

Workshop Manual **Audi** Audi A8 2003 >

Automatic gearbox 09L, four-wheel drive

Edition 04.2008

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List of Workshop Manual Repair Groups

Repair Group

- 00 - Technical data
- 32 - Torque converter
- 37 - Controls, housing
- 38 - Gears, control
- 39 - Final drive - front differential



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

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Contents

00 - Technical data	1
1 Gearbox identification	1
1.1 Location on gearbox	1
2 Notes on the automatic 6-speed gearbox 09L	2
3 Code letters, gearbox allocation, ratios, equipment	3
4 Rear final drive identification	5
5 Fluid capacities	6
5.1 Capacity of planetary gearbox	6
5.2 Capacity of front final drive	6
5.3 Capacity of transfer box	7
5.4 Capacity of rear final drive	7
6 Notes on tow-starting and towing	8
7 Repair instructions	9
7.1 Contact corrosion!	9
7.2 General repair instructions	9
8 Safety precautions	13
9 Rules for cleanliness when working on the automatic gearbox	14
32 - Torque converter	15
1 Torque converter	15
1.1 Identification of torque converter	15
1.2 Draining torque converter	15
1.3 Renewing torque converter oil seal	16
1.4 Checking torque converter	17
1.5 Installing torque converter	17
37 - Controls, housing	19
1	19
2 Exploded view - servicing selector mechanism	21
2.1 Checking selector mechanism	22
2.2 Manual release of selector mechanism from position "P"	24
2.3 Selector lever handle, selector mechanism cover, tiptronic switch F189 - exploded view ..	25
2.4 Removing and installing selector lever handle	26
2.5 Removing and installing selector mechanism cover	26
2.6 Removing and installing tiptronic switch F189	27
2.7 Shift unit, manual release - exploded view	28
2.8 Removing and installing shift unit	30
2.9 Removing and installing manual release mechanism	33
2.10 Exploded view - selector lever cable	33
2.11 Removing and installing selector lever cable	34
2.12 Checking and adjusting selector lever cable	35
3 Removing and installing gearbox	40
3.1 Removing gearbox - vehicles with V6 TDI engine	40
3.2 Installing gearbox on vehicles with V6 TDI engine	57
3.3 Removing gearbox on vehicles with V6 3.2 ltr. FSI engine	61
3.4 Installing gearbox on vehicles with V6 3.2 ltr. FSI engine	73
3.5 Removing gearbox on vehicles with V8 4.2 ltr. FSI engine	79
3.6 Installing gearbox on vehicles with V8 4.2 ltr. FSI engine	92
3.7 Removing and installing gearbox support and gearbox mounting (left-side) - vehicles with V6 engine	96
3.8 Removing and installing gearbox support and gearbox mounting (right-side) - vehicles with V6 engine	99



3.9	Removing and installing gearbox supports and gearbox mountings (front) - vehicles with V8 engine	101
3.10	Removing and installing gearbox supports and gearbox mountings (rear) - vehicles with V8 engine	104
3.11	Transporting the automatic gearbox	106
3.12	Securing gearbox to assembly stand	108
4	ATF level in planetary gearbox	110
4.1	Checking and correcting ATF level	110
4.2	Draining ATF and filling up after repairs	114
5	ATF pipes	117
5.1	Cleaning ATF pipes and ATF cooler	117
5.2	ATF pipes and ATF cooler - exploded view for vehicles with V6 3.0 ltr. TDI engine	118
5.3	ATF pipes and ATF cooler - exploded view for vehicles with V6 3.2 ltr./V8 4.2 ltr. FSI engine	119
5.4	Removing and installing ATF cooler - vehicles with V6 3.2 ltr./V8 4.2 ltr. FSI engine	120
5.5	Removing and installing bracket for ATF cooler - vehicles with V6 3.2 ltr./V8 4.2 ltr. FSI engine	123
38 - Gears, control		124
1	Removing and installing oil pan, ATF strainer and mechatronic unit	124
1.1	Removing and installing oil pan	124
1.2	Removing and installing ATF strainer	126
1.3	Removing and installing mechatronic unit	128
1.4	Removing and installing wiring harness in gearbox	131
39 - Final drive - front differential		133
1	Gear oil level in front final drive	133
1.1	Checking gear oil level in front final drive	133
1.2	Filling up gear oil in front final drive after repairs	134
2	Servicing front final drive	135
2.1	Front final drive - exploded view	135
2.2	Removing and installing flange shaft (left-side)	136
2.3	Removing and installing flange shaft (right-side)	138
2.4	Renewing flange shaft oil seal (right-side)	141
2.5	Renewing O-ring on cover for final drive	142
2.6	Renewing oil seal for final drive/gearbox housing	146
2.7	Renewing selector shaft oil seal	150
3	Gear oil level in transfer box	153
3.1	Checking gear oil level in transfer box	153
3.2	Filling up gear oil in transfer box after repairs	153
4	Servicing transfer box	155
4.1	Removing and installing cover for self-locking centre differential	155
4.2	Renewing oil seal for flange shaft (rear)	159

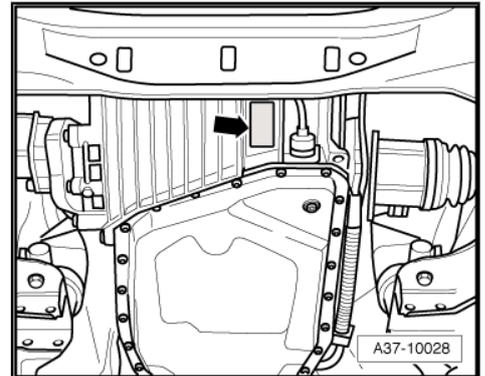
00 – Technical data

1 Gearbox identification

The "6-speed automatic gearbox 09L" is installed in the Audi A8 2003 > in combination with the 6-cylinder TDI engine. Allocation => [page 3](#) .

1.1 Location on gearbox

The gearbox identification plate -arrow- is located on bottom front of gearbox next to the 16-pin connector.



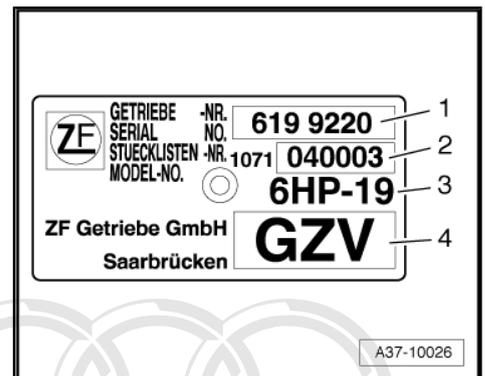
The identification plate lists the following information:

- 1 - Serial number of gearbox
- 2 - Model number
- 3 - Gearbox designation, in this example 6HP19
- 4 - Code letters, in this example GZV

Additional data are production-related.



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





2 Notes on the automatic 6-speed gearbox 09L

Gearbox

The 6-speed automatic gearbox 09L (four-wheel drive) has six hydraulically activated forward gears. When the lock-up clutch is closed these forward gears become mechanically driven gears by cutting out the torque converter slip.

Torque converter

The torque converter is equipped with a slip-controlled lock-up clutch.

Mechatronic unit

The mechatronic unit incorporates the hydraulic control system, the electronic automatic gearbox control unit -J217-, the multi-function switch -F125- and the sensors and actuators as a complete unit. The mechatronic unit is installed in the gearbox within the oil pan.

Automatic gearbox control unit -J217-

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The control unit is part of the mechatronic unit in the gearbox.

The gear change points are calculated automatically (depending on the driving situation and the resistance to motion).

Advantages:

- ◆ Gear changes are timed for maximum fuel economy.
- ◆ Maximum engine output is always available
- ◆ Individual adaptation of gear change points in all driving situations
- ◆ Gear change points are infinitely variable

Self-diagnosis

Before performing repairs to the automatic gearbox, determine the cause of the fault as precisely as possible using "Guided fault finding".

"Guided Fault Finding" is performed using the vehicle diagnostic, testing and information system -VAS 5051- .

Variation of gear-change points for gradients

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

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

3 Code letters, gearbox allocation, ratios, equipment

Automatic gearbox		09L.A	09L.A	09L.A
Gearbox	Code letters	GZV	HKL	HKM
	Manufactured from to	11.03 05.05	05.05 09.05	05.06 05.08
Torque converter	Code letters	S76	Q95	N93
Allocation	Model	Audi A8 2003 ▶	Audi A8 2003 ▶	Audi A8 2003 ▶
	Engine	3.0 ltr. V6 TDI 171 kW	3.0 ltr. V6 TDI 171 kW	4.2 ltr. V8 FSI 254 kW
Primary drive		26 : 28 = 0.929	26 : 28 = 0.929	26 : 28 = 0.929
Spur gear drive to front axle		31 : 29 = 1.069	31 : 29 = 1.069	31 : 29 = 1.069
Front axle bevel gearing		30 : 9 = 3.333	30 : 9 = 3.333	30 : 9 = 3.333
Overall front drive ratio = Primary drive x spur gear drive x bevel gearing		3.309	3.309	3.309
Rear axle bevel gearing		32 : 9 = 3.556	32 : 9 = 3.556	32 : 9 = 3.556
Overall rear drive ratio		3.302	3.302	3.302

Select correct version of mechatronic unit according to gearbox code letters ⇒ Electronic parts catalogue

Automatic gearbox		09L.G	09L.A	09L.G
Gearbox	Code letters	HKX	HYT	HYU
	Manufactured from to	05.05 09.05	10.05 12.05	10.05 05.06
Torque converter	Code letters	N95	F96	D96
Allocation	Model	Audi A8 2003 ▶	Audi A8 2003 ▶	Audi A8 2003 ▶
	Engine	3.2 ltr. V6 FSI 191 kW	3.0 ltr. V6 TDI 171 kW	3.2 ltr. V6 FSI 191 kW
Primary drive		31 : 30 = 1.033	26 : 28 = 0.929	31 : 30 = 1.033
Spur gear drive to front axle		31 : 29 = 1.069	31 : 29 = 1.069	31 : 29 = 1.069
Front axle bevel gearing		30 : 9 = 3.333	30 : 9 = 3.333	30 : 9 = 3.333
Overall front drive ratio = Primary drive x spur gear drive x bevel gearing		3.682	3.309	3.682
Rear axle bevel gearing		32 : 9 = 3.556	32 : 9 = 3.556	32 : 9 = 3.556
Overall rear drive ratio		3.674	3.302	3.674

Select correct version of mechatronic unit according to gearbox code letters ⇒ Electronic parts catalogue

Automatic gearbox		09L.A	09L.A	09L.G
Gearbox	Code letters	JAY	JNL	JNM
	Manufactured from to	01.06 05.06	05.06 05.08	05.06
Torque converter	Code letters	Z94	Z94	D96
Allocation	Model	Audi A8 2003 ▶	Audi A8 2003 ▶	Audi A8 2003 ▶
	Engine	3.0 ltr. V6 TDI 171 kW	3.0 ltr. V6 TDI 171 kW	3.2 ltr. V6 FSI 191 kW
Primary drive		26 : 28 = 0.929	26 : 28 = 0.929	31 : 30 = 1.033



Automatic gearbox	09L.A	09L.A	09L.G
Spur gear drive to front axle	31 : 29 = 1.069	31 : 29 = 1.069	31 : 29 = 1.069
Front axle bevel gearing	30 : 9 = 3.333	30 : 9 = 3.333	30 : 9 = 3.333
Overall front drive ratio = Primary drive x spur gear drive x bevel gearing	3.309	3.309	3.682
Rear axle bevel gearing	32 : 9 = 3.556	32 : 9 = 3.556	32 : 9 = 3.556
Overall rear drive ratio	3.302	3.302	3.674

Select correct version of mechatronic unit according to gearbox
code letters ⇒ Electronic parts catalogue

Automatic gearbox		09L.G	09L.A	09L.G
Gearbox	Code letters	KKZ	KZC	KZD
	Manufactured from to	08.07 05.08	05.08	05.08
Torque converter	Code letters	Z98	F96	S110
Allocation	Model	Audi A8 2003 ▶	Audi A8 2003 ▶	Audi A8 2003 ▶
	Engine	3.2 ltr. V6 FSI 191 kW	3.0 ltr. V6 TDI 171 kW	3.2 ltr. V6 FSI 191 kW
Primary drive		31 : 30 = 1.033	26 : 28 = 0.929	31 : 30 = 1.033
Spur gear drive to front axle		31 : 29 = 1.069	31 : 29 = 1.069	31 : 29 = 1.069
Front axle bevel gearing		30 : 9 = 3.333	30 : 9 = 3.333	30 : 9 = 3.333
Overall front drive ratio = Primary drive x spur gear drive x bevel gearing		3.682	3.309	3.682
Rear axle bevel gearing		32 : 9 = 3.556	32 : 9 = 3.556	32 : 9 = 3.556
Overall rear drive ratio		3.674	3.302	3.674

Select correct version of mechatronic unit according to gearbox
code letters ⇒ Electronic parts catalogue

Automatic gearbox		09L.A
Gearbox	Code letters	KZE
	Manufactured from to	05.08
Torque converter	Code letters	T110
Allocation	Model	Audi A8 2003 ▶
	Engine	4.2 ltr. V8 FSI 254 kW
Primary drive		26 : 28 = 0.929
Spur gear drive to front axle		31 : 29 = 1.069
Front axle bevel gearing		30 : 9 = 3.333
Overall front drive ratio = Primary drive x spur gear drive x bevel gearing		3.309
Rear axle bevel gearing		32 : 9 = 3.556
Overall rear drive ratio		3.302

Select correct version of mechatronic unit according to gearbox
code letters ⇒ Electronic parts catalogue

4 Rear final drive identification

The final drives 01R and 0AR are allocated to the four-wheel drive automatic gearbox 09L.

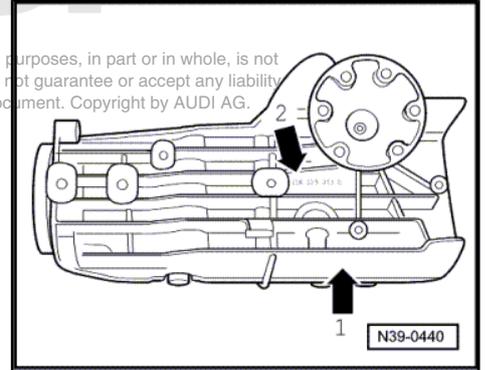
Allocation ⇒ Rear final drive 01R; Rep. Gr. 00 or ⇒ Rear final drive 0AR; Rep. Gr. 39 .

Location on final drive

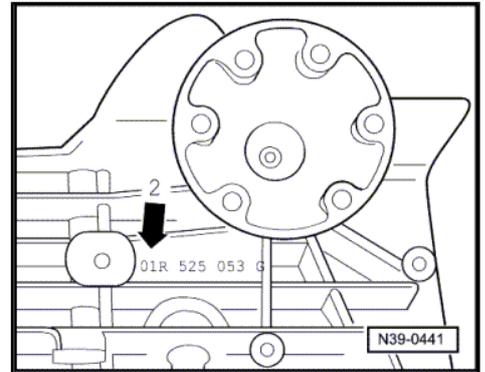
Code letters and date of manufacture -arrow 1-

Final drive 01R -arrow 2-

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Final drive 01R -arrow 2-

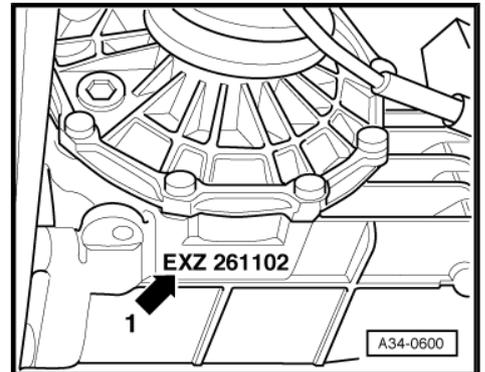


Code letters and date of manufacture of final drive -arrow 1-

Example:	EXZ	26	11	02
	Code letters	Day	Month	Year of manufacture (2002)

Additional data are production-related.

Code letters, ratios, capacities ⇒ Rear final drive 01R; Rep. Gr. 00 or ⇒ Rear final drive 0AR; Rep. Gr. 39 .





5 Fluid capacities

Overview:

- ◆ ⇒ [“5.1 Capacity of planetary gearbox”, page 6](#)
- ◆ ⇒ [“5.2 Capacity of front final drive”, page 6](#)
- ◆ ⇒ [“5.3 Capacity of transfer box”, page 7](#)
- ◆ ⇒ [“5.4 Capacity of rear final drive”, page 7](#)

5.1 Capacity of planetary gearbox

Capacities	Planetary gearbox	Automatic gearbox
Initial filling	9.8 ltr.	09L
Fluid change	Fluid change interval (if required) ⇒ Maintenance tables Fluid change after repair (e.g. if oil pan has been removed): approx. 8 litres	
Lubricant	ATF Select correct type ⇒ Electronic parts catalogue	



Caution

Risk of damage to the gearbox.

- ◆ *Different types of ATF are available for this gearbox. The correct type is determined according to the gearbox code and gearbox number in the ⇒ [Electronic parts catalogue](#)*
- ◆ *Use only the correct type of ATF (available as a replacement part) for the planetary gearing in automatic gearbox 09L.*
- ◆ *Other types of oil cause malfunctions and/or failure of the gearbox.*
- ◆ *For the correct type, refer to ⇒ [Electronic parts catalogue](#).*

- Checking ATF level in planetary gearbox ⇒ [page 110](#).

5.2 Capacity of front final drive

Capacities	Front final drive	Automatic gearbox
Initial filling	1.1 ltr.	09L
Oil change	No change required Lifetime filling: change only after repairs: up to 1.1 litres if final drive cover has been removed	
Lubricant	Gear oil Select correct type ⇒ Electronic parts catalogue	

 **Caution**

Risk of damage to the gearbox.

- ◆ *Different types of gear oil are available for this gearbox.*
- ◆ *Other types of oil cause malfunctions and/or failure of the gearbox.*
- ◆ *For the correct type, refer to ⇒ Electronic parts catalogue .*

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- Checking oil level in front final drive ⇒ [page 133](#)

5.3 Capacity of transfer box

Capacities	Transfer box	Automatic gearbox
Initial filling	0.55 ltr.	09L
Oil change	No change required Lifetime filling: change only after repairs, up to 0.55 litres if cover for self-locking centre differential has been removed	
Lubricant	Gear oil Select correct type ⇒ Electronic parts catalogue	

 **Caution**

Risk of damage to the gearbox.

- ◆ *Different types of gear oil are available for this gearbox.*
- ◆ *Other types of oil cause malfunctions and/or failure of the gearbox.*
- ◆ *For the correct type, refer to ⇒ Electronic parts catalogue .*

- Checking gear oil level in transfer box ⇒ [page 153](#) .

5.4 Capacity of rear final drive

- Checking gear oil level in rear final drive ⇒ Rear final drive 01R; Rep. Gr. 39 or ⇒ Rear final drive 0AR; Rep. Gr. 39 .

Capacities and specifications ⇒ Rear final drive 01R; Rep. Gr. 39 or ⇒ Rear final drive 0AR; Rep. Gr. 39 .



6 Notes on tow-starting and towing



WARNING

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



Note

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



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7 Repair instructions

7.1 Contact corrosion!

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

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

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

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

Please note:

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

7.2 General repair instructions

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

To avoid repetition, a number of generally applicable instructions for the various repair procedures are summarised here. They apply to the work described in this Manual.

Special tools

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

Manual release of the selector mechanism

If the battery has been removed or is fully discharged and you need to tow or push the vehicle, please note that you will have to manually release the selector mechanism from position "P" in order to be able to move it from "P" to "N" ⇒ [page 24](#) .

Vehicles with air suspension

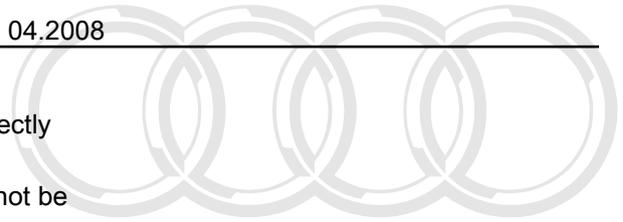
Before lifting a vehicle with air suspension on a lifting platform you must activate the jacking mode ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 43 ; Operating air suspension .

Gearbox

- ◆ Rules for cleanliness when working on the automatic gearbox ⇒ [page 14](#) .
- ◆ Do not run engine or tow vehicle with oil pan removed or when there is no ATF in the gearbox.
- ◆ If gearbox has been removed from vehicle, secure torque converter to prevent it from falling out.
- ◆ Thoroughly clean all joints and connections and the surrounding areas before dismantling.
- ◆ Check position of torque converter (installed depth) before installing gearbox ⇒ [page 18](#) .



- ◆ When installing gearbox ensure dowel sleeves are correctly seated.
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately.
- ◆ When fitting a new automatic gearbox, check the following fluid levels and top up if necessary: ATF in the planetary gearbox ⇒ [page 110](#) , the gear oil in the front final drive ⇒ [page 133](#) , the gear oil in the transfer box ⇒ [page 153](#) . Capacities and specifications ⇒ [page 6](#)
- ◆ When fitting a new rear final drive, check the oil level in the rear final drive and top up if necessary. Capacities and specifications ⇒ Rear final drive 01R; Rep. Gr. 00 or ⇒ Rear final drive 0AR; Rep. Gr. 39 .

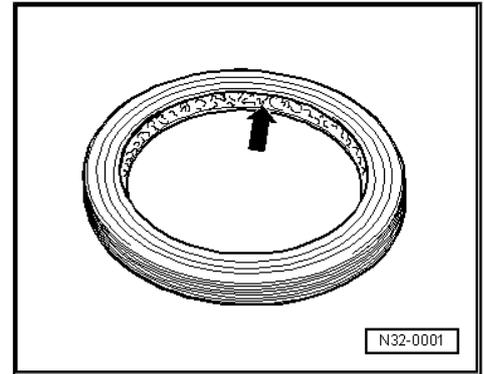


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O-rings, oil seals and gaskets

- ◆ Always renew O-rings, oil seals and gaskets.
- ◆ After removing gaskets and seals, always inspect the contact surface on the housing or shaft for burrs resulting from removal or for other signs of damage.
- ◆ Before installing oil seals, fill the space between the sealing lips -arrow- about half full with grease -G 052 128 A1- .
- ◆ The open side of the oil seals faces toward the side with fluid filling.
- ◆ Before installing, lightly lubricate outer circumference of seal and sealing lips with ATF or gear oil, depending on fitting location.
- ◆ Lightly lubricate O-rings with ATF before installation to prevent them getting crushed during assembly.
- ◆ Use only ATF for parts running in ATF. Other lubricants will cause malfunction of the gearbox hydraulics.
- ◆ When installing a new oil seal, position the seal in the housing so that the sealing lip does not contact the shaft in the same place as the old seal (make use of installation depth tolerances).
- ◆ Renew paper gaskets, clean all sealing surfaces thoroughly and remove previous gaskets completely.
- ◆ After installing, check the relevant fluid levels and top up if necessary: ATF in planetary gearbox ⇒ [page 110](#) , gear oil in front final drive ⇒ [page 133](#) , gear oil in transfer box ⇒ [page 153](#) , gear oil in rear final drive ⇒ Rear final drive 01R; Rep. Gr. 39 or ⇒ Rear final drive 0AR; Rep. Gr. 39



Capacities and specifications ⇒ [page 6](#)

Nuts, bolts

- ◆ Slacken bolts in reverse sequence to the specified tightening sequence.
- ◆ Nuts and bolts which secure covers and housings should be loosened and tightened in diagonal sequence and in stages if no tightening sequence is specified.
- ◆ The tightening torques stated apply to non-oiled nuts and bolts.
- ◆ Always renew self-locking bolts and nuts.
- ◆ Use a wire brush to clean the threads of bolts which are secured with locking fluid. Then apply locking fluid -AMV 185 101 A1- to bolts again before fitting.
- ◆ Threaded holes which take self-locking bolts or bolts coated with locking fluid must be cleaned (using a tap or similar). Otherwise there is a danger of the bolts shearing off the next time they are removed.

Retaining rings/circlips

- ◆ Do not over-stretch circlips.
- ◆ Always renew circlips which have been damaged or over-stretched.
- ◆ Circlips must be properly seated in the base of the groove.

Bearings

- ◆ Lubricate bearings with gear oil or ATF, depending on fitting location.



Mechatronic unit



WARNING

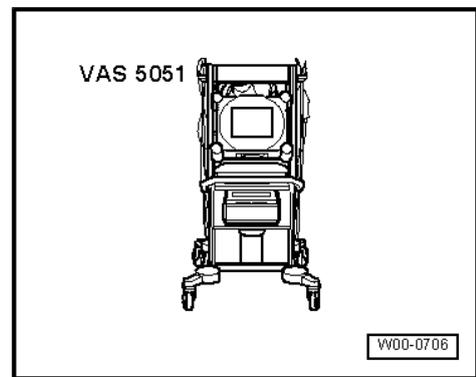
- ◆ *Before touching or removing the mechatronic unit, always discharge any static electricity by touching an earthed metal part, such as vehicle earth, a heater radiator or lifting platform with your hand.*
- ◆ *Never touch the 16 contacts in connector -B- with your hands, as static discharge would damage the control unit and mechatronic unit.*

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- ◆ Renew the gearbox if any of the shift elements are scorched.
- ◆ Select correct version of mechatronic unit according to gearbox code letters ⇒ Electronic parts catalogue .

Guided fault finding, vehicle self-diagnosis and testing system

- ◆ Before servicing the automatic gearbox, the exact cause of the failure must be determined as precisely as possible via the vehicle diagnostic, testing and information system -VAS 505x- in the modes "Guided Fault Finding", "vehicle self-diagnosis" and "testing system".



8 Safety precautions

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



WARNING

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

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

- *The use of test equipment while driving causes distraction.*
- *There is an increased risk of injury if test equipment is not secured.*
- ◆ *Always secure testing equipment to the rear seat with a strap and have them operated from there by a second person.*

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



WARNING

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

- ◆ *Before working on the vehicle while the engine is running, shift the selector lever into position "P" and apply the parking brake.*

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

- ◆ Switch off ignition before disconnecting and connecting test equipment.



Caution

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

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

– Disconnect battery ⇒ Rep. Gr. 27 .



9 Rules for cleanliness when working on the automatic gearbox

- Observe the general repair instructions ⇒ [page 9](#) .
- ◆ Thoroughly clean all joints and connections and the surrounding areas before dismantling.
- ◆ Place removed parts on a clean surface and cover them over. Use sheeting and paper. Use lint-free cloths.
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately.
- ◆ Only install clean components: do not remove replacement parts from packaging until just before installation.



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32 – Torque converter

1 Torque converter



WARNING

Check position of torque converter (installed depth) before installing gearbox ⇒ [page 18](#) .



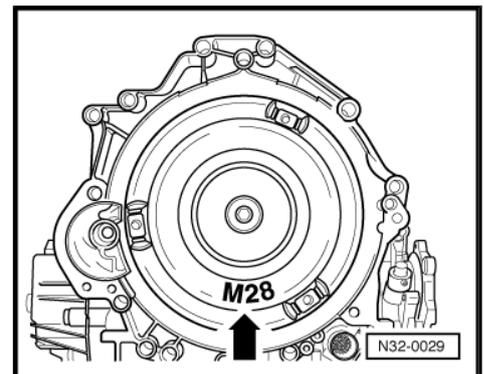
Note

- ◆ *Rules for cleanliness when working on the automatic gearbox ⇒ [page 14](#) .*
- ◆ *General repair instructions ⇒ [page 9](#) .*
- ◆ *Lubricate seals lightly with ATF. Other types of lubricant will cause the gearbox hydraulics to malfunction.*

1.1 Identification of torque converter

There are various types of torque converter. They are marked with code letters -arrow-.

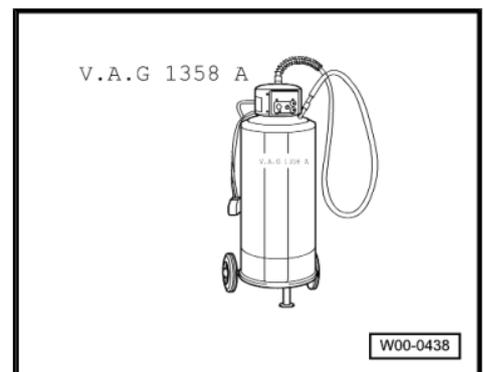
Torque converter/gearbox allocation ⇒ [page 3](#) .



1.2 Draining torque converter

Special tools and workshop equipment required

- ◆ Oil extractor -V.A.G 1358 A-



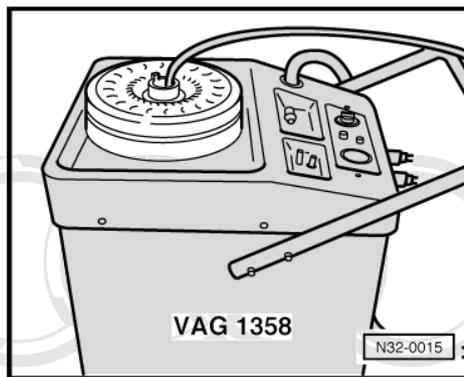
- ◆ Oil extractor probe -V.A.G 1358 A/1-

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Drain the torque converter as follows if the ATF is very dirty due to component wear, or when performing a major gearbox overhaul:

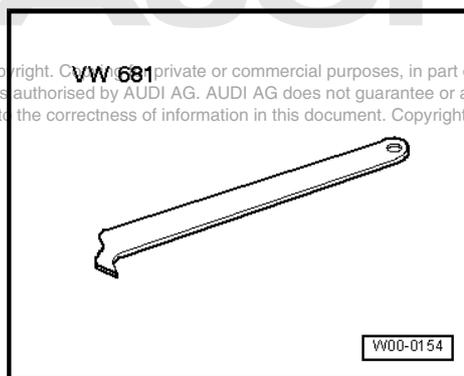
- Extract ATF from torque converter using oil extractor - V.A.G 1358 A- and oil extractor probe -V.A.G 1358 A/1- .



1.3 Renewing torque converter oil seal

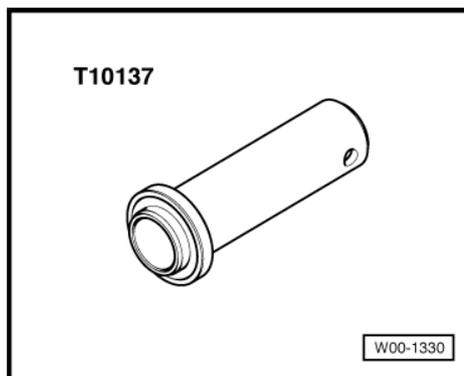
Special tools and workshop equipment required

- ◆ Oil seal extractor lever -VW 681-



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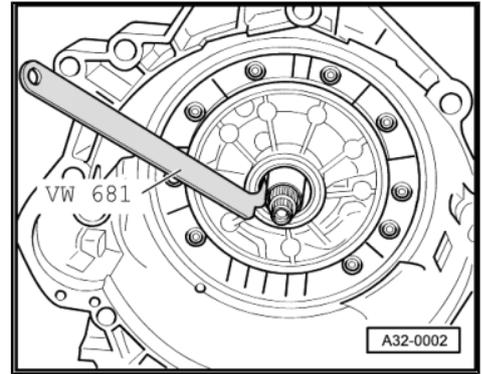
- ◆ Thrust piece -T10137-



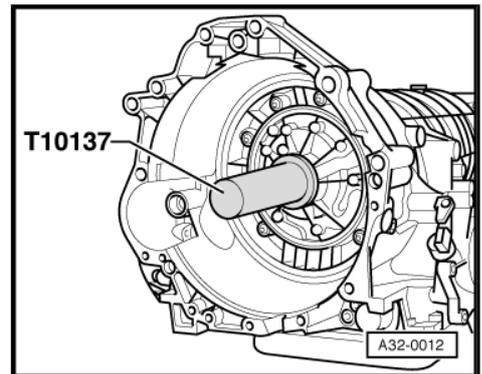
Procedure

- Remove gearbox ⇒ [page 40](#) .
- Mount gearbox on assembly stand ⇒ [page 108](#) .
- Carefully pull out torque converter.

- Remove oil seal for torque converter using oil seal extractor - VW 681- .
- Lightly lubricate outer circumference and sealing lips of oil seal with ATF.
- Installation position: open side of oil seal points towards gear-box



- Drive in torque converter oil seal with thrust piece -T10137- until thrust piece reaches stop.



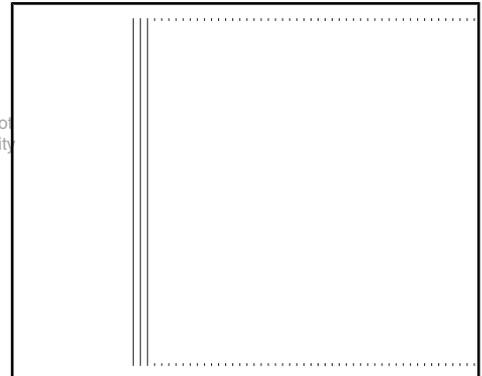
1.4 Checking torque converter

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



Note

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The torque converter is welded together and must be renewed as a complete unit in the event of any damage or defects.



1.5 Installing torque converter

Special tools and workshop equipment required

- ◆ Depth gauge

Installing

- 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.



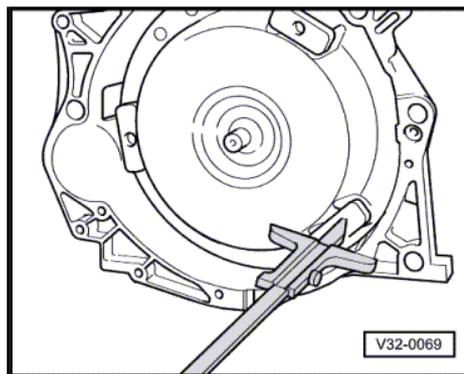
Installed depth

If the torque converter is correctly installed, the depth between the contact faces of the tapped holes on the torque converter and the contact surface of the torque converter bell housing is at least 19 mm.



WARNING

If the torque converter is not fitted correctly, the torque converter drive lugs or the ATF pump will be irreparably damaged when the gearbox is joined to the engine.



- Use new ribbed bolts to secure the torque converter to the drive plate.

When you then install the gearbox, adhere to the following instructions.



WARNING

Before and while you are tightening the bolts on the engine/gearbox flange keep checking that the torque converter can still be rotated behind the drive plate. If the converter cannot be turned, it must be assumed that it has not been installed correctly and the drive lugs on the converter or the ATF pump will be damaged when the bolts are fully tightened.

Tightening torque

For tightening torque when securing torque converter to drive plate, see chapter: Installing gearbox ⇒ [page 40](#) .



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37 – Controls, housing

1 Electrical/electronic components and fitting locations

Diagnostic connector

Fitting location: the diagnostic connector for the vehicle diagnostic, testing and information system -VAS 505x- is located in the driver's footwell.



Mechatronic unit, automatic gearbox control unit -J217-, multi-function switch -F125-, gearbox input speed sender -G182- and gearbox output speed sender -G195-

Fitting location: the mechatronic unit is bolted to the underside of the gearbox housing and covered by the gearbox oil pan.

The mechatronic unit incorporates the hydraulic control system, the electronic control unit and the sensors and actuators as a complete synchronised unit. This includes:

- ◆ Automatic gearbox control unit -J217-
- ◆ Multi-function switch -F125-
- ◆ Gearbox input speed sender -G182-
- ◆ Gearbox output speed sender -G195-

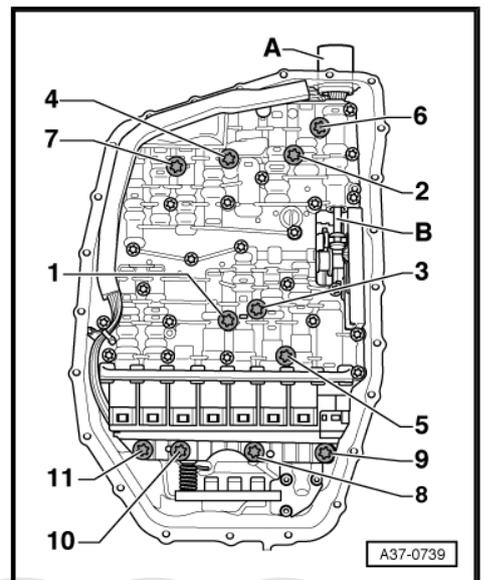
The "mechatronic" unit can only be replaced as a complete unit.



Note

All components mentioned are tested via Self-diagnosis.

- Removing and installing mechatronic unit ⇒ [page 128](#)

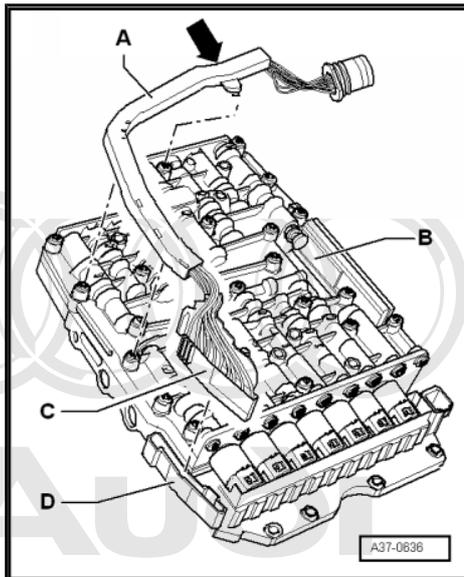


Audi

Internal gearbox wiring harness

Fitting location: the wiring harness -A- with connector -C- is attached to the mechatronic unit -B-.

- Removing and installing wiring harness ⇒ [page 131](#) .

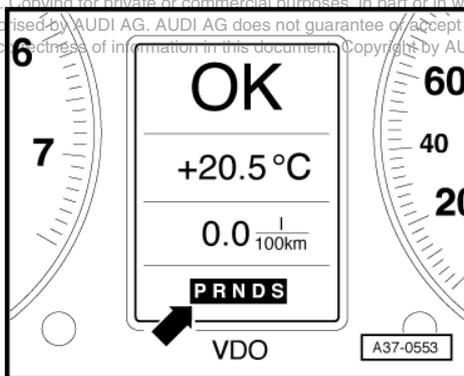


Selector lever position display -Y6-

Fitting location: integrated into instrument cluster



The selector lever position display -Y6- can only be renewed together with the instrument cluster.



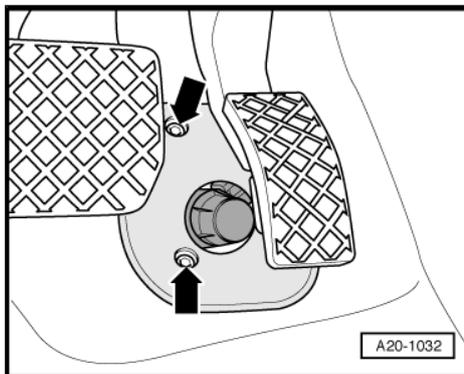
Kick-down switch -F8-

Fitting location: The kick-down switch -F8- is located on the floor under the pedals.



The kick-down -F8- switch is tested via Self-diagnosis.

- Removing and installing kick-down switch -F8- ⇒ Fuel supply system, diesel engines; Rep. Gr. 20 .



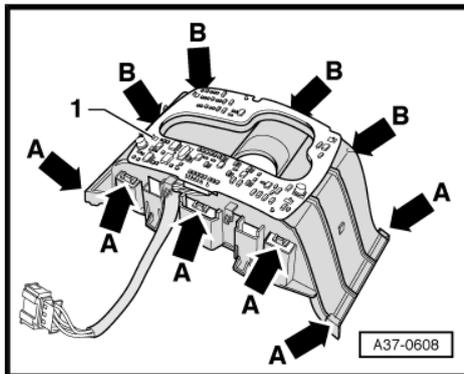
tiptronic switch -F189-

Fitting location: The tiptronic switch -F189- is integrated in the printed circuit of the symbol panel, which is located in the selector mechanism cover.



The tiptronic switch -F189- is tested via Self-diagnosis.

- Removing and installing tiptronic switch -F189- ⇒ [page 27](#) .



2 Exploded view - servicing selector mechanism



WARNING

Before working on vehicle when engine is running, shift selector lever into position "P" and apply parking brake.

1 - Selector lever handle

- ⇒ ["2.4 Removing and installing selector lever handle", page 26](#)

2 - Sleeve

- Removing and installing ⇒ [page 26](#)

3 - Cover plate

- ⇒ ["2.3 Selector lever handle, selector mechanism cover, tiptronic switch F189 - exploded view", page 25](#)

4 - Frame

- ⇒ ["2.3 Selector lever handle, selector mechanism cover, tiptronic switch F189 - exploded view", page 25](#)

5 - Sliding cover

- ⇒ ["2.3 Selector lever handle, selector mechanism cover, tiptronic switch F189 - exploded view", page 25](#)

6 - Guide

- ⇒ ["2.3 Selector lever handle, selector mechanism cover, tiptronic switch F189 - exploded view", page 25](#)

7 - Selector lever cable

- ⇒ ["2.10 Exploded view - selector lever cable", page 33](#)

- Do not bend or kink

- Before installing, lightly lubricate ball socket with polycarbamide grease -G 052 142 A2- .

- Removing and installing ⇒ [page 34](#)

- Adjusting ⇒ [page 35](#)

- Selector lever cable must be renewed if rubber sleeve is damaged

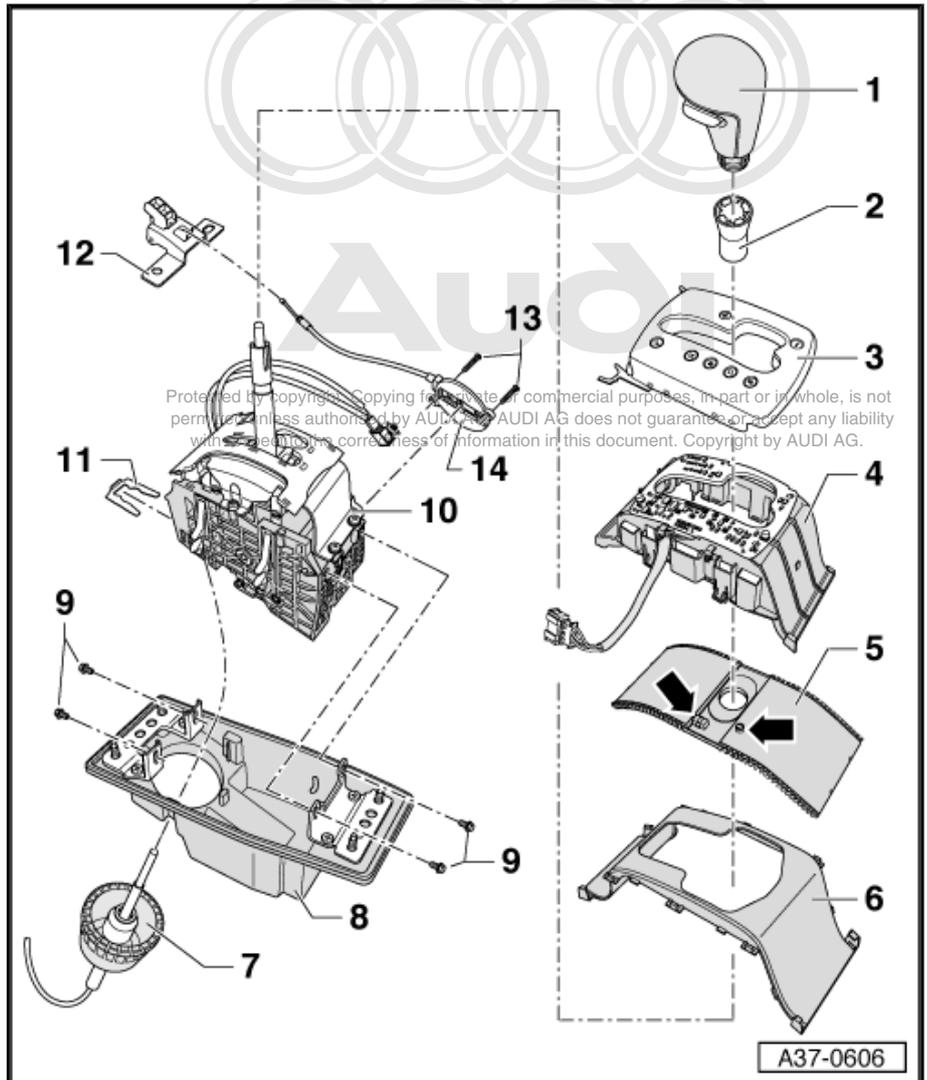
- When installing, make sure that rubber sleeve on gearbox side is not twisted

8 - Cover for shift unit

- With glued-on gasket

9 - Bolt

- Description ⇒ ["2.7 Shift unit, manual release - exploded view", page 28](#)





10 - Shift unit

- Description ⇒ [“2.7 Shift unit, manual release - exploded view”, page 28](#)

11 - Locking plate

- For securing selector lever cable to shift unit
⇒ [“2.7 Shift unit, manual release - exploded view”, page 28](#)

12 - Bracket

13 - Bolt

- 2 Nm

14 - Manual release mechanism

2.1 Checking selector mechanism

Overview:

- ◆ 1. Checking operation of selector mechanism ⇒ [page 22](#)
- ◆ 2. Checking ignition key removal lock ⇒ [page 23](#)
- ◆ 3. Checking interlock button on selector lever handle
⇒ [page 23](#)

1. Checking operation of selector mechanism

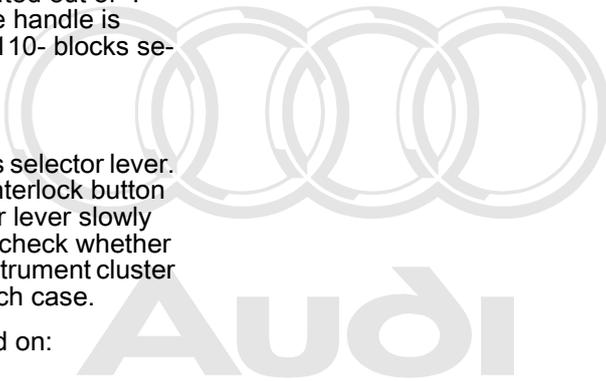
- It should not be possible to operate the starter while the selector lever is in position “S”, “D”, “R” or in the “tiptronic gate”.
- When travelling at speeds above 5 km/h and shifting into selector lever position “N”, the solenoid for the selector lever lock must not engage and block the selector lever. The selector lever can be shifted into a driving gear.
- When travelling at speeds below 2 km/h (almost stationary) and shifting into selector lever position “N”, the solenoid for the selector lever lock should only engage after about 1 second. Selector lever cannot be shifted out of “N” position until brake pedal is depressed.

Selector lever in “P” position and ignition switched on:

- Do not depress brake pedal.
- The selector lever is locked and cannot be shifted out of “P” position, even when the interlock button on the handle is pressed in. Solenoid for selector lever lock -N110- blocks selector lever.
- Press and hold brake pedal.
- Solenoid for selector lever lock -N110- releases selector lever. It is possible to shift into a driving gear. With interlock button on selector lever handle pressed, shift selector lever slowly from “P” position through “R, N, D and S” and check whether the selector lever position display -Y6- in the instrument cluster shows the correct selector lever position in each case.

Selector lever in “N” position and ignition switched on:

- Do not depress brake pedal.
- After a short delay: Selector lever is locked and cannot be shifted out of “N” position even when pressing the interlock button on the selector lever handle. Solenoid for selector lever lock -N110- blocks selector lever.
- Depress brake pedal.
- Solenoid for selector lever lock -N110- releases selector lever. Shifting into position “D” is possible.



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

- Shift selector lever into "tiptronic gate".
- The illuminated "D" symbol in the selector lever position display -Y26- should go out and the "+" and "-" symbols should light up.
- The selector lever position display -Y6- in the instrument cluster should change from "PRNDS" to "654321" when the selector lever is moved into the "tiptronic gate".

If results do not match specifications:

- Perform "Guided fault finding" using vehicle diagnostic, testing and information system -VAS 5051B- .
- Adjust selector lever cable ⇒ [page 35](#) .
- Check interlock button on selector lever handle ⇒ [page 23](#) .
- Check ignition key removal lock.

2. Checking ignition key removal lock

- Turn the ignition key slightly clockwise to the "ignition on" position.
- Press and hold brake pedal.
- When interlock button in selector lever handle is pressed, it should be possible to move selector lever out of position "P" without "catching".
- Switch off ignition.
- It should not be possible to remove the ignition key when the selector lever is in any position other than "P".
- Shift selector lever to position "P".
- Remove ignition key.
- It should only be possible to remove ignition key in selector lever position "P".
- Selector lever can then not be shifted out of "P" position with interlock button pressed and brake pedal depressed.

If the ignition key removal lock does not function as described:

If ignition key removal lock does not function as described, check vehicle via "Guided Fault Finding" function using vehicle diagnostic, testing and information system -VAS 5051B- .

3. Checking interlock button on selector lever handle

Check that interlock button moves freely:

- Interlock button should move easily when pressed without force.
- Interlock button should spring back fully on its own when released.

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If results do not match specifications:

- Make sure that selector lever handle is correctly installed ⇒ [page 26](#)
- Check whether selector rod or selector lever is bent.

Function test:

- Ignition switched on

Press the interlock button on the selector lever handle to move the handle into the positions listed below; it should not be possible



to move the selector lever into these positions unless the interlock button is pressed.

- ◆ “P” to “R” (also depress brake pedal)
- ◆ “D” to “S”
- ◆ “N” to “R” (brake pedal also has to be depressed after a short delay when vehicle is stationary)
- ◆ “R” to “P”

If results do not match specifications:

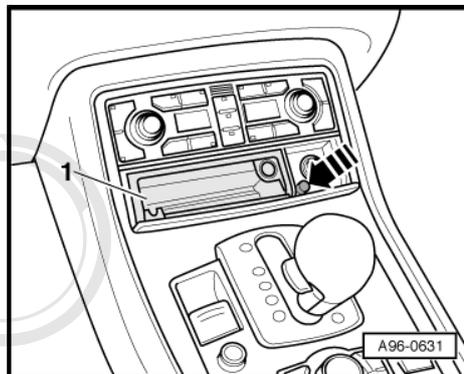
- Make sure that selector lever handle is correctly installed
⇒ [page 26](#)
- Perform “Guided Fault Finding” using vehicle diagnostic, testing and information system -VAS 5051B- and check selector lever lock solenoid -N110- .
- Adjust selector lever cable ⇒ [page 35](#) .

2.2 Manual release of selector mechanism from position “P”



Note

- ◆ *If the battery is disconnected or discharged, the selector lever cannot be shifted from position “P”.*
 - ◆ *When you operate the manual release mechanism the selector lever lock solenoid -N110- will release the lock without current supply.*
- Take out insert -1- for front ashtray by pressing button -arrow-.

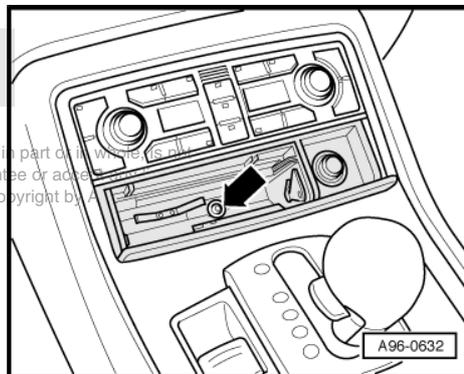


- Unscrew bolt -arrow - and remove housing for front ashtray.

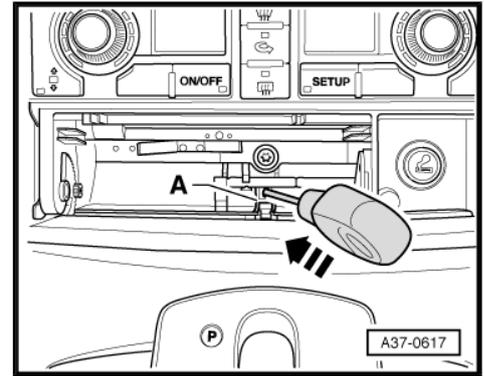


Note

Should there be a trim cap on the rocker mechanism for manual release, it will have to be levered off with a screwdriver.



- Use a screwdriver or similar to press on the rocker mechanism for manual release -A- and simultaneously shift the selector lever out of position "P" -arrow-.
- Install front ashtray ⇒ General body repairs, interior; Rep. Gr. 68 .



2.3 Selector lever handle, selector mechanism cover, tiptronic switch -F189- - exploded view

Note

Lubricate all bearings and moving surfaces with polycarbamide grease -G 052 142 A2- .

