis; Repair Group 01; Performing self-diagnosis Performing self-diagnosis



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32 - Torque converter

1 - Torque converter

1.1 - Torque converter

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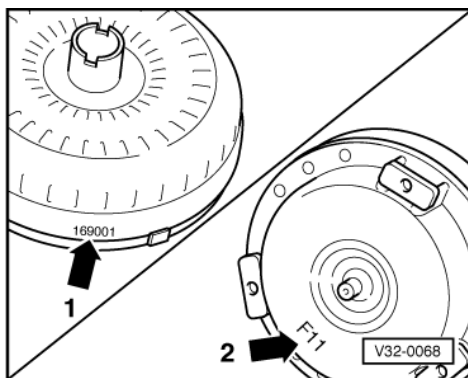
Warning!

Before installing the gearbox, check the installed depth of the torque => Page 10 .

Notes:

- ◆ Rules for cleanliness when working on the automatic gearbox => Page 53 .
- ◆ Repair instructions => Page 5 .
- ◆ Coat sealing rings thinly with Vaseline. Other types of lubricant will cause problems with the hydraulic actuation of the gearbox.

1.2 - Torque converter identification



-> There are various torque converters. The identification is provided on the circumference -arrow 1- and on the side of the torque converter facing the engine -arrow 2-.

Gearbox/torque converter allocation =>from Page 2 .



1.3 - Checking torque converter

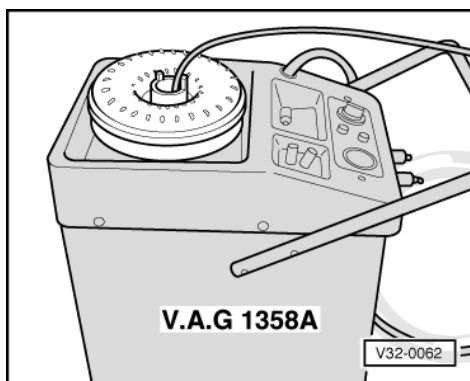


- -> Check torque converter hub -arrow- for scoring.

Note:

The torque converter is welded together and must be replaced as a complete unit if it is damaged or defective.

1.4 - Draining torque converter



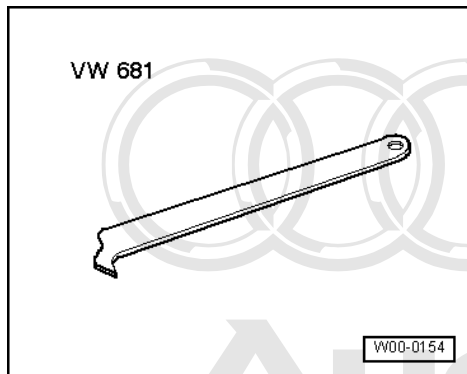
If there is dirt in the ATF resulting from internal wear, or if the gearbox is being overhauled, the torque converter must be drained:

- -> Extract ATF from torque converter with oil extractor V.A.G 1358 A and probe V.A.G 1358 A/1.

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1.5 - Replacing torque converter oil seal

The following special tools and testing devices are required:

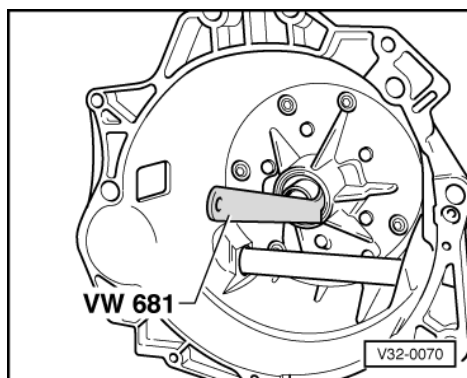


- ◆ Extractor lever VW 681



- ◆ Thrust piece 3295

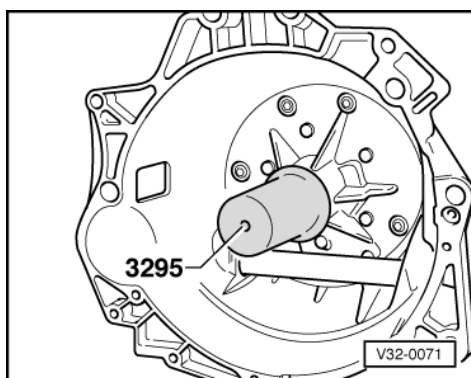
- Remove gearbox => Page 28 .
- Remove torque converter.
- Mount the gearbox to the repair stand => Page 39 or place on a level surface.



- -> Use the extraction lever VW 681 to remove the oil seal for the torque converter.

Notes:

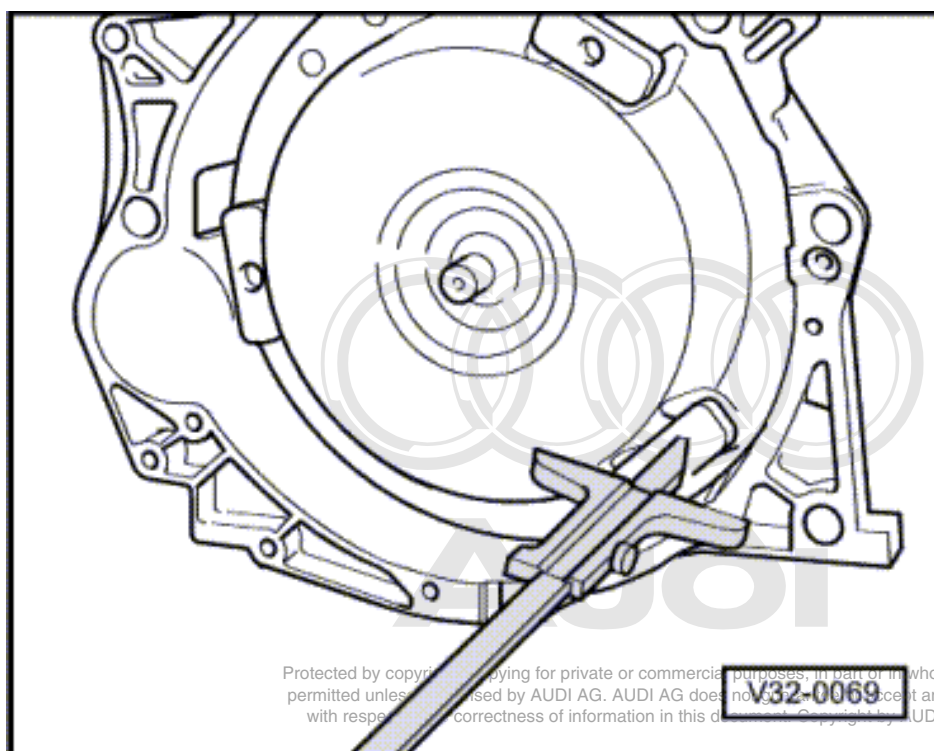
- ◆ The open side of the oil seal should face the gearbox.
- ◆ Before installing, thinly coat outer circumference and oil seal sealing lip with Vaseline.



- -> Use the thrust piece 3295 to push on the oil seal for the torque converter up to the stop.

1.6 - Installing torque converter

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



Size

-> When the torque converter is correctly inserted, the distance between the surface of the securing eyes and the surface of the torque converter bell housing is at least 19 mm.

If the torque converter is not inserted correctly, this distance is approximately 14 mm and the freewheel support is not fully seated.

Warning!

If the torque converter is incorrectly inserted, the driver of the torque converter or the ATF pump will be severely damaged when the gearbox is attached to the engine.

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37 - Controls, Housing

1 - Servicing shift mechanism

1.1 - Servicing shift mechanism

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1.2 - Checking ignition key removal lock

- Shift selector lever to "P" position and turn ignition key to end position (ignition off). It should only be possible to remove the ignition key when the selector lever is in the "P" position.
- Pull out ignition key. Selector lever cannot be shifted out of "P" position.

1.3 - Checking shift mechanism

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

- Brake pedal not depressed:

The selector lever is locked and cannot be moved from the "P" position. The solenoid for the selector lever lock locks the selector lever.

- Brake pedal depressed:

The solenoid for the selector lever lock releases the selector lever. It is possible to shift into a driving gear. Slowly shift the selector lever from "P" through "R, N, D, 2, 3, 1" checking whether driving range display in dash panel insert is the same as the selector lever position.

Selector lever in "N" position and ignition switched on:

- Brake pedal not depressed:

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

- Brake pedal depressed:

The solenoid for the selector lever lock releases the selector lever. It is possible to shift into a driving gear.

Notes:

- ♦ The starter must not operate in the selector lever positions "1", "2", "3", "D" and "R".
- ♦ At speeds over 5 km/h and with the selector lever set to "N", the solenoid for the selector lever lock should not engage and should lock the selector lever. It should be possible to shift the selector lever into a gear.
- ♦ When travelling at speeds below 5 km/h (almost stopped) and shifting into selector lever position "N", solenoid for selector lever lock must not engage until after approx. 1s. It is then only possible to shift the selector lever out of "N" if the brake pedal is depressed.

1.4 - Dismantling and assembling shift mechanism

The following work is necessary before dismantling the shift mechanism:

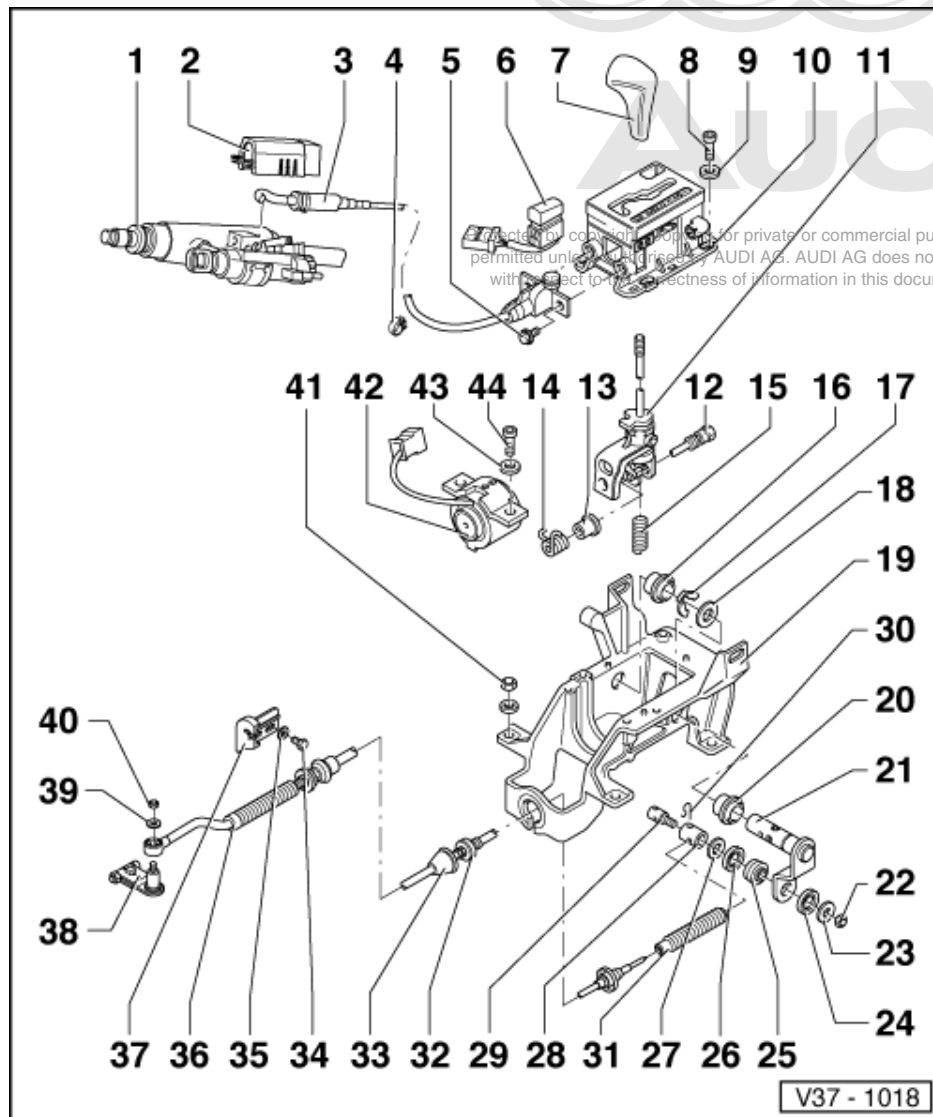
- ♦ To work on selector housing (shift gate), remove solenoid for selector lever lock or front centre console locking cable.

=> Body Assembly Work; Repair Group 70; Dash Panel; Removing and installing the front centre console Dash Panel Removing and installing the front centre console

- ♦ When replacing locking cable, also remove steering wheel and dash panel insert

=> Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel insert Removing and installing dash panel insert

- ♦ The entire shift mechanism is removed upwards.



1 Ignition/starter switch

2 Trim cap

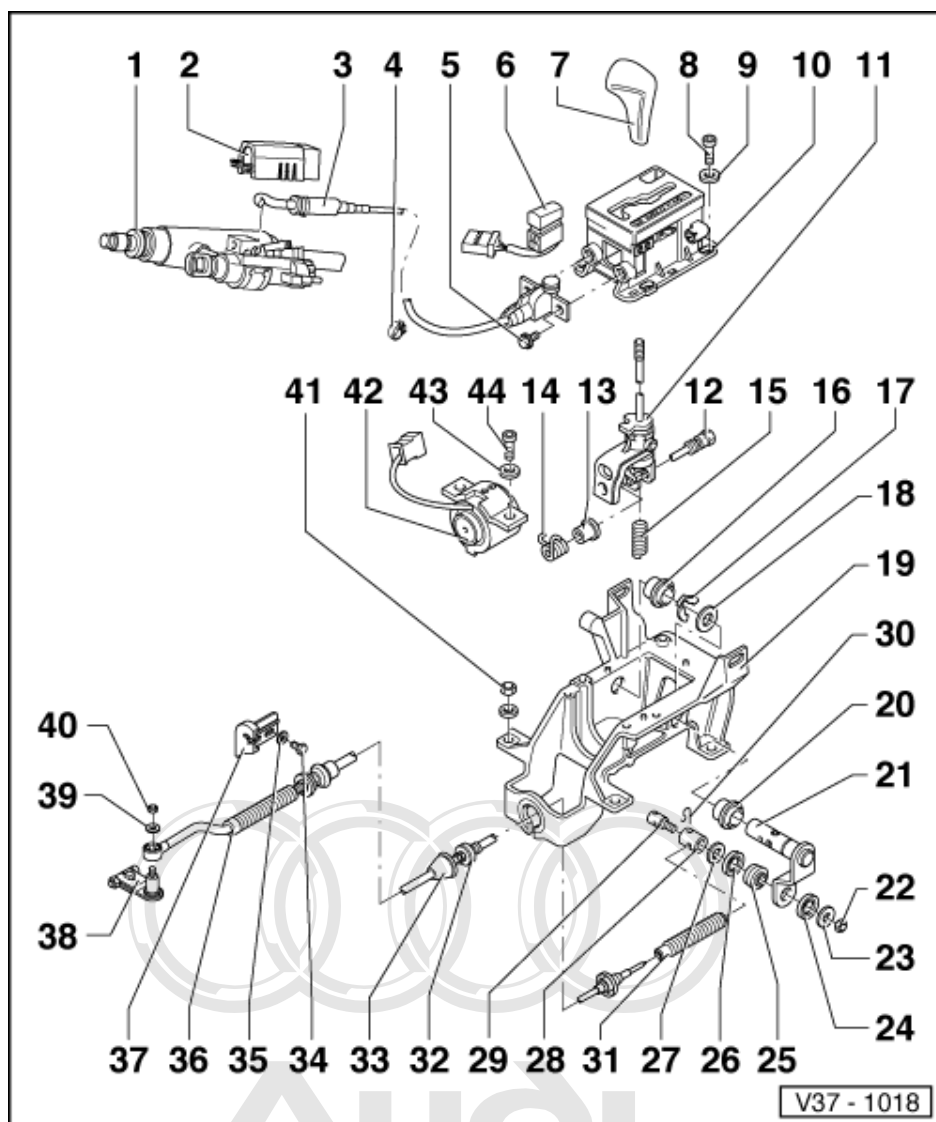
3 Locking cable

- ♦ To remove and install, remove centre console, steering wheel and dash panel insert
- ♦ Removing and installing => Page 25
- ♦ Must not be kinked
- ♦ Adjusting => Page 26

4 Clamp

- ♦ Adjusting => Removing/installing and adjusting locking cable, Page 25

5 Bolt - 10 Nm



6 Not installed

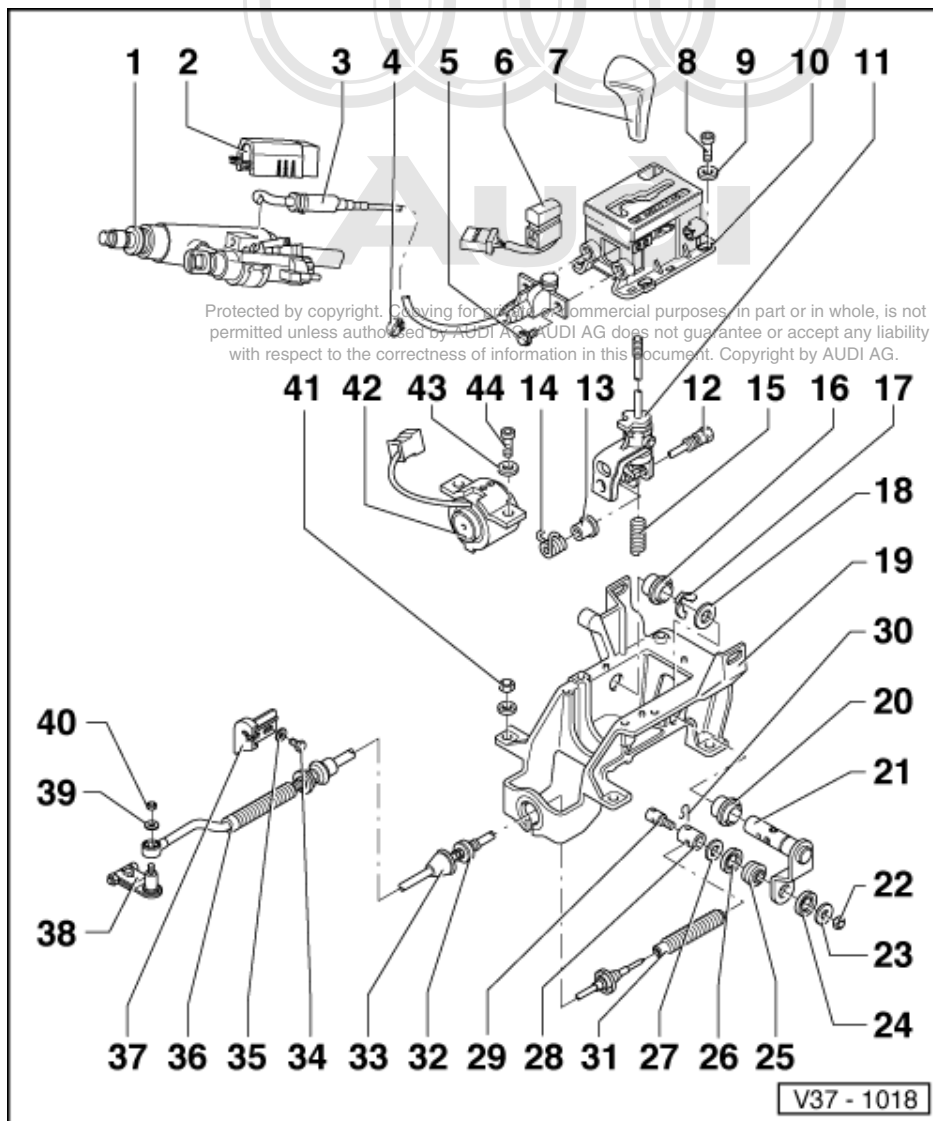
7 Handle for selector lever

8 Bolt - 10 Nm

9 Washer

10 Selector housing (shift gate)

- ♦ Before removing selector housing, unbolt locking cable from selector housing
- ♦ Install selector housing after adjusting selector lever lock solenoid -N110
- ♦ Aligning => Fig. 22



11 Gate lever

- ♦ With clevis to lock selector lever in positions "P" and "N" and mechanism to release ignition key in position "P" via locking cable
- ♦ Checking clearance between selector lever and solenoid for selector lever -N110 => Fig. 22

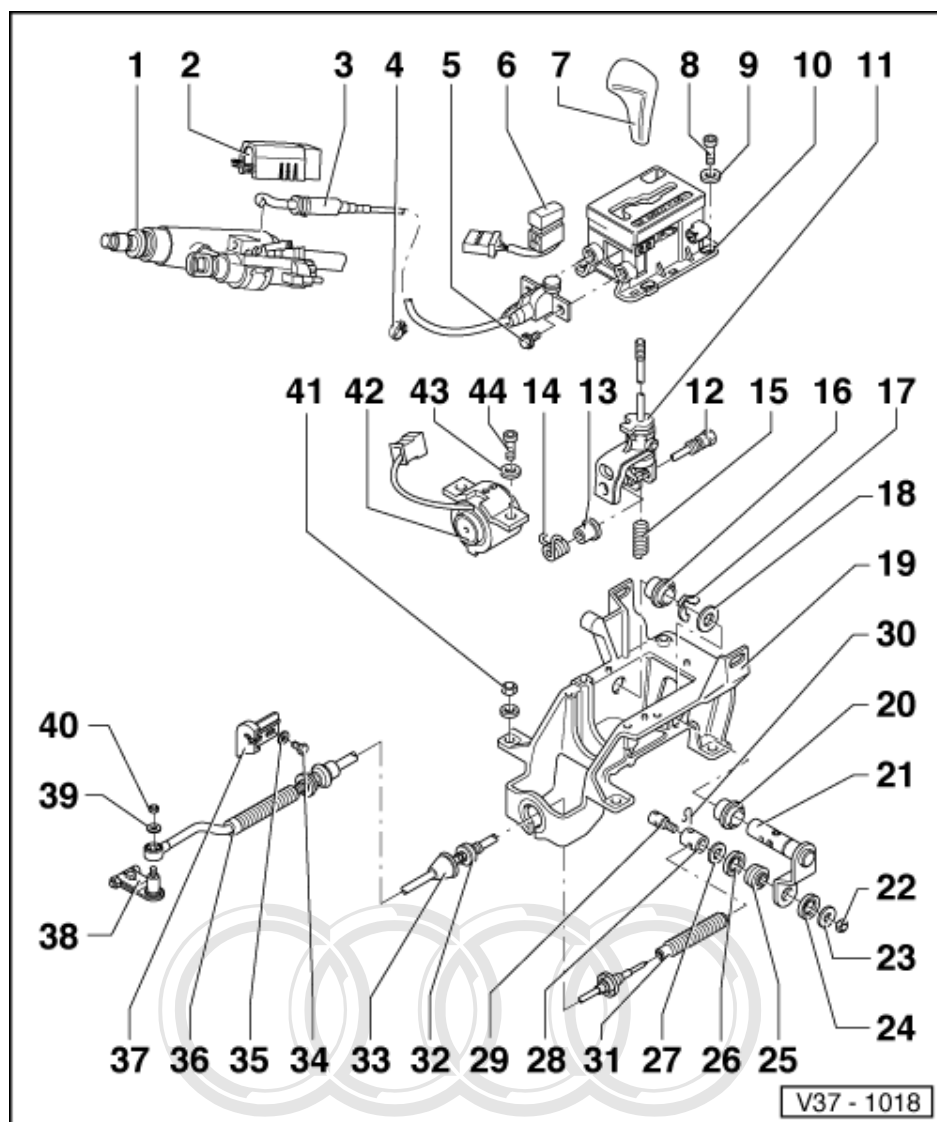
12 Guide pin - 22Nm

- ♦ Install after fitting compression spring -Item 15 -

13 Socket

- ♦ For torsion spring -Item 14 -

14 Torsion spring



15 Spring

- ♦ Insert into selector lever before installing guide pin -Item **12** -

16 Socket

- ♦ Grease with G 000 660 after installing

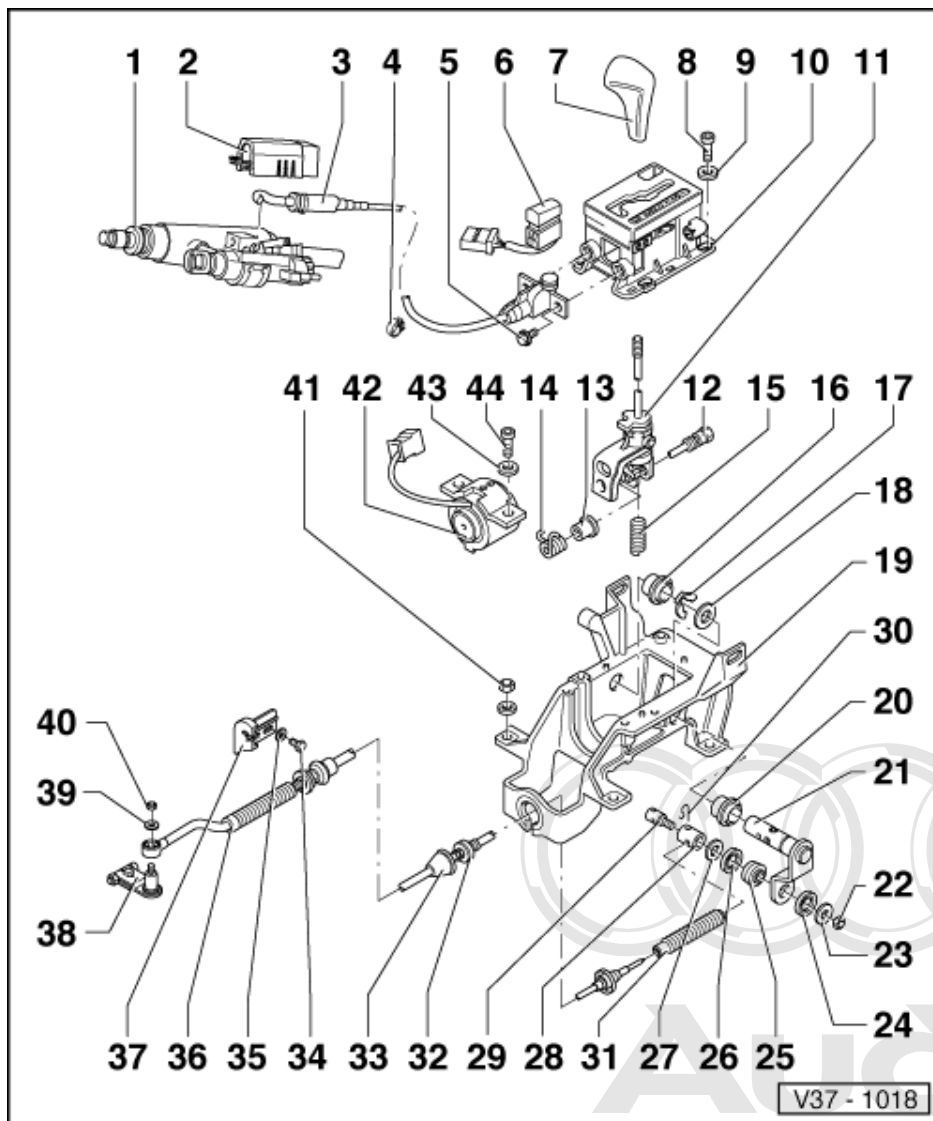
17 Circlip

- ♦ Install after fitting lever for shift mechanism -Item **21** - or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

18 Washer

19 Mounting bracket for shift mechanism

- ♦ Before installing mounting bracket for shift mechanism, fit a washer (18 x 6.1 x 2) on each of the two studs at the front



20 Socket

- ♦ Grease with G 000 660 after installing

21 Lever for shift mechanism

22 Nut - 20 Nm

23 Washer

24 Sealing collar

25 Socket

- ♦ Insert into lever for shift mechanism -Item **21** -

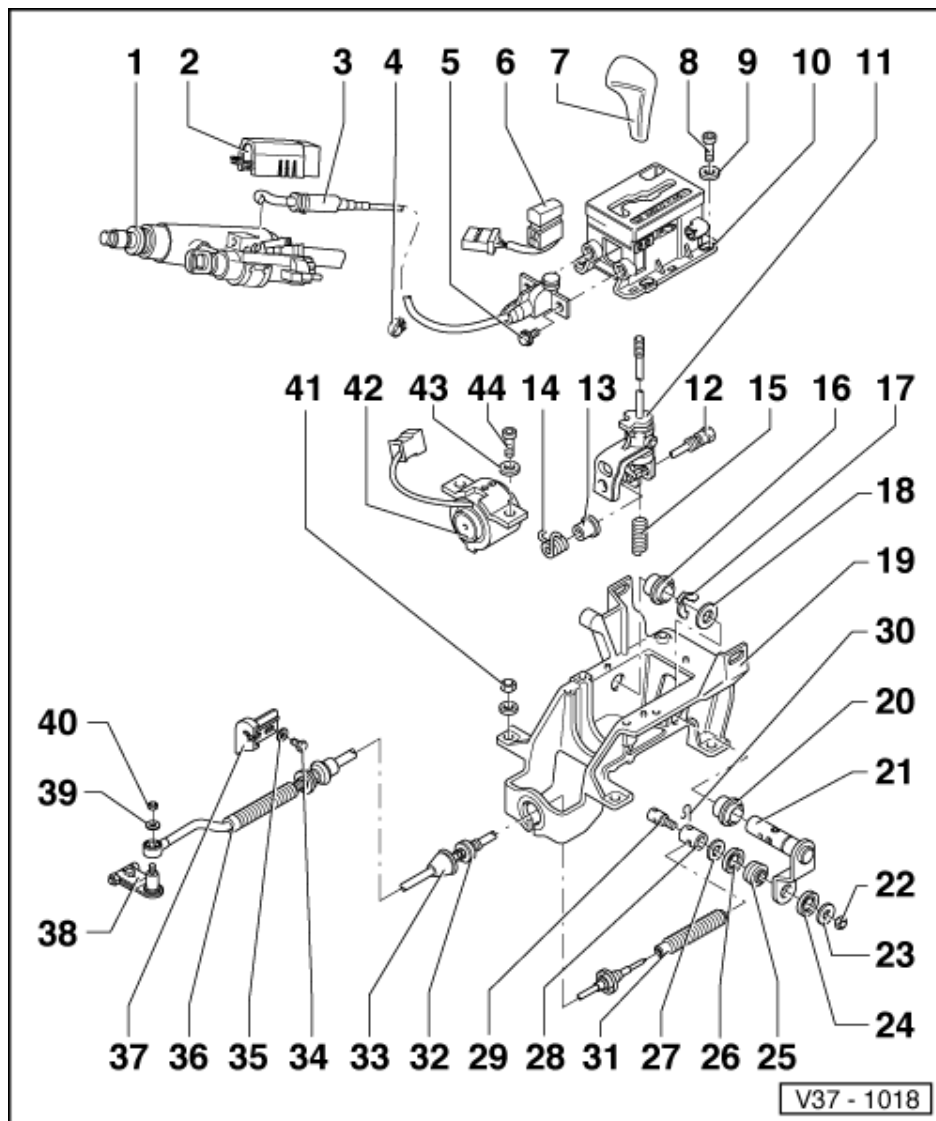
26 Sealing collar

27 Washer

28 Clamping sleeve

- ♦ For selector lever cable

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**29 Clamping pin**

- ◆ For selector lever cable

30 Spring clip**31 Rear bellows**

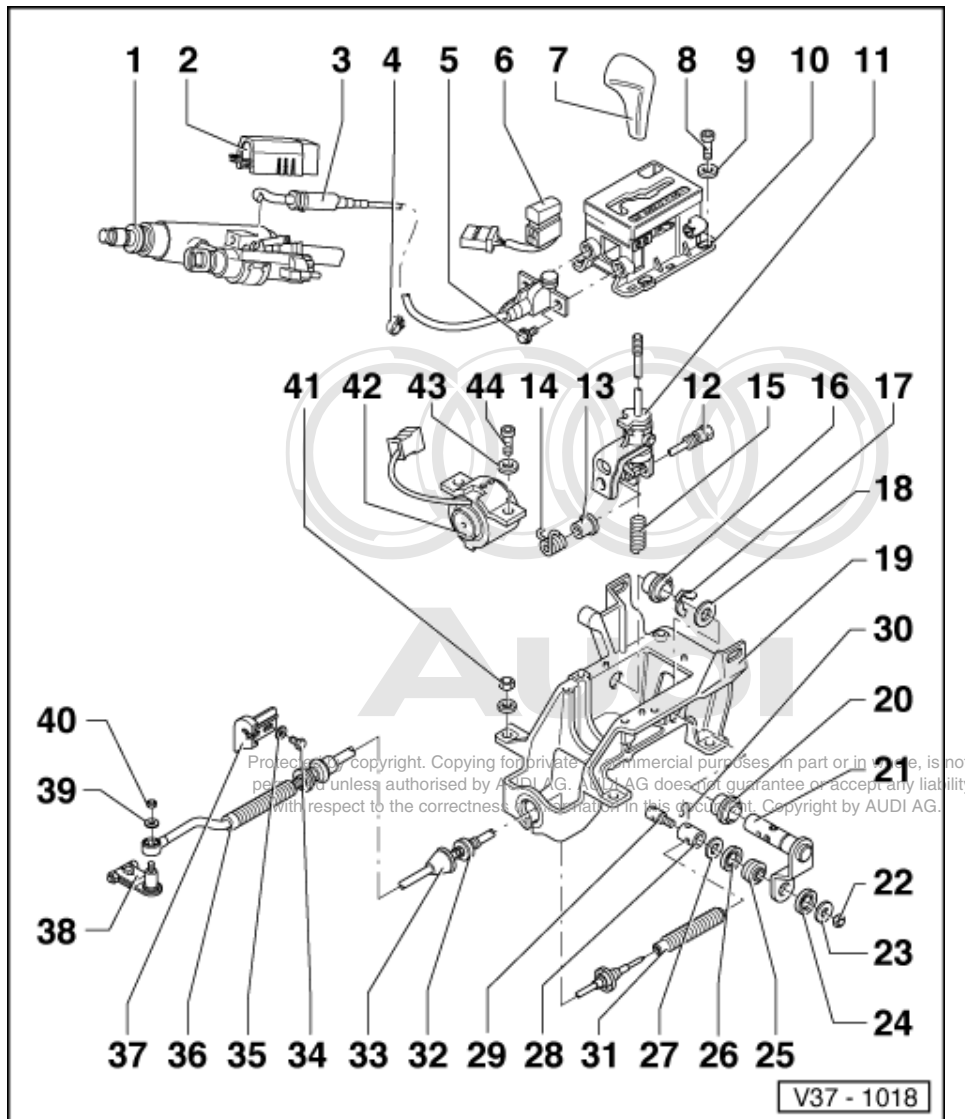
- ◆ Replace, if damaged
- ◆ Ensure correct installation position

32 Selector lever cable

- ◆ With guide and bush
- ◆ Tighten to 12 Nm when attaching to support brackets
- ◆ Ensure guide tube is properly secured
- ◆ Do not bend or kink selector lever cable
- ◆ Grease bracket for selector lever cable on gearbox selector lever with G 000 660



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- ♦ Ensure that bellows for selector lever cable is fitted correctly, otherwise water can enter selector lever cable assembly
- ♦ Adjusting => Page 23

