

Workshop Manual

Audi A4 2008 ➤ ,
Audi A5 Cabriolet 2009 ➤ ,
Audi A5 Coupé 2008 ➤ , Audi A6 2011 ➤ ,
Audi A6 China 2012 ➤ ,
Audi A7 Sportback 2011 ➤ ,
Audi A8 2010 ➤

Rear final drive 0BF and 0BE - sport differential

Edition 01.2012



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List of Workshop Manual Repair GroupsList of Workshop Manual Repair Groups

Repair Group

00 - Technical data

39 - Final drive - rear differential



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

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00 – Technical data

1 Identification of rear final drive units OBF and OBE

The »rear final drive OBF« is installed in the Audi A4 2008 ►, Audi A5 Coupé 2008 ►, Audi A5 Cabriolet 2009 ►, Audi A6 2011 ►, Audi A7 2011 ► and Audi A8 2010 ►.

It is employed in conjunction with the following gearbox types:

- ◆ 6-speed manual gearbox 0B2, four-wheel drive
- ◆ 6-speed manual gearbox 0B4, four-wheel drive
- ◆ 7-speed dual clutch gearbox 0B5, four-wheel drive
- ◆ Automatic gearbox 0B6, four-wheel drive
- ◆ 8-speed automatic gearbox 0BK, four-wheel drive

The »rear final drive OBE« is an uprated version of the »OBF« unit and is installed exclusively with the V8 TDI engine in the Audi A8 2010 ►.

It is employed in conjunction with the following gearbox:

- ◆ 8-speed automatic gearbox 0BL, four-wheel drive

Rear final drive allocation

- ◆ ⇒ „2.1 Audi A4 2008 ► - Code letters, allocation, transmission ratios, capacities“, page 3
- ◆ ⇒ „2.2 Audi A5 Coupé 2008 ► - Code letters, allocation, transmission ratios, capacities“, page 5
- ◆ ⇒ „2.3 Audi A5 Sportback 2010 ► - Code letters, allocation, transmission ratios, capacities“, page 7
- ◆ ⇒ „2.4 Audi A5 Cabriolet 2009 ► - Code letters, allocation, transmission ratios, capacities“, page 8
- ◆ ⇒ „2.5 Audi A6 2011 ► - Code letters, allocations, transmission ratios, capacities“, page 8
- ◆ ⇒ „2.6 Audi A7 2011 ► - Code letters, allocation, transmission ratios, capacities“, page 9
- ◆ ⇒ „2.7 Audi A8 2010 ► - Code letters, allocation, transmission ratios, capacities“, page 10

Location on rear final drive

Classification of clutches -arrow 1-

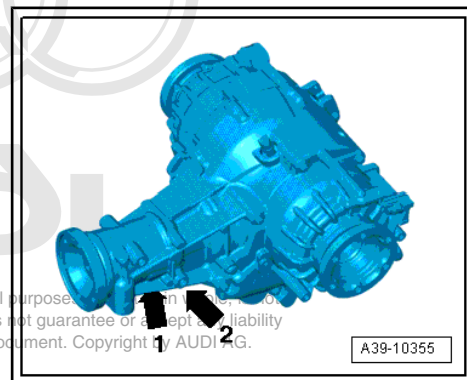
Code letters and date of manufacture -arrow 2-



Note

The rear final drive units OBF and OBE can be identified by the hydraulic control unit with superposition gears at the sides.

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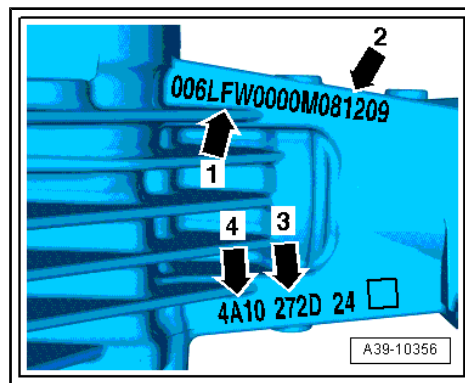


- ◆ -Arrow 1- Code letters -LFW-
- ◆ -Arrow 2- Manufacturing data of rear final drive

Exam- ple:	08	12	09
	Year -2008- of manufacture	Month	Day

- ◆ -Arrow 3- Classification of clutch on right side (classification of friction coefficients for clutch). Example: -272D-
- ◆ -Arrow 4- Classification of clutch on left side (classification of friction coefficients for clutch). Example: -4A10-

Other information can be disregarded.



Note

When installing a new rear final drive unit, it is important to verify not only the code letters of the final drive but also the PR No. and the engine code of the vehicle in the ⇒ Electronic parts catalogue . This is necessary to ensure that the correct version is installed.



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2 Code letters, allocation, transmission ratios, capacities

- ◆ ⇒ „2.1 Audi A4 2008 ► - Code letters, allocation, transmission ratios, capacities“, page 3
- ◆ ⇒ „2.2 Audi A5 Coupé 2008 ► - Code letters, allocation, transmission ratios, capacities“, page 5
- ◆ ⇒ „2.3 Audi A5 Sportback 2010 ► - Code letters, allocation, transmission ratios, capacities“, page 7
- ◆ ⇒ „2.4 Audi A5 Cabriolet 2009 ► - Code letters, allocation, transmission ratios, capacities“, page 8
- ◆ ⇒ „2.5 Audi A6 2011 ► - Code letters, allocations, transmission ratios, capacities“, page 8
- ◆ ⇒ „2.6 Audi A7 2011 ► - Code letters, allocation, transmission ratios, capacities“, page 9
- ◆ ⇒ „2.7 Audi A8 2010 ► - Code letters, allocation, transmission ratios, capacities“, page 10

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2.1 Audi A4 2008 ► - Code letters, allocation, transmission ratios, capacities

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

- ◆ Date of manufacture
- ◆ Allocation to engine and manual or automatic gearbox according to code letters and PR numbers

Rear final drive		0BF		
Code letters		LFU	LFV	LFW
Ratio	Final drive Z ₂ : Z ₁	35 : 9 = 3.889	37 : 9 = 4.111	43 : 13 = 3.308
Drive shaft flange Ø		75.5 mm	75.5 mm	75.5 mm
Gear oil capacity ◆ For final drive (differential and pinion shaft) ◆ No change required		0.95 ltr.		
Gear oil specification		⇒ Electronic parts catalogue		
ATF capacity ◆ For hydraulic control unit and superposition gears ◆ No change required		approx. 0.85 litres		
ATF specification		⇒ Electronic parts catalogue		

Rear final drive		0BF		
Code letters		LGH	LGJ	MBV
Ratio	Final drive Z ₂ : Z ₁	37 : 10 = 3.700	35 : 8 = 4.375	35 : 9 = 3.889
Drive shaft flange Ø		75.5 mm	75.5 mm	75.5 mm



Rear final drive	0BF		
Code letters	LGH	LGJ	MBV
Gear oil capacity ◆ For final drive (differential and pinion shaft) ◆ No change required	0.95 ltr.		
Gear oil specification	⇒ Electronic parts catalogue		
ATF capacity ◆ For hydraulic control unit and superposition gears ◆ No change required	approx. 0.85 litres		
ATF specification	⇒ Electronic parts catalogue		

Rear final drive	0BF		
Code letters	MBW	MKU	MKV
Ratio Final drive $Z_2 : Z_1$	37 : 10 = 3.700	37 : 9 = 4.111	43 : 13 = 3.308
Drive shaft flange Ø	75.5 mm	75.5 mm	75.5 mm
Gear oil capacity ◆ For final drive (differential and pinion shaft) ◆ No change required	0.95 ltr.		
Gear oil specification	⇒ Electronic parts catalogue		
ATF capacity ◆ For hydraulic control unit and superposition gears ◆ No change required	approx. 0.85 litres		
ATF specification	⇒ Electronic parts catalogue		

Rear final drive	0BF		
Code letters	MKW	MKX	MKY
Ratio Final drive $Z_2 : Z_1$	35 : 8 = 4.375	35 : 9 = 3.889	37 : 10 = 3.700
Drive shaft flange Ø	75.5 mm	75.5 mm	75.5 mm
Gear oil capacity ◆ For final drive (differential and pinion shaft) ◆ No change required	0.95 ltr.		
Gear oil specification	⇒ Electronic parts catalogue		
ATF capacity ◆ For hydraulic control unit and superposition gears ◆ No change required	approx. 0.85 litres		
ATF specification	⇒ Electronic parts catalogue		

2.2 Audi A5 Coupé 2008 ► - Code letters, allocation, transmission ratios, capacities

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

- ◆ Date of manufacture
- ◆ Allocation to engine and manual or automatic gearbox according to code letters and PR numbers



Caution

Gear oil and ATF change for Audi RS 5

- *The gear oil and ATF require changing on the RS 5.*
- *Change interval for RS 5 ⇒ Maintenance tables*
- *For all other vehicles no change is required.*

Rear final drive		0BF		
Code letters		LFU	LFV	LFW
Ratio	Final drive Z ₂ : Z ₁	35 : 9 = 3.889	37 : 9 = 4.111	43 : 13 = 3.308
Drive shaft flange Ø		75.5 mm	75.5 mm	75.5 mm
Gear oil capacity		0.95 ltr.		
◆ For final drive (differential and pinion shaft)				
◆ No change required, except for RS 5				
◆ Change interval for RS 5 ⇒ Maintenance tables				
Gear oil specification		⇒ Electronic parts catalogue		
ATF capacity		approx. 0.85 litres		
◆ For hydraulic control unit and superposition gears				
◆ No change required, except for RS 5				
◆ Change interval for RS 5 ⇒ Maintenance tables				
ATF specification		⇒ Electronic parts catalogue		

Rear final drive		0BF		
Code letters		LGH	LGJ	MBV
Ratio	Final drive Z ₂ : Z ₁	37 : 10 = 3.700	35 : 8 = 4.375	35 : 9 = 3.889
Drive shaft flange Ø		75.5 mm	75.5 mm	75.5 mm
Gear oil capacity		0.95 ltr.		
◆ For final drive (differential and pinion shaft)				
◆ No change required, except for RS 5				
◆ Change interval for RS 5 ⇒ Maintenance tables				



Rear final drive	0BF		
Code letters	LGH	LGJ	MBV
Gear oil specification	⇒ Electronic parts catalogue		
ATF capacity ◆ For hydraulic control unit and super-position gears ◆ No change required, except for RS 5 ◆ Change interval for RS 5 ⇒ Maintenance tables	approx. 0.85 litres		
ATF specification	⇒ Electronic parts catalogue		

Rear final drive	0BF		
Code letters	MBW	MKV	MKW
Ratio Final drive Z ₂ : Z ₁	37 : 10 = 3.700	43 : 13 = 3.308	35 : 8 = 4.375
Drive shaft flange Ø	75.5 mm	75.5 mm	75.5 mm
Gear oil capacity ◆ For final drive (differential and pinion shaft) ◆ No change required, except for RS 5 ◆ Change interval for RS 5 ⇒ Maintenance tables	0.95 ltr.		
Gear oil specification	⇒ Electronic parts catalogue		
ATF capacity ◆ For hydraulic control unit and super-position gears ◆ No change required, except for RS 5 ◆ Change interval for RS 5 ⇒ Maintenance tables	approx. 0.85 litres		
ATF specification	⇒ Electronic parts catalogue		

Rear final drive	0BF		
Code letters	MKX	MKY	
Ratio Final drive Z ₂ : Z ₁	35 : 9 = 3.889	37 : 10 = 3.700	
Drive shaft flange Ø	75.5 mm	75.5 mm	
Gear oil capacity ◆ For final drive (differential and pinion shaft) ◆ No change required, except for RS 5 ◆ Change interval for RS 5 ⇒ Maintenance tables	0.95 ltr.		
Gear oil specification	⇒ Electronic parts catalogue		

Rear final drive	0BF		
Code letters	MKX	MKY	
ATF capacity ◆ For hydraulic control unit and super-position gears ◆ No change required, except for RS 5 ◆ Change interval for RS 5 ⇒ Maintenance tables	approx. 0.85 litres		
ATF specification	⇒ Electronic parts catalogue		

2.3 Audi A5 Sportback 2010 ► - Code letters, allocation, transmission ratios, capacities

Rear final drive	0BF		
Code letters	LFV	MBV	MBW
Ratio Final drive $Z_2 : Z_1$	$37 : 9 = 4.111$	$35 : 9 = 3.889$	$37 : 10 = 3.700$
Drive shaft flange Ø	75.5 mm	75.5 mm	75.5 mm
Gear oil capacity ◆ For final drive (differential and pinion shaft) ◆ No change required	0.95 ltr.		
Gear oil specification	⇒ Electronic parts catalogue		
ATF capacity ◆ For hydraulic control unit and super-position gears ◆ No change required	approx. 0.85 litres		
ATF specification	⇒ Electronic parts catalogue		

Rear final drive	0BF		
Code letters	MKU	MKX	MKY
Ratio Final drive $Z_2 : Z_1$	$37 : 9 = 4.111$	$35 : 9 = 3.889$	$37 : 10 = 3.700$
Drive shaft flange Ø	75.5 mm	75.5 mm	75.5 mm
Gear oil capacity ◆ For final drive (differential and pinion shaft) ◆ No change required	0.95 ltr.		
Gear oil specification	⇒ Electronic parts catalogue		
ATF capacity ◆ For hydraulic control unit and super-position gears ◆ No change required	approx. 0.85 litres		
ATF specification	⇒ Electronic parts catalogue		



2.4 Audi A5 Cabriolet 2009 ► - Code letters, allocation, transmission ratios, capacities

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

- ◆ Date of manufacture
- ◆ Allocation to engine and manual or automatic gearbox according to code letters and PR numbers

Rear final drive		0BF		
Code letters		LFU	LFV	LFW
Ratio	Final drive Z ₂ : Z ₁	35 : 9 = 3.889	37 : 9 = 4.111	43 : 13 = 3.308
Drive shaft flange Ø		75.5 mm	75.5 mm	75.5 mm
Gear oil capacity ◆ For final drive (differential and pinion shaft) ◆ No change required		0.95 ltr.		
Gear oil specification		⇒ Electronic parts catalogue		
ATF capacity ◆ For hydraulic control unit and superposition gears ◆ No change required		approx. 0.85 litres		
ATF specification		⇒ Electronic parts catalogue		

Rear final drive		0BF		
Code letters		MBV	MKU	MKX
Ratio	Final drive Z ₂ : Z ₁	35 : 9 = 3.889	37 : 9 = 4.111	35 : 9 = 3.889
Drive shaft flange Ø		75.5 mm	75.5 mm	75.5 mm
Gear oil capacity ◆ For final drive (differential and pinion shaft) ◆ No change required		0.95 ltr.		
Gear oil specification		⇒ Electronic parts catalogue		
ATF capacity ◆ For hydraulic control unit and superposition gears ◆ No change required		approx. 0.85 litres		
ATF specification		⇒ Electronic parts catalogue		

2.5 Audi A6 2011 ► - Code letters, allocations, transmission ratios, capacities

- ◆ Date of manufacture
- ◆ Allocation to engine and manual or automatic gearbox according to code letters and PR numbers

Rear final drive	0BF		
Code letters	MKV	MKV	
Ratio Final drive $Z_2 : Z_1$	37 : 9 = 4.111	43 : 13 = 3.308	
Drive shaft flange Ø	75.5 mm	75.5 mm	
Gear oil capacity ◆ For final drive (differential and pinion shaft) ◆ No change required	0.95 ltr.		
Gear oil specification	⇒ Electronic parts catalogue		
ATF capacity ◆ For hydraulic control unit and superposition gears ◆ No change required	approx. 0.85 litres		
ATF specification	⇒ Electronic parts catalogue		

2.6 Audi A7 2011 ► - Code letters, allocation, transmission ratios, capacities

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

- ◆ Date of manufacture
- ◆ Allocation to engine and manual or automatic gearbox according to code letters and PR numbers

Rear final drive	0BF		
Code letters	MKV	MKV	
Ratio Final drive $Z_2 : Z_1$	37 : 9 = 4.111		
Drive shaft flange Ø	75.5 mm		
Gear oil capacity ◆ For final drive (differential and pinion shaft) ◆ No change required	0.95 ltr.		
Gear oil specification	⇒ Electronic parts catalogue		
ATF capacity ◆ For hydraulic control unit and superposition gears ◆ No change required	approx. 0.85 litres		
ATF specification	⇒ Electronic parts catalogue		



2.7 Audi A8 2010 ► - Code letters, allocation, transmission ratios, capacities



Note

- ◆ Two different rear final drive units are installed in the Audi A8 2010 ►: rear final drive 0BF or 0BE.
- ◆ The rear final drive 0BE is the updated version and is installed only in conjunction with the V8 TDI engine.

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

- ◆ Date of manufacture
- ◆ Allocation to engine and manual or automatic gearbox according to code letters and PR numbers

Rear final drive		0BF	
Code letters		MKV	
Allocation	Engine	3.0 ltr. - 155 kW TDI 3.0 ltr. - 184 kW TDI 3.0 ltr. - 213 kW TFSI 3.0 ltr. - 245 kW TFSI 4.2 ltr. - 273 kW FSI 6.3 ltr. - 368 kW FSI	
Ratio	Final drive $Z_2 : Z_1$	43 : 13 = 3.308	
Drive shaft flange Ø		75.5 mm	
Gear oil capacity ◆ For final drive (differential and pinion shaft) ◆ No change required		0.95 ltr.	
Gear oil specification		⇒ Electronic parts catalogue	
ATF capacity ◆ For hydraulic control unit and superposition gears ◆ No change required		approx. 0.85 litres	
ATF specification		⇒ Electronic parts catalogue	

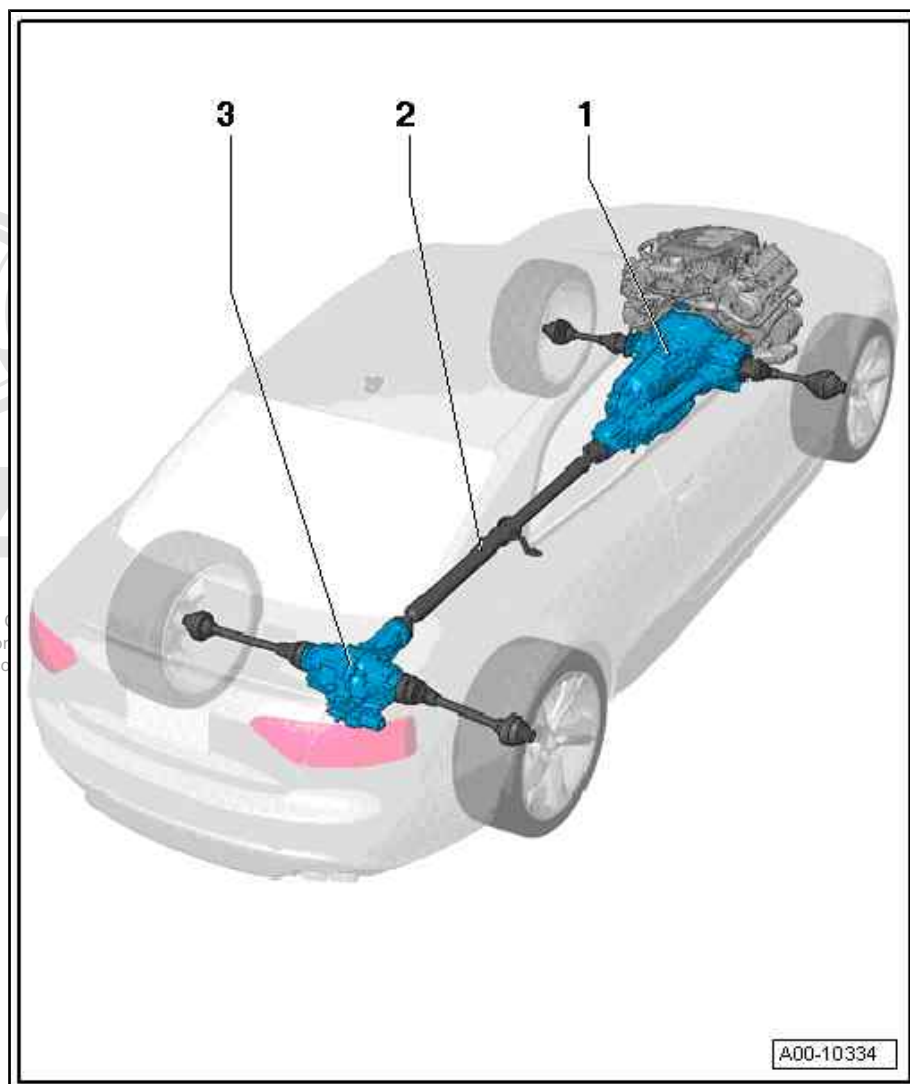
Rear final drive		0BE	
Code letters		MKL	
Allocation	Engine	4.2 ltr. - 258 kW V8 TDI	
Ratio	Final drive $Z_2 : Z_1$	36 : 13 = 2.769	
Drive shaft flange Ø		68 mm	
Gear oil capacity ◆ For final drive (differential and pinion shaft) ◆ No change required		1.4 ltr.	
Gear oil specification		⇒ Electronic parts catalogue	

Rear final drive	0BE		
Code letters	MKL		
ATF capacity ◆ For hydraulic control unit and super-position gears ◆ No change required	approx. 1.4 litres		
ATF specification	⇒ Electronic parts catalogue		

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3 Transmission layout

- 1 - Gearbox
- 2 - Propshaft
- 3 - Rear final drive



4 General repair instructions



WARNING

If repairs to the rear final drive 0BF and 0BE are not carried out correctly, this can lead to malfunctions of the final drive.

- *Tests, repairs and service work may only be performed by suitably qualified staff.*
- *Observe the safety precautions and testing measures ⇒ [page 13](#).*

- ◆ Proper tools and the maximum possible care and cleanliness are essential for satisfactory repairs to the transmission units. The usual basic safety precautions also naturally apply when carrying out repair work.
- ◆ A number of generally applicable instructions for the various repair procedures are summarised here under the heading „Components“ ⇒ [page 15](#) . They apply to the work described in this Manual.

4.1 Safety precautions and testing measures



WARNING

If repairs to the rear final drive 0BF and 0BE are not carried out correctly, this can lead to malfunctions of the final drive.

- *Tests, repairs and service work may only be performed by suitably qualified staff.*

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Correct oil level

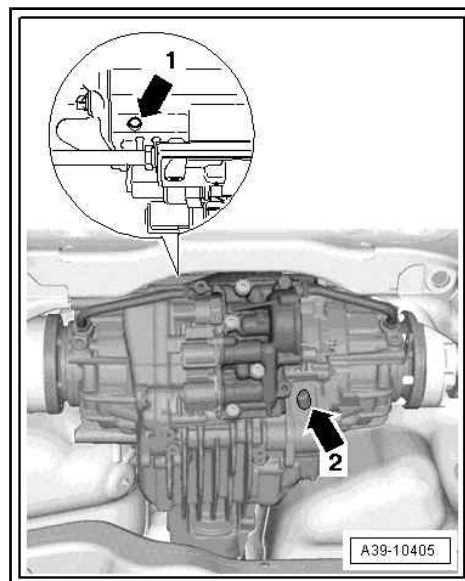
- ◆ Ensure that the rear final drive is filled with specified quantity of oil ➔ [page 3](#) .
- ◆ Eliminate any leaks on the rear final drive, e.g. at sealing surfaces or oil seals. The oil might also escape via the oil escape holes between the superposition gears on the left side -arrow 1- or right side -arrow 2- and the rear final drive.



Caution

Malfunction of rear final drive.

- ◆ **Do NOT operate the rear final drive if you have detected any leaks or if the oil level is low.**
- ◆ **Eliminate any leaks on the rear final drive.**
- ◆ **Top up any missing ATF or gear oil.**
- ◆ **Use only the ATF or gear oil available as a replacement part ➔ *Electronic parts catalogue* .**
- ◆ **If the leaks cannot be repaired, the rear final drive must be renewed.**



Performance of rear final drive



WARNING

Malfunction of gearbox/final drive activation

- **It is important to follow all instructions closely when renewing components of the gearbox or final drive. Only then can the correct response and torque control characteristics of the rear final drive 0BF and 0BE be ensured.**

Renewing final drive components

- ◆ When the four-wheel drive control unit -J492- is renewed, the learnt values (adaptive values) for the deterioration of the final drive (e.g. clutch wear, oil ageing) must be transferred using the ➔ Vehicle diagnostic tester, as otherwise the performance of the rear final drive can be impaired.
- ◆ When a superposition gear or the complete rear final drive are renewed, the clutch classification must be entered again in the four-wheel drive control unit -J492- ➔ Vehicle diagnostic tester. If the clutch classification is not carried out in the four-wheel drive control unit -J492- , the performance of the rear final drive will be impaired. In addition, the corresponding classification mark on the rear final drive housing must be made unrecognisable when a superposition gear has been renewed. There is a mark for the new classification on the housing of the new superposition gear.
- ◆ Do not place the removed rear final drive on the components of the hydraulic control unit (e.g. clutch valves). This could damage the components.

Renewing oil pressure and oil temperature sender -G437- and/or -G640-

- ◆ After renewing the oil pressure and oil temperature sender -G437- or the oil pressure and oil temperature sender 2 -G640- , the identity of the corresponding sender must be re-adapted in the four-wheel drive control unit -J492- ➔ Vehicle diagnostic tester.

- ◆ Do not renew both oil pressure and oil temperature senders (-G437- and -G640-) at the same time, as at least one valid sender identity is required at any time for the allocation of the rear final drive to the four-wheel drive control unit -J492-. If both senders are renewed at the same time, the four-wheel drive control unit -J492- would interpret this as the replacement of the rear final drive. This would erase all the learnt values in the control unit and impair the performance of the rear final drive.
- ◆ If both oil pressure and oil temperature senders (-G437- and -G640-) have to be renewed due to mechanical damage, e.g. damage to the connector housing, this should be done in two steps: After the first sender has been renewed, the identity of the sender must be re-adapted in the four-wheel drive control unit -J492- ➔ Vehicle diagnostic tester. Proceed in the same manner for the second sender.
- ◆ If both oil pressure and oil temperature senders (-G437- and -G640-) have to be renewed due to an electrical fault, the clutch classification must be entered again in the four-wheel drive control unit -J492- ➔ Vehicle diagnostic tester. In addition, the ATF must be renewed ➔ [page 85](#) .

Checking torque distribution

The function 22 - Check torque distribution must be performed after the following operations:

- ◆ Work on wiring of rear final drive
- ◆ Work on valves: clutch valve for four-wheel drive -N445- and clutch valve 2 for four-wheel drive -N446-
- ◆ Work on hydraulic control unit

➔ [„7 Checking torque distribution“, page 60](#)

4.2 Jacking mode (vehicles with air suspension)

Before raising the vehicle on a 2-column lifting platform (wheels off the ground) you must first activate the jacking mode ➔ Rep. gr. 43 .

4.3 Special tools

For a complete list of special tools used in this Workshop Manual ➔ Workshop equipment and special tools catalogue .

4.4 Components

Rear final drive

- ◆ Allocate bolts and other components according to final drive code letters, refer to ➔ Electronic parts catalogue .
- ◆ When installing a new rear final drive unit, check the gear oil level ➔ [page 78](#) and the ATF level ➔ [page 84](#) in the final drive and top up if necessary.
- ◆ Capacities and specifications ➔ [page 3](#) .
- ◆ 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.
- ◆ Thoroughly clean all joints and connections and the surrounding areas before dismantling.

ATF and gear oil

The rear final drive unit 0BF/0BE has separate fillings for ATF and gear oil.

- ◆ For the hydraulic system (hydraulic control unit and superposition gears, left and right) use only the ATF available as a replacement part ⇒ Electronic parts catalogue .
- ◆ For the final drive (gear set and differential) use only the gear oil available as a replacement part ⇒ Electronic parts catalogue .
- ◆ Other types of ATF or gear oil will cause malfunctions of the final drive.



Caution

Gear oil and ATF change for Audi RS 5

- *The gear oil and ATF require changing on the RS 5.*
- *Change interval for RS 5 ⇒ Maintenance tables*
- *For all other vehicles no change is required.*

Environmental and waste disposal regulations for oil

- ◆ ATF, gear oil and any other type of oil must be handled with care.
- ◆ Dispose of drained oil properly.
- ◆ Always adhere to statutory environmental and waste disposal regulations.
- ◆ Observe the information shown on the packaging of the oil.

Sealants

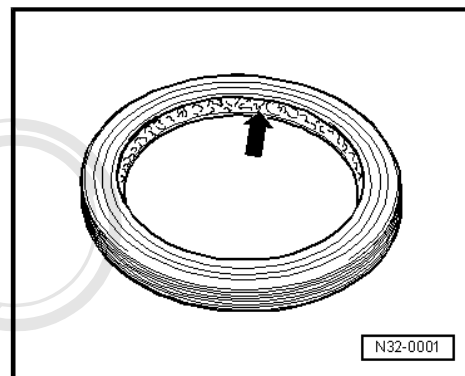
- ◆ Thoroughly clean joint surfaces on gearbox housing etc. before applying sealing paste.
- ◆ Apply sealing paste -D 176 501 A1- evenly and not too thickly.
- ◆ Breather holes and oil channels must remain free of sealing paste.

Oil seals

- ◆ Lightly lubricate outer circumference of oil seals before installation.
- ◆ The open side of the oil seal should face the side containing the fluid.
- ◆ After renewing oil seals, check gear oil level ⇒ [page 78](#) or ATF level ⇒ [page 84](#) (depending on fitting location of oil seal) in final drive.

Oil seal for propshaft flange

- ◆ Pack space between sealing lips -arrow- half-full with sealing grease -G 052 128 A1- .

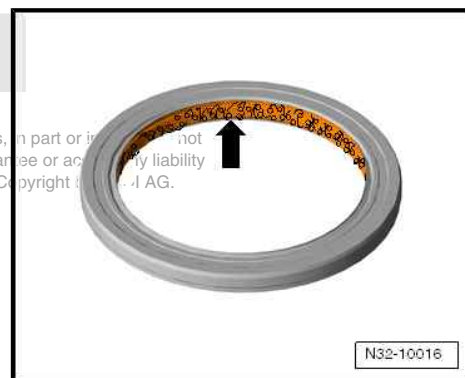


Oil seals for flange shafts

- ◆ Coat space between sealing lips -arrow- with ATF .

O-rings, seals and gaskets

- ◆ Always renew O-rings, seals and gaskets.
- ◆ After removing gaskets and seals, always inspect the contact surface on the housing or shaft for burrs resulting from removal or for other signs of damage.
- ◆ Thoroughly clean housing joint surfaces before assembling.
- ◆ Lightly lubricate O-rings before installation to prevent them from being trapped and damaged during assembly.
- ◆ After renewing gaskets, seals or O-rings, check gear oil level ⇒ [page 78](#) or ATF level ⇒ [page 84](#) (depending on fitting location) in final drive.

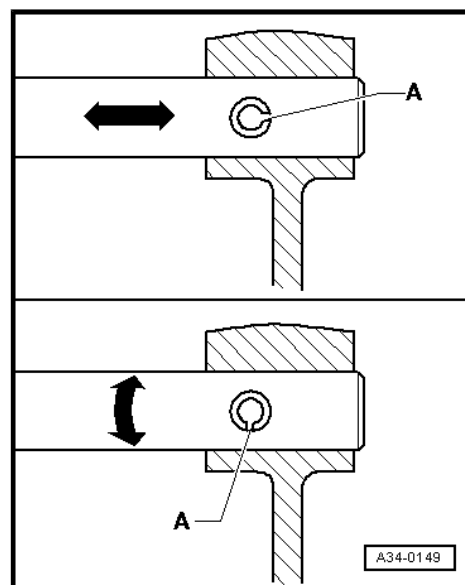


Locking elements

- ◆ 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.
- ◆ Clean the threads of bolts which are secured with locking fluid using a wire brush (does not apply to propshaft bolts: these must be renewed). Then apply locking fluid -AMV 185 101 A1- to bolt threads before installing.
- ◆ Threaded holes which take self-locking bolts or bolts coated with locking fluid must be cleaned (using a tap or similar). Otherwise there is a danger of the bolts shearing off the next time they are removed.



39 – Final drive - rear differential

1 Exploded view - propshaft with bolted connection at gearbox end (Audi A4 and A5)



Note

- ◆ Refer to general repair instructions ⇒ [page 13](#).
- ◆ No repair work can be carried out on the propshaft with the exception of removing, installing and adjusting.
- ◆ The propshaft should normally be kept straight when it is stored or transported.
- ◆ The propshaft can be bent as far as the stop at the centre joint, but must not be subjected to any kind of force. The centre joint or the protective boot can be damaged if the joint is forced against its stop.
- ◆ The propshaft must be tied up or supported at one end if it is detached only at the gearbox or at the rear final drive. If necessary, the propshaft can be bent as far as the stop at the centre joint, but it must not be subjected to force.
- ◆ 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.
- ◆ Use counterhold tool -T10172- with adapters -T10172/5- to slacken and tighten the propshaft bolts.
- ◆ After detaching the propshaft from the rear final drive, an additional balancing washer (thicker washer) that may be fitted between the lock plate and the bolt head (multi-point socket head bolt) must not be reinstalled.
- ◆ Observe correct tightening sequence for bolts securing propshaft to rear final drive ⇒ [page 20](#).
- ◆ If problems are reported concerning noise and/or vibration, check that the centre bearing is stress-free before renewing the propshaft.

1 - Rear final drive

- ☐ Removing and installing
⇒ [page 61](#)

2 - Gasket

- ☐ Renew gasket if damaged (buckled or kinked)
- ☐ Renew gasket if rubber coating has become detached
- ☐ Degrease flange shaft and fit gasket
- ☐ Different coloured sides can be disregarded for installation

3 - Propshaft

- ☐ Removing and installing
⇒ [page 20](#)
- ☐ Detaching and attaching propshaft at gearbox
⇒ [page 25](#)
- ☐ Detaching and attaching propshaft at rear final drive ⇒ [page 28](#)

4 - Balancing washer

- ☐ Not fitted on all vehicles
- ☐ May be fitted between a multi-point socket head bolt
⇒ [Item 5 \(page 19\)](#)
and a lock plate
⇒ [Item 6 \(page 19\)](#) on the rear final drive
- ☐ If fitted, this balancing washer must not be re-installed after the propshaft has been detached from the rear final drive.

