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Repair 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

List of Workshop Manual Repair Groups

Repair Group

00 - General, Technical Data

39 - Final Drive, Differential

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

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Contents

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00 – General, Technical Data

1 Rear Final Drive Identification 0BF and 0BE

(Edition 01.2012)

The »Rear Final Drive 0BF« is installed in Audi A4 from MY 2008, Audi A6 Coup from MY 2008, Audi A5 Cabriolet from 2009, Audi A6 from MY 2011, Audi A7 from MY 2011, and Audi A8 from My 2010.

Allocation to the following transmissions:

- 6-Speed Manual Transmission 0B2 AWD
- 6-Speed Manual Transmission 0B4 AWD
- 7-Speed S tronic Transmission 0B5 AWD
- Automatic Transmission 0B6 AWD
- 8-Speed Automatic Transmission 0BK AWD

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The »Rear Final Drive 0BE« is an enhanced version of the »0BF« and is installed exclusively with the V8 TDI Engine in the Audi A8 from MY 2010.

Allocation to the following transmission:

- 8-Speed Automatic Transmission 0BL AWD

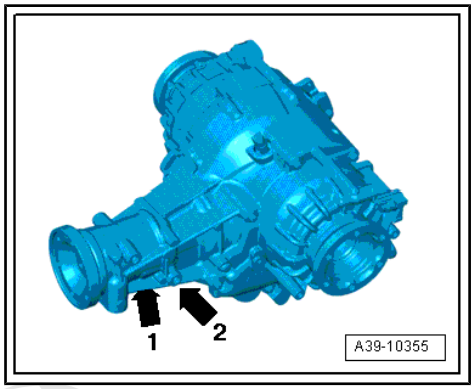
Rear Final Drive Allocation

- Refer to
⇒ “2.1 Codes, Transmission Allocations, Ratios, Capacities, Audi A4 from MY 2008”, page 3
- Refer to
⇒ “2.2 Codes, Transmission Allocations, Ratios and Capacities, Audi A5 Coupe from MY 2008”, page 5
- Refer to
⇒ “2.3 Codes, Transmission Allocations, Ratios and Capacities, Audi A5 Sportback from MY 2010”, page 7
- Refer to
⇒ “2.4 Codes, Transmission Allocations, Ratios and Capacities, Audi A5 Cabriolet from MY 2009”, page 8
- Refer to
⇒ “2.5 Codes, Transmission Allocations, Ratios and Capacities for Audi A6 from MY 2011”, page 9
- Refer to
⇒ “2.6 Codes, Transmission Allocations, Ratios and Capacities for Audi A7 from MY 2011”, page 9
- Refer to
⇒ “2.7 Codes, Transmission Allocations, Ratios and Capacities, Audi A8 from MY 2010”, page 10

Layout on Rear Final Drive

Clutch class -arrow 1-.

Engine code and production date -arrow 2-

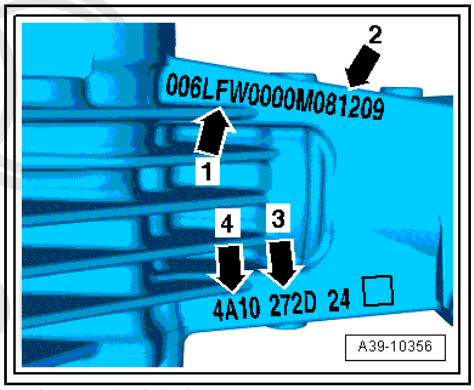


Note

The way to recognize the rear final drive "0BF and 0BE" is the hydraulic control unit with the side chambers.

- -Arrow 1- code -LFW-
- -Arrow 2- Rear final drive build dates

Example:	08	12	09
	I	I	I
	Production year -2008-	Month	Day



- -Arrow 3- Classification (classification of the clutch friction values) for the right clutch. Example: -272D-
- -Arrow 4- Classification (classification of the clutch friction values) for the left clutch. Example: -4A10-

Additional data can be ignored.

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Note

When the rear final drive is replaced, not only the final drive code but also the PR number and the vehicle engine code must be verified in the Parts Catalog. This is the only way to assure the correct allocation.

2 Codes, Transmission Allocation, Ratios and Capacities

2.1 Codes, Transmission Allocations, Ratios, Capacities, Audi A4 from MY 2008

Refer to the Parts Catalog for the following information.

- Production date
- The engine, manual transmission and automatic transmission allocation using the code letters and the PR numbers

Rear Final Drive		0BF		
Codes		**LFU**	**LFV**	**LFW**
Ratio	Final drive $Z_2 : Z_1$	35 : 9 = 3.889	37 : 9 = 4.111	43 : 13 = 3.308
Driveshaft flange diameter		75.5 mm	75.5 mm	75.5 mm
Gear oil - capacity ♦ For rear final drive (differential and pinion) ♦ No replacement interval		Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification		Refer to the Parts Catalog.		
ATF capacity ♦ For the hydraulic control unit and chambers ♦ No replacement interval		Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification		Refer to the Parts Catalog.		

Rear Final Drive		0BF		
Codes		**LGH**	**LGJ**	**MBV**
Ratio	Final drive $Z_2 : Z_1$	37 : 10 = 3.700	35 : 8 = 4.375	35 : 9 = 3.889
Driveshaft flange diameter		75.5 mm	75.5 mm	75.5 mm

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Rear Final Drive	0BF		
Codes	**LGH**	**LGJ**	**MBV**
Gear oil - capacity ◆ For rear final drive (differential and pinion) ◆ No replacement interval	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification	Refer to the Parts Catalog.		
ATF capacity ◆ For the hydraulic control unit and chambers ◆ No replacement interval	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification	Refer to the Parts Catalog.		

Rear Final Drive		0BF		
Codes		**MBW**	**MKU**	**MKV**
Ratio	Final drive $Z_2 : Z_1$	37 : 10 = 3.700	37 : 9 = 4.111	43 : 13 = 3.308
Driveshaft flange diameter		75.5 mm	75.5 mm	75.5 mm
Gear oil - capacity ◆ For rear final drive (differential and pinion) ◆ No replacement interval		Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification		Refer to the Parts Catalog.		
ATF capacity ◆ For the hydraulic control unit and chambers ◆ No replacement interval		Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification		Refer to the Parts Catalog.		

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Rear Final Drive		0BF		
Codes		**MKW**	**MKX**	**MKY**
Ratio	Final drive $Z_2 : Z_1$	35 : 8 = 4.375	35 : 9 = 3.889	37 : 10 = 3.700
Driveshaft flange diameter		75.5 mm	75.5 mm	75.5 mm
Gear oil - capacity ◆ For rear final drive (differential and pinion) ◆ No replacement interval		Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification		Refer to the Parts Catalog.		
ATF capacity ◆ For the hydraulic control unit and chambers ◆ No replacement interval		Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification		Refer to the Parts Catalog.		

2.2 Codes, Transmission Allocations, Ratios and Capacities, Audi A5 Coupe from MY 2008

Refer to the Parts Catalog for the following information.

- Production date
- The engine, manual transmission and automatic transmission allocation using the code letters and the PR numbers

Caution

Gear oil and ATF change Audi RS5

- *The RS5 gear oil and ATF must be changed.*
- *RS5 change interval. Refer to the ⇒ Maintenance Intervals; Rep. Gr. 03 .*
- *For all other vehicles there is no change interval.*

Rear Final Drive		0BF		
Codes		**LFU**	**LFV**	**LFW**
Ratio	Final drive $Z_2 : Z_1$	35 : 9 = 3.889	37 : 9 = 4.111	43 : 13 = 3.308
Driveshaft flange diameter		75.5 mm	75.5 mm	75.5 mm
Gear oil - capacity ♦ For rear final drive (differential and pinion) ♦ No change interval except RS5 ♦ RS5 change interval. Refer to the ⇒ Maintenance Intervals; Rep. Gr. 03 .		Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification		Refer to the Parts Catalog.		
ATF capacity ♦ For the hydraulic control unit and chambers ♦ No change interval except RS5 ♦ RS5 change interval. Refer to the ⇒ Maintenance Tables .		Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification		Refer to the Parts Catalog.		

Rear Final Drive		0BF		
Codes		**LGH**	**LGJ**	**MBV**
Ratio	Final drive $Z_2 : Z_1$	37 : 10 = 3.700	35 : 8 = 4.375	35 : 9 = 3.889
Driveshaft flange diameter		75.5 mm	75.5 mm	75.5 mm

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Rear Final Drive	0BF		
Codes	**LGH**	**LGJ**	**MBV**
Gear oil - capacity ♦ For rear final drive (differential and pinion) ♦ No change interval except RS5 ♦ RS5 change interval. Refer to the ⇒ Maintenance Tables .	⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification	Refer to the Parts Catalog.		
ATF capacity ♦ For the hydraulic control unit and chambers ♦ No change interval except RS5 ♦ RS5 change interval. Refer to the ⇒ Maintenance Tables .	⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification	Refer to the Parts Catalog.		

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Rear Final Drive		0BF		
Codes		**MBW**	**MKV**	**MKW**
Ratio	Final drive $Z_2 : Z_1$	37 : 10 = 3.700	43 : 13 = 3.308	35 : 8 = 4.375
Driveshaft flange diameter		75.5 mm	75.5 mm	75.5 mm
Gear oil - capacity ♦ For rear final drive (differential and pinion) ♦ No change interval except RS5 ♦ RS5 change interval. Refer to the ⇒ Maintenance Intervals; Rep. Gr. 03 .		⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification		Refer to the Parts Catalog.		
ATF capacity ♦ For the hydraulic control unit and chambers ♦ No change interval except RS5 ♦ RS5 change interval. Refer to the ⇒ Maintenance Intervals; Rep. Gr. 03 .		⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification		Refer to the Parts Catalog.		

Rear Final Drive		0BF		
Codes		**MKX**	**MKY**	
Ratio	Final drive $Z_2 : Z_1$	35 : 9 = 3.889	37 : 10 = 3.700	
Driveshaft flange diameter		75.5 mm	75.5 mm	

Rear Final Drive	0BF		
Codes	**MKX**	**MKY**	
Gear oil - capacity ♦ For rear final drive (differential and pinion) ♦ No change interval except RS5 ♦ RS5 change interval. Refer to the ⇒ Maintenance Intervals; Rep. Gr. 03 .	⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification	Refer to the Parts Catalog.		
ATF capacity ♦ For the hydraulic control unit and chambers ♦ No change interval except RS5 ♦ RS5 change interval. Refer to the ⇒ Maintenance Intervals; Rep. Gr. 03 .	⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification	Refer to the Parts Catalog.		

2.3 Codes, Transmission Allocations, Ratios and Capacities, Audi A5 Sportback from MY 2010

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Rear Final Drive		0BF		
Codes		**LFV**	**MBV**	**MBW**
Ratio	Final drive $Z_2 : Z_1$	37 : 9 = 4.111	35 : 9 = 3.889	37 : 10 = 3.700
Driveshaft flange diameter		75.5 mm	75.5 mm	75.5 mm
Gear oil - capacity ♦ For rear final drive (differential and pinion) ♦ No replacement interval		⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification		Refer to the Parts Catalog.		
ATF capacity ♦ For the hydraulic control unit and chambers ♦ No replacement interval		⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification		Refer to the Parts Catalog.		

Rear Final Drive		0BF		
Codes		**MKU**	**MKX**	**MKY**
Ratio	Final drive $Z_2 : Z_1$	37 : 9 = 4.111	35 : 9 = 3.889	37 : 10 = 3.700
Driveshaft flange diameter		75.5 mm	75.5 mm	75.5 mm
Gear oil - capacity ♦ For rear final drive (differential and pinion) ♦ No replacement interval		⇒ Fluid Capacity Tables; Rep. Gr. 03		

Rear Final Drive	0BF		
Codes	**MKU**	**MKX**	**MKY**
Gear oil specification	Refer to the Parts Catalog.		
ATF capacity ◆ For the hydraulic control unit and chambers ◆ No replacement interval	⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification	Refer to the Parts Catalog.		

2.4 Codes, Transmission Allocations, Ratios and Capacities, Audi A5 Cabriolet from MY 2009

Refer to the Parts Catalog for the following information.

- Production date
- The engine, manual transmission and automatic transmission allocation using the code letters and the PR numbers

Rear Final Drive		0BF		
Codes		**LFU**	**LFV**	**LFW**
Ratio	Final drive $Z_2 : Z_1$	35 : 9 = 3.889	37 : 9 = 4.111	43 : 13 = 3.308
Driveshaft flange diameter		75.5 mm	75.5 mm	75.5 mm
Gear oil - capacity ◆ For rear final drive (differential and pinion) ◆ No replacement interval		⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification		Refer to the Parts Catalog.		
ATF capacity ◆ For the hydraulic control unit and chambers ◆ No replacement interval		⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification		Refer to the Parts Catalog.		

Rear Final Drive		0BF		
Codes		**MBV**	**MKU**	**MKX**
Ratio	Final drive $Z_2 : Z_1$	35 : 9 = 3.889	37 : 9 = 4.111	35 : 9 = 3.889
Driveshaft flange diameter		75.5 mm	75.5 mm	75.5 mm
Gear oil - capacity ◆ For rear final drive (differential and pinion) ◆ No replacement interval		⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification		Refer to the Parts Catalog.		

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Rear Final Drive	0BF		
Codes	**MBV**	**MKU**	**MKX**
ATF capacity ♦ For the hydraulic control unit and chambers ♦ No replacement interval	⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification	Refer to the Parts Catalog.		

2.5 Codes, Transmission Allocations, Ratios and Capacities for Audi A6 from MY 2011

- Production date
- The engine, manual transmission and automatic transmission allocation using the code letters and the PR numbers

Rear Final Drive		0BF		
Codes		**MKU**	**MKV**	
Ratio	Final drive $Z_2 : Z_1$	37 : 9 = 4.111	43 : 13 = 3.308	
Driveshaft flange diameter		75.5 mm	75.5 mm	
Gear oil - capacity ♦ For rear final drive (differential and pinion) ♦ No replacement interval		⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification		Refer to the Parts Catalog.		
ATF capacity ♦ For the hydraulic control unit and chambers ♦ No replacement interval		⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification		Refer to the Parts Catalog.		

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2.6 Codes, Transmission Allocations, Ratios and Capacities for Audi A7 from MY 2011

Refer to the Parts Catalog for the following information.

- Production date
- The engine, manual transmission and automatic transmission allocation using the code letters and the PR numbers

Rear Final Drive		0BF		
Codes		**MKU**		
Ratio	Final drive $Z_2 : Z_1$	37 : 9 = 4.111		
Driveshaft flange diameter		75.5 mm		

Rear Final Drive	0BF		
Codes	**MKU**		
Gear oil - capacity ♦ For rear final drive (differential and pinion) ♦ No replacement interval	⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification	Refer to the Parts Catalog.		
ATF capacity ♦ For the hydraulic control unit and chambers ♦ No replacement interval	⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification	Refer to the Parts Catalog.		

2.7 Codes, Transmission Allocations, Ratios and Capacities, Audi A8 from MY 2010

Note

- *In the Audi A8 from My 2010 two different versions of rear final drive are installed, rear final drive 0BF or 0BE.*
- *The rear final drive 0BE is an enhanced version and is installed exclusively with the V8 TDI Engine.*

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Refer to the Parts Catalog for the following information.

- Production date
- The engine, manual transmission and automatic transmission allocation using the code letters and the PR numbers

Rear Final Drive		0BF		
Codes		**MKV**		
Allocation	Engine	3.0L - 155 kW TDI 3.0L - 184 kW TDI 3.0L - 213 kW TFSI 3.0L - 245 kW TFSI 4.2L - 273 kW FSI 6.3L - 368 kW FSI		
Ratio	Final drive $Z_2 : Z_1$	43 : 13 = 3.308		
Driveshaft flange diameter		75.5 mm		
Gear oil - capacity ♦ For rear final drive (differential and pinion) ♦ No replacement interval		⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification		Refer to the Parts Catalog.		
ATF capacity ♦ For the hydraulic control unit and chambers ♦ No replacement interval		⇒ Fluid Capacity Tables; Rep. Gr. 03		

Rear Final Drive	0BF		
Codes	**MKV**		
ATF specification	Refer to the Parts Catalog.		

Rear Final Drive	0BE		
Codes	**MKL**		
Allocation Engine	4.2L - 258 kW V8 TDI		
Ratio Final drive $Z_2 : Z_1$	36 : 13 = 2.769		
Driveshaft flange diameter	68 mm		
Gear oil - capacity ♦ For rear final drive (differential and pinion) ♦ No replacement interval	⇒ Fluid Capacity Tables; Rep. Gr. 03		
Gear oil specification	Refer to the Parts Catalog.		
ATF capacity ♦ For the hydraulic control unit and chambers ♦ No replacement interval	⇒ Fluid Capacity Tables; Rep. Gr. 03		
ATF specification	Refer to the Parts Catalog.		

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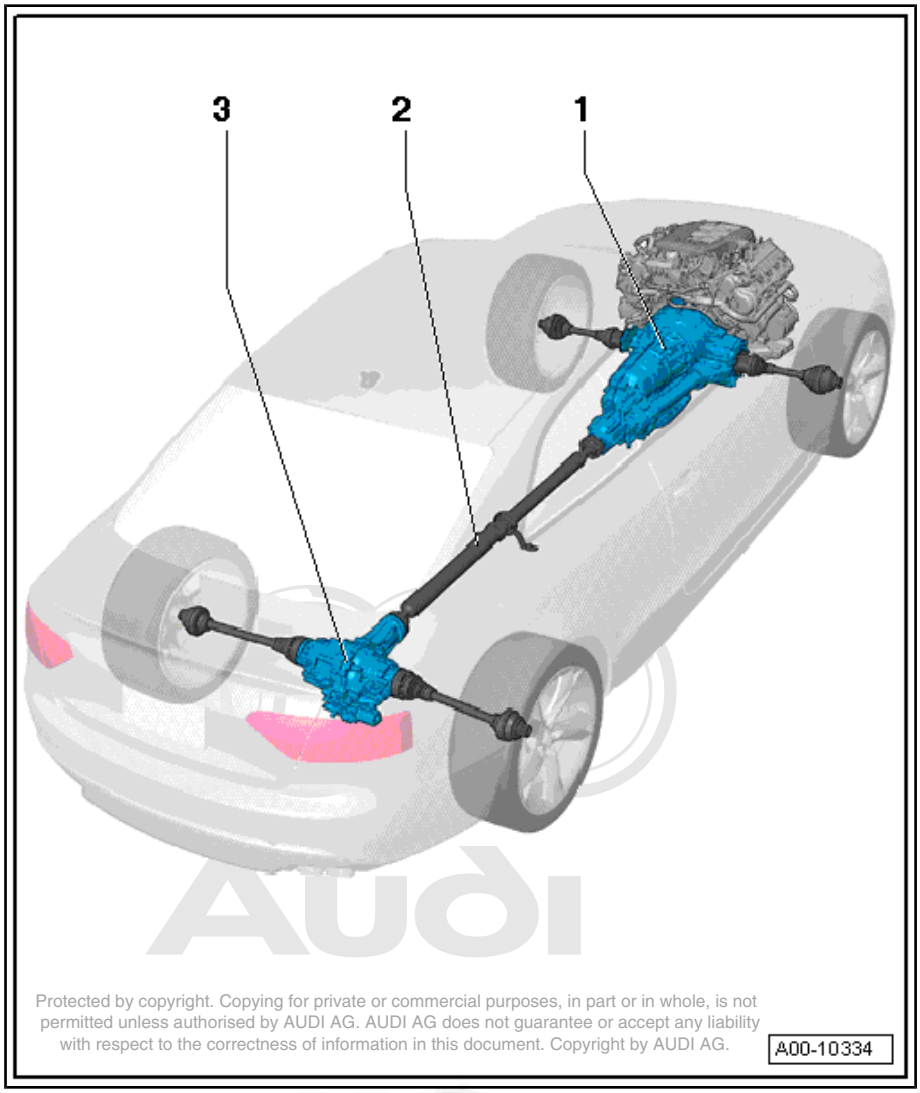
3 Overview - Powertrain

1 - Transmission

2 - Driveshaft

3 - Rear Final Drive



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4 General Repair Information

WARNING

Incorrect repairs to the rear final 0BF and 0BE could cause the final drive to malfunction.

- *Testing, assembling and servicing must be performed by qualified personnel only.*
- *Always follow all the safety precautions and test procedures. Refer to* *⇒ "4.1 Safety Precautions and Test Procedures", page 13* *.*

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- The highest level of care and cleanliness along with tools that function properly are required to ensure a proper and successful transmission repair. Of course the general safety precautions also apply when carrying out repair work.
- A number of generally applicable instructions for individual repair procedures, which are otherwise mentioned at various points in the Repair Manual, are summarized here under the topic "Components". Refer to ⇒ "4.4 Components", page 15 . They apply to this repair manual.

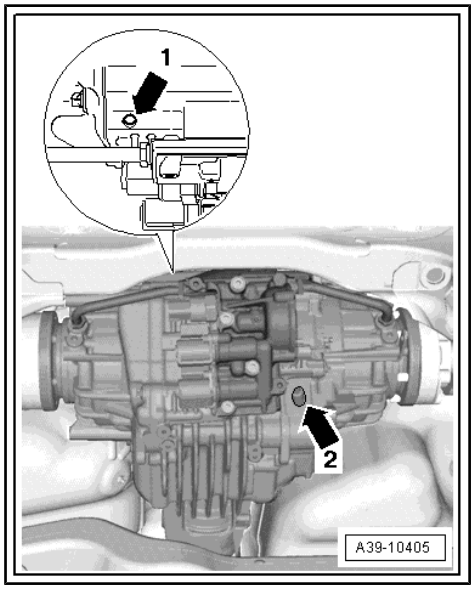
4.1 Safety Precautions and Test Procedures

WARNING

Incorrect repairs to the rear final 0BF and 0BE could cause the final drive to malfunction.

- *Testing, assembling and servicing must be performed by qualified personnel only.*

Correct Oil Level



- Make sure the rear final drive is filled to specified oil capacity. Refer to ⇒ “2 Codes, Transmission Allocation, Ratios and Capacities”, page 3 .
- Fix any leaks on the rear final drive, for example, on the sealing surfaces or the seals. The oil can leak out through the holes between the left -arrow 1- or right -arrow 2- chamber and the rear final drive.

Caution

Rear final drive malfunction.

- *Do not drive the rear final drive if there are leaks or insufficient oil.*
- *Leaks on the rear final drive must be corrected.*
- *Fill the ATF and/or gear oil if the levels are low.*
- *Only use ATF or gear oil available as a replacement part. Refer to the Parts Catalog.*
- *If the leaks cannot be repaired, then the rear final drive must be replaced.*

Rear Final Drive Performance

WARNING

Transmission control malfunction.

- *Always maintain all specifications when replacing transmission components. Only by doing so assures the performance and the response characteristics of the rear final drive 0BF and 0BE.*

Replacing Transmission Components

- When replacing the All Wheel Drive Control Module - J492- , the adaptation values for the transmission mount (for example clutch wear, oil aging) must be transmitted with the Vehicle Diagnostic Tester otherwise the performance of the rear final drive will be impaired.
- When replacing a chamber or the complete rear final drive, the clutch classification must be entered again in the All Wheel Drive Control Module - J492- using the Vehicle Diagnostic Tester . If the clutch classification is not performed in the All Wheel Drive Control Module - J492- then the rear final drive performance will be impaired. When replacing a chamber, the classification identification on the rear final drive housing must be made unrecognizable. The identification of the new classification is made on the new chamber housing.
- Do not place the removed rear final drive on any of the components from the hydraulic control unit (for example, clutch valves). This could damage the components.

Replacing the Oil Pressure/Temperature Sensor - G437- and/or Oil Pressure/Temperature Sensor 2 - G640-

- The identity of the sensor in the All Wheel Drive Control Module - J492- must be adapted using the Vehicle Diagnostic Tester after replacing the Oil Pressure/Temperature Sensor - G437- or the Oil Pressure/Temperature Sensor 2 - G640- .

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- Do not replace both the Oil Pressure/Temperature Sensor - G437- and Oil Pressure/Temperature Sensor 2 - G640- at the same time because a valid sensor identity is needed for the rear final drive classification to the All Wheel Drive Control Module - J492- . If the both sensors are replaced at the same time, the All Wheel Drive Control Module - J492- will interpret this as the rear final drive is being replaced. By doing this, adaptation values in the control module will be erased and the performance of the rear final drive will be impaired.
- If both the Oil Pressure/Temperature Sensor - G437- and the -G640- must be replaced due to mechanical damage, for example, if the connector housing gets damaged, then this must be performed in two steps. After replacing the first sensor, the identity of the it must be adapted in the All Wheel Drive Control Module - J492- using the Vehicle Diagnostic Tester . Do the same for the second sensor.

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- If both the Oil Pressure/Temperature Sensor - G437- and Oil Pressure/Temperature Sensor 2 - G640- must be replaced at the same time due to an electrical fault, then the clutch classification must be entered into the All Wheel Drive Control Module - J492- using the Vehicle Diagnostic Tester . Additionally the ATF must be changed. Refer to ⇒ “9.7 ATF on Rear Final Drive 0BF and 0BE, Draining”, page 82 .

Torque Displacement, Checking

After the following work the function `22- Checking the torque displacement` must be performed:

- Working on the rear final drive wiring
- Working on the valves: All Wheel Drive Clutch Valve - N445- and All Wheel Drive Clutch Valve 2 - N446- .
- Working on the hydraulic control unit

Refer to ⇒ “7 Torque Displacement, Checking”, page 58

4.2 Vehicle Lift Mode, Vehicles with Air Suspension

Activate the lift mode before lifting the vehicle on a two-column shop hoist (when there is no weight on the wheels). Refer to ⇒ Rep. Gr. 43 .

4.3 Special Tools

Refer to the Special Tools Catalog for the complete list of special tools used in this repair manual.

4.4 Components

Rear Final Drive

- Allocate bolts and other components according to final drive code using the Parts Catalog
- When replacing the rear final drive, check the gear oil level (refer to ⇒ “9.2 Gear Oil Level in Rear Final Drive 0BF and 0BE, Checking”, page 75) and the ATF level (refer to ⇒ “9.6 ATF Level in Rear Final Drive 0BF and 0BE, Checking”, page 81) in the final drive.
- Capacities and specifications. Refer to ⇒ “2 Codes, Transmission Allocation, Ratios and Capacities”, page 3 .

- Clean the contact surfaces when installing brackets and waxed components. Contact surfaces must be free of wax and grease.
- Thoroughly clean the connection points and the surrounding area before loosening.

ATF and Gear Oil

Rear final drive 0BF and 0BE works with separated oil chambers for the ATF and gear oil.

- For the hydraulics (hydraulic control unit and left and right chambers) use only ATF which can be obtained as replacement part. Refer to Parts Catalog.
- For the final drive (gear set, differential) use only the gear oil which can be obtained as replacement part. Refer to the Parts Catalog.
- Other ATF or gear oil can cause function problems.

Caution

Gear oil and ATF change Audi RS5

- *The RS5 gear oil and ATF must be changed.*
- *RS5 change interval. Refer to the ⇒ Maintenance Intervals; Rep. Gr. 03 .*
- *For all other vehicles there is no change interval.*

Oil, Environmental and Disposal Regulations

- Handle ATF, transmission fluid and other oils carefully.
- Dispose of drained fluid properly.
- Follow the legal environmental and disposal regulations.
- Be sure to read the instructions on the fluid containers.