33 Grommet

- ♦ Replace, if damaged
- ♦ Ensure correct installation position

34 Bolt - 23 Nm

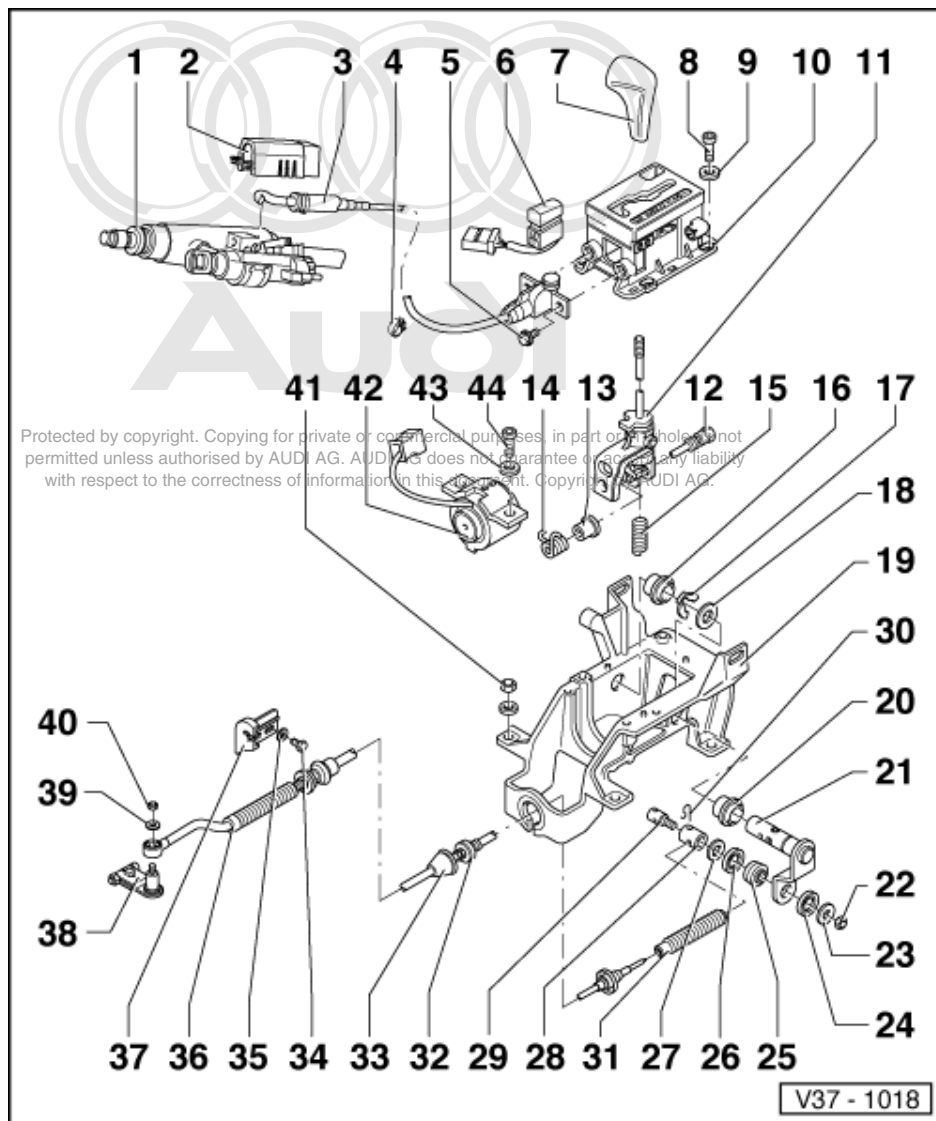
35 Washer

36 Front bellows

- ♦ If damaged, renew selector lever cable

37 Support bracket

- ♦ For selector lever cable
- ♦ On gearbox

**38 Gearbox selector lever**

- ♦ Grease bracket for selector lever cable with G 000 660

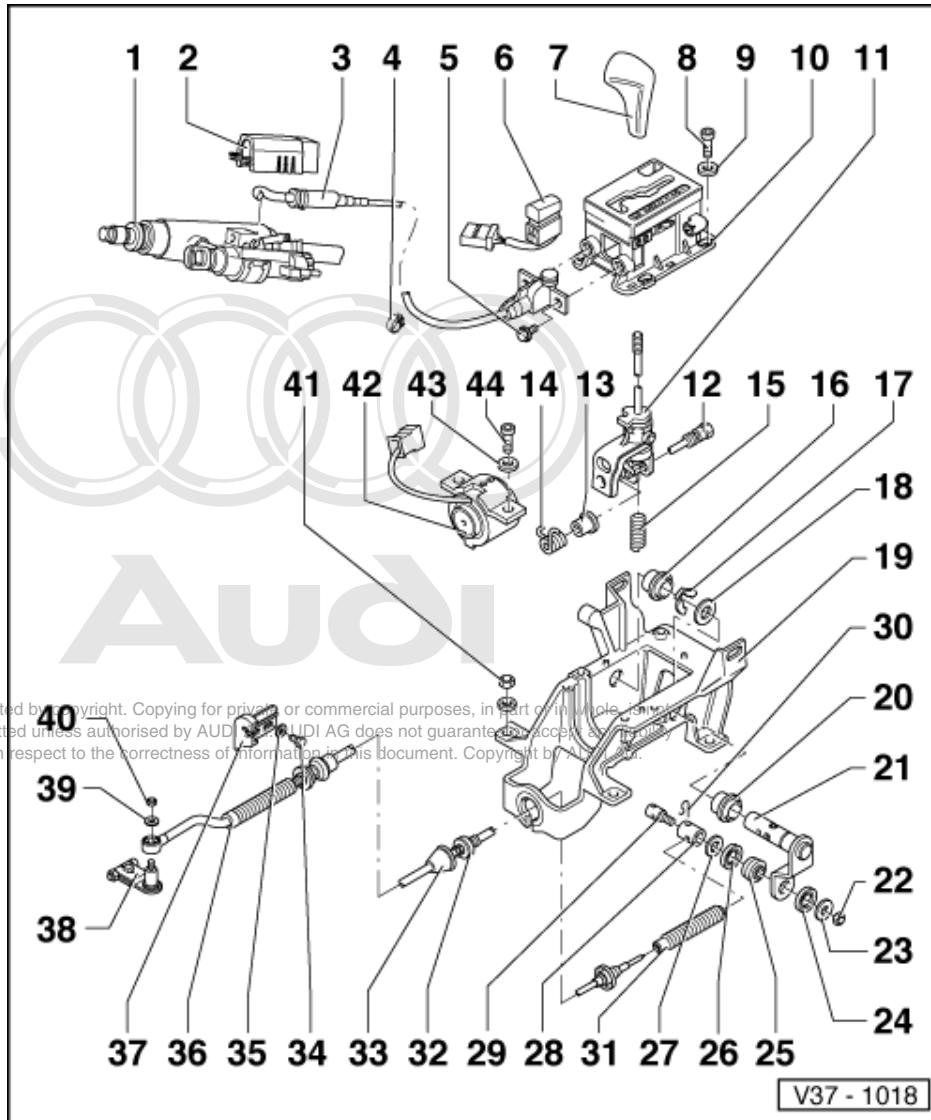
39 Washer

- ♦ Installation position: Shoulder towards selector lever cable
- ♦ Grease shoulder with G 000 660

40 Nut - 8 Nm**41 Nut - 10 Nm****42 Solenoid for selector lever lock -N110**

- ♦ Checking using self-diagnosis

=> Automatic Gearbox 01F and 01K Self-Diagnosis; Repair Group 01; Performing self-diagnosis Performing self-diagnosis

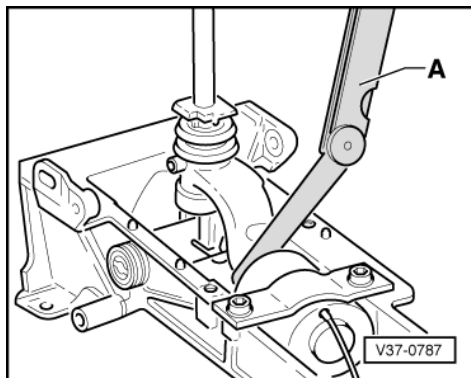


♦ Installation:

- Press solenoid with locking mechanism in axial direction against mounting bracket for shift mechanism, and tighten solenoid securing bolts
- After installing shift mechanism switch on ignition. The solenoid blocks the selector lever in position "P" and position "N". The selector lever can be moved out of positions "P" and "N" when the brake pedal is pressed
- Checking gap between selector lever and solenoid => Fig. 22 .

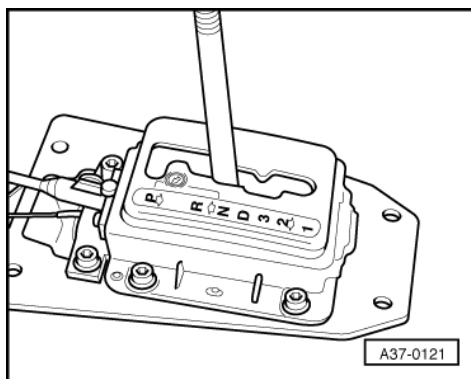
43 Washer

44 Bolt - 10 Nm



-> Fig.1 Checking clearance between selector lever and solenoid for selector lever -N110.

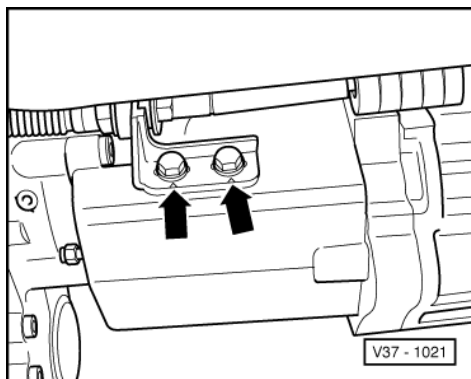
- With selector lever in position "R", measure clearance between selector lever and selector lever lock solenoid using a feeler gauge-A.
 - Specification: 0.6 ... 1.4 mm
- Adjust clearance, if necessary by moving solenoid in holes in mounting bracket.



-> Fig.2 Aligning selector housing with selector lever

- After installing selector lever lock solenoid, align bottom hole of clevis centrally with solenoid and energise solenoid.
- Fit selector housing (shift gate) in position. Selector lever should now be aligned with position "N" on selector housing.
- After tightening selector housing mountings, shift selector lever through all positions and check that it reaches end stops at "P" and "1".

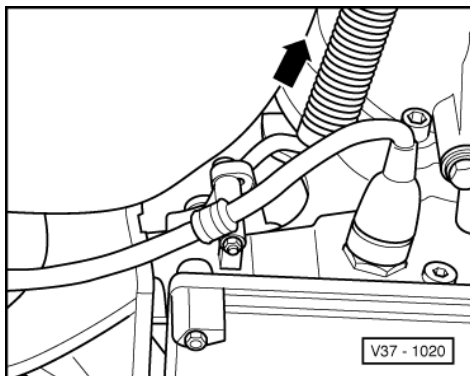
1.5 - Adjusting selector lever cable



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A - Selector lever cable detached at gearbox only

- Move selector lever to position "P".
- -> Slacken off bolts - arrows- at support bracket of selector lever cable such that support bracket can be moved.



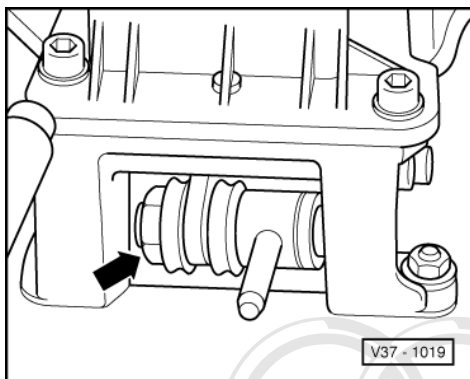
- -> Also move gearbox selector lever to position "P" (rear stop). To do this, pull selector lever cable towards rear -arrow-.
- Check that selector lever cable is routed without tension.
- Tighten bolts on support bracket of selector lever cable to 25 Nm.

Note:

If the elongated holes of the support bracket are not sufficient to align the selector lever cable tension-free, perform selector lever cable adjustment as described under "B".

- Checking shift mechanism => Page 12 .

B - Selector lever cable only disconnected at selector lever



- Front centre console removed.

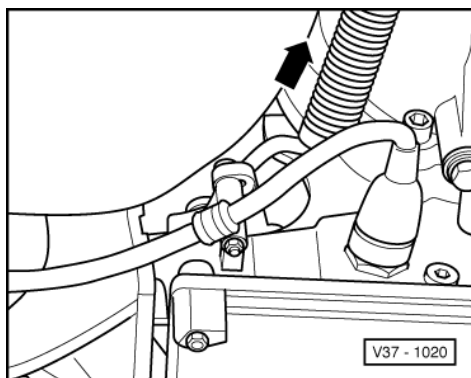
=> Body Assembly Work; Repair Group 70; Dash Panel; Removing and installing the front centre console Dash Panel Removing and installing the front centre console

- Footwell vent removed.

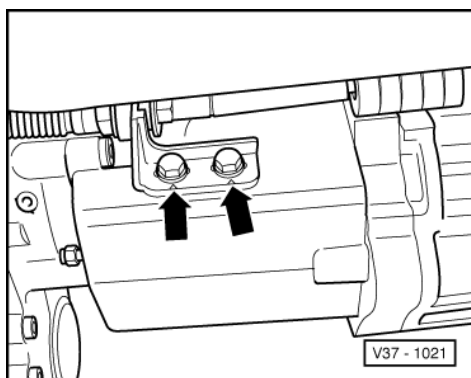
=> Heating, Air Conditioner System; Repair Group 80; Servicing heater Servicing heater

- Move selector lever to position "P".
- -> Slacken nut -arrow- on clamping pin for selector lever cable.

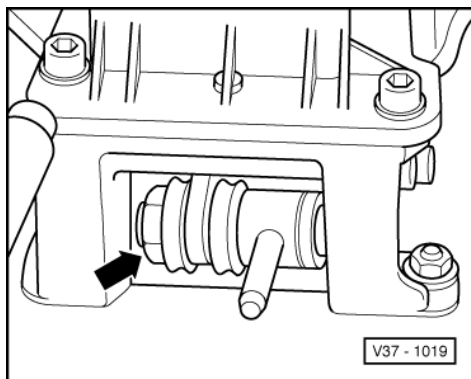
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- -> Also move gearbox selector lever to position "P" (rear stop). To do this, pull selector lever cable towards rear -arrow-.
- Check that selector lever cable is routed without tension.



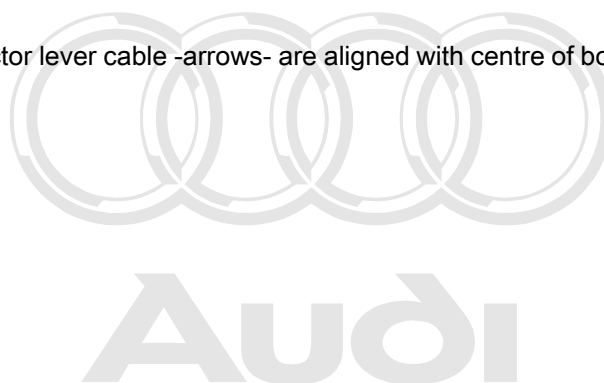
- -> Check whether marks on support bracket of selector lever cable -arrows- are aligned with centre of bolts and align, if necessary.



- -> Tighten nut -arrow- at clamping pin for selector lever cable (20 Nm).
- Checking shift mechanism => Page 12 .

Note:

If selector lever position display -Y5 in dash panel insert does not coincide with selector lever position, repeat adjustment/adjust multi-function switch -F125 => Page 61 .



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1.6 - Removing, installing and adjusting locking cable

Note:

Adjust locking cable after securing locking cable to ignition/starter switch => Page 26 and then secure to selector housing.

Removing

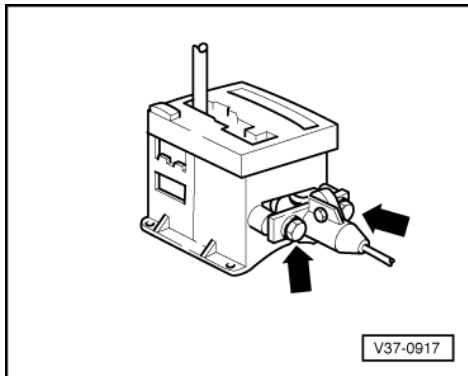
- Remove the front centre console

=> Body Assembly Work; Repair Group 70; Dash Panel; Removing and installing the front centre console Dash Panel Removing and installing the front centre console

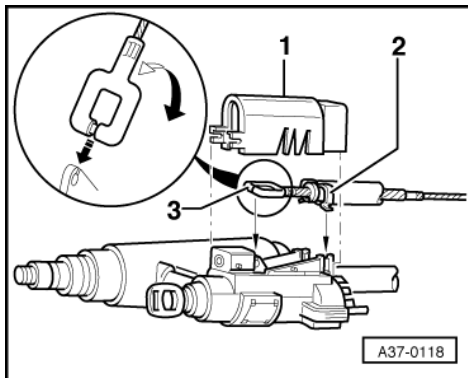
- Remove steering wheel and dash panel insert

=> Electrical System; Repair Group 90; Dash panel insert; Removing and installing dash panel insert Dash panel insert Removing and installing dash panel insert

- Shift selector lever into position "N".



- -> Slacken hexagon bolts -arrows-.



- -> Take off cap -1-.
- Release spring clip -2-.
- Turn end of locking cable -3- up through about. 90° and pull up and out of retaining eye on ignition/starter switch.

Note:

Do not kink the locking cable when turning it upwards.

- Remove spring clip for locking cable on air duct and remove locking cable.



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Installing

- Insert locking cable into top of retaining eye on ignition/starter switch (flat parts of locking cable and retaining eye must be aligned) and turn locking cable down through about 90°.
- Insert spring clip.

Note:

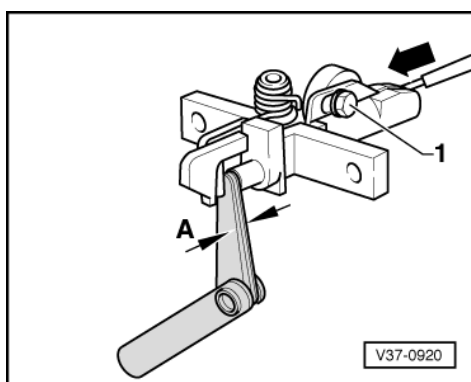
The spring clip must be engaged properly, otherwise the cap cannot be fitted.

- Fit cap on ignition/starter switch.

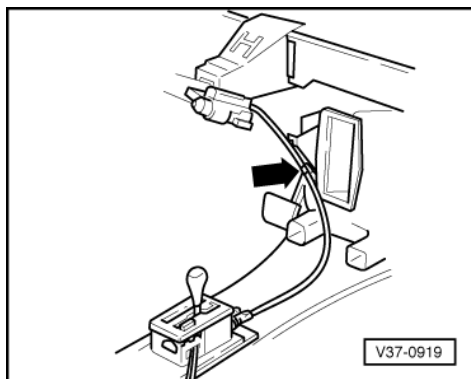
Adjusting

Note:

The adjustment of the locking cable is performed in the installed position.



- -> Slacken off bolt -1-.
- Turn key in ignition/starter switch to "ignition on" position.
- Locate locking cable support bracket on selector housing (shift gate) and secure in position for bolting on.
- Insert feeler gauge -A- 1.5 mm between locking arm and locking pin.
- Adjust locking cable by moving in direction of arrow so that locking pin is pushed against feeler gauge.
- Tighten bolt in this position to 10 Nm.
- Turn key in ignition/starter switch several times backwards and forwards between "ignition on" and "ignition off" positions.
- Check gap between locking pin and locking arm once again.
 - Specification: 1.2 ... 1.7 mm
- Shift selector lever into position "N".
- Install locking cable on selector housing (shift gate).
- Ensure that locking cable is not kinked.



- -> On LHD vehicles attach locking cable to heating system housing with cable clip -arrow-.
- On RHD vehicles, secure locking cable to steering column console with cable clamp.

Functional check

- Shift selector lever to "P" position and turn ignition key to "ignition off" position.
 - The selector lever should be locked in position "P".
 - The ignition key can be removed.
- Turn ignition key to "ignition on" position and shift selector lever out of "P" to one of the other positions. Turn ignition key back to "ignition off" position, press down selector lever and shift to position "P". Keep selector lever pressed down and shift it back to one of the other positions:
 - It should not be possible to withdraw the ignition key.

2 - Checking gearbox

2.1 - Checking gearbox

Notes:

- ◆ Always perform self-diagnosis as a first step when tracing the cause of faults.

=> Automatic Gearbox 01F and 01K Self-Diagnosis; Repair Group 01; Performing self-diagnosis Performing self-diagnosis

- ◆ Only check the automatic gearbox according to the procedure described in the "Fault-finding, Transmission" binder if the fault cannot be found and rectified using self-diagnosis. "Fault finding. Transmission" description - check.

2.2 - Checking shift points

=> "Fault recognition. Power Transmission" binder

2.3 - Checking stall speed

=> "Fault recognition. Power Transmission" binder

2.4 - Checking main pressure

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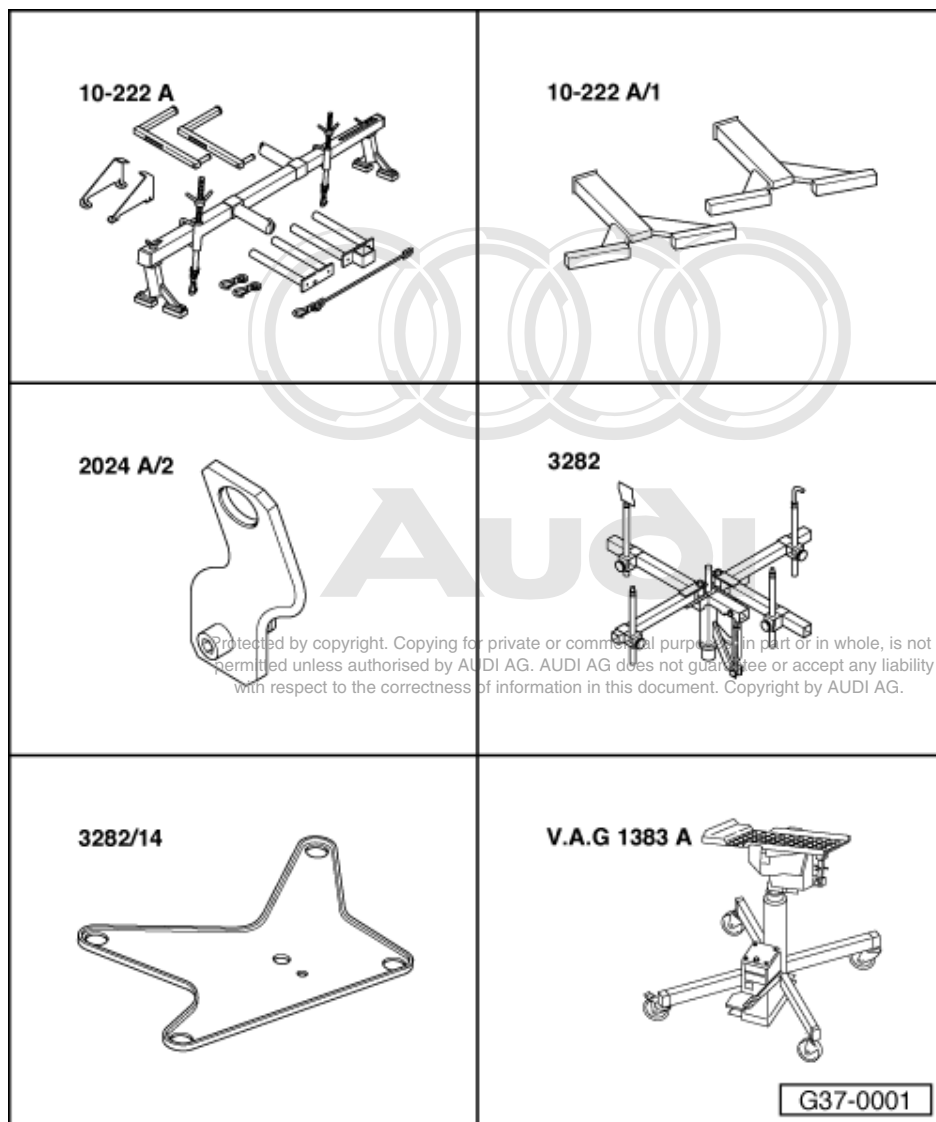
=> "Fault recognition. Power Transmission" binder

2.5 - Fault finding table for "4-speed automatic gearbox"

=> "Fault recognition. Power Transmission" Binder

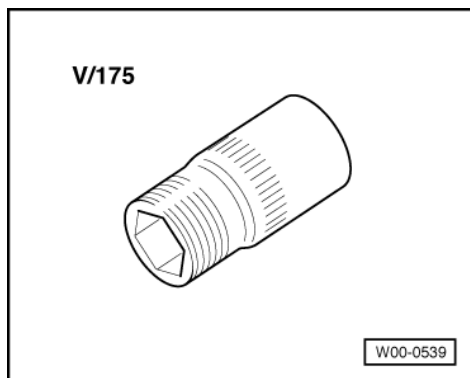
3 - Removing and installing gearbox

3.1 - Removing and installing gearbox



The following special tools and testing devices are required:

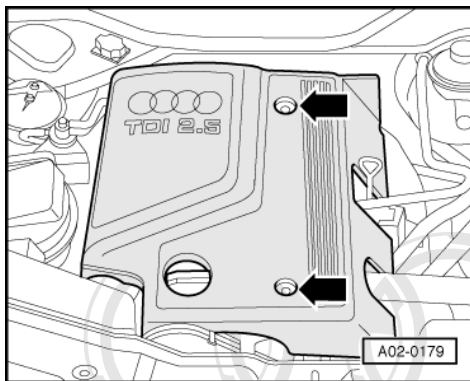
- ◆ Support bar 10-222A
- ◆ Supports 10-222A1
- ◆ Bracket 2024 A/2
- ◆ Gearbox support 3282
- ◆ Adjustment plate 3282/14
- ◆ Engine/gearbox lifter
V.A.G 1383 A



- ♦ 15 mm wrench socket, Matra V/175

Removing

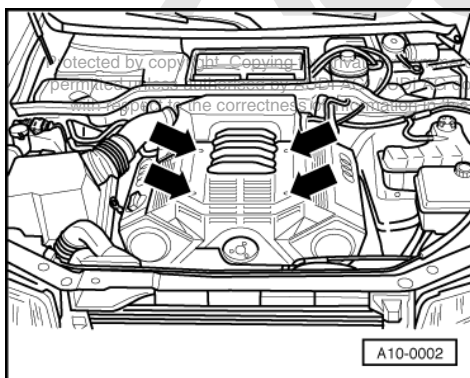
- Observe or obtain radio code on vehicles with coded radio.
- With ignition switched off disconnect battery earth strap.
- Pull speedometer connector off gearbox.



Vehicles with 5-cylinder TDI engine:

- -> Remove engine cover panel -arrows-.

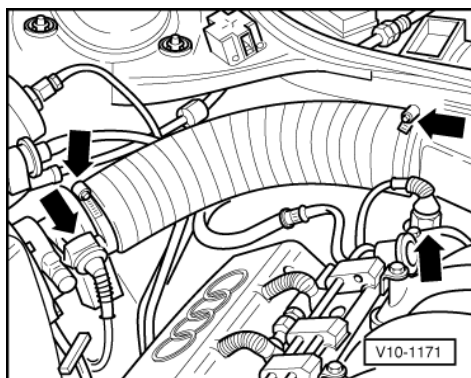
Vehicles with 6-cylinder engine:



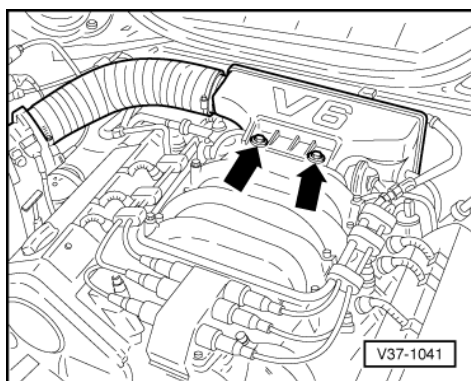
Note:

The illustrations below show the 2-valve engine.

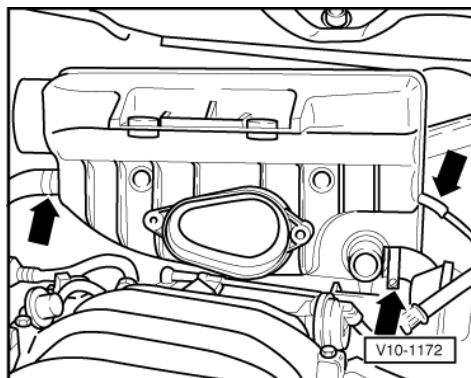
- -> Remove engine cover panel -arrows-.



- -> Remove -top arrows- air duct hose between air-mass meter and intake manifold.



- -> Screw out bolts - arrows- of noise insulation.



- -> Pull off -arrows- both crankcase breathers and vacuum hose.
- Push intake silencer to rear and then lift out.

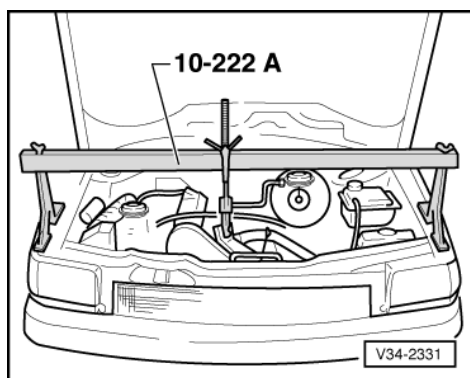
Vehicles with divided filler pipe:

- Loosen top ATF filler pipe and pull out.
- Then seal lower filler pipe with a cloth.



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All vehicles:



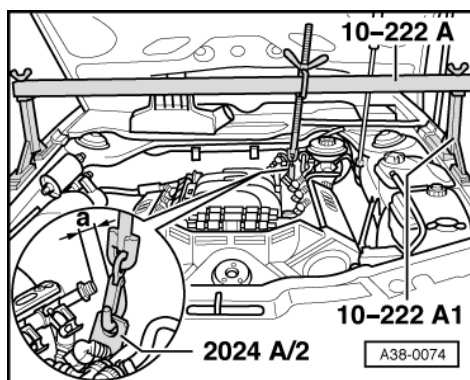
- Remove the engine/gearbox connecting bolts accessible from above.

Vehicles with 5-cylinder TDI engine:

- -> Mount support bar 10-222 A with supports 10-222 A1 on wing attachment strip.
- Pretension engine by way of screws.

Vehicles with 6-cylinder engine:

- Pull off sparkplug connector in front of rear left engine mount.



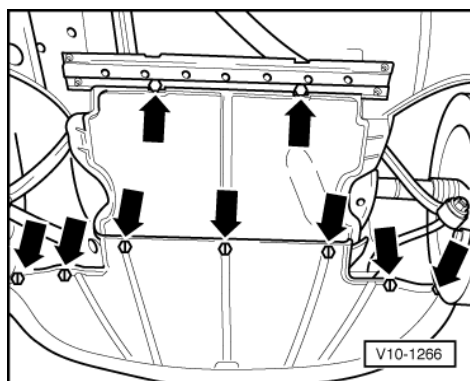
- -> Attach bracket 2024 A/2 with bolt to rear left engine mount.
- Mount support bar 10-222 A with supports 10-222 A1 on wing attachment strip.

Note:

Make sure there is enough clearance -a- between the hook of the engine support bracket and the fuel rail. If necessary, remove the fuel rail.

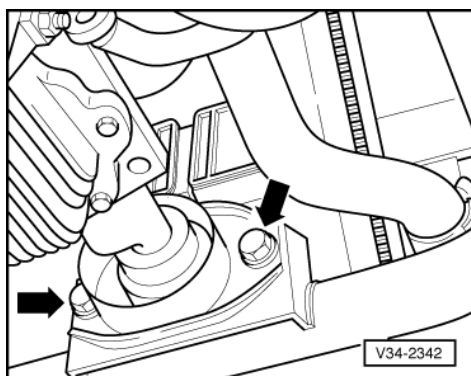
- Pretension engine by way of screws.

All vehicles:

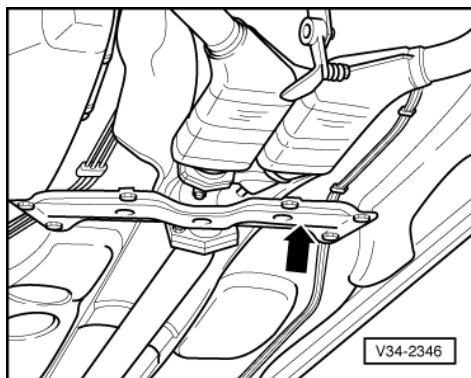




- -> Turn quick-release studs anti-clockwise -arrows-.
- Pull front noise insulation to rear off bumper and remove.
- Detach rear noise insulation (5 cyl. TDI engine) to rear.



- -> Screw out -arrows- bolts for torque arm.



- -> Unscrew front cross piece -arrow- beneath exhaust system.

Vehicles with 5-cylinder TDI engine:

- Remove exhaust system complete with front exhaust pipe

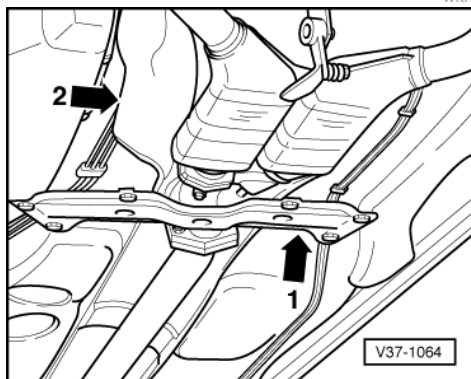
Vehicles with 6-cylinder engine:

- Remove entire exhaust system

=> 6-cyl. Fuel injection engine (2 valve), Mechanical Components; Repair Group 26; Removing and installing exhaust system components Removing and installing exhaust system components

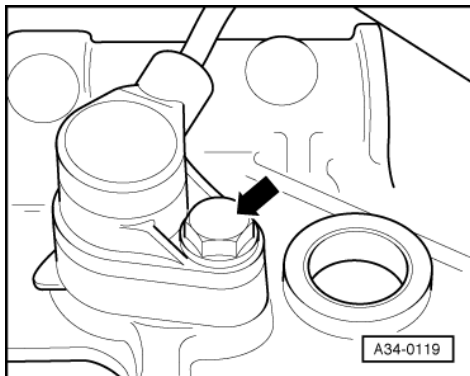
=> 6-cylinder engine (5 valve), Mechanical Components; Repair Group 26; Removing and installing exhaust system parts Removing and installing exhaust system parts

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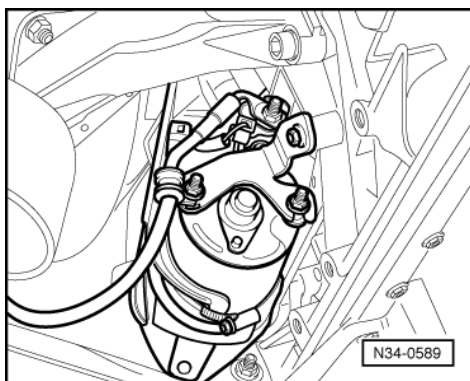


All vehicles:

- -> Remove heat shield -arrow 2-.
- Remove heat shield for left drive shaft.
- Disconnect drive shafts from gearbox and tie up.



- -> If installed, unbolt engine speed sender -G28 -arrow- from front left side of gearbox.

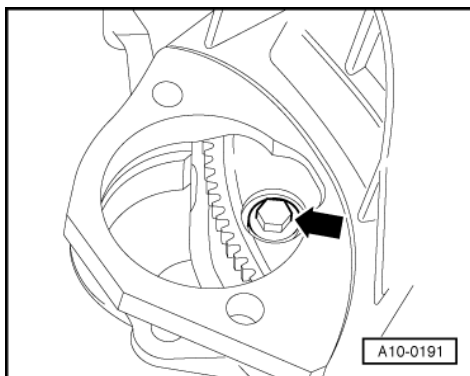


- -> Remove starter.

Note:

For vehicles with 6-cylinder engine, loosen alternator and take off ribbed V-belt to remove starter motor.

=> 6-cyl. engine (5-valve), Mechanical Components; Repair Group 13; Dismantling and assembling engine; Removing and installing ribbed belt Dismantling and assembling engine Removing and installing ribbed belt

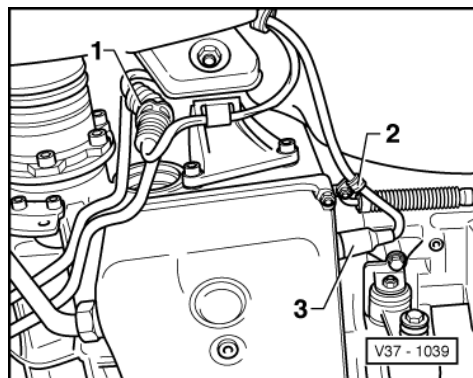


- -> Use 15 mm wrench socket Matra V/175 to screw out 3 bolts of torque converter in opening in removed starter (give crankshaft 1/3 of a turn in each case).

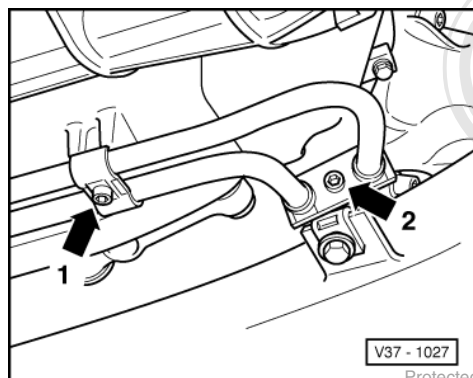


Note:

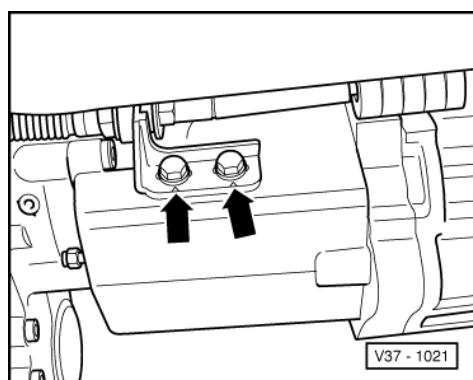
When loosening torque converter bolts, counterhold crankshaft by applying spanner to central bolt on vibration damper.



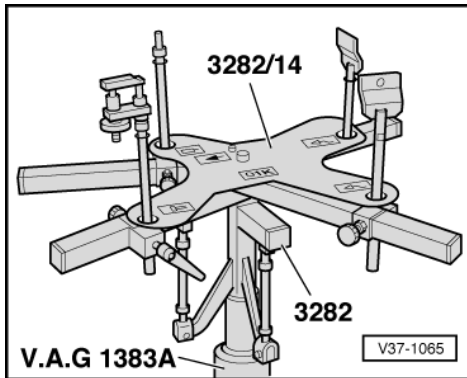
- -> Unplug connector -1- for multi-function switch -F125 and unclip wiring near gearbox support.
- Remove wiring retainer -2-.
- Loosen bayonet connector of 8-pin connector -3- by turning to left and separate connector from gearbox.



- -> Unbolt retainer for ATF pipe -arrow 1-.
- Disconnect ATF pipes to cooler at connector block -arrow 2-.



- -> Remove bolts -arrows- of support bracket for selector lever cable.

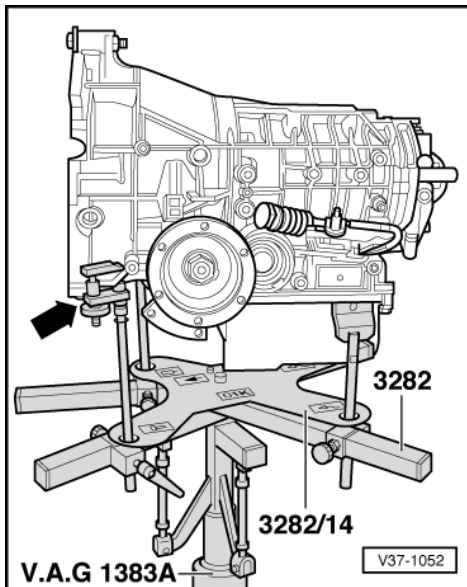


- -> Fit the adjustment plate 3282/14 to the gearbox support 3282 used to remove the automatic gearbox 01K and place the entire assembly on the jack V.A.G 1383 A.