5 - Bolt

- ☐ Always renew
- ☐ Self-locking
- ☐ Tapped holes for bolts in flange shafts must always be cleaned (e.g. with a thread tap)

• On rear final drive

- ☐ Tightening torque and sequence ⇒ [page 20](#)

• On gearbox

- ☐ 30 Nm + 90°

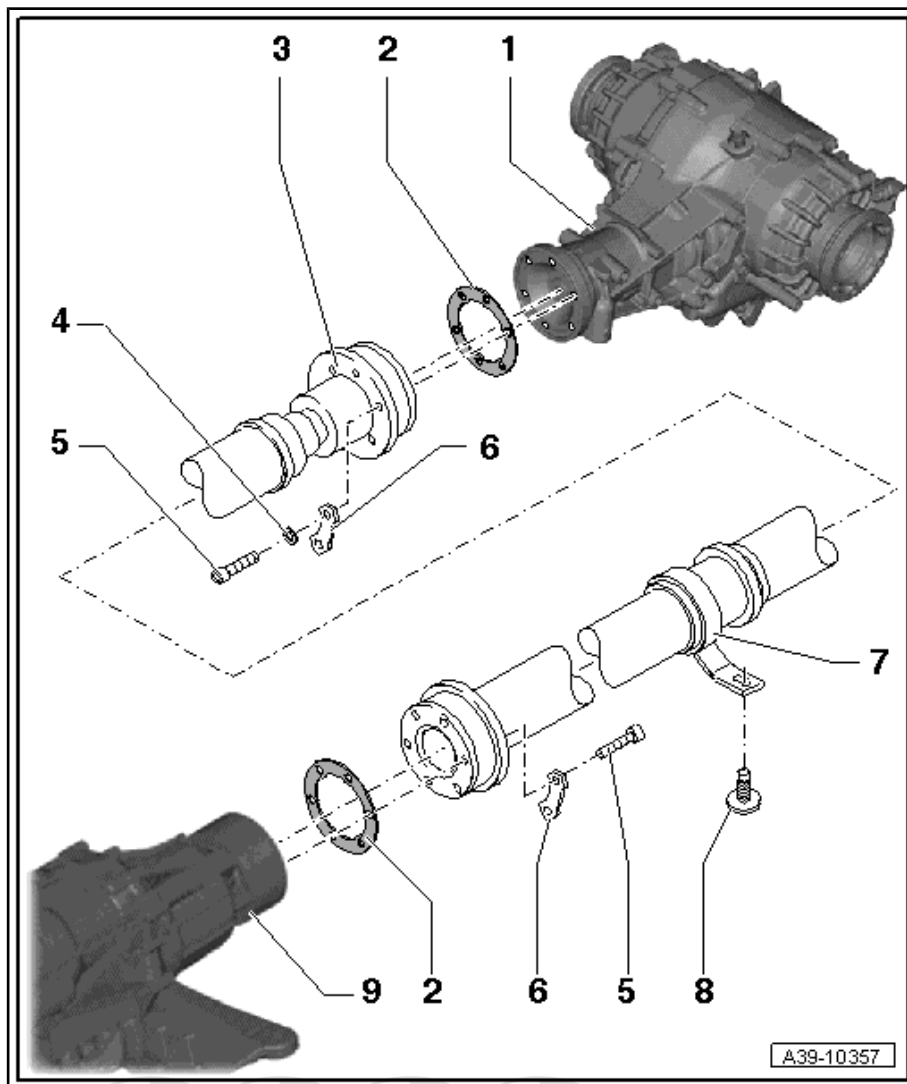
6 - Lock plate

7 - Centre bearing

8 - Bolt

- ☐ 20 Nm

9 - Gearbox



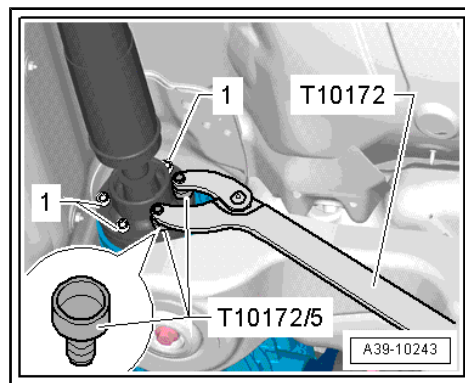
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Tightening torque and sequence - bolts securing propshaft to rear final drive

- Always renew propshaft bolts -1-.
- Counterhold using counterhold tool -T10172- and adapters -T10172/5-.
- Tighten bolts -1- in 3 stages as follows:

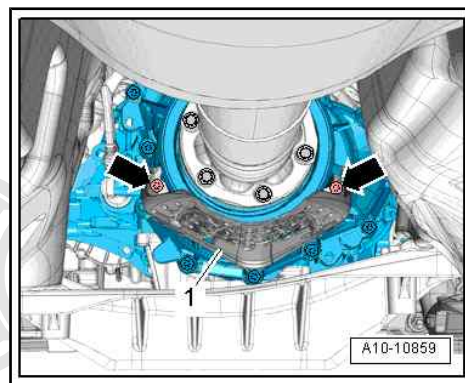
Stage	Bolts	Tightening torque/tightening angle
1.	-1-	Bolt nearest to coloured dots: 30 Nm ¹⁾
2.	-1-	All remaining bolts: 30 Nm
3.	-1-	All bolts: turn 90° further

• ¹⁾ This pushes the CV joint slightly towards the opposite side and reduces the imbalance.



Heat shield for propshaft - tightening torque

- Tighten bolts -arrows- to 24 Nm.

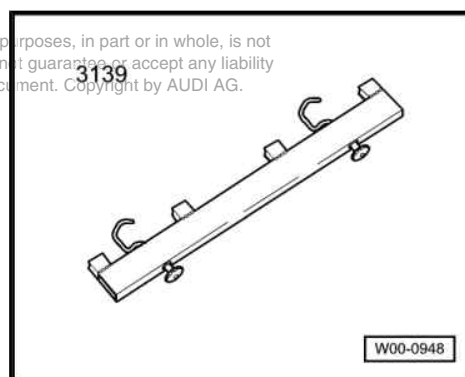


1.1 Removing and installing propshaft with bolted connection at gearbox end

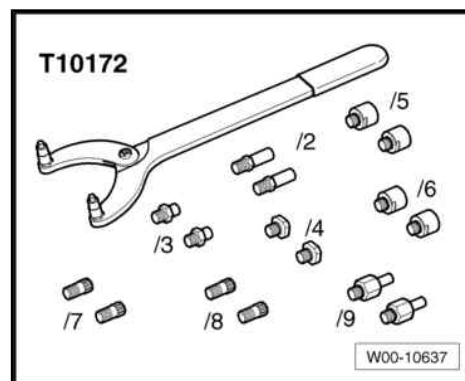
Special tools and workshop equipment required

- ◆ Assembly tool -3139-

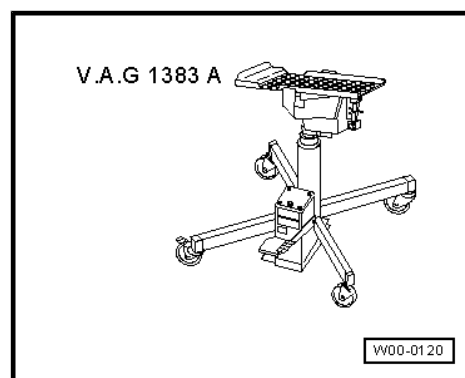
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- ◆ Counterhold tool -T10172- with adapters -T10172/5-



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



- ◆ High-temperature grease -G 000 633-

Removing propshaft

- ◆ Observe notes ➔ [page 18](#) .
- ◆ Repairs on the propshaft should be carried out on a two pillar hoist.



Note

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

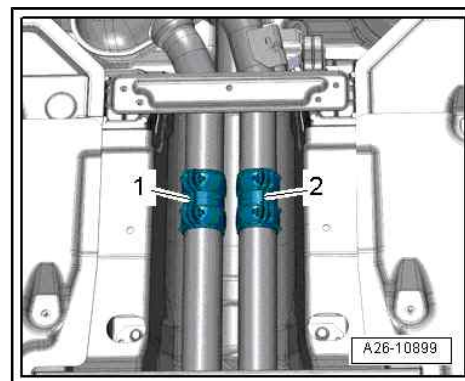
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- Unfasten clamps **1** and **2** and disconnect exhaust system.
- Tie front exhaust pipes to side of underbody.
- Remove rear section of exhaust system ➔ Rep. gr. 26 .

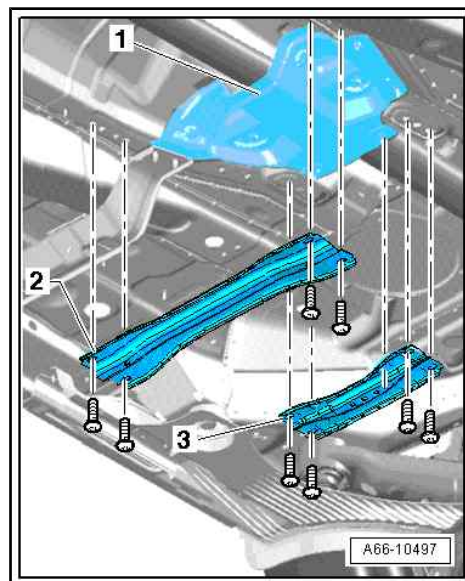


Note

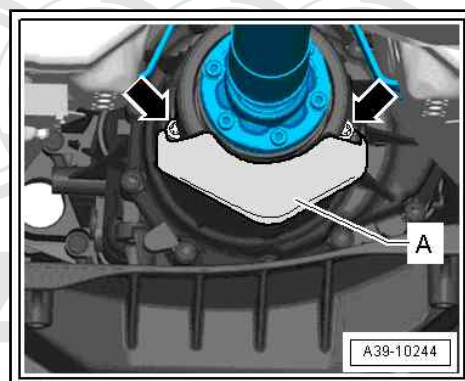
A second mechanic is required for removing the rear section of the exhaust system.



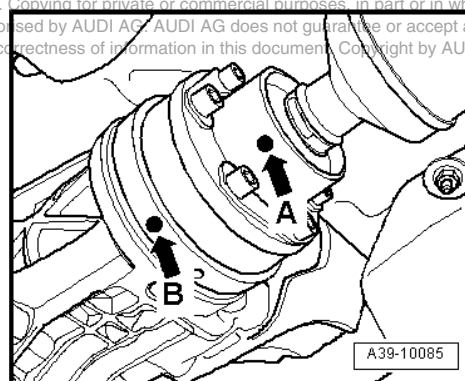
- Remove cross member -3-.
- If fitted, remove front cross member -2-.
- Detach heat shield -1- from body -arrows-.



- If fitted, detach heat shield -A- from gearbox -arrows-.



- Check whether there is a factory marking (coloured dot) -arrow A- and -arrow B- on the propshaft and on the propshaft flange on the rear final drive.
- If one of these markings is no longer visible (for example -arrow A- on the propshaft), make a new paint marking accordingly.
- The markings on the propshaft -arrow A- and on the rear final drive -arrow B- should be aligned.

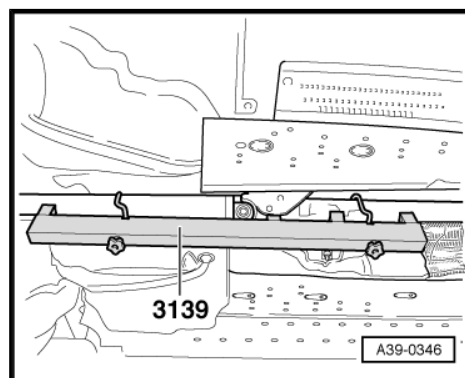


- Attach assembly tool -3139- and tighten plastic nuts.

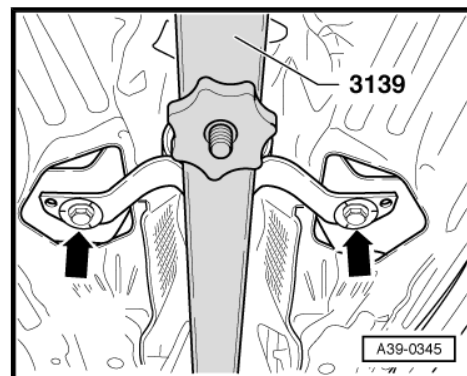


Note

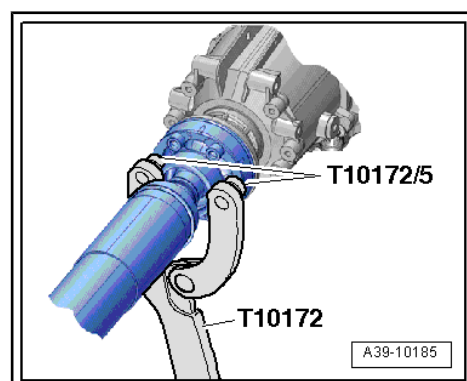
Do not fit assembly tool onto balance plates.



- Remove bolts -arrows- securing centre bearing.



- Remove securing bolts from connection between propshaft and gearbox (counterhold using counterhold tool -T10172- and -T10172/5-).
- Remove propshaft from gearbox and support propshaft with engine and gearbox jack -V.A.G 1383 A-.



- Remove bolts -1- (6x) on rear CV joint.
- Use counterhold tool -T10172- with adapters -T10172/5-.
- Remove the propshaft.



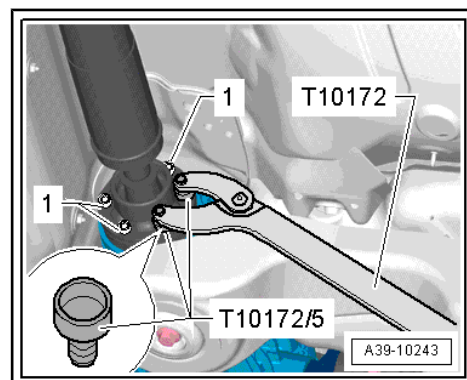
Note

The propshaft must be kept straight when it is stored or transported.

Installing propshaft

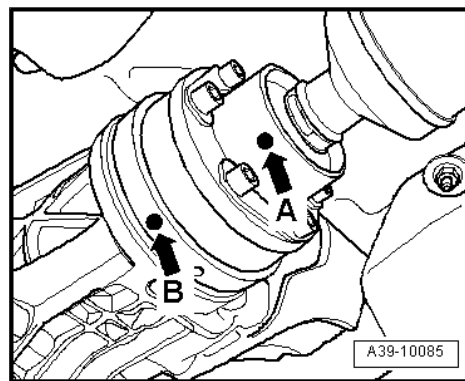
Perform installation in reverse sequence of removal. Note the following:

- ◆ Remove old, dried-out high-temperature grease from CV joints and flanges for propshaft. Put in exactly the same quantity of fresh high-temperature grease -G 000 633-.
- ◆ Clean all remaining locking fluid out of the tapped holes in the propshaft flange shafts on the gearbox and rear final drive. The threads can be cleaned with a thread tap. Otherwise the securing bolts can shear off when they are screwed in.
- ◆ After detaching the propshaft from the rear final drive, the additional balancing washer (thicker washer) that may be fitted between the lock plate and one of the securing bolts must not be reinstalled.
- ◆ Always install new securing bolts for propshaft (self-locking bolts).
- ◆ Check for damage to gasket for propshaft on rear final drive flange and on gearbox flange (kinked gasket or partially detached rubber coating). A damaged gasket must be renewed.
- ◆ Note correct position of propshaft: the central CV joint is located behind the centre bearing and towards the rear final drive.

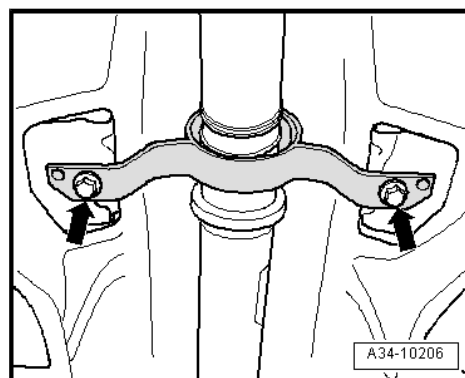


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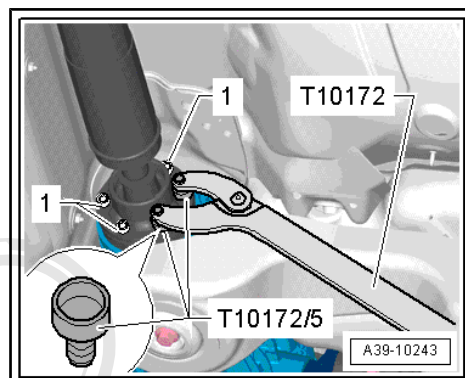
- Fit propshaft, paying attention to installation position at rear final drive:
- The markings on the propshaft -arrow A- and on the rear final drive -arrow B- should be aligned.
- Maximum misalignment of markings: 30°.
- Screw in bolts onto stop by hand, but do not tighten.



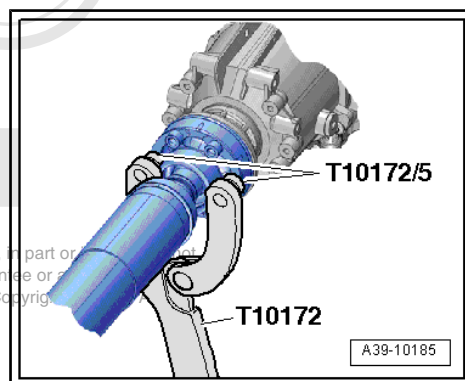
- Screw in securing bolts -arrows- so that centre bearing can still be moved.



- Tighten bolts -1- at rear of propshaft. Follow correct tightening sequence ➤ [page 20](#) .

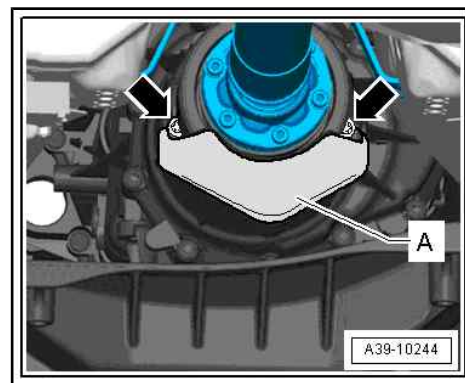


- Tighten bolts securing propshaft (front end). Tightening torque ➤ [Item 5 \(page 19\)](#)
- Remove assembly tool -3139- .
- Secure centre propshaft bearing to body so it is free of stress and tighten. Tightening torque ➤ [Item 8 \(page 19\)](#)

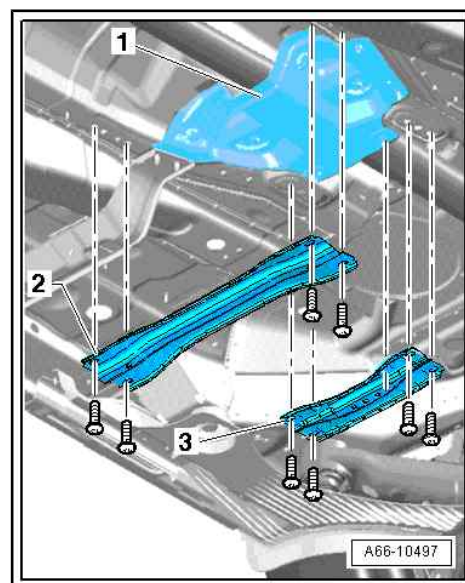


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- If fitted, bolt heat shield -A- onto gearbox -arrows-. Tightening torque ➔ [page 20](#)



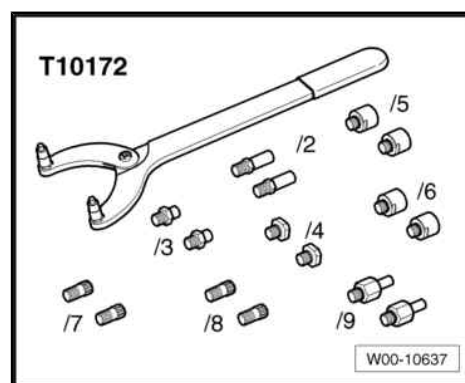
- Install heat shield -1-.
- If fitted, install front cross member -2- and rear cross member -3- ➔ Rep. gr. 66 .
- Install exhaust system and perform stress-free alignment ➔ Rep. gr. 26 .



1.2 Detaching and attaching propshaft at gearbox (version with bolted connection at gearbox end)

Special tools and workshop equipment required

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



- ◆ High-temperature grease -G 000 633-

Detaching propshaft

- ◆ Observe notes ➔ [page 18](#) .
- ◆ Repairs on the propshaft should be carried out on a two pillar hoist.

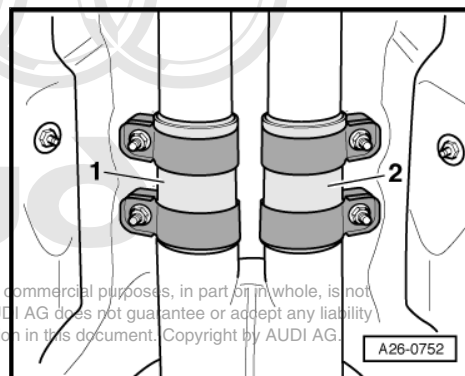
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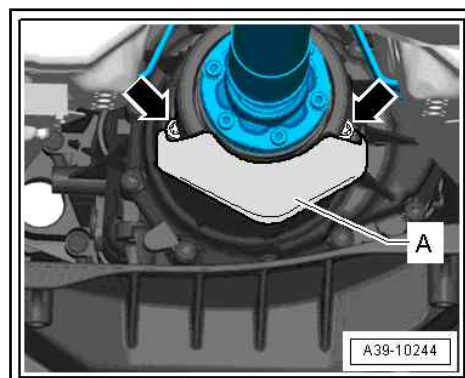
Note

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

- Unfasten clamps -1- and -2- and disconnect exhaust system.
- Tie front exhaust pipe(s) up to side of underbody.



- If fitted, detach heat shield -A- from gearbox -arrows-.

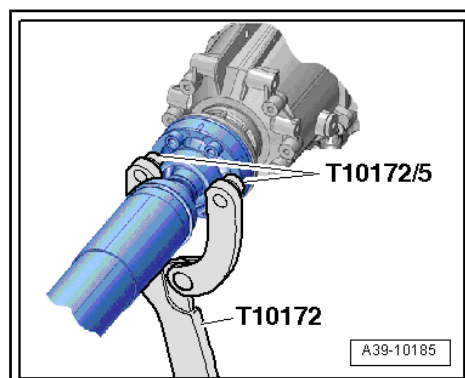
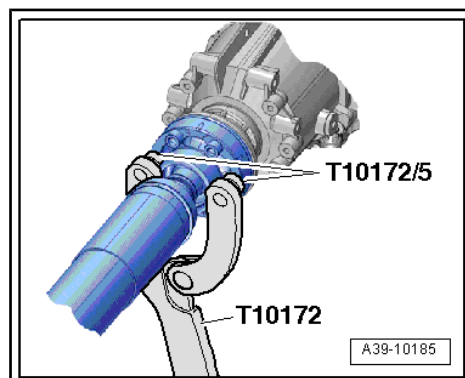


- Remove securing bolts from connection between propshaft and gearbox (counterhold using counterhold tool -T10172- and -T10172/5-).
- Secure propshaft to side of underbody.

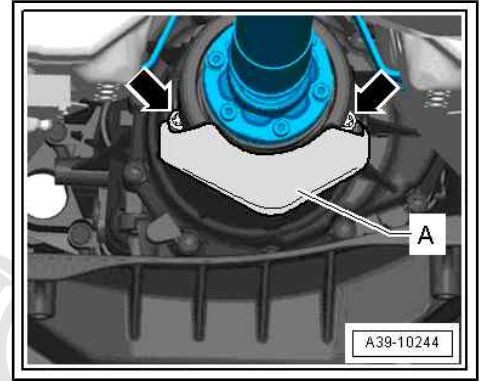
Attaching propshaft

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

- ◆ Remove old, dried-out high-temperature grease from CV joint and flange for propshaft. Put in exactly the same quantity of fresh high-temperature grease -G 000 633- .
- ◆ Clean remaining locking fluid out of tapped holes in flange shaft on gearbox. The threads can be cleaned with a thread tap. Otherwise the securing bolts can shear off when they are screwed in.
- ◆ Always install new securing bolts for propshaft (self-locking bolts).
- ◆ Check for damage to gasket for propshaft on gearbox flange (kinked gasket or partially detached rubber coating). A damaged gasket must be renewed.
- Bring propshaft into position and fit new bolts on CV joint.
- Tighten bolts securing propshaft (front end). Tightening torque ➔ [Item 5 \(page 19\)](#)
- Use counterhold tool -T10172- with adapters -T10172/5- .



- If fitted, bolt heat shield -A- onto gearbox -arrows-. Tightening torque ⇒ [page 20](#)
- Assemble exhaust system and align free of stress ⇒ Rep. gr. 26 .

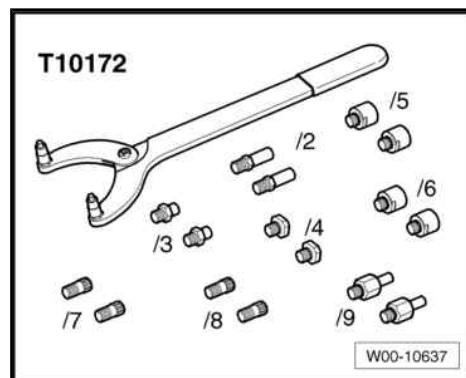


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2 Detaching and attaching propshaft at rear final drive

Special tools and workshop equipment required

- ◆ Counterhold tool -T10172-



- ◆ Adapter -T10172/5- (M8 bolts)
- ◆ Adapter -T10172/6- (M10 bolts)
- ◆ High-temperature grease -G 000 633-
- ◆ Please refer to notes ➔ [page 18](#) .
- ◆ Repairs on the propshaft should be carried out on a two pillar hoist.

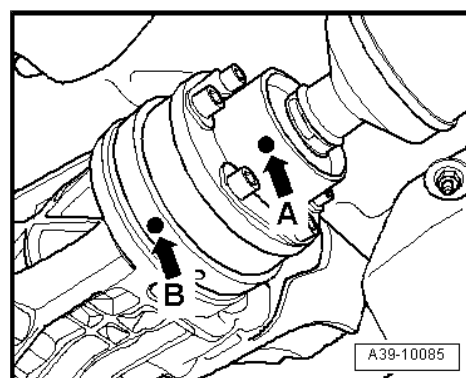
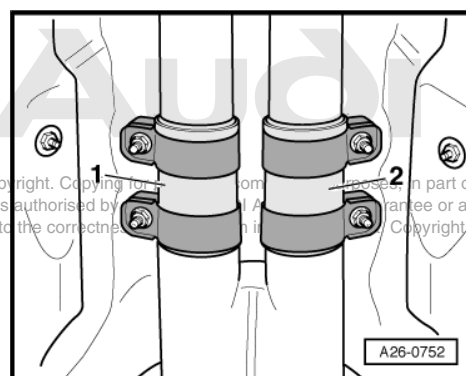
Detaching propshaft from rear final drive

- Disconnect exhaust system at clamps -1- and -2-.
- Tie front exhaust pipe(s) up to side of underbody.



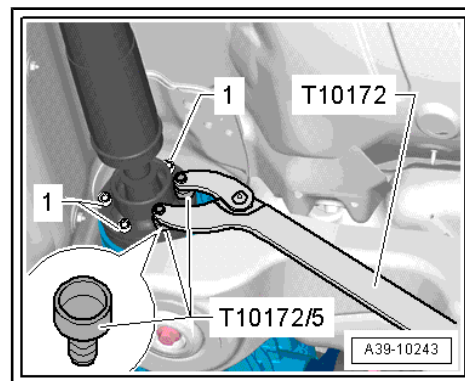
Note

- ◆ *The flexible pipe connection (de-coupling element) in the front exhaust pipe must not be bent more than 10° - otherwise it can be damaged. To prevent this, tie up front exhaust pipes to body on one side.*
- ◆ *A second mechanic is required for removing the rear section of the exhaust system.*
- Remove rear section of exhaust system ➔ Rep. gr. 26 .
- Check whether there is a factory marking (coloured dot) -arrow A- and -arrow B- on the propshaft and on the propshaft flange on the rear final drive.
- If one of these markings is no longer visible (for example -arrow A- on the propshaft), make a new paint marking accordingly.
- The markings on the propshaft -arrow A- and on the rear final drive -arrow B- should be aligned.



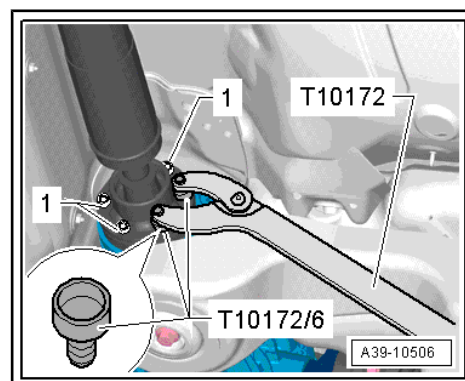
Rear final drive 0BF

- Remove bolts -1- (6x) on rear CV joint.
- To do so, use counterhold tool -T10172- and adapters - T10172/5- .
- Separate propshaft from rear final drive and move clear to one side on subframe.



Rear final drive 0BE

- Remove bolts -1- (6x) on rear CV joint.
- To do so, use counterhold tool -T10172- and adapters - T10172/6- .
- Separate propshaft from rear final drive and move clear to one side on subframe.

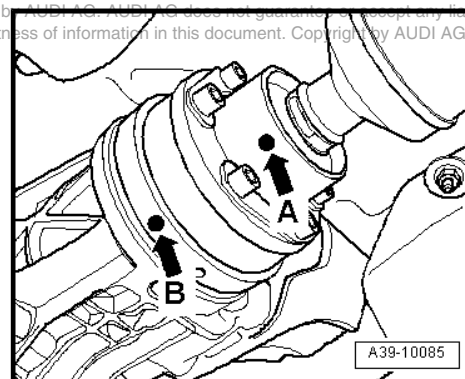


Attaching propshaft to rear final drive

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

- ◆ Remove old, dried-out high-temperature grease from CV joint and flange for propshaft. Put in exactly the same quantity of fresh high-temperature grease -G 000 633- .
- ◆ Clean remaining locking fluid out of tapped holes in flange shaft on rear final drive. The threads can be cleaned with a thread tap. Otherwise the securing bolts can shear off when they are screwed in.
- ◆ After detaching the propshaft from the rear final drive, the additional balancing washer (thicker washer) that may be fitted between the lock plate and one of the securing bolts must not be reinstalled.
- ◆ Always install new securing bolts for propshaft (self-locking bolts).
- ◆ Check for damage to gasket for propshaft on rear final drive flange (kinked gasket or partially detached rubber coating). A damaged gasket must be renewed.

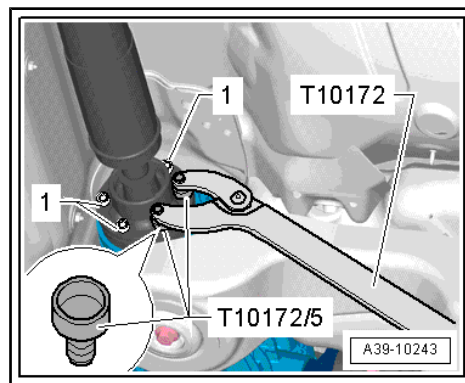
- Fit propshaft on rear final drive, paying attention to installation position:
 - The markings on the propshaft -arrow A- and on the rear final drive -arrow B- should be aligned.
 - Maximum misalignment of markings: 30°.



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- Install and tighten new securing bolts -1- for propshaft. Follow correct tightening sequence ➔ [page 33](#) .
- Install rear section of exhaust system ➔ Rep. gr. 26 .



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3 Exploded view - propshaft with splines on gearbox end

- ◆ Refer to general repair instructions ⇒ [page 13](#) .
- ◆ The propshaft of the type with splines on the gearbox end can only be separated from the gearbox by removing it completely.
- ◆ No repair work can be carried out on the propshaft with the exception of removing, installing and adjusting.
- ◆ The propshaft should normally be kept straight when it is stored or transported.
- ◆ The propshaft can be bent as far as the stop at the centre joint, but must not be subjected to any kind of force. The centre joint or the protective boot can be damaged if the joint is forced against its stop.
- ◆ The propshaft must be tied up or supported at one end if it is detached only at the rear final drive. If necessary, the propshaft can be bent as far as the stop at the centre joint, but it must not be subjected to force.
- ◆ Use counterhold tool -T10172- with adapters -T10172/5- (M8 bolts) or -T10172/6- (M10 bolts) to slacken and tighten the propshaft bolts.
- ◆ Always keep the propshaft horizontal while pulling it off or fitting it on the rear splined shaft of the gearbox.
- ◆ Observe correct tightening sequence for bolts securing propshaft to rear final drive ⇒ [page 33](#) .

Note the following before renewing the propshaft due to complaints concerning noise and/or vibrations.

- ◆ Check that centre bearing is free of stress or tension.
- ◆ Remove bolts securing propshaft to rear final drive. Re-tighten propshaft bolts in specified sequence ⇒ [page 33](#) .