Sealant

- Thoroughly clean the housing separating surfaces before applying the sealing compound.
- Apply Sealing Compound - D 176 501 A1- evenly and not too thick.
- Keep the sealant from getting into the bleed holes or into the oil channels.

Shaft Seals

- Lightly coat the shaft seal on the outer diameter with oil before installing.
- The open side on the shaft seals faces the fluid to be sealed off.
- After replacing any of the shaft seals, check the gear oil level (refer to ⇒ “9.2 Gear Oil Level in Rear Final Drive 0BF and 0BE, Checking”, page 75) or the ATF level (refer to ⇒ “9.6 ATF Level in Rear Final Drive 0BF and 0BE, Checking”, page 81) in the final drive.

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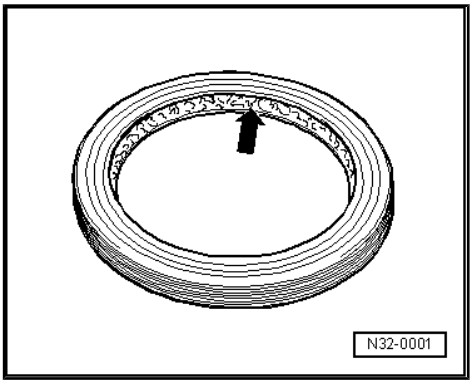
Shaft Seal for the Flange/Driveshaft

- Fill the space between the sealing lips -arrow- halfway with Sealing Grease - G 052 128 A1- .



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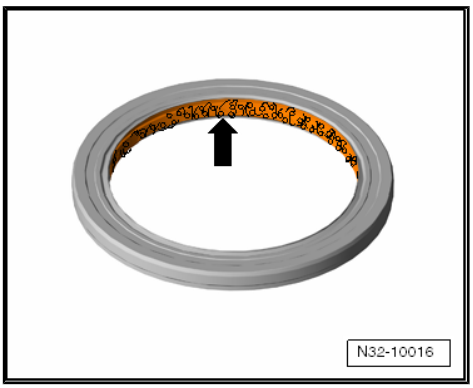
Flange Shaft Seals

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

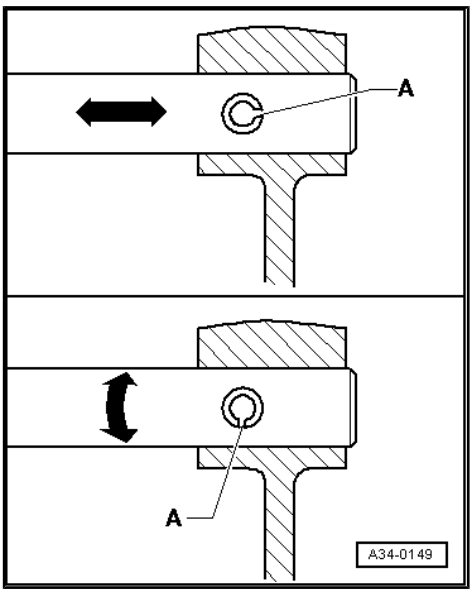


O-Rings, Gaskets and Seals

- O-rings, gaskets and seals must always be replaced.
- After removing the seals, examine the contact surface on the housing or shaft for burrs resulting from removal or for other signs of damage.
- Thoroughly clean the housing separating surfaces before assembling.
- Lightly lubricate the O-rings before inserting to prevent the rings from being crushed during assembly.
- After replacing any of the gaskets, seal and O-rings, check the gear oil level (refer to ⇒ “9.2 Gear Oil Level in Rear Final Drive 0BF and 0BE, Checking”, page 75) or the ATF level (refer to ⇒ “9.6 ATF Level in Rear Final Drive 0BF and 0BE, Checking”, page 81) in the final drive.

Retainers

- Do not stretch the circlips.
- Always replace damaged or stretched circlips.
- The circlips must rest at the bottom of the groove.
- Replace the adapter sleeves. Installation position: the slot -A- should align with the line of force -arrow-.



Bolts and Nuts

- Always loosen or tighten bolts and nuts on covers and housings diagonally.
- Parts which are particularly sensitive must not be tilted and must be loosen or tighten diagonally in stages.
- The tightening specifications given apply to unoiled bolts and nuts.
- Always replace self-locking bolts and nuts.
- Clean the threads of bolts that were applied with locking fluid using a wire brush (does not apply to driveshaft bolts: these must be replaced). Then insert the bolts with Locking Fluid - AMV 185 101 A1- .
- If self-locking bolts were installed or if bolts were installed with locking fluid, then the threaded holes must be cleaned, for example with a thread tap. Otherwise there is the risk that the bolts could break off the next time they are removed.

39 – Final Drive, Differential

1 Overview - Driveshaft Bolted on Transmission Side, Audi A4 and A5

⇒ "1.1 Driveshaft Bolted on Transmission Side, Removing and Installing", page 20

⇒ "1.2 Transmission Flange Installed on Transmission Side, Removing and Installing", page 25

Note

- *Follow the general repair information. Refer to ⇒ "4 General Repair Information", page 13 .*
- *No repair work can be carried out on the driveshaft with the exception of removing, installing and adjusting.*
- *Always store and transport the driveshaft when it is fully extended.*
- *The driveshaft can be bent all the way to the center joint without force. Bending the joint forcibly all the way can damage the center joint and/or the protective boot.*
- *If the driveshaft is separated only from the transmission or the rear final drive, the driveshaft must be tied up by the end or otherwise supported. If necessary, the driveshaft can be bent as far as the end stop of the center without force.*
- *Label the position of all the parts to each other before removing them. Install in the same position otherwise the imbalance will be excessive and the bearings could get damaged causing rumbling noises.*
- *Use the Counterhold - Kit - Multiple Use - T10172- with the Counterhold - Kit - Adapter 5 - T10172/5- to loosen or tighten the driveshaft bolts.*
- *After detaching the driveshaft from the rear final drive, do not reinstall the balance disc (thicker washer between the backing plate and the internal multi-point bolt), if applicable.*
- *Tightening sequence for the attaching the driveshaft to the rear final drive. Refer to ⇒ Fig. ""Tightening Specification and Sequence - Driveshaft to Rear Final Drive"", page 20 .*
- *If there are concerns (noises, vibrations), check the intermediate bearing for tension before replacing the driveshaft.*

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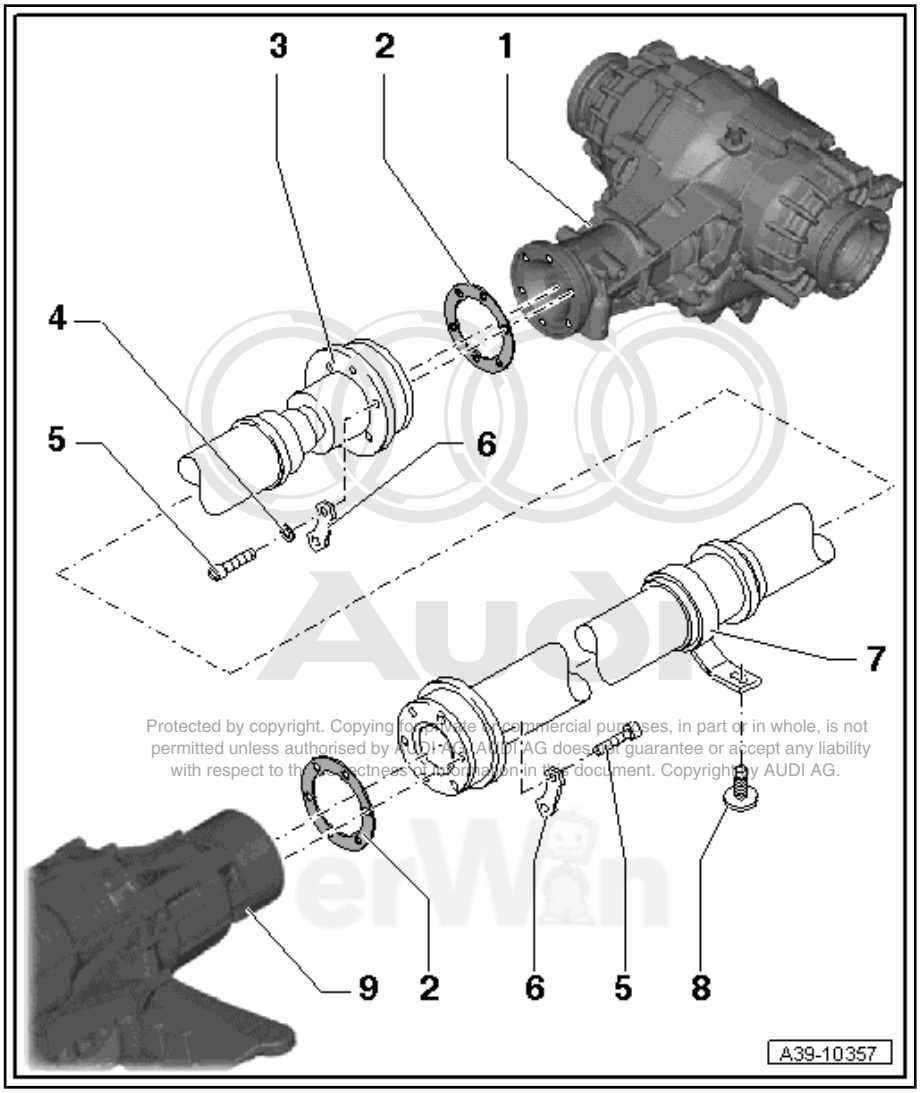


1 - Rear Final Drive

- ❑ Removing and installing. Refer to ⇒ “8 Rear Final Drive, Removing and Installing”, page 59 .

2 - Gasket

- ❑ Replace a damaged seal.
- ❑ A seal for which the rubber coating has come loose must be replaced
- ❑ Clean the flange shaft and position the seal
- ❑ Pay no attention to the different colored sides for the installation

3 - driveshaft

- ❑ Removing and installing. Refer to ⇒ “1.1 Driveshaft Bolted on Transmission Side, Removing and Installing”, page 20 .
- ❑ Removing and installing on the transmission. Refer to ⇒ “1.2 Transmission Flange Installed on Transmission Side, Removing and Installing”, page 25 .
- ❑ Removing and installing on the rear final drive. Refer to ⇒ “2 Driveshaft, Removing and Installing from Rear Final Drive”, page 27 .

4 - Balance Disc

- ❑ Not on every vehicle
- ❑ May be installed between the multi-point socket bolt -item 5- ⇒ Item 5 (page 19) and the backing -item 6- plate ⇒ Item 6 (page 19) on the rear final drive.
- ❑ If fitted, balance disc must not be installed when driveshaft has been detached from rear final drive.

5 - Bolt

- ❑ 30 Nm + 90°
- ❑ Always replace.
- ❑ Self-locking
- ❑ Always clean the threaded holes in the flange shafts. (For example with a thread tap)

- On the rear final drive
  - ❑ Tightening specification and sequence. Refer to ⇒ Fig. ““Tightening Specification and Sequence - Driveshaft to Rear Final Drive”“ , page 20
- At the transmission

6 - Locking Plate

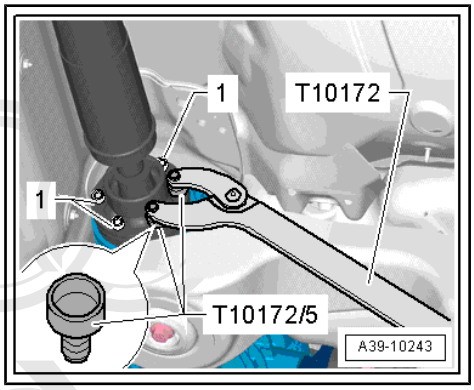
7 - Intermediate Bearing

8 - Bolt

- ❑ 20 Nm

9 - Transmission

Tightening Specification and Sequence - Driveshaft to Rear Final Drive



- Always replace the driveshaft bolts -1-.
- Counterhold with Counterhold - Kit - Multiple Use - T10172- and Counterhold - Kit - Adapter 5 - T10172/5- .

– Tighten the bolts -1- in three steps:

Step	Bolts	Tightening Specification/Additional Turn
1.	-1-	Next to the color dot 30 Nm [1]
2.	-1-	Next 30 Nm
3.	-1-	All round 90° additional turn

- [1] By doing this, the CV joint is pushed slightly to the opposite side and imbalance is avoided.

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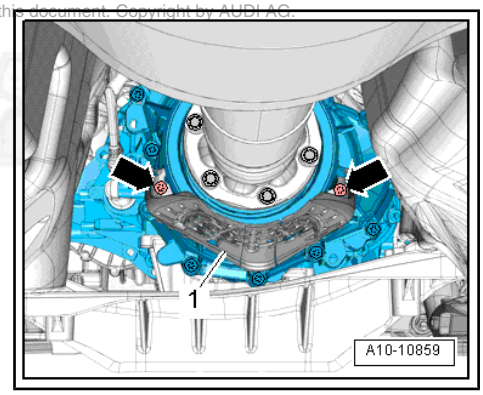
Driveshaft Heat Shield - Tightening Specification



– Tighten the bolts -arrows- to 24 Nm.

1.1 Driveshaft Bolted on Transmission Side, Removing and Installing

Special tools and workshop equipment required

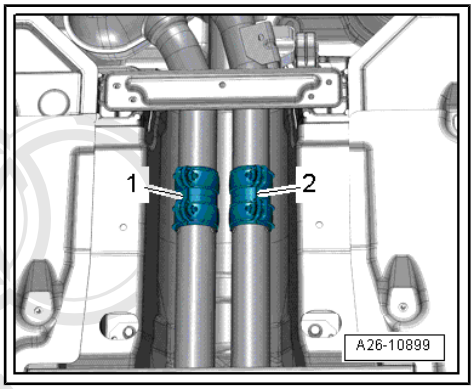
- Driveshaft Alignment Fixture - 3139-
- Counterhold - Multiple Use - T10172A- with Counterhold - Kit - Adapter 5 - T10172/5-
- Engine and Gearbox Jack - VAS6931- with Universal Transmission Support - VAG1359/2-
- High Temperature Grease - G 000 633-

Driveshaft, Removing

- Note the instructions. Refer to ⇒ “1 Overview - Driveshaft Bolted on Transmission Side, Audi A4 and A5”, page 18 .
- A two-column shop hoist should be used when working on the driveshaft.

Note

Do not bend the flex joint in the front exhaust pipe more than 10° or it will be damaged.



- Loosen the clamping sleeves -1 and 2- and disconnect the exhaust system.
- Attach the front exhaust pipe on the underbody side.
- Remove the rear section of the exhaust system. Refer to ⇒ Rep. Gr. 26 .

Note

A second technician is needed to help remove the rear section of the exhaust system.

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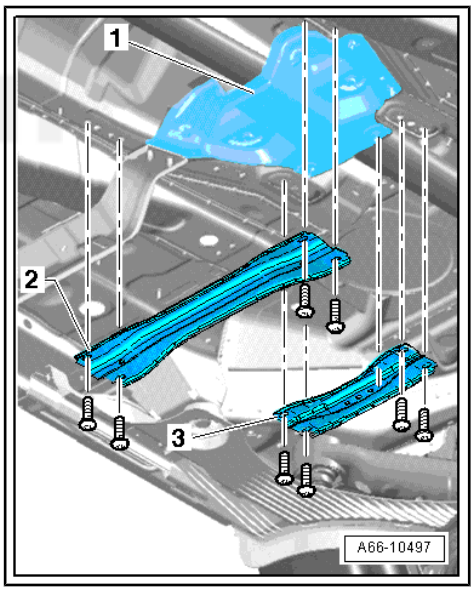
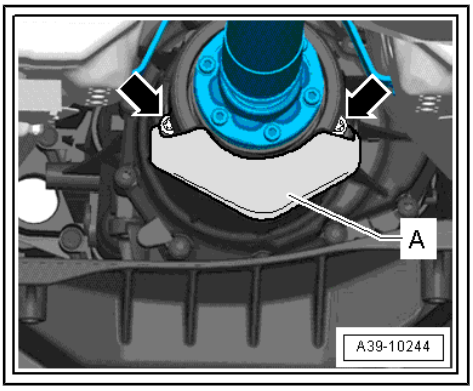
- Remove the crossmember -3-.
- If equipped, remove the front crossmember -2-.
- Remove the heat shield -1- from the body -arrows-.



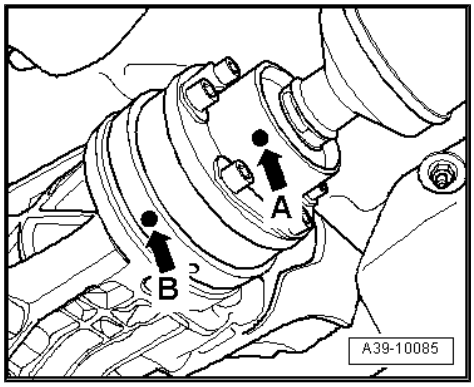
- Remove the heat shield -A- from the transmission-arrows-, if applicable.



– Check whether there is a color marking on the driveshaft and at flange/driveshaft on the rear final drive -arrow A- and -arrow B-.

– If one of these markings is no longer visible (for example -arrow A- on the driveshaft), then make a mark for the missing colored dot in color.

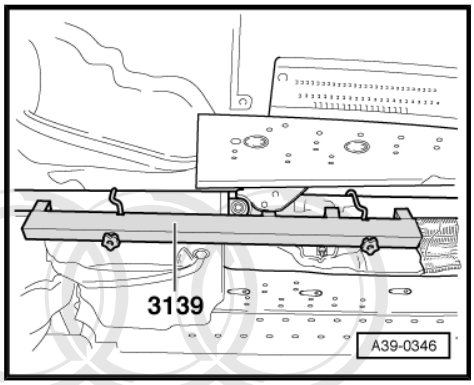
• The mark on the driveshaft -arrow A- and on the rear final drive -arrow B- are on one line.



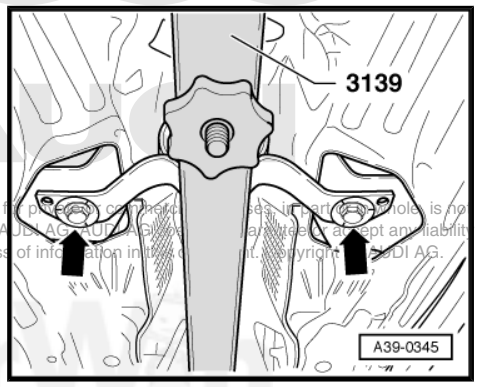
– Attach the Driveshaft Alignment Fixture - 3139- and tighten the plastic nuts.

Note

Never place the Alignment Fixture on the balance plates.



– Remove the intermediate bearing bolts -arrows-.



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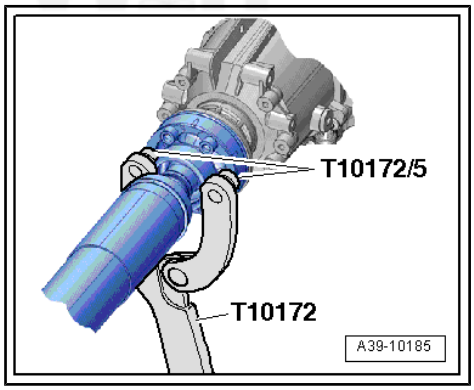
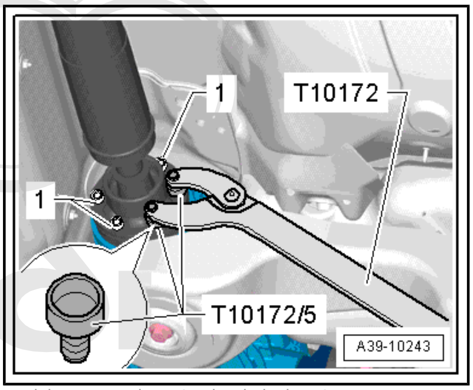
– Remove the bolts attaching the driveshaft to the transmission by counterholding with the Counterhold - Multiple Use - T10172A- and with the Counterhold - Kit - Adapter 5 - T10172/5- .

– Remove the driveshaft from the transmission and support the driveshaft with the Engine and Gearbox Jack - VAS6931- .





– Remove the bolts -1- (quantity: 6) from the rear CV joint.
– Use the Counterhold - Kit - Multiple Use - T10172- with Counterhold - Kit - Adapter 5 - T10172/5- .
– Remove the driveshaft.

Note

Always transport and store driveshaft when it is fully extended.

Driveshaft, Installing

Install in reverse order of removal. Pay attention to the following:

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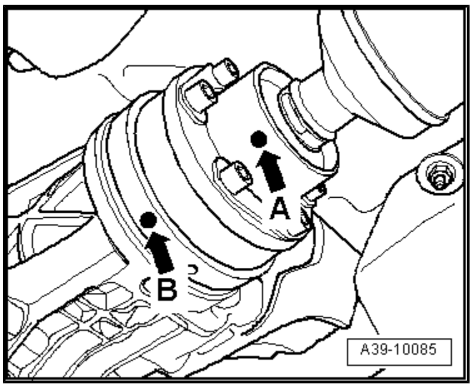
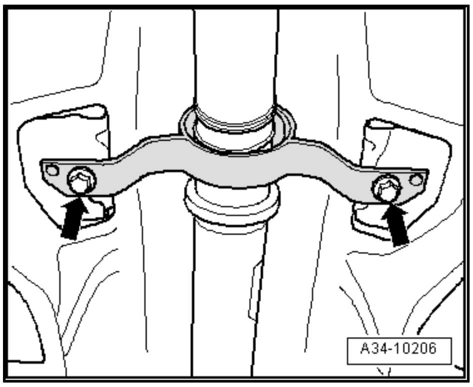
♦ Remove the old, dry High Temperature Grease from the CV joints and the driveshaft flanges. Insert the same quantity of High Temperature Grease - G 000 633- .
♦ Always remove any remaining locking fluid from thread bores in drive flanges for transmission driveshaft and for rear final drive. They can be cleaned with a thread tap. If the threads are not clean, the bolts will break off when they are being installed.
♦ After removing the driveshaft from the rear final drive, do not install the additional balance washer (thicker washer) that may be between the backing plate and the bolt.
♦ Always replace the bolts for driveshaft (self-locking bolts).
♦ Check the driveshaft seal on the rear final drive flange and the transmission flange for damage (bent, rubber layer worn off) and replace if damaged. Replace the damaged seal.
♦ Pay attention to the installed position of the driveshaft: the center of the CV joint is located behind the intermediate bearing facing the rear final drive.

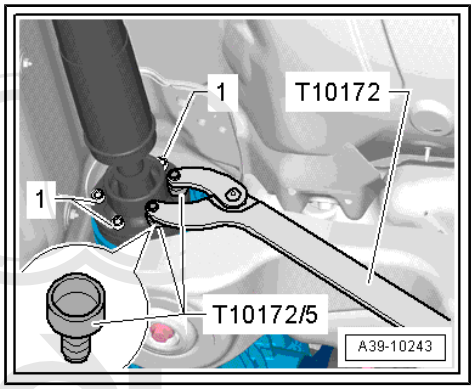


– Install the driveshaft while paying attention to the rear final drive:
• The dots on the driveshaft -arrow A- and on the rear final drive -arrow B- must line up.
• Maximum difference between the markings: 30°.
– Install the bolts all the way in by hand but do not tighten them.



– Install the bolts -arrows- just far enough so that the so the intermediate bearing can still be moved.

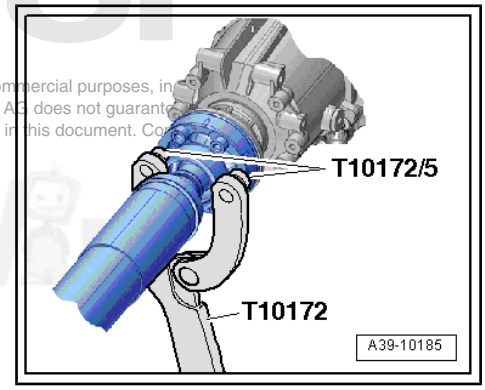
– Tighten the bolts -1- on the rear driveshaft. Follow the tightening sequence. Refer to ⇒ Fig. ""Tightening Specification and Sequence - Driveshaft to Rear Final Drive"" , page 20 .



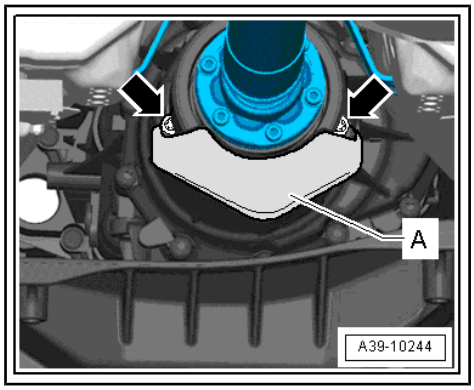
– Tighten the bolts on the front driveshaft. Tightening specification -item 5- ⇒ Item 5 (page 19) .

– Remove the Driveshaft Alignment Fixture - 3139-.

– Tighten the driveshaft intermediate bearing on the body without tension -item 8- ⇒ Item 8 (page 19) .



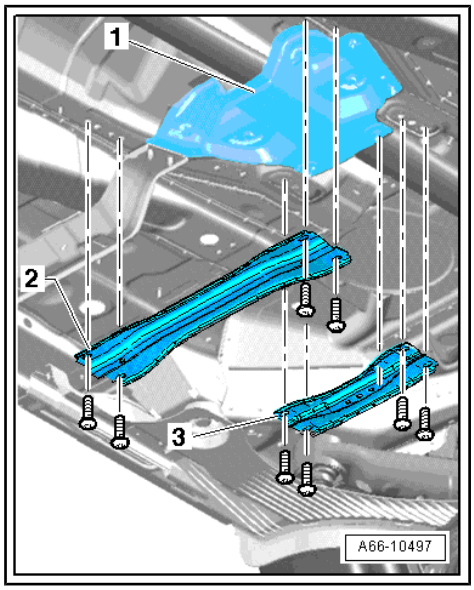
– Tighten the heat shield -A- to the transmission -arrows-. Tightening specification. Refer to ⇒ Fig. ""Driveshaft Heat Shield - Tightening Specification"" , page 20 .



– Install the heat shield -1-.

– Install the front crossmember -2- and rear crossmember -3-. Refer to ⇒ Rep. Gr. 66 .

– Reconnect the exhaust system making sure it is not under stress. Refer to ⇒ Rep. Gr. 26 .



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1.2 Transmission Flange Installed on Transmission Side, Removing and Installing

Special tools and workshop equipment required

- Counterhold - Kit - Multiple Use - T10172- with Counterhold - Kit - Adapter 5 - T10172/5-
- High Temperature Grease - G 000 633-

Remove the Driveshaft

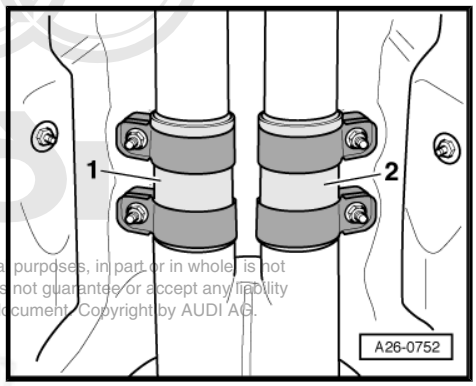
- Note the instructions. Refer to ⇒ "1 Overview - Driveshaft Bolted on Transmission Side, Audi A4 and A5", page 18 .
- A two-column shop hoist should be used when working on the driveshaft.