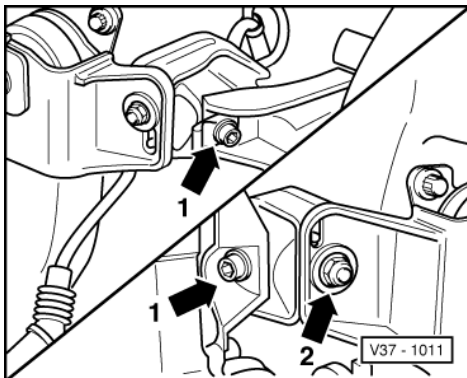
Note:

The symbols on the adjuster plate mark the positions of the attachments required for automatic gearbox 01K (arrow points towards front of vehicle).

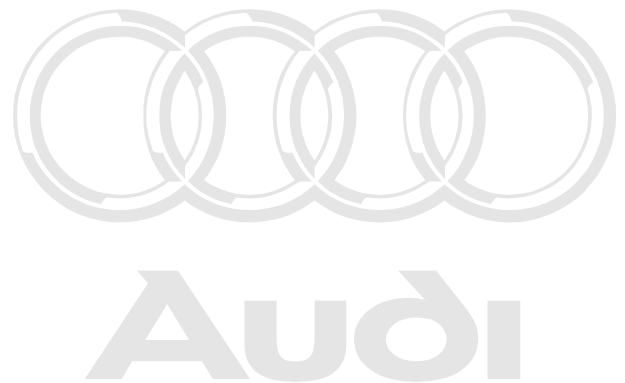
- Move jack V.A.G 1383 A with gearbox support 3282 under the gearbox and support gearbox.



- -> Secure -arrow- gearbox at gearbox rest 3282.



- -> Unfasten -arrow 2- nut for right bonded rubber bush at subframe.
- Unbolt left and right-hand gearbox support at bonded rubber mounting -arrow 1-.
- Lower gearbox slightly.

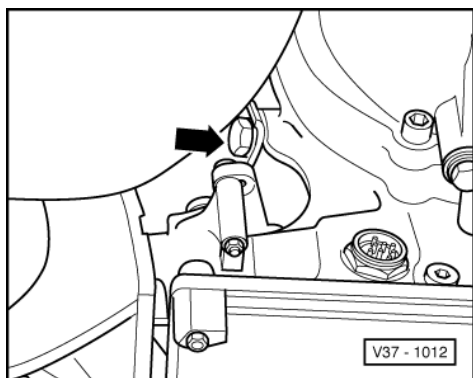


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- Disconnect selector lever cable from selector shaft lever.

Vehicles ä 05.94 (with procon-ten):



- -> Screw out bolt for cable holder (procon-ten) -arrow-.
- Unhook cable retainer on gearbox and push upwards with cables.

All vehicles:

- Remove lower engine/gearbox connecting bolts.
- Press gearbox off engine and lower carefully.

Notes:

- ♦ On vehicles with 5 cylinder TDI engine press up retainer for water hose at upper engine/gearbox connecting bolt before pressing off gearbox.
- ♦ Press torque converter off drive plate when removing gearbox.
- Secure the torque converter such that it cannot fall out.

Installing

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Install in reverse order, paying attention to the following:

Note:

When performing repairs, replace seals, gaskets, self-locking nuts and bolts which have a specified tightening angle.

- Before installing the gearbox, ensure that the torque converter has been correctly inserted into the gearbox => Page 10 .
- Before installing the gearbox, ensure that the dowel sleeves are correctly seated on cylinder block.
- When pushing the engine and gearbox together, ensure that no cables, pipes, etc. can become trapped.
- Start by hand-tightening all bolts for torque converter. Only tighten to specified torque in second operation.

Note:

When installing ATF pipes, renew O-rings and coat new O-rings thinly with Vaseline.

- Adjust selector lever cable => Page 23 .
- Align exhaust system free of stress

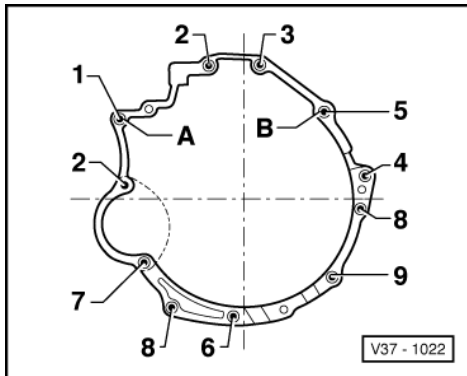
=> 6-cyl. injection engine (2-valve), Mechanical components; Repair Group 26

=> 6-cyl. Engine (5 valve), Mechanical Components; Repair Group 26

- Check oil level in the final drive of the automatic gearbox => Page 89 .

- Checking ATF level => Page 42 .

Tightening torques

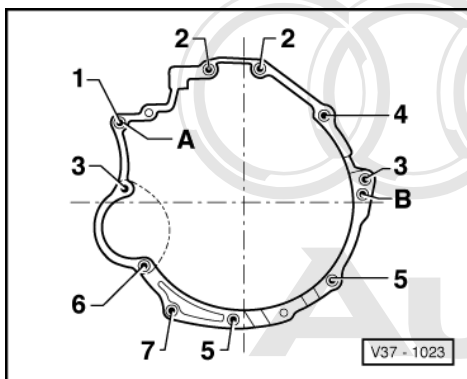


-> Engine/gearbox attachment 5 cyl TDI engine

Item	Bolt	Quant.	Nm
1	M12 x 67 1)	1	65
2	M12 x 67	2	65
3	M12 x 75	1	65
4	M12 x 80	1	65
5	M12 x 110	1	65
6	M10 x 45	1	45
7	M10 x 65	1	45
8	M8 x 40	2	25
9	M8 x 60	1	25

1) Vehicles with auxiliary heater: Bolt M12 x 80

A, B: Centring sleeves



-> Engine/gearbox attachment 6 cyl. engine

Item	Bolt	Quant.	Nm
1	M12 x 50	1	65
2	M12 x 67	2	65
3	M12 x 80	2	65
4	M12 x 100	1	65
5	M10 x 38	2	45



Item	Bolt	Quant.	Nm
6	M10 x 80	1	45
7	M8 x 40	1	25

A, B: Centring sleeves

Component	Nm
Torque converter to drive plate	85
Drive shaft to flange shaft/drive flangeM10	77
Gearbox support to gearbox	40
Gearbox support to bonded rubber bush	40
Support bracket for selector lever cable to gearbox	23
Cable retainer for procon-ten to gearbox	40
Cross member to body	25
Torque arm to bodywork	45
Bonded rubber bush to subframe	40
Heat shield for drive shaft to bracket	25
ATF filler pipe to oil pan	40

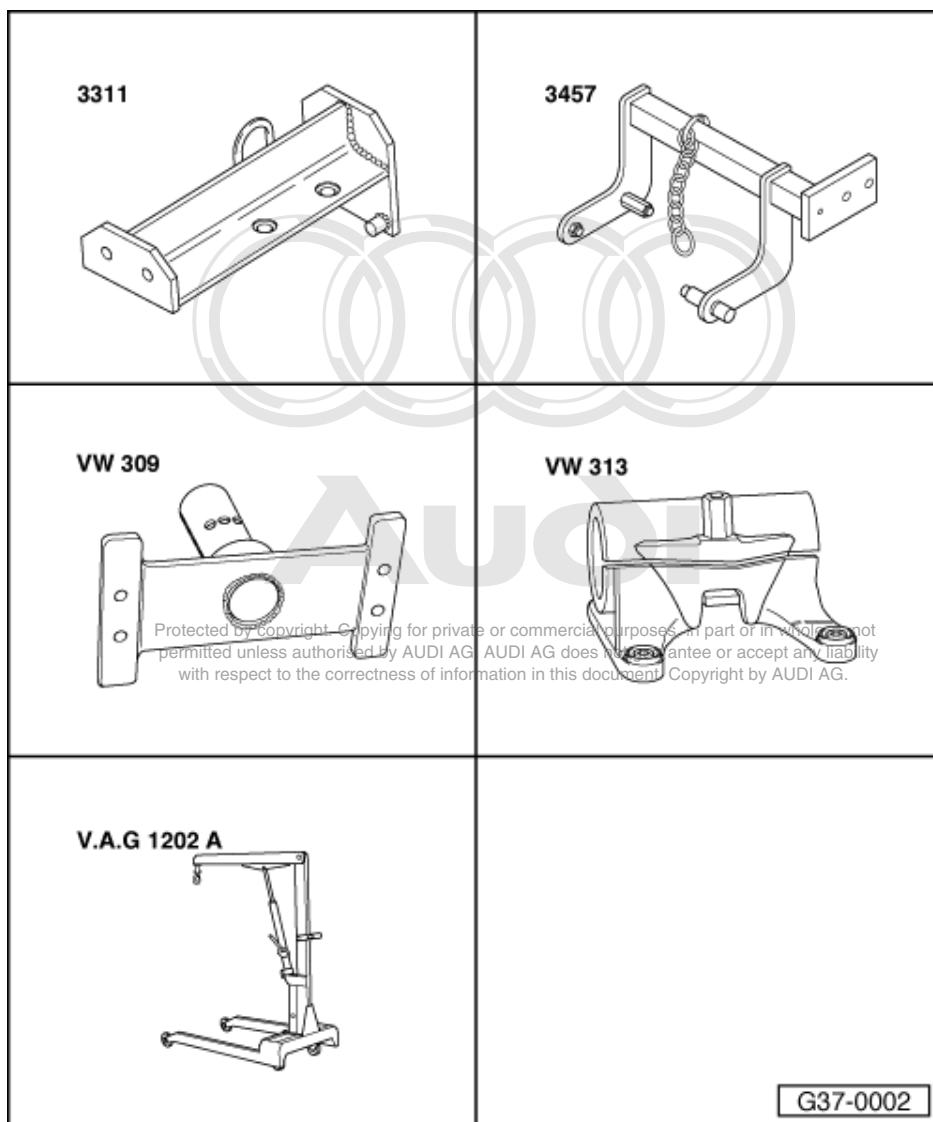
Note:

Tightening torques for ATF pipe bracket => from Page 54 .



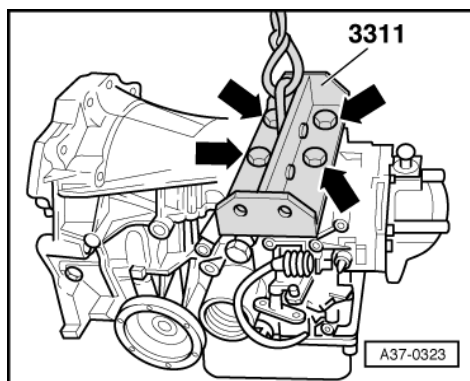
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3.2 - Mounting gearbox on repair stand



The following special tools and testing devices are required:

- ◆ Bracket 3311 for vehicles ä 05.94 (with procon-ten)
- ◆ Bracket 3457 for vehicles 06.94 ä
- ◆ Holding plate VW 309
- ◆ Support clamp VW 313
- ◆ Workshop crane V.A.G 1202 A





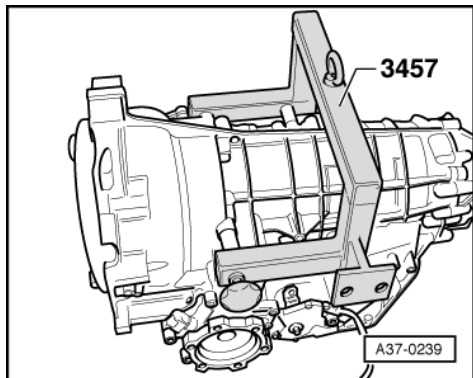
Warning!

- ♦ The gearbox will tilt forwards when it is lifted on the carrier.
- ♦ For this reason, the torque converter must be secured in the gearbox to prevent it dropping out.

Vehicles ä 05.94 (with procon-ten):

- -> Screw -arrows- bracket 3311 to gearbox.

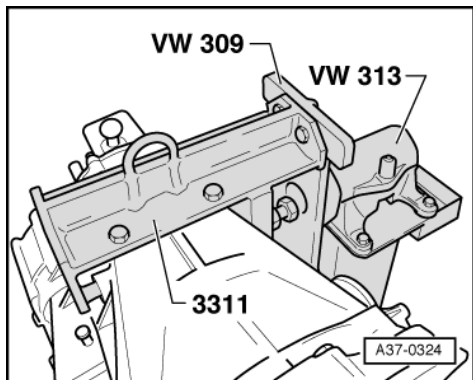
Vehicles 06.94 ä:



- -> Bolt bracket 3457 to gearbox.

All vehicles:

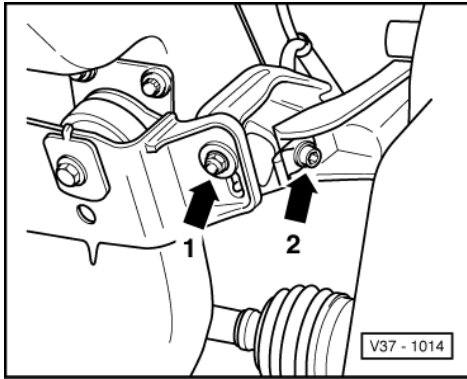
- Attach plate VW 309 to support clamp VW313.



- -> Lift gearbox with workshop crane V.A.G 1202 A on bracket 3311 or 3457 and attach plate VW 309.

3.3 - Removing and installing left gearbox support

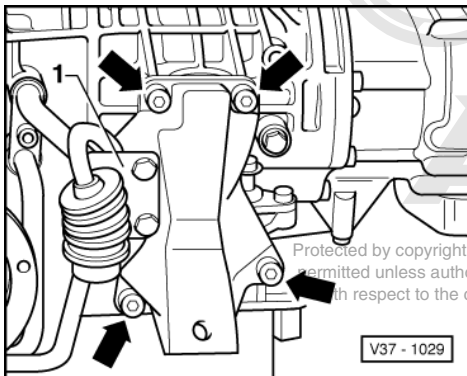
- Remove catalytic converters



=> 6-cyl. Fuel injection engine (2 valve), Mechanical Components; Repair Group 26; Removing and installing exhaust system components Removing and installing exhaust system components

=> 6-cyl. engine (5 valve), Mechanical Components; Repair Group 26; Removing and installing exhaust system parts Removing and installing exhaust system parts

- -> Unfasten -arrow 1- nut for left bonded rubber bush.
- Unscrew left gearbox support at bonded rubber bush -arrow 2-.
- Disconnect plug connection for multi-function switch -F125.



- -> Unscrew holder for connector of multi-function switch -1-.
- Screw out bolts of gearbox support -arrows- and remove gearbox support.

Note:

Shown in illustration with gearbox removed.

Installing

Install in reverse order, paying attention to the following:

- If necessary, lift gearbox slightly to screw on gearbox support.
- Align exhaust system free of stress

=> 6-cyl. injection engine (2-valve), Mechanical components; Repair Group 26

=> 6-cyl. Engine (5 valve), Mechanical Components; Repair Group 26

Tightening torques

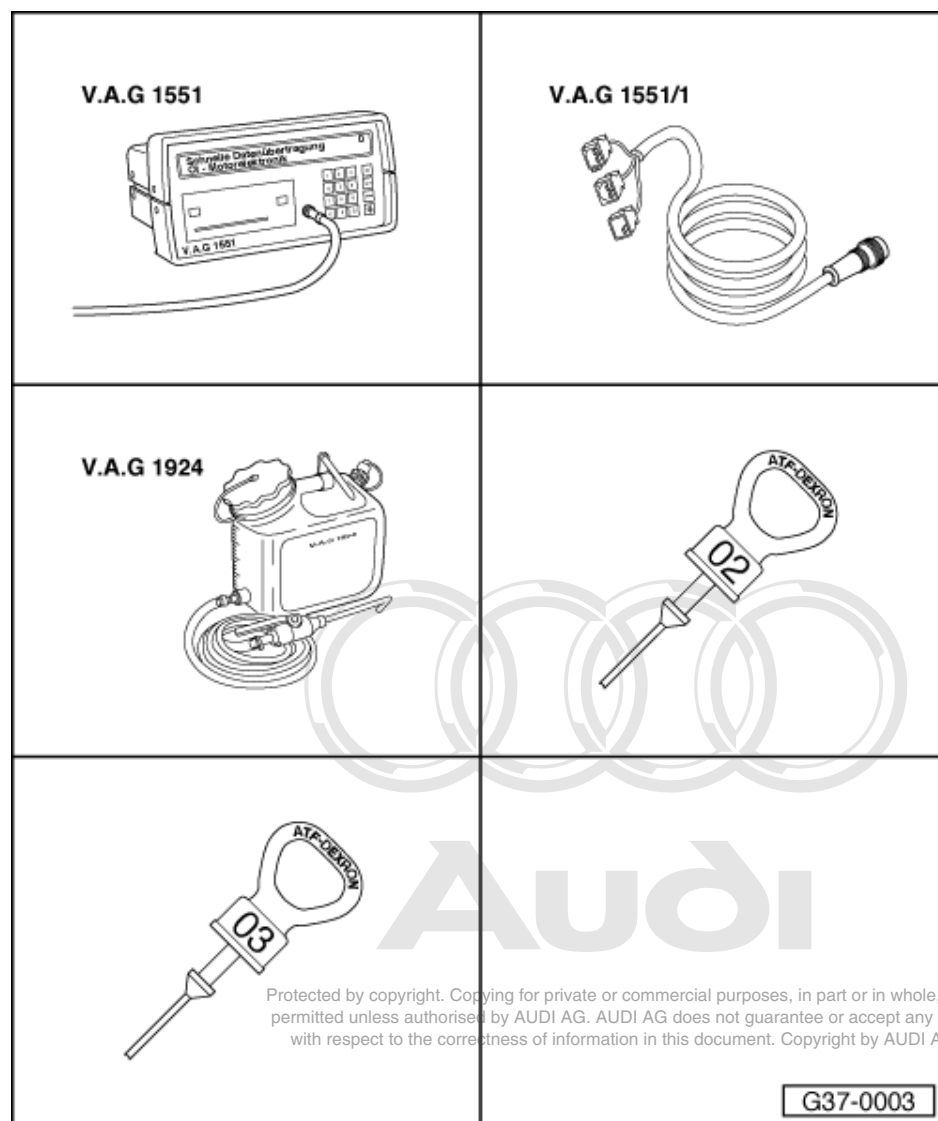
Component	Nm
Gearbox support to gearbox	40
Holder for connector to gearbox support	10
Gearbox support to bonded rubber bush	40



Component	Nm
Bonded rubber bush to subframe	40

4 - Checking or changing ATF

4.1 - Checking or changing ATF



The following special tools and testing devices are required:

- ♦ Fault reader V.A.G 1551
- ♦ Diagnostic lead V.A.G 1551/1
- ♦ ATF-filling system V.A.G 1924
- ♦ Dipstick "02"
Part no. 01F 321 431 A
- ♦ Dipstick "03"
Part no. 01F 321 431 B

4.2 - Checking ATF level

Test requirements:

- Gearbox not in emergency running mode.
- Vehicle must be level (horizontal)
- Selector lever at position "P", engine idling.
- The air-conditioner and heating system must be switched off.

Notes:

- ◆ Exclusive use is to be made for vehicles 07.95 ➤ of VW-ATF with part no. G 052 162 .. (colour: transparent/yellow) may be used and it is not permitted to use additives.
- ◆ Remaining stocks of ATF Dexron can still be used up for vehicles ➤06.95. Thereafter also use ATF with Part No. G 052 162 .. (colour: colourless/yellowish).

Container:

- ◆ 0.5 l - Replacement part-No. G 052 162 A1
- ◆ 1.0 l - Replacement part-No. G 052 162 A2

Notes:

- ◆ The ATF level will vary according to the temperature of the ATF.
- ◆ If the ATF level is checked when the ATF temperature is too low, this will result in overfilling.
- ◆ If the level is checked when the ATF temperature is too high, this will result in underfilling.
- ◆ Both overfilling and underfilling have a detrimental effect on the functioning of the gearbox.
- ◆ The ATF temperature can be checked using fault reader V.A.G 1551.

Reading off ATF temperature

- Connect fault reader V.A.G 1551 and enter address word "02 Gearbox electronics" and advance until "Select function XX" is indicated on display.

=> Automatic Gearbox 01F and 01K Self-Diagnosis; Repair Group 01; Performing self-diagnosis Performing self-diagnosis

- Enter "08" to select the function "Read measured value block" and confirm entry with Q key.

Vehicles with 2.8 l - 128 kW ä approx. 09.92:

Note:

The automatic gearbox control unit responds with "01D" on entering self-diagnosis.

-> Indicated on display:

Reading measured value block	Q
Enter display group number XXX	

- Enter "000" to select "Display Group number 000" and confirm entry with Q key.

-> Indicated on display:

Reading measured value block									
1	2	3	4	5	6	7			
8	9								

- Read off ATF temperature in display zone 1.

Notes:

- ◆ Value displayed minus 50 gives ATF temperature in °C (e.g. reading 110 - 50 = 60 °C).

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- ♦ Exact reading is only obtained as of approx. 40 °C.

Vehicles with 55-pin control unit:

2.8 l - 128 kW ca. 09.92 ä,

2.6 l - 110 kW

2.5 l TDI

Note:

The automatic gearbox control unit responds with "01K" on entering self-diagnosis.

-> Indicated on display:

Reading measured value block
Enter display group number XXX

- Enter "004" to select "Display Group number 004" and confirm entry with Q-key.

-> Indicated on display:

Read measured value block 4
1 2 3 4

- Read off ATF temperature in display zone 4.

Vehicles with 88-pin control unit (MY 96 ä; gradual introduction):

-> Indicated on display:

Reading measured value block
Enter display group number XXX

- Enter "004" to select "Display Group number 004" and confirm entry with Q-key.

-> Indicated on display:

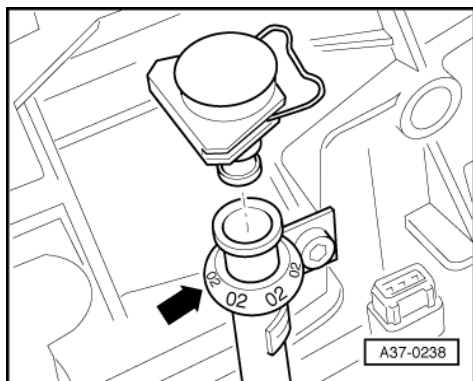
Read measured value block 4
1 2 3 4

- Read off ATF temperature in display zone 1.

Checking and correcting ATF level on gearbox with ATF filler pipe (vehicles ä 05.94)

Note:

Automatic gearboxes may have been converted to new filler system => Page 46.



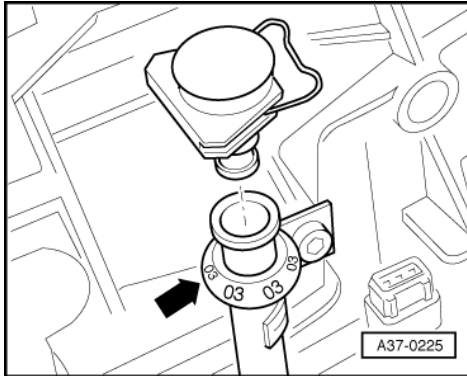
Vehicles with 6-cylinder engine:

- -> Use dipstick "02" for checking ATF level.

Note:

Vehicles requiring "02" dipstick have "02" marked on ATF filler pipe -arrow-.

Vehicles with 5-cylinder TDI engine:



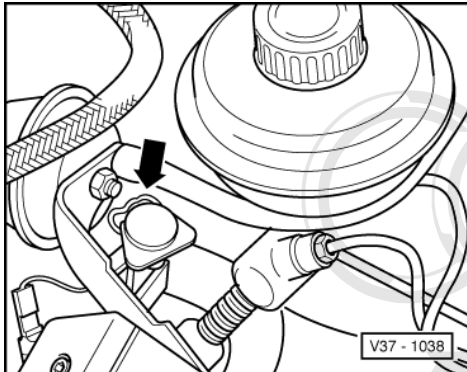
- -> Use dipstick "03" for checking ATF level.

Note:

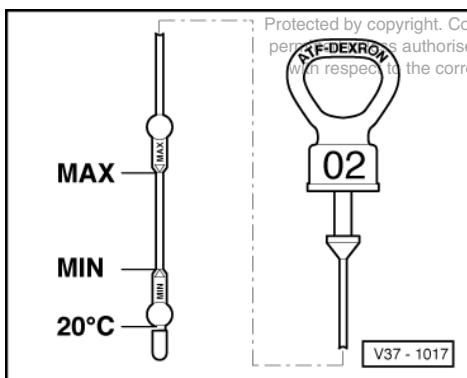
Vehicles requiring "03" dipstick have "03" marked on ATF filler pipe -arrow-.

All vehicles:

- Shift selector lever to position "P" and allow engine to run at idling speed.



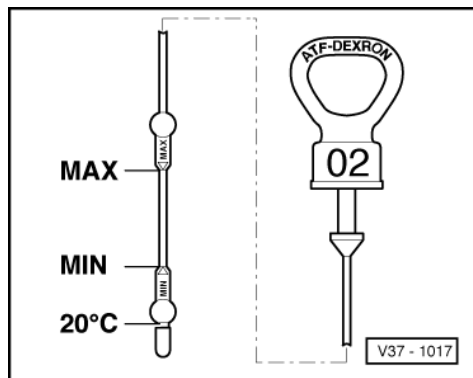
- Read off ATF temperature in measured value block for appropriate gearbox version => from Page 43 .
- -> Pull cap -arrow- off ATF filler pipe.



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- Check ATF level when cold with dipstick "02" or "03" => Page 44 .
- When ATF is cold, pull out dipstick and clean with a lint-free cloth, then reinsert into ATF filler pipe up to stop and pull out again.
- -> Level must reach 20 oC-mark.
- Top up ATF through ATF filler pipe with clean funnel, if necessary.
- Allow engine to continue to run at idling speed.
- On reaching ATF temperature of approx. 70 oC pull out ATF dipstick again, wipe off, insert as far as it will go and pull out again.



-> Level must be between MIN and MAX marks.

- ATF level too low:
 - Top up ATF through ATF filler pipe with clean funnel, if necessary.
 - With engine running and vehicle stationary, select all selector lever positions.
 - Check ATF level again at test temperature.
- ATF level too high:
 - Extract excess ATF with oil extraction unit V.A.G 1358 A and probe 1358/A 1

=> Operating instructions; V.A.G 1358 A oil extraction unit

Note:

Switch off engine to extract ATF.

- Check ATF level again at test temperature.
- Press ➡key on the V.A.G 1551.
- Enter "06" to select the function "End output" and confirm entry with Q key.

Notes:

- ♦ ATF measurement must be completed at the latest on attaining ATF temperature of 90 oC. If necessary, allow ATF to cool down again.
- ♦ The MIN/MAX marks on ATF dipstick are referenced to an ATF temperature of 80 ± 10 oC, i.e. for this temperature range, ATF level must be between "MIN" and "MAX".

Checking and correcting ATF level on gearbox with no ATF filler pipe (vehicles 06.94 ä)

Notes:

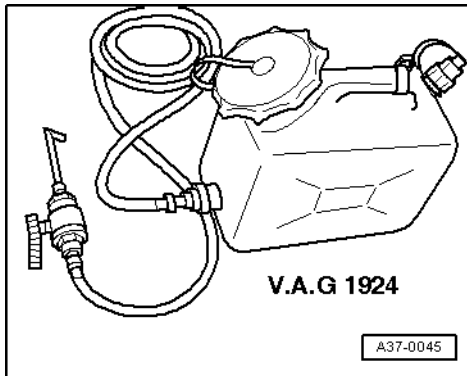
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- ♦ The ATF level is checked at the ATF inspection plug.
- ♦ The ATF level is correct if at an ATF temperature between 35o and 45 oC 1) there is still a slight leakage of fluid at the ATF inspection plug (caused by the rise in fluid level due to heating).

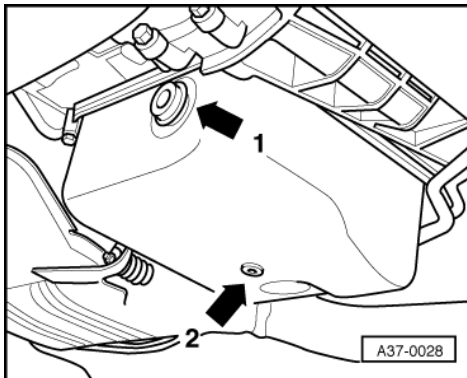
- ♦ Older vehicles with automatic gearbox may also have been converted to filler system with no filler pipe described below.

1) 50°C for tropical countries

Warning!
Wear eye protection.



- -> Mount the reservoir of the ATF filler system V.A.G 1924 as high as possible on the vehicle.
- Place container under the gearbox.



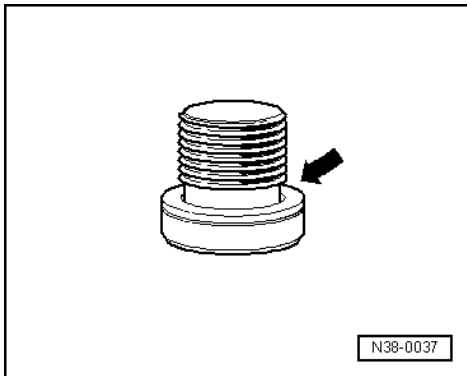
- -> On reaching an ATF temperature of 35 °C screw out ATF level plug - arrow 1- and drain off any surplus ATF.
- If ATF emerges from the ATF filler plug before the ATF has reached 40 °C the ATF level is OK.

Note:

The ATF inspection plug must be screwed in again before the ATF reaches a temperature of 45 °C 1).

1) 50 °C for tropical countries

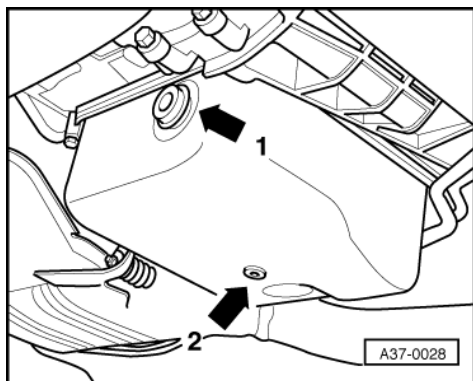
- If no ATF emerges at ATF level plug up to 40 °C, top up ATF with filler attachment from V.A.G 1924 until ATF emerges at ATF level plug.





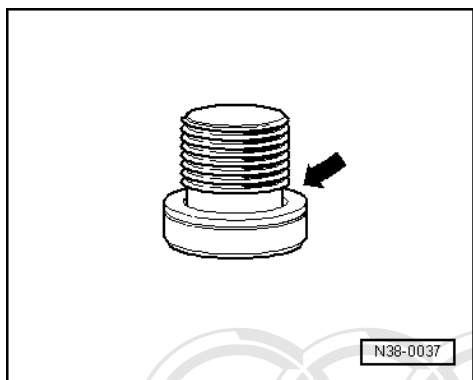
- -> Always replace the seal -arrow- for the ATF inspection plug.
- Screw in ATF inspection plug (60 Nm).
- Press =>key on the V.A.G 1551.
- Press keys 0 and 6 for "End output" and confirm with Q key.

4.3 - Changing ATF or topping up after repairs



Notes:

- ♦ Always observe the relevant environmental regulations for disposal.
- ♦ The engine must not be started or towed without ATF.
- Place container under the gearbox.
- -> Unscrew the ATF drain plug -arrow 2- and drain off ATF.



- -> Always replace the seal -arrow- for the ATF inspection plug.
- Screw in ATF drain plug (35 Nm).

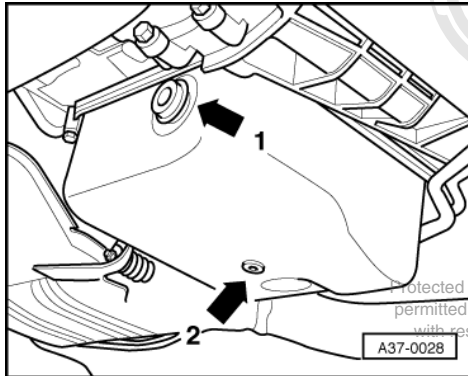
Vehicles ä 05.94:

- First fill with approx. 2.7 l ATF using a funnel.
- Start engine and select all selector lever positions (P, R, N, D, 3, 2, 1) with brake pedal depressed and engine running at idling speed, whereby each selector position must be retained for 2 ... 3 seconds in each position.
- Allow engine to run at idling speed with selector lever in position "P" and handbrake applied.
- Measure the ATF level using the ATF dipstick.
- Use a non-fluffy cloth to wipe the ATF dipstick clean.
- ATF must be topped up to 20 °C-mark when cold.
- Allow engine to continue to run at idling speed.
- Then check ATF level => from Page 43

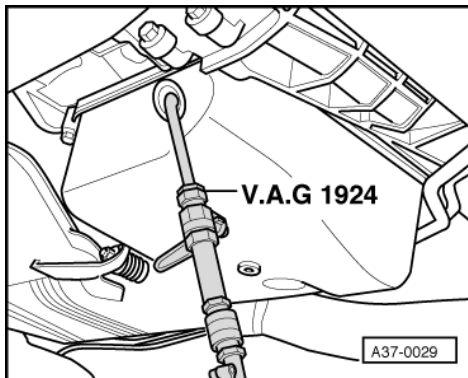
Note:

Observe all notes and test conditions for "Checking ATF level".

Vehicles 06.94 ä:



- -> Unscrew the ATF drain plug -arrow 1-.



- -> Top up ATF with filler hook from V.A.G 1924 until ATF comes out at ATF inspection plug.
- Shift selector lever to position "P" and allow engine to run at idling speed.
- With engine running continue adding ATF until ATF comes at inspection hole -1-.
- Start engine and select all selector lever positions (P, R, N, D, 3, 2, 1) with brake pedal depressed and engine running at idling speed, whereby each selector position must be retained for 2 ... 3 seconds in each position.
- Check and top up ATF level =>Page 43 onwards

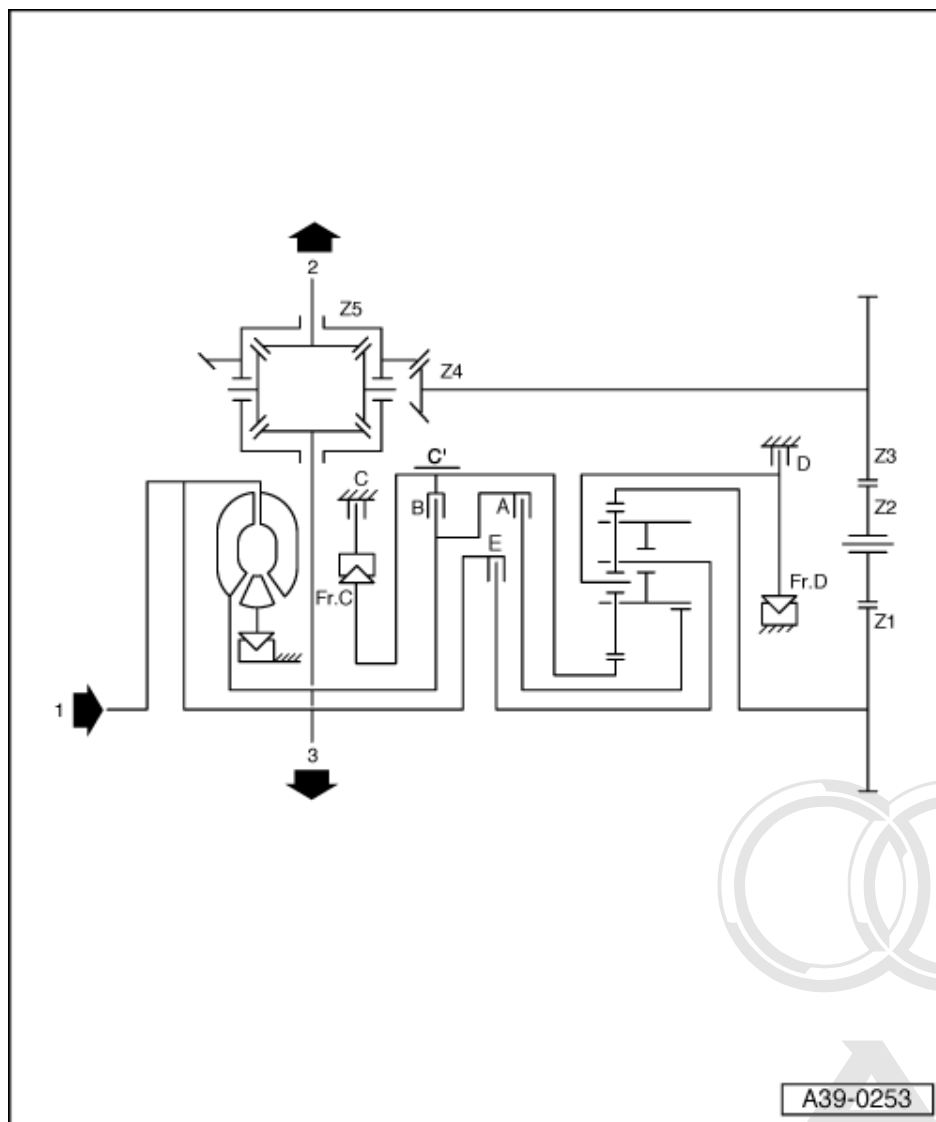
Note:

Observe all notes and test conditions for "Checking ATF level".