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1 - Gearbox

2 - Hose clip

- ☐ Renew

3 - Propshaft

- ☐ Removing and installing
⇒ [page 33](#)
- ☐ Detaching and attaching propshaft at rear final drive ⇒ [page 28](#)

4 - Lock plate

5 - Bolt

- Final drive 0BF
 - ☐ M8 x 45
 - ☐ Self-locking
 - ☐ Renew
 - ☐ Clean remaining locking fluid out of tapped holes in flange shaft on rear final drive. The threads can be cleaned with a thread tap
 - ☐ Tightening torque and sequence ⇒ [page 33](#)
- Final drive 0BE (A8 with V8 TDI engine only)
 - ☐ M10 x 45 x 1
 - ☐ Renew
 - ☐ Tightening torque and sequence ⇒ [page 33](#)

6 - Gasket

- ☐ Renew gasket if damaged (buckled or kinked)
- ☐ Renew gasket if rubber coating has become detached
- ☐ Degrease flange shaft and fit gasket
- ☐ Different coloured sides can be disregarded for installation

7 - Rear final drive

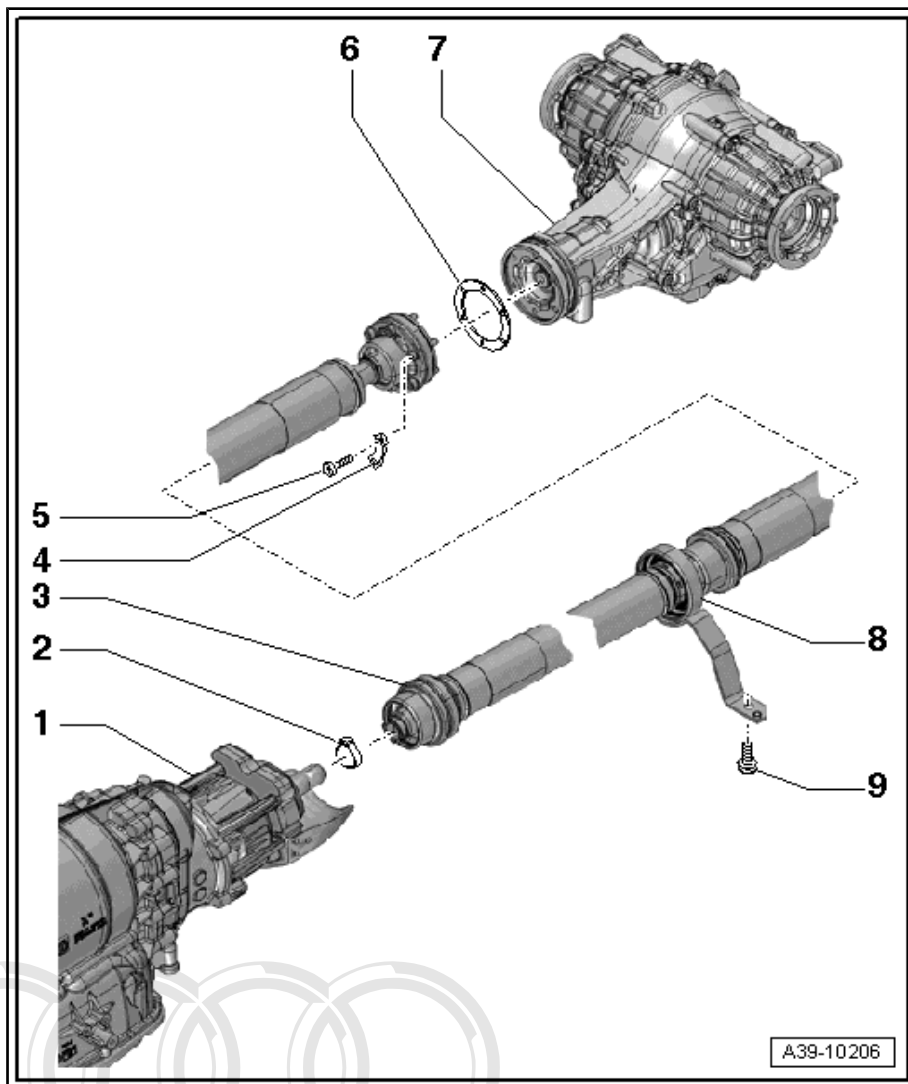
Removing and installing ⇒ [page 61](#)

8 - Centre bearing

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9 - Bolt

- ☐ 20 Nm

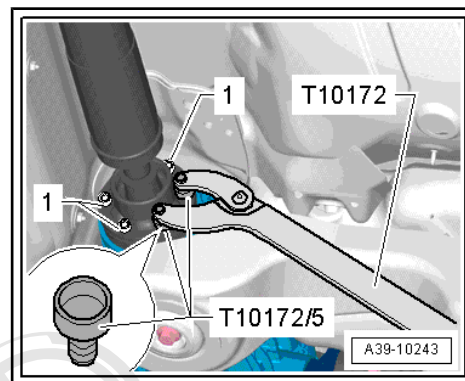


Tightening torque and sequence - propshaft to rear final drive 0BE and 0BF

- Always renew propshaft bolts -1-.
- Counterhold using counterhold tool -T10172- and adapters - T10172/5- (M8 bolts) or -T10172/6- (M10 bolts).
- Tighten bolts -1- in 3 stages as follows:

Stage	Bolts M8 or M10	Tightening torque/tightening angle
1.	-1-	Bolt nearest to coloured dots: 30 Nm ¹⁾
2.	-1-	All remaining bolts: 30 Nm
3.	-1-	All bolts: turn 90° further

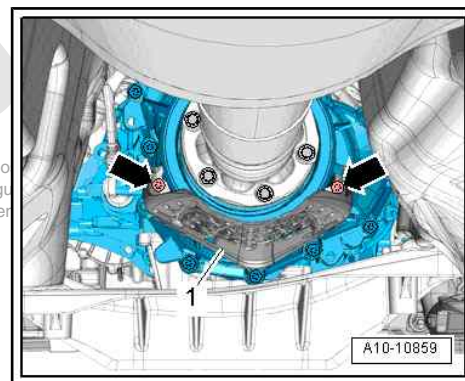
• ¹⁾ This pushes the CV joint slightly towards the opposite side and reduces the imbalance.



Heat shield for propshaft - tightening torque

- Tighten bolts -arrows- to 24 Nm.

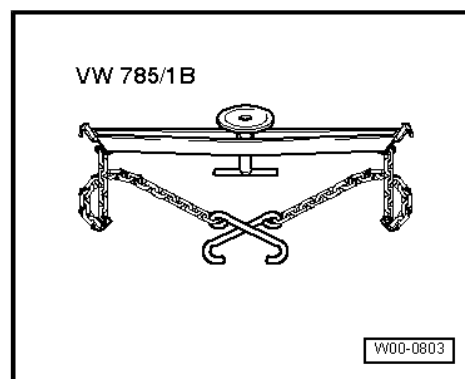
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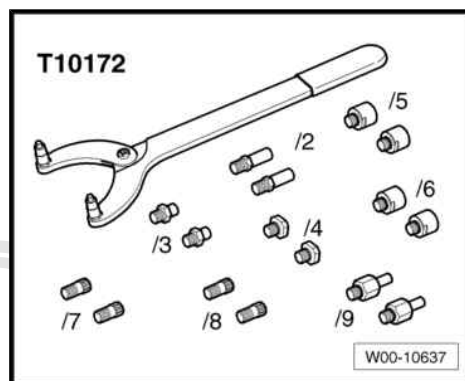
3.1 Removing and installing propshaft with splines on gearbox end

Special tools and workshop equipment required

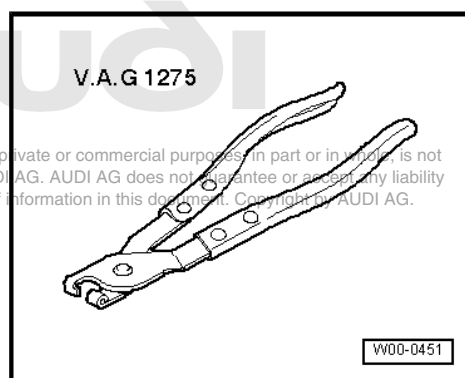
- ◆ Retaining tool -VW 785/1 B-



- ◆ Counterhold tool -T10172-



- ◆ Adapter -T10172/5-
- ◆ Adapter -T10172/6-
- ◆ Hose clip pliers -V.A.G 1275-



- ◆ High-temperature grease -G 000 633-

Removing



Note

- ◆ *The propshaft of the type with splines on the gearbox end can only be separated from the gearbox by removing it completely.*
- ◆ *Repairs on the propshaft should preferably be carried out on a two-pillar hoist.*
- ◆ *After unbolting propshaft from rear final drive, tie up or support end of propshaft.*
- ◆ *The propshaft can be bent as far as the stop at the centre joint, but must not be subjected to any kind of force. The centre joint or the protective boot can be damaged if the joint is forced against its stop.*
- ◆ *Always keep the propshaft horizontal while pulling it off or fitting it on the rear splined shaft of the gearbox.*



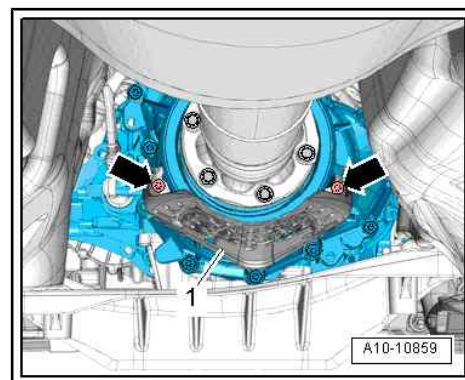
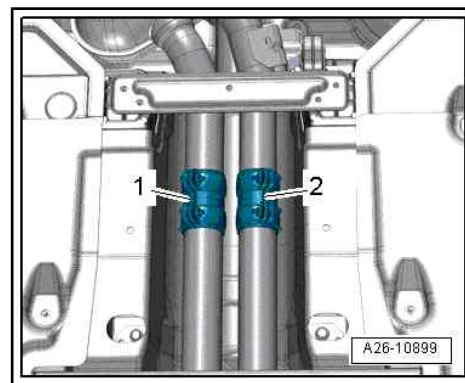
Caution

The flexible joints in the exhaust system can be damaged.

- ◆ *The flexible joint must not be bent further than 10°.*
- ◆ *Do not subject flexible joint to tensile load.*
- ◆ *Take care not to damage wire mesh on flexible joint.*

- Loosen clamps -1- and -2- and move towards the rear.
- Tie up front silencers or front exhaust pipes (left and right) on vehicle underside.
- If fitted, remove bolts -arrows- and detach heat shield 1 for propshaft.

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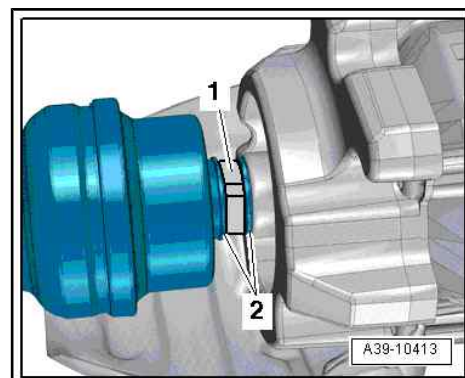


- Cut open hose clip -1- for protective boot on propshaft and remove hose clip.



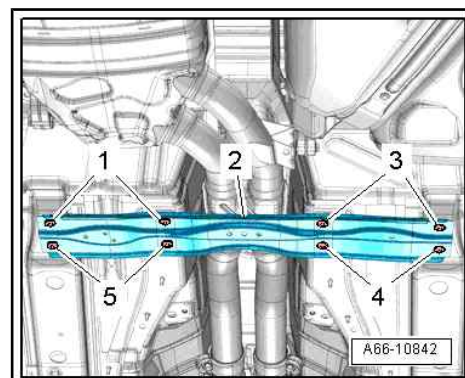
Note

-Item 2- can be disregarded.



Audi A6 and A7

- Remove cross piece -2- → General body repairs, exterior; Rep. gr. 66 .



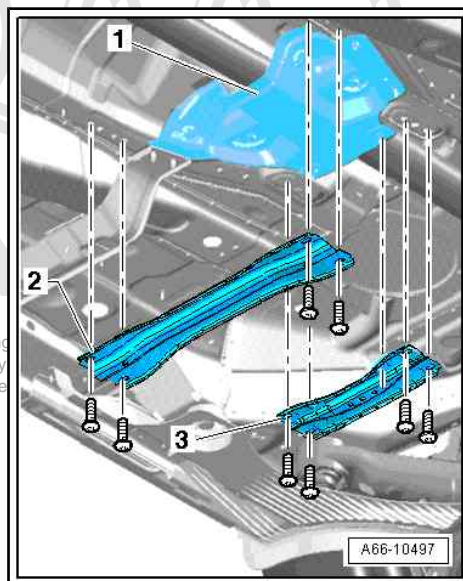
Audi A4, A5 Coupé, A5 Sportback, A5 Cabriolet, A8

- If fitted, remove cross member -2- (front) and cross member -3- (rear) ⇒ General body repairs, exterior; Rep. gr. 66 .

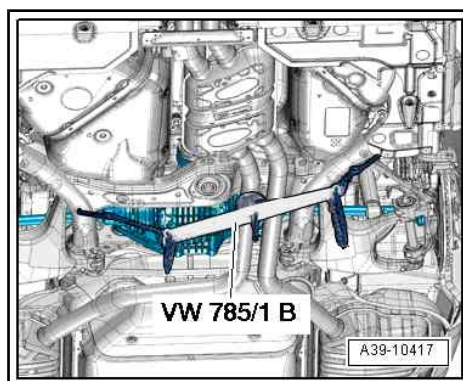
Continued for all vehicles

- Remove heat shield -1-.

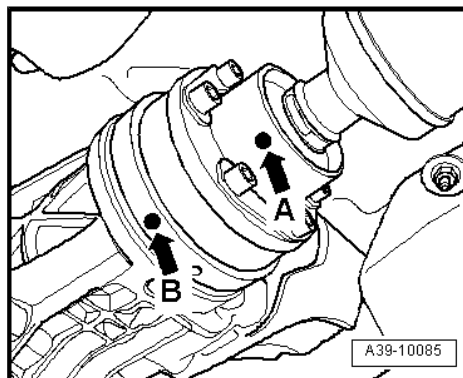
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- Lower rear section of exhaust system at the front and support using retaining tool -VW 785/1 B- as shown in illustration.

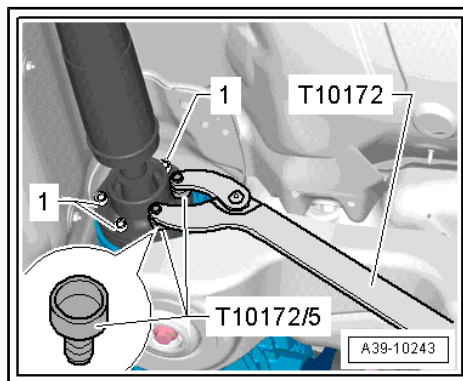


- Check whether there is a factory marking (coloured dot) -arrow A- and -arrow B- on the propshaft and on the rear final drive flange.
- If one of these markings is no longer visible, make a new paint marking accordingly.
- The markings on the propshaft -arrow A- and on the rear final drive -arrow B- should be aligned.



Rear final drive 0BF

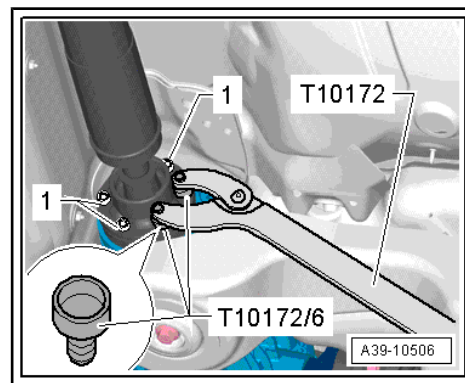
- Remove bolts -1- (6x) on rear CV joint.
- To do so, use counterhold tool -T10172- and adapters -T10172/5- .



Rear final drive OBE

- Remove bolts -1- (6x) on rear CV joint.
- To do so, use counterhold tool -T10172- and adapters -T10172/6-.

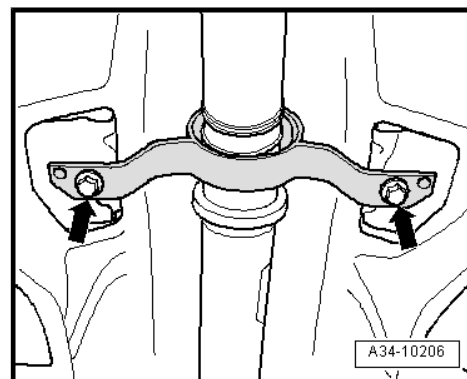
Continued for all final drive versions



- Remove bolts -arrows- securing centre propshaft bearing.
- Guide propshaft downwards at rear, past fuel tank and rear subframe, and detach from gearbox.

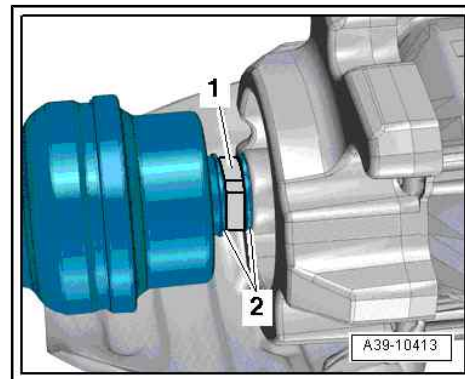
Installing

- Tightening torques ➔ [page 31](#) , ➔ [page 33](#)



Note

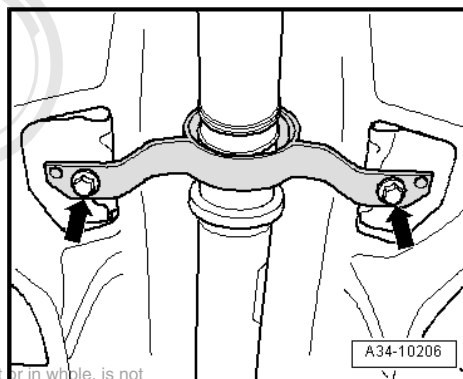
- ◆ Remove old, dried-out high-temperature grease from CV joint and flange for propshaft. Put in exactly the same quantity of fresh high-temperature grease -G 000 633-.
- ◆ Clean remaining locking fluid out of tapped holes in flange shaft on rear final drive (does not apply to M10 bolts). The threads can be cleaned with a thread tap. Otherwise the securing bolts can shear off when they are screwed in.
- ◆ Renew securing bolts for propshaft.
- ◆ Renew hose clip -1- for protective boot -2- on propshaft.
- ◆ Check for damage to gasket for propshaft on rear final drive flange (kinked gasket or partially detached rubber coating). A damaged gasket must be renewed.
- ◆ Wipe off splines of rear splined shaft on gearbox with a cloth before sliding on propshaft. Do not apply grease to splines.



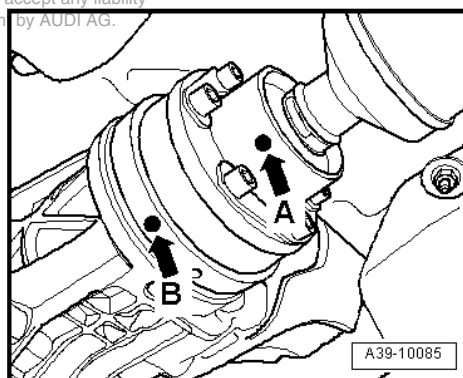
- Fit propshaft onto gearbox first.
- Do not bend further than 10° when fitting propshaft on splines.
- After sliding the propshaft approx. 50 mm onto the rear splined shaft of the gearbox, turn it slightly to ensure that the splines on the shaft engage in the internal splines of the propshaft.
- Push propshaft onto splines of rear splined shaft as far as stop.

Propshaft is a complex component. It is not permitted to disassemble it. The use of a thread tap, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Screw in securing bolts -arrows- so that centre bearing can still be moved.



- Fit propshaft on rear final drive, paying attention to installation position:
 - The markings on the propshaft -arrow A- and on the rear final drive -arrow B- should be aligned.
 - Maximum misalignment of markings: 30°.
- Screw in new bolts by hand until they make contact, but do not tighten.

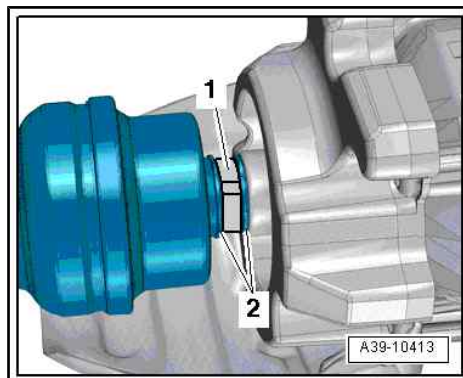


- Align hose clip -1- for protective boot on propshaft with shaped sections -2- and tighten using hose clip pliers -V.A.G 1275- or similar.

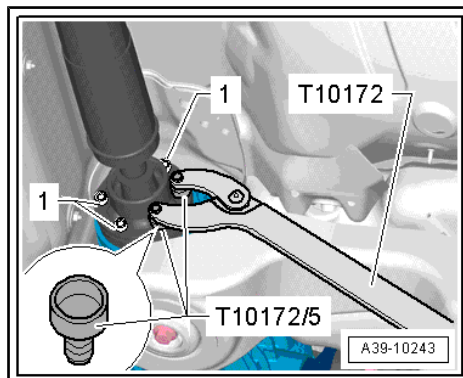


Note

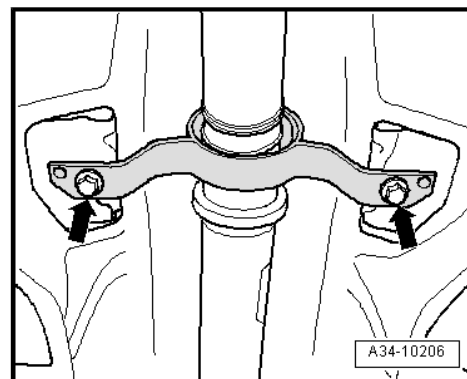
Push the propshaft slightly towards the rear in order to be able to apply the hose clip pliers -V.A.G 1275- properly.



- Tighten bolts for propshaft -1-. Follow correct tightening sequence ➔ [page 33](#) .

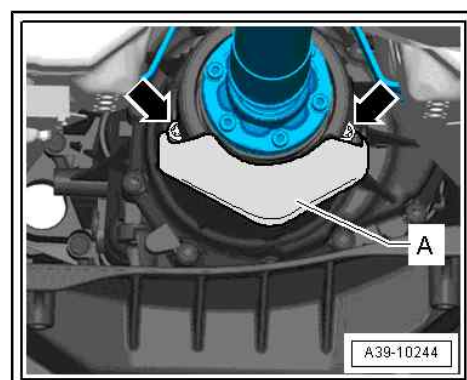


- Secure centre propshaft bearing to body so it is free of stress and tighten. Tightening torque ⇒ [Item 9 \(page 32\)](#)

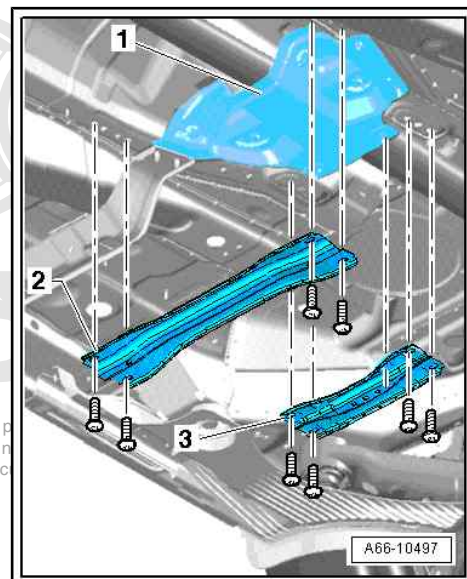


The remaining installation steps are carried out in reverse sequence; note the following:

- If fitted, bolt heat shield -A- onto gearbox -arrows-. Tightening torque ⇒ [page 33](#)



- Install heat shield -1- ⇒ General body repairs, exterior; Rep. gr. 66 .
- If fitted, install front cross member -2- and rear cross member -3- ⇒ Rep. gr. 66 .
- Install exhaust system so it is free of stress ⇒ Engine, mechanics; Rep. gr. 26 .



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4 Electrical/electronic components and fitting locations

1 - Four-wheel drive control unit -J492-

- ❑ Fitting location in A4 saloon, A5 Coupé and A5 Cabriolet ➤ [page 41](#)
- ❑ Fitting location in A4 Avant ➤ [page 41](#)
- ❑ Fitting location in A5 Sportback ➤ [page 41](#)
- ❑ Fitting location in A6 and A7 ➤ [page 42](#)
- ❑ Fitting location in A8 ➤ [page 42](#)
- ❑ Removing and installing ➤ [page 42](#)
- ❑ Additional work required after renewing control unit ➤ [page 43](#)
- ❑ Important signals are transferred from the engine control unit and ABS control unit -J104- via data bus to the four-wheel drive control unit

2 - ABS control unit -J104-

- ❑ Fitting location; removing and installing ➤ Rep. gr. 45

3 - Diagnostic connection

- ❑ Fitting location: in driver's footwell (front) ➤ [page 41](#)
- ❑ Connecting vehicle diagnostic, testing and information system -VAS 5051B- or -VAS 5052- and selecting functions ➤ [page 42](#)

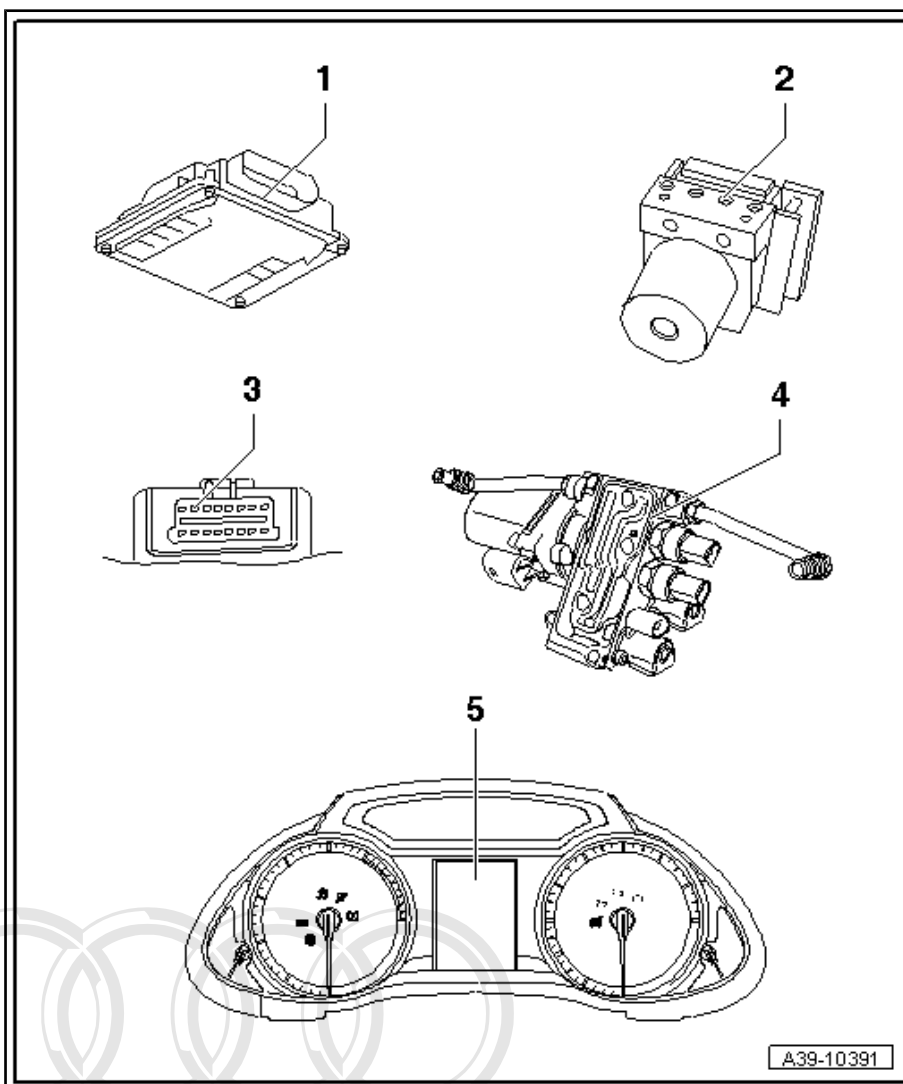
4 - Hydraulic control unit

- ❑ Fitting location: on rear final drive
- ❑ Removing and installing ➤ [page 47](#)
- ❑ Dismantling and assembling ➤ [page 50](#)
- ❑ Hydraulic control unit with:

◆ Four-wheel drive pump -V415-

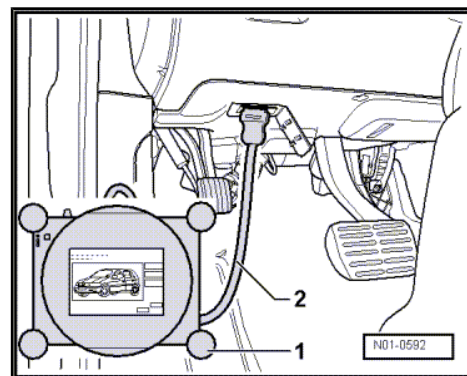
- ◆ Oil pressure and oil temperature sender 2 -G640-
- ◆ Oil pressure and oil temperature sender -G437-
- ◆ Clutch valve 2 for four-wheel drive -N446-
- ◆ Clutch valve for four-wheel drive -N445-

5 - Instrument cluster display



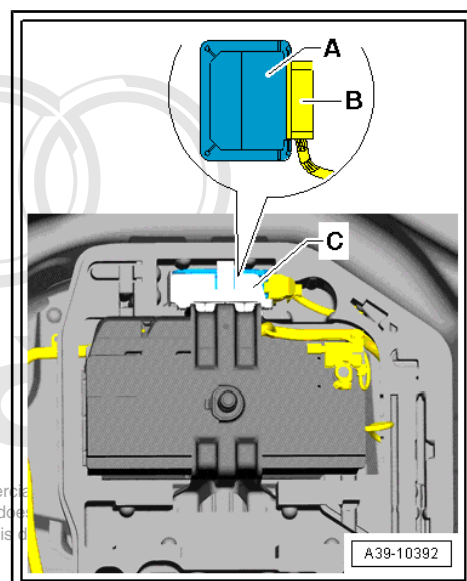
Diagnostic connection

Fitting location: diagnostic connection for vehicle diagnostic, testing and information system -VAS 5051B- or -VAS 5052- is located in driver's footwell.



Four-wheel drive control unit -J492- in A4 saloon, A5 Coupé and A5 Cabriolet

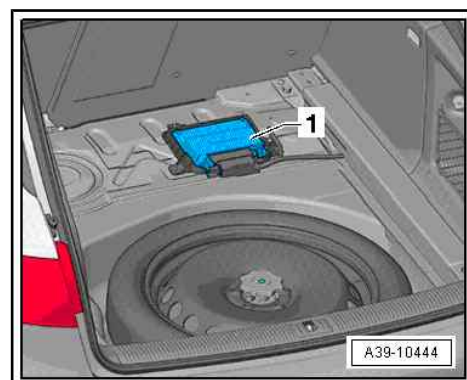
Fitting location: the four-wheel drive control unit -J492- -A- is located in the spare wheel well in front of the battery.



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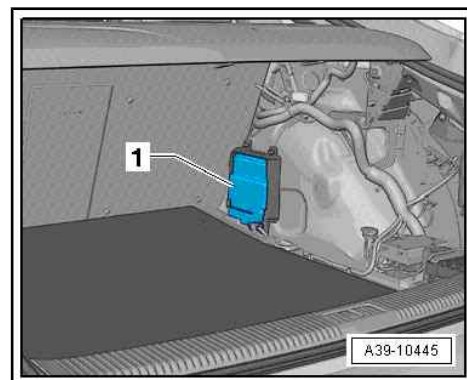
Four-wheel drive control unit -J492- in A4 Avant

Fitting location: the four-wheel drive control unit -J492- -1- is located on the right of the luggage compartment in front of the spare wheel well.



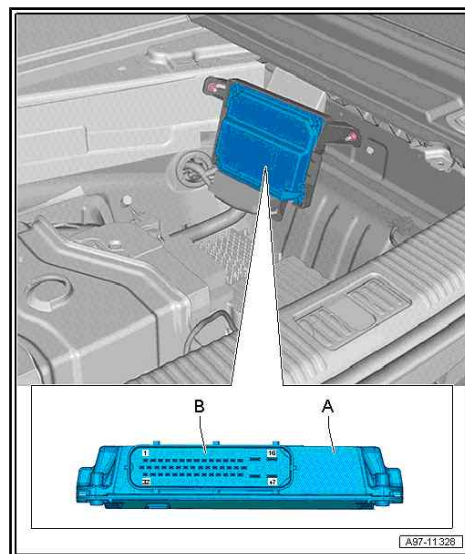
Four-wheel drive control unit -J492- in A5 Sportback

Fitting location: the four-wheel drive control unit -J492- -1- is located on the rear wheel housing (right-side) behind the luggage compartment side trim ➔ Rep. gr. 70 .



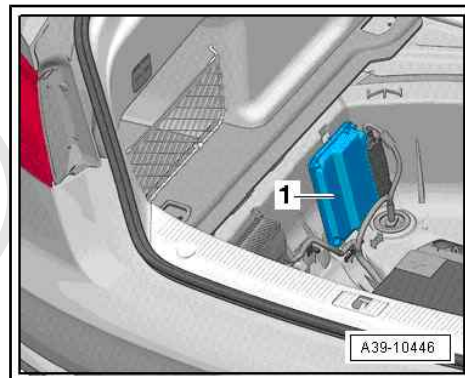
Four-wheel drive control unit -J492- in Audi A6/A7

Fitting location: the four-wheel drive control unit -J492- -A- is located on the right side of the spare wheel well.



Four-wheel drive control unit -J492- in A8

Fitting location: the four-wheel drive control unit -J492- -1- is located on the left side of the spare wheel well.



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

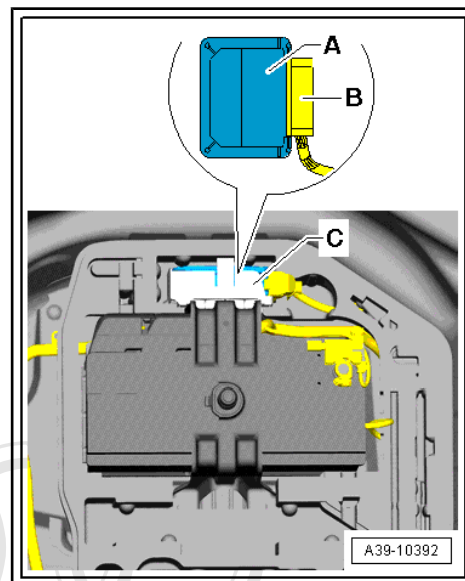


Note

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- ◆ *Fitting locations of four-wheel drive control unit -J492- ➔ [Item 1 \(page 40\)](#)*
- ◆ *The removal and installation procedures are described for the A4 saloon.*
- Ignition is switched off.
- Remove luggage compartment floor covering.
- Remove cover and mounting for vehicle tool kit.

- Remove four-wheel drive control unit -J492- -A- from bracket -C-.
- Release connector -B- and unplug from four-wheel drive control unit -J492- .
- Installation of four-wheel drive control unit -J492- is carried out in reverse order of removal.
- Additional work is required if four-wheel drive control unit -J492- has been renewed
⇒ „4.2 Additional work required after renewing four-wheel drive control unit J492 “, page 43 .



4.2 Additional work required after renewing four-wheel drive control unit -J492-



Note

Only perform this additional work if four-wheel drive control unit -J492- has been renewed.

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- Connect vehicle diagnostic, testing and information system -VAS 5051- and switch on ignition.
- Using vehicle diagnostic, testing and information system -VAS 5051- in Guided Functions mode, select 22 - Four-wheel electronics and then select the function 22 - Replacing control unit.
- It is important to follow all instructions given by the vehicle diagnostic, testing and information system -VAS 5051- exactly.

Using vehicle diagnostic, testing and information system -VAS 5051B- , „adapt“ installed rear final drive to four-wheel drive control unit -J492- .



Note

When 22 - Replacing control unit function has been completed, a system check is performed. Any malfunctions during this test must be eliminated via the „Guided Fault Finding“.

5 Exploded view - rear final drive



Caution

Only certain parts of the rear final drive may be dismantled.