1 - Guide for sliding cover

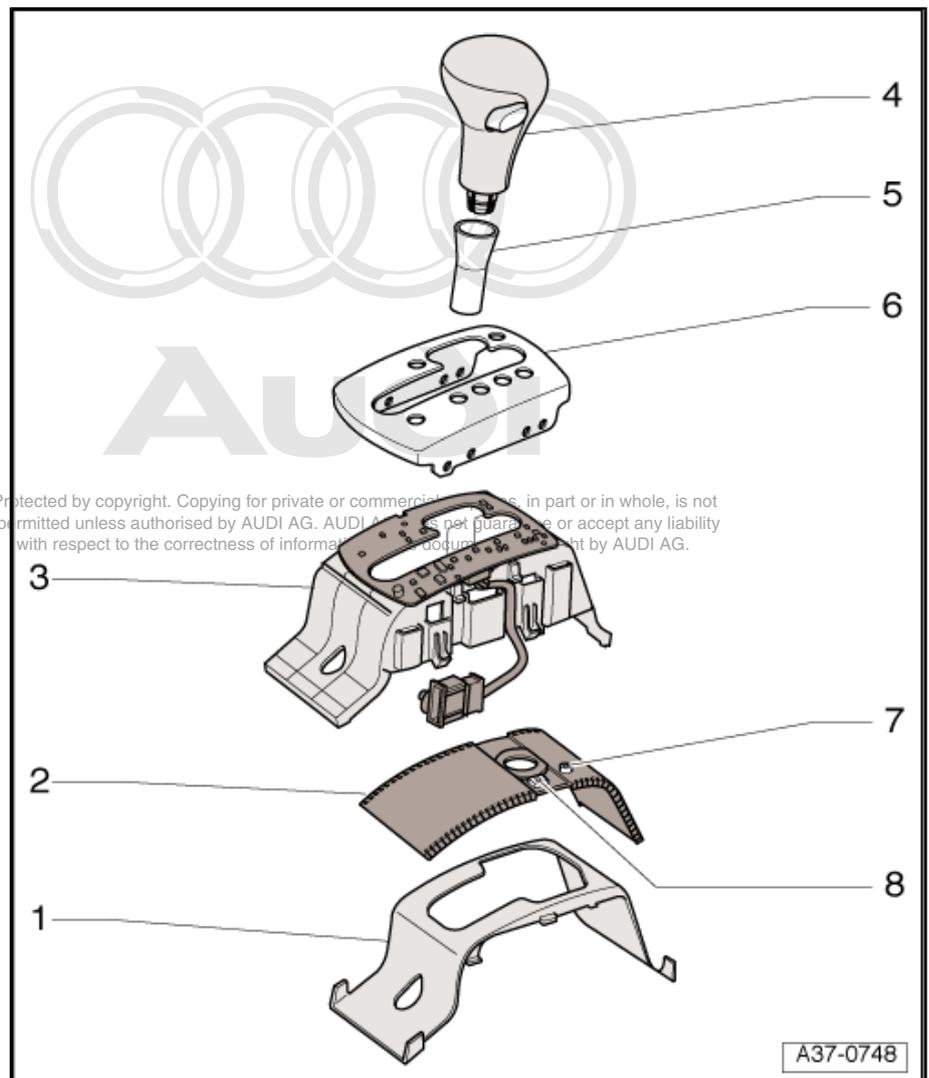
- Lever out retaining tabs to disengage both sections
⇒ ["2.6 Removing and installing tiptronic switch F189"](#), page 27

2 - Sliding cover

- With integrated magnet for tiptronic switch -F189- on transverse slide.
- Removing and installing
⇒ ["2.6 Removing and installing tiptronic switch F189"](#), page 27

3 - Frame with printed circuit

- Can only be renewed as a complete unit
- With integrated tiptronic switch -F189-
- With symbol illumination switches
- If malfunctions occur in the switches, first check that the appropriate magnet on the sliding cover
⇒ [Item 2 \(page 25\)](#) is secured properly. If necessary, renew sliding cover.
- The printed circuit can be checked via "Guided Fault Finding"



- ❑ Removing and installing
⇒ [“2.6 Removing and installing tiptronic switch F189”, page 27](#)
- ❑ Before renewing printed circuit when fault memory indicates fault code “18161”, first check adjustment of selector lever cable ⇒ [page 35](#)

4 - Selector lever handle

- ❑ Removing and installing ⇒ [page 26](#)

5 - Sleeve for selector lever

- ❑ Removing and installing ⇒ [“2.4 Removing and installing selector lever handle”, page 26](#)

6 - Cover plate with symbol insert

- ❑ Removing and installing ⇒ [“2.6 Removing and installing tiptronic switch F189”, page 27](#)

7 - Magnet for symbol illumination switch

8 - Magnet for tiptronic recognition switch

2.4 Removing and installing selector lever handle

Removing

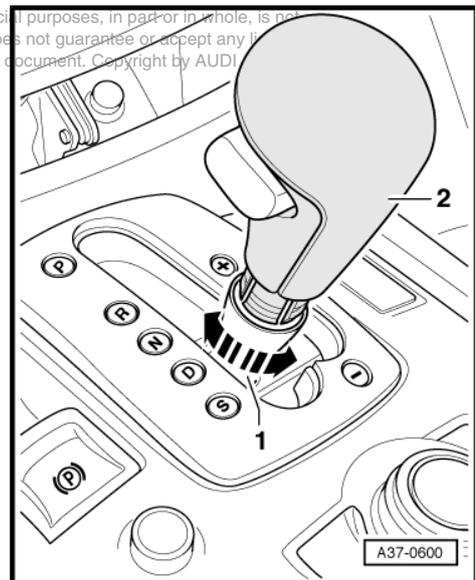
- Shift selector lever to position “D”.
- Turn sleeve -1- in clockwise direction until you feel it engage. Push sleeve downwards in this position.
- Pull off handle -2- from selector lever.

Installing

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

- Shift selector lever to position “D”.
- Fit sleeve -1- onto selector lever.
- Press handle -2- onto selector lever as far as it will go.
- Installation position: Button points to driver.
- Keep turning sleeve in both directions and simultaneously push it upwards until lugs on sleeve engage in slits on handle.
- Turn sleeve in anti-clockwise direction until you feel it engage.

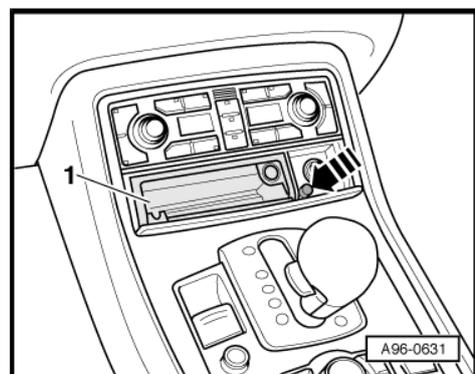
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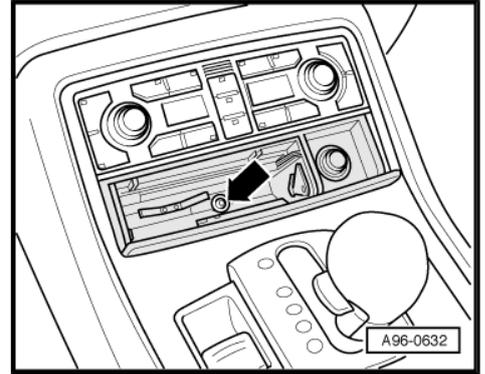
2.5 Removing and installing selector mechanism cover

Removing

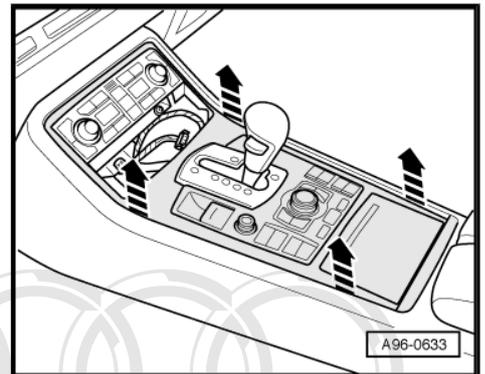
- Remove selector lever handle ⇒ [page 26](#) .
- Take out insert -1- for front ashtray by pressing button -arrow-.



- Unscrew bolt -arrow- and remove housing for front ashtray.
- Unplug electrical connector.



- Lift off centre console switch panel -arrows-.
- Unplug electrical connectors.

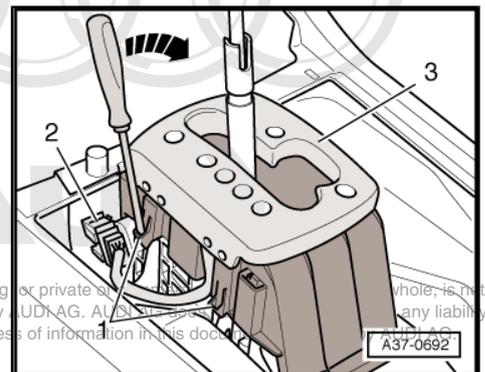


- Release locking hooks -1- on both sides of selector mechanism -arrow- and lift up cover -3-.
- Unplug electrical connector -2- and remove cover.

Installing

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

- Install front ashtray ⇒ General body repairs, interior; Rep. Gr. 68 .
- Install selector lever handle ⇒ [page 26](#) .



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2.6 Removing and installing tiptronic switch -F189-

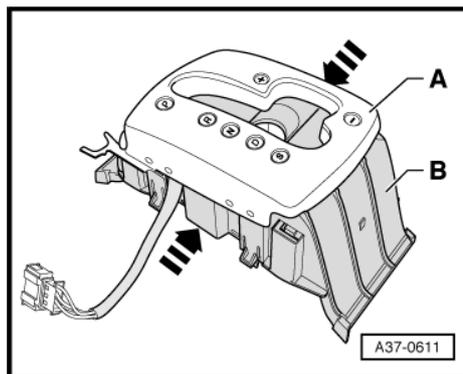
Note

- ◆ *The tiptronic switch -F189- is a fixed component of the printed circuit.*
- ◆ *The magnet for the tiptronic switch -F189- is attached to the sliding cover.*



Removing

- Remove selector lever handle ⇒ [page 26](#) .
- Remove selector mechanism cover ⇒ [page 26](#) .
- Press together middle section of frame -B- -arrows- and simultaneously pull off the cover plate -A-.

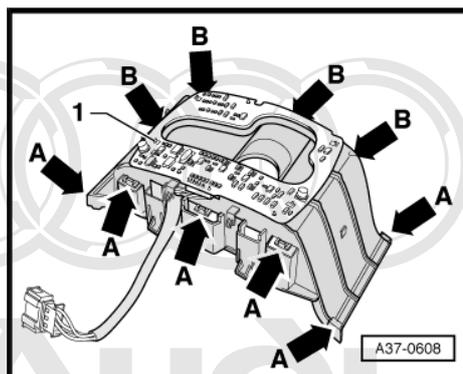


- Carefully lever out retaining tabs -arrows A- and -arrows B- (retaining tabs are concealed).
- Detach guide and sliding cover together with tiptronic switch -F189- from frame.



Note

- ◆ Printed circuit -1- can only be renewed together with frame.
- ◆ Magnet for tiptronic switch -F189- can only be renewed together with sliding cover.
- ◆ Guide must be renewed if retaining tabs are damaged.



Installing

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

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- Install selector mechanism cover ⇒ [page 26](#) .
- Install front ashtray ⇒ General body repairs, interior; Rep. Gr. 68 .
- Install selector lever handle ⇒ [page 26](#) .

2.7 Shift unit, manual release - exploded view



Note

Lubricate all bearings and moving surfaces with polycarbamide grease -G 052 142 A2- .

1 - Rubber sleeve for selector lever cable

- Check that rubber sleeve for selector lever cable is correctly attached and make sure it seals off properly

2 - Locking plate

- For securing selector lever cable to shift unit
- Installation position: angled end points upwards

3 - Selector lever cable

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- Do not bend or kink
- Before installing, lightly lubricate ball socket with polycarbamide grease - G 052 142 A2- .
- Removing and installing ⇒ [page 34](#)
- Adjusting ⇒ [page 35](#)
- Selector lever cable must be renewed if rubber sleeve is damaged
- When installing, make sure that rubber sleeve is not twisted

4 - Bracket

- With rocker mechanism for manual release

5 - 8 Nm

6 - 3.5 Nm

7 - Operating cable for manual release

- Removing and installing ⇒ [page 33](#)

8 - Electrical connector

- For selector lever lock solenoid -N110- and switch for gear selector position P -F305-

9 - Shift unit

- With selector lever lock solenoid -N110- and switch for gear selector position P -F305-
- Can only be renewed as a complete unit
- Removing and installing ⇒ [page 30](#)

10 - 8 Nm

11 - Cover for shift unit

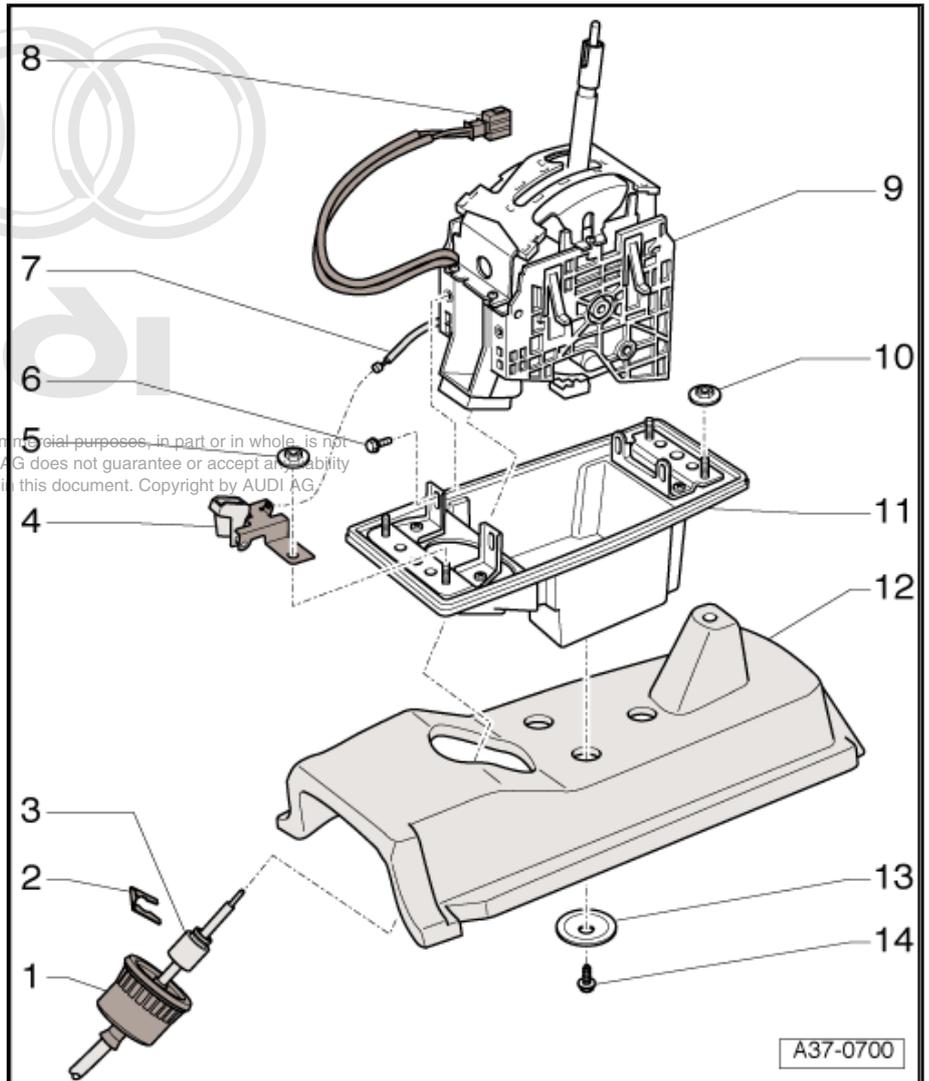
- With glued-on gasket

12 - Noise insulation

13 - Securing clip

- For securing noise insulation to selector mechanism
- Renew

14 - 1.5 Nm



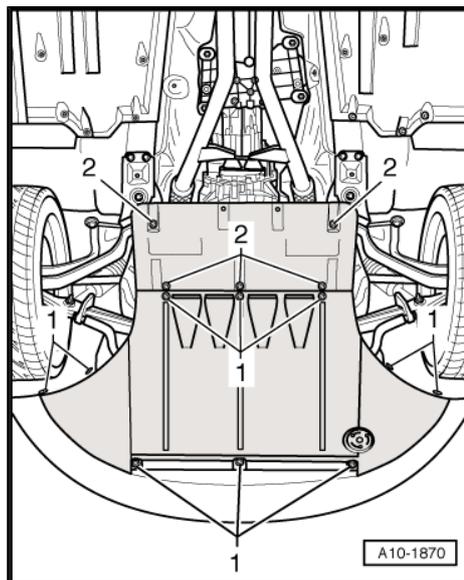
2.8 Removing and installing shift unit

Removing

- Unfasten quick-release catches -2- and detach rear noise insulation.



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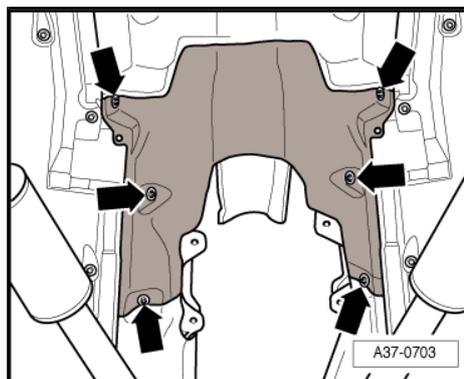


- Unfasten nuts -arrows- and push heat shield for selector mechanism to rear.



Note

Propshaft has been removed in illustration.



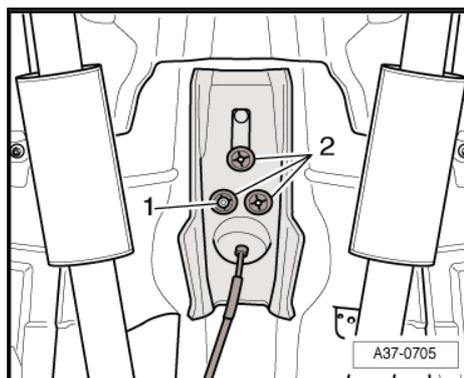
- Remove bolt -1-.
- Lever off lock washers -2- and remove noise insulation.



Note

Propshaft has been removed in illustration.

- Remove selector lever handle ⇒ [page 26](#) .
- Remove selector mechanism cover ⇒ [page 26](#) .
- Unplug electrical connector for selector lever lock solenoid - N110- and switch for gear selector position P -F305- .

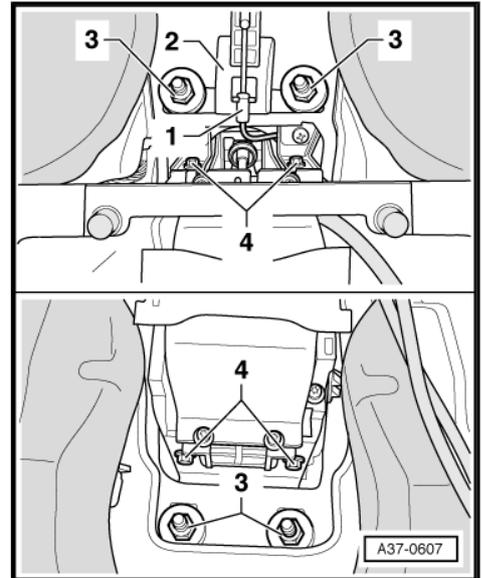


- Lever Bowden cable for manual release mechanism -1- out of bracket -2-.
- Remove bolts -4-.

i Note

-Item 3- can be disregarded.

- Carefully pull shift unit upwards slightly...



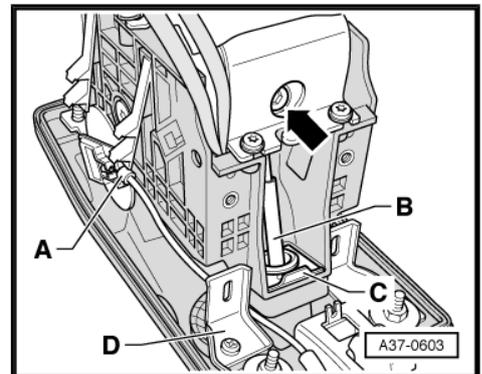
- ..., while simultaneously guiding manual release mechanism -A- and selector lever cable -B- out of shift unit.

i Note

◆ -Item D- can be disregarded.

◆ If necessary, unclip rubber sleeve of selector lever cable from cover for shift unit.

- Loosen clamping bolt -arrow- of selector lever cable with socket (Torx 25).
- Remove locking plate -C- for selector lever cable by pulling it forwards off shift unit.
- Pull shift unit out to front, while simultaneously pulling selector lever cable out of shift unit.



i Note

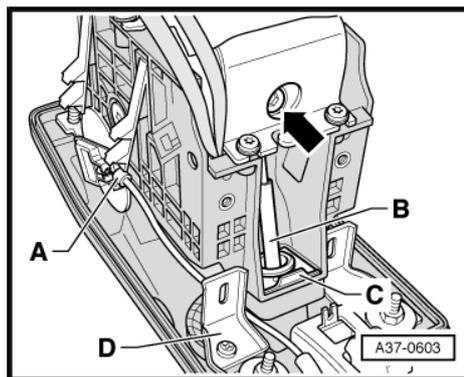
Do not bend or kink the selector lever cable.

Installing

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

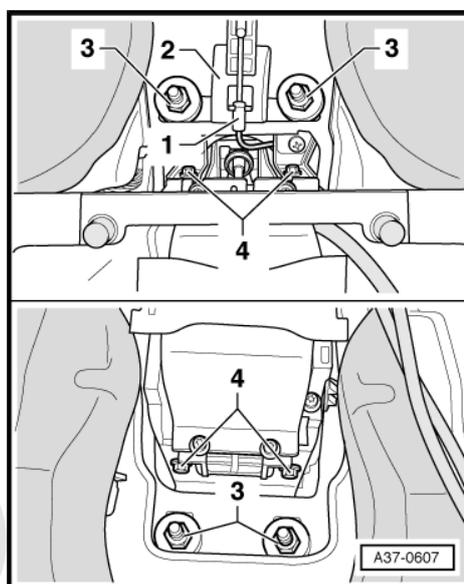
- Selector lever and selector shaft lever in position "D".

- Insert selector lever cable -B- into hole for clamping bolt -arrow-.
- Fit locking plate -C- for securing selector lever cable to shift unit.
- Installation position: angled end of locking plate points upwards.
- Check that rubber sleeve for selector lever cable is correctly attached and make sure it seals off properly.
- Carefully guide shift unit into cover for shift unit, making sure manual release mechanism stays in position and is not damaged.
- The Bowden cable must be routed beneath the mounting bracket (right-side) -D-.
- Adjust selector lever cable ⇒ [page 35](#) .



 **Note**

- ◆ Nuts -3- for lateral adjustment and/or bolts -4- for vertical adjustment have to be loosened in order to align selector mechanism with centre console switch panel.
- ◆ -Item 1- and -item 2- can be disregarded.
- Install selector mechanism cover ⇒ [page 26](#) .
- Install front ashtray ⇒ General body repairs, interior; Rep. Gr. 68 .
- Install selector lever handle ⇒ [page 26](#) .
- Check selector mechanism ⇒ [page 22](#) .



Tightening torques

Component	Nm
Cover for shift unit to body	8
Shift unit to cover for shift unit	3.5
Front cross member to body	23



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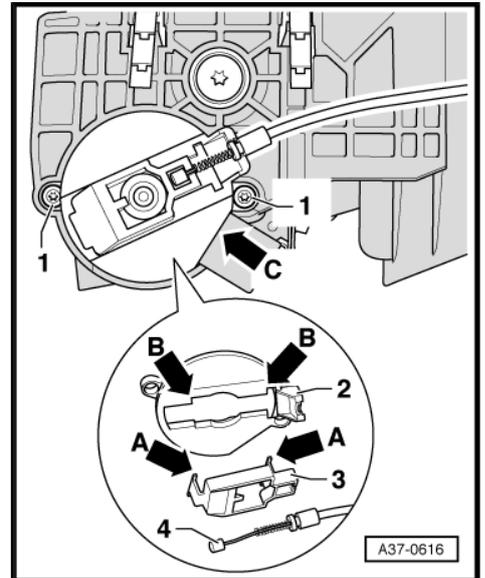
2.9 Removing and installing manual release mechanism

Removing

- Shift unit is removed.
- Unscrew bolts -1- and remove manual release mechanism.

Installing

- To assemble manual release mechanism, insert slide -3- with lugs -arrows A- into recesses -arrows B- on cover -2-.
- Clip end of Bowden cable -4- into slide and support bracket into cover.
- Secure assembled manual release mechanism to shift unit.
- Flat edge -arrow C- points towards connecting wires.



2.10 Exploded view - selector lever cable

1 - Selector shaft lever

2 - Support bracket

- For selector lever cable

3 - 23 Nm

4 - Selector lever cable

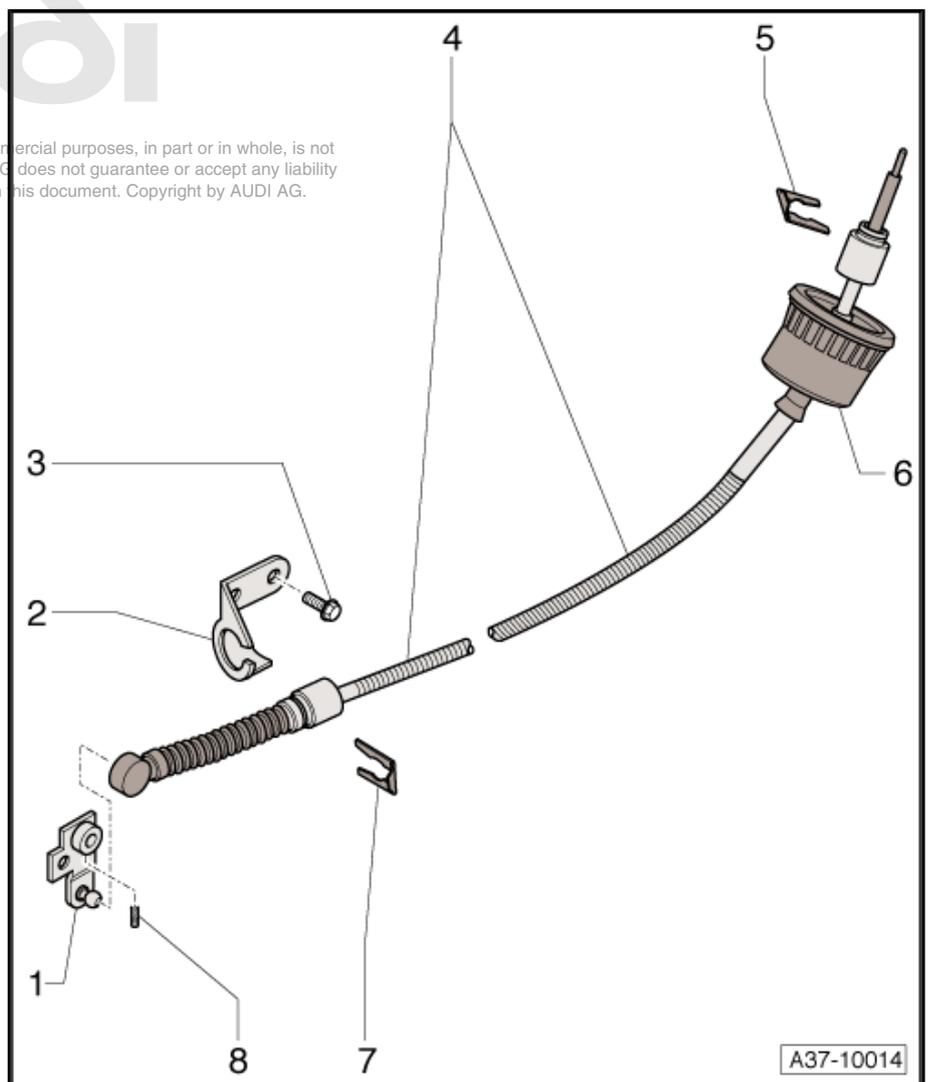
- Do not bend or kink
- Before installing, lightly lubricate ball socket with polycarbamide grease - G 052 142 A2- .
- Removing and installing => [page 34](#)
- Adjusting => [page 35](#)
- Selector lever cable must be renewed if rubber sleeve is damaged
- When installing, make sure that rubber sleeve on gearbox end is not twisted

5 - Locking plate

- For selector lever cable

6 - Rubber sleeve for selector lever cable

- Check that rubber sleeve for selector lever cable is correctly attached to cover for shift unit and make sure it seals off properly



7 - Locking plate

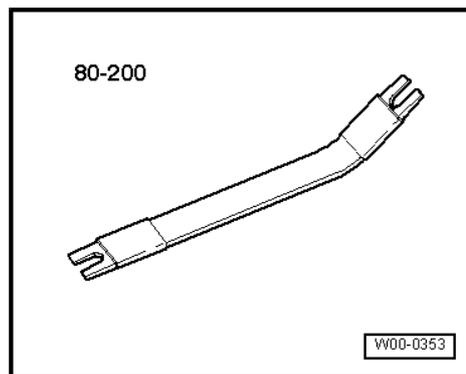
- For selector lever cable

8 - 9 Nm

2.11 Removing and installing selector lever cable

Special tools and workshop equipment required

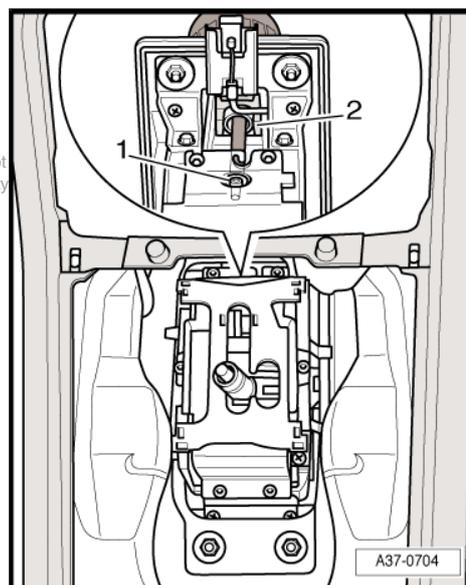
- ◆ Removal lever -80-200-



Removing

- Remove selector lever handle ⇒ [page 26](#) .
- Remove selector mechanism cover ⇒ [page 26](#) .
- Release clamping bolt -1- for selector lever cable using socket insert Torx 25 approx. 1 turn, do not unfasten all the way.
- Lever off retaining clip -2- with a screwdriver.

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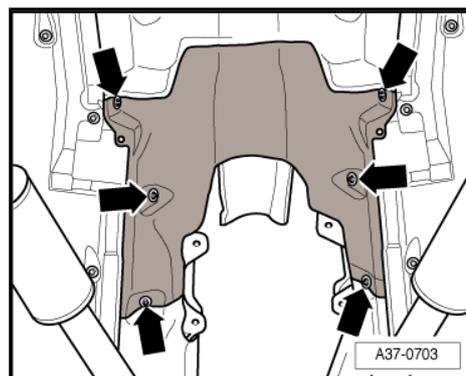


- Unfasten nuts -arrows- and push heat shield for selector mechanism to rear.



Note

For illustration purposes here shown with propshaft removed.



- If fitted, unscrew bolt -1-.
- Lever off lock washers -2-.
- Pull noise insulation downwards slightly.

i Note

For illustration purposes here shown with propshaft removed.

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- Remove rubber sleeve -2- from selector mechanism.
- Remove retaining clip for selector lever cable (already released in an earlier step).
- Detach selector lever cable -1- downwards out of cover for shift unit.

i Note

Do not bend or kink the selector lever cable.

- Use removal lever -80-200- to pry ball socket -1- on selector lever cable off selector shaft lever.
- Unclip locking plate -2- from support bracket for selector lever cable.
- If fitted, remove bolt -3- and remove selector lever cable.

Installing

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

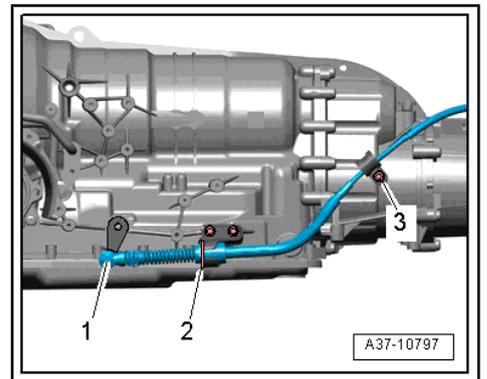
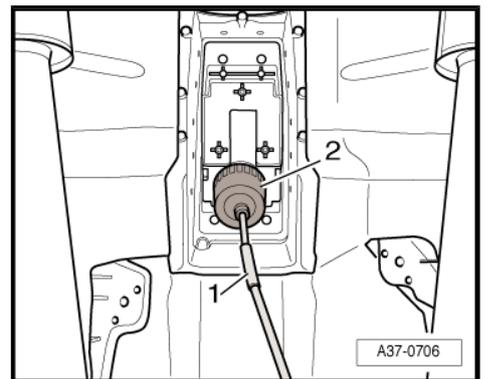
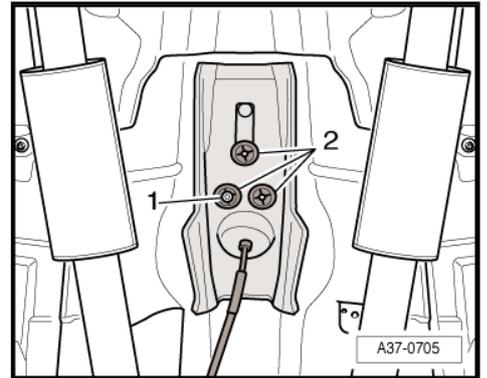
i Note

- ◆ Do not bend or kink the selector lever cable.
- ◆ Before installing, lightly lubricate ball socket on selector lever cable with polycarbamide grease -G 052 142 A2- .

- Adjust selector lever cable => [page 35](#) .

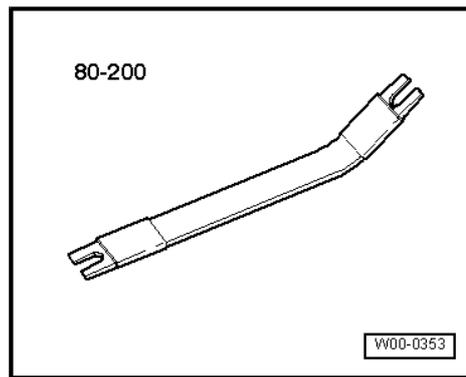
2.12 Checking and adjusting selector lever cable

Special tools and workshop equipment required



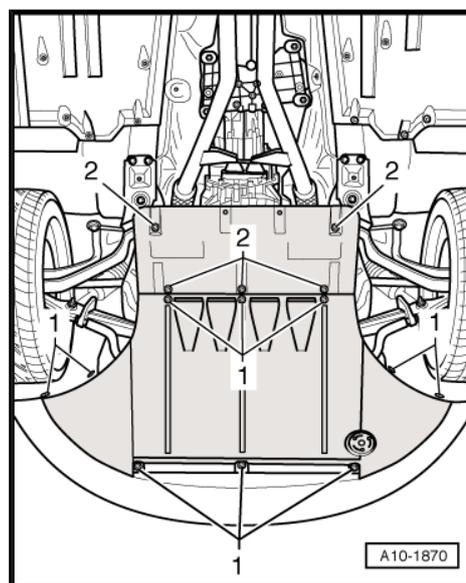


◆ Removal lever -80-200-



Checking

- Shift selector lever into position "P".
- Raise vehicle.
- Unfasten quick-release catches -2- and detach rear noise insulation.

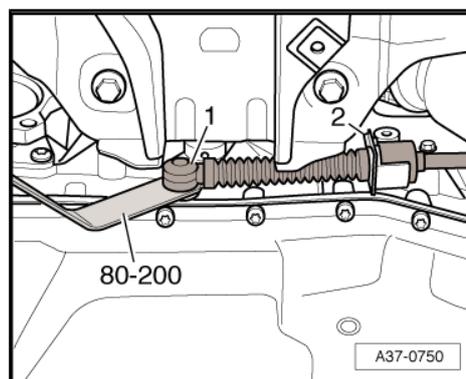


- If fitted, remove heat shield from selector shaft lever.
- Use removal lever -80-200- to pry ball socket -1- on selector lever cable off selector shaft lever.



Note

Do not bend or kink the selector lever cable.

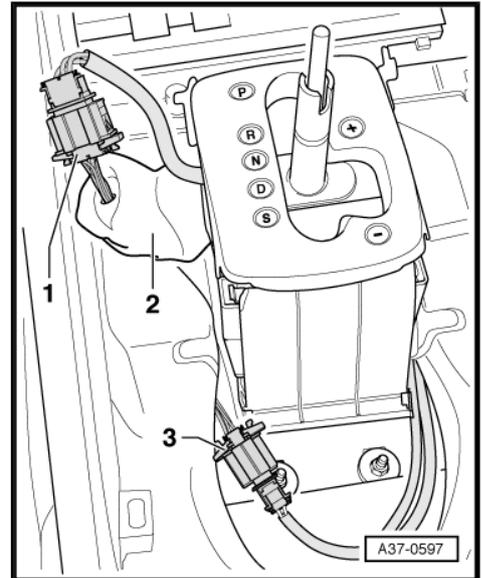


- Move selector lever from "P" to "S".
- Check front protective sleeve on selector lever cable for damage, if necessary renew cable.
- Selector mechanism and selector lever cable should move smoothly, if necessary renew selector lever cable or service selector mechanism.
- Remove selector lever handle ⇒ [page 26](#).
- Shift selector lever into position "N".
- Remove front ashtray ⇒ Rep. Gr. 68 .
- Remove centre console trim panel ⇒ Rep. Gr. 68 .

- Pull electrical connector -1- out of protective sleeve -2-.
- Unplug electrical connector -1- for printed circuit.
- Unplug electrical connector -3- for selector lever lock solenoid -N110-.

i Note

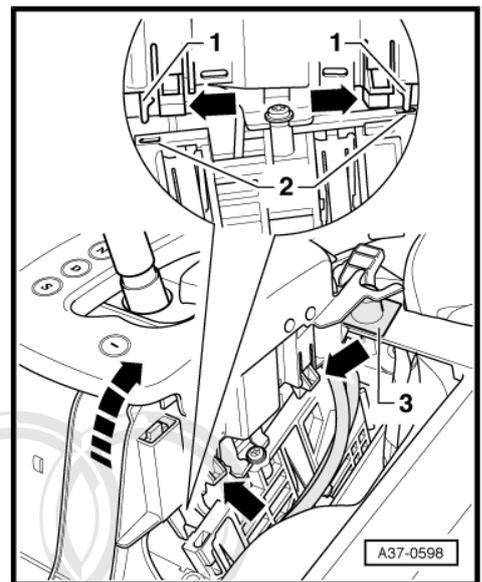
The electrical connector -3- is also covered by a protective sleeve.



- To remove selector mechanism cover, carefully release retaining tabs -arrows- one after the other.
- Pull cover upwards slightly until guides -1- for cover are above holes -2-.
- Then lift rear part of cover upwards in direction of -arrow- and at the same time pull it over the cross piece of the centre console -3-.
- Shift selector lever into position "P".
- Bring selector shaft lever into position "P" on gearbox. Detent lever must engage in parking lock gear, both front wheels are locked (cannot be turned together in one direction).

i Note

In order to be sure that the selector shaft lever is in position "D", shift the selector shaft lever on gearbox forward into position "P" until stop. Then shift back three positions (opposite to direction of travel).



- It should be possible to press the selector lever cable onto the selector shaft lever.



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- If necessary, loosen clamping bolt of selector lever cable with socket (Torx 25), press selector lever cable onto selector shaft lever and secure clamping bolt again.

Adjusting

- Shift selector lever to position "D".
- Loosen clamping bolt of selector lever cable with socket (Torx 25).



Note

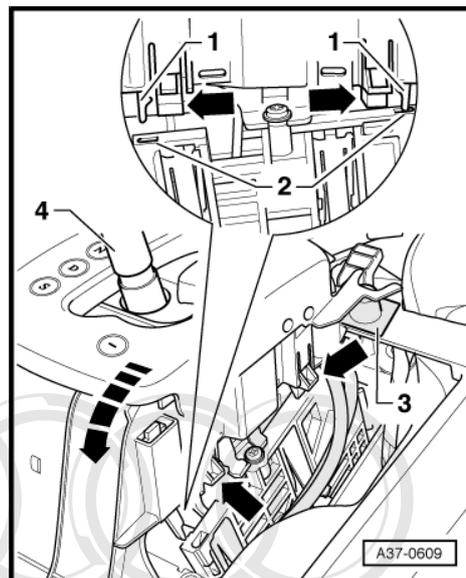
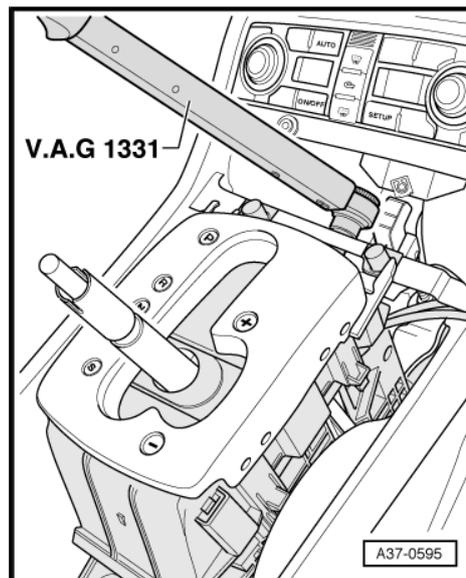
- ◆ *Loosen clamping bolt approx. 1 turn – do not remove.*
- ◆ *The selector lever must remain in "D" position when clamping bolt is loosened; otherwise, adjustment will not be correct.*
- Carefully move selector lever slightly forwards and backwards, without shifting lever into a different selector lever position.
- Using socket (Torx 25), tighten clamping bolt of selector lever cable to 13 Nm.



Note

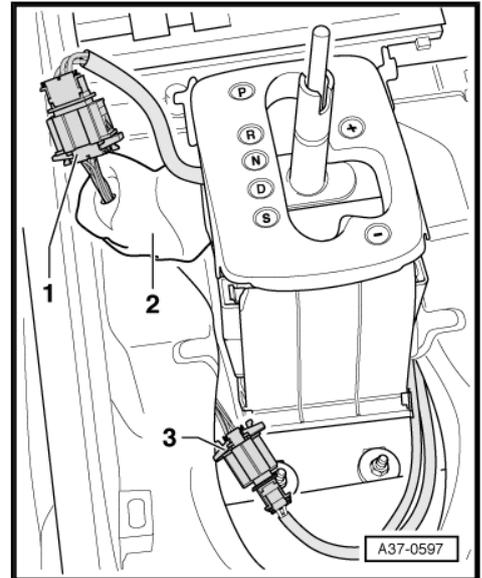
Do not pull selector lever back or forward while adjusting as this would give an incorrect adjustment.

- Guide cover over selector lever -4- and at the same time under cross piece for centre console -3- at front.
- Then swing rear of cover downwards in direction of -arrow-.
- Insert guides -1- of cover into holes -2-.
- Then push down on cover until retainer tabs -arrows- lock.



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- Attach electrical connector -3- for selector lever lock solenoid -N110- .
- Push electrical connector -3- into protective sleeve (not shown in illustration).
- Attach electrical connector -1- for printed circuit.
- Push electrical connector -1- into protective sleeve -2-.
- Install front ashtray and centre console trim panel ⇒ Rep. Gr. 68 .
- Install selector lever handle ⇒ [page 26](#) .
- Check selector mechanism ⇒ [page 22](#) .



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3 Removing and installing gearbox

Overview:

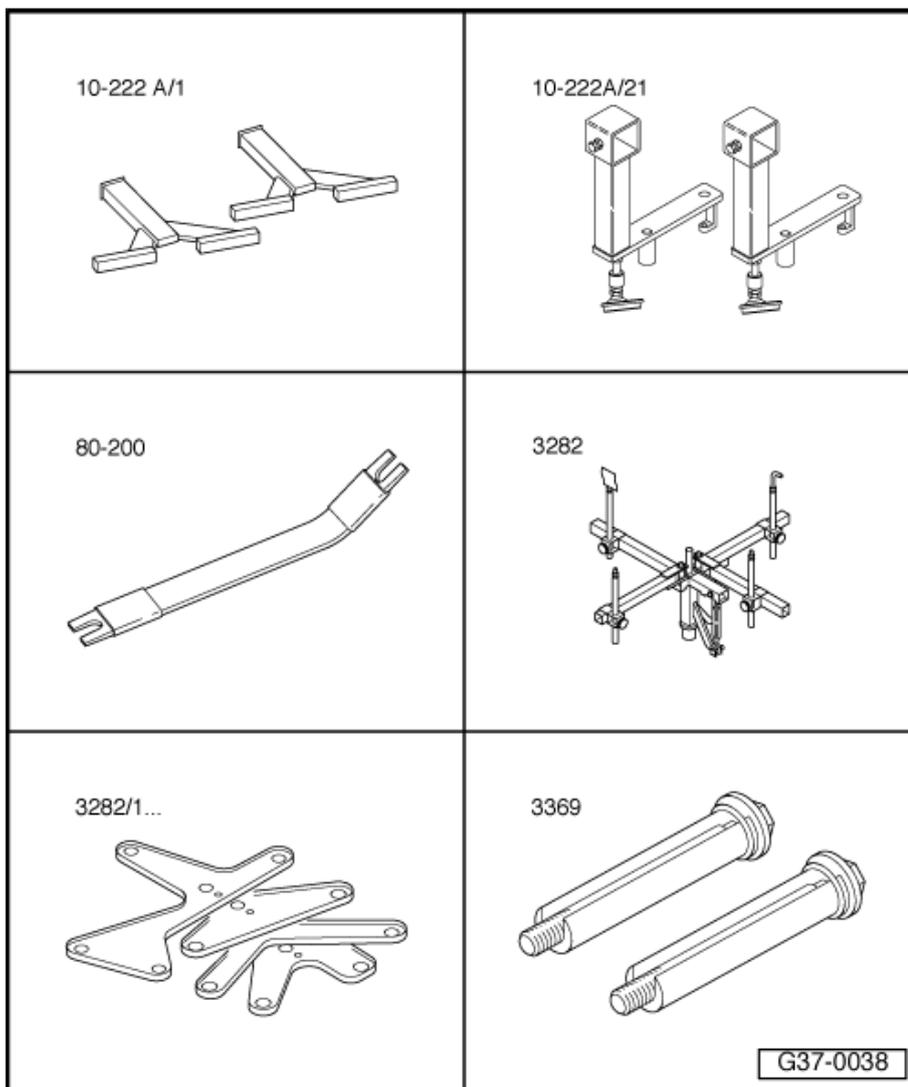
- ◆ ⇒ [“3.1 Removing gearbox - vehicles with V6 TDI engine”, page 40](#)
- ◆ ⇒ [“3.2 Installing gearbox on vehicles with V6 TDI engine”, page 57](#)
- ◆ ⇒ [“3.3 Removing gearbox on vehicles with V6 3.2 ltr. FSI engine”, page 61](#)
- ◆ ⇒ [“3.4 Installing gearbox on vehicles with V6 3.2 ltr. FSI engine”, page 73](#)
- ◆ ⇒ [“3.5 Removing gearbox on vehicles with V8 4.2 ltr. FSI engine”, page 79](#)
- ◆ ⇒ [“3.6 Installing gearbox on vehicles with V8 4.2 ltr. FSI engine”, page 92](#)

3.1 Removing gearbox - vehicles with V6 TDI engine

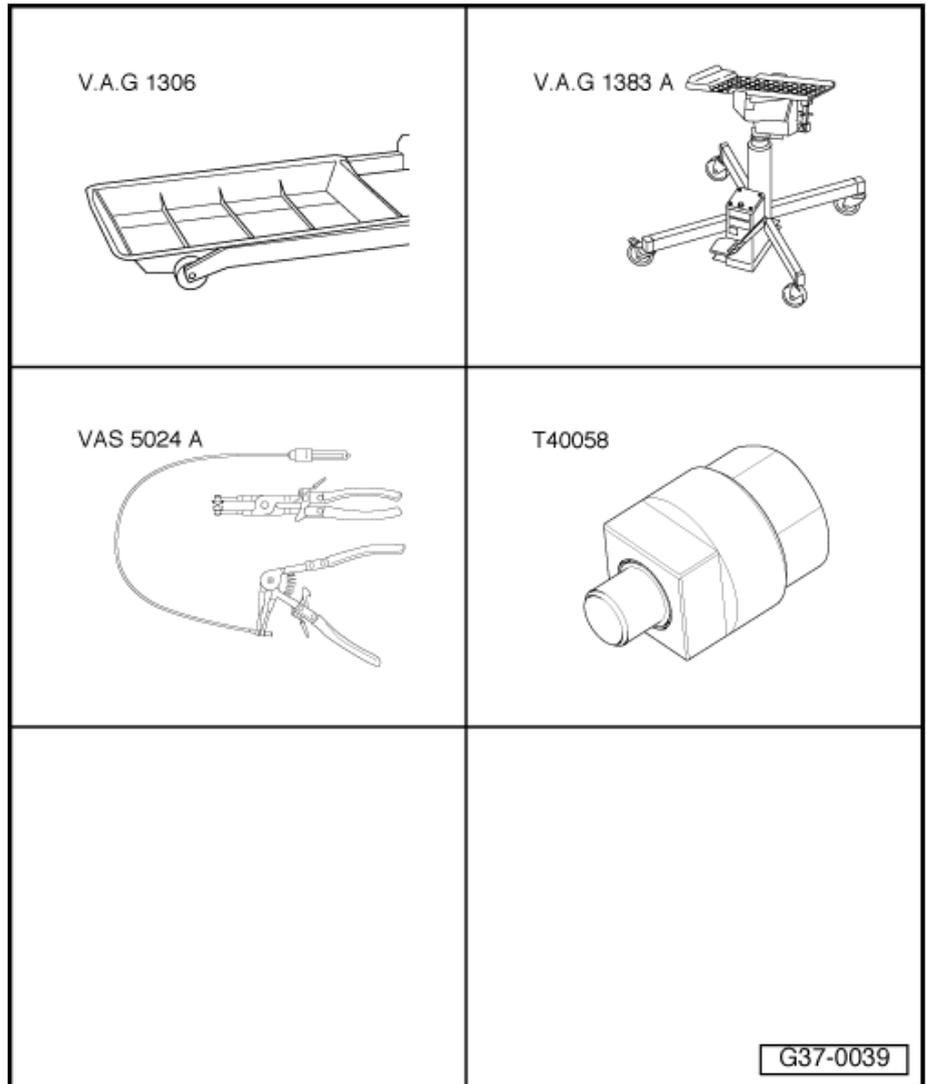
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Special tools and workshop equipment required

- ◆ Support bracket -10-222 A-
- ◆ Adapters -10-222 A/21-
- ◆ Removal lever -80-200-
- ◆ Gearbox support -3282-
- ◆ Adjustment plate -3282/48-
- ◆ Front-end service sleeves -3369-
- ◆ Bolt -3282/50-



- ◆ Drip tray -V.A.G 1306-
- ◆ Engine and gearbox jack - V.A.G 1383 A-
- ◆ Spring type clip pliers -VAS 5024 A-
- ◆ Adapter -T40058-
- ◆ Bolt M10x20 (1x)
- ◆ Bolt M10x25 (1x)
- ◆ Spacer 15 mm (1x)



Procedure



All cable ties which are released or cut open during removal must be fitted in the same position when installing.



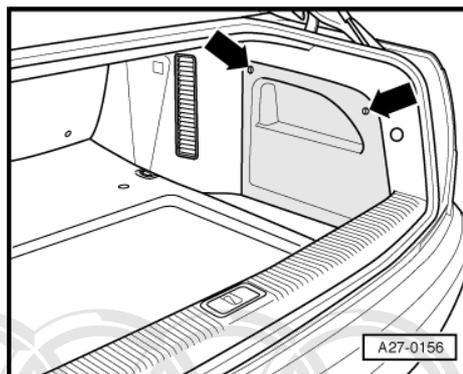
WARNING

Follow steps required when disconnecting battery → Electrical system; Rep. Gr. 27.

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- Switch off ignition.

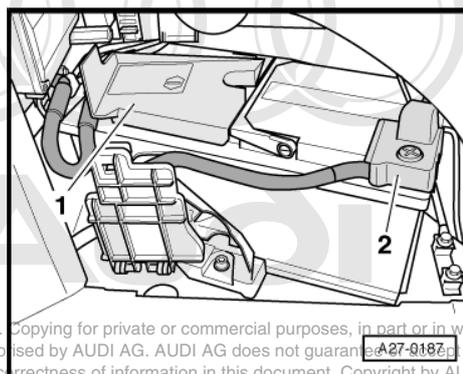
- Remove cover in luggage compartment side trim (right-side) -arrows-.



- Remove battery cover -1-.

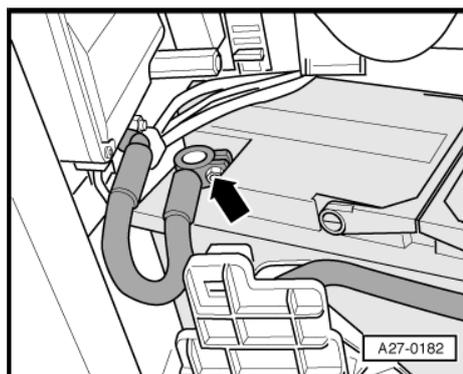
 **Note**

-Item 2- can be disregarded.

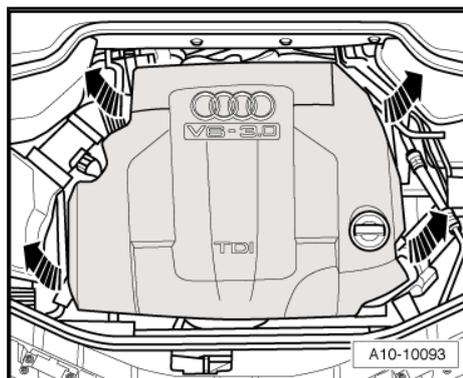


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- Disconnect earth wire -arrow- at battery.



- Carefully detach engine cover panel from the four retaining studs -arrows- one by one.



- Unscrew bracket for air conditioner line from lock carrier -arrow-.



WARNING

Hot steam may escape when opening expansion tank. Cover filler cap with cloth and open carefully.

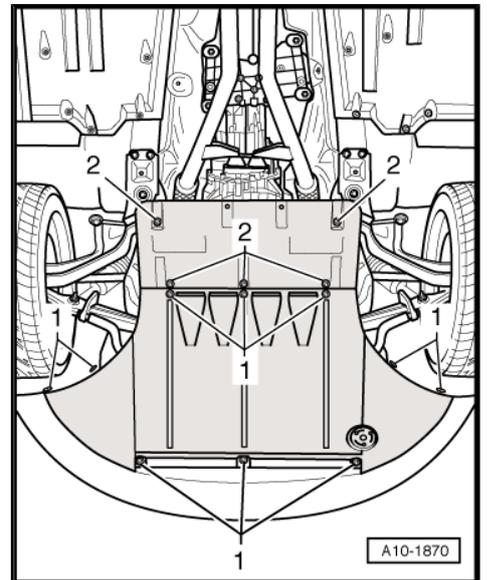
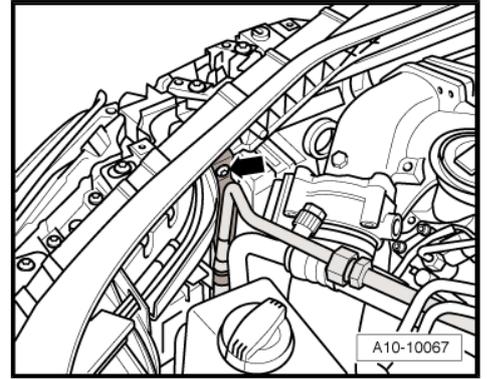
- Open filler cap on coolant expansion tank.
- Remove both front wheels.



Note

Secure brake discs with wheel bolts.