Note

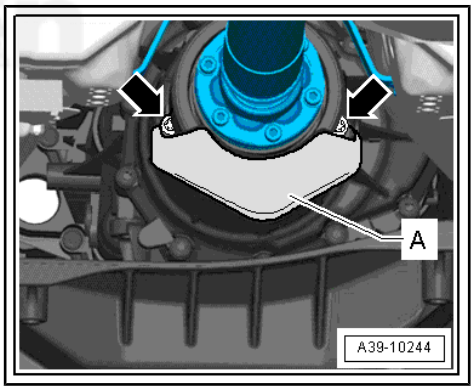
Do not bend the flex joint in the front exhaust pipe more than 10° or it will be damaged.

– Loosen the clamping sleeves -1 and 2- and disconnect the exhaust system.

– Tie the front exhaust pipe(s) to the underbody.



– Remove the heat shield -A- from the transmission-arrows-, if applicable.



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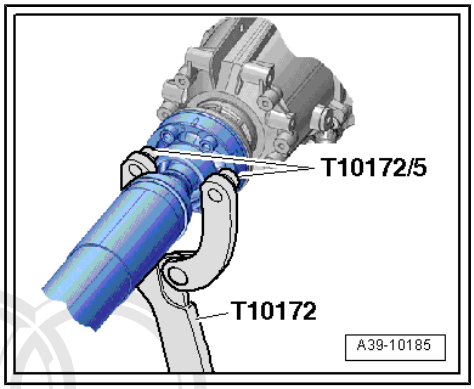
– Remove the bolts attaching the driveshaft to the transmission by counterholding with the Counterhold - Multiple Use - T10172A- and with the Counterhold - Kit - Adapter 5 - T10172/5- .

– Secure the propshaft to the underbody.



Install the Driveshaft

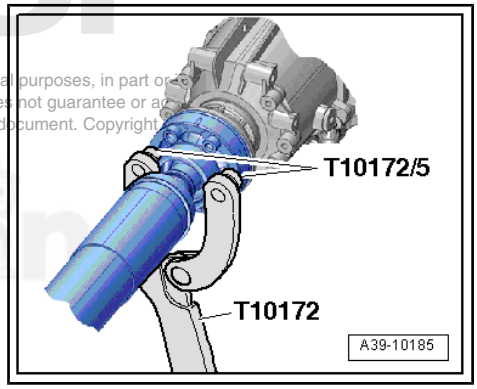
Install in reverse order of removal. Pay attention to the following:

- Remove the old, dry High Temperature Grease from the CV joint and the driveshaft flange. Insert the same quantity of High Temperature Grease - G 000 633- .
- The threads in the flange shaft on the transmission must be cleaned of locking fluid residue. They can be cleaned with a thread tap. If the threads are not clean, the bolts will break off when they are being installed.
- Always replace the bolts for driveshaft (self-locking bolts).
- Check the driveshaft seal on the transmission flange for damage (bent, rubber layer worn off). Replace the damaged seal.

– Install the driveshaft and the new CV joint bolts.

– Tighten the bolts on the front driveshaft. Tightening specification -item 5- ⇒ Item 5 (page 19) .

• Use the Counterhold - Kit - Multiple Use - T10172- with Counterhold - Kit - Adapter 5 - T10172/5- .



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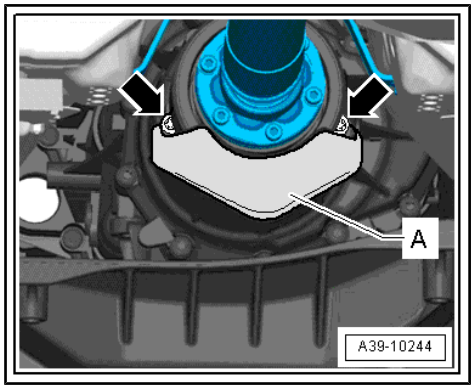
– Tighten the heat shield -A- to the transmission -arrows-. Tightening specification. Refer to ⇒ Fig. ""Driveshaft Heat Shield - Tightening Specification"" , page 20 .

– Connect exhaust system and align it without tension. Refer to ⇒ Rep. Gr. 26 .



2 Driveshaft, Removing and Installing from Rear Final Drive

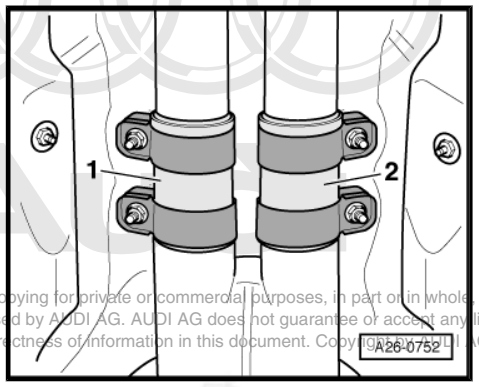
Special tools and workshop equipment required

- Counterhold - Kit - Multiple Use - T10172-
- Counterhold - Kit - Adapter 5 - T10172/5- (M8 Bolts)
- Counterhold - Kit - Adapter 6 - T10172/6- (M10 Bolts)
- High Temperature Grease - G 000 633-
- Pay attention to the notes. Refer to ⇒ "1 Overview - Driveshaft Bolted on Transmission Side, Audi A4 and A5", page 18 .
- A two-column shop hoist should be used when working on the driveshaft.

Driveshaft, Removing from Rear Final Drive

– Disconnect the exhaust system at the clamping sleeves -1 and 2-.

– Tie the front exhaust pipe(s) to the underbody.



Note

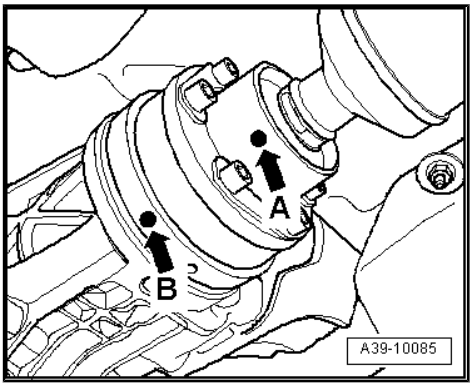
- *Do not bend the flex joint in the front exhaust pipe more than 10° or it will be damaged. Tie up the front exhaust pipes on the body and to the side.*
- *A second technician is needed to help remove the rear section of the exhaust system.*

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

– Check whether there is a color marking on the driveshaft and at flange/driveshaft on the rear final drive -arrow A- and -arrow B-.

– If one of these markings is no longer visible (for example -arrow A- on the driveshaft), then make a mark for the missing colored dot in color.

• The mark on the driveshaft -arrow A- and on the rear final drive -arrow B- are on one line.

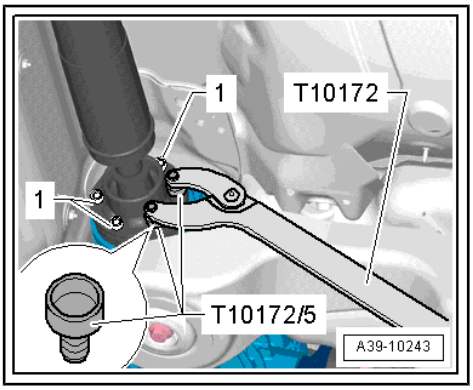


Rear Final Drive 0BF

– Remove the bolts -1- (quantity: 6) from the rear CV joint.

– Counterhold with Counterhold - Kit - Multiple Use - T10172- and Counterhold - Kit - Adapter 5 - T10172/5- .

– Remove the driveshaft from the rear final drive and move it to the side of the subframe.



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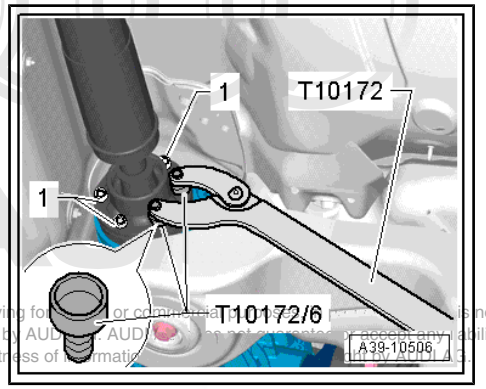
Rear Final Drive 0BE

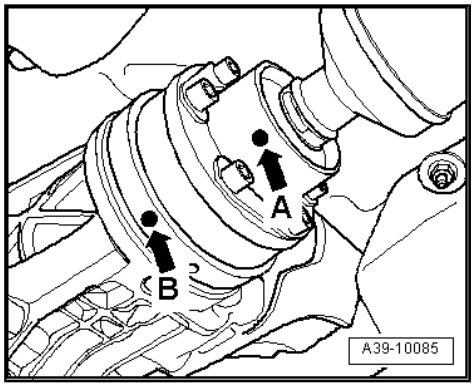


– Remove the bolts -1- (quantity: 6) from the rear CV joint.
– Counterhold with Counterhold - Kit - Multiple Use - T10172- and Counterhold - Kit - Adapter 6 - T10172/6- .
– Remove the driveshaft from the rear final drive and move it to the side of the subframe.

Install the Driveshaft on the Rear Final Drive

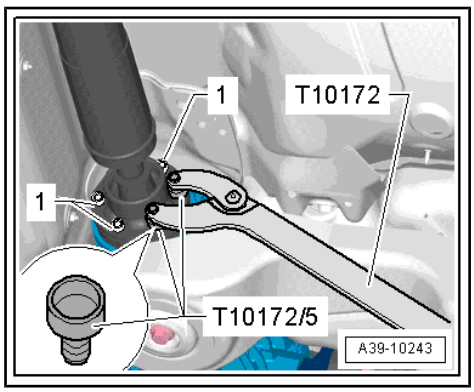
Install in reverse order of removal. Pay attention to the following:

♦ Remove the old, dry High Temperature Grease from the CV joint and the driveshaft flange. Insert the same quantity of High Temperature Grease - G 000 633- .
♦ The threads in the flange shaft on the rear final drive must be cleaned of locking fluid residue. They can be cleaned with a thread tap. If the threads are not clean, the bolts will break off when they are being installed.
♦ After removing the driveshaft from the rear final drive, do not install the additional balance washer (thicker washer) that may be between the backing plate and the bolt.
♦ Always replace the bolts for driveshaft (self-locking bolts).
♦ Check the driveshaft seal on the rear final drive flange for damage (bent, rubber layer worn off) and replace if damaged. Replace the damaged seal.



– Position the driveshaft on the rear final drive while paying attention to the installation position:

• The dots on the driveshaft -arrow A- and on the rear final drive -arrow B- must line up.
• Maximum difference between the markings: 30°.



– Insert and tighten the new bolts -1- for the driveshaft. Follow the tightening sequence. Refer to ⇒ Fig. ""Tightening Specification and Sequence - Driveshaft on the Rear Final Drive 0BE and 0BF"" , page 31 .
– Install the rear section of the exhaust system. Refer to ⇒ Rep. Gr. 26 .

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3 Overview - Driveshaft, Mounted On Transmission Side

⇒ “3.1 Driveshaft, Mounted on Transmission Side, Removing and Installing”, page 31

- Follow the general repair information. Refer to ⇒ “4 General Repair Information”, page 13 .
- The attached driveshaft can only be separated from the transmission if it is completely removed.
- No repair work can be carried out on the driveshaft with the exception of removing, installing and adjusting.
- Always store and transport the driveshaft when it is fully extended.
- The driveshaft can be bent all the way to the center joint without force. Bending the joint forcibly all the way can damage the center joint and/or the protective boot.
- If the driveshaft is separated only from the rear final drive, the driveshaft must be tied up or supported. If necessary, the driveshaft can be bent as far as the end stop of the center without force.
- Use the Counterhold - Kit - Multiple Use - T10172- with the Counterhold - Kit - Adapter 5 - T10172/5- (M8 bolts) or Counterhold - Kit - Adapter 6 - T10172/6- (M10 bolts) to loosen or tighten the driveshaft bolts.
- Always remove or install the driveshaft horizontally from the transmission output shaft.
- Tightening sequence for the attaching the driveshaft to the rear final drive. Refer to ⇒ Fig. ““Tightening Specification and Sequence - Driveshaft on the Rear Final Drive 0BE and 0BF”“ , page 31 .

Should there be complaints (noise, vibration), do the following before replacing the driveshaft:

- Make sure the intermediate bearing is free of tension.
- Remove the driveshaft bolts from the rear final drive. Attaching the driveshaft according to the tightening sequence. Refer to ⇒ Fig. ““Tightening Specification and Sequence - Driveshaft on the Rear Final Drive 0BE and 0BF”“ , page 31 .

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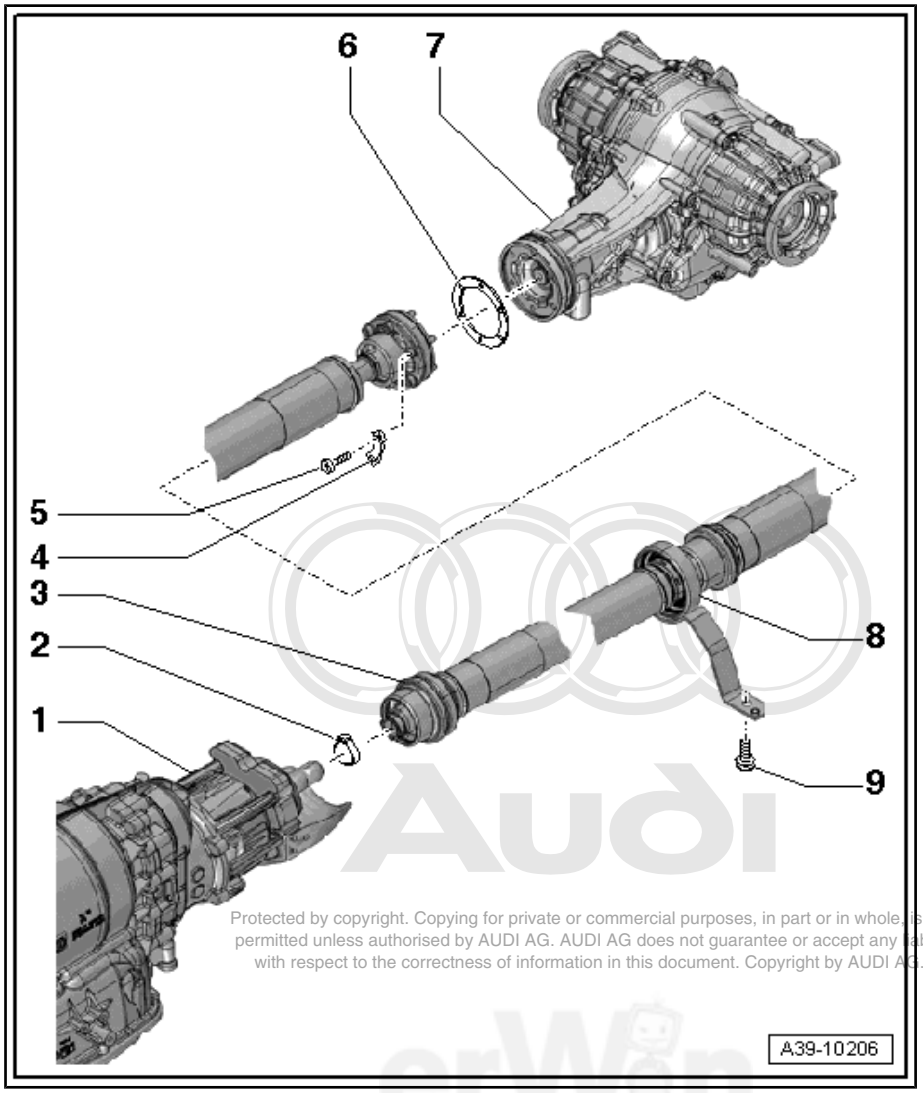

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1 - Transmission

2 - Hose Clamp

- ❑ Replacing

3 - Driveshaft

- ❑ Removing and installing. Refer to ⇒ “3.1 Driveshaft, Mounted on Transmission Side, Removing and Installing”, page 31 .
- ❑ Removing and installing on the rear final drive. Refer to ⇒ “2 Driveshaft, Removing and Installing from Rear Final Drive”, page 27 .

4 - Locking Plate

5 - Bolt

- Final drive 0BF
  - ❑ M8 x 45
  - ❑ Self-locking
  - ❑ Replacing
  - ❑ The threads in the flange shaft on the rear final drive must be cleaned of locking fluid residue. Use a thread tap to clean.
  - ❑ Tightening specification and sequence. Refer to ⇒ Fig. ““Tightening Specification and Sequence - Driveshaft on the Rear Final Drive 0BE and 0BF”“ , page 31
- Final drive 0BE (only A8 with V8 TDI engine)
  - ❑ M10 x 45 x 1
  - ❑ Replacing
  - ❑ Tightening specification and sequence. Refer to ⇒ Fig. ““Tightening Specification and Sequence - Driveshaft on the Rear Final Drive 0BE and 0BF”“ , page 31

6 - Gasket

- ❑ Replace a damaged seal.
- ❑ A seal for which the rubber coating has come loose must be replaced
- ❑ Clean the flange shaft and position the seal
- ❑ Pay no attention to the different colored sides for the installation

7 - Rear Final Drive

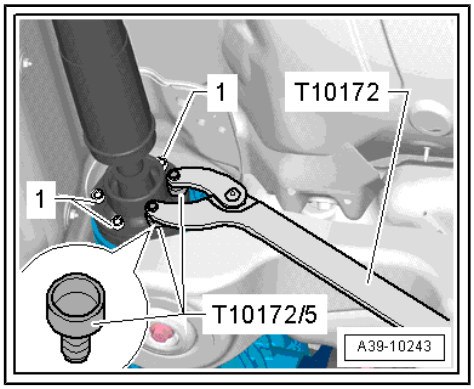
Removing and installing. Refer to ⇒ “8 Rear Final Drive, Removing and Installing”, page 59 .

8 - Intermediate Bearing

9 - Bolt

- ❑ 20 Nm

Tightening Specification and Sequence - Driveshaft on the Rear Final Drive 0BE and 0BF



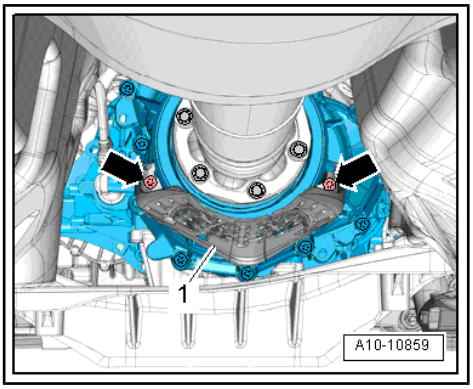
- Always replace the driveshaft bolts -1-.
- Counterhold with Counterhold - Kit - Multiple Use - T10172- and Counterhold - Kit - Adapter 5 - T10172/5- (M8 bolts) or Counterhold - Kit - Adapter 6 - T10172/6- (M10 bolts).

– Tighten the bolts -1- in three steps:

Step	M8 or M10 Bolts	Tightening Specification/Additional Turn
1.	-1-	Next to the color dot 30 Nm [1)]
2.	-1-	Next 30 Nm
3.	-1-	All round 90° additional turn

- [1)] By doing this, the CV joint is pushed slightly to the opposite side and imbalance is avoided.

Driveshaft Heat Shield - Tightening Specification



– Tighten the bolts -arrows- to 24 Nm.

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3.1 Driveshaft, Mounted on Transmission Side, Removing and Installing

Special tools and workshop equipment required

- Transmission Support - VW785/1B-
- Counterhold - Kit - Multiple Use - T10172-
- Counterhold - Kit - Adapter 5 - T10172/5-
- Counterhold - Kit - Adapter 6 - T10172/6-
- Hose Clip Pliers - VAG1275A-
- High Temperature Grease - G 000 633-

Removing

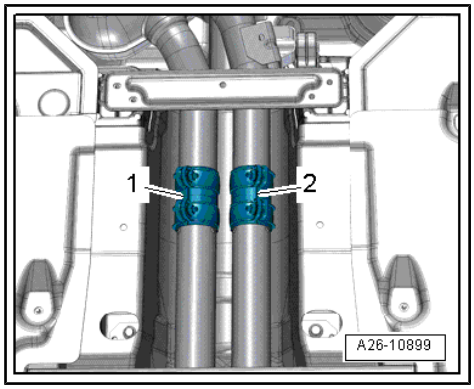
Note

- *The attached driveshaft can only be separated from the transmission if it is completely removed.*
- *Perform work on driveshaft on a two-column shop hoist if possible.*
- *After removing the driveshaft from the rear final drive, tie up the shaft ends or hold them up.*
- *The driveshaft can be bent all the way to the center joint without force. Bending the joint forcibly all the way can damage the center joint and/or the protective boot.*
- *Always remove or install the driveshaft horizontally from the transmission output shaft.*

Caution

Risk of damaging the coupling elements.

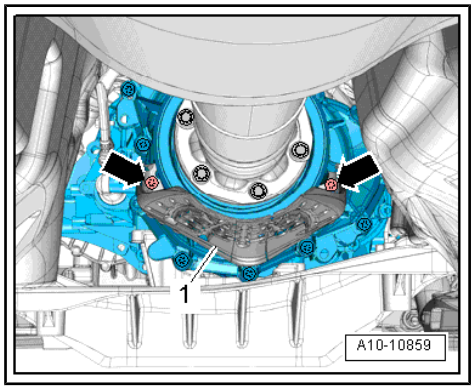
- ***Do not bend the coupling more than 10°.***
- ***Do not load the coupling.***
- ***Do not damage the wire mesh on the coupling.***



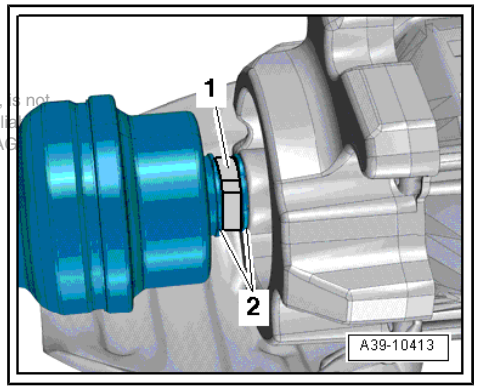
– Loosen the clamping sleeves -1 and 2- and slide them to the rear.

– Tie the front muffler or the left and right front exhaust pipe to the underbody.

– Remove the bolts -arrows- and remove the driveshaft heat shield -1- (if equipped).



– Cut the clamp -1- for the driveshaft boot and remove it.



Note

Ignore item -2-.

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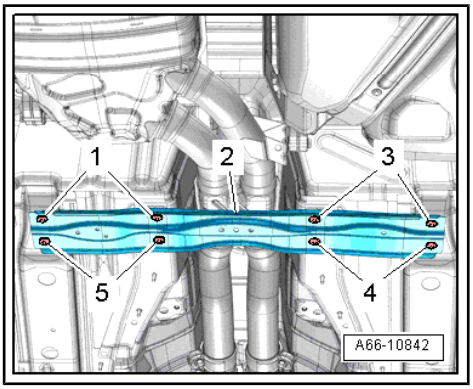
Audi A6 and A7

– Remove the crossbrace -2-. Refer to ⇒ Body Exterior; Rep. Gr. 66 .

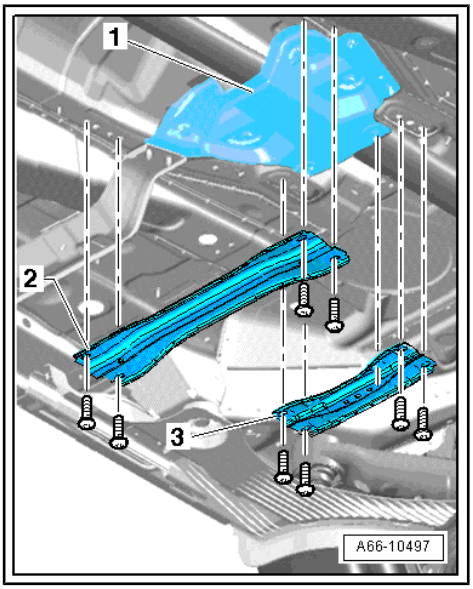


Audi A4, A5 Coupe, A5 Sportback, A5 Cabrio, A8

– Remove the front crossmember -2- and the rear crossmember -3-. Refer to ⇒ Body Exterior; Rep. Gr. 66 .

Continuation for All Vehicles

– Remove the heat shield -1-.



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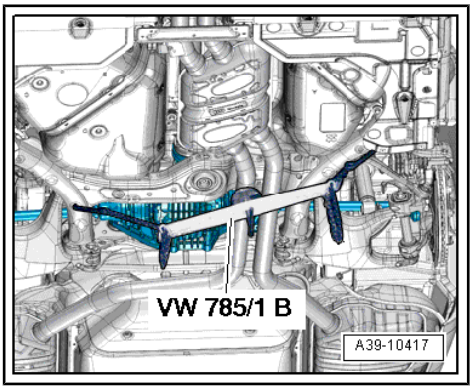
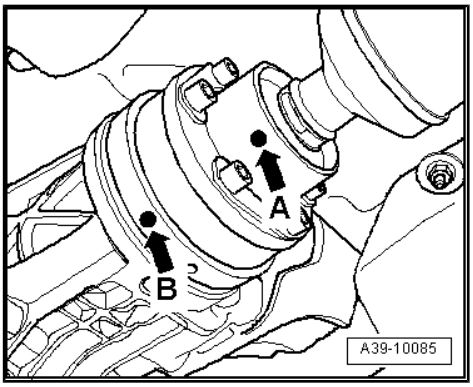
– Lower the front of the exhaust system rear section and then secure it using the Transmission Support - VW785/1B- , as illustrated.



– Make sure there is a mark (color dot) on the driveshaft and on the rear final drive driveshaft flange -arrow A- and -arrow B-.

– Make a color dot again if the original mark is no longer visible.

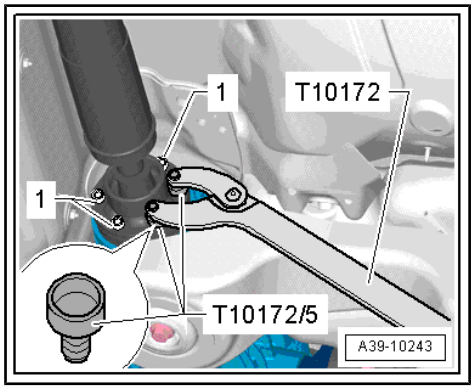
• The dots on the driveshaft -arrow A- and on the rear final drive -arrow B- must line up.



Rear Final Drive 0BF

– Remove the bolts -1- (quantity: 6) from the rear CV joint.

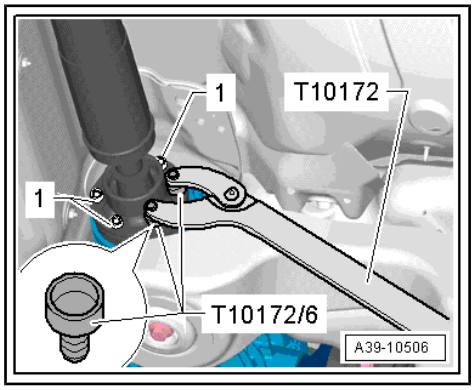
– Counterhold with Counterhold - Kit - Multiple Use - T10172- and Counterhold - Kit - Adapter 5 - T10172/5- .



Rear Final Drive 0BE

– Remove the bolts -1- (quantity: 6) from the rear CV joint.

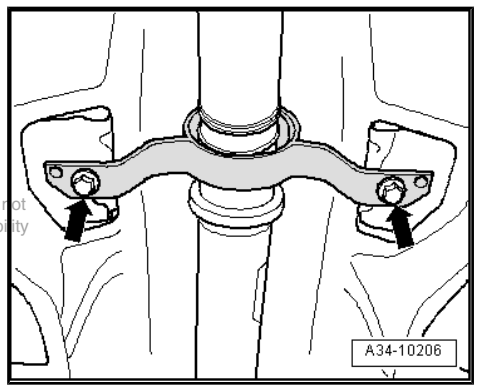
– Counterhold with Counterhold - Kit - Multiple Use - T10172- and Counterhold - Kit - Adapter 6 - T10172/6- .