- ◆ *Currently the two superposition gears
⇒ [Item 11 \(page 45\)](#) and ⇒ [Item 25 \(page 45\)](#) may not
be removed from the final drive.*
- ◆ *Therefore it is currently not possible to repair the compo-
nents inside.*

1 - Bolt

- ☐ 50 Nm and then turn
+180° further
- ☐ Always renew

2 - Flange shaft (right-side)

- ☐ Removing and installing
⇒ [page 89](#)
- ☐ Do not interchange with
flange shaft (left-side);
the two shafts are differ-
ent

3 - Protective ring

- ☐ Renewing ⇒ [page 91](#)

4 - ATF breather

- ☐ For superposition gear
(left-side)
- ☐ Clip onto breather pipe

5 - Gasket

- ☐ With strainer

6 - Hydraulic control unit

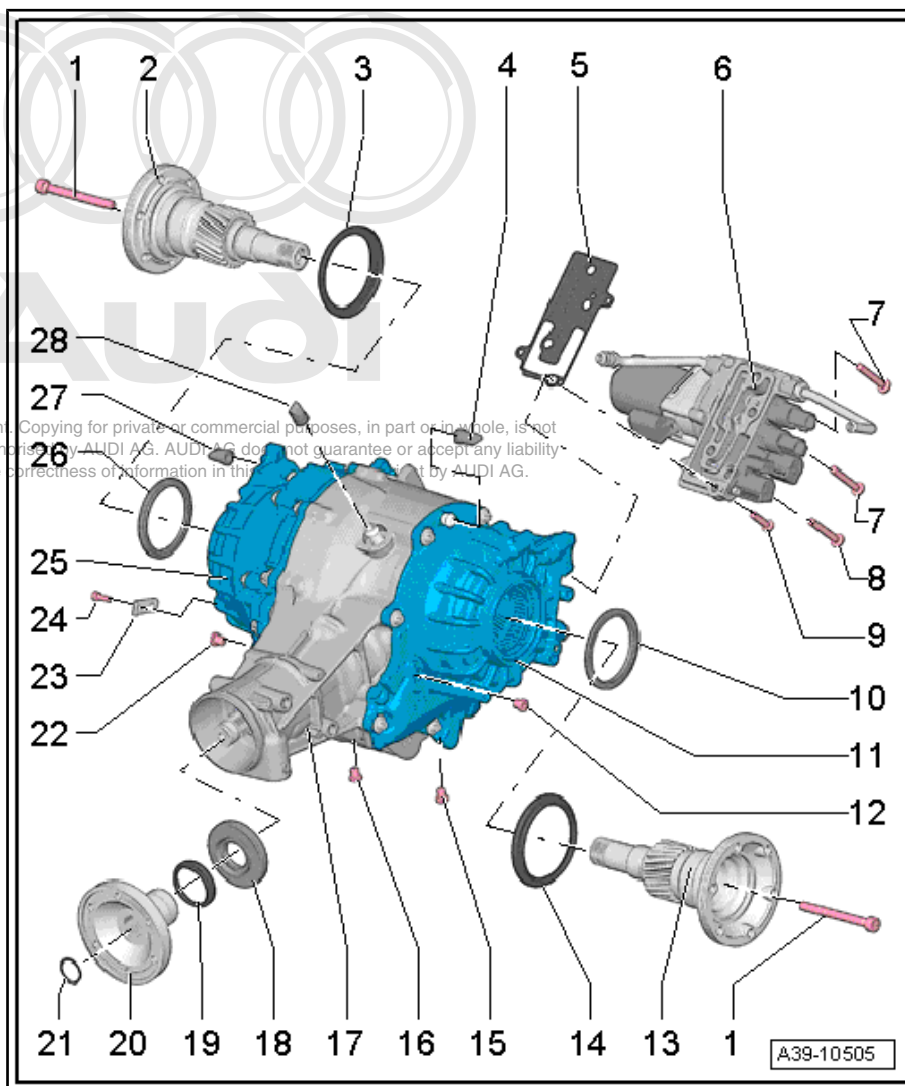
- ☐ With four-wheel drive
pump -V415- and pipes
to superposition gears
- ☐ Removing and installing
⇒ [page 47](#)
- ☐ Dismantling and assem-
bling ⇒ [page 50](#)

7 - Bolt

- ☐ 20 Nm
- ☐ 2x
- ☐ M8, 50 mm long
- ☐ Follow correct tightening sequence ⇒ [page 49](#)

8 - Bolt

- ☐ 20 Nm
- ☐ M8, 50 mm long
- ☐ With captive seal underneath bolt head
- ☐ Coat thread with sealing paste -D 176 501 A1-
- ☐ Follow correct tightening sequence ⇒ [page 49](#)



9 - Bolt

- ☐ 20 Nm
- ☐ M8, 30 mm long
- ☐ Follow correct tightening sequence ⇒ [page 49](#)

10 - Oil seal

- ☐ For flange shaft (left-side)
- ☐ Renewing ⇒ [page 89](#)

11 - Superposition gear (left-side)

12 - ATF inspection plug

- ☐ 15 Nm
- ☐ Always renew
- ☐ With captive seal

13 - Flange shaft (left-side)

- ☐ Removing and installing ⇒ [page 89](#)
- ☐ Do not interchange with flange shaft (right-side); the two shafts are different

14 - Protective ring

- ☐ Renewing ⇒ [page 91](#)

15 - ATF drain plug

- ☐ 15 Nm
- ☐ Always renew
- ☐ With captive seal

16 - Gear oil drain plug

- ☐ 15 Nm
- ☐ Always renew
- ☐ With captive seal

17 - Final drive housing

18 - Oil seal

- ☐ For propshaft flange
- ☐ Renewing (final drive 0BF) ⇒ [page 93](#)
- ☐ Renewing (final drive 0BE) ⇒ [page 99](#)

19 - Protective ring

- ☐ Renewing ⇒ [page 106](#)

20 - Propshaft flange

- ☐ Removing and installing (final drive 0BF) ⇒ [page 93](#)
- ☐ Removing and installing (final drive 0BE) ⇒ [page 99](#)

21 - Circlip

- ☐ Always renew
- ☐ Installing ⇒ [page 99](#)

22 - Gear oil inspection plug

- ☐ 15 Nm
- ☐ Always renew
- ☐ With captive seal

23 - Bracket

- ☐ For wiring harness

24 - Bolt

- ☐ 9 Nm



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25 - Superposition gear (right-side)

26 - Oil seal

- ☐ For flange shaft (right-side)
- ☐ Renewing ⇒ [page 89](#)

27 - ATF breather

- ☐ For superposition gear (right-side)
- ☐ Clip onto breather pipe

28 - Breather for final drive

- ☐ Clip onto breather pipe



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6 Dismantling and assembling rear final drive

⇒ „5 Exploded view - rear final drive“, page 44

⇒ „6.1 Removing and installing hydraulic control unit“, page 47

⇒ „6.2 Dismantling and assembling hydraulic control unit“, page 50

⇒ „6.3 Removing and installing four-wheel drive pump V415“, page 53

⇒ „6.4 Removing and installing oil pressure and oil temperature sender G437 or oil pressure and oil temperature sender 2 G640“, page 54

⇒ „6.5 Removing and installing clutch for four-wheel drive N445 or clutch valve 2 for four-wheel drive N446“, page 57

6.1 Removing and installing hydraulic control unit



Note

- ◆ Refer to general repair instructions ⇒ [page 13](#).
- ◆ Observe safety precautions ⇒ [page 13](#).

Removing

- Ignition is switched off.
- Place vehicle on lifting platform.
- Lower rear section of exhaust system slightly and secure; if necessary remove rear section of exhaust system ⇒ Rep. gr. 26.

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Note

A second mechanic is required for removing the rear section of the exhaust system.

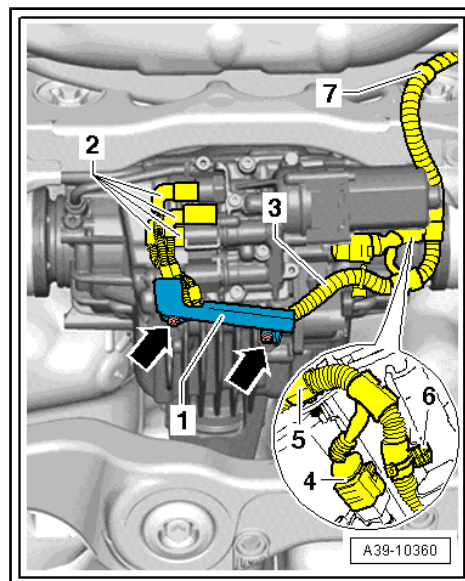
- If fitted, unscrew bolts -arrows- and detach bracket -1- for wiring harness from rear final drive.



Note

Mark connectors -2- for oil pressure and oil temperature senders and clutch valves .

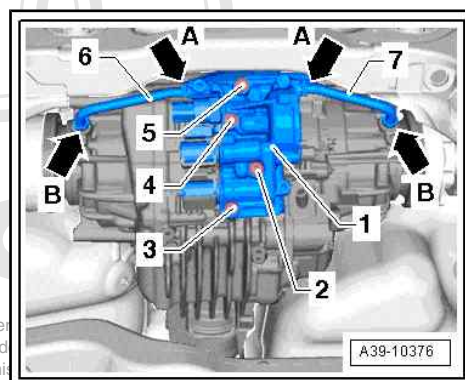
- Unplug connectors -2- from oil pressure and oil temperature senders and clutch valves .
- Then unplug connector -4- from four-wheel drive pump - V415- .
- Subsequently, unclip wiring harness -3- from final drive and subframe -items 5 ... 7- and tie up.
- Position drip tray under rear final drive.
- Drain ATF from rear final drive ➔ [page 85](#) .
- Drain gear oil from rear final drive ➔ [page 79](#) .
- Remove four-wheel drive pump -V415- ➔ [page 53](#) .



Note

To loosen and tighten the nut for the pipe (right-side) at the hydraulic control unit ➔ [page 48](#) , the four-wheel drive pump - V415- must be removed.

- Loosen pipe (left-side) -6- and pipe (right-side) -7- leading to hydraulic control unit -1- one turn -arrows A- and disconnect from superposition gears -arrows B-.
- Unscrew bolts -2 ... 5- and detach hydraulic control unit -1- with gasket.



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Installing



Note

Carefully observe safety precautions when renewing hydraulic control unit. If possible the „old“ senders must be re-installed
⇒ [page 13](#) .

Requirements:

- Renew gasket between hydraulic control unit -1- and final drive housing
- Centring pins ⇒ [Item 18 \(page 51\)](#) must be installed in housing of hydraulic control unit.
- To attach hydraulic control unit -1- to rear final drive, pipes (left -6- and right -7-) must be screwed into control unit loosely.

Attach hydraulic control unit -1- to rear final drive as follows:

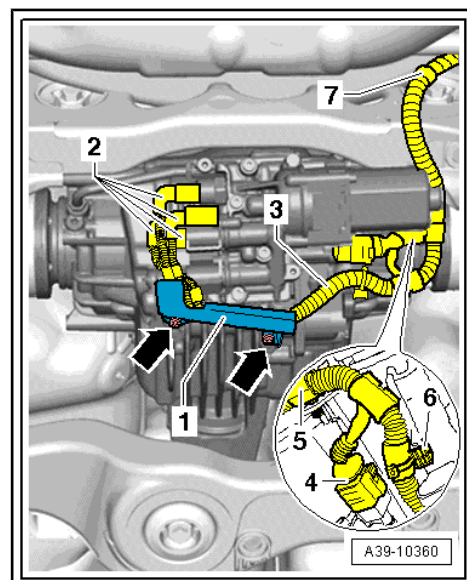
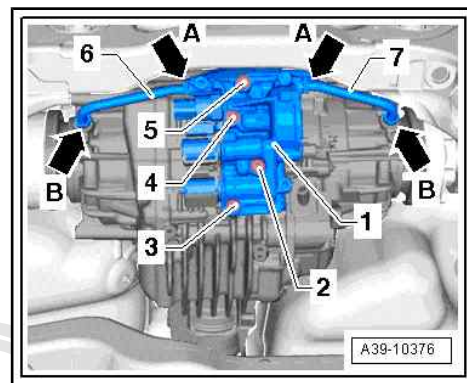
First screw pipe connections -6- and -7- hand-tight into superposition gears -arrows B-.

Then screw in bolts -2 ... 5- hand-tight (bolt -2- is fitted with a captive seal underneath the bolt head; coat the thread of this bolt with sealing paste -D 176 501 A1-).

Tighten bolts -2 ... 5- to specified torque in the sequence -4-, -2-, -5- and -3- (M8 x 30 mm).

Then tighten nuts -arrows A- and -arrows B- at pipes (left -6- and right -7-) to specified torque.

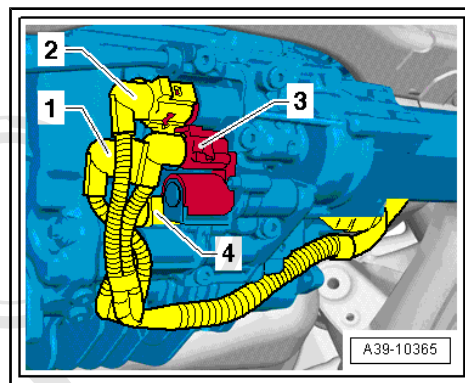
- Install four-wheel drive pump -V415- ⇒ [page 53](#) .
- Clip in wiring harness -3- at final drive and subframe -items 5 ... 7-.
- Plug in connectors -4- and -2-, paying attention to marks made during removal for identification of oil pressure and oil temperature senders and clutch valves .
- If fitted, install bracket -1- for wiring harness at rear final drive and tighten bolts -arrows- to specified torque. Take care not to trap wiring harness -3-.





Note

- ♦ Allocation of connectors for oil pressure and oil temperature senders and at clutch valves :
- ♦ -1- = connector for oil pressure and oil temperature sender 2 -G640-
- ♦ -2- = connector for oil pressure and oil temperature sender - G437-
- ♦ -3- = connector for clutch valve 2 for four-wheel drive -N446-
- ♦ -4- = connector for clutch valve for four-wheel drive -N445-



- Fill up gear oil in rear final drive and check oil level
⇒ [page 78](#) .
- Fill up ATF in rear final drive and check ATF level
⇒ [page 84](#) .
- Install rear section of exhaust system and perform stress-free alignment ⇒ Rep. gr. 26 .

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6.2 Dismantling and assembling hydraulic control unit

1 - Bolt

- 5 Nm

2 - Four-wheel drive pump - V415-

- Removing and installing
⇒ [page 53](#)

3 - O-ring

- Always renew

4 - Adapter



Note

5 - Hydraulic pump

- Consists of guide ring, housing and 6 pistons
- Assembling
⇒ [page 52](#)

6 - Ball bearing

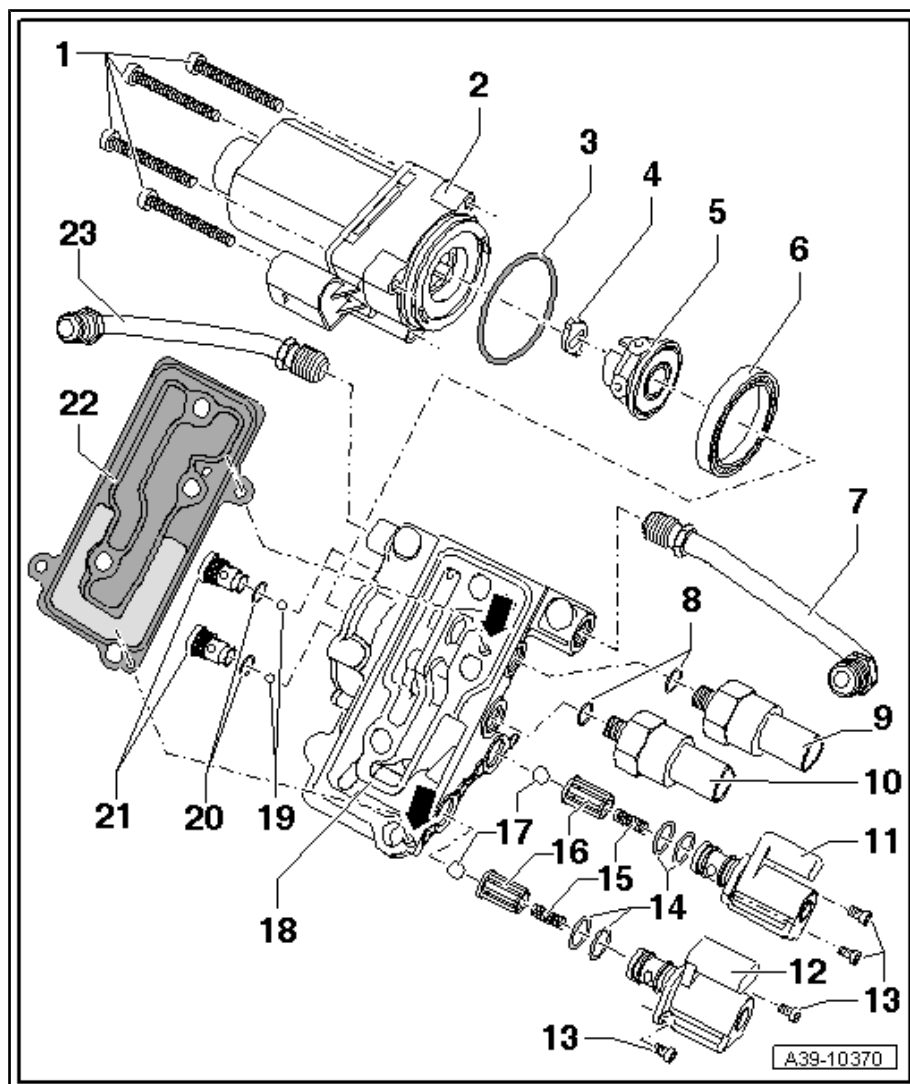
- Can be removed and installed by hand

7 - Pipe (left-side)

- Tighten nuts to 30 Nm
- Installed between hydraulic control unit and superposition gear (left-side)
- When installing, first screw in both nuts hand-tight

8 - O-ring

- Always renew



9 - Oil pressure and oil temperature sender -G437-

- ☐ 10 Nm
- ☐ Brown connection
- ☐ Removing and installing ⇒ [page 54](#)

10 - Oil pressure and oil temperature sender 2 -G640-

- ☐ 10 Nm
- ☐ Black connection
- ☐ Removing and installing ⇒ [page 54](#)

11 - Clutch valve 2 for four-wheel drive -N446-

- ☐ Colour: brown
- ☐ Removing and installing ⇒ [page 57](#)
- ☐ Installation position: connector must face upwards towards oil pressure and oil temperature sender



Caution

*Do not interchange with
clutch valve for four-
wheel drive -N445- .*

12 - Clutch valve for four-wheel drive -N445-

- ☐ Colour: black
- ☐ Removing and installing ⇒ [page 57](#)
- ☐ Installation position: connector must face upwards towards oil pressure and oil temperature sender



Caution

*Do not interchange with
clutch valve 2 for four-
wheel drive -N446- .*

13 - Bolt

- ☐ 2.5 Nm

14 - O-ring

- ☐ Always renew
- ☐ Fit on clutch valve

15 - Spring

- ☐ Insert in guide ⇒ [Item 16 \(page 51\)](#)

16 - Guide

- ☐ Installation position: large diameter must face ball ⇒ [Item 17 \(page 51\)](#)

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17 - Ball

- ☐ Before installing, insert in guide ⇒ [Item 16 \(page 51\)](#)

18 - Housing for hydraulic control unit

- ☐ With centring pins -arrows-
- ☐ Centring pins lock hydraulic control unit with gasket on final drive housing

19 - Ball

- ☐ Before installing, insert in hole in shuttle valve ⇒ [Item 21 \(page 51\)](#)

20 - O-ring

- ☐ Always renew

21 - Shuttle valve

- ☐ 8 Nm

- ❑ Removing and installing ➔ [page 52](#)

22 - Gasket

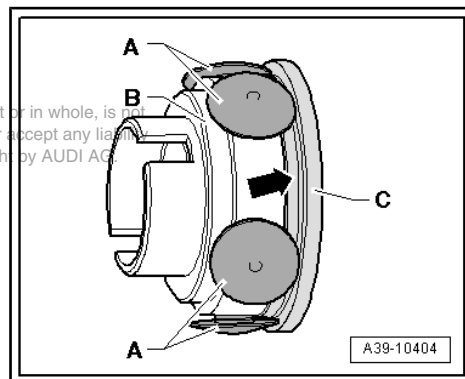
- ❑ With strainer
- ❑ Position on centring pins of housing for hydraulic control unit

23 - Pipe (right-side)

- ❑ Tighten nuts to 30 Nm
- ❑ Installed between hydraulic control unit and superposition gear (right-side)
- ❑ When installing, first screw in both nuts hand-tight

Assembling hydraulic pump

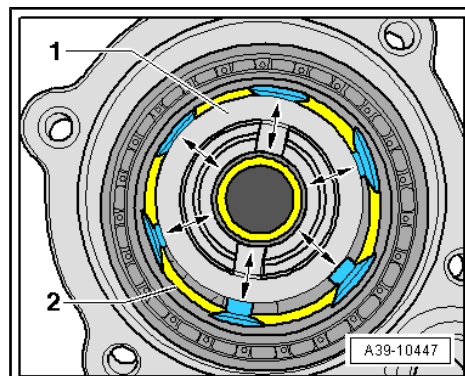
- Insert the 6 pistons -A- into housing -B-.
- Then position guide ring -C so that pistons make contact with shoulder -arrow-.



- Fit hydraulic pump -1- with guide ring -2- in housing for hydraulic control unit.

Function test:

- Rotate hydraulic pump -1- several times. Check the following:
 - ◆ The hydraulic pump must turn smoothly without sticking or catching.
 - ◆ All pistons must move in and out.



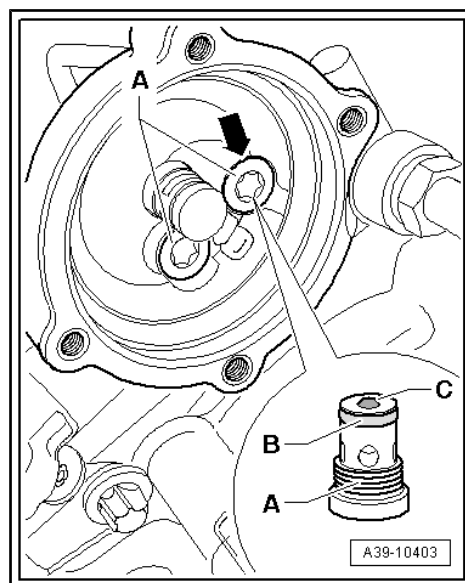
Removing and installing shuttle valves



Note

First remove four-wheel drive pump -V415-, hydraulic pump and ball bearing ➔ [Item 6 \(page 50\)](#).

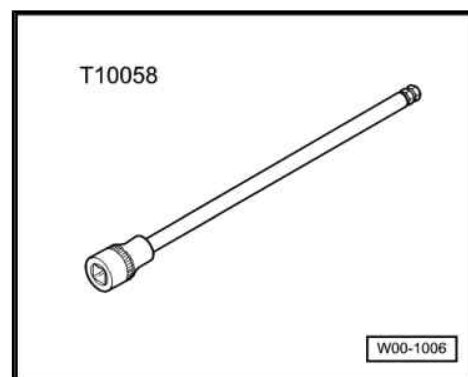
- Unscrew shuttle valves -A- (it is important to also remove ball -C-).
- To install, insert ball in hole in shuttle valve.
- Then carefully screw in shuttle valve with new O-ring -B- as far as stop.
- The shuttle valve must be below the surface of the housing -arrow-. If this is not the case, remove the valve and position the ball correctly.
- Tighten shuttle valve to specified torque
➔ [Item 21 \(page 51\)](#).



6.3 Removing and installing four-wheel drive pump -V415-

Special tools and workshop equipment required

- ◆ Allen key -T10058-



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- ◆ *Observe safety precautions ➔ [page 13](#).*

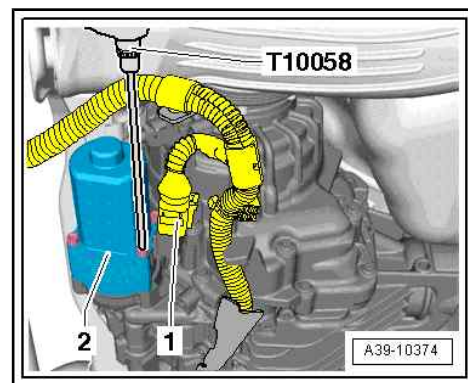
Removing

- Place vehicle on lifting platform.
- Ignition is switched off.
- Position drip tray under rear final drive.
- Unplug connector -1- from four-wheel drive pump -V415- -2-.
- Unscrew the four bolts securing four-wheel drive pump -V415- to hydraulic control unit using Allen key -T10058- .
- Carefully detach four-wheel drive pump -V415- -2-; pay attention to adapter ➔ [Item 4 \(page 50\)](#) in hydraulic pump.



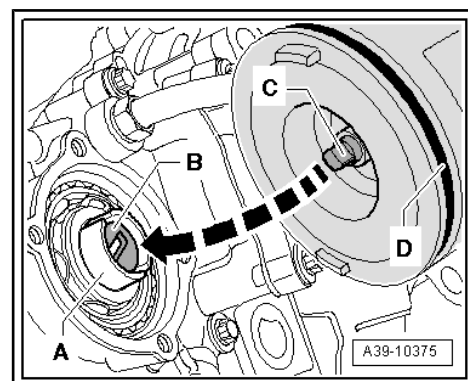
Note

- ◆ *Adapter can fall out during removal of four-wheel drive pump -V415- .*
- ◆ *Before installing four-wheel drive pump -V415- , insert adapter in recesses in hydraulic pump.*

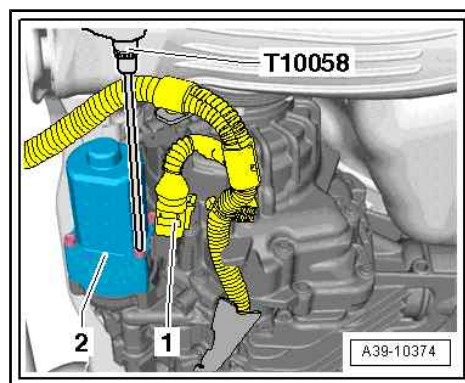


Installing

- Hydraulic pump -A- is fitted in installation position in hydraulic control unit; assembling hydraulic pump ➔ [page 52](#) .
- Adapter -B- is fitted in recesses in hydraulic pump.
- A new O-ring -D- is fitted on four-wheel drive pump -V415- .
- Insert four-wheel drive pump -V415- with actuating pin -C- in adapter -B-.



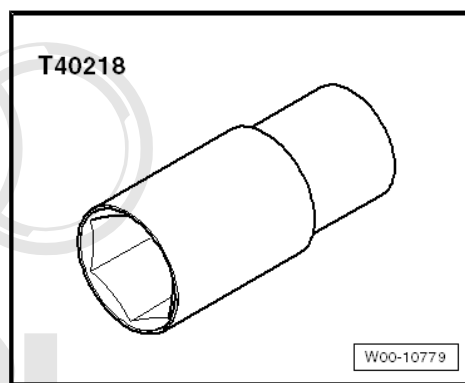
- Tighten the four bolts securing four-wheel drive pump -V415- -2- to specified torque in diagonal sequence
⇒ [Item 1 \(page 50\)](#) .
- Attach connector -1- to four-wheel drive pump -V415- .
- Top up ATF in rear final drive ⇒ [page 86](#) .



6.4 Removing and installing oil pressure and oil temperature sender -G437- or oil pressure and oil temperature sender 2 - G640-

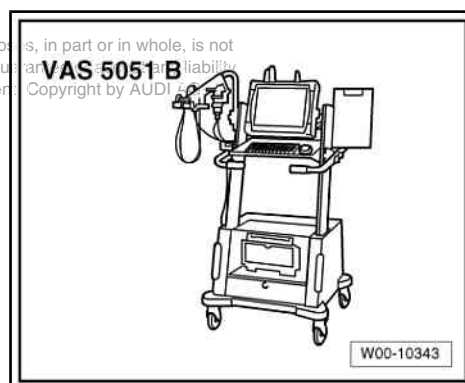
Special tools and workshop equipment required

- ◆ Bit (27 mm) -T40218-



- ◆ Vehicle diagnostic, testing and information system -VAS 5051-

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Important safety precautions:

- ◆ After renewing the oil pressure and oil temperature sender - G437- or the oil pressure and oil temperature sender 2 - G640- , the identity of the corresponding sender must be re-adapted in the four-wheel drive control unit -J492- ⇒ Vehicle diagnostic tester.
- ◆ Do not renew both oil pressure and oil temperature senders (-G437- and -G640-) at the same time, as at least one valid sender identity is required at any time for the allocation of the rear final drive to the four-wheel drive control unit -J492- . If both senders are renewed at the same time, the four-wheel drive control unit -J492- would interpret this as the replacement of the rear final drive. This would erase all the learnt

values in the control unit and impair the performance of the rear final drive.

- ◆ If both oil pressure and oil temperature senders (-G437- and -G640-) have to be renewed due to mechanical damage, e.g. damage to the connector housing, this should be done in two steps: After the first sender has been renewed, the identity of the sender must be re-adapted in the four-wheel drive control unit -J492- ➔ Vehicle diagnostic tester. Proceed in the same manner for the second sender.
- ◆ If both oil pressure and oil temperature senders (-G437- and -G640-) have to be renewed due to an electrical fault, the clutch classification must be entered again in the four-wheel drive control unit -J492- ➔ Vehicle diagnostic tester. In addition, the ATF in the rear final drive must be renewed ➔ [page 85](#) .



Note

- ◆ Refer to general repair instructions ➔ [page 13](#) .
- ◆ Observe safety precautions ➔ [page 13](#) .

Removing

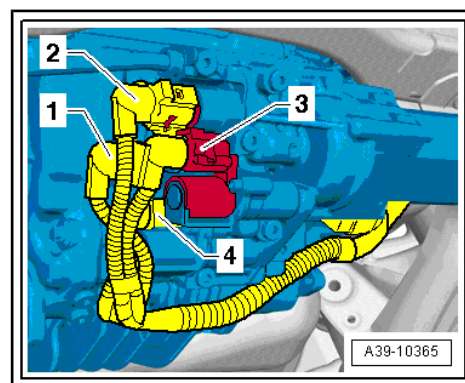
- Ignition is switched off.
- Place vehicle on lifting platform.
- Lower rear section of exhaust system slightly and secure.
- If necessary, remove bracket for wiring harness from rear final drive ➔ [page 48](#) .
- Unplug connector -1- from oil pressure and oil temperature sender 2 -G640- / connector -2- from oil pressure and oil temperature sender -G437- .



Note

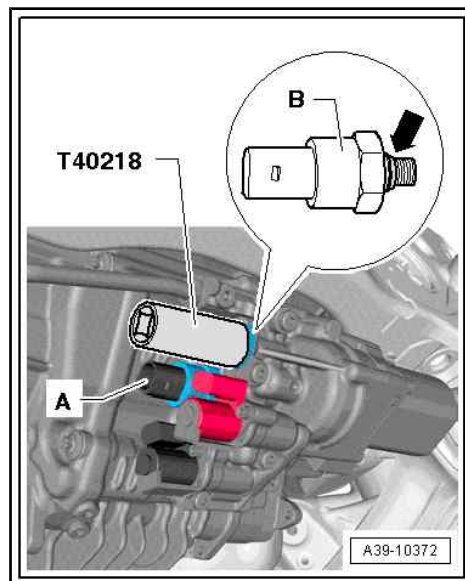
If necessary, unplug connectors -3- and -4-.

- Position drip tray under rear final drive.



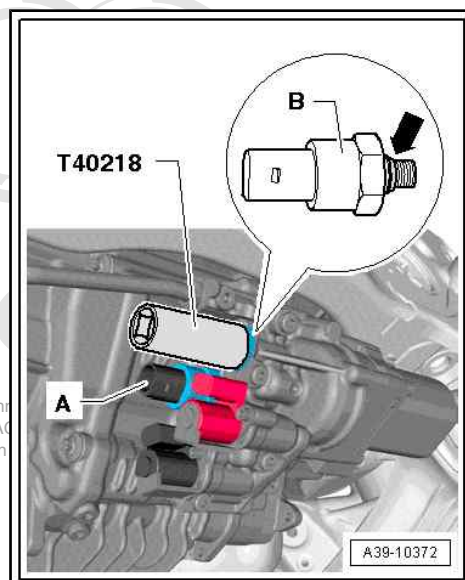
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- Remove corresponding sender using bit -T40218- .
- A- = oil pressure and oil temperature sender 2 -G640- - black connection
- B- = oil pressure and oil temperature sender -G437- - brown connection



Installing

- Carefully screw in new sender with new O-ring -arrow- at its fitting location and tighten to specified torque
⇒ [Item 9 \(page 50\)](#) or ⇒ [Item 10 \(page 51\)](#) .
- A- = oil pressure and oil temperature sender 2 -G640- - black connection
- B- = oil pressure and oil temperature sender -G437- - brown connection



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- Plug in connector -1- at oil pressure and oil temperature sender 2 -G640- / connector -2- at oil pressure and oil temperature sender -G437- .

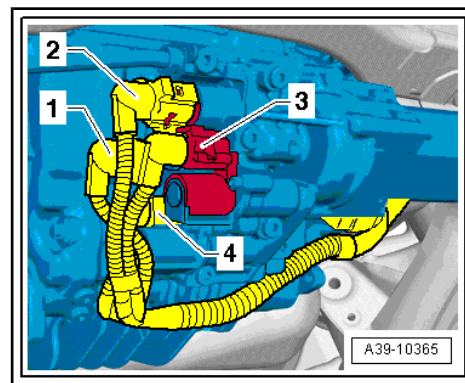


Note

If unplugged earlier, plug in connectors -3- and -4-.

- If removed earlier, install bracket for wiring harness at rear final drive ⇒ [page 67](#) .
- Connect vehicle diagnostic, testing and information system - VAS 5051- and switch on ignition.
- Using vehicle diagnostic, testing and information system -VAS 5051- in Guided Functions mode, select 22 - Four-wheel electronics and then select the function 22 - Adapting sender.
- It is important to follow all instructions given by the vehicle diagnostic, testing and information system -VAS 5051- exactly.

Using vehicle diagnostic, testing and information system -VAS 5051B- , „adapt“ new sender to four-wheel drive control unit - J492- .



Note

When 22 - Adapting sender function has been completed, a system check is performed. Any malfunctions during this test must be eliminated via the „Guided Fault Finding“.

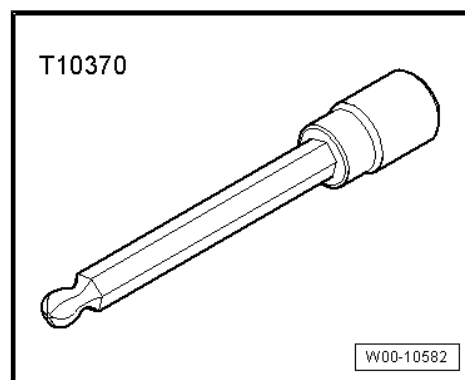
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- Top up ATF in rear final drive ⇒ [page 86](#).
- Secure rear section of exhaust system to body and align so it is free of stress ⇒ Rep. gr. 26 .