- Release quick-release fasteners -1- and -2- and detach front and rear noise insulation.

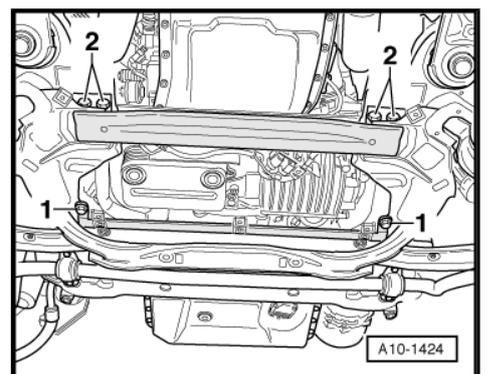


- Unscrew bolts -1- and remove bracket for noise insulation.



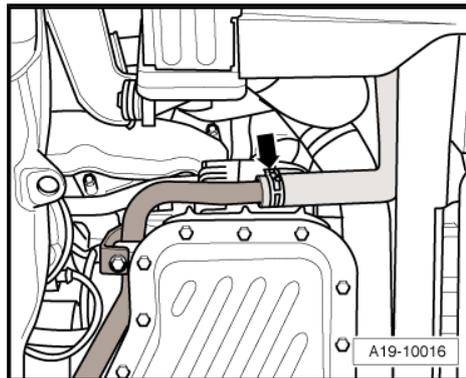
Note

-Item 2- can be disregarded.

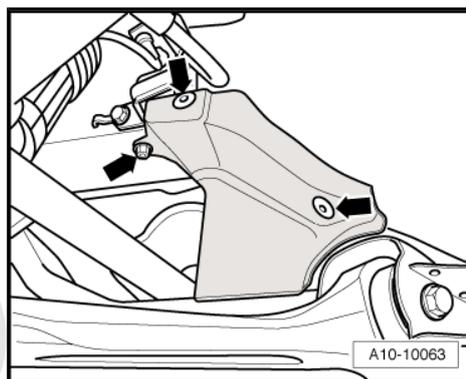


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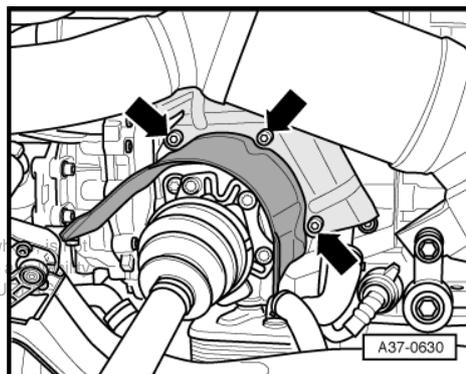
- Detach coolant hose -arrow- at right-hand coolant pipe and drain remaining coolant from engine.



- Remove noise insulation in wheel housing (left and right) -arrows-.

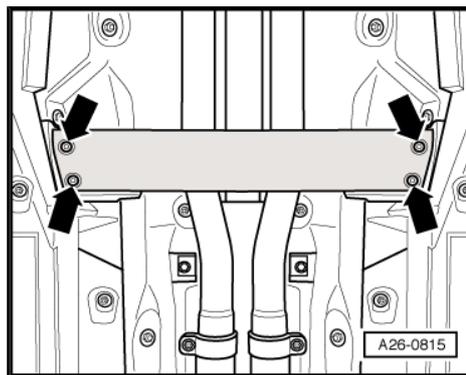


- Unbolt heat shield from gearbox above left drive shaft -arrows-.
- Unbolt drive shafts (left and right) from gearbox flanges.



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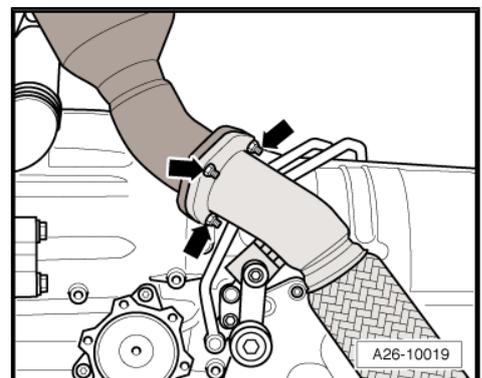
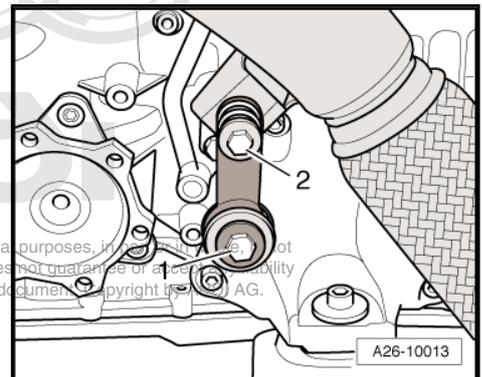
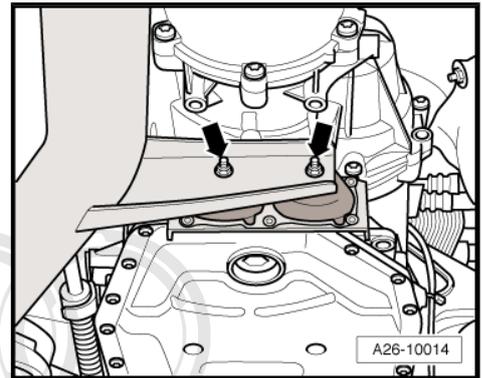
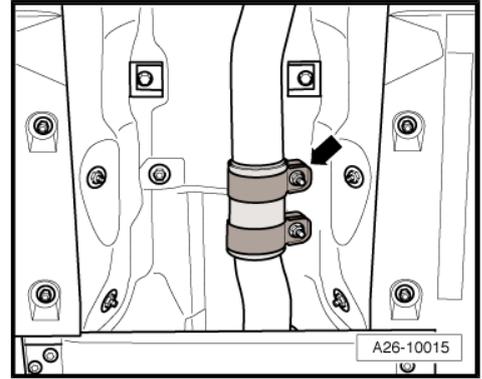
- Remove front cross member -arrows-.



i Note

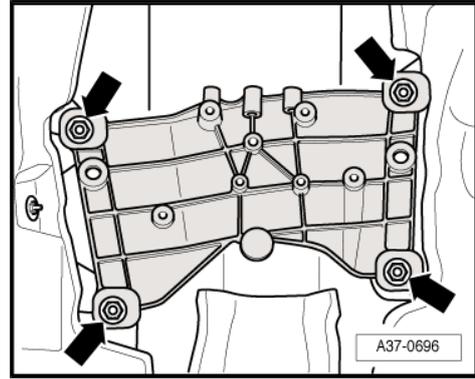
The flexible pipe connection (de-coupling element) on the front exhaust pipe must not be bent more than 10° – otherwise it can be damaged.

- Disconnect exhaust system at clamp -arrow-.
- Unscrew nuts -arrows- at bracket for front exhaust pipe (centre).
- Unscrew bolts -1- and -2- and remove front exhaust pipe bracket.
- Unscrew nuts -arrows- and remove front exhaust pipe with main catalytic converter.

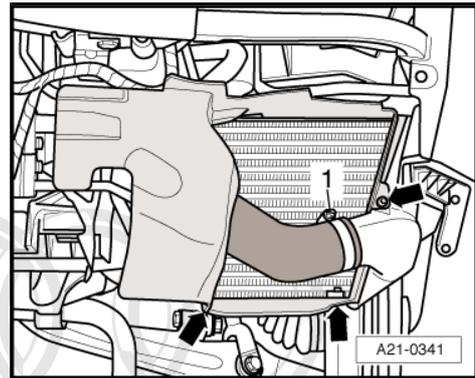


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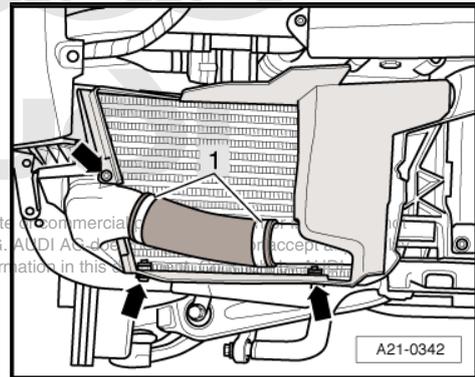
- If fitted, remove bolts -arrows- and remove tunnel cross member.



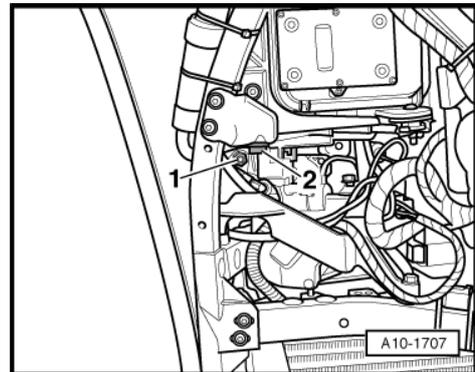
- Remove front section of front wheel housing liner (left and right) ⇒ General body repairs, exterior; Rep. Gr. 66 .
- Remove front bumper ⇒ General body repairs, exterior; Rep. Gr. 63 .
- Release hose clip -1- and detach air intake hose.
- Remove bolts -arrows-.
- Remove air duct for left charge air cooler.



- Release hose clips -1- and detach air intake hose.
- Remove bolts -arrows-.
- Remove air duct for right charge air cooler.

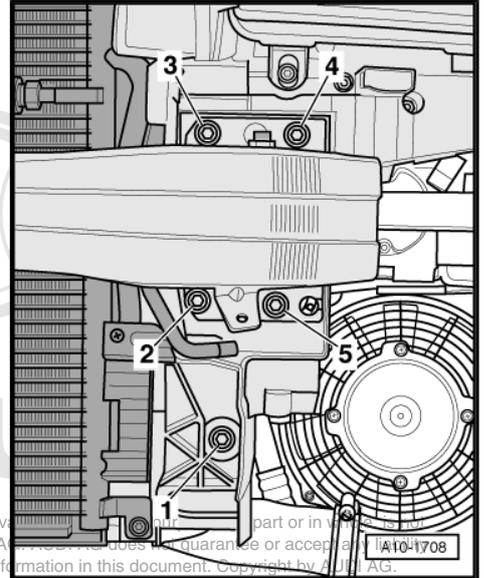


- Unbolt one nut -1- and one bolt -2- for lock carrier in wheel housings on both sides of vehicle.

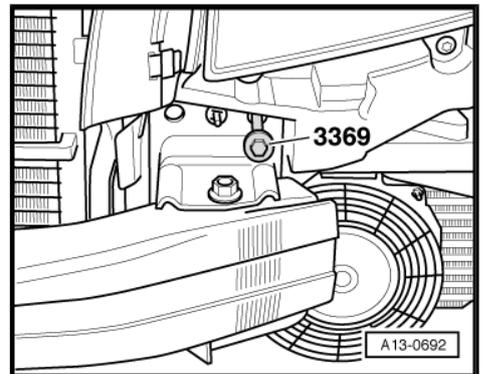


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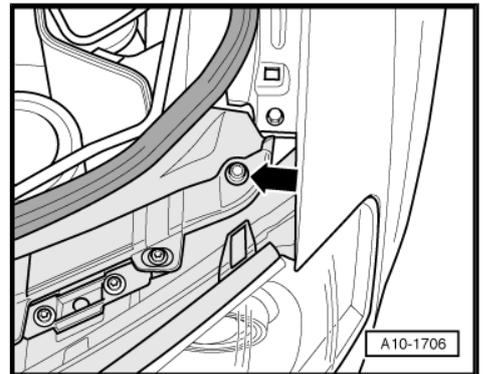
- Unscrew bolts -1 ... 5- on left and right side of vehicle.



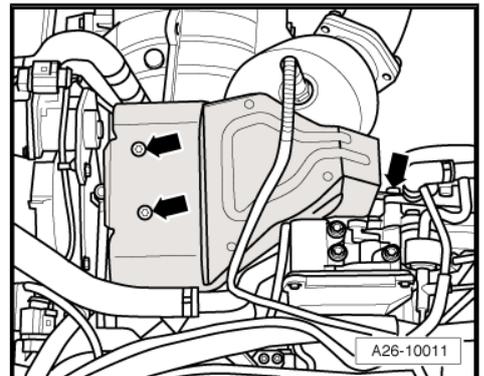
- Take out bolts from front-end service sleeves (special tool -3369-).
- Screw bolts from front-end service sleeves -3369- into top retaining holes of impact dampers (left and right).



- Pull off bonnet seal at both wing panels.
- Unscrew one bolt -arrow- on each side at top of lock carrier.
- Pull lock carrier carefully forwards.

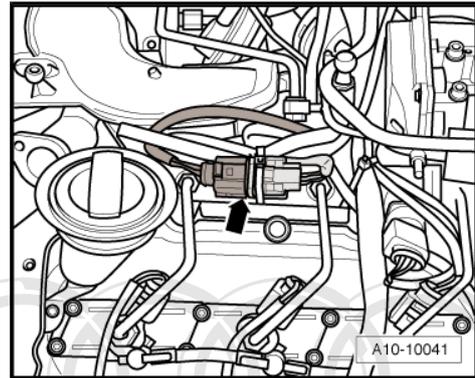


- Remove heat shield for turbocharger -arrows-.

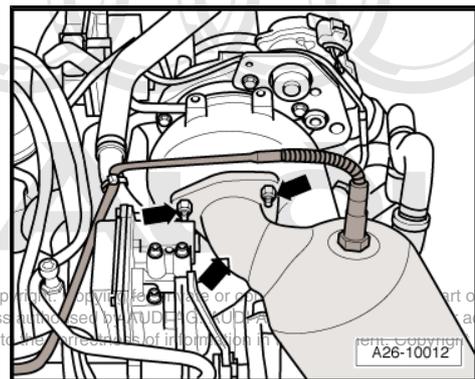




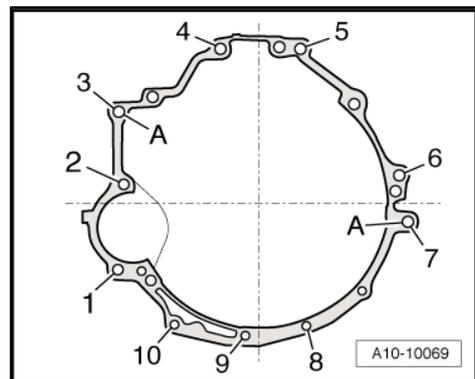
- Disconnect electrical connector -arrow- for lambda probe - G39- and move wiring clear.



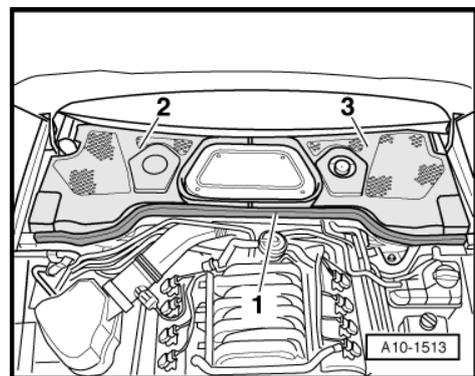
- Remove nuts -arrows- for starter catalytic converter/turbo-charger.



- Remove bolts -4- and -5- (access from above) from engine/ gearbox flange.

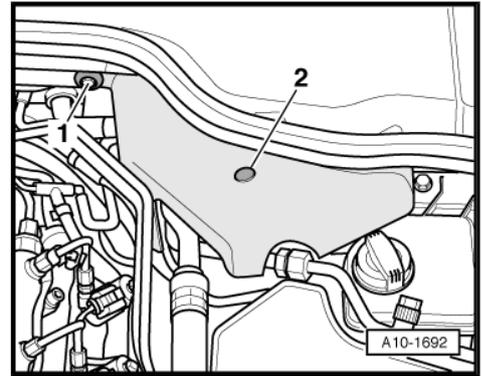


- Pull rubber seal -1- off plenum chamber covers.
- Detach plenum chamber covers -2- and -3-.



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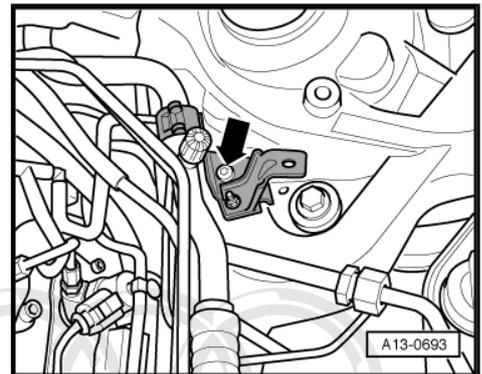
- Remove cover for suspension turret (left-side); to do so, unscrew nut -1- and detach spreader clip -2-.



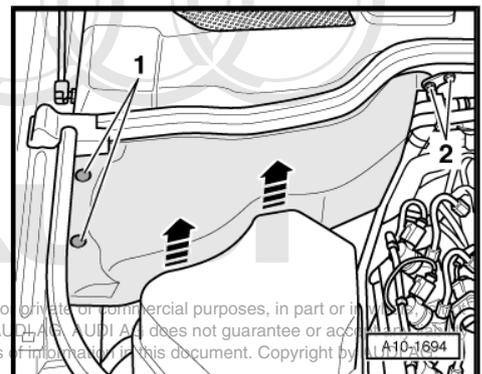
- Unscrew bolt -arrow-.
- Pivot coolant pipe bracket to side.

i Note

To prevent damage to air conditioner compressor and refrigerant pipes and hoses, take care to avoid straining, kinking or bending pipes and hoses.



- Remove cover for suspension turret (right-side); to do so, detach spreader clips -1- and unscrew bolted connection -2-.
- Pull cover out of retainers -arrows-.

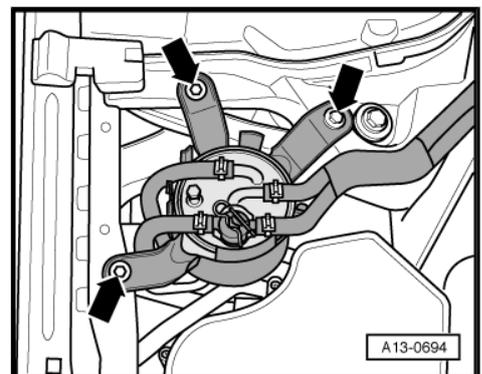


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- Unscrew bolts -arrows- for fuel filter bracket.

i Note

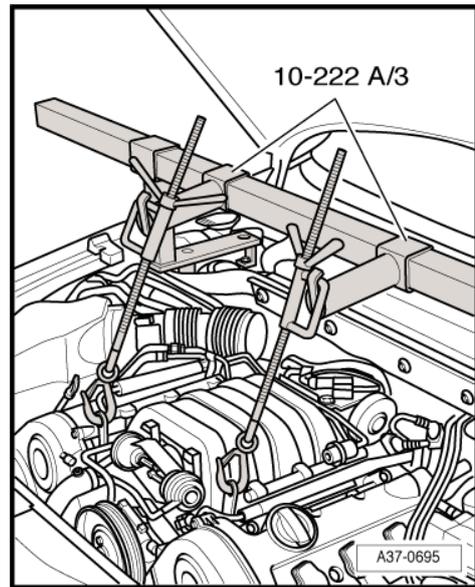
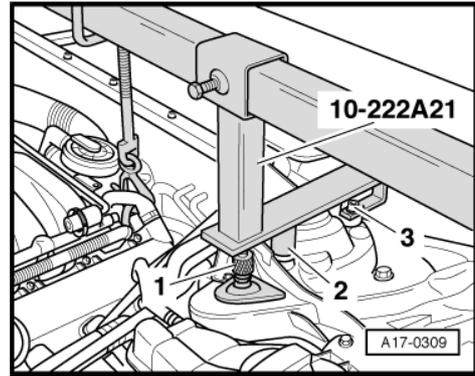
The fuel filter remains in the engine department with hoses/pipes connected.



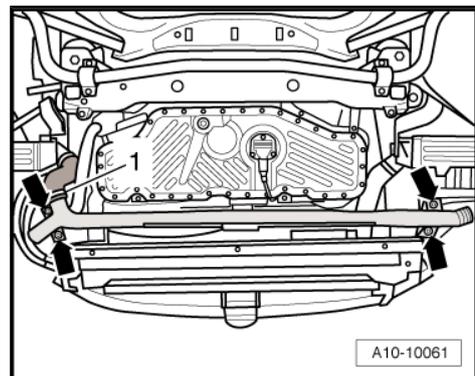


- Unscrew rear securing bolts -3- for body brace.
- Secure support bracket -10-222 A- with adapters -10-222 A/21- and adapter -10-222 A/3- to suspension turrets.
- The adapter -10-222 A/3- faces forward.
- Adapters are marked for left and right side of vehicle.
- Centre resting point -2- for adapters is positioned on front bolts for body brace.
- The adapters -10-222 A/21- are secured with rear securing bolts -3- for body brace.
- Knurled screw -1- must be tightened far enough to allow support plate to rest on suspension turret.
- Hook spindle of support bracket -10-222 A- into front engine mounting eye and adapters -10-222 A/3- .
- Take up weight with spindle of support bracket.

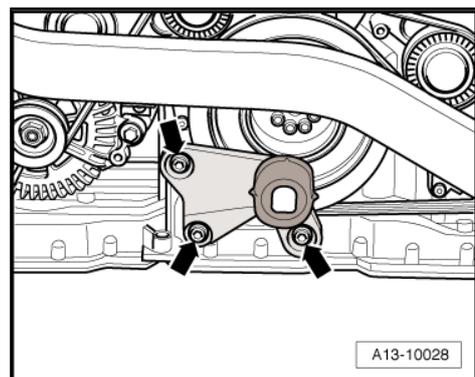
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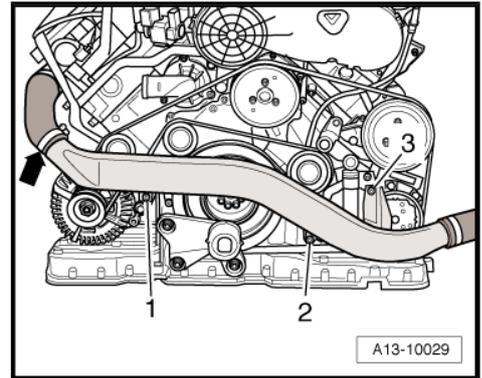
- Detach hose -1-.
- Unscrew bolts -arrows- and remove bottom air pipe.



- Unscrew bolts -arrows- and remove torque reaction support from engine.

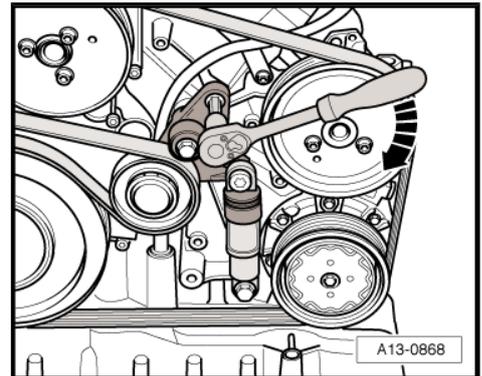


- Detach air hose -arrow- at top air pipe.
- Unscrew bolts -1 ... 3- and remove top air pipe.

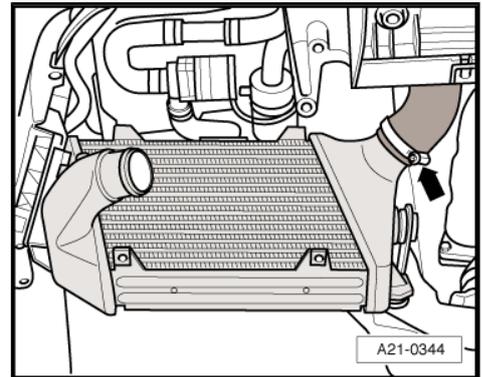


- Swivel tensioner in -direction of arrow- to slacken poly V-belt using ratchet with socket insert TORX 60.
- Detach poly V-belt from tensioning roller.

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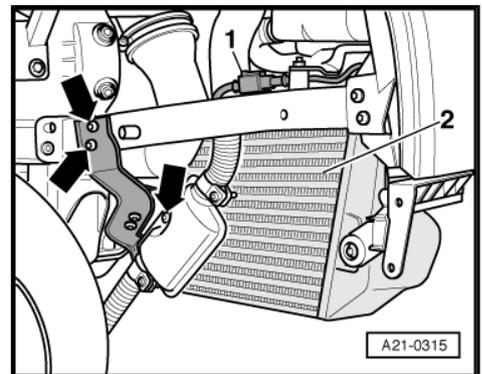
- Detach air hose -arrow- at front of charge air cooler (right-side).



- Unscrew bolts -arrows- and detach charge air cooler bracket.
- Detach right charge air cooler -2-.

i Note

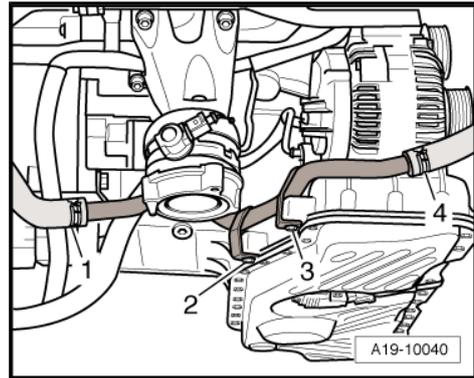
-Item 1- can be disregarded.



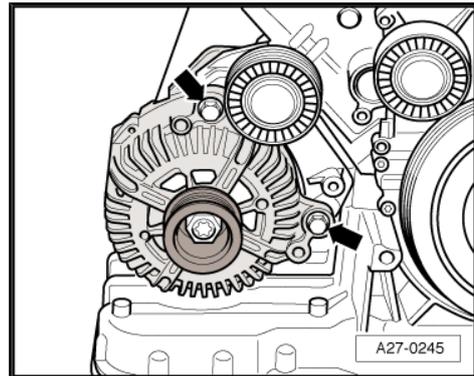
- Place a cloth under the connection to catch escaping coolant and detach hose -1-.
- Unscrew bolts -2- and -3- and detach bottom coolant pipe (right-side).

 **Note**

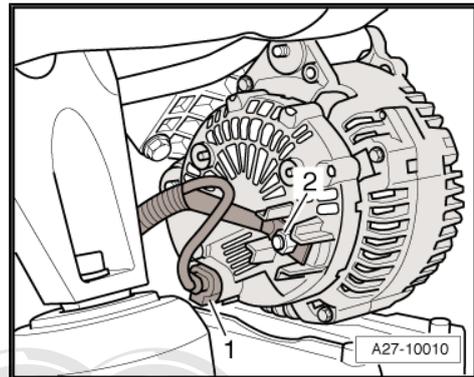
-Item 4- can be disregarded.



- Unscrew bolts -arrow- and detach alternator.



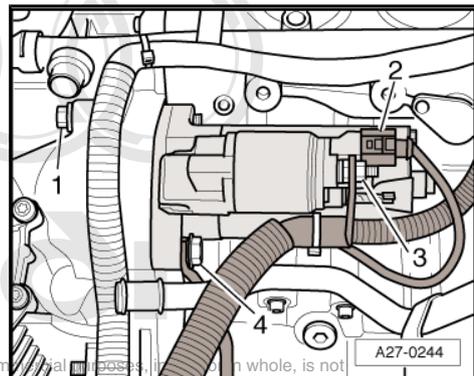
- Disconnect wires -1- and -2- at alternator.



- Disconnect wires -2- and -3- at starter.
- Unscrew bolts -1- and -4- and remove starter.

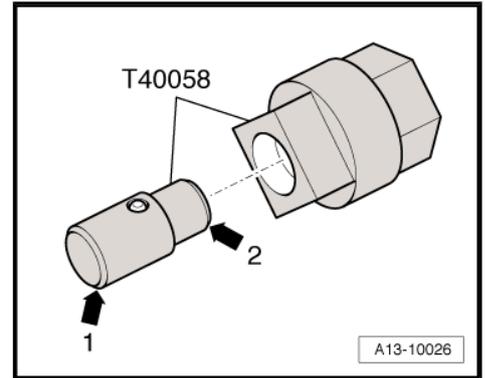
 **Note**

For illustration purposes shown here with engine support removed.



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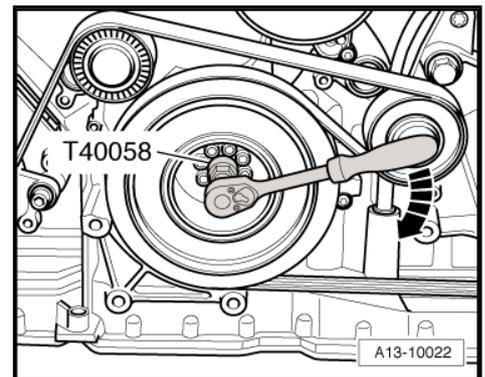
- Insert guide pin of adapter -T40058- so that the large diameter -arrow 1- faces engine. The smaller diameter -arrow 2- faces adapter.



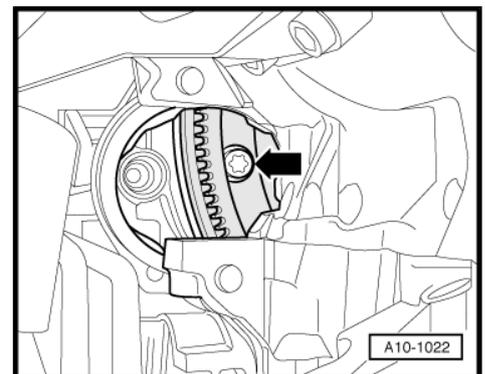
- Counter-hold crankshaft using adapter -T40058- to slacken torque converter bolts.

i Note

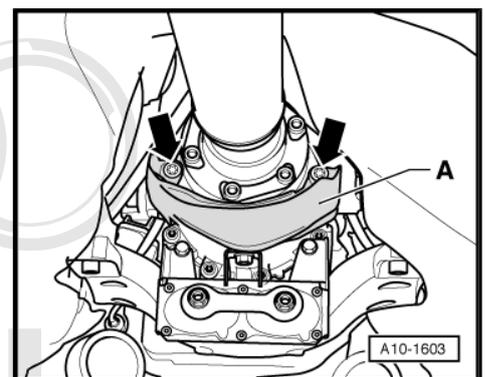
-Arrow- can be disregarded.



- Unscrew the 3 Torx socket head bolts -arrows- of the torque converter through the opening for the removed starter (turning the crankshaft $\frac{1}{3}$ turn each time).

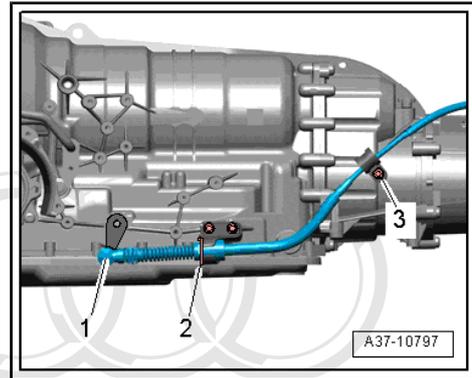


- Unbolt heat shield -A- for propshaft -arrows-.
- Unscrew bolts at gearbox/propshaft flange.
- Slide propshaft together towards rear final drive. The constant velocity joints can be moved axially.
- Tie up propshaft to body.



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- Use removal lever -80-200- to pry ball socket -1- on selector lever cable off selector shaft lever.
- Unclip locking plate -2- from support bracket for selector lever cable.
- If fitted, remove bolt -3- and move selector lever cable clear to one side.

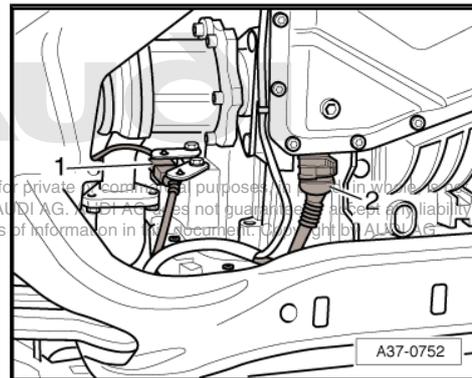


Caution

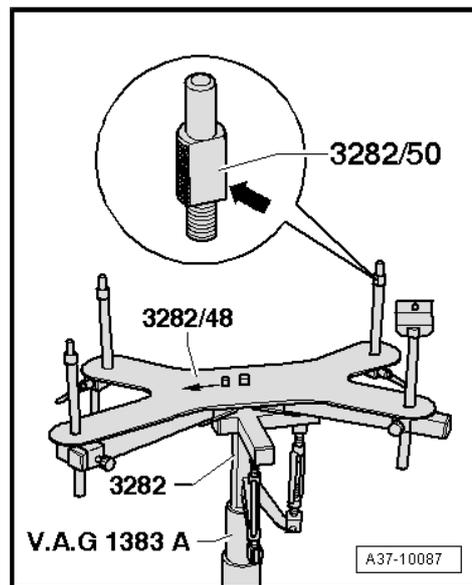
The gearbox control unit (mechatronic unit) can be damaged by electrostatic discharge.

◆ *Do not touch contact pins in gearbox connector with bare hands.*

- Touch gearbox housing with your hand (without gloves) to discharge any static electricity.
- Disconnect electrical connector -2- at gearbox by turning fastener cap anti-clockwise.
- Unplug connector -1- for engine speed sender -G28- .
- Unclip connectors from bracket.
- Move all electrical wiring clear of gearbox housing.
- Set up gearbox support -3282- on engine and gearbox jack -V.A.G 1383 A- .
- Place adjustment plate -3282/48- on gearbox support -3282- as shown in illustration.
- Align arms of gearbox support according to holes in adjustment plate.
- Attach support elements as illustrated on adjustment plate.



- Note**
- ◆ *The bolt -3282/50- is flattened at the side -arrow-, the flattened side should face the oil pan when inserting bolt into gearbox.*
 - ◆ *The arrow symbol on the adjustment plate -3282/42- points in the direction of travel.*
 - Place engine and gearbox jack -V.A.G 1383 A- with gearbox support -3282- underneath gearbox.
 - Align adjustment plate -3282/42- parallel with gearbox.

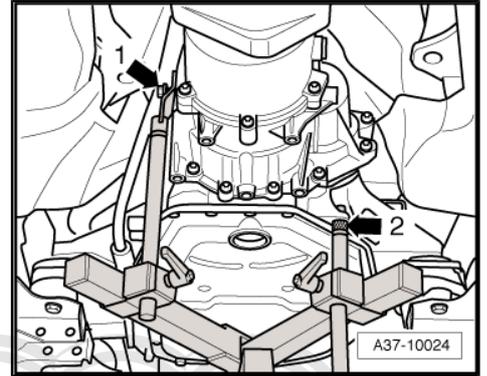


- Bolt support to rear left tapped hole on gearbox -1- using one bolt M10x20.
- Insert flattened bolt -3282/50- into mounting hole at rear right of gearbox housing -arrow 2-.

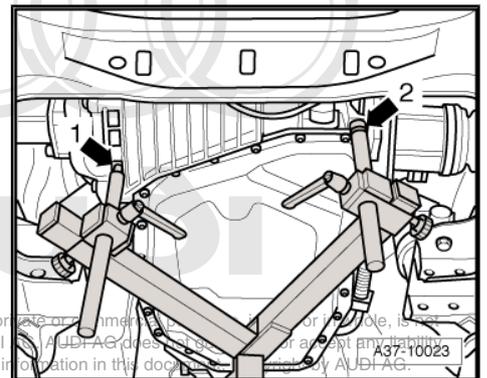


WARNING

- *The flattened side of the bolt -3282/50- must face towards the gearbox oil pan, to prevent the oil pan from being bent or damaged.*
- *Renew the gearbox oil pan if damaged.*

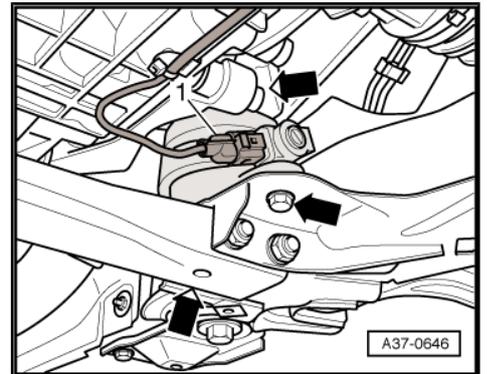


- Insert bolt into mounting hole at front left of gearbox housing -arrow 2-.
- Insert bolt into recess in housing at front right of differential housing -arrow 1-.
- Use engine and gearbox jack -V.A.G 1383 A- to lift gearbox up slightly.

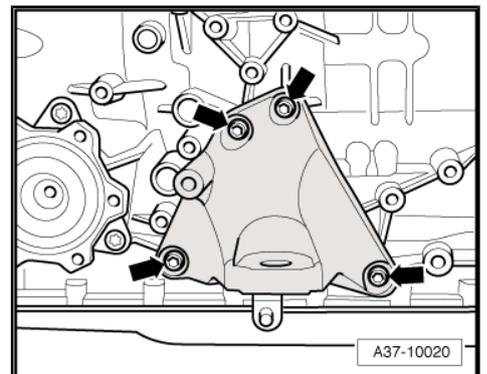


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- Unplug electrical connector -1- at gearbox mounting (left-side).
- Unscrew bolts -arrows- and remove gearbox mounting (left-side).

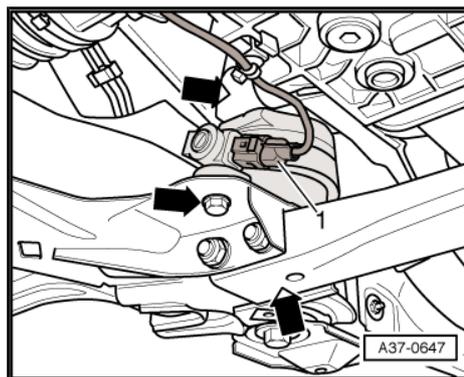


- Unscrew gearbox support (left-side) -arrows-.

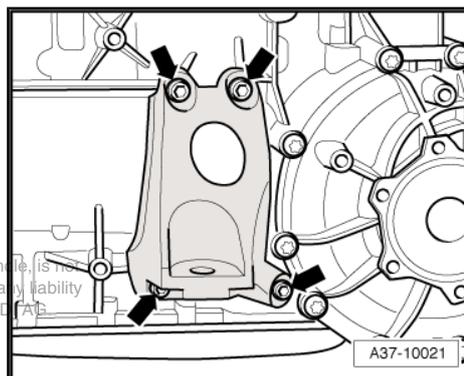




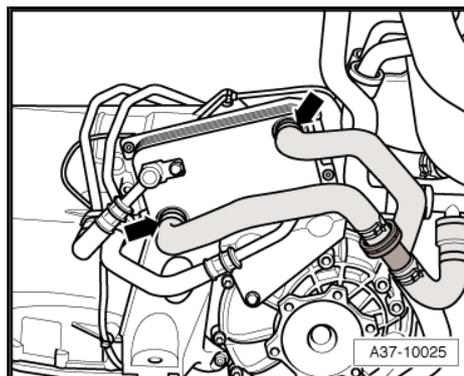
- Unplug electrical connector -1- at gearbox mounting (right-side).
- Unscrew bolts -arrows- and remove gearbox mounting (right-side).



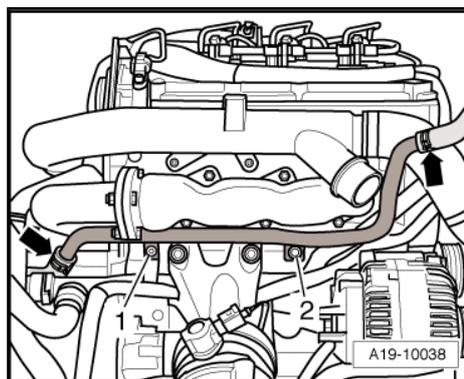
- Unscrew gearbox support (right-side) -arrows-.



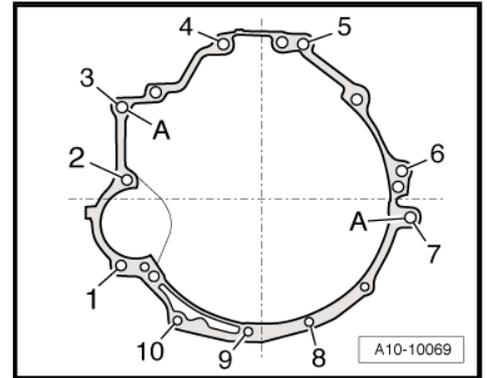
- Place a cloth under the connection to catch escaping coolant and detach coolant hoses -arrows- from ATF cooler.



- Remove bolts -1- and -2- from coolant pipe (right-side). Leave hoses -arrows- connected.



- Remove bolts -3- and -6 ... 10- from engine/gearbox flange.
- Press gearbox off dowel sleeves and lower it carefully.
- When lowering gearbox make sure there is sufficient clearance for drive shaft flanges and ATF cooler.



3.2 Installing gearbox on vehicles with V6 TDI engine

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

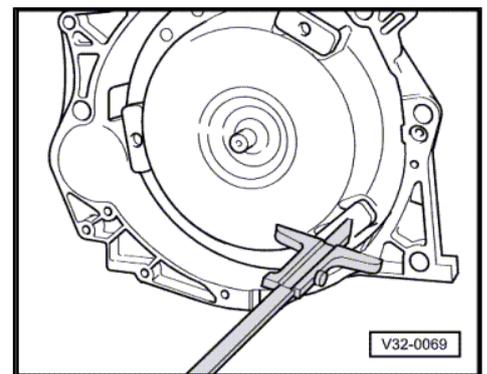
Note

- ◆ *Clean ATF pipes and ATF cooler before installing exchange gearbox => page 117.*
- ◆ *Renew self-locking nuts and bolts when performing assembly work.*
- ◆ *Renew oil seals and gaskets, and bolts which are tightened by turning through a specified angle.*
- ◆ *Re-attach heat shield sleeves at the same locations when re-installing.*
- ◆ *Hose connections and hoses for charge air system must be free from oil and grease before fitting.*
- ◆ *Secure all hose connections with the correct hose clips (as original equipment); refer to => Electronic parts catalogue.*
- ◆ *Re-attach all cable ties at the same locations when re-installing.*
- Before installing gearbox, you must ensure that the torque converter is properly fitted in the gearbox.
- If the torque converter is correctly installed, the depth between the contact faces at the tapped holes on the torque converter and the contact surface of the torque converter bell housing is approx. 19 mm.



WARNING

If the torque converter is not fitted correctly, the torque converter drive lugs or the ATF pump will be irreparably damaged when the gearbox is joined to the engine.





- Before installing gearbox, check for correct positioning of dowel sleeves -A- at cylinder block. Install new dowel sleeves if necessary.
- If an intermediate plate was installed between engine and gearbox, reinstall plate in same position.
- Before joining engine and gearbox, turn torque converter and drive plate (on engine) until one hole and one tapped hole are in line with the opening for the removed starter.
- When pushing the engine and gearbox together, ensure that no wiring or pipes etc. can become trapped.

When you then install the gearbox, adhere to the following instructions.

**WARNING**

Before and while you are tightening the bolts on the engine/gearbox flange keep checking that the torque converter can still be rotated behind the drive plate. If the converter cannot be turned, it must be assumed that it has not been installed correctly and the drive lugs on the converter or the ATF pump will be damaged when the bolts are fully tightened.

- Bolt gearbox onto engine.

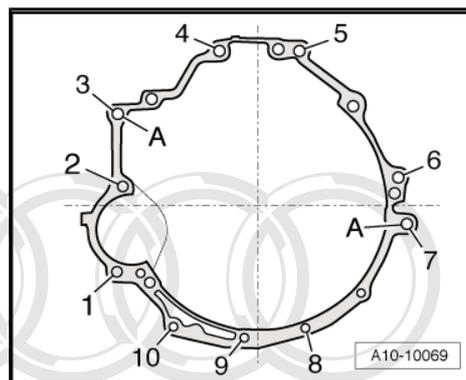
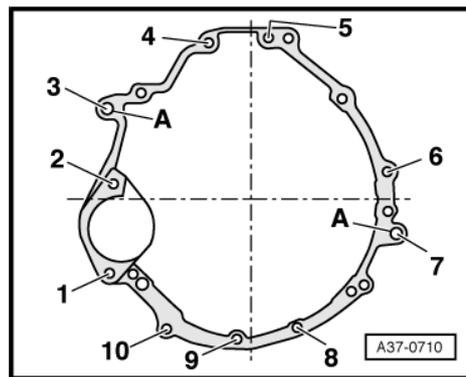
**Note**

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

Engine/gearbox securing bolts

Item	Bolt	Nm
1	M10×80	65 ¹⁾
2	M10×90	65 ¹⁾
3 ... 5	M12×95	65
6, 7	M12×115	65
8, 9, 10	M10×80	45
A	Dowel sleeves for centralising	

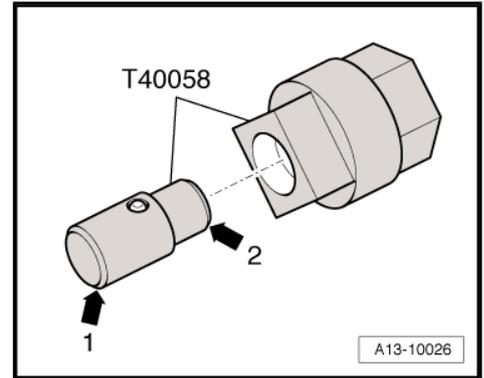
• ¹⁾ Property class 10.9



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- Insert guide pin of adapter -T40058- so that the large diameter -arrow 1- faces engine. The smaller diameter -arrow 2- faces adapter.

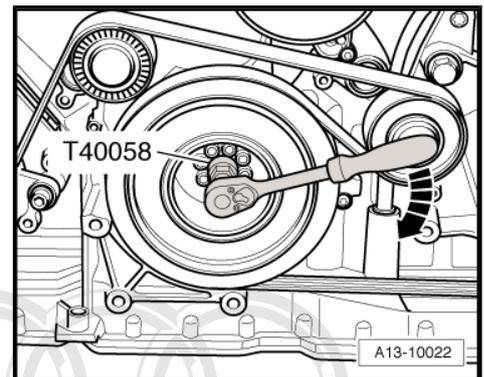


- Counter-hold crankshaft using adapter -T40058- to secure torque converter bolts.

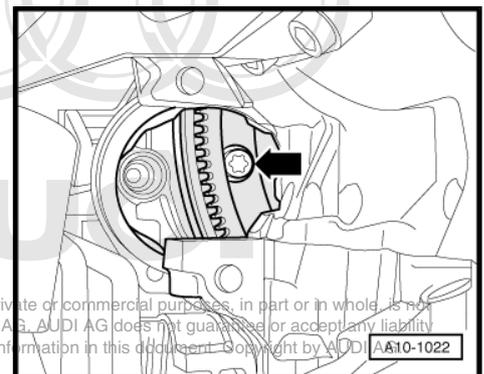
i Note

-Arrow- can be disregarded.

- Use new ribbed bolts to secure the torque converter to the drive plate.



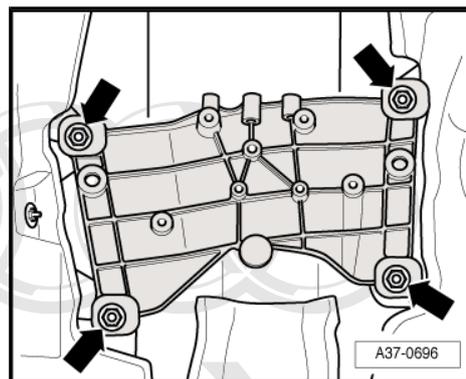
- Screw in 3 bolts -arrow- for torque converter through opening for removed starter, and tighten lightly (turning crankshaft $\frac{1}{3}$ turn each time).
- Then tighten torque converter bolts to torque (turning the crankshaft $\frac{1}{3}$ turn each time).
- Install starter => Electrical system; Rep. Gr. 27 .



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- If fitted, install tunnel cross member and tighten bolts -arrows- to 40 Nm.
- Install exhaust system so it is free of stress ⇒ Engine, mechanics; Rep. Gr. 26 .
- Install gearbox support and gearbox mounting (left-side) ⇒ [page 96](#) .
- Install gearbox support and gearbox mounting (right-side) ⇒ [page 99](#) .
- Bolt propshaft onto gearbox ⇒ Rear final drive 01R; Rep. Gr. 39 or ⇒ Rear final drive 0AR; Rep. Gr. 39 .
- Bolt drive shafts to flange shafts ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 40 .
- Electrical connections and routing ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Check selector lever cable adjustment ⇒ [page 35](#) .
- Check oil level in front final drive ⇒ [page 133](#) .
- Check oil level in transfer box ⇒ [page 153](#) .
- Follow steps required after connecting battery ⇒ Electrical system; Rep. Gr. 27 .
- Fill cooling system ⇒ Engine, mechanics; Rep. Gr. 19 .
- Check ATF level in planetary gearbox ⇒ [page 110](#) .



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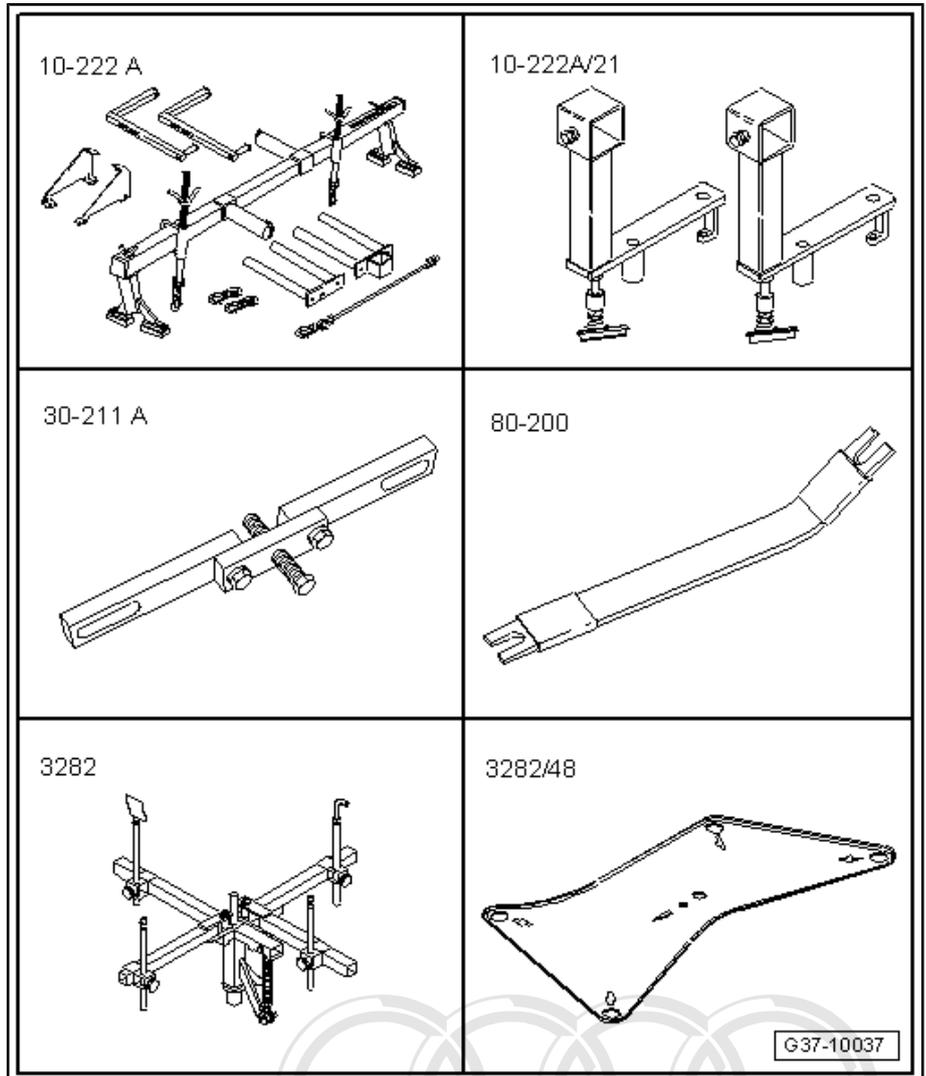
Tightening torques

Component	Nm
Bracket for exhaust pipe lug.	23
Heat shields above drive shafts to gearbox	23
Heat shield for propshaft to gearbox cover	25
Bracket for noise insulation to subframe	10
Support bracket to gearbox	10
Torque converter to drive plate; always renew bolts	85

3.3 Removing gearbox on vehicles with V6 3.2 ltr. FSI engine

Special tools and workshop equipment required

- ◆ Support bracket -10 - 222 A-
- ◆ Adapter -10 - 222 A /21-
- ◆ Support bridge -30 - 211 A-
- ◆ Removal lever -80 - 200-
- ◆ Gearbox support -3282-
- ◆ Adjustment plate -3282/48-

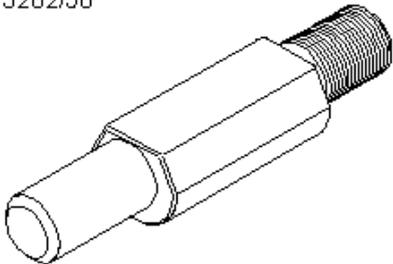
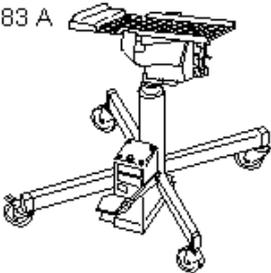
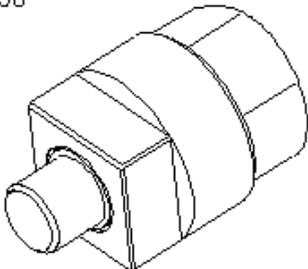


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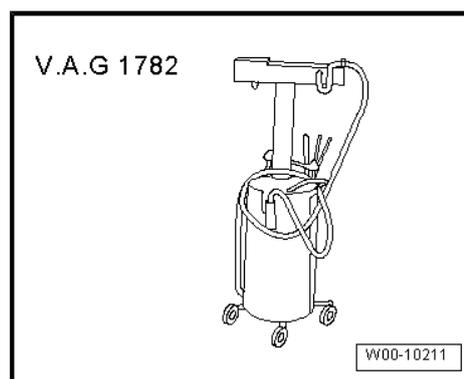
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- ◆ Bolt -3282/50-
- ◆ Engine and gearbox jack - V.A.G 1383 A-
- ◆ Stepladder -VAS 5085-
- ◆ Adapter -T40058-

<p>3282/50</p> 	<p>V.A.G 1383 A</p> 
<p>VAS 5085</p> 	<p>T40058</p> 
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- ◆ Used oil collection and extraction unit -V.A.G 1782-



- ◆ Bolt M10x20 (1x)
- ◆ Bolt M10x25 (1x)
- ◆ Spacer 15 mm (1x)

Procedure

i Note

All cable ties which are released or cut open during removal must be fitted in the same position when installing.