Continuation for All Final Drives

– Remove the bolts -arrows- for the driveshaft intermediate bearing.

– Guide the rear driveshaft on the fuel tank and on the rear sub-frame downward and remove it from the transmission.



Installing

- Tightening specification. Refer to ⇒ "3 Overview - Driveshaft, Mounted On Transmission Side", page 29 and ⇒ Fig. ""Driveshaft Heat Shield - Tightening Specification"" , page 31 .

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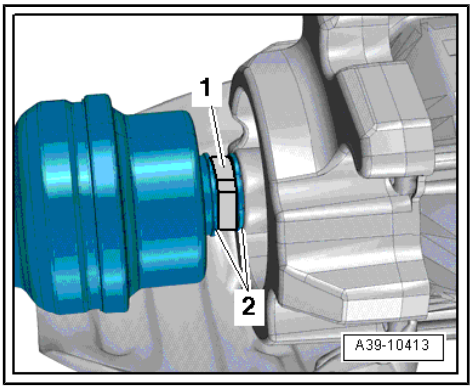
Note

- *Remove any old, dry high-temperature grease from the CV joint and the driveshaft flange. Insert the same quantity of High Temperature Grease - G 000 633- .*
- *The threads in the flange shaft on the rear final drive must be cleaned of locking fluid residue (not for M10 bolts). They can be cleaned with a thread tap. If the threads are not clean, the bolts will break off when they are being installed.*
- *Replace the driveshaft bolts.*
- *Replace the hose clamps -1- for the driveshaft boot -2-.*
- *Check the driveshaft seal on the rear final drive flange for damage (bent, rubber layer worn off) and replace if damaged. Replace the damaged seal.*
- *Wipe the splines on the transmission output shaft with a towel before installing the driveshaft. The splines are not lubricated.*



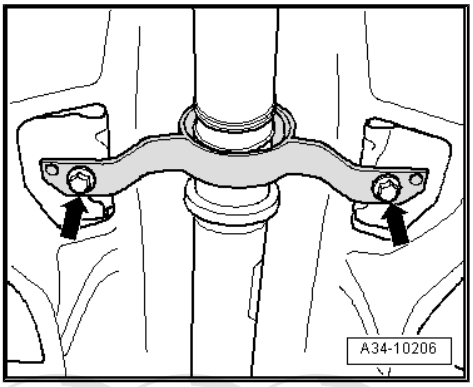
– First mount the driveshaft on the transmission.

• Maximum bend angle: 10°.

• After the driveshaft is inserted approximately 50 mm into the transmission output shaft, turn the driveshaft slightly to make sure that the transmission output shaft splines are meshed into the inner splines of the driveshaft.

• Push the driveshaft all the way onto the splines on the transmission output shaft.

– Install the bolts -arrows- just far enough so that the so the intermediate bearing can still be moved.

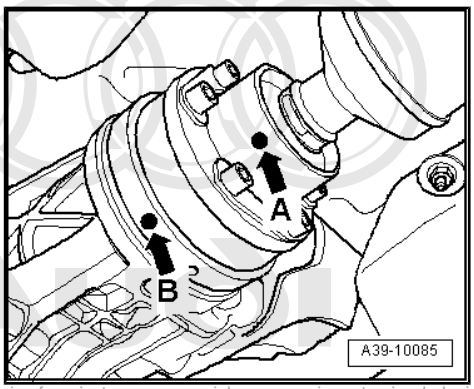


– Position the driveshaft on the rear final drive while paying attention to the installation position:

• The dots on the driveshaft -arrow A- and on the rear final drive -arrow B- must line up.

• Maximum difference between the markings: 30°.

– Install the new bolts all the way in by hand but do not tighten them.



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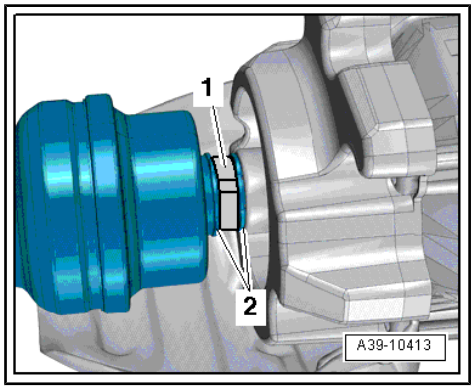
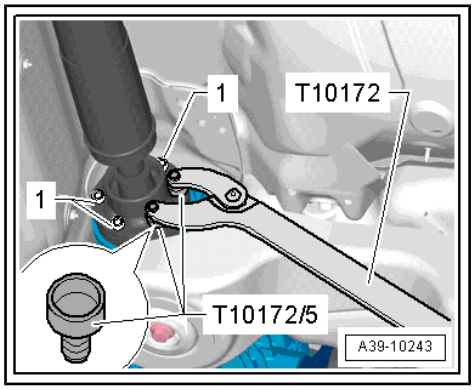
– Line up the hose clamp -1- for the driveshaft boot with the retainers -2- and then tighten the clamp using for example the Hose Clamp Pliers - VAG1275A- .



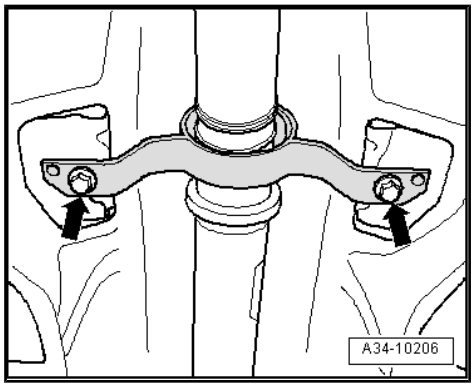
Note

In order to use the Hose Clamp Pliers - VAG1275A- correctly, move the driveshaft a little toward the rear.

– Tighten the driveshaft bolts -1-. Follow the tightening sequence. Refer to
⇒ Fig. ""Tightening Specification and Sequence - Driveshaft on the Rear Final Drive 0BE and 0BF"" , page 31 .



– Tighten the driveshaft intermediate bearing on the body without tension. Tightening specification -item 9-
⇒ Item 9 (page 30) .



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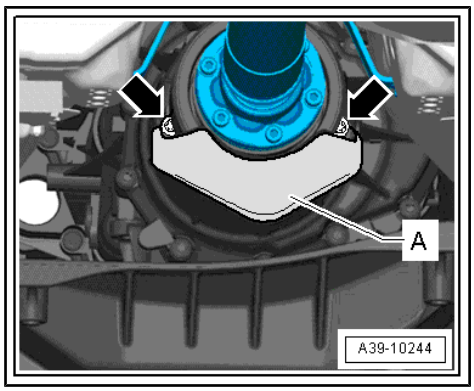
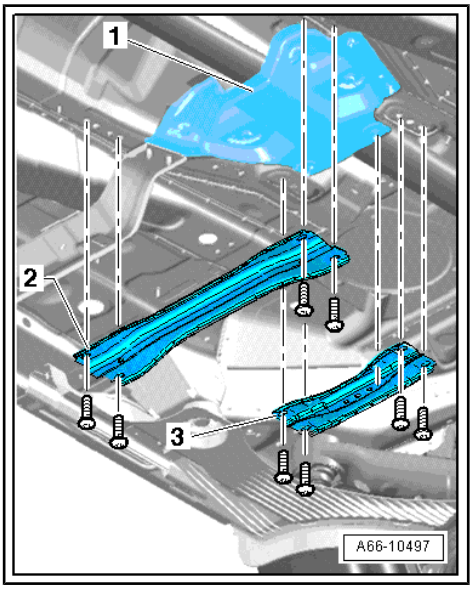
Install in reverse order of removal. Note the following:

– Tighten the heat shield -A- to the transmission -arrows-. Tightening specification. Refer to
⇒ Fig. ""Driveshaft Heat Shield - Tightening Specification"" , page 31 .



– Install the heat shield -1-. Refer to ⇒ Body Exterior; Rep. Gr. 66 .
– Install the front crossmember -2- and rear crossmember -3-. Refer to ⇒ Rep. Gr. 66 .
– Install the exhaust system and align it free of tension. Refer to ⇒ Engine Mechanical; Rep. Gr. 26 .



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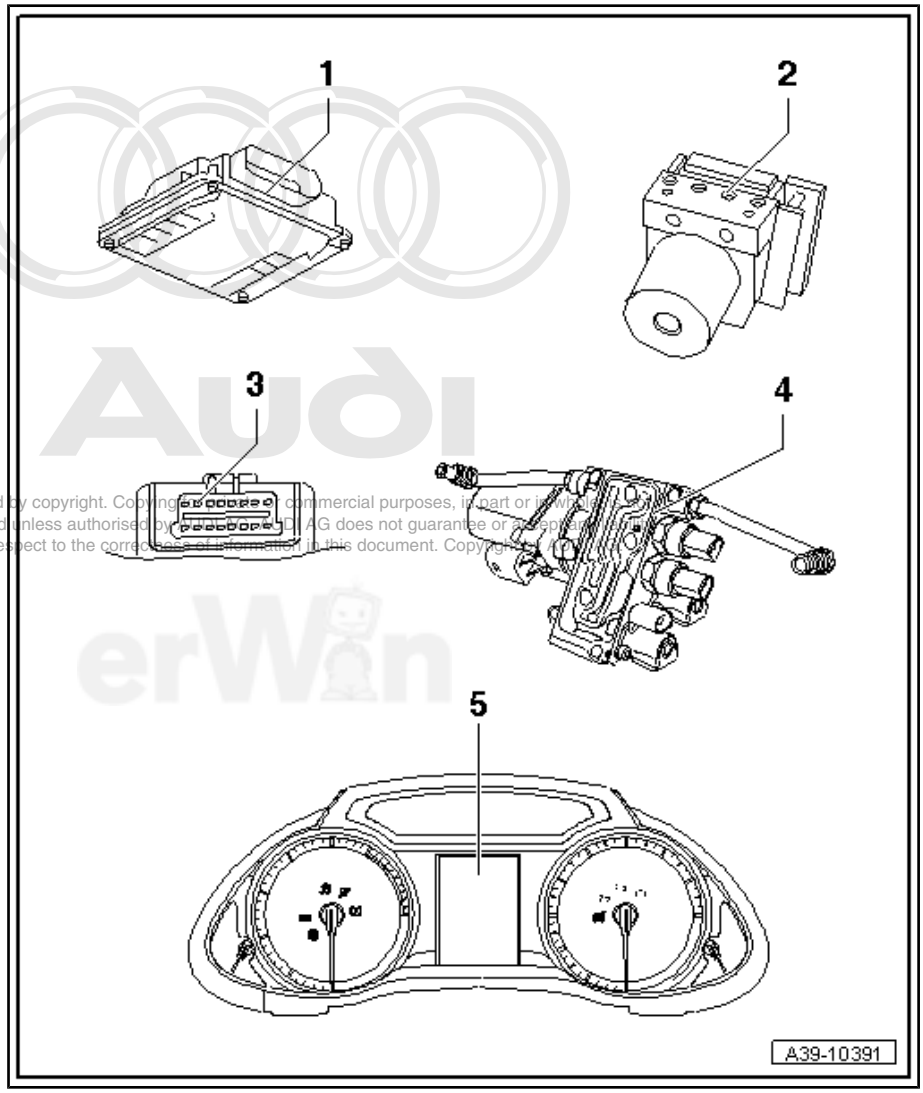
4 Electrical/Electronic Components and Component Locations



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1 - All Wheel Drive Control Module - J492-

- ❑ Installed location A4 Sedan, A5 Coupe and A5 Cabriolet. Refer to ⇒ Fig. ““ All Wheel Drive Control Module -J492- in the A4 Sedan, A5 Coupe and the A5 Cabriolet”“ , page 39
- ❑ Installed location A4 Avant. Refer to ⇒ Fig. ““ All Wheel Drive Control Module -J492- in the A4 Avant”“ , page 39
- ❑ Installed location A5 Sportback. Refer to ⇒ Fig. ““ All Wheel Drive Control Module -J492- in the A5 Sportback”“ , page 40
- ❑ Installed location A6 and A7. Refer to ⇒ Fig. ““ All Wheel Drive Control Module -J492- in the Audi A6/A7”“ , page 40
- ❑ Installed location A8. Refer to ⇒ Fig. ““ All Wheel Drive Control Module -J492- in the A8”“ , page 40
- ❑ Removing and installing. Refer to ⇒ “4.1 All Wheel Drive Control Module J492 , Removing and Installing”, page 40 .
- ❑ Additional work after replacing the control module. Refer to ⇒ “4.2 All Wheel Drive Control Module J492 , Additional Work after Replacing”, page 41 .
- ❑ Important signals from engine control module and ABS Control Module - J104- are transmitted via the Data bus to the All Wheel Drive Control Module - J492- .

2 - ABS Control Module - J104-

- ❑ Installation location, removing and installing. Refer to ⇒ Rep. Gr. 45 .

3 - Diagnostic Connection

- ❑ Installed location: Driver side footwell. Refer to ⇒ Fig. ““Data Link Connector”“ , page 39
- ❑ Connect the Vehicle Diagnostic Tester and select the function. Refer to ⇒ “4.1 All Wheel Drive Control Module J492 , Removing and Installing”, page 40 .

4 - Hydraulic Control Unit

- ❑ Component location: on rear final drive
- ❑ Removing and installing. Refer to ⇒ “6.1 Hydraulic Control Unit, Removing and Installing”, page 45 .
- ❑ Disassembling and assembling. Refer to ⇒ “6.2 Hydraulic Control Unit, Disassembling and Assembling”, page 48 .
- ❑ Hydraulic control unit with:

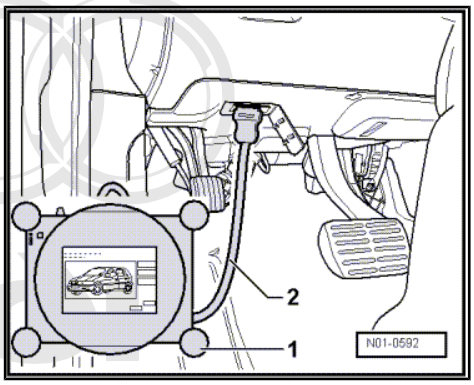
◆ All Wheel Drive Pump - V415-

- Oil Pressure/Temperature Sensor 2 - G640-
- Oil Pressure/Temperature Sensor - G437-
- All Wheel Drive Clutch Valve 2 - N446-
- All Wheel Drive Clutch Valve - N445-

5 - Display in Instrument Cluster

Data Link Connector

Component location: The data link connector for the Vehicle Diagnostic Tester is located in the driver side footwell.



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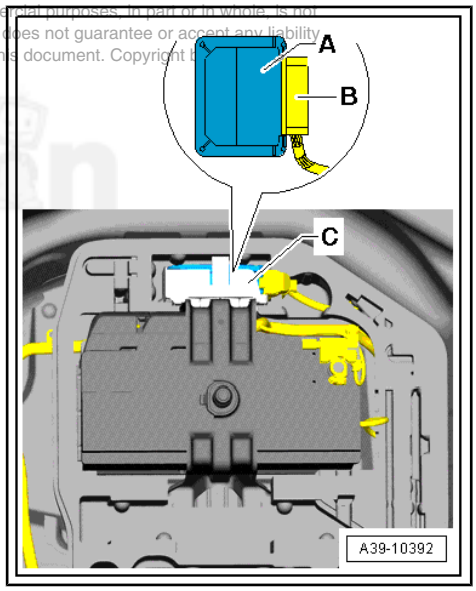
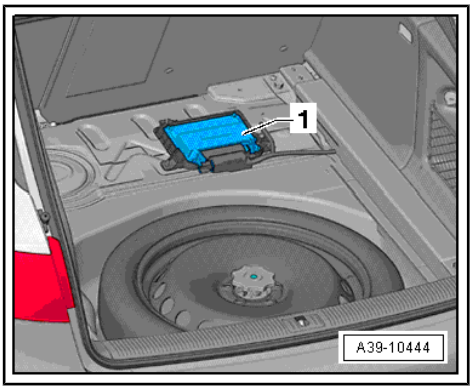
All Wheel Drive Control Module - J492- in the A4 Sedan, A5 Coupe and the A5 Cabriolet

Component location: The All Wheel Drive Control Module - J492- -A- is located in the spare wheel well in front of the battery.



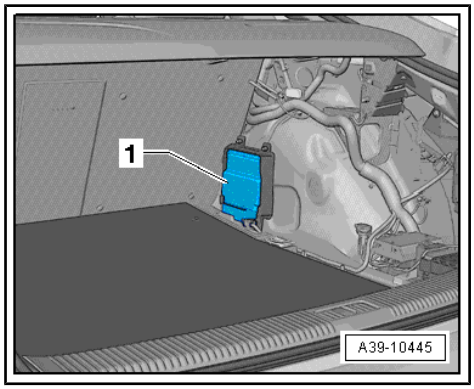
All Wheel Drive Control Module - J492- in the A4 Avant

Component location: The All Wheel Drive Control Module - J492- -1- is in the luggage compartment on the right in front of the spare wheel well.



All Wheel Drive Control Module - J492- in the A5 Sportback

Component location: the All Wheel Drive Control Module - J492- -1- is located on the right wheel housing behind the luggage compartment side trim panel. Refer to ⇒ Rep. Gr. 70 .



All Wheel Drive Control Module - J492- in the Audi A6/A7

Component location: The All Wheel Drive Control Module - J492- -A- is located on the right in the spare wheel well.

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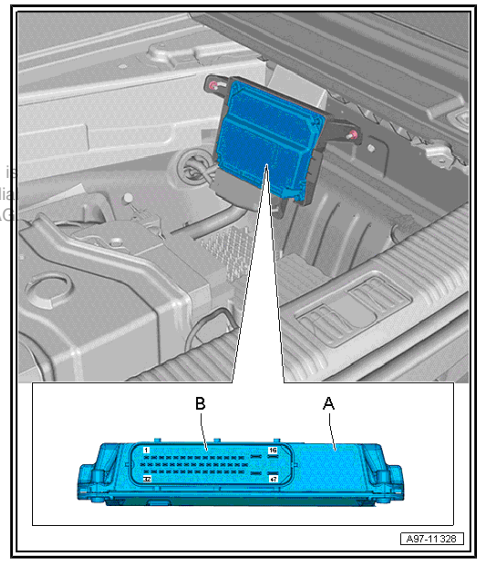
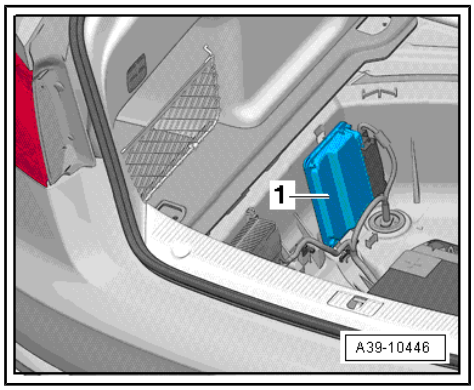


All Wheel Drive Control Module - J492- in the A8

Component location: The All Wheel Drive Control Module - J492- -A- is located on the left in the spare wheel well.



4.1 All Wheel Drive Control Module - J492- , Removing and Installing

Note

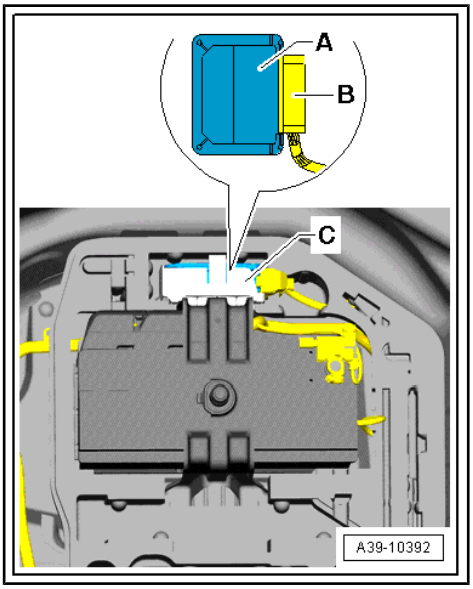
- *All Wheel Drive Control Module - J492- component location -item 1- ⇒ Item 1 (page 38) .*
- *Removing and installing is on the A4 Sedan.*

- The ignition is off.

– Remove the luggage compartment floor covering.

– Remove the covering and the vehicle tools mount.

– Remove the All Wheel Drive Control Module - J492- -A- from the bracket -C-.
– Disconnect the connector -B- from the All Wheel Drive Control Module - J492- .
– Install the All Wheel Drive Control Module - J492- in reverse order of removal.
• If the All Wheel Drive Control Module - J492- was replaced then additional work is necessary. Refer to ⇒ “4.2 All Wheel Drive Control Module J492 , Additional Work after Replacing”, page 41 .



4.2 All Wheel Drive Control Module - J492- , Additional Work after Replacing

Note

Only perform the additional work only if the All Wheel Drive Control Module - J492- was replaced.

– Connect the Vehicle Diagnostic Tester and switch on the ignition.
– On the Vehicle Diagnostic Tester select the function `22 - Control Module, Replacing` under `Guided Functions` in the directory `22 - AWD electronics`.
• Follow the instructions given by the Vehicle Diagnostic Tester exactly.

“Adapt” the installed rear final drive to the All Wheel Drive Control Module - J492- with the Vehicle Diagnostic Tester .

Note

A system check will take place when the `22 - Control Module, Replacing` function is complete. If malfunctions appear, then use “Guided Fault Finding” to correct them.

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5 Overview - Rear Final Drive

Caution

Only some components on the rear final drive can be disassembled.

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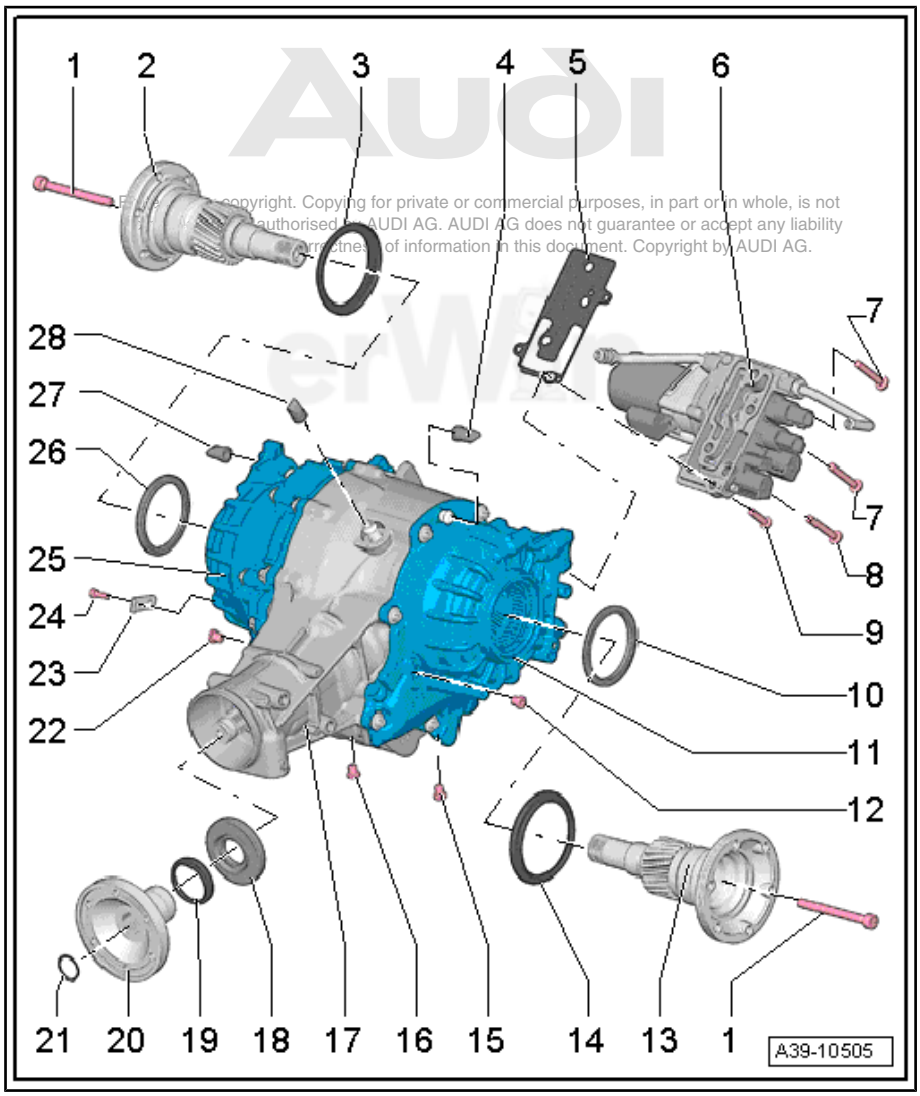

1 - Bolt

- 50 Nm + 180° turn
- Always replace.

2 - Right Flange Shaft

- Removing and installing. Refer to ⇒ “10 Flange Shaft Seals, Replacing, Rear Final Drive Removed”, page 86 .
- Do not confuse with the left flange shaft, they are different

3 - Protective Ring

- Replacing. Refer to ⇒ “10.1 Flange Shaft Protective Ring, Replacing”, page 87 .

4 - ATF Breather Pipe

- For the left chamber
- Clip onto the bleed pipe

5 - Gasket

- With strainer

6 - Hydraulic Control Unit

- With the All Wheel Drive Pump - V415- and lines to the chambers
- Removing and installing. Refer to ⇒ “6.1 Hydraulic Control Unit, Removing and Installing”, page 45 .
- Disassembling and assembling. Refer to ⇒ “6.2 Hydraulic Control Unit, Disassembling and Assembling”, page 48 .

7 - Bolt

- 20 Nm
- Quantity: 2
- M8; 50 mm long
- Follow the tightening sequence. Refer to ⇒ page 47 .

8 - Bolt

- 20 Nm
- M8; 50 mm long
- With a permanent seal under the bolt head
- Coat the threads with Sealing Compound - D 176 501 A1- .
- Follow the tightening sequence. Refer to ⇒ page 47 .

9 - Bolt

- ❑ 20 Nm
- ❑ M8; 30 mm long
- ❑ Follow the tightening sequence. Refer to ⇒ page 47 .

10 - Shaft Seal

- ❑ For the left flange shaft
- ❑ Replacing. Refer to ⇒ “10 Flange Shaft Seals, Replacing, Rear Final Drive Removed”, page 86 .

11 - Left Chamber

12 - ATF Check Plug

- ❑ 15 Nm
- ❑ Always replace.
- ❑ With permanent seal

13 - Left Flange Shaft

- ❑ Removing and installing. Refer to ⇒ “10 Flange Shaft Seals, Replacing, Rear Final Drive Removed”, page 86 .
- ❑ Do not confuse with the right flange shaft, they are different

14 - Protective Ring

- ❑ Replacing. Refer to ⇒ “10.1 Flange Shaft Protective Ring, Replacing”, page 87 .

15 - ATF Drain Plug

- ❑ 15 Nm
- ❑ Always replace.
- ❑ With permanent seal

16 - Gear Oil Drain Plug

- ❑ 15 Nm
- ❑ Always replace.
- ❑ With permanent seal

17 - Final Drive Housing

18 - Shaft Seal

- ❑ For the flange/driveshaft
- ❑ Replacing on rear final drive 0BF. Refer to ⇒ “11 Shaft Seal for Flange/Propshaft, Replacing”, page 88 .
- ❑ Replacing on rear final drive 0BE. Refer to ⇒ “11.2 Rear Final Drive 0BE - Replacing, Flange/Driveshaft Shaft Seal”, page 93 .