5 - Gearbox with selector elements

5.1 - Gearbox with selector elements



5.2 - Gearbox schematic diagram

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A = Clutch A

B = Clutch B

E = Clutch E

C = Brake C

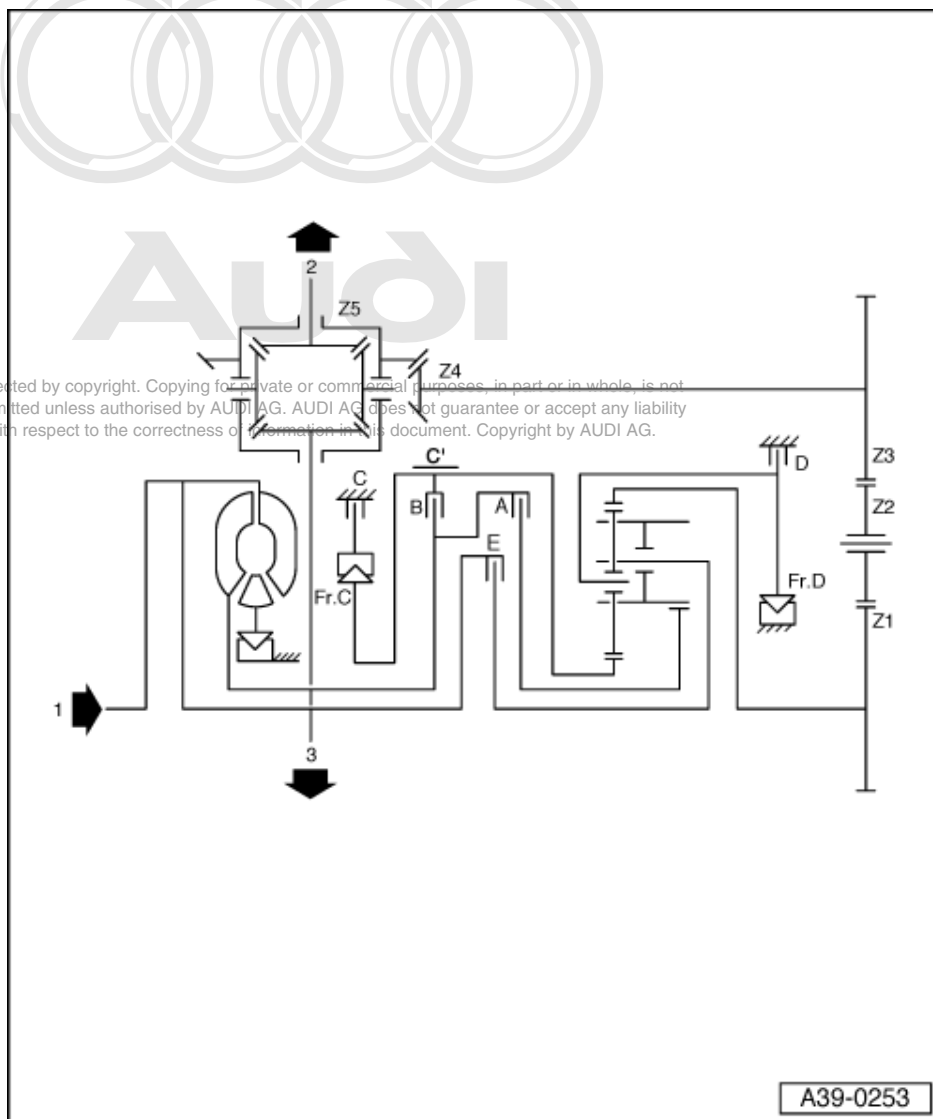
C' = Brake C'

D = Brake D

Fr.C = Freewheel C

Fr.D = Freewheel D

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Z1 ... Z3 = Front intermediate drive

Z4, Z5 = Front final drive

Ratios => Page **2**

Power flow:

Arrow 1 - from engine
Arrow 2 - to front right wheel
Arrow 3 - to front left wheel



5.3 - Position of selector elements

Notes:

- ♦ Self-diagnosis must be performed before repair work on the gearbox is started

=> Automatic Gearbox 01F and 01K Self-Diagnosis; Repair Group 01; Performing self-diagnosis Performing self-diagnosis

- ♦ To help deal with complaints regarding poor acceleration and performance or general malfunctions, the following tables show which shift elements are operated in the individual gears. It is thus possible to establish which selector elements are not functioning correctly.

Solenoid valve logic						
Selector lever position	gear	Solenoid valves				Main pressure regulator
		-N88	-N89	-N90	-N91	
P	-	-	x	x	-	x
R	Reverse gear	-	-	-	-	x
N	-	-	x	x	-	x
D	1st gear	-	x	-	-	x
D	2nd gear	x	x	-	-	x
D	3rd gear	x	-	-	-	x
D	4th gear	-	-	-	-	x
2	1st gear	-	x	-	x	x
1	1st gear	-	x	-	-	x
D	3rd - 4th gear overlap	(x)	-	-	-	x
D	4th - 3rd gear overlap	(x)	-	-x-	-	x
-	Emergency programme	-	-	-	-	-

x = Component active

- = Component inactive

(x) = Component active depending on driving state (overlap)



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Clutch logic										
Selector lever position	gear	Coupling			Brake			Free wheel		
		A	B	E	C	C'	D	Fr.C	Fr.D	
P	-	-	-	-	-	-	-	-	-	
R	Reverse gear	-	x	-	-	-	x	-	-	
N	-	-	-	-	-	-	-	-	-	
D	1st gear	x	-	-	-	-	-	-	x	
D	2nd gear	x	-	-	x	x	-	x	-	
D	3rd gear	x	-	x	x	-	-	-	-	
D	4th gear	-	-	x	x	x	-	-	-	
2	1st gear	x	-	-	-	-	x	-	x	
1	1st gear	x	-	-	-	-	x	-	x	
D	3rd - 4th gear overlap	(x)	-	x	x	(x)	-	-	-	
D	4th - 3rd gear overlap	(x)	-	x	x	(x)	-	-	-	

Clutch logic									
-	Emergency programme	x	-	-	x	x	-	-	-

x = Component active
 - = Component inactive
 (x) = Component active depending on driving state (overlap)

6 - Dismantling and assembling gearbox

6.1 - Dismantling and assembling gearbox

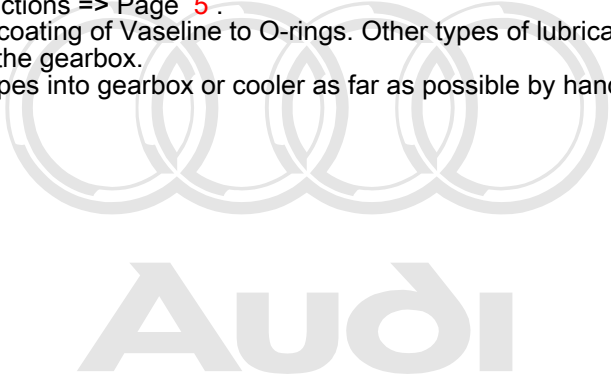
6.2 - Rules for cleanliness when working on the automatic gearbox

- ◆ Thoroughly clean all connections and the surrounding areas before disconnecting.
- ◆ Place removed parts on a clean surface and cover. Use sheeting and paper. Do not use fluffy cloths!
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately.
- ◆ Only install clean components: Only remove replacement parts from packaging immediately prior to installation.
- ◆ Always renew O-rings, seals and gaskets.
- ◆ Coat O-rings with Vaseline before installing to prevent the rings from being crushed when inserting.
- ◆ Always use Vaseline only in small amounts. Other greases will cause malfunctions in controls of hydraulic gearbox.
- ◆ Check the following fluid levels after installation and top up as necessary: ATF in planetary gearbox => Page 4 .

6.3 - Removing and installing ATF pipes

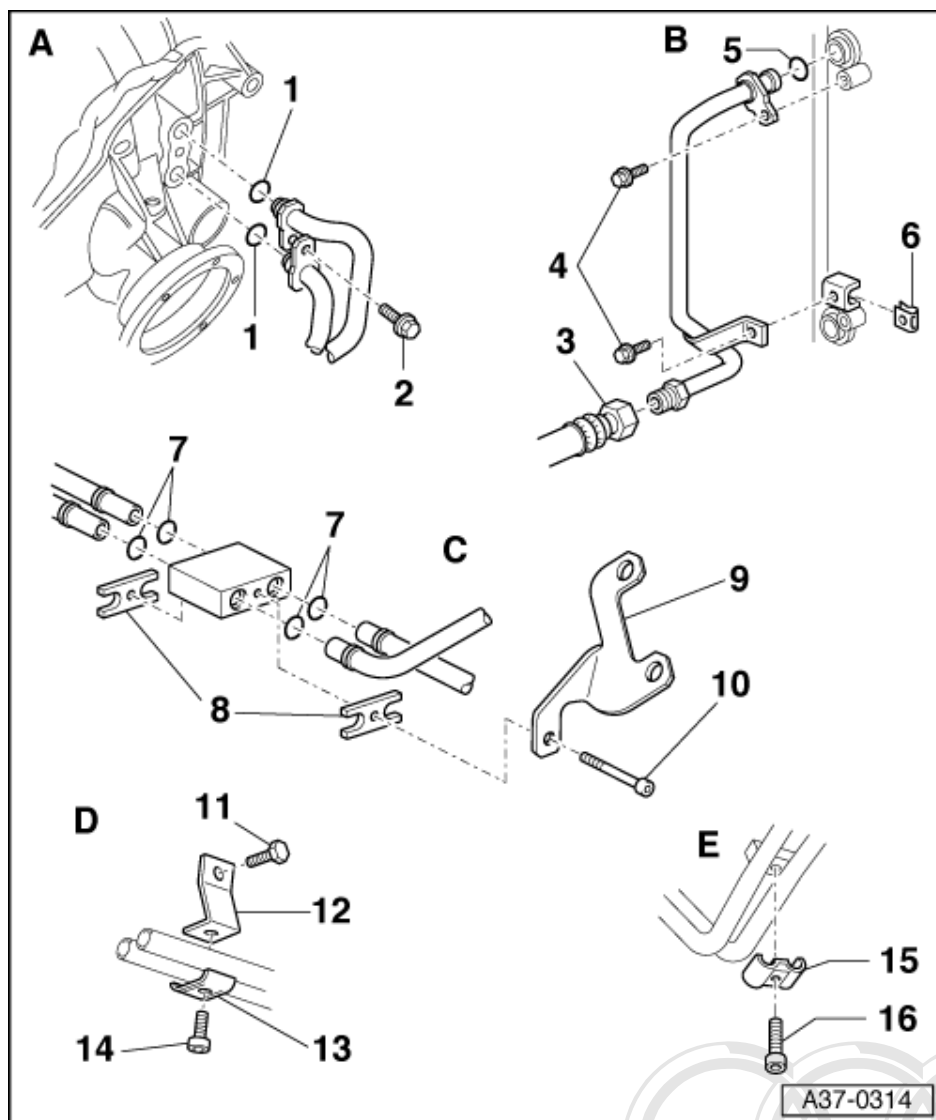
Notes:

- ◆ Rules for cleanliness when working on the automatic gearbox => Page 53 .
- ◆ Repair instructions => Page 5 .
- ◆ Apply a thin coating of Vaseline to O-rings. Other types of lubricant will cause problems with the hydraulic actuation of the gearbox.
- ◆ Push ATF pipes into gearbox or cooler as far as possible by hand and then screw on.


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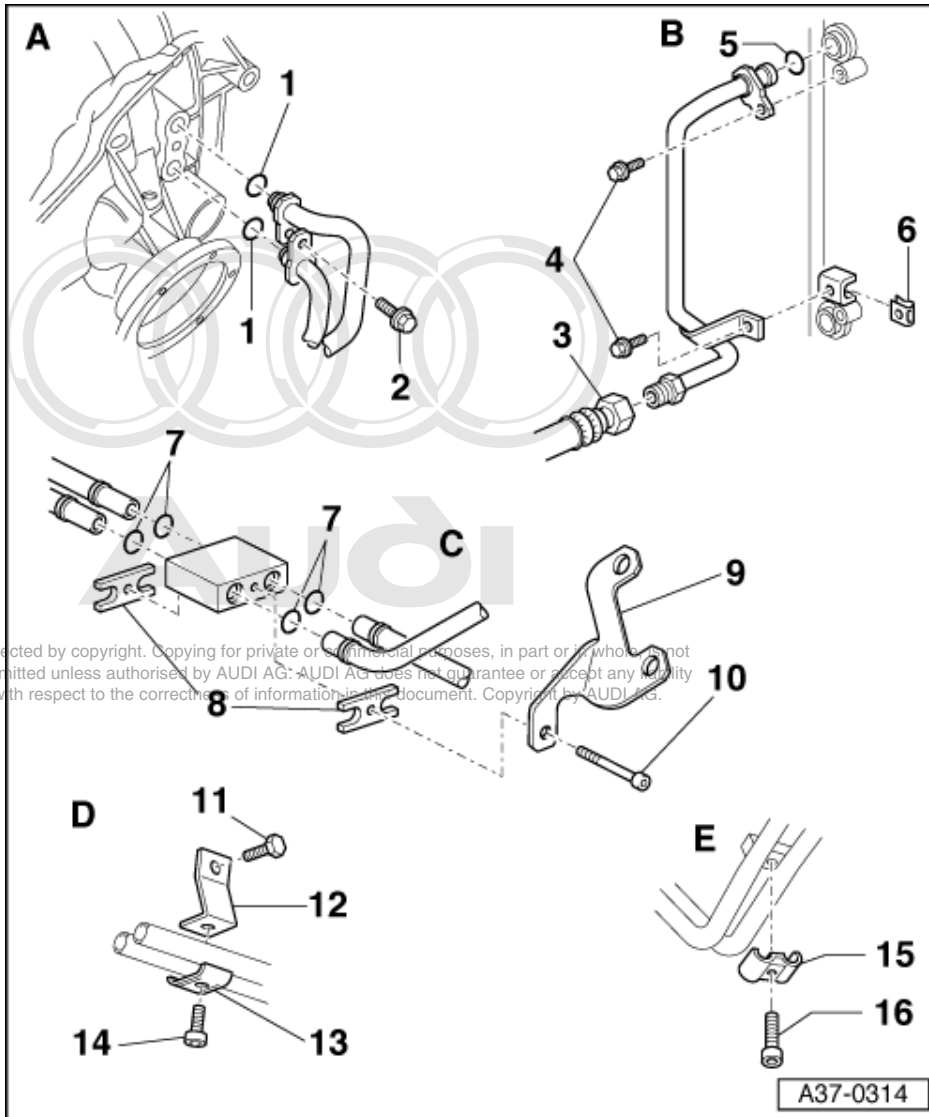


6.4 - Removing and installing ATF pipes, 5-cyl. engine

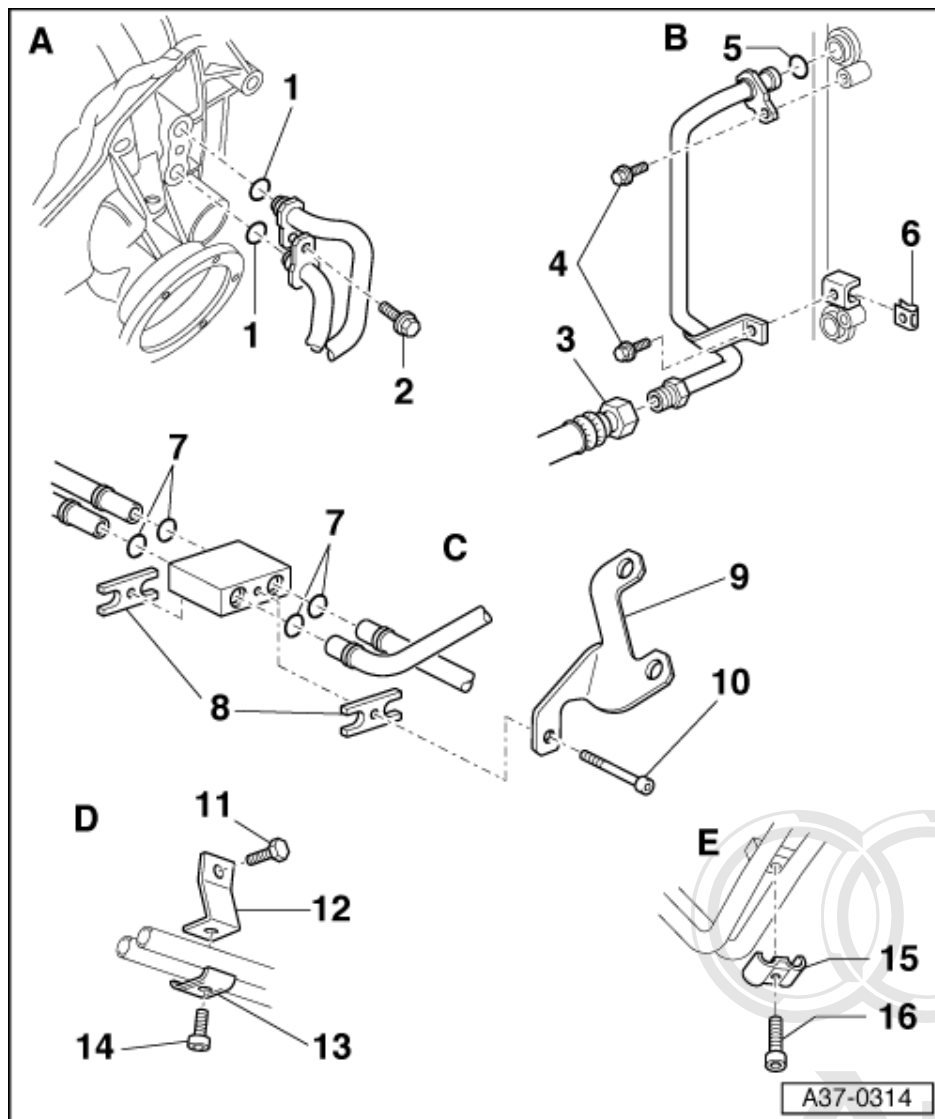


- A - Attachment of ATF pipe to gearbox
- B - Attachment of ATF pipe to ATF cooler
- C - Connection of ATF pipe to ATF pipe
- D - Attachment of ATF pipe to side of engine
- E - Attachment of ATF pipe at rear

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- 1 O-ring**
 - ◆ Always replace
 - ◆ Coat thinly with Vaseline to insert
- 2 Bolt - 20 Nm**
 - ◆ Insert pipes completely first and then tighten
- 3 Union nut - 30 Nm**
- 4 Bolt - 5 Nm**
- 5 O-ring**
 - ◆ Always replace
 - ◆ Coat thinly with Vaseline to insert
- 6 Speed nut**



7 O-ring

- ♦ Always replace
- ♦ Coat thinly with Vaseline to insert

8 Retainer

9 Bracket

10 Bolt - 25 Nm

- ♦ Insert pipes completely first and then tighten

11 Bolt - 25 Nm

12 Bracket

13 Clip

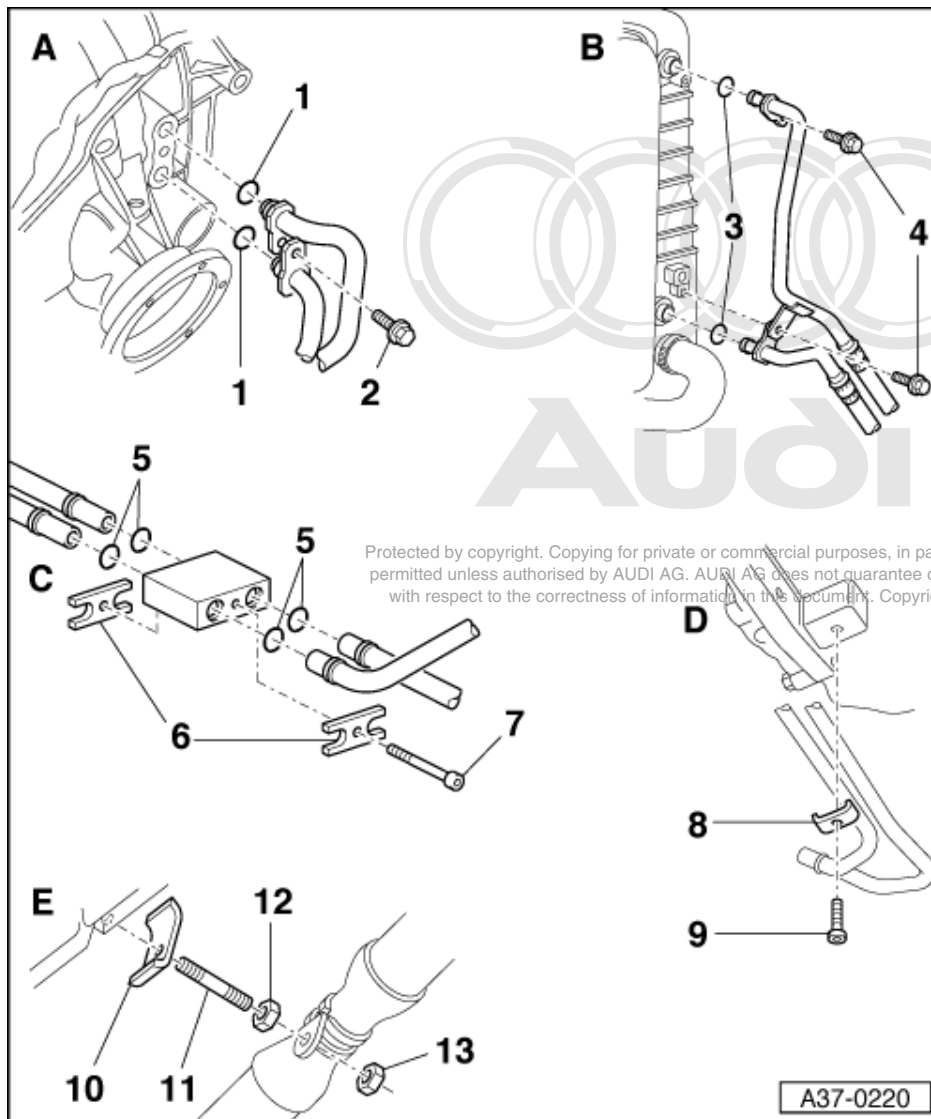
14 Bolt - 5 Nm

15 Clip

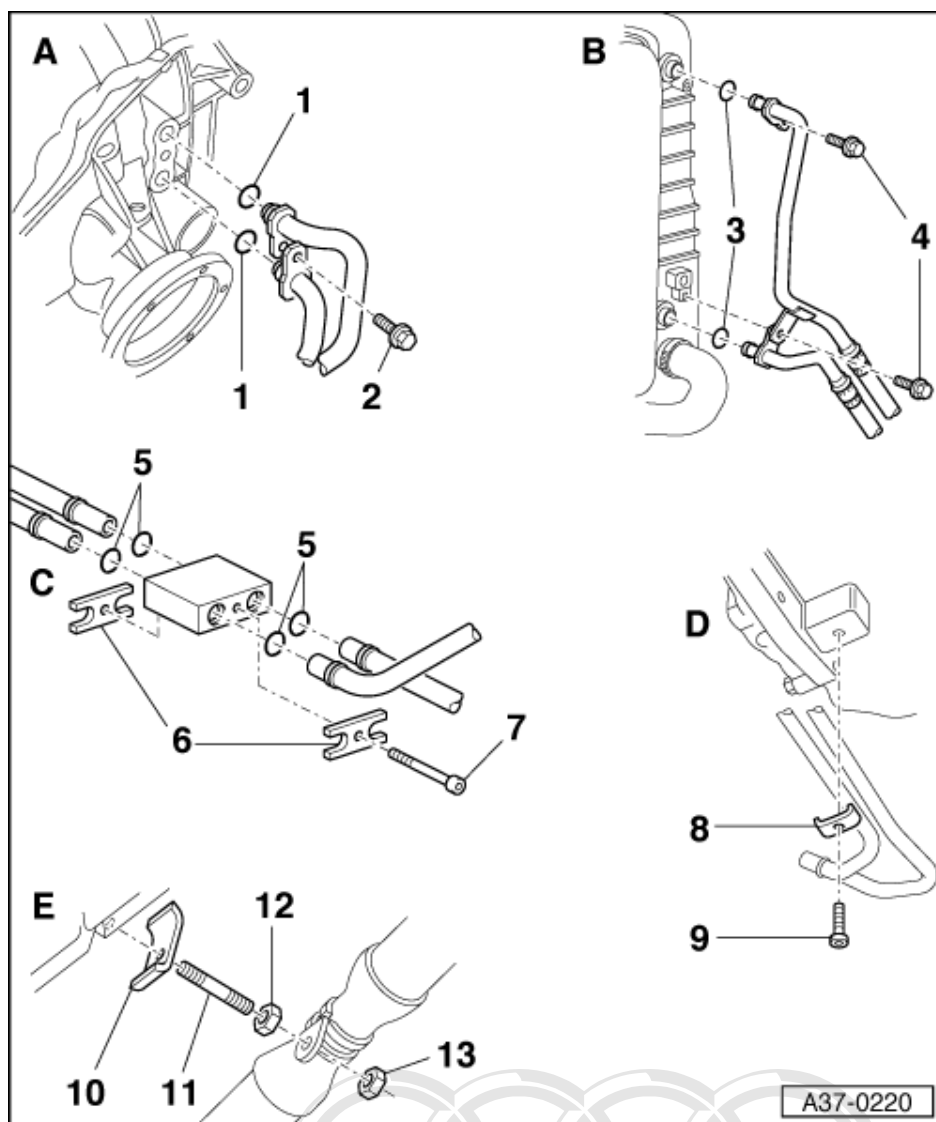
16 Bolt - 5 Nm

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6.5 - Removing and installing ATF pipes, 6-cyl. engine



- A - Attachment of ATF pipe to gearbox
- B - Attachment of ATF pipe to ATF cooler
- C - Connection of ATF pipe to ATF pipe
- D - Attachment of ATF pipe at rear
- E - Attachment of ATF pipe to side of engine



1 O-ring

- ♦ Always replace
- ♦ Coat thinly with Vaseline to insert

2 Bolt - 20 Nm

- ♦ Insert pipes completely first and then tighten

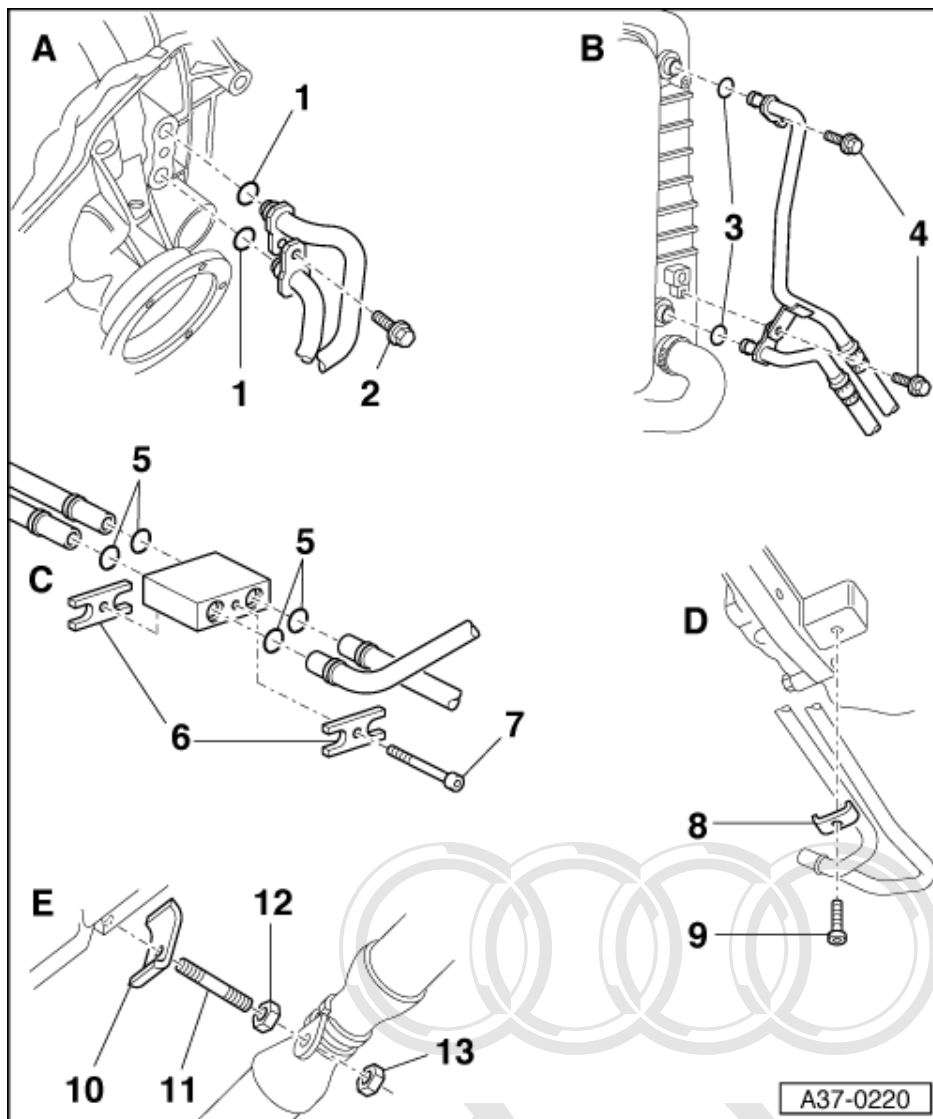
3 O-ring

- ♦ Always replace
- ♦ Coat thinly with Vaseline to insert

4 Bolt - 5 Nm

5 O-ring

- ♦ Always replace
 - ♦ Coat thinly with Vaseline to insert
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6 Retainer

7 Bolt - 20 Nm

- ♦ Insert pipes completely first and then tighten

8 Clip

9 Bolt - 5 Nm

10 Clip

11 Threaded pin

12 Nut - 5 Nm

13 Nut - 5 Nm

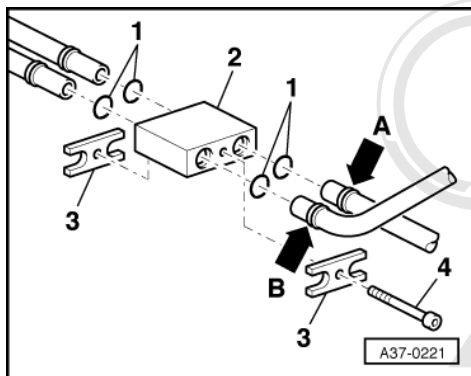
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6.6 - Cleaning ATF pipes and ATF cooler

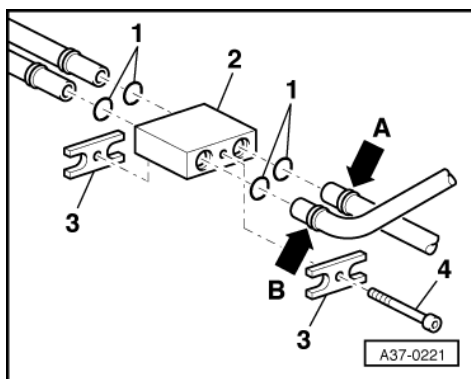
Notes:

- ♦ See notes on "Removing and installing ATF pipes" => Page 53.
- ♦ Before fitting a replacement gearbox, always blow through the ATF cooler and ATF pipes with compressed air (not more than 10 bar).

Warning!
Wear eye protection.



- Unbolt bracket for ATF pipes => from Page 54.
- -> Screw out bolt -4- detach retainer -3-
- Pull ATF pipes -arrow A- and -arrow B- to ATF cooler off block -2-
- Attach a hose with a diameter of approx. 18 mm to ATF pipe -arrow A- and secure with hose clamp. Place the other end of the hose into a suitable container.



- -> Blow through ATF pipe -arrow B- several times with a compressed air gun.
- Switch hose from ATF pipe -A- to ATF pipe -B- and repeat procedure.
- Renew all O-rings -1-.
- Secure ATF pipes again. Tightening torques => from Page 54 .

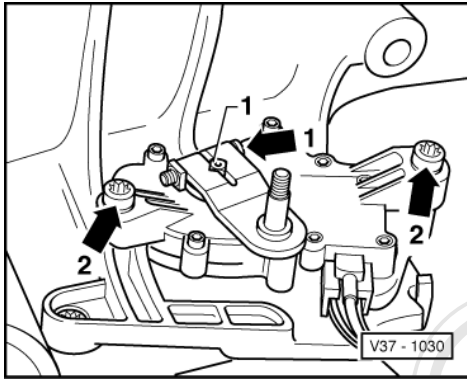
Notes:

- ♦ Apply a thin coating of Vaseline to O-rings. Other types of lubricant will cause problems with the hydraulic actuation of the gearbox.
- ♦ Make sure pipes have been fully inserted before tightening bolt -4- (25 Nm).

6.7 - Removing and installing multi-function switch -F125

Removing

- Removing left-side gearbox support => Page 40 .
- Disconnect selector lever cable from selector shaft lever.



- -> Completely remove clamping bolt -arrow 1- for lever and pull lever off selector shaft -1-.
- Remove securing bolts of multi-function switch -arrows 2- and pull multi-function switch off selector lever.

Installing

- Move selector shaft with an 8 mm AF open jaw spanner in opposite direction of travel into position "P" (up to stop).
- From this position move selector shaft back two detents into position "N".
- Attach multi-function switch to selector shaft.

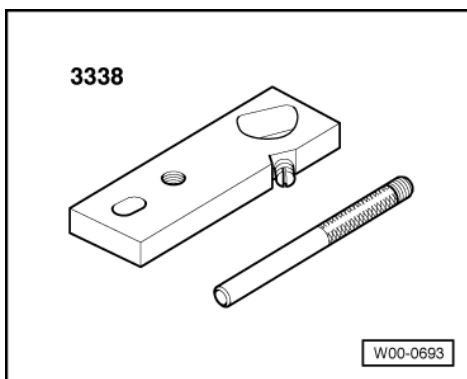
Note:

The multi-function switch can only be fitted on the selector shaft in one position.

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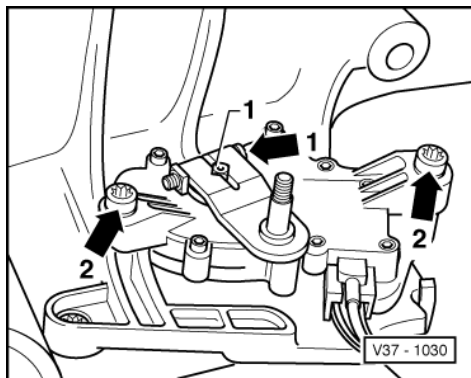
- Screw in bolts such that multi-function switch can still be moved in slots.
- Adjusting multi-function switch => Page 61 .

6.8 - Adjusting multi-function switch -F125



The following special tools and testing devices are required:

- ♦ Adjustment appliance 3338
- Removing left-side gearbox support => Page 40 .
- Disconnect selector lever cable from selector shaft lever.

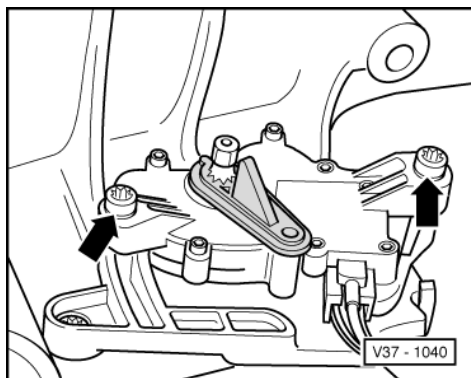


- -> Completely remove clamping bolt -arrow 1- for lever and pull lever off selector shaft.
- Move selector shaft -1- with an 8 mm AF open jaw spanner in opposite direction of travel into position "P" (up to stop).
- From this position move selector shaft back two detents into position "N".

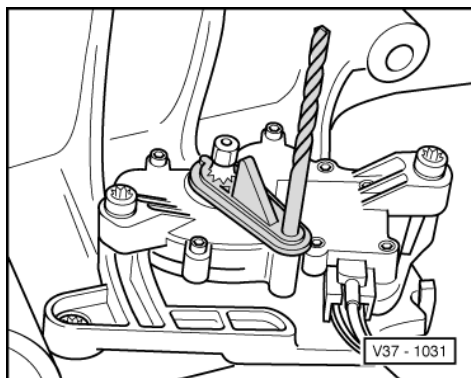
Note:

The multi-function switch can be adjusted with the setting aid 0 501 311 626 (only supplied as replacement part together with multi-function switch) or using the adjustment tool 3338.

Adjusting with adjusting tool



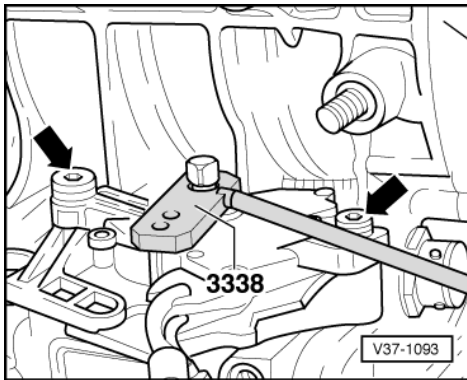
- -> Fit adjusting tool on selector shaft.
- Slacken off bolts of multi-function switch -arrows-.



- -> Turn multi-function switch until hole in setting aid coincides with adjuster on multi-function switch and this can then be fixed in position by inserting a pin or a dia. ø 4 mm drill bit.
- Tighten bolts of multi-function switch (8 Nm).
- Remove adjusting tool and pin or drill.

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Adjustment with adjustment tool 3338

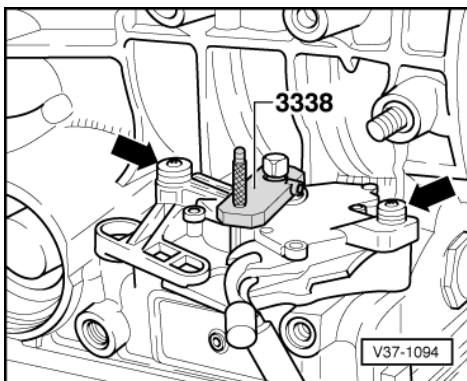


- -> Fit adjustment appliance 3338 on selector shaft and tighten its fixing screw with a small screwdriver.