6.5 Removing and installing clutch for four-wheel drive -N445- or clutch valve 2 for four-wheel drive -N446-

Special tools and workshop equipment required

- ◆ Socket (4 mm) -T10370-



Note

- ◆ Refer to general repair instructions ⇒ [page 13](#) .
- ◆ Observe safety precautions ⇒ [page 13](#) .



Caution

Malfunctions on rear final drive.

- **Do NOT interchange fitting location of clutch valve for four-wheel drive -N445- with fitting location of clutch valve 2 for four-wheel drive -N446- .**

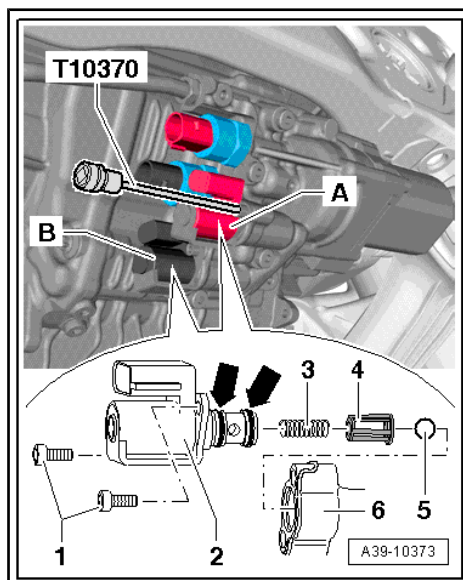
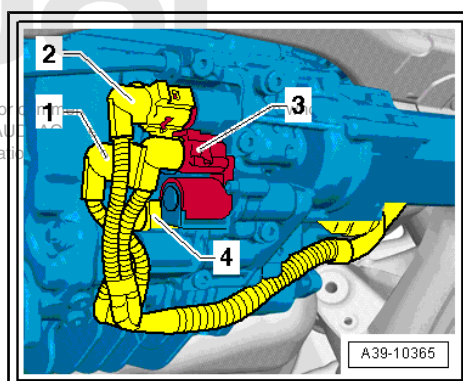
Removing

- Ignition is switched off.
- Place vehicle on lifting platform.
- Lower rear section of exhaust system slightly and secure.
- Remove bracket for wiring harness from rear final drive
⇒ [page 48](#) .



Note

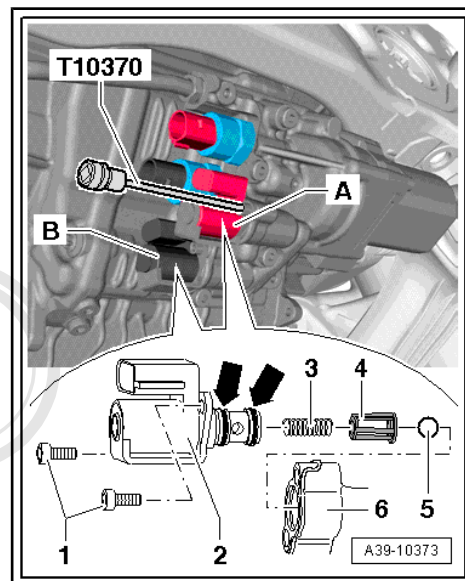
- ◆ **Mark connectors -1 ... 4- for oil pressure and oil temperature senders and clutch valves .**
- ◆ **Unplug connectors -1- and -2-.**
- Unplug connector -3- from clutch valve 2 for four-wheel drive -N446- / connector -4- from clutch valve for four-wheel drive -N445- .
- Position drip tray under rear final drive.
- Unscrew bolts -1- of corresponding clutch valve using 4 mm socket -T10370-
- Carefully prise out clutch valve e.g. using a flat screwdriver; observe spring -3-. Spring can fall out of opening in hydraulic control unit -6-.
- A- = clutch valve 2 for four-wheel drive -N446- , brown colour coding
- B- = clutch valve for four-wheel drive -N445- , black colour coding



Installing

- Ball -5-, guide -4- (small diameter facing spring) and spring -3- must be installed in opening in housing -6- for clutch valve -2-.
- Install new clutch valve with new O-rings -arrows- (coat O-rings with ATF).
- Pre-tighten bolts -1- evenly hand-tight until they make contact. Then tighten to specified torque ➔ [Item 13 \(page 51\)](#).

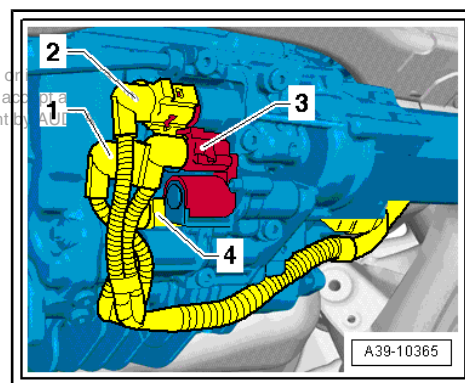
Perform remaining installation operations in reverse order of removal. Note the following:



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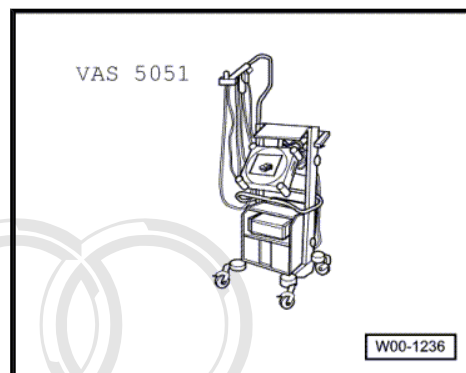
- ◆ *Allocation of connectors for oil pressure and oil temperature senders and at clutch valves :*
- ◆ -1- = connector for oil pressure and oil temperature sender 2 -G640-
- ◆ -2- = connector for oil pressure and oil temperature sender -G437-
- ◆ -3- = connector for clutch valve 2 for four-wheel drive -N446-
- ◆ -4- = connector for clutch valve for four-wheel drive -N445-
- Attach bracket for wiring harness to rear final drive ➔ [page 67](#).
- Top up ATF in rear final drive ➔ [page 86](#).
- Secure rear section of exhaust system to body and align so it is free of stress ➔ Rep. gr. 26.



7 Checking torque distribution

Special tools and workshop equipment required

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



Procedure:



Note

- ♦ Refer to general repair instructions ➔ [page 13](#).
- ♦ Observe safety precautions ➔ [page 13](#).

The function 22 - Check torque distribution must be performed after the following operations:

- ♦ Work on wiring of rear final drive
- ♦ Work on valves: clutch valve for four-wheel drive -N445- and clutch valve 2 for four-wheel drive -N446-
- ♦ Work on hydraulic control unit
- Raise vehicle on a platform until wheels no longer make contact with the floor.
- Connect vehicle diagnostic, testing and information system -VAS 5051- and switch on ignition.
- Using vehicle diagnostic, testing and information system -VAS 5051- in Guided Functions mode, select 22 - Four-wheel electronics and then select the function 22 - Checking torque distribution.
- It is important to follow all instructions given by the vehicle diagnostic, testing and information system -VAS 5051- exactly.

Vehicle diagnostic, testing and information system -VAS 5051B- is used to check if torque is shifted to the correct side when the rear final drive is activated.

8 Removing and installing rear final drive

⇒ „8.1 Exploded view - rear final drive (Audi A4, A5 Coupé/Sportback/Cabriolet, A6, A7)“, page 61 .

⇒ „8.2 Removing and installing rear final drive (Audi A4, A5 Coupé/Sportback/Cabriolet, A6, A7)“, page 62 .

⇒ „8.3 Exploded view - rear final drive (RS 5)“, page 68

⇒ „8.4 Removing and installing rear final drive (RS 5)“, page 68

⇒ „8.5 Exploded view - rear final drive (Audi A8)“, page 72

⇒ „8.6 Removing and installing rear final drive (Audi A8)“, page 72

⇒ „8.7 Additional work required after renewing rear final drive“, page 75

8.1 Exploded view - rear final drive (Audi A4, A5 Coupé/Sportback/Cabriolet, A6, A7)

1 - Subframe

- ◆ Removing and installing ⇒ Rep. gr. 42

2 - Bolt

- ☐ 95 Nm

3 - Bolt

- ☐ 55 Nm

4 - Drive shaft (left-side)

- ☐ Removing and installing ⇒ Rep. gr. 42

5 - Bolt

- ☐ 20 Nm

6 - Heat shield

7 - Rear final drive

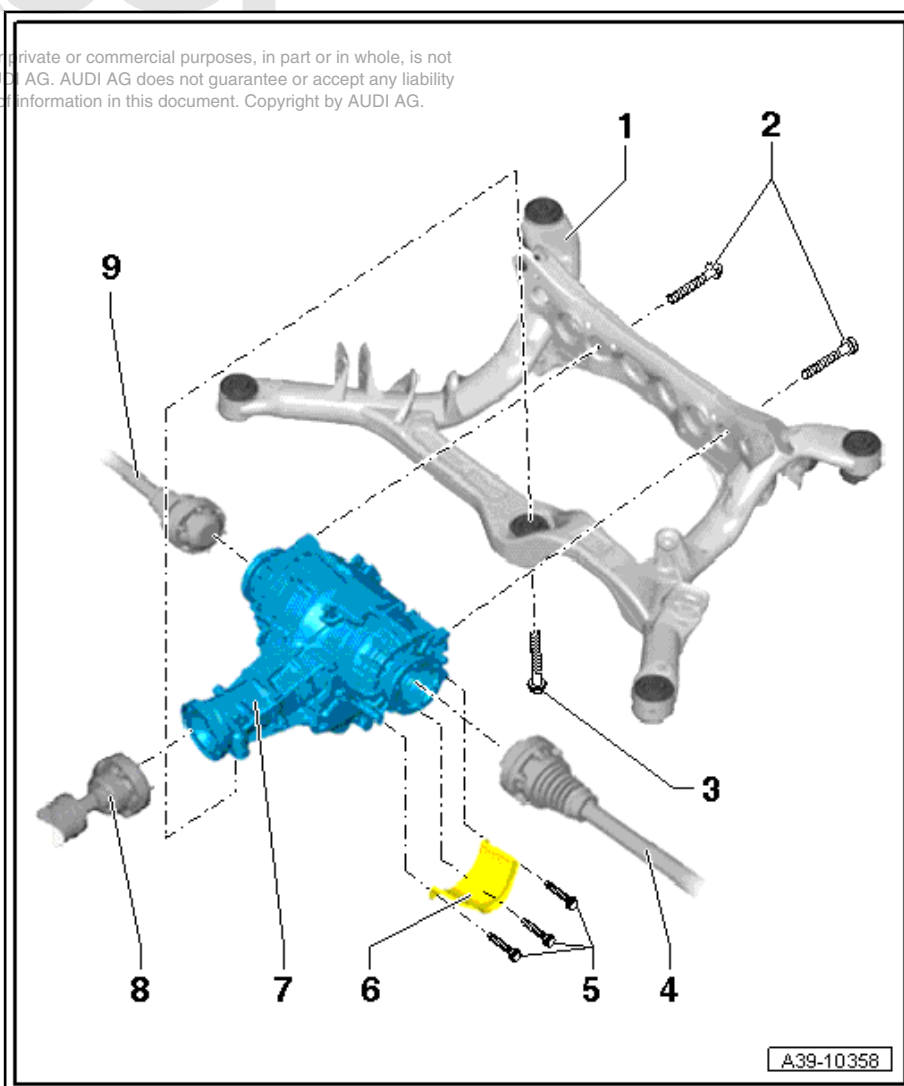
- ☐ Removing and installing ⇒ page 62
- ☐ Additional work required after renewing rear final drive ⇒ page 75

8 - Propshaft

- ☐ Removing and installing ⇒ page 20

9 - Drive shaft (right-side)

- ☐ Removing and installing ⇒ Rep. gr. 42



8.2 Removing and installing rear final drive (Audi A4, A5 Coupé/Sportback/Cabrio- let, A6, A7)

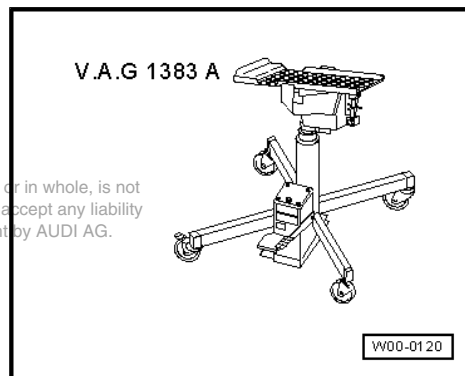
Refer to general repair instructions ⇒ [page 13](#) .

Observe safety precautions ⇒ [page 13](#) .

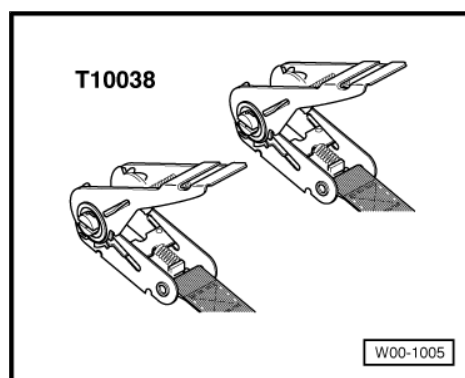
Special tools and workshop equipment required

- ◆ Engine and gearbox jack -V.A.G 1383 A- with universal gear-
box support -V.A.G 1359/2-

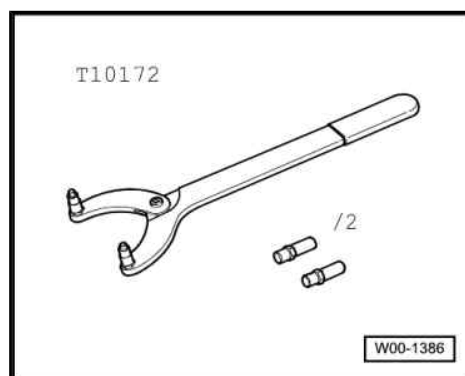
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- ◆ Tensioning strap -T10038-



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



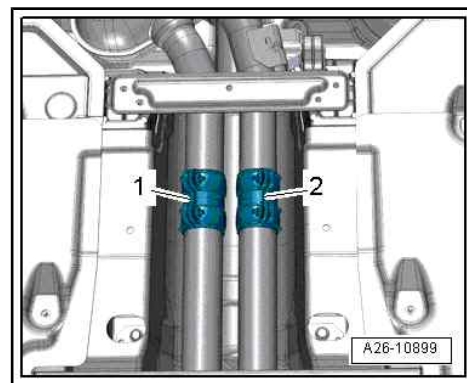
Removing rear final drive

- Place vehicle on lifting platform.
- Detach wheel trim from rear left wheel (on vehicles with light alloy wheels, pull off trim cap using puller from vehicle tool kit).
- Remove rear wheels.

 Note

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

- Unfasten clamps -1- and -2- and disconnect exhaust system.
- Tie front exhaust pipes to side of underbody.

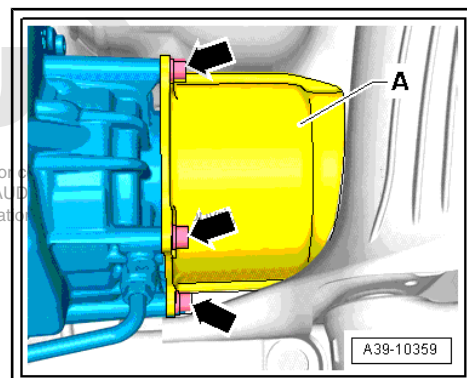
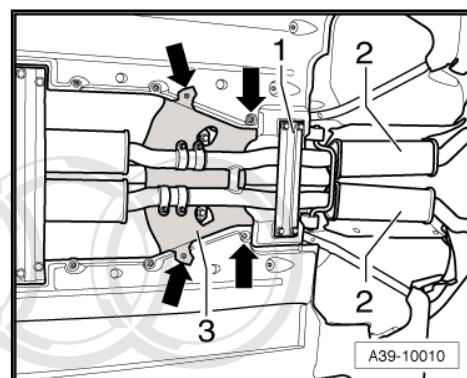


- If fitted, remove cross piece (rear) -1- ➔ General body repairs, exterior; Rep. gr. 66 .
- Remove rear section of exhaust system -2- ➔ Rep. gr. 26 .

 Note

A second mechanic is required for removing the rear section of the exhaust system.

- Remove propshaft ➔ [page 20](#) .
- Detach heat shield -A- for drive shaft (left-side) from rear final drive -arrows-.

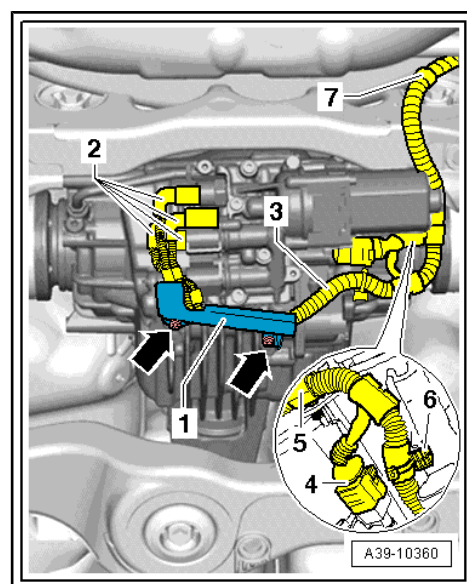


- Unscrew bolts -arrows- and detach bracket -1- from rear final drive.

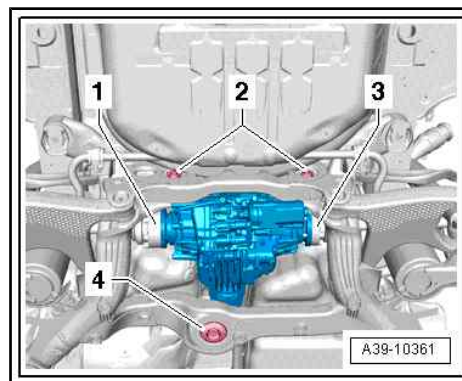
 Note

Mark connectors -2- for oil pressure and oil temperature senders and at clutch valves .

- Unplug connectors -2- from oil pressure and oil temperature senders and clutch valves .
- Then unplug connector -4- from four-wheel drive pump - V415- .
- Subsequently, unclip wiring harness -3- from final drive and subframe -items 5 ... 7- and tie up.

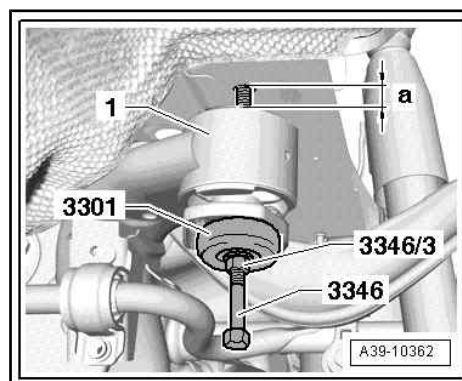


- Unbolt drive shafts (left -1- and right -3-) from final drive.
- Slacken off bolts -2- approx. 3 turns
- Remove bolt -4-.



Lower rear section of subframe -1- as follows:

- Unscrew rear bolt (right-side) securing subframe to body.
- Screw spindle -3346- with nut -3346/3- and thrust pad from assembly tool -3301- into this threaded hole.
- Then unscrew rear bolt (left-side) securing subframe to body.
- Subsequently, lower subframe a distance of -a- = 40 mm. While doing so, counterhold spindle -3346- and turn nut -3346/3- in anti-clockwise direction.



- Place engine and gearbox jack -V.A.G 1383 A- with universal gearbox support -V.A.G 1359/2- and a suitable rubber mat or hard-foam slab -A- below rear final drive.

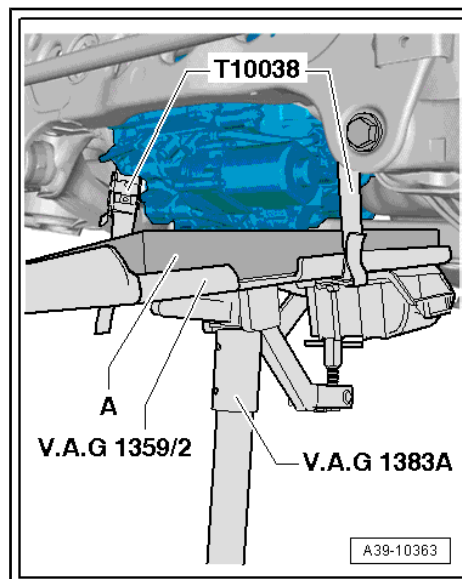


Caution

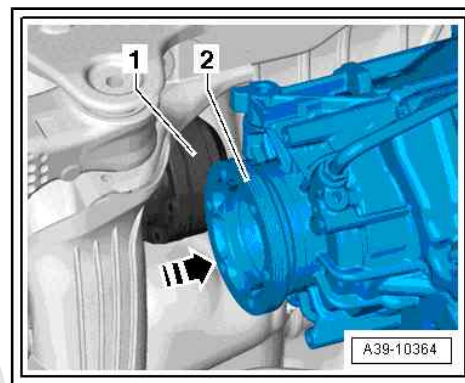
The rubber mat or hard-foam slab are necessary to prevent damage to the clutch valves on the rear final drive.

Use tensioning strap -T10038- to secure rear final drive to prevent it from dropping.

- Unscrew the two rear bolts securing rear final drive to sub-frame ➔ [page 64](#) .
- A 2nd mechanic is required for the next steps when removing the final drive.



- 2nd mechanic must now push rear final drive towards right side of vehicle in direction of -arrow-.
- At the same time, guide drive shaft (left-side) -1- upwards out of flange shaft -2- of final drive.
- Then guide out drive shaft (right-side) and tilt rear final drive down towards rear.
- Carefully lower final drive together with 2nd mechanic, paying attention to subframe.



WARNING

- ◆ *Do not raise or lower vehicle while engine and gearbox jack -V.A.G 1383 A- is positioned under the vehicle.*
- ◆ *Do not leave engine and gearbox jack -V.A.G 1383 A- under vehicle for longer than necessary.*

Installing rear final drive

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



WARNING

Malfunctions can occur on rear final drive!

Additional work is required if the rear final drive has been renewed ⇒ [page 75](#).

- Using engine and gearbox jack carefully raise rear final drive and, working with 2nd mechanic, bring it into installation position on subframe.

-A- = rubber mat or hard-foam slab

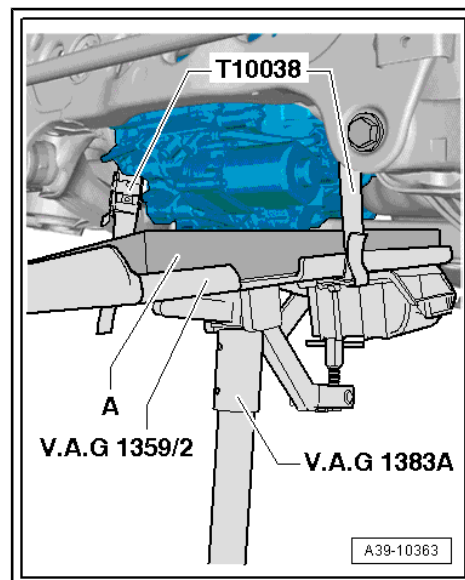


Caution

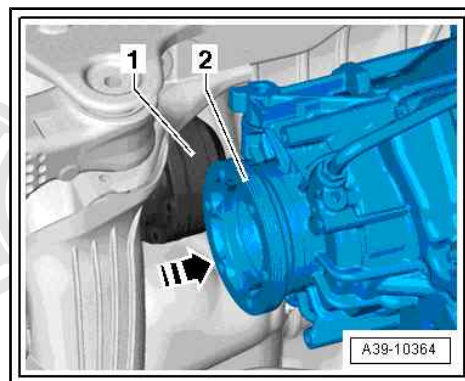
The rubber mat or hard-foam slab are necessary to prevent damage to the clutch valves on the rear final drive.

Use tensioning strap -T10038- to secure rear final drive to prevent it from dropping.

- Fit drive shaft (right-side) into flange shaft of final drive.



- 2nd mechanic must now push rear final drive towards right side of vehicle in direction of -arrow-.
- Then fit drive shaft (left-side) -1- into flange shaft -2- of final drive.



- Screw in bolts -2- securing rear final drive to subframe (hand-tight).

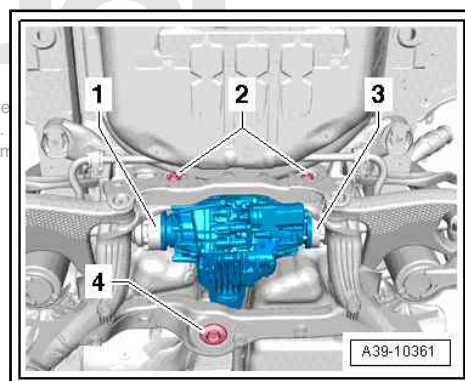


Note

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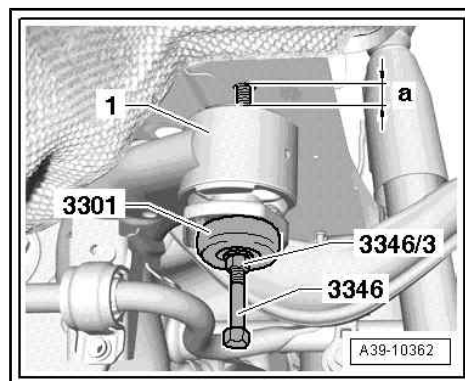
For illustration purposes the final drive is shown without engine and gearbox jack -V.A.G 1383 A- and universal gearbox support -V.A.G 1359/2-.

- Tighten bolt -4- to specified torque ➔ [Item 3 \(page 61\)](#) and then tighten bolts -2- to specified torque ➔ [Item 2 \(page 61\)](#).
- Take out engine and gearbox jack -V.A.G 1383 A- from below final drive.
- Attach drive shafts on both sides -1- and -3- ➔ Rep. gr. 42.

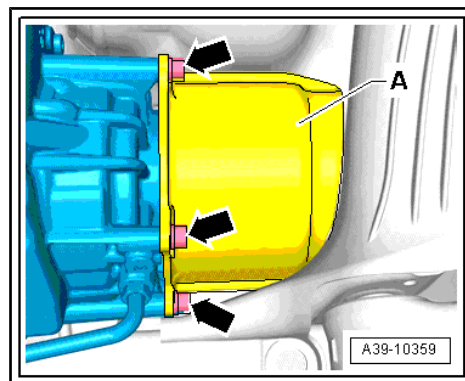


Then secure rear section of subframe -1- to body as follows:

- First turn nut -3346/3- in clockwise direction while counter-holding spindle -3346- until subframe makes contact with body.
- Then screw in rear bolt (left-side) securing subframe to body and tighten to specified torque ➔ Rep. gr. 42.
- Subsequently, remove spindle -3346- and screw in rear bolt (right-side) securing subframe to body and tighten to specified torque ➔ Rep. gr. 42.



- Install heat shield -A- for drive shaft (left-side) on rear final drive -arrows- ➔ [Item 5 \(page 61\)](#).



- Clip in wiring harness -3- at final drive and subframe -items 5 ... 7-.
- Plug in connectors -4- and -2-, paying attention to marks made during removal for identification of oil pressure and oil temperature senders and clutch valves .

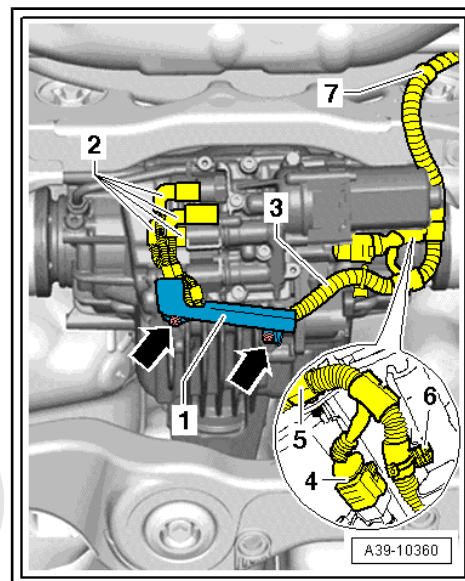


Caution

Risk of damage to the wiring harness.

- ◆ **When installing bracket -1- to rear final drive, make sure wiring harness -3- is not trapped.**

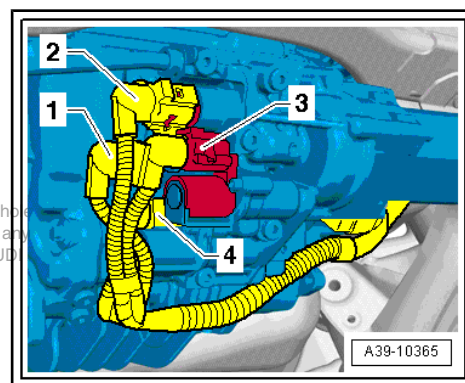
- Install bracket -1- at rear final drive and tighten bolts -arrows- to specified torque ➔ [page 76](#) .



Note

- ◆ **Allocation of connectors for oil pressure and oil temperature senders and at clutch valves :**
- ◆ **-1- = connector for oil pressure and oil temperature sender 2 -G640-**
- ◆ **-2- = connector for oil pressure and oil temperature sender -G437-**
- ◆ **-3- = connector for clutch valve 2 for four-wheel drive -N446-**
- ◆ **-4- = connector for clutch valve for four-wheel drive -N445-**

- Install propshaft (align markings and observe tightening sequence ➔ [page 20](#)).
- Check oil level in rear final drive ➔ [page 78](#) .
- Check ATF level in rear final drive ➔ [page 84](#) .
- Install rear section of exhaust system and perform stress-free alignment ➔ Rep. gr. 26 .
- If originally fitted, install cross piece (rear) ➔ General body repairs, exterior; Rep. gr. 66 .
- Install rear wheels and tighten wheel bolts ➔ Wheels and tyres; Rep. gr. 44 .
- Additional work is required if the rear final drive has been renewed
➔ **„8.7 Additional work required after renewing rear final drive“, [page 75](#) .**



8.3 Exploded view - rear final drive (RS 5)

1 - Bolt

- 55 Nm

2 - Subframe

- Exploded view ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 42

3 - Propshaft

- Exploded view
⇒ [page 31](#)

4 - Rear final drive

- Removing and installing
⇒ [page 68](#)
- Additional work required after renewing rear final drive
⇒ [page 75](#)

5 - Drive shaft

- Exploded view ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 42

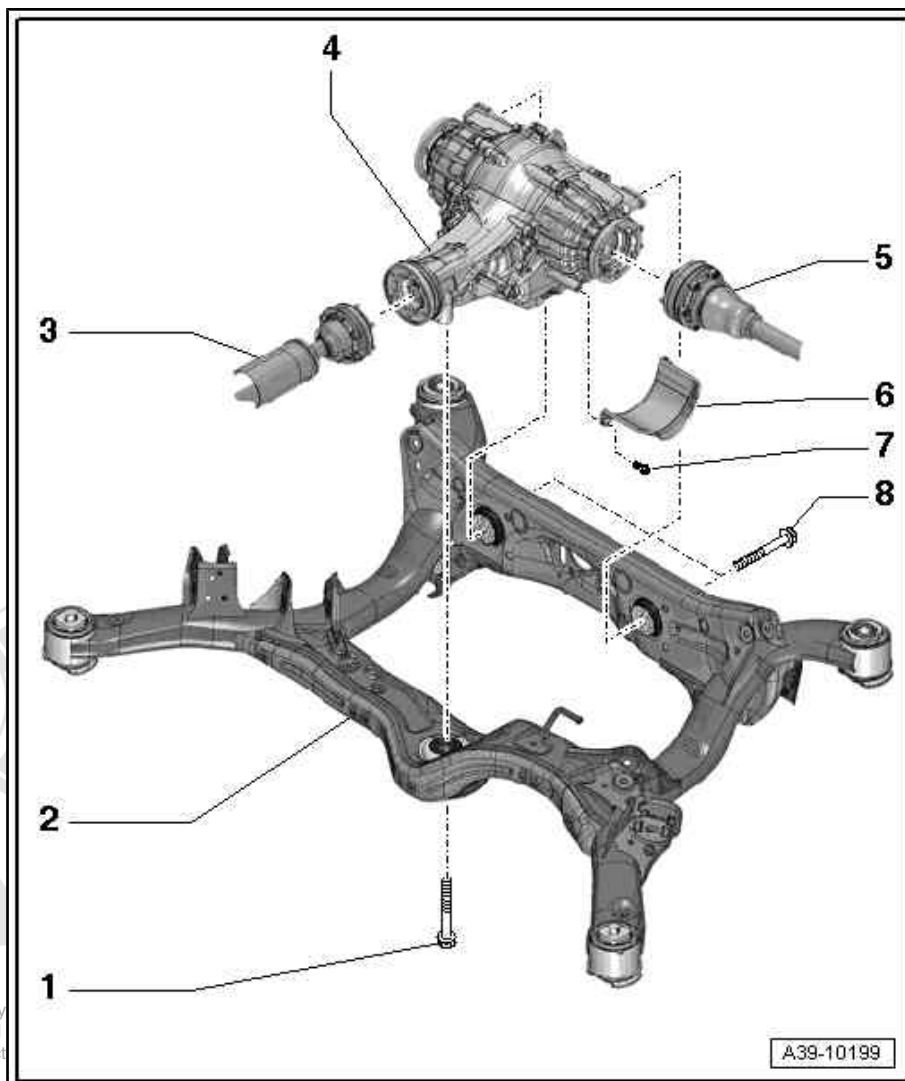
6 - Heat shield

7 - Bolt

- 20 Nm

8 - Bolt

- 95 Nm
- 2x



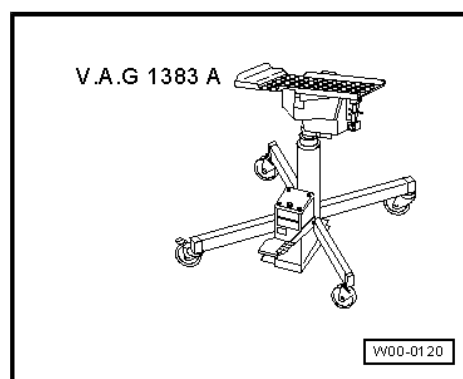
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A39-10199

8.4 Removing and installing rear final drive (RS 5)

Special tools and workshop equipment required

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



Removing

- Remove cross member (rear) -1- ➔ General body repairs, exterior; Rep. gr. 66 .



