Workshop Manual

Audi A3 2004 ➤
Audi TT 2007 ➤

Rear final drive 02D, 0AV, 0BR and 0BY

Edition 06.2009

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

Repair Group

00 - Technical data

39 - Final drive - rear differential

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

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00 – Technical data

1 Rear final drive identification

Note

- *The “Haldex coupling” is incorporated in the final drive.*
- *The final drive and the “Haldex coupling” have separate oil circuits.*
- *The final drive units “02D” and “0AV” are equipped with the “Haldex coupling 2”. Identification ⇒ page 1 and ⇒ page 2 .*
- *Final drive units “0BR” and “0BY” are equipped with the “Haldex coupling 4”. Identification ⇒ page 2 .*

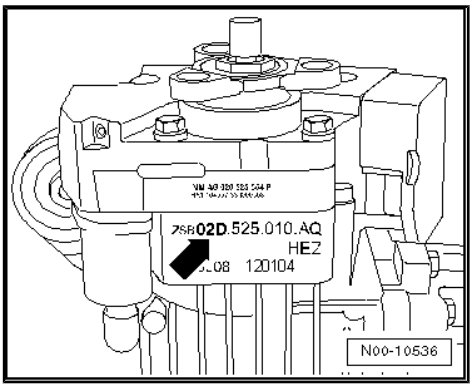
Rear final drive units 02D, 0AV, 0BR and 0BY are fitted in conjunction with the following gearboxes:

- 6-speed manual gearbox 02Q, four-wheel drive
- 6-speed manual gearbox 0A6, four-wheel drive
- Direct shift gearbox 02E, four-wheel drive

Rear final drive allocation

- ⇒ “2 Audi A3 2004 ▸ – Code letters, allocation, transmission ratios, capacities”, page 3
- ⇒ “3 Audi TT 2007 ▸ – Code letters, allocation, transmission ratios, capacities”, page 7

Rear final drive -02D-



Note

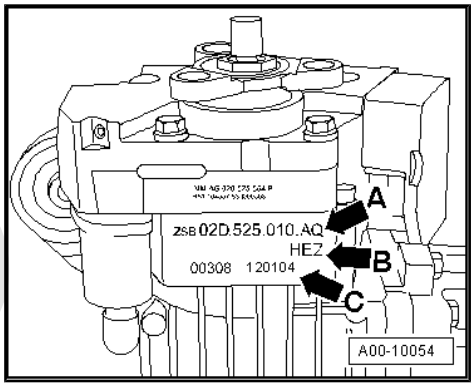
- *The identification -arrow- on the underside of the final drive unit indicates which final drive version is installed.*
- *In this example: “Rear final drive 02D”*

Example of identification markings on final drive “02D”

-Arrow A- Part number of final drive

-Arrow B- Code letters of final drive

-Arrow C- Production date of final drive



Note

If the code letters -arrow B- are not shown, the unit can be identified via the Part No. -arrow A- ⇒ Electronic parts catalogue .

Example:

02D. 525.010.AQ	HEZ	12	01	04
Part No.	Code letters	Day	Month	Year of manufacture -2004-

Additional data are manufacture-related.

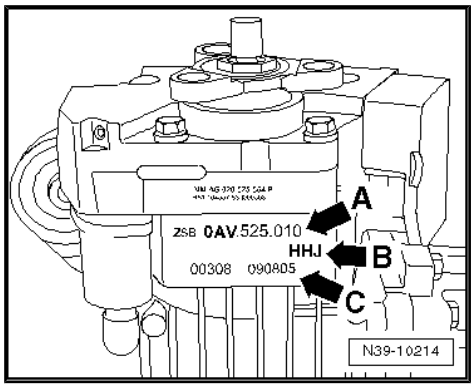
Example of identification markings on rear final drive “0AV”

-Arrow A- Part number of final drive

-Arrow B- Code letters of final drive

- If the code letters are not shown, the unit can be identified via the Part No. ⇒ Electronic parts catalogue .

-Arrow C- Production date of final drive

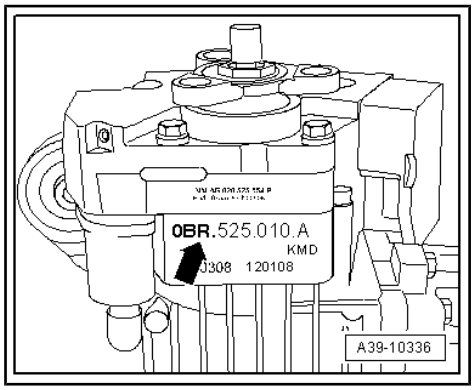


Example:

HHJ	09	08	05
Code letters	Day	Month	Year of manufacture -2005-

Additional data are manufacture-related.

Rear final drive “0BR” or “0BY”



Note

- *The identification -arrow- on the underside of the final drive unit indicates which final drive version is installed.*
- *For further explanation of the identification markings on the underside of the final drive ⇒ page 2 .*

2 Audi A3 2004 ‣ – Code letters, allocation, transmission ratios, capacities

⇒ “2.1 Audi A3 with rear final drive 02D/0AV”, page 3

⇒ “2.2 Audi A3 with rear final drive 0BR”, page 5

2.1 Audi A3 with rear final drive 02D/0AV

Rear final drive		02D [1]		
Part No.		02D.525.010.AA	02D.525.010.AC	02D.525.010.AQ
Code letters		**FWR**	**HEY**	**HEZ**
Manufactured	from	07.03	11.04	01.04
	to	01.04	12.04	08.04
Allocation	Model	Audi A3 2004 ‣	Audi A3 2004 ‣	Audi A3 2004 ‣
	Engine	2.0 ltr. - 147 kW TFSI 3.2 ltr. - 184 kW	2.0 ltr. - 103 kW TDI	2.0 ltr. - 147 kW TFSI 3.2 ltr. - 184 kW
Ratio: $Z_2 : Z_1$	Final drive (rear)	27 : 17 = 1.588	27 : 17 = 1.588	27 : 17 = 1.588
Drive shaft flange ∅		100 mm	100 mm	100 mm
Capacity in final drive		0.95 litres		
Capacity in Haldex coupling		0.85 litres		
Oil change capacity in Haldex coupling • Change intervals: ⇒ Maintenance tables “ELSA”		0.65 litres		
[1] Rear final drive “02D” is equipped with “Haldex coupling 2”				
The following data can be found in the ⇒ Electronic parts catalogue ♦ Specification of gear oil for rear final drive ♦ Specification of high performance oil for Haldex coupling ♦ Allocation of gearbox				

Rear final drive		0AV[1]		
Part No.		0AV.525.010	0AV.525.010.A	0AV.525.010.B
Code letters		**HHJ**	**HHK**	**HVY**
Manufactured	from	09.05	11.04	11.05
	to	11.05	11.05	05.07
Allocation	Model	Audi A3 2004 ‣	Audi A3 2004 ‣	Audi A3 2004 ‣
	Engine	2.0 ltr. - 147 kW TFSI 3.2 ltr. - 184 kW	2.0 ltr. - 103 kW TDI	2.0 ltr. - 147 kW TFSI 3.2 ltr. - 184 kW
Ratio: $Z_2 : Z_1$	Final drive (rear)	27 : 17 = 1.588	27 : 17 = 1.588	27 : 17 = 1.588
Drive shaft flange ∅		100 mm	100 mm	100 mm
Capacity in final drive		0.95 litres		
Capacity in Haldex coupling		0.85 litres		

Rear final drive	0AV[1)]		
Part No.	0AV.525.010	0AV.525.010.A	0AV.525.010.B
Code letters	**HHJ**	**HHK**	**HVY**
Oil change capacity in Haldex coupling • Change intervals: ⇒ Maintenance tables “ELSA”	0.65 litres		
[1)]Rear final drive “0AV” is equipped with “Haldex coupling 2”			
The following data can be found in the ⇒ Electronic parts catalogue ◆ Specification of gear oil for rear final drive ◆ Specification of high performance oil for Haldex coupling ◆ Allocation of gearbox			

Rear final drive		0AV[1)]		
Part No.		0AV.525.010.C	0AV.525.010.D	0AV.525.010.E
Code letters		**HVZ**	**JJN**	**JYP**
Manufactured	from	11.05	11.06	06.07
	to	05.07	01.08	02.08
Allocation	Model	Audi A3 2004 ▸	Audi A3 2004 ▸	Audi A3 2004 ▸
	Engine	2.0 ltr. - 103 kW TDI	2.0 ltr. - 147 kW TFSI 2.0 ltr. - 195 kW TFSI	2.0 ltr. - 103 kW TDI
		2.0 ltr. - 125 kW TDI	3.2 ltr. - 184 kW	2.0 ltr. - 125 kW TDI
Ratio: $Z_2 : Z_1$	Final drive (rear)	27 : 17 = 1.588	27 : 17 = 1.588	27 : 17 = 1.588
Drive shaft flange ∅		100 mm	100 mm	100 mm
Capacity in final drive		0.95 litres		
Capacity in Haldex coupling		0.85 litres		
Oil change capacity in Haldex coupling • Change intervals: ⇒ Maintenance tables “ELSA”		0.65 litres		
[1)]Rear final drive “0AV” is equipped with “Haldex coupling 2”				
The following data can be found in the ⇒ Electronic parts catalogue ◆ Specification of gear oil for rear final drive ◆ Specification of high performance oil for Haldex coupling ◆ Allocation of gearbox				

Rear final drive		0AV[1)]		
Part No.		0AV.525.010.K	0AV.525.010.L	
Code letters		**KJS**	**KJT**	
Manufactured	from	09.07	02.08	
	to	06.08	06.08	
Allocation	Model	Audi A3 2004 ▸	Audi A3 2004 ▸	
	Engine	2.0 ltr. - 147 kW TFSI 2.0 ltr. - 195 kW TFSI	2.0 ltr. - 103 kW TDI	
		3.2 ltr. - 184 kW	2.0 ltr. - 125 kW TDI	

Rear final drive		0AV[1)]		
Part No.		0AV.525.010.K	0AV.525.010.L	
Code letters		**KJS**	**KJT**	
Ratio: $Z_2 : Z_1$	Final drive (rear)	27 : 17 = 1.588	27 : 17 = 1.588	
Drive shaft flange ∅		100 mm	100 mm	
Capacity in final drive		0.95 litres		
Capacity in Haldex coupling		0.85 litres		
Oil change capacity in Haldex coupling • Change intervals: ⇒ Maintenance tables “ELSA”		0.65 litres		
[1)]Rear final drive “0AV” is equipped with “Haldex coupling 2”				
The following data can be found in the ⇒ Electronic parts catalogue ♦ Specification of gear oil for rear final drive ♦ Specification of high performance oil for Haldex coupling ♦ Allocation of gearbox				

2.2 Audi A3 with rear final drive 0BR

Rear final drive		0BR[1)]		
Part No.		0BR.525.010		
Code letters		**KMC**		
Manufactured	from	07.08		
	to			
Allocation	Model	Audi A3 2004 ▸		
	Engine	1.8 ltr. - 118 kW TFSI 2.0 ltr. - 147 kW TFSI 2.0 ltr. - 188 kW TFSI 2.0 ltr. - 195 kW TFSI 3.2 ltr. - 184 kW 2.0 ltr. - 103 kW TDI		
Ratio: $Z_2 : Z_1$	Final drive (rear)	27 : 17 = 1.588		
Drive shaft flange ∅		100 mm		
Capacity in final drive		0.95 litres		
Capacity in Haldex coupling		0.85 litres		

Rear final drive	0BR[1)]		
Part No.	0BR.525.010		
Code letters	**KMC**		
Oil change capacity in Haldex coupling • Change intervals: ⇒ Maintenance tables “ELSA”	0.70 litres		
[1)]Rear final drive “0BR” is equipped with “Haldex coupling 4”			
The following data can be found in the ⇒ Electronic parts catalogue ♦ Specification of gear oil for rear final drive ♦ Specification of high performance oil for Haldex coupling ♦ Allocation of gearbox			

3 Audi TT 2007 ▸ – Code letters, allocation, transmission ratios, capacities

⇒ “3.1 Audi TT with rear final drive 02D/0AV”, page 7

⇒ “3.2 Audi TT with rear final drive 0BR”, page 8

⇒ “3.3 Audi TT RS with rear final drive 0BY”, page 9

3.1 Audi TT with rear final drive 02D/0AV

Rear final drive		0AV[1)]		
Part No.		0AV.525.010.B	0AV.525.010.D	0AV.525.010.F
Code letters		**HVY**	**JJN**	**JUY**
Manufactured	from	11.05	11.06	03.07
	to	05.07	-	-
Allocation	Model	Audi TT 2007 ▸	Audi TT 2007 ▸	Audi TT 2007 ▸
	Engine	3.2 ltr. - 184 kW	3.2 ltr. - 184 kW	3.2 ltr. - 184 kW
Ratio: $Z_2 : Z_1$	Final drive (rear)	27 : 17 = 1.588	27 : 17 = 1.588	27 : 17 = 1.588
Drive shaft flange ∅		100 mm	100 mm	100 mm
Capacity in final drive		0.95 litres		
Capacity in Haldex coupling		0.85 litres		
Oil change capacity in Haldex coupling • Change intervals: ⇒ Maintenance tables “ELSA”		0.65 litres		
[1)]Rear final drive “0AV” is equipped with “Haldex coupling 2”				
The following data can be found in the ⇒ Electronic parts catalogue ♦ Specification of gear oil for rear final drive ♦ Specification of high performance oil for Haldex coupling ♦ Allocation of gearbox				

Rear final drive		0AV[1)]		
Part No.		0AV.525.010.H	0AV.525.010.K	0AV.525.010.M
Code letters		**JZX**	**KJS**	**KJU**
Manufactured	from	08.06	12.07	12.07
	to	11.06	-	-
Allocation	Model	Audi TT 2007 ▸	Audi TT 2007 ▸	Audi TT 2007 ▸
	Engine	3.2 ltr. - 184 kW	3.2 ltr. - 184 kW	3.2 ltr. - 184 kW
Ratio: $Z_2 : Z_1$	Final drive (rear)	27 : 17 = 1.588	27 : 17 = 1.588	27 : 17 = 1.588
Drive shaft flange ∅		100 mm	100 mm	100 mm
Capacity in final drive		0.95 litres		
Capacity in Haldex coupling		0.85 litres		

Rear final drive	0AV[1)]		
Part No.	0AV.525.010.H	0AV.525.010.K	0AV.525.010.M
Code letters	**JZX**	**KJS**	**KJU**
Oil change capacity in Haldex coupling • Change intervals: ⇒ Maintenance tables “ELSA”	0.65 litres		
[1)]Rear final drive “0AV” is equipped with “Haldex coupling 2”			
The following data can be found in the ⇒ Electronic parts catalogue ◆ Specification of gear oil for rear final drive ◆ Specification of high performance oil for Haldex coupling ◆ Allocation of gearbox			

3.2 Audi TT with rear final drive 0BR

Rear final drive		0BR[1)]		
Part No.		0BR.525.010	0BR. 525.010.A	
Code letters		**KMC**	**KMD**	
Manufactured	from	01.08	01.08	
	to		-	
Allocation	Model	Audi TT 2007 ▸	Audi TT 2007 ▸	
	Engine	2.0 ltr. - 195 kW TFSI 2.0 ltr. - 199 kW TFSI 3.2 ltr. - 184 kW	2.0 ltr. - 195 kW TFSI 2.0 ltr. - 199 kW TFSI 3.2 ltr. - 184 kW	
Ratio: Z_2 : Z_1	Final drive (rear)	27 : 17 = 1.588	27 : 17 = 1.588	
Drive shaft flange ∅		100 mm	100 mm	
Capacity in final drive		0.95 litres		
Capacity in Haldex coupling		0.85 litres		
Oil change capacity in Haldex coupling • Change intervals: ⇒ Maintenance tables “ELSA”		0.70 litres		
[1)]Rear final drive “0BR” is equipped with “Haldex coupling 4”				

Rear final drive	0BR[1)]		
Part No.	0BR.525.010	0BR. 525.010.A	
Code letters	**KMC**	**KMD**	
The following data can be found in the ⇒ Electronic parts catalogue ♦ Specification of gear oil for rear final drive ♦ Specification of high performance oil for Haldex coupling ♦ Allocation of gearbox			

3.3 Audi TT RS with rear final drive 0BY

Rear final drive		0BY[1)]		
Part No.		0BY.525.010		
Code letters		**LEK**		
Manufactured	from	01.09		
	to			
Allocation	Model	Audi TT RS 2007 ▸		
	Engine	2.5 ltr. - 250 kW TFSI		
Ratio: Z_2 : Z_1	Final drive (rear)	27 : 17 = 1.588		
Drive shaft flange ∅		100 mm		
Capacity in final drive		0.95 litres		
Capacity in Haldex coupling		0.85 litres		
Oil change capacity in Haldex coupling • Change intervals: ⇒ Maintenance tables “ELSA”		0.70 litres		
[1)]Rear final drive “0BY” is equipped with “Haldex coupling 4”				
The following data can be found in the ⇒ Electronic parts catalogue ♦ Specification of gear oil for rear final drive ♦ Specification of high performance oil for Haldex coupling ♦ Allocation of gearbox				

4 Transmission layout

- Illustrated with 6-speed manual gearbox 02Q, four-wheel drive

Identification

Note

Arrows point in direction of travel.

1 - Engine

2 - Clutch

3 - Manual gearbox or direct shift gearbox

4 - Input shaft

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

6 - Output shaft for 1st - 4th gear

7 - Differential

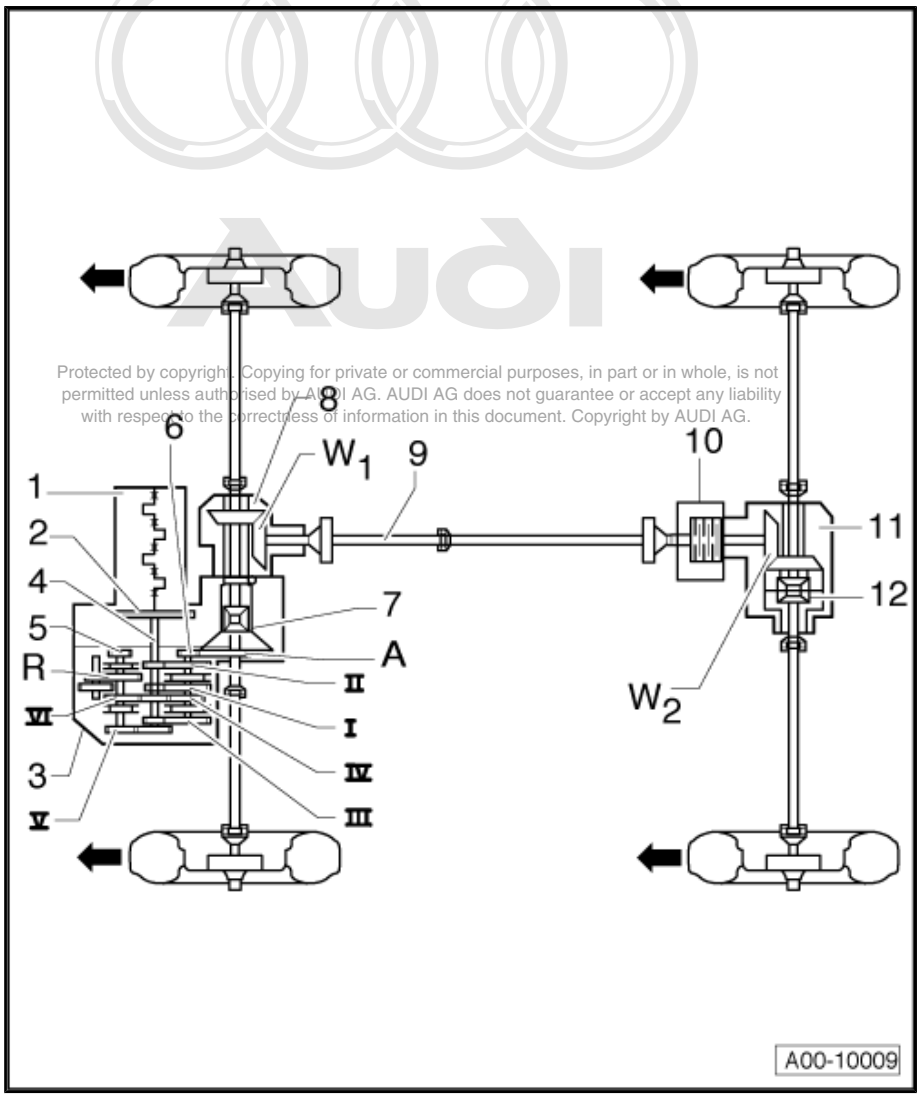
8 - Bevel box

9 - Propshaft

10 - Haldex coupling

11 - Rear final drive

12 - Differential

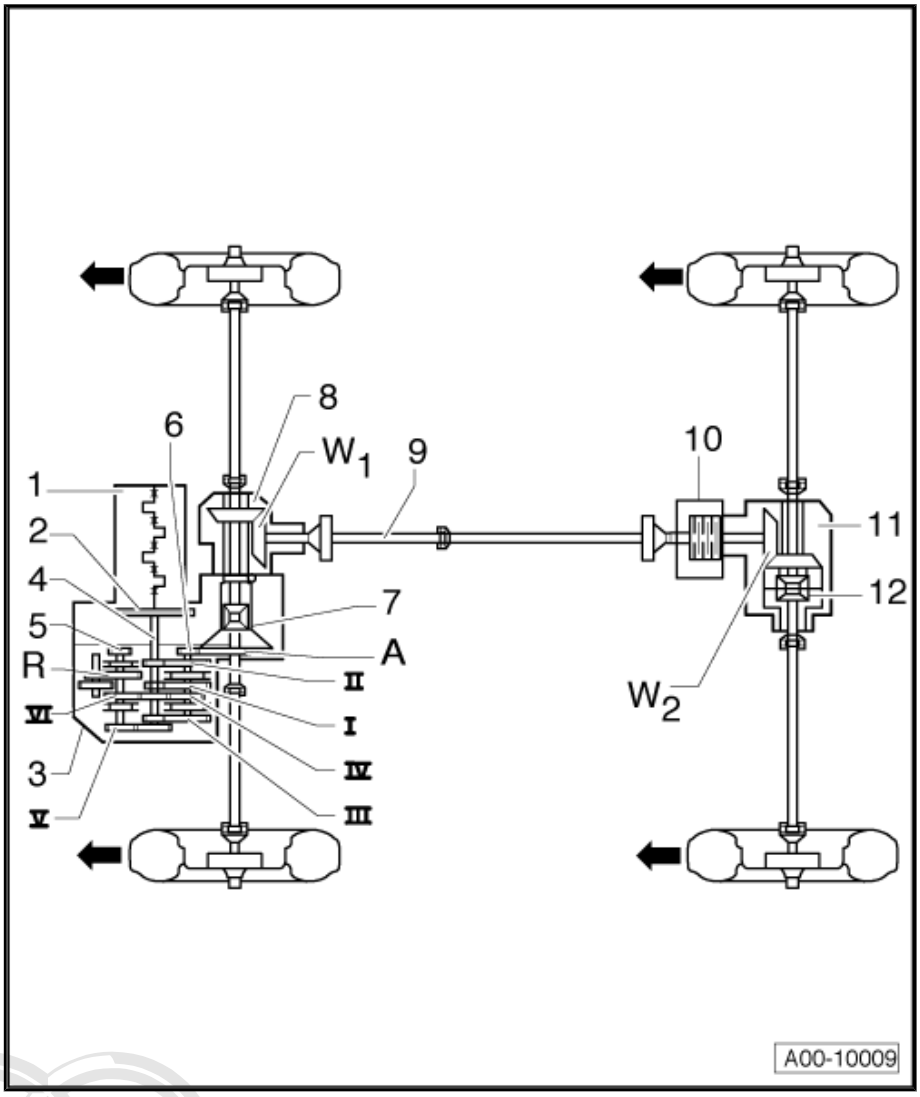


Ratio

Note

Arrows point in direction of travel.

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



5 General repair instructions

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

A number of generally applicable instructions for the various repair procedures are summarised here under the designation “Components” ⇒ page 14 . They apply to the work described in this Manual.

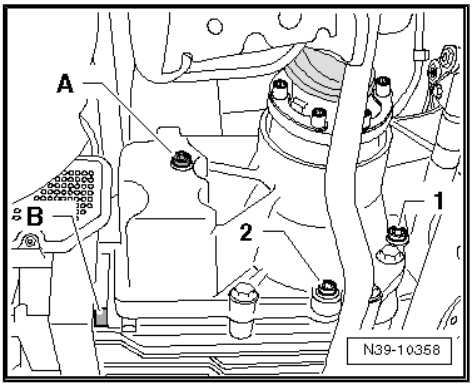
5.1 Gear oil and oil for Haldex coupling

Caution

The final drive and the “Haldex coupling” have separate oil circuits.

- *The Haldex coupling is filled with high-performance oil for Haldex coupling . For part number, refer to ⇒ Electronic parts catalogue .*
- *The final drive is filled with “gear oil”. For part number, refer to ⇒ Electronic parts catalogue .*

Location of oil filler plugs and drain plugs



A - Filler plug for high performance oil for Haldex coupling

B - Drain plug for high performance oil for Haldex coupling

1 - Filler plug for gear oil

2 - Drain plug for gear oil

Caution

Different types of high-performance oil for Haldex coupling

- *The rear final drive units "02D/0AV" and "0BR/0BY" have different "Haldex couplings" and therefore different types of oil for the Haldex coupling.*
- *The two different types of oil for the Haldex couplings must not be interchanged or mixed together.*
- *Part number for high performance oil for Haldex coupling ⇒ Electronic parts catalogue .*
- *Note the distinguishing markings for the different rear final drive units ⇒ page 1 .*

- Checking oil level in rear final drive and topping up ⇒ page 123 .
- Checking oil level in Haldex coupling and topping up ⇒ page 115 .
- Do not use any "additives" in the oil.
- Do not re-use oil that has been drained off.

Regulations for the disposal of oil

Drained oil must be disposed of properly.

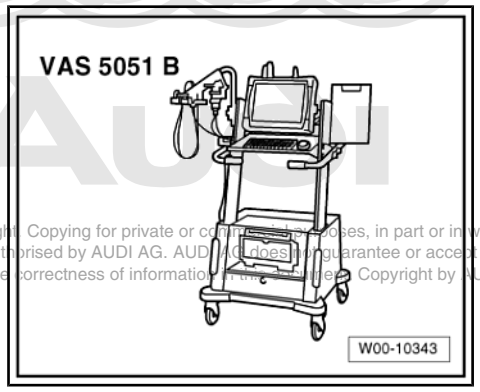
- Improper disposal of used oil endangers the environment.
- It must not be mixed with solvents, brake fluid, coolant or similar.
- Please observe the information shown on the packaging of the oil.

5.2 Components

Guided fault finding, vehicle self-diagnosis and testing system

- Before servicing the Haldex coupling, the exact cause of the failure must be determined as precisely as possible via the vehicle diagnostic, testing and information system -VAS 5051B- in the modes “Guided Fault Finding”, “vehicle self-diagnosis” and “testing system”.

– Connecting vehicle diagnostic, testing and information system - VAS 5051B- and selecting functions ⇒ page 53 .



WARNING

To avoid any risk of accident, observe the ⇒ “6 Safety precautions”, page 16 when road-testing the vehicle and using test equipment.

Special tools

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

Rear final drive

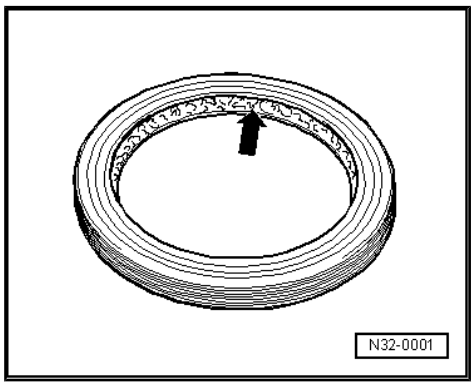
- When renewing the rear final drive, check gear oil level and oil level of the Haldex coupling and top up if necessary: ⇒ page 123 and ⇒ page 115 .
- Capacity, Audi A3 ⇒ page 3 .
- Capacity, Audi TT ⇒ page 7 .
- Specifications ⇒ Electronic parts catalogue .
- When installing mounting brackets as well as other waxed components, the contact surfaces must be cleaned. The contact surfaces must be free of wax and grease.

O-rings, oil seals and gaskets

- Always renew O-rings, seals and gaskets.
- Thoroughly clean joint surfaces.

Before installation:

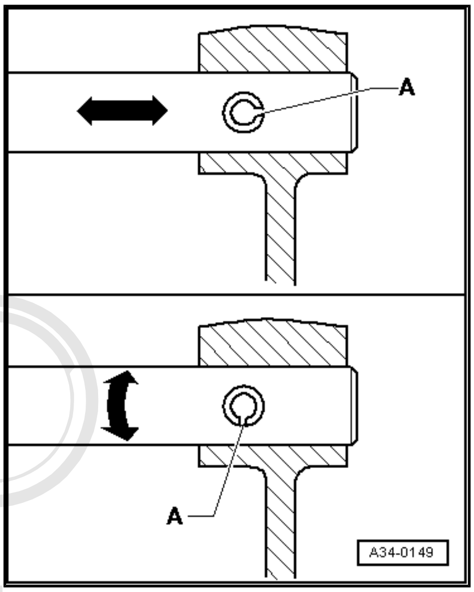
- Before installing oil seals, lightly oil outer circumference and fill space between sealing lips -arrow- with a thin layer of grease.
- The open side of the oil seals faces toward the side with fluid filling.



After installation:

- Check gear oil level in rear final drive ⇒ page 123 .
- Check oil level in Haldex coupling and top up as necessary ⇒ page 115 .

Locking elements



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

Nuts, bolts

- ♦ Nuts and bolts for securing covers and housings must be slackened and tightened in diagonal sequence.
- ♦ Loosen and tighten particularly sensitive parts in diagonal sequence and in stages, taking care to keep them straight.
- ♦ The tightening torques stated apply to non-oiled nuts and bolts.
- ♦ Always renew self-locking bolts and nuts.
- ♦ For all threaded connections, ensure that (where applicable) the contact surfaces and the nuts and bolts are not coated with wax until after assembly is completed.

Bearings

- ♦ Install needle bearings so the lettering (side with thicker metal) faces towards the installing tool.

- ♦ Lubricate all bearings in final drive with gear oil when installing.
- ♦ Always renew the tapered roller bearings on one shaft together as a set and use new bearings from a single manufacturer.
- ♦ Heat inner races to approx. 100° C before installing.
- ♦ Do not interchange the outer or inner races of bearings of the same size (the bearings are paired).

Shims

- ♦ Measure shims at several points with a micrometer. Tolerance variations make it possible to obtain the exact shim thickness required.
- ♦ Check for burrs and damage.
- ♦ Install only shims which are in perfect condition.

5.3 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.

6 Safety precautions

⇒ “6.1 Safety precautions for Audi TT and Audi A3 Cabriolet”, page 16

⇒ “6.2 Safety precautions for Audi A3”, page 17

6.1 Safety precautions for Audi TT and Audi A3 Cabriolet

Observe the following precautions if tests have to be performed with the engine running.

WARNING

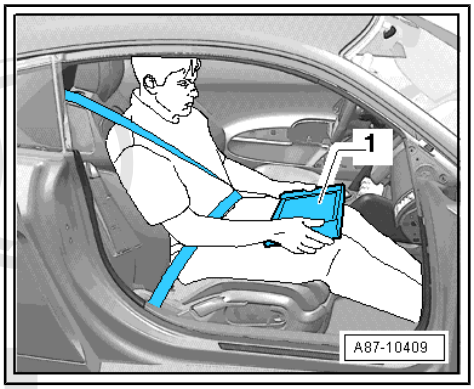
Vehicles with dual clutch gearbox: accidents can be caused if a gear is inadvertently engaged while the engine is running.

- *Before working on the vehicle while the engine is running, shift the selector lever into position “P” and apply the handbrake.*

Danger from toxic fumes!

- *When the engine is running, the exhaust system must always be connected to the exhaust gas extractor.*

Observe the following precautions if test equipment has to be used while road-testing the vehicle:



WARNING

Accidents can be caused if the driver is distracted by test equipment while road-testing, 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.*

TT Coupé:

Always secure testing equipment to the rear seat with a strap and have them operated from there by a second person.

TT Roadster:

- *Move the passenger's seat to the rearmost position.*
- *Use only vehicle diagnosis and service information system -VAS 5052- or diagnosis system -VAS 5053- .*
- *Test equipment may only be operated by the passenger; the tester -1- must be placed flat on the passenger's lap as illustrated.*

Observe the following precautions to avoid possible injury and/or 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.*

6.2 Safety precautions for Audi A3

Safety precautions for Audi A3 Cabriolet ⇒ page 16

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

WARNING

Vehicles with dual clutch gearbox: accidents and injury can be caused if a gear is inadvertently engaged while the engine is running.

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

Danger from toxic fumes!

- *When the engine is running, the exhaust system must always be connected to the exhaust gas extractor.*

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

WARNING

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

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

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

39 – Final drive - rear differential

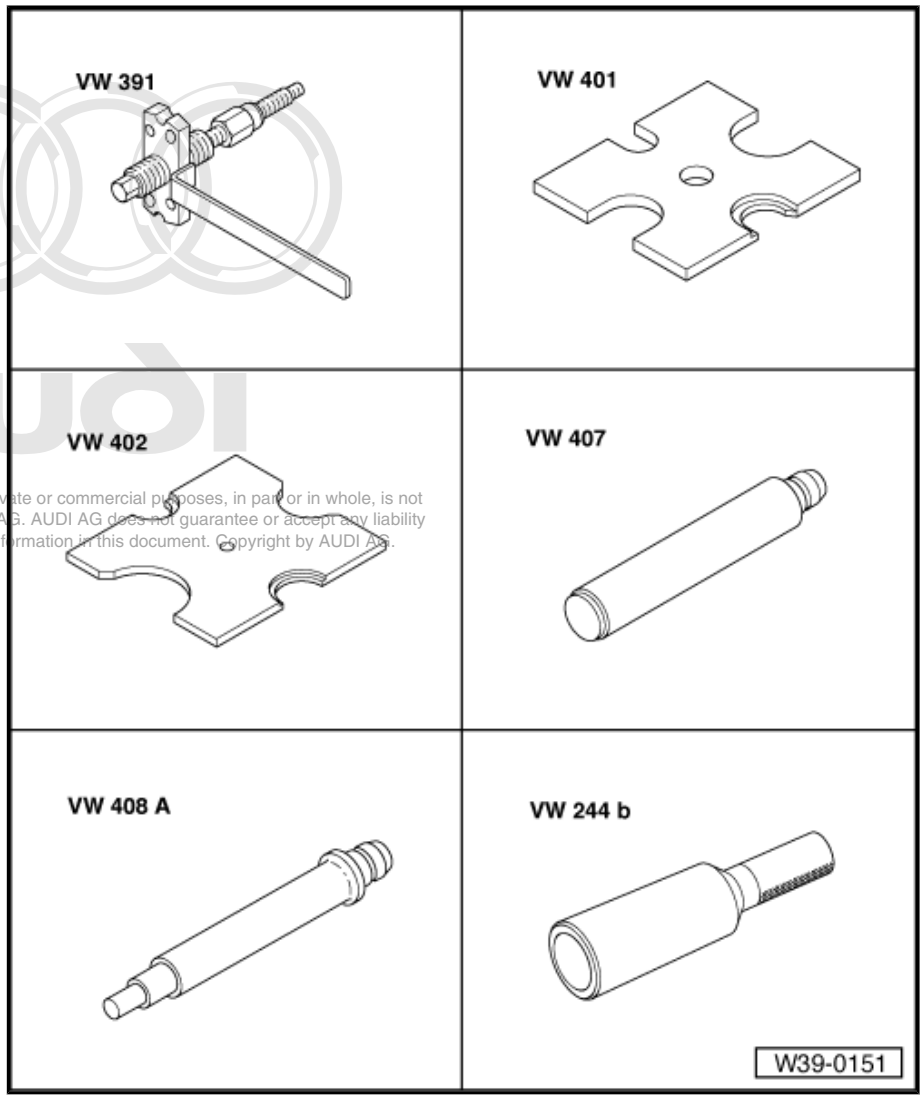
1 Exploded view – propshaft with detachable centre bearing (up to 05.07)

The propshaft with detachable centre bearing was installed as follows:

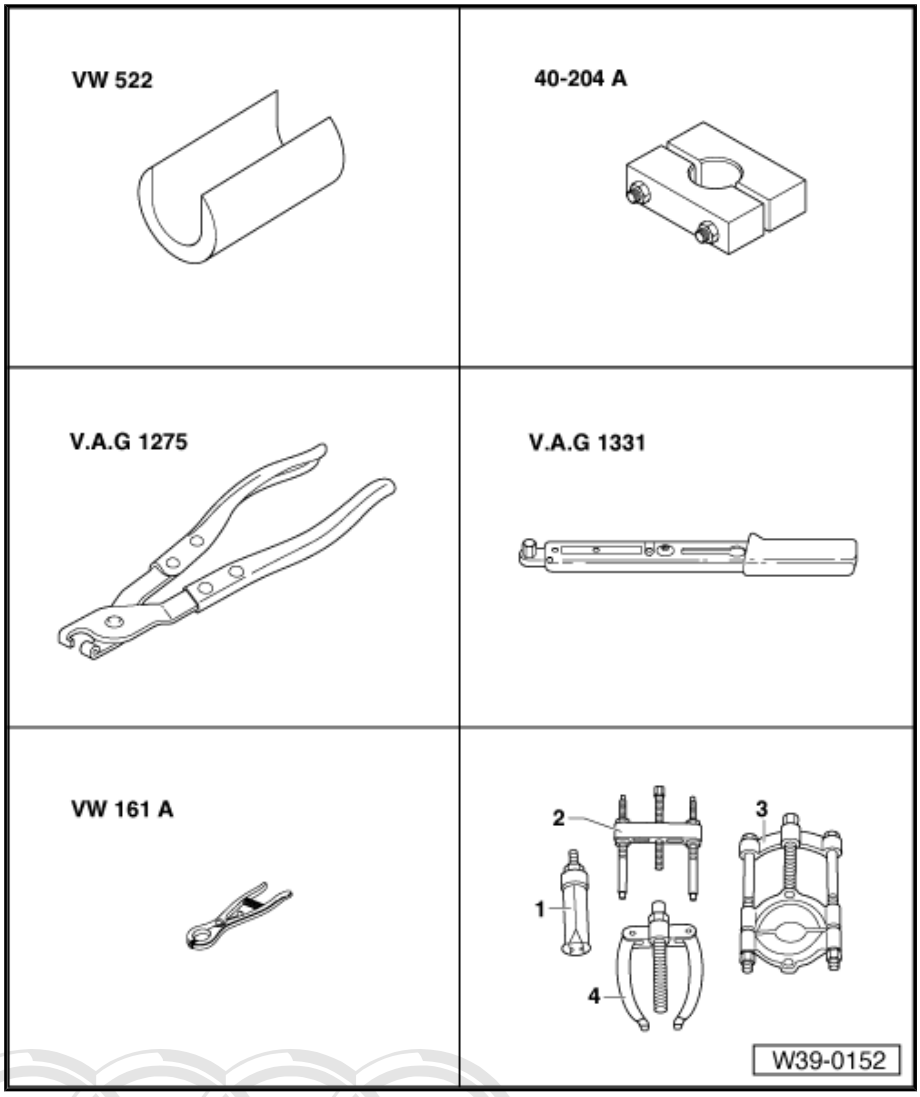
- Audi TT up to vehicle identification number 8J-8-011 000
- Audi A3 up to and including model year 2007

Special tools and workshop equipment required

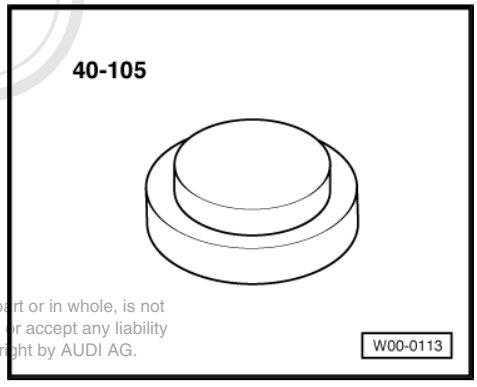
- Drive flange installing tool - VW 391-
- Thrust plate -VW 401-
- Thrust plate -VW 402-
- Press tool -VW 407-
- Press tool -VW 408A-
- Drift sleeve -VW 244B-



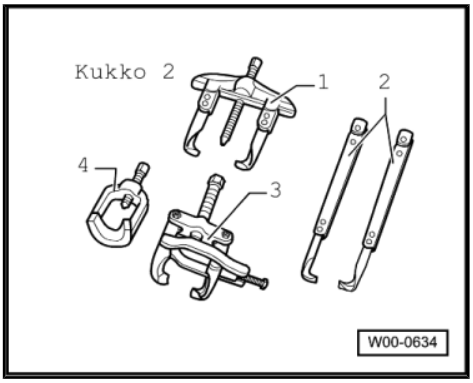
- Support sleeve -VW 522-
- Tensioner -40-204A-
- Hose clip pliers -V.A.G 1275/-
- Torque wrench -V.A.G 1331/-
- Circlip pliers -VW 161A-
- Puller -2 - Kukko 18/0-
- Splitter -3 - Kukko 17/1-