19 - Protective Ring

- ❑ Replacing. Refer to ⇒ “11.3 Flange/Driveshaft Seal, Replacing”, page 98 .

20 - Flange/Driveshaft

- ❑ Removing and installing on final drive 0BF. Refer to ⇒ “11 Shaft Seal for Flange/Propshaft, Replacing”, page 88 .
- ❑ Removing and installing on final drive 0BE. Refer to ⇒ “11.2 Rear Final Drive 0BE - Replacing, Flange/Driveshaft Shaft Seal”, page 93 .

21 - Circlip

- ❑ Always replace.
- ❑ Installing. Refer to ⇒ page 93 .

22 - Gear Oil Check Plug

- ❑ 15 Nm
- ❑ Always replace.
- ❑ With permanent seal

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23 - Bracket

- ❑ For the wiring harness

24 - Bolt

- ❑ 9 Nm

25 - Right Chamber

26 - Shaft Seal

- ❑ For the right flange shaft
- ❑ Replacing. Refer to ⇒ “10 Flange Shaft Seals, Replacing, Rear Final Drive Removed”, page 86 .

27 - ATF Breather Pipe

- ❑ For the right chamber
- ❑ Clip onto the bleed pipe

28 - Final Drive Bleeder

- ❑ Clip onto the bleed pipe

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6 Rear Final Drive, Disassembling and Assembling

⇒ “5 Overview - Rear Final Drive”, page 42

⇒ “6.1 Hydraulic Control Unit, Removing and Installing”, page 45

⇒ “6.2 Hydraulic Control Unit, Disassembling and Assembling”, page 48

⇒ “6.3 All Wheel Drive Pump V415 , Removing and Installing”, page 51

⇒ “6.4 Oil Pressure/Temperature Sensor G437 or Oil Pressure/ Temperature Sensor 2 G640 , Removing and Installing”, page 52

⇒ “6.5 All Wheel Drive Clutch Valve N445 or All Wheel Drive Clutch Valve 2 N446 , Removing and Installing”, page 55

6.1 Hydraulic Control Unit, Removing and Installing

Note

- *Follow the general repair information. Refer to ⇒ “4 General Repair Information”, page 13 .*
- *Pay attention to the safety precautions. Refer to ⇒ “4.1 Safety Precautions and Test Procedures”, page 13 .*

Removing

- The ignition is off.

– Place the vehicle on a lift.

– Lower the back section of the exhaust system just a little and secure it. If necessary remove the back section of the exhaust system. Refer to ⇒ Rep. Gr. 26 .

Note

A second technician is needed to help remove the rear section of the exhaust system.

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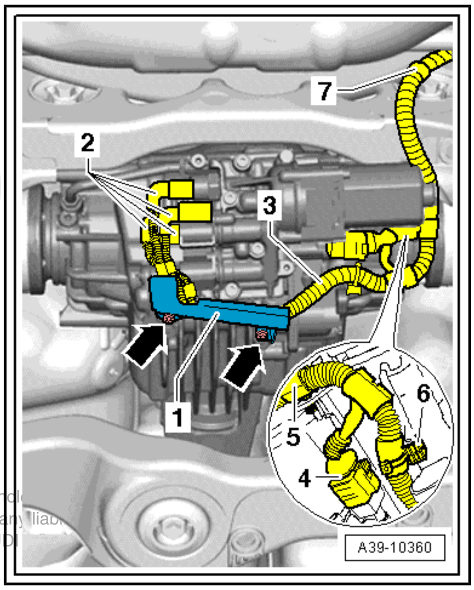

– If equipped, remove the bolts -arrows- and remove the wiring harness bracket -1- from the rear final drive.

Note

Mark the Oil Pressure/Temperature Sensor and the Clutch Valves connectors -2-.

– Disconnect the connectors -2- from the Oil Pressure/Temperature Sensor and the Clutch Valves .

– Disconnect the connector -4- from the All Wheel Drive Pump - V415- .

– Unclip the wiring harness -3- from the final drive and the subframe and tie it up -5 through 7-.

– Place the Drip Tray under the rear final drive.

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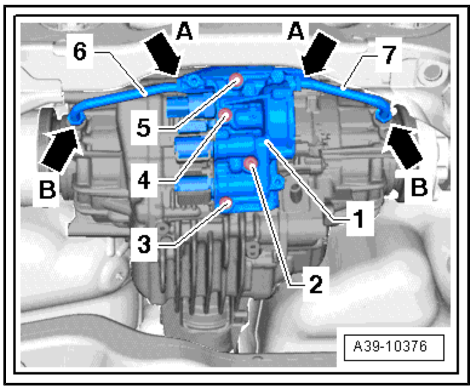
– Drain the ATF from the rear final drive. Refer to ⇒ “9.7 ATF on Rear Final Drive 0BF and 0BE, Draining”, page 82 .

– Drain the gear oil from the rear final drive. Refer to ⇒ “9.3 Gear Oil on Rear Final Drive 0BF and 0BE, Draining”, page 76 .

– Remove the All Wheel Drive Pump - V415- . Refer to ⇒ “6.3 All Wheel Drive Pump V415 , Removing and Installing”, page 51 .

Note

The All Wheel Drive Pump - V415- must be removed in order to loosen and tighten the nut on the right line to the hydraulic control unit. Refer to ⇒ page 46 .



– Loosen the left -6- and right -7- lines to the hydraulic control unit -1- one turn -arrows A- and remove them from the chambers -arrows B-.

– Remove the bolts -2 through 5- and remove the hydraulic control unit -1- with the seal.

Installing

Note

Follow all safety precautions exactly when replacing the hydraulic control unit. Install the "old" sensors again if possible. Refer to ⇒ "4.1 Safety Precautions and Test Procedures", page 13

Conditions

- Replace the seal between the hydraulic control unit -1- and the final drive housing.
- The centering pins -item 18- ⇒ Item 18 (page 50) must be installed inside the housing for the hydraulic control unit.
- The left -6- and right -7- lines must be installed loosely when attaching the hydraulic control unit -1-.

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

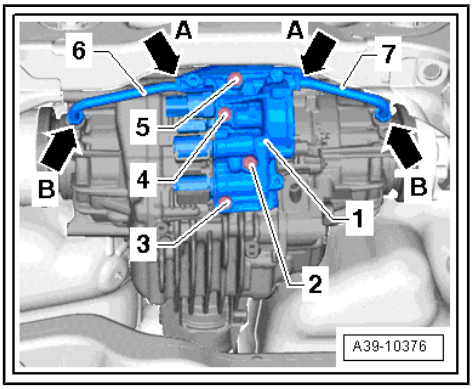
First install the lines -6 and 7- into the chambers hand-tight -arrows B-.

Then install the bolts -2 through 5- hand-tight. One bolt -2- has a permanent seal on the head. Coat the thread with Sealing Compound - D 176 501 A1- .

Tighten the M8 x 30 bolts -2 through 5- to the tightening specification in the sequence: -4, 2, 5 and 3-.

Tighten the nuts -A arrows- and -B arrows- on the left -6- and right -7- lines to the tightening specification.

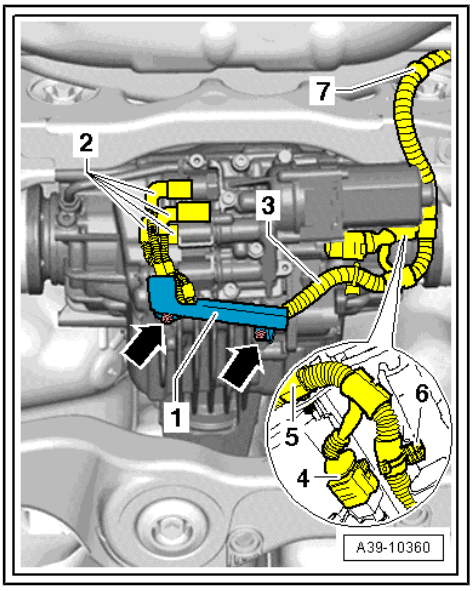
– Install the All Wheel Drive Pump - V415- . Refer to ⇒ "6.3 All Wheel Drive Pump V415 , Removing and Installing", page 51 .

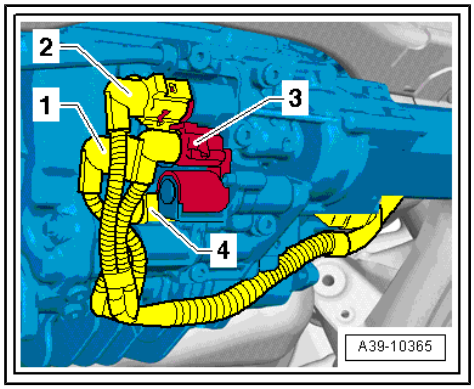


– Install the wiring harness -3- to the final drive and subframe -5 through 7-.

– Connect the connectors -4 and 2-. Pay attention to the marks made during the removal, that identify the allocation to the Oil Pressure/Temperature Sensor and which connectors go to the Clutch Valves .

– If equipped, position the wiring harness bracket -1- on the rear final drive and tighten the bolts -arrows- to the tightening specification. Make sure the wiring harness -3- does not get pinched.





Note

- *Allocation for the Oil Pressure/Temperature Sensor and Clutch Valves connectors:*
- *-1- = Oil Pressure/Temperature Sensor 2 - G640- Connector*
- *-2- = Oil Pressure/Temperature Sensor - G437- Connector*
- *-3- = All Wheel Drive Clutch Valve 2 - N446- Connector*
- *-4- = All Wheel Drive Clutch Valve - N445- Connector*

– Fill the rear final drive with gear oil and then check the level. Refer to ⇒ "9.2 Gear Oil Level in Rear Final Drive 0BF and 0BE, Checking", page 75 .

– Fill with ATF in the rear final drive and check the ATF level. Refer to ⇒ "9.6 ATF Level in Rear Final Drive 0BF and 0BE, Checking", page 81 .

– Install the rear section of the exhaust system and align it so it is free of tension. Refer to ⇒ Rep. Gr. 26 .

6.2 Hydraulic Control Unit, Disassembling and Assembling

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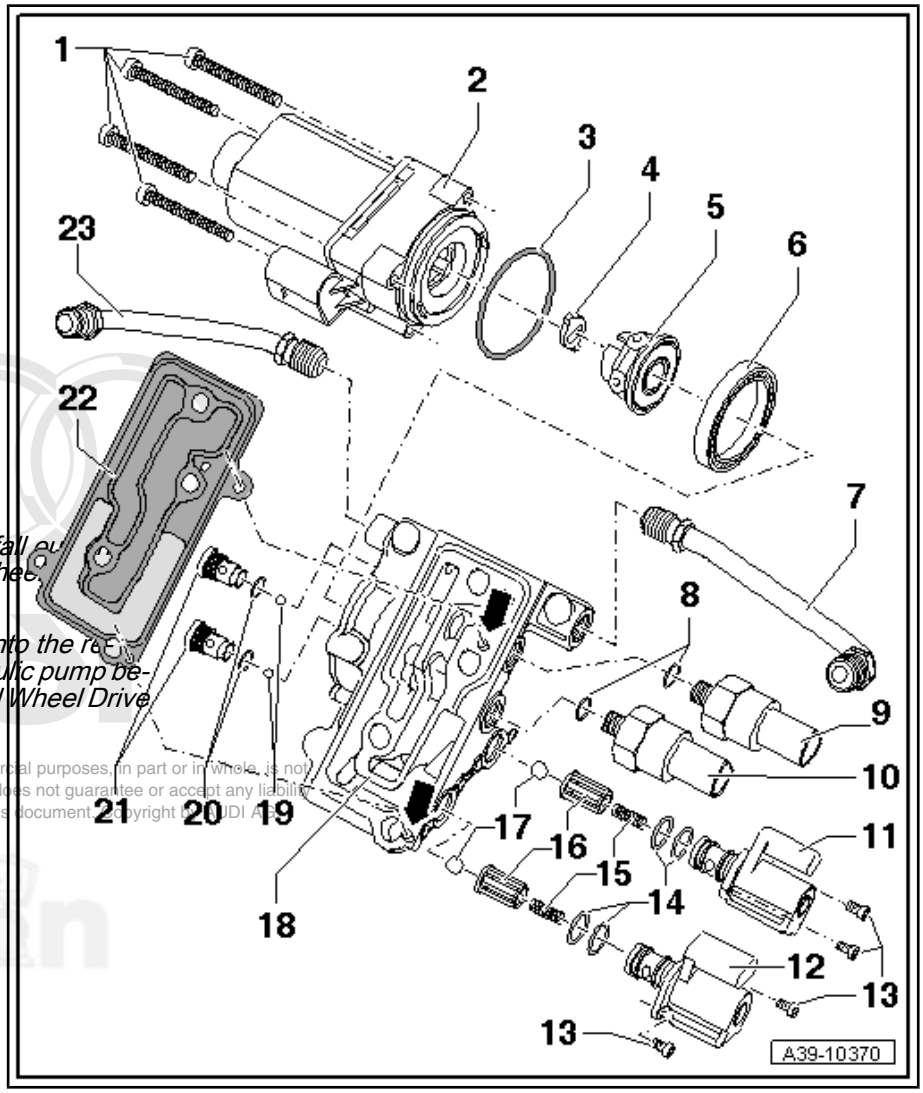

1 - Bolt

- ❑ 5 Nm

2 - All Wheel Drive Pump - V415-

- ❑ Removing and installing. Refer to ⇒ “6.3 All Wheel Drive Pump V415 , Removing and Installing”, page 51 .

3 - O-Ring

- ❑ Always replace.

4 - Adapter

Note

- ♦ *The adapter could fall ou removing the All Whee Pump - V415- .*
- ♦ *Insert the adapter into the re cesses in the hydraulic pump be- fore installing the All Wheel Drive Pump - V415- .*

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5 - Hydraulic Pump

- ❑ Consists of a guide ring, the housing and six pistons
- ❑ Assembling. Refer to ⇒ Fig. ““Assembling the Hydraulic Pump”“ , page 51

6 - Ball Bearing

- ❑ Can be installed and removed by hand

7 - Left Line

- ❑ Tighten the nuts to 30 Nm.
- ❑ Is installed between the hydraulic control unit and the left chamber
- ❑ Tighten both nuts hand-tight when installing

8 - O-Ring

- ❑ Always replace.

9 - Oil Pressure/Temperature Sensor - G437-

- ❑ 10 Nm
- ❑ Brown connector
- ❑ Removing and installing. Refer to ⇒ “6.4 Oil Pressure/Temperature Sensor G437 or Oil Pressure/Temperature Sensor 2 G640 , Removing and Installing”, page 52 .

10 - Oil Pressure/Temperature Sensor 2 - G640-

- ❑ 10 Nm
- ❑ Black connector
- ❑ Removing and installing. Refer to ⇒ “6.4 Oil Pressure/Temperature Sensor G437 or Oil Pressure/Temperature Sensor 2 G640 , Removing and Installing”, page 52 .

11 - All Wheel Drive Clutch Valve 2 - N446-

- ❑ Color: brown

- Removing and installing. Refer to ⇒ “6.5 All Wheel Drive Clutch Valve N445 or All Wheel Drive Clutch Valve 2 N446 , Removing and Installing”, page 55 .
- Installed position, the connector faces upward toward the Oil Pressure/Temperature Sensor

Caution

Do not interchange with the All Wheel Drive Clutch Valve - N445- .

12 - All Wheel Drive Clutch Valve - N445-

- Color: black
- Removing and installing. Refer to ⇒ “6.5 All Wheel Drive Clutch Valve N445 or All Wheel Drive Clutch Valve 2 N446 , Removing and Installing”, page 55 .
- Installed position, the connector faces upward toward the Oil Pressure/Temperature Sensor

Caution

Do not interchange with the All Wheel Drive Clutch Valve 2 - N446- .

13 - Bolt

- 2.5 Nm

14 - O-Ring

- Always replace.
- Mount onto the Clutch Valve

15 - Pressure Spring

- Insert into the guide -item 16- ⇒ Item 16 (page 50)

16 - Guide

- Installation position, large diameter faced the ball -item 17- ⇒ Item 17 (page 50)

17 - Ball

- Insert into the guide before installing -item 16- ⇒ Item 16 (page 50)

18 - Hydraulic Control Unit Housing

- With centering pins -arrows-
- The centering pins lock the hydraulic control unit and seal to the final drive housing.

19 - Ball

- Install in the hole in the shuttle valve before installing -item 21- ⇒ Item 21 (page 50)

20 - O-Ring

- Always replace.

21 - Shuttle Valve

- 8 Nm
- Removing and installing. Refer to ⇒ Fig. ““Removing and Installing the Shuttle Valves”“ , page 51 .

22 - Gasket

- With strainer
- Install on the centering pins in the hydraulic control unit housing

23 - Right Line

- Tighten the nuts to 30 Nm.
- Is installed between the hydraulic control unit and the right chamber

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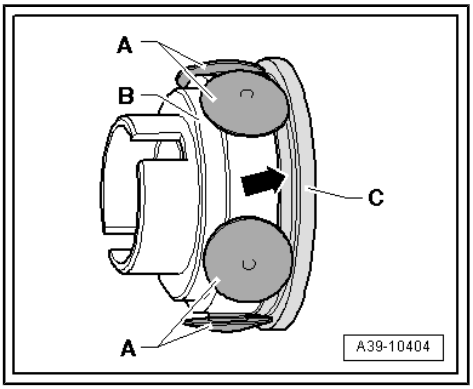
❑ Tighten both nuts hand-tight when installing

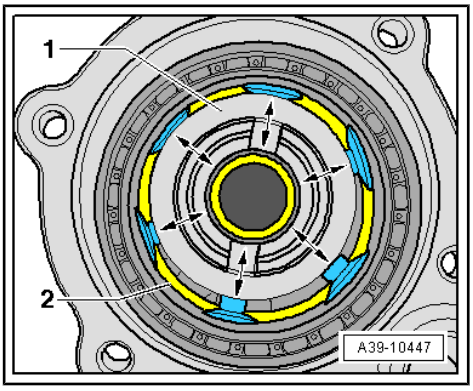
Assembling the Hydraulic Pump

– Install the six pistons -A- in the housing -B-.

– Install the guiding ring -C- so that the piston touches the collar -arrow-.



– Insert the hydraulic pump -1- with the guide ring -2- in the in the hydraulic control unit housing.



Function Test

– Turn the hydraulic pump -1- several times. While doing so pay attention to the following:

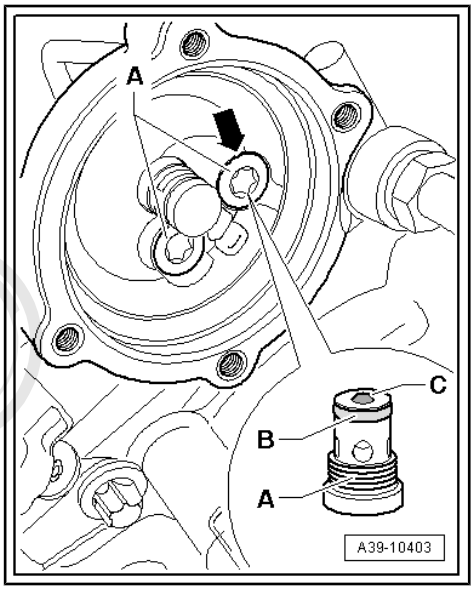
♦ When turning the hydraulic pump must not become hooked or tilted.

♦ All pistons must be removed and pressed in.

Removing and Installing the Shuttle Valves

Note

Remove the All Wheel Drive Pump - V415- , hydraulic pump and ball bearing -item 6- ⇒ Item 6 (page 49) beforehand.



– Remove the shuttle valves -A-. Always remove the ball -C- as well.

– Insert the ball into the hole in the shuttle valve when installing.

– Install the shuttle valve all the way with a new O-ring -B-.

• The shuttle valve must rest lower than the opposing housing surface -arrow-. If this is not the case, then remove the valve again and adjust the position of the ball.

– Tighten the shuttle valve to the tightening specification -item 21- ⇒ Item 21 (page 50) .

6.3 All Wheel Drive Pump - V415- , Removing and Installing

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Special tools and workshop equipment required

♦ Hex Ball Socket - T10058-

Note

- *Follow the general repair information. Refer to ⇒ "4 General Repair Information", page 13 .*
- *Pay attention to the safety precautions. Refer to ⇒ "4.1 Safety Precautions and Test Procedures", page 13 .*

Removing

– Place the vehicle on a lift.

• The ignition is off.

– Place the Drip Tray under the rear final drive.

– Disconnect the connector -1- from the All Wheel Drive Pump - V415- -2-.

– Remove the four bolts that connect the All Wheel Drive Pump - V415- to the hydraulic control unit using the Hex Ball Socket - T10058- .

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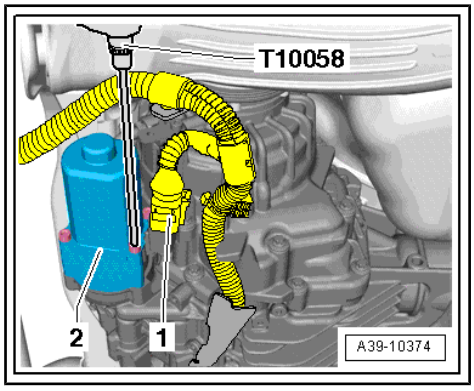
– Carefully remove the All Wheel Drive Pump - V415- -2-. Pay close attention to the adapter -item 4- ⇒ Item 4 (page 49) inside the hydraulic pump while doing this.



Note

- *The adapter could fall out when removing the All Wheel Drive Pump - V415- .*
- *Insert the adapter into the recesses in the hydraulic pump before installing the All Wheel Drive Pump - V415- .*

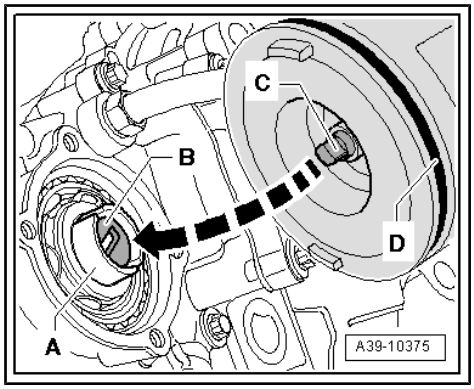
Installing

• The hydraulic pump -A- is installed inside the hydraulic control unit. Assembling the hydraulic pump. Refer to ⇒ Fig. ""Assembling the Hydraulic Pump"" , page 51 .

• The adapter -B- is installed in the recesses in the hydraulic pump.

• A new O-ring -D- is on the All Wheel Drive Pump - V415- .

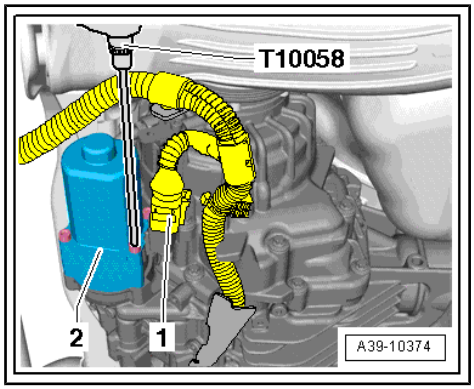
– Install the All Wheel Drive Pump - V415- with the coupling -C- in the adapter -B-.



– Diagonally tighten the four bolts on the All Wheel Drive Pump - V415- -2- to the tightening specification -item 1- ⇒ Item 1 (page 49) .

– Connect the connector -1- to the All Wheel Drive Pump - V415- .

– Fill with ATF in the rear final drive. Refer to ⇒ "9.8 ATF on Rear Final Drive 0BF and 0BE, Filling", page 83 .



6.4 Oil Pressure/Temperature Sensor - G437- or Oil Pressure/Temperature

Sensor 2 - G640- , Removing and Installing

Special tools and workshop equipment required

- Socket - 27mm - T40218-
- Vehicle Diagnostic Tester

Important Safety Precautions

- The identity of the sensor in the All Wheel Drive Control Module - J492- must be adapted using the Vehicle Diagnostic Tester or the Oil Pressure/Temperature Sensor 2 - G640- .
- Do not replace both the Oil Pressure/Temperature Sensor - G437- and Oil Pressure/Temperature Sensor 2 - G640- at the same time because a valid sensor identity is needed for the rear final drive classification to the All Wheel Drive Control Module - J492- . If the both sensors are replaced at the same time, the All Wheel Drive Control Module - J492- will interpret this as the rear final drive is being replaced. By doing this, adaptation values in the control module will be erased and the performance of the rear final drive will be impaired.
- If both the Oil Pressure/Temperature Sensor - G437- and the -G640- must be replaced due to mechanical damage, for example, if the connector housing gets damaged, then this must be performed in two steps. After replacing the first sensor, the identity must be adapted in the All Wheel Drive Control Module - J492- using the Vehicle Diagnostic Tester . Do the same for the second sensor.
- If both the Oil Pressure/Temperature Sensor - G437- and Oil Pressure/Temperature Sensor 2 - G640- must be replaced at the same time due to an electrical fault, then the clutch classification must be entered into the All Wheel Drive Control Module - J492- using the Vehicle Diagnostic Tester . Also, the ATF in the rear final drive must be replaced. Refer to ⇒ “9.7 ATF on Rear Final Drive 0BF and 0BE, Draining”, page 82 .

Note

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- *Follow the general repair information. Refer to ⇒ “4 General Repair Information”, page 13 .*
- *Pay attention to the safety precautions. Refer to ⇒ “4.1 Safety Precautions and Test Procedures”, page 13 .*

Removing

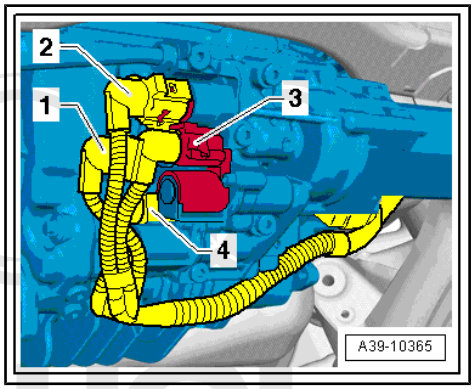
- The ignition is off.

– Place the vehicle on a lift.

– Lower the back section of the exhaust system just a little and secure it.

– Remove the wiring harness bracket from the rear final drive, if necessary. Refer to ⇒ page 46 .

– Disconnect the connector -1- from the Oil Pressure/Temperature Sensor 2 - G640- and the connector -2- from the Oil Pressure/Temperature Sensor - G437- .



Note

Disconnect connectors -3 and 4- if necessary.

– Place the Drip Tray under the rear final drive.

– Remove the Sensor with the Socket - 27mm - T40218- .