Note:

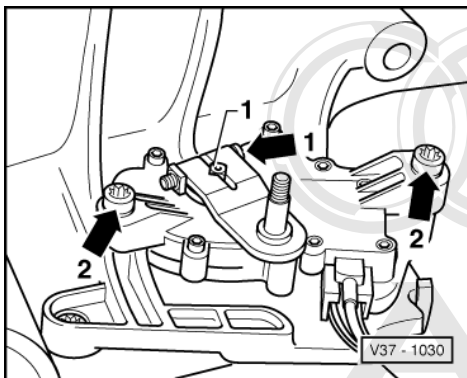
Check before fixing that the adjustment appliance lies flat on the multi-function switch; unscrew the fixing screw slightly first, if necessary.

- Slacken off bolts of multi-function switch -arrows-.



- -> Turn multi-function switch until hole in adjustment tool 3338 coincides with adjuster on multi-function switch and this can be fixed in position by inserting pin from adjustment tool 3338.
- Tighten bolts -arrows- of multi-function switch (8 Nm).
- Remove assembly device.

Installing



- -> Attach lever to selector shaft -1- and tighten (8 Nm) clamping bolt -arrow 1-.
- Screw selector lever cable to selector shaft lever (9 Nm).
- Reconnect connector for multi-function switch.
- Relieve weight of engine at support bar.



- Adjust selector lever cable => Page **23** .

Note:

*If driving range display in dash panel insert does not coincide with selector lever position following repeated adjustment of selector lever cable and multi-function switch, replace multi-function switch =>Page **60** .*

- Retension engine again at support bar.
- Install left-side gearbox support => Page **41** .



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38 - Gears, Hydraulic controls

1 - Removing and installing oil pan, ATF screen and valve body

1.1 - Removing and installing oil pan, ATF screen and valve body

Warning!

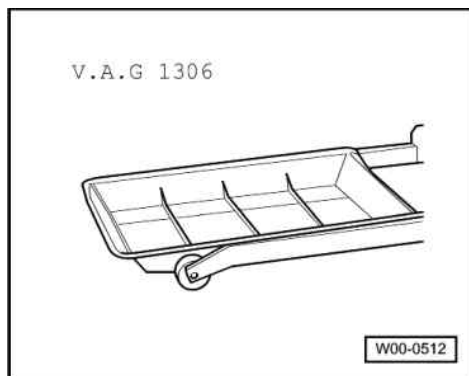
Do not run engine or tow vehicle with oil pan removed or when there is no ATF in the gearbox.

Notes:

- ◆ Always replace valve body if it has collected dirt or if it is defective.
- ◆ Rules for cleanliness when working on the automatic gearbox => Page 53.
- ◆ Repair instructions => Page 5.
- ◆ Apply a thin coating of Vaseline to the O-rings and the oil seals. Other types of lubricant will cause problems with the hydraulic actuation of the gearbox.

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1.2 - Removing and installing oil pan

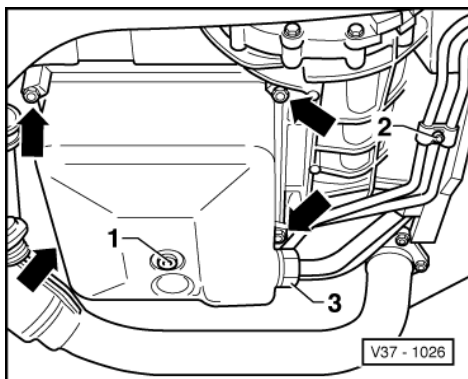


The following special tools and testing devices are required:

- ◆ Drip tray V.A.G 1306

Removing

- Place drip tray V.A.G 1306 underneath.





- -> Unscrew the ATF drain plug -1- and drain off ATF.
- If fitted, detach ATF filler pipe -3- from oil pan.
- Unscrew clip -2- for ATF pipe.
- Alternately unfasten nuts -arrows- with spacer.

Installing

Install in reverse order, paying attention to the following:

- If necessary, clean deposits off magnet in oil pan (used for catching metal particles).

Note:

Make sure magnet is positioned correctly within flared rim of oil pan, otherwise noises may result.

- Renew gasket for oil pan.
- Renew O-ring on ATF filler pipe, coat thinly with Vaseline and insert.
- Always renew seal for ATF drain plug.
- Fill up with ATF and check ATF level => Page 48 .

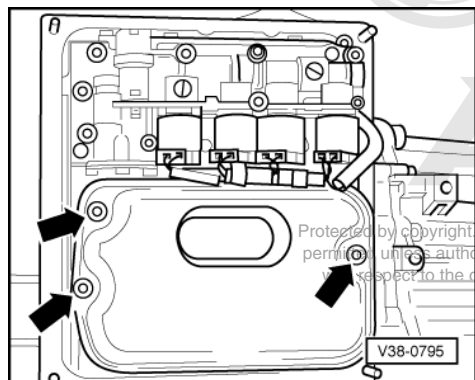
Tightening torques

Component		Nm
Oil pan to gearbox	M6	6
ATF drain plug to oil pan	M14	35
ATF filler pipe to oil pan	M24	40
ATF filler pipe to gearbox	M8	23
ATF filler pipe to engine (6-cylinder engine)	M6	9

Note:

Tightening torques for ATF pipe bracket => from Page 54 .

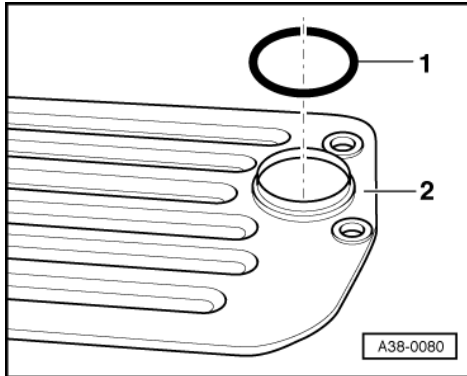
1.3 - Removing and installing ATF screen



Removing

- Remove oil pan => Page 65 .
- -> Screw out bolts for ATF screen -arrows-.
- Pull ATF screen off valve body.

Installing



- -> Replace O-ring -1- on ATF screen.
- Thinly coat O-ring on rim of ATF screen intake hole -2- with Vaseline.
- Screw on ATF screen.
- Installing oil pan => Page 65 .
- Fill up with ATF and check ATF level => Page 48 .

Tightening torque

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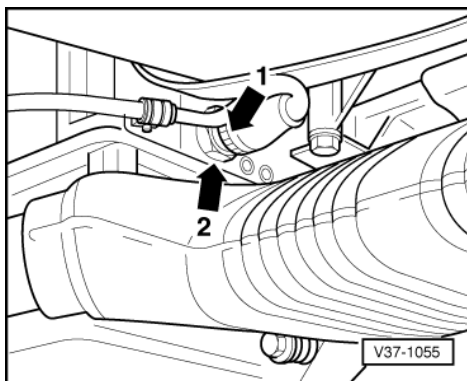
Component		Nm
ATF screen to valve body	M6	8

1.4 - Removing and installing valve body

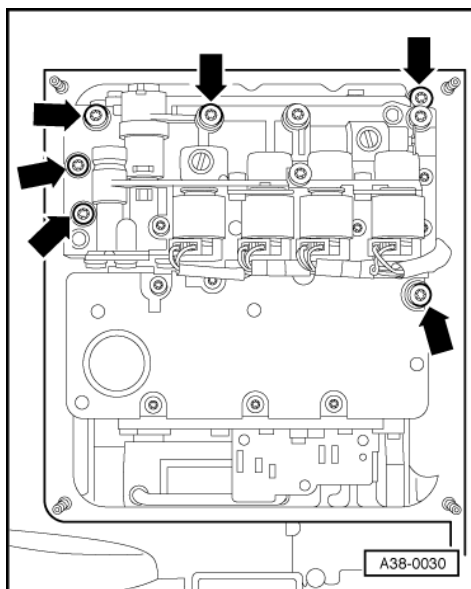
Note:

- ◆ Always replace valve body if it has collected dirt or if it is defective.
- ◆ Repair instructions => Page 5 .
- ◆ Rules for cleanliness when working on the automatic gearbox => Page 53 .

Removing



- -> Loosen bayonet connector of 8-pin connector -arrow 1- by turning anti-clockwise and unplug connector from gearbox.
- Unfasten cap nut -arrow 2-.
- Remove oil pan => Page 65 .
- Remove ATF screen => Page 66 .



- -> Unscrew securing bolts -arrows- on valve body and take out valve body together with wiring harness.

Note:

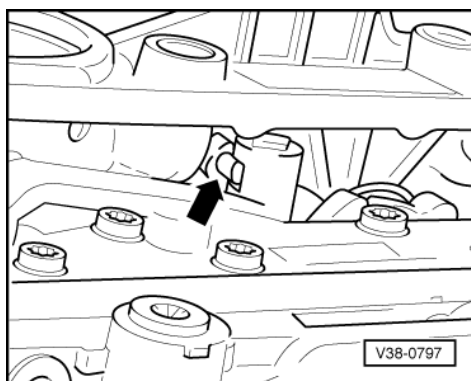
- ♦ Only slacken the securing bolts indicated in the illustration -arrows- (additional distinguishing feature: larger screw heads)
- ♦ If other bolts are slackened, this may affect the operation of the valve body or the valve body will come apart.
- ♦ The bolts are of different length. Pay attention to assignment.
- Remove valve body from gearbox, at the same time guide out connector for wiring harness.

Installing

Install in reverse order, paying attention to the following:

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- Coat O-rings of wiring harness connector thinly with Vaseline.
- Insert wiring harness connector into gearbox housing and screw on union nut.

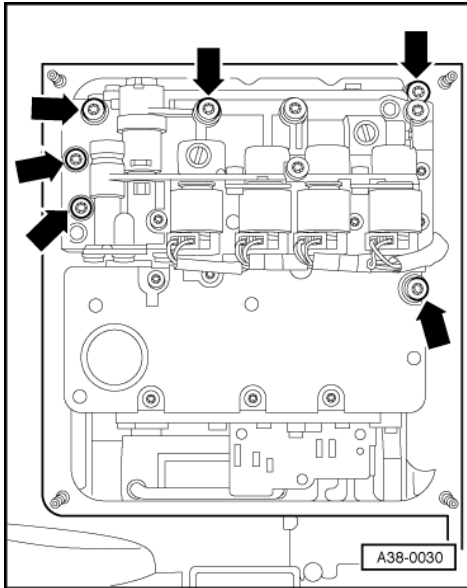


- -> Fit valve body without using force while inserting pin of detent plate into groove of selector slide -arrow-.

Note:

The multi-function switch -F125 must be at position "P" (park) (rearmost position).

- Before screwing in, check length of bolts.



- -> First tighten valve body bolts -arrows- lightly.
- Then tighten bolts for valve body to final tightening torque using diagonal sequence.
- Renew O-ring on oil strainer.
- Installing ATF screen => Page 66 .
- Installing oil pan => Page 65 .

Tightening torques

Component	Nm
Cap nut to wiring loom	20
Valve body to gearbox housing (tighten alternately)	8
ATF screen to valve body	8

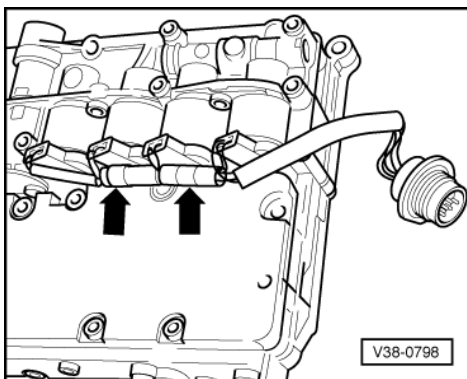
1.5 - Removing and installing wiring harness in gearbox

Note:

Rules for cleanliness when working on the automatic gearbox => Page 53 .

Removing

- Remove oil pan => Page 65 .
 - Remove ATF screen => Page 66 .
 - Remove valve body => Page 67 .
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- -> Take wiring harness out of retainer -arrows-.
- Lever out retaining lugs of connector on solenoid valves with a small screwdriver and pull connector off.

Installing

Install in reverse order, paying attention to the following:

- Connect connector of new wiring harness to relevant solenoid valves.

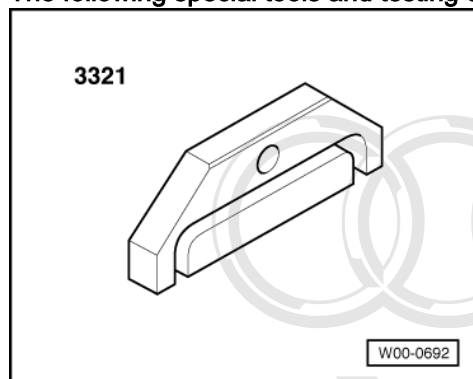
Note:

The retaining lugs must engage.

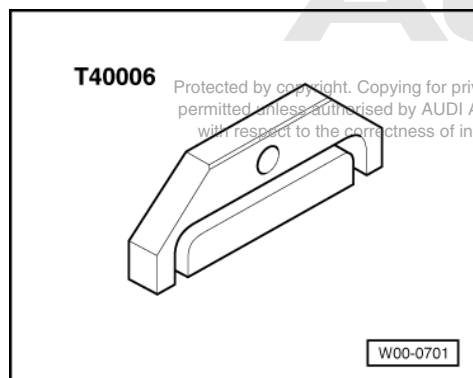
- Hook wiring harness into retainer.
- Install valve body => Page **67**.

1.6 - Replacing inner oil pipe

The following special tools and testing devices are required:

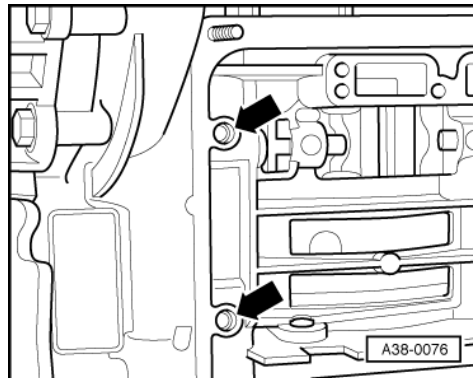


- ♦ Pressing in aid 3321

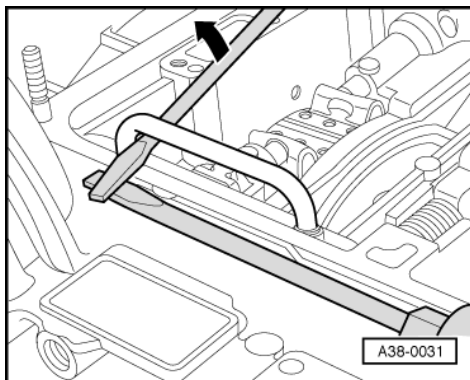


- ♦ Pressing in aid T40006

Notes:



- ◆ Always fit new oil pipe after removing.
- ◆ -> As of gearbox no. 34 679 onwards there are slots -arrows- in the drillings for the oil pipe in the gearbox housing. Always fit O-rings when installing a new oil pipe in this gearbox version, irrespective of which type of oil pipe was fitted originally.
- ◆ The oil pipe may only be installed using installing tool 3321 (for oil pipe without O-ring) or installation tool T40006 (for oil pipe with O-ring).
- ◆ If the oil pipe is installed without using the relevant special tool, the result may be leaks caused by bending the oil pipe.
- ◆ A bad fit or defective O-rings on the internal oil pipe will allow ATF to leak into differential, which will overflow and cause oil to drip out of differential breather.



Removing

- Remove valve body => Page 67 .
- -> Lever internal oil pipe off gearbox housing using a screwdriver, applying pressure evenly.

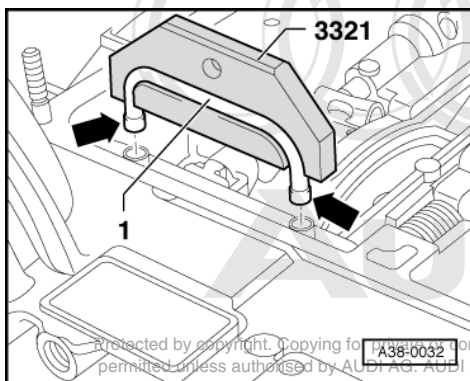
Note:

Do not damage the sealing surface of the oil pan when pressing the oil pipe off. Use a second screwdriver as a support base as necessary.

Installing up to gearbox No. 34 678

Install in reverse order, paying attention to the following:

- Allow oil to drain completely out of hole for oil pipe.
- Degrease hole for oil pipe with quick-acting cleaning solution (e.g. Z 371 405 TE).



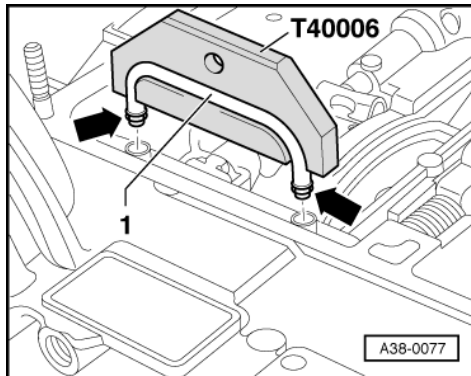
- -> Place new oil pipe -1- in installing tool 3321.
- Coat ends of oil pipe -arrows- with locking fluid AMV185 101 A1.
- Drive oil pipe into gearbox housing with light blows of a plastic hammer on pressing in aid 3321.

Notes:

- ◆ Open side of installing tool 3321 faces towards outer wall of gearbox.

- ♦ Take care not to tilt oil pipe. Drive in both ends evenly.
- Install valve body => Page 67 .
- Fill up with ATF and check ATF level => Page 48 .
- Checking gear oil level in front final drive => Page 89 .

Installing from gearbox No. 34 679



- -> Fit new O-arrows rings -arrows- on new internal oil pipe.
- Apply a thin coating of Vaseline to O-arrows rings. Do not use locking fluid.
- Place oil pipe -1- in installing tool T40006.
- Drive oil pipe into gearbox housing with light blows of a plastic hammer on pressing in aid T40006.

Notes:

- ♦ Open side of installing tool 3321 faces towards outer wall of gearbox.
- ♦ Take care not to tilt oil pipe. Drive in both ends evenly.
- Install valve body => Page 67 .
- Fill up with ATF and check ATF level => Page 48 .
- Checking gear oil level in front final drive => Page 89 .

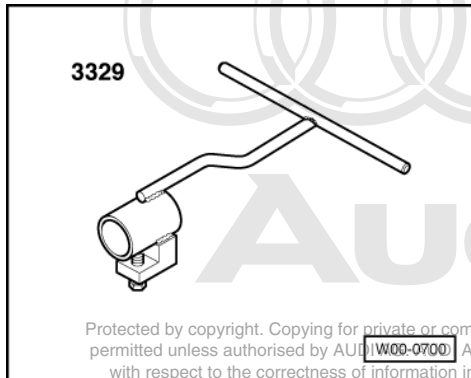
2 - Removing and installing ATF pump

2.1 - Removing and installing ATF pump

Notes:

- ♦ Up to approx. gearbox no 14447 leakage may occur at outer periphery of ATF pump due to the excessively deep groove for O-ring. The design of the groove was modified as of gearbox production date 16.2.93
- ♦ If the pump elements of the ATF pump are defective, it only makes sense to renew the ATF pump if the clutches are not damaged. Always check for clutch wear before repairing the ATF pump.
- ♦ Repair instructions => Page 5 .
- ♦ Rules for cleanliness when working on the automatic gearbox => Page 53 .

The following special tools and testing devices are required:

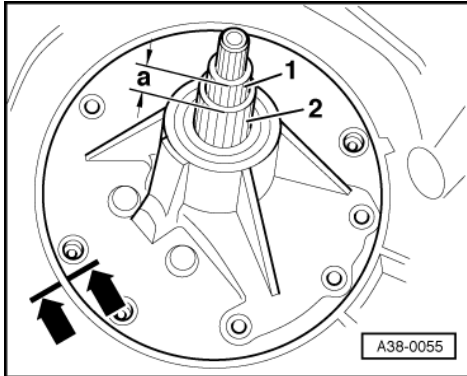


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- ♦ Assembly tool 3329

Removing ATF pump

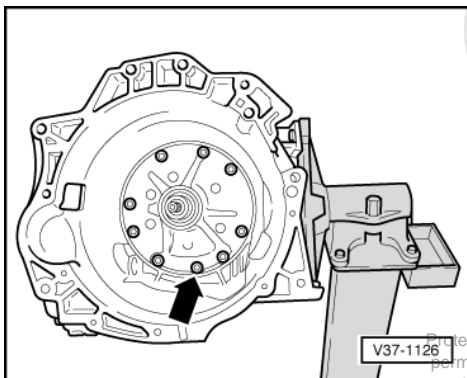
- Remove gearbox => Page 28 .
- Secure gearbox to repair stand => Page 39 .
- Drain ATF => Page 48 , watch out for clutch wear particles in ATF.
- Pull off torque converter.
- Remove valve body => Page 67 .
- Checking gear oil level in front final drive => Page 108 .



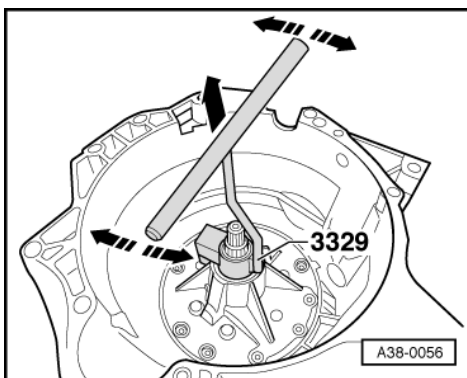
- -> Measure dimension -a- between turbine shaft -1- and stator shaft -2- as shown in illustration and note (approx. 18 mm).

Note:

For ease of installation, mark fitting location of ATF pump in case the same pump is to be reinstalled -arrows-.

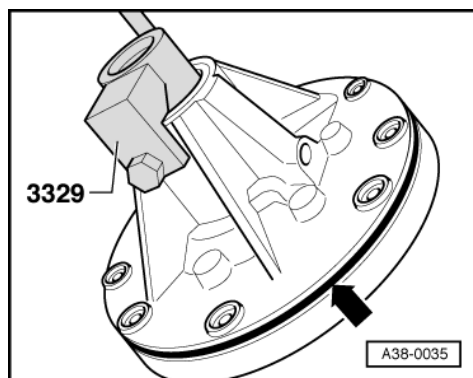


- -> Loosen all securing bolts -arrow- of ATF pump using diagonal sequence and remove.



- -> To remove ATF pump, fit assembly tool 3329 and secure with clamping bolt.

- Loosen ATF pump and pull out -arrows-.



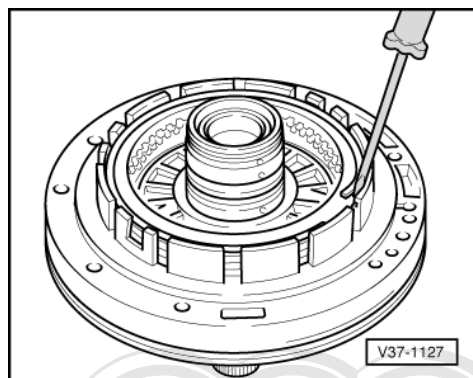
- -> Always renew O-ring -arrow-.

Notes:

- ♦ If only the O-ring on the outer circumference of the ATF pump is to be replaced, the ATF pump may be re-installed => Page 79 .
- ♦ When replacing ATF pump, follow procedure described, starting from Page 74 .

Replacing ATF pump

Note:

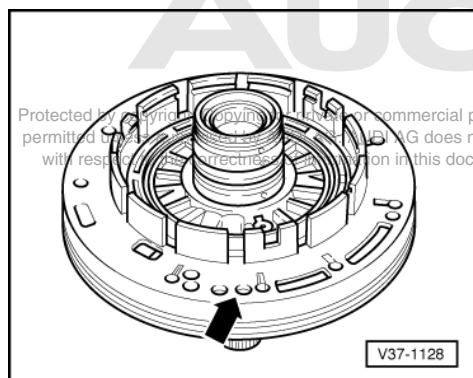


-> If the ATF pump is to be replaced, then the parts of brake "C" from the old pump need to be installed in the new pump.

- Pry circlip for plates of brake "C" out of slot in intermediate plate.
- Take out end plate, lined plates, outer plates and dished spring. For this purpose, note the sequence.

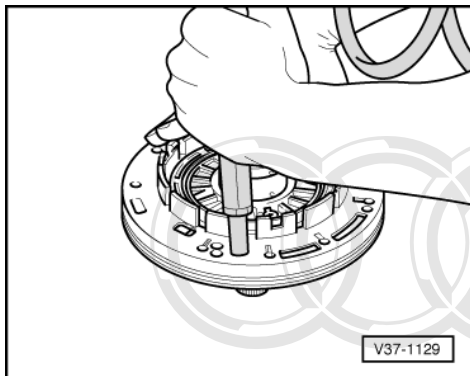
Note:

Check plates for wear and damage caused by heat.

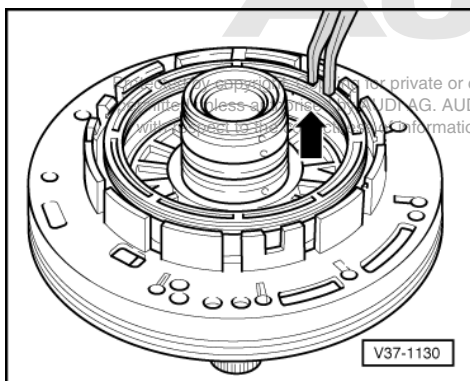


- -> Place compressed air gun over hole -arrow- in intermediate plate.

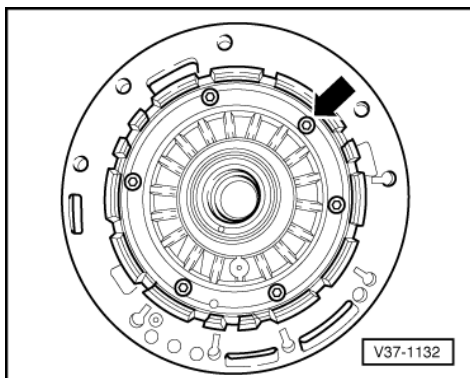
Warning!
Wear eye protection.



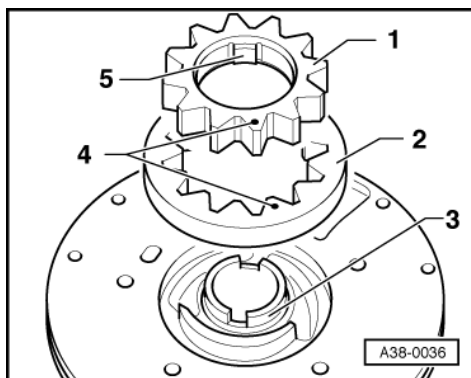
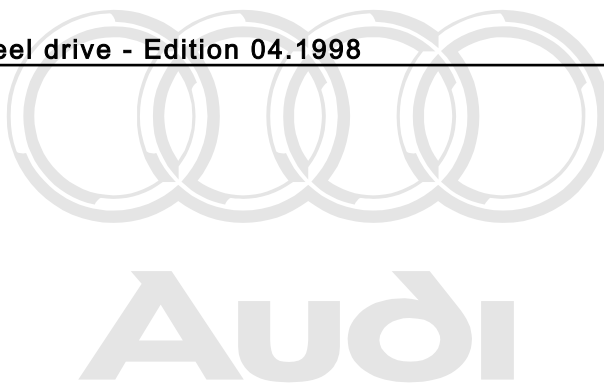
- -> Lift piston with compressed air.



- -> Take out piston.



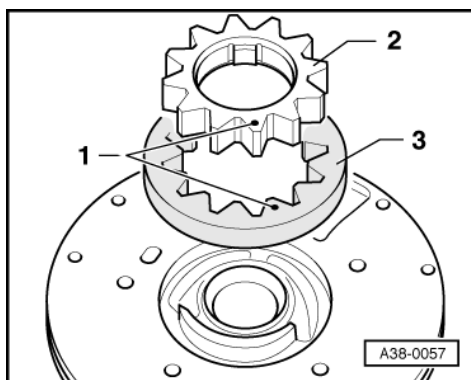
- -> Remove securing bolts -arrow-, separate intermediate plate from ATF pump.



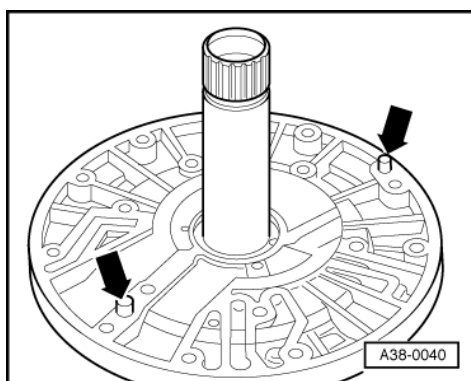
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- -> Take out pump gear -1- and internal gear -2-.
- Check pump gear and internal gear for signs of scoring and damage caused by heat and renew entire ATF pump, if necessary.
- Take off spacer -3-.

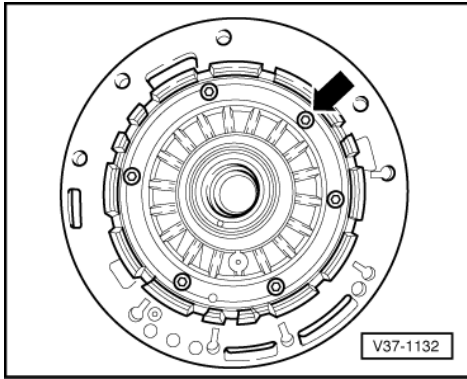
Assembly is carried out in the reverse order. For this purpose, note the following:



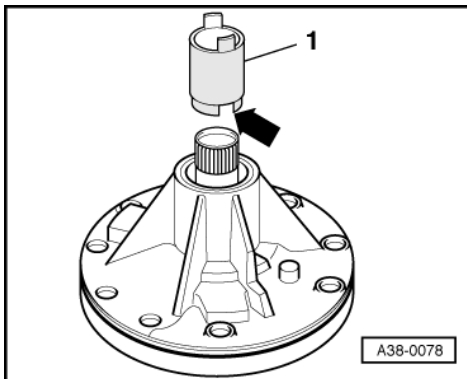
- -> Fit pump gear -2- and internal gear -3- with marking -1- facing upwards.



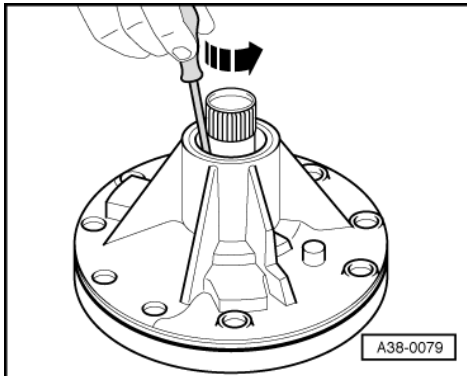
- -> Check that both dowel pins -arrows- in the intermediate plate are seated correctly.



- -> Tighten intermediate plate to ATF pump using diagonal sequence (10 Nm).



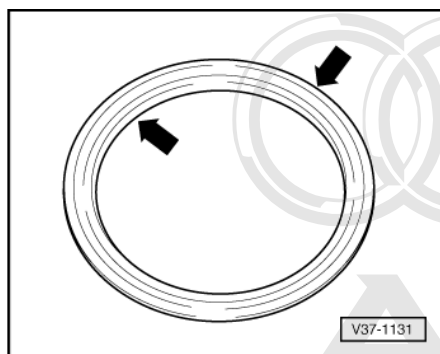
- Turn pump over.
- -> Fit spacer tube -1- from front. Make sure drive lugs on pump gear engage in slots -arrow-.



- -> Check freedom of movement of pump gear and internal gear. For this purpose, turn tubular spacer -arrow-.

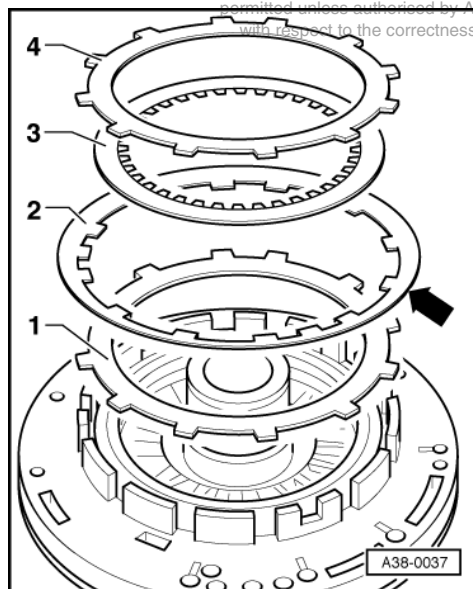
Note:

Use a small screwdriver to avoid damaging sealing ring.

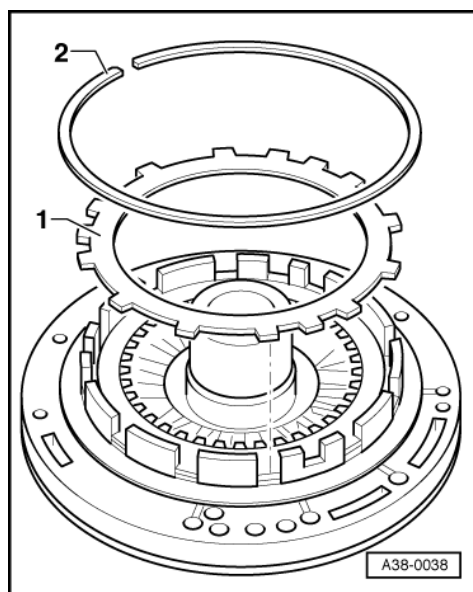


- -> Inspect O-rings -arrows- of piston "C" and renew, if necessary.
- Coat O-rings of piston "C" thinly with Vaseline and press piston into intermediate plate.

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- -> Insert first outer plate -1- (of steel) into intermediate plate.
- Insert dished spring -2- so that outer edge -arrow- is raised off intermediate plate.
- Insert lined plate -3-.
- Then insert alternately all remaining outer plates -4- and lined plates.



- -> End plate -1- (thicker outer plate with more retaining lugs) is inserted last.
- Insert circlip -2-.

Note:

Do not replace circlip with a circlip of another thickness.

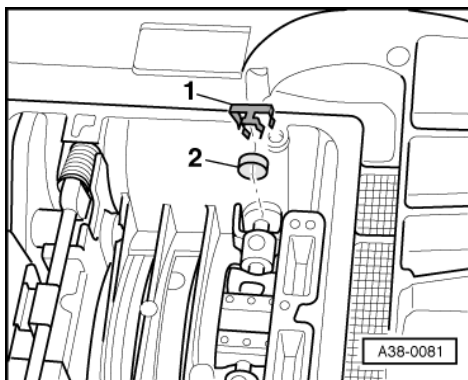
Installing ATF pump

Note:

It may have been necessary to pull parts of planetary gearbox and clutches apart to remove ATF pump. For this reason the gearbox must be dismantled up as far as the planetary gear set. These parts must then be put together individually.

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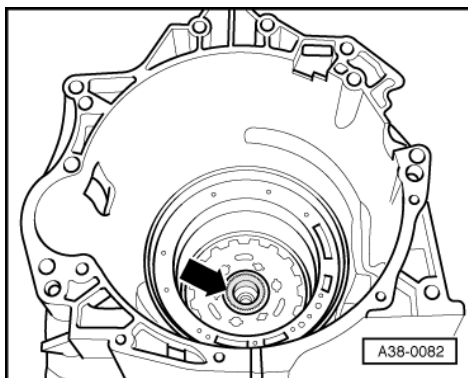
- Take all individual components of automatic gearbox up to planetary gear set out of gearbox housing. Pay attention to the washers/plates and axial needle bearings in between.



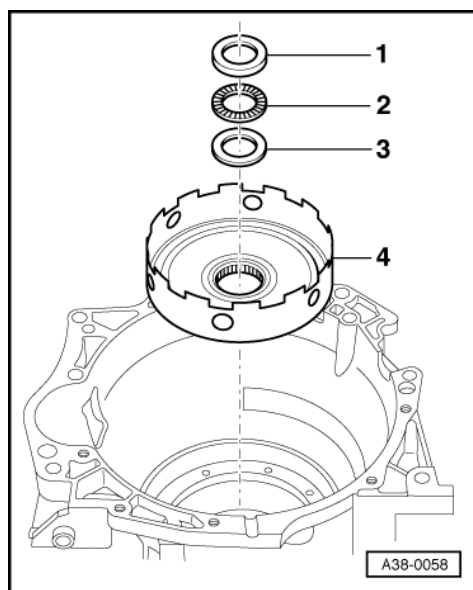
- -> Pull off retainer clip -1- and shim -2-.

Notes:

- ◆ The brake band of brake "C" opens a little further when the shim is pulled out - for ease of assembly.
- ◆ Older gearboxes have a differently shaped retainer clip fitted in gearbox housing for holding the shim.



- -> Check to see if sun gear is installed in planetary gearbox -arrow-.



- -> Place sun gear cup -4- on teeth of sun gear.

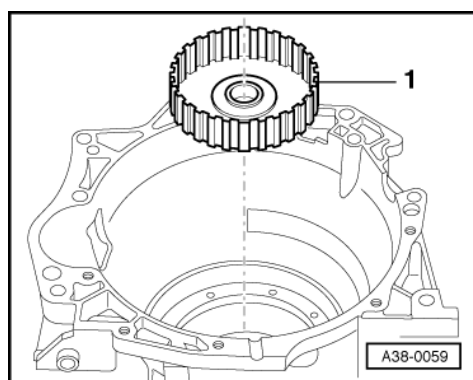
- Fit flat washer -3-.

- Place axial needle bearing -2- on washer.

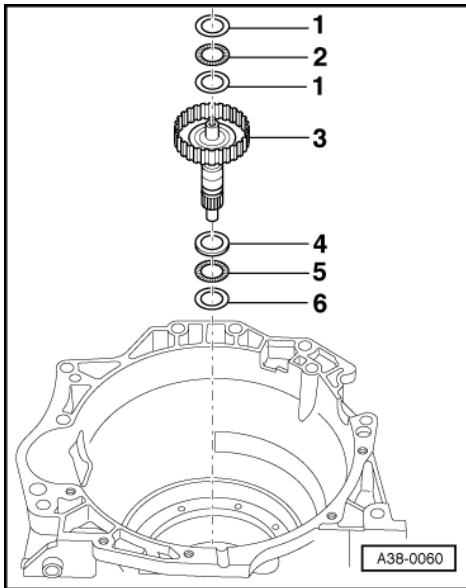
- Fit flared washer -1- on axial needle bearing.