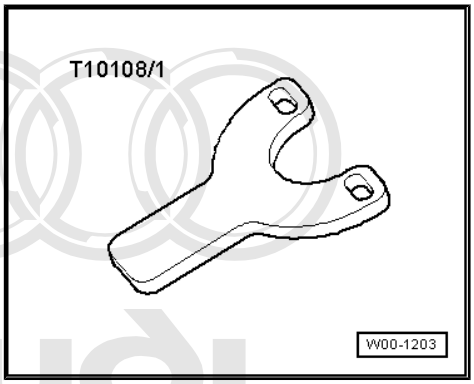
- Thrust plate -40 - 105-



- Two-arm puller -1 Kukko 20/10-

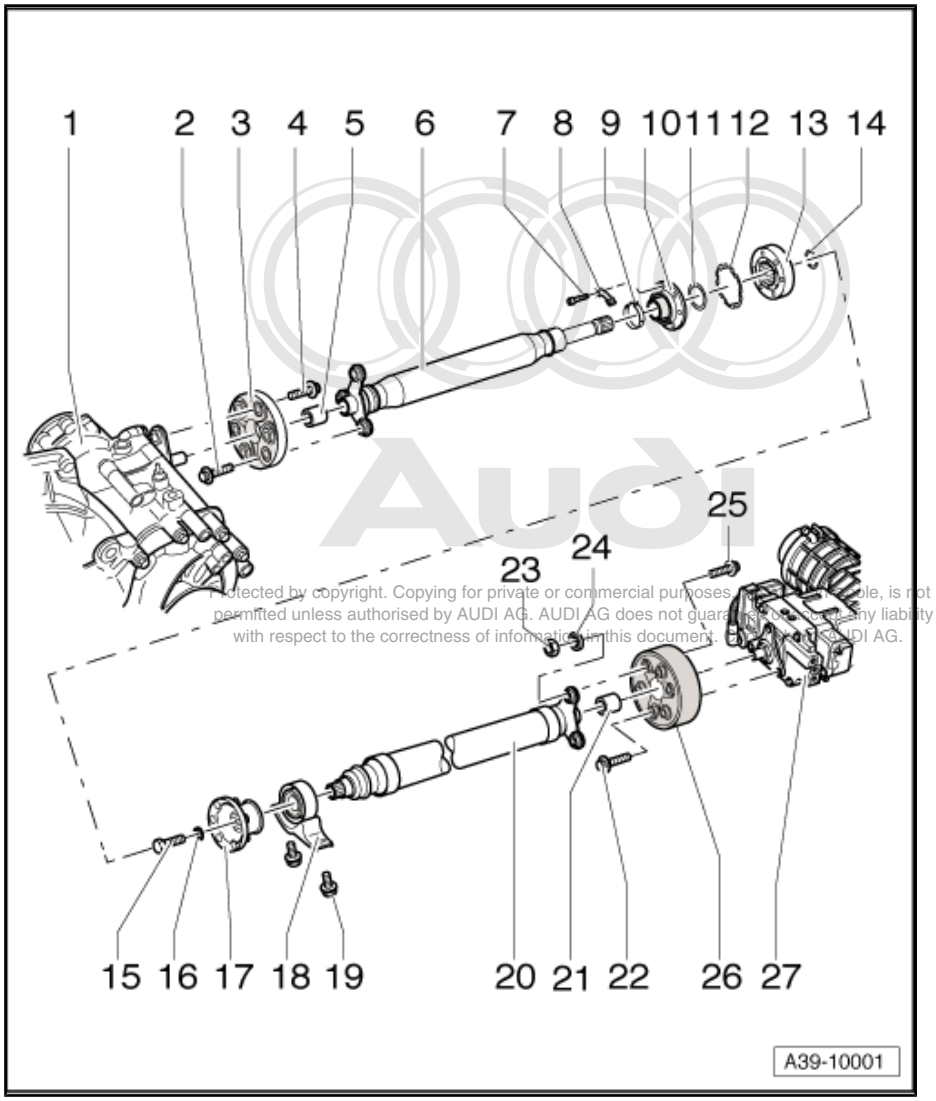


- Support plate -T10108/1-



Note

- *In order to achieve the quietest possible running, only the complete propshaft is balanced during manufacture. The balancing of the complete propshaft or the individual propshaft tubes cannot be carried out with workshop equipment. Therefore, if the front or rear propshaft tube is damaged, always renew the complete propshaft.*
- *Do not bend propshaft; only store and transport fully extended.*
- *Before removing, mark the positions of all parts in relation to each other. Reinstall in the same position to avoid excessive imbalance, resulting in bearing damage and rumbling noise.*
- *Removing and installing propshaft* *⇒ page 27*



1 - Manual gearbox with bevel box

2 - Bolt

- ❑ 50 Nm + 90°
- ❑ Always renew

3 - Flexible coupling with heat shield

- ❑ Installation position: open side of heat shield points towards gearbox
- ❑ Removing and installing ⇒ page 27

4 - Bolt

- ❑ 60 Nm
- ❑ Allocation ⇒ page 31

5 - Centring sleeve

6 - Propshaft tube (front)

- ❑ Do not damage centring sleeve -5- and seal in centre of flange when removing and installing

7 - Bolt

- ❑ 40 Nm

8 - Lock plate

9 - Clip

- ❑ Tensioning ⇒ page 24

10 - Boot for constant velocity joint

- ❑ Drive off with a drift before pressing off CV joint
- ❑ Check for damage

11 - Dished spring

- ❑ Inner diameter serrated
- ❑ Installation position: large diameter lies against CV joint

12 - Gasket

- ❑ Renew; pull off backing and stick onto joint

13 - Constant velocity joint

- ❑ Pressing off ⇒ page 23
- ❑ Pressing on ⇒ page 24
- ❑ Press 25 g G-6.3 grease from each side (in total 50 g) into joint. Regrease joint if necessary when renewing boot

14 - Circlip

- ❑ Renew
- ❑ Remove and install using circlip pliers -VW 161A-

15 - Bolt

- ❑ 45 Nm

16 - Washer

- ❑ Always renew

17 - Flange

- ❑ Pulling off ⇒ page 24
- ❑ Pulling on ⇒ page 25

18 - Centre bearing

- ❑ Pulling off ⇒ page 25
- ❑ Installation position ⇒ page 25
- ❑ Driving on ⇒ page 25

19 - Bolt

- ❑ 25 Nm
- ❑ Also secures heat shield

20 - Propshaft tube (rear)

- ❑ Do not damage centring sleeve -5- and seal in centre of flange when removing and installing
- ❑ Clamp in a vice to loosen and tighten bolt connections ⇒ page 24

21 - Centring sleeve

22 - Bolt

- ❑ 60 Nm
- ❑ Allocation ⇒ page 31

23 - Balancing nut

- ❑ 10 Nm
- ❑ Not fitted on all propshafts
- ❑ If the flange bolt ⇒ Item 25 (page 23) was loosened, the balancing nut and the balancing washer ⇒ Item 24 (page 23) must NOT be re-installed.

24 - Balancing washer

- ❑ Only fitted on balanced final drive units

25 - Bolt

- ❑ 50 Nm + 90°
- ❑ Always renew

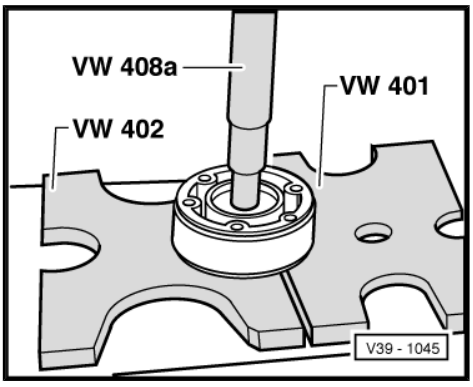
26 - Flexible coupling with vibration damper

- ❑ Installation position ⇒ page 26

27 - Rear final drive

- ❑ Removing and installing ⇒ page 96

Pressing off constant velocity joint

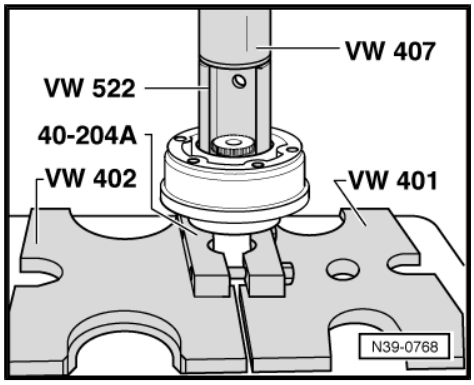


Pressing on constant velocity joint

– Press on carefully.

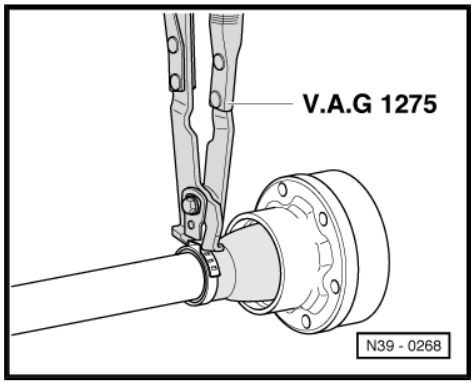
– Tighten tensioner -V.A.G 40-204A- firmly; propshaft must not move out of position in tensioner, as this will cause paint damage.

– If necessary, repair paint damage as follows: remove grease residue with nitro thinner -L 001 600- . Apply 2-component acrylic paint -ALN 769 041- with hardener -ALZ 009 001- .



Tightening clip

Refer to ⇒ Electronic parts catalogue for clip required in the event of a repair.



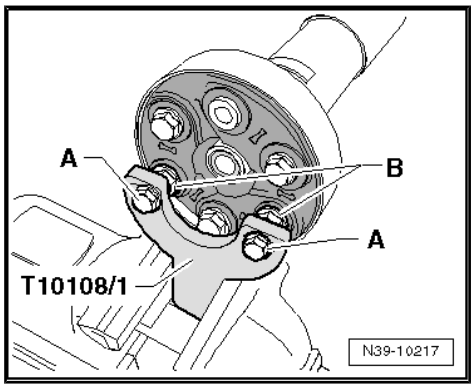
Clamp rear propshaft tube into a vice using support plate - T10108/1- .

– Secure support plate -T10108/1- to flexible coupling of propshaft tube.

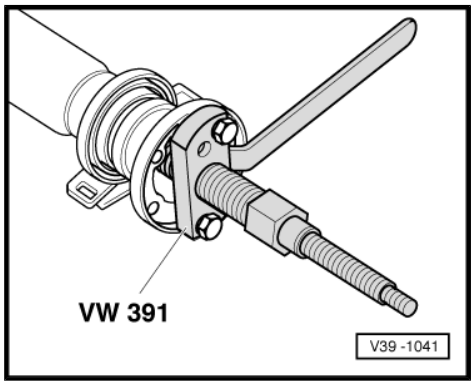
– To do so, fit nuts -B- onto bolts -A- between support plate - T10108/1- and flexible coupling.

A - Bolt M10 x 70 mm with nut

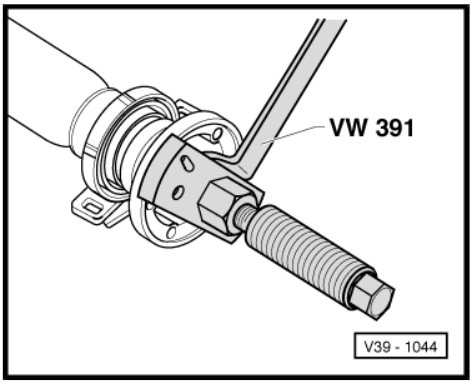
B - M12 nut



Pulling off flange



Pressing on flange



Pulling off centre bearing

– The rubber guide of the centre bearing must be cut and the metal cover removed.

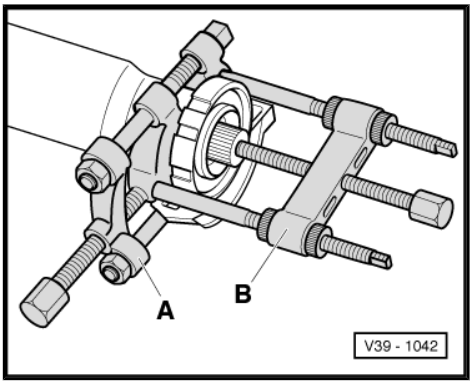
A - Splitter 12...75 mm , e.g. -Kukko 17/1-

B - Puller , e.g. -Kukko 18/0-

– Tighten splitter -A- with straight side of jaws behind centre bearing.

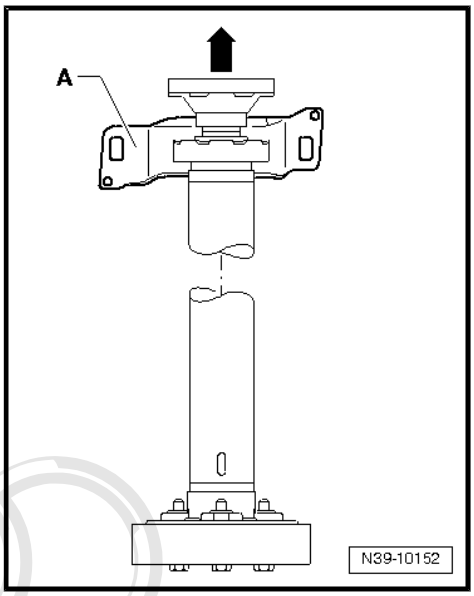
– Then apply two-arm puller -B- to splitter .

– Pull centre bearing off propshaft tube.



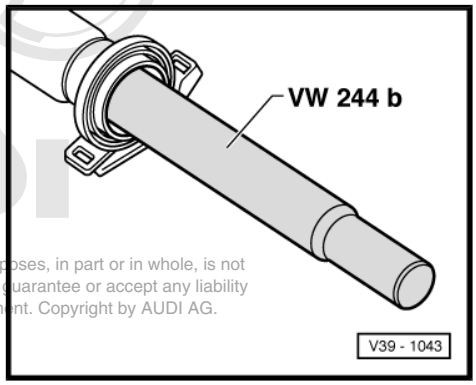
Installation position of centre bearing

The longer shoulder -A- points to left -arrow- (as seen in direction of travel).



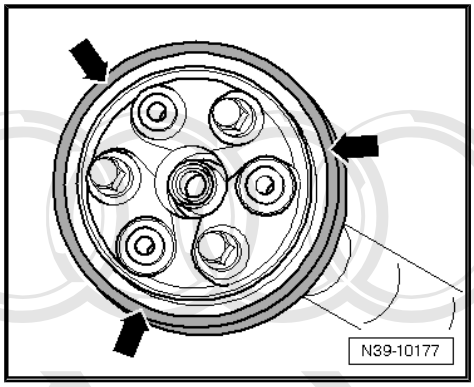
Driving on centre bearing

– Drive on centre bearing until limit stop.



Installation position of flexible coupling with vibration damper

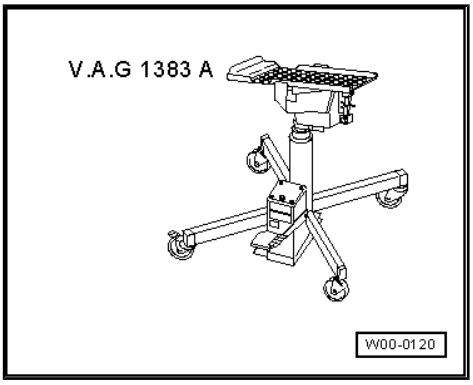
The shoulder on the outer circumference -arrows- must point away from the propshaft tube.



2 Removing propshaft with detachable centre bearing (up to 05.07)

Special tools and workshop equipment required

- Engine/gearbox jack -V.A.G 1383 A- with universal support -V.A.G 1359/2-



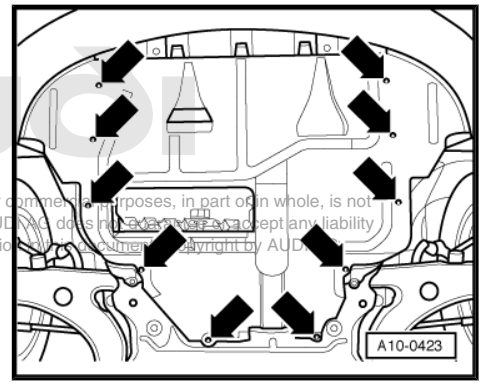
Removing

Note

- *Repairs on the propshaft should be carried out on a two pillar hoist.*
- *Before removing, mark the positions of all parts in relation to each other. Reinstall in the same position to avoid excessive imbalance, resulting in bearing damage and rumbling noise.*
- *Do not bend propshaft; only store and transport fully extended.*

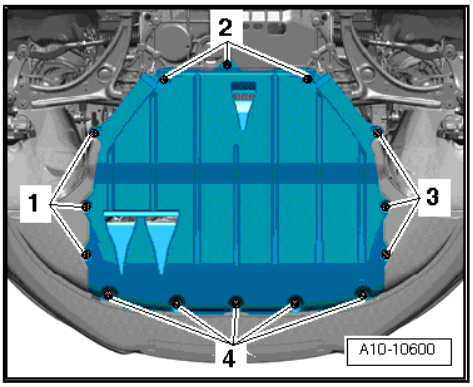
Audi A3

– Remove noise insulation -arrows-.



Audi TT

– Remove centre noise insulation -fasteners 1 ... 4-.

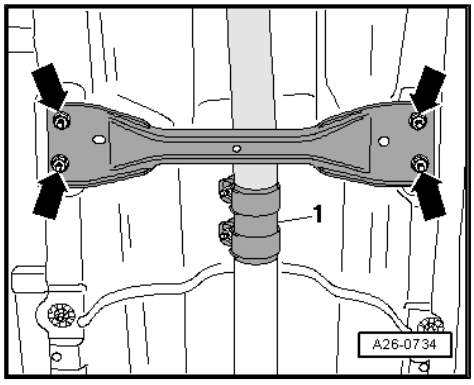


Vehicles with 4-cylinder engine:

– If fitted, remove cross member on underbody -arrows-.

– Disconnect exhaust system at clamp -1-.

– Tie up front exhaust pipe on underbody.



Caution

The flexible joints in the exhaust system can be damaged.

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

– Remove rear section of exhaust system ⇒ Rep. Gr. 26 .

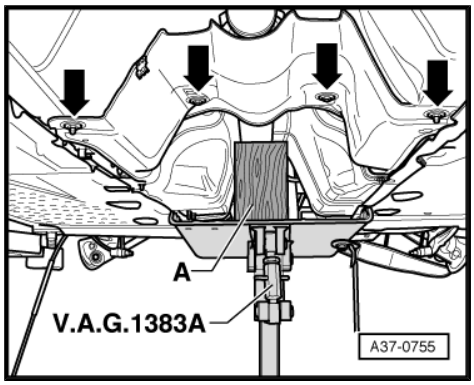
Vehicles with 6-cylinder engine:

– Remove complete exhaust system ⇒ Rep. Gr. 26 .

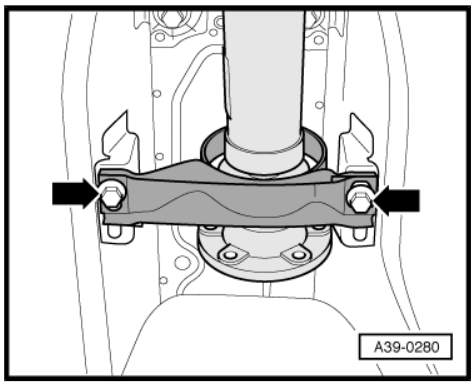
Continued for all vehicles:

– Support propshaft with gearbox jack -V.A.G 1383 A- (use wooden wedge -A- as an aid).

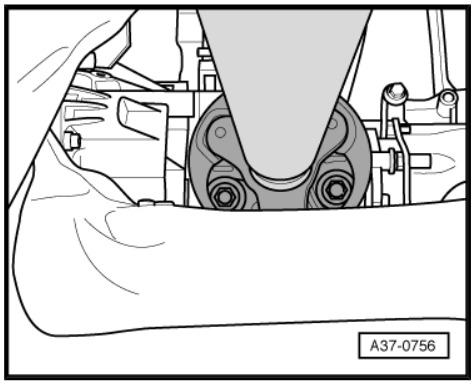
– Then unbolt heat shield -arrows-.



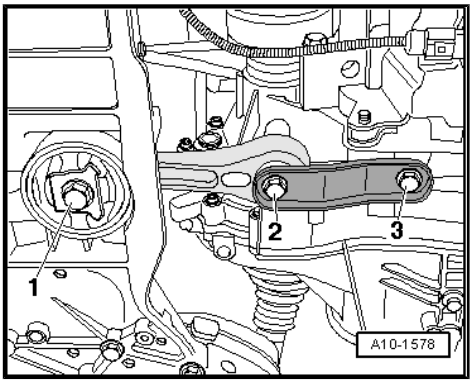
– Fit centre bearing again -arrows- after removing heat shield.



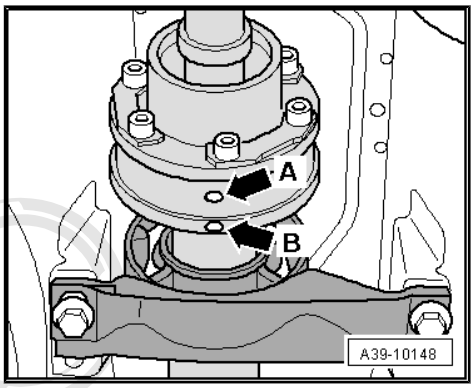
– Unbolt propshaft with flexible coupling from bevel box.



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

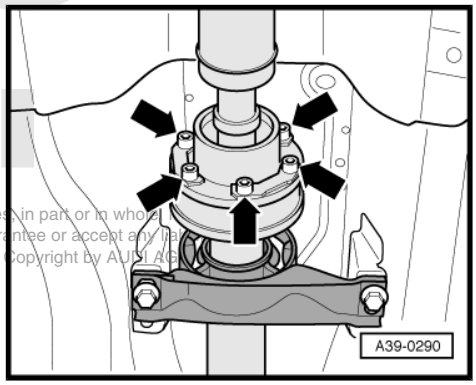


– Check whether there are factory markings on the constant velocity joint/propshaft -arrow A- and -arrow B-. If not, please apply colour markings.



– Disconnect front propshaft tube from rear propshaft tube -arrows-.

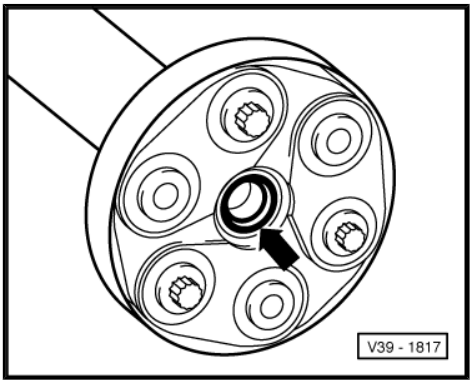
– Push front propshaft tube towards the front and swivel out from flange of rear propshaft tube.



Note

Take care when swivelling out that the front propshaft tube is pushed downwards as little as possible.

– Carefully detach front propshaft tube from centring pin on bevel box.

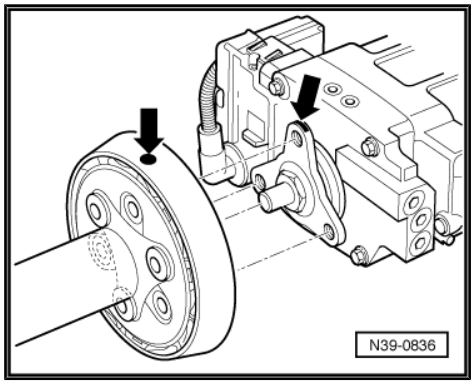


Note

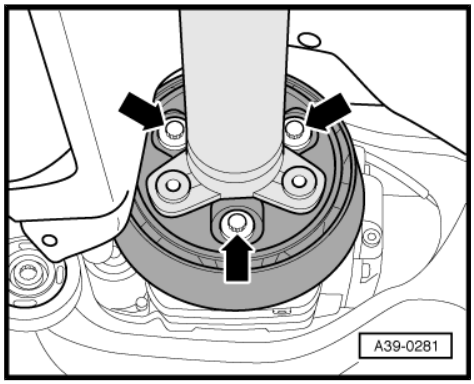
- *The seal -arrow- in the flange of the propshaft must not be damaged.*
- *Pull off propshaft horizontally from guide pin.*

– Swivel front propshaft tube downwards and remove.

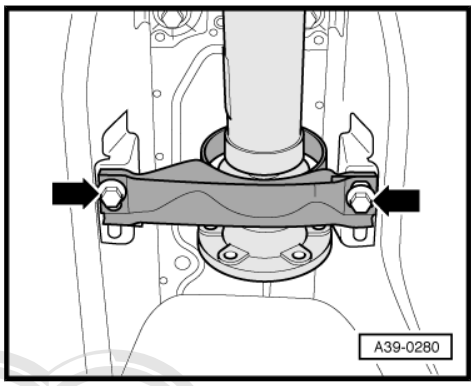
– Check whether there is a factory marking (coloured dot) on the flexible coupling and on the flange for the propshaft on the rear final drive -arrows-.
– If not, mark position of flexible coupling and flange for propshaft on rear final drive in relation to each other -arrows-.



– Unbolt rear propshaft with flexible coupling and vibration damper from rear final drive -arrows-.

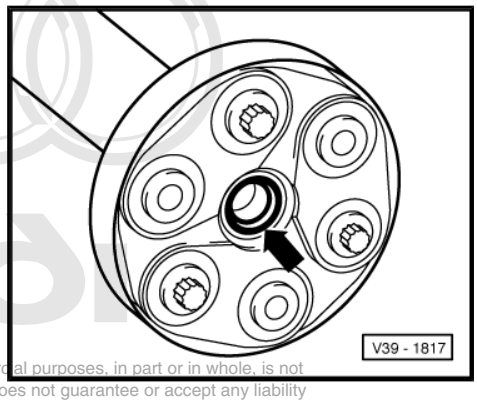


– Unbolt centre bearing for propshaft from vehicle -arrows-.
– Carefully pull rear propshaft tube from centring pin.



Note

- *Do not tilt propshaft when removing; pull off centring pin horizontally. Make sure that the seal in the centring sleeve -arrow- does not become damaged.*
- *The flexible coupling and vibration damper cannot be separated from each other.*

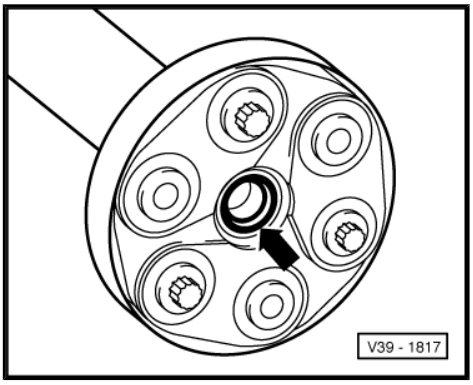


2.1 Installing propshaft with detachable centre bearing (up to 05.07)

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

Note

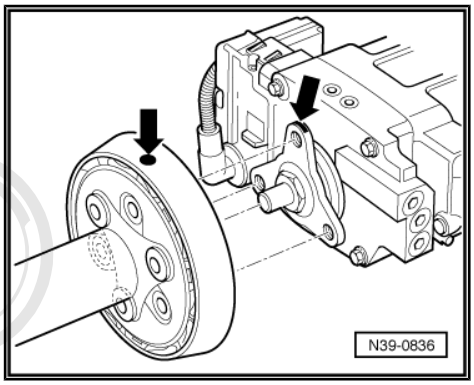
- *All parts of the propshaft marked in relation to each other must be reinstalled in the same position.*
- *The seals -arrow- in flanges of the propshaft must not be damaged when removing and installing. If seals are damaged, the propshaft must be renewed.*
- *Push propshaft horizontally onto the appropriate guide pin.*



Installation position:

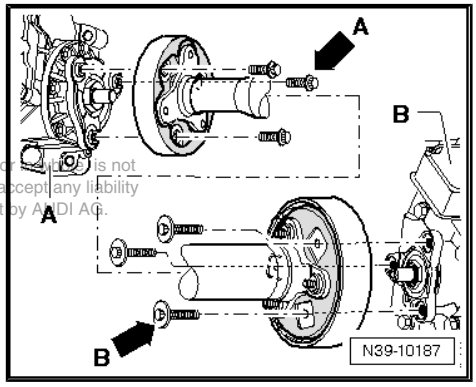
- Three projecting sleeves on the gearbox flange / rear final drive flange and propshaft flange engage in mounting holes of flexible coupling.

– Attach propshaft to rear final drive so that the markings -arrows- align.

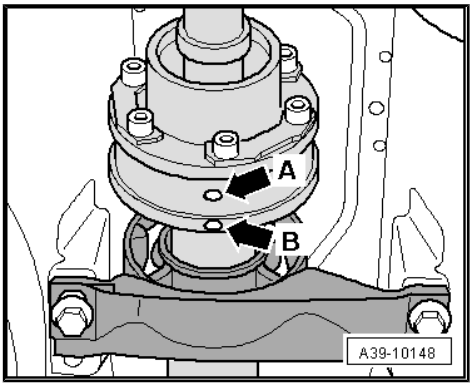


Take note of the correct fitting locations for the various flange bolts.

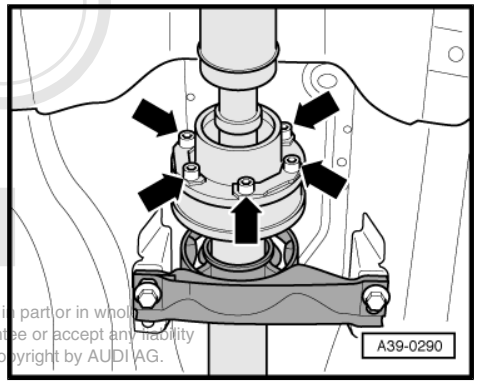
Flange bolt with	Fitting location
small collar -arrow A-	Propshaft to front final drive -A-. Tightening torque ⇒ Item 4 (page 22)
large collar -arrow B-	Propshaft to rear final drive -B-. Tightening torque ⇒ Item 22 (page 23)



Make sure that the markings on the constant velocity joint/propshaft -arrow A- and -arrow B- are in line.



– Secure front propshaft tube to rear propshaft tube -arrows-. Tightening torque ⇒ Item 7 (page 22)

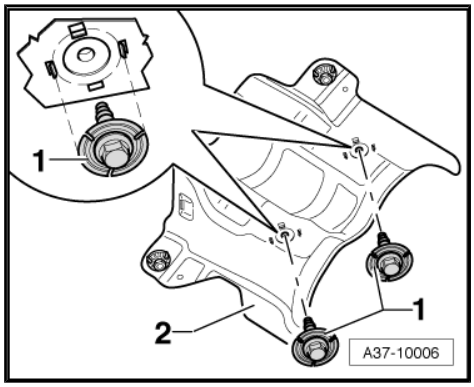


Stress-free installation of centre bearing:

- Make sure that all propshaft bolts have been tightened.

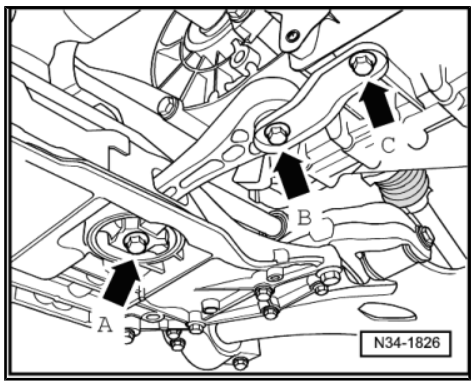
– Position the centre bearing in its elongated holes so that the propshaft and centre bearing are not under stress.

– Tighten bolts with washers -1-. Make sure the bolts with washers -1- are within the four centring tabs on heat shield -2-. Tightening torque ⇒ Item 19 (page 23)



– First secure pendulum support to gearbox -arrows B and C-, then on subframe -arrow A-.

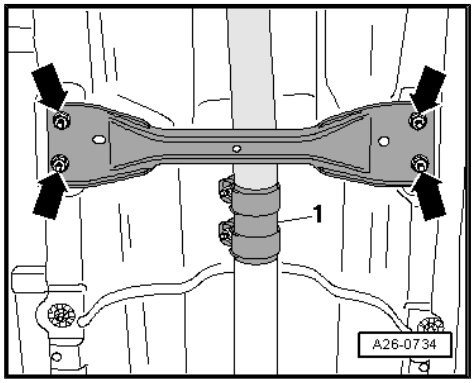
Component		Nm
Pendulum support to:	Gearbox -arrows B and C-	40 Nm + 90° 1)
	Subframe -arrow A-	100 Nm + 90° 1)
1) Renew bolts		



– Install exhaust system and perform stress-free alignment ⇒ Rep. Gr. 26 .

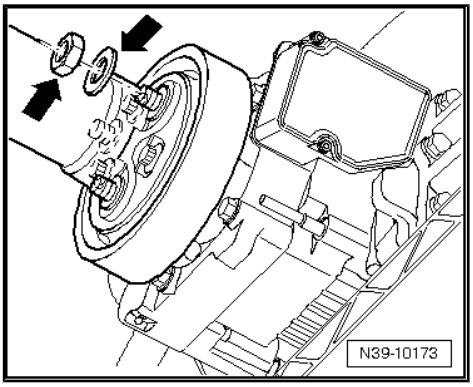
– If fitted, install cross member on underbody -arrows- ⇒ Rep. Gr. 26 .

– Install noise insulation ⇒ Rep. Gr. 66 .



Note

- *If droning noises occur during driving, note the following:*
- *Remove balancing nut and balancing washer -arrows-.*
- *Then, if necessary, unbolt propshaft with flexible coupling from flange for propshaft on rear final drive, rotate one hole further and screw in again.*
- *If the droning noises can still be heard, the propshaft must again be rotated and screwed back on.*



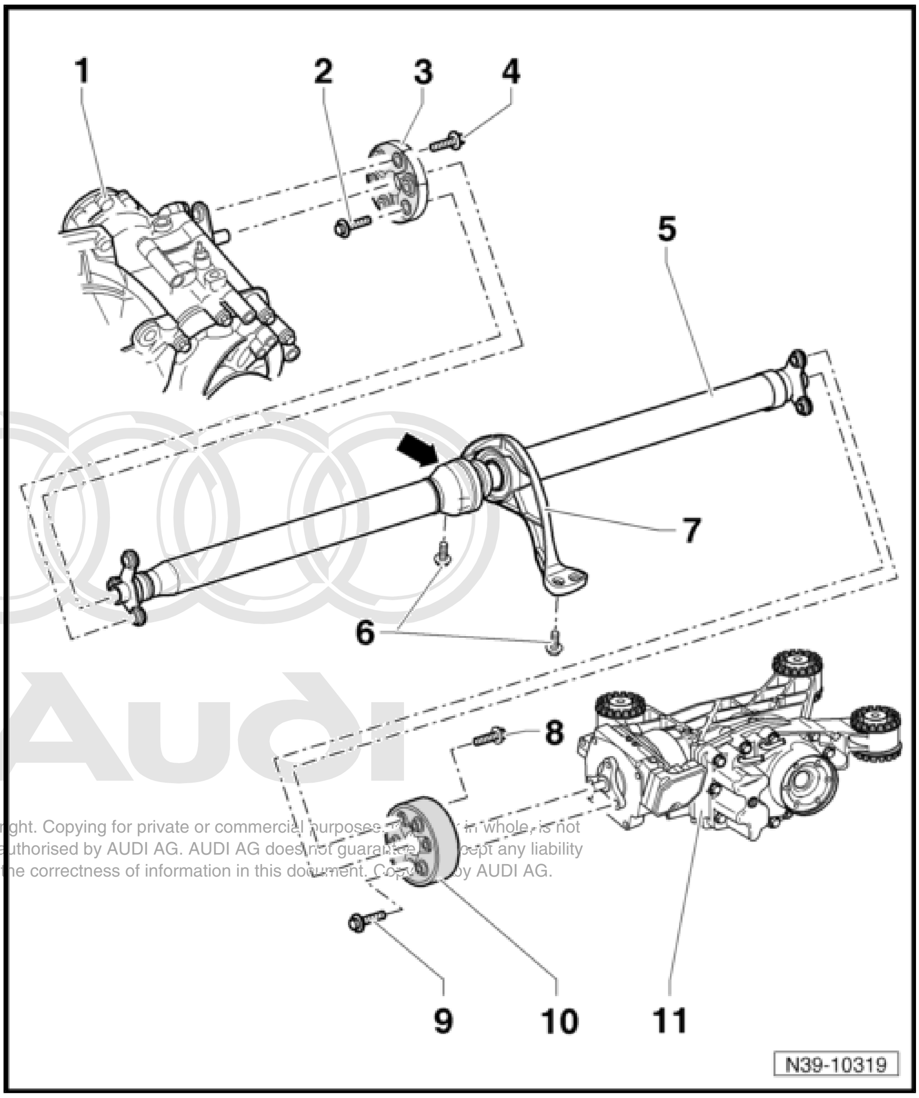
3 Exploded view – propshaft with non-detachable centre bearing (from 05.07 onwards)

The propshaft with non-detachable centre bearing was introduced as follows:

- Audi TT (not TT RS) from vehicle identification number 8J-8-011 001 ▸
- Audi A3 from model year 2008 onwards, vehicle identification number 8P-8-000 001 ▸

Note

- *No repairs can be performed on the propshaft.*
- *The front propshaft tube cannot be separated from the rear propshaft tube.*



1 - Gearbox with bevel box

2 - Bolt

- ❑ 50 Nm + 90°
- ❑ Secures front flexible coupling to propshaft
- ❑ Always renew

3 - Flexible coupling (front)

- ❑ Installation position: open side of heat shield points towards gearbox

4 - Bolt

- ❑ 60 Nm
- ❑ Secures flexible coupling to bevel box

5 - Propshaft

- ❑ Cannot be separated at centre joint -arrow-
- ❑ Removing and installing ⇒ page 35

6 - Bolt

- ❑ 25 Nm

7 - Centre bearing

- ❑ Align so that components are free of stress

8 - Bolt

- ❑ 50 Nm + 90°
- ❑ Secures rear flexible coupling to propshaft
- ❑ Always renew

9 - Bolt

- ❑ 60 Nm
- ❑ Secures flexible coupling to final drive

10 - Flexible coupling with vibration damper

- ❑ Heat shield faces towards propshaft

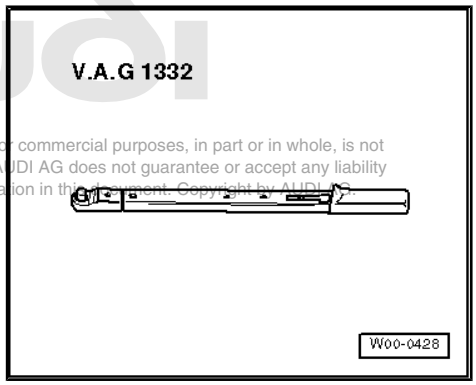
11 - Rear final drive

- ❑ Removing and installing ⇒ page 96

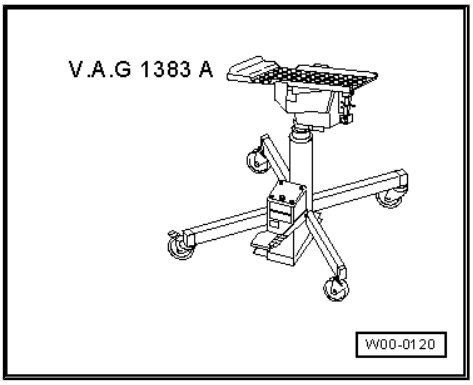
3.1 Removing propshaft with non-detachable centre bearing (from 05.07 onwards)

Special tools and workshop equipment required

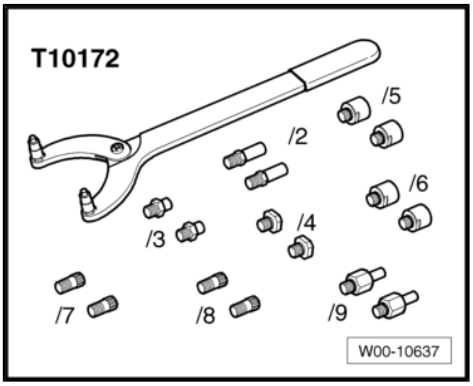
- ♦ Torque wrench -V.A.G 1332-



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



Counterhold tool -T10172- with adapters -T10172/5-



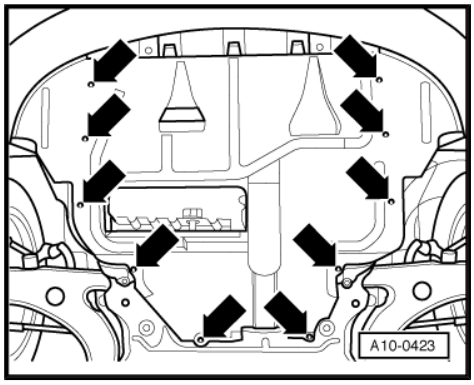
Removing

Note

- ♦ *Repairs on the propshaft should preferably be carried out on a two-pillar hoist.*
- ♦ *Before removing, mark the positions of all parts in relation to each other. Reinstall in the same position to avoid excessive imbalance, resulting in bearing damage and rumbling noise.*
- ♦ *Do not bend propshaft; only store and transport fully extended.*
- ♦ *Always support the propshaft during removal; it must not be allowed to "hang down" from one of the joints.*
- ♦ *Always keep the propshaft horizontal while pulling it off or fitting it on the joint flange.*

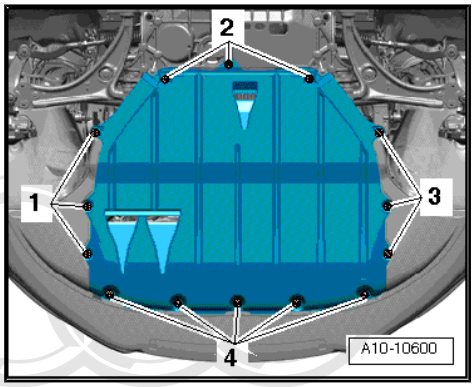
Audi A3

– Remove noise insulation -arrows-.