Note

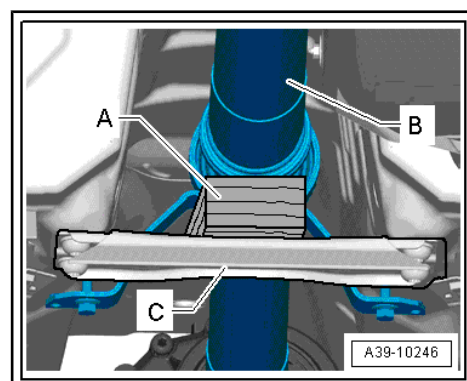
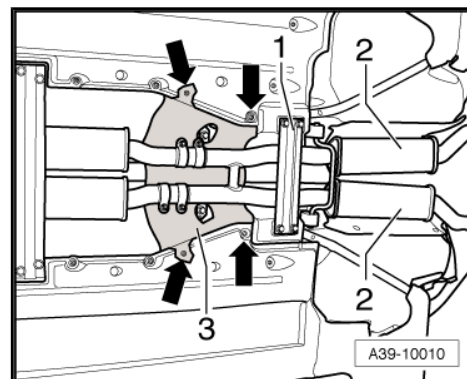
A second mechanic is required for removing the rear section of the exhaust system.

- Remove rear section of exhaust system -2- ➔ Engine, mechanics; Rep. gr. 26 .
- Detach propshaft from rear final drive ➔ [page 28](#) .
- To support propshaft -B-, place a wooden block -A- (approx. 40 mm high) on rear cross member -C-.

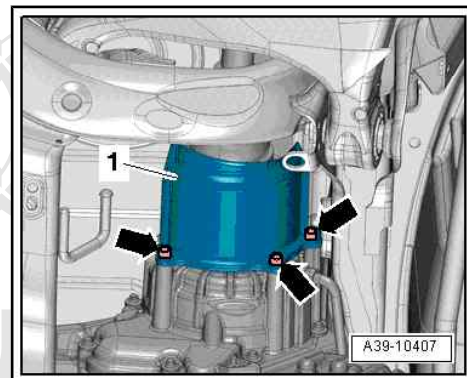


Note

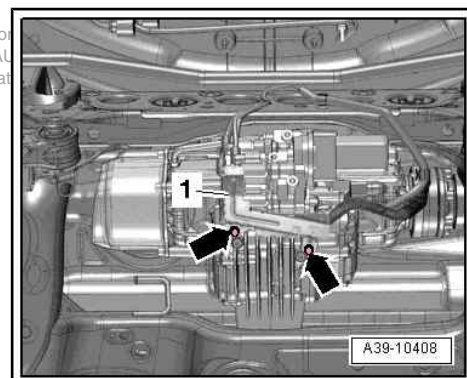
The propshaft can be bent as far as the stop at the centre joint, but must not be subjected to any kind of force. The centre joint or the protective boot can be damaged if the joint is forced against its stop.



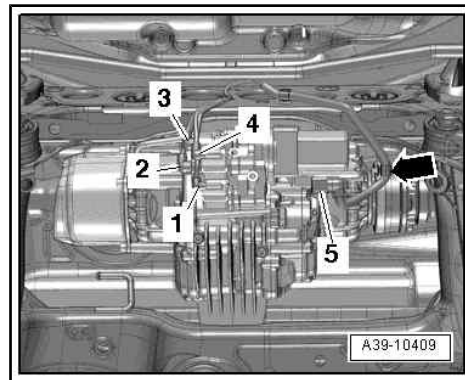
- Remove bolts -arrows- and detach heat shield -1- for drive shaft (left-side).
- Unbolt drive shafts (left and right) from rear final drive ➔ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 42 .



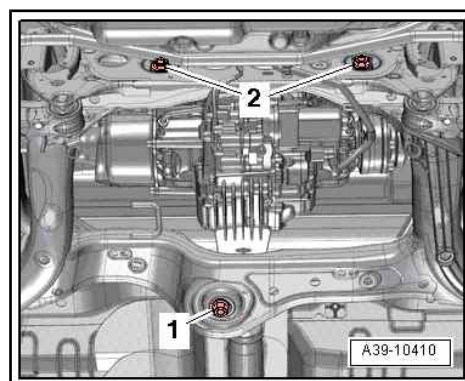
- Remove bolts -arrows- and detach guard plate for electrical wiring.



- Unplug electrical connectors -1 ... 5- and move wiring harness clear -arrow-.



- Remove bolt -1- and slacken bolts -2-.



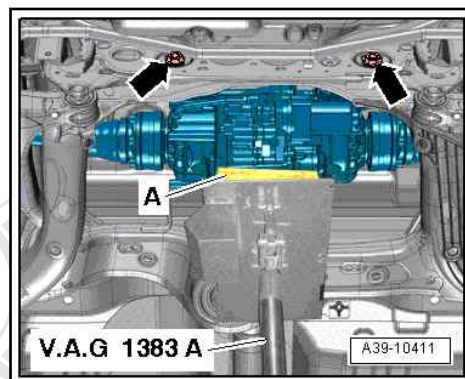
- Place engine and gearbox jack -V.A.G 1383 A- below rear final drive, with wooden block -A- on support plate of jack, and take up weight of final drive.



Note

Make sure that the support plate of the engine and gearbox jack does not come into contact with the fuel tank.

- Remove bolts -arrows-.



- Push rear final drive towards the left -arrow A-.
- Lift drive shaft (right-side) -1- clear.
- In order to detach flange shaft (left-side) from drive shaft, lower rear final drive at right side first -arrow B-.
- Secure rear final drive with a strap and lower final drive further using engine and gearbox jack -V.A.G 1383 A- .

Installing

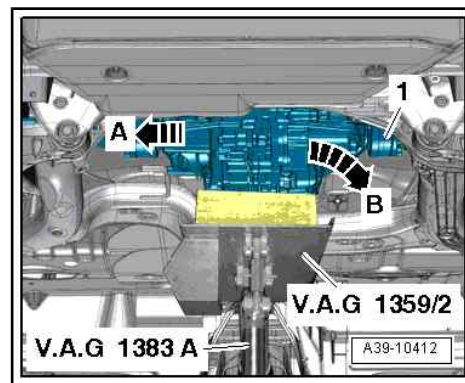
Installation is carried out in reverse sequence; note the following:



WARNING

Malfunctions can occur on rear final drive!

Additional work is required if the rear final drive has been renewed ⇒ [page 75](#) .



- Tightening torques ⇒ [page 68](#)
- Secure drive shafts to rear final drive ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 42 .
- Install propshaft ⇒ [page 29](#) .
- Install exhaust system ⇒ Engine, mechanics; Rep. gr. 26 and align so it is free of stress.
- Install cross member (rear) ⇒ General body repairs, exterior; Rep. gr. 66 .
- Check ATF level in rear final drive ⇒ [page 84](#) .
- Check gear oil level in rear final drive ⇒ [page 78](#) .
- Additional work is required if the rear final drive has been renewed ⇒ [8.7 Additional work required after renewing rear final drive](#) , [page 75](#) .

8.5 Exploded view - rear final drive (Audi A8)

1 - Bolt

- 55 Nm

2 - Subframe

- Exploded view ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 42

3 - Propshaft

- Exploded view
⇒ [page 31](#)

4 - Rear final drive

- Removing and installing
⇒ [page 72](#)
- Additional work required after renewing rear final drive ⇒ [page 75](#)

5 - Drive shaft

- Exploded view ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 42

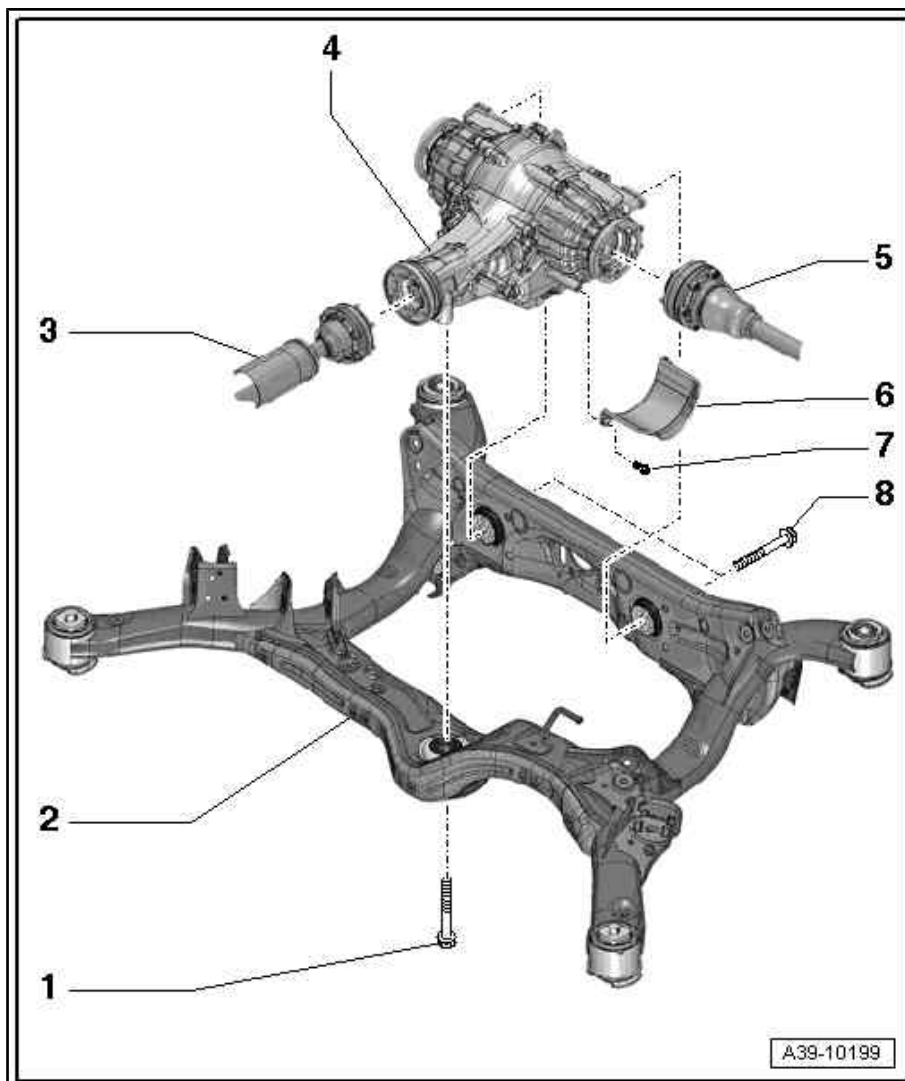
6 - Heat shield

7 - Bolt

- 20 Nm

8 - Bolt

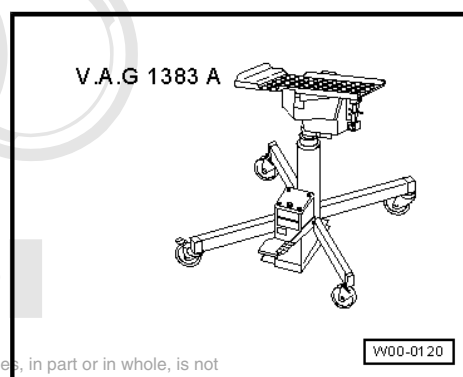
- 95 Nm



8.6 Removing and installing rear final drive (Audi A8)

Special tools and workshop equipment required

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



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Removing

- Remove cross member (rear) -1- ➔ General body repairs, exterior; Rep. gr. 66 .



Note

A second mechanic is required for removing the rear section of the exhaust system.

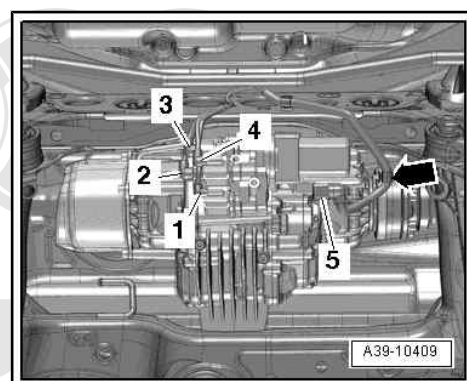
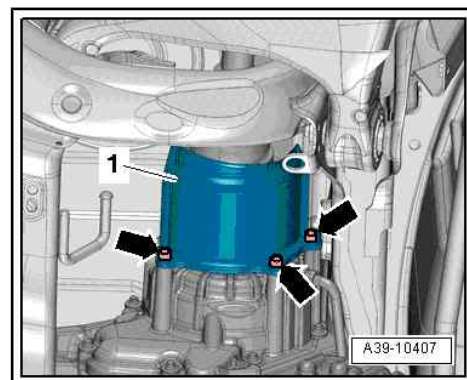
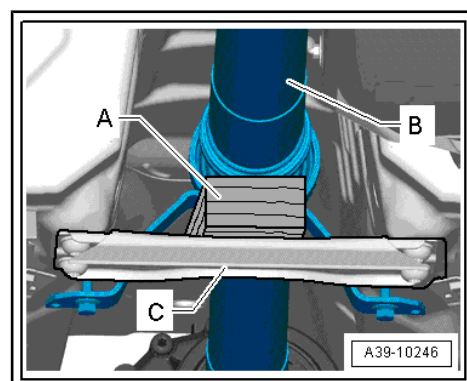
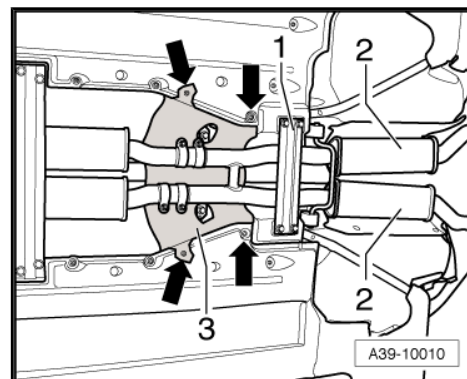
- Remove rear section of exhaust system -2- ➔ Engine, mechanics; Rep. gr. 26 .
- Detach propshaft from rear final drive ➔ [page 28](#) .
- To support propshaft -B-, place a wooden block -A- (approx. 40 mm high) on rear cross member -C-.



Note

The propshaft can be bent as far as the stop at the centre joint, but must not be subjected to any kind of force. The centre joint or the protective boot can be damaged if the joint is forced against its stop.

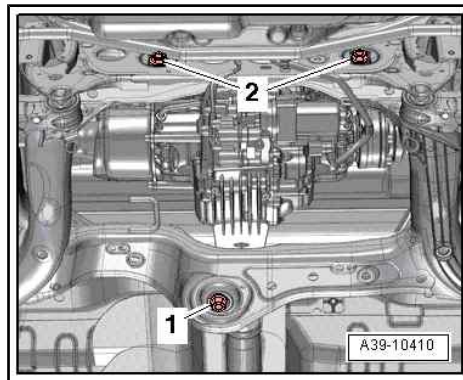
- Remove bolts -arrows- and detach heat shield -1- for drive shaft (left-side).
- Unbolt drive shafts (left and right) from rear final drive ➔ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 42 .
- Unplug electrical connectors -1 ... 5- and move wiring harness clear -arrow-.



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- Remove bolt -1- and slacken bolts -2-.



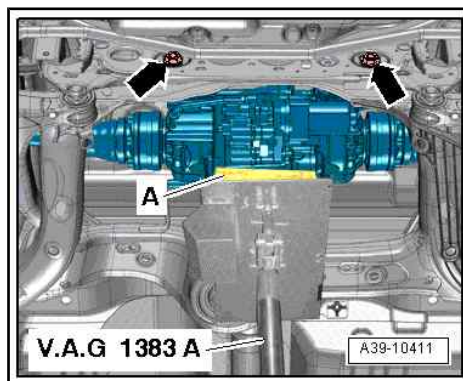
- Place engine and gearbox jack -V.A.G 1383 A- below rear final drive, with wooden block -A- on support plate of jack, and take up weight of final drive.



Note

Make sure that the support plate of the engine and gearbox jack does not come into contact with the fuel tank.

- Remove bolts -arrows-.



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- Push rear final drive towards the left -arrow A-.
- Lift drive shaft (right-side) -1- clear.
- In order to detach flange shaft (left-side) from drive shaft, lower rear final drive at right side first -arrow B-.
- Secure rear final drive with a strap and lower final drive further using engine and gearbox jack -V.A.G 1383 A- .

Installing

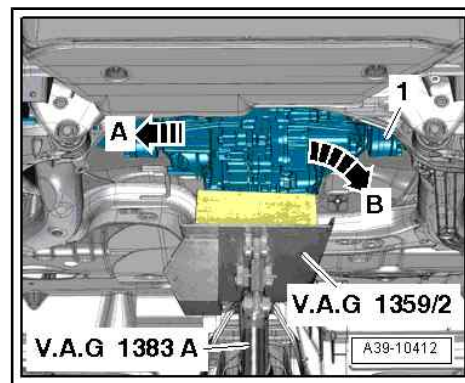
Installation is carried out in reverse sequence; note the following:



WARNING

Malfunctions can occur on rear final drive!

Additional work is required if the rear final drive has been renewed ⇒ [page 75](#) .



- Tightening torques ⇒ [page 72](#)
- Secure drive shafts to rear final drive ⇒ Running gear, front-wheel drive and four-wheel drive; Rep. gr. 42 .
- Install propshaft ⇒ [page 29](#) .
- Install exhaust system ⇒ Engine, mechanics; Rep. gr. 26 and align so it is free of stress.
- Install cross member (rear) ⇒ General body repairs, exterior; Rep. gr. 66 .
- Check gear oil level in rear final drive ⇒ [page 78](#) .
- Check ATF level in rear final drive ⇒ [page 84](#) .
- Additional work is required if the rear final drive has been renewed
⇒ „8.7 Additional work required after renewing rear final drive“, [page 75](#) .

8.7 Additional work required after renewing rear final drive



WARNING

Malfunctions can occur on rear final drive!

The following additional work is required if the rear final drive has been renewed:

- ◆ ***Bleeding hydraulic control unit ⇒ Vehicle diagnostic tester***
- ◆ ***Adapting four-wheel drive control unit -J492- to rear final drive ⇒ Vehicle diagnostic tester.***
- ***Only perform this additional work if the rear final drive has been renewed.***

Procedure:

- Connect vehicle diagnostic, testing and information system - VAS 5051- and switch on ignition.
- Using vehicle diagnostic, testing and information system -VAS 5051- in Guided Functions mode, select 22 - Four-wheel



electronics and then select the function 22 - Replacing rear final drive.

- It is important to follow all instructions given by the vehicle diagnostic, testing and information system -VAS 5051- exactly.

Using vehicle diagnostic, testing and information system -VAS 5051B- , „adapt“ new rear final drive to four-wheel drive control unit -J492- .



Note

When 22 - Replacing rear final drive function has been completed, a system check is performed. Any malfunctions during this test must be eliminated via the „Guided Fault Finding“.

Tightening torque

Component	Nm
Bracket for wiring harness to rear final drive	9



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9 Gear oil and ATF in rear final drive

- ◆ Gear oil and ATF capacities ⇒ [page 3](#)
- ◆ ⇒ „9.1 Overview of drain plugs and inspection plugs for ATF and gear oil (rear final drive 0BF and 0BE)“, [page 77](#)
- ◆ ⇒ „9.2 Checking gear oil level in rear final drive 0BF and 0BE“, [page 78](#)
- ◆ ⇒ „9.3 Draining gear oil from rear final drive 0BF and 0BE“, [page 79](#)
- ◆ ⇒ „9.4 Filling up gear oil in rear final drive 0BF“, [page 80](#)
- ◆ ⇒ „9.5 Filling up gear oil in rear final drive 0BE“, [page 82](#)
- ◆ ⇒ „9.6 Checking ATF level in rear final drive 0BF and 0BE“, [page 84](#)
- ◆ ⇒ „9.7 Draining ATF from rear final drive 0BF and 0BE“, [page 85](#)
- ◆ ⇒ „9.8 Filling up ATF in rear final drive 0BF and 0BE“, [page 86](#)

9.1 Overview of drain plugs and inspection plugs for ATF and gear oil (rear final drive 0BF and 0BE)

Plugs for gear oil in rear final drive 0BF

1 - Gear oil inspection plug

- ◆ Tightening torque ⇒ [Item 22 \(page 45\)](#)
- ◆ Always renew

2 - Gear oil drain plug

- ◆ Tightening torque ⇒ [Item 16 \(page 45\)](#)
- ◆ Always renew

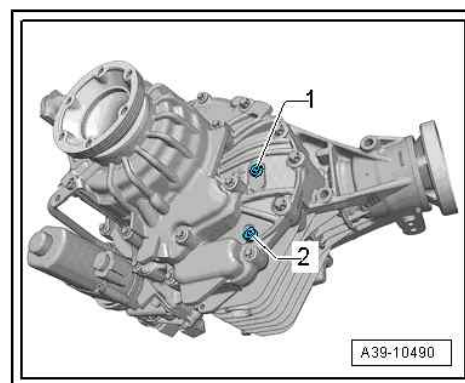
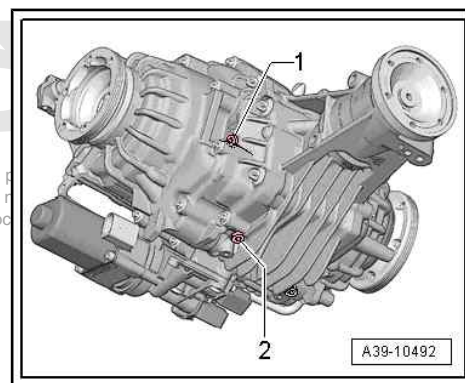
Plugs for gear oil in rear final drive 0BE

1 - Gear oil inspection plug

- ◆ Tightening torque ⇒ [Item 22 \(page 45\)](#)
- ◆ Always renew

2 - Gear oil drain plug

- ◆ Tightening torque ⇒ [Item 16 \(page 45\)](#)
- ◆ Always renew



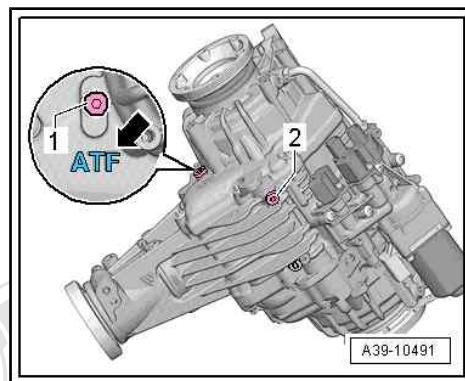
Overview of plugs for ATF in rear final drive 0BF

1 - ATF inspection plug

- ◆ Identification: »ATF« on housing -arrow-
- ◆ Tightening torque ⇒ [Item 12 \(page 45\)](#)
- ◆ Always renew

2 - ATF drain plug

- ◆ Tightening torque ⇒ [Item 15 \(page 45\)](#)
- ◆ Always renew



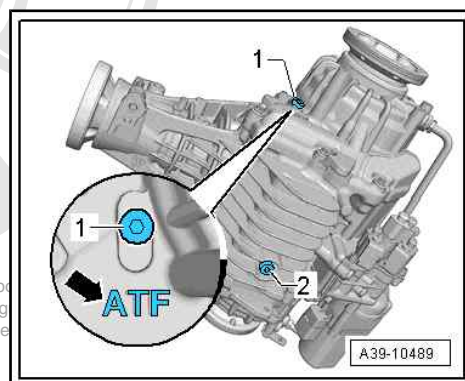
Overview of plugs for ATF in rear final drive 0BE

1 - ATF inspection plug

- ◆ Identification: »ATF« on final drive housing -arrow-
- ◆ Tightening torque ⇒ [Item 12 \(page 45\)](#)
- ◆ Always renew

2 - ATF drain plug

- ◆ Tightening torque ⇒ [Item 15 \(page 45\)](#)
- ◆ Always renew



9.2 Checking gear oil level in rear final drive 0BF and 0BE

Test condition:

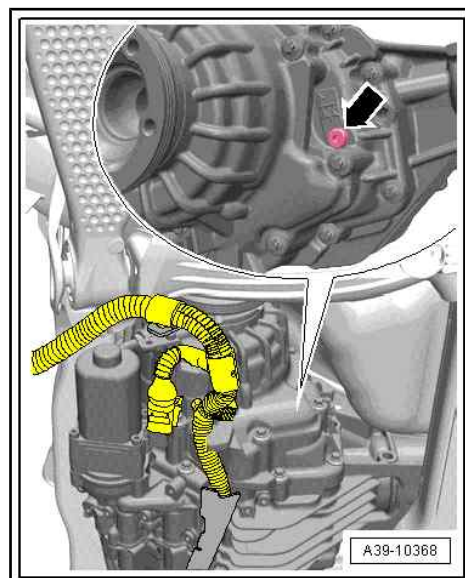
- Gear oil temperature: 10°C ... 60°C
- Rear final drive must be in installation position.
- Vehicle must be level (horizontal).
- Overview of plugs for gear oil ⇒ [page 77](#) and ⇒ [page 77](#)

Special tools and workshop equipment required

- ◆ Drip tray

Rear final drive 0BF

- Remove gear oil inspection plug -arrow- (located on right side of final drive).

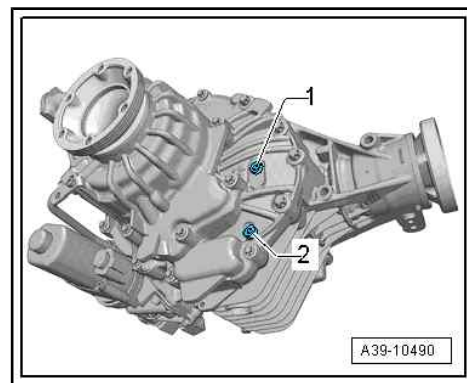


Rear final drive OBE

- Remove gear oil inspection plug -1-.

Continued for all rear final drive versions

- The oil level is correct when the rear final drive is filled to the bottom lip of the filler hole.
- Top up gear oil if necessary.
- ◆ ⇒ „9.4 Filling up gear oil in rear final drive OBF“, page 80
- ◆ ⇒ „9.5 Filling up gear oil in rear final drive OBE“, page 82
- Screw in and tighten gear oil inspection plug -arrow-. Tightening torque ⇒ [Item 22 \(page 45\)](#)



9.3 Draining gear oil from rear final drive OBF and OBE

Special tools and workshop equipment required

- ◆ Drip tray

Rear final drive OBF

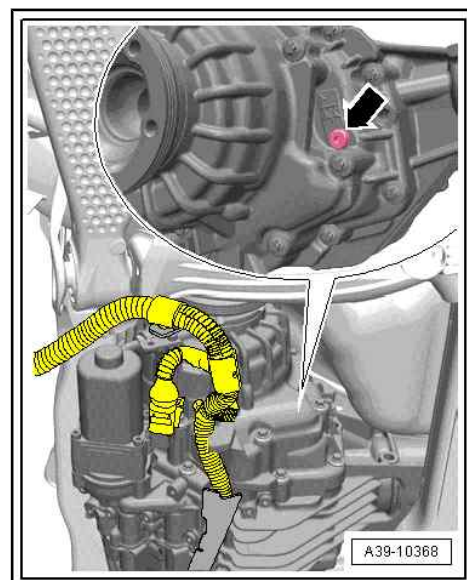
- Remove gear oil inspection plug -arrow-.



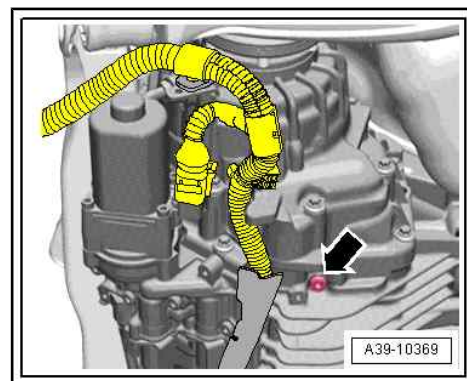
Note

- ◆ Overview of plugs for gear oil ⇒ [page 77](#)
- ◆ The gear oil drains out of the drain hole faster if the inspection plug is removed.

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- Remove gear oil drain plug -arrow- and drain off gear oil.



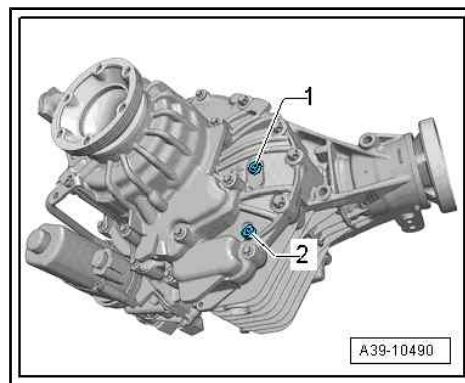
Rear final drive 0BE

- Remove gear oil inspection plug -1-.



Note

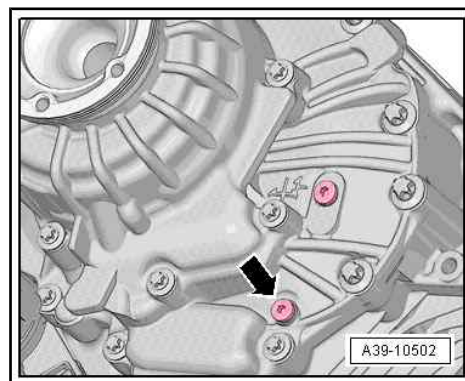
- ◆ Overview of plugs for gear oil ➔ [page 77](#)
- ◆ The gear oil drains out of the drain hole faster if the inspection plug is removed.



- Remove gear oil drain plug -arrow- and drain off gear oil.

Continued for all rear final drive versions

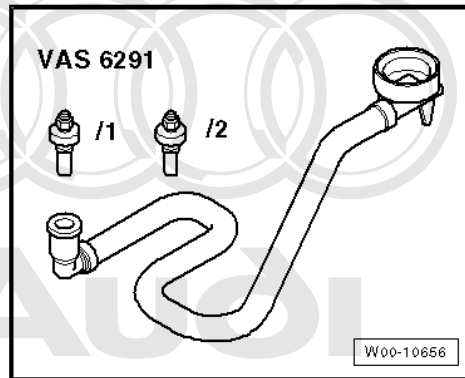
- Screw in and tighten new gear oil drain plug -arrow-. Tightening torque ➔ [Item 16 \(page 45\)](#)
- ◆ ➔ „9.4 Filling up gear oil in rear final drive 0BF“, page 80
- ◆ ➔ „9.5 Filling up gear oil in rear final drive 0BE“, page 82



9.4 Filling up gear oil in rear final drive 0BF

Special tools and workshop equipment required

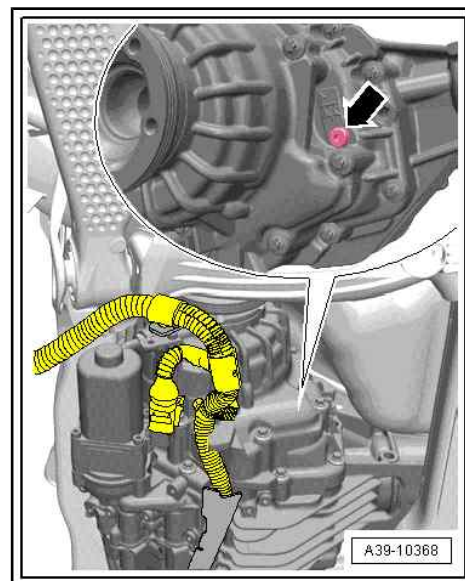
- ◆ Charging device for Haldex coupling 2 -VAS 6291- or -VAS 6291A-



- ◆ Adapter for oil filling -VAS 6291/2- or -VAS 6291/3-
- ◆ Drip tray
- Rear final drive must be in installation position.
- Vehicle must be level (horizontal).
- Overview of plugs for gear oil ➔ [page 77](#)
- Gear oil drain plug must be fitted and tightened. Tightening torque ➔ [Item 16 \(page 45\)](#)
- For oil specification, refer to ➔ Electronic parts catalogue .
- For topping up, use charging device -VAS 6291- .
- Raise vehicle.

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- Remove gear oil inspection plug -arrow-.



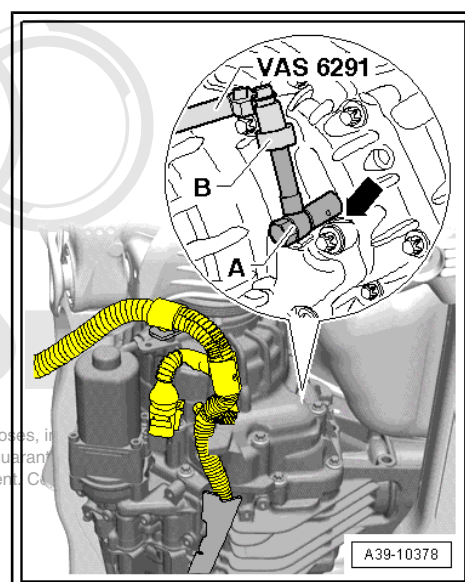
- Disconnect adapter -A- and elbow joint -B-.
- Screw adapter -A- in onto stop.



Caution

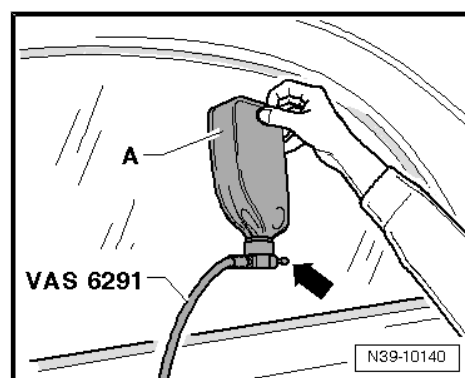
If the adapter -A- cannot be screwed into the threaded hole for the plug, the housing rib -arrow- must be milled slightly using e.g. a scraper.

- *Take care not to screw in the adapter -A- at an angle; otherwise the thread of the screw plug will be damaged.*



- Connect elbow joint -B- and adapter -A-, making sure they engage.
- Route hose above drive shaft (right-side).
- The hose must not hang down. It must emerge above rear wheel on right side of vehicle.
- Lower vehicle.
- Please make sure that valve -arrow- is closed.
- Screw oil container -A- onto charging device -VAS 6291- .
- Now open valve -arrow- and hold oil reservoir as shown in illustration.

The rear final drive will now be filled.