- Fitting position of washer: Flared side faces axial needle bearing.

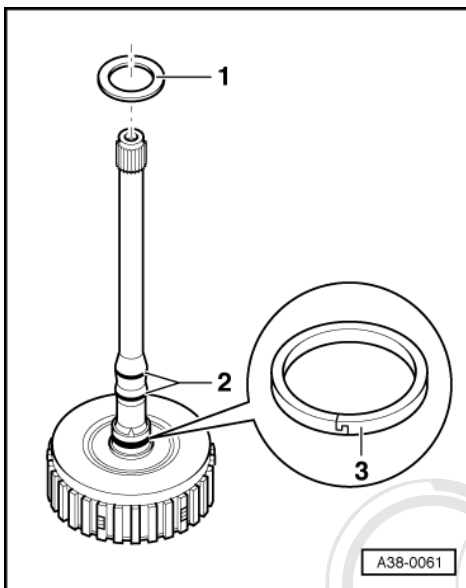
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- -> Insert sun gear shaft -1-. By turning back and forth make sure toothing has meshed.

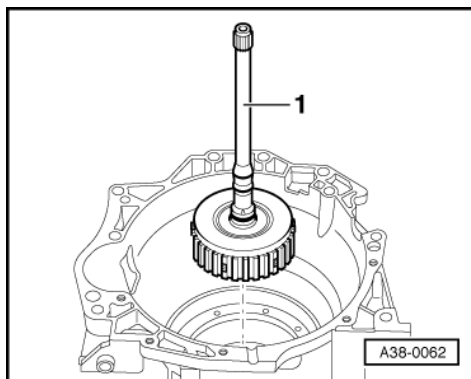


- -> Place plain washer -6- on sun gear shaft.
- Place axial needle bearing -5- on washer.
- Fit flared washer -4- on axial needle bearing.
 - Fitting position of washer: Flared side faces axial needle bearing.
- Insert idler shaft -3-. Make sure toothing has meshed.
- Fit the two washers -1- with axial needle bearing -2-.



- -> Position axial needle bearing -1- on drive shaft with clutch "E".
- Installation position axial needle bearing: The rollers face clutch housing.
- Check to see if both plastic rings -2- are flush.
- Check position of piston ring -3-.
 - Ring joint must be properly interlocked.

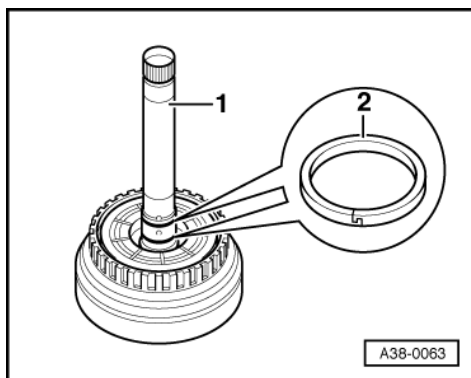
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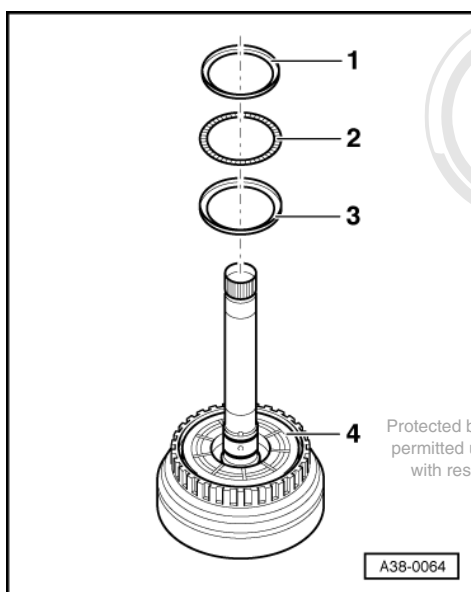
- -> Install engine shaft with clutch "E" -1- in gearbox.

Note:

When installing, rotate engine shaft with clutch "E" until all the plates have meshed. To test: lift engine shaft a few millimetres and let fall on bearing. This should produce a slight sound.



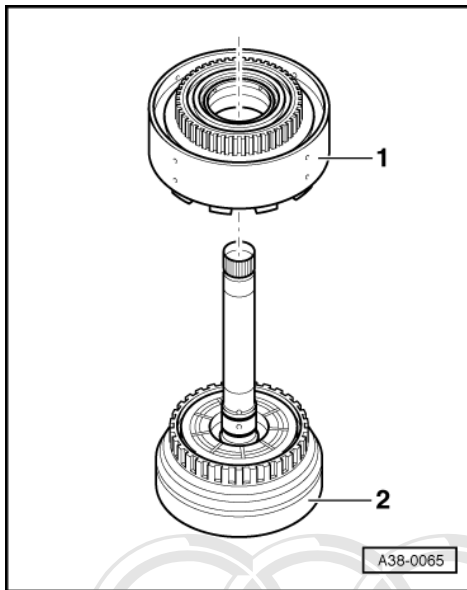
- -> Check position of piston rings -2- on turbine shaft with clutch "A" -1-.
- Ring joint must be properly interlocked.



- -> Place beaded washer -3- (large diameter) on turbine shaft with clutch "A" -4-.
- Fitting position of washer: Washer is installed with beading facing upwards.
- Insert axial needle bearing -2-.
- Place beaded washer -1- (small diameter) on axial needle bearing.

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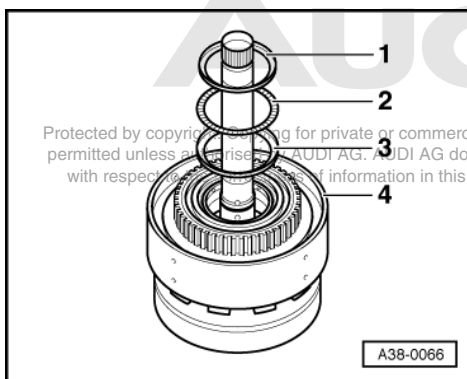
- Fitting position of washer: Washer is installed with beading facing upwards.



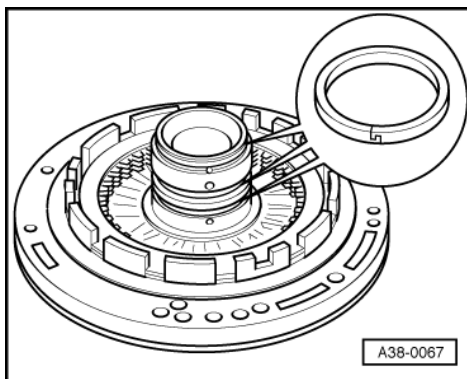
- -> Position 2nd gear free wheel with clutch "B" -1- on turbine shaft with clutch "A" -2-.

Notes:

- ◆ 2.gear free wheel with clutch "B" and turbine shaft with clutch "A" are assembled outside gear case.
- ◆ On insertion turn 2nd gear free wheel with clutch -K3- until all plates have meshed.

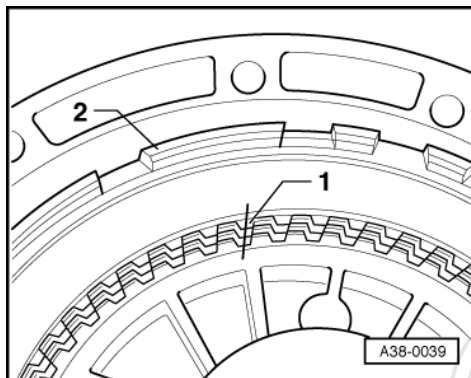


- -> Place plain washer -3- on 2. gear free wheel clutch with clutch "B" -4-.
- Place axial needle bearing -2- on washer.
- Fit flared washer -1- on axial needle bearing.
- Fitting position of washer: Washer is installed with beading facing downwards.

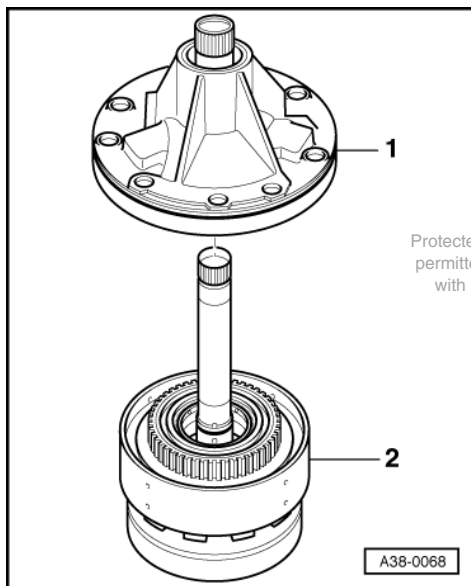




- -> Check position of piston rings on ATF pump with clutch "C" -1-.
- Ring joint must be properly interlocked.



- -> As assembly aid centrally align lining plates with intermediate plate -2-. Additionally, align retaining lugs -1- of lining plates such that they are positioned above one another.

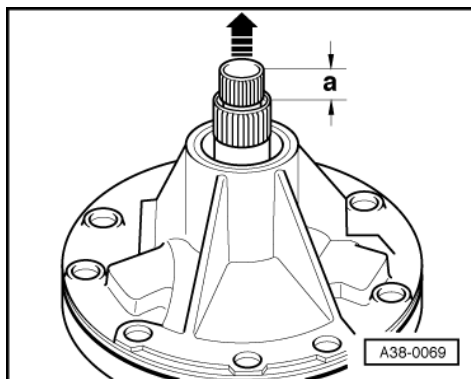


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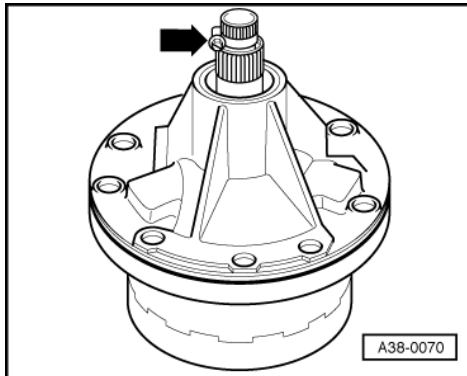
- -> Position ATF pump -1- on assembly -2- (turbine shaft with clutch "A"/2nd gear free wheel with clutch "B").

Notes:

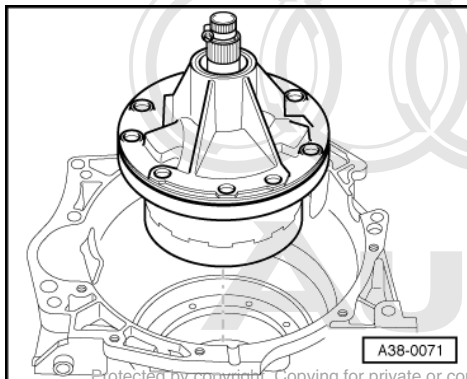
- ♦ Fit ATF pump onto assembled parts before installation in gearbox housing.
- ♦ When fitting, rotate ATF pump until all plates mesh. If necessary, lift ATF pump slightly, turn and fit anew.



- -> Pull turbine shaft firmly upwards -arrow-.
- If properly installed, dimension -a- should now be the same as originally noted (approx. 18 mm).



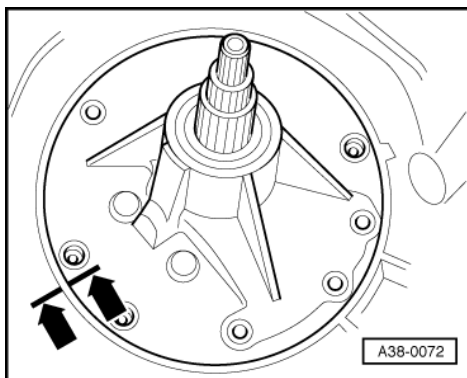
- -> Secure turbine shaft with hose clamp -arrow- so that shaft cannot slide down. Tighten hose clamp firmly.



- -> Insert entire unit (ATF pump/turbine shaft with clutch "A"/2nd gear free wheel with clutch "B") in gear case.
Gear free wheel clutch with clutch "B" in gear case.

Note:

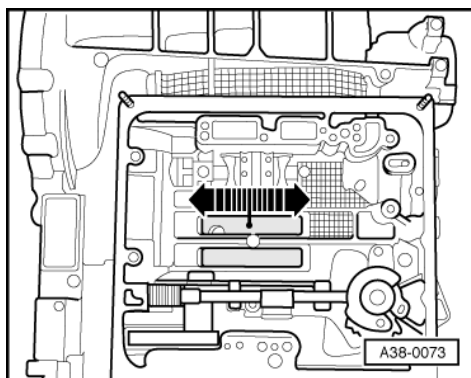
Use assembly tool 3329.



- -> Pay attention to installation position mark -arrows- on reinstalling old ATF pump.
- When installing a new ATF pump, make sure all corresponding bolt holes of ATF pump and gearbox housing are aligned.

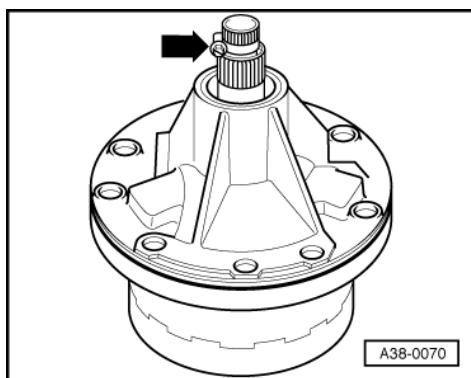
Notes:

- ◆ If necessary, before fitting ATF pump screw an M8 stud into one of the holes on gearbox housing to facilitate alignment.
- ◆ After inserting it in gear case never turn the ATF pump as otherwise sealing ring would be damaged.

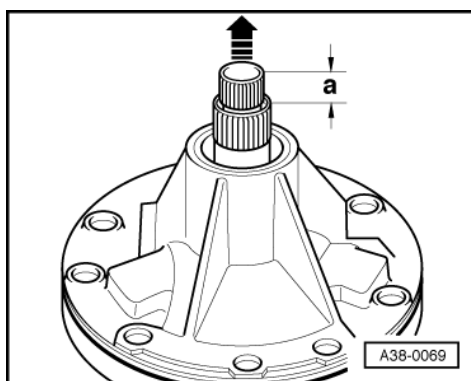


- -> Move shell for sun gear back and forth -arrows-, until all plates of clutch "C" mesh and ATF pump has settled on flange in gear case.
- Bolt on ATF pump with new sealing washers.

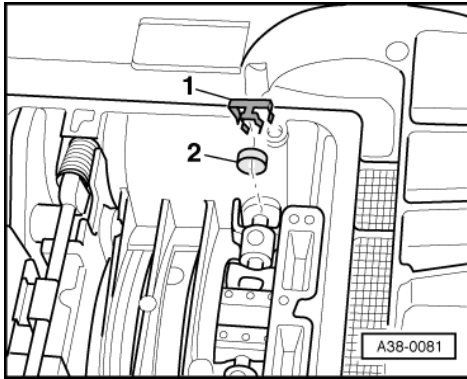
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- -> Remove hose clamp -arrow- from turbine shaft.
- Check installation:
 - It must be possible to move shell for sun gear => Fig. A38-0073



- -> Dimension -a- must be the same as that noted down at start of work (approx. 18 mm). Check to see if spacer for torque converter is still engaged.



- -> Fit shim -2- with retainer clip -1-.
- Install valve body => Page 67 .
- Checking and, if necessary, replacing sealing ring for torque converter => Page 9 .
- Installing drive shaft => Page 110 .
- Install transfer gearing => Page 10 .
- Install gearbox => Page 36 .
- Fill up with ATF and check ATF level => Page 48 .

Tightening torques

Component		Nm
ATF pump to gearbox	M6	10
Intermediate plate to pump	M6	10

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39 - Final drive, Differential

1 - Removing and installing speedometer sender -G22 and drive gear for speedometer sender

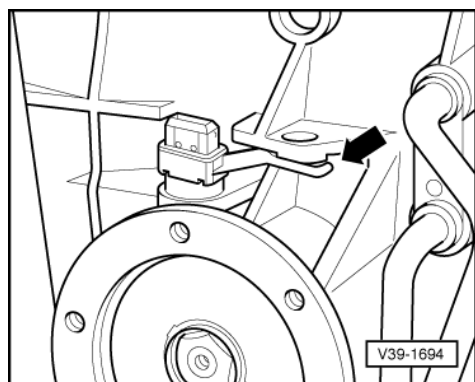
1.1 - Removing and installing speedometer sender -G22 and drive gear for speedometer sender

- Gearbox installed

Removing and installing speedometer sender -G22

Note:

Fitting location => Item **96**.



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Removing

- Pull connector off speedometer sender -G22.
- -> Press sender retainer -arrow- down, turn sideways and pull sender out upwards.

Installing

Install in reverse order, paying attention to the following:

- Replace two O-rings of sender.
- Insert the sender with multi-purpose grease.

Removing and installing drive gear for speedometer sender -G22

Note:

Fitting location => Item **98**.

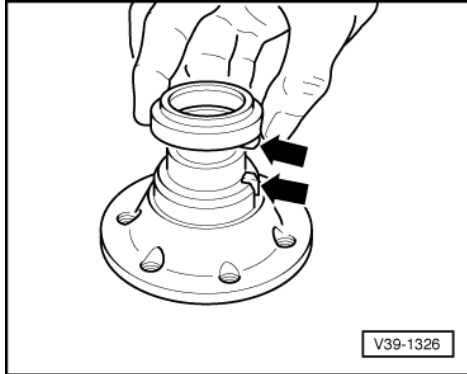
Removing

- Removing left flange shaft and sealing ring => Page **108**.
- Pull drive gear off flange shaft.

Installing

Install in reverse order, paying attention to the following:

- Apply multi-purpose grease to end face of new magnetic ring and position on flange shaft.



Note:

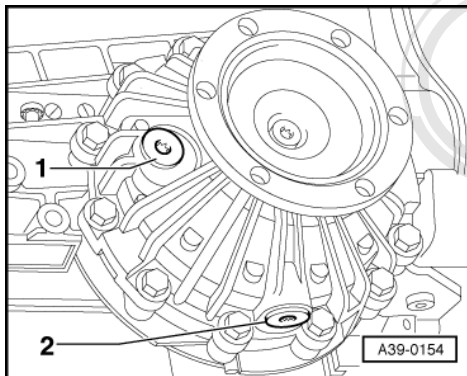
-> The lugs of the drive wheel must engage in the cutouts of the flange shaft -arrows-.

- Fasten flange shaft with collar nut and secure with new lock washer.

2 - Axle oil in front final drive

2.1 - Axle oil in front final drive

2.2 - Checking oil level in front final drive



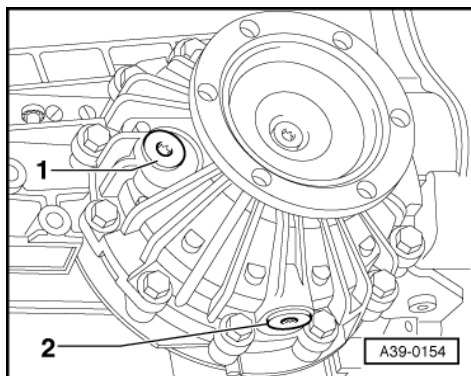
- -> Unscrew the oil filler plug -arrow 1-.
- Specification: oil level up to lower edge of filler hole
- Top up gear oil, if necessary.
- Specification => Page 4
- Always fit a new seal on oil filler plug.
- Fit oil filler plug.

Tightening torque

Component	Nm
Oil filler plug	50



2.3 - Changing gear oil in front final drive/topping up after repair work



- Place oil collection pan underneath.
- -> Remove oil drain plug arrow -2- and drain gear oil.
- Always renew seal for oil drain plug.
- Screw in oil drain plug.
- Remove oil filler plug -arrow 1-.
- Fill slowly with gear oil.
 - Specification: oil level up to lower edge of filler hole
 - Specification => Page 4
- Always fit a new seal on oil filler plug.
- Fit oil filler plug.

Tightening torques

Component	Nm
Oil drain plug	50
Oil filler plug	50

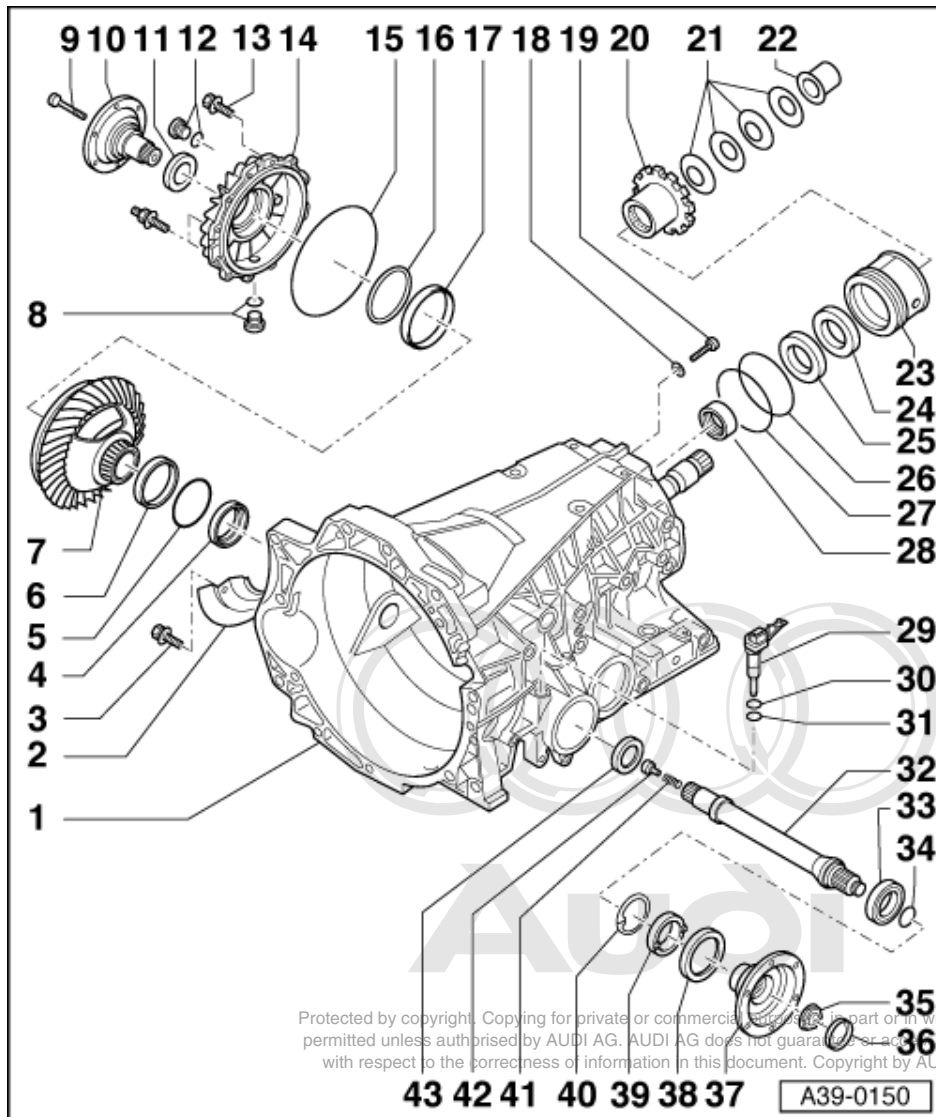
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3 - Servicing front final drive

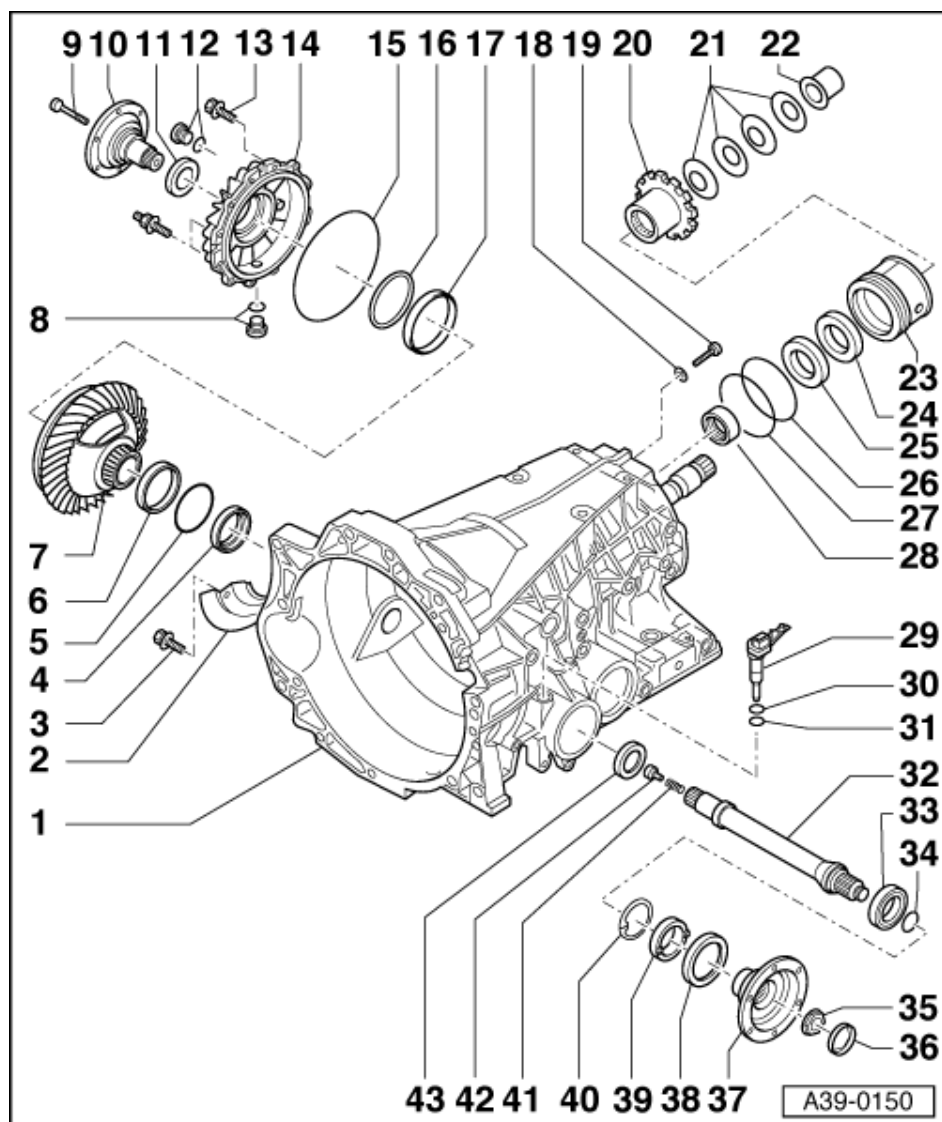
3.1 - Servicing front final drive

Notes:

- ♦ The parts shown in the following illustration can be removed with the gearbox installed.
- ♦ Rules for cleanliness when working on the automatic gearbox => Page 53 .
- ♦ Repair instructions => Page 5 .
- ♦ Apply a thin coating of Vaseline to the O-rings and the oil seals. Other types of lubricant will cause problems with the hydraulic actuation of the gearbox.
- ♦ Do not interchange inner or outer races of bearings of the same size.



- 1 Gearbox housing**
- 2 Baffle plate**
- 3 Bolt - 8 Nm**
 - ♦ 2 off
- 4 Oil seal**
 - ♦ Replacing => Page 104
- 5 Shim**
 - ♦ Behind bearing ring
 - ♦ Specially calibrated and must not be replaced by any non-calibrated shim
- 6 Bearing outer race**
 - ♦ Remove and install by hand
- 7 Differential**
 - ♦ With taper roller bearing
 - ♦ With sender wheel for gearbox speed sender -G38



8 Oil drain plug - 50 Nm

- ♦ With oil seal

9 Bolt - 25 Nm

10 Flange shaft, right

- ♦ Replacing => Page 102

11 Oil seal

- ♦ Replacing => Page 102

12 Oil filler plug - 50 Nm

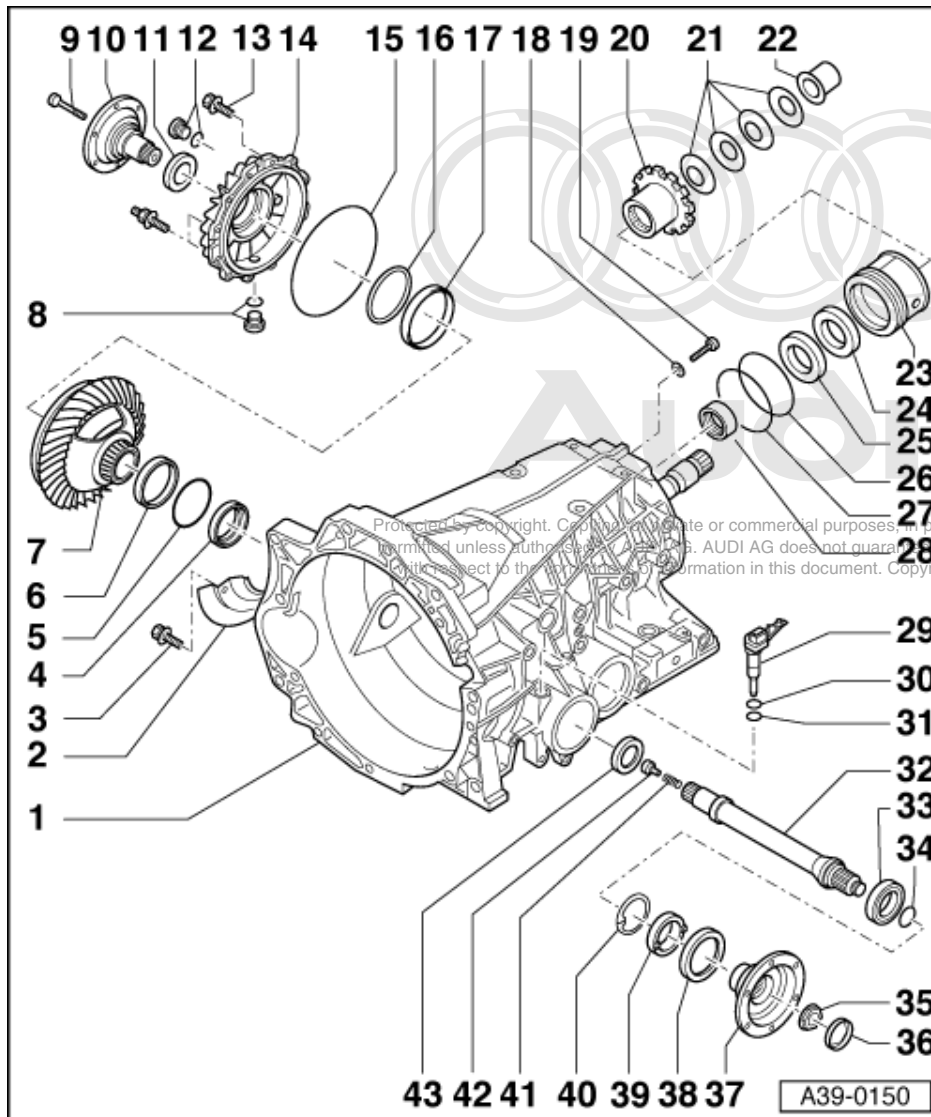
- ♦ For checking gear oil
- ♦ With oil seal

13 Bolt - 23 Nm

- ♦ 12 off
- ♦ for attaching -Item 14 -



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14 Differential cover

- ♦ Wigearbox speed sender -G38
- ♦ Removing and installing gearbox speed sender -G38
=>Fig. 1

15 O-ring

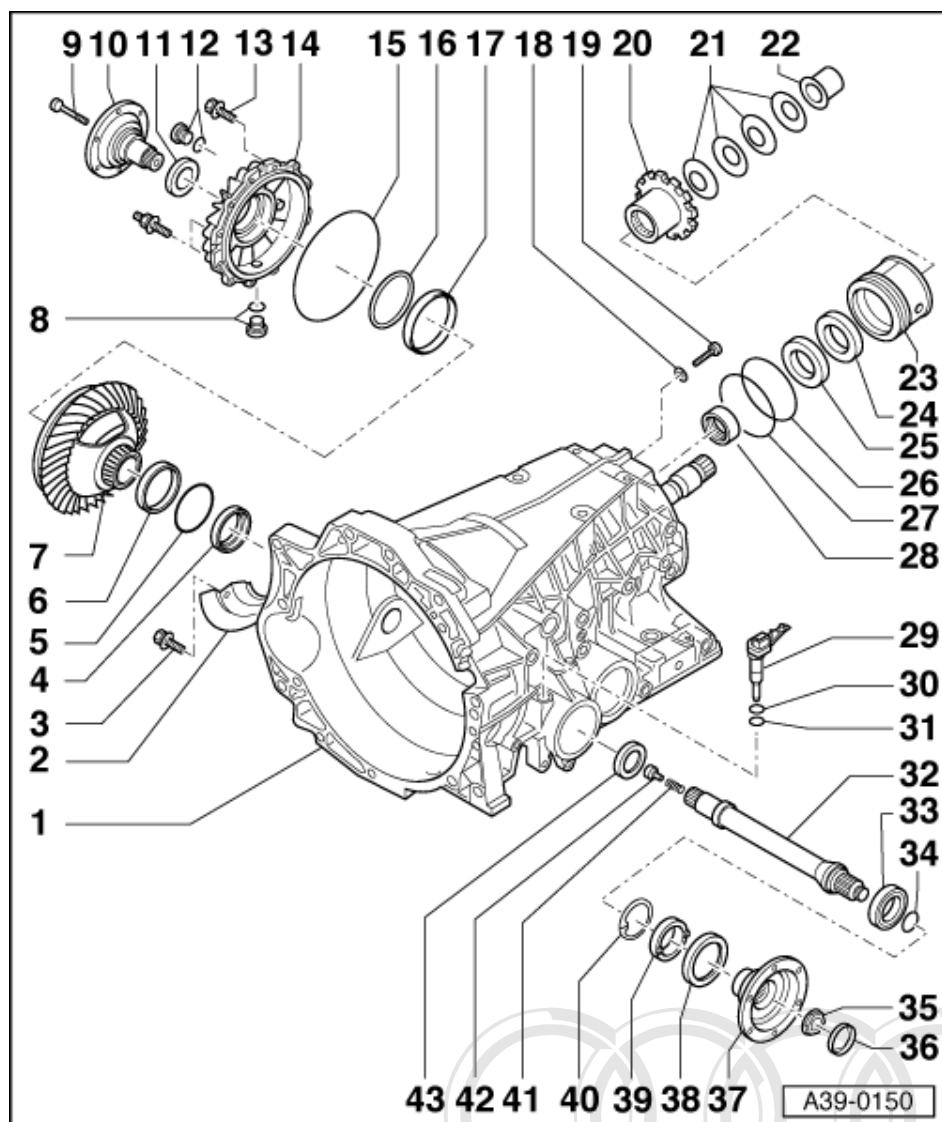
- ♦ Replacing => Page 104
- ♦ Fit with Vaseline

16 Shim

- ♦ Behind bearing ring
- ♦ Specially calibrated and must not be replaced by any non-calibrated shim

17 Bearing outer race

18 Washer

**19 Bolt - 23 Nm**

- ♦ For securing -Item **23** -

20 Parking lock gear**21 Dished washer**

- ♦ 4 off
- ♦ Always insert 2 springs facing against one another

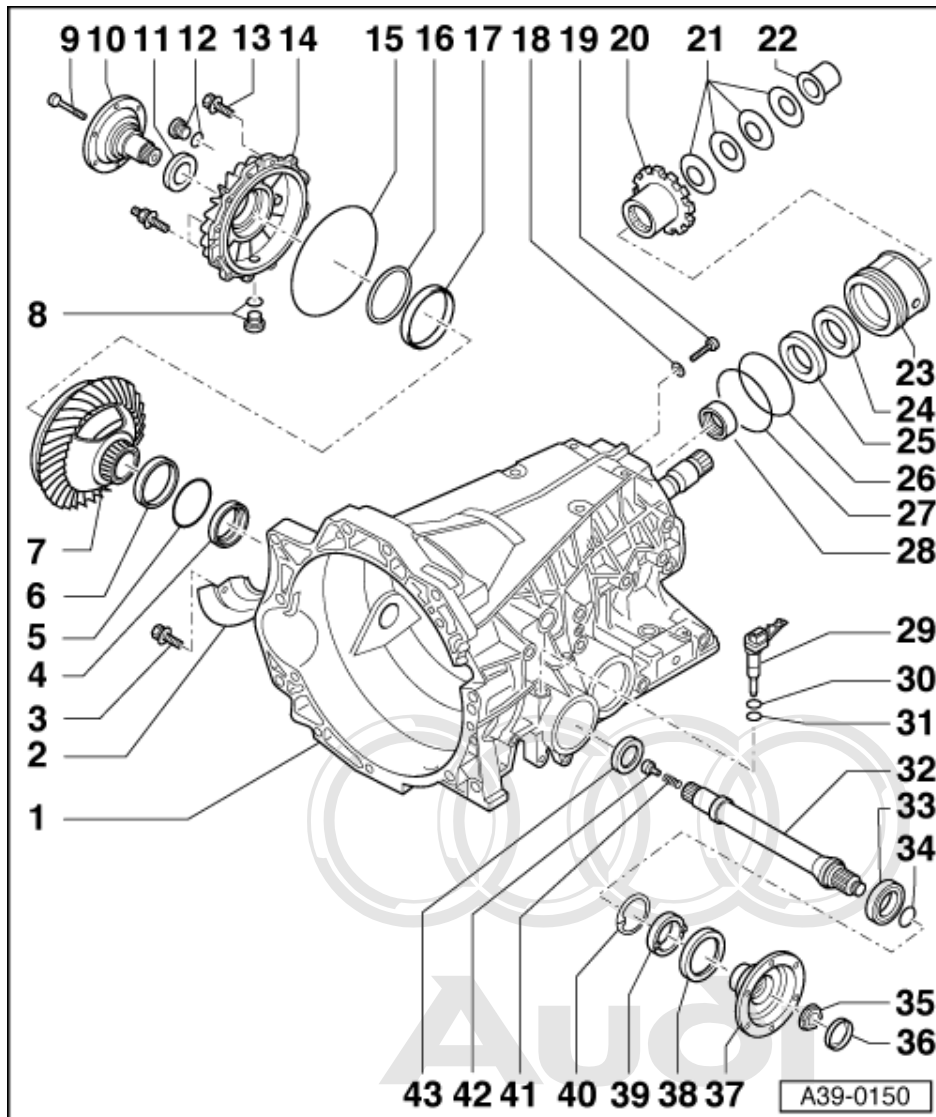
22 socket**23 Intermediate bushing**

- ♦ Replacing => Page **113**

24 Oil seal

- ♦ For ATF area
- ♦ Pressed into intermediate sleeve -Item **23** -.
- ♦ Only replace together with -Item **113**

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25 Oil seal

- ◆ For gear oil area
- ◆ Pressed into intermediate sleeve -Item 23 -.
- ◆ Only replace together with -Item 113

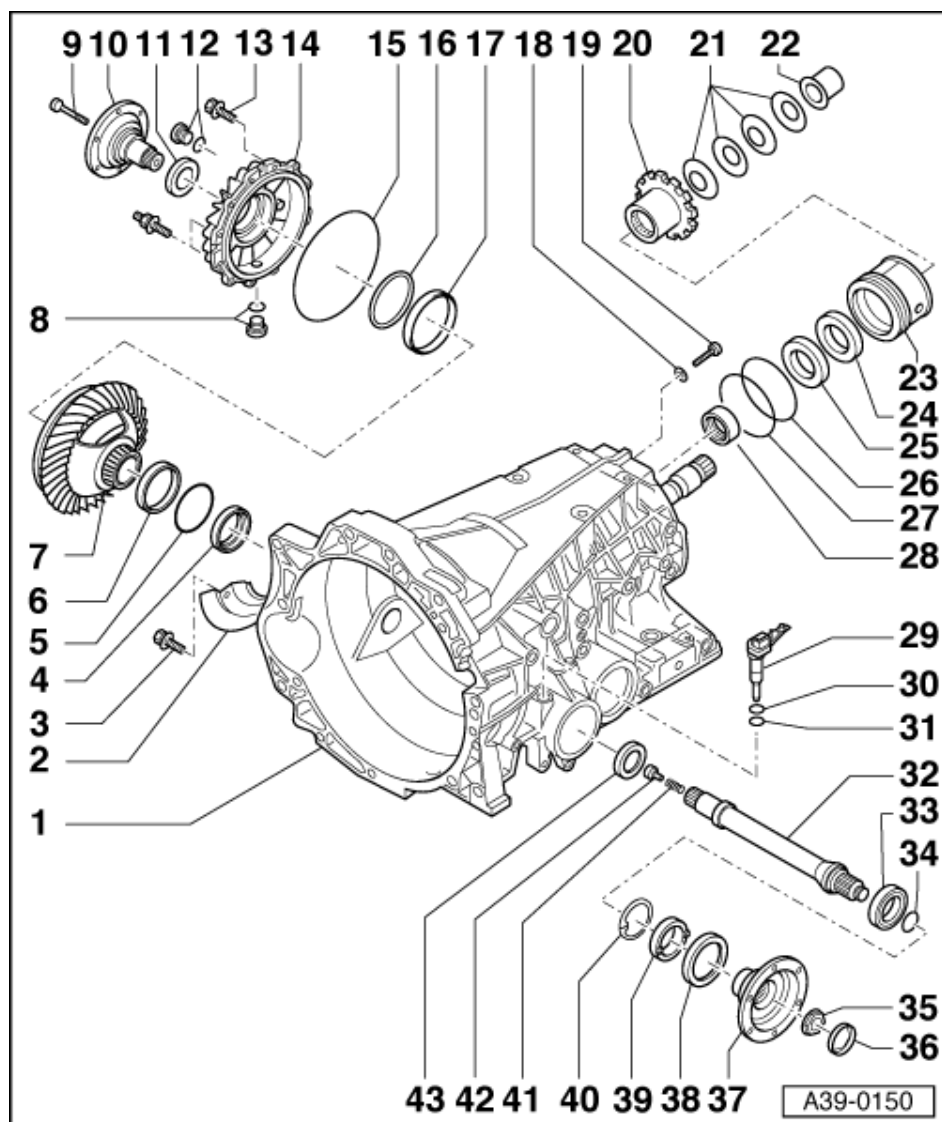
26 O-ring

- ◆ Black
- ◆ Only replace together with -Item 113
- ◆ Fit with Vaseline

27 O-ring

- ◆ Green
- ◆ Only replace together with -Item 113
- ◆ Fit with Vaseline

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**28 Nut (special) - 120 Nm**

- ♦ For drive pinion shaft.
- ♦ Replacing => Page 113
- ♦ Watch out for scoring of sealing rings -Item 24 - and -Item 25 -
- ♦ Peen at 2 positions after installing.