-A- = Oil Pressure/Temperature Sensor 2 - G640- black connector

-B- = Oil Pressure/Temperature Sensor - G437- brown connector

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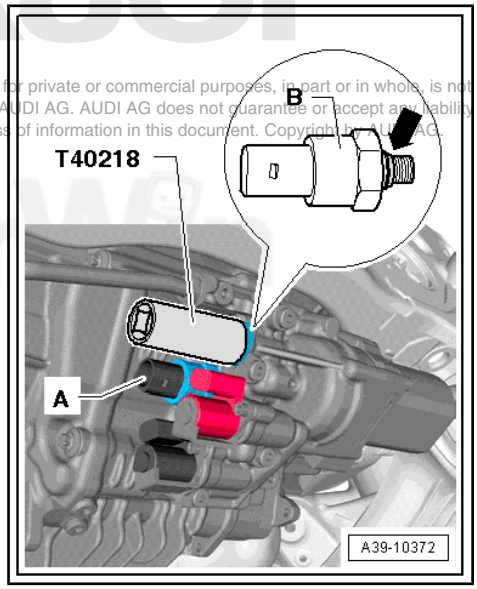
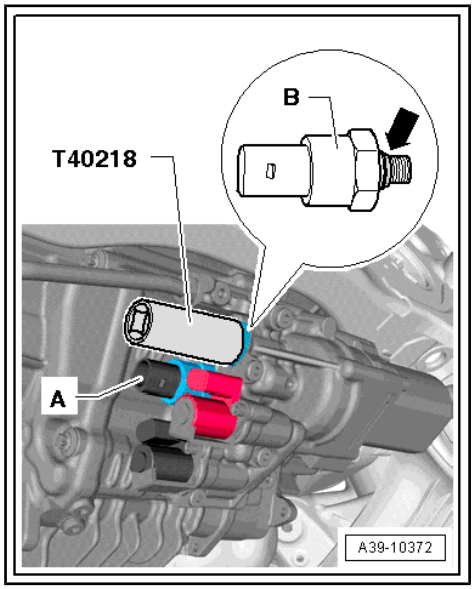


Installing

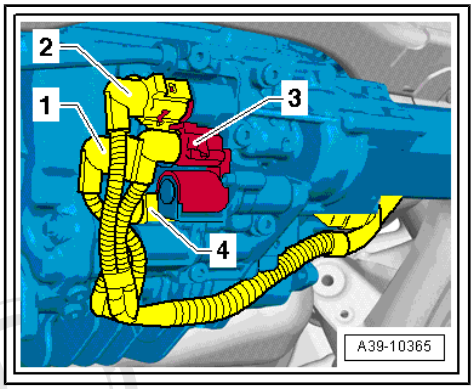
– Install the new Sensor with a new O-ring -arrow- and tighten to the tightening specification -item 9- ⇒ Item 9 (page 49) or -item 10- ⇒ Item 10 (page 49) .

-A- = Oil Pressure/Temperature Sensor 2 - G640- black connector

-B- = Oil Pressure/Temperature Sensor - G437- brown connector



– Disconnect the connector -1- on the Oil Pressure/Temperature Sensor 2 - G640- and the connector -2- on the Oil Pressure/ Temperature Sensor - G437- .



Note

Connect connectors -3 and 4- if they were disconnected earlier.

– Attach the wiring harness bracket to the rear final drive if it was removed earlier. Refer to ⇒ page 64 .

– Connect the Vehicle Diagnostic Tester and switch on the ignition.

– On the Vehicle Diagnostic Tester select the function `22 - Control Module, Replacing` under `Guided Functions` in the directory `22 - Adapt Sensor`.

• Follow the instructions given by the Vehicle Diagnostic Tester exactly.

"Adapt" the new sensor to the All Wheel Drive Control Module - J492- with the Vehicle Diagnostic Tester .

Note

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A system check will take place when the `22 - Sensor Programing` function is complete. If malfunctions appear, then use "Guided Fault Finding" to correct them.

– Fill with ATF in the rear final drive. Refer to ⇒ "9.8 ATF on Rear Final Drive 0BF and 0BE, Filling", page 83 .

– Attach the rear section of the exhaust system to the body and align it so that it is free of tension. Refer to ⇒ Rep. Gr. 26 .

6.5 All Wheel Drive Clutch Valve - N445- or All Wheel Drive Clutch Valve 2 - N446- , Removing and Installing

Special tools and workshop equipment required

♦ Hex Socket - 4mm - T10370-

Note

♦ *Follow the general repair information. Refer to ⇒ "4 General Repair Information", page 13 .*

♦ *Pay attention to the safety precautions. Refer to ⇒ "4.1 Safety Precautions and Test Procedures", page 13 .*

Caution

Malfunctions on the rear final drive.

- ***Do not confuse the All Wheel Drive Clutch Valve - N445- component location with the All Wheel Drive Clutch Valve 2 - N446- component location.***

Removing

- The ignition is off.

– Place the vehicle on a lift.

– Lower the back section of the exhaust system just a little and secure it.

– Remove the wiring harness bracket from the rear final drive. Refer to ⇒ page 46 .

Note

♦ *Mark the connectors -1 through 4- for the Oil Pressure/Temperature Sensor and for the Clutch Valves .*

♦ *Disconnect the connectors -1 and 2-.*

– Disconnect the connector -3- from the All Wheel Drive Clutch Valve 2 - N446- and the connector -4- from the All Wheel Drive Clutch Valve - N445- .

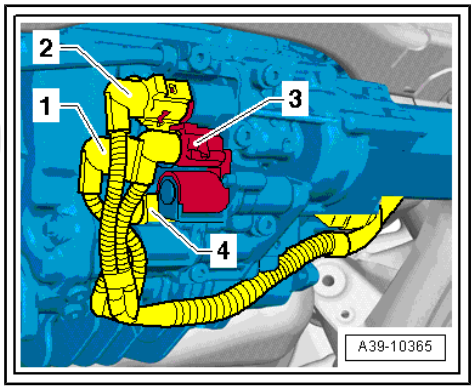
– Place the Drip Tray under the rear final drive.

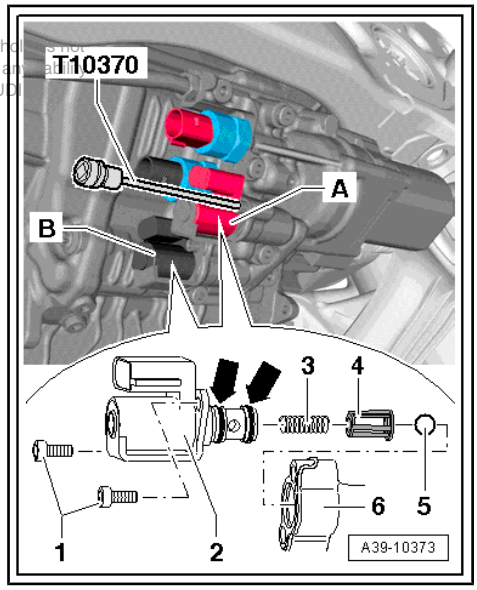
– Remove the bolts -1- from each of the Clutch Valves using the Hex Socket - 4mm - T10370-.

– Carefully pry out the Clutch Valve with a flat blade screwdriver -3-. Be careful of the pressure spring when doing this. The pressure spring could fall out of the opening in the hydraulic control unit -6-.

-A- = All Wheel Drive Clutch Valve 2 - N446- identification color brown

-B- = All Wheel Drive Clutch Valve - N445- identification color black





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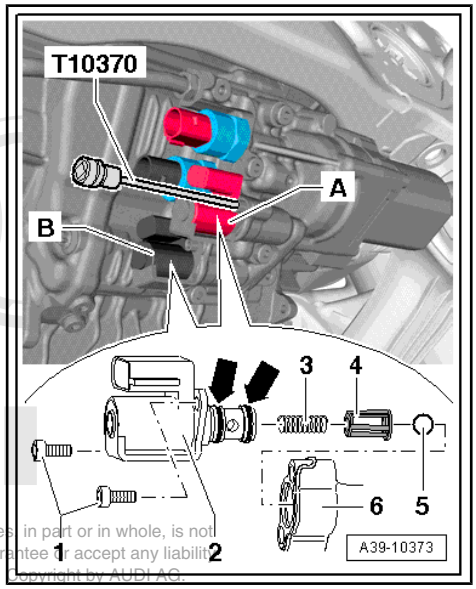
Installing

- The ball -5-, the guide -4- (the smaller diameter faces the spring) and the spring -3- must be installed in the housing opening -6- for the Clutch Valve -2-.

– Coat the O-rings with ATF and install the new Clutch Valve with the new O-rings -arrows-.

– Tighten the bolts -1- evenly until stop by hand. Then tighten to the tightening specification -item 13- ⇒ Item 13 (page 50) .

Further installation is performed in the reverse order of the removal. Note the following.



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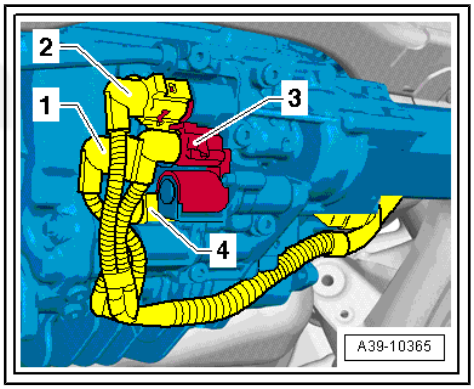
Note

- *Allocation for the Oil Pressure/Temperature Sensor and Clutch Valves connectors:*
- *-1- = Oil Pressure/Temperature Sensor 2 - G640- Connector*
- *-2- = Oil Pressure/Temperature Sensor - G437- Connector*
- *-3- = All Wheel Drive Clutch Valve 2 - N446- Connector*
- *-4- = All Wheel Drive Clutch Valve - N445- Connector*



– Attach the wiring harness bracket to the rear final drive. Refer to ⇒ page 64 .

– Fill with ATF in the rear final drive. Refer to ⇒ “9.8 ATF on Rear Final Drive 0BF and 0BE, Filling”, page 83 .

– Attach the rear section of the exhaust system to the body and align it so that it is free of tension. Refer to ⇒ Rep. Gr. 26 .

7 Torque Displacement, Checking

Special tools and workshop equipment required

- Vehicle Diagnostic Tester

Procedure

Note

- *Follow the general repair information. Refer to* *⇒ "4 General Repair Information", page 13* .
- *Pay attention to the safety precautions. Refer to* *⇒ "4.1 Safety Precautions and Test Procedures", page 13* .

After the following work the function `22- Checking the torque displacement` must be performed:

- Working on the rear final drive wiring
- Working on the valves: All Wheel Drive Clutch Valve - N445- and All Wheel Drive Clutch Valve 2 - N446- .
- Working on the hydraulic control unit

– Lift the vehicle on a hoist just far enough until the wheels are no longer touching the floor.

– Connect the Vehicle Diagnostic Tester and switch on the ignition.

– On the Vehicle Diagnostic Tester select the function `22 - Control Module, Replacing` under `Guided Functions` in the directory `22 - Adapting Torque Displacement`.

• Follow the instructions given by the Vehicle Diagnostic Tester exactly.

Use the Vehicle Diagnostic Tester to check if the torque is stored for the correct side when the rear final drive is activated.

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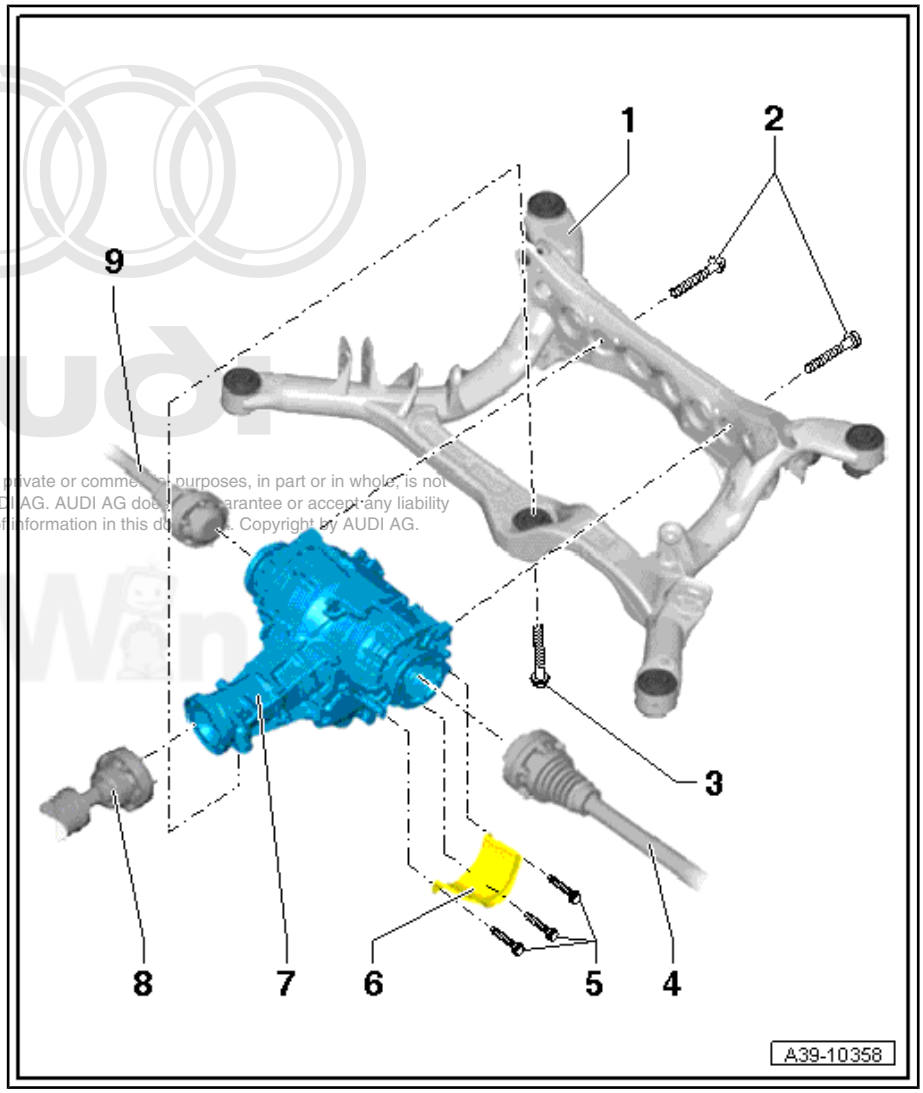
8 Rear Final Drive, Removing and Installing

8.1 Overview - Rear Final Drive, Audi A4, A5 Coupé/Sportback/Cabriolet, A6, A7



1 - Subframe

♦ Removing and installing. Refer to ⇒ Rep. Gr. 42 .

2 - Bolt

❑ 95 Nm

3 - Bolt

❑ 55 Nm

4 - Left Drives Axle

❑ Removing and installing. Refer to ⇒ Rep. Gr. 42 .

5 - Bolt

❑ 20 Nm

6 - Heat Shield

7 - Rear Final Drive

❑ Removing and installing. Refer to ⇒ “8.2 Rear Final Drive, Removing and Installing, Audi A4, A5 Coupé/Sportback/Cabriolet, A6, A7”, page 60 .

❑ Additional work after replacing the rear final drive. Refer to ⇒ “8.7 Rear Final Drive, Additional Work after Replacing”, page 73 .

8 - Driveshaft

❑ Removing and installing. Refer to ⇒ “1.1 Driveshaft Bolted on Transmission Side, Removing and Installing”, page 20 .

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9 - Right Drive Axle

❑ Removing and installing. Refer to ⇒ Rep. Gr. 42 .

8.2 Rear Final Drive, Removing and Installing, Audi A4, A5 Coupé/Sportback/Cabriolet, A6, A7

Follow the general repair information. Refer to
⇒ "4 General Repair Information", page 13 .

Pay attention to the safety precautions. Refer to
⇒ "4.1 Safety Precautions and Test Procedures", page 13 .

Special tools and workshop equipment required

- Engine and Gearbox Jack - VAS6931- with Universal Transmission Support - VAG1359/2-
- Tensioning Strap - T10038-
- Counterhold - Kit - Multiple Use - T10172- with Counterhold - Kit - Adapter 5 - T10172/5-

Removing

– Place the vehicle on a lift.

– Remove the wheel hubcap from the left rear wheel. On alloy wheels, remove the cap using the puller in the vehicle tool kit.

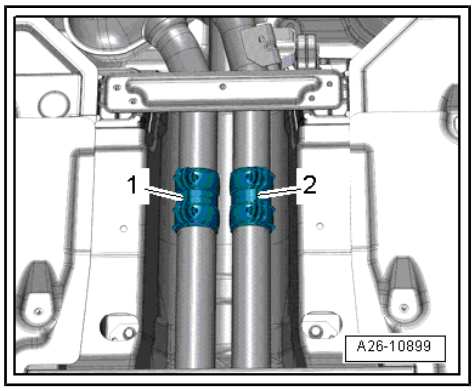
– Remove the rear wheels.

Note

Do not bend the flex joint in the front exhaust pipe more than 10° or it will be damaged.

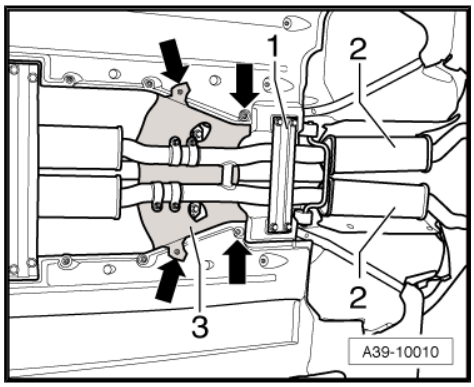
– Loosen the clamping sleeves -1 and 2- and disconnect the exhaust system.

– Attach the front exhaust pipe on the underbody side.



– Remove the rear crossbrace -1- if equipped. Refer to ⇒ Body Exterior; Rep. Gr. 66 .

– Remove the rear section of the exhaust system -2-. Refer to ⇒ Rep. Gr. 26 .



Note

A second technician is needed to help remove the rear section of the exhaust system.

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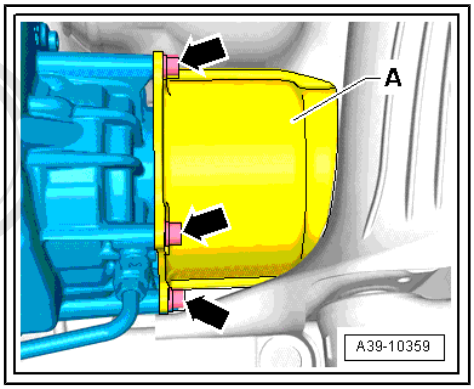
– Remove the driveshaft. Refer to
⇒ "1.1 Driveshaft Bolted on Transmission Side, Removing and Installing", page 20 .

– Remove the left drive axle heat shield -A- from the rear final drive -arrows-.



– Remove the bolts -arrows- and remove the bracket -1- from the rear final drive.

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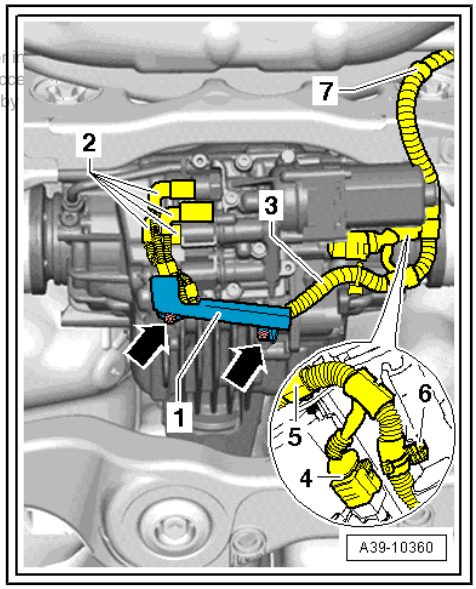
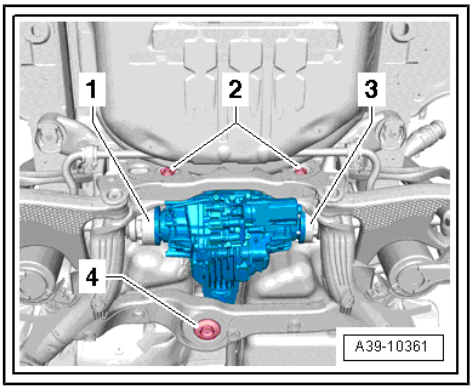
Note

Mark the connectors -2- for the Oil Pressure/Temperature Sensor and on the Clutch Valves .

– Disconnect the connectors -2- from the Oil Pressure/Temperature Sensor and the Clutch Valves .
– Disconnect the connector -4- from the All Wheel Drive Pump - V415- .
– Unclip the wiring harness -3- from the final drive and the subframe and tie it up -5 through 7-.

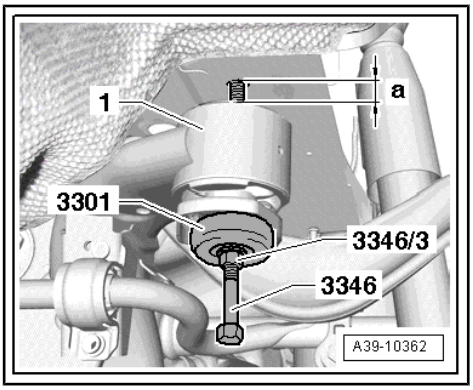


– Remove the left -1- and right -3- drive axles from the final drive.
– Loosen the bolts -2- approximately three turns.
– Remove the bolt -4-.

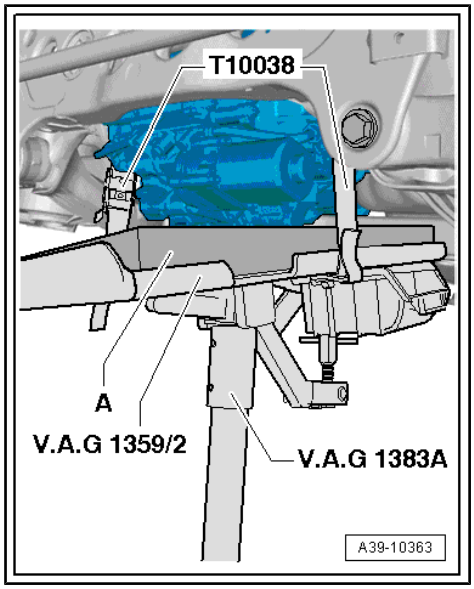


Lower the subframe -1- at the rear as follows:

– Remove the right rear bolt that connects the subframe to the body.
– Install the Bearing Installer - Control Arm - 3346- with Control Arm Bearing Installer - Nut - 3346/3- and Bearing from the Subframe Bushing Tool Kit - 3301- .
– Then remove the left rear bolt that connects the subframe to the body.
– Lower the subframe to dimension -a- = 40 mm. While doing so counterhold the Bearing Installer - Control Arm - 3346- and turn the Control Arm Bearing Installer - Nut - 3346/3- counterclockwise.



– Position the Engine and Gearbox Jack - VAS6931- with the Universal Transmission Support - VAG1359/2- and a corresponding rubber or hard foam mat -A- under the rear final drive.



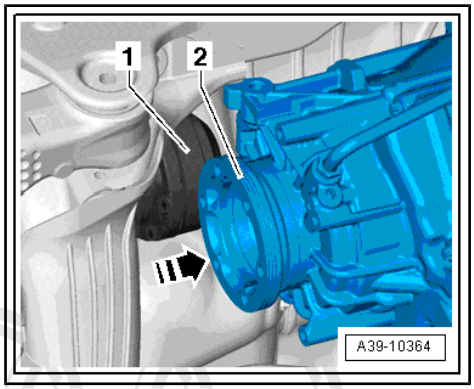
Caution

The rubber or hard foam mat is needed to protect the Clutch Valves on the rear final drive from getting damaged.

Use a Tensioning Strap - T10038- to secure the rear final drive from falling.

– Remove the two rear bolts that connect the rear final drive to the subframe. Refer to ⇒ page 61 .

– A second technician must help with the next steps in removing the final drive.



– A second technician must now push the rear final drive in direction of -arrow- toward the right side of the vehicle.

– Then guide the left drive axle -1- upward and out of the final drive flange shaft -2-.

– Guide the right drive axle out and tilt the final drive toward the rear and downward.

– Carefully lower the final drive together with a second technician. Pay attention to the subframe.

WARNING

- *Do not raise or lower the vehicle when the Engine and Gearbox Jack - VAS6931- is underneath it.*
- *Do not leave the Engine and Gearbox Jack - VAS9631- under the vehicle longer than necessary.*

Installing

Install in reverse order of removal. Pay attention to the following:

WARNING

Malfunctions on the rear final drive.

If the rear final drive was replaced, additional work is necessary. Refer to ⇒ "8.7 Rear Final Drive, Additional Work after Replacing", page 73 .

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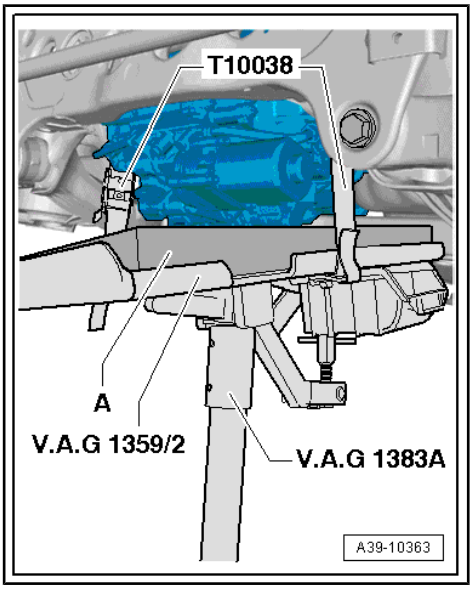
– Carefully raise the rear final drive using the Engine and Gearbox Jack - VAS9631- and, with a second technician, position it on the subframe in its installed position.

-A- = rubber or hard foam mat

Caution

The rubber or hard foam mat is needed to protect the Clutch Valves on the rear final drive from getting damaged.

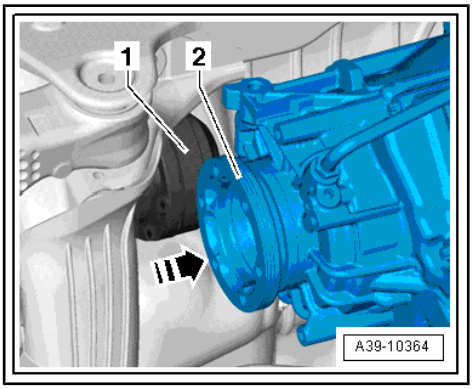
Use a Tensioning Strap - T10038- to secure the rear final drive from falling.



– Install the right drive axle into the final drive flange shaft.

– A second technician must now push the rear final drive in direction of -arrow- toward the right side of the vehicle.

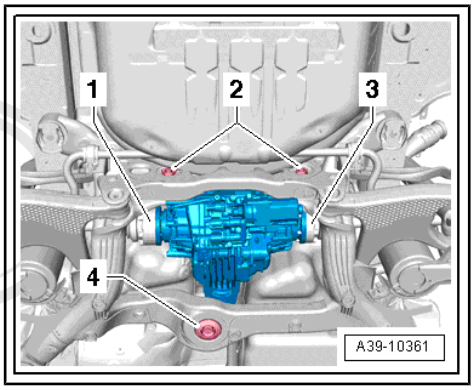
– Install the left drive axle -1- into the final drive flange shaft -2-.



– Install the bolts -2- that connect the rear final drive to the subframe hand-tight.

Note

For better illustration the Engine and Gearbox Jack - VAS6931- with the Universal Transmission Support - VAG1359/2- are not shown.



– Tighten the bolt -4- to the tightening specification -item 3- ⇒ Item 3 (page 59) and then the bolts -2- to the tightening specification -item 2- ⇒ Item 2 (page 59) .

– Remove the Engine and Gearbox Jack - VAS6931- from under the final drive.

– Attach the left -1- and right -3- drive axles. Refer to ⇒ Rep. Gr. 42 .