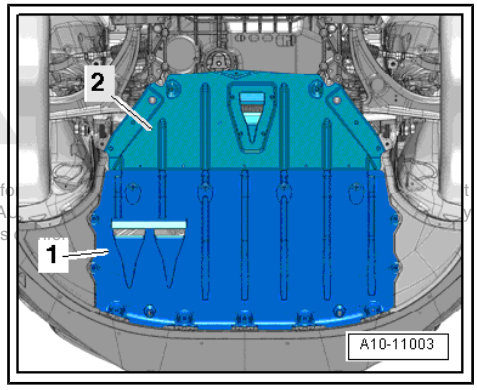
Audi TT

– Remove centre noise insulation -fasteners 1 ... 4-.



Audi TTS

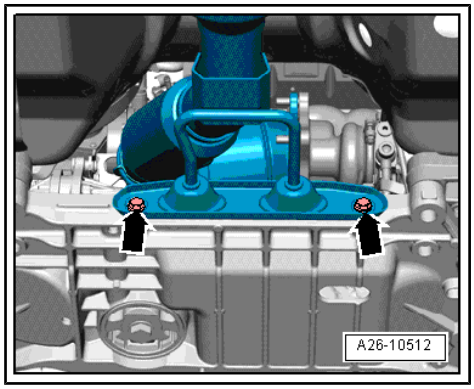
– Remove front noise insulation -1- and -2- ⇒ Rep. Gr. 66 .



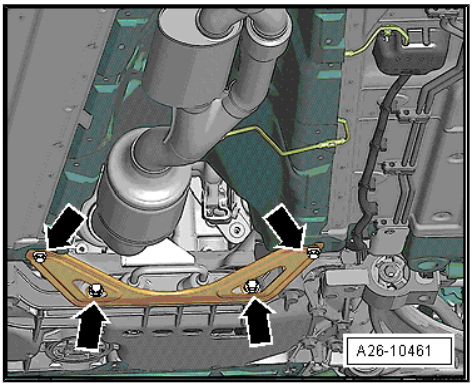
Vehicles with 4-cylinder engine:

– Unbolt bracket for exhaust system -arrows-.

TT Roadster with 4-cylinder engine:

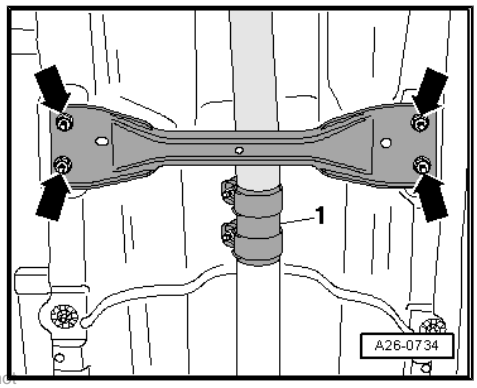


– Unscrew bolts -arrows- and detach cross piece.



All vehicles with 4-cylinder engine:

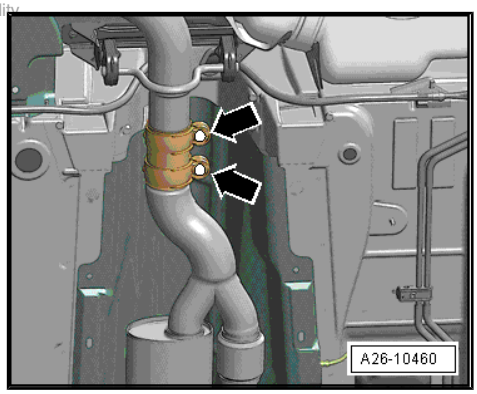
– If fitted, remove cross member on underbody -arrows-.



Caution

The flexible joints in the exhaust system can be damaged.

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



– Disconnect exhaust system at clamp -arrows-.

– Tie up front exhaust pipe on underbody.

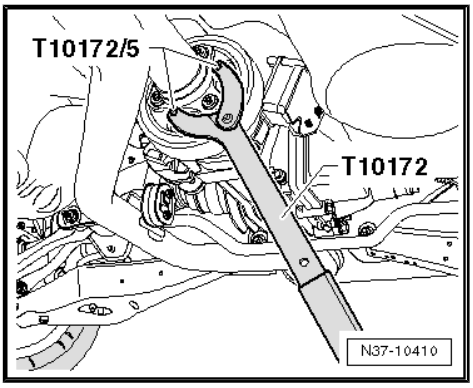
– Remove rear section of exhaust system ⇒ Rep. Gr. 26 .

Vehicles with 6-cylinder engine:

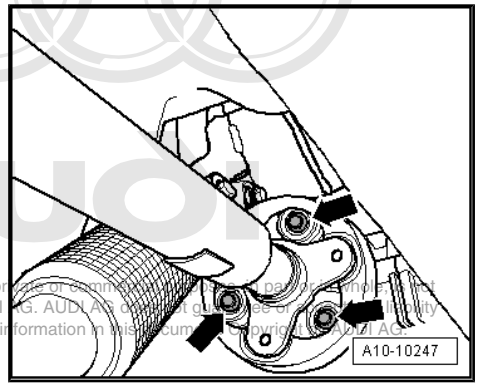
– Remove complete exhaust system ⇒ Rep. Gr. 26 .

Continued for all vehicles:

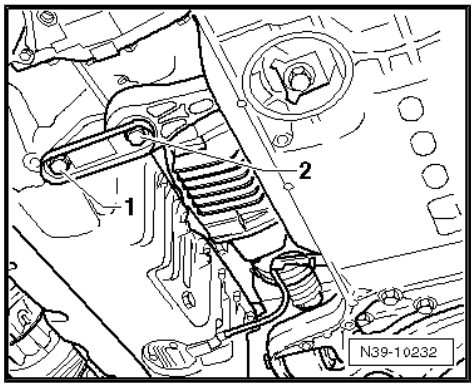
– When loosening and tightening propshaft bolts, counterhold at rear final drive using counterhold tool -T10172- and adapters -T10172/5- .



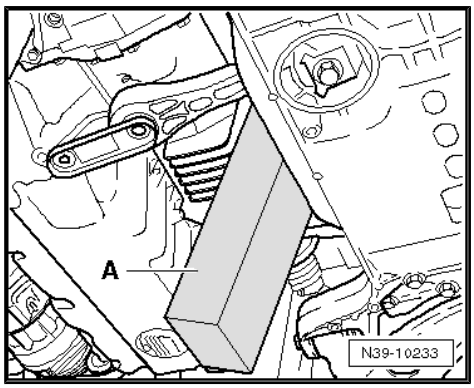
– Unbolt propshaft from bevel box -arrows-.



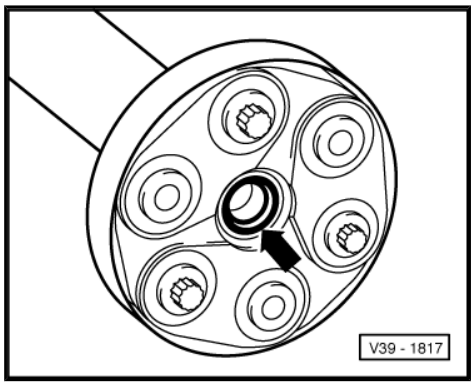
– Remove bolts -1- and -2- for pendulum support.



– Push engine/gearbox assembly forwards and secure in position with a suitable block of wood -A-.



– During this step, carefully detach propshaft tube from centring pin on bevel box.



Note

- *The seal -arrow- in the flange of the propshaft must not be damaged.*
- *Pull off propshaft horizontally from guide pin.*

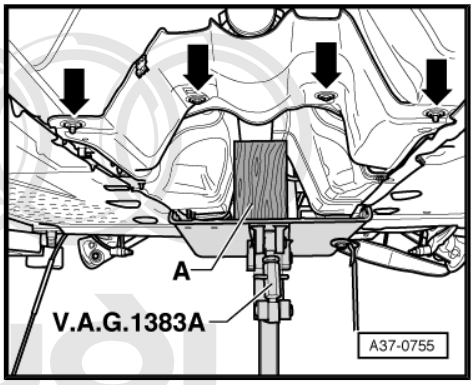
– Support rear section of propshaft using engine and gearbox jack -V.A.G 1383 A- .

A - Wooden block

– Secure propshaft against falling using belt from universal gearbox support -V.A.G 1359/2- .

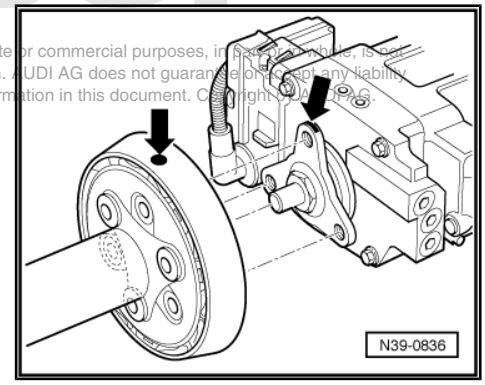
– Unscrew bolts securing centre bearing and heat shield -arrows-.

– Detach heat shield.



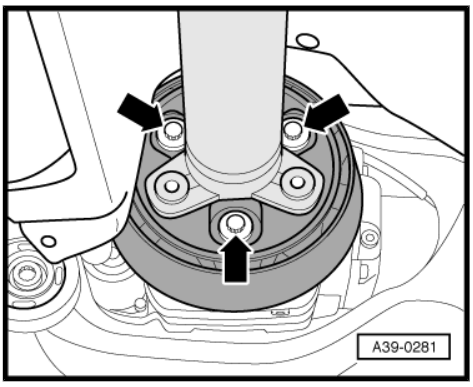
– Check whether there is a factory marking (coloured dot) on the flexible coupling and on the flange for the propshaft on the rear final drive -arrows-.

– If not, mark position of flexible coupling and flange for propshaft on rear final drive in relation to each other -arrows-.

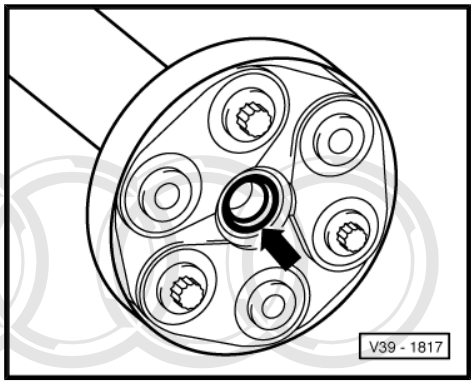


– Remove bolts -arrows- securing propshaft to rear final drive.

– Pull propshaft off rear final drive and lay it on engine and gearbox jack -V.A.G 1383 A- .



– Always make sure that you do not damage the bush -arrow- when pulling off and refitting the propshaft.



Note

Do not tilt propshaft when removing; pull off centring pin horizontally. Make sure that the seal in the centring sleeve -arrow- does not become damaged.

WARNING

To avoid damaging the protective sleeve in the centre bearing, keep the propshaft as straight as possible during removal, installation and storage.

Note

A second mechanic is required for the next steps when removing the propshaft.

– Take out the propshaft towards the rear, keeping it as straight as possible.

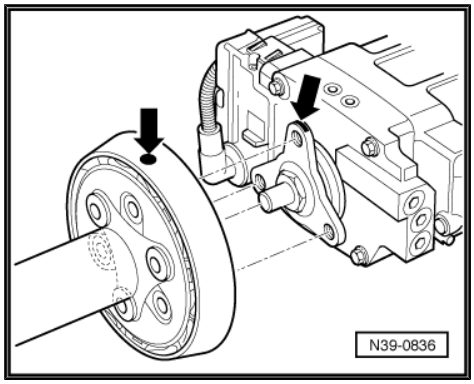
3.2 Installing propshaft with non-detachable centre bearing (from 05.07 onwards)

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

– Install all parts in the same relative positions, as marked before removal.

– Attach propshaft to rear final drive so that the markings -arrows- align.

– Tighten bolts securing propshaft. Tightening torques ⇒ Item 4 (page 34) and ⇒ Item 9 (page 34) .

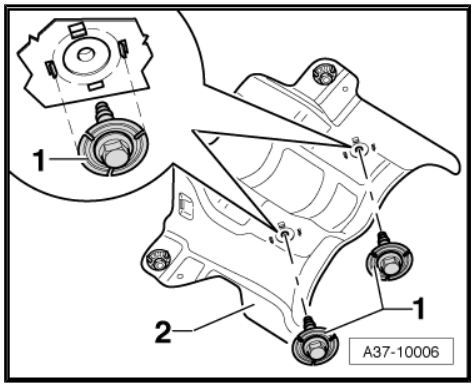


Stress-free installation of centre bearing:

• Make sure that all propshaft bolts have been tightened.

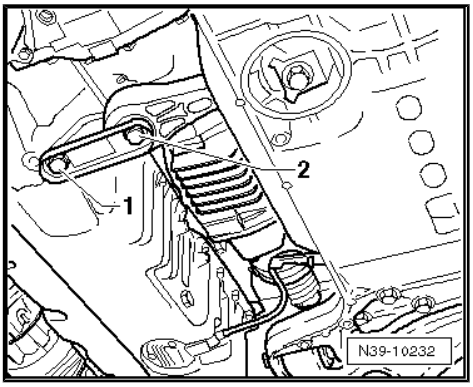
– Position the centre bearing in its elongated holes so that the propshaft and centre bearing are not under stress.

– Tighten bolts with washers -1-. Make sure the bolts with washers -1- are within the centring tabs on heat shield -2-. Tightening torque ⇒ Item 6 (page 34)

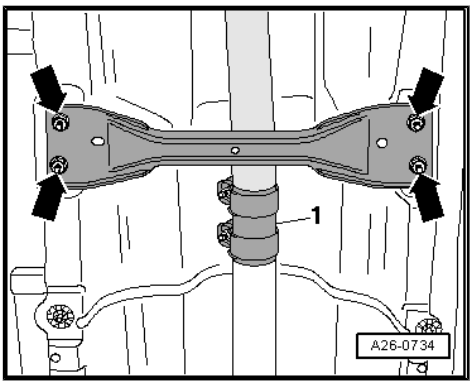


– Secure pendulum support with new bolts. Tightening torques ⇒ Running gear; Rep. Gr. 40 .

Component		Nm
Pendulum support to:	Gearbox -1-	40 Nm + 90° 1)
	Gearbox -2-	40 Nm + 90° 1)
1) Renew bolts		



– Install exhaust system ⇒ Rep. Gr. 26 .
– If fitted, install cross member on underbody -arrows- ⇒ Rep. Gr. 26 .
– Install noise insulation ⇒ Rep. Gr. 66 .



4 Exploded view - propshaft (Audi TT RS)

Note

No repairs can be performed on the propshaft.

1 - Gearbox with bevel box

2 - Bolt
- ❑ 60 Nm
- ❑ Secures propshaft to bevel box

3 - Propshaft
- ❑ Cannot be separated at centre joint -arrow-
- ❑ Removing and installing ⇒ page 35

4 - Bolt
- ❑ 25 Nm

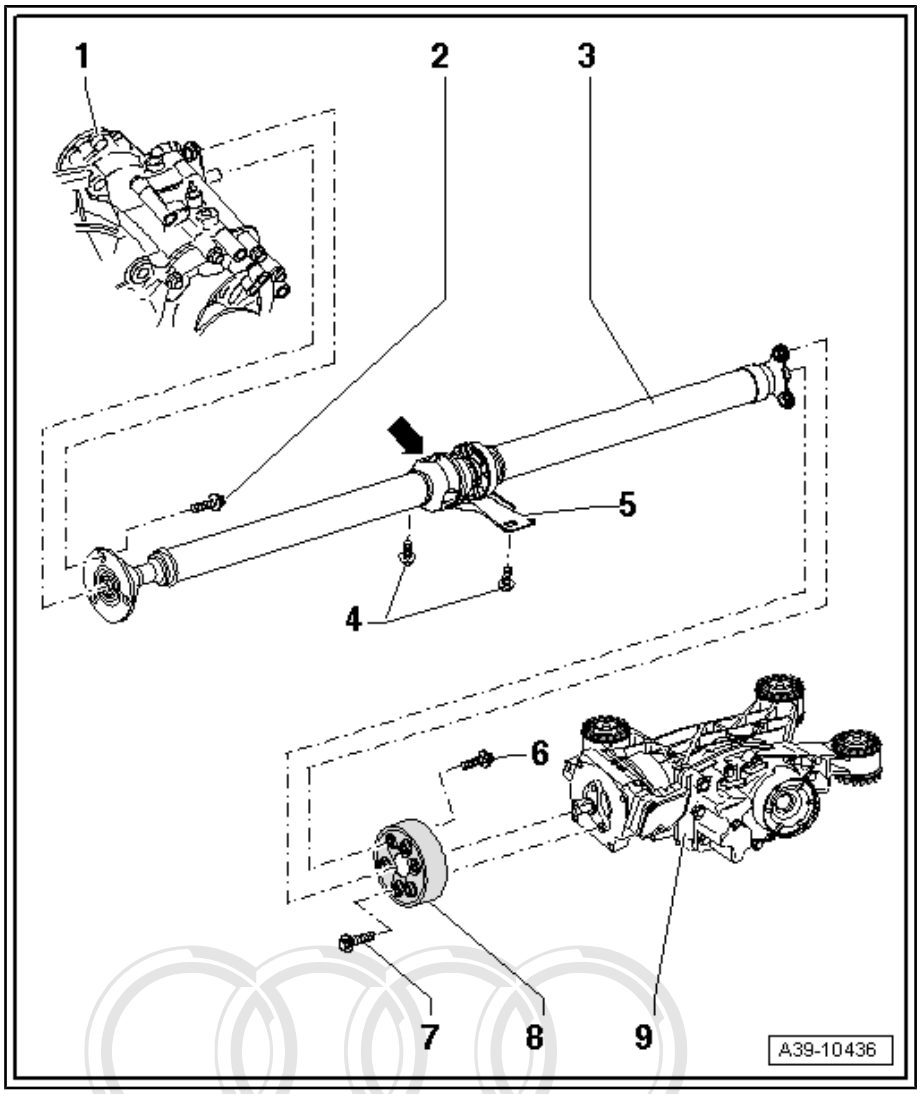
5 - Centre bearing
- ❑ Align so that components are free of stress

6 - Bolt
- ❑ 50 Nm + 90°
- ❑ Secures rear flexible coupling to propshaft
- ❑ Always renew

7 - Bolt
- ❑ 60 Nm
- ❑ Secures flexible coupling to final drive

8 - Flexible coupling with vibration damper
- ❑ Heat shield faces towards propshaft

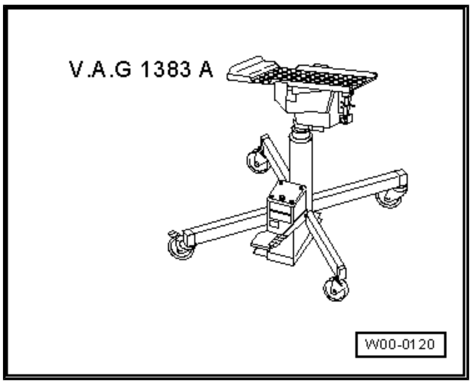
9 - Rear final drive
- ❑ Removing and installing ⇒ page 103



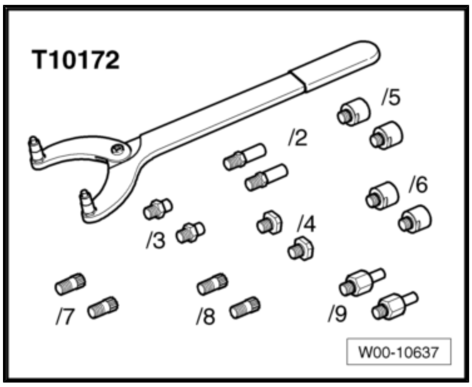
4.1 Removing and installing propshaft (Audi TT RS)

Special tools and workshop equipment required

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



- Counterhold tool -T10172- with adapters -T10172/5-

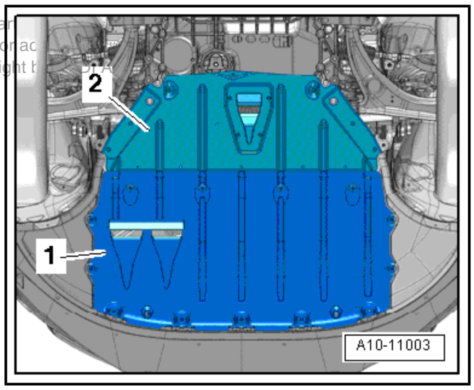


Removing

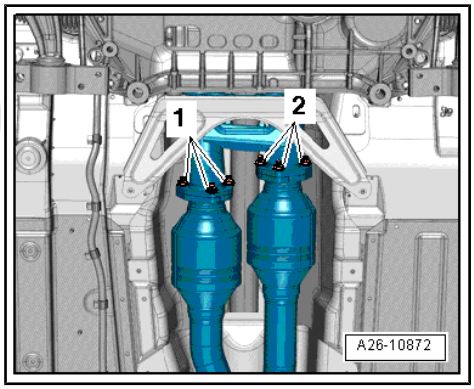
Note

- *Repairs on the propshaft should preferably be carried out on a two-pillar hoist.*
- *Before removing, mark the positions of all parts in relation to each other. Reinstall in the same position to avoid excessive imbalance, resulting in bearing damage and rumbling noise.*
- *Do not bend propshaft; only store and transport fully extended.*
- *Always support the propshaft during removal; it must not be suspended from one of the joints.*
- *Always keep the propshaft horizontal while pulling it off or fitting it on the joint flange.*

– Remove noise insulation panels -1- and -2- ⇒ Rep. Gr. 66 .

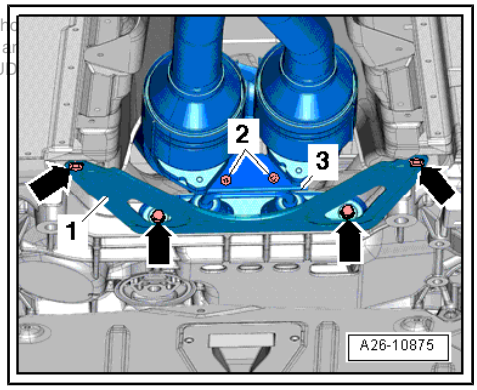


– Remove catalytic converters ⇒ Rep. Gr. 26 .



– Remove bolts -arrows- and detach cross piece -1-.

– Unscrew bolts -2- and detach bracket -3-.



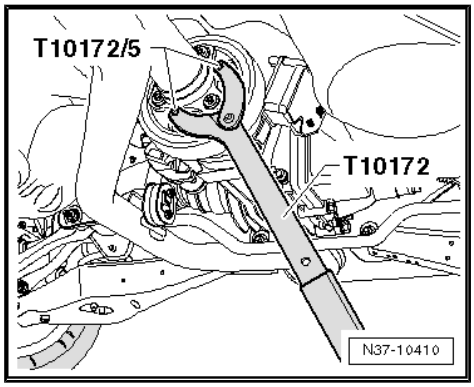
Caution

The flexible joint in the starter catalytic converter can be damaged.

- *The flexible joint must not be bent further than 10°.*

– Remove rear section of exhaust system ⇒ Rep. Gr. 26 .

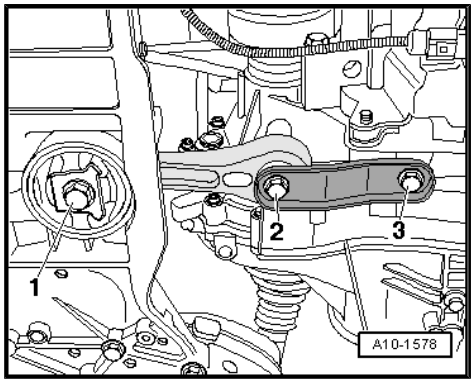
– When loosening and tightening propshaft bolts, counterhold at rear final drive using counterhold tool -T10172- and adapters -T10172/5- .



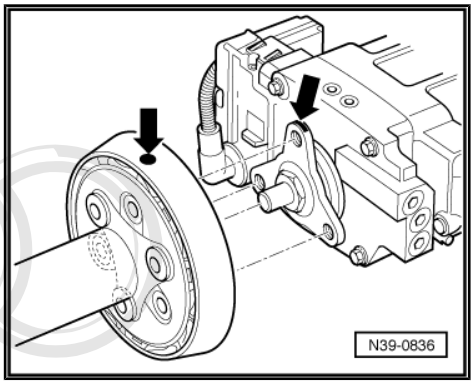
– Remove bolts -2, 3- for pendulum support.

Note

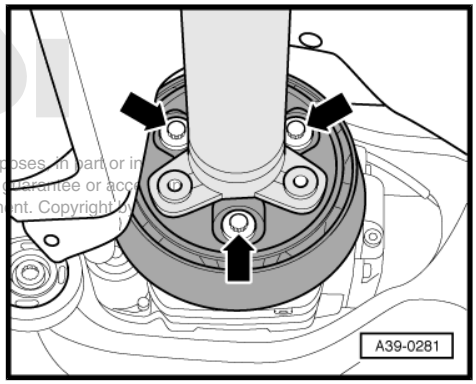
-Item 1- can be disregarded.



– Check whether there is a factory marking (paint dot) on the flexible coupling and on the flange for the propshaft on the rear final drive -arrows-.
– If there is no marking, mark position of flexible coupling relative to flange for propshaft on rear final drive.



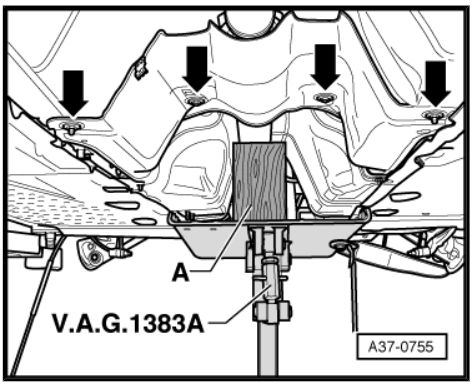
– Remove bolts -arrows- securing propshaft to rear final drive, counterholding with counterhold tool -T10172- .



– Remove bolts -arrows- securing centre bearing and heat shield, detach heat shield.

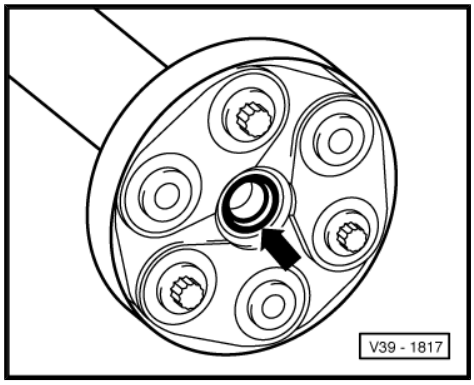
Note

-Item A- and -V.A.G 1383 A- can be disregarded.



Note

A 2nd mechanic is required for the next steps when removing the propshaft.



Caution

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

- ***The propshaft must be pulled away from the guide pin horizontally.***

Note

If seal is damaged propshaft must be renewed.

– First pull propshaft tube off centring pin on rear final drive, then pull carefully off centring pin on bevel box.

Caution

Risk of damage to protective sleeve in centre propshaft bearing.

- ***The propshaft should be kept as straight as possible during removal and installation and when it is stored.***

Installing

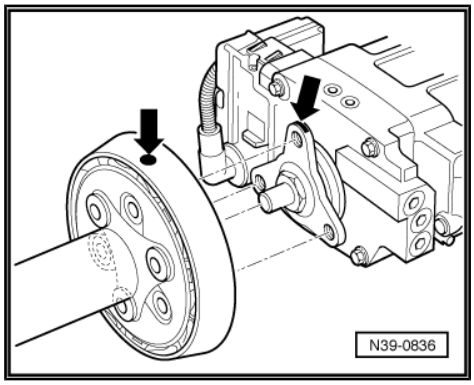
Installation is carried out in reverse sequence; note the following:

- Tightening torques ⇒ page 42

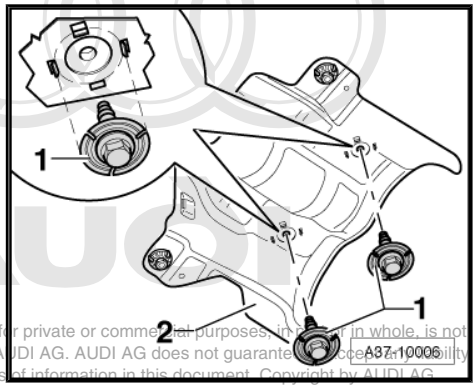
Note

Install all parts in the same relative positions, as marked before removal.

– Attach propshaft to rear final drive so that the markings -arrows- align.



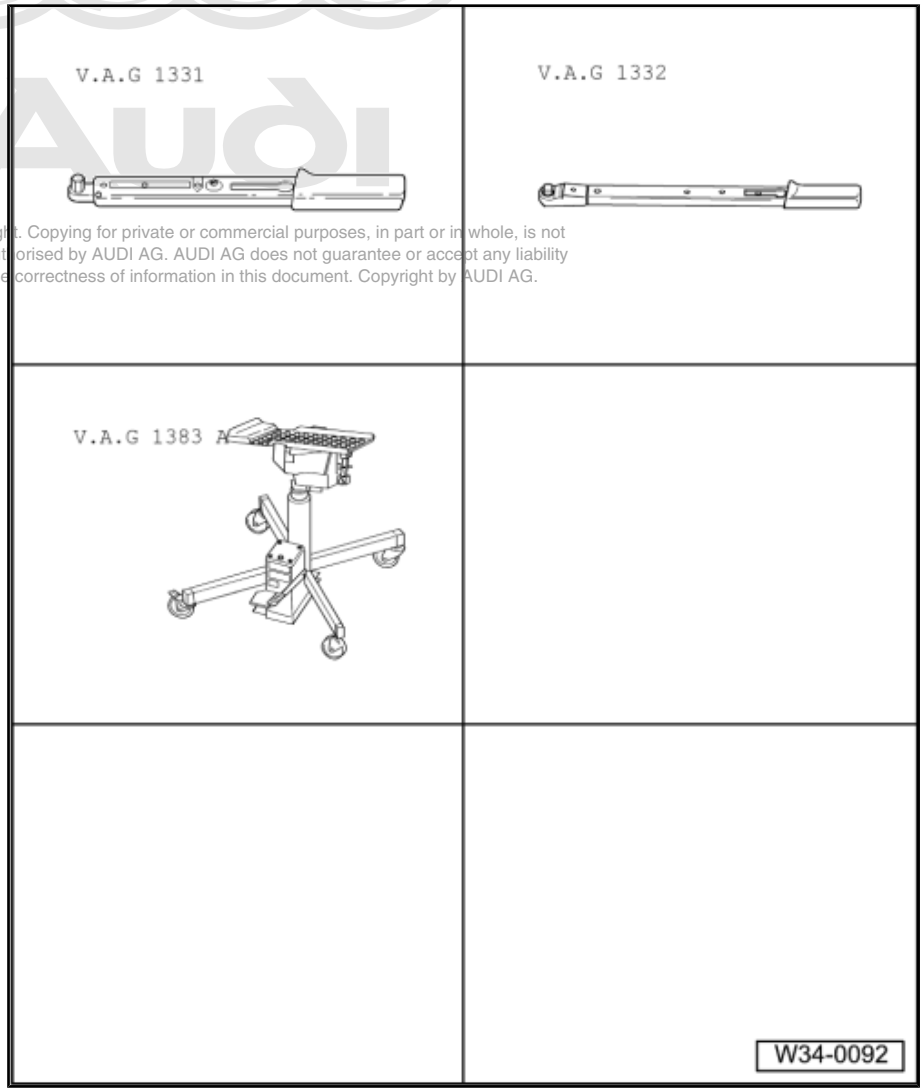
– Fit bolts -1- for centre bearing, but do not yet tighten.
– Tighten bolts securing propshaft flexible couplings to bevel box and rear final drive.
– Align centre bearing within elongated holes so that neither propshaft nor centre bearing are under stress.
– Tighten bolts -1-.
• The bolts must be located inside the centring tabs on the heat shield.
– Install pendulum support ⇒ Rep. Gr. 34
– Install catalytic converters and cross piece ⇒ Rep. Gr. 26 .
– Install noise insulation ⇒ Rep. Gr. 66 .



5 Removing and installing flexible coupling (rear)

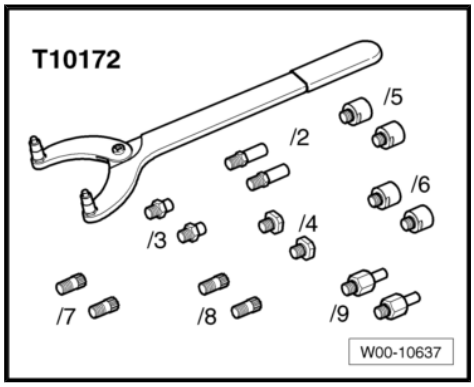
Special tools and workshop equipment required

- Torque wrench -V.A.G 1331-
- Torque wrench -V.A.G 1332-
- Engine and gearbox jack - V.A.G 1383 A- with universal gearbox support - V.A.G 1359/2-



Special tools and workshop equipment required

- Counterhold tool -T10172- with adapters -T10172/5-

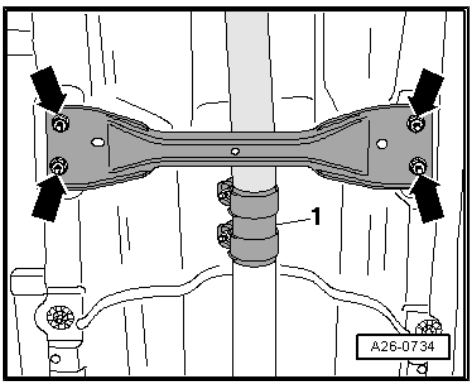


Removing

Note

- *Repairs on the propshaft should be carried out on a two pillar hoist.*
- *Before removing, mark the positions of all parts in relation to each other. Reinstall in the same position to avoid excessive imbalance, resulting in bearing damage and rumbling noise.*
- *Do not bend propshaft; only store and transport fully extended.*

– If fitted, remove cross member on underbody -arrows-.



Caution

The flexible joints in the exhaust system can be damaged.

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

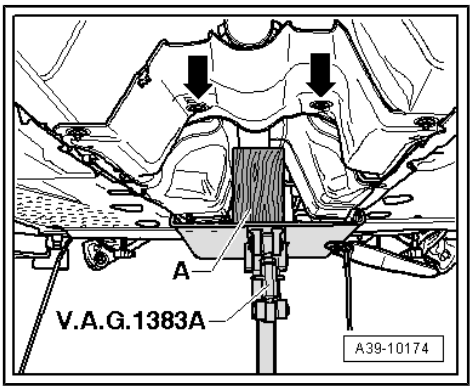
– Disconnect exhaust system at clamp -1-.

– Tie up front exhaust pipe on underbody.

– Remove rear section of exhaust system ⇒ Rep. Gr. 26 .

– Loosen bolts -arrows- on centre bearing of propshaft approx. 2 turns.

– Take up weight of propshaft at rear propshaft tube using engine and gearbox jack -V.A.G 1383 A- .

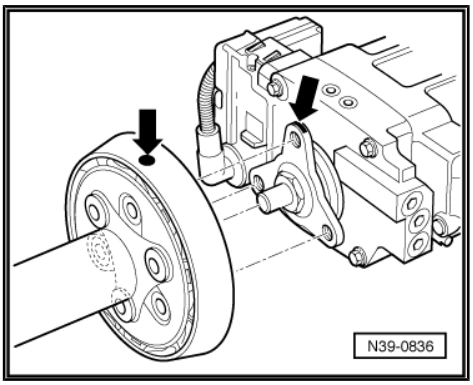


A - Wooden block

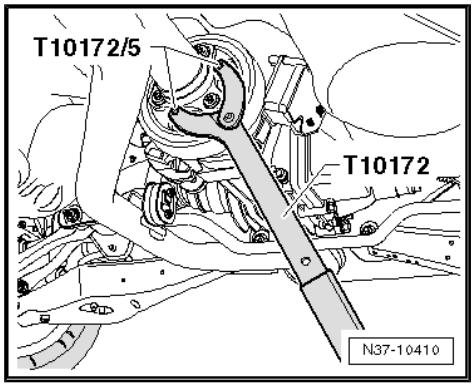
– Secure propshaft against falling using belt from universal gearbox support -V.A.G 1359/2- .

– Check whether there is a factory marking (coloured dot) on the flexible coupling and on the flange for the propshaft on the rear final drive -arrows-.

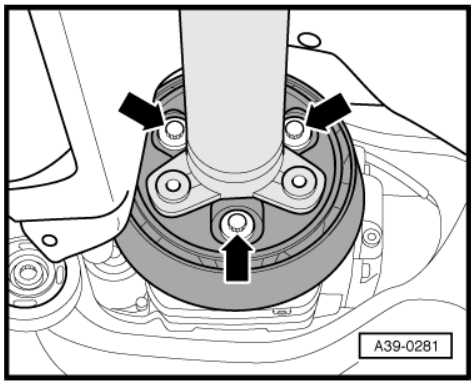
– If not, mark position of flexible coupling and flange for propshaft on rear final drive in relation to each other -arrows-.



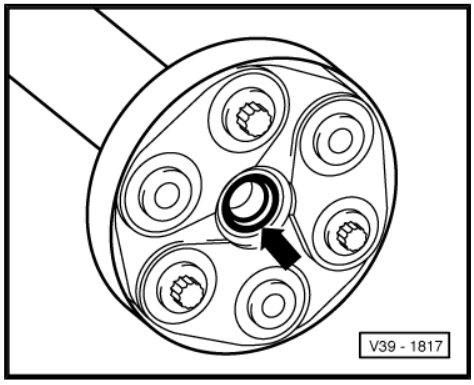
– When loosening and tightening propshaft bolts, counterhold at rear final drive using counterhold tool -T10172- and adapters -T10172/5- .



– Unbolt rear propshaft tube with flexible coupling and vibration damper from final drive -arrows-.



– Carefully detach rear propshaft tube from centring pin of propshaft flange on rear final drive.

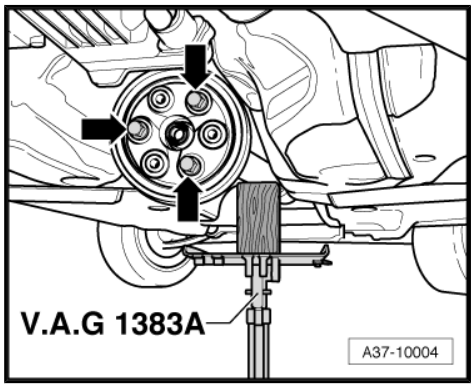


Note

- *Do not tilt propshaft when removing; pull off centring pin horizontally. Make sure that the seal in the centring sleeve -arrow- does not become damaged.*
- *The flexible coupling and vibration damper cannot be separated from each other.*

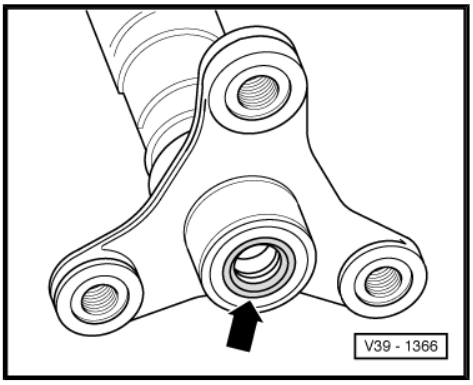
– Mark position of flexible coupling (rear) and flange of rear propshaft tube in relation to each other.

– Unbolt flexible coupling from propshaft tube -arrows-.



Installing

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

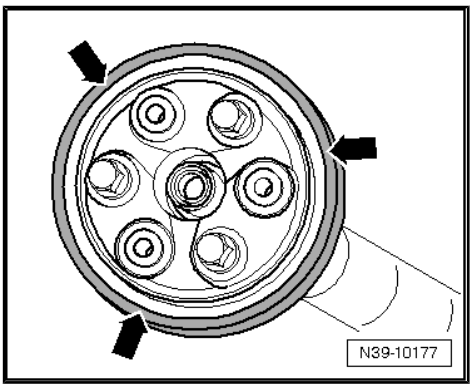


Note

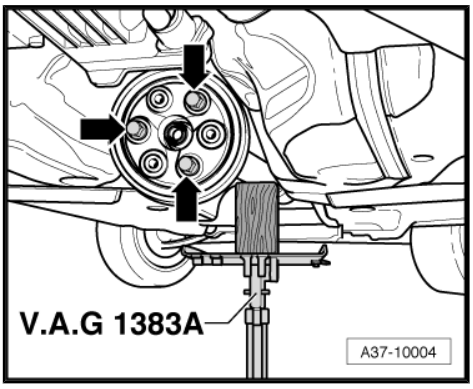
- *The seals in flanges of the propshaft -arrow- must not be damaged when removing and installing.*
- *Renew propshaft if damaged.*
- *Do not tilt rear propshaft tube; push on horizontally onto centring pin.*
- *All parts of the propshaft marked in relation to each other must be reinstalled in the same position.*

Installation position of flexible coupling with vibration damper:

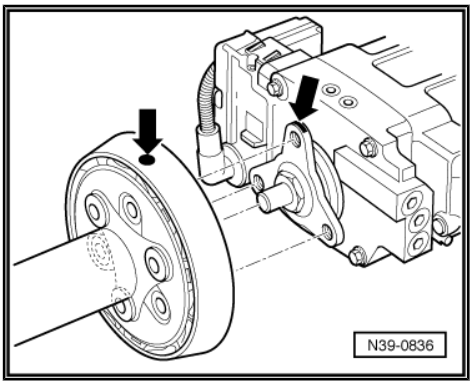
- The shoulder on the outer circumference -arrows- must point away from the propshaft tube.
- Three projecting sleeves on the flange for propshaft on rear final drive and propshaft flange engage in mounting holes of flexible coupling.



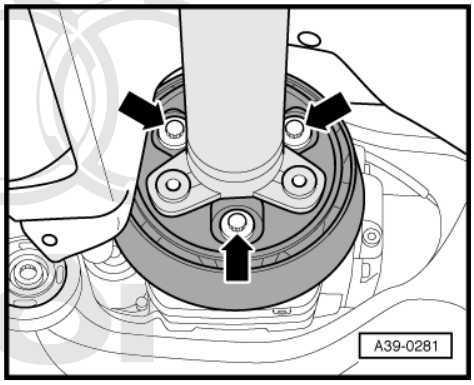
– Secure flexible coupling to propshaft tube -arrows-. Tightening torque ⇒ Item 25 (page 23)



– Attach propshaft to rear final drive so that the markings -arrows- align.