29 Speedometer sender -G22

- ♦ Removing and installing => Page 88

30 O-ring

- ♦ Fit with Vaseline

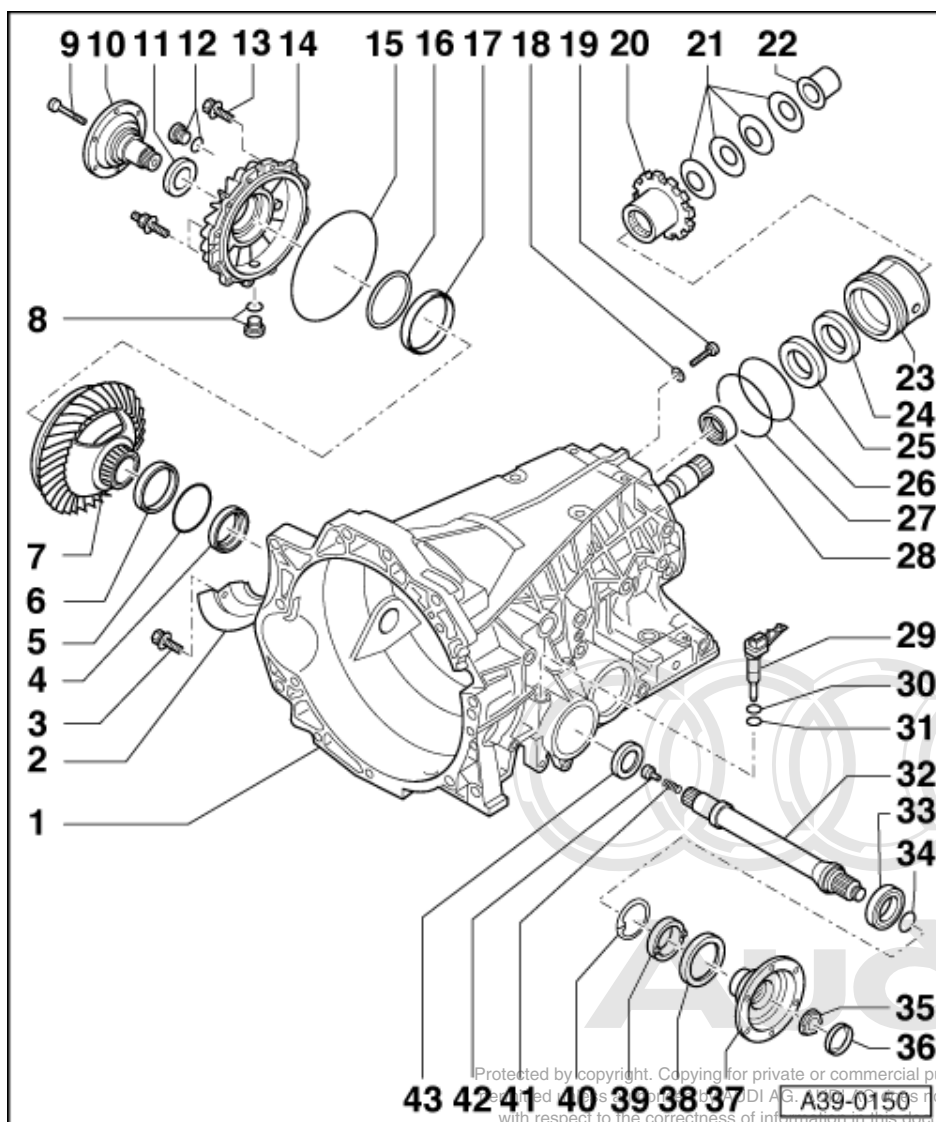
31 O-ring

- ♦ Fit with Vaseline

32 Input shaft

- ♦ Removing and installing => Page 108

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33 Mounting

- ♦ Fit filled with multi-purpose grease
- ♦ On vehicles with 5 cyl. TDI engines apply thin coat of liquid locking compound AMV 185 101 A1 to outer bearing race

34 O-ring

35 Collared nut - 100 Nm

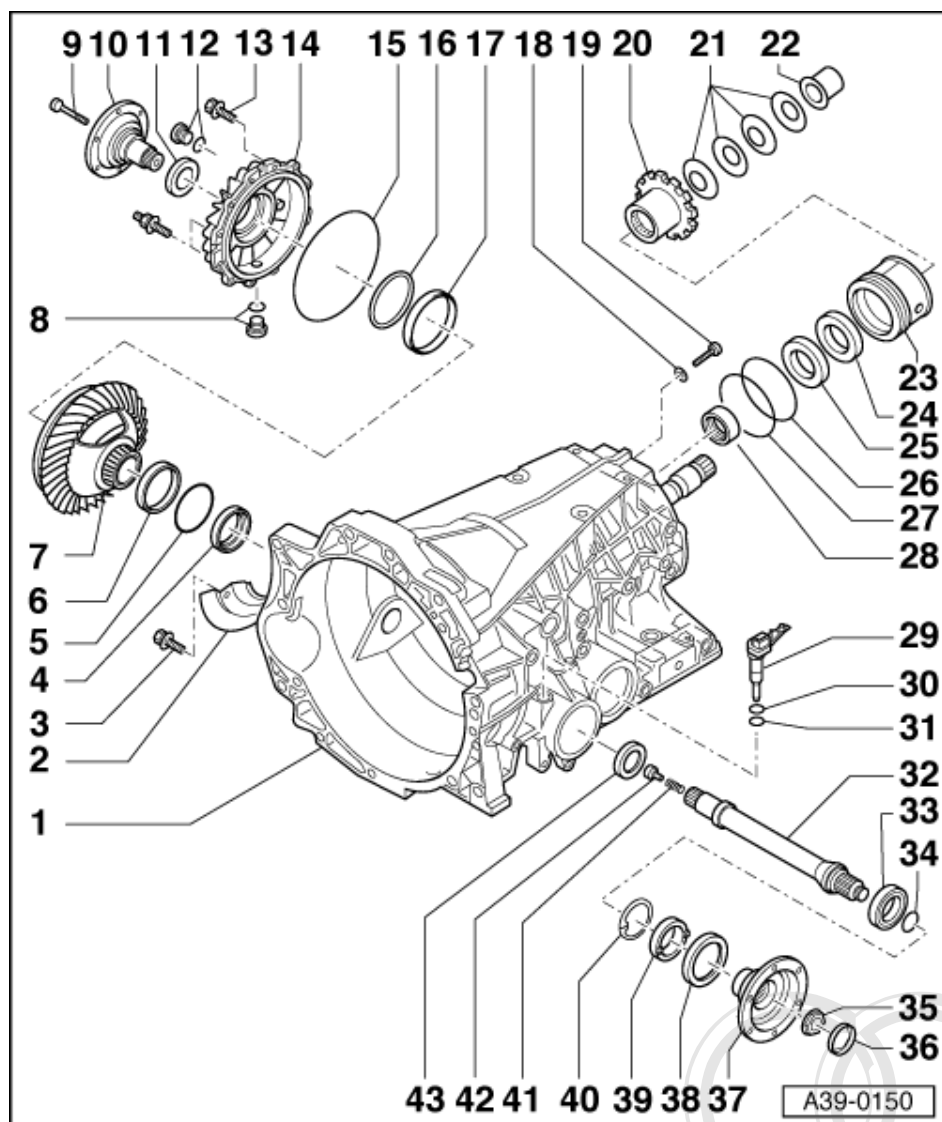
- ♦ Locking => Fig. 2

36 Tab washer

- ♦ For -Item 35 -
- ♦ Replacing => Page 108

37 Flange shaft, left

- ♦ Removing and installing => Page 108

**38 Oil seal**

- ♦ Replacing => Page 108

39 Input gear

- ♦ For speedometer sender -G22
- ♦ Removing and installing => Page 88

40 Circlip

- ♦ For -Item 33 - in gearbox housing

41 Spring

- ♦ Only for vehicles with 5 cyl. TDI diesel engine

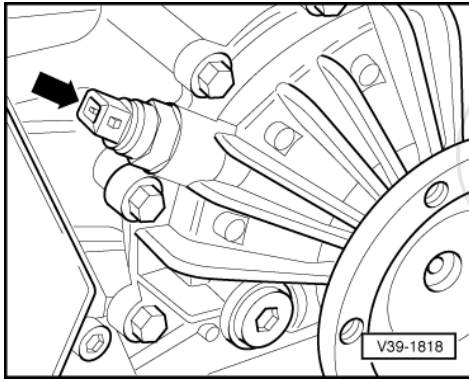
42 Thrust pin

- ♦ Only for vehicles with 5 cyl. TDI diesel engine

43 Oil seal

- ♦ Replacing => Page 108

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-> Fig.1 Removing and installing gearbox speed sender -G38

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Removing

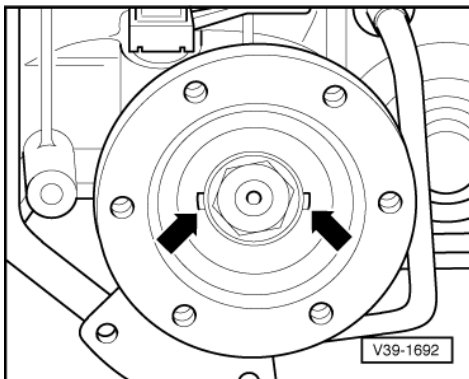
Note:

Shown in illustration with gearbox removed.

- Pull off the connector.
- Release and unscrew sender -arrow-.

Installing

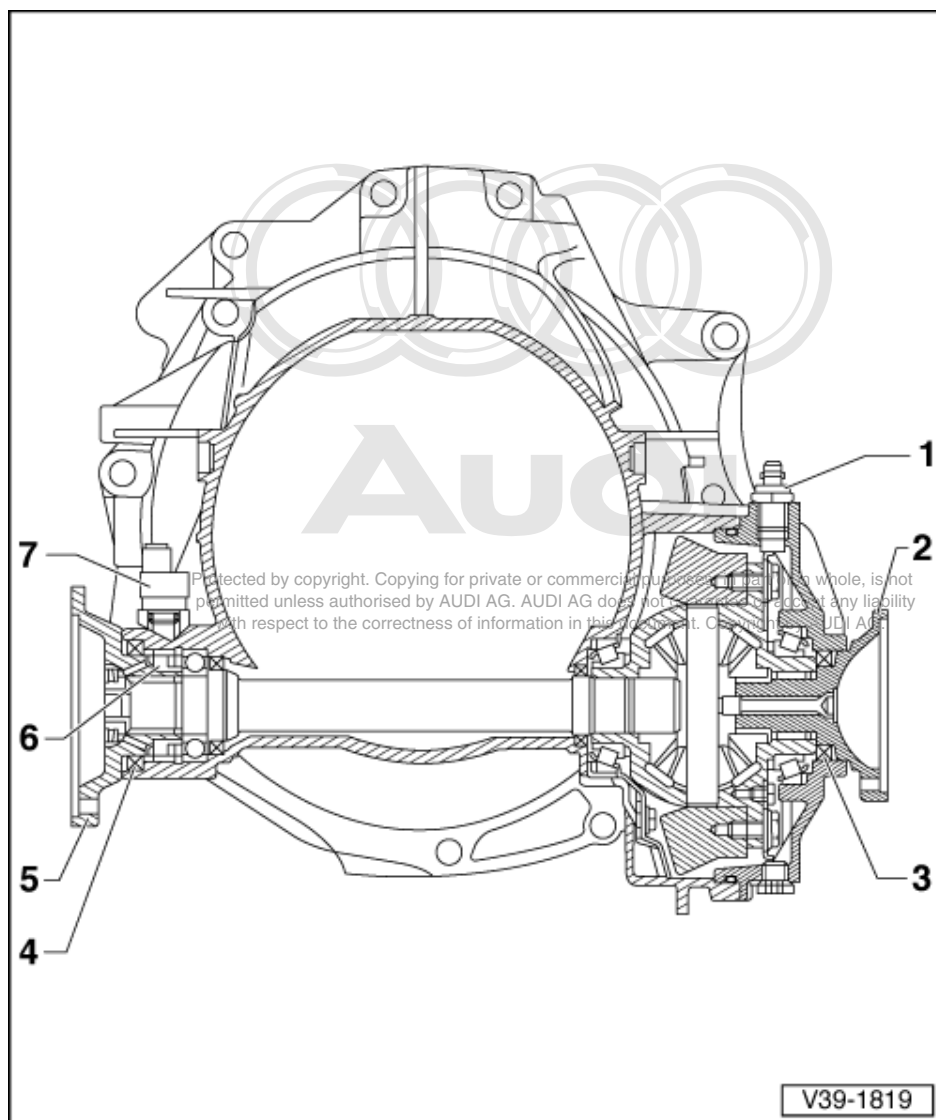
- Fit new O-ring.
- Apply multi-purpose grease to sender for insertion and tighten it to 30 Nm.



-> Fig.2 Securing collared nut for flange shaft

- Tighten collared nut on flange shaft and secure with a new locking plate -arrows-.

3.2 - Replacing flange shaft oil seals



- Gearbox installed

1 Removing and installing -G38

- ♦ Removing and installing => Fig. 99

2 Flange shaft, right

- ♦ Removing and installing => Page 102

3 Oil seal

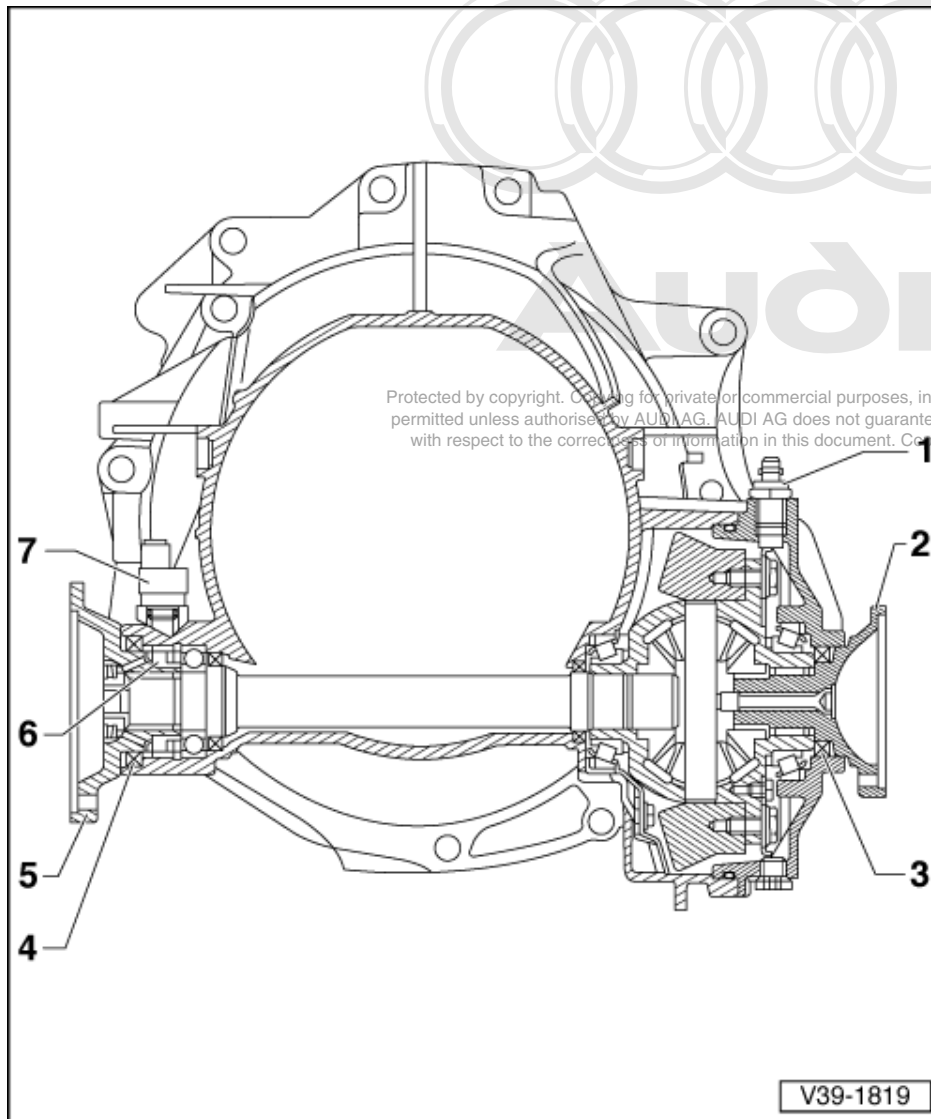
- ♦ Replacing => Page 102

4 Oil seal

- ♦ Replacing => Page 108

5 Flange shaft, left

- ♦ Removing and installing => Page 108



6 Input gear

- ♦ For speedometer sender -G22
- ♦ Removing and installing => Page 88

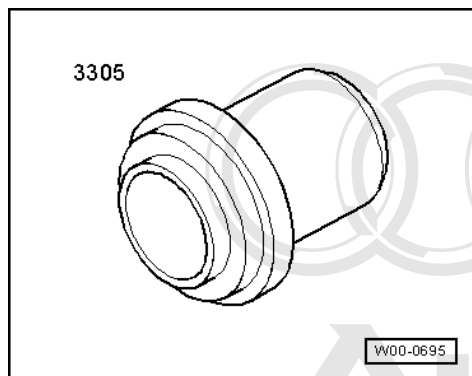
7 Speedometer sender -G22

- ♦ Removing and installing => Page 88

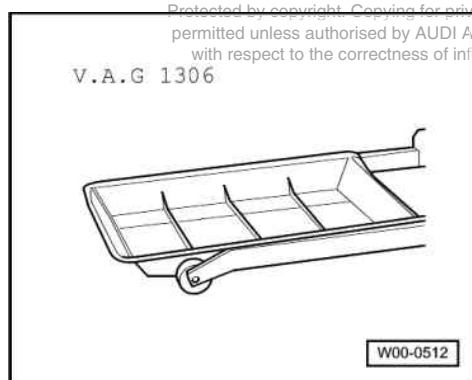


3.3 - Replacing oil seal for right flange shaft

The following special tools and testing devices are required:



- ♦ Thrust piece 3305



- ♦ Drip tray V.A.G 1306

Removing

- Unbolt the front wheel (right).

Vehicles with 5-cylinder TDI engine:

- Removing front exhaust pipe with catalytic converter

Vehicles with 6-cylinder engine:

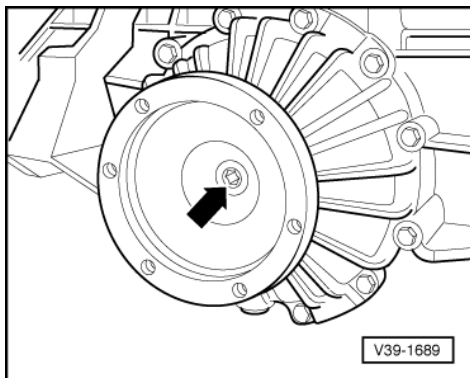
- Remove right front exhaust pipe

=> 6-cyl.-injection engine (2-valve), Mechanical Components; Repair Group 26; Removing and installing exhaust system Removing and installing exhaust system

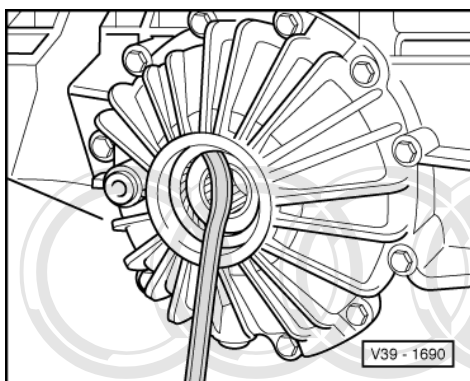
=> 6-cyl. Engine (5-valve), Mechanical Components; Repair Group 26; Removing and installing exhaust system parts Removing and installing exhaust system parts

- Unbolt right drive shaft from flange shaft

=> Running gear, 4WD; Repair group 40; Removing and installing drive shaft Removing and installing drive shaft



- -> Screw out centre bolt -arrow- for right flange shaft when doing so, screw two bolts into flange shaft and support with assembly lever.
- Place drip tray V.A.G 1306 underneath.
- Pull out the flange shaft (right).



- -> Use assembly lever to remove sealing ring for right flange shaft.

Note:

Prise out sealing ring from above on vehicles with 5 cyl. TDI engine.

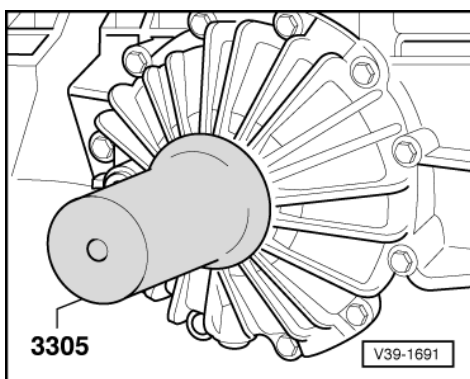
Installing

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Install in reverse order, paying attention to the following:

Note:

- ◆ The open side of the oil seal faces toward the gearbox.
- ◆ Moisten outer circumference and sealing lip of oil seal with gear oil or coat thinly with Vaseline.



- -> Use thrust piece 3305 to drive in the oil seal for the right flange shaft up to the stop.
- The oil seal must be inserted at the same depth in the housing all round.

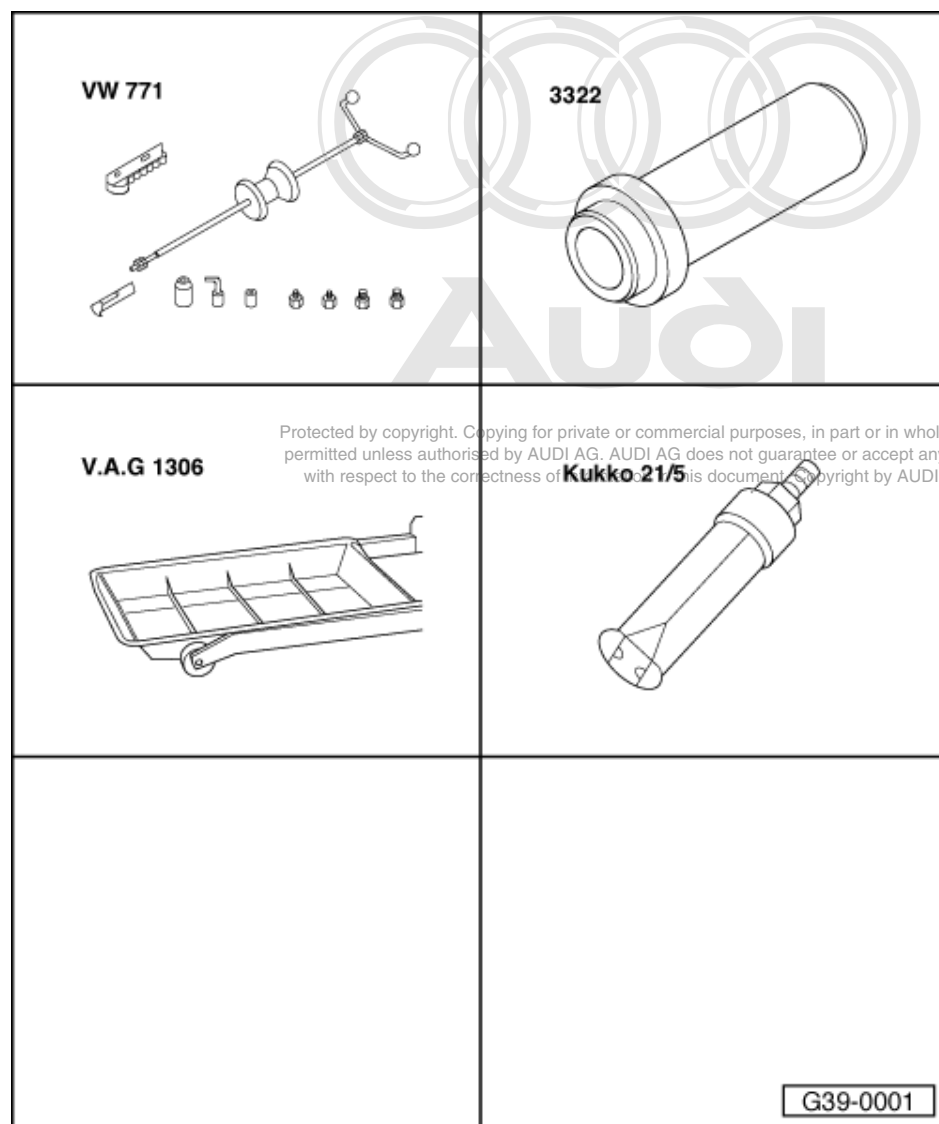


- Checking oil level in front final drive of automatic gearbox => Page 89 .

Tightening torques

Component		Nm
Flange shaft (right) to gear box	M8	25
Drive shaft to flange shaft	M10	77

3.4 - Replacing right oil seal for drive shaft



The following special tools and testing devices are required:

- ♦ Multi-purpose tool VW 771
- ♦ Thrust piece 3322
- ♦ Drip tray V.A.G 1306
- ♦ Kukko 21/5

Removing

- Unbolt the front wheel (right).

Vehicles with 5-cylinder TDI engine:

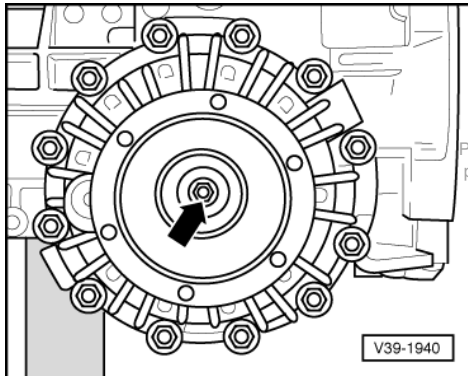
- Removing front exhaust pipe with catalytic converter

Vehicles with 6-cylinder engine:

- Remove right front exhaust pipe

=> 6-cyl. injection engine (2-valve), Mechanical Components; Repair Group 26; Removing and installing exhaust system Removing and installing exhaust system

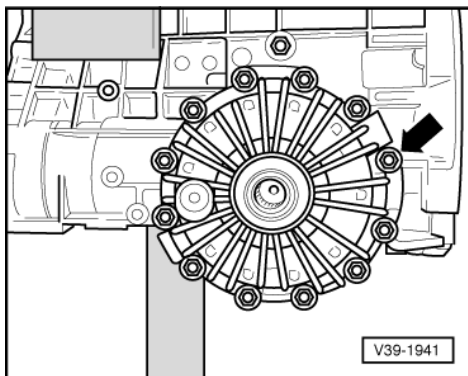
=> 6-cylinder Engine (5-valve), Mechanical Components; Repair Group 26; Removing and installing exhaust system parts Removing and installing exhaust system parts



- Removing right-hand drive shaft

=> Running gear, FWD; Repair group 40; Removing and installing drive shaft Removing and installing drive shaft

- Place drip tray V.A.G 1306 underneath.
- Draining gear oil in front final drive => Page 90 .
- -> Screw out centre bolt -arrow- for right flange shaft when doing so, screw two bolts into flange shaft and support with assembly lever.
- Pull out the flange shaft (right).



- -> Loosen securing bolts -arrow- for differential cover using diagonal sequence and remove bolts.
- Remove differential cover.

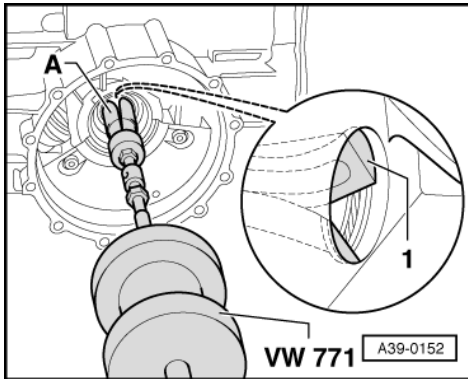
Note:

When dismantling differential cover, secure differential to prevent it from falling out.

- Take out differential with inner races for taper roller bearings. Leave the outer races in place.



- Removing drive shaft => Page 108 .



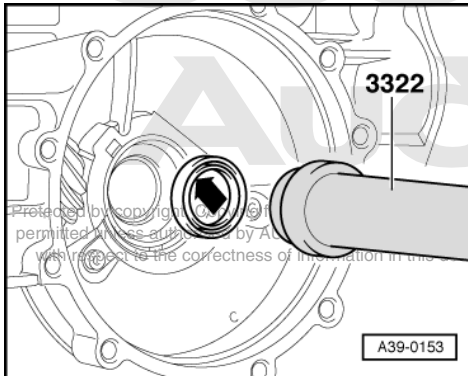
- -> Assemble Kukko 21/5 -A- and multi-purpose tool VW 771 as shown in illustration and pull out oil seal.

Notes:

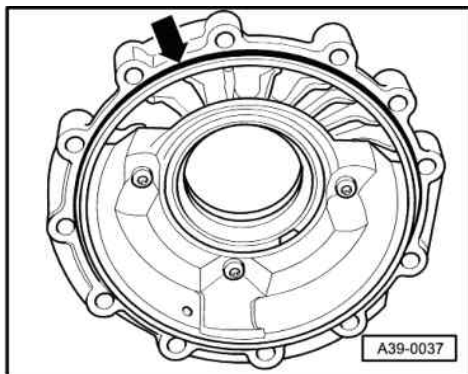
- ♦ When inserting the tool, make sure the extractor hooks -1- of Kukko 21/5 only make contact with the oil seal and not with the gearbox housing.
- ♦ As the Kukko 21/15 is applied, allow the hooks to spread out gradually until the relevant diameter is reached.
- ♦ If necessary, use a screwdriver to stretch out oil seal carefully and pull out with a pair of pliers.

Installing

Install in reverse order, paying attention to the following:

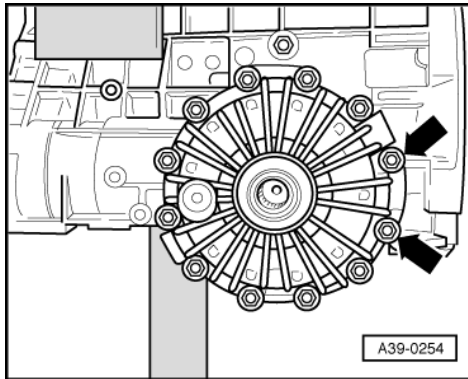


- Check oil seal seat in gearbox housing for damage and rework, if necessary.
- Moisten outer circumference and sealing lip of oil seal with gear oil or coat thinly with Vaseline.
- -> Slide on new oil seal with sealing lip -arrow- facing thrust piece 3322.
- Drive in seal as far as stop.



- -> Renew O-arrow ring -arrow- and coat with Vaseline.
- Insert shim and bearing outer race into differential cover if they have fallen out.

- Fit differential into gearbox housing.



- -> Fit differential cover and tighten bolts alternately.

Note:

Double bolts must be screwed into the two front holes -arrows- on vehicles with TDI engines.

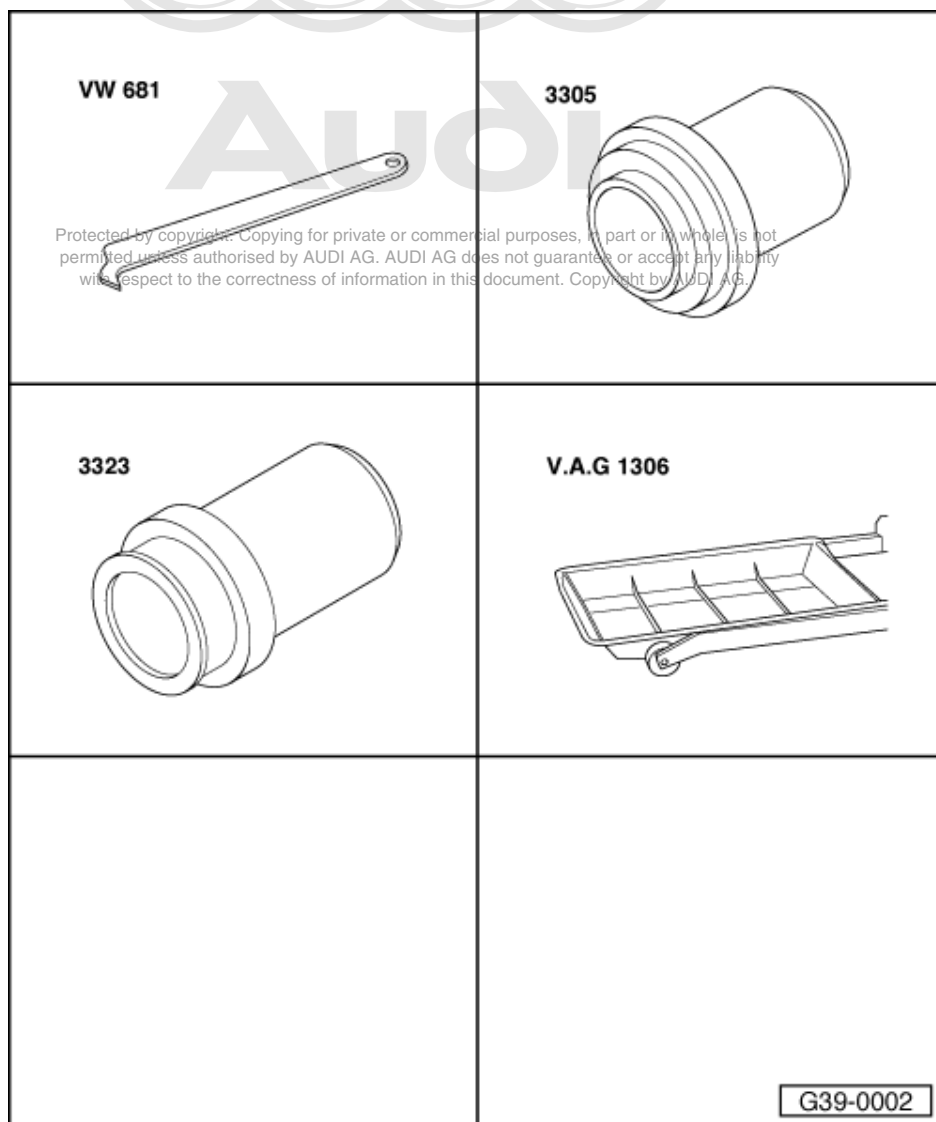
- Topping up gear oil in front final drive of automatic gearbox and checking oil level => Page 90 .