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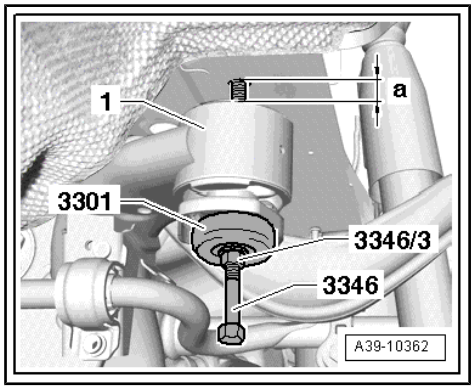
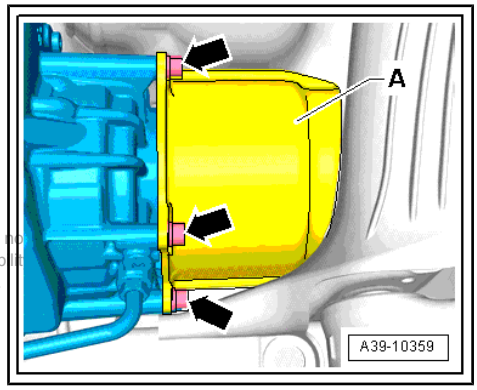
Attach the subframe -1- to the body in the rear as follows:



- First turn the Control Arm Bearing Installer - Nut - 3346/3- clockwise until the subframe touches the body. While doing this, counterhold the Bearing Installer - Control Arm - 3346- .
- Then install the left rear bolt that connects the subframe to the body and tighten it to the tightening specification. Refer to ⇒ Rep. Gr. 42 .
- Remove the Bearing Installer - Control Arm - 3346- and install the right rear bolt that attaches the subframe to the body and tighten it to the tightening specification. Refer to ⇒ Rep. Gr. 42 .



- Attach the left drive axle heat shield -A- to the rear final drive -arrows- -item 5- ⇒ Item 5 (page 59) .

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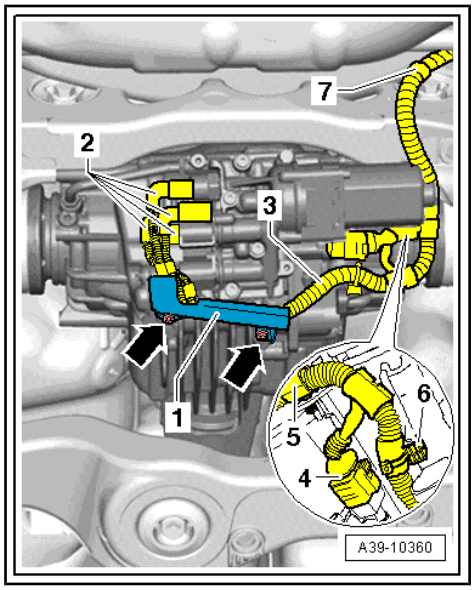


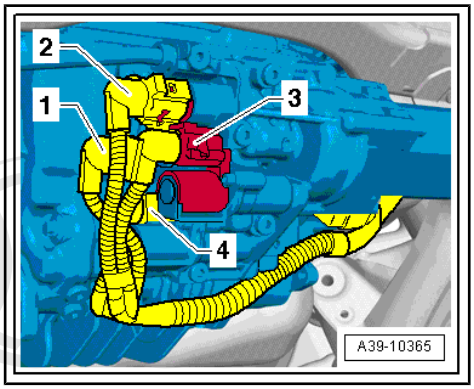
- Install the wiring harness -3- to the final drive and subframe -5 through 7-.
- Connect the connectors -4 and 2-. Pay attention to the marks made during the removal, that identify the allocation to the Oil Pressure/Temperature Sensor and which connectors go to the Clutch Valves .

Caution

Risk of damaging the wiring harness.

- *Make sure the wiring harness -3- does not get pinched when installing the bracket -1- to the rear final drive.*

- Position the bracket -1- on the final drive and tighten the bolts -arrows- to the tightening specification. Refer to ⇒ page 73 .



Note

- *Allocation for the Oil Pressure/Temperature Sensor and Clutch Valves connectors:*
- *-1- = Oil Pressure/Temperature Sensor 2 - G640- Connector*
- *-2- = Oil Pressure/Temperature Sensor - G437- Connector*
- *-3- = All Wheel Drive Clutch Valve 2 - N446- Connector*
- *-4- = All Wheel Drive Clutch Valve - N445- Connector*

– Install the driveshaft. Align the markings and follow the tightening sequence. Refer to
⇒ “1.1 Driveshaft Bolted on Transmission Side, Removing and Installing”, page 20 .

– Check the gear oil in rear final drive. Refer to
⇒ “9.2 Gear Oil Level in Rear Final Drive 0BF and 0BE, Checking”, page 75 .

– Check the ATF inside the rear final drive. Refer to
⇒ “9.6 ATF Level in Rear Final Drive 0BF and 0BE, Checking”, page 81 .

– Install the rear section of the exhaust system and align it so it is free of tension. Refer to ⇒ Rep. Gr. 26 .

– If equipped, remove the rear crossmember. Refer to ⇒ Body Exterior; Rep. Gr. 66 .

– Install the rear wheels and tighten. Refer to ⇒ Wheel and Tire Guide; Rep. Gr. 44 .

• If the rear final drive was replaced, additional work is necessary. Refer to
⇒ “8.7 Rear Final Drive, Additional Work after Replacing”, page 73 .

8.3 Overview - Rear Final Drive, RS 5

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1 - Bolt

- ❑ 55 Nm

2 - Subframe

- ❑ Overview. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 .

3 - Driveshaft

- ❑ Overview. Refer to ⇒ “3 Overview - Driveshaft, Mounted On Transmission Side”, page 29 .

4 - Rear Final Drive

- ❑ Removing and installing. Refer to ⇒ “8.4 Rear Final Drive, Removing and Installing RS 5”, page 66 .
- ❑ Additional work after replacing the rear final drive. Refer to ⇒ “8.7 Rear Final Drive, Additional Work after Replacing”, page 73 .

5 - Drive Axle

- ❑ Overview. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 .

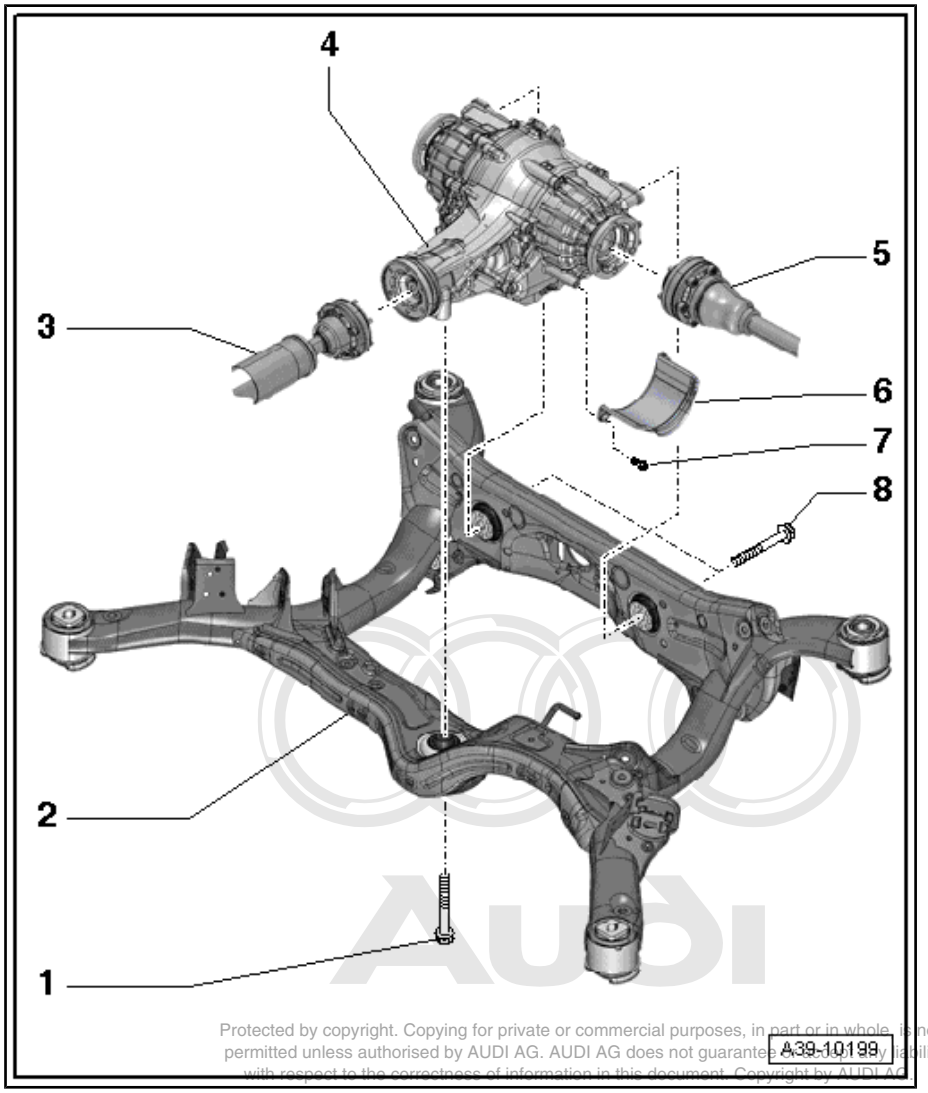
6 - Heat Shield

7 - Bolt

- ❑ 20 Nm

8 - Bolt

- ❑ 95 Nm
- ❑ Quantity: 2



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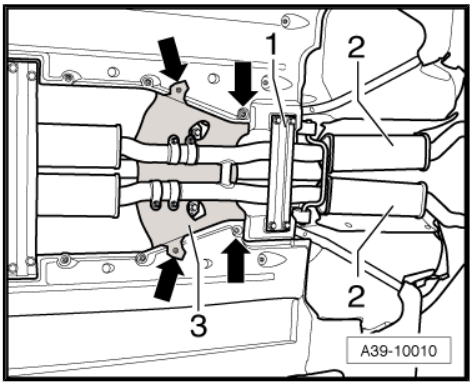
8.4 Rear Final Drive, Removing and Installing RS 5

Special tools and workshop equipment required

- ♦ Engine and Gearbox Jack - VAS6931-

Removing

– Remove the rear crossmember -1-. Refer to ⇒ Body Exterior; Rep. Gr. 66 .



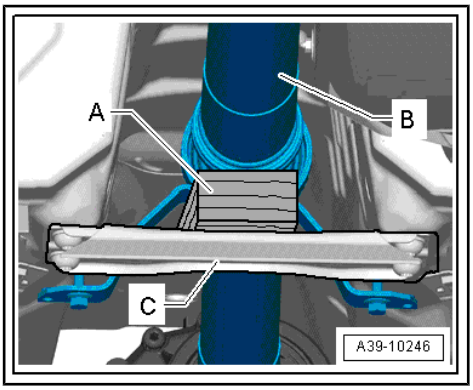
Note

A second technician is needed to remove the exhaust system rear section.

– Remove the exhaust system rear section -2-. Refer to ⇒ Engine Mechanical; Rep. Gr. 26 .

– Remove the driveshaft from the rear final drive. Refer to ⇒ “2 Driveshaft, Removing and Installing from Rear Final Drive”, page 27 .

– Place a wooden block -A- (approximately 40 mm high) on the rear crossmember -C- to support the driveshaft -B-.



Note

The driveshaft can be bent all the way to the center joint without force. Bending the joint forcibly all the way can damage the center joint and/or the protective boot.

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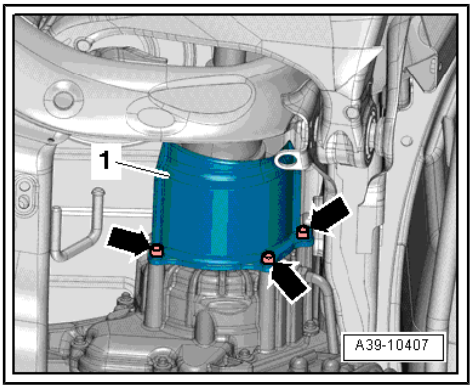
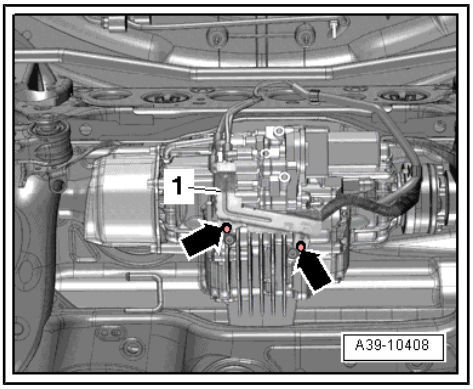
– Remove the bolts -arrows- and the left drive axle heat shield -1-.

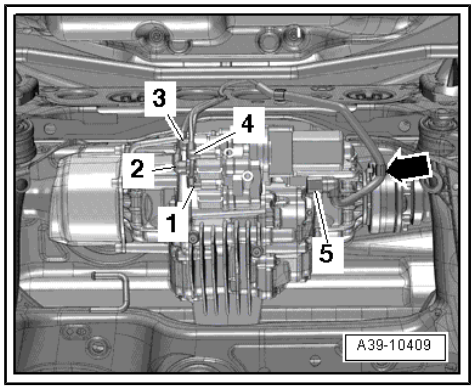


– Remove the left and right drive axle from the rear final drive. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 .

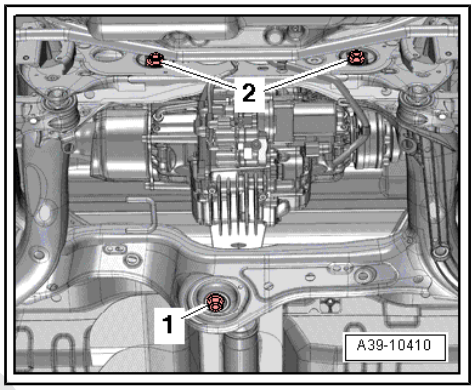
– Remove the bolts -arrows-, and remove the wire protective plate.



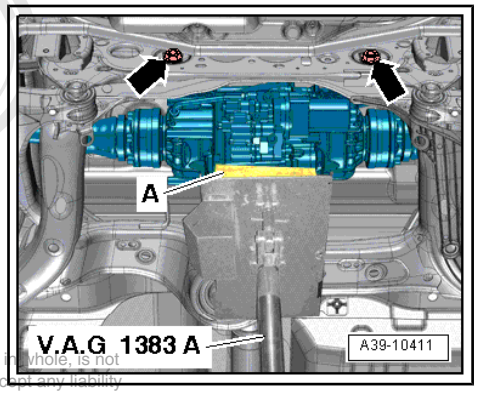
– Disconnect the connectors -1 through 5- and free up the wiring harness -arrow-.



– Remove the bolt -1- and loosen the bolt -2-.



– Place the Engine and Gearbox Jack - VAS6931- and a wooden block -A- on the mounting plate under the rear final drive and secure.



Note

Make sure the engine and transmission jack mounting plate does not make contact with the fuel tank.

– Remove the bolts -arrows-.

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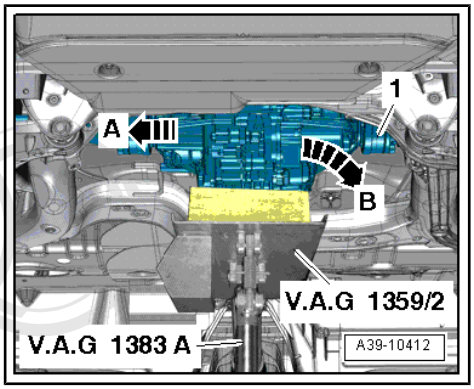

– Push the rear final drive to the left -arrow A-.
– Move the right drive axle -1- upward.
– To loosen the left flange shaft from the drive axle, the rear final drive must first be lowered to the right -arrow B-.
– Secure the rear final drive with a strap and continue lowering with the Engine and Gearbox Jack - VAS6931- .

Installing

Install in reverse order of removal. At the same time note the following:

WARNING

Malfunctions on the rear final drive.

If the rear final drive was replaced, additional work is necessary. Refer to ⇒ "8.7 Rear Final Drive, Additional Work after Replacing", page 73 .

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- Tightening specifications. Refer to ⇒ "8.3 Overview - Rear Final Drive, RS 5", page 65 .

– Attach the drive axles to the rear final drive. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 .
– Install the driveshaft. Refer to ⇒ page 28 .
– Install the exhaust system. Refer to ⇒ Engine Mechanical; Rep. Gr. 26 and align free of tension.
– Remove the rear crossmember. Refer to ⇒ Body Exterior; Rep. Gr. 66 .
– Check the ATF inside the rear final drive. Refer to ⇒ "9.6 ATF Level in Rear Final Drive 0BF and 0BE, Checking", page 81 .
– Check the gear oil level in the rear final drive. Refer to ⇒ "9.2 Gear Oil Level in Rear Final Drive 0BF and 0BE, Checking", page 75 .

- If the rear final drive was replaced, additional work is necessary. Refer to ⇒ "8.7 Rear Final Drive, Additional Work after Replacing", page 73 .

8.5 Overview - Rear Final Drive, Audi A8

1 - Bolt

- ❑ 55 Nm

2 - Subframe

- ❑ Overview. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 .

3 - Driveshaft

- ❑ Overview. Refer to ⇒ "3 Overview - Driveshaft, Mounted On Transmission Side", page 29 .

4 - Rear Final Drive

- ❑ Removing and installing. Refer to ⇒ "8.6 Rear Final Drive, Removing and Installing, A8", page 70 .
- ❑ Additional work after replacing the rear final drive. Refer to ⇒ "8.7 Rear Final Drive, Additional Work after Replacing", page 73 .

5 - Drive Axle

- ❑ Overview. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 .

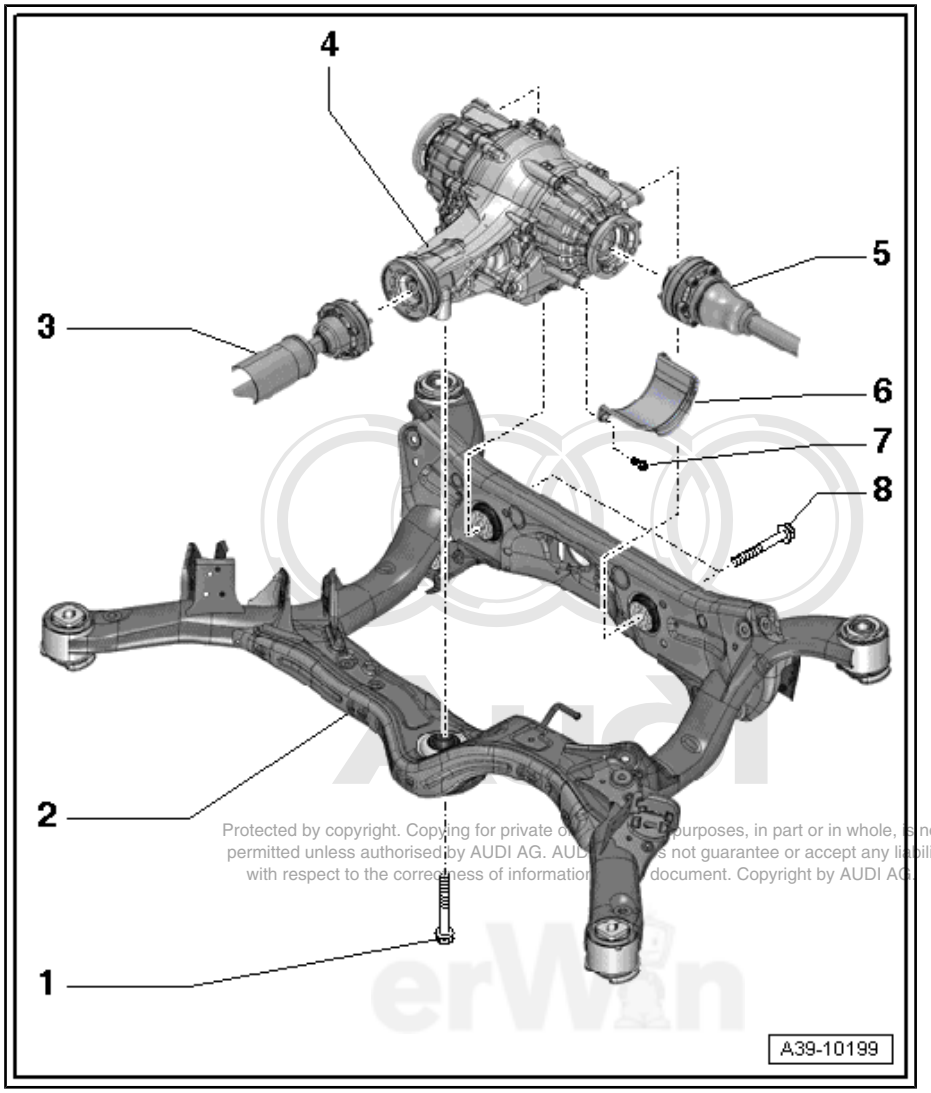
6 - Heat Shield

7 - Bolt

- ❑ 20 Nm

8 - Bolt

- ❑ 95 Nm



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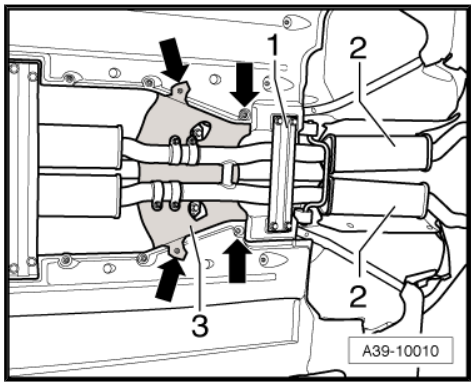
8.6 Rear Final Drive, Removing and Installing, A8

Special tools and workshop equipment required

- ♦ Engine and Gearbox Jack - VAS6931-

Removing

– Remove the rear crossmember -1-. Refer to ⇒ Body Exterior; Rep. Gr. 66 .



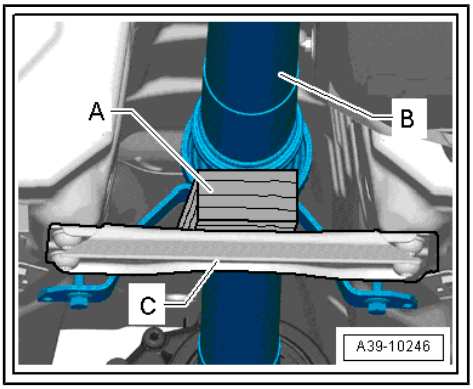
Note

A second technician is needed to remove the exhaust system rear section.

– Remove the exhaust system rear section -2-. Refer to ⇒ Engine Mechanical; Rep. Gr. 26 .

– Remove the driveshaft from the rear final drive. Refer to ⇒ "2 Driveshaft, Removing and Installing from Rear Final Drive", page 27 .

– Place a wooden block -A- (approximately 40 mm high) on the rear crossmember -C- to support the driveshaft -B-.

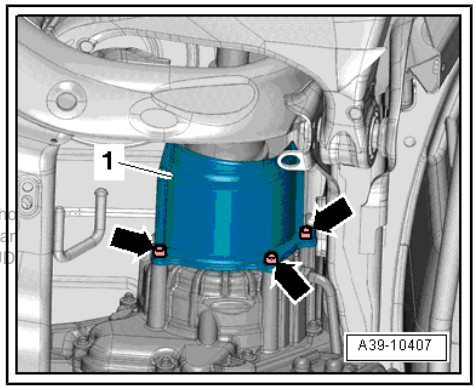


Note

The driveshaft can be bent all the way to the center joint without force. Bending the joint forcibly all the way can damage the center joint and/or the protective boot.

– Remove the bolts -arrows- and the left drive axle heat shield -1-.

– Remove the left and right drive axle from the rear final drive. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 .



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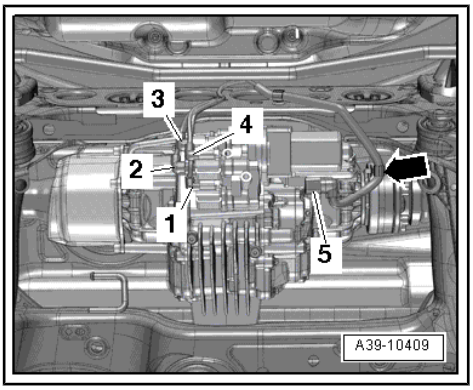
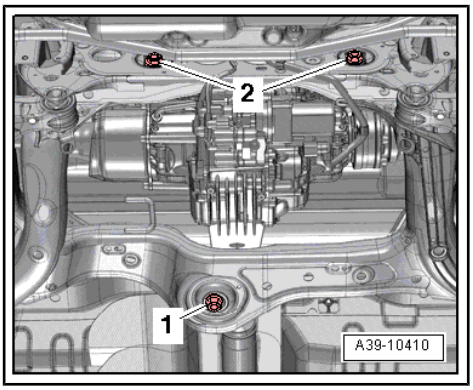
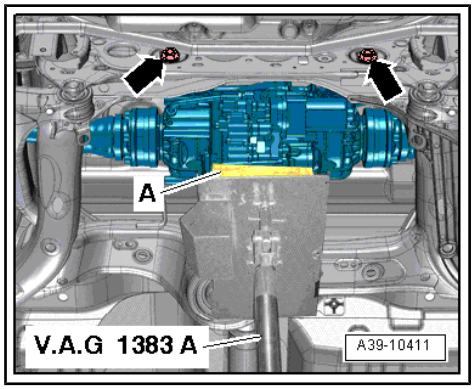
– Disconnect the connectors -1 through 5- and free up the wiring harness -arrow-.



– Remove the bolt -1- and loosen the bolt -2-.



– Place the Engine and Gearbox Jack - VAS6931- and a wooden block -A- on the mounting plate under the rear final drive and secure.



Note

Make sure the engine and transmission jack mounting plate does not make contact with the fuel tank.

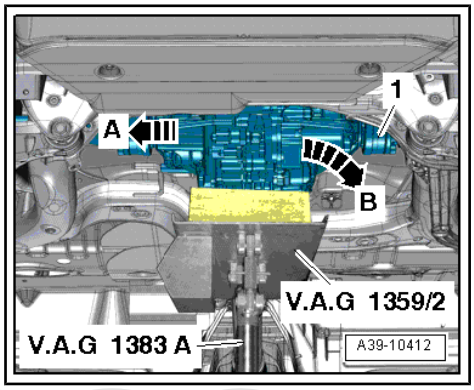
– Remove the bolts -arrows-.

– Push the rear final drive to the left in direction of -arrow A-.

– Move the right drive axle -1- upward.

– To loosen the left flange shaft from the drive axle, the rear final drive must first be lowered to the right -arrow B-.

– Secure the rear final drive with a strap and continue lowering with the Engine and Gearbox Jack - VAS6931- .



Installing

Install in reverse order of removal. At the same time note the following:

WARNING

Malfunctions on the rear final drive.

If the rear final drive was replaced, additional work is necessary. Refer to ⇒ "8.7 Rear Final Drive, Additional Work after Replacing", page 73 .

- Tightening specifications. Refer to ⇒ "8.5 Overview - Rear Final Drive, Audi A8", page 69 .

– Attach the drive axles to the rear final drive. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 .

– Install the drive axle. Refer to ⇒ page 28 .

– Install the exhaust system. Refer to ⇒ Engine Mechanical; Rep. Gr. 26 and align free of tension.

– Remove the rear crossmember. Refer to ⇒ Body Exterior; Rep. Gr. 66 .

– Check the gear oil level in the rear final drive. Refer to ⇒ "9.2 Gear Oil Level in Rear Final Drive 0BF and 0BE, Checking", page 75 .

– Check the ATF inside the rear final drive. Refer to ⇒ "9.6 ATF Level in Rear Final Drive 0BF and 0BE, Checking", page 81 .

- If the rear final drive was replaced, additional work is necessary. Refer to ⇒ "8.7 Rear Final Drive, Additional Work after Replacing", page 73 .