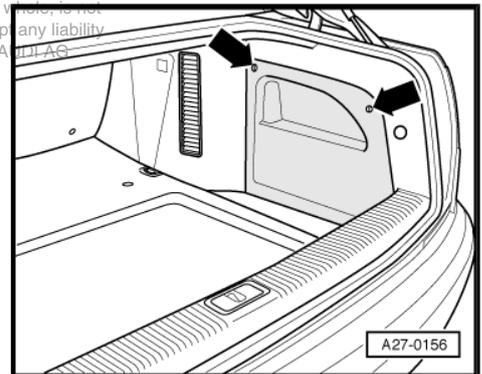
! **WARNING**
 Follow steps required when disconnecting battery ⇒ *Electrical system; Rep. Gr. 27*.

- Switch off ignition.

i Note

The ignition key must be left in the ignition lock when disconnecting the battery so that the steering wheel can be turned after the battery has been disconnected.

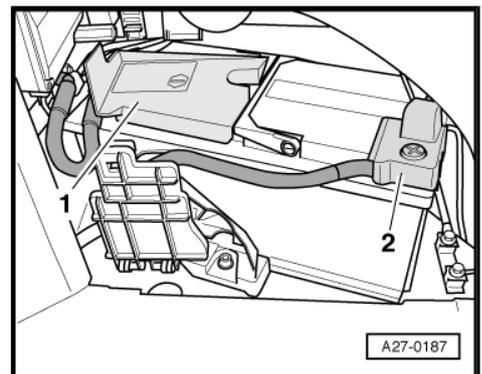
- Remove cover in luggage compartment side trim (right-side) -arrows-.



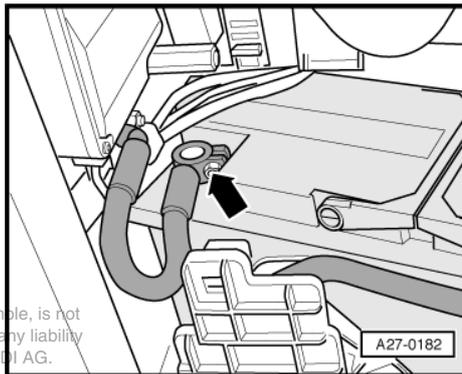
- Remove battery cover -1-.

i Note

-Item 2- can be disregarded.

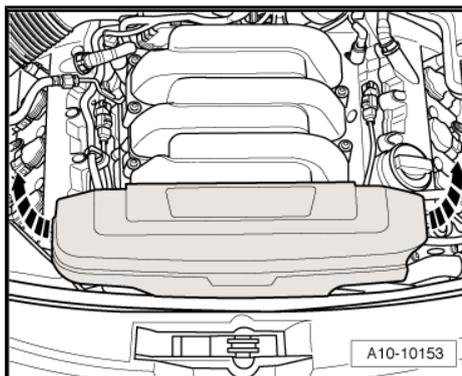


- Disconnect earth wire -arrow- at battery.

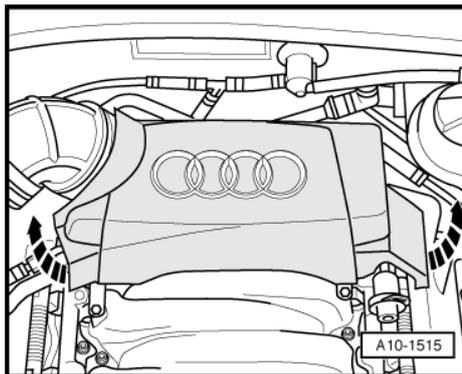


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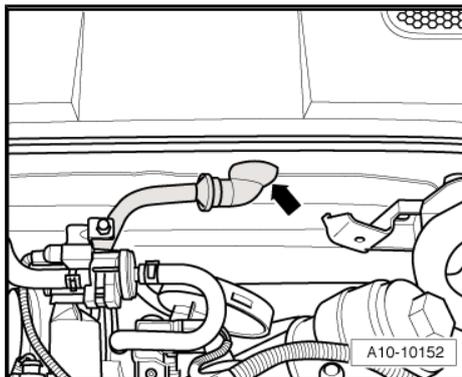
- Pull off front engine cover -arrows-.



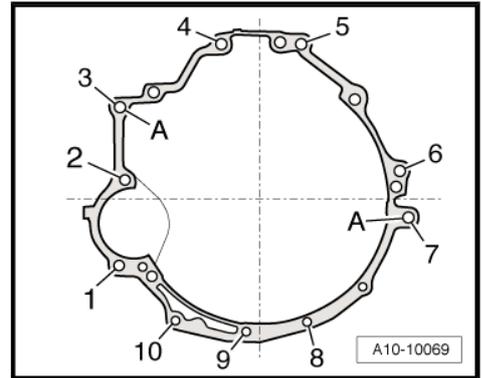
- Pull off rear engine cover panel -arrows-.



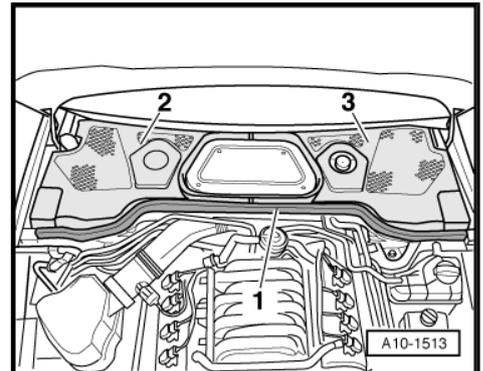
- Detach vacuum hose -arrow- (leading to brake servo) at bulk-head.



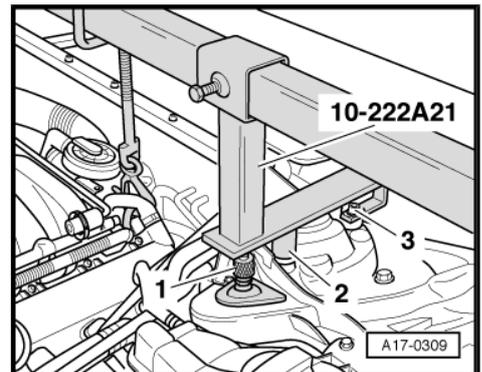
- Remove bolts -3 ... 6- (access from above) from engine/gear-box flange.
- Remove front exhaust pipes (left and right) => Rep. Gr. 26 .



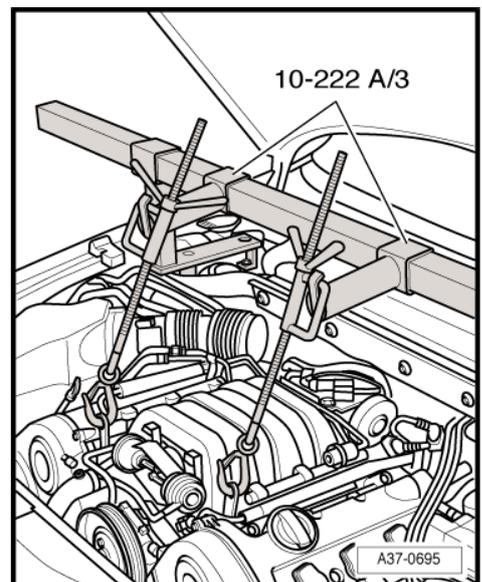
- Pull rubber seal -1- off plenum chamber cover.
- Detach plenum chamber covers -2- and -3-.



- Unscrew rear securing bolts -3- for body brace.
- Secure support bracket -10-222 A- with adapters -10-222 A/21- and adapter -10-222 A/3- to suspension turrets.
- The adapters -10-222 A/3- point to front.
- Adapters are marked for left and right side of vehicle.
- Centre resting point -2- for adapters is positioned on front bolts for body brace.
- The adapters -10-222 A/21- are secured with rear securing bolts -3- for body brace.
- Knurled screw -1- must be tightened far enough to allow support plate to rest on suspension turret.



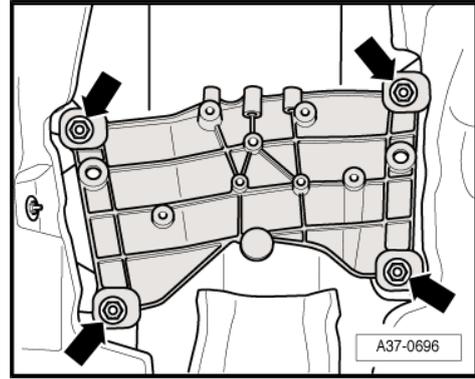
- Move electrical wires clear at engine lifting eye.
- Hook spindles of support bracket -10-222 A- into front engine mounting eyes and adapters -10-222 A/3- .
- Lightly pre-tension spindles of support bracket.
- Remove both front wheels.



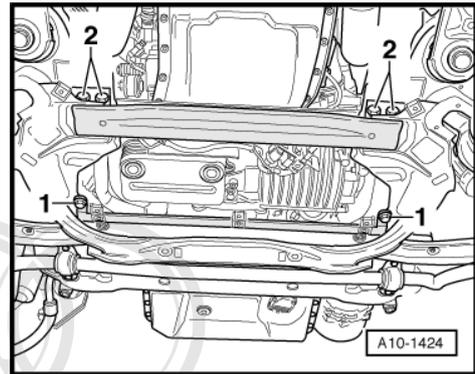
i Note

Secure brake discs with wheel bolts.

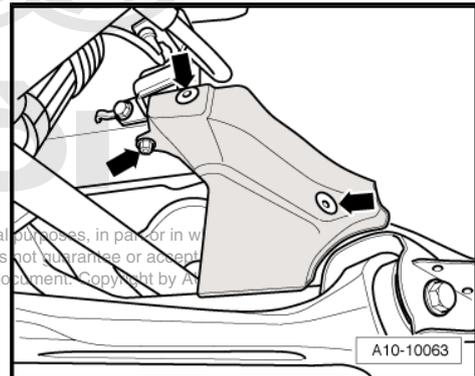
- If fitted, remove bolts -arrows- and remove tunnel cross member.



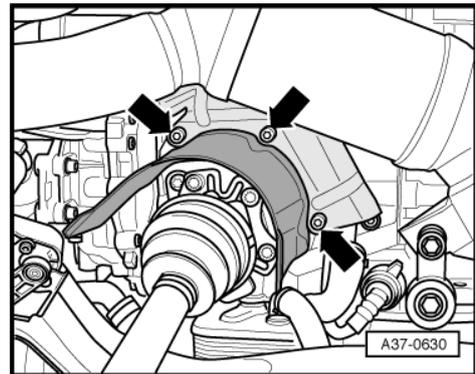
- Unscrew bolts -1- and remove bracket for noise insulation.
- Unscrew bolts -2- and remove cross member.



- Remove noise insulation in wheel housing (left and right) -arrows-.

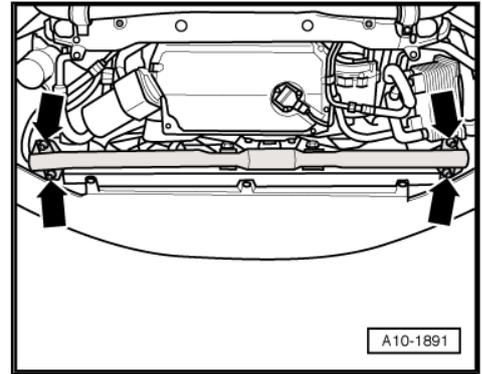


- Unbolt heat shield from gearbox above drive shaft (left and right) -arrows-.
- Unbolt drive shafts (left and right) from gearbox flanges.

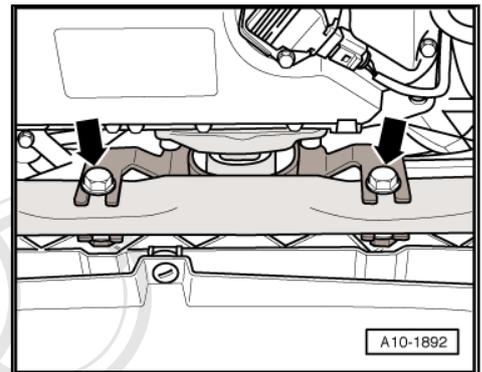


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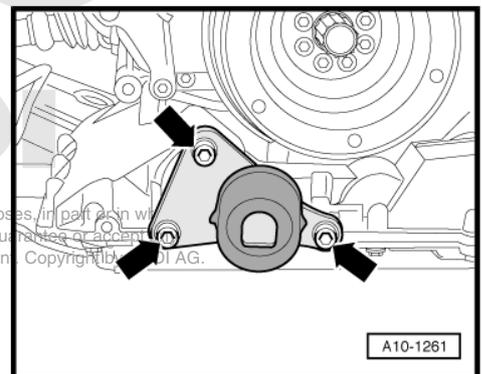
- Unbolt cross piece from lock carrier -arrows-.



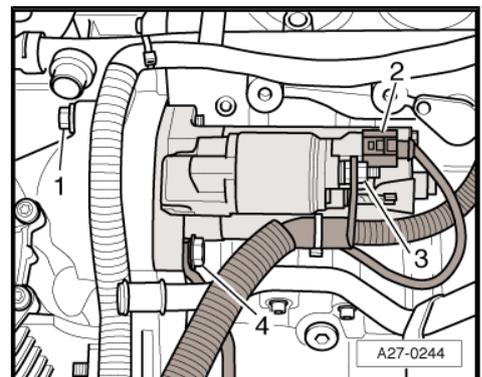
- Remove bolts -arrows- and detach cross piece from stop for torque reaction support.



- Remove bolts -arrows- and detach torque reaction support together with stop for torque reaction support.



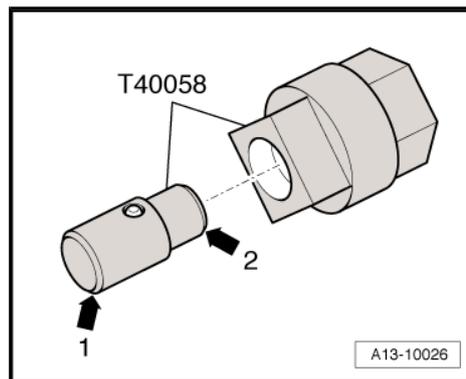
- Remove starter ⇒ Rep. Gr. 27 .



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- Insert guide pin of adapter -T40058- so that the large diameter -arrow 1- faces engine. The smaller diameter -arrow 2- faces adapter.

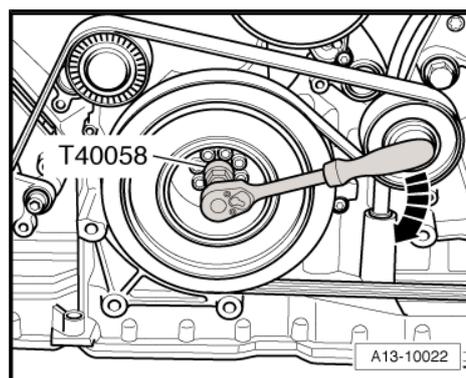


- Counter-hold crankshaft using adapter -T40058- to slacken torque converter bolts.

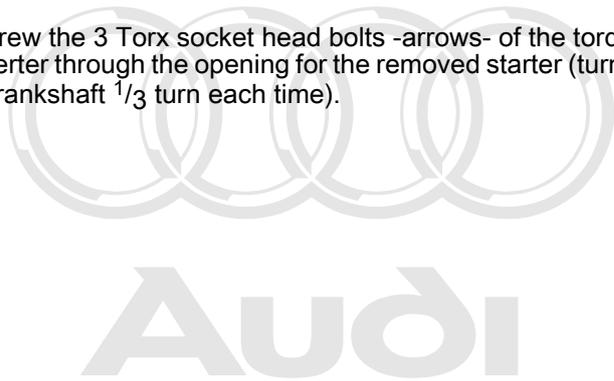
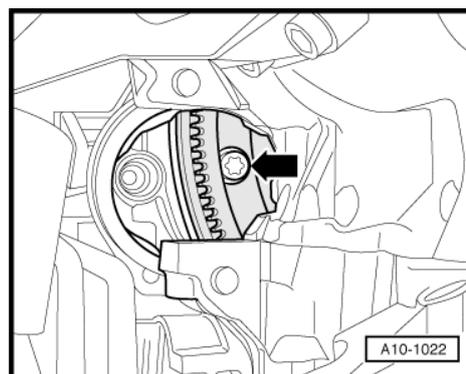


Note

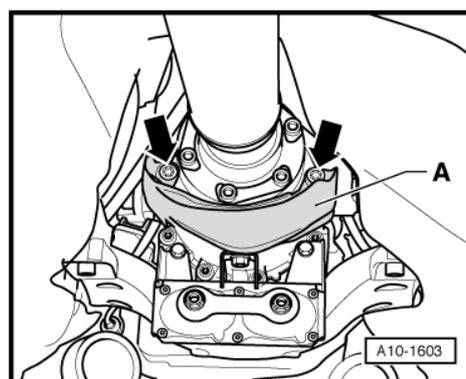
-Arrow- can be disregarded.



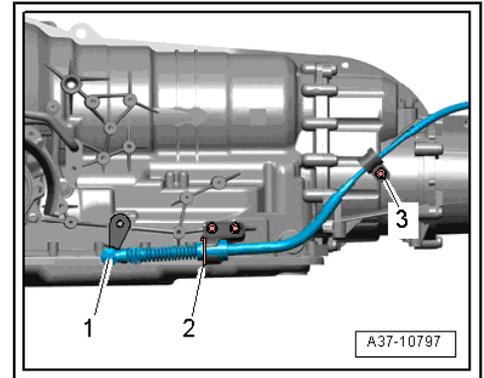
- Unscrew the 3 Torx socket head bolts -arrows- of the torque converter through the opening for the removed starter (turning the crankshaft $\frac{1}{3}$ turn each time).



- ~~Unbolt heat shield -A- for propshaft -arrows-~~
- Unscrew bolts at gearbox/propshaft flange.
- Slide propshaft together towards rear final drive. The constant velocity joints can be moved axially.
- Tie up propshaft to body.



- Use removal lever -80-200- to pry ball socket -1- on selector lever cable off selector shaft lever.
- Unclip locking plate -2- from support bracket for selector lever cable.
- If fitted, remove bolt -3- and move selector lever cable clear to one side.

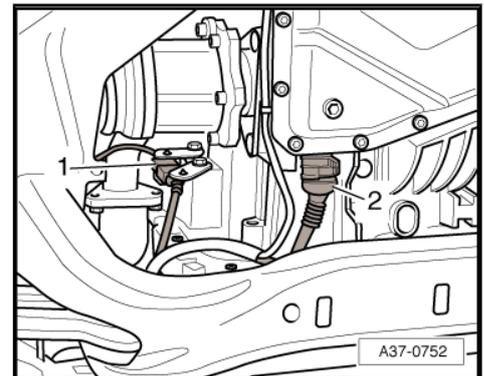


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Caution

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

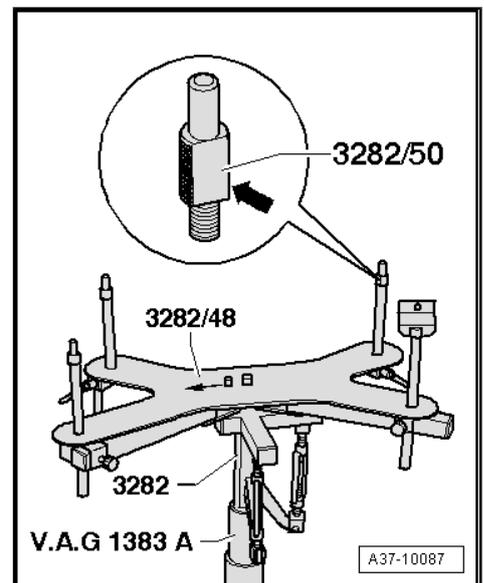
◆ **Do not touch contact pins in gearbox connector with bare hands.**



- Touch gearbox housing with your hand (without gloves) to discharge any static electricity.
- Disconnect electrical connector -2- at gearbox by turning fastener cap anti-clockwise.
- Unplug connector -1- for engine speed sender -G28- .
- Unclip connectors from bracket.
- Move all electrical wiring clear of gearbox housing.
- Set up gearbox support -3282- on engine and gearbox jack -V.A.G 1383 A- .
- Place adjustment plate -3282/48- on gearbox support -3282- as shown in illustration.
- Align arms of gearbox support according to holes in adjustment plate.
- Attach support elements as illustrated on adjustment plate.

i Note

- ◆ *The bolt -3282/50- is flattened at the side -arrow-, the flattened side should face the oil pan when inserting bolt into gearbox.*
- ◆ *The arrow symbol on the adjustment plate -3282/42- points in the direction of travel.*
- Place engine and gearbox jack -V.A.G 1383 A- with gearbox support -3282- underneath gearbox.
- Align adjustment plate -3282/42- parallel with gearbox.



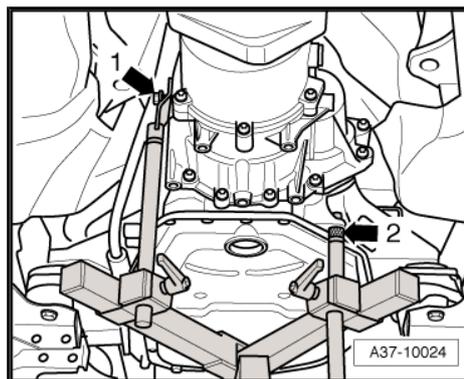


- Bolt support to rear left tapped hole on gearbox -1- using one bolt M10x20.
- Insert flattened bolt -3282/50- into mounting hole at rear right of gearbox housing -arrow 2-.

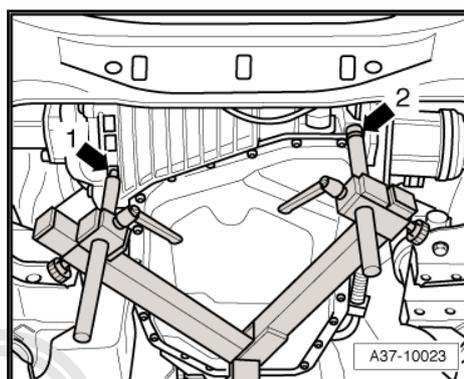


WARNING

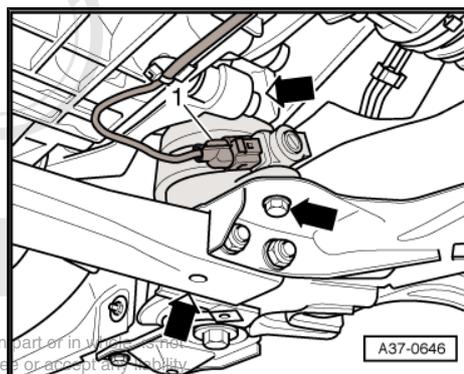
- *The flattened side of the bolt -3282/50- must face towards the gearbox oil pan, to prevent the oil pan from being bent or damaged.*
- *Renew the gearbox oil pan if damaged .*



- Insert bolt into mounting hole at front left of gearbox housing -arrow 2-.
- Insert bolt into recess in housing at front right of differential housing -arrow 1-.
- Use engine and gearbox jack -V.A.G 1383 A- to lift gearbox up slightly.

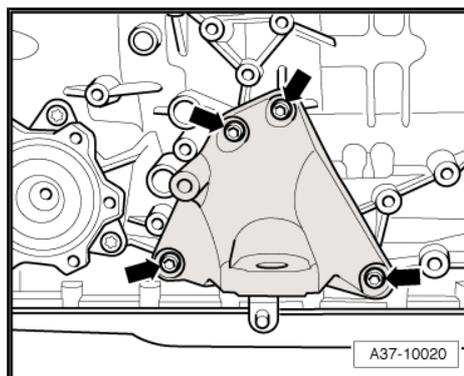


- Unplug electrical connector -1- at gearbox mounting (left-side).
- Unscrew bolts -arrows- and remove gearbox mounting (left-side).

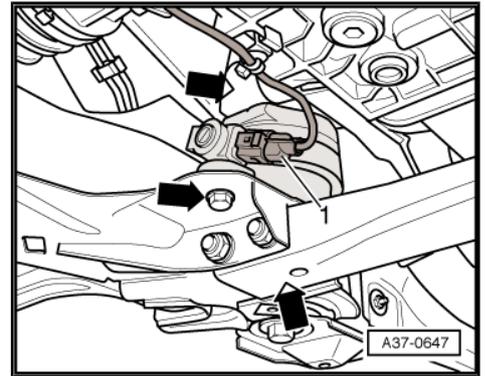


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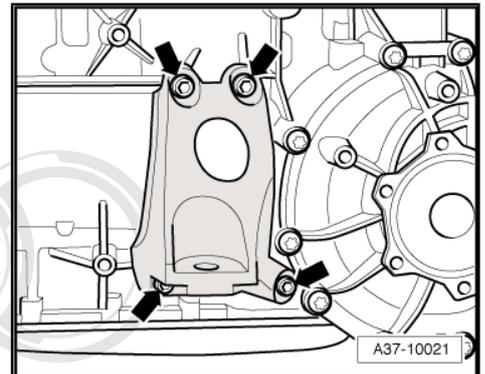
- Unscrew gearbox support (left-side) -arrows-.



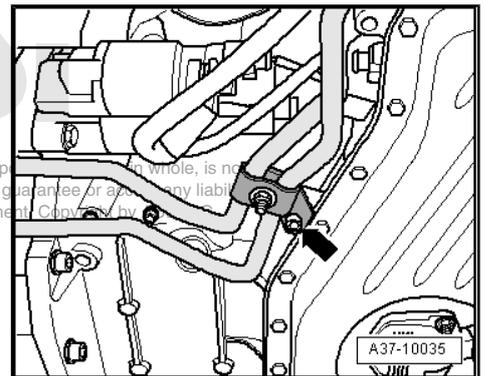
- Unplug electrical connector -1- at gearbox mounting (right-side).
- Unscrew bolts -arrows- and remove gearbox mounting (right-side).



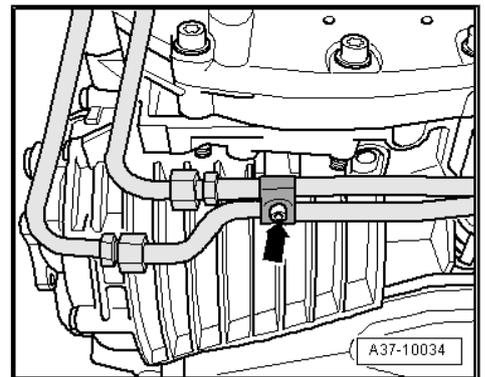
- Unscrew gearbox support (right-side) -arrows-.



- Unscrew the bracket -arrow- for the ATF pipes on the top section of oil pan.



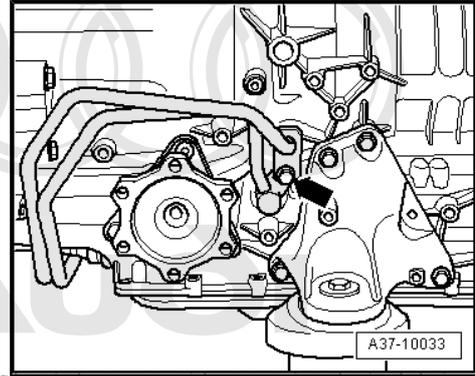
- Unbolt bracket -arrow- for ATF pipes at bottom section of gearbox.



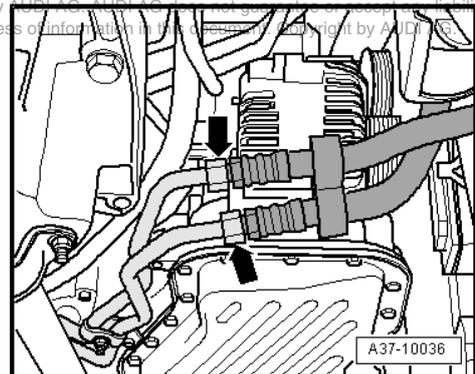
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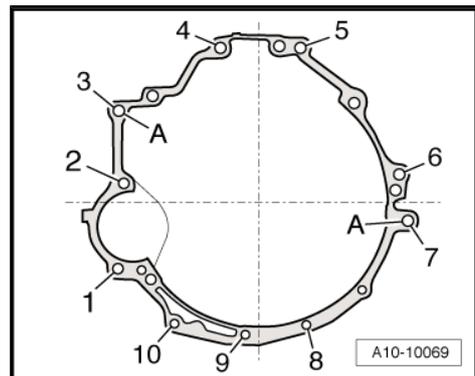
- Place used oil collection and extraction unit -V.A.G 1782- below gearbox.
- Unscrew bolt -arrow-.
- Pull ATF pipes out of gearbox.
- Plug pipes and openings at gearbox with clean plugs.



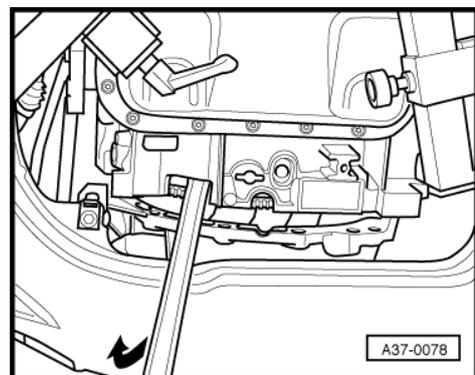
- Mark position of ATF pipes in relation to one another with a water-proof pen.
- Loosen both ATF pipe union nuts -arrows- and pull ATF pipes apart.
- Plug open ends of pipes with clean plugs.
- Take out ATF pipes from between subframe and gearbox.



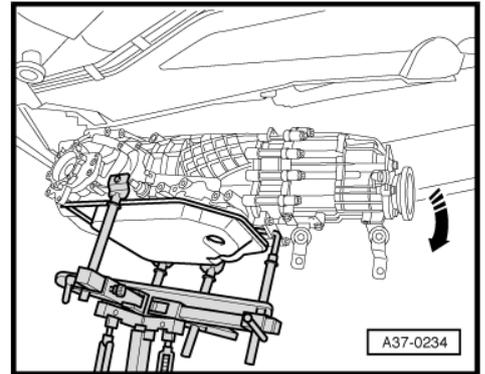
- Remove remaining securing bolts on engine and gearbox flange.



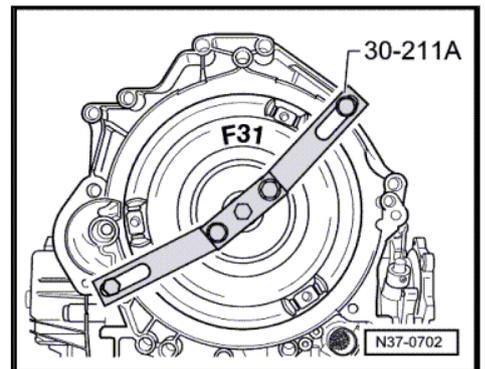
- Using a tyre iron or other suitable lever, pry torque converter away from drive plate on engine -arrow-.
- Press gearbox off dowel sleeves and lower it carefully.



- Lower rear end of gearbox by adjusting gearbox support -3282- accordingly.
- When lowering gearbox make sure there is sufficient clearance for drive shaft flanges and ATF cooler.



- Secure torque converter in gearbox with support bridge -30-211 A- to prevent it dropping out.



3.4 Installing gearbox on vehicles with V6 3.2 ltr. FSI engine

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

i Note

- ◆ Clean ATF pipes and ATF cooler before installing exchange gearbox ⇒ [page 117](#).
- ◆ Renew self-locking nuts and bolts when performing assembly work.
- ◆ Renew oil seals and gaskets, and bolts which are tightened by turning through a specified angle.
- ◆ Re-attach heat shield sleeves at the same locations when re-installing.
- ◆ Hose connections and hoses for charge air system must be free from oil and grease before fitting.
- ◆ Secure all hose connections with the correct hose clips (as original equipment); refer to ⇒ *Electronic parts catalogue*.
- ◆ Re-attach all cable ties at the same locations when re-installing.

Tightening torques ⇒ [page 77](#)

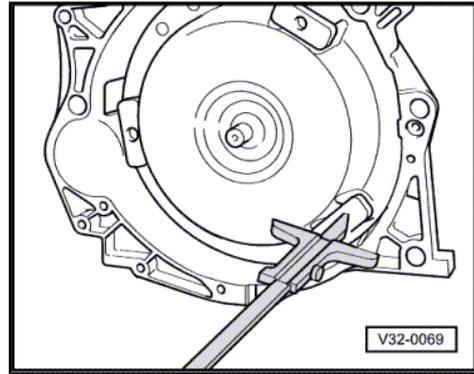


- Before installing gearbox, you must ensure that the torque converter is properly fitted in the gearbox.
- If the torque converter is correctly installed, the depth between the contact faces at the tapped holes on the torque converter and the contact surface of the torque converter bell housing is at least 19 mm.



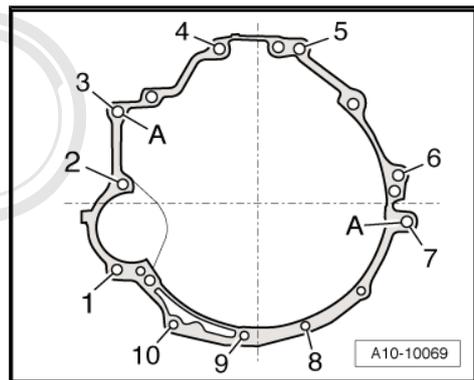
WARNING

If the torque converter is not fitted correctly, the torque converter drive lugs or the ATF pump will be irreparably damaged when the gearbox is joined to the engine.



- Before installing gearbox, check for correct positioning of dowel sleeves -A- at cylinder block. Install new dowel sleeves if necessary.
- If an intermediate plate was installed between engine and gearbox, reinstall plate in same position.
- Before joining engine and gearbox, turn torque converter and drive plate (on engine) until one hole and one tapped hole are in line with the opening for the removed starter.
- When pushing the engine and gearbox together, ensure that no wiring or pipes etc. can become trapped.

When you then install the gearbox, adhere to the following instructions.

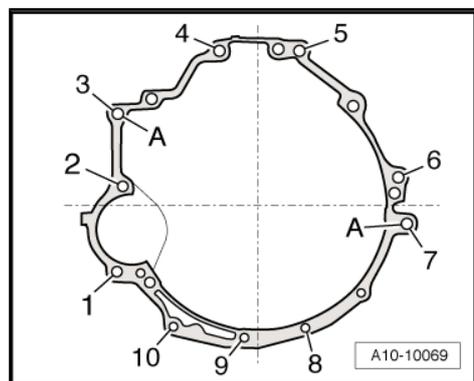


WARNING

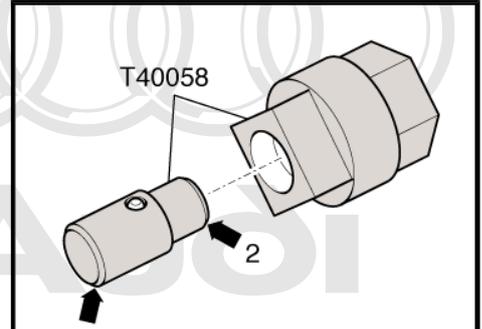
Before and while you are tightening the bolts on the engine/gearbox flange keep checking that the torque converter can still be rotated behind the drive plate. If the converter cannot be turned, it must be assumed that it has not been installed correctly and the drive lugs on the converter or the ATF pump will be damaged when the bolts are fully tightened.

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- Bolt gearbox onto engine.



- Insert guide pin of adapter -T40058- so that the large diameter -arrow 1- faces engine. The smaller diameter -arrow 2- faces adapter.



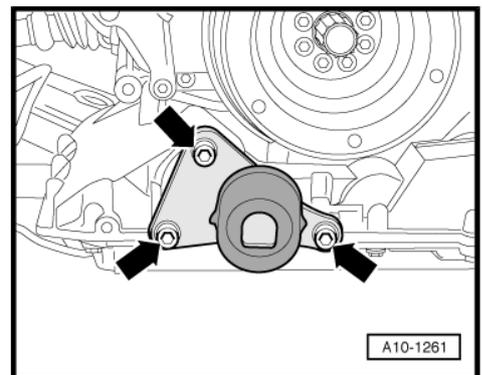
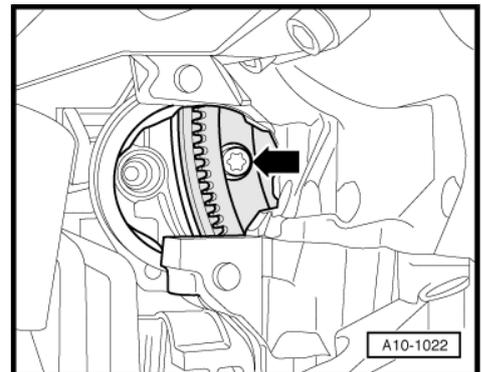
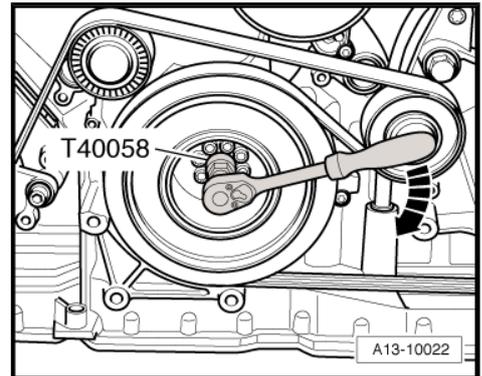
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- Counter-hold crankshaft using adapter -T40058- to secure torque converter bolts.

i Note

-Arrow- can be disregarded.

- Use new ribbed bolts to secure the torque converter to the drive plate.
- Screw in 3 bolts -arrow- for torque converter through opening for removed starter, and tighten lightly (turning crankshaft $\frac{1}{3}$ turn each time).
- Then tighten torque converter bolts to torque (turning the crankshaft $\frac{1}{3}$ turn each time).
- Install starter \Rightarrow Electrical system; Rep. Gr. 27 .
- Install torque reaction support \Rightarrow Rep. Gr. 10 ; Removing and installing engine .





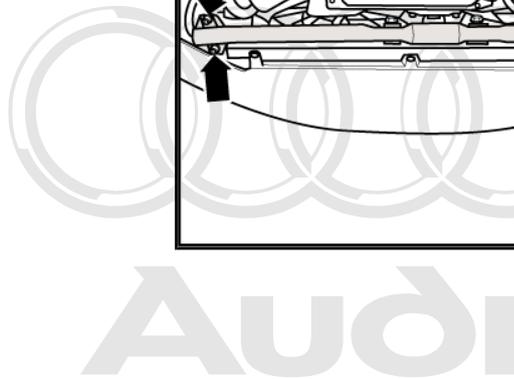
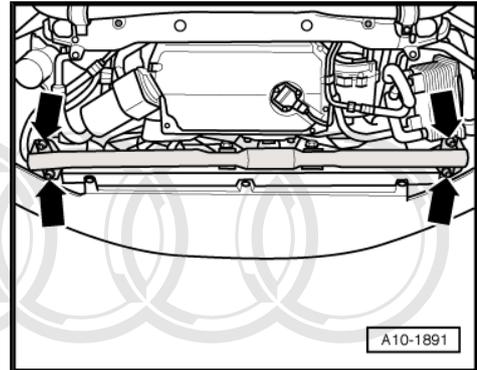
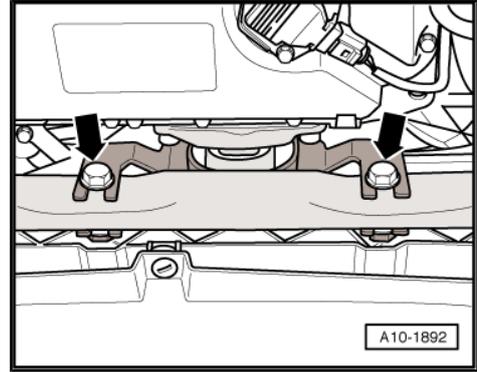
- Fit cross piece to torque reaction support ⇒ Rep. Gr. 10 ; Removing and installing engine .



Note

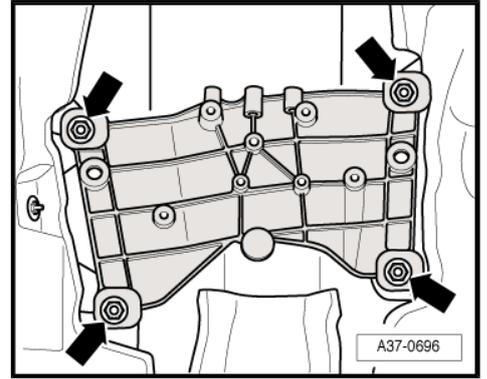
Perform all work steps exactly as described in ⇒ Rep. Gr. 10 ; Removing and installing engine .

- Fit cross piece to lock carrier ⇒ Rep. Gr. 10 ; Removing and installing engine .



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- Install tunnel cross member and tighten bolts -arrows- to 40 Nm.
- Install exhaust system so it is free of stress ⇒ Rep. Gr. 26 .
- Install gearbox support and gearbox mounting (left-side) ⇒ [page 96](#) .
- Install gearbox support and gearbox mounting (right-side) ⇒ [page 99](#) .
- Bolt propshaft onto gearbox ⇒ Rear final drive 01R; Rep. Gr. 39 or ⇒ Rear final drive 0AR; Rep. Gr. 39 .
- Bolt drive shafts to flange shafts ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 40 .
- Electrical connections and routing ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Check selector lever cable adjustment ⇒ [page 35](#) .
- Check oil level in front final drive ⇒ [page 133](#) .
- Check oil level in transfer box ⇒ [page 153](#) .
- Follow steps required after connecting battery ⇒ Electrical system; Rep. Gr. 27 .
- Fill cooling system ⇒ Engine, mechanics; Rep. Gr. 19 .
- Check ATF level in planetary gearbox ⇒ [page 110](#) .



Tightening torques



Note

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



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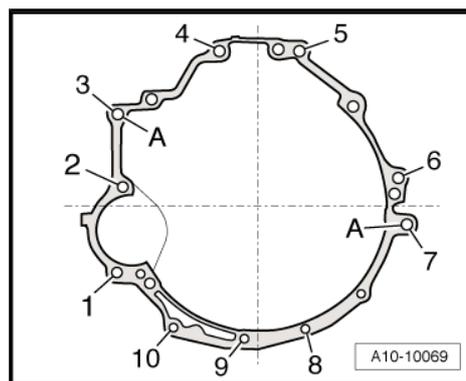
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Engine/gearbox securing bolts

Item	Bolt	Nm
1	M10 × 115	65 ¹⁾
2, 6	M12 x 125	65
3, 5	M12 x 110	65
4	M12 x 115	65
7	M12 x 140	65
8, 9, 10	M10×80	45
A	Dowel sleeves for centralising	

• ¹⁾ Property class 10.9



Component	Nm
Bracket for exhaust pipe lug.	23
Heat shields above drive shafts to gearbox	23
Heat shield for propshaft to gearbox cover	25
Bracket for noise insulation to subframe	10
Support bracket to gearbox	10
Torque converter to drive plate; always renew bolts	85

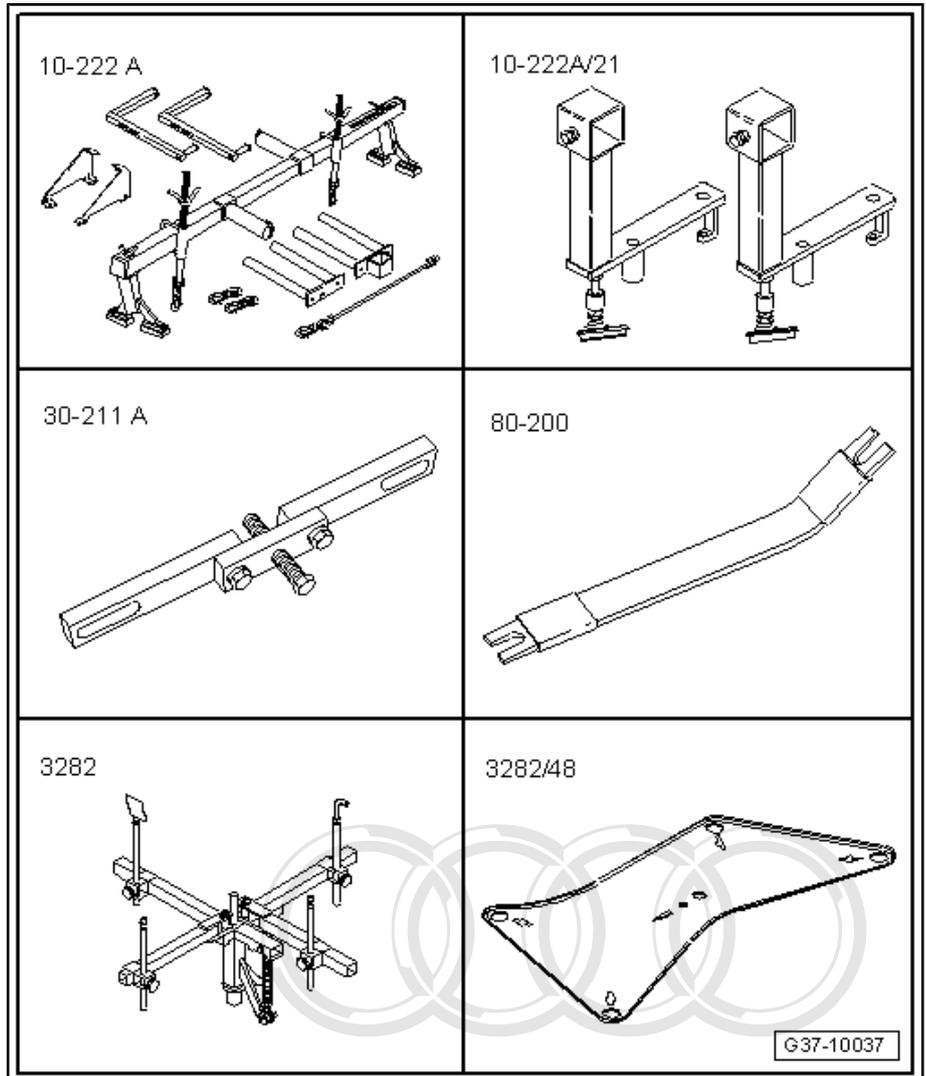
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3.5 Removing gearbox on vehicles with V8 4.2 ltr. FSI engine

Special tools and workshop equipment required

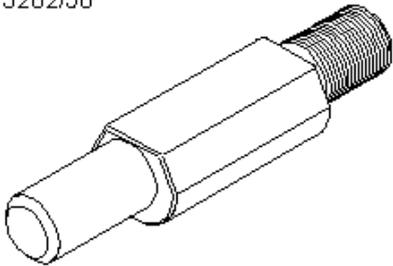
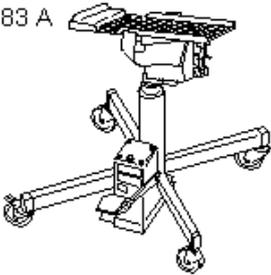
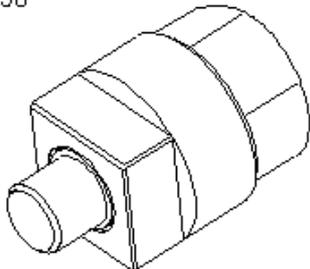
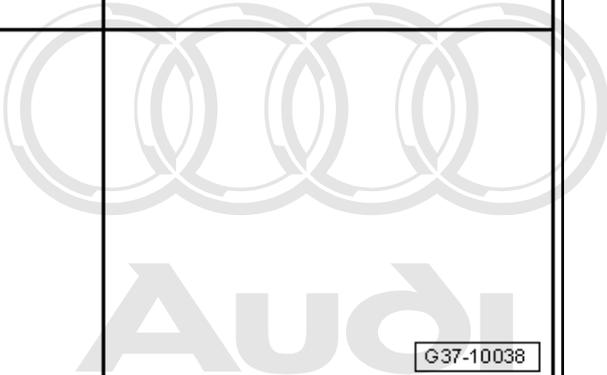
- ◆ Support bracket -10 - 222 A-
- ◆ Adapter -10 - 222 A /21-
- ◆ Support bridge -30 - 211 A-
- ◆ Removal lever -80 - 200-
- ◆ Gearbox support -3282-
- ◆ Adjustment plate -3282/48-



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Special tools and workshop equipment required

- ◆ Bolt -3282/50-
- ◆ Engine and gearbox jack - V.A.G 1383 A-
- ◆ Stepladder -VAS 5085-
- ◆ Adapter -T40058-
- ◆ Bolt M10x20

<p>3282/50</p> 	<p>V.A.G 1383 A</p> 
<p>VAS 5085</p> 	<p>T40058</p> 
 <p style="text-align: right; border: 1px solid black; padding: 2px;">G37-10038</p>	

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Procedure

- Observe all the repair instructions ⇒ [page 9](#) .

 **Caution**
Contact corrosion! Notes ⇒ [page 9](#) .

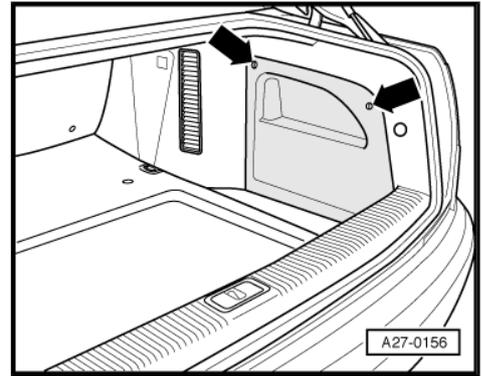
 **Note**

All cable ties which are released or cut open during removal must be fitted in the same position when installing.

 **WARNING**
Follow steps required when disconnecting battery ⇒ [Electrical system; Rep. Gr. 27](#) .

- Switch off ignition.

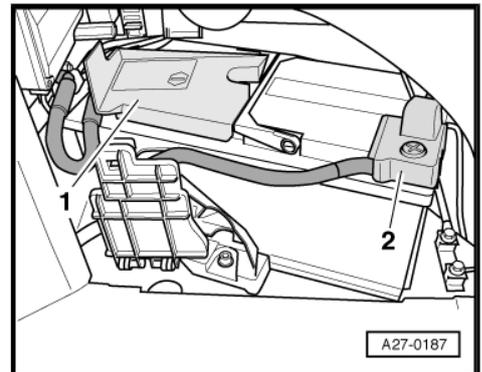
- Remove cover in luggage compartment side trim (right-side) -arrows-.



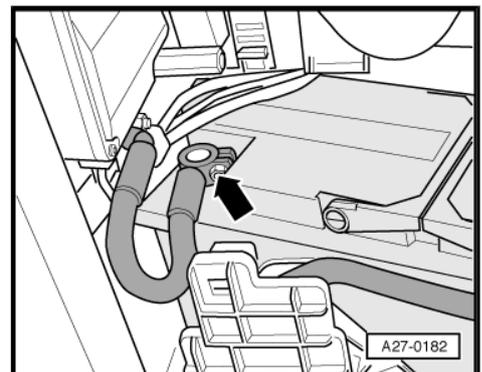
- Remove battery cover -1-.



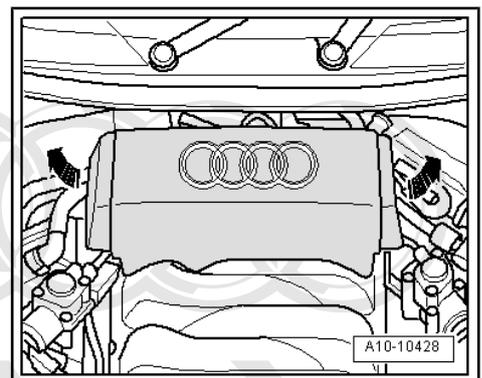
-Item 2- can be disregarded.



- Disconnect earth wire -arrow- at battery.

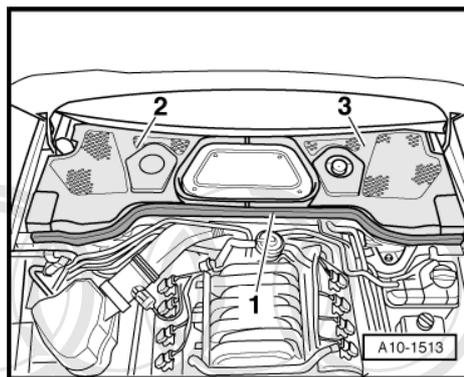


- Pull off rear engine cover panel -arrows-.

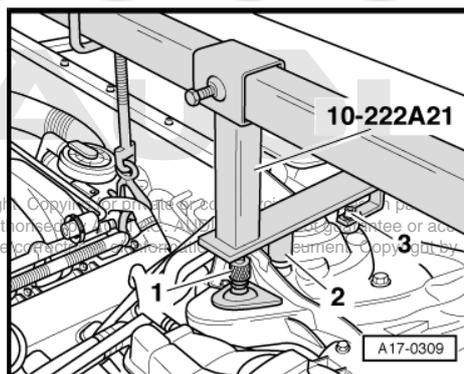


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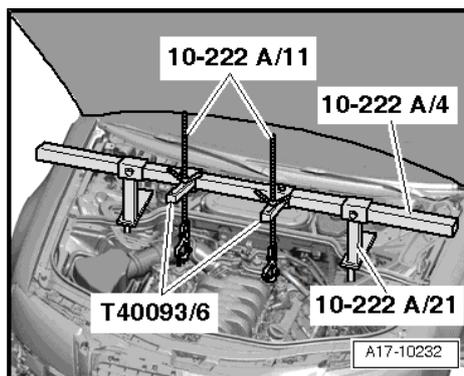
- Pull rubber seal -1- off plenum chamber covers.
- Detach plenum chamber covers -2- and -3-.



- Remove rear securing bolts -3- for body brace.
- Attach adapters -10 - 222 A /21- to suspension turrets without the adapter -10 - 222 A /4- .
- Adapters are marked for left and right side of vehicle.
- Centre resting point -2- for adapters is positioned on front bolts for body brace.
- The adapters -10 - 222 A /21- are secured with rear securing bolts -3- for body brace.
- Knurled screw -1- must be tightened far enough to allow support plate to rest on suspension turret.



- Fit adapter -10 - 222 A /4- with adapters -T40093/6- and adapters -10 - 222 A /21- .
- Secure spindles -10 - 222 A /11- to engine lifting eyes.
- Take up some of the engine weight by tightening spindles of support bracket, but do not lift.