– Secure propshaft with flexible coupling to rear final drive -arrows-. Tightening torque ⇒ Item 22 (page 23)

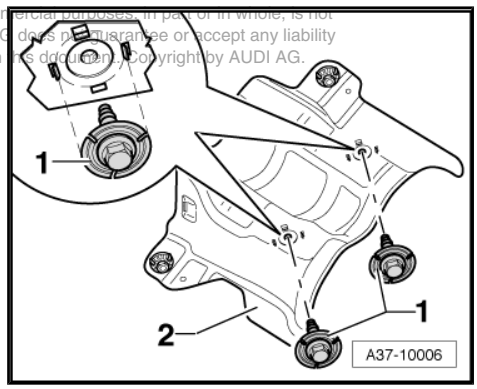


Stress-free installation of centre bearing:

- Make sure that all propshaft bolts have been tightened.

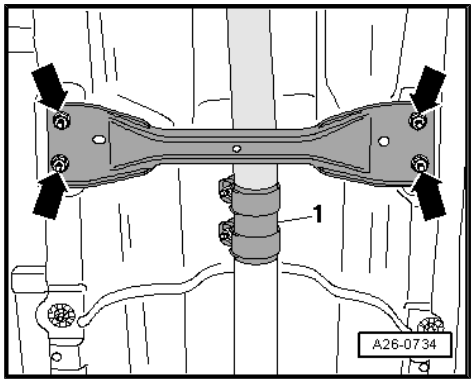
– Position the centre bearing in its elongated holes so that the propshaft and centre bearing are not under stress.

– Tighten bolts with washers -1-. Make sure the bolts with washers -1- are within the four centring tabs on heat shield -2-. Tightening torque ⇒ Item 19 (page 23)



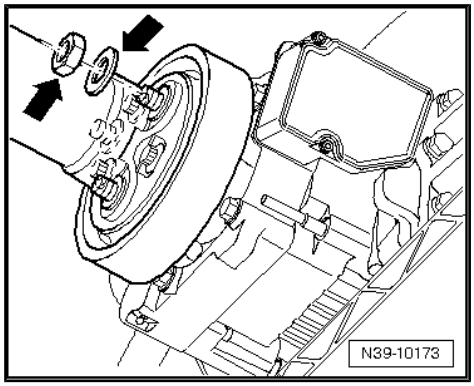
– Install exhaust system and perform stress-free alignment ⇒ Rep. Gr. 26 .

– If fitted, install cross member on underbody -arrows- ⇒ Rep. Gr. 26 .



Note

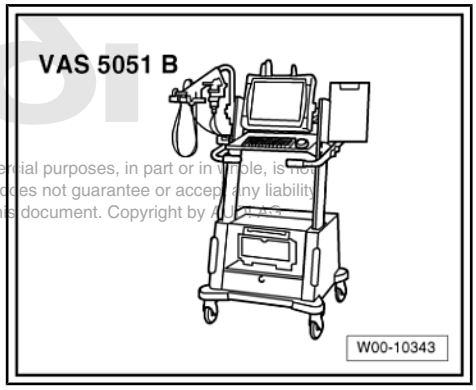
- *If droning noises occur during driving, note the following:*
- *Remove balancing nut and balancing washer -arrows-.*
- *Then, if necessary, unbolt propshaft with flexible coupling from flange for propshaft on rear final drive, rotate one hole further and screw in again.*
- *If the droning noises can still be heard, the propshaft must again be rotated and screwed back on.*



6 Connecting vehicle diagnostic, testing and information system -VAS 5051B- and checking system

Special tools and workshop equipment required

- Vehicle diagnostic, testing and information system -VAS 5051B- or vehicle diagnosis and service information system -VAS 5052-

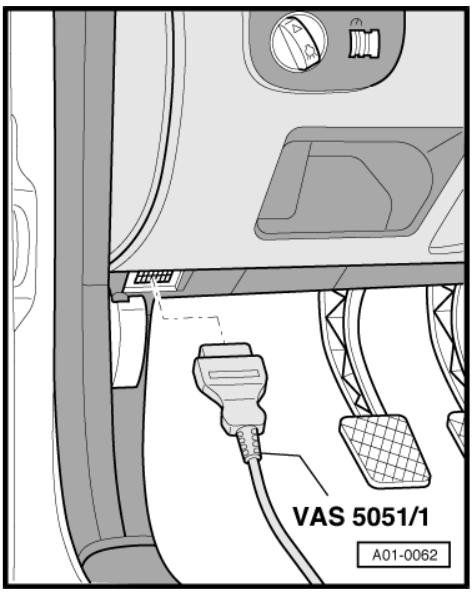


- Diagnostic cable, 5 m -VAS 5051B/1- or diagnostic cable, 3 m -VAS 5051B/2-

WARNING

To avoid any risk of accident, observe the ⇒ "6 Safety precautions", page 16 when road-testing the vehicle and using test equipment.

– With the ignition switched off, connect the vehicle diagnostic, testing and information system -VAS 5051B- to the diagnostic connector using diagnostic cable, 5 m -VAS 5051B/1- or -VAS 5051B/2- .



Fitting location: footwell (front left), next to bonnet release lever.

Starting "Guided fault finding":

– Switch on ignition.

– Touch field/key "Guided fault finding" on screen.

– Select the options on the tester in this sequence:

- Brand
- Model
- Model year
- Version
- Engine code letters

– Confirm the data entered.

– Wait until the tester has interrogated all on-board control units and set up a test routine.

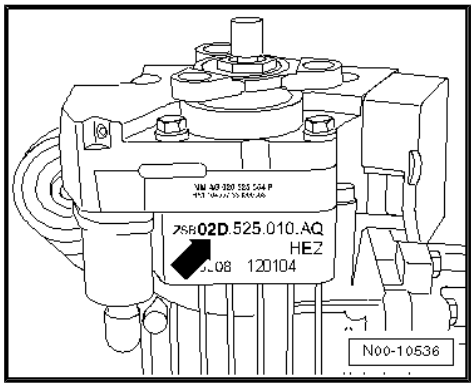
– Work through the test routine.

7 Checking function of Haldex coupling, rear final drive “02D/0AV”

Note

The identification -arrow- on the underside of the final drive unit indicates which final drive version is installed.

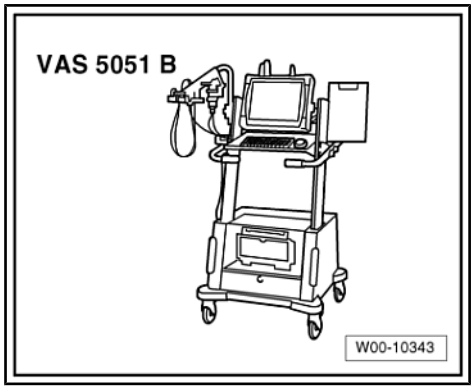
Example of identification markings on final drive “02D”



- ⇒ “7.1 Final drive02D/0AV – Checking function of open Haldex coupling on vehicles with manual gearbox”, page 54
- ⇒ “7.2 Final drive02D/0AV – Checking function of closed Haldex coupling on vehicles with manual gearbox”, page 55
- ⇒ “7.3 Final drive02D/0AV – Checking function of open Haldex coupling on vehicles with dual clutch gearbox”, page 56
- ⇒ “7.4 Final drive02D/0AV – Checking function of closed Haldex coupling on vehicles with dual clutch gearbox”, page 56

Before servicing the Haldex coupling, the exact cause of the failure must be determined as precisely as possible via the vehicle diagnostic, testing and information system -VAS 5051B- in the modes “Guided Fault Finding”, “vehicle self-diagnosis” and “testing system”.

⇒ “6 Connecting vehicle diagnostic, testing and information system VAS 5051B and checking system”, page 53



7.1 Final drive“02D/0AV” – Checking function of open Haldex coupling on vehicles with manual gearbox

Test requirements:

- Oil level of Haldex coupling OK
- Checking oil level in Haldex coupling ⇒ page 115 .
- Correct engine control unit and ABS control unit installed (check coding and control unit identification number).

– Place vehicle on lifting platform.

Caution

For safety reasons it is essential that the wheels do not touch the ground when the vehicle is on the lifting platform.

Carry out test with care to avoid damage.

– Press clutch pedal.

– Start engine.

– Depress clutch pedal all the way, select 1st gear and release clutch carefully.

All four wheels must turn.

– Apply handbrake.

The rear wheels must stop turning and the front wheels must continue to turn.

- If the rear wheels do not turn:

The Haldex coupling is open; function is OK.

- If the rear wheels turn:

The Haldex coupling is closed. Possible cause of fault:

- ♦ Main pressure regulating valve sticking
- ♦ Mechanical fault in Haldex coupling
- ♦ Four-wheel drive control unit -J492- at rear final drive defective
- ♦ Handbrake warning switch -F9- defective

7.2 Final drive“02D/0AV” – Checking function of closed Haldex coupling on vehicles with manual gearbox

Test requirements:

- ♦ Oil level of Haldex coupling OK
- ♦ Checking oil level in Haldex coupling ⇒ page 115 .
- ♦ Correct engine control unit and ABS control unit installed (check coding and control unit identification number).

– Place vehicle on lifting platform.

Caution

For safety reasons it is essential that the wheels do not touch the ground when the vehicle is on the lifting platform.

Carry out test with care to avoid damage.

– Press clutch pedal.

– Start engine.

– Depress clutch pedal all the way and select 2nd gear.

– Apply handbrake and release clutch carefully.

The engine should now stall.

- Engine did stall:

The Haldex coupling is closed; function is OK.

- Engine did not stall:

The Haldex coupling is open. Possible cause of fault:

- ♦ Main pressure regulating valve sticking
- ♦ Mechanical fault in Haldex coupling
- ♦ Four-wheel drive control unit -J492- at rear final drive defective

7.3 Final drive“02D/0AV” – Checking function of open Haldex coupling on vehicles with dual clutch gearbox

Test requirements:

- Oil level of Haldex coupling OK
- Checking oil level in Haldex coupling ⇒ page 115 .
- Correct engine control unit and ABS control unit installed (check coding and control unit identification number).

– Place vehicle on lifting platform.

> **Caution**
>
> *For safety reasons it is essential that the wheels do not touch the ground when the vehicle is on the lifting platform.*
>
> *Carry out test with care to avoid damage.*

– Start engine.

– Select gear D and operate accelerator pedal slightly.

All four wheels must turn.

– Apply handbrake.

The rear wheels must stop turning and the front wheels must continue to turn.

- If the rear wheels do not turn:

The Haldex coupling is open; function is OK.

- If the rear wheels turn:

The Haldex coupling is closed. Possible cause of fault:

- Main pressure regulating valve sticking
- Mechanical fault in Haldex coupling
- Four-wheel drive control unit -J492- at rear final drive defective
- Handbrake warning switch -F9- defective

7.4 Final drive“02D/0AV” – Checking function of closed Haldex coupling on vehicles with dual clutch gearbox

Test requirements:

- Oil level of Haldex coupling OK
- Checking oil level in Haldex coupling ⇒ page 115 .
- Correct engine control unit and ABS control unit installed (check coding and control unit identification number).

– Place vehicle on lifting platform.

Caution

For safety reasons it is essential that the wheels do not touch the ground when the vehicle is on the lifting platform.

Carry out test with care to avoid damage.

– Start engine.

– Select gear D and release brake pedal.

All four wheels must turn.

– Apply handbrake.

– Depress accelerator pedal slightly.

The engine should pull noticeably against the handbrake.

• If pulling power is noticeable:

The Haldex coupling is closed; function is OK.

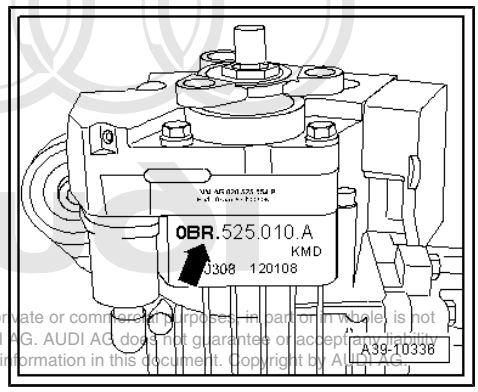
• If pulling power is not noticeable:

The Haldex coupling is open. Possible cause of fault:

- Main pressure regulating valve sticking
- Mechanical fault in Haldex coupling
- Four-wheel drive control unit -J492- at rear final drive defective

8 Checking function of Haldex coupling, rear final drive “0BR” and “0BY”

Identification marking on rear final drive “0BR” and “0BY”



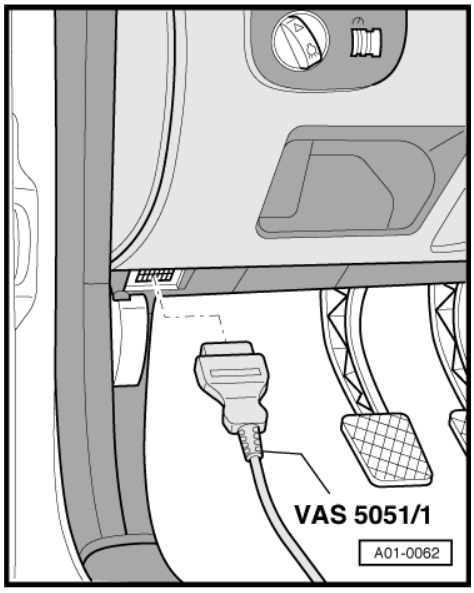
Note

- *The identification -arrow- on the underside of the final drive unit indicates which final drive version is installed.*
- *The Haldex coupling can checked by road-testing the vehicle and using vehicle diagnostic, testing and information system - VAS 5051B- .*

WARNING

To avoid any risk of accident, observe the ⇒ “6 Safety precautions”, page 16 when road-testing the vehicle and using test equipment.

– Connect the vehicle diagnostic, testing and information system -VAS 5051B- to the diagnostic connector with the ignition switched off.



Fitting location: footwell (front left), next to bonnet release lever.

Starting “Guided Functions”:

– Switch on ignition.

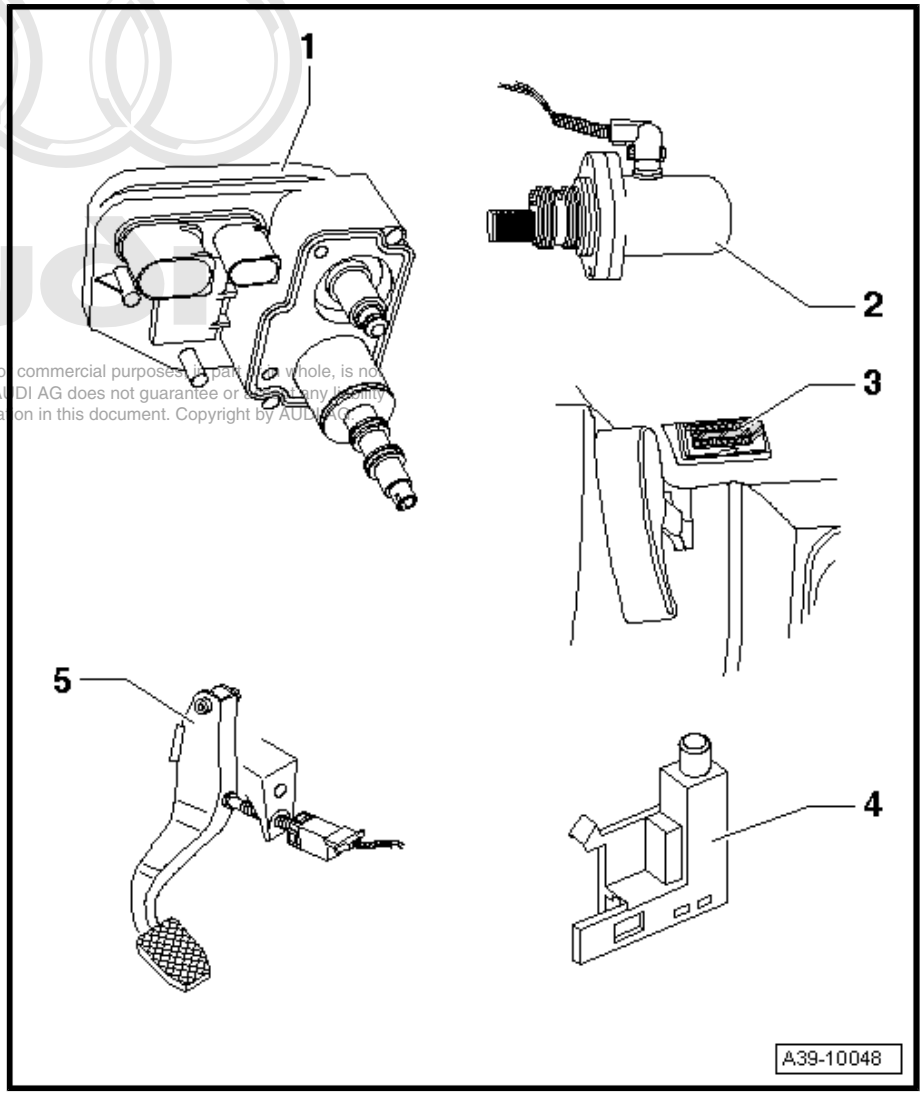
– Touch the symbol or button “Guided Functions” on the screen.

– Select the options on the tester in this sequence:

- Brand
- Model
- Model year
- Version
- Engine code letters
- Confirm the data entered.
- 22 - 4WD electronics
- 22 - Final control diagnosis

– Start final control diagnosis and follow instructions appearing on tester.

9 Electrical and electronic components and fitting locations, rear final drive “02D/0AV”



1 - Four-wheel drive control unit -J492-

- ❑ Fitting location ⇒ page 60
- ❑ Is supplied as one unit together with the coupling opening control valve -N373-
- ❑ The pressure sensor is also located in the control unit
- ❑ Removing and installing ⇒ page 61
- ❑ Important signals are transferred to four-wheel drive control unit from the engine control unit and the ABS with EDL control unit -J104- via data bus.

2 - Haldex coupling pump -V181-

- ❑ Fitting location ⇒ page 60
- ❑ Can be checked in “Guided fault finding”, using vehicle diagnostic, testing and information system -VAS 5051B- .
- ❑ Removing and installing ⇒ page 78

3 - Diagnostic connector

- ❑ Fitting location: footwell (front left), next to bonnet release lever

4 - Handbrake warning switch -F9-

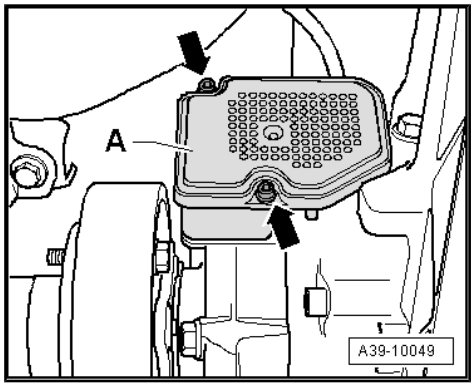
- ❑ Fitting location ⇒ page 60
- ❑ Can be checked in “Guided fault finding” using vehicle diagnostic, testing and information system -VAS 5051- .
- ❑ Removing and installing ⇒ Rep. Gr. 46

5 - Brake light switch -F-

- ❑ Fitting location: ⇒ page 60
- ❑ Can be checked in “Guided fault finding”, using vehicle diagnostic, testing and information system -VAS 5051B- .
- ❑ Removing and installing ⇒ Rep. Gr. 46

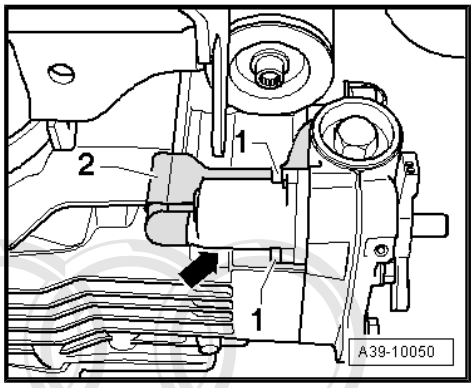
Four-wheel drive control unit -J492-

Fitting location: the control unit -A- is located at the front left-hand side of the rear final drive .



Haldex coupling pump -V181-

Fitting location: the Haldex coupling pump -arrow- is located at the front right-hand side of the rear final drive.

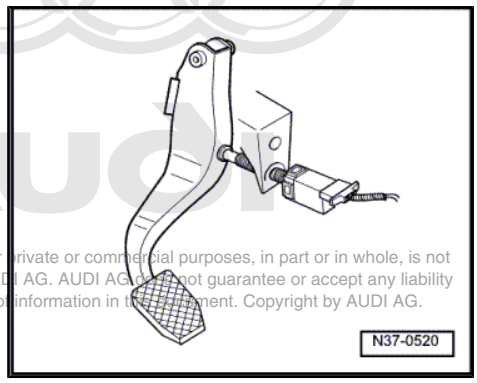


Brake light switch -F-

Fitting location: the brake light switch -F- is located at the pedal cluster above the brake pedal.

Removing:

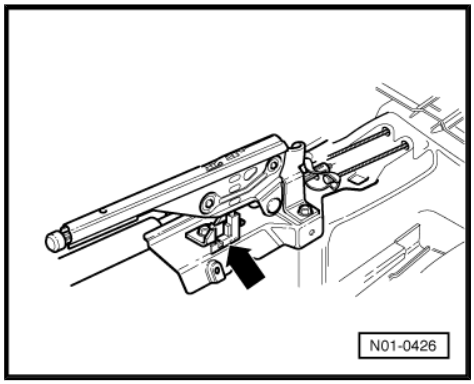
⇒ Rep. Gr. 46



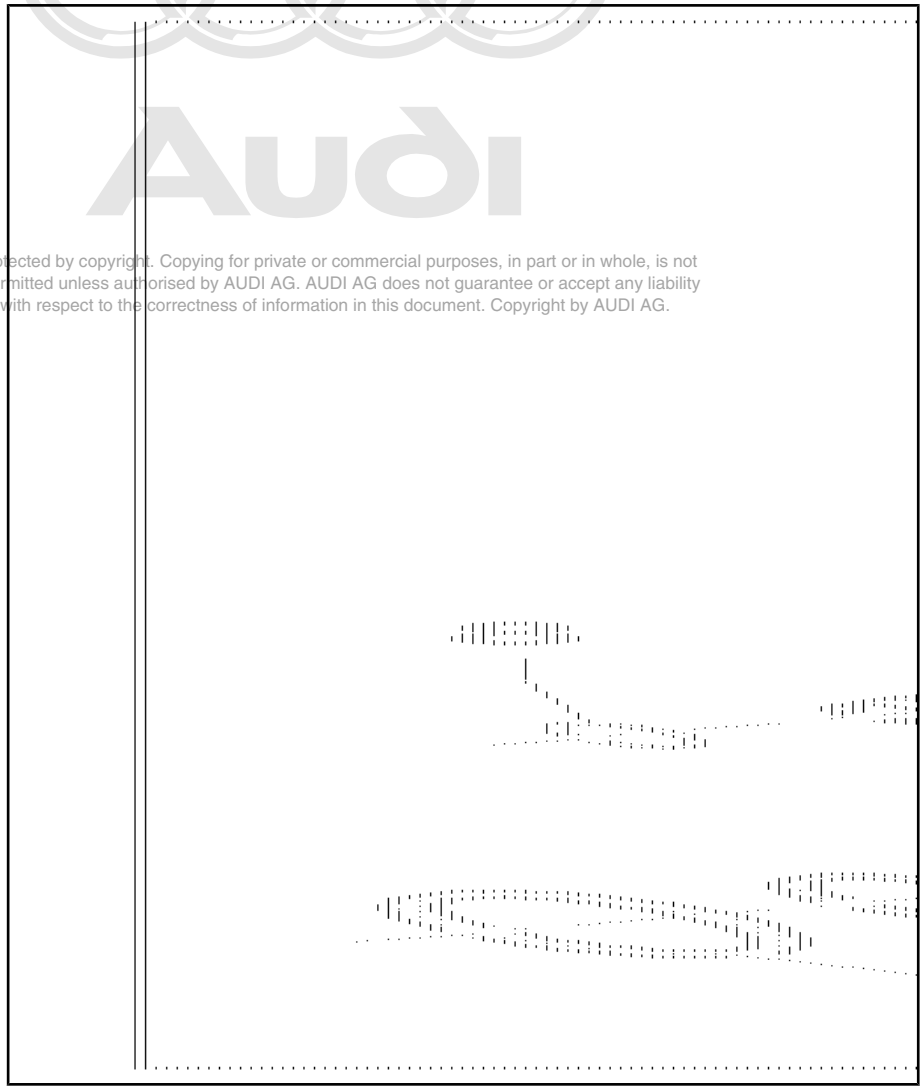
Handbrake warning switch -F9-

Fitting location: switch -arrow- is located on handbrake lever.

Removing ⇒ Rep. Gr. 46



10 Exploded view – removing and installing four-wheel drive control unit -J492- , rear final drive “02D/0AV”



1 - Four-wheel drive control unit -J492-

- ❑ Calibrated to match coupling opening control valve -N373- ⇒ Item 4 (page 61)
- ❑ Always renew together with valve ⇒ Item 4 (page 61)
- ❑ Removing and installing ⇒ page 62

2 - Bolt, 6 Nm

3 - Cover

- ❑ With vulcanised seal
- ❑ Always renew

4 - Coupling opening control valve -N373-

- ❑ Calibrated to match four-wheel drive control unit -J492-
- ❑ Always renew together with control unit ⇒ Item 1 (page 61)

5 - Seal

- ❑ Diameter 12 mm
- ❑ For coupling opening control valve -N373-
- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

6 - Seal

- ❑ Diameter 11 mm
- ❑ For coupling opening control valve -N373-
- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

7 - Seal

- ❑ In Haldex coupling housing
- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

8 - Seal

- ❑ For pressure sensor
- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

9 - Oil pressure and oil temperature sender -G437-

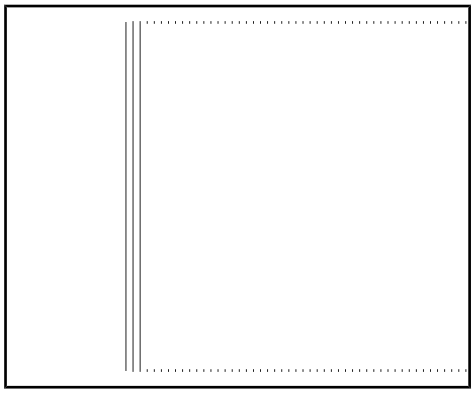
- ❑ Can be re-used when renewing control unit
- ❑ Removing and installing ⇒ page 62

10 - Dished spring

❑ When installed, the mark -arrow- must be at the top and face the pressure sensor ⇒ page 62

Installation position of dished spring

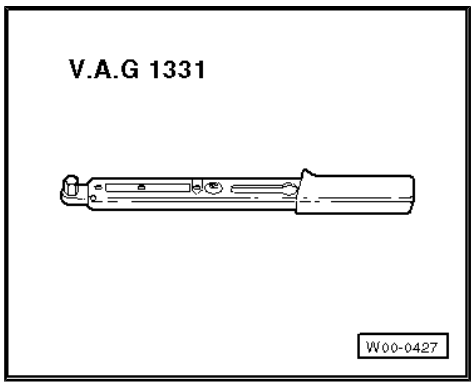
- The marking -arrow- is located on the convex side of the dished spring -2-.
- The convex side with the marking -arrow- faces the pressure sensor -1-.
- When installed, the marking -arrow- points to the top.



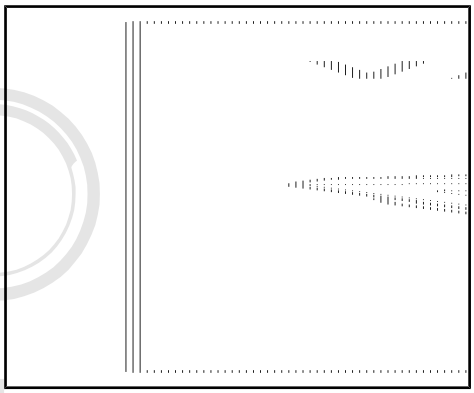
10.1 Removing and installing four-wheel drive control unit -J492- , rear final drive “02D/0AV”

Special tools and workshop equipment required

♦ Torque wrench -V.A.G 1331-



♦ Drip tray for workshop hoist -VAS 6208-

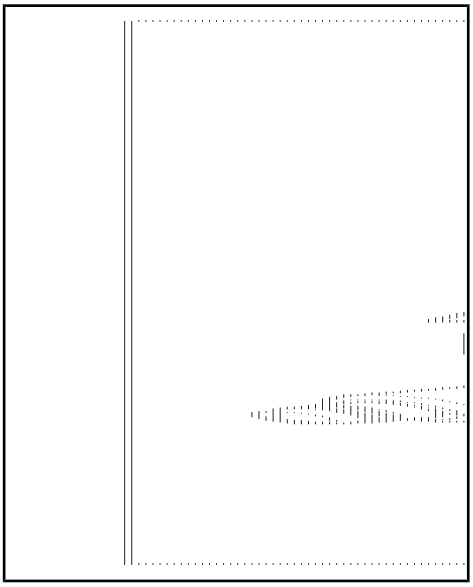


Removing

Note

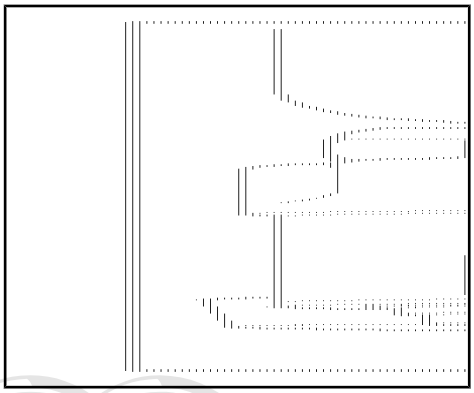
The cover -2- and the dished spring -5- are removed together when removing the control unit -1-. The pressure sensor -4- and the valve -3- are removed separately.

– Switch off ignition.



– Unplug connectors -1- and -2- at top of control unit.

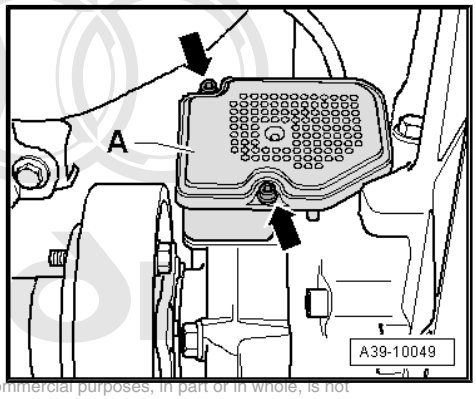
– Position drip tray under final drive.



– Remove bolts -arrows-.

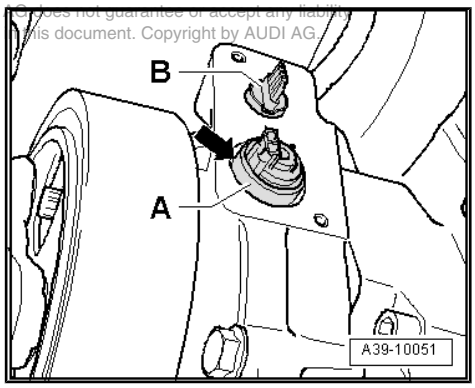
Make sure that no parts drop to the ground when removing the control unit.

– Carefully detach control unit -A-.

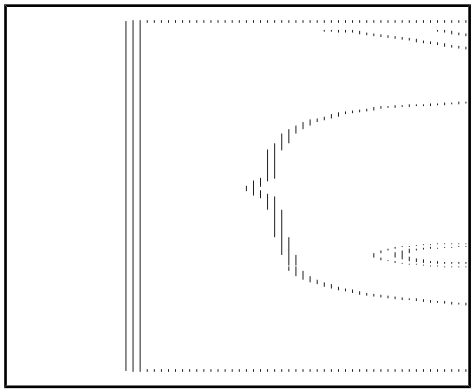


– Carefully take hold of coupling opening control valve -N373- -A- at metal housing -arrow- using pliers, and pull out.

– Remove pressure sensor -B-.



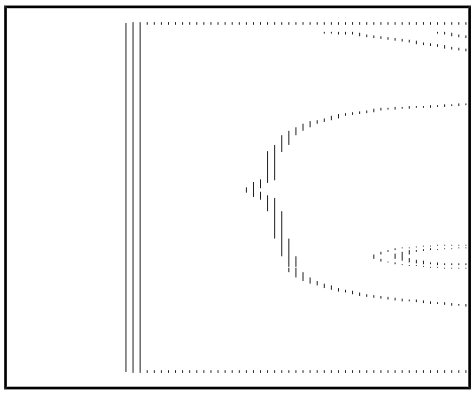
– Remove seal for coupling opening control valve -N373- -arrow- from housing.



Installing

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

– Lubricate new seal for coupling opening control valve -N373- -arrow- with high performance oil for Haldex coupling and fit seal in housing.

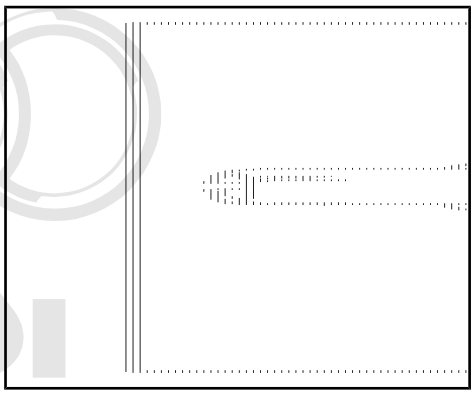


– Renew O-rings -1- and -2-.

– Note different diameters:

♦ Inner diameter of O-ring -1- = 11 mm

♦ Inner diameter of O-ring -2- = 12 mm

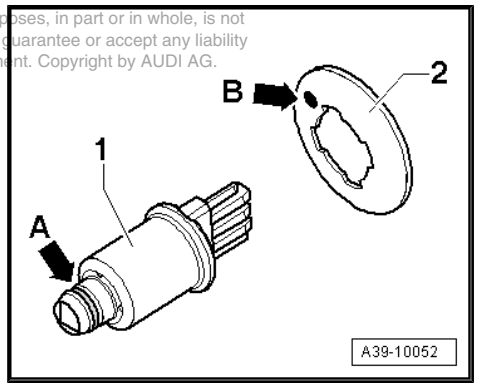


– Renew O-ring -arrow A- on pressure sensor.

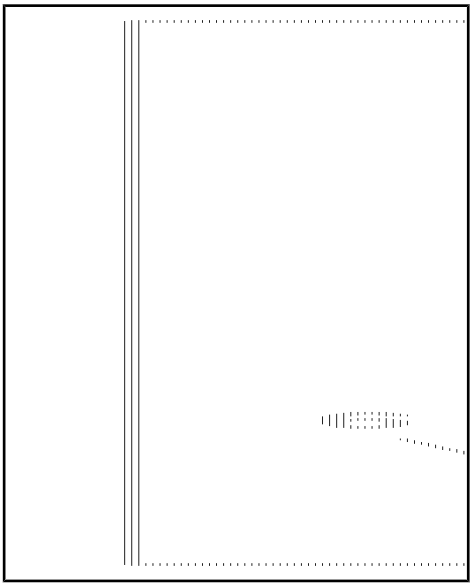
Note

When installed, the marking -arrow B- on the convex side of the dished spring -2- points to the top and to pressure sensor -1-.

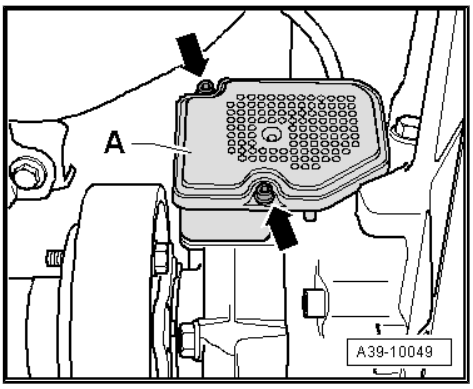
– Fit dished spring -2- with convex side first onto pressure sensor -1-.



– Fit new cover -5- onto control unit -6-.
– Insert pressure sensor -4- with dished spring into new cover -5- and press onto connector. The convex side of the dished spring faces pressure sensor.
– Lightly lubricate new O-ring of pressure sensor -4- with high-performance oil for Haldex coupling .
– Insert valve -1- into new cover -5- and control unit -6- and press onto connector.
– Lightly lubricate new O-rings -2- and -3- with high-performance oil for Haldex coupling .