Tightening torques

Component		Nm
Differential cover to gearbox housing	M8	23
Flange shaft (right) to gear box	M8	25
Drive shaft to flange shaft	M10	77

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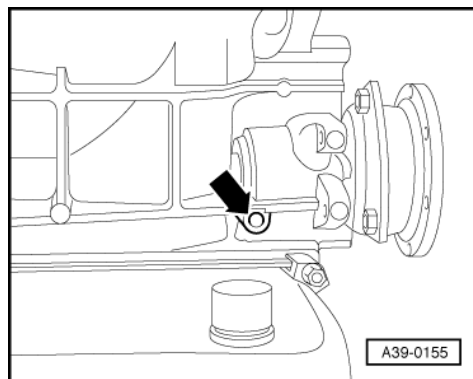
3.5 - Replacing left oil seal for drive shaft and oil seal for left flange shaft



The following special tools and testing devices are required:

- ♦ Extractor lever VW 681
- ♦ Thrust piece 3305
- ♦ Thrust piece 3323
- ♦ Drip tray V.A.G 1306

Note:

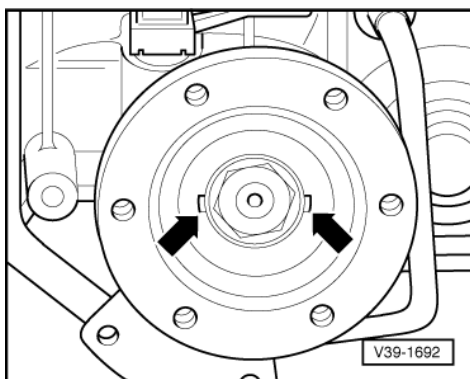


-> Under the left flange shaft on the gearbox housing there is an oil leak inspection hole -arrow- for the left oil seal of the input shaft. If the left oil seal is defective, there is a possibility that multi-purpose grease will leak out. If ATF or gear oil leaks out, check the ATF pump, the torque converter or the right oil seal of the input shaft for leaks.

Removing

- Remove front left wheel.
- Remove left front exhaust pipe.

=> 6-cyl. Injection engine (2-valve), Mechanical Components; Repair Group 26; Removing and installing exhaust system Removing and installing exhaust system

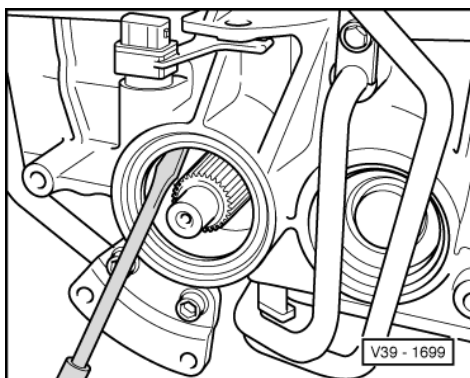


=> 6-cylinder Engine (5-valve), Mechanical Components; Repair Group 26; Removing and installing exhaust system parts Removing and installing exhaust system parts

- Unbolt left drive shaft from flange shaft.

=> Running gear, FWD; Repair group 40; Removing and installing drive shaft Removing and installing drive shaft

- -> Bend up locking plate - arrows- of collar nut with a screwdriver and take off.
- Unscrew collar nut for flange shaft. To loosen the collar nut, screw two bolts into flange shaft and brace with a suitable lever.



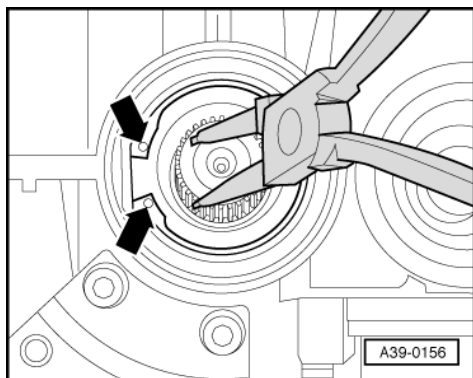
- Pull out flange shaft.
- -> Lever out seals for flange shaft using a screwdriver.

Note:

Lever out oil seal for flange shaft with a screwdriver.

- Remove the speedometer sender -G22 => Page 88 .
- Remove speedometer sender -G22.

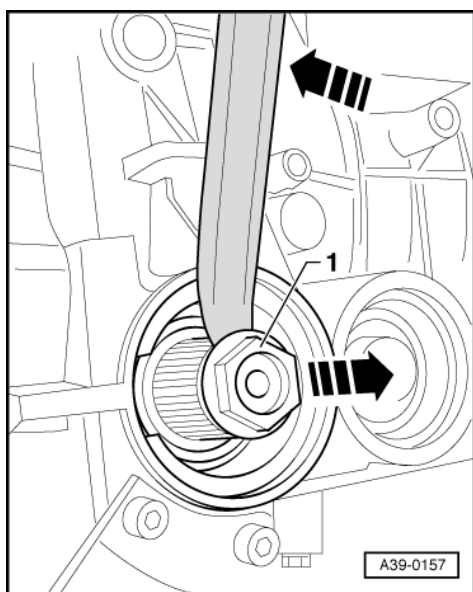
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- -> Remove bearing circlip -arrows-.
- Place drip tray V.A.G 1306 underneath.



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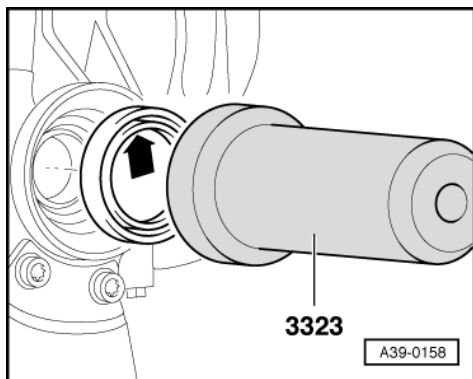


- -> Screw collar nut -1- onto input shaft and lever input shaft out with a suitable lever.
- Pull out left oil seal with lever VW 681.

Installing

Install in reverse order, paying attention to the following:

- Check oil seal seat in gearbox housing for damage and rework, if necessary.
- Moisten outer circumference and sealing lip of oil seal with gear oil or coat thinly with Vaseline.

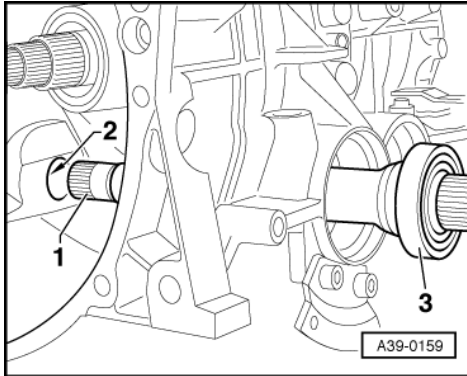


- -> Slide on new oil seal with sealing lip - arrow- facing thrust piece 3323.
- Drive oil seal in up to stop with thrust piece 3323.

Vehicles with 5-cylinder TDI engine:

- Check position of thrust pin and spring at right end of drive shaft => -Item **98** .

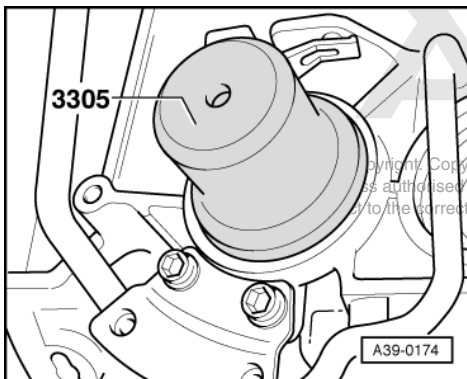
All vehicles:



- -> Check right hand end -1- of input shaft for burrs and rework, if necessary.
- Fill bearing -3- with 30 g of multi-purpose grease.
- Carefully guide input shaft into hole -2- in gearbox housing.

Notes:

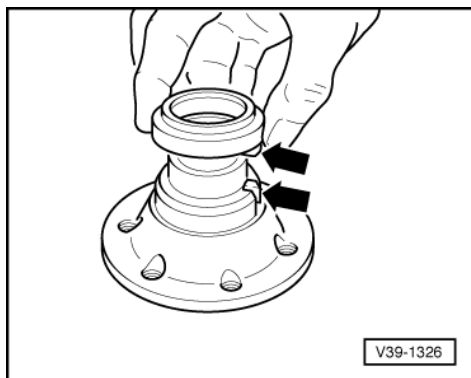
- ◆ Shown in illustration with gearbox removed and without torque converter.
- ◆ Inexpert insertion of drive shaft can lead to sealing ring damage at hole -2=>from Page **90** .
- Moisten outer circumference and sealing lip for left flange shaft with gear oil or coat thinly with Vaseline.



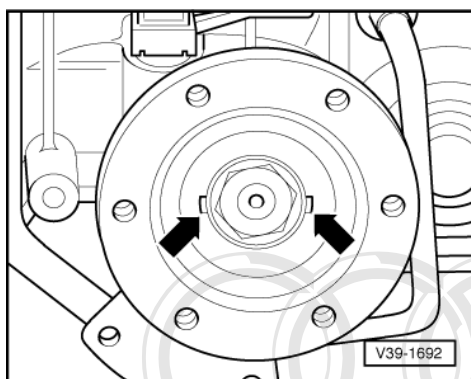
- -> Examine oil seal seat in gearbox housing for damage; reface surface, if necessary.
- The open side of the oil seal should face the gearbox.
- Use thrust piece 3305 (if applicable 3171) to drive home sealing ring for left flange shaft.
- The oil seal must be inserted at the same depth in the housing all round.
- Apply multi-purpose grease to inner end face of magnetic ring and position on flange shaft.



Note:



-> The lugs of the drive wheel must engage in the cutouts of the flange shaft -arrows-.



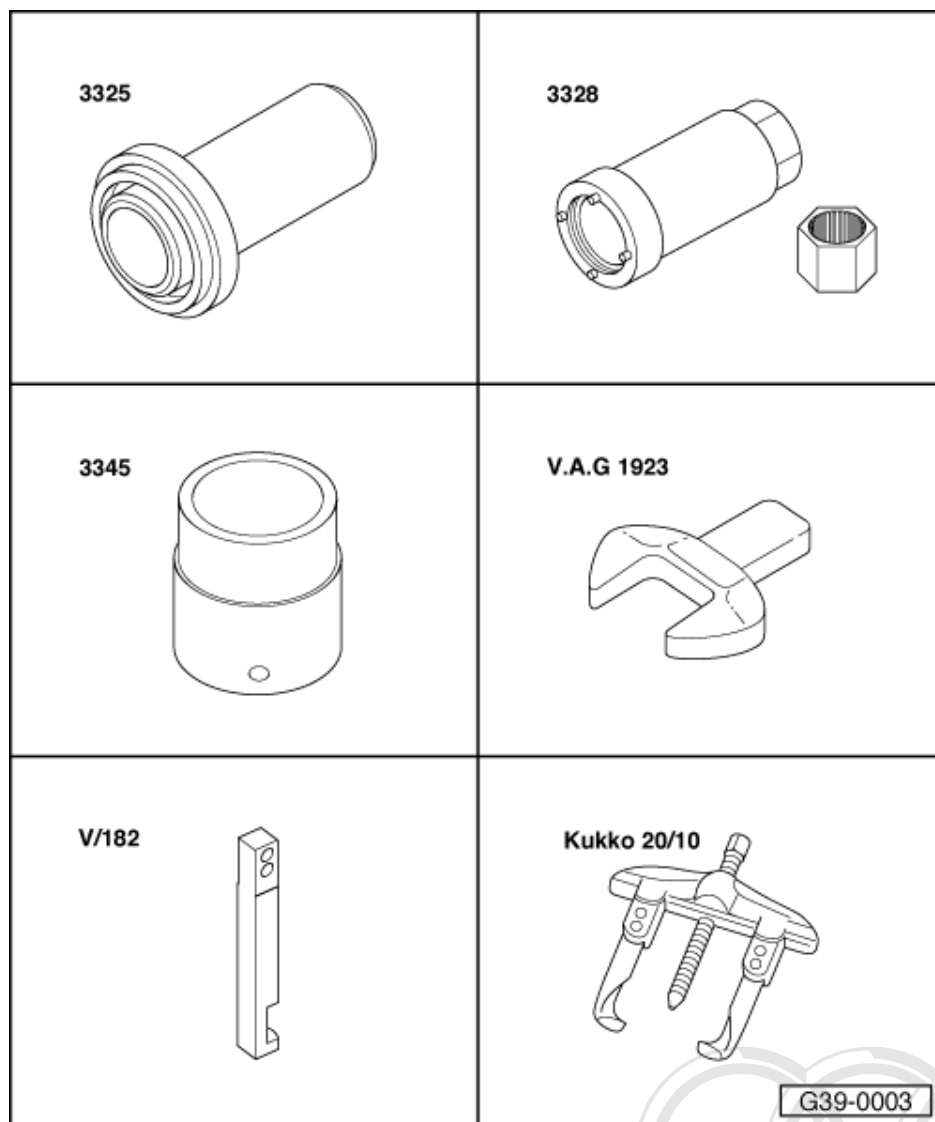
- -> Tighten collared nut on flange shaft and secure with a new locking plate -arrows-.
- Checking oil level in front final drive of automatic gearbox => Page 89 .

Tightening torques

Component		Nm
Flange shaft left to gear box	M20	100
Drive shaft to flange shaft	M10	77

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3.6 - Removing and installing intermediate bushing for differential pinion shaft



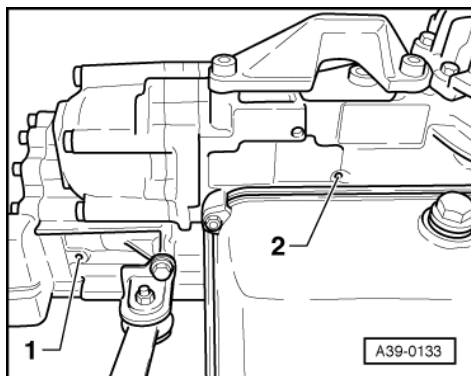
The following special tools and testing devices are required:

- ◆ Thrust piece 3325
- ◆ Pin spanner with support 3328
- ◆ Pipe for wheel bearing 3345
- ◆ Open-ended wrench socket V.A.G 1923
- ◆ Special tool V/182
- ◆ Kukko 20/10

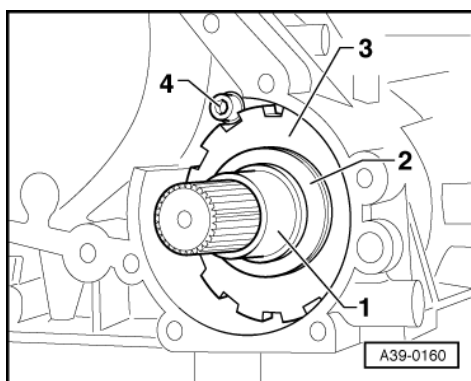
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Notes:

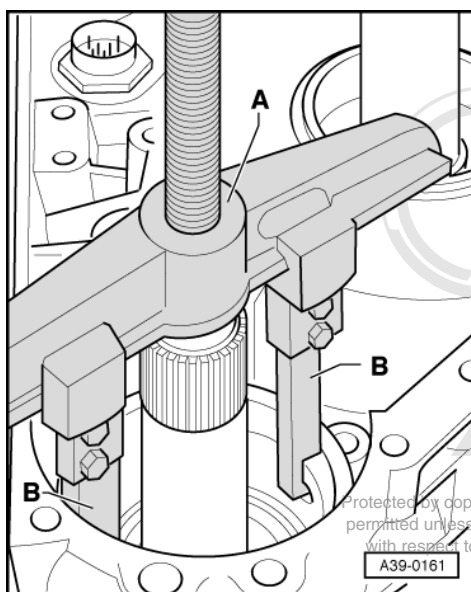


- ♦ -> Located on the bottom right of the housing is a leakage oil inspection hole -2- for the intermediate bushing gaskets (two sealing rings and two O-rings) which separate the gear oil area from the ATF area.
- ♦ If leaks occur, renew the entire intermediate sleeve with seals, check nut (on which the oil seals run) for scoring and renew, if necessary.



Removing

- Removing front intermediate drive => Page **117** .
- -> Remove bushing -1-, dished washers -2- and parking lock gear -3-.
- Remove bolt -4- with washer.

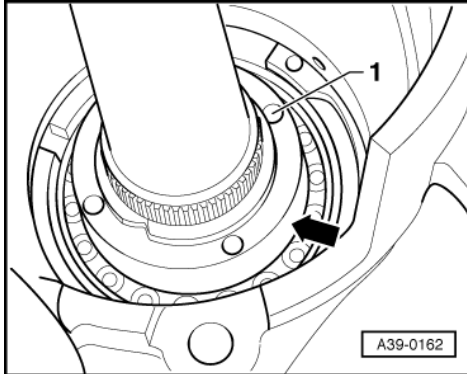


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- -> Pull out intermediate sleeve.

- A - Kukko 20/10
- B - Special tool V/182

Installing

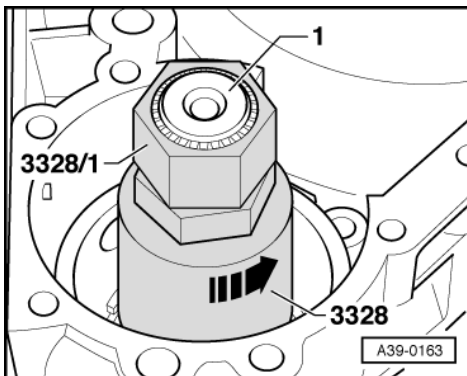


Install in reverse order, paying attention to the following:

- -> Check outer periphery -arrow- of nut for scoring and replace as follows if scoring is found:

Removing nut:

- Insert pins of pin spanner 3328 into holes -1- of nut.



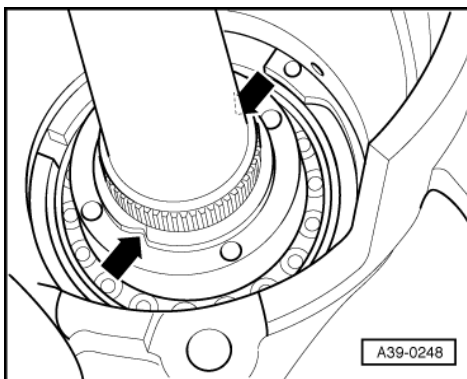
- -> Fit brace 3328/1 onto splines of drive pinion shaft -1-.
- Unfasten nut. To do this, turn wrench 3328 anticlockwise and brace with retainer 3328/1.

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Note:

To turn pin spanner 3328, use the 38 mm open jaw spanner insert V.A.G 1923.

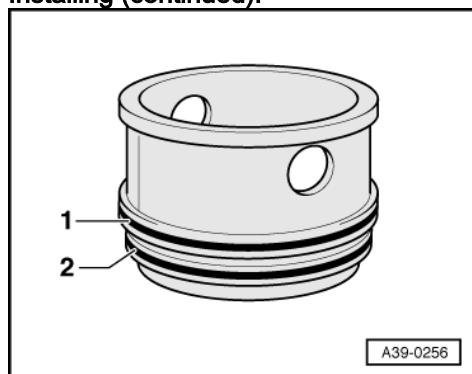
Fitting nut:





- Insert pins of pin spanner 3328 into holes of nut.
- Fit brace 3328/1 onto splines of drive pinion shaft.
- Tighten nut to 120 Nm. To do this, turn wrench 3328 clockwise and brace with retainer 3328/1.
- -> Peen nut on both sides -arrow-.

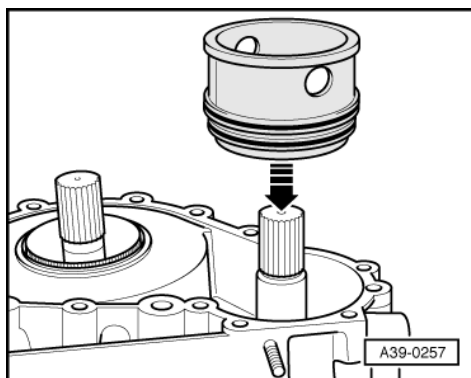
Installing (continued):



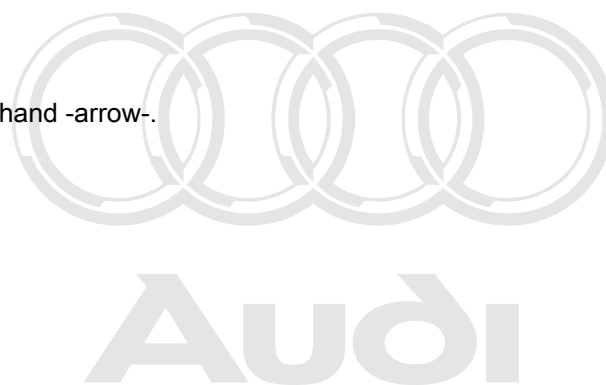
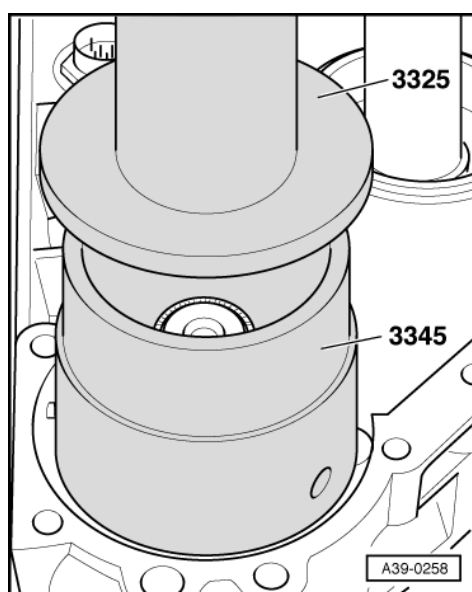
- Fit intermediate sleeve with both O-rings.

- 1 - -> Black O-ring
- 2 - Green O-ring

- Apply thin coat of Vaseline to O-rings and sealing lips of intermediate bushing.

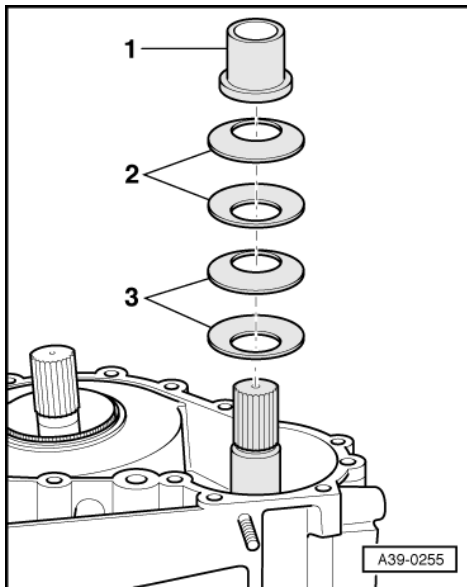


- -> Insert intermediate sleeve as far in as possible by hand -arrow-.



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- -> Fit larger outer diameter of pipe for wheel bearing 3345 centred on intermediate sleeve.
- Fit thrust piece 3325 centrally onto tube for wheel bearing 3345 and use a rubber hammer to gently knock intermediate sleeve in as far as it will go.



- -> Fit parking lock wheel with shoulder facing drive pinion.
- Fit each pair of dished springs -2- and -3- with concave sides facing together.
- Fit sleeve -1- with collar facing drive pinion.
- Checking oil level in front final drive of automatic gearbox => Page 89 .

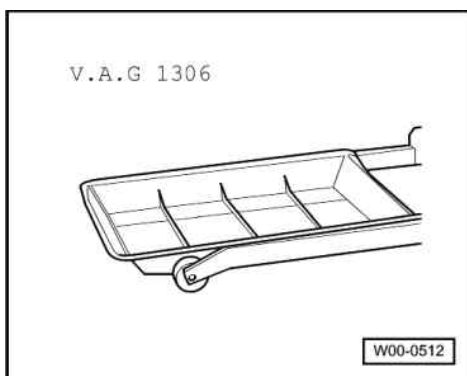
Tightening torques

Component		Nm
Nut for drive pinion shaft	M40	120
Bolt for securing intermediate sleeve	M8	23

4 - Servicing intermediate drive

4.1 - Servicing intermediate drive

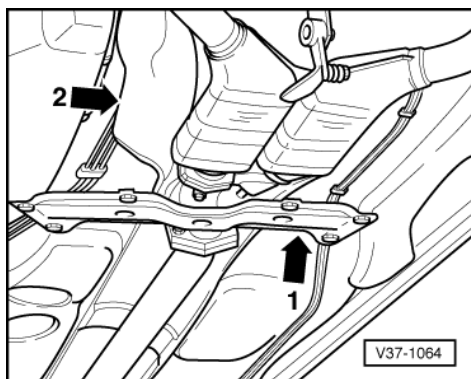
4.2 - Removing and installing intermediate drive





The following special tools and testing devices are required:

- ♦ Drip tray V.A.G 1306



- -> Unscrew front cross piece -arrow 1- beneath exhaust system.

Vehicles with 5-cylinder TDI engine:

- Removing front exhaust pipe with catalytic converter

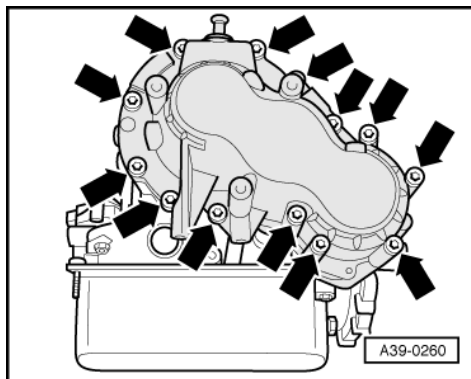
Vehicles with 6-cylinder engine:

- Removing front left and right exhaust pipe with catalytic converter and intermediate pipe

=> 6-cyl. Fuel injection engine (2 valve), Mechanical Components; Repair Group 26; Removing and installing exhaust system components Removing and installing exhaust system components

=> 6-cyl. Engine (5 valve), Mechanical Components; Repair Group 26; Removing and installing exhaust system parts Removing and installing exhaust system parts

- Unscrew heat shield -arrow 2-.

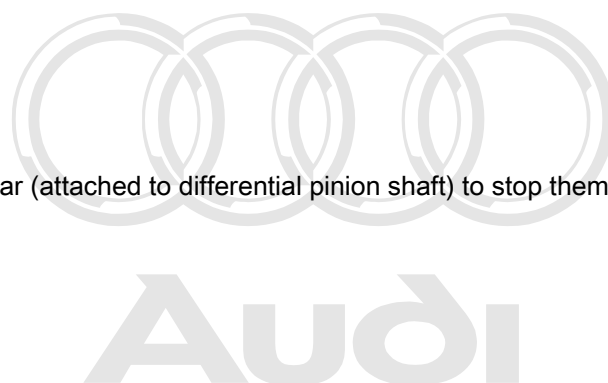


- Secure bushing, dished washers and parking lock gear (attached to differential pinion shaft) to stop them falling out.
- Place drip tray V.A.G 1306 underneath.
- -> Unscrew bolts -arrows-.
- Pull off intermediate drive towards rear of vehicle.

Installing

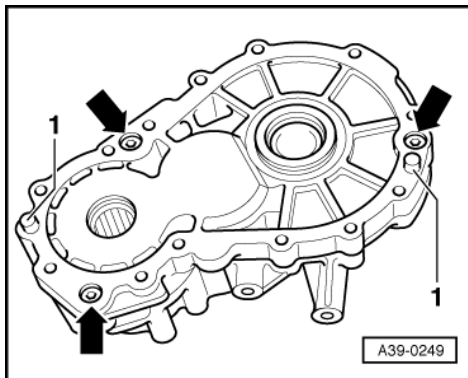
Install in reverse order, paying attention to the following.

- Check sealing surfaces of housing for damage.



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- Coat new gaskets thinly with Vaseline, place on sealing surface of housing and secure.



- -> Before installing intermediate drive, check that dowel pins -1- in intermediate flange are properly seated. Dowel pins locate intermediate flange in relation to automatic gearbox housing and intermediate drive housing.
- If sleeve, dished springs and parking lock wheel have inadvertently been pulled off drive pinion shaft:
 - Fit parking lock wheel with shoulder facing drive pinion.
 - Insert two dished springs in each case so that their outer circumferences touch each other.
 - Insert sleeve with shoulder towards drive pinion.
- Fit intermediate drive onto input shaft and drive pinion shaft.

Notes:

- ◆ Take care not to damage the splines on the input shaft and drive pinion shaft when installing the intermediate drive. If necessary, turn the shafts carefully.
- ◆ Intermediate drive can only be pushed on by hand as far as roughly 3 mm from housing of automatic gearbox. The dished springs on the drive pinion shaft are compressed when the components are brought closer together. Tighten the bolts uniformly to close the gap gradually, and then tighten to final torque in diagonal sequence.
- Adjust selector lever cable => Page 23 .
- Fill up with ATF and check ATF level => Page 48 .

Tightening torques

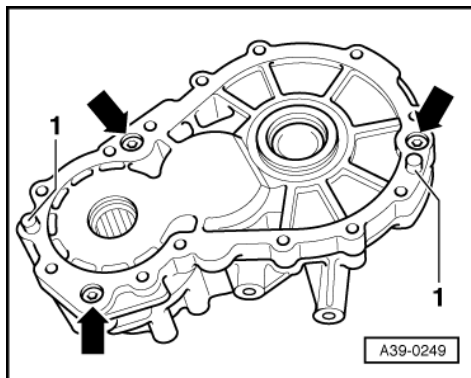
Component	Nm
Intermediate drive to automatic gearbox housing	M8 23
Cross member to body	M8 23

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4.3 - Dismantling intermediate drive

Removing

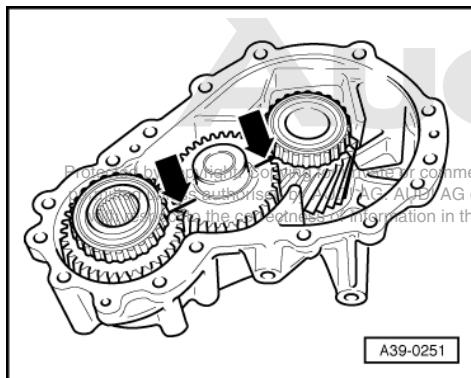
- Removing intermediate drive => Page 117 .



- Pull gasket off flange surface.
- -> Remove 3 Torx bolts -arrows-.
- Lever intermediate flange evenly off housing of intermediate drive upwards using a suitable lever on webs cast onto side, and place on a clean work bench.

Note:

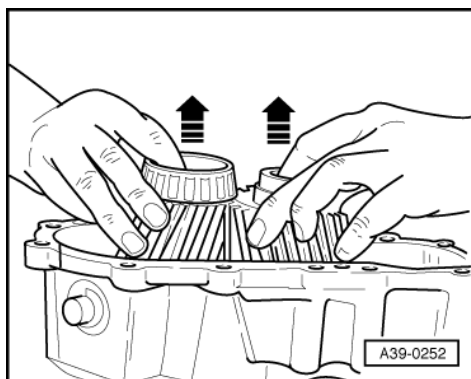
Do not damage housing sealing surfaces.



- -> Mark the relative positions of all spur gears -arrows-.

Notes:

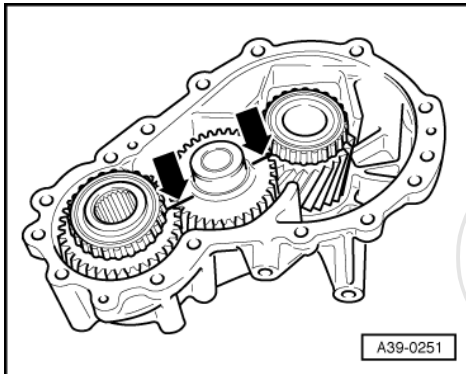
- ♦ The position of the spur gears, their bearings and shims must not be interchanged.
- ♦ Damaged spur gears must not be reinstalled. In this case renew the entire intermediate drive.



- -> First remove the lower spur gear and then both upper spur gears together -arrows-.
- Pull gasket off gearbox flange.

Installing

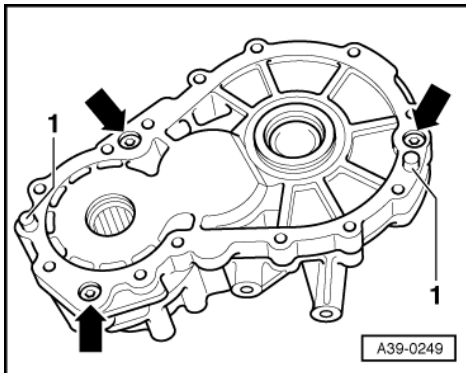
Install in reverse order, paying attention to the following:



- Check sealing surfaces of housing for damage.
- -> Insert spur gears with markings -arrows- facing upwards.

Notes:

- ◆ The position of the spur gears, their bearings and shims must not be interchanged.
- ◆ Damaged spur gears must not be reinstalled. In this case renew the entire intermediate drive.
- Coat new gaskets thinly with Vaseline, place on sealing surface of housing and secure.



- -> Before assembling the intermediate drive, check that dowel pins -1- in intermediate flange are properly seated. Dowel pins locate intermediate flange in relation to automatic gearbox housing and intermediate drive housing.
- Tighten bolts -arrows- alternately and in gradual steps.

Tightening torque

Component	Nm
Intermediate flange to housing of intermediate M6 drive (Torx)	8

4.4 - Replacing ATF breather

The ATF breather -1- is located in the top of the intermediate drive housing.

Note:

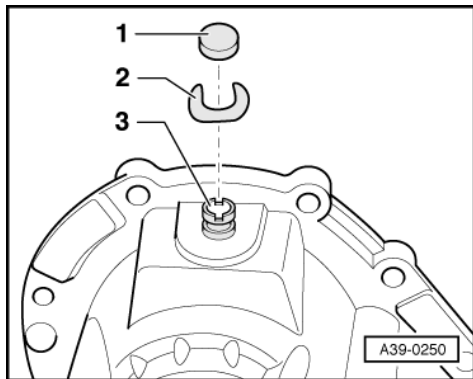
If ATF leaks out of the breather in intermediate drive housing even when the oil level is correct, the factory installed plastic ATF breather must be changed for the new steel version ATF breather. In addition, if the gearbox



has an ATF filler pipe and dipstick, change the oil pan for the new version with oil overflow hole => Page **65**.

Removing

- Removing front intermediate drive => Page **117**.



- Dismantling front intermediate drive => Page **119**.
- Remove procon-ten cable retainer and cable arrester.

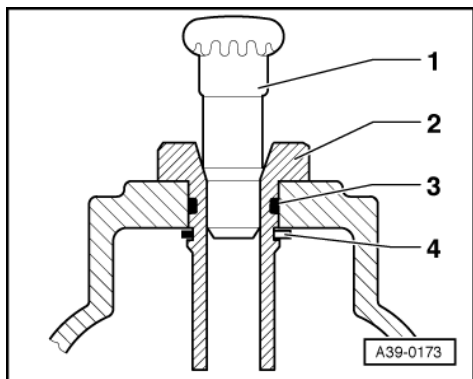
=> General Body Repairs; Repair Group 68; Servicing procon-ten-system Audi 100 ä 05.94 Servicing procon-ten-system Audi 100 ä 05.94

- -> Pull cap -1- off ATF breather and press off securing washer -2- with a screwdriver.
- Drive out breather -3- inwards together with plastic cover.

Installing

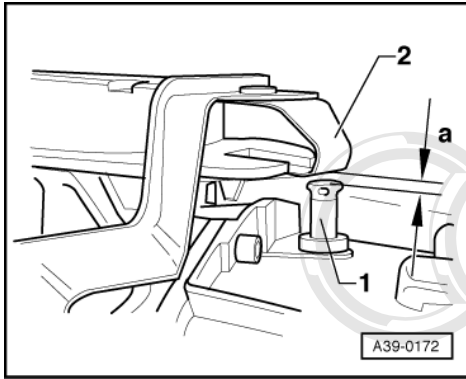
Install in reverse order, paying attention to the following:

- Check breather seating hole in gearbox end cover for damage.



- -> Coat O-ring -3- on adapter thinly with Vaseline to prevent damage when installing.
- Insert new aluminium adapter -2- from outside.
- Lock aluminium adapter with circlip -4-.
- Drive in new breather -1- up to stop with light blows of a plastic head hammer.
- Install procon-ten cable retainer and cable arrester.

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Note:

-> After installing, the distance - a - between the ATF breather -1- and the procon-ten cable retainer -2- may not be less than 0.5 mm, i.e. the cable retainer must not press on the top of the ATF breather. Carefully drive the ATF breather slightly further inwards with a rubber headed hammer or bend the cable bracket slightly upwards, if necessary.

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