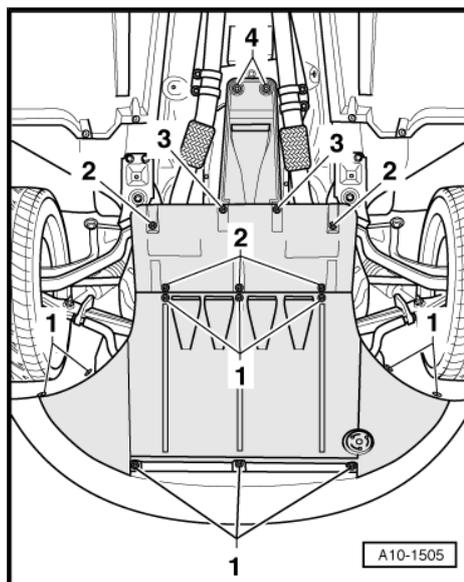


- Remove both front wheels.
- Remove noise insulation panels (loosen fasteners -1, 2, 4-).

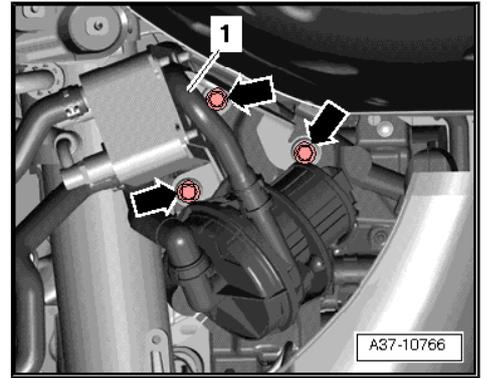
 **Note**

-Item 3- can be disregarded.

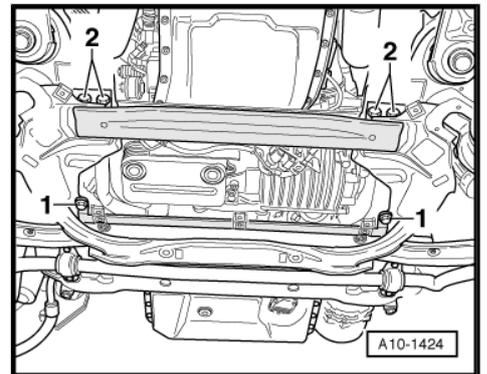
- Remove front section of front wheel housing liner (left and right) ⇒ General body repairs, exterior; Rep. Gr. 66 .



- Move air hose for secondary air system -1- clear from bracket for ATF cooler
- Remove bolts -arrows- and detach ATF cooler.
- Tie ATF cooler onto engine (coolant hoses remain connected to ATF cooler).



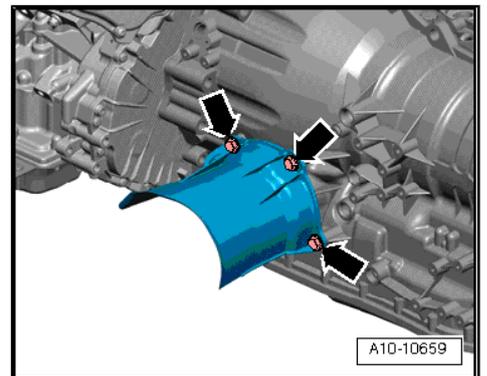
- Unscrew bolts -1- and remove bracket for noise insulation.
- Unscrew bolts -2- and remove cross member.



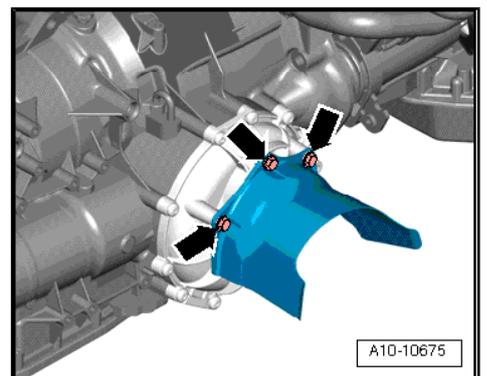
- Remove heat shield for drive shaft (left-side) -arrows-.

 **Note**

For illustration purposes here shown with engine removed.

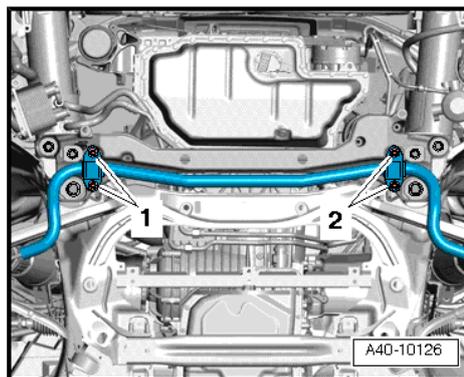


- Remove heat shield for drive shaft (right-side) -arrows-.
- Remove drive shafts (left and right) from gearbox flange shafts.



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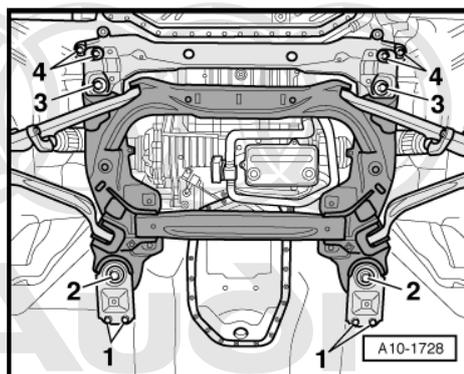
- Remove bolts -1 and 2- (on left and right) for anti-roll bar mountings.



- Remove bolts -3 and 4-.

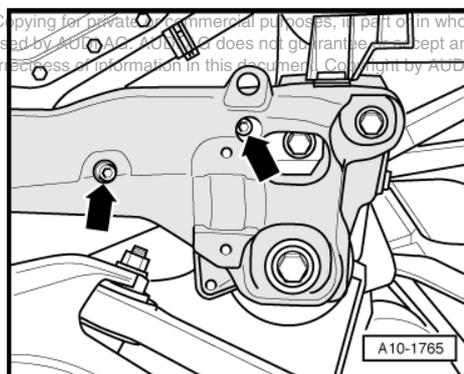
 **Note**

-Items 1 and 2- can be disregarded.

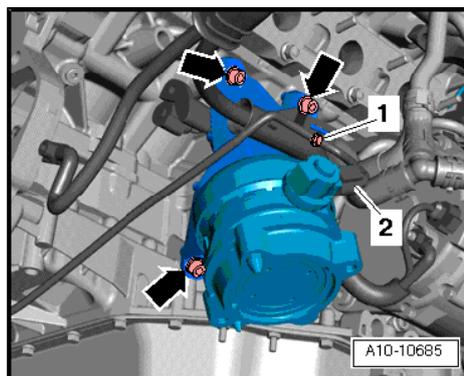


- Remove bolts -arrows- for engine mountings (left and right)
- Detach engine cross member.

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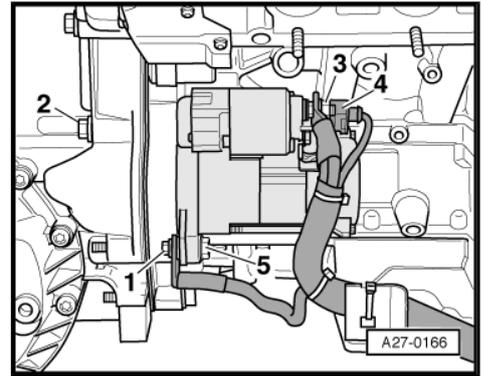
- Unplug electrical connector -2- at engine mounting (right-side).
- Remove bracket for electrical wiring from engine support (right-side) -1-.
- Remove bolts -arrows- and remove engine support (right-side) together with engine mounting.



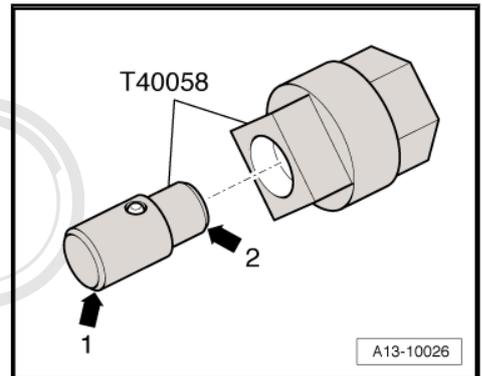
i Note

Detach B+ wire only after unplugging electrical connector for terminal 50.

- Unscrew earth wire -1-.
- Disconnect wires -3- and -4-.
- Unscrew bolts -2- and -5- and remove starter.



- Insert guide pin of adapter -T40058- so that the small diameter -arrow 2- faces engine. The larger diameter -arrow 1- faces adapter.

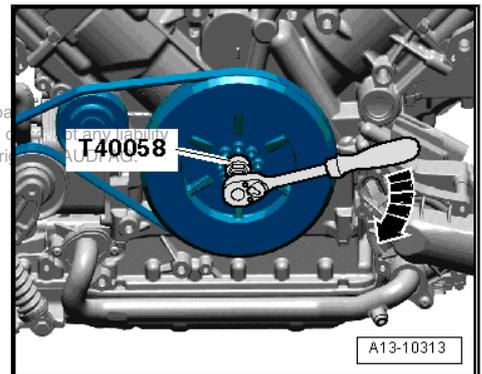


- Counter-hold crankshaft using adapter -T40058- to slacken torque converter bolts.

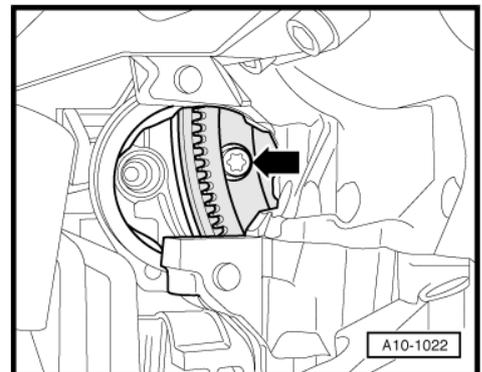
i Note

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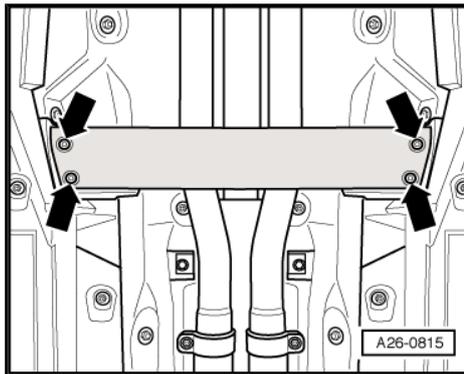
-Arrow- can be disregarded.



- Unscrew the 3 Torx socket head bolts -arrows- of the torque converter through the opening for the removed starter (turning the crankshaft 1/3 turn each time).



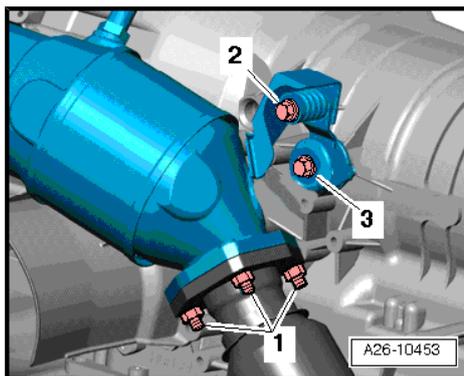
- Unbolt front cross piece -arrows-.



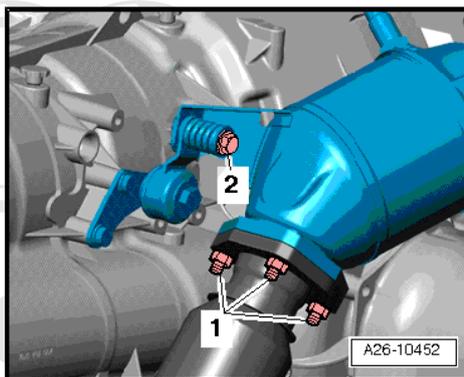
- Unscrew nuts -1- for front silencer (left-side).
- Remove bolt -3-.

 **Note**

-Item 2- can be disregarded.



- Unscrew nuts -1- for front silencer (right-side).
- Remove bolt -2- and detach spring element.



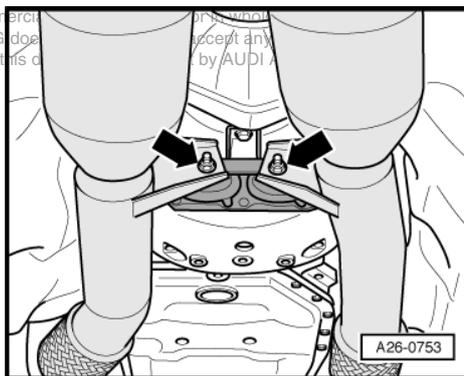
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 **Caution**

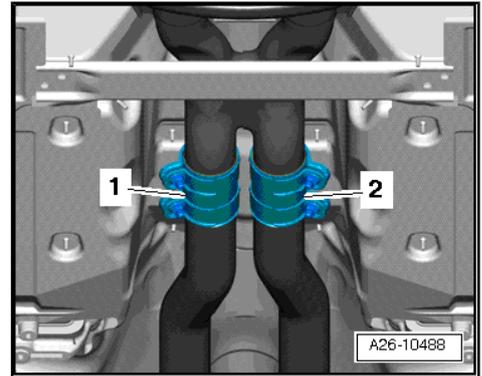
The flexible joint in the front exhaust pipe can be damaged.

◆ *The flexible joint in the front exhaust pipe must not be bent further than 10°.*

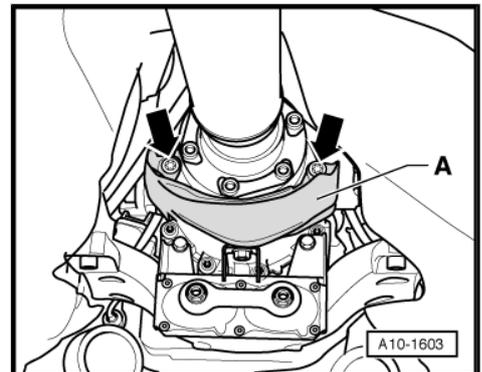
- Unscrew nuts -arrows- from retaining lugs for front silencers.



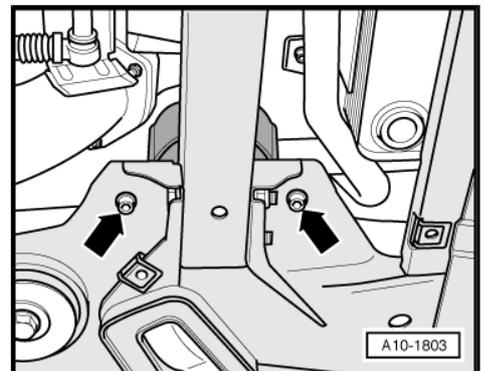
- Disconnect exhaust system at clamps -1 and 2- and detach front silencers.



- If fitted, unbolt heat shield -A- for propshaft -arrows-.
- Remove bolts at connection between propshaft and gearbox.
- Slide propshaft together towards rear final drive. The constant velocity joints can be moved axially.
- Tie up propshaft to body.



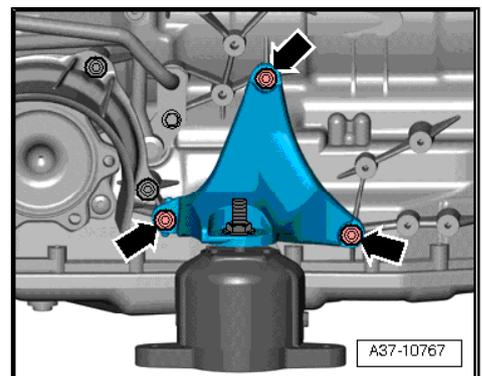
- Unscrew bolts -arrows- for front gearbox mountings (left and right).



- Remove bolts -arrows- and detach gearbox support (left-side) with gearbox mounting.

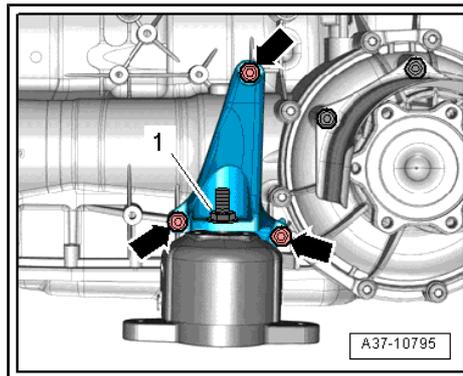
i Note

-Item 1- can be disregarded.

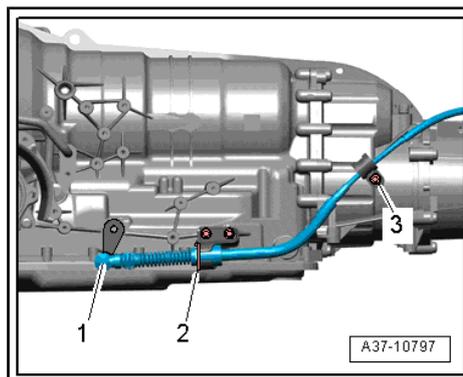


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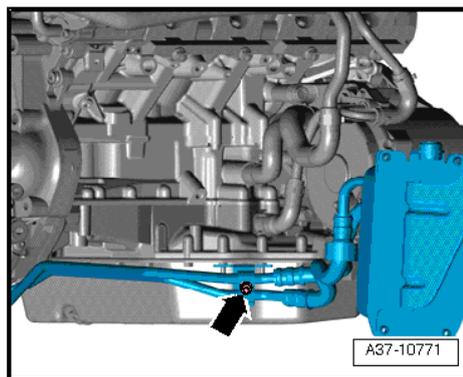
- Remove bolts -arrows- and detach gearbox support (right-side) with gearbox mounting.



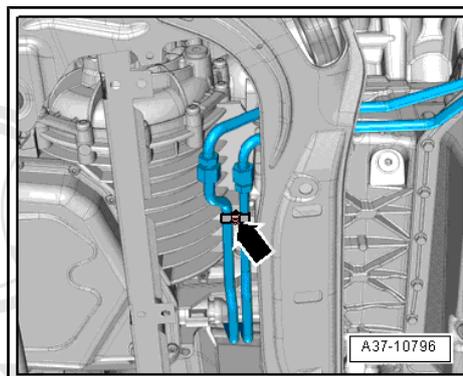
- Use removal lever -80 - 200- to pry ball socket -1- on selector lever cable off selector shaft lever.
- Unclip locking plate -2- from support bracket for selector lever cable.
- Remove bolt -3- and move selector lever cable clear to one side.



- Remove nut -arrow- and detach ATF pipes from bracket.

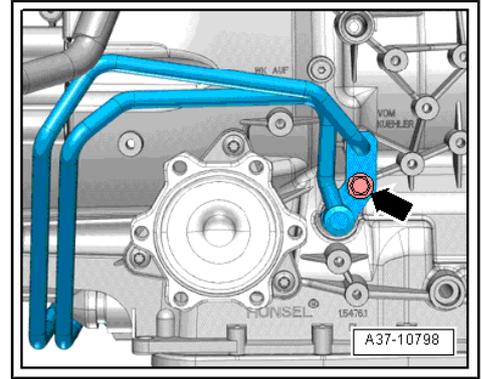


- Remove bolt -arrow- at bracket for ATF pipes.



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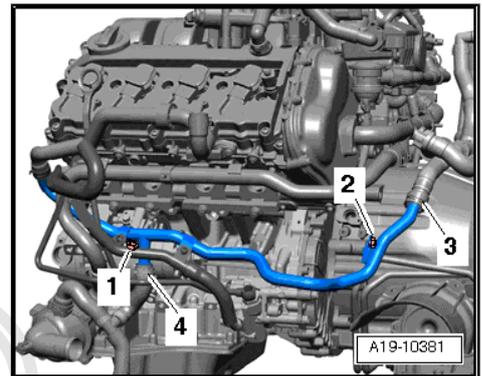
- Remove bolt -arrow- and detach ATF pipes from gearbox.



- Remove bolt -1- at bracket for coolant pipe bottom left).

i Note

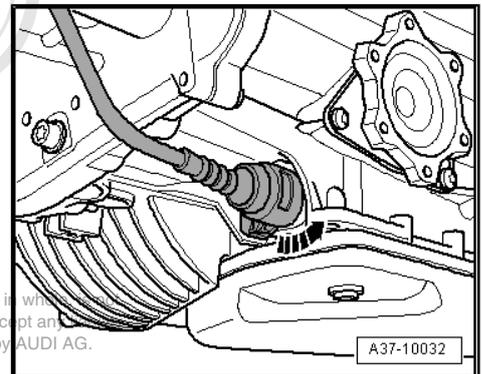
-Items 2 ... 4- can be disregarded.



! Caution

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

- ◆ **Do not touch contact pins in gearbox connector with bare hands.**



- Touch gearbox housing with your hand (without gloves) to discharge any static electricity.
- Disconnect electrical connector at gearbox by turning fastener cap anti-clockwise -arrow-.

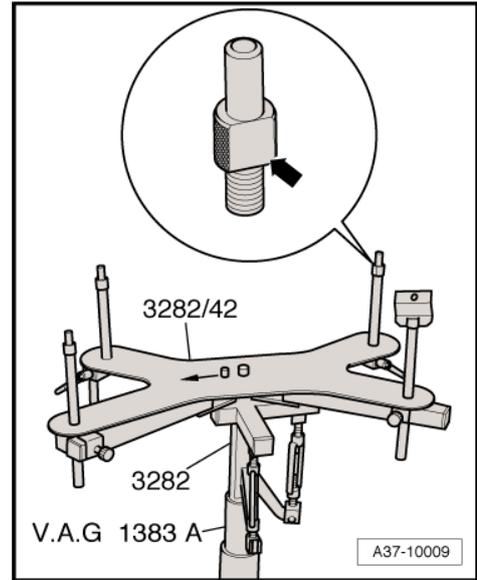


- Set up gearbox support -3282- on engine and gearbox jack -V.A.G 1383 A- .
- Place adjustment plate -3282/48- on gearbox support -3282- as shown in illustration.
- Align arms of gearbox support according to holes in adjustment plate.
- Attach support elements as illustrated on adjustment plate.



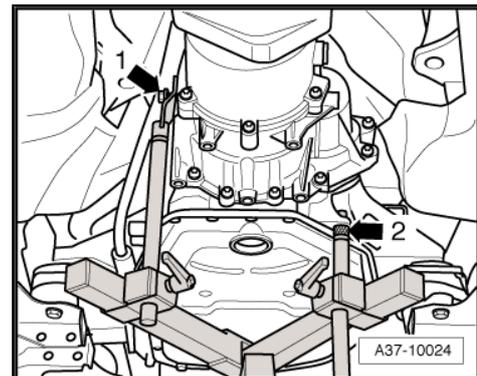
Note

- ◆ *Note that bolt -3282/50- is flattened on one side -arrow-. The flattened side must face the oil pan when inserting bolt into gearbox.*
- ◆ *The arrow symbol on the adjustment plate -3282/52- points in the direction of travel.*
- Place engine and gearbox jack -V.A.G 1383 A- with gearbox support -3282- underneath gearbox.
- Align adjustment plate -3282/48- parallel to gearbox by adjusting gearbox support -3282- .
- Bolt support to rear left tapped hole on gearbox -1- using one bolt M10x20.
- Insert flattened bolt -3282/50- into mounting hole at rear right of gearbox housing -arrow 2-.

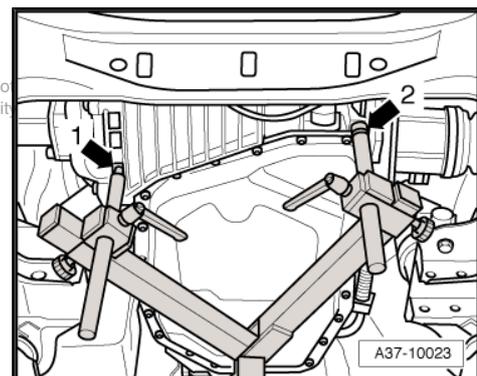


Caution

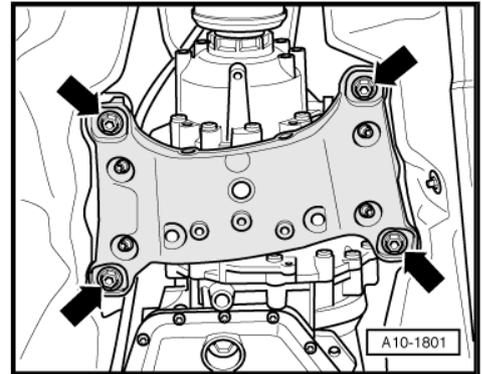
- ◆ *The flattened side of the bolt must face towards the gearbox oil pan to prevent the oil pan from being bent or damaged.*
- ◆ *Renew the gearbox oil pan if damaged.*



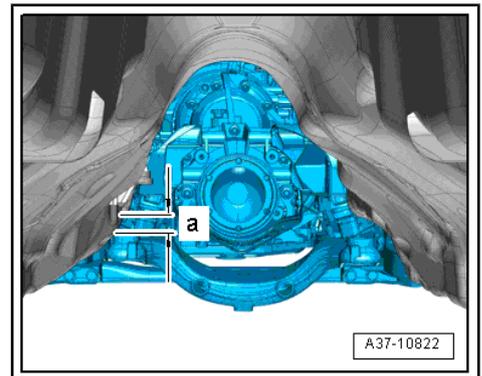
- Insert bolt into mounting hole at front left of gearbox housing -arrow 2-.
- Insert bolt into recess in housing at front right of differential housing -arrow 1-.
- Use engine and gearbox jack -V.A.G 1383 A- to lift gearbox up slightly.



- Remove bolts -arrows- at tunnel cross member.



- Lower engine/gearbox assembly evenly using spindles of support bracket -10 - 222 A- and engine and gearbox jack -V.A.G 1383 A- until distance -a- is obtained.
- Dimension -a- = 70 mm

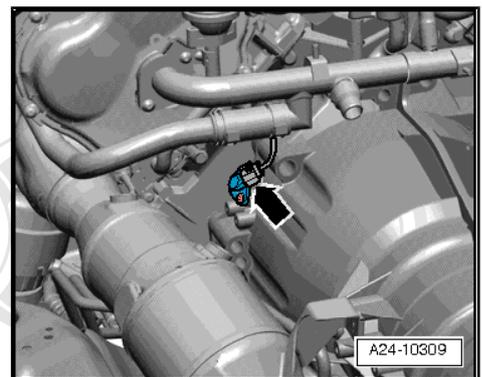
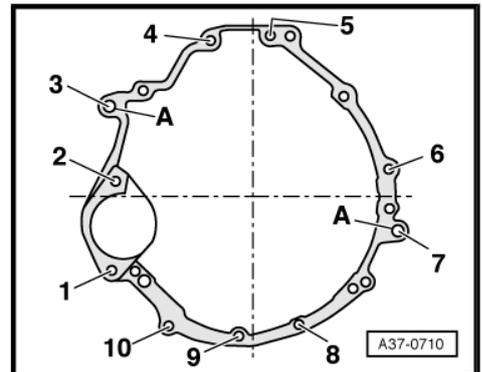


- Remove bolts -3 ... 10- at connection between engine and gearbox.

i Note

Item -A- can be disregarded.

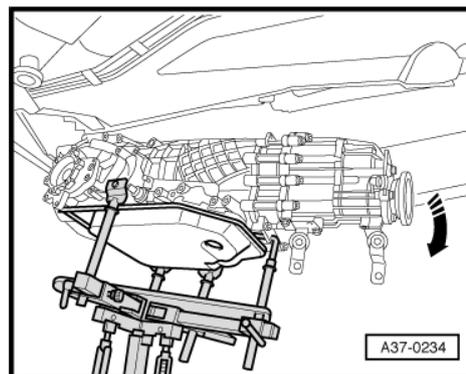
- Pull coolant pipe (bottom left side) slightly to the left.
- Pull gearbox off dowel sleeves and away from engine, at the same time pushing the torque converter off the drive plate through the opening for the removed starter.
- Detach electrical connector -arrow- from engine speed sender -G28- .



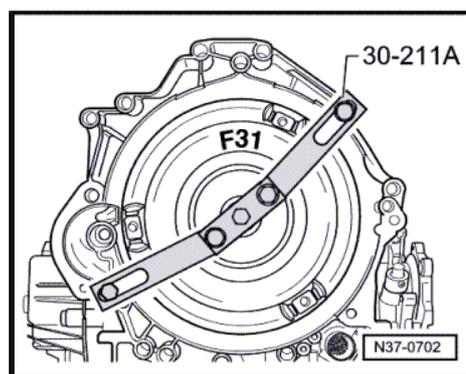
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- Lower rear end of gearbox by adjusting gearbox support -3282- accordingly.
- When lowering gearbox make sure there is sufficient clearance for drive shaft flanges.



- Secure torque converter in gearbox with support bridge -30-211 A- to prevent it dropping out.



3.6 Installing gearbox on vehicles with V8 4.2 ltr. FSI engine

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

- Observe all the repair instructions ⇒ [page 9](#) .



Note

- ◆ *Clean ATF pipes and ATF cooler before installing exchange gearbox ⇒ [page 117](#) .*
- ◆ *Renew self-locking nuts and bolts when performing assembly work.*
- ◆ *Renew oil seals and gaskets, and bolts which are tightened by turning through a specified angle.*
- ◆ *Re-attach heat shield sleeves at the same locations when re-installing.*
- ◆ *Secure all hose connections with the correct hose clips (as original equipment); refer to ⇒ *Electronic parts catalogue* .*
- ◆ *Re-attach all cable ties at the same locations when re-installing.*

Tightening torques ⇒ [page 96](#)

- Before installing gearbox, you must ensure that the torque converter is properly fitted in the gearbox.

Installation depth:

Before installing gearbox check position of torque converter
⇒ [page 18](#).



Caution

If the torque converter is not fitted correctly, the torque converter drive lugs or the ATF pump will be irreparably damaged when the gearbox is joined to the engine.

- Before installing gearbox, check for correct positioning of dowel sleeves -A- at cylinder block. Install new dowel sleeves if necessary.
- If an intermediate plate was installed between engine and gearbox, reinstall plate in same position.
- Before joining engine and gearbox, turn torque converter and drive plate (on engine) until one hole and one tapped hole are in line with the opening for the removed starter.
- When pushing the engine and gearbox together, ensure that no wiring or pipes etc. can become trapped.

When you then install the gearbox, adhere to the following instructions:



WARNING

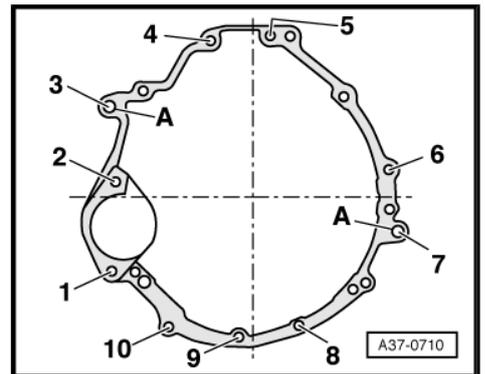
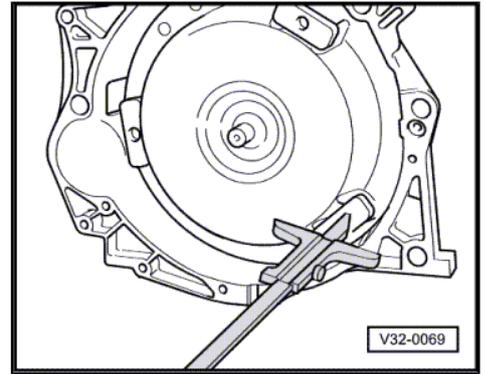
Before and while you are tightening the bolts on the engine/gearbox flange keep checking that the torque converter can still be rotated behind the drive plate. If the converter cannot be turned, it must be assumed that it has not been installed correctly and the drive lugs on the converter or the ATF pump will be damaged when the bolts are fully tightened.

- Bolt gearbox onto engine.
- Raise the engine/gearbox assembly further.
- Secure gearbox cross member.



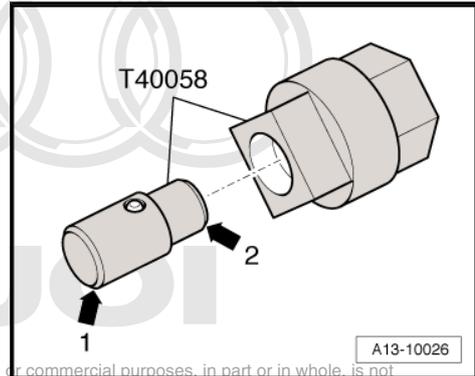
Note

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





- Insert guide pin of adapter -T40058- so that the large diameter -arrow 1- faces engine. The smaller diameter -arrow 2- faces adapter.



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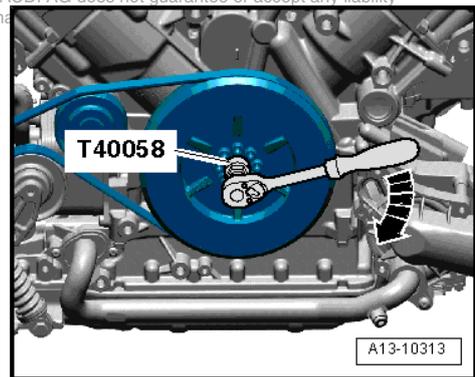
- Counter-hold crankshaft using adapter -T40058- to secure torque converter bolts.



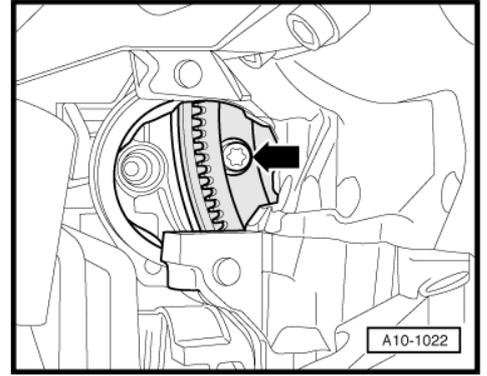
Note

-Arrow- can be disregarded.

- Use new bolts (genuine Audi parts) to secure torque converter to drive plate => Electronic parts catalogue .



- Screw in 3 bolts -arrow- for torque converter through opening for removed starter, and tighten lightly (turning crankshaft $\frac{1}{3}$ turn each time).
- Then tighten torque converter bolts to torque (turning the crankshaft $\frac{1}{3}$ turn each time).
- Install tunnel cross member.
- Install coolant pipe (bottom left) ⇒ Engine, mechanics; Rep. Gr. 19 .
- Install ATF pipes ⇒ [page 119](#) .
- Adjust selector lever cable ⇒ [page 35](#) .
- Install front gearbox supports with gearbox mountings ⇒ [page 101](#) .
- Bolt propshaft onto gearbox ⇒ Rear final drive 01R; Rep. Gr. 39 or ⇒ Rear final drive 0AR; Rep. Gr. 39 .
- Install exhaust system so it is free of stress ⇒ Engine, mechanics; Rep. Gr. 26 .
- Install front cross piece ⇒ General body repairs, exterior; Rep. Gr. 50 .
- Install starter ⇒ Electrical system; Rep. Gr. 27 .
- Install engine support with engine mounting (right-side) ⇒ Engine, mechanics; Rep. Gr. 10 .
- Install engine cross member ⇒ Engine, mechanics; Rep. Gr. 10 .
- Install subframe ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 40 .
- Install anti-roll bar ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 40 .
- Bolt drive shafts to gearbox flange shafts ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 40 .
- Install cross member on subframe ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 40 .
- Install ATF cooler and ATF pipes ⇒ [page 119](#) .
- Install body brace ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 40 .
- Electrical connections and routing ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Check gear oil level in front final drive ⇒ [page 133](#) .
- Check gear oil level in transfer box ⇒ [page 153](#) .
- Follow steps required after connecting battery ⇒ Electrical system; Rep. Gr. 27 .
- Check ATF level in planetary gearbox ⇒ [page 110](#) .

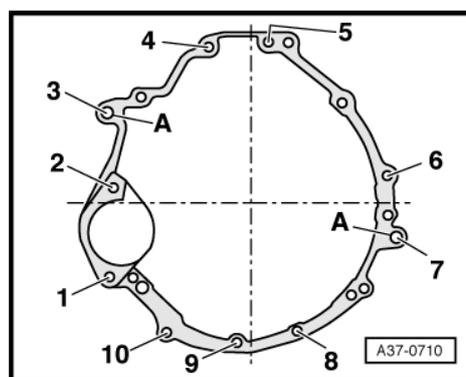


Tightening torques

Component	Nm
Bolts/nuts	M6 9
	M8 20
	M10 40
	M12 65
Except for the following:	
Drive plate to torque converter	85 ¹⁾
Bracket for exhaust pipe lug.	23
Heat shields above drive shafts to gearbox	23
Heat shield for propshaft to gearbox cover	25
Bracket for noise insulation to subframe	10
<ul style="list-style-type: none"> ¹⁾ Renew bolts. Use only genuine Audi/VW bolts ⇒ Electronic parts catalogue . 	

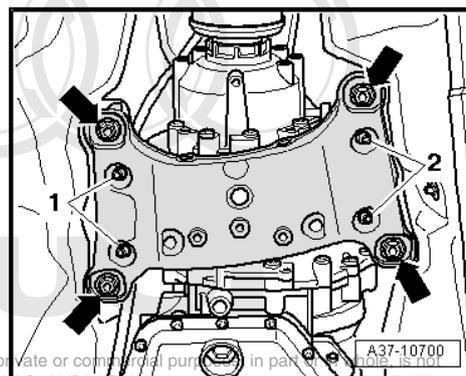
Engine/gearbox securing bolts

Item	Bolt	Nm
1	M10x80 ¹⁾	65
2	M12x90	65
3	M12x105	65
4, 5	M12x100	65
6	M12x125	65
7	M12x170	65
8, 9, 10	M10x80	45
A	Dowel sleeves for centralising	
<ul style="list-style-type: none"> ¹⁾ Property class 10.9 		



Tunnel cross member to body

Component	Nm
Tunnel cross member to body -arrows-	40

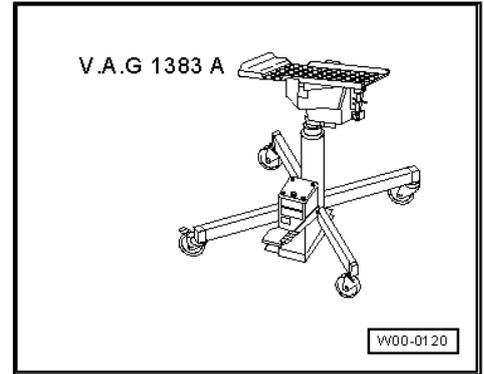


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3.7 Removing and installing gearbox support and gearbox mounting (left-side) - vehicles with V6 engine

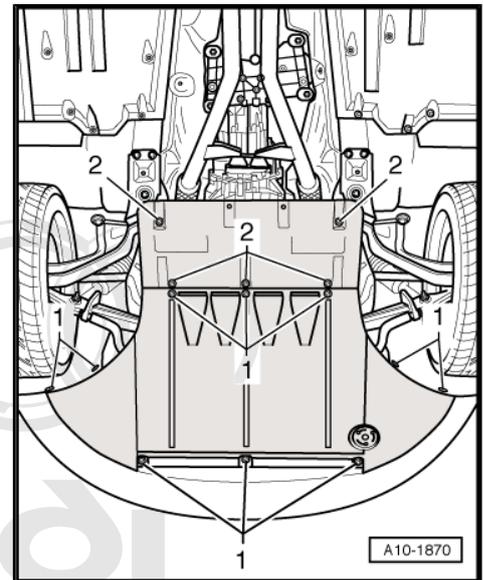
Special tools and workshop equipment required

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



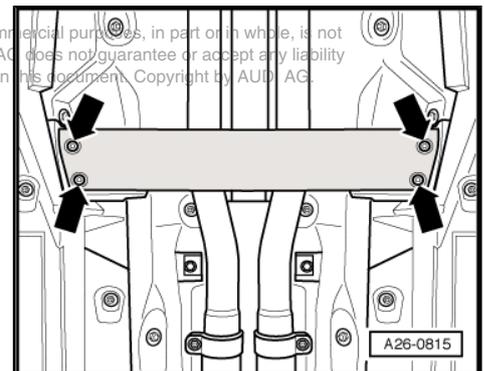
Removing

- Unfasten quick-release catches -2- and detach rear noise insulation.



- Remove front cross member -arrows-

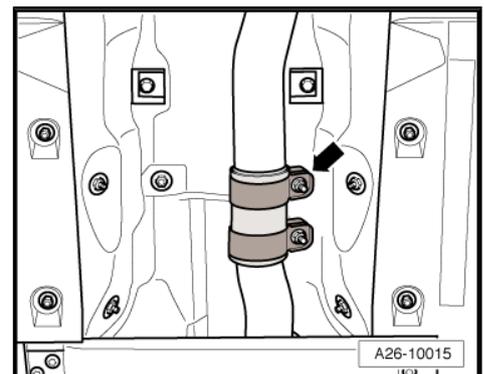
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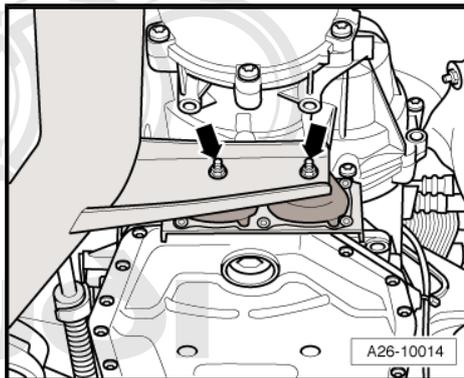
i Note

The flexible pipe connection (de-coupling element) on the front exhaust pipe must not be bent more than 10° – otherwise it can be damaged.

- Disconnect exhaust system at clamp -arrow-

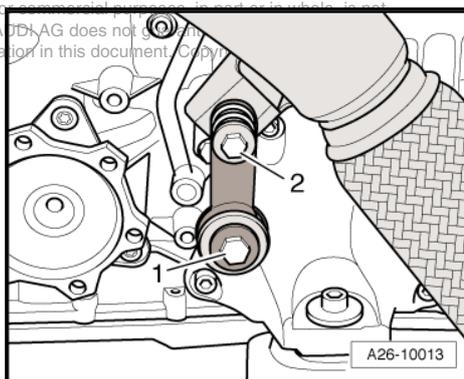


- Unscrew nuts -arrows- at centre bracket for front exhaust pipe.

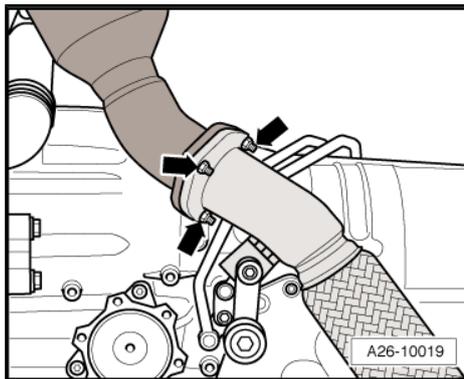


- Unscrew bolts -1- and -2- and remove front exhaust pipe bracket.

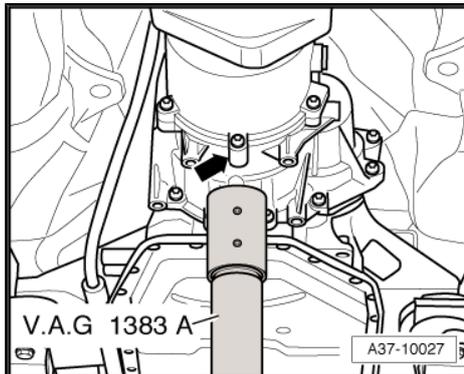
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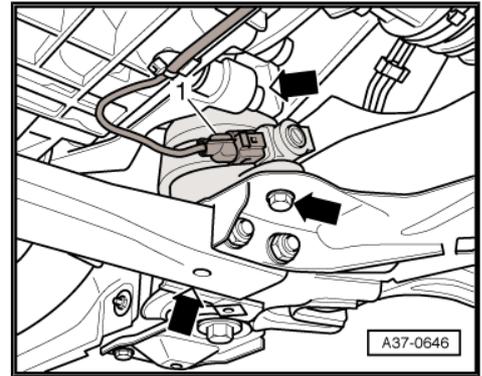
- Unscrew nuts -arrows- and remove front exhaust pipe with main catalytic converter.



- Detach universal support -V.A.G 1359/2- from engine and gearbox jack -V.A.G 1383 A- .
- Place telescopic column of engine and gearbox jack -V.A.G 1383 A- centrally below cast lug on gearbox housing -arrow- and raise gearbox slightly.



- Unplug electrical connector -1- at gearbox mounting (left-side).
- Unscrew bolts -arrows- and remove gearbox mounting (left-side).

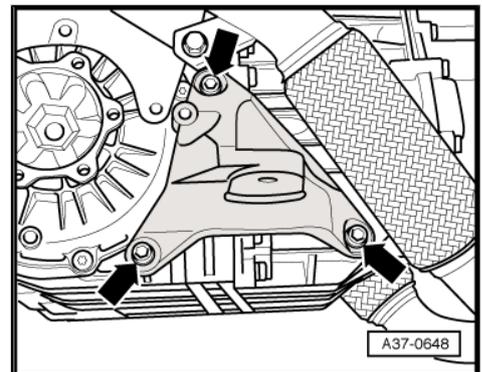


- Unscrew gearbox support (left-side) -arrows-.
- Lower gearbox slightly.

Installing

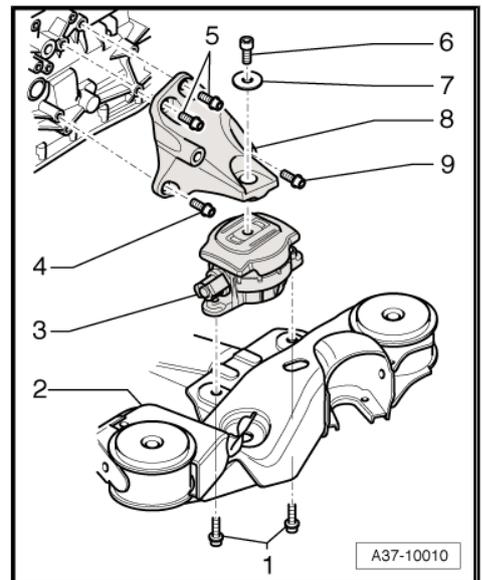
Installation is carried out in reverse sequence; note the following:

- Install exhaust system so it is free of stress ⇒ Engine, mechanics; Rep. Gr. 26 .



Tightening torques for gearbox mounting (left-side)

- 1 - 23 Nm
- 2 - Subframe
- 3 - Gearbox mounting (left-side)
- 4 - 23 Nm
- 5 - 23 Nm
- 6 - 40 Nm
- 7 - Washer
- 8 - Gearbox support (left-side):
- 9 - 23 Nm



3.8 Removing and installing gearbox support and gearbox mounting (right-side) - vehicles with V6 engine

Special tools and workshop equipment required

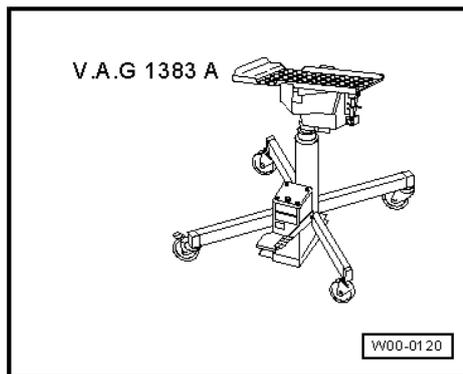
◆ Engine and gearbox jack -V.A.G 1383 A-



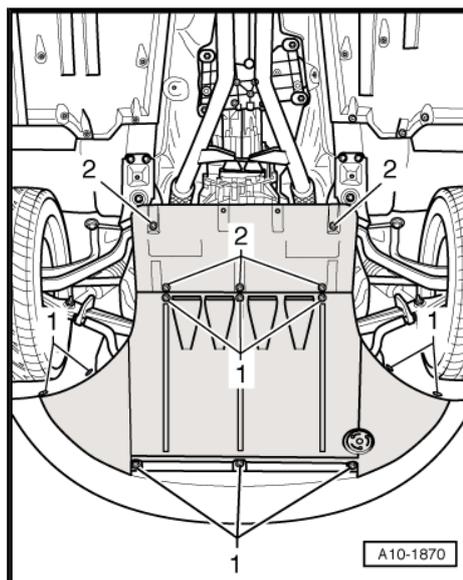
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Removing

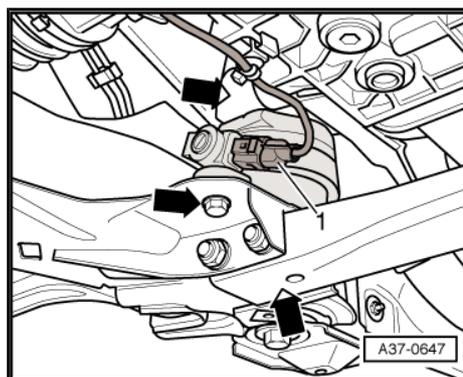
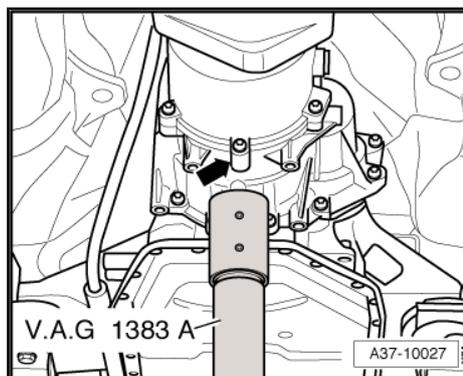
- Unfasten quick-release catches -2- and detach rear noise insulation.



- Detach universal support -V.A.G 1359/2- from engine and gearbox jack -V.A.G 1383 A- .
- Place telescopic column of engine and gearbox jack -V.A.G 1383 A- centrally below cast lug on gearbox housing -arrow- and raise gearbox slightly.



- Unplug electrical connector -1- at gearbox mounting (right-side).
- Unscrew bolts -arrows- and remove gearbox mounting (right-side).

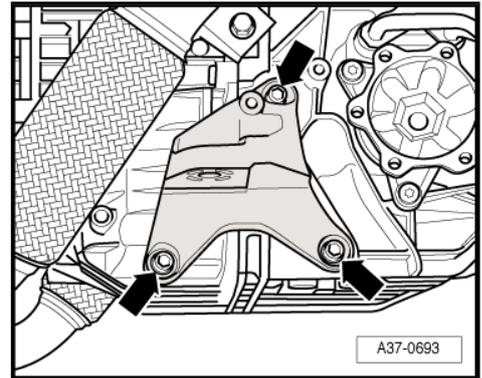


- Unscrew gearbox support (right-side) -arrows-.
- Lower gearbox slightly.

Installing

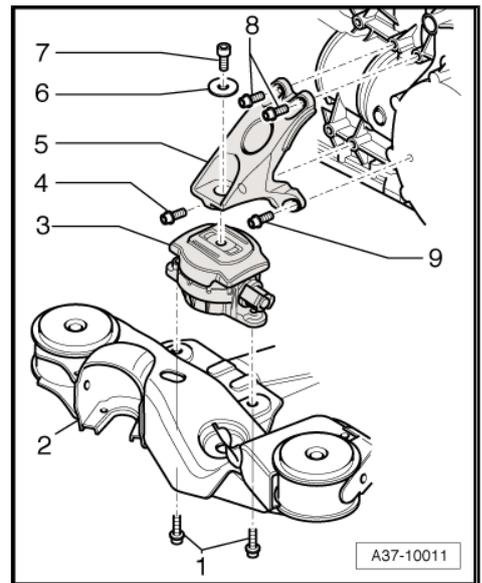
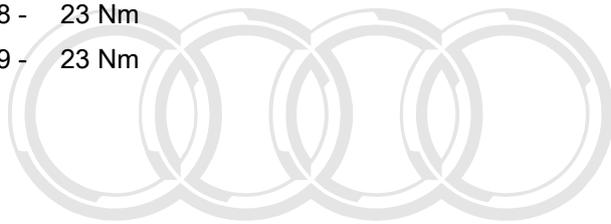
Installation is carried out in reverse sequence; note the following:

- Install exhaust system so it is free of stress => Engine, mechanics; Rep. Gr. 26 .



Tightening torques for gearbox mountings (right-side)

- 1 - 23 Nm
- 2 - Subframe
- 3 - Gearbox mounting (right-side)
- 4 - 23 Nm
- 5 - Gearbox support (right-side)
- 6 - Washer
- 7 - 40 Nm
- 8 - 23 Nm
- 9 - 23 Nm

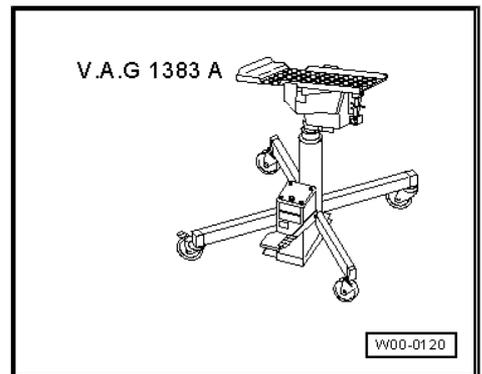


3.9 Removing and installing gearbox supports and gearbox mountings (front) - vehicles with V8 engine

Special tools and workshop equipment required

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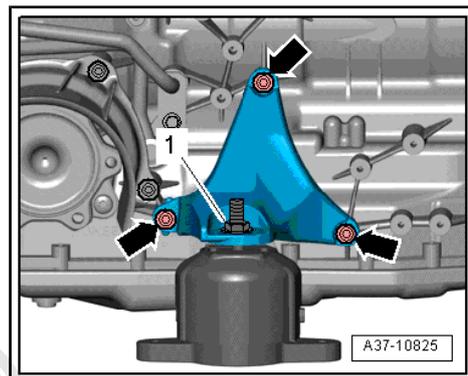
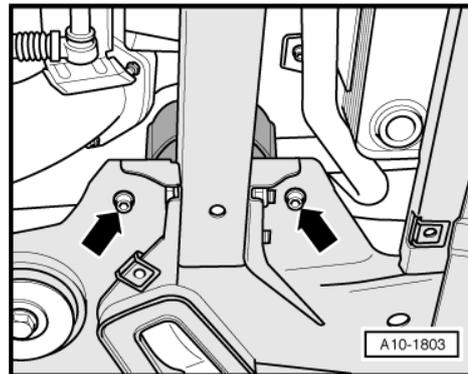
- ◆ Engine and gearbox jack - V.A.G 1383 A -



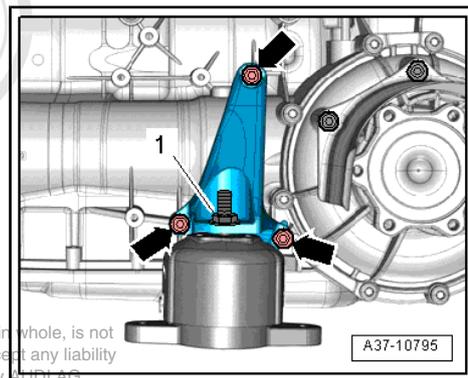
Removing

- Remove front front silencer (left and right) ⇒ Engine, mechanics; Rep. Gr. 26 .
- Unscrew bolts -arrows- for front gearbox mountings (left and right).