– Carefully fit control unit -A- and tighten bolts -arrows- to torque ⇒ Item 2 (page 61)
– Check oil level in Haldex coupling ⇒ page 115



11 Electrical and electronic components and fitting locations, rear final drive “0BR” and “0BY”

1 - Four-wheel drive control unit -J492-

- Important signals are transferred to four-wheel drive control unit from the engine control unit and the ABS with EDL control unit -J104- via data bus.
- Exploded view ⇒ page 67
- Removing and installing ⇒ page 68

2 - Coupling opening control valve -N373-

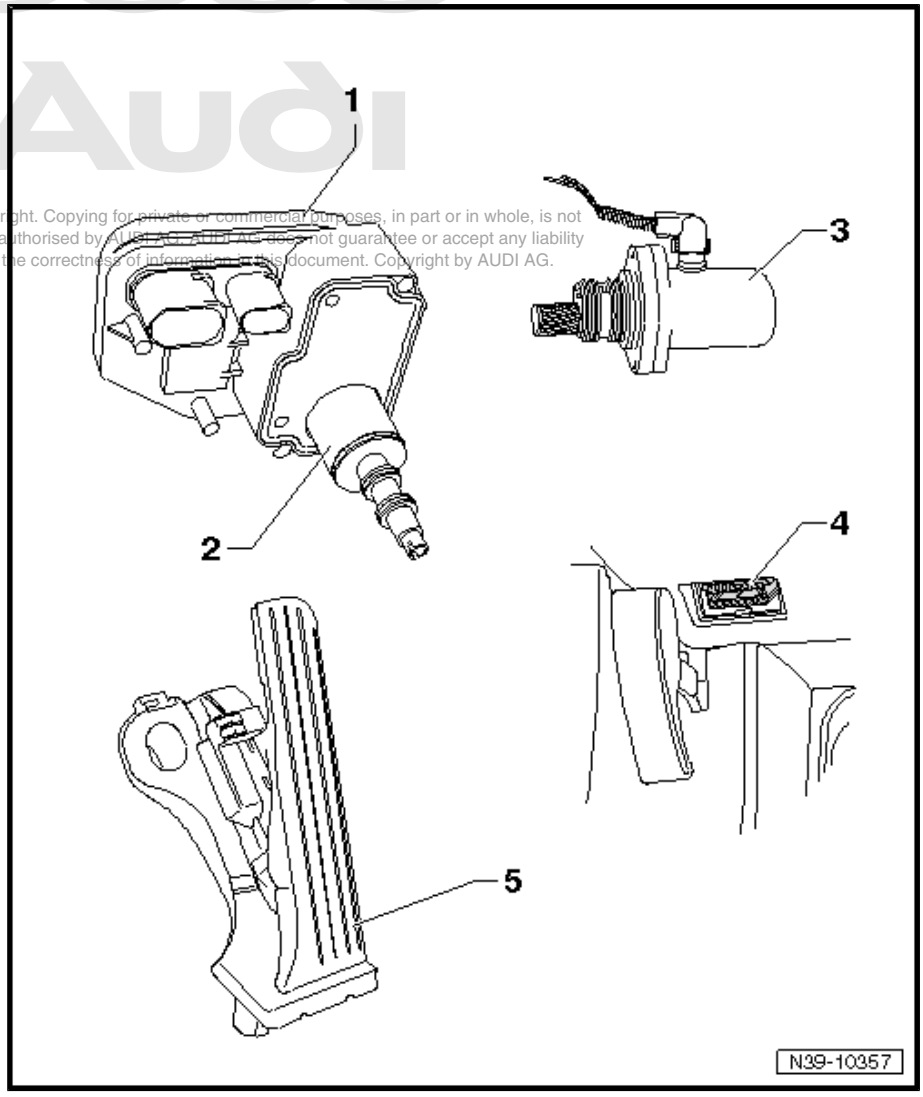
3 - Haldex coupling pump - V181-

- Can be checked in “Guided fault finding”, using vehicle diagnostic, testing and information system -VAS 5051B- .
- Removing and installing ⇒ page 78

4 - Diagnostic connector

- Fitting location: front footwell (left-side)

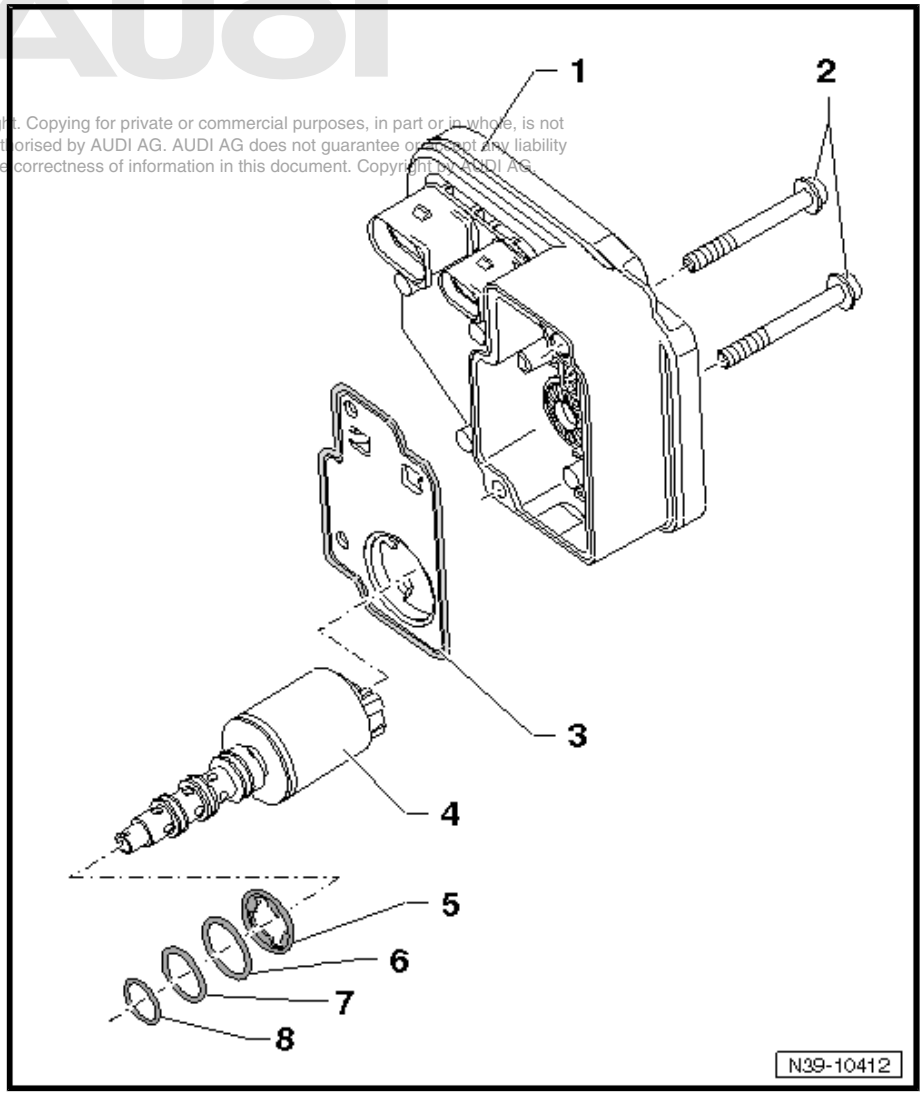
5 - Accelerator position sender -G79-



12 Exploded view – removing and installing four-wheel drive control unit -J492- , rear final drive 0BD and 0BY

For more detailed information refer to:

- ⇒ Self-study programme No. 414 ; 4Motion with Four-Wheel-Coupling Generation IV



1 - Four-wheel drive control unit -J492-

- ❑ Is calibrated to match coupling opening control valve -N373-
- ❑ Always renew together with valve
- ❑ Removing and installing ⇒ page 68

2 - Bolt, 6 Nm

3 - Cover

- ❑ With vulcanised seal
- ❑ Will remain attached to control unit or housing of Haldex coupling when control unit is removed
- ❑ Always renew

4 - Coupling opening control valve -N373-

- ❑ Calibrated to match four-wheel drive control unit -J492-
- ❑ Always renew together with control unit
- ❑ Removing and installing ⇒ page 68

5 - Seal

- ❑ Make sure that centring lips are correctly seated in groove
- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

6 - Seal

- ❑ Diameter 12 mm
- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

7 - Seal

- ❑ Diameter 11 mm
- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

8 - Seal

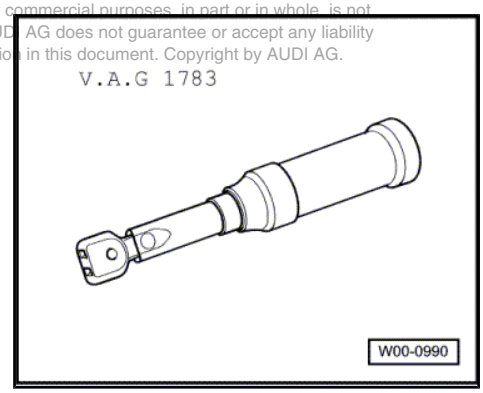
- ❑ Diameter 10 mm

- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

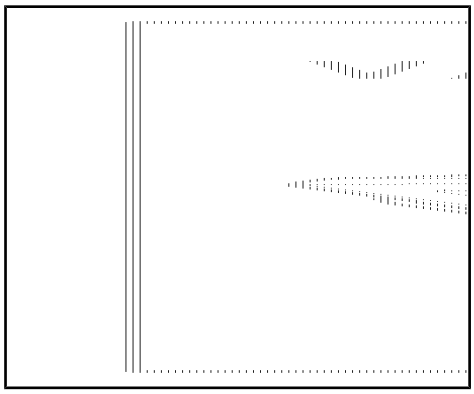
12.1 Removing and installing four-wheel drive control unit -J492-

Special tools and workshop equipment required

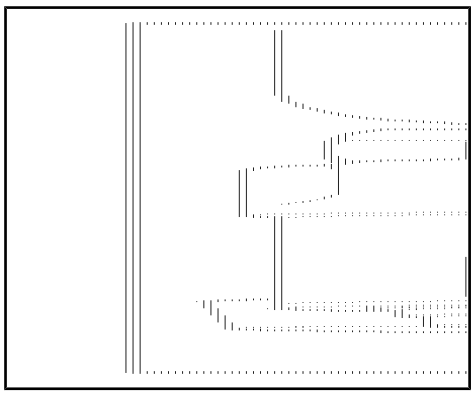
- ♦ Allen key (4 mm)
- ♦ Torque wrench (2 ... 10 Nm) -V.A.G 1783-



- ♦ Drip tray for workshop hoist -VAS 6208-



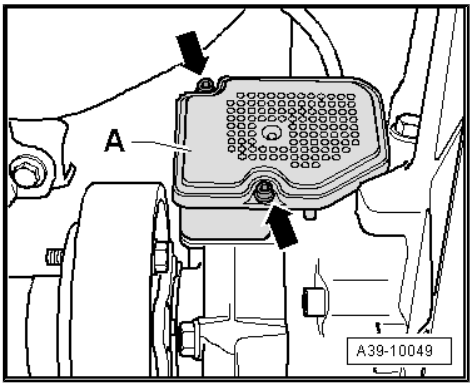
- – Switch off ignition.
- – Unplug connectors -1- and -2- at top of control unit.
- – Position drip tray under final drive.



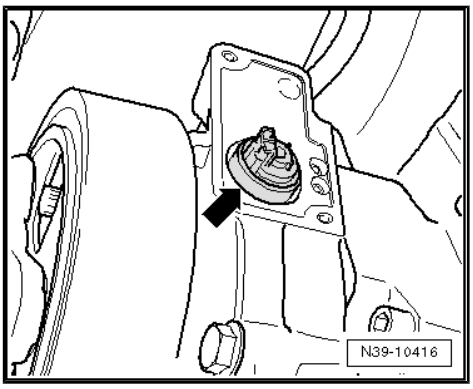
Note

It is advisable to have a workshop trolley with tools and cleaning cloths within easy reach so that removed parts can be put down safely.

– Remove bolts -arrows-.
– Carefully detach control unit -A-.



– If necessary, detach cover ⇒ Item 3 (page 67) from housing of Haldex coupling, while keeping hold of valve -arrow-.
– Place a cloth over coupling opening control valve -N373- -arrow-, take hold of valve body with pliers and pull out valve.



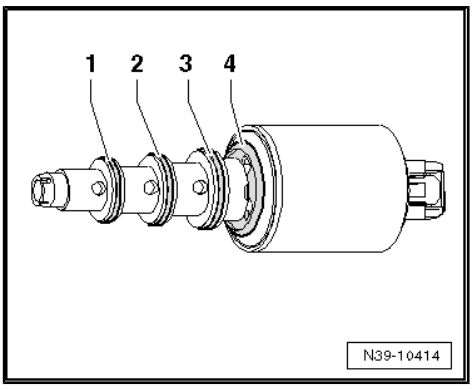
Installing

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

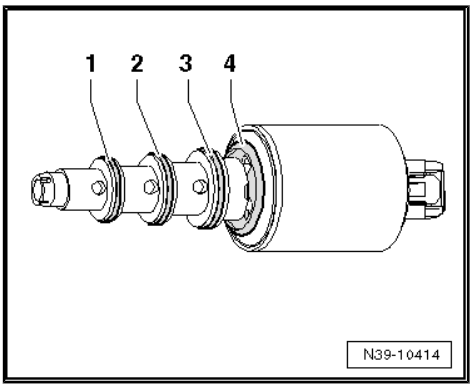
Note

The seals for the valve have different internal diameters.

- -1- Internal diameter: 10 mm
- -2- Internal diameter: 11 mm
- -3- Internal diameter: 12 mm
- -4- Seal on valve body



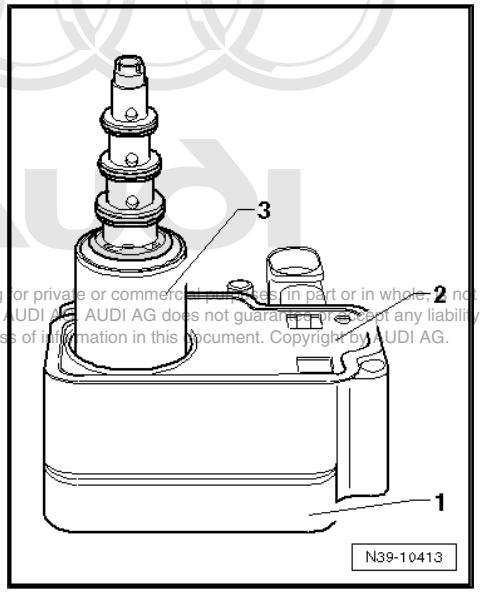
– First lubricate seal -1- with Haldex oil and fit seal onto coupling opening control valve -N373- .
– Then fit seals -2-, -3- and -4-.
– Press centring lips (4x) of seal -4- into groove.



– Fit new cover -2- onto control unit -1-.

Note

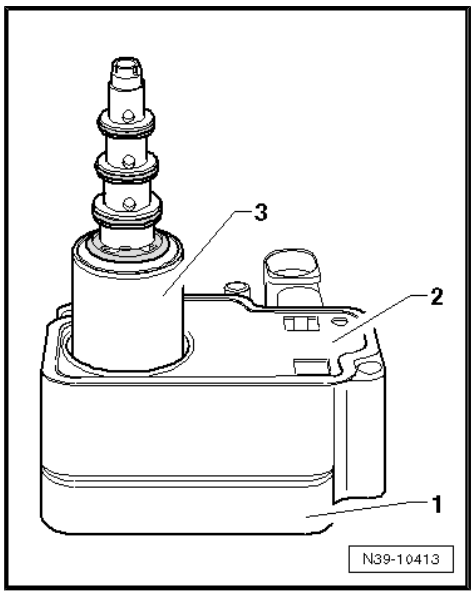
The cover can only be fitted in one position.



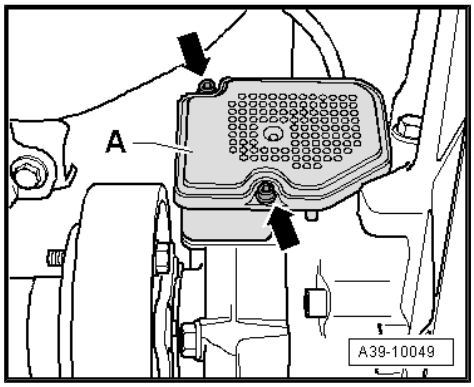
– Insert coupling opening control valve -N373- -3- in control unit -1-.

Note

The valve can only be fitted in one position.



– Carefully fit control unit -A- and tighten bolts -arrows- to torque ⇒ Item 2 (page 67) .
– Check oil level in Haldex coupling ⇒ page 115 .



13 Exploded view - removing and installing Haldex coupling

1 - Hexagon bolt, 50 Nm

- ❑ 4x

2 - Haldex coupling

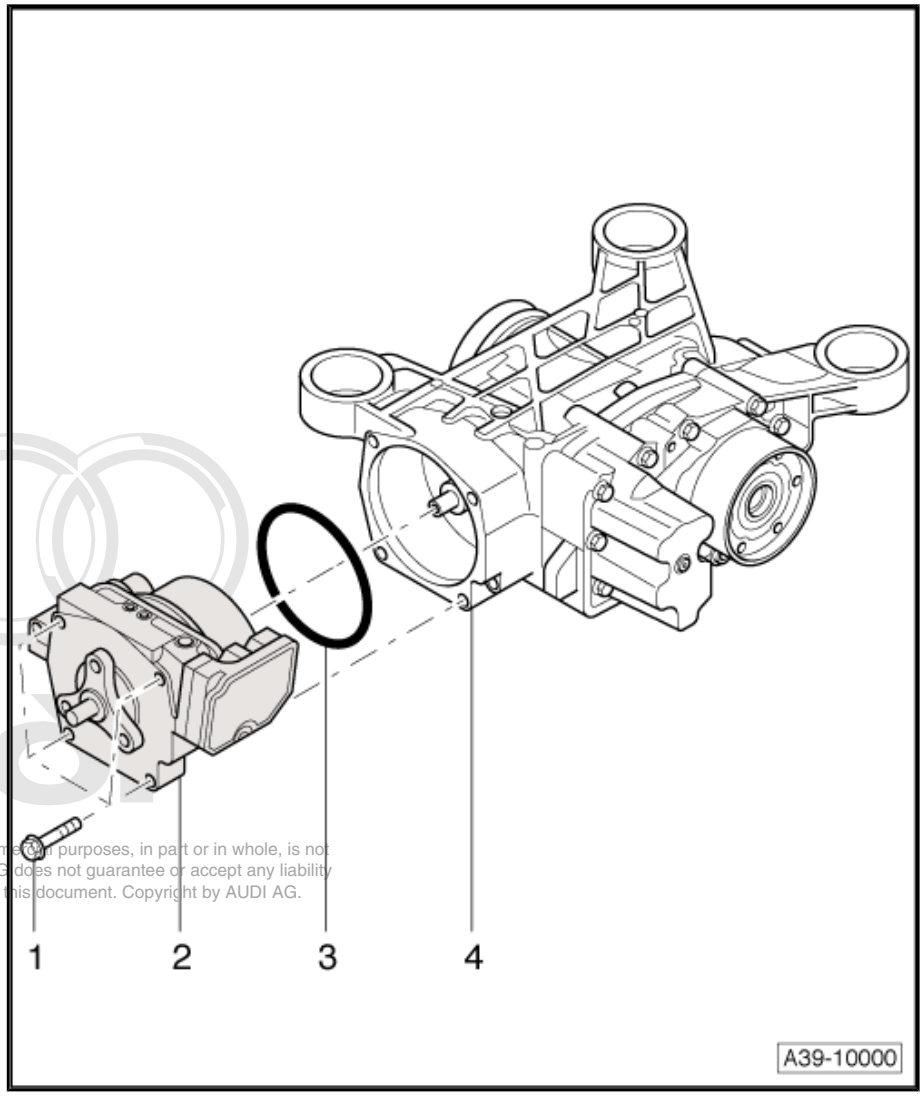
- ❑ With control unit
- ❑ Removing and installing ⇒ page 71
- ❑ ⇒ “14 Exploded view – dismantling and assembling Haldex coupling, rear final drive 02D/0AV”, page 75
- ❑ ⇒ “15 Exploded view – dismantling and assembling Haldex coupling, rear final drive 0BR/0BY”, page 88

3 - O-ring

- ❑ Renewing ⇒ page 71
- ❑ Lubricate with high performance oil for Haldex coupling prior to inserting

4 - Final drive

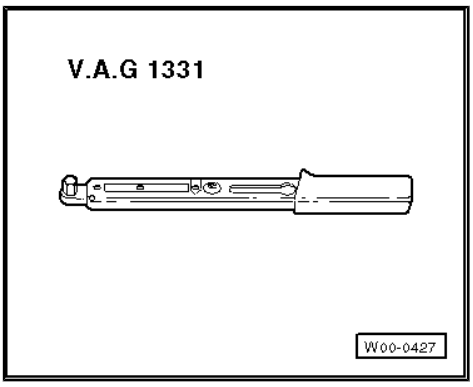
- ❑ Removing and installing ⇒ page 96



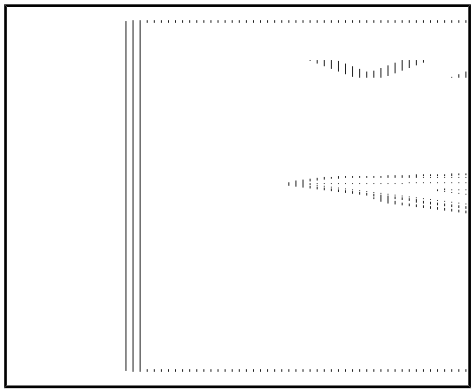
13.1 Removing and installing Haldex coupling (with final drive installed)

Special tools and workshop equipment required

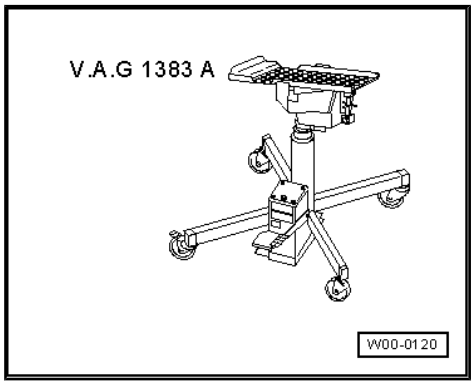
- ♦ Torque wrench -V.A.G 1331-



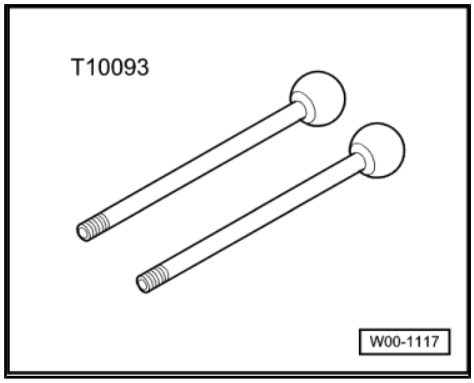
- Drip tray for workshop hoist -VAS 6208-



- Engine/gearbox jack -V.A.G 1383 A- with universal support -V.A.G 1359/2-



- Guide pins -T10093-

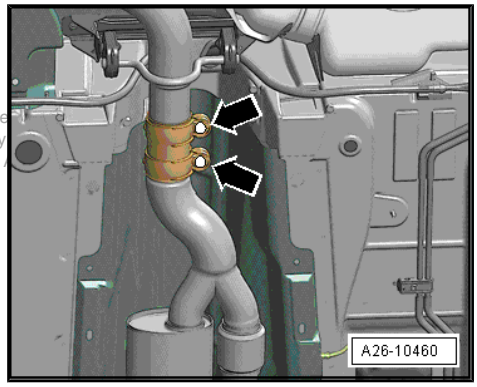


Removing

Caution

The flexible joints in the exhaust system can be damaged.

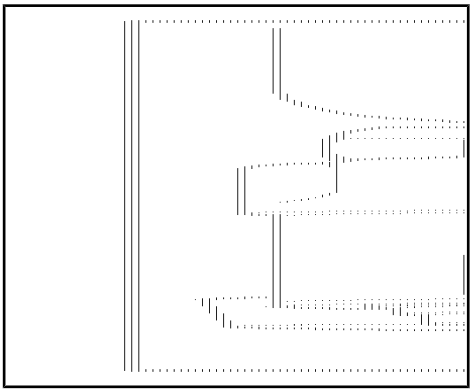
- ***The flexible joints in the front exhaust pipe must not be bent further than 10°.***



– Disconnect exhaust system at clamp -arrows-.
– Tie up front exhaust pipe on underbody.
– Remove rear section of exhaust system ⇒ Rep. Gr. 26 .

– Remove flexible coupling (rear) ⇒ page 48 .

– Unplug connector -2- on four-wheel drive control unit -J492- .

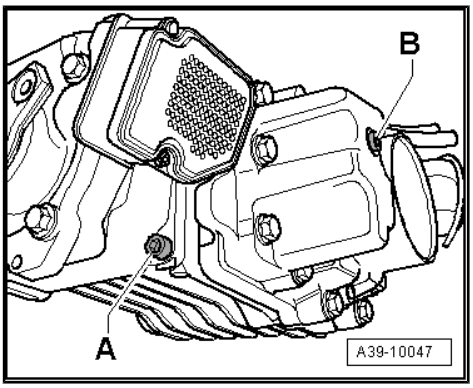


– Position drip tray -VAS 6208- under final drive.

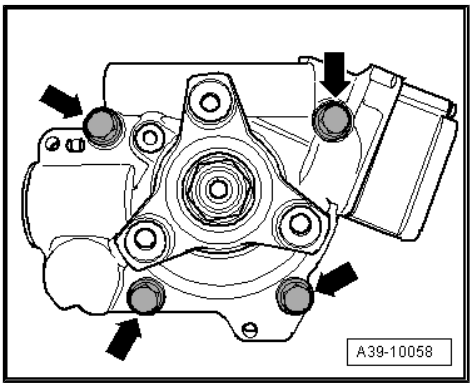
– Remove drain plug -A - and drain high performance oil for Haldex coupling completely.

– Fit drain plug -A- with new seal.

Tightening torque for plug -A-: 30 Nm



– Unscrew securing bolts -arrows- and remove Haldex coupling from rear final drive.

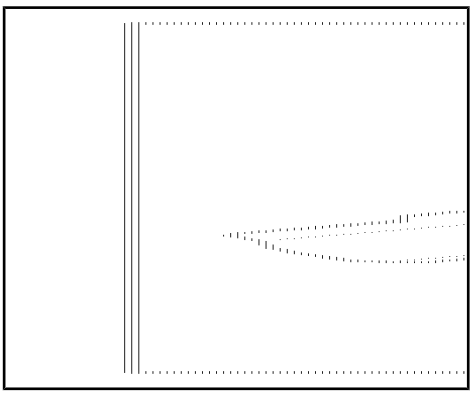


Installing Haldex coupling

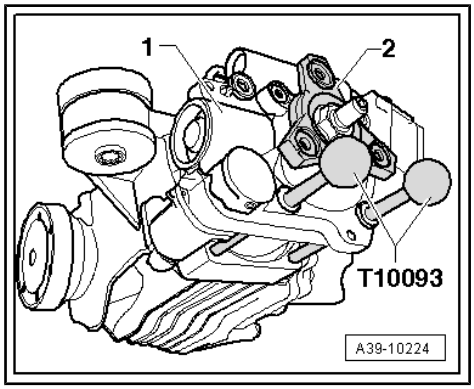
Perform installation in reverse sequence of removal. Note the following:

– Remove "old" O-ring -arrow- from Haldex coupling.

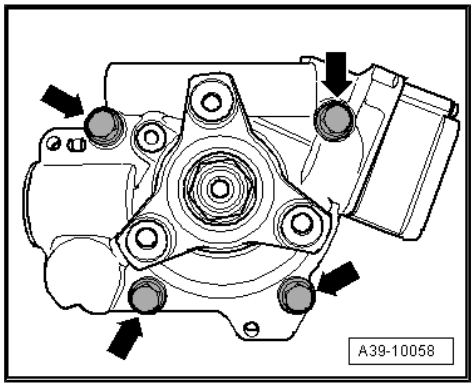
– Insert new O-ring -arrow- and lubricate lightly with high-performance oil for Haldex coupling .



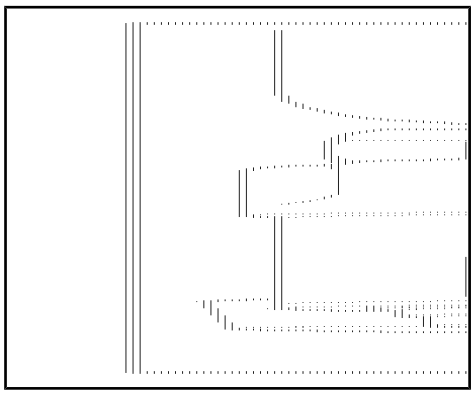
– Insert Haldex coupling -1- into rear final drive. Screw in guide pins -T10093- for exact fitting.
– Insert Haldex coupling as far as stop (turn propshaft flange -2-).



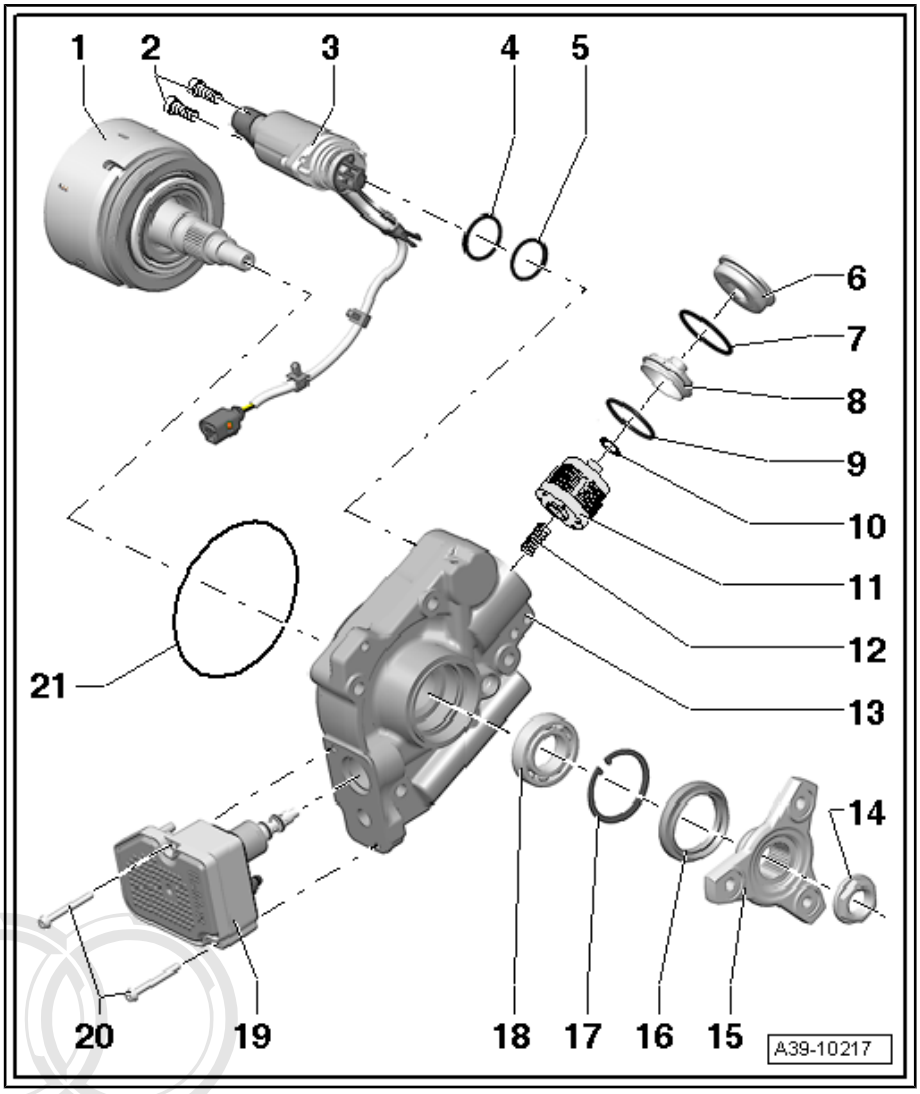
– Tighten bolts -arrows- to specified torque ⇒ Item 1 (page 71) .



– Plug connector -2- into four-wheel drive control unit -J492- .
– Install flexible coupling (rear) ⇒ page 48 .
– Install exhaust system and perform stress-free alignment ⇒ Rep. Gr. 26 .
– Fill up with high-performance oil for Haldex coupling and check oil level in Haldex coupling ⇒ page 115 .



14 Exploded view – dismantling and assembling Haldex coupling, rear final drive “02D/0AV”



1 - Multi-plate clutch

- ❑ Overview
  ⇒ Fig. “ Assembly of multi-plate clutch “ , page 77
- ❑ Removing and installing
  ⇒ page 82

2 - Bolts

- ❑ 6 Nm

3 - Haldex coupling pump - V181-

- ❑ Removing and installing
  ⇒ page 78

4 - O-ring

- ❑ Diameter 32 mm
- ❑ For Haldex coupling pump -V181-
- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

5 - O-ring

- ❑ Diameter 30 mm
- ❑ For Haldex coupling pump -V181-
- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

6 - Sealing cap

- ❑ 35 Nm

7 - O-ring

- ❑ For sealing cap
- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

8 - Oil filter bracket

9 - O-ring

- ❑ For oil filter bracket
- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

10 - O-ring

- ❑ For oil filter
- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

11 - Oil filter

- ❑ For Haldex coupling
- ❑ Removing and installing ⇒ page 77

12 - Spring

13 - Housing for Haldex coupling

- ❑ Removing and installing complete Haldex coupling ⇒ page 71
- ❑ Detaching from multi-plate clutch ⇒ page 82

14 - Nut

- ❑ 210 Nm
- ❑ Apply locking fluid -D 000 600- when fitting

15 - Flange for propshaft

- ❑ Removing and installing ⇒ page 93

16 - Oil seal for propshaft flange

Renewing ⇒ page 93

17 - Circlip

18 - Ball bearing

- ❑ Removing and installing ⇒ page 82

19 - Four-wheel drive control unit -J492-

- ❑ With coupling opening control valve -N373-
- ❑ With oil pressure and oil temperature sender -G437-
- ❑ Removing and installing ⇒ page 61

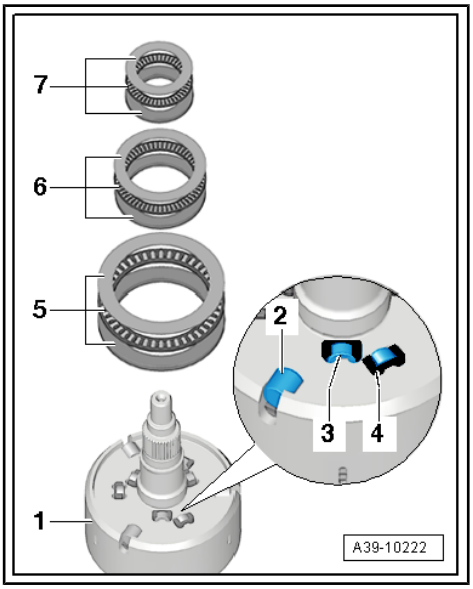
20 - Bolts

- ❑ 6 Nm

21 - O-ring

- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

Assembly of multi-plate clutch



1 - Multi-plate clutch

It is not possible to remove plates

2 - Outer rollers

3x

3 - Wheel rollers

3x

Installation position: roller faces outwards

4 - Wheel rollers

3x

Installation position: roller faces inwards

5 - Axial needle bearing

Thick shim faces multi-plate clutch -1-

6 - Axial needle bearing

Thick shim faces multi-plate clutch -1-

7 - Axial needle bearing

Thick shim faces multi-plate clutch -1-

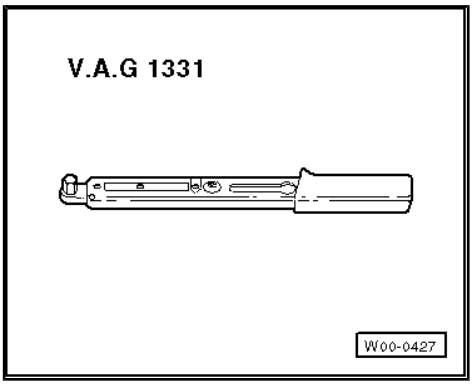
14.1 Removing and installing oil filter for Haldex coupling, final drive “02D/0AV”

Caution

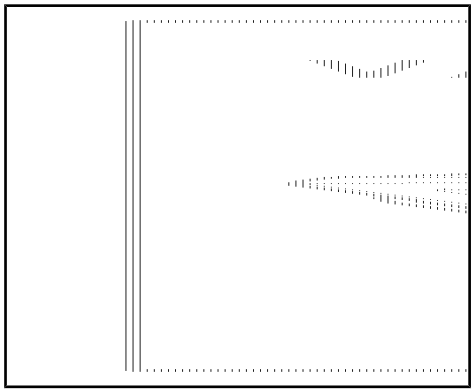
On vehicles with the rear final drive type “0BR/0BY” the oil filter for the Haldex coupling does not have to be changed ⇒ “1 Rear final drive identification”, page 1.

Special tools and workshop equipment required

- Torque wrench -V.A.G 1331-



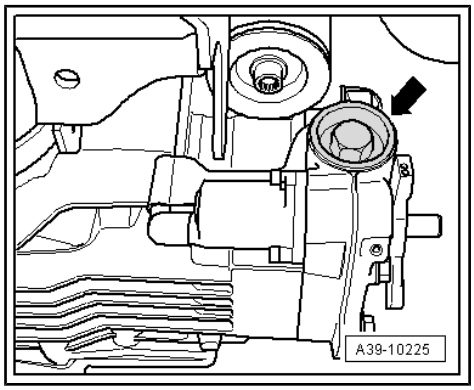
♦ Drip tray for workshop hoist -VAS 6208-



Removing

– Position drip tray -VAS 6208- under final drive.

– Unscrew sealing cap -arrow-.



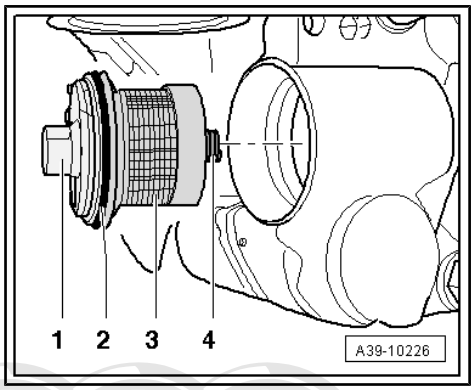
– Pull out oil filter element.

Installing

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

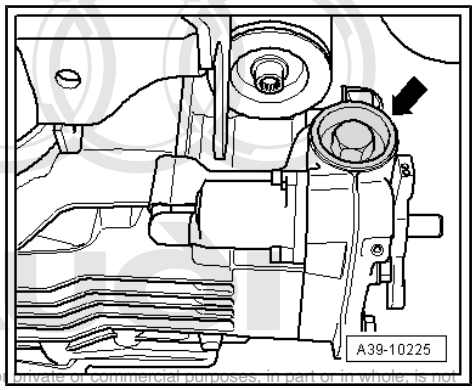
– Fit O-ring -2- on oil filter bracket -1-.

– Fit spring -4- in oil filter -3-.



– Fit sealing cap -arrow- with new O-ring and tighten. Tightening torque ⇒ Item 6 (page 75)

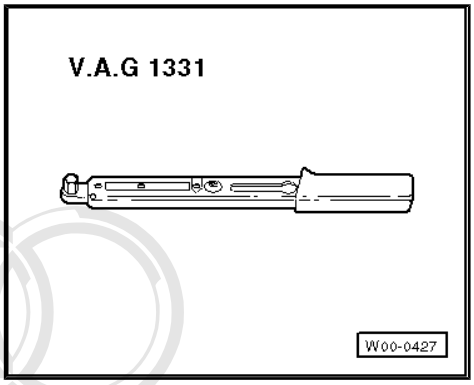
– Check oil level in Haldex coupling ⇒ page 115 .



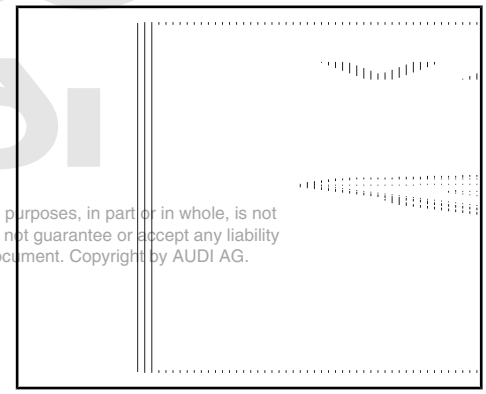
14.2 Removing and installing Haldex coupling pump -V181- , final drive “02D/ 0AV”

Special tools and workshop equipment required

- Torque wrench -V.A.G 1331-



- Drip tray for workshop hoist -VAS 6208-



Removing

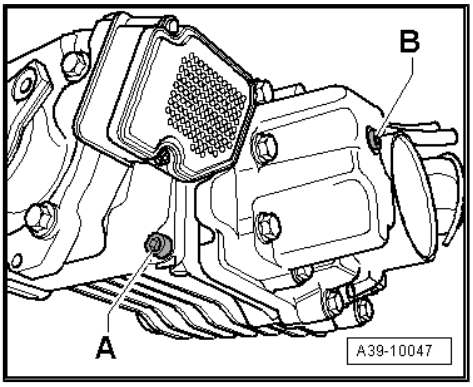
– Switch off ignition.

– Place drip tray underneath.

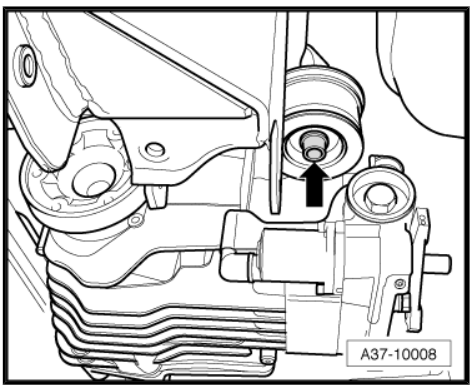
– Remove drain plug -A - and drain high performance oil for Haldex coupling completely.

– Fit drain plug -A- with new seal.

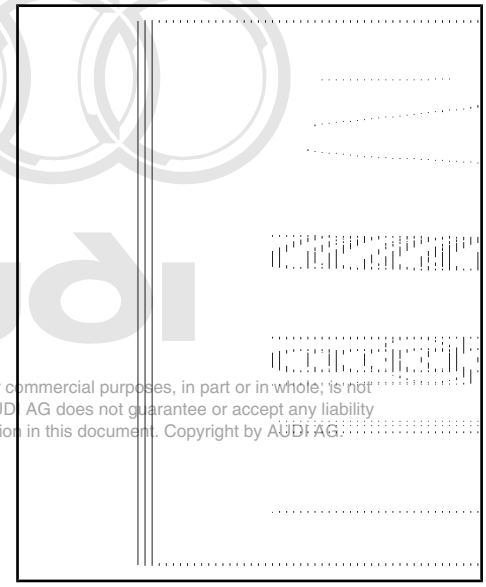
Tightening torque for plug -A-: 30 Nm



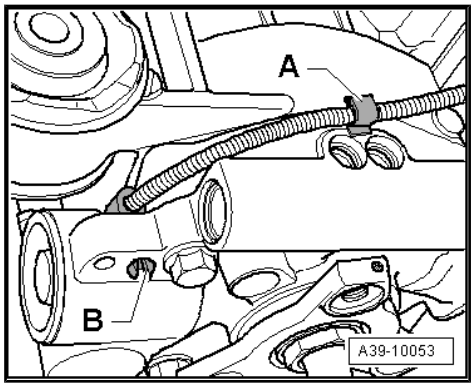
– Loosen securing bolt -arrow- at front mounting bracket for final drive approx. 7 turns and lower final drive slightly.



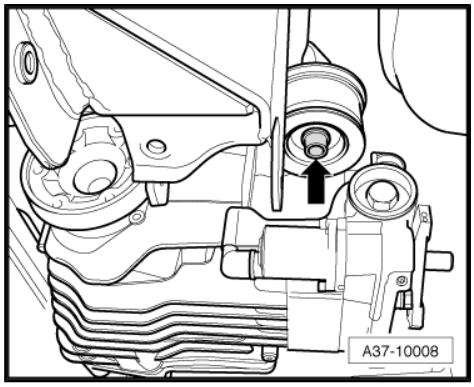
– Unplug connector -arrow- for pump from control unit.



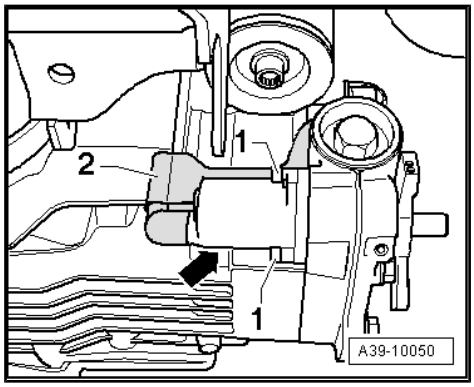
– Detach wiring harness together with retainer -A- from housing and move clear.
– Press retainer tabs -B- together and push into hole in housing as far as possible.



– Re-tighten securing bolt -arrow- finger-tight.
– Position drip tray under final drive.



– Unscrew securing bolts for pump -1-.
– Pull out pump -arrow- together with the wiring protection -2- from Haldex coupling housing.

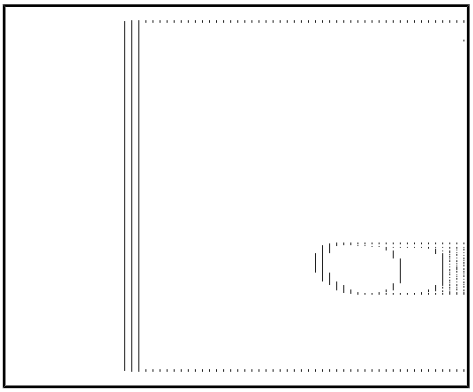


Installing

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

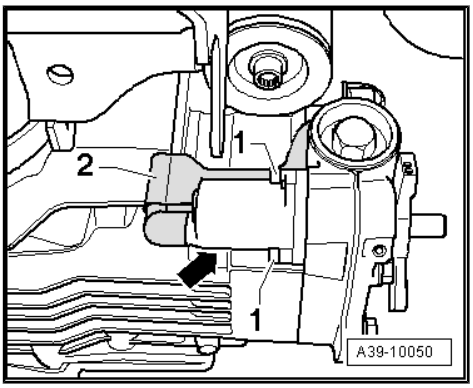
– Renew O-rings -1- and -2-.

– Lightly lubricate O-rings -1- and -2- with high-performance oil for Haldex coupling .