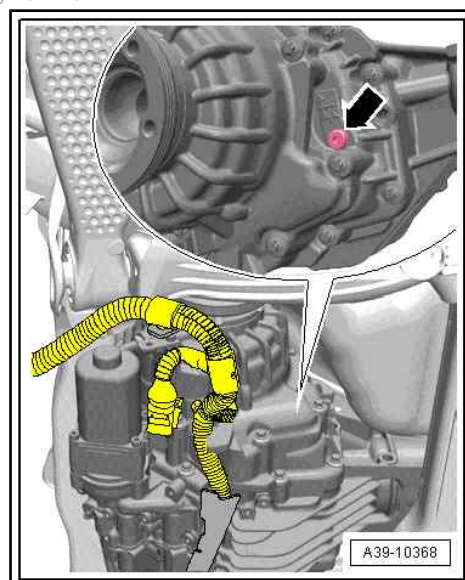
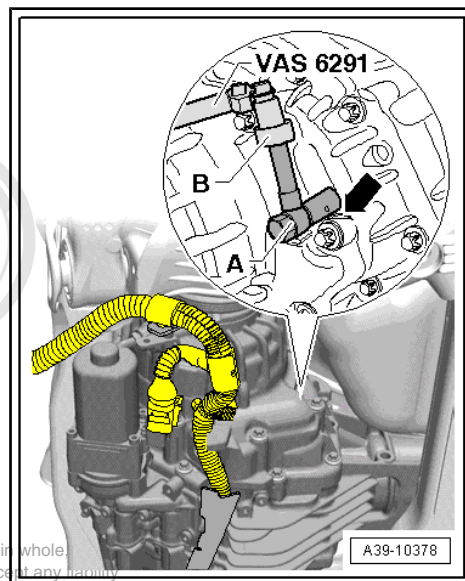
- The rear final drive is filled correctly when oil comes out between the adapter -A- and the rear final drive housing -arrow-.
- Raise vehicle.
- If oil has started to emerge at adapter -A-, place oil reservoir e.g. onto a workshop trolley.

Part of the 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 oil level is correct when the rear final drive is filled to the bottom lip of the filler hole.
- Top up gear oil again if necessary.

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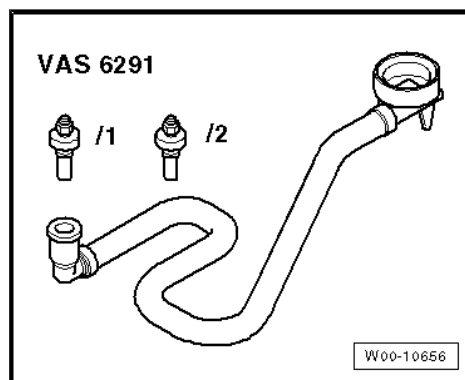
- Screw in and tighten new gear oil inspection plug -arrow-.
Tightening torque ⇒ [Item 22 \(page 45\)](#)



9.5 Filling up gear oil in rear final drive 0BE

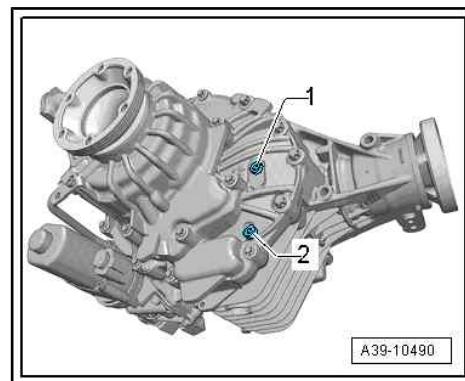
Special tools and workshop equipment required

- ◆ Charging device for Haldex coupling 2 -VAS 6291- or -VAS 6291A-

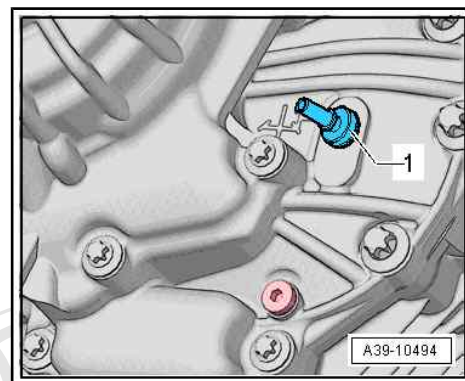


- ◆ Adapter for oil filling -VAS 6291/2- or -VAS 6291/3-
- ◆ Drip tray
- Rear final drive must be in installation position.

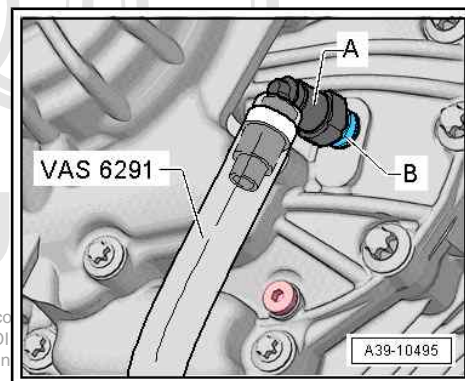
- Vehicle must be level (horizontal).
- Overview of plugs for gear oil ⇒ [page 77](#)
- Gear oil drain plug must be fitted and tightened. Tightening torque ⇒ [Item 16 \(page 45\)](#)
- For oil specification, refer to ⇒ Electronic parts catalogue .
- For topping up, use charging device -VAS 6291- .
- Raise vehicle.
- Remove gear oil inspection plug -1-.



- Screw in adapter for oil filling -VAS 6291/1- or -VAS 6291/2- -1-.



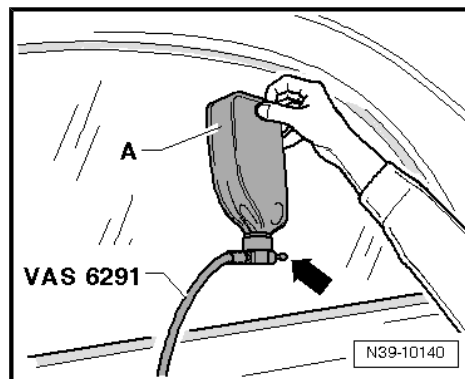
- Connect elbow joint -A- and adapter -B-, making sure they engage.
- Route hose above drive shaft (right-side).
- The hose must not hang down. It must emerge above rear wheel on right side of vehicle.
- Lower vehicle.



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

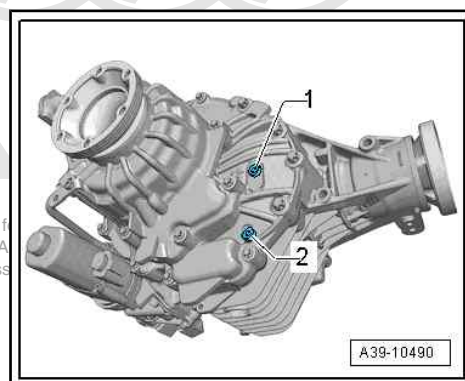
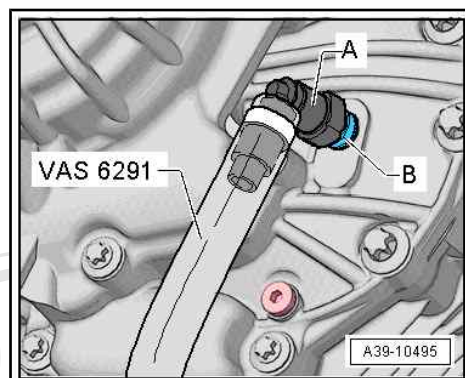
The rear final drive will now be filled.



- The rear final drive is filled correctly when oil comes out between the adapter -B- and the rear final drive housing.
- Raise vehicle.
- When oil has started to emerge at adapter -B-, place oil reservoir e.g. onto a workshop trolley.

Part of the 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 oil level is correct when the rear final drive is filled to the bottom lip of the filler hole.
- Top up gear oil again if necessary.
- Screw in new plug -1- and tighten. Tightening torque ➔ [Item 22 \(page 45\)](#) .



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9.6 Checking ATF level in rear final drive 0BF and 0BE

Test condition:

- ATF temperature 10°C ... 60°C
- Rear final drive must be in installation position.
- Vehicle must be level (horizontal).

Special tools and workshop equipment required

- ◆ Drip tray

- Unscrew ATF inspection plug -1- to check ATF level.



Caution

- ◆ *The inspection plug -1- for checking the ATF level is located on the left side of the rear final drive. Identification: »ATF« on final drive housing -arrow-.*
- ◆ *Overview of plugs for ATF ➔ [page 78](#)*

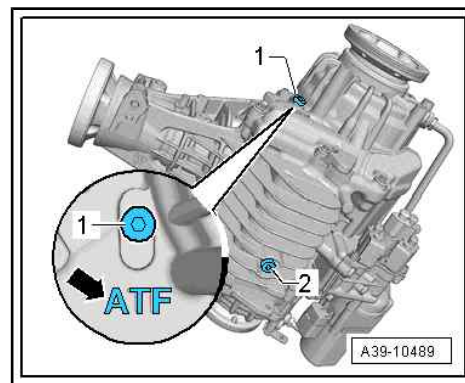
- The ATF level is correct when the rear final drive is filled to the bottom lip of the filler hole.

If ATF level is correct:

- Screw in and tighten new ATF inspection plug. Tightening torque ➔ [Item 12 \(page 45\)](#)

If ATF level is not correct:

- Top up with ATF ➔ [page 86](#) .



9.7 Draining ATF from rear final drive 0BF and 0BE

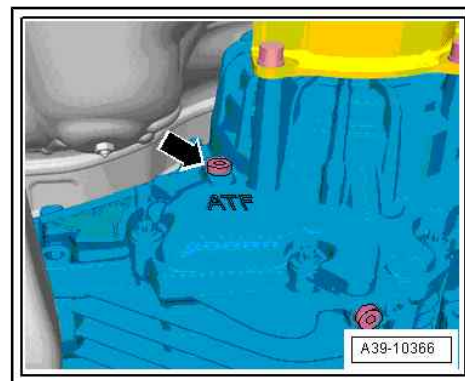
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Special tools and workshop equipment required

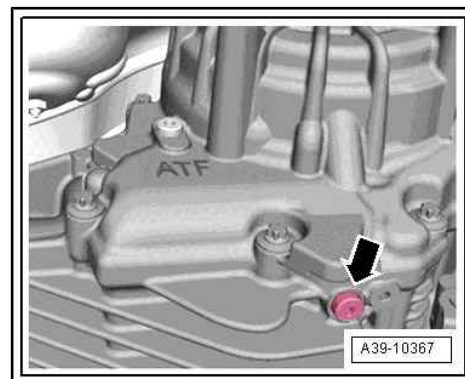
- ◆ Drip tray
- Overview of plugs for ATF ➔ [page 78](#) and ➔ [page 78](#)

Rear final drive 0BF

- Remove ATF inspection plug -arrow- so that ATF drains from drain hole faster.



- Remove ATF drain plug -arrow- and drain off ATF.
- Screw in and tighten new ATF drain plug -arrow-. Tightening torque ➔ [Item 15 \(page 45\)](#)



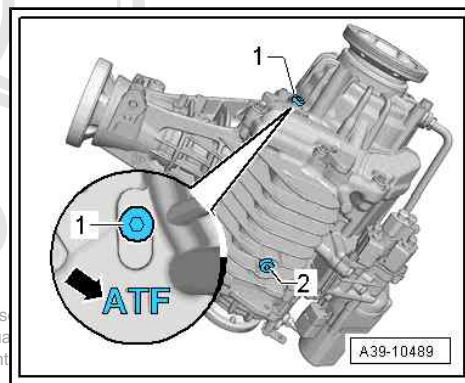
Rear final drive 0BE

- Remove ATF inspection plug -1- so that ATF drains faster from drain hole.
- Remove ATF drain plug -2- and drain off ATF.
- Screw in and tighten new ATF drain plug -2-. Tightening torque
⇒ [Item 15 \(page 45\)](#)

Continued for all rear final drive versions

- Fill up ATF in rear final drive ⇒ [page 86](#).

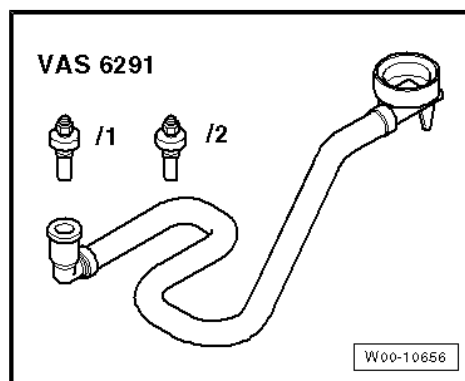
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9.8 Filling up ATF in rear final drive 0BF and 0BE

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester
- ◆ Charging device for Haldex coupling 2 -VAS 6291- or -VAS 6291A-



- ◆ Adapter for oil filling -VAS 6291/2- or -VAS 6291/3-
- ◆ Drip tray

Test conditions:

- Rear final drive must be in installation position.
- Vehicle must be level (horizontal).
- ATF drain plug must be inserted and tightened. Tightening torque ⇒ [Item 15 \(page 45\)](#)



Caution

Risk of damage to rear final drive.

- ◆ *Use only the ATF available as a replacement part ⇒ Electronic parts catalogue .*
- ◆ *Other lubricants will cause malfunctions and/or failure of the final drive.*
- ◆ *Select correct type ⇒ Electronic parts catalogue .*
- ◆ *The ATF charging device must be clean and the ATF must not be mixed with other types of oil!*

- For topping up, use charging device -VAS 6291- .
- Raise vehicle.

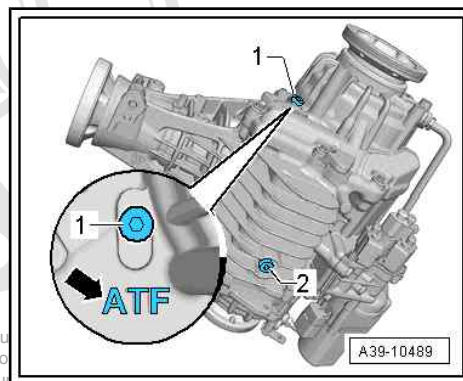
- Unscrew ATF inspection plug -1-.



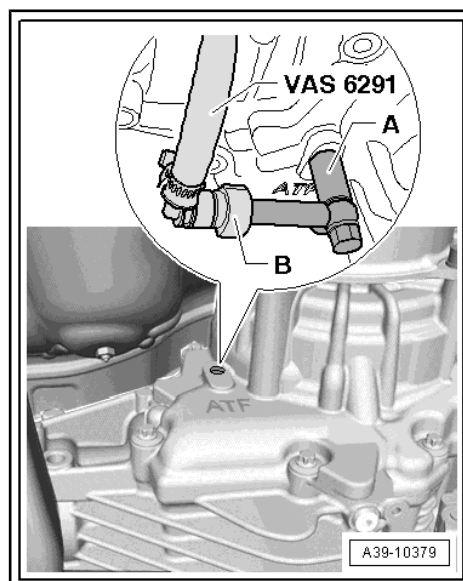
Caution

The inspection plug -1- for checking the ATF level is located on the left side of the rear final drive. Identification: »ATF« on final drive housing -arrow-.

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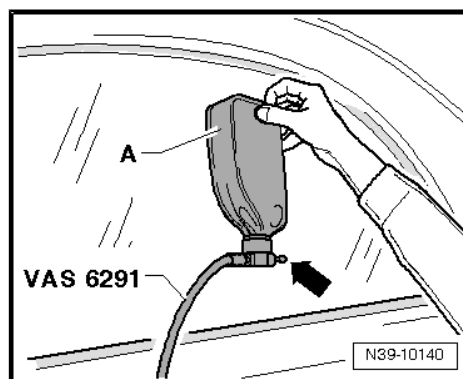


- Disconnect adapter -A- and elbow joint -B-.
- Screw adapter -A- in onto stop.
- Connect elbow joint -B- and adapter -A-, making sure they engage.
- Route hose above drive shaft (left-side).
- The hose must not hang down. It must emerge above rear wheel on left side of vehicle.
- Lower vehicle.



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

The hydraulic control unit and the superposition gears (left and right) in the rear final drive will now be filled.



- The hydraulic control unit for the rear final drive is filled correctly when ATF starts to come out at adapter -A-.

If no ATF has emerged at adapter -A-:

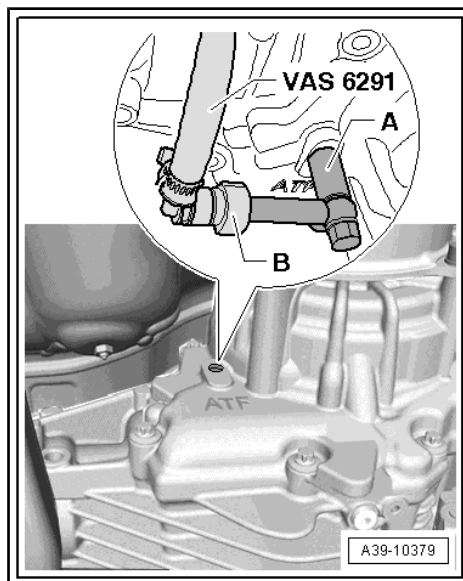
- Continue with filling procedure until fluid level is correct.

If ATF has emerged at adapter -A-:

- Raise vehicle.
- Place reservoir e.g. onto a workshop trolley.

Part of the excess oil will now flow back into the oil reservoir.

- Remove charging device -VAS 6291- as soon as ATF stops flowing back into the reservoir.
- The oil level is correct when the rear final drive is filled to the bottom lip of the filler hole.



- Screw in ATF inspection plug -arrow- hand-tight.
- Connect vehicle diagnostic tester and switch on ignition.
- Using vehicle diagnostic tester in **Guided Functions** mode, select **22 - Four-wheel electronics** and then select the function **22 - Adding ATF**.
- It is important to follow all instructions given by the vehicle diagnostic tester exactly.

Use vehicle diagnostic tester to fill and vent air from the system.



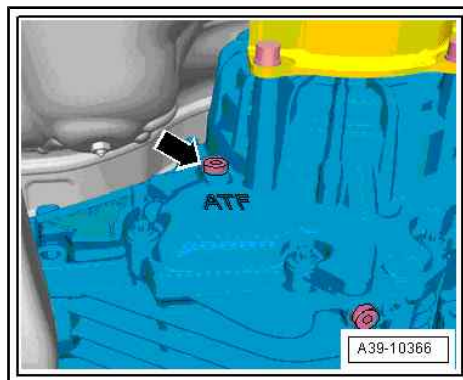
Note

*If the system detects that there is still air in the system after the function **22 - Adding ATF** has been performed, the filling process must be repeated.*

- Unscrew ATF inspection plug -arrow- once again.

Test condition:

- The ATF level is correct when the rear final drive is filled to the bottom lip of the filler hole -arrow-.
- Top up ATF if necessary.
- No entries (either static or sporadic) stored in event memory ➔ Vehicle diagnostic tester.
- Screw in and tighten new ATF inspection plug -arrow-. Tightening torque ➔ [Item 12 \(page 45\)](#).

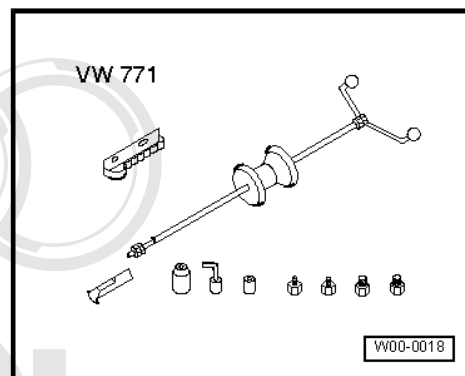


10 Renewing oil seals for flange shafts (rear final drive removed)

- The oil seals can be only be renewed with the final drive removed.

Special tools and workshop equipment required

- ◆ Multi-purpose tool -VW 771-



- ◆ Thrust piece -T40221-
- ◆ ATF

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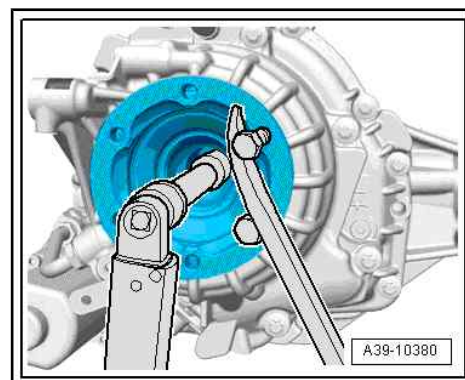
Removing

- Observe the general repair instructions ➔ [page 13](#) .
- Remove rear final drive ➔ [page 62](#) .
- Remove flange shaft securing bolt. To do this, screw two bolts into flange and counterhold flange shaft with tyre iron or other suitable lever.
- Pull out flange shaft.



Note

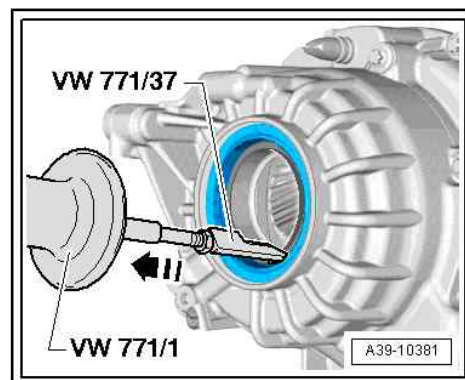
If flange shaft cannot be pulled out by hand, use multi-purpose tool -VW 771-.



- Pull out flange shaft oil seal using -VW 771- and -VW 771/37- .

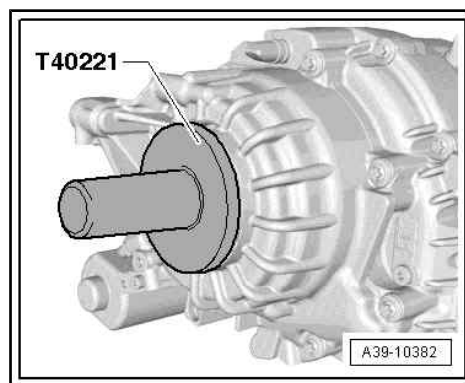
Installing

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



Installing oil seal (right-side)

- Coat outer circumference and sealing lips of oil seal with ATF.
- Drive in new oil seal onto stop (take care to keep seal straight).



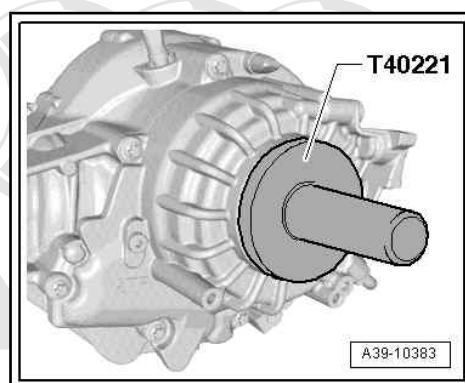
Installing oil seal (left-side)

- Coat outer circumference and sealing lips of oil seal with ATF.
- Drive in new oil seal onto stop (take care to keep seal straight).
- Install flange shaft.



Note

If flange shaft cannot be inserted as far as stop by hand, knock it in using a plastic hammer.



- Tighten new bolt securing flange shaft to specified torque
⇒ [Item 1 \(page 44\)](#) .

- Install rear final drive ⇒ [page 62](#) .

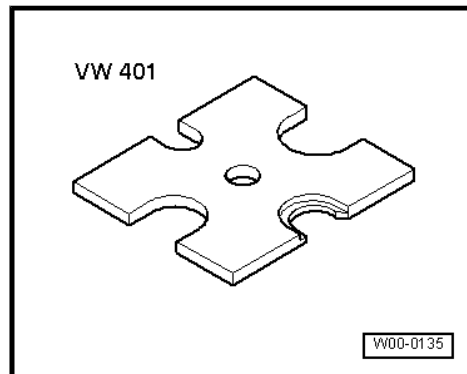
- Check ATF level in rear final drive ⇒ [page 84](#) .

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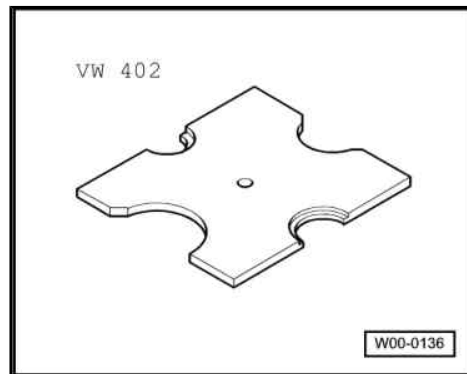
10.1 Renewing protective ring on flange shaft

Special tools and workshop equipment required

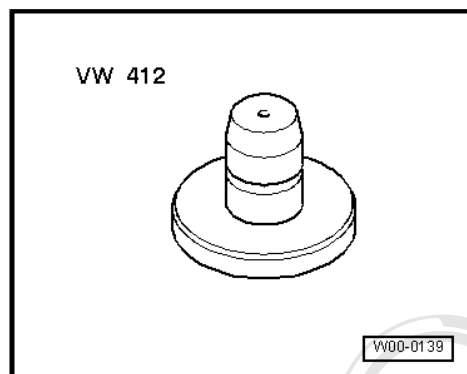
- ◆ Thrust plate -VW 401-



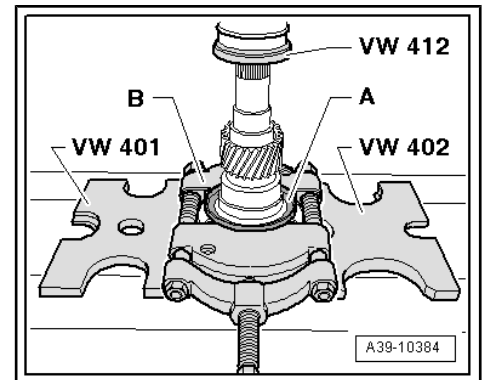
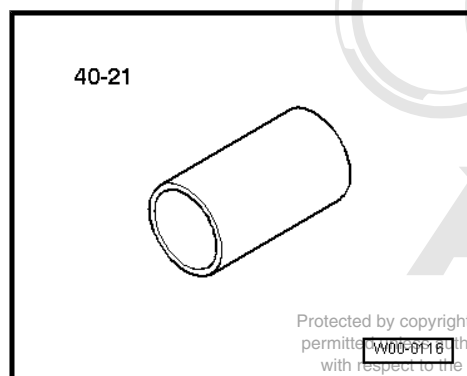
- ◆ Thrust plate -VW 402-



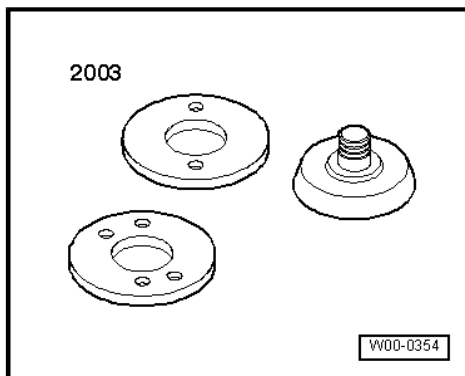
- ◆ Press tool -VW 412-



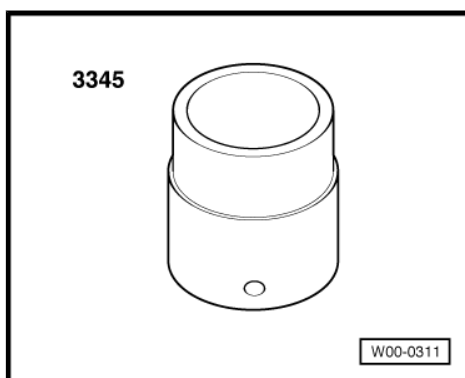
- ◆ Press tool -40 - 21-



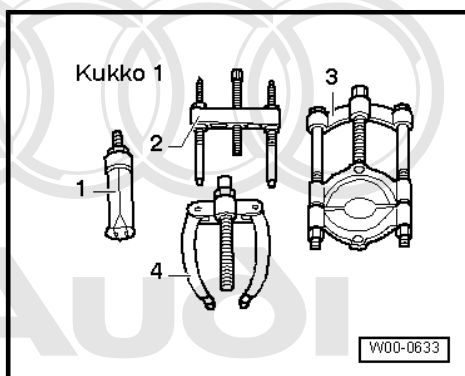
- ◆ Installing ring
-2003/1- from fitting
tool -2003-



- ◆ Wheel bearing tube
-3345-



- ◆ -3- Splitter 22...115
mm , e.g. -Kukko
17/2-



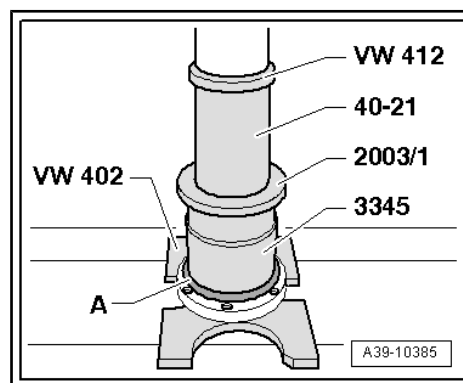
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Pressing protective ring -A- off flange shaft

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

Carefully pressing protective ring -A- onto flange shaft

- Installation position of protective ring -A-: larger outside diameter of protective ring faces towards wheel bearing tube -3345-



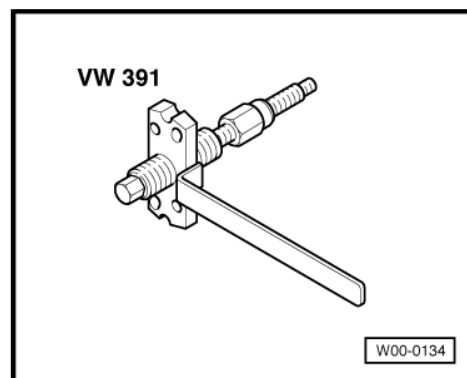
11 Renewing oil seal for propshaft flange

- ◆ ⇒ „11.1 Rear final drive OBF - renewing oil seal for propshaft flange“, page 93
- ◆ ⇒ „11.2 Rear final drive OBE - renewing oil seal for propshaft flange“, page 99
- ◆ ⇒ „11.3 Renewing protective ring on propshaft flange“, page 106

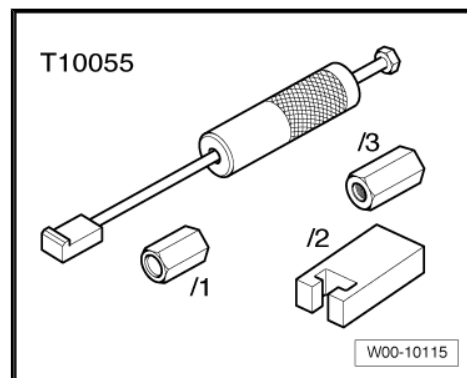
11.1 Rear final drive OBF - renewing oil seal for propshaft flange

Special tools and workshop equipment required

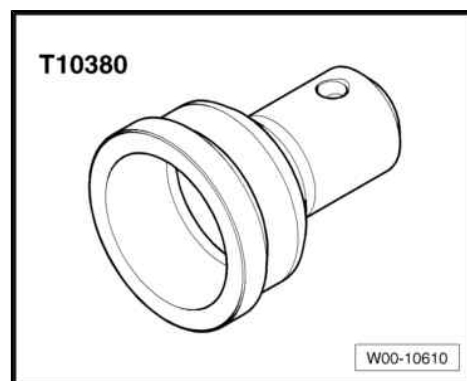
- ◆ Drive flange installing tool -VW 391-



- ◆ Puller -T10055-

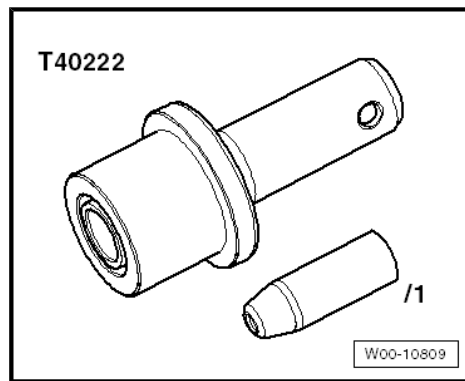


- ◆ -2- Adapter -T10055/2-
- ◆ Bolts (2x) M 8 x 30
- ◆ Thrust piece -T10380-





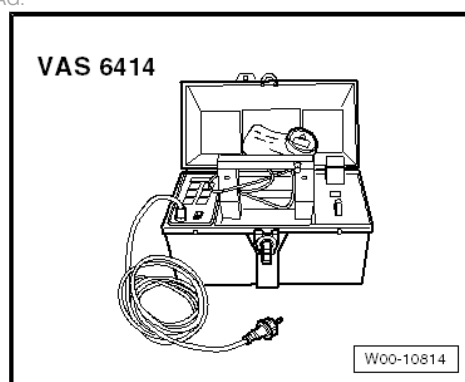
- ◆ Assembly tool -T40222-



- ◆ Assembly sleeve -T40222/1-

- ◆ Sealing grease -G 052 128 A1-

- ◆ Inductive heater -VAS 6414-



- ◆ or
- ◆ Hotplate (commercially available)
- ◆ and
- ◆ Temperature gauge -VAS 6519-

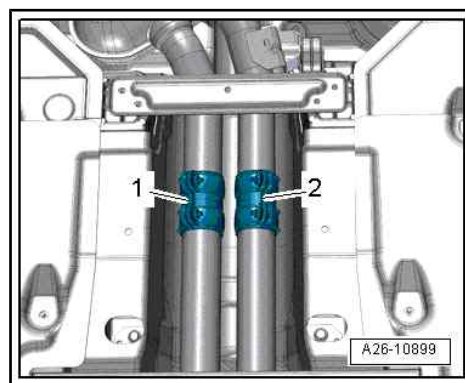
Removing

- Rear final drive installed
- Refer to general repair instructions ⇒ [page 13](#) .
- Disconnect exhaust system at clamps -1- and -2-.
- Remove rear section of exhaust system ⇒ Rep. gr. 26 .

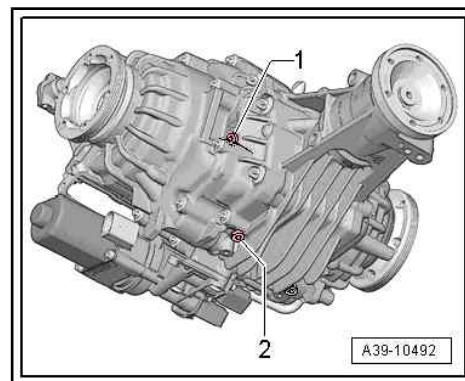


Note

A second mechanic is required for removing the rear section of the exhaust system.



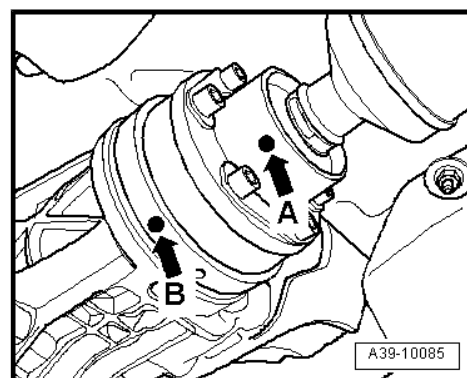
- Unscrew gear oil drain plug -2- and drain off approx. 300 ml of gear oil.
- Screw in and tighten new drain plug -2-. Tightening torque
⇒ [Item 16 \(page 45\)](#)



- Detach propshaft from rear final drive ⇒ [page 28](#) .