- Remove bolts -arrows- and detach gearbox support with gearbox mounting (left-side).
- Unscrew nut -1- and detach gearbox mounting from gearbox support.



- Remove bolts -arrows- and detach gearbox support with gearbox mounting (right-side).
- Unscrew nut -1- and detach gearbox mounting from gearbox support.



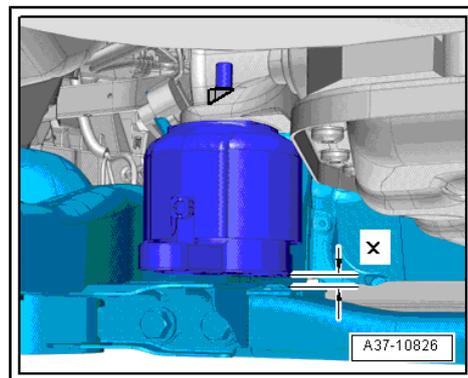
Installing

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

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Fitting instructions for spacer shim

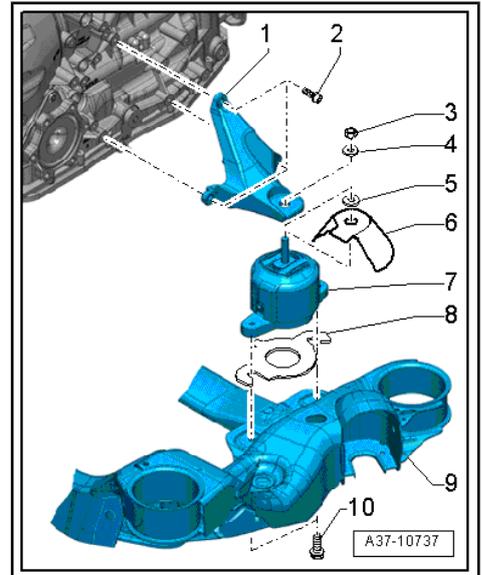
- Engine/gearbox assembly installed.
- Rear gearbox mountings installed.
- Front gearbox mountings secured to gearbox supports (do not secure to subframe).



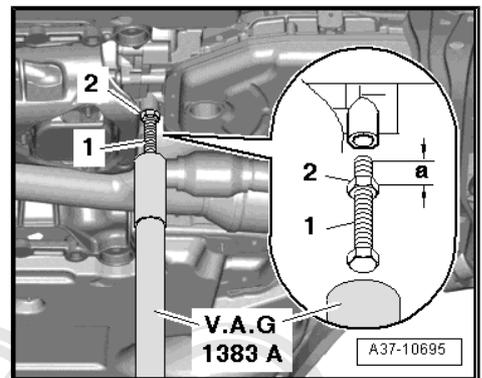
- Measure distance -x- between gearbox mounting and sub-frame using a feeler gauge.
- Determine thickness of spacer shim -8- as follows:
 - Thickness of spacer shim = dimension -x- = +2.5 mm

i Note

- ◆ *The exact spacer shim thickness required can be obtained by combining spacer shims of different thicknesses.*
- ◆ *Do not fit more than three spacer shims on each side.*



- Insert a bolt M12x100 -item 1- with attached nut -2- into the mounting hole behind the ATF oil pan on the gearbox.
- Dimension -a- = 13 mm
- Apply lifting column of engine and gearbox jack -V.A.G 1383 A- to bolt head as illustrated.
- Use engine and gearbox jack -V.A.G 1383 A- to lift engine/ gearbox assembly up slightly.
- Insert the determined spacer shim(s) of the required thickness between subframe and gearbox mounting.
- Repeat procedure on other side.
- Install front silencers ⇒ Engine, mechanics; Rep. Gr. 26 .

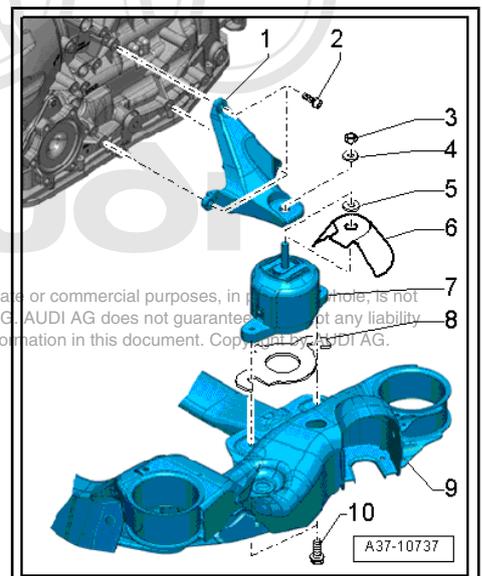


Tightening torques

Gearbox mounting (front left)

- 1 - Gearbox support (front left)
- 2 - Bolt, 23 Nm
- 3 - Nut, 40 Nm
- 4 - Washer
- 5 - Washer
- 6 - Heat shield (left-side)
- 7 - Gearbox mounting (front left)
- 8 - Spacer shim - fitting instruction ⇒ [page 102](#)
- 9 - Subframe
- 10 - Bolt, 23 Nm

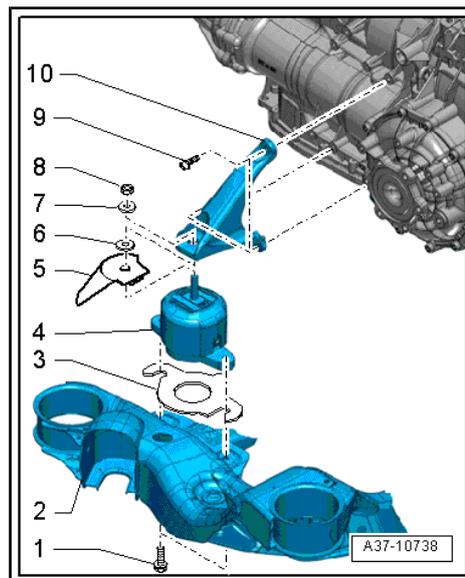
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Gearbox mounting (front right)

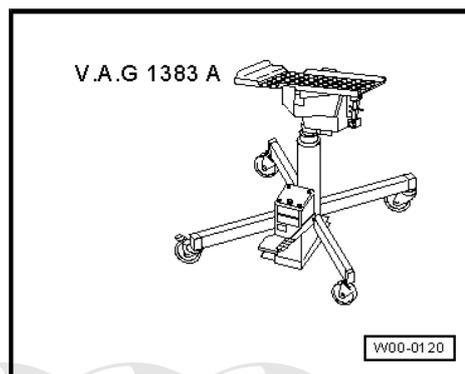
- 1 - Bolt
- 2 - Subframe
- 3 - Spacer shim - fitting instruction => [page 102](#)
- 4 - Gearbox mounting (front right)
- 5 - Heat shield (right-side)
- 6 - Washer
- 7 - Washer
- 8 - Nut, 40 Nm
- 9 - Bolt, 23 Nm
- 10 - Gearbox support (front right)



3.10 Removing and installing gearbox supports and gearbox mountings (rear) - vehicles with V8 engine

Special tools and workshop equipment required

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



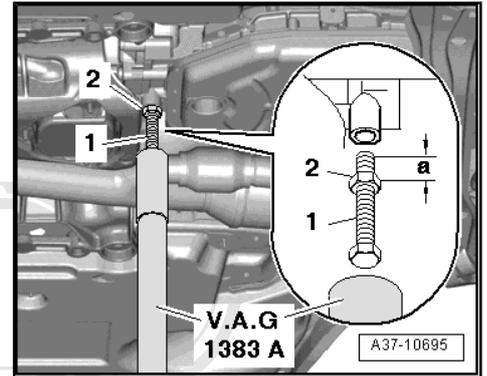
- ◆ Bolt M12x100

Removing

- Remove front silencers => Engine, mechanics; Rep. Gr. 26 .
- Remove gearbox supports with gearbox mountings (front) => [page 101](#) .
- Unbolt propshaft from gearbox and tie up or support => Rear final drive 01R; Rep. Gr. 39 or => Rear final drive 0AR; Rep. Gr. 39 .

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- Insert a bolt M12x100 -item 1- with attached nut -2- into the mounting hole behind the ATF oil pan on the gearbox.
- Dimension -a- = 13 mm
- Apply lifting column of engine and gearbox jack -V.A.G 1383 A- to bolt head as illustrated.

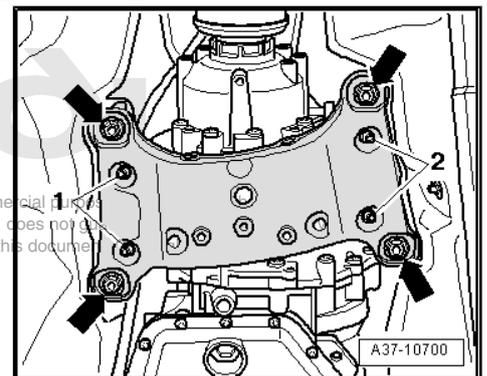


- Remove bolts securing gearbox mountings (left -1- and right -2-) to tunnel cross member.
- Then unbolt tunnel cross member from body -arrows-.

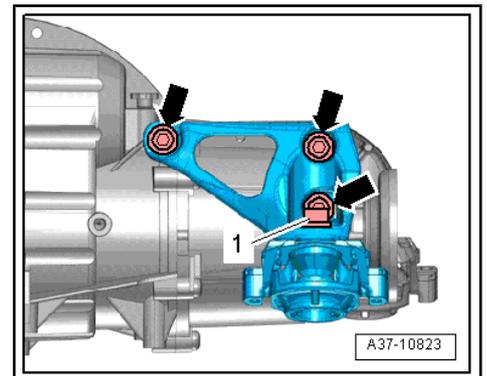
Caution

It is important to watch all parts of the engine compartment to prevent damage.

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- Carefully lower engine and gearbox assembly at rear using engine and gearbox jack -V.A.G 1383 A- .
- Remove bolt -1- and detach gearbox mounting (rear left).
- Remove bolts -arrows- and detach gearbox support (rear left).



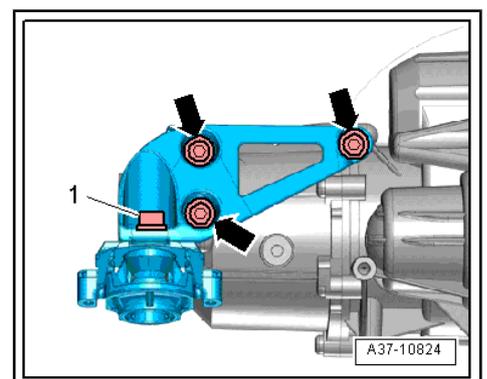
- Remove bolt -1- and detach gearbox mounting (rear left).
- Remove bolts -arrows- and detach gearbox support (rear left).

Installing

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

Note

- ◆ The gearbox mounting (rear right) is marked with a blue dot.
- ◆ The gearbox mounting (rear left) is not marked.

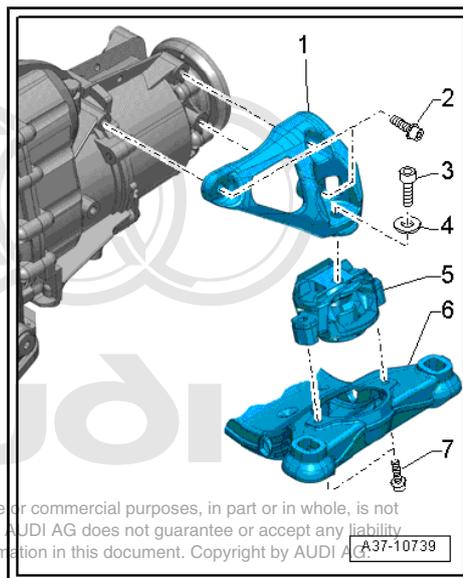


- Install gearbox supports with gearbox mountings (front) => [page 101](#) .
- Bolt propshaft onto gearbox => Rear final drive 01R; Rep. Gr. 39 or => Rear final drive 0AR; Rep. Gr. 39 .
- Install front silencer (left and right) => Engine, mechanics; Rep. Gr. 26 .

Tightening torques

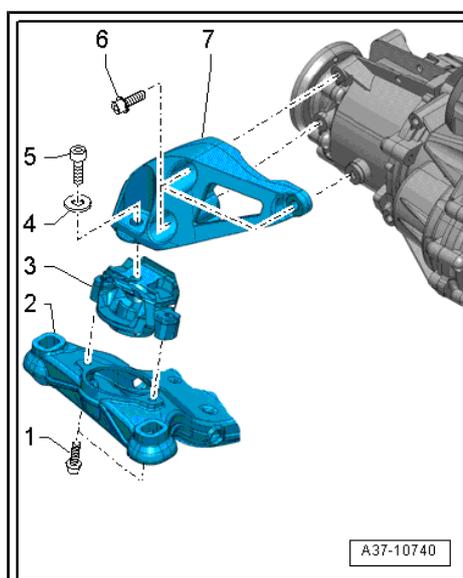
Gearbox mounting (rear left)

- 1 - Gearbox support (rear left)
- 2 - Bolt, 40 Nm
- 3 - Bolt, 40 Nm
- 4 - Washer
- 5 - Gearbox mounting (rear left)
- 6 - Tunnel cross member
- 7 - Bolt, 23 Nm



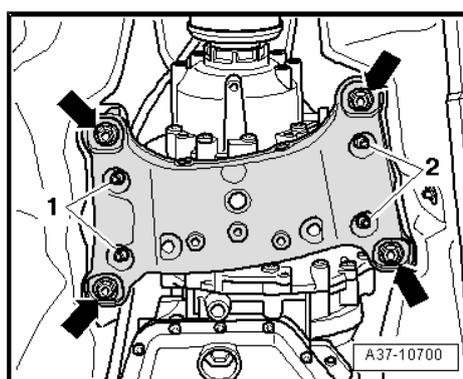
Gearbox mounting (rear right)

- 1 - Bolt, 23 Nm
- 2 - Tunnel cross member
- 3 - Gearbox mounting (rear right)
- 4 - Washer
- 5 - Bolt, 40 Nm
- 6 - Bolt, 40 Nm
- 7 - Gearbox support (rear right)



Tunnel cross member to body

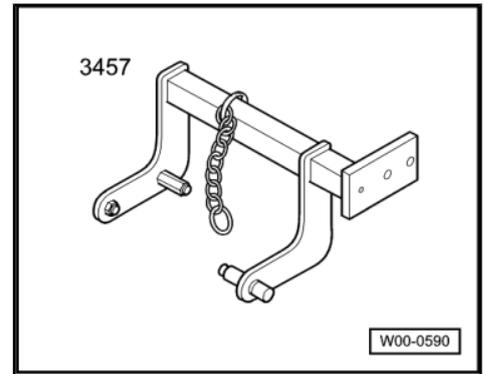
Component	Nm
Tunnel cross member to body -arrows-	40



3.11 Transporting the automatic gearbox

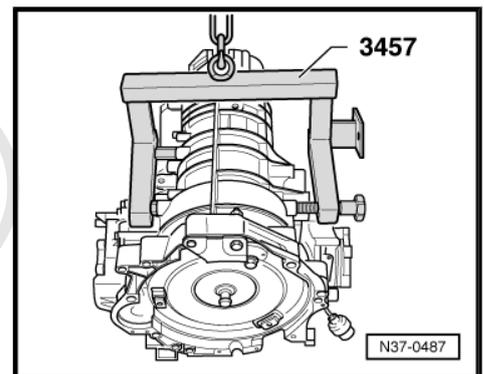
Special tools and workshop equipment required

◆ Transportation tool -3457-



Transportation tool -3457- can be used to transport the automatic gearbox and also when setting up gearbox support -3282- .

- Fit transportation tool -3457- to attachment points on gearbox housing and secure in place.

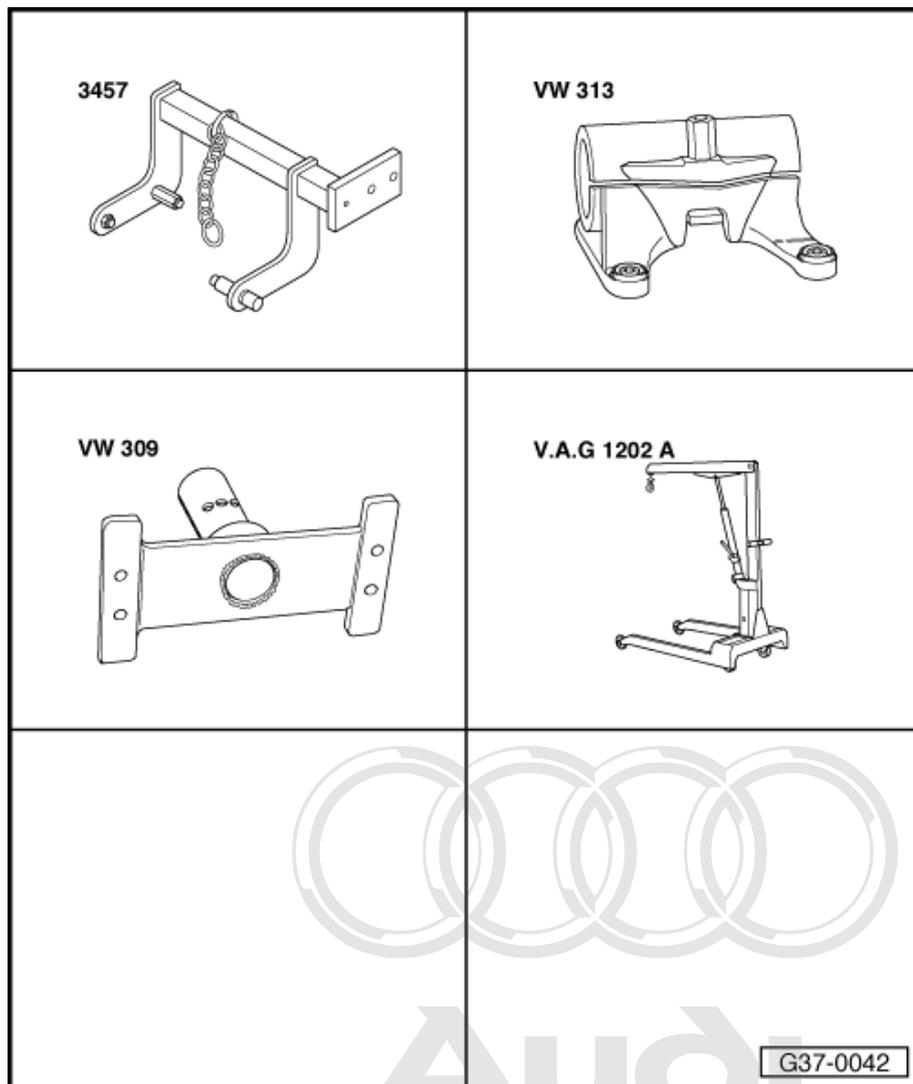


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3.12 Securing gearbox to assembly stand

Special tools and workshop equipment required

- ◆ Transportation tool -3457-
- ◆ Support clamp -VW 313-
- ◆ Support plate -VW 309-
- ◆ Workshop hoist - V.A.G 1202 A-



Procedure

- Remove gearbox.

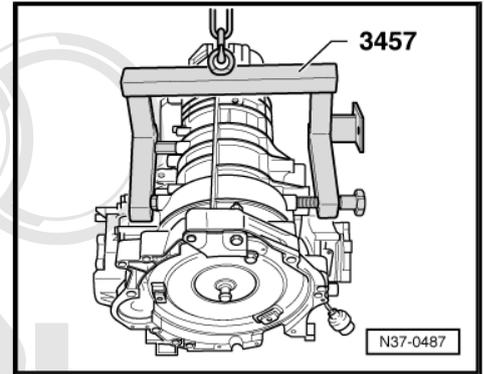
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- Fit transportation tool -3457- to attachment points on gearbox housing and secure in place.
- Bolt transportation tool onto support plate -VW 309- and install into support clamp -VW 313- with the aid of workshop hoist.



WARNING

The centre of gravity of the gearbox is outside the pivot centre of the support clamp. A second mechanic has to hold the gearbox housing when it is being turned to prevent it from swinging round.



Note

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If the gearbox is full and it is to be tilted in the assembly stand with the oil pan pointing upwards, the vent holes for the gearbox housing and final drive must be sealed.

4 ATF level in planetary gearbox



Note

Rules for cleanliness when working on the automatic gearbox
 ⇒ [page 14](#).

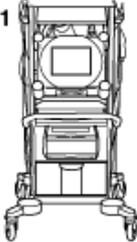
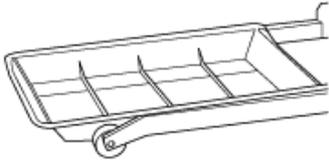
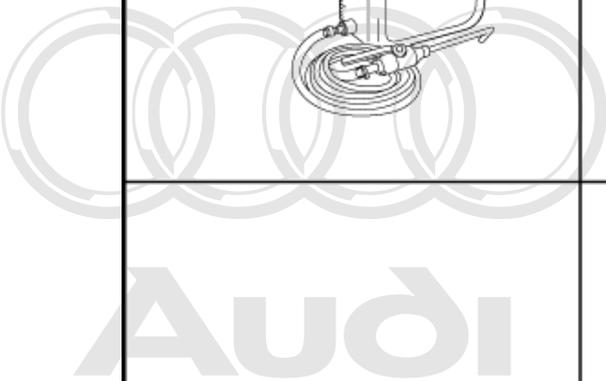
Overview:

- ◆ ⇒ [“4.1 Checking and correcting ATF level”, page 110](#)
- ◆ ⇒ [“4.2 Draining ATF and filling up after repairs”, page 114](#)

4.1 Checking and correcting ATF level

Special tools and workshop equipment required

- ◆ Vehicle diagnostic, testing and information system - VAS 5051-
- ◆ Drip tray -V.A.G 1306-
- ◆ ATF filling unit -V.A.G 1924-
- ◆ Safety goggles

<p>VAS 5051</p> 	<p>V.A.G 1306</p> 
<p>V.A.G 1924</p> 	
	
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<p>G37-0008</p>	

Test conditions

- Gearbox must not be in emergency running (backup) mode.
- Vehicle must be level (horizontal).
- Selector lever in position “P”, engine idling.
- Air conditioner and heating system switched off.

- Vehicle diagnostic, testing and information system -VAS 5051- connected up; vehicle self-diagnosis and vehicle system “02 - Gearbox electronics” selected.
- The ATF temperature at the beginning of the test must not be higher than 30°C. If necessary, first allow the gearbox to cool down.

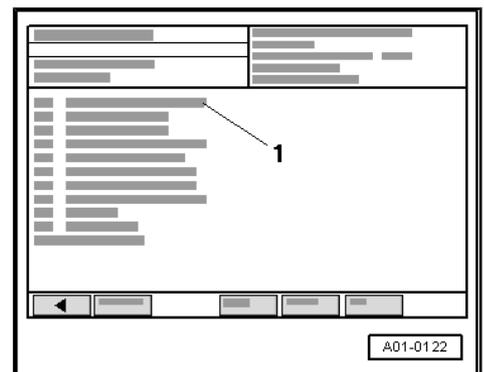
i Note

- ◆ *The ATF temperature is taken from the reading on the vehicle diagnostic, testing and information system -VAS 5051- .*
- ◆ *The ATF level will vary according to the ATF temperature.*
- ◆ *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 will impair the function of the gearbox.*
- ◆ *Use only the correct type of ATF (available as a replacement part) for the planetary gearing in automatic gearbox 09L. Other oils cause faults and/or failure of the gearbox; for ATF specification refer to ⇒ [page 6](#) .*

ATF temperature reading

Display on -VAS 5051- :

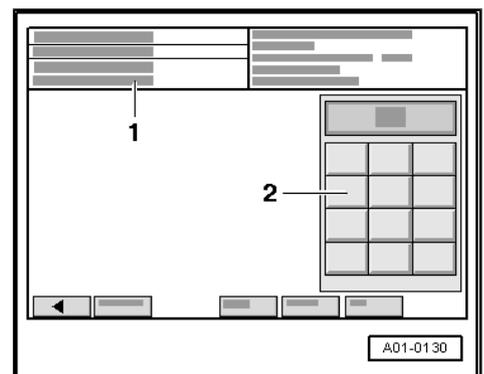
- From list -1- select diagnostic function “011 - Measured values”.



Display on -VAS 5051- :

1 - Enter display group

- Use keypad -2- to enter “4” for “Display group 004” and confirm by touching  key.



Display on -VAS 5051- :

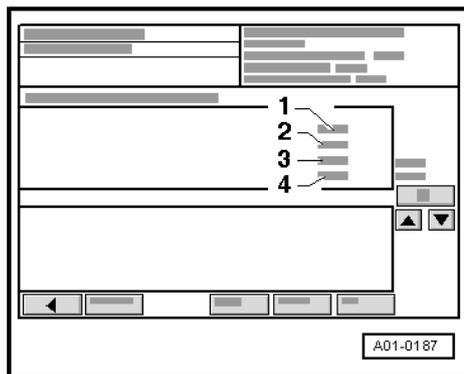
- Reading for ATF temperature is shown in display zone -1-.

Checking and correcting ATF level



Note

- ◆ *The ATF level is checked at the ATF inspection plug.*
- ◆ *The ATF level is correct if a small amount of fluid comes out at the ATF inspection plug when ATF temperature is between 35°C and 45°C, or 50°C in hot climates (the fluid level rises due to expansion as it warms up).*
- Drive vehicle onto a four-column lifting platform or over an inspection pit in order for it to be absolutely horizontal.
- Fill container of ATF filling unit -V.A.G 1924- with ATF for automatic gearbox 09L; ATF specification ⇒ [page 6](#) .



WARNING

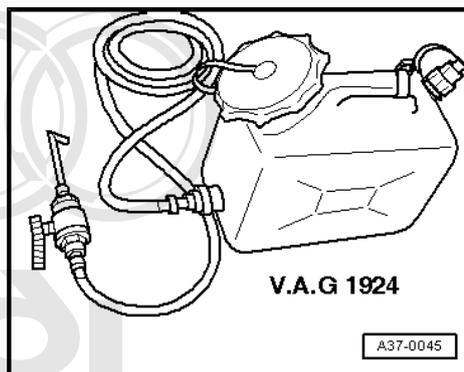
The ATF filling unit must be clean and the ATF must not be mixed with other types of ATF!

- Secure container for ATF filling unit -V.A.G 1924- as high as possible on vehicle.
- Start engine and let it idle.
- Place drip tray -V.A.G 1306- under the gearbox.

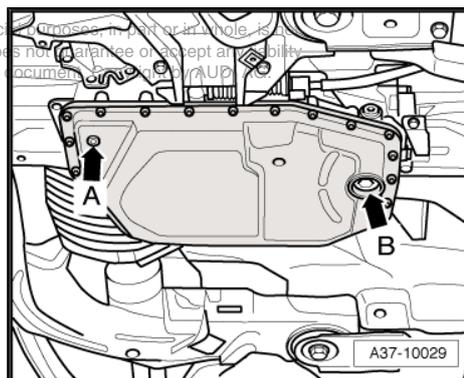


WARNING

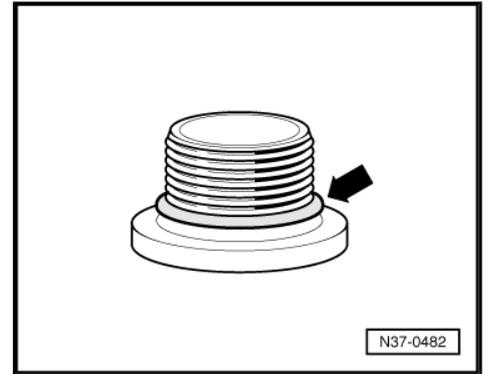
Wear safety goggles.



- When an ATF temperature of 35°C is reached, unscrew the ATF inspection plug -arrow B- and drain off any surplus ATF.



- Renew seal -arrow- for ATF inspection plug.



If ATF comes out of the inspection hole before the ATF has reached 40°C the ATF level -arrow- is OK.

i Note

The ATF inspection plug must be screwed in again at the latest when ATF reaches a temperature of 45°C (countries with hot climates: 50°C).

If no ATF emerges from ATF inspection hole when ATF has reached 45°C, top up with ATF ⇒ [page 113](#) .

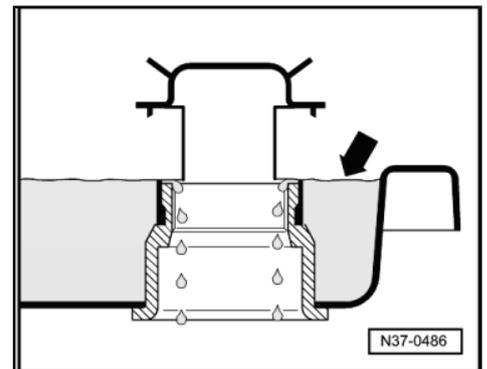
- Fit new seal on ATF inspection plug and tighten to 80 Nm. The ATF check is now completed.
- Exit from function “08 - Read measured value block” by touching  key.
- Press “06 - End output”.
- Switch off ignition and unplug diagnostic connector.

Filling up ATF

If no ATF emerges from ATF inspection hole when ATF has reached 40°C, top up with ATF:

i Note

The ATF inspection plug must be screwed in again at the latest when temperature reaches 45°C (hot climates: 50°C). If necessary, switch off engine, allow gearbox to cool down and repeat the test.



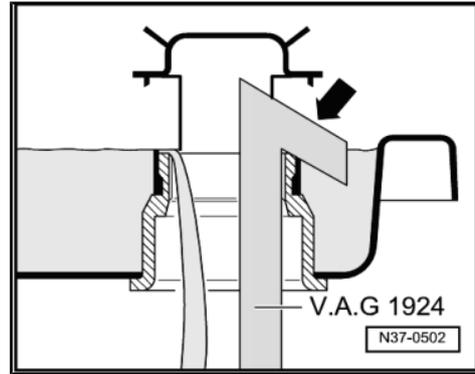
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- Guide filler nozzle of ATF filling unit -V.A.G 1924- in from below through an opening in the deflector cap -arrow-, taking care not to push the deflector cap upwards out of position.
- Fill with ATF using ATF filling unit -V.A.G 1924- until ATF comes out of inspection hole.

**Note**

The ATF level must not be too low or too high, otherwise this would impair the function of the gearbox.

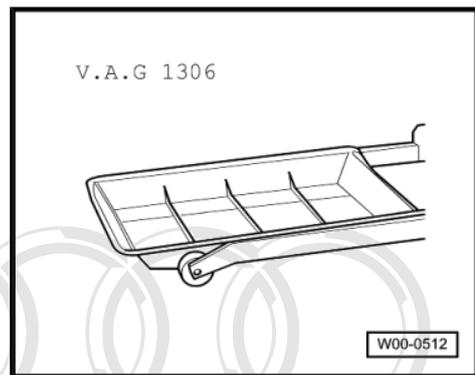
- Fit new seal on ATF inspection plug and tighten to 80 Nm.
- Exit from function "08 - Read measured value block" by touching key.
- Press "06 - End output".
- Switch off ignition and unplug diagnostic connector.



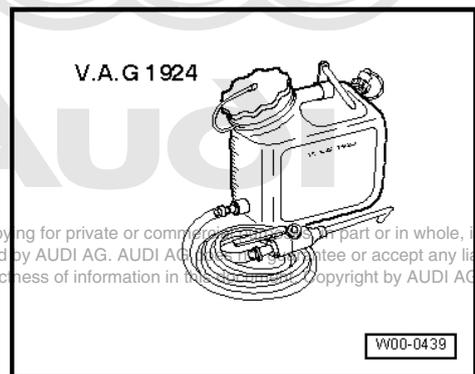
4.2 Draining ATF and filling up after repairs

Special tools and workshop equipment required

- ◆ Drip tray -V.A.G 1306-



- ◆ ATF filling unit -V.A.G 1924-



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- ◆ Safety goggles

Procedure

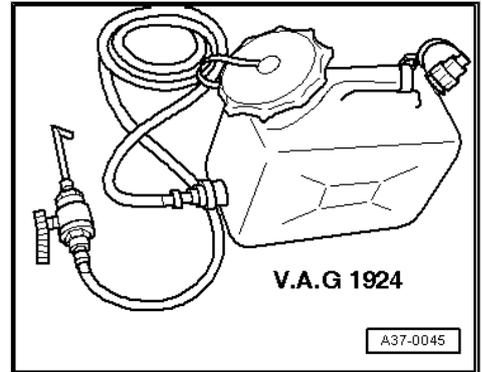
- Engine not running.
- Drive vehicle onto a four-column lifting platform or over an inspection pit in order for it to be absolutely horizontal.
- Fill container of ATF filling unit -V.A.G 1924- with ATF for automatic gearbox 09L; ATF specification ⇒ [page 6](#) .



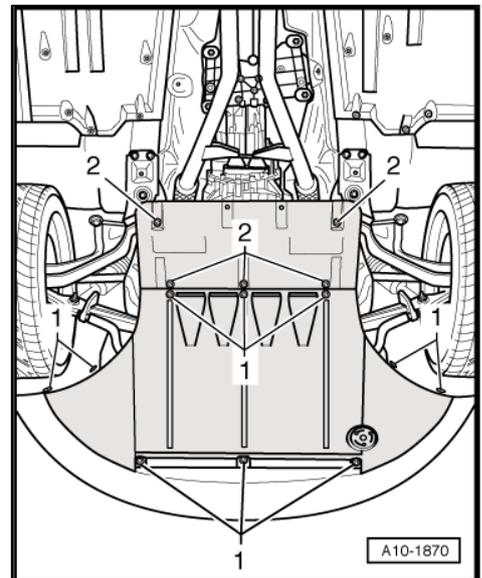
WARNING

The ATF filling unit must be clean and the ATF must not be mixed with other types of ATF!

- Secure container for ATF filling unit -V.A.G 1924- as high as possible on vehicle.



- Unfasten quick-release catches -2- and detach rear noise insulation.



Draining ATF

- Place drip tray -V.A.G 1306- under the gearbox.
- Remove ATF drain plug -arrow A-.
- Drain ATF.



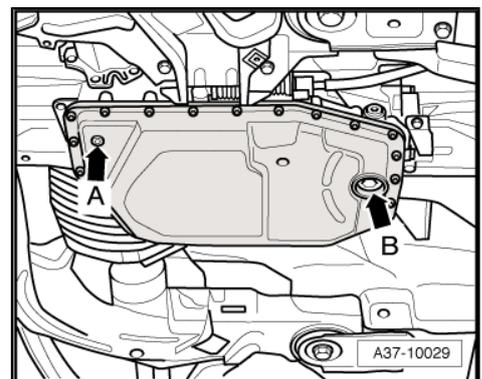
Note

- ◆ *Observe relevant disposal regulations.*
- ◆ *The engine must not be started and vehicle must not be towed without ATF in gearbox.*
- ◆ *The drain plug with seal must be renewed.*

- Tighten new drain plug -arrow A- to 12 Nm.

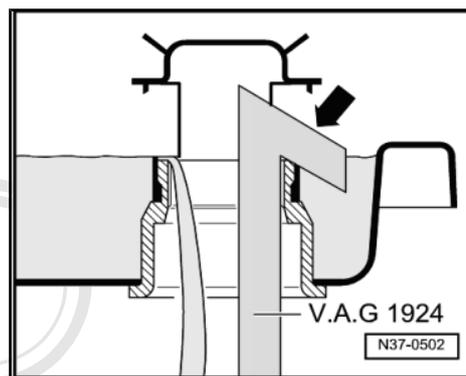
Filling gearbox with ATF

- Remove ATF inspection plug -arrow B-.





- Guide filler nozzle of ATF filling unit -V.A.G 1924- in from below through an opening in the deflector cap -arrow-, taking care not to push the deflector cap upwards out of position.
- Fill with ATF using ATF filling unit -V.A.G 1924- until ATF comes out of inspection hole.
- Shift selector lever to position "P".
- Start engine and turn off after 20 seconds.
- Continue filling with ATF using ATF filling unit -V.A.G 1924- until ATF comes out of inspection hole.
- Start engine.
- Continue filling with ATF using ATF filling unit -V.A.G 1924- until ATF comes out of inspection hole again.
- Tighten ATF inspection plug.
- With the engine idling, press the brake pedal and shift the selector lever through all the selector lever positions leaving the selector lever at least 10 seconds in each position.
- Shift selector lever into position "N".
- Increase engine speed to 2000 rpm for at least 60 seconds.
- Shift selector lever into position "P".
- Continue filling with ATF using ATF filling unit -V.A.G 1924- until ATF comes out of inspection hole again.
- Tighten ATF inspection plug.
- With the engine idling, press the brake pedal and shift the selector lever through all the selector lever positions leaving the selector lever at least 10 seconds in each position.
- Shift selector lever to position "N".
- Increase engine speed to 2000 rpm for at least 60 seconds.
- Shift selector lever into position "P".
- Check ATF level in planetary gearbox ⇒ [page 110](#) .



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Note

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

5 ATF pipes

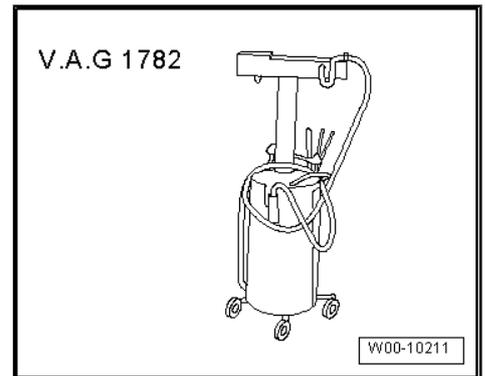


General repair instructions => [page 9](#).

5.1 Cleaning ATF pipes and ATF cooler

Special tools and workshop equipment required

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



- ◆ Compressed air gun (commercially available)



- ◆ *Always clean ATF cooler and ATF pipes before installing exchange gearbox. If the ATF which emerges during cleaning is very dirty, the pipes and ATF cooler must additionally be flushed out with clean ATF.*
- ◆ *Rules for cleanliness when working on the automatic gearbox => [page 14](#).*
- ◆ *Thoroughly clean all joints and connections and the surrounding areas before dismantling.*
- ◆ *To install, first press ATF pipes onto gearbox or cooler by hand until they engage, then bolt on.*



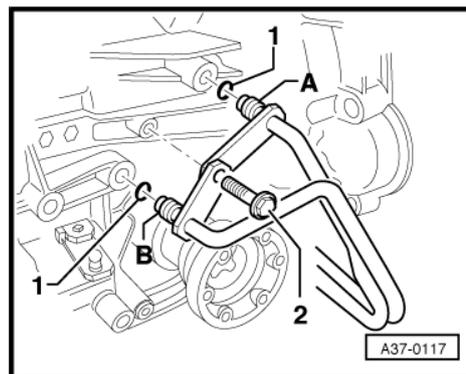
Procedure

- Place used oil collection and extraction unit -V.A.G 1782- below cutting location.
- Remove bolt -2-.
- Connect a hose to ATF pipe -A- and secure with a hose clip. Place the other end of the hose into drip tray.



DANGER!

Wear safety goggles.



- Blow through ATF pipe -B- using a compressed air line (max. 10 bar).
- Change hose from ATF pipe -A- over to ATF pipe -B- and repeat sequence.
- Secure ATF pipes again.
- Check ATF level in planetary gearbox => [page 110](#) .

5.2 ATF pipes and ATF cooler - exploded view for vehicles with V6 3.0 ltr. TDI engine



Note

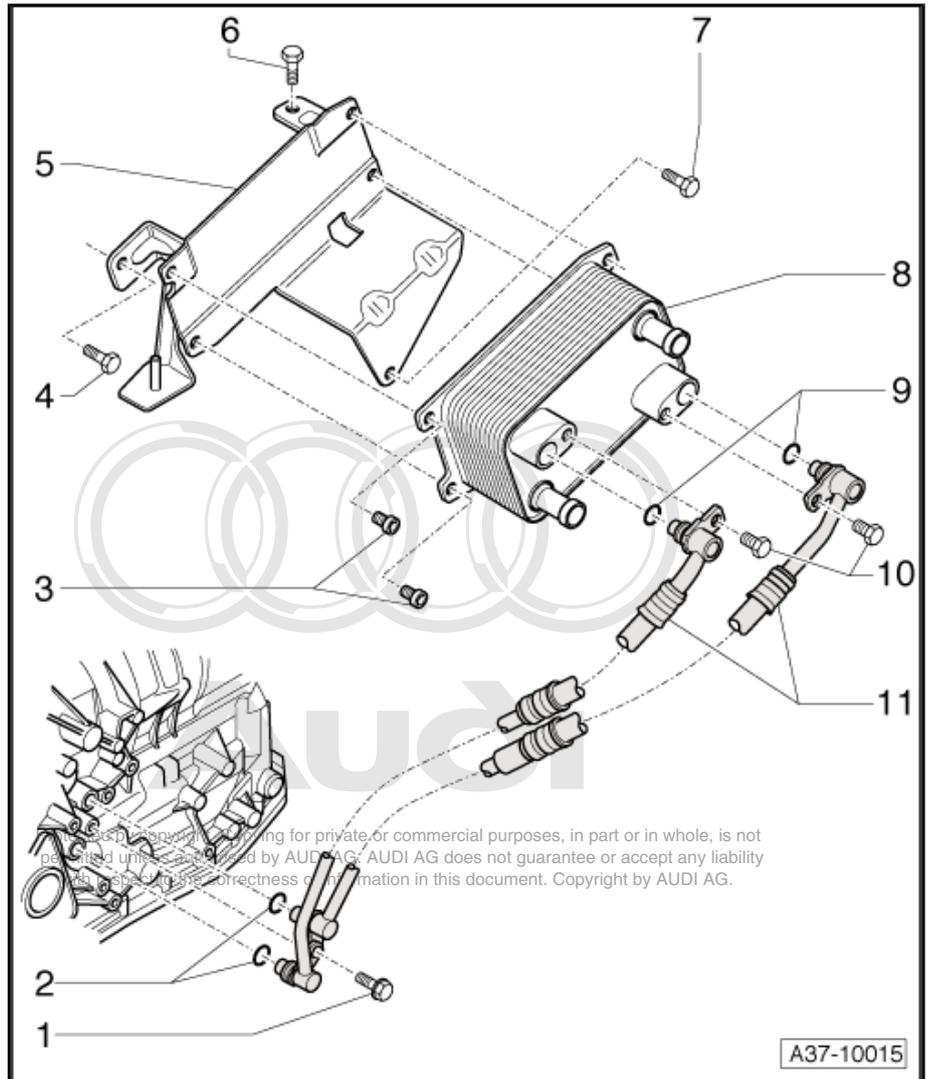
- ◆ *Rules for cleanliness when working on the automatic gearbox => [page 14](#) .*
- ◆ *Thoroughly clean all joints and connections and the surrounding areas before dismantling.* AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.
- ◆ *Check ATF level after renewing ATF pipes/hoses or ATF cooler => "4.1 Checking and correcting ATF level", [page 110](#) .*



WARNING

- ◆ *Drain cooling system completely before removing and installing ATF cooler => [Engine, mechanics; Rep. Gr. 19](#) .*
- ◆ *Always use cooling system charge unit -VAS 6096- when refilling cooling system => [Engine, mechanics; Rep. Gr. 19](#) . Otherwise there is a danger of malfunction.*

- 1 - 20 Nm
 - Do not tighten until pipes have been fully inserted
- 2 - O-rings
 - Renew
 - Lubricate with ATF when fitting
- 3 - 10 Nm
- 4 - 10 Nm
- 5 - Bracket for ATF cooler
- 6 - 10 Nm
- 7 - 10 Nm
- 8 - ATF cooler
- 9 - O-rings
 - Renew
 - Lubricate with ATF when fitting
- 10 - 10 Nm
- 11 - ATF pipes
 - Press ATF lines onto gearbox or cooler completely by hand until they engage, then bolt on.



5.3 ATF pipes and ATF cooler - exploded view for vehicles with V6 3.2 ltr./V8 4.2 ltr. FSI engine

i Note

- ◆ *Rules for cleanliness when working on the automatic gearbox ⇒ [page 14](#).*
- ◆ *Thoroughly clean all joints and connections and the surrounding areas before dismantling.*
- ◆ *Check ATF level after renewing ATF pipes/hoses or ATF cooler ⇒ [“4.1 Checking and correcting ATF level”, page 110](#).*



1 - Retaining clip for ATF pipes

- Illustration shows version for V8 FSI engine

2 - 5 Nm

- Illustration shows version for V8 FSI engine

3 - 9 Nm

- Illustration shows version for V8 FSI engine

4 - Bracket for ATF pipes

- Illustration shows version for V8 FSI engine

5 - 9 Nm

- Illustration shows version for V8 FSI engine

6 - O-ring

- Renew
- Lubricate with ATF when fitting

7 - ATF cooler

- Removing and installing
=> [page 120](#)

8 - Bracket for ATF cooler

- Removing and installing
=> [page 123](#)

9 - 9 Nm

10 - O-ring

- Renew
- Lubricate with ATF when fitting

11 - 5 Nm

12 - O-rings

- Renew
- Lubricate with ATF when fitting

13 - 21 Nm

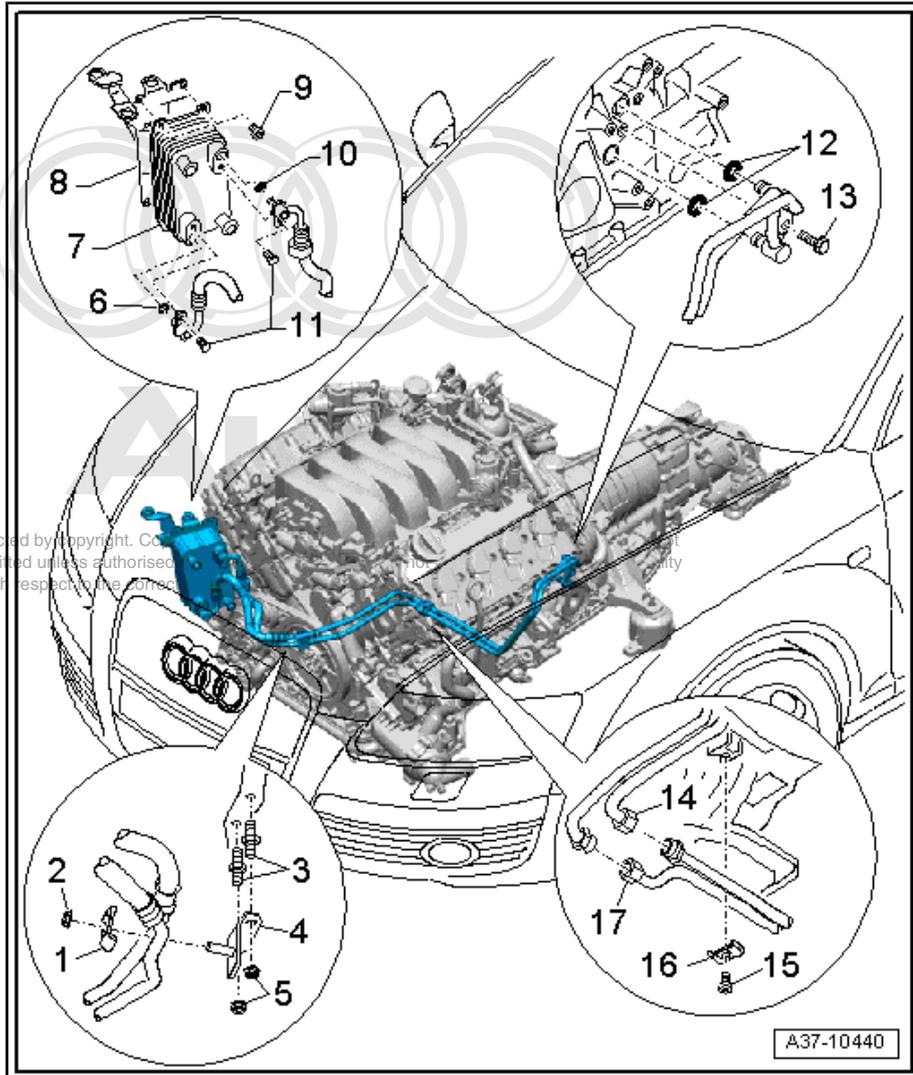
- To install, first press ATF pipes with new O-rings into gearbox by hand as far as stop, then bolt on

14 - 29 Nm

15 - 5 Nm

16 - Retaining clip for ATF pipes

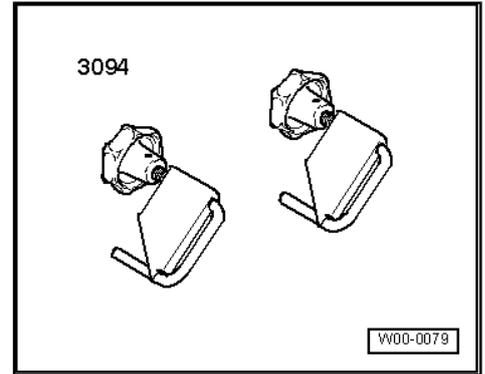
17 - 29 Nm



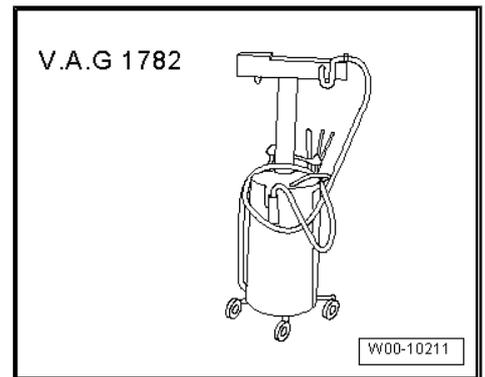
5.4 Removing and installing ATF cooler - vehicles with V6 3.2 ltr./V8 4.2 ltr. FSI engine

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm -3094-



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



Removing

Note

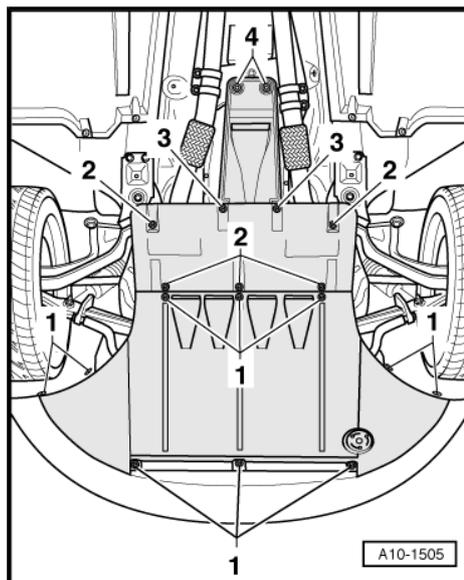
- ◆ Always clean ATF cooler and ATF pipes before installing an exchange gearbox ⇒ [page 117](#) . If the ATF which emerges during cleaning is very dirty, the pipes and ATF cooler must additionally be flushed out with clean ATF.
- ◆ Rules for cleanliness when working on the automatic gearbox ⇒ [page 14](#) .
- ◆ Thoroughly clean all joints and connections and the surrounding areas before dismantling.
- ◆ To install, first press ATF pipes onto gearbox or cooler by hand until they engage, then bolt on.

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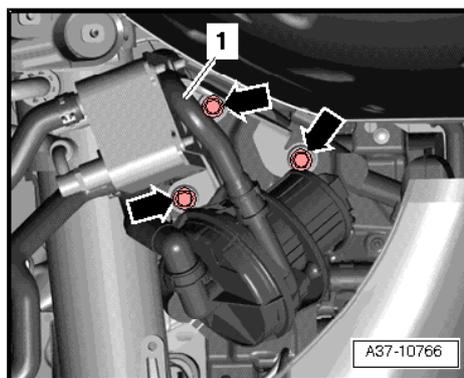
- Remove front noise insulation (loosen fasteners -1-).

 **Note**

-Items 2, 3, 4- can be disregarded.



- Move air hose for secondary air system -1- clear from bracket for ATF cooler
- Remove bolts -arrows- and detach ATF cooler (hoses remain connected).
- Place used oil collection and extraction unit -V.A.G 1782- below ATF cooler.



- Remove bolts -10 and 11- and detach ATF pipes -9 and 12- from ATF cooler -1-.
- Clamp off coolant hoses -14- with hose clamps -3094- and detach hoses from ATF cooler.
- Remove bolts -7- and detach ATF cooler.

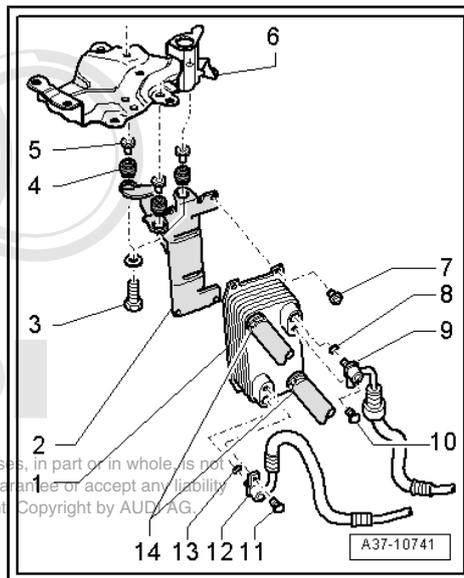
Installing

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

- Renew O-rings -8 and 13- on ATF pipes leading to ATF cooler.
- Check ATF level in planetary gearbox ⇒ [page 110](#) .
- Check coolant level ⇒ Engine, mechanics; Rep. Gr. 19 .