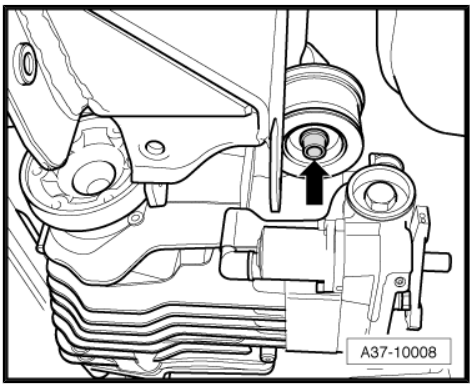


– Press pump -arrow- in until limit stop. Make sure that the wiring protection -2- is properly seated.

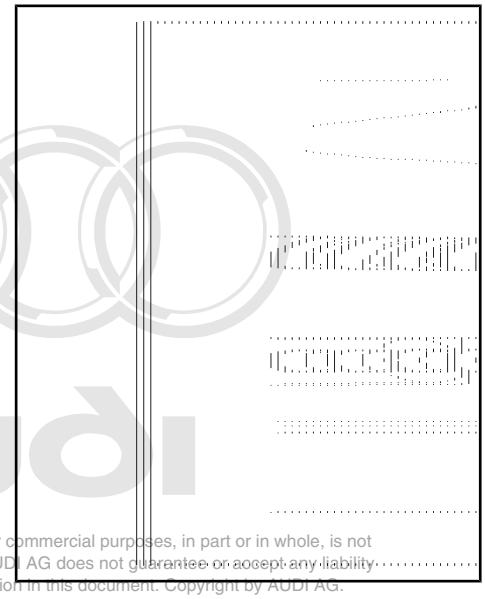
– Tighten bolts -1-. Tightening torque ⇒ Item 2 (page 75)



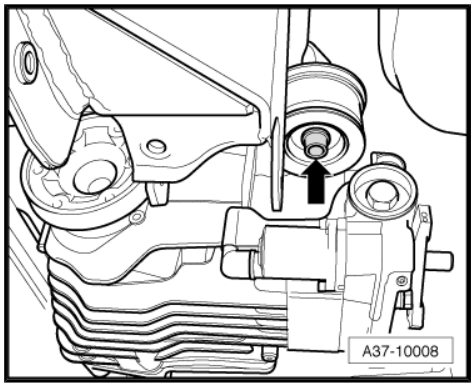
– Unscrew securing bolt -arrow- from front mounting bracket.



– Clip wiring harness onto top of Haldex coupling and fit connector -arrow- to control unit.



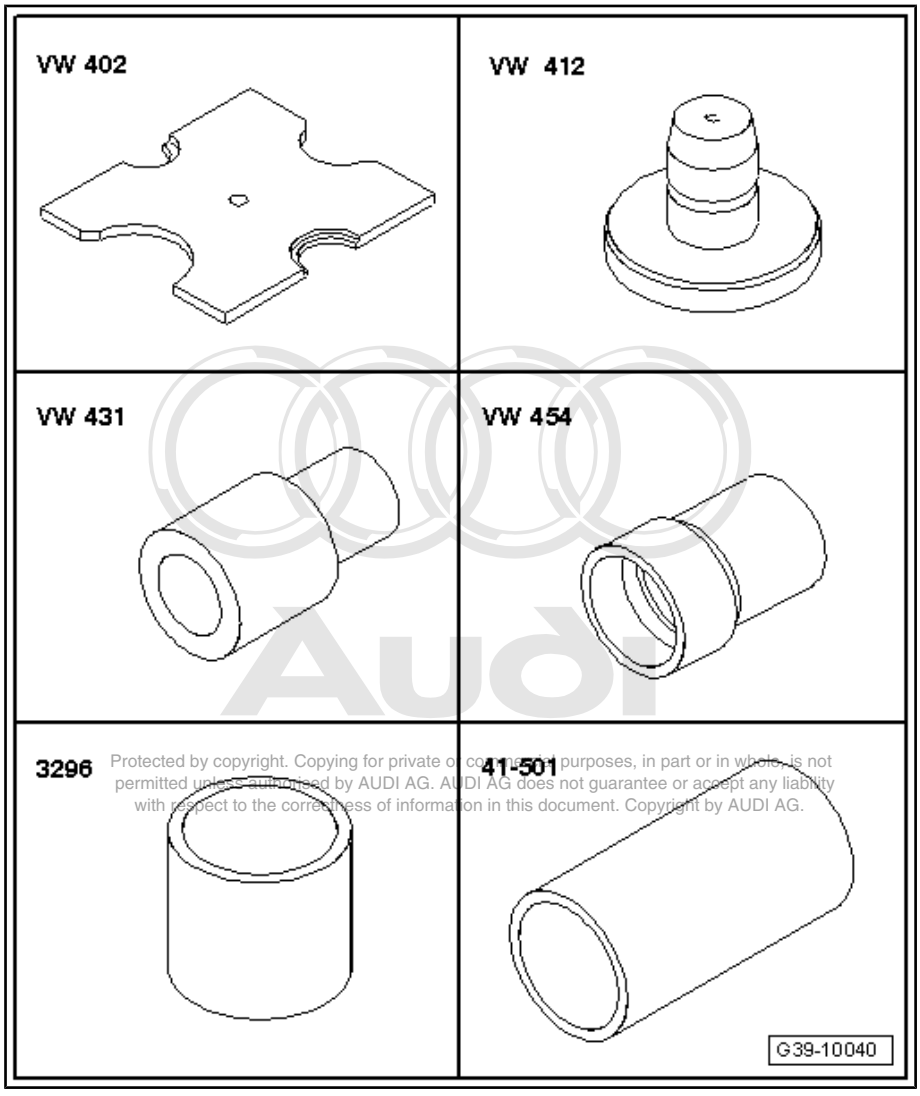
– Secure rear final drive with a new bolt -arrow- to subframe. Tightening torque ⇒ Item 1 (page 96)
– Fill up with high-performance oil for Haldex coupling and check oil level in Haldex coupling ⇒ page 115 .



14.3 Renewing grooved ball bearing for Haldex coupling, final drive “02D/0AV”

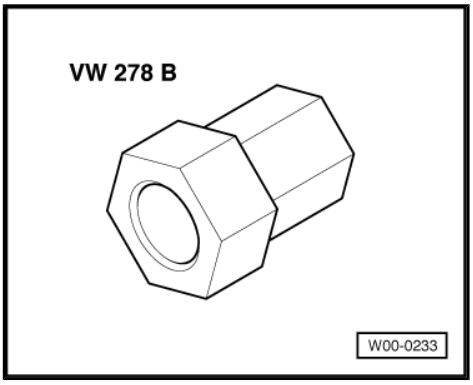
Special tools and workshop equipment required

- Thrust plate -VW 402-
- Press tool -VW 412-
- Press tool -VW 431-
- Press tool -VW 454-
- Tube -3296-
- Drift sleeve -41 - 501-

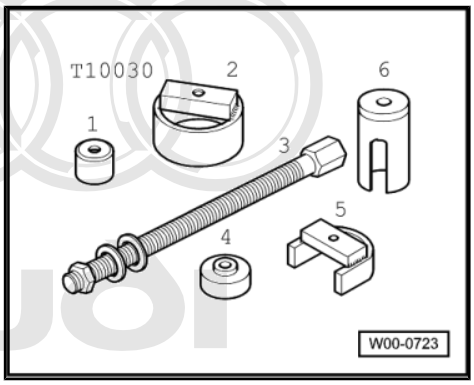


Special tools and workshop equipment required

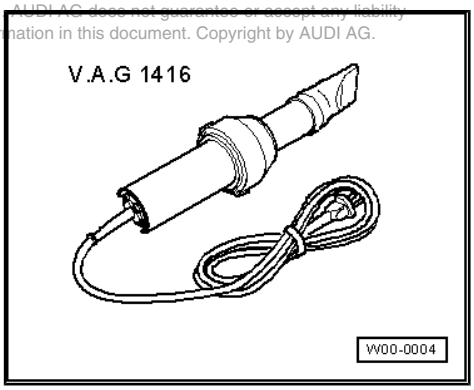
♦ Adjustment wrench -VW 278 B-



♦ Assembly tool -T10030/6-



♦ Hot air blower -V.A.G 1416-

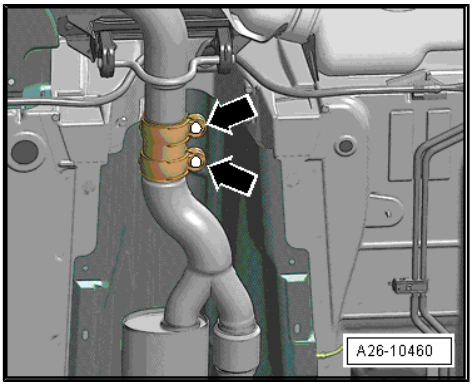


Caution

The flexible joints in the exhaust system can be damaged.

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

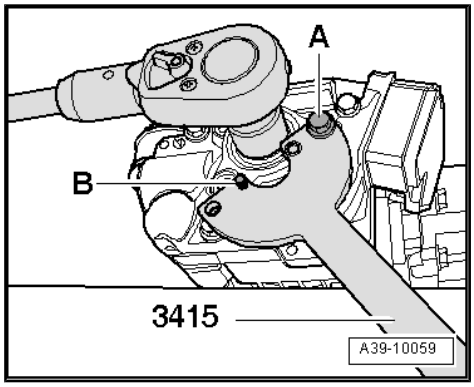
– Disconnect exhaust system at clamp -arrows-.
– Tie up front exhaust pipe on underbody.
– Remove rear section of exhaust system ⇒ Rep. Gr. 26 .
– Remove flexible coupling (rear) ⇒ page 48 .



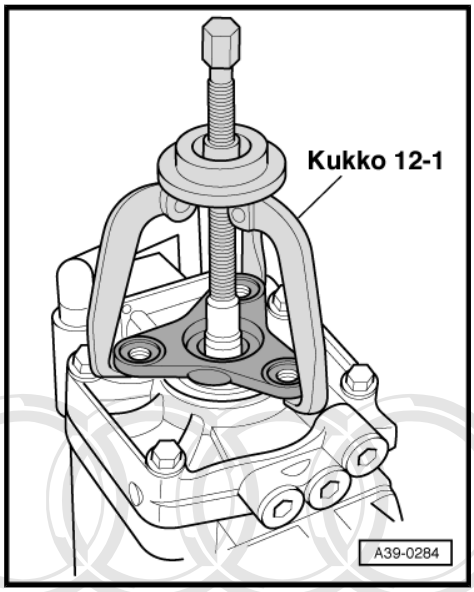
– Unscrew hexagon nut for propshaft flange.

A - Hexagon bolts (M 10 x 25)

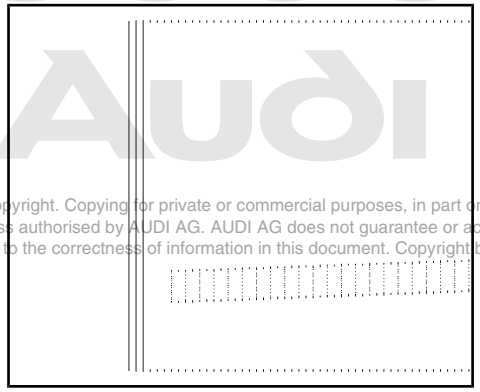
B - Hexagon socket head bolt M8 x 15 (screwed into counterhold tool -3415- from the rear)



– Pull off propshaft flange. If difficult to remove, use three-arm puller, e.g. Kukko 12-1.

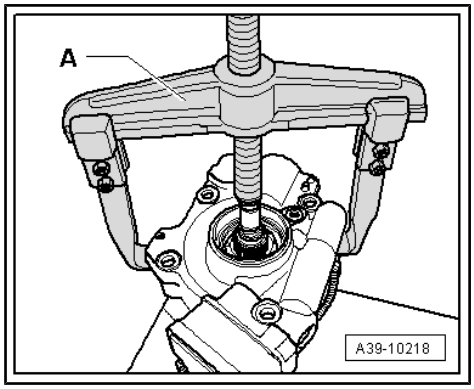


– Pull seal out with oil seal extractor lever -VW 681- .

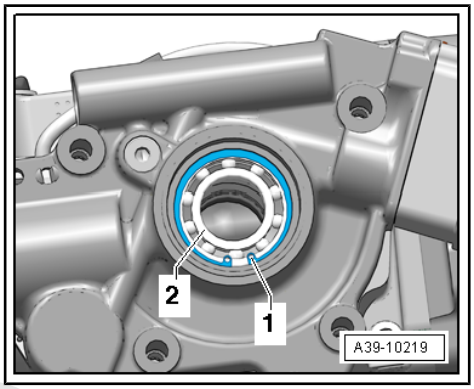


– Remove Haldex coupling ⇒ page 71 .
– Place Haldex coupling on a clean workbench.
– Detach housing for Haldex coupling

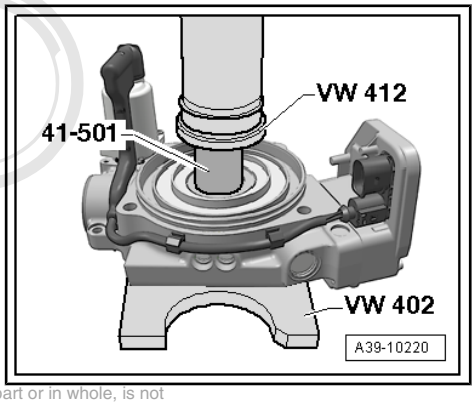
A - Two-arm puller -Kukko 20-20-



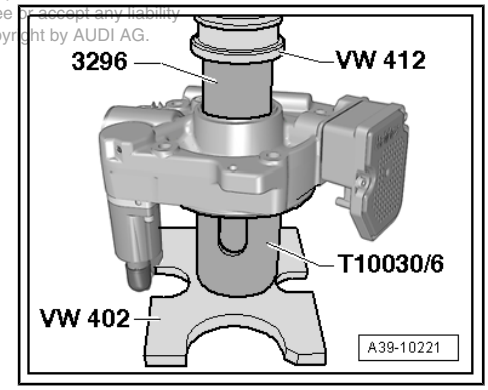
– Remove circlip -1-.



– Press out grooved ball bearing.

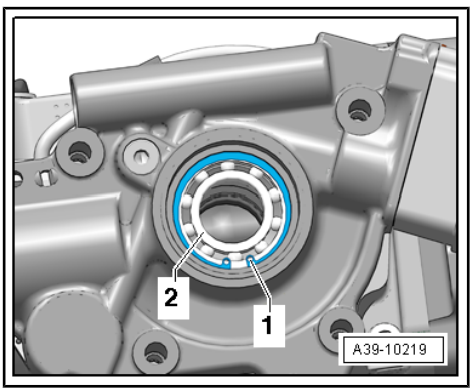


– Carefully press new grooved ball bearing in until stop.



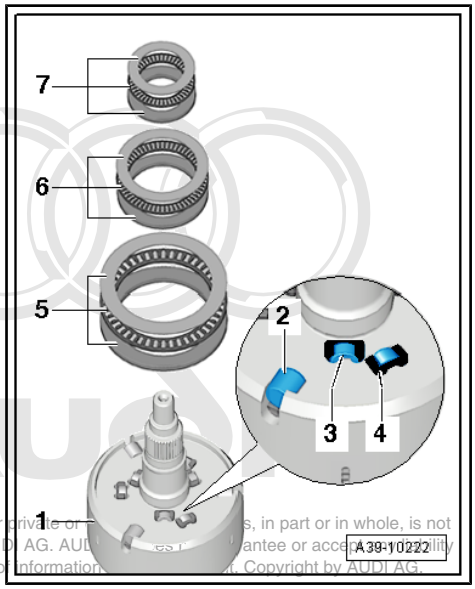
– Fit circlip -1-.

– Heat grooved ball bearing -2- to approx. 80° C using hot air blower -V.A.G 1416- .



– Position axial needle bearings -5 ... 7- on the centre of multi-plate clutch -1-
⇒ Fig. “ Assembly of multi-plate clutch “ , page 77 .

– Fit Haldex coupling housing onto multi-plate clutch -1- by hand.

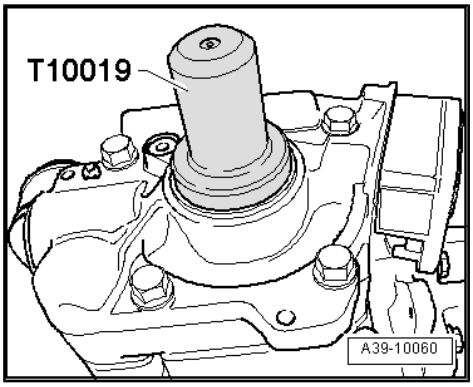


Note

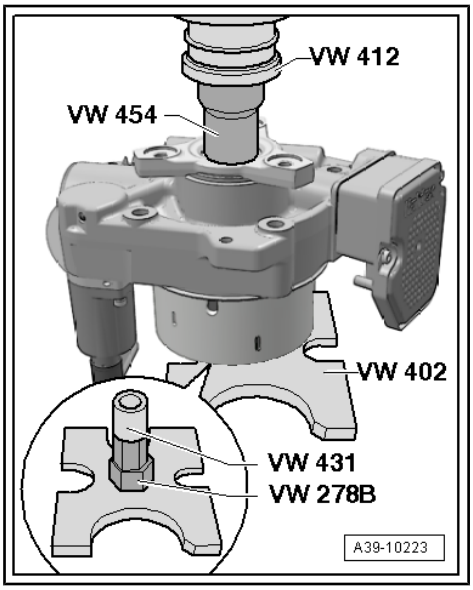
Make sure axial needle bearings -5 ... 7- do not move out of their centred position when fitting housing.

– Before installing, lightly oil outer circumference of new oil seal and space between sealing lips with high performance oil for Haldex coupling .

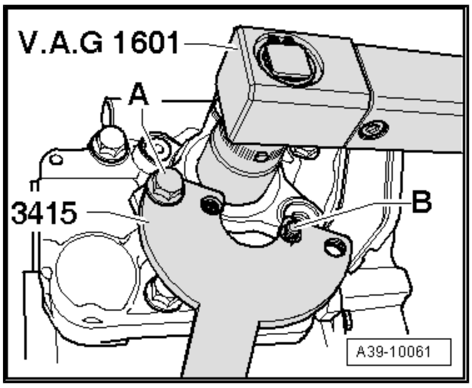
– Drive in new oil seal as far as stop using thrust piece -T10019- . Make sure seal remains straight.



– Press on propshaft flange.



– Apply locking fluid -D 000 600- to new hexagon nut and tighten nut. Tightening torque ⇒ Item 14 (page 76)



A - Hexagon bolts (M 10 x 20)

B - Hexagon socket head bolt M8 x 15 (screwed into counterhold tool -3415- from the rear)

– Install Haldex coupling ⇒ page 73 .

– Install flexible coupling (rear) ⇒ page 48 .

– Install exhaust system and perform stress-free alignment ⇒ Rep. Gr. 26 .

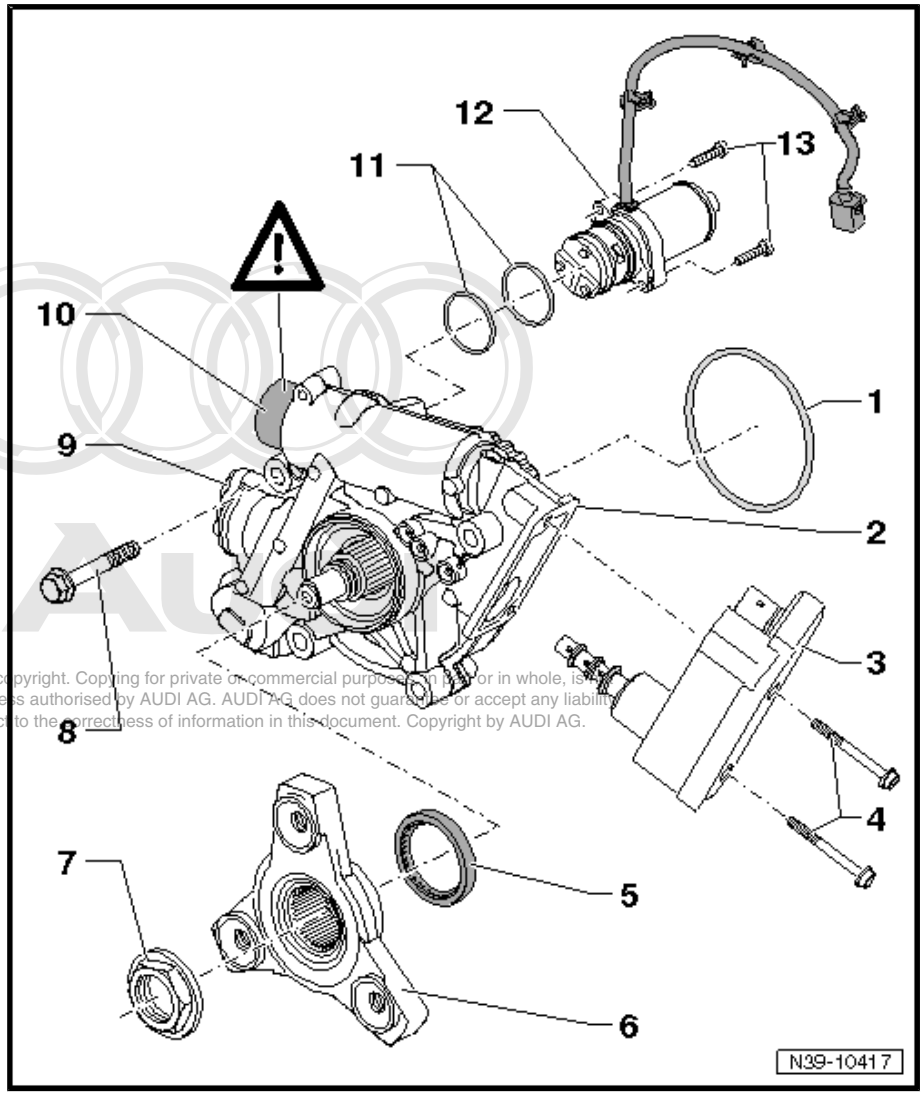
– Install exhaust system and perform stress-free alignment ⇒ Rep. Gr. 26 .

– Fill up with high-performance oil for Haldex coupling and check oil level in Haldex coupling ⇒ page 115 .

15 Exploded view – dismantling and assembling Haldex coupling, rear final drive “0BR/0BY”

For more detailed information refer to:

- ⇒ Self-study programme No. 414 ; 4Motion with Four-Wheel-Coupling Generation IV



1 - Seal

- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

2 - Housing for Haldex coupling

- ❑ Removing and installing Haldex coupling ⇒ page 71

3 - Four-wheel drive control unit -J492-

- ❑ With coupling opening control valve -N373-
- ❑ Removing and installing ⇒ page 68

4 - Bolts

- ❑ 6 Nm

5 - Oil seal for propshaft flange

Renewing ⇒ page 93

6 - Flange for propshaft

- ❑ Removing and installing ⇒ page 93

7 - Nut

- ❑ 210 Nm
- ❑ Apply locking fluid - D 000 600- when fitting

8 - Bolts

- ❑ 4x
- ❑ Tightening torque: 50 Nm

9 - Sealing cap

- ❑ For oil filter housing
- ❑ Filter does not have to be changed

10 - Sealing cap

- ❑ For pressure accumulator

WARNING

Injury risk - DO NOT open cap.

11 - Seal

- ❑ 2x
- ❑ Diameter 34 mm
- ❑ For Haldex coupling pump -V181-
- ❑ Lubricate with high-performance oil for Haldex coupling prior to inserting
- ❑ Always renew

12 - Haldex coupling pump -V181-

- ❑ Removing and installing ⇒ page 89

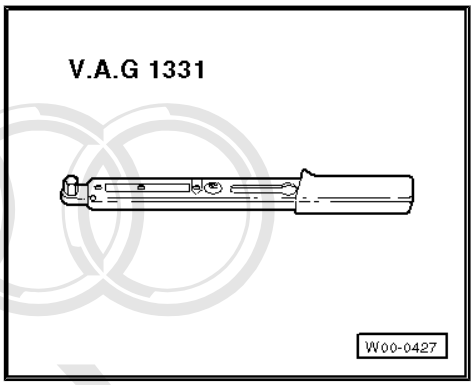
13 - Bolts

- ❑ 6 Nm

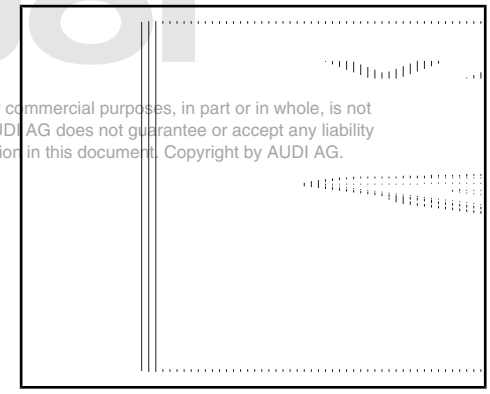
15.1 Removing and installing Haldex coupling pump -V181- , final drive “0BR/0BY”

Special tools and workshop equipment required

- ♦ Torque wrench -V.A.G 1331-



- ♦ Drip tray for workshop hoist -VAS 6208-



Removing

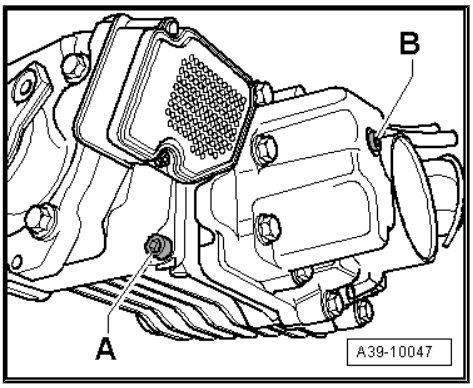
– Switch off ignition.

– Place drip tray underneath.

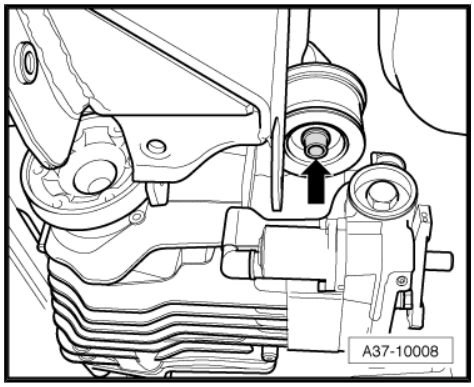
– Remove drain plug -A - and drain high performance oil for Haldex coupling completely.

– Fit drain plug -A- with new seal.

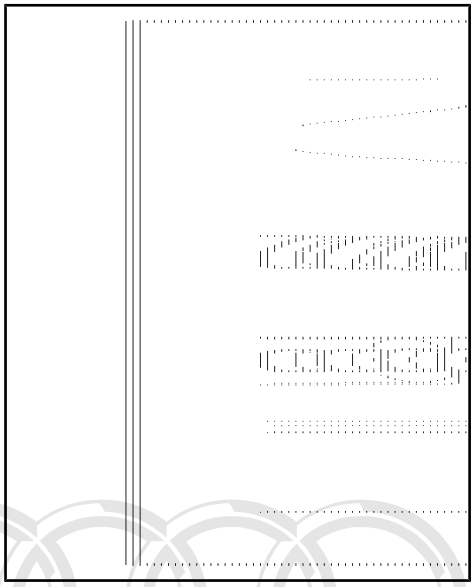
Tightening torque for plug -A-: 30 Nm



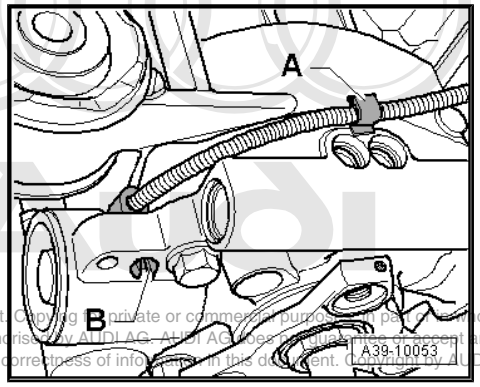
– Loosen securing bolt -arrow- at front mounting bracket for final drive approx. 7 turns and lower final drive slightly.



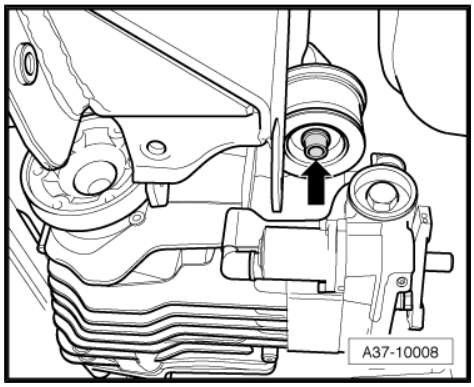
– Unplug connector -arrow- for pump from control unit.



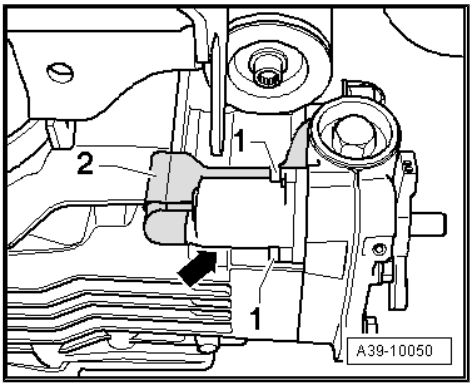
– Detach wiring harness together with retainer -A- from housing and move clear.
– Press retainer tabs -B- together and push into hole in housing as far as possible.



– Re-tighten securing bolt -arrow- finger-tight.
– Position drip tray under final drive.



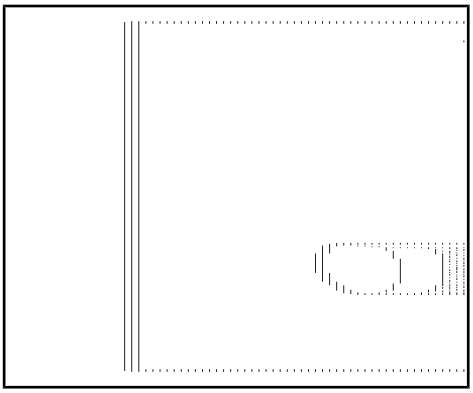
– Unscrew securing bolts for pump -1-.
– Pull out pump -arrow- together with the wiring protection -2- from Haldex coupling housing.



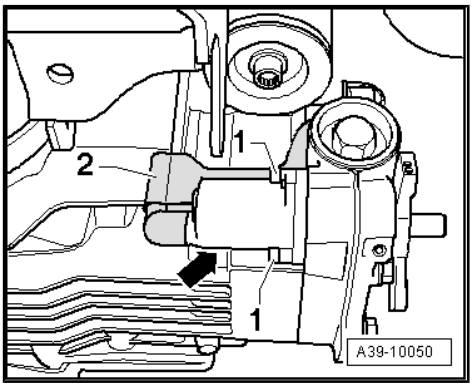
Installing

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

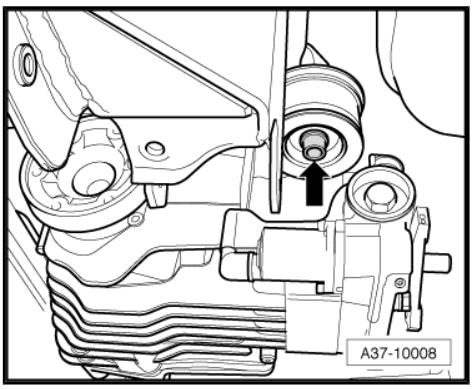
– Renew O-rings -1- and -2-.
– Lightly lubricate O-rings -1- and -2- with high-performance oil for Haldex coupling .



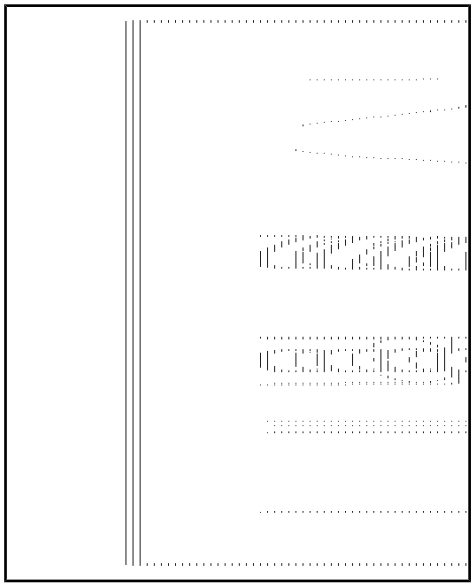
– Press pump -arrow- in until limit stop. Make sure that the wiring protection -2- is properly seated.
– Tighten bolts -1-. Tightening torque ⇒ Item 13 (page 89)



– Unscrew securing bolt -arrow- from front mounting bracket.

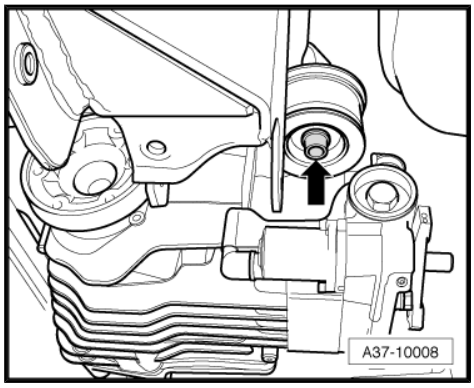


– Clip wiring harness onto top of Haldex coupling and fit connector -arrow- to control unit.



– Secure rear final drive with a new bolt -arrow- to subframe. Tightening torque ⇒ Item 1 (page 96)

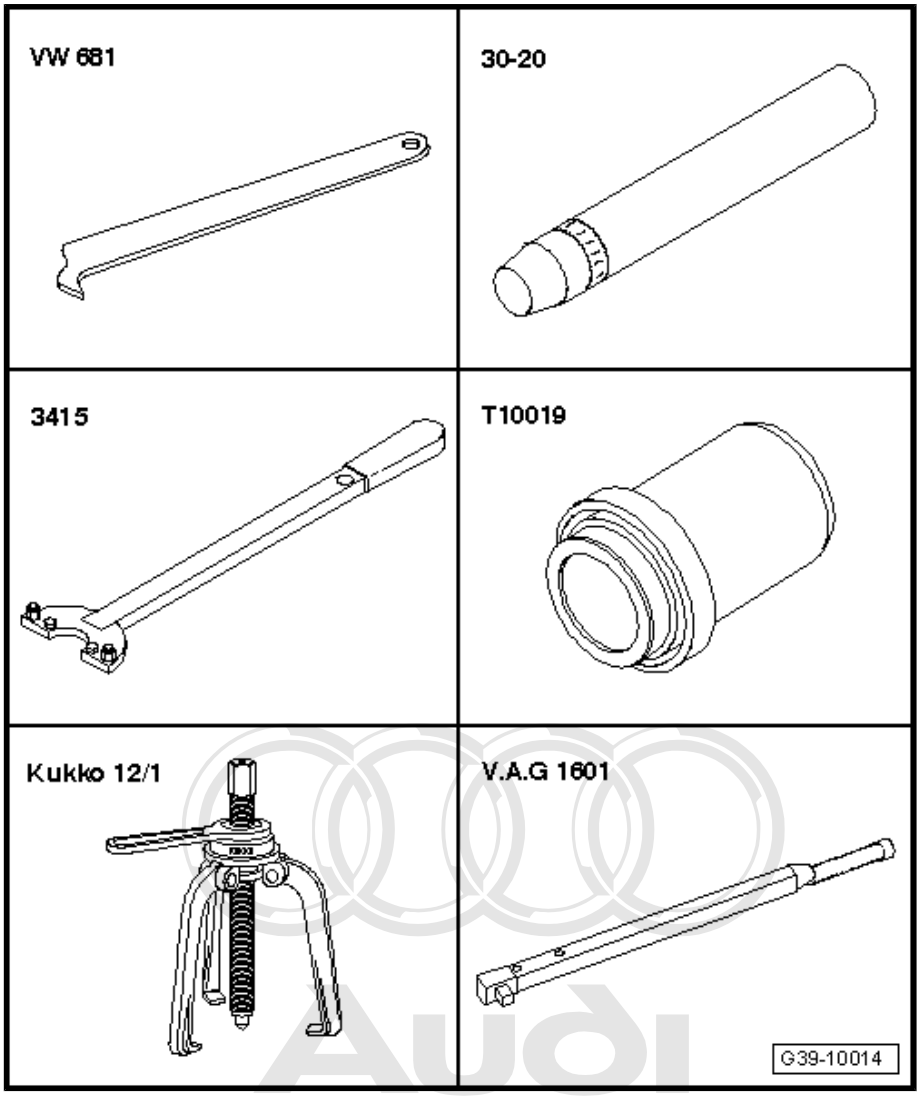
– Fill up with high-performance oil for Haldex coupling and check oil level in Haldex coupling ⇒ page 115 .



16 Renewing oil seal for propshaft flange at rear final drive - final drive remains installed

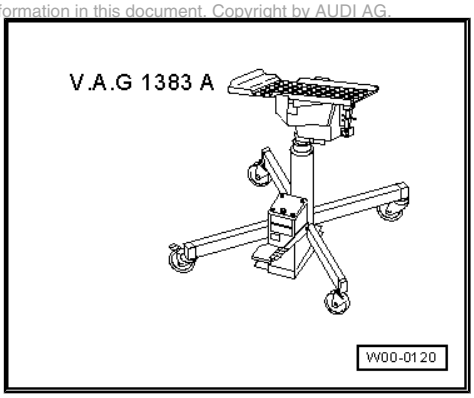
Special tools and workshop equipment required

- Oil seal extractor lever -VW 681-
- Drift sleeve -30-20-
- Counterhold tool -3415-
- Thrust piece -T10019-
- Puller -Kukko 12/1-
- Torque wrench -V.A.G 1601-

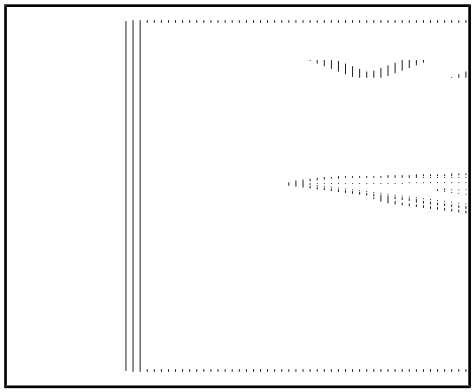


Special tools and workshop equipment required

- Engine/gearbox jack -V.A.G 1383 A- with universal support -V.A.G 1359/2-



♦ Drip tray for workshop hoist -VAS 6208-



♦ Locking fluid -D 000 600-

♦ Bolt M10 x 25

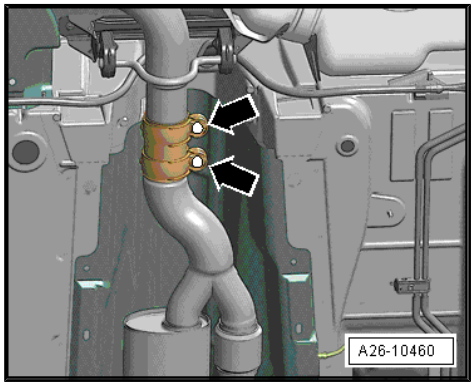
♦ Hexagon socket head bolt M8 x 15

Removing

Caution

The flexible joints in the exhaust system can be damaged.

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



– Disconnect exhaust system at clamp -arrows-.

– Tie up front exhaust pipe on underbody.

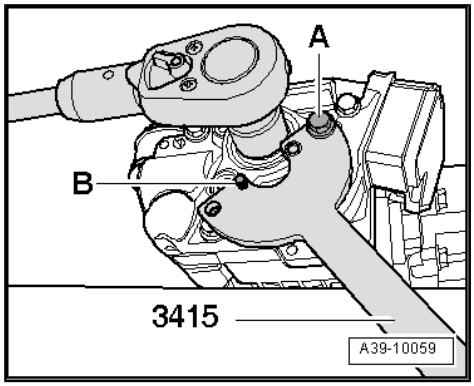
– Remove rear section of exhaust system ⇒ Rep. Gr. 26 .

– Remove flexible coupling (rear) ⇒ page 48 .

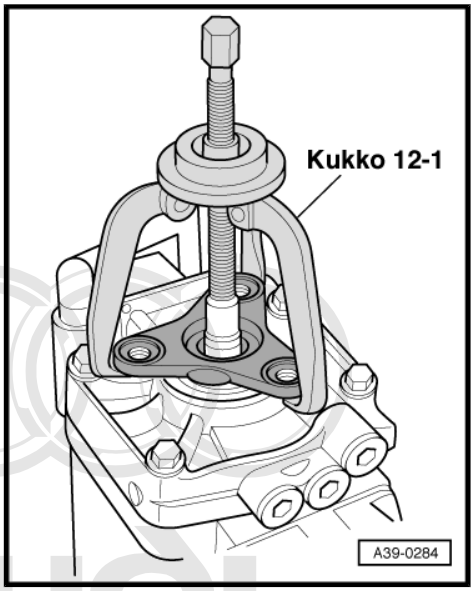
– Unscrew hexagon nut for propshaft flange.

A - Hexagon bolts (M 10 x 25)

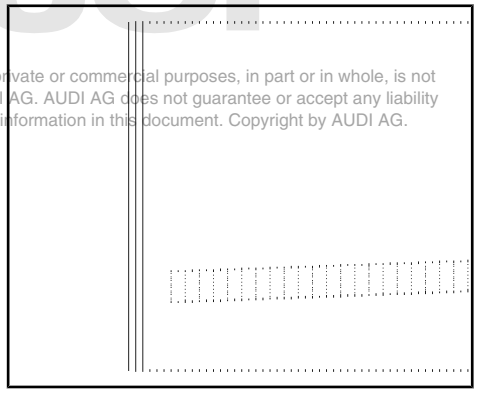
B - Hexagon socket head bolt M8 x 15 (screwed into counterhold tool -3415- from the rear)



– Pull off propshaft flange. If difficult to remove, use three-arm puller, e.g. Kukko 12-1.



– Pull seal out with oil seal extractor lever -VW 681- .