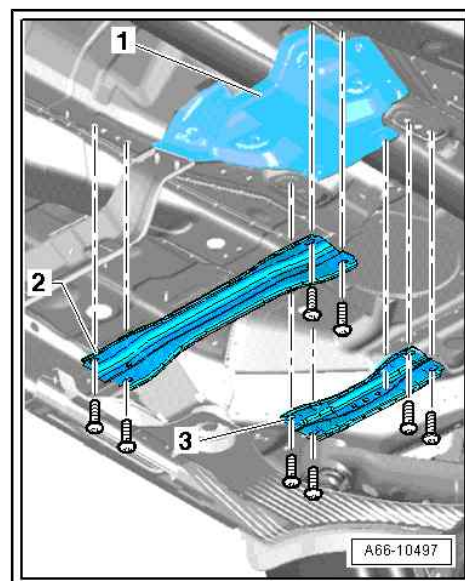
Audi A8

- Guide propshaft downwards between fuel tank and rear sub-frame and tie up on one side.



Audi A4, A5 Coupé/Sportback/Cabriolet

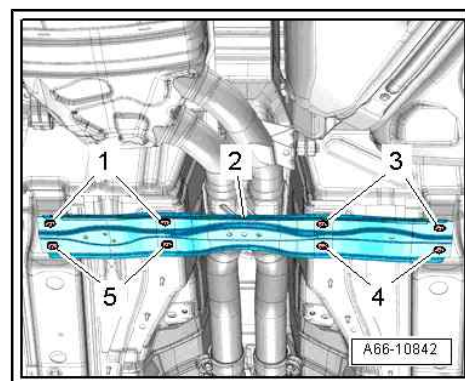
- If fitted, remove front cross member -2-.
- Remove rear cross member -3- and heat shield -1-.



Audi A6 and A7

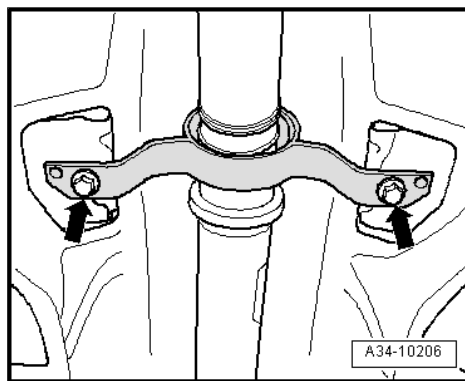
- Remove cross piece -2- ⇒ General body repairs, exterior;
Rep. gr. 66 .

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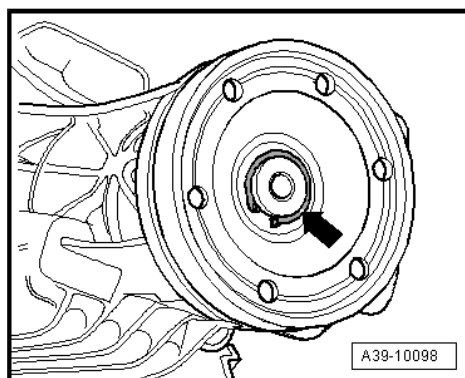
Audi A4, A5 Coupé/Sportback/Cabriolet, A6, A7

- Remove bolts -arrows- securing centre propshaft bearing.
- Lower propshaft at centre bearing.
- When doing so, guide propshaft downwards between fuel tank and rear subframe.
- Fit bolts -arrows- for centre bearing and hand-tighten.
- Tie propshaft to one side.



Continued for all vehicles

- Remove high-temperature grease in propshaft flange on rear final drive.
- Remove circlip -arrow-.

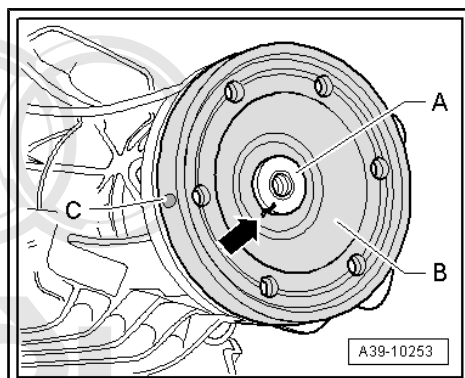


- Mark position of flange -B- for propshaft relative to pinion shaft -A- -arrow-.



Note

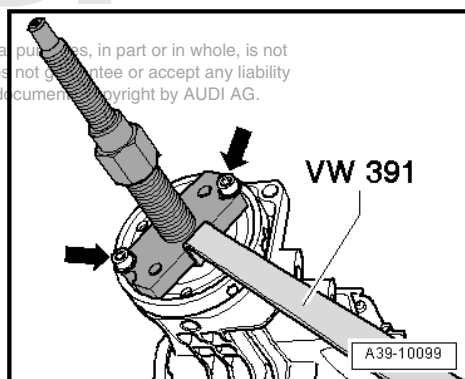
- ◆ *This marking -arrow- is necessary in order to maintain the original position of the coloured dot -C- on the outside of the flange.*
- ◆ *This is the only effective way to minimise the imbalance in the rear final drive.*



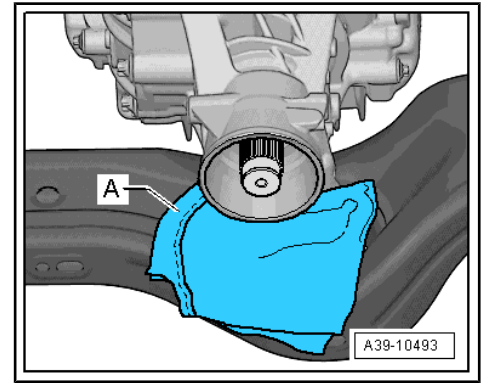
- Screw 2 bolts M 8 x 30 mm -arrow- into flange.

- Pull off propshaft flange using drive flange installing tool -VW 391- .

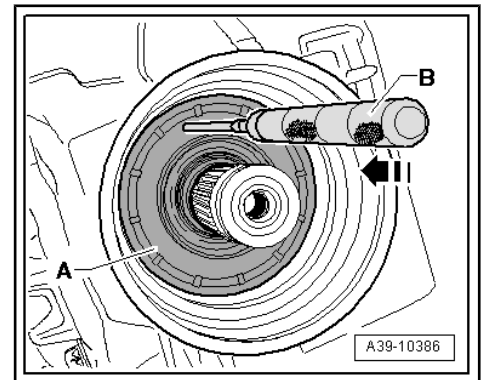
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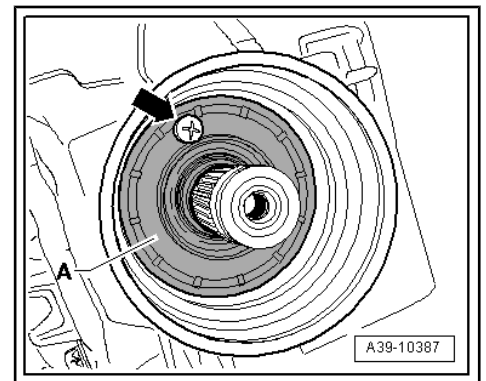
- Lay absorbent cloth -A- on subframe under final drive.



- Pierce metal ring of oil seal -A- in direction of -arrow- using e.g. a scribe -B-.

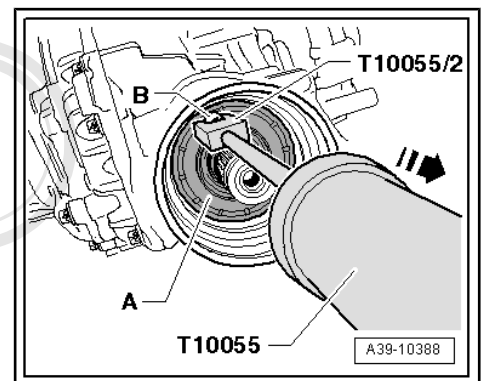


- Then screw self-tapping screw -arrow- into this hole in oil seal -A-.



- Pull out oil seal -A- for propshaft flange in direction of -arrow-.

-B- Self-tapping screw



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Installing

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

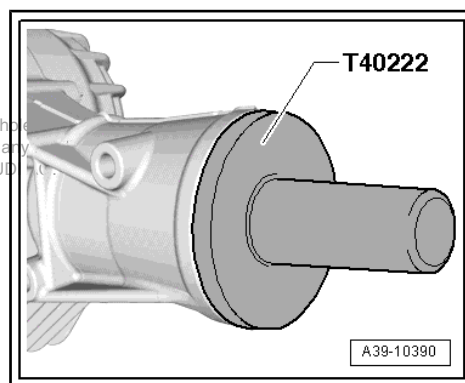
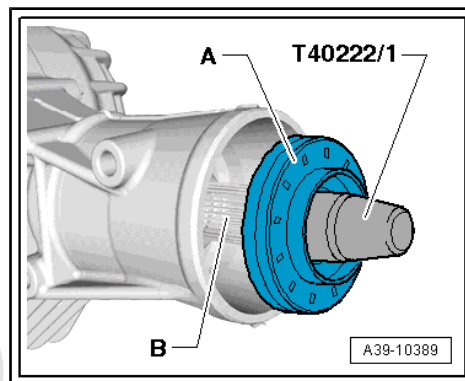
- Pack space between sealing lip and dust lip half-full with sealing grease -G 052 128 A1- .
- Fit new oil seal -A- on assembly sleeve -T40222/1- .



Note

Check that spring of oil seal behind sealing lip is in installation position.

- Lightly lubricate outer circumference of oil seal with gear oil.
- Fit assembly sleeve -T40222/1- onto pinion shaft -B- together with oil seal -A-.
- Drive in new oil seal onto stop (take care to keep seal straight).



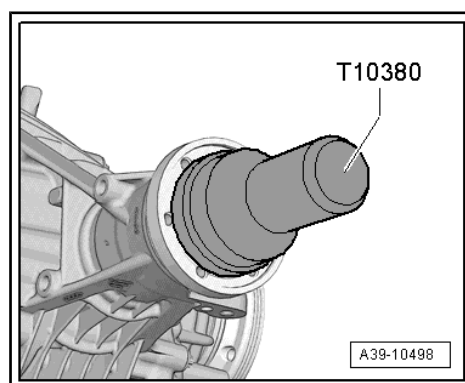
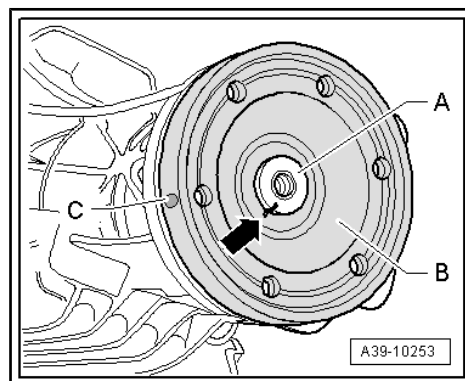
- Heat propshaft flange -B- to 115 °C using inductive heater -VAS 6414- or a hotplate .



WARNING

- ◆ *Wear protective gloves.*
- ◆ *If using a hotplate , the temperature value must be monitored constantly with temperature gauge -VAS 6519- .*

- Position propshaft flange -B- on pinion shaft -A- so that markings -arrow- are in line.
- Drive on propshaft flange as far as stop using thrust piece -T10380- .



Install circlip -1- as follows:

- Always renew circlip -1-.
- Chamfer on inner diameter of circlip -arrow A- must face outwards towards propshaft.
- The wider lug on the circlip -arrow B- must be on the right side, as shown in the illustration.
- Measure thickness of old circlip -1-.
- Replace circlip -1- with a new circlip of the same thickness ⇒ Electronic parts catalogue .
- Fit new circlip -1-.



Note

- ◆ *If the propshaft flange is being renewed, the thickness of the circlip -arrow- must be re-determined.*
- ◆ *To do so, determine the thickest circlip -arrow- that will just fit in the groove and install it. For part number refer to ⇒ Electronic parts catalogue .*

- Top up gear oil in rear final drive 0BF ⇒ [page 80](#) .
- Attach propshaft to rear final drive ⇒ [page 29](#) .

Audi A4, A5 Coupé/Sportback/Cabriolet, A6, A7

- Secure centre propshaft bearing to body so it is free of stress. Tightening torque ⇒ [Item 9 \(page 32\)](#)
- Install heat shield and cross member ⇒ General body repairs, exterior; Rep. gr. 66 .

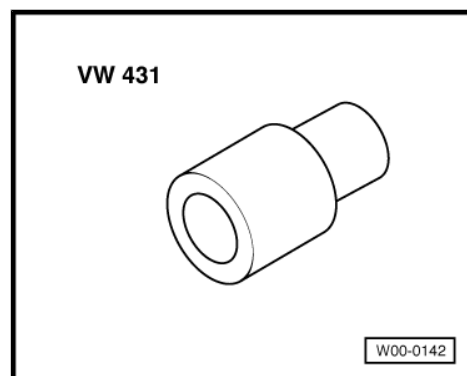
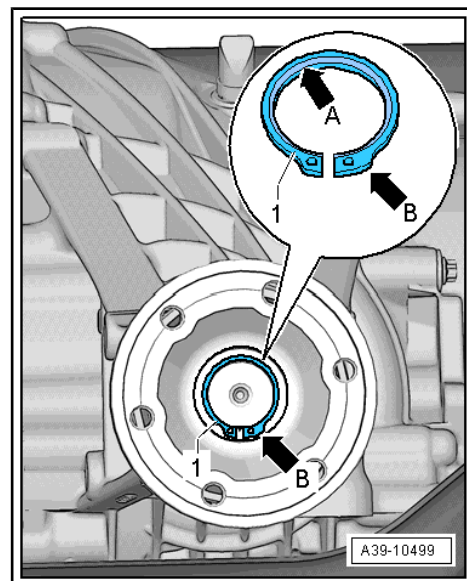
Continued for all vehicles

- Install rear section of exhaust system ⇒ Rep. gr. 26 .

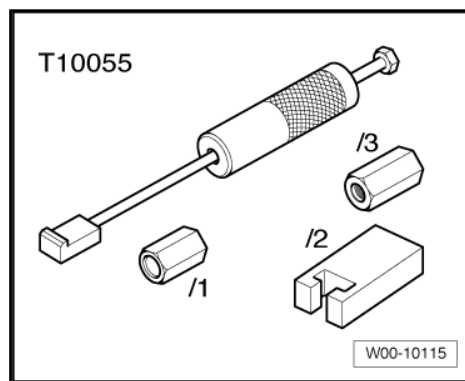
11.2 Rear final drive 0BE - renewing oil seal for propshaft flange

Special tools and workshop equipment required

- ◆ **Thrust piece -VW 431-**
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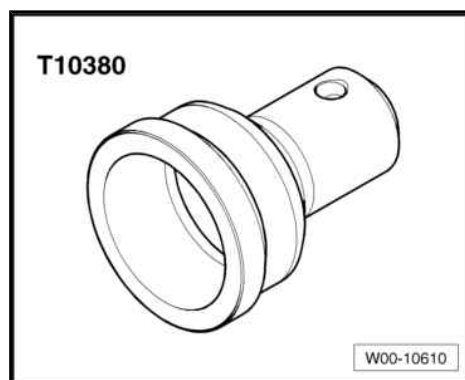


◆ Puller -T10055-

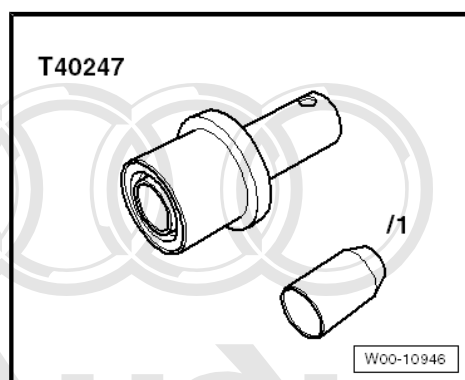


◆ -2- Adapter -T10055/2-

◆ Thrust piece -T10380-



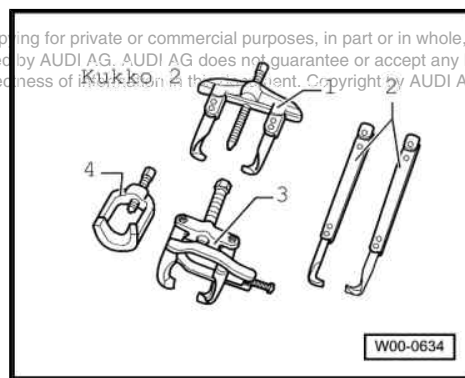
◆ Assembly tool -T40247-



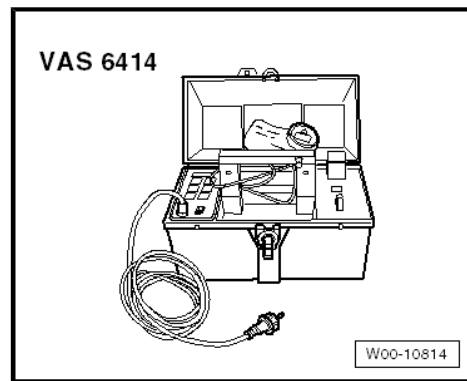
◆ Assembly sleeve -T40247/1-

◆ -1- Two-arm puller -Kukko 20/10-

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- ◆ Inductive heater -VAS 6414-



- ◆ or
- ◆ Hotplate (commercially available)
- ◆ and
- ◆ Temperature gauge -VAS 6519-
- ◆ Drip tray
- ◆ Sealing grease -G 052 128 A1-

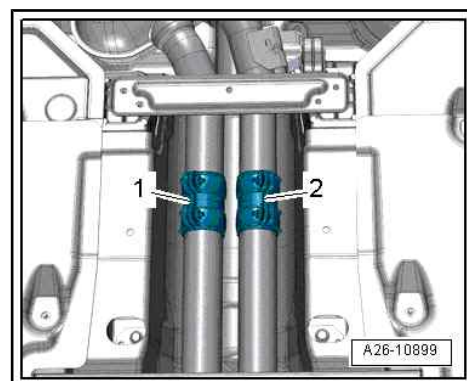
Removing

- Rear final drive installed
- Disconnect exhaust system at clamps -1- and -2-.
- Remove rear section of exhaust system ⇒ Rep. gr. 26 .

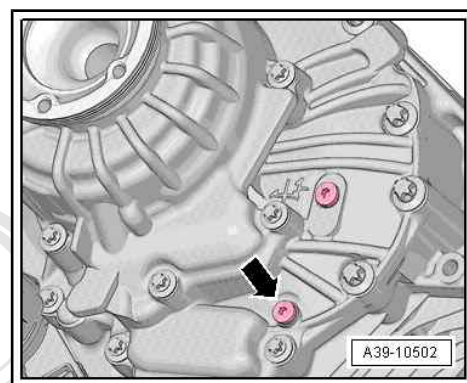


Note

A second mechanic is required for removing the rear section of the exhaust system.

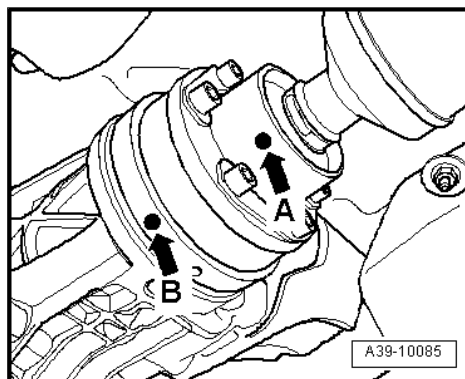


- Unscrew gear oil drain plug -arrow- and drain off approx. 300 ml of gear oil.
- Screw in and tighten new drain plug -arrow-. Tightening torque ⇒ [Item 16 \(page 45\)](#)

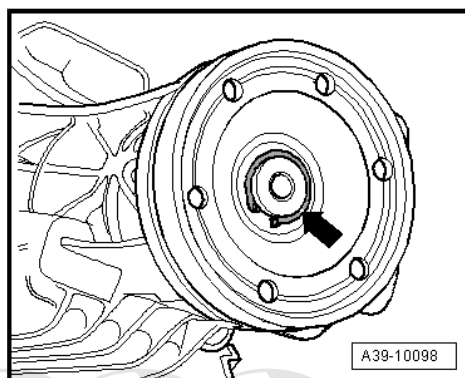


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- Detach propshaft from rear final drive ➔ [page 28](#) .
- Guide propshaft downwards between fuel tank and rear sub-frame and tie up on one side.



- Remove high-temperature grease in propshaft flange on rear final drive.
- Remove circlip -arrow-.

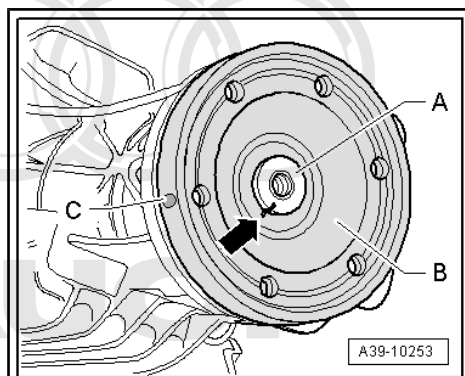


- Mark position of flange -B- for propshaft relative to pinion shaft -A- -arrow-.



Note

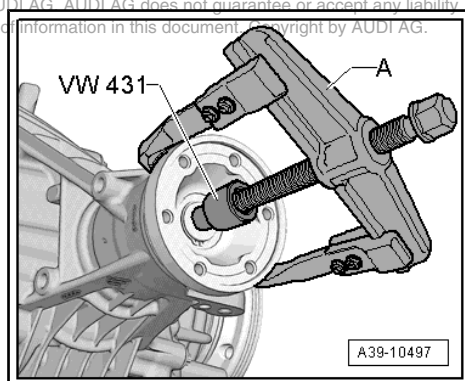
- ◆ *This marking -arrow- is necessary in order to maintain the original position of the coloured dot -C- on the outside of the flange.*
- ◆ *This is the only effective way to minimise the imbalance in the rear final drive.*



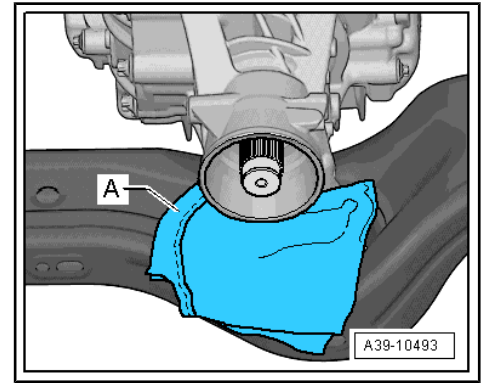
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- Pull off propshaft flange.

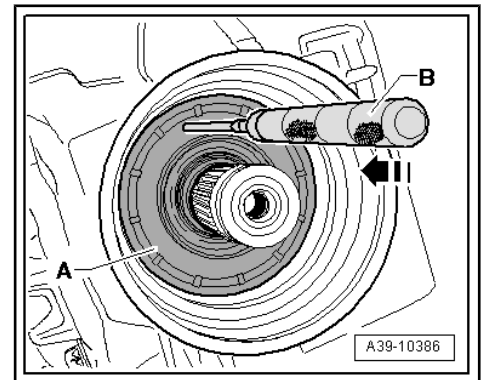
A - E.g. two-arm puller -Kukko 20-10-



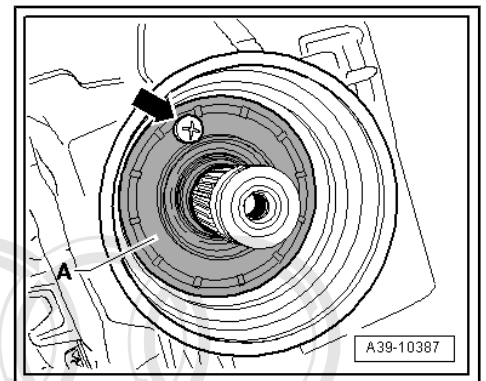
- Lay absorbent cloth -A- on subframe under final drive.



- Pierce metal ring of oil seal -A- in direction of -arrow- using e.g. a scriber -B-.

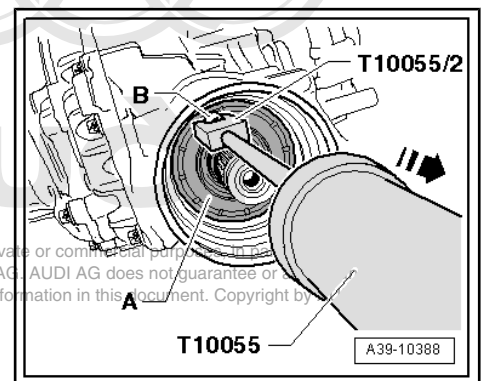


- Then screw self-tapping screw -arrow- into this hole in oil seal -A-.



- Pull out oil seal -A- for propshaft flange in direction of -arrow-.

B - Self-tapping screw



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Installing

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

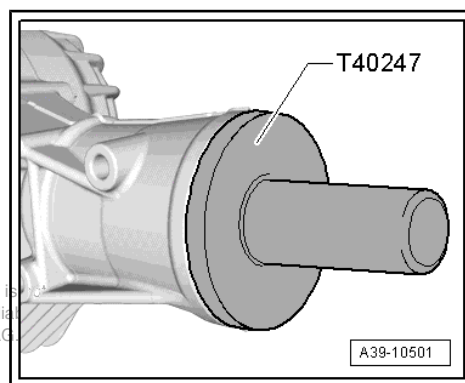
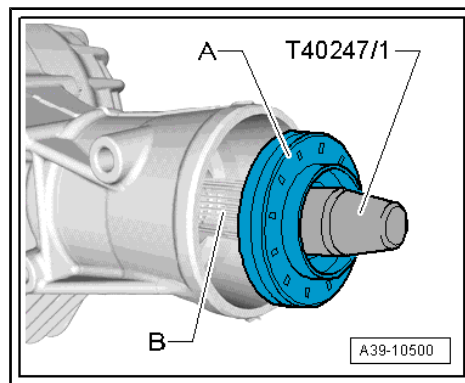
- Pack space between sealing lip and dust lip half-full with sealing grease -G 052 128 A1- .
- Lightly lubricate outer circumference of oil seal with gear oil.
- Fit new oil seal -A- on assembly sleeve -T40247/1- .



Note

Check that spring of oil seal behind sealing lip is in installation position.

- Fit assembly sleeve -T40247/1- onto pinion shaft -B- together with oil seal -A-.
- Drive in new oil seal onto stop (take care to keep seal straight).



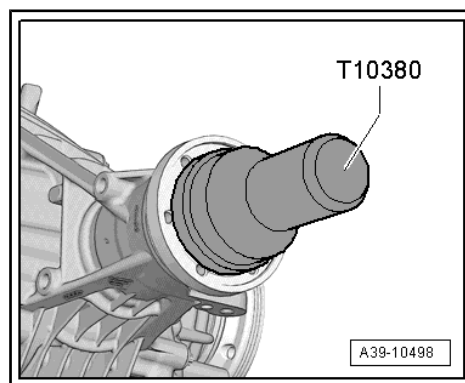
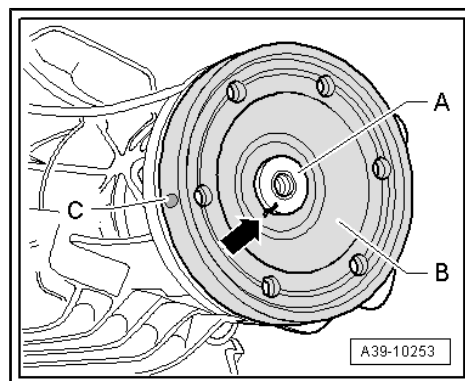
- Heat propshaft flange -B- to 115 °C using inductive heater -VAS 6414- or a hotplate .



WARNING

- ◆ *Wear protective gloves.*
- ◆ *If using a hotplate , the temperature value must be monitored constantly with temperature gauge -VAS 6519- .*

- Position propshaft flange -B- on pinion shaft -A- so that markings -arrow- are in line.
- Drive on propshaft flange as far as stop using thrust piece -T10380- .



Install circlip -1- as follows:

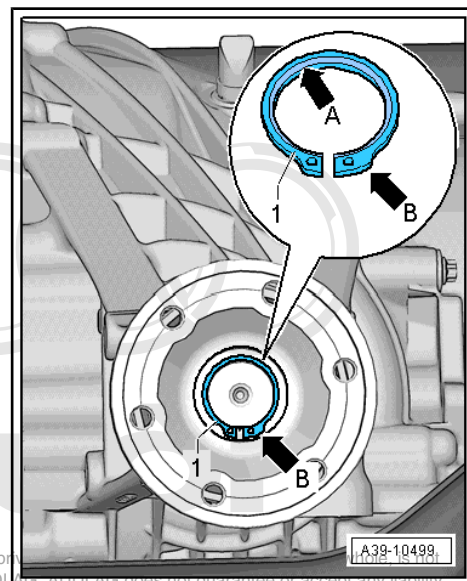
- Always renew circlip -1-.
- Chamfer on inner diameter of circlip -arrow A- must face outwards towards propshaft.
- The wider lug on the circlip -arrow B- must be on the right side, as shown in the illustration.
- Measure thickness of old circlip -1-.
- Replace circlip -1- with a new circlip of the same thickness ⇒ Electronic parts catalogue .
- Fit new circlip -1-.



Note

- ◆ *If the propshaft flange is being renewed, the thickness of the circlip -arrow- must be re-determined.*
- ◆ *To do so, determine the thickest circlip -arrow- that will just fit in the groove and install it. For part number refer to ⇒ Electronic parts catalogue .*

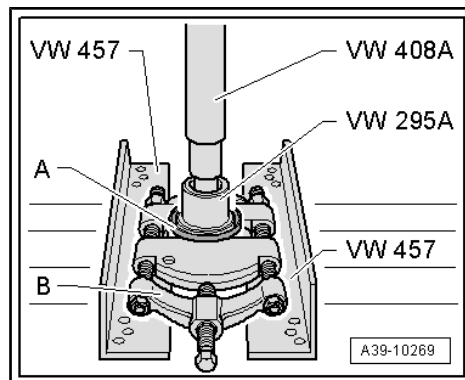
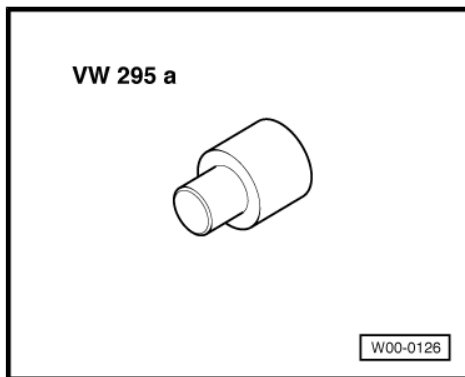
- Fill up gear oil in rear final drive 0BE ⇒ [page 82](#) .
- Attach propshaft to rear final drive ⇒ [page 29](#) .
- Install rear section of exhaust system ⇒ Rep. gr. 26 .



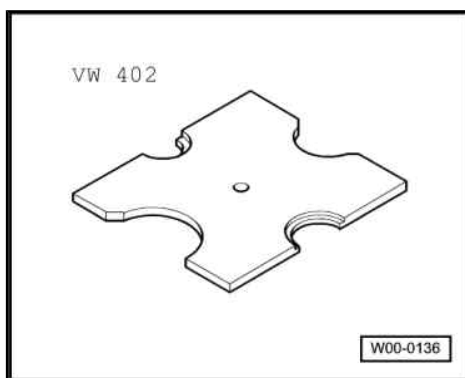
11.3 Renewing protective ring on propshaft flange

Special tools and work-shop equipment required

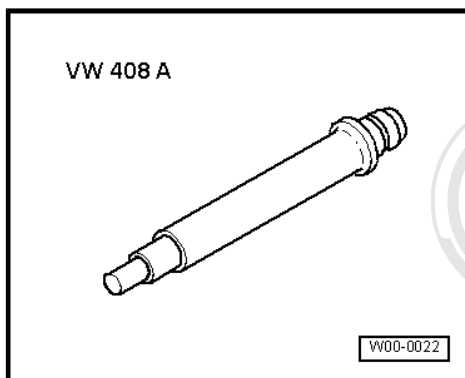
- ◆ Adapter -VW 295 A-



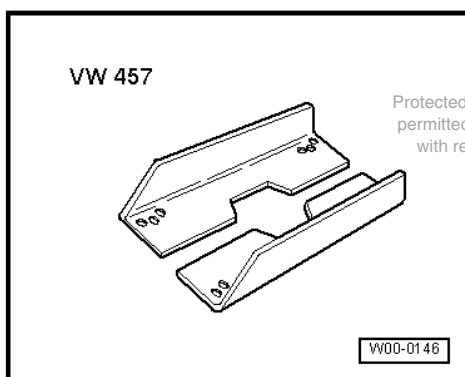
- ◆ Thrust plate -VW 402-



- ◆ Press tool -VW 408 A-

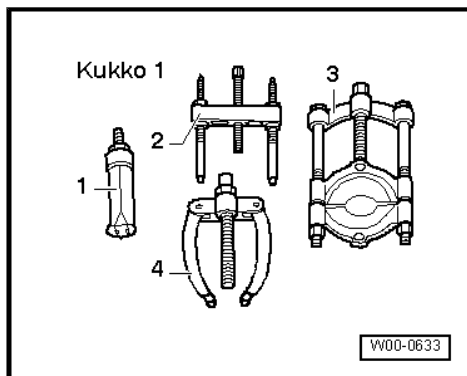


- ◆ Support rails -VW 457-



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- ◆ -3- Splitter 22...75 mm , e.g. -Kukko 17/1-

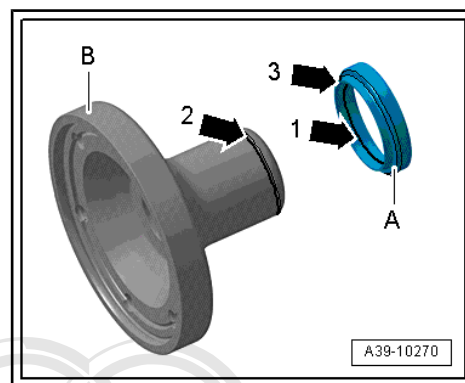


Pressing protective ring -A- off propshaft flange

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

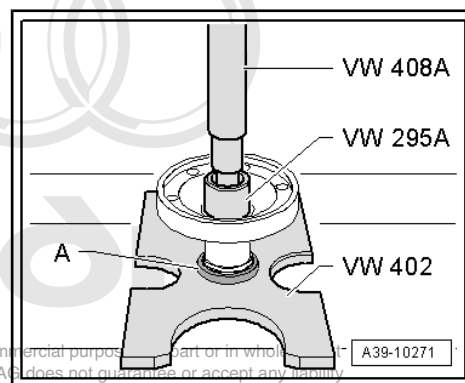
Installation position of protective ring -A- on propshaft flange

- The projecting ridge -arrow 1- on the protective ring -A- must be fitted in the annular groove -arrow 2- on the flange -B-. The smaller outside diameter -arrow 3- then faces towards the flange.



Pressing protective ring -A- onto propshaft flange

- The protective ring -A- must engage in the annular groove on the flange ⇒ [page 107](#) .



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