Tightening torques

Component	Nm
ATF cooler to bracket	9
ATF pipe to ATF cooler	5
Bracket for ATF cooler to bracket on body	9



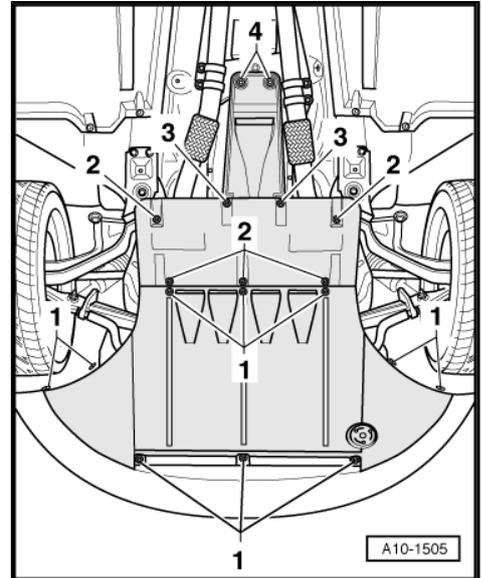
5.5 Removing and installing bracket for ATF cooler - vehicles with V6 3.2 ltr./V8 4.2 ltr. FSI engine

Removing

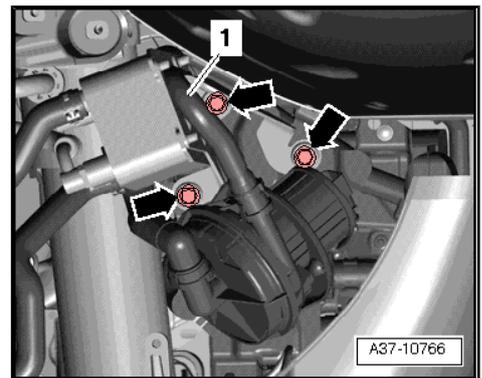
- Remove front noise insulation (loosen fasteners -1-).

Note

-Items 2, 3, 4- can be disregarded.



- Move air hose for secondary air system -1- clear from bracket for ATF cooler
- Remove bolts -arrows- and detach ATF cooler (hoses remain connected).



- Remove bolts -7- and detach bracket -2- for ATF cooler.

Installing

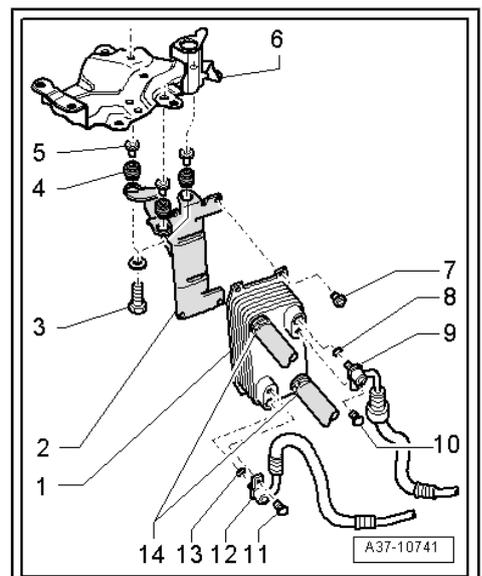
Installation is carried out in reverse sequence; note the following:

Note

Rubber buffers are fitted to the three attachment points at top of bracket. Before installing, check they are seated correctly and renew if necessary.

Tightening torques

Component	Nm
ATF cooler to bracket	9
Bracket for ATF cooler to bracket on body	9





38 – Gears, control

1 Removing and installing oil pan, ATF strainer and mechatronic unit



WARNING

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



Note

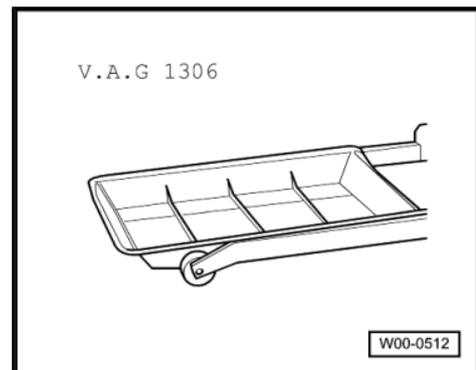
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- ◆ *General repair instructions ⇒ [page 9](#).*
- ◆ *Rules for cleanliness when working on the automatic gearbox ⇒ [page 14](#).*
- ◆ *Always renew mechatronic unit if contaminated or defective.*
- ◆ *Coat O-rings and seals with ATF. Other types of lubricant will cause the gearbox hydraulics to malfunction.*

1.1 Removing and installing oil pan

Special tools and workshop equipment required

- ◆ Drip tray -V.A.G 1306-

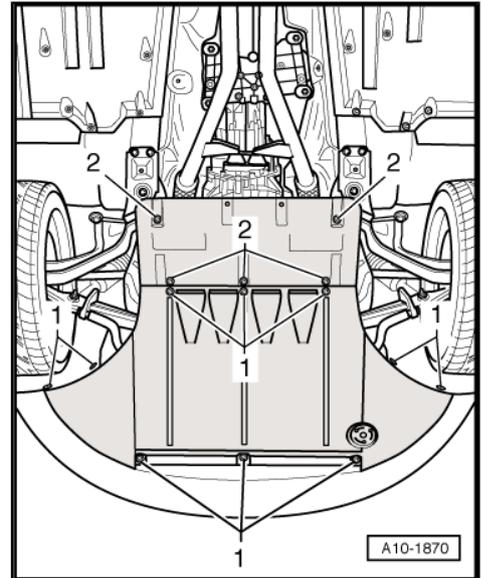


- ◆ Safety goggles

Removing

Note

- ◆ *General repair instructions* ⇒ [page 9](#).
- ◆ *Rules for cleanliness when working on the automatic gearbox* ⇒ [page 14](#).
- Unfasten quick-release catches -2- and detach rear noise insulation.

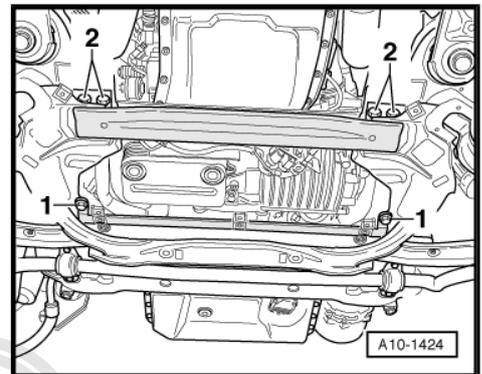


- Unscrew bolts -2- and remove cross member.

Note

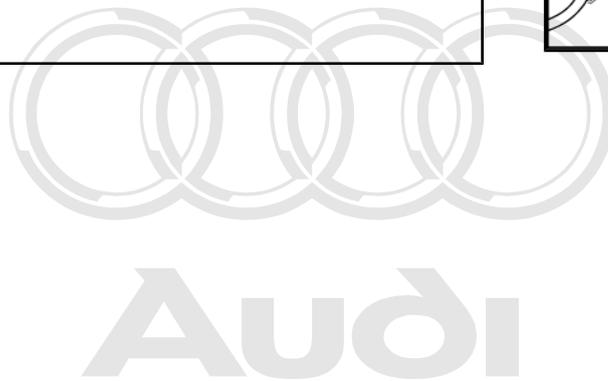
-Item 1- can be disregarded.

- Place drip tray -V.A.G 1306- under the gearbox.



WARNING

Wear safety goggles.

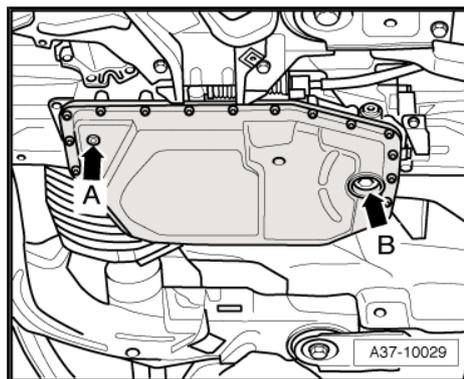


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- Remove ATF drain plug -arrow A-
- Drain ATF.

 **Note**

- ◆ *Observe relevant disposal regulations.*
 - ◆ *The engine must not be started and vehicle must not be towed without ATF in gearbox.*
- Loosen the 24 bolts on oil pan in diagonal sequence and remove oil pan.



Installing

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

 **Note**

- ◆ *Renew seals and gaskets.*
 - ◆ *The drain plug with seal must be renewed.*
- Clean all 6 magnets in depressions in oil pan. Ensure that magnets make full contact with oil pan.
 - Clean sealing surface thoroughly; remaining material from the previous gasket must be removed completely.
 - Tighten oil pan bolts in several stages and in diagonal sequence.
 - Install cross member ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 40 .
 - Fill up with ATF ⇒ [page 114](#) .



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Tightening torques

Component	Nm
Drain plug to oil pan	12 ¹⁾
Oil pan to gearbox housing	12 ²⁾

1) Renew plug.

2) Tighten in stages and in diagonal sequence.

1.2 Removing and installing ATF strainer

Removing

 **Note**

- ◆ *General repair instructions ⇒ [page 9](#) .*
 - ◆ *Rules for cleanliness when working on the automatic gearbox ⇒ [page 14](#) .*
- Remove oil pan ⇒ [page 124](#) .

- Carefully remove ATF strainer -A- from gearbox.

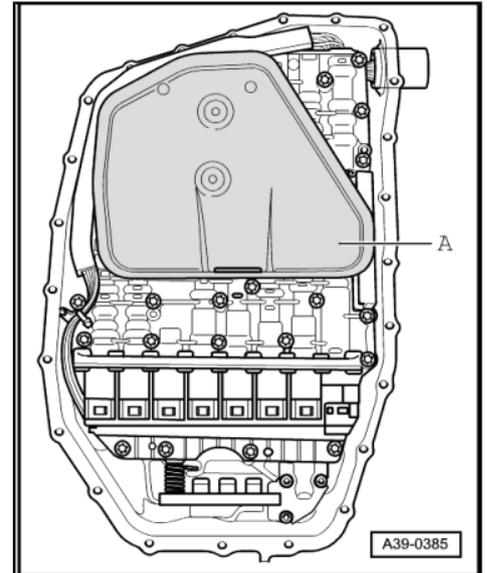
Installing

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

Note

The ATF strainer only has to be renewed if it has been damaged.

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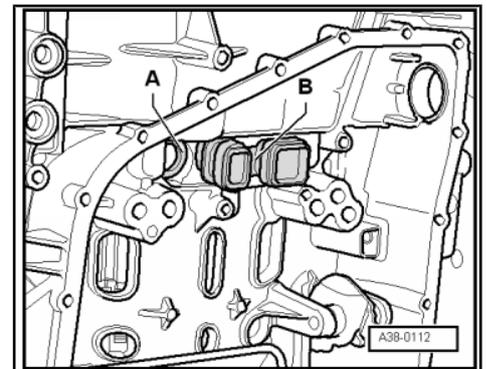


Note the following when renewing ATF strainer:

- If fitted, carefully remove oil seal for ATF strainer -A- from gearbox using a screwdriver or similar.

Note

- ◆ *Take care not to damage sealing surface.*
- ◆ *For illustration purposes the oil seal is shown with mechatronic unit removed.*
- ◆ *The new ATF strainer is supplied with oil seal fitted.*



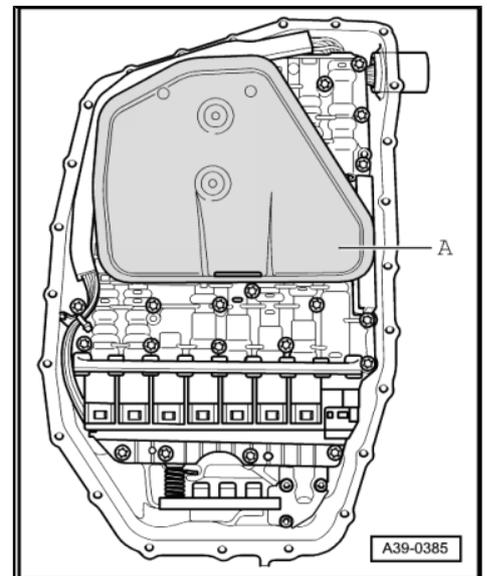
Continuation for new and old ATF strainer:

- Press intake pipe of ATF strainer -A- carefully onto stop into mounting hole in gearbox.

Note

A new ATF strainer is pressed into gearbox with oil seal fitted.

- Install oil pan ⇒ [page 124](#) .
- Fill up with ATF ⇒ [page 114](#) .



1.3 Removing and installing mechatronic unit



Note

- ◆ Always renew mechatronic unit if contaminated or defective.
- ◆ General repair instructions ⇒ [page 9](#).
- ◆ Rules for cleanliness when working on the automatic gearbox ⇒ [page 14](#).

Removing

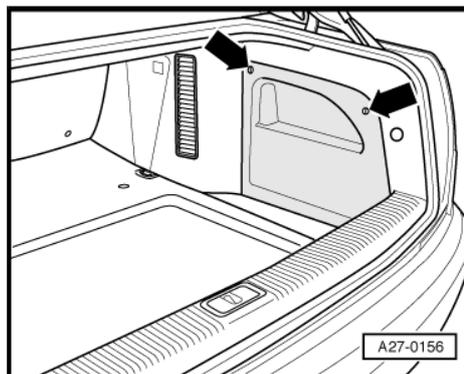


WARNING

Follow steps required when disconnecting battery ⇒ *Electrical system; Rep. Gr. 27*.

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- Switch off ignition.
- Remove cover in luggage compartment side trim (right-side) -arrows-.

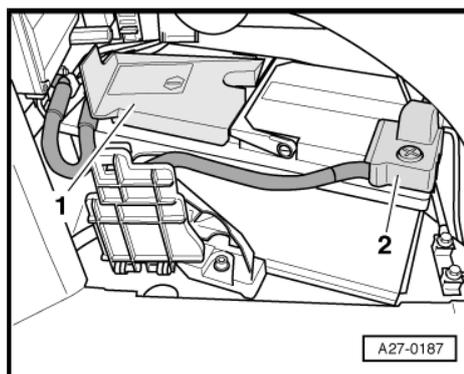


- Remove battery cover -1-.

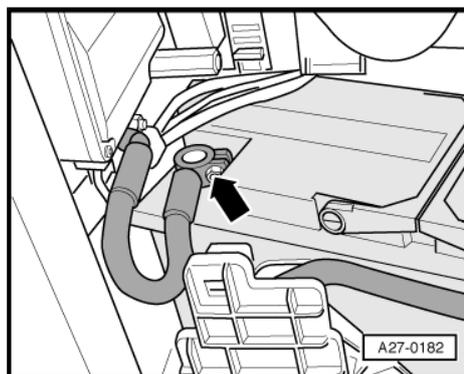


Note

-Item 2- can be disregarded.



- Disconnect earth wire -arrow- at battery.
- Remove oil pan ⇒ [page 124](#).
- Remove ATF strainer ⇒ [page 126](#).



- Disconnect electrical connector -2- at gearbox by turning fastener cap anti-clockwise.

i Note

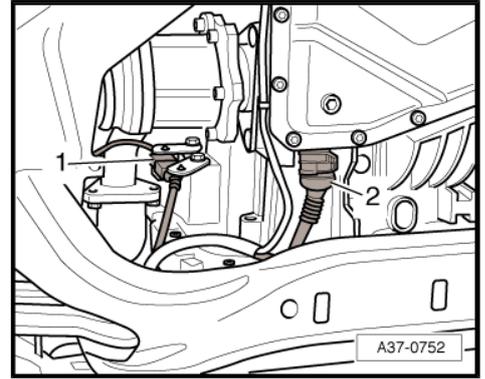
-Item 1- can be disregarded.

- Touch vehicle earth with your hand (without gloves) to discharge any static electricity.

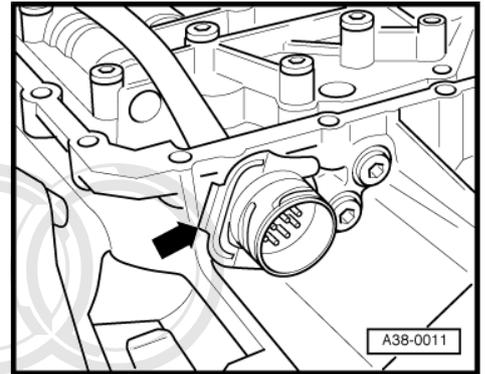


WARNING

- ◆ **Before touching or removing the mechatronic unit, always discharge any static electricity by touching vehicle earth or other earthed object with your hand.**
- ◆ **DO NOT touch contacts in 16-pin connector with your hands, as static discharge can seriously damage the control unit and mechatronic unit.**



- Pull off retaining clip -arrow- for wiring harness connector from outside of gearbox housing.

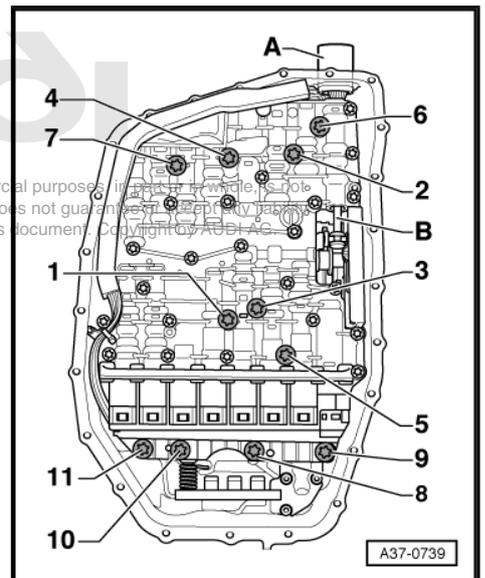


- Unscrew securing bolts for mechatronic unit in sequence -11 ... 1-.

i Note

- ◆ **Only remove securing bolts marked 1...11.**
- ◆ **If other bolts are loosened, this may affect the operation of the mechatronic unit or the mechatronic unit could come apart.**

- Remove mechatronic unit together with wiring harness from gearbox, at the same time guide out connector for wiring harness.



Installing

- Make sure that seal -B- is properly inserted and secured.
- Renew O-rings on connector for wiring harness and lightly lubricate with ATF.

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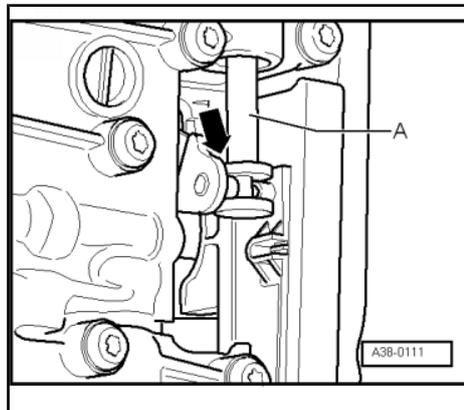
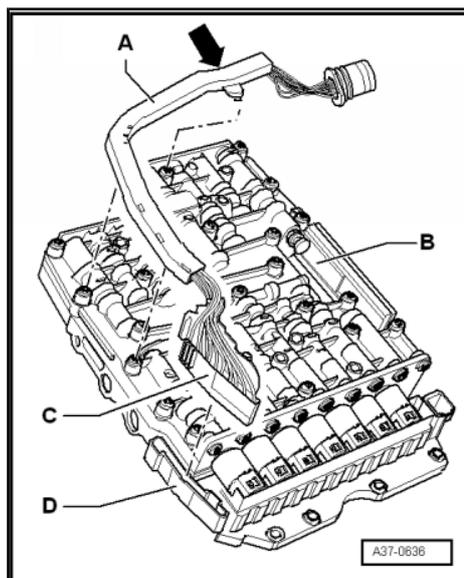
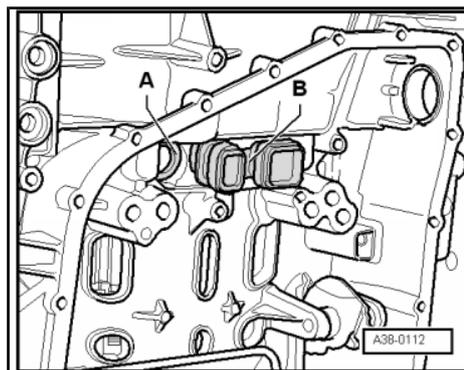
- Clip wiring harness -A- onto mechatronic unit -B-. To do so, first attach tab -arrow- on reverse side of wiring harness to mechatronic unit.



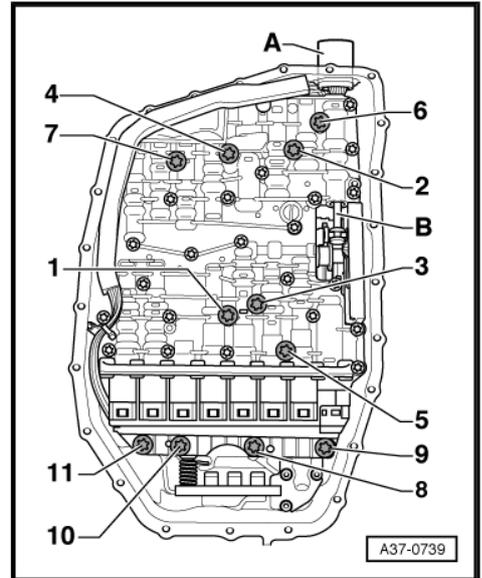
Note

If the tab on the reverse side of the wiring harness breaks off, the wiring harness must be replaced => [page 131](#).

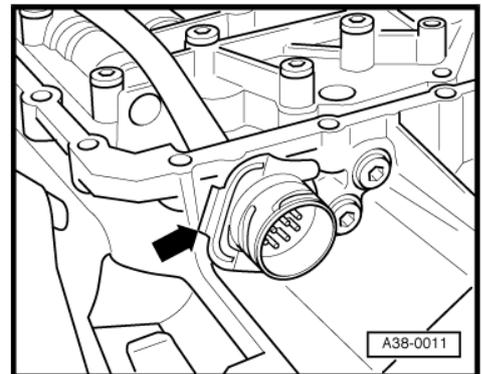
- Install wiring harness connector in gearbox housing.
 - Installation position: flat part of rear shoulder faces downwards, the lugs at shoulder are horizontal
-
- While fitting mechatronic unit without force, insert gearbox selector lever stud -arrow- into groove on selector slide -A- (move selector slide backwards and forwards if necessary).



- Tighten securing bolts -1- and -2- for mechatronic unit to 2 Nm.
- Then tighten retaining bolts to 8 Nm in specified sequence -1 ... 11-.



- Push retainer clip -arrow- onto wiring harness connector.
- Install ATF strainer ⇒ [page 126](#) .
- Install oil pan ⇒ [page 124](#) .
- Connect battery ⇒ Electrical system; Rep. Gr. 27 .
- Fill up with ATF ⇒ [page 114](#) .



1.4 Removing and installing wiring harness in gearbox

Removing

- Remove mechatronic unit ⇒ [page 128](#)
- Touch some earthed object (e.g. heater) with your hand (without gloves) to discharge any static electricity.



WARNING

- ◆ *Before touching or removing the mechatronic unit, always discharge any static electricity by touching vehicle earth or other earthed object with your hand.*
- ◆ *DO NOT touch contacts in 16-pin connector with your hands, as static discharge can seriously damage the control unit and mechatronic unit.*

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- Carefully detach wiring harness -A- from mechatronic unit -B-. Make sure to detach tab -arrow- on reverse side of wiring harness from mechatronic unit.



Note

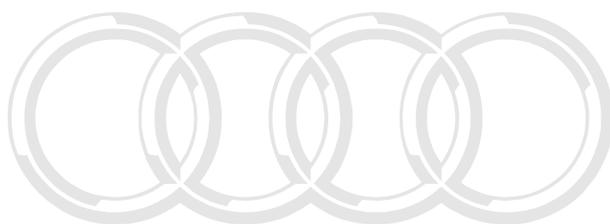
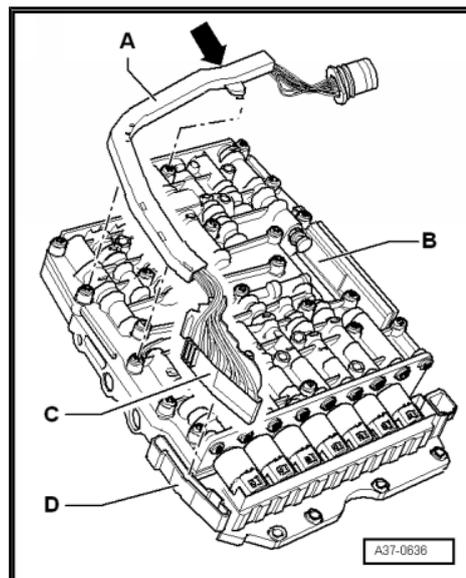
If the tab -arrow- on the reverse side of the wiring harness breaks off, the wiring harness must be replaced => [page 131](#) .

- Carefully detach connector -C- from socket -D- of mechatronic unit.

Installing

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

- Carefully attach connector -C- to socket -D- on mechatronic unit.
- Clip wiring harness -A- onto mechatronic unit -B-. To do so, first attach tab -arrow- on reverse side of wiring harness to mechatronic unit.
- Install mechatronic unit => [page 128](#) .
- Fill up with ATF => [page 114](#) .



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39 – Final drive - front differential

1 Gear oil level in front final drive

Note

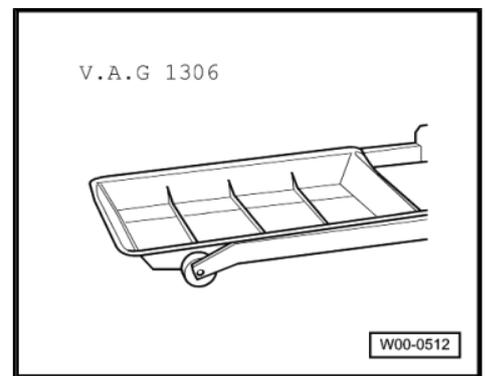
- ◆ *General repair instructions* ⇒ [page 9](#).
- ◆ *Rules for cleanliness when working on the automatic gearbox* ⇒ [page 14](#).

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1.1 Checking gear oil level in front final drive

Special tools and workshop equipment required

- ◆ Drip tray -V.A.G 1306-



- ◆ Safety goggles

Test condition

- Gear oil about 20°C (room temperature)

Test sequence

- Drive vehicle onto a four-column lifting platform or over an inspection pit in order for it to be absolutely horizontal.
- Place drip tray -V.A.G 1306- under the gearbox.



WARNING

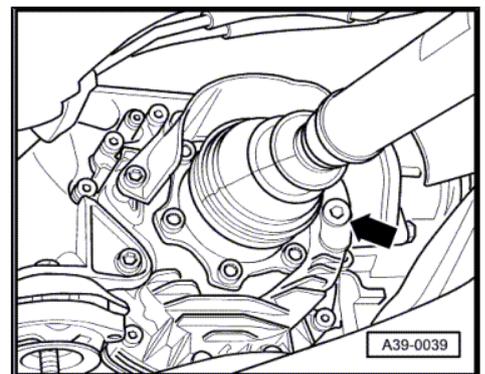
Wear safety goggles.

- Remove screw plug -arrow-.
- The oil level must be up to the bottom lip of the filler hole.
- Drain off any excess oil or top up to proper level; specification ⇒ [page 6](#).

Note

The screw plug with seal must be renewed.

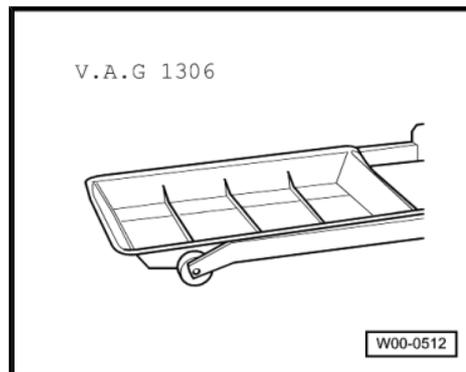
- Tighten new screw plug to 35 Nm.



1.2 Filling up gear oil in front final drive after repairs

Special tools and workshop equipment required

- ◆ Drip tray -V.A.G 1306-



- ◆ Safety goggles

Requirements:

- Gear oil about 20°C (room temperature)

Filling



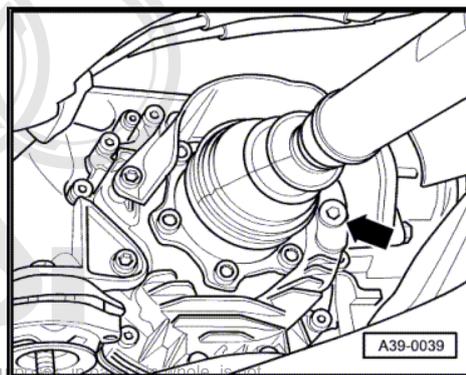
Note

- ◆ *General repair instructions* ⇒ [page 9](#).
- ◆ *Rules for cleanliness when working on the automatic gearbox* ⇒ [page 14](#).
- Drive vehicle onto a four-column lifting platform or over an inspection pit in order for it to be absolutely horizontal.
- Place drip tray -V.A.G 1306- under the gearbox.
- Remove screw plug -arrow-.
- Fill front final drive slowly and evenly over a period of at least 5 minutes until gear oil (specification ⇒ [page 6](#)) comes out at bottom lip of oil filler hole.



Note

- ◆ *The fill-up period of at least 5 minutes is necessary so that the internal oil level can be balanced out between the differential and the baffle chamber.*
- ◆ *The screw plug with seal must be renewed.*
- Tighten new screw plug to 35 Nm.



Note

A subsequent level check is not required.

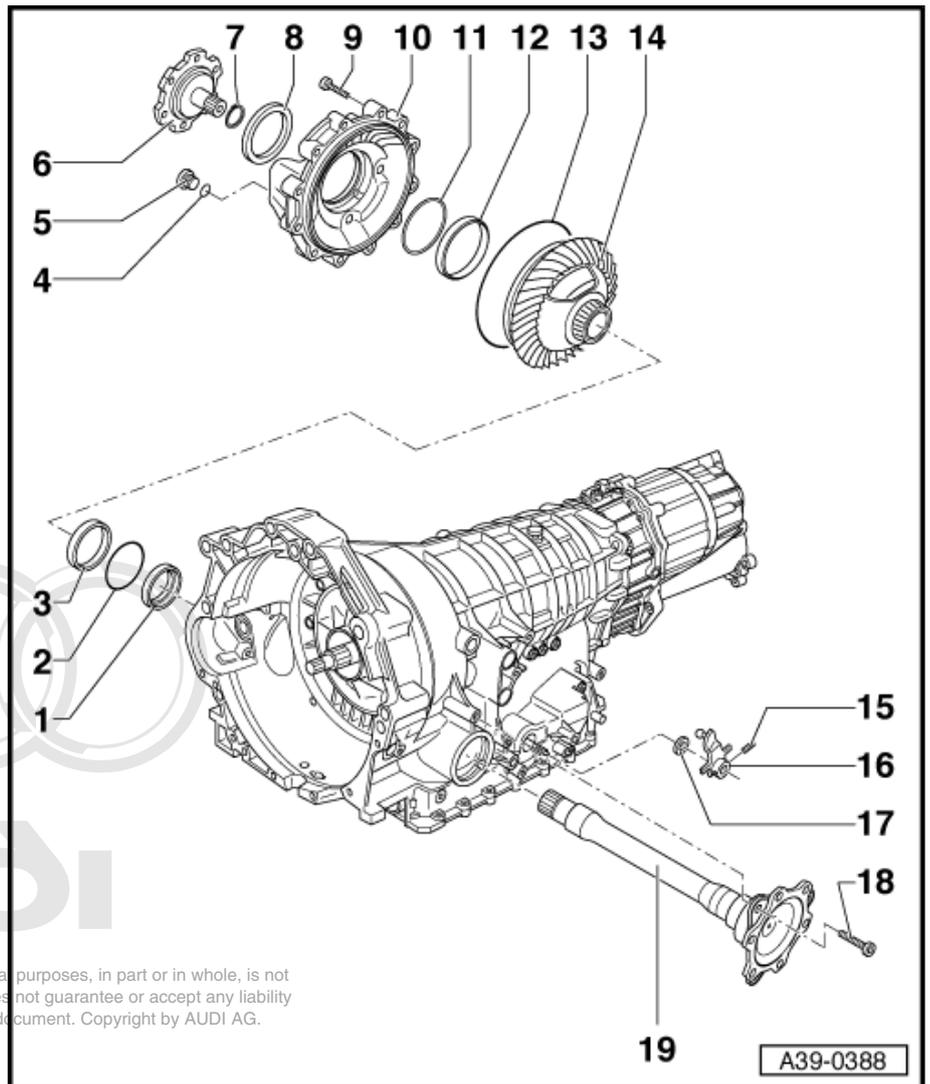
2 Servicing front final drive

Note

- ◆ General repair instructions ⇒ [page 9](#).
- ◆ Rules for cleanliness when working on the automatic gearbox ⇒ [page 14](#).

2.1 Front final drive - exploded view

- 1 - Oil seal**
 - Between final drive and gearbox housing
 - Renewing ⇒ [page 146](#)
- 2 - Shim**
 - Behind tapered roller bearing outer race
- 3 - Tapered roller bearing outer race**
- 4 - O-ring**
 - Renew
- 5 - Screw plug, 35 Nm**
 - Renew
- 6 - Flange shaft (right-side)**
 - Removing and installing ⇒ [page 138](#)
- 7 - Circlip**
 - Renew
- 8 - Flange shaft oil seal (right-side)**
 - Renewing ⇒ [page 141](#)
- 9 - Bolt, 23 Nm**
 - Follow correct tightening sequence ⇒ [page 142](#)
- 10 - Cover for final drive**
- 11 - Shim**
 - Behind tapered roller bearing outer race
- 12 - Tapered roller bearing outer race**
- 13 - O-ring for final drive cover**
 - Renewing ⇒ [page 142](#)
- 14 - Differential**
- 15 - Spring pin**
- 16 - Selector shaft lever**
- 17 - Oil seal for selector shaft**
 - Renewing ⇒ [page 150](#)



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18 - Bolt, 23 Nm

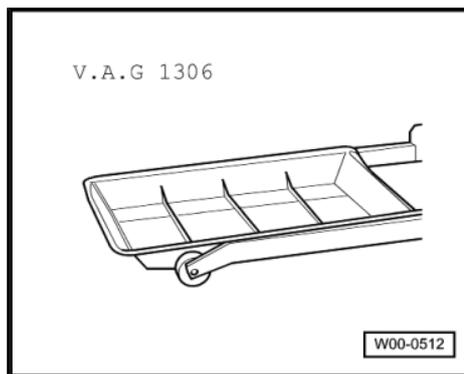
19 - Flange shaft (left-side)

- Removing and installing ⇒ [page 136](#)

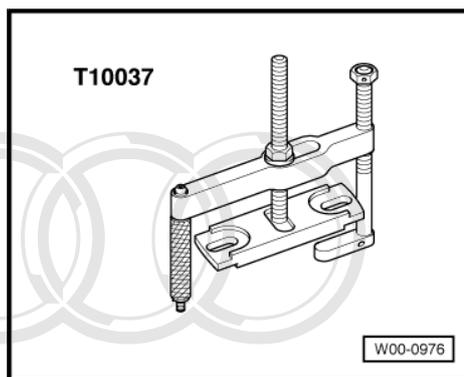
2.2 Removing and installing flange shaft (left-side)

Special tools and workshop equipment required

- ◆ Drip tray -V.A.G 1306-

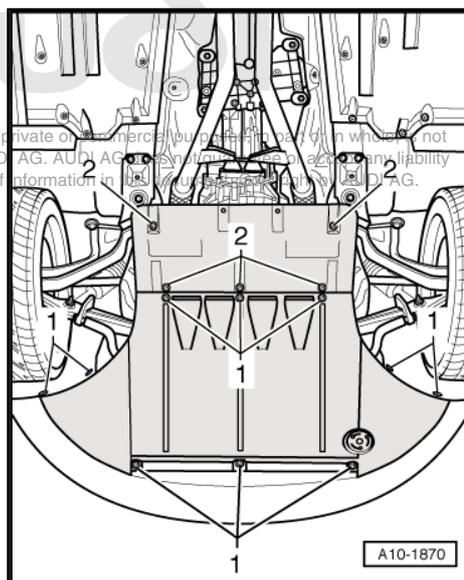


- ◆ Puller -T10037-



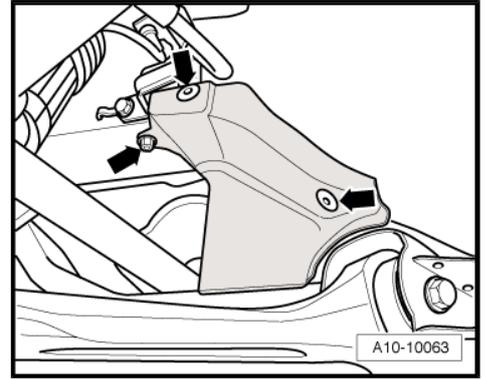
Removing

- Gearbox in vehicle
- Unfasten quick-release catches -2- and detach rear noise insulation.

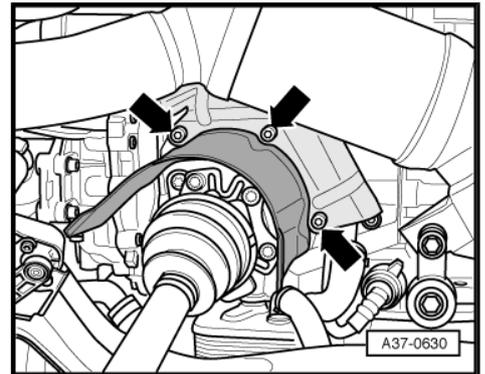


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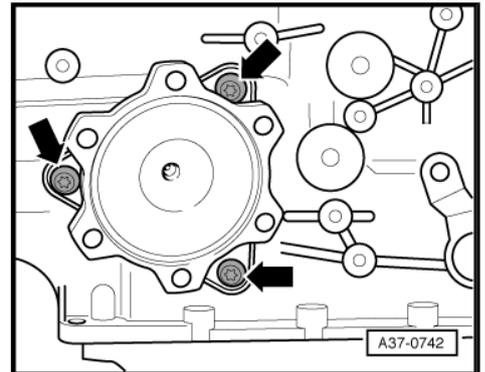
- Remove noise insulation in wheel housing (left-side) -arrows-.



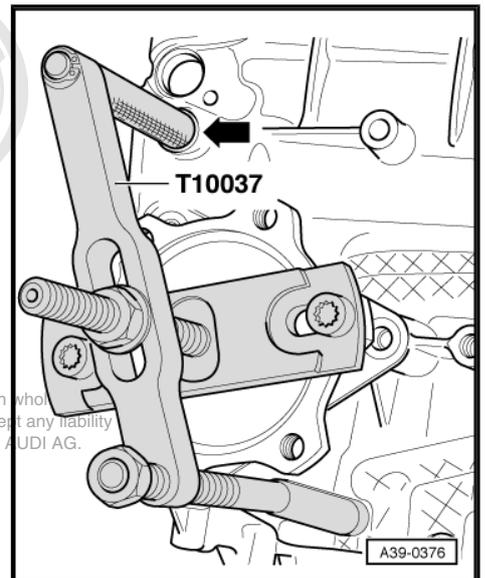
- Unbolt heat shield from gearbox above left drive shaft -arrows-.
- Unbolt drive shaft (left-side) from flange on gearbox and tie up.
- Place drip tray -V.A.G 1306- under the gearbox.



- Unscrew bolts -arrows- on retaining bracket for left-side flange shaft.



- Screw puller -T10037- onto differential cover -arrow-.
- Pull out left flange shaft using puller -T10037- only until bearing on shaft is removed from gearbox housing.



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- Pull left flange shaft -A- out of gearbox making sure that the shaft remains centered in the opening on the differential -arrow-.



Note

If you do not keep the shaft centered, the splines of the shaft will fall against the inner seal between final drive and gearbox housing. The seal will be damaged and require replacement => [page 146](#).

Installing

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

- Clean flange shaft.
- Insert flange shaft -A- into gearbox and guide shaft into seal on differential -arrow-, keeping it centered.



Note

If you do not keep the shaft centered, the splines of the shaft will damage the seal between final drive and gearbox housing. The seal will require replacement => [page 146](#).

- Bolt left drive shaft to flange shaft => Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 40 .
- Check oil level in front final drive => [page 133](#) .

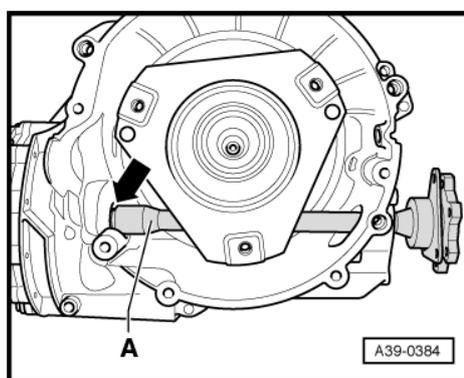
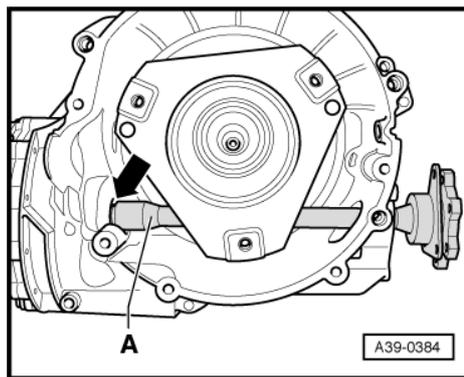
Tightening torques

Component	Nm
Retaining bracket for left flange shaft to gearbox	23
Heat shield for drive shaft to gearbox	23

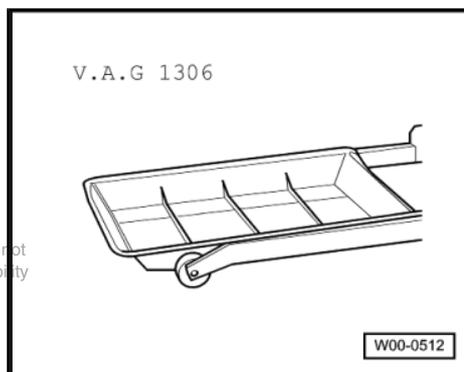
2.3 Removing and installing flange shaft (right-side)

Special tools and workshop equipment required

- ◆ Drip tray -V.A.G 1306-



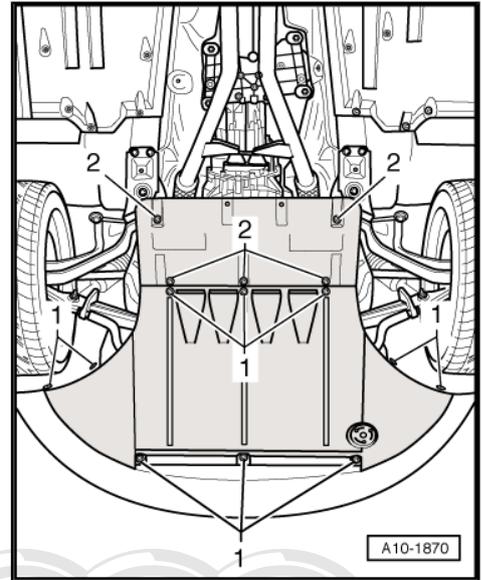
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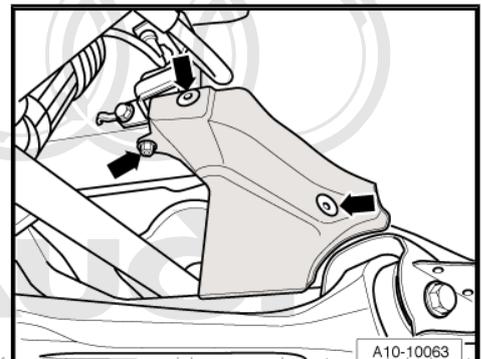
Removing

- Gearbox in vehicle
- Unfasten quick-release catches -2- and detach rear noise insulation.

Vehicles with two front exhaust pipes:



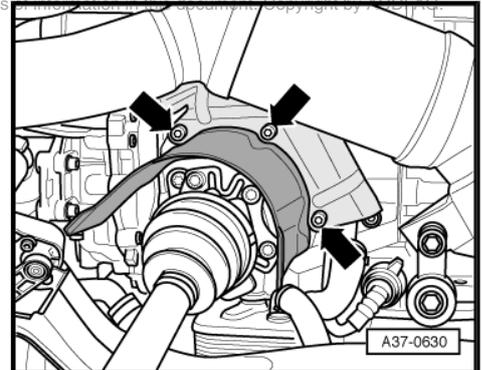
- Remove noise insulation in wheel housing (right-side) -arrows-.



- Unbolt heat shield from gearbox above drive shaft (right-side) -arrows-.

All models:

- Unbolt drive shaft (right-side) from flange on gearbox and tie up.
- Place drip tray -V.A.G 1306- under the gearbox.



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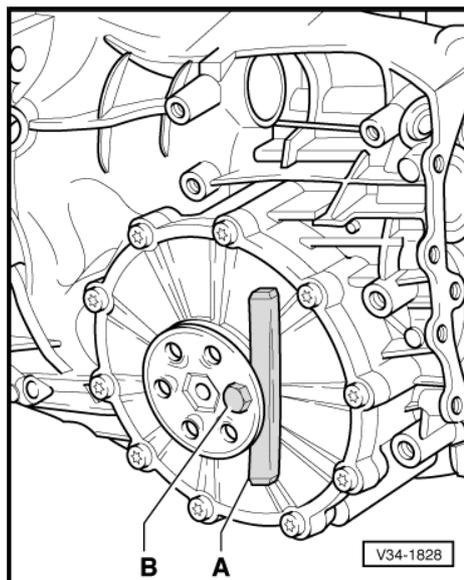


- Place a chisel or distance piece -A- under flange shaft and pull out flange shaft by turning bolt -B-.



Note

If the flange shaft does not come out easily, turn the shaft and screw the bolt into the opposite tapped hole to assist removal.

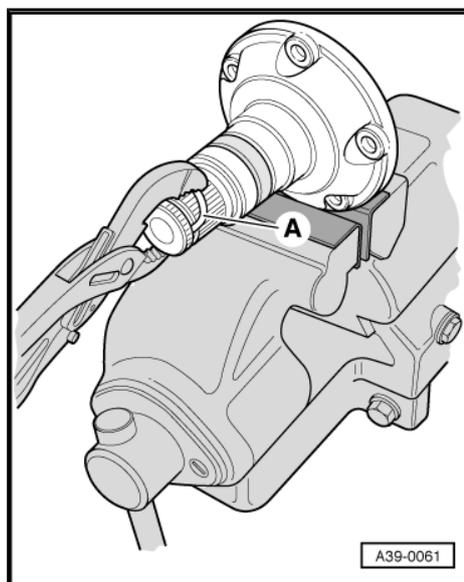


- Renew circlip for flange shaft.
- Clamp flange shaft in vice, using jaw protectors. Use new circlip -A- to press old circlip out of groove in flange shaft.

Installing

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

- Clean flange shaft and seal.
- If seal is damaged, it must be renewed => [page 141](#) .
- Pack space between sealing lip and dust lip half-full with **sealing grease -G 052 128 A1-**.
- Insert flange shaft by hand into splines of differential until splines lock properly into place.
- Press flange shaft in by hand or with mandrel -VW 295- as far as the stop.



Note

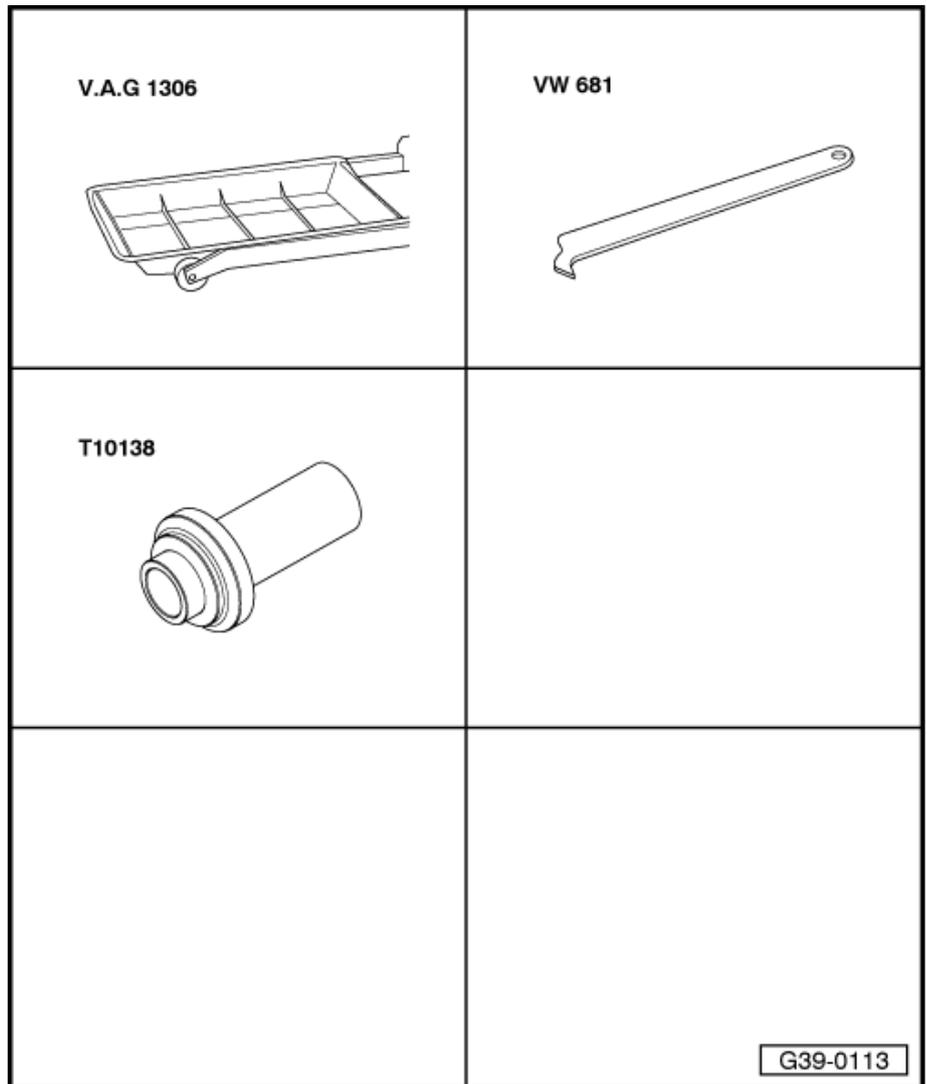
The circlip on the flange shaft should click into place.

- Bolt drive shaft (right-side) to flange shaft => Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 40 .
- Check oil level in front final drive => [page 133](#) .

2.4 Renewing flange shaft oil seal (right-side)

Special tools and workshop equipment required

- ◆ Drip tray -V.A.G 1306-
- ◆ Oil seal extractor lever - VW 681-
- ◆ Thrust piece -T10138-



Procedure

- Gearbox in vehicle

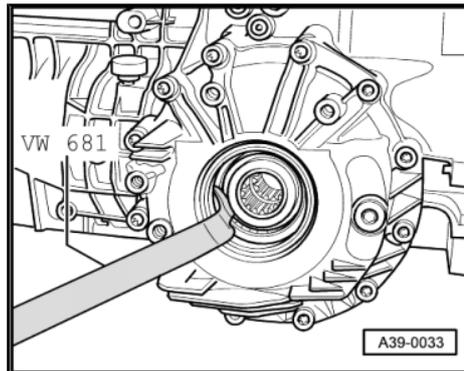
Note

- ◆ *General repair instructions* ⇒ [page 9](#) .
- ◆ *Rules for cleanliness when working on the automatic gearbox* ⇒ [page 14](#) .
- Place drip tray -V.A.G 1306- under the gearbox.
- Remove flange shaft (right-side) ⇒ [page 138](#) .

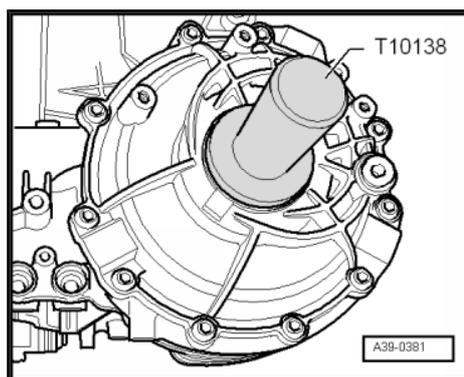


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- Pull out flange shaft oil seal.
- Lubricate outer circumference of seal with gear oil



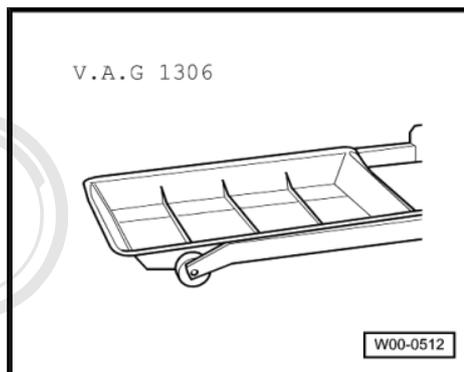
- Drive in new seal onto stop (take care to keep seal straight).
- Installation position: the open side of the seal should face the gearbox.
- Pack space between sealing lip and dust lip half-full with sealing grease -G 052 128 A1- .
- Install flange shaft (right-side) ⇒ [page 138](#) .
- Check oil level in front final drive ⇒ [page 133](#) .