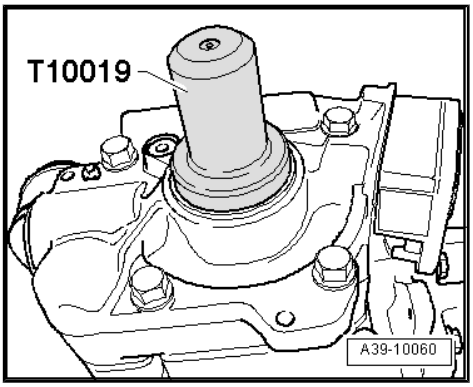


Installing

– Before installing, lightly oil outer circumference of new oil seal and space between sealing lips with high performance oil for Haldex coupling .

– Drive in new oil seal as far as stop using thrust piece -T10019- . Make sure seal remains straight.

– Drive on propshaft flange using drift sleeve -30 - 20- .



– Apply locking fluid -D 000 600- to new hexagon nut and tighten nut. Tightening torque ⇒ Item 14 (page 76)

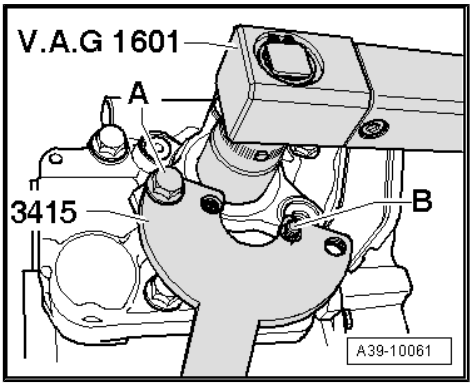
A - Hexagon bolts (M 10 x 20)

B - Hexagon socket head bolt M8 x 15 (screwed into counterhold tool -3415- from the rear)

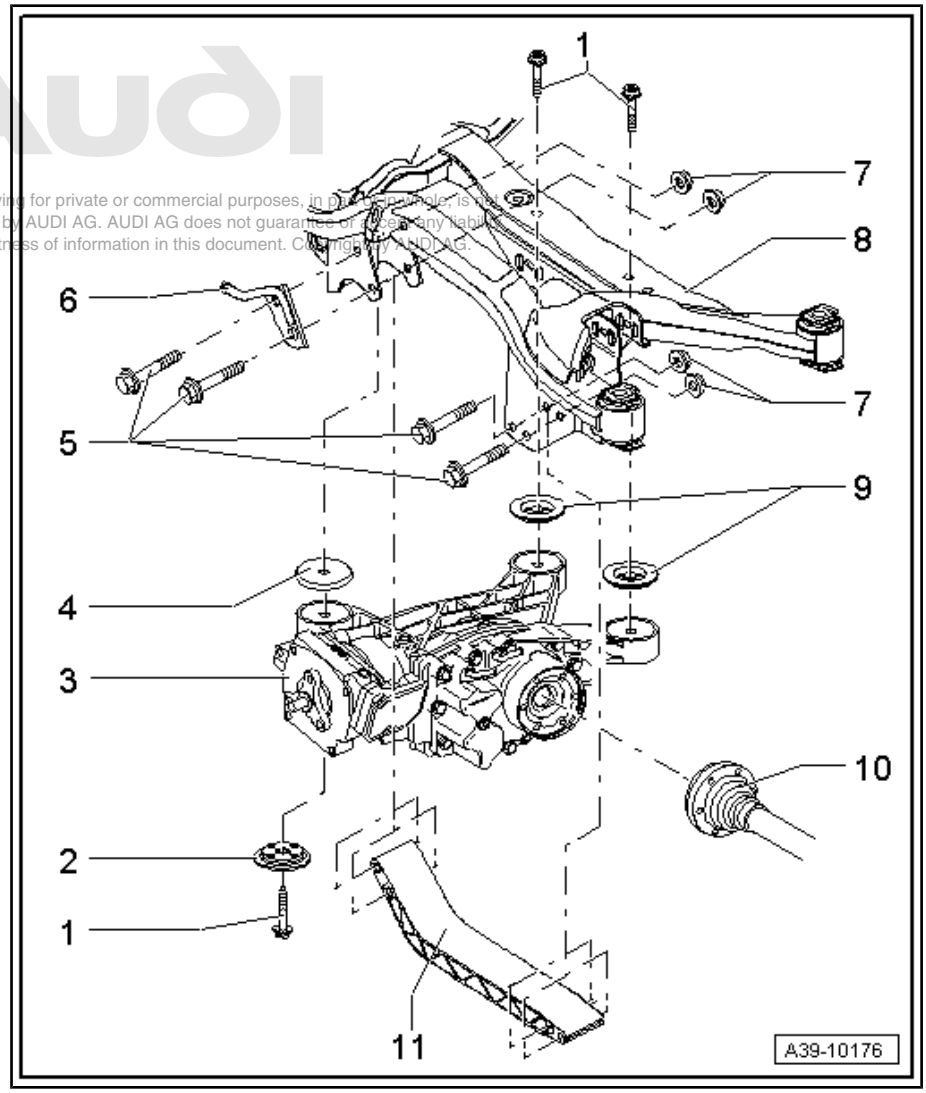
– Install flexible coupling (rear) ⇒ page 48 .

– Install exhaust system and align free of stress ⇒ Rep. Gr. 26 .

– Check oil level in Haldex coupling ⇒ page 115 .



17 Exploded view – Removing and installing rear final drive



1 - Bolt
- ❑ 60 Nm + 90°
- ❑ 3x
- ❑ Always renew

2 - Stop plate
- ❑ Fit onto bonded rubber bush ⇒ page 111

3 - Rear final drive
- ❑ Removing ⇒ page 96
- ❑ Installing ⇒ page 100
- ❑ Removing and installing (TT RS) ⇒ page 103
- ❑ Removing and installing bonded rubber bush ⇒ page 107

4 - Washer
- ❑ Installation position: chamfer (smaller diameter) faces subframe

5 - Bolt
- ❑ For cross member
- ❑ Only fitted on vehicles with cross member ⇒ Item 11 (page 96)
- ❑ 4x
- ❑ Always renew

6 - Bracket
- ❑ Only fitted on vehicles with cross member ⇒ Item 11 (page 96)

7 - Nut
- ❑ Only fitted on vehicles with cross member ⇒ Item 11 (page 96)
- ❑ Tightening torque ⇒ Rep. Gr. 42
- ❑ 4x
- ❑ Always renew

8 - Rear subframe

9 - Stop plate
- ❑ Fit onto bonded rubber bush ⇒ page 111

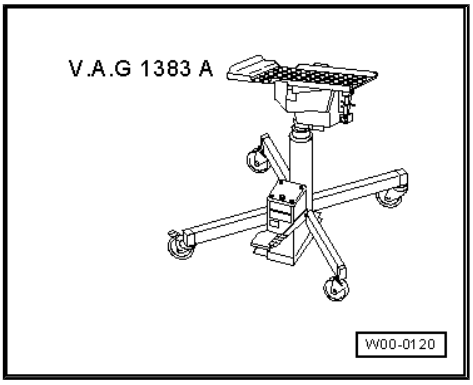
10 - Drive shaft
- ❑ Removing and installing ⇒ Rep. Gr. 42

11 - Cross member
- ❑ Not fitted on vehicles with steel subframe ⇒ Item 8 (page 96)
- ❑ Removing and installing ⇒ Rep. Gr. 42

17.1 Removing rear final drive (not TT RS)

Special tools and workshop equipment required

- Engine/gearbox jack -V.A.G 1383 A- with universal support -V.A.G 1359/2-



Removing

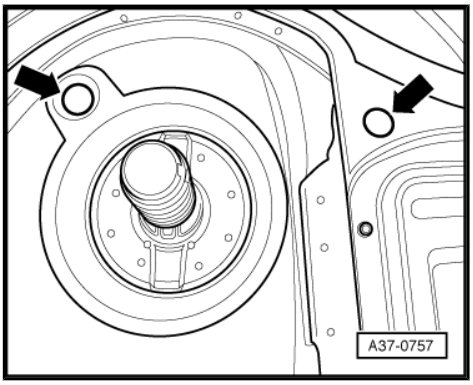
– Remove spare wheel (if fitted).

– Remove spare wheel well and foam inserts.

Audi A3

– Remove the 2 rubber plugs -arrows- in luggage compartment floor.

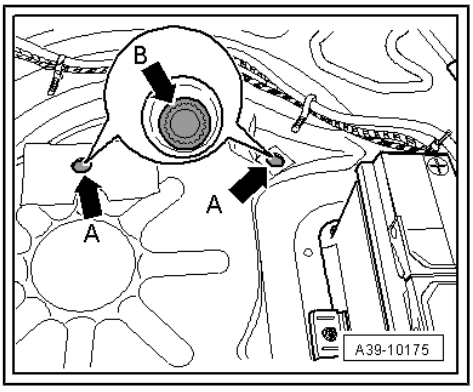
– Unscrew the 2 bolts for final drive support (accessible from above through holes -arrows-.



Audi TT

– Remove the two rubber plugs and/or tape -arrows A- in luggage compartment floor.

– Unscrew the two bolts for final drive mountings -arrow B- (accessible from above through holes -arrows A-).



Continued for all vehicles:

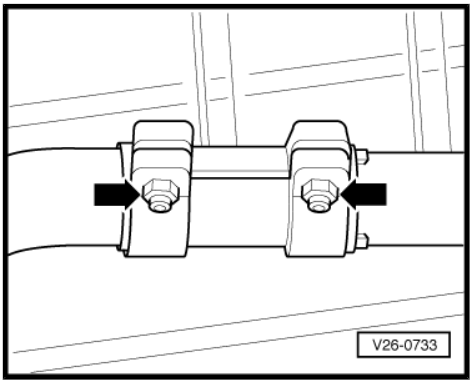
– Disconnect exhaust system at clamp -arrows-.

– Tie up front exhaust pipe on underbody.

Caution

The flexible joints in the exhaust system can be damaged.

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



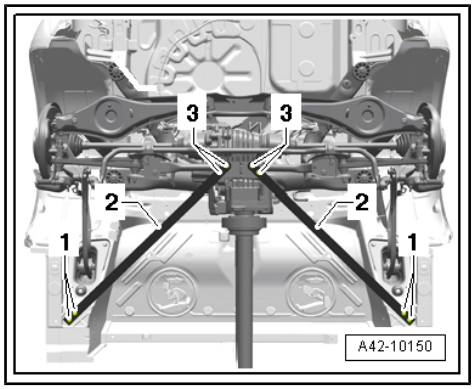
– Remove rear section of exhaust system ⇒ Rep. Gr. 26 .

– Remove flexible coupling (rear) ⇒ page 48 .

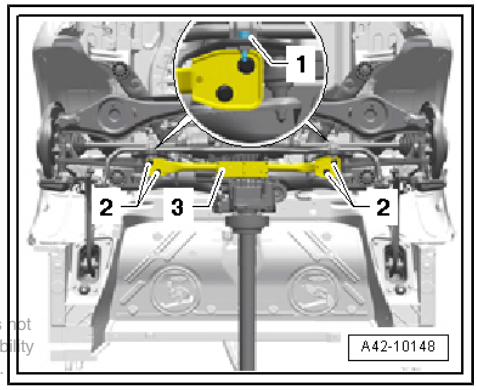
– Tie propshaft up to underbody on the side.

TT Roadster:

– Remove bolts -1- and -3- and detach diagonal struts -2-.

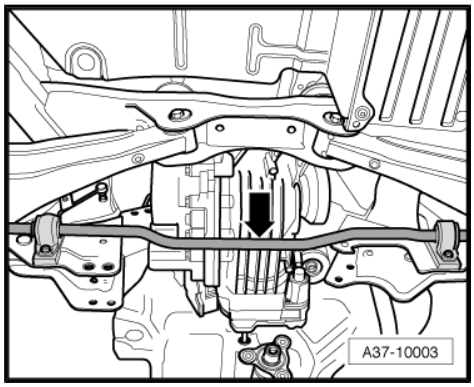


– Remove lower bolts of anti-roll bar clamps -1-.
– Remove bolts -2- and detach cross member -3-.

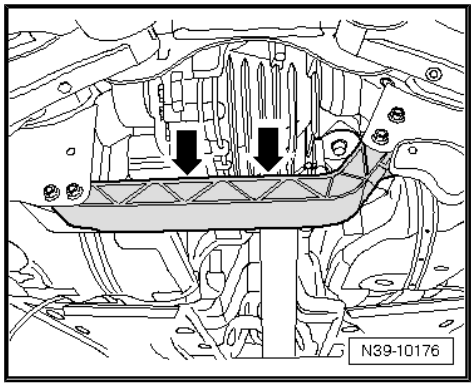


Continued for all vehicles:

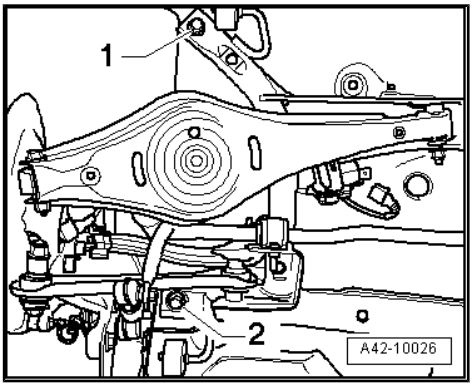
– Remove anti-roll bar -arrow- ⇒ Rep. Gr. 42 .
– Detach drive shafts (left and right) from rear final drive ⇒ Rep. Gr. 42



Vehicles with cross member -arrows-



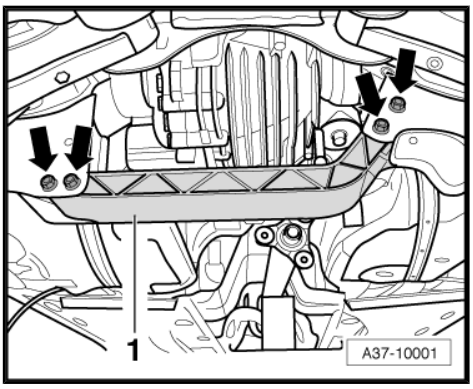
– Remove both front bolts on subframe -1-.



Note

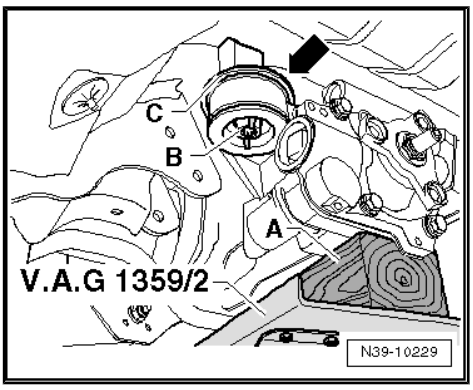
Do not loosen rear bolts on subframe -2-.

– Remove cross member -1- -arrows- ⇒ Rep. Gr. 42 .

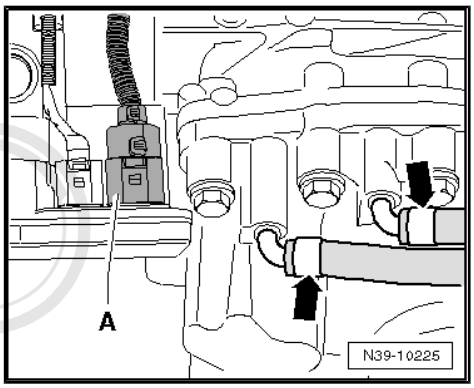


Continued for all vehicles

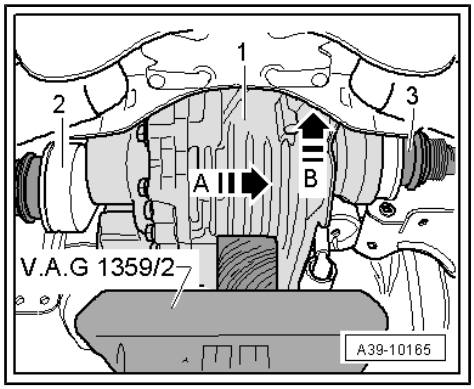
– Place engine and gearbox jack -V.A.G 1383 A- with universal gearbox support -V.A.G 1359/2- and a wooden block -A- below rear final drive and take up weight of final drive.
– Remove front securing bolt -B-.
– Remove washer -C-.



– Unplug connector -A- on four-wheel drive control unit -J492- .
– Disconnect breather lines -arrows- from final drive.



– Move final drive -1- in direction of -arrow A- as far to the right as possible.
– Press final drive on right side upwards in direction of -arrow B-
– At the same time, guide drive shaft (left-side) -2- out of flange shaft.
– Lower final drive slightly using gearbox jack -V.A.G 1383 A- and carefully pull out from rear subframe.
– Lower final drive and guide out past drive shafts.



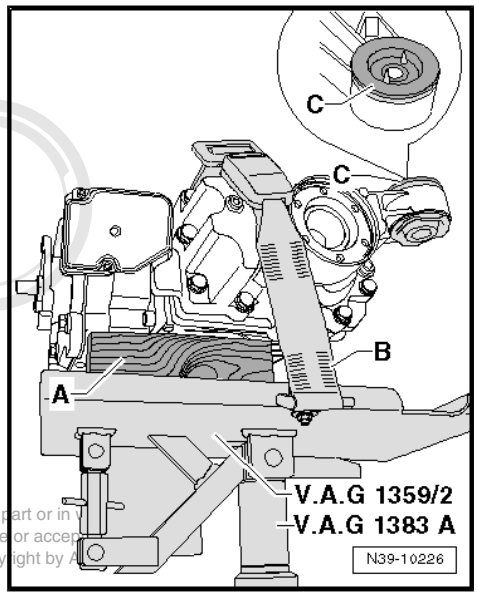
17.2 Installing rear final drive (not TT RS)

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

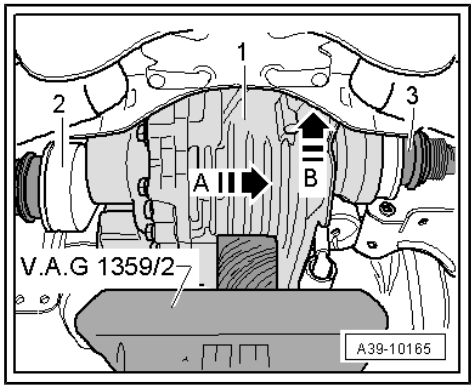
– Set rear final drive on engine and gearbox jack -V.A.G 1383 A- with universal gearbox support -V.A.G 1359/2- .

A - Wooden block

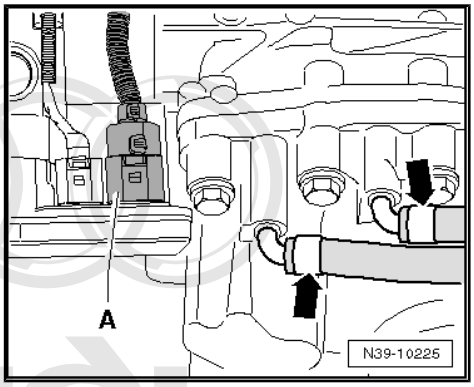
– Secure final drive against falling using belt -B- from universal gearbox support -V.A.G 1359/2- .
– Before installing final drive, check that stop plates -C- are fitted onto both rear bonded rubber bushes.



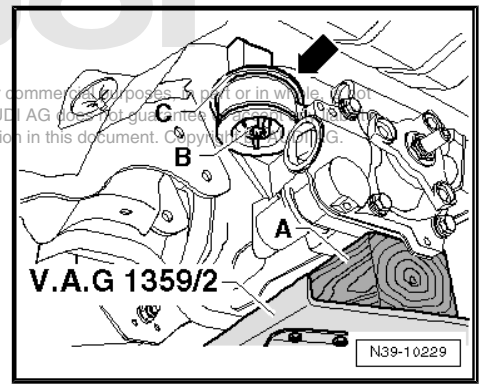
– Lift rear final drive -1-. At the same time, guide drive shaft (right-side) -3- into flange shaft.
– Move final drive -1- in direction of -arrow A- as far to the right as possible.
– Press final drive on right side upwards in direction of -arrow B-.
– At the same time, guide drive shaft (left-side) -2- into flange shaft.



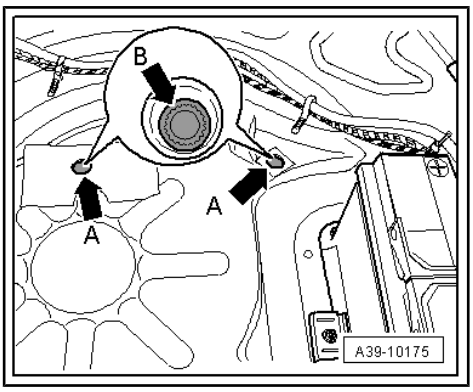
– Plug in connector -A- and push breather lines -arrows- onto breather pipes.



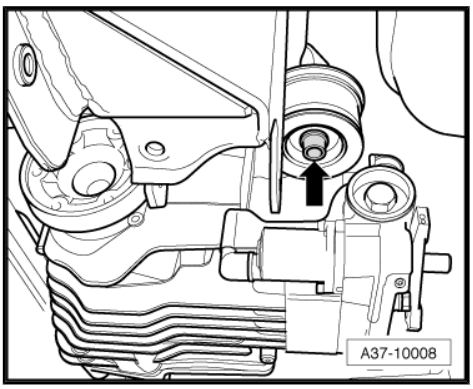
– Fit stop plate -C- between bonded rubber bush and subframe, with chamfer -arrow- facing upwards.
– Screw in bolt -B- hand-tight.
– Detach engine and gearbox jack -V.A.G 1383 A- with universal gearbox support -V.A.G 1359/2- from final drive.



– Install and tighten both rear bolts for final drive -arrow B-. Tightening torque ⇒ Item 1 (page 96)
– Plug both holes -arrows A- in luggage compartment floor.
– Fit spare wheel well and foam inserts.
– Fit spare wheel (if applicable).



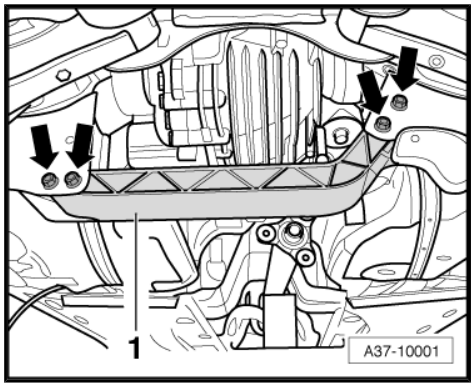
– Tighten final drive mountings from below -arrow-. Tightening torque ⇒ Item 1 (page 96)



Vehicles with cross member -1-

– If fitted, install cross member -1- -arrows- ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 42 .

– Secure rear subframe ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 42 .



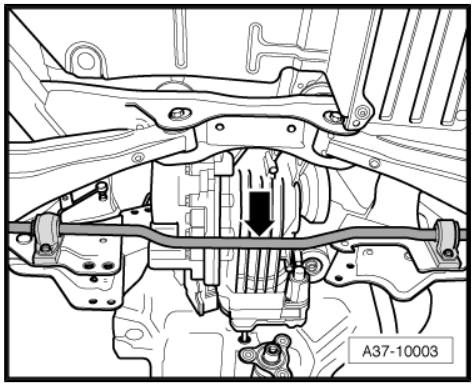
Continued for all vehicles

– Secure anti-roll bar -arrow- ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 42 .

– Secure drive shafts ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 42 .

– Install flexible coupling (rear) ⇒ page 48 .

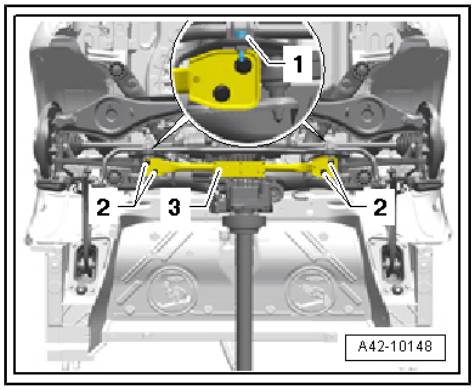
– Install exhaust system and align free of stress ⇒ Rep. Gr. 26 .



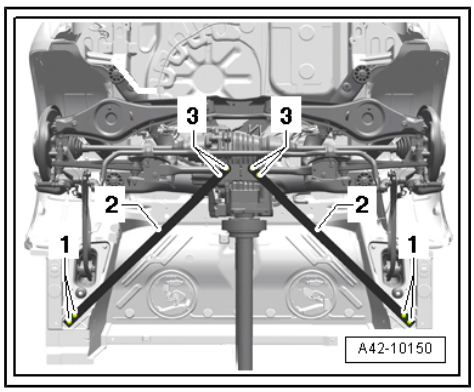
TT Roadster:

– Install cross member -3- and tighten bolts -2- ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 42 ; Removing and installing cross member - Roadster .

– Then tighten bolts -1- ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 42 ; .



– Install diagonal struts -2- and tighten bolts -1- and -3- ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. Gr. 42 ; Removing and installing diagonal strut- Roadster .



Continued for all vehicles:

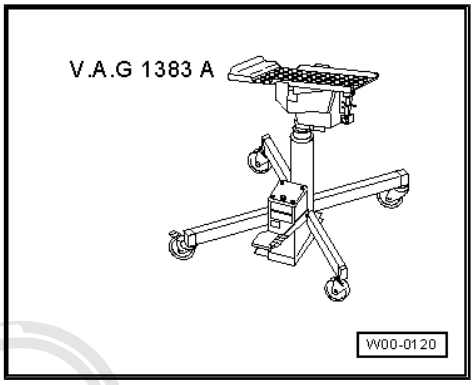
Note

When renewing the rear final drive, check gear oil level and oil level of the Haldex coupling and top up if necessary:
⇒ page 123 and ⇒ page 115 .

18 Removing and installing rear final drive (Audi TT RS)

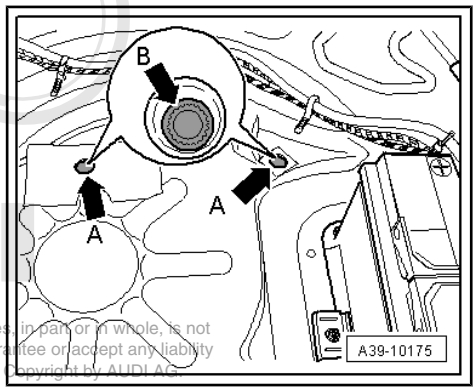
Special tools and workshop equipment required

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



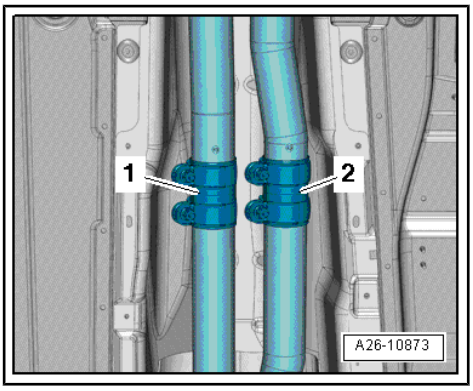
Removing

– Remove spare wheel (if fitted).
– Remove spare wheel well or foam inserts.
– Remove rubber plugs or tape -arrows A- in luggage compartment floor.
– Working through these apertures, unscrew bolts -arrow B-.



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

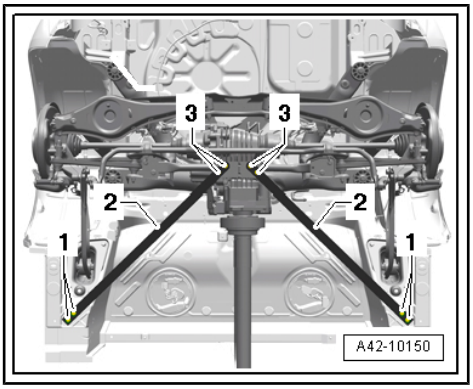
> **Caution**
>
> *The flexible joint in the starter catalytic converter can be damaged.*
>
> - *The flexible joint must not be bent further than 10°.*



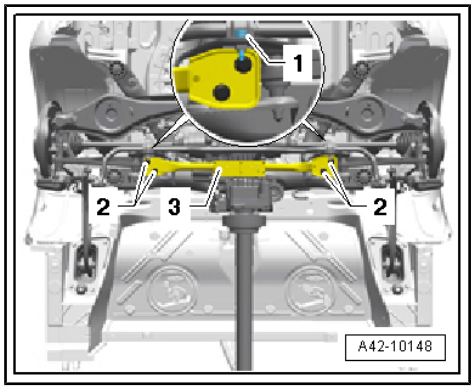
– Tie up catalytic converters on underbody.
– Remove rear section of exhaust system ⇒ Rep. Gr. 26 .
– Remove rear flexible coupling ⇒ page 48 .
– Tie propshaft up to underbody on the side.

TT Roadster:

– Remove bolts -1- and -3- and detach diagonal struts -2-.

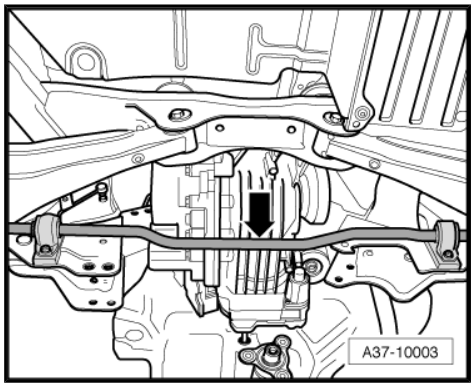


– Remove bottom bolts securing clamps -1- for anti-roll bar.
– Remove bolts -2- and detach cross member -3-.

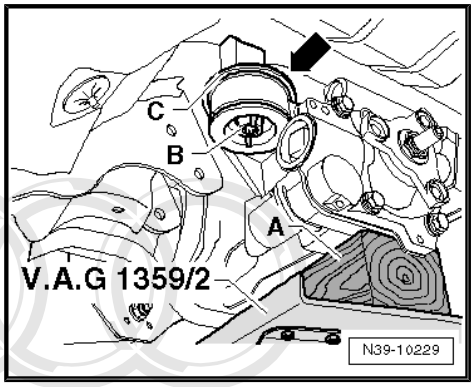


Continued for all vehicles:

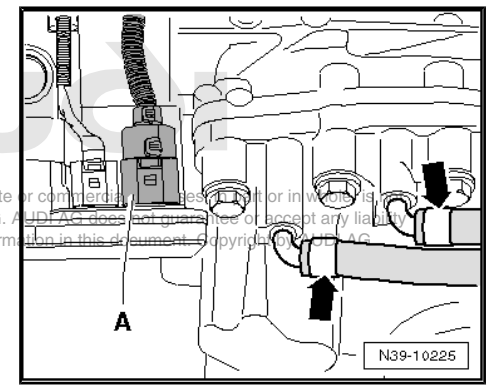
– Remove anti-roll bar -arrow- ⇒ Rep. Gr. 42 .
– Unbolt drive shafts (both sides) from rear final drive ⇒ Rep. Gr. 42 .



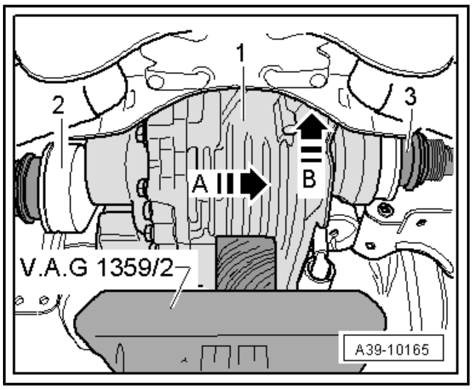
– Place engine and gearbox jack -V.A.G 1383 A- with universal support -1359/2- and wooden block -A- below rear final drive and take up weight of final drive.
– Remove bolt -B- (left and right).
– Remove stop plate -C-.



– Unplug electrical connector -A- on four-wheel drive control unit -J492- .
– Release hose clips -arrows- and detach breather lines.



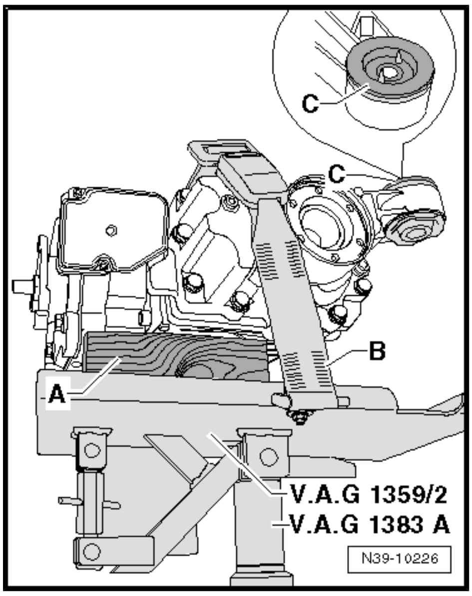
– Move rear final drive -1- as far to the right as possible -arrow A- and push upwards -arrow B-.
– At the same time, guide drive shaft (left-side) -2- out of flange shaft.
– Lower rear final drive slightly and carefully pull out of rear subframe using engine and gearbox jack -V.A.G 1383 A- .
– Lower rear final drive and guide out past drive shafts.



– Secure rear final drive -1- with strap -B- to prevent it dropping.

Installing

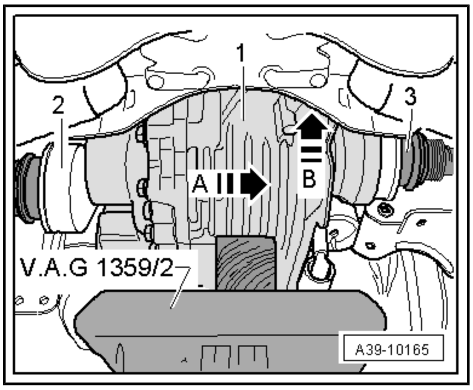
• Tightening torques ⇒ page 96



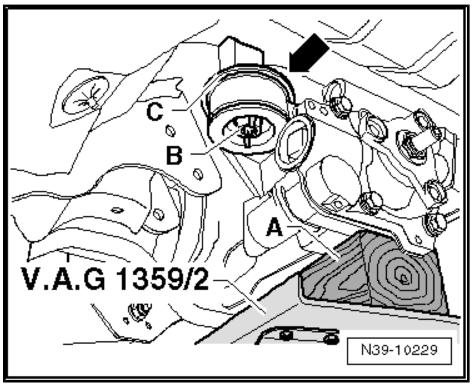
Note

Secure all hose connections with the correct hose clips (as original equipment); refer to ⇒ Electronic parts catalogue .

– Check that stop plate -C- is fitted on bonded rubber bushes on both sides.
– Bring rear final drive into position under vehicle, supported by wooden block -A- and secured with strap -B-.



– Raise rear final drive -1-, and at the same time guide drive shaft (right-side) -3- into flange shaft.
– Move rear final drive as far to the right as possible -arrow A- and push upwards -arrow B-.
– At the same time, guide drive shaft (left-side) -2- into flange shaft.



– Fit stop plate -C- between bonded rubber bush and subframe, with chamfer -arrow- facing upwards.
– Screw in bolts -B- (bottom, left and right) by hand until they make contact.

– Tighten bolts -arrow B- (top, left and right).

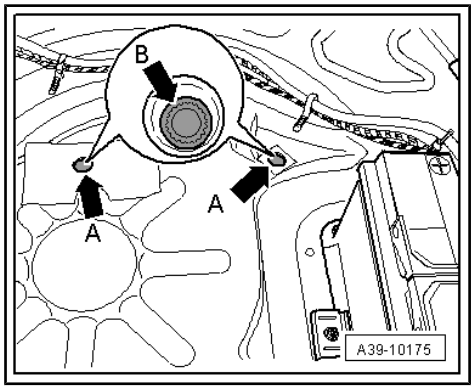
– Tighten bottom bolts for rear final drive.

The remaining installation steps are carried out in reverse sequence; note the following:

– Install exhaust system ⇒ Rep. Gr. 26 .

– Install anti-roll bar ⇒ Rep. Gr. 42 .

– TT Roadster: install cross member and diagonal struts ⇒ Rep. Gr. 42 .



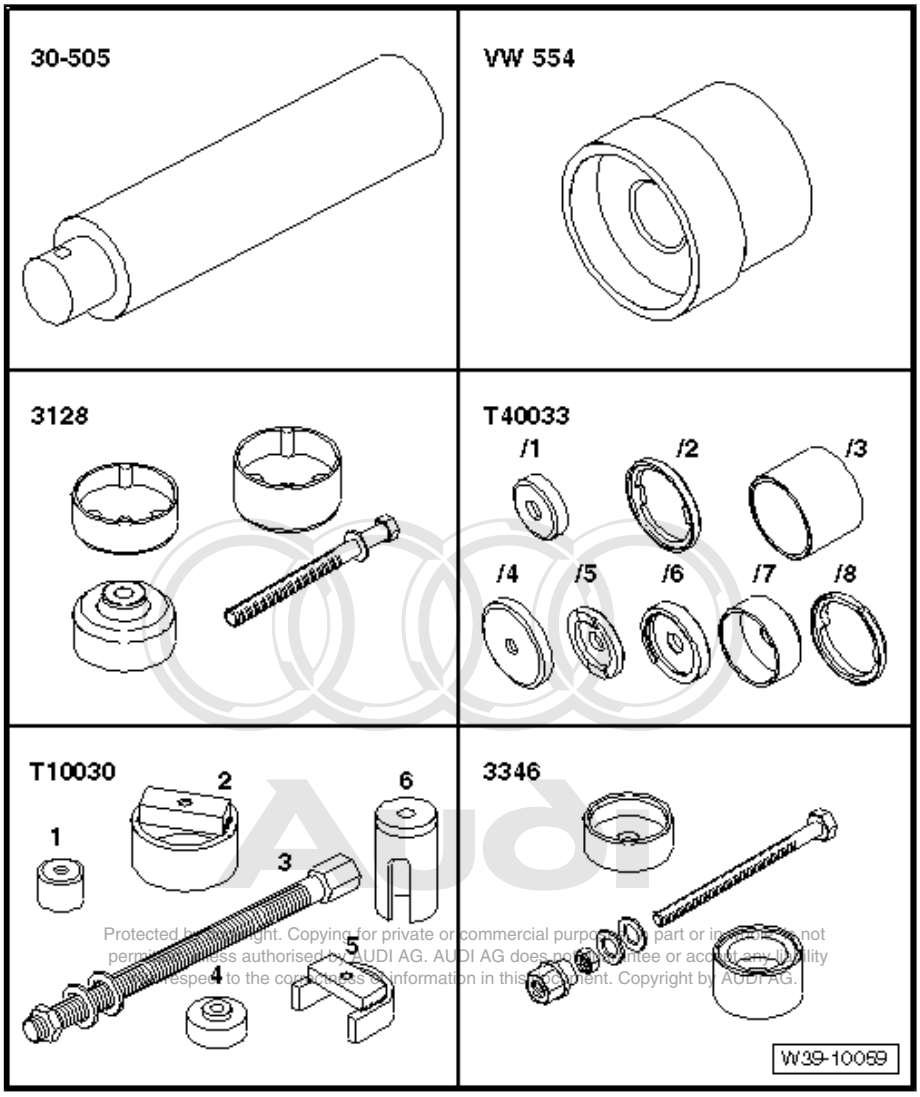
Note

When renewing the rear final drive, check gear oil level and oil level of the Haldex coupling and top up if necessary:
⇒ page 123 and ⇒ page 115 .

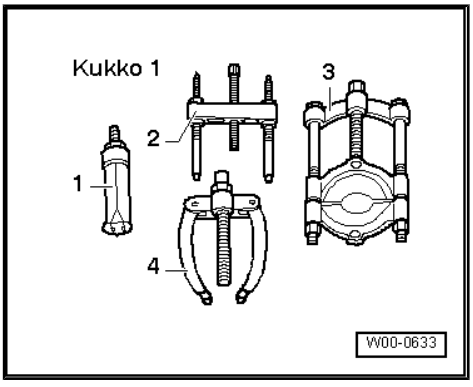
19 Renewing bonded rubber bushes in rear final drive - exploded view

Special tools and workshop equipment required

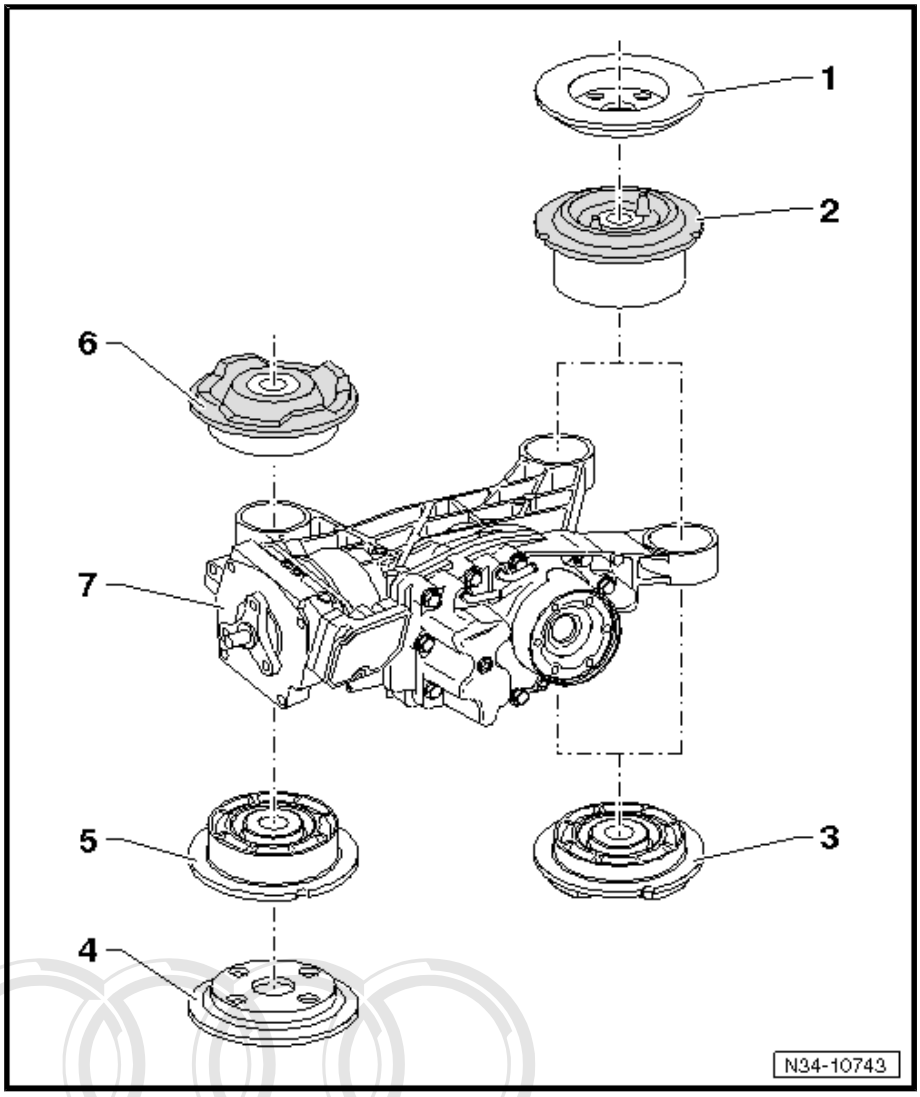
- Mandrel -30 - 505-
- Press tool -VW 554-
- Fitting tool -3128-
- Press tool -T40033/1-
- Cross piece -T10030/5-
- Spindle -3346/2-
- Nut -3346/3-



- -1- Internal puller -Kukko 21/1-



- -4- Counter-support -Kukko 22/1-



1 - Stop plate

- ❑ Pull off before removing bonded rubber bushes ⇒ Item 2 (page 108)
- ❑ Fitting onto bonded rubber bush ⇒ Item 2 (page 108) ⇒ page 111

2 - Bonded rubber bush “top rear”

- ❑ Removing ⇒ page 109
- ❑ Identification of bonded rubber bushes “top rear” and “bottom front” ⇒ page 110
- ❑ Installation position ⇒ page 111
- ❑ Installing ⇒ page 109

3 - Bonded rubber bush “bottom rear”

- ❑ Removing ⇒ page 109
- ❑ Installing ⇒ page 109

4 - Stop plate

- ❑ Pull off before removing bonded rubber bush ⇒ Item 5 (page 108)
- ❑ Fitting onto bonded rubber bush ⇒ Item 5 (page 108) ⇒ page 111

5 - Bonded rubber bush “bottom front”

- ❑ Removing ⇒ page 109
- ❑ Identification of bonded rubber bush “top rear” and “bottom front” ⇒ page 110
- ❑ Installation position ⇒ page 111
- ❑ Installing ⇒ page 110

6 - Bonded rubber bush “top front”

- ❑ Removing ⇒ page 110
- ❑ Installing ⇒ page 110

7 - Rear final drive

- ❑ Removing and installing ⇒ page 96
- ❑ Removing and installing (TT RS) ⇒ page 103

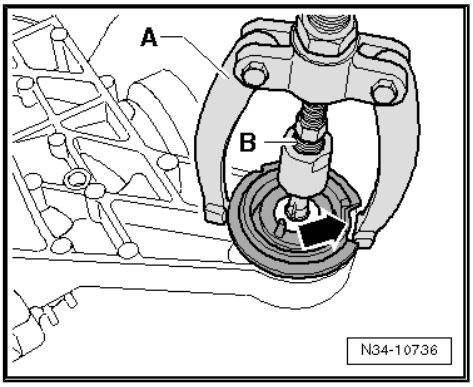
Pulling out bonded rubber bush “top rear”

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

B - Internal puller 12 ... 16 mm , e.g. -Kukko 21/1-

– Break off a small piece out of collar on bonded rubber bush -arrow- so you can apply counter-support .

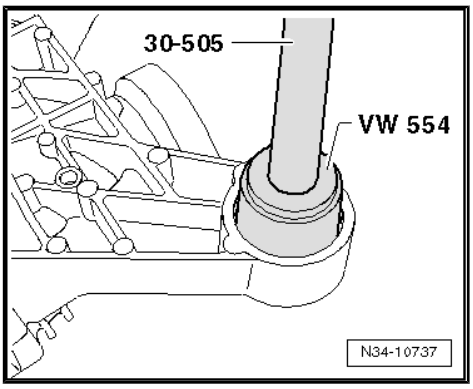
– Apply internal puller in joint between top and bottom bonded rubber bush and apply tension to puller.



Driving out bonded rubber bush “bottom rear”

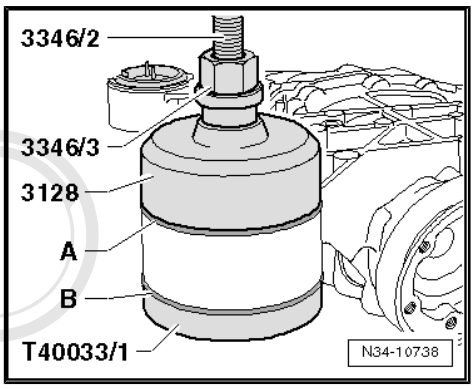
Note

If the bonded rubber bush is to be replaced separately, it can also be pulled out using counter-support , e.g. -Kukko 22/1- and internal puller 12...16 mm , e.g. -Kukko 21/1- ⇒ page 109 .



Installing bonded rubber bushes “top rear” -A- and “bottom rear” -B-

– Fit a washer (inside diameter 15 mm, outside diameter not less than 27 mm) onto spindle -3346/2- before attaching spindle.



Pulling out bonded rubber bush “bottom front”

– Seal off both breather pipes before performing the next step to prevent oil escaping from final drive.

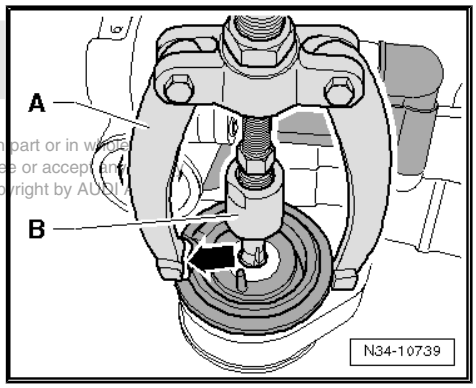
– Then place final drive upside down on workbench and pull out bonded rubber bush:

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

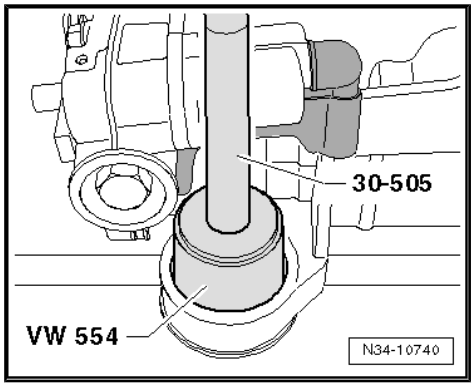
B - Internal puller 12 ... 16 mm , e.g. -Kukko 21/1-

– Break off a small piece out of collar on bonded rubber bush -arrow- so you can apply counter-support .

– Apply internal puller in joint between top and bottom bonded rubber bush and apply tension to puller.



Driving out bonded rubber bush “top front”

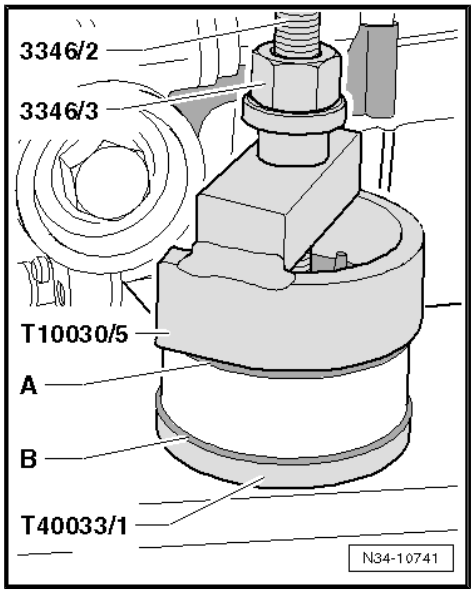


Note

If the bonded rubber bush is to be replaced separately, it can also be pulled out using counter-support , e.g. -Kukko 22/1- and internal puller 12...16 mm , e.g. -Kukko 21/1- ⇒ page 109 .

Installing bonded rubber bushes “bottom front” -A- and “top front” -B-

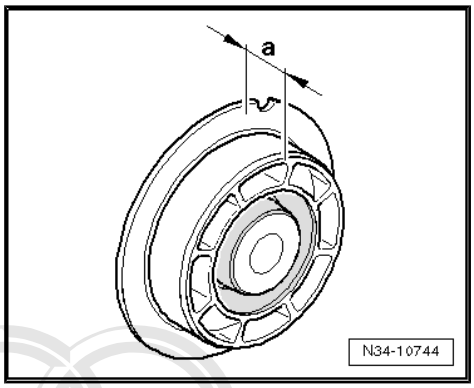
– Fit a washer (inside diameter 15 mm, outside diameter not less than 27 mm) onto spindle -3346/2- before attaching spindle.



Identification of bonded rubber bushes “top rear” and “bottom front”

The bonded rubber bushes “top rear” and “bottom front” are of different thickness.

Dimension “a” (mm)	Bonded rubber bush
22	“Top rear”
17	“Bottom front”



Installation position of bonded rubber bushes “top rear” and “bottom front”. Installing stop plate -B-

- Final drive in installation position

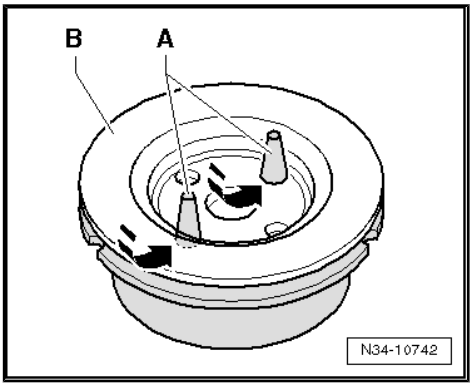
Installation position of bonded rubber bushes “top rear” and “bottom front”:

- ♦ Pins -A- on bonded rubber bushes “top rear” ⇒ Item 2 (page 108) face upwards.
- ♦ Pins -A- on bonded rubber bush “bottom front” ⇒ Item 5 (page 108) face downwards.

Installing stop plate -B-

– Fit pins -A- in holes on stop plate -arrows-.

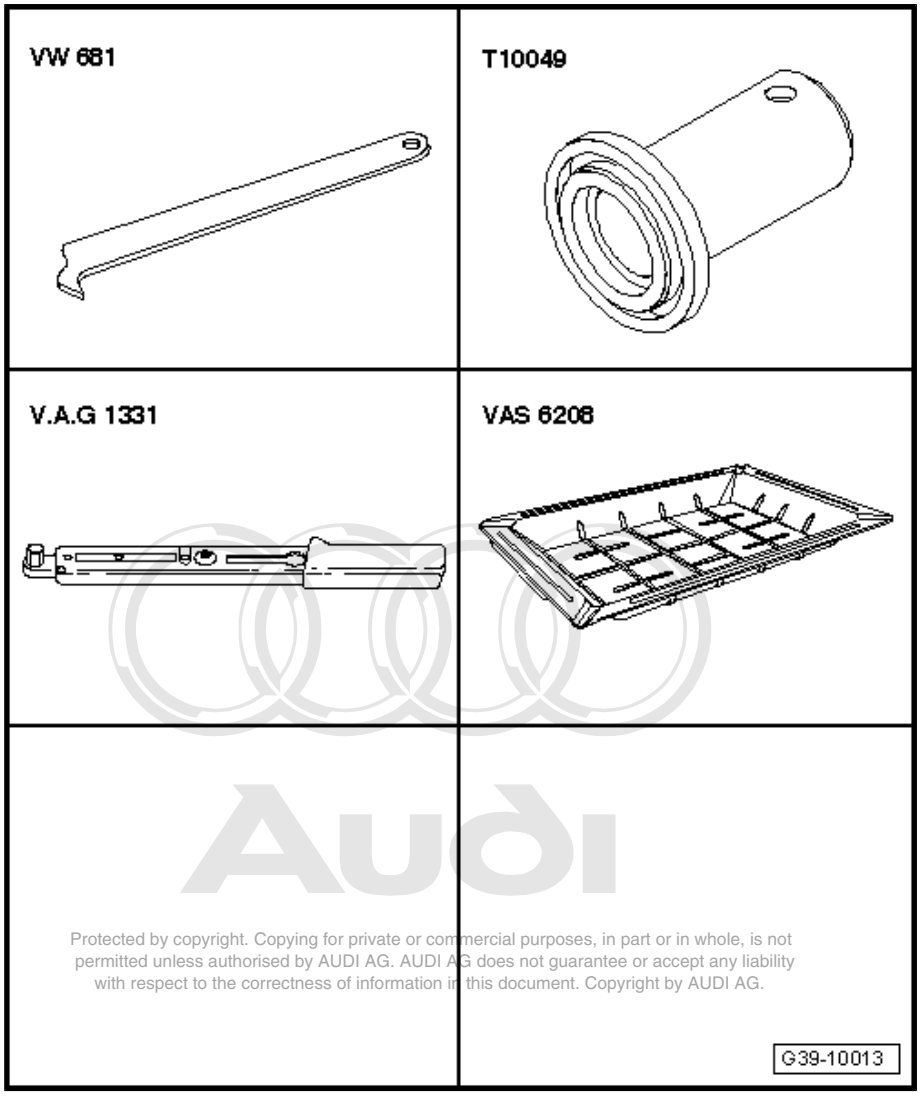
The stop plate -B- is then captive on the bonded rubber bush.



20 Renewing flange shaft oil seals (right and left) - rear final drive remains installed

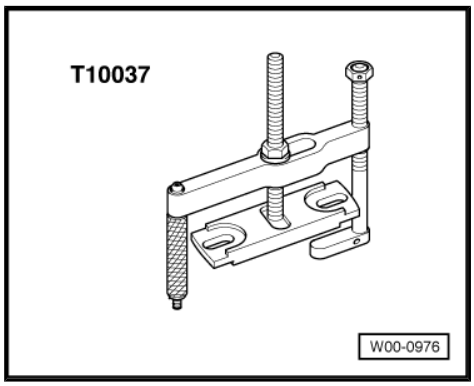
Special tools and workshop equipment required

- Oil seal extractor lever -VW 681-
- Drip tray for workshop hoist -VAS 6208-
- Torque wrench -V.A.G 1331-
- Thrust piece -T10049-



Special tools and workshop equipment required

- Puller -T10037-



- Sealing grease -G 052 128 A1-

Removing

Renewing the oil seal (right-side) is the same procedure as renewing the oil seal (left-side).

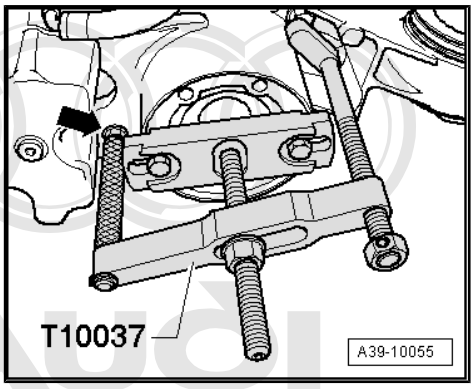
– Remove drive shaft ⇒ Rep. Gr. 42 ; Servicing rear drive shafts .

– Place drip tray under the rear final drive.

Removing flange shaft (left-side)

– Screw a nut M8 -arrow- onto thread of puller -T10037- until it is flush with end of thread.

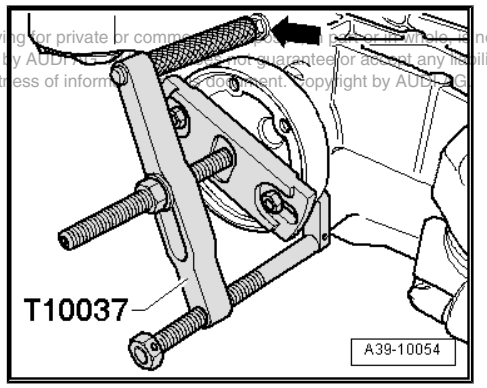
– Remove flange shaft using puller -T10037 - .



Removing flange shaft (right-side)

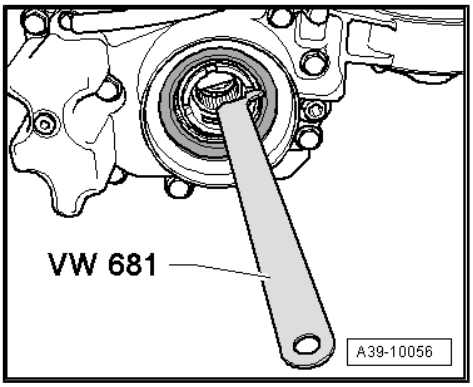
– Screw a nut M8 -arrow- onto thread of puller -T10037- until it is flush with end of thread.

– Remove flange shaft using puller -T10037 - .



Both sides (continued)

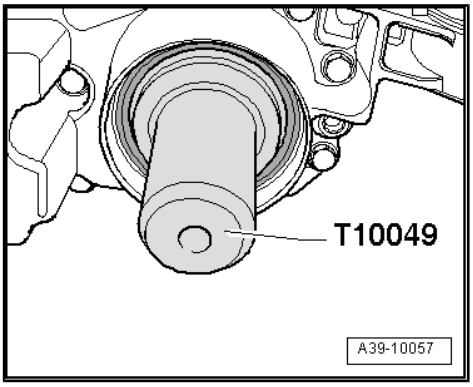
– Lever out flange shaft oil seal using oil seal extractor lever -VW 681- .



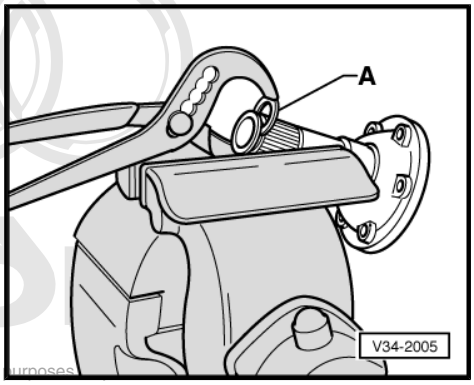
Installing

– Lightly lubricate outside circumference of new oil seal and drive in onto stop using thrust piece -T10049- . Take care to keep seal straight when installing.

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



– Clamp flange shaft in vice, using jaw protectors.
– Use new circlip -A- to press old circlip out of groove in flange shaft.
– Drive in flange shaft using a plastic-headed hammer and, if necessary, a drift.
– Fit drive shaft to flange shaft ⇒ Rep. Gr. 42 ; Servicing drive shafts .
– Check gear oil level in rear final drive ⇒ page 123 .



21 Checking oil level in Haldex coupling and topping up

- ⇒ “21.1 Checking oil level in Haldex coupling”, page 115
- ⇒ “21.2 Topping up oil in Haldex coupling”, page 117
- ⇒ “22 Renewing high performance oil for Haldex coupling ”, page 121

Caution

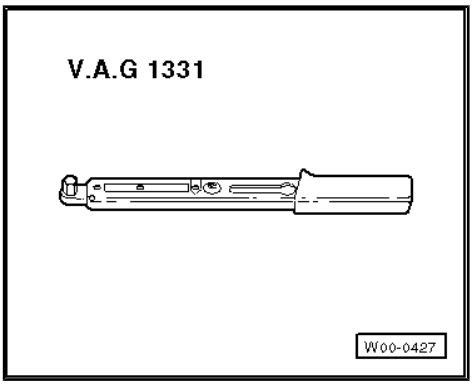
Different types of high-performance oil for Haldex coupling

- *The rear final drive units “02D/0AV” and “0BR/0BY” have different Haldex couplings and therefore different types of oil for the Haldex coupling.*
- *The two different types of oil for the Haldex couplings must not be interchanged or mixed together.*
- *Part number for high performance oil for Haldex coupling ⇒ Electronic parts catalogue .*
- *Note the distinguishing markings for the different rear final drive units ⇒ page 1 .*

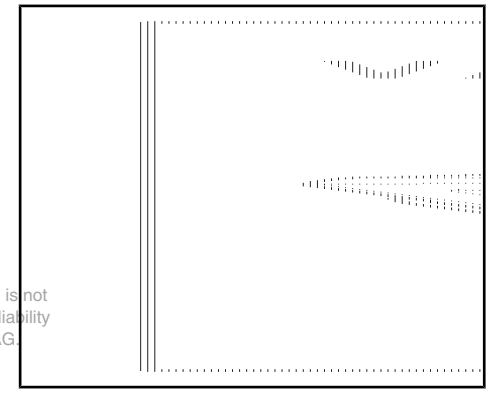
21.1 Checking oil level in Haldex coupling

Special tools and workshop equipment required

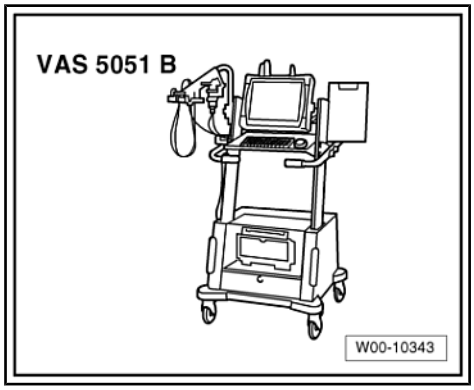
- Torque wrench -V.A.G 1331-



- Drip tray for workshop hoist -VAS 6208-



- Vehicle diagnostic, testing and information system -VAS 5051B- or vehicle diagnosis and service information system - VAS 5052-



- Diagnostic cable, 3 m -VAS 5051B/2- or diagnostic cable, 5 m -VAS 5051B/1-

Test requirements

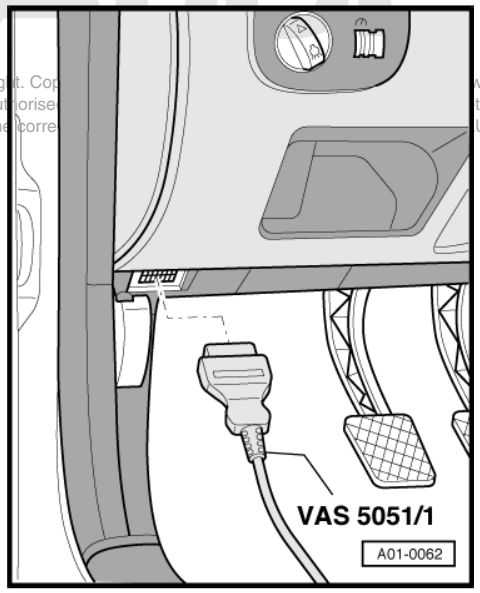
- The oil temperature must be 20 ... 40 °C.
- The oil temperature can be achieved by running the engine warm.
- Vehicle must be level (horizontal).
- The final drive must be in installation position when checking oil level.

WARNING

To avoid any risk of accident, observe the ⇒ "6 Safety precautions", page 16 when road-testing the vehicle and using test equipment.

– Connect the vehicle diagnostic, testing and information system -VAS 5051B- to the diagnostic connector with the ignition switched off.

Fitting location: footwell (front left), next to bonnet release lever.



Starting "Guided Functions":

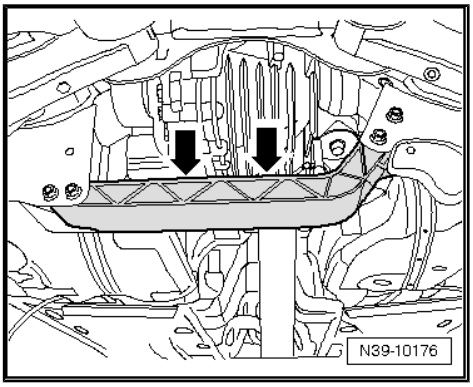
– Switch on ignition.
– Touch the symbol or button "Guided Functions" on the screen.
– Select the options on the tester in this sequence:

- Brand
- Model
- Model year
- Version
- Engine code letters
- Confirm the data entered.
- 22 - 4WD electronics
- 22 - Read measured value block
- Oil temperature

– Read off oil temperature.

Vehicles with cross member:

– Cover cross member -arrows- with cloth.



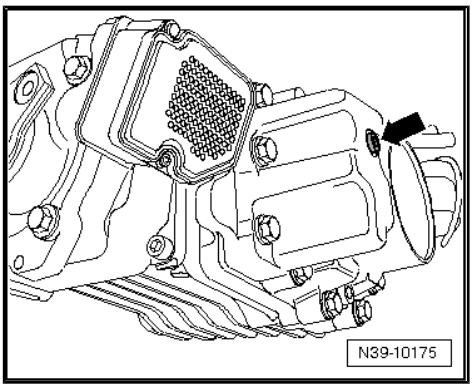
Note

Any oil which may reach the cross member or the grooves on the cross member must be removed carefully.

Checking oil level

– Position drip tray -VAS 6208- under final drive.

– To check oil level, unscrew oil filler plug -arrow-. (For illustration purposes here shown with final drive removed.)



Oil level is correct if Haldex coupling is filled up to bottom lip of filler hole or no more than 3 mm below bottom lip of filler hole.

– If necessary, top up with high-performance oil for Haldex coupling ⇒ “21.2 Topping up oil in Haldex coupling”, page 117 .

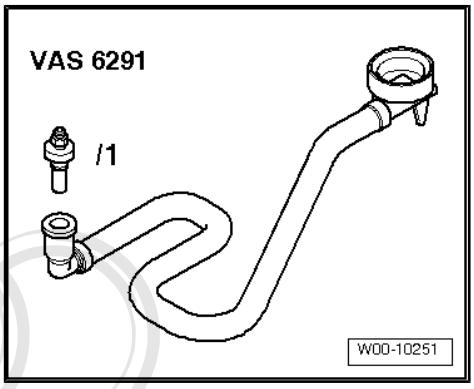
Tightening torque

Component	Nm
Oil filler plug -arrow-	15

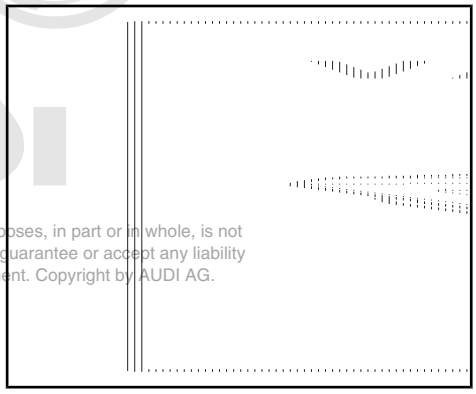
21.2 Topping up oil in Haldex coupling

Special tools and workshop equipment required

♦ Charging device for Haldex coupling -VAS 6291-



♦ Drip tray for workshop hoist -VAS 6208-



Caution

Different types of high-performance oil for Haldex coupling

- *The rear final drive units "02D/0AV" and "0BR/0BY" have different "Haldex couplings" and therefore different types of oil for the Haldex coupling.*
- *The two different types of oil for the Haldex couplings must not be interchanged or mixed together.*
- *Part number for high performance oil for Haldex coupling ⇒ Electronic parts catalogue .*
- *Note the distinguishing markings for the different rear final drive units ⇒ page 1 .*

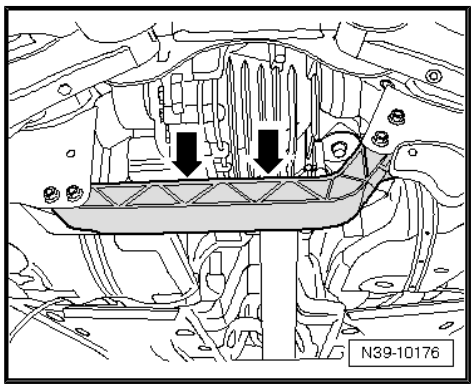
Test condition:

- Vehicle must be level (horizontal).

– Position drip tray -VAS 6208- under final drive.

Vehicles with cross member:

– Cover cross member -arrows- with cloth.



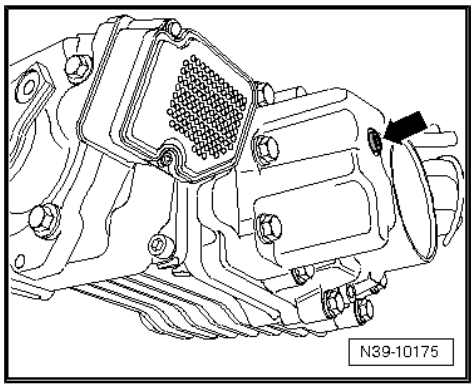
Note

Any oil which may reach the cross member or the grooves on the cross member must be removed carefully.

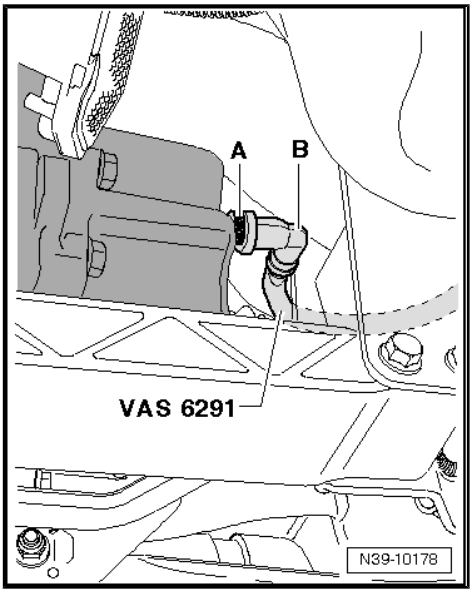
Continued for all vehicles

– For topping up, use charging device -VAS 6291- .

– Unscrew oil filler plug -arrow-. (For illustration purposes here shown with final drive removed.)

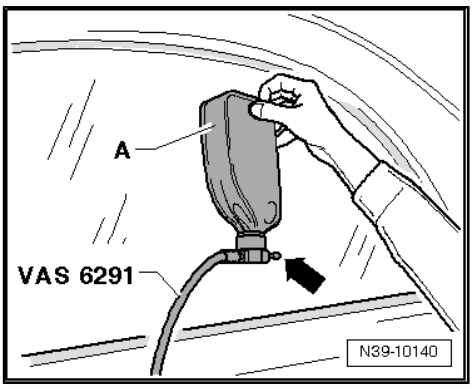


– Separate adapter -A- and elbow joint -B-.
– Screw adapter -A- in onto stop.
– Connect elbow joint -B- and adapter -A-, making sure they engage.
– Route hose above drive shaft.
• The hose must not hang down. It must emerge above left wheel at rear of vehicle.
– Lower vehicle.



– Please make sure that valve -arrow- is closed.
– Screw oil reservoir -A- onto charging device for Haldex coupling -VAS 6291- .
– Now open valve -arrow- and hold oil reservoir as shown in illustration.

The Haldex coupling will now be filled.



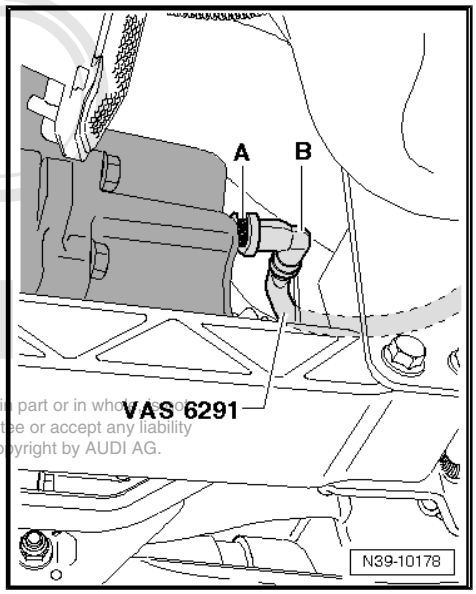
Note

When Haldex coupling is filled correctly oil will emerge at adapter -A-.

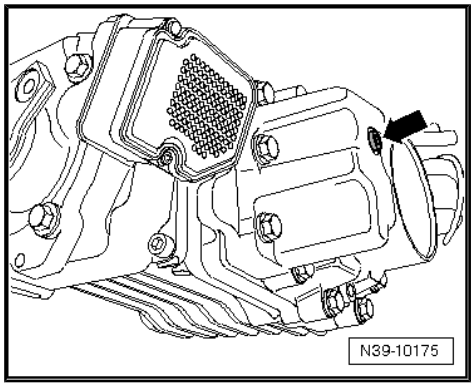
– Raise vehicle.
– Once the oil has started to emerge place the oil reservoir e.g. onto a workshop trolley BELOW the Haldex coupling.

Excess oil will now flow back into the oil reservoir.

– Remove charging device -VAS 6291- as soon as oil stops flowing back into the reservoir.
• The Haldex coupling is now filled up to the bottom lip of the oil filler hole.



– Screw in plug -arrow- with new seal and tighten.
– Then check oil level in Haldex coupling ⇒ page 115 .



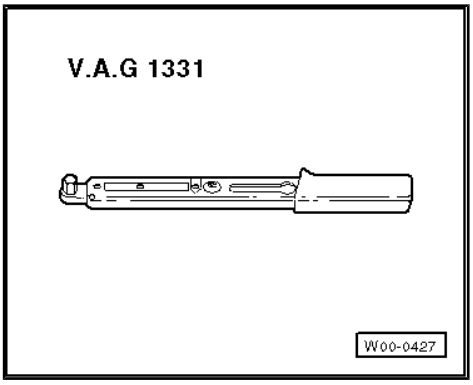
Tightening torque

Component	Nm
Oil filler plug -arrow-	15

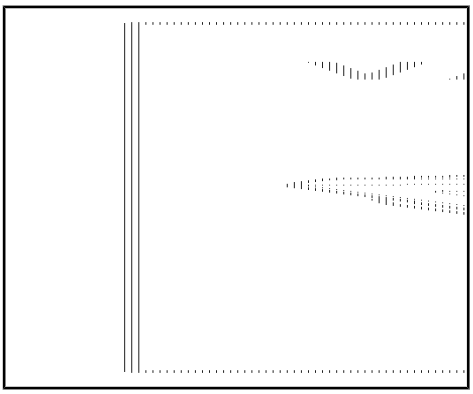
22 Renewing high performance oil for Haldex coupling

Special tools and workshop equipment required

- Torque wrench -V.A.G 1331-



- Drip tray for workshop hoist -VAS 6208-



- High-performance oil for Haldex coupling ⇒ Electronic parts catalogue

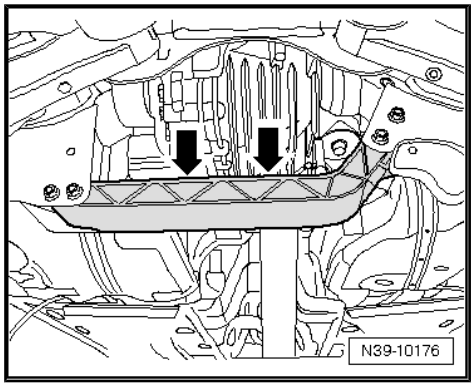
Caution

Different types of high-performance oil for Haldex coupling

- *The rear final drive units "02D/0AV" and "0BR/0BY" have different "Haldex couplings" and therefore different types of oil for the Haldex coupling.*
- *The two different types of oil for the Haldex couplings must not be interchanged or mixed together.*
- *Part number for high performance oil for Haldex coupling ⇒ Electronic parts catalogue .*
- *Note the distinguishing markings for the different rear final drive units ⇒ page 1 .*

Note

- *IMPORTANT: Place a cloth on the cross member -arrows-.*
- *Any oil which may reach the cross member or the grooves on the cross member must be removed carefully.*



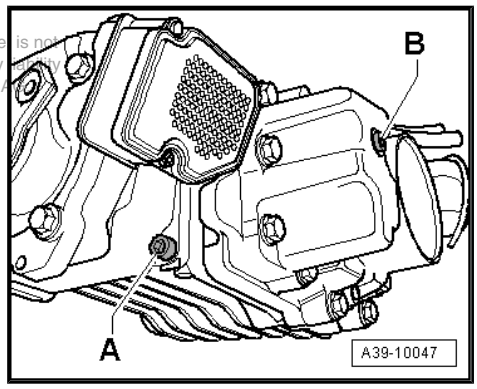
– Place drip tray underneath.

– Remove drain plug -A - and drain high performance oil for Haldex coupling completely.

– Fit drain plug -A- with new seal and tighten to 30 Nm.

– Unscrew plug -B- and fill up with high performance oil for Haldex coupling ⇒ page 117 .

– Then check oil level in Haldex coupling ⇒ page 115 .



Tightening torque

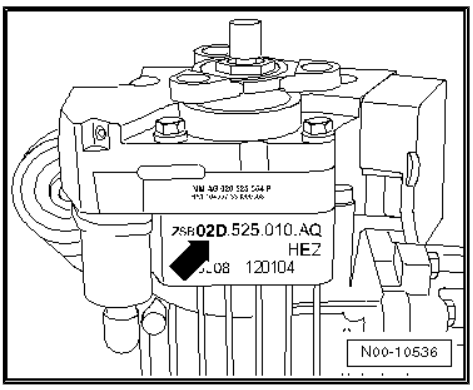
Component	Nm
Drain plug -A-	30
Oil filler plug -B-	15

23 Checking gear oil in rear final drive

- ⇒ “23.1 Checking gear oil level in rear final drive 02D/0AV ”, page 123
- ⇒ “23.2 Checking gear oil level in rear final drive 0BR and 0BY ”, page 123

Identification markings of final drive Example: -02D-

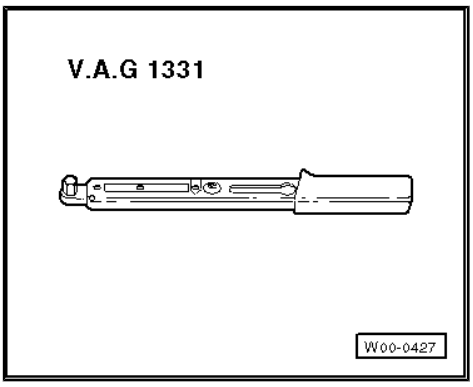
The identification markings “arrow” on the underside of the final drive unit indicate which final drive version is installed. In this example: -Rear final drive 02D-.



23.1 Checking gear oil level in rear final drive “02D/0AV”

Special tools and workshop equipment required

- Torque wrench -V.A.G 1331-

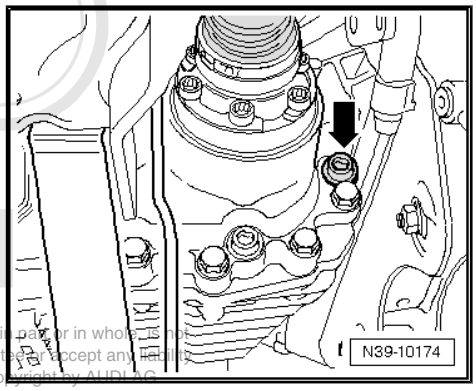


- The vehicle must be horizontal when checking gear oil level.
- For gear oil specification for rear final drive, refer to ⇒ Electronic parts catalogue .

– To check gear oil level, unscrew oil filler plug -arrow-.

- Specification: The oil level is correct when the rear final drive is filled up to the bottom lip of the filler hole. Top up with gear oil if necessary.

– Screw in plug -arrow- and tighten.



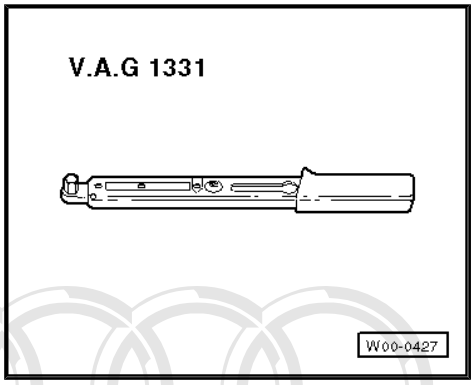
Tightening torque

Component	Nm
Oil filler plug M 20 x 1	40
Oil filler plug M 10 x 1	15

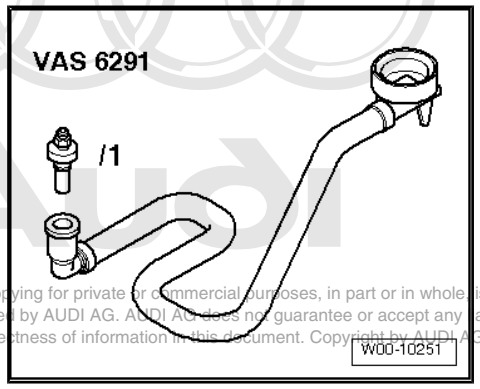
23.2 Checking gear oil level in rear final drive “0BR” and “0BY”

Special tools and workshop equipment required

♦ Torque wrench -V.A.G 1331-



♦ Charging device for Haldex coupling 2 -VAS 6291-



Test condition:

- Vehicle must be level (horizontal).
- For gear oil specification for rear final drive, refer to ⇒ Electronic parts catalogue .

Checking oil level

– Position drip tray -VAS 6208- under final drive.

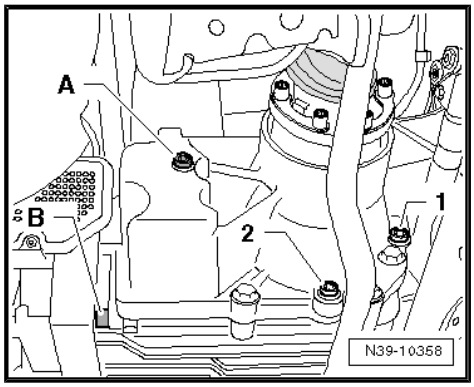
– Unscrew plug -1-.

The oil level is correct when the rear final drive is filled to the bottom lip of the filler hole.

– Screw in plug -1- and tighten.

Tightening torque: 15 Nm

Topping up with oil:



– Using charging device for Haldex coupling 2 -VAS 6291- , fill up with oil until oil comes out between final drive housing and adapter of charging device.

– Remove charging device and adapter; a certain amount of surplus oil may now come out.

The oil level is correct when the rear final drive is filled to the bottom lip of the filler hole.

– Screw in plug -1- and tighten.

Tightening torque: 15 Nm