2.5 Renewing O-ring on cover for final drive

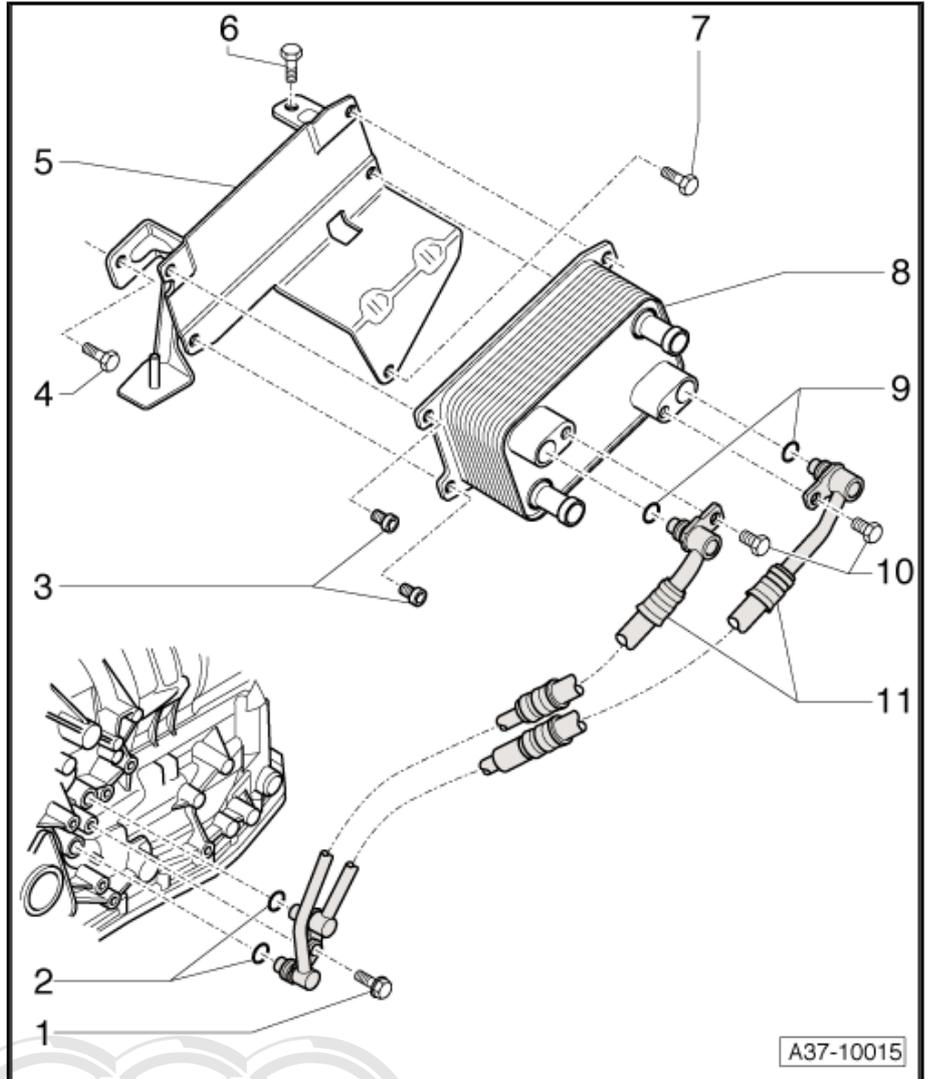
Special tools and workshop equipment required

- ◆ Drip tray -V.A.G 1306-



Procedure

- Gearbox in vehicle
- Place drip tray -V.A.G.1306- under the gearbox.
- Remove flange shaft (right-side) ⇒ [page 138](#) .



For vehicles with ATF cooler attached to gearbox:

- Remove bolts -4-, -6- and -7-.

i Note

Bolts -4-, -6- and -7- secure bracket -5- for ATF cooler -8- to gearbox.

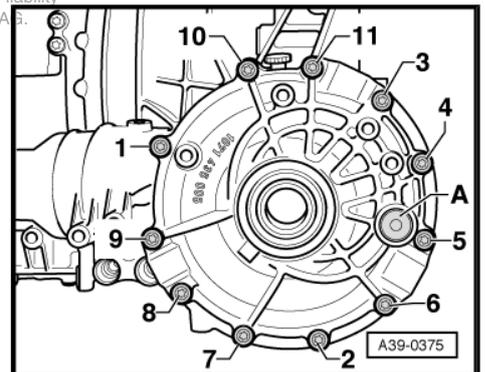
- Lift bracket -5- clear together with ATF cooler -8-.

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- Unscrew bolts on final drive cover in the sequence 11-1 and remove cover together with outer race for tapered roller bearing and shim.

i Note

Thickness of shim has been measured to fit; the shim must not be replaced with another shim of different thickness.

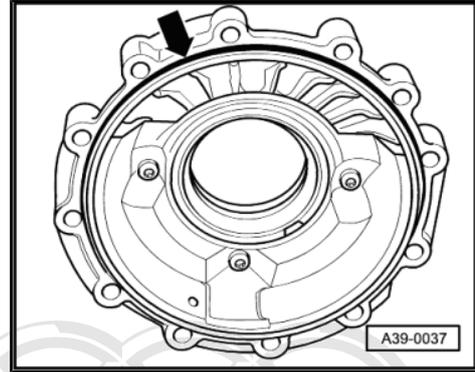




- Renew O-ring -arrow-.

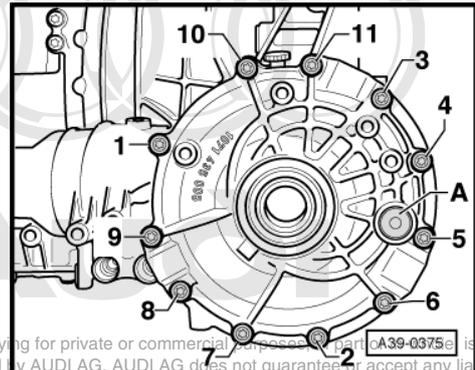
Note the following if the outer race for tapered roller bearing and the shim have dropped out of the final drive cover:

- Lubricate shim and outer race for tapered roller bearing with gear oil and insert in final drive cover as far as the stop.

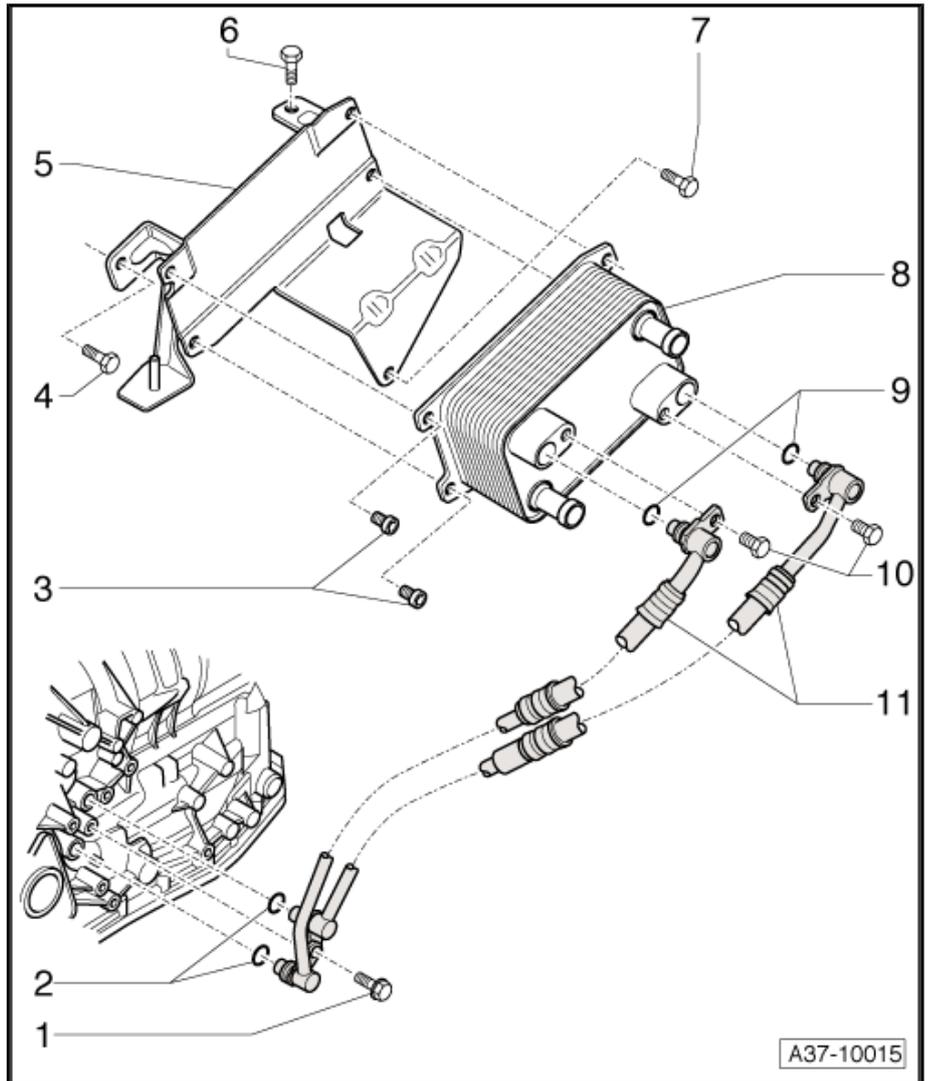


- Tighten bolts of cover for final drive as follows.

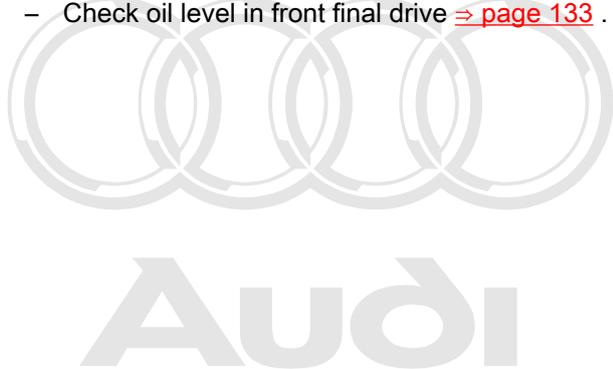
Stage	Tightening sequence
I	- Tighten bolts -1- and -2- to 3 Nm.
II	- Tighten bolts -1 ... 11- to 23 Nm in the sequence indicated.



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- Install bracket -5- together with ATF cooler -8- ⇒ [page 118](#) .
- Install flange shaft (right-side) ⇒ [page 138](#) .
- Check oil level in front final drive ⇒ [page 133](#) .

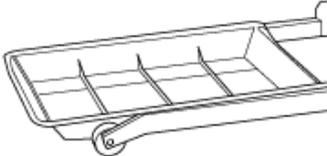
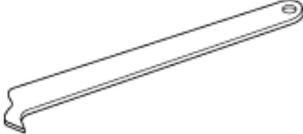
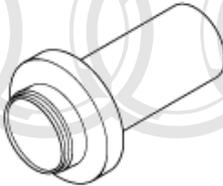


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2.6 Renewing oil seal for final drive/gearbox housing

Special tools and workshop equipment required

- ◆ Drip tray -V.A.G 1306-
- ◆ Oil seal extractor lever - VW 681-
- ◆ Thrust piece -T10139-

<p>V.A.G 1306</p> 	<p>VW 681</p> 
<p>T10139</p> 	
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<p>G39-0114</p>	

Requirements

- Gearbox removed
- Gearbox mounted on assembly stand ⇒ [page 108](#) .



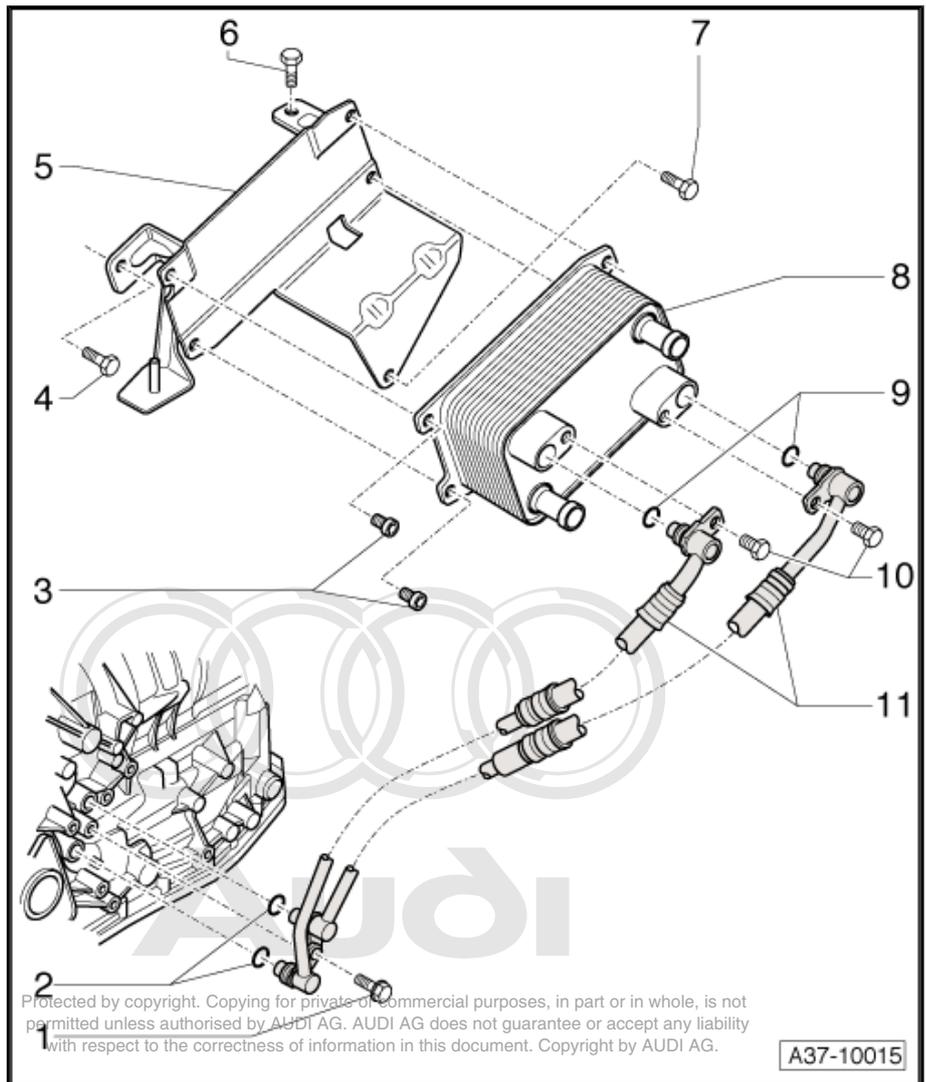
WARNING

The gearbox must not be placed down on ATF cooler or oil pan.

Procedure

i Note

- ◆ A defective seal allows gear oil to enter the torque converter bellhousing.
 - ◆ General repair instructions ⇒ [page 9](#).
 - ◆ Rules for cleanliness when working on the automatic gearbox ⇒ [page 14](#).
- Place drip tray -V.A.G 1306- under the gearbox.
 - Remove flange shaft (right-side) ⇒ [page 138](#).



For vehicles with ATF cooler attached to gearbox:

- Remove bolts -4-, -6- and -7-.

i Note

Bolts -4-, -6- and -7- secure bracket -5- for ATF cooler -8- to gearbox.



- Lift bracket -5- clear together with ATF cooler -8-.

All models:

- Unscrew bolts on final drive cover in the sequence -11 ... 1- and remove cover together with outer race for tapered roller bearing and shim.



Note

Thickness of shim has been measured to fit; the shim must not be replaced with another shim of different thickness.

- Remove differential.
- Remove tapered roller bearing outer race -1- for differential and shim -2- (behind outer race) from gearbox housing by hand.



Note

Thickness of shim has been measured to fit; the shim must not be replaced with another shim of different thickness.

- Remove flange shaft (left-side) => [page 136](#) .

- Remove seal.



Note

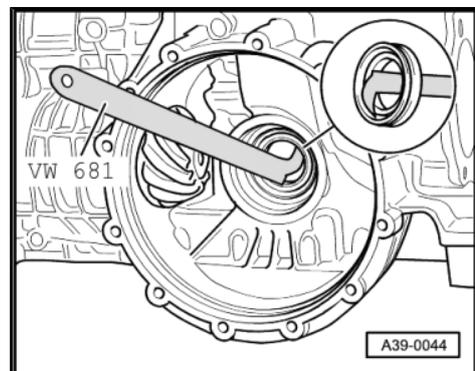
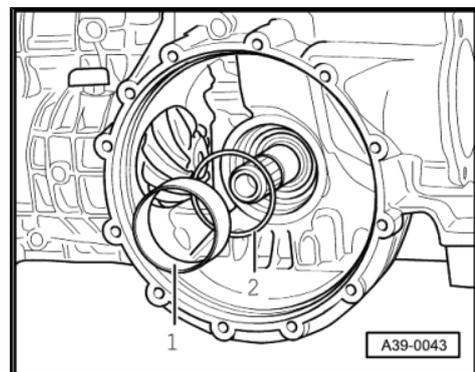
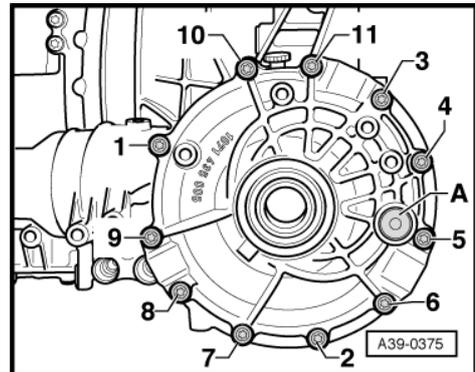
The oil seal extractor lever -VW 681- must be applied behind the two sealing lips of the oil seal. Do not apply the lever to the outer circumference of the seal, as this would damage the sealing surface in the gearbox housing. Guide the lever carefully when removing the seal.

- Examine oil seal seat in gearbox housing for damage; reface surface if necessary.
- Lightly lubricate outer circumference and sealing lip of oil seal with gear oil.

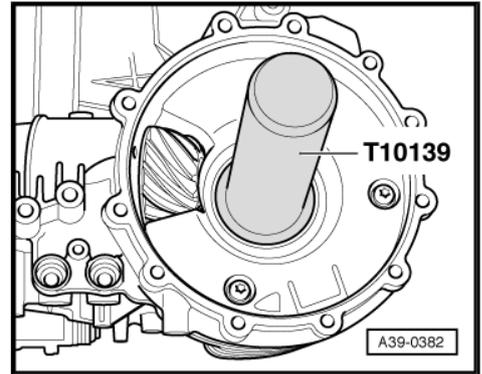


Note

Push seal onto thrust piece with the protruding sealing lip on the seal facing towards the tool.



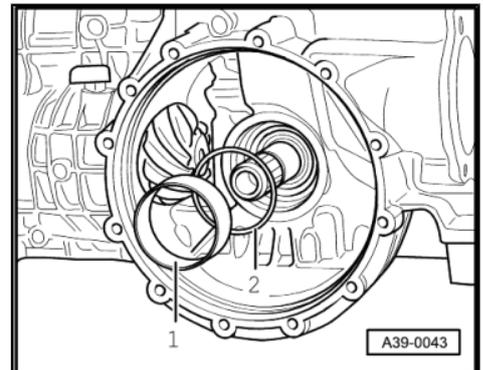
- Drive in new oil seal as far as stop using thrust piece -T10139- .



- Insert shim -2- and tapered roller bearing outer race -1- for differential onto stop in gearbox housing by hand.

i Note

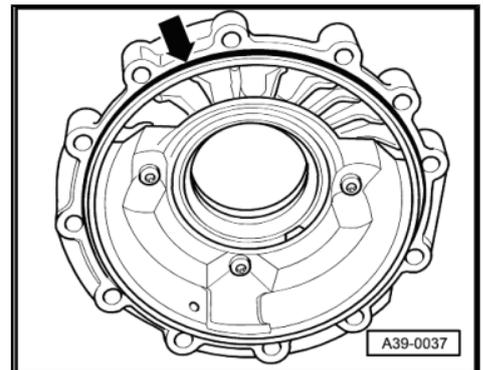
Make sure that shim and outer race are kept straight when inserting.



- Renew O-ring -arrow-.
- Install differential in gearbox housing.

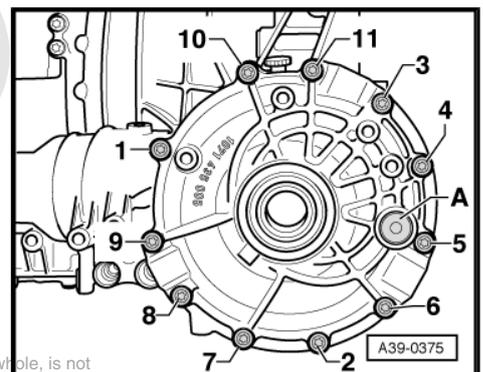
Note the following if the outer race for tapered roller bearing and the shim have dropped out of the final drive cover:

- Lubricate shim and outer race for tapered roller bearing with gear oil and insert in final drive cover as far as the stop.

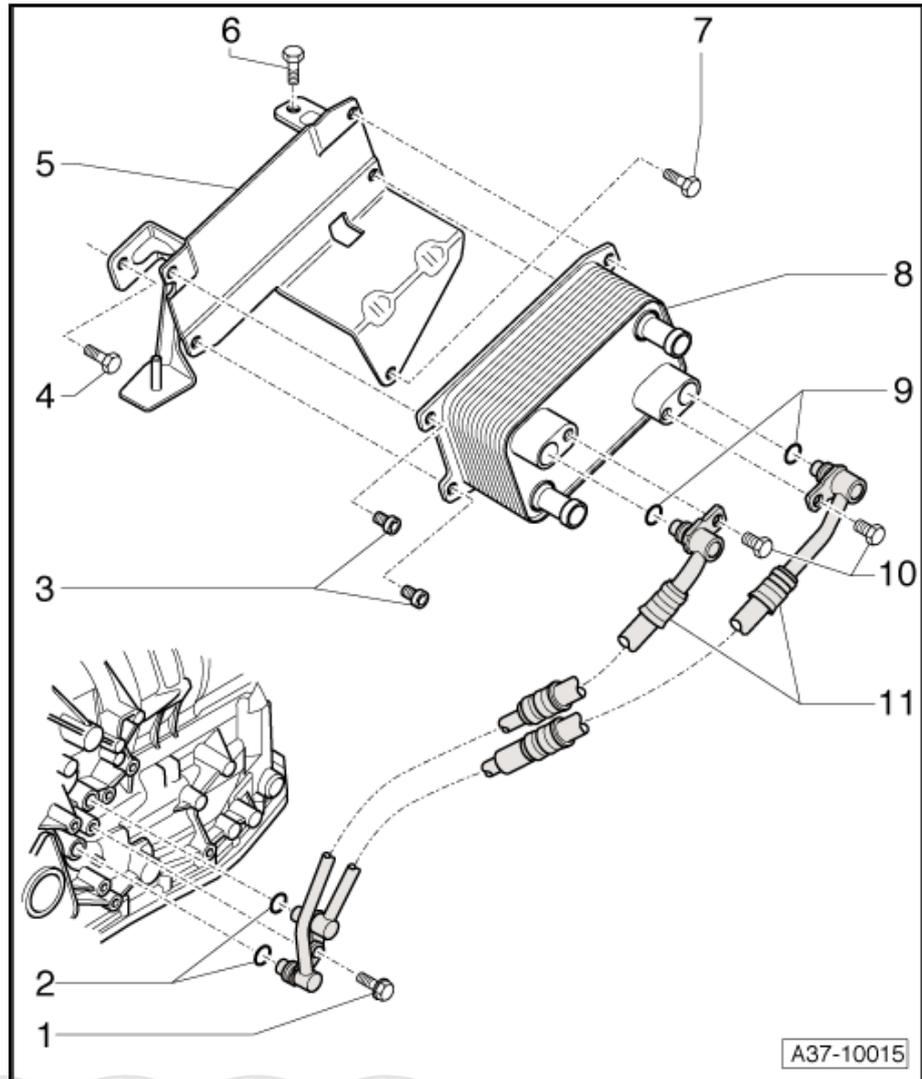


- Tighten bolts of cover for final drive as follows.

Stage	Tightening sequence
I	- Tighten bolts -1- and -2- to 3 Nm.
II	- Tighten bolts -1 ... 11- to 23 Nm in the sequence indicated.



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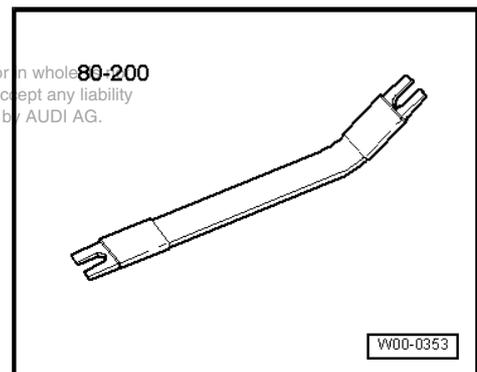
- Install bracket -5- together with ATF cooler -8- ⇒ [page 118](#) .
- Install flange shaft (left-side) ⇒ [page 136](#) .
- Install flange shaft (right-side) ⇒ [page 138](#) .
- Check oil level in front final drive ⇒ [page 133](#) .

2.7 Renewing selector shaft oil seal

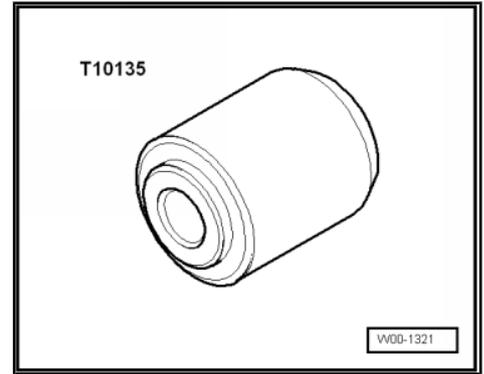
Special tools and workshop equipment required

- ◆ Removal lever -80-200-

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◆ Thrust piece -T10135-



Procedure

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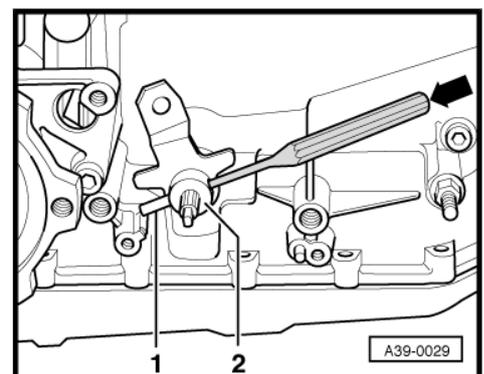
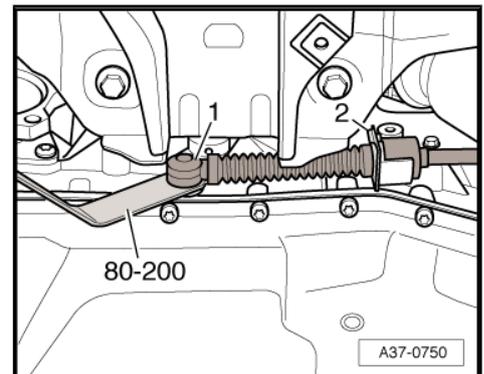
i Note

- ◆ *General repair instructions ⇒ page 9 .*
- ◆ *Rules for cleanliness when working on the automatic gearbox ⇒ page 14 .*
- Shift selector lever to position “P”.
- Remove gearbox support (left-side) ⇒ page 96 .
- Use removal lever -80-200- to pry ball socket -1- on selector lever cable off selector shaft lever.

i Note

- ◆ *Do not bend or kink the selector lever cable.*
- ◆ *-Item 2- can be disregarded.*

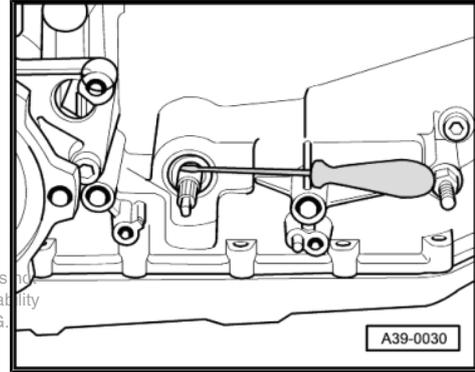
- Drive out roll pin -1- at selector shaft lever -2- -arrow- until it is possible to detach selector shaft lever from selector shaft.





- Push a small screwdriver through the seal and pull it out.
- Lubricate the outer circumference and the space between sealing lips of seal with ATF.
- Fit new seal onto selector shaft.
- Installation position: the open side of the seal should face the gearbox.

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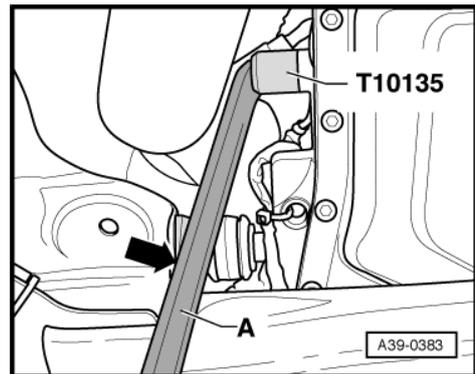


- Press on new oil seal using thrust piece -T10135- and assembly lever -A- as far as the stop; make sure that oil seal remains straight.

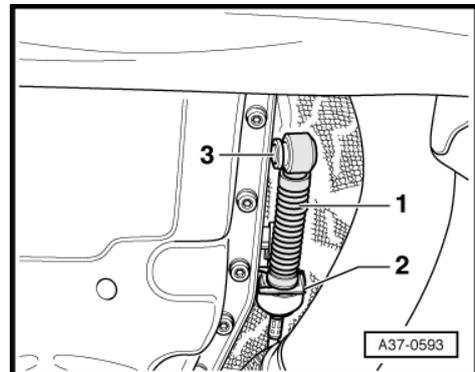
**Note**

To prevent slippage when pressing in oil seal, place something as a base (e.g. piece of rubber) between assembly lever and subframe -arrow-.

- Before installing, drive the roll pin in the selector shaft lever back through the lever in the opposite direction.
- Push selector shaft lever onto selector shaft and drive in roll pin.
- Press selector lever cable -1- onto selector shaft lever -3-.

**Note**

- ◆ *Do not bend the selector shaft lever when pressing on the ball socket, as otherwise it will no longer be possible to precisely adjust the gear selector mechanism*
- ◆ *-Item 2- can be disregarded.*
- Check ATF level ⇒ [page 110](#) .



3 Gear oil level in transfer box

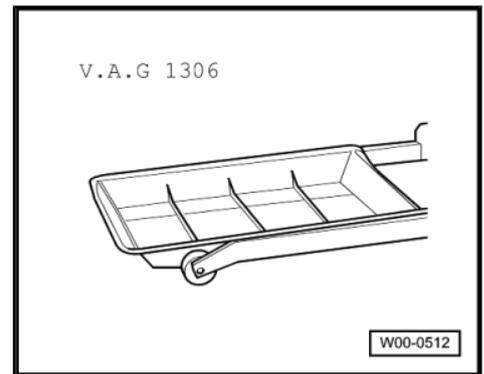
i Note

- ◆ General repair instructions ⇒ [page 9](#).
- ◆ Rules for cleanliness when working on the automatic gearbox ⇒ [page 14](#).

3.1 Checking gear oil level in transfer box

Special tools and workshop equipment required

- ◆ Drip tray -V.A.G 1306-
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- ◆ Safety goggles

Test condition

- Gear oil about 20°C (room temperature)

Test sequence

- Drive vehicle onto a four-column lifting platform or over an inspection pit in order for it to be absolutely horizontal.
- Place drip tray -V.A.G 1306- under the gearbox.

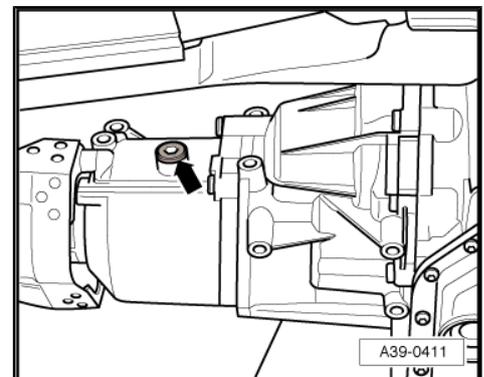
! WARNING
Wear safety goggles.

- Remove screw plug -arrow-.
- The oil level must be up to the bottom lip of the filler hole.
- Drain off any excess oil or top up to proper level; specification ⇒ [page 7](#).

i Note

The screw plug with seal must be renewed.

- Tighten new screw plug to 35 Nm.

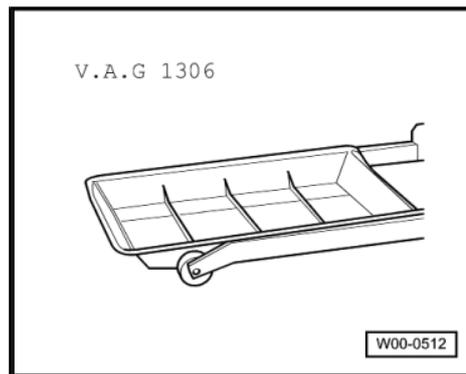


3.2 Filling up gear oil in transfer box after repairs

Special tools and workshop equipment required



◆ Drip tray -V.A.G 1306-



◆ Safety goggles

Test conditions

- Gear oil about 20°C (room temperature)
- The cover was removed from transfer box and all gear oil was thereby drained.

Test sequence

- Drive vehicle onto a four-column lifting platform or over an inspection pit in order for it to be absolutely horizontal.
- Place drip tray -V.A.G 1306- under the gearbox.



WARNING

Wear safety goggles.

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- Remove screw plug -arrow-.



Note

The engine must not be started and vehicle must not be towed without gear oil in gearbox.

- Fill transfer box slowly and at a constant rate for a period of at least 5 minutes with gear oil (capacity and specification => [page 7](#)).



Note

◆ *The fill-up period of at least 5 minutes is necessary so that the internal oil level can be balanced out between the self-locking centre differential and the baffle chamber.*

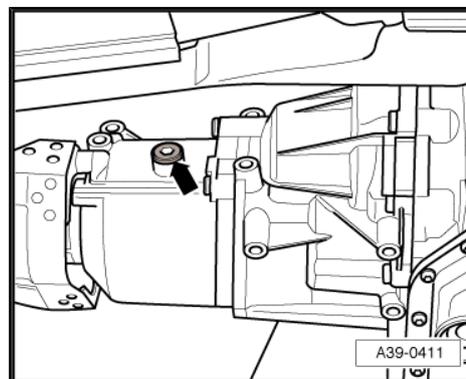
◆ *The screw plug with seal must be renewed.*

- Tighten new screw plug to 35 Nm.



Note

A subsequent level check is not required.



4 Servicing transfer box



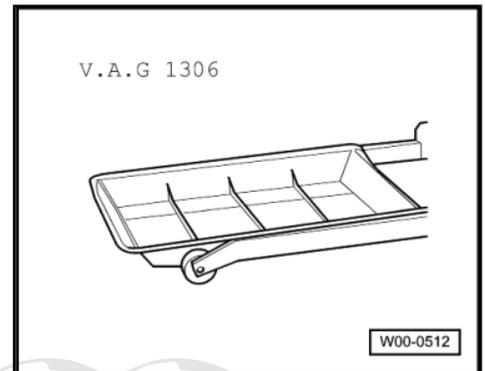
WARNING

Do not run the engine or tow the vehicle if the self-locking centre differential is removed or if the gear oil has been drained from the gearbox.

4.1 Removing and installing cover for self-locking centre differential

Special tools and workshop equipment required

- ◆ Drip tray -V.A.G 1306-



- ◆ Safety goggles

Removing

- Gearbox in vehicle



WARNING

The engine must not be run and the vehicle must not be towed without gear oil.



Note

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- ◆ *General repair instructions ⇒ [page 9](#).*
- ◆ *Rules for cleanliness when working on the automatic gearbox ⇒ [page 14](#).*

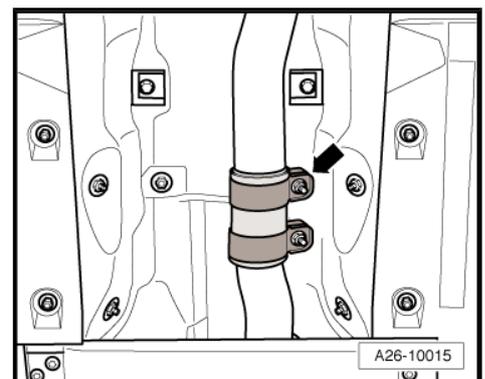
Vehicles with one front exhaust pipe:



Note

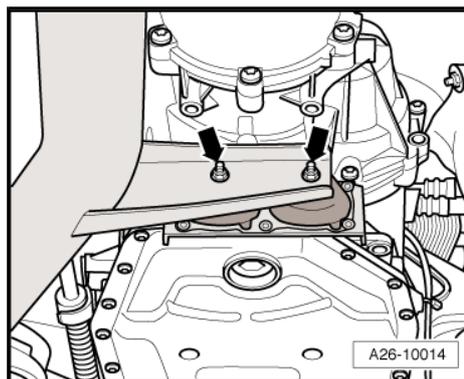
The flexible pipe connection (de-coupling element) on the front exhaust pipe must not be bent more than 10° – otherwise it can be damaged.

- Disconnect exhaust system at clamp -arrow-.

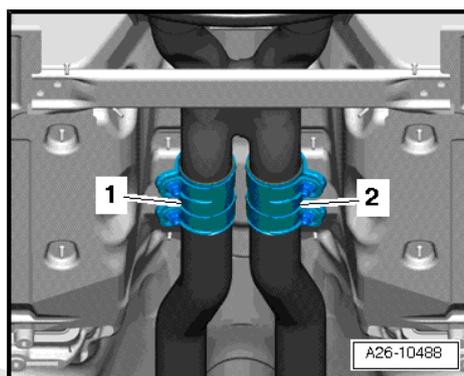


- Unscrew nuts -arrows- at centre bracket for front exhaust pipe.

Vehicles with two front exhaust pipes:



Disconnect exhaust system at clamps -1- and -2-.

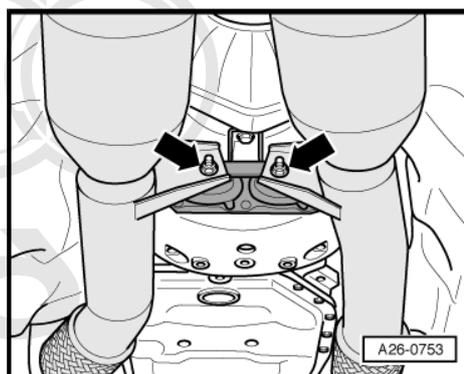


 **Note**

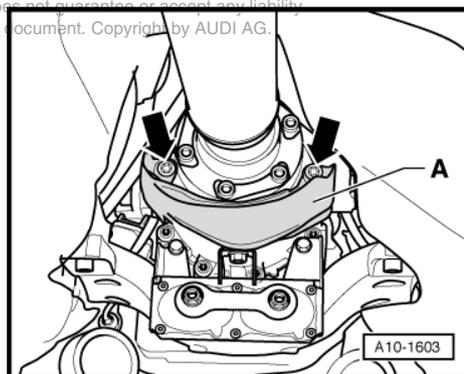
The flexible pipe connection (de-coupling element) on the front exhaust pipe must not be bent more than 10° – otherwise it can be damaged.

- Unscrew nuts -arrows- from retaining lugs for front exhaust pipes.

All models:



- Unbolt heat shield -A- for propshaft -arrows-.
- Unscrew bolts at gearbox/propshaft flange.
- Slide propshaft together towards rear final drive. The constant velocity joints can be moved axially.
- Tie up propshaft to side.



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- Place drip tray -V.A.G 1306- under the gearbox.

WARNING
Wear safety goggles.

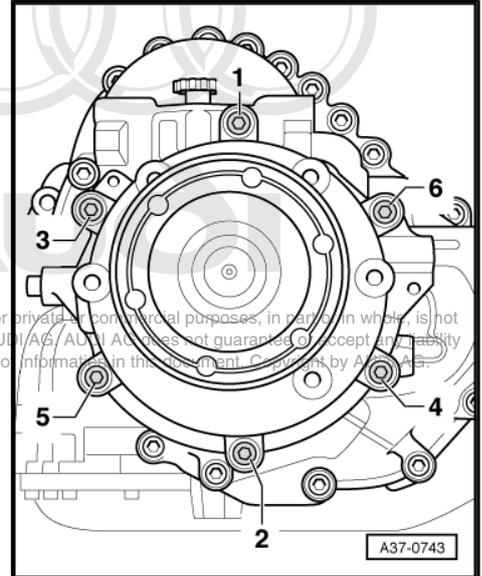
- Slacken and remove securing bolts for cover for self-locking centre differential in sequence -6 ... 1-; allow gear oil to drain out.

Note

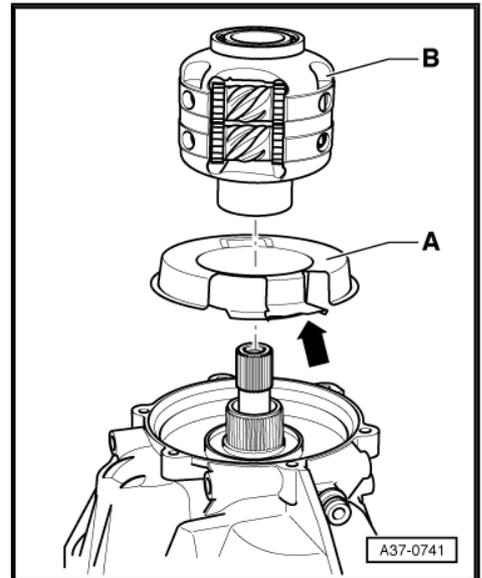
The cover is not equipped with a drain plug; drain gear oil by removing the cover.

WARNING
Pull the cover for the self-locking centre differential carefully towards the rear off the gearbox. Take care that self-locking centre differential does not drop out of gearbox.

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- Secure self-locking centre differential -B- and baffle plate -A- to prevent them dropping out, or pull them off the output shaft towards the rear.



Installing

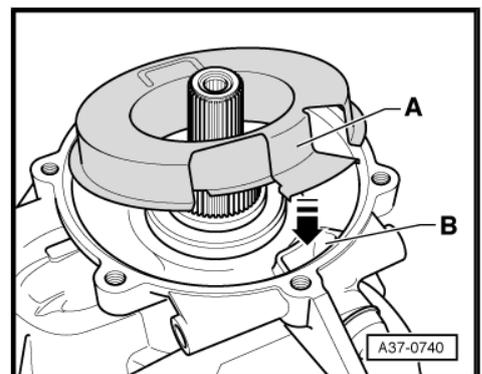
Installation is carried out in reverse sequence; note the following:

Note

Renew O-ring on cover for transfer box.

Note the following if the self-locking centre differential -B- and the baffle plate -A- have been removed:

- Clean baffle plate, lubricate with gear oil and insert in gearbox.
- Installation position: tongue -A- on baffle plate should be positioned on the gearbox so that the side lugs are located above opening -B-.

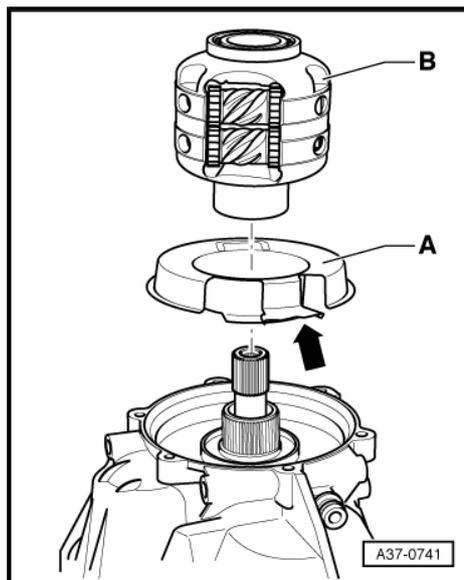


- Fit self-locking centre differential -B- onto splines of output shaft (turn slightly at the same time).

 **Note**

Check installation position of tongue on baffle plate -arrow- again.

- Check that self-locking centre differential can be turned by hand when it is in position.
- Check whether the tongue -arrow- on the baffle plate is still located properly.
- Place cover onto self-locking centre differential with shaft installed; turn slightly if necessary.



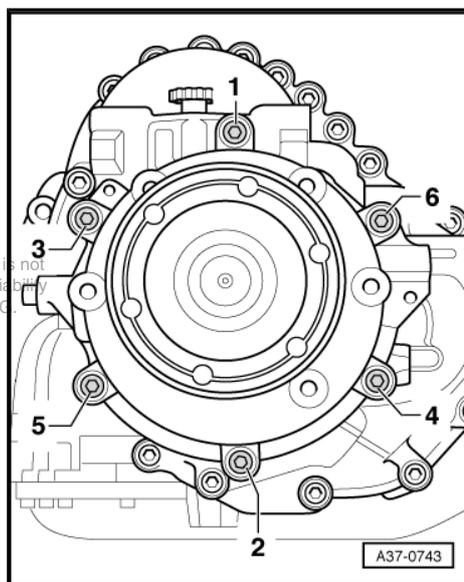
- Tighten bolts of cover for self-locking centre differential as follows:

Stage	Tightening sequence
I	- Tighten bolts -1- and -2- to 3 Nm.
II	- Tighten bolts -1 ... 11- to 23 Nm in the sequence indicated.

- Install propshaft ⇒ Rear final drive 01R; Rep. Gr. 39 or ⇒ Rear final drive 0AR; Rep. Gr. 39.
- Install exhaust system ⇒ Engine, mechanics; Rep. Gr. 26 .
- Fill up gear oil in transfer box ⇒ [page 153](#)

Tightening torques

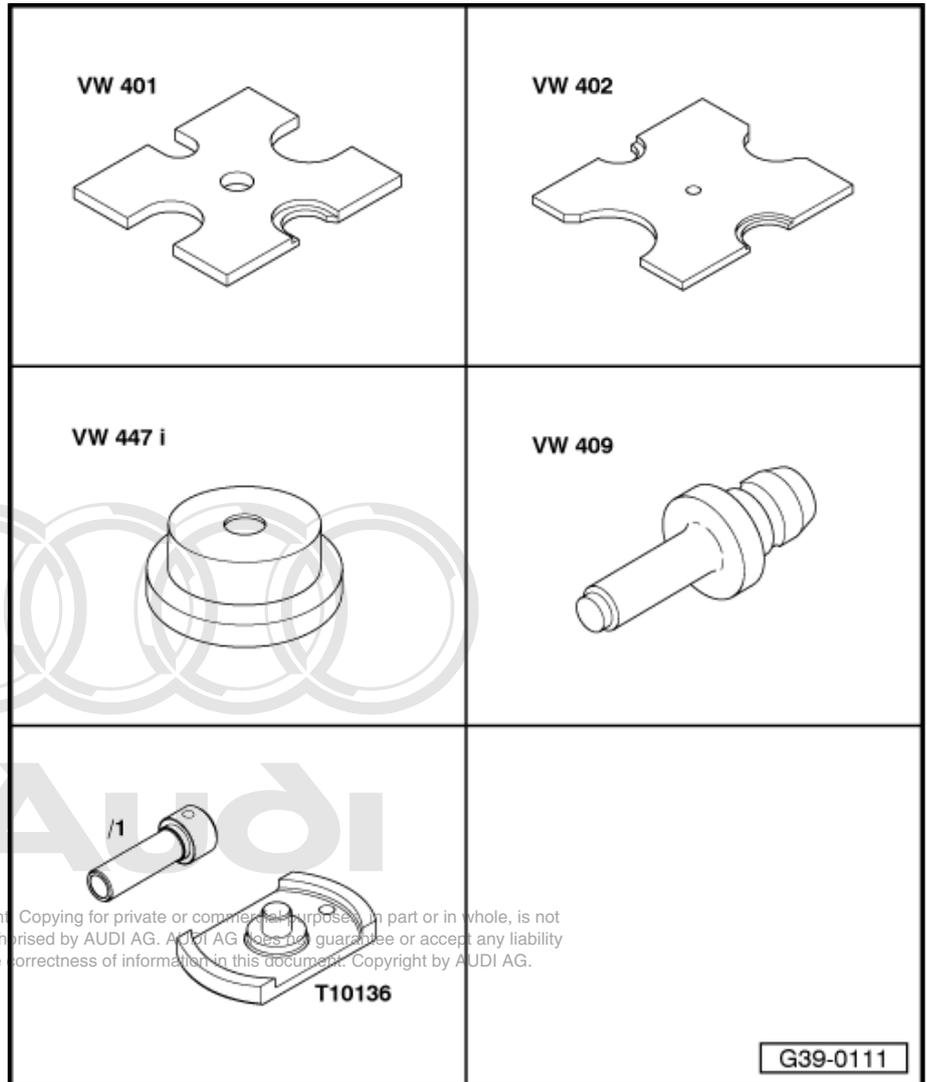
Component	Nm
Cover for self-locking centre differential to gearbox housing	23
Cross member to body	23
Heat shield for drive shaft to gearbox	23



4.2 Renewing oil seal for flange shaft (rear)

Special tools and workshop equipment required

- ◆ Thrust plate -VW 401-
- ◆ Thrust plate -VW 402-
- ◆ Thrust pad -VW 447 i-
- ◆ Press tool -VW 409-
- ◆ Fitting tool -T10136-

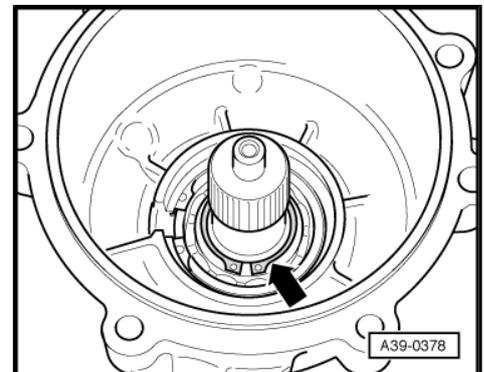


Procedure

- Remove cover for self-locking centre differential ⇒ [page 155](#) .
- Remove circlip -arrow- on inner side of cover.

Note

The circlip locates the flange shaft on the bearing in the cover.

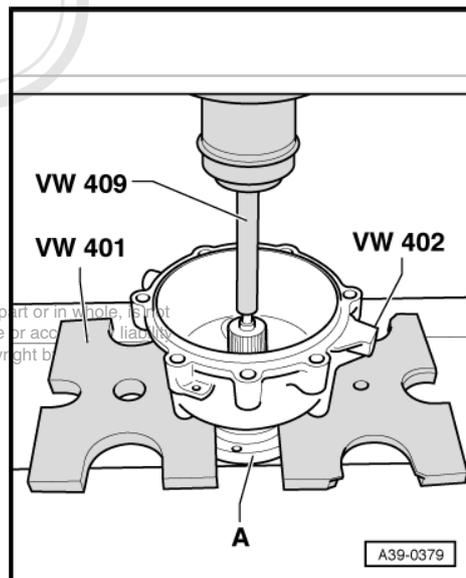


- Using press tool -VW 409- , press flange shaft out of cover for self-locking centre differential; to do so, place cover on thrust plate -VW 401- and thrust plate -VW 402- .

 **Note**

Hold flange shaft -A- with one hand to prevent it falling.

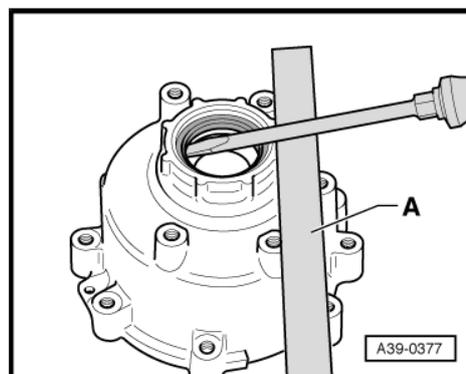
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- Lever out oil seal.

 **Note**

To prevent damage to the housing, place something underneath (e.g. metal bar -A-).

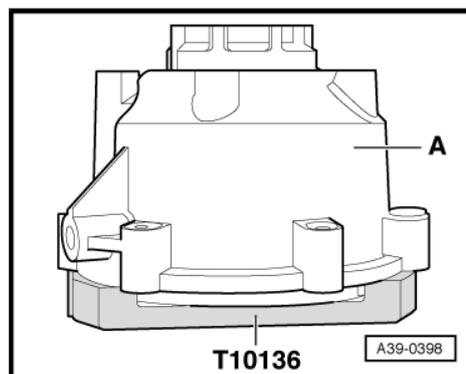


- Place cover -A- for self-locking centre differential on fitting tool -T10136- .

 **Note**

The peg in the middle of the tool is centered and faces upwards in the cover. It serves as a guide and stop for press tool -T10136/1- .

- Lubricate outer circumference of seal with gear oil
- Push new seal onto press tool -T10136/1- .
- Installation position: the open side of the seal should face the cover.

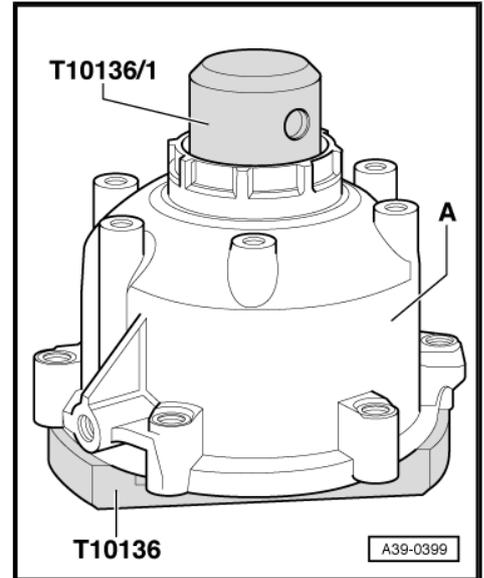


- Insert press tool -T10136/1- with seal into cover from above.

i Note

The peg of the thrust piece -T10136- serves as a guide from below and also as a stop for press tool -T10136/1- .

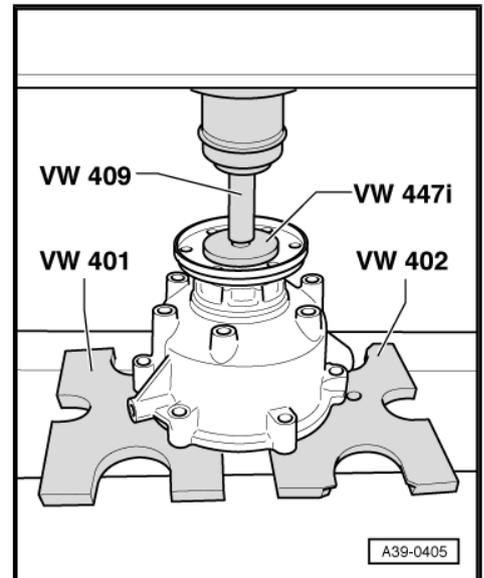
- Drive in new seal onto stop (take care to keep seal straight).
- Pack space between sealing lip and dust lip half-full with sealing grease -G 052 128 A1- .



- Press flange shaft with press tool -VW 409- and thrust pad -VW 447 i- into cover for self-locking centre differential; to do so, place cover on thrust plate -VW 401- and thrust plate -VW 402- .

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Only insert flange shaft as far as necessary to install circlip.



- Install circlip -arrow- in groove of flange shaft on inner side of cover.
- Install cover for self-locking centre differential ⇒ [page 155](#) .
- Fill up gear oil in transfer box ⇒ [page 153](#)