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8.7 Rear Final Drive, Additional Work after Replacing

WARNING

Malfunctions on the rear final drive.

If the rear final drive was replaced, the following additional work is necessary.

- *Bleed the hydraulic control module using the Vehicle Diagnostic Tester .*
- *Program the rear final drive on the All Wheel Drive Control Module - J492- use the Vehicle Diagnostic Tester .*
- *The additional work can only be performed when the rear final drive is replaced.*

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Procedure

– Connect the Vehicle Diagnostic Tester and switch on the ignition.

– On the Vehicle Diagnostic Tester select the function `22 - Control Module, Replacing` under `Guided Functions` in the directory `22 - Rear Final Drive, Replacing`.

- Follow the instructions given by the Vehicle Diagnostic Tester exactly.

“Adapt” the new rear final drive to the All Wheel Drive Control Module - J492- with the Vehicle Diagnostic Tester .

Note

A system check will take place when the function `22 - Rear Final Drive Replacing` is complete. If malfunctions appear, then use “Guided Fault Finding” to correct them.

Tightening Specification

Component	Nm
Wiring harness bracket on the rear final drive	9

9 Gear Oil and ATF, in Rear Final Drive

Capacities for the gear oil and ATF. Refer to ⇒ “2 Codes, Transmission Allocation, Ratios and Capacities”, page 3 .

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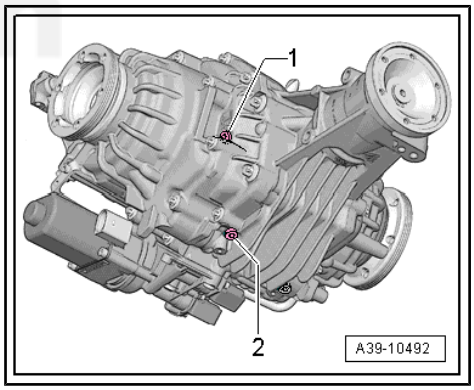
9.1 Overview - Drain and Inspection Plug for ATF and Gear Oil, Rear Final Drive 0BF and 0BE



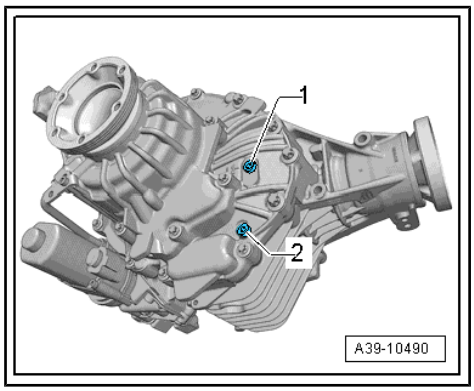
Gear Oil Drain Plug on Rear Final Drive 0BF

1- Check plug for gear oil

- Tightening specification -item 22- ⇒ Item 22 (page 43) .
- Always replace.

2- Gear oil drain plug

- Tightening specification -item 16- ⇒ Item 16 (page 43) .
- Always replace.



Gear Oil Drain Plug on Rear Final Drive 0BE

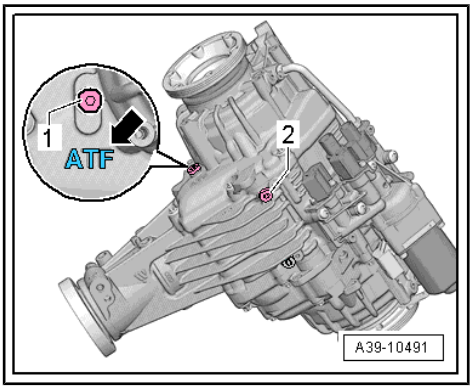
1- Check plug for gear oil

- Tightening specification -item 22- ⇒ Item 22 (page 43) .
- Always replace.

2- Gear oil drain plug

- Tightening specification -item 16- ⇒ Item 16 (page 43) .
- Always replace.

Overview of the ATF Sealing Plugs on the Rear Final Drive 0BF



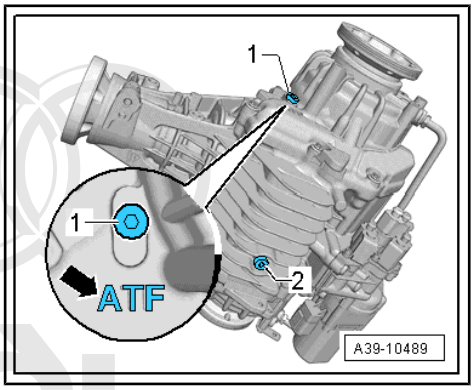
1- ATF check plug

- Identification »ATF« on the housing -arrow-
- Tightening specification -item 12- ⇒ Item 12 (page 43) .
- Always replace.

2 - ATF drain plug

- Tightening specification -item 15- ⇒ Item 15 (page 43) .
- Always replace.

Overview of the ATF Sealing Plugs on the Rear Final Drive 0BE



1- ATF check plug

- Identification »ATF« on the final drive housing -arrow-
- Tightening specification -item 12- ⇒ Item 12 (page 43) .
- Always replace.

2 - ATF drain plug

- Tightening specification -item 15- ⇒ Item 15 (page 43) .
- Always replace.

9.2 Gear Oil Level in Rear Final Drive 0BF and 0BE, Checking

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Test Requirement

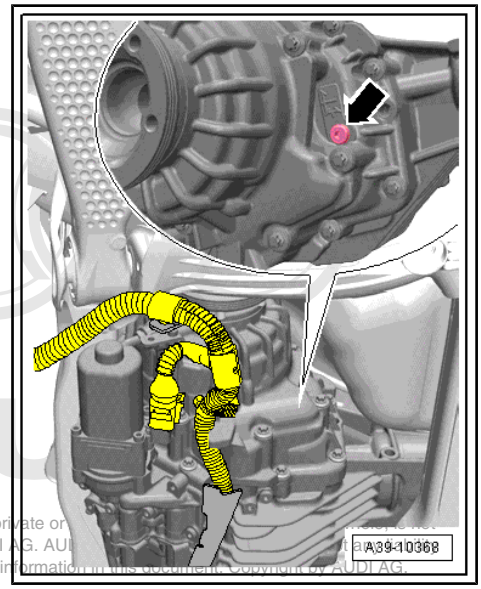
- Gear oil temperature: 10 °C to 60 °C (50 °F to (140 °F)
- The rear final drive must be in the installed position.
- The vehicle must be level.
- Overview of the gear oil sealing plugs. Refer to ⇒ Fig. ""Gear Oil Drain Plug on Rear Final Drive 0BF"" , page 74 and ⇒ Fig. ""Gear Oil Drain Plug on Rear Final Drive 0BE"" , page 74

Special tools and workshop equipment required

- Drip Tray

Rear Final Drive 0BF

– Remove the gear oil check plug -arrow-, located on the right side of the final drive.



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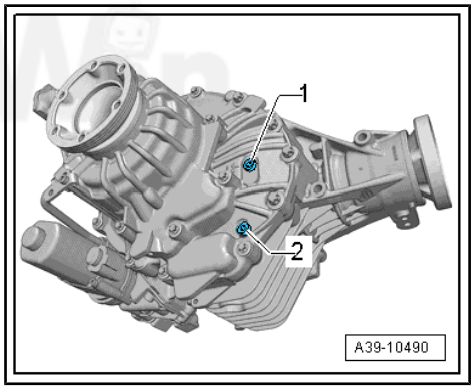
Rear Final Drive 0BE

– Remove the gear oil check plug -1-.



Continuation for All Rear Final Drives

- The oil level is correct when the rear final drive is filled up to the lower edge of the oil fill hole.

– If necessary fill the gear oil.

♦ Refer to
⇒ “9.4 Gear Oil in Rear Final Drive 0BF, Filling”, page 77

♦ Refer to
⇒ “9.5 Gear Oil in Rear Final Drive 0BE, Filling”, page 79

– Install the gear oil inspection plug -arrow- and tighten. Tightening specification -item 22- ⇒ Item 22 (page 43)

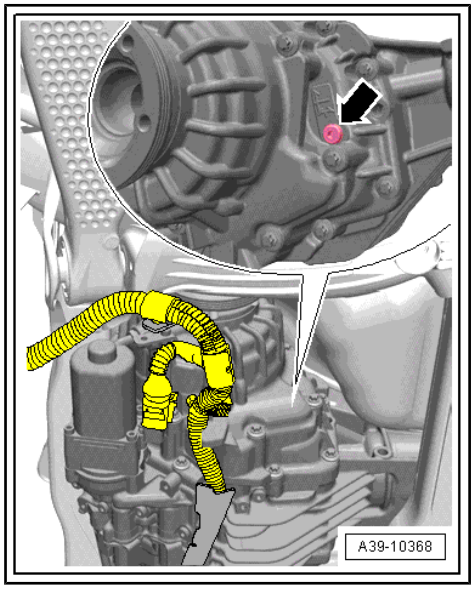
9.3 Gear Oil on Rear Final Drive 0BF and 0BE, Draining

Special tools and workshop equipment required

♦ Drip Tray

Rear Final Drive 0BF

– Remove the gear oil check plug -arrow-.

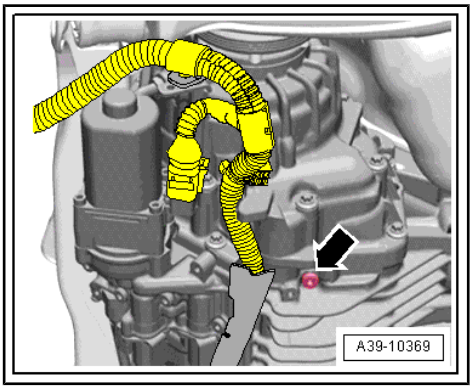


Note

♦ *Gear oil sealing plug overview. Refer to*
⇒ Fig. ““Gear Oil Drain Plug on Rear Final Drive 0BF”“ , page 74 .

♦ *Removing the gear oil check plug allows the gear oil to drain faster.*

– Remove the drain plug -arrow- and drain the gear oil.

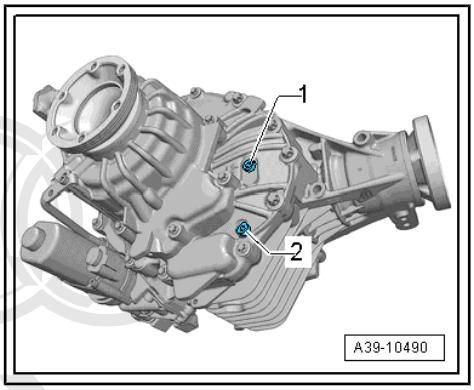


Rear Final Drive 0BE

– Remove the gear oil check plug -1-.

Note

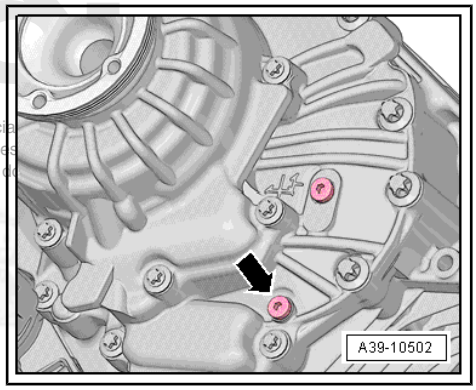
- *Gear oil sealing plug overview. Refer to ⇒ Fig. ""Gear Oil Drain Plug on Rear Final Drive 0BE"" , page 74 .*
- *Removing the gear oil check plug allows the gear oil to drain faster.*



– Remove the drain plug -arrow- and drain the gear oil.

Continuation for All Rear Final Drives

– Install the new drain plug -arrow- and tighten it. Tightening Specification -item 16- ⇒ Item 16 (page 43) .



- Refer to ⇒ "9.4 Gear Oil in Rear Final Drive 0BF, Filling", page 77
- Refer to ⇒ "9.5 Gear Oil in Rear Final Drive 0BE, Filling", page 79

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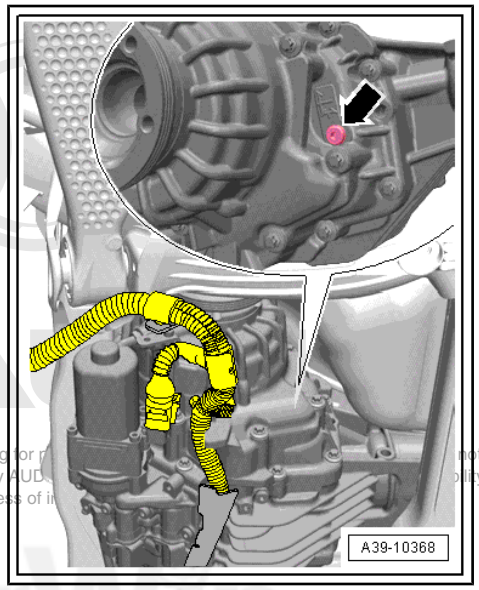
9.4 Gear Oil in Rear Final Drive 0BF, Filling

Special tools and workshop equipment required

- Charging Device For Haldex Coupling 2 - VAS6291- or Charging Device For Haldex Coupling 2 - VAS6291A-
- Charging Device For Haldex Coupling 2 - Adapter 2 - VAS6291/2- or Charging Device For Haldex Coupling 2 - Adapter 3 - VAS6291/3-
- Drip Tray

- The rear final drive must be in the installed position.
- The vehicle must be level.
- Gear oil sealing plug overview. Refer to ⇒ Fig. ""Gear Oil Drain Plug on Rear Final Drive 0BF"" , page 74 .
- The gear oil drain plug is installed and tightened. Tightening Specification-item 16- ⇒ Item 16 (page 43) .
- Oil specifications. Refer to the Parts Catalog.

– Use the Charging Device For Haldex Coupling 2 - VAS6291A- to fill.
– Lift the vehicle.
– Remove the gear oil check plug -arrow-.



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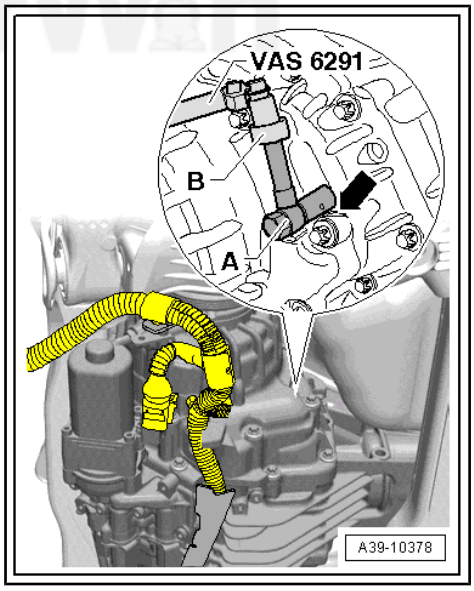
– Disconnect the adapter -A- and elbow -B-.
– Screw in the adapter -A- all the way.

Caution

If it is not possible to install the adapter -A- in the threaded hole, then it will be necessary to slightly scrape off a housing rib -arrow-, for example, with a scraper.

- *Make sure the adapter -A- is not at an angle when installing it otherwise the thread on the plug will get damaged.*

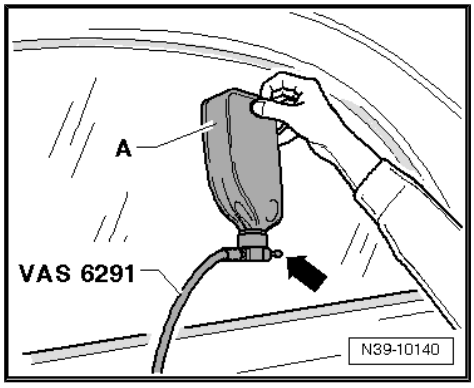


– Attach the elbow -B- to the adapter -A-.
– Route the hose over the right drive axle.
- The hose must not sag. It must be routed over the right rear wheel.

– Lower the vehicle.

– Make sure that the valve -arrow- is closed.
– Install the oil container -A- on the Charging Device For Haldex Coupling 2 - VAS6291A- .
– Open the valve -arrow- and hold the oil container as shown.

The rear final drive will not be filled.



- When at the correct filling of the rear final drive oil drips between the adapter -A- and the final drive housing -arrow-.

– Lift the vehicle.

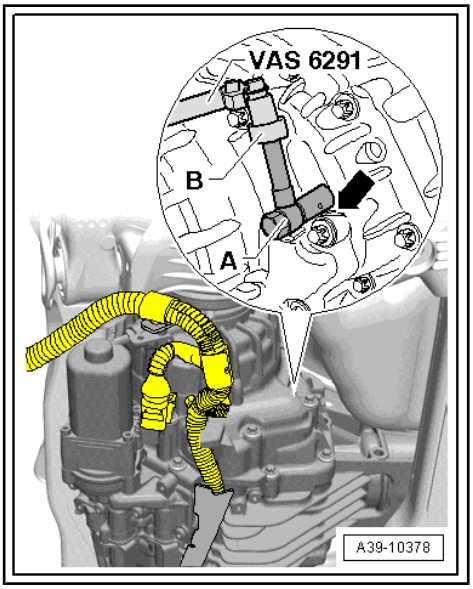
– If oil leaks from adapter -A-, set down the fluid container (for example, on a tool cart).

A portion of the excess oil runs back into the oil container.

– If no more oil runs back, remove the Charging Device For Haldex Coupling 2 - VAS6291A- .

- The oil level is correct when the rear final drive is filled up to the lower edge of the oil fill hole.

– If necessary fill the gear oil again.



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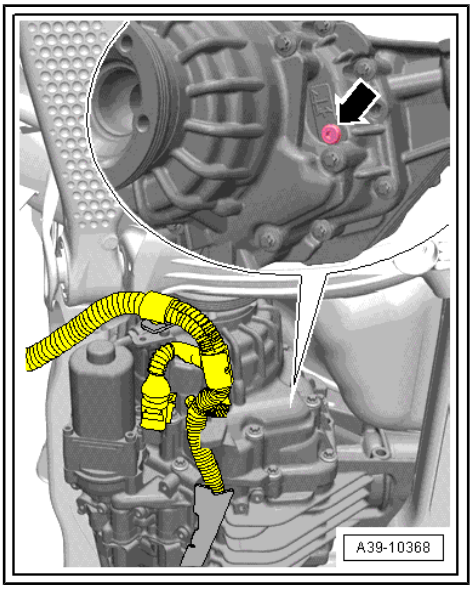
– Install the new gear oil check plug -arrow- and tighten. Tightening specification -item 22- ⇒ Item 22 (page 43) .

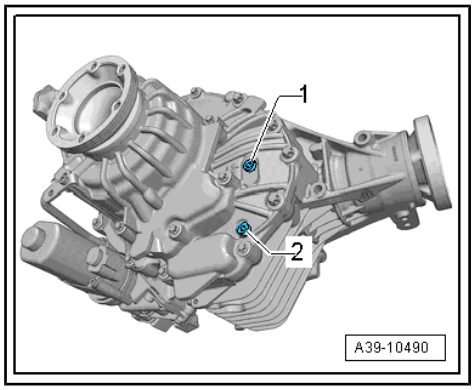


9.5 Gear Oil in Rear Final Drive 0BE, Filling

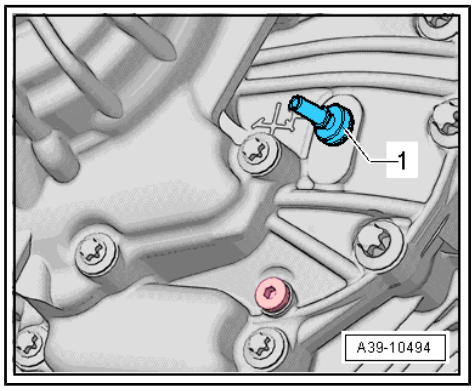
Special tools and workshop equipment required

- ♦ Charging Device For Haldex Coupling 2 - VAS6291- or Charging Device For Haldex Coupling 2 - VAS6291A-
- ♦ Charging Device For Haldex Coupling 2 - Adapter 2 - VAS6291/2- or Charging Device For Haldex Coupling 2 - Adapter 3 - VAS6291/3-
- ♦ Drip Tray
- The rear final drive must be in the installed position.
- The vehicle must be level.
- Gear oil sealing plug overview. Refer to ⇒ Fig. ""Gear Oil Drain Plug on Rear Final Drive 0BE"" , page 74 .
- The gear oil drain plug is installed and tightened. Tightening specification -item 16- ⇒ Item 16 (page 43) .
- Oil specifications. Refer to the Parts Catalog.

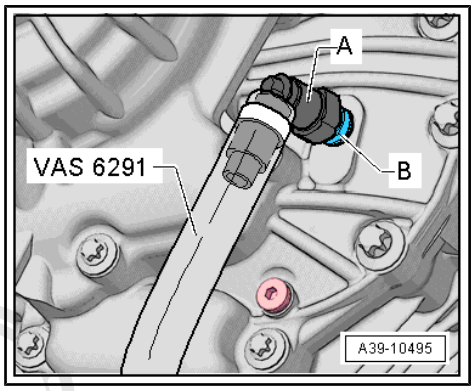
– Use the Charging Device For Haldex Coupling 2 - VAS6291A- to fill.
– Lift the vehicle.
– Remove the gear oil check plug -1-.



– Install the Charging Device For Haldex Coupling 2 - Adapter 1 - VAS6291/1- or Charging Device For Haldex Coupling 2 - Adapter 2 - VAS6291/2- -1-.

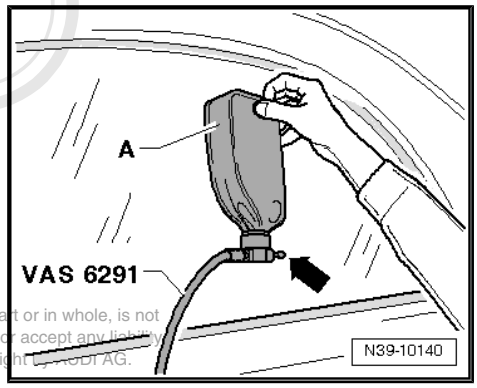


– Attach the elbow -A- to the adapter -B-.
– Route the hose over the right drive axle.
• The hose must not sag. It must be routed over the right rear wheel.
– Lower the vehicle.



– Make sure that the valve -arrow- is closed.
– Install the oil container -A- on the Charging Device For Haldex Coupling 2 - VAS6291A- .
– Open the valve -arrow- and hold the oil container as shown.

The rear final drive will not be filled.



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- When at the correct filling of the rear final drive oil drips between the adapter -B- and the final drive housing.

– Lift the vehicle.

– If oil leaks from the adapter -B-, set down the oil container (for example, on a tool trolley).

A portion of the excess oil runs back into the oil container.

– If no more oil runs back, remove the Charging Device For Haldex Coupling 2 - VAS6291A- .

- The oil level is correct when the rear final drive is filled up to the lower edge of the oil fill hole.

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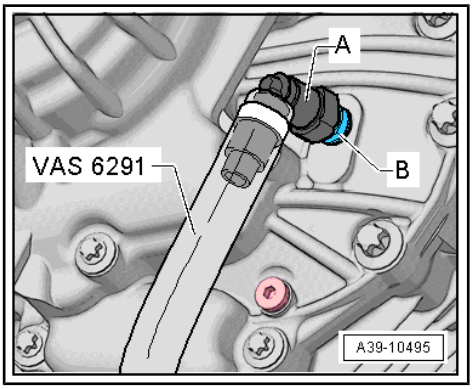
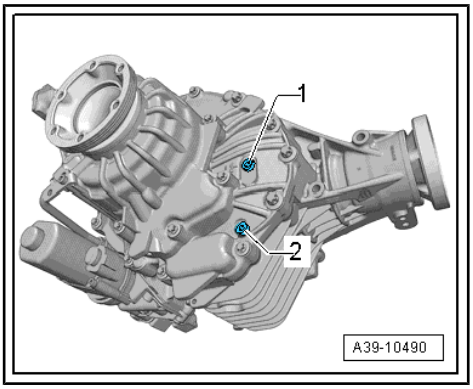
– If necessary fill the gear oil again.

– Install the new sealing plug -1- and tighten. Tightening specification -item 22- ⇒ Item 22 (page 43) .





9.6 ATF Level in Rear Final Drive 0BF and 0BE, Checking

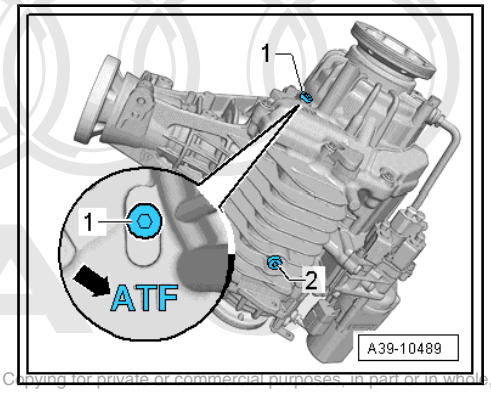
Test Requirement

- ATF temperature: 10 °C to 60 °C (50 °F to (140 °F)
- The rear final drive must be in the installed position.
- The vehicle must be level.

Special tools and workshop equipment required

♦ Drip Tray

– Remove the ATF check plug -1- to check the ATF level.



Caution

- *The ATF check plug -1- is located on the left side of the rear final drive. Identification »ATF« on the final drive housing -arrow-*
- *ATF sealing plug overview. Refer to ⇒ Fig. ""Overview of the ATF Sealing Plugs on the Rear Final Drive 0BE"", page 75 .*

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- The ATF level is correct when the rear final drive is filled to the lower edge of the fill hole.

If the ATF is correct:

– Install the new ATF check plug and fasten. Tightening specification -item 12- ⇒ Item 12 (page 43) .

If the ATF is not correct:

– Fill with ATF. Refer to ⇒ "9.8 ATF on Rear Final Drive 0BF and 0BE, Filling", page 83 .

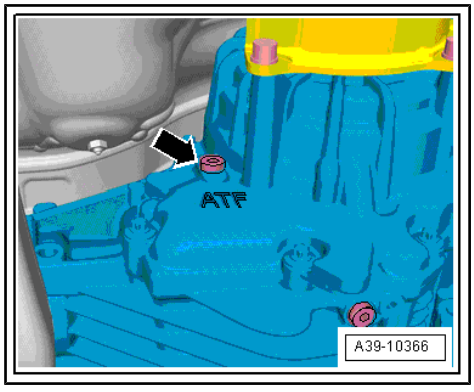
9.7 ATF on Rear Final Drive 0BF and 0BE, Draining

Special tools and workshop equipment required

- Drip Tray
- Overview of the ATF sealing plugs. Refer to ⇒ Fig. ""Overview of the ATF Sealing Plugs on the Rear Final Drive 0BF"" , page 75 and ⇒ Fig. ""Overview of the ATF Sealing Plugs on the Rear Final Drive 0BE"" , page 75 .

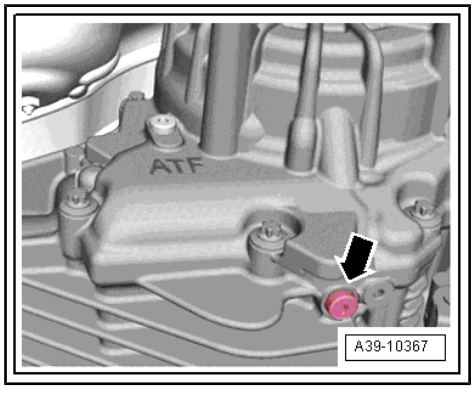
Rear Final Drive 0BF

– Remove the ATF check plug -arrow- so that the ATF drains faster.



– Remove the ATF drain plug -arrow- and drain the ATF.

– Install the new ATF drain plug -arrow- and tighten. Tightening specification -item 15- ⇒ Item 15 (page 43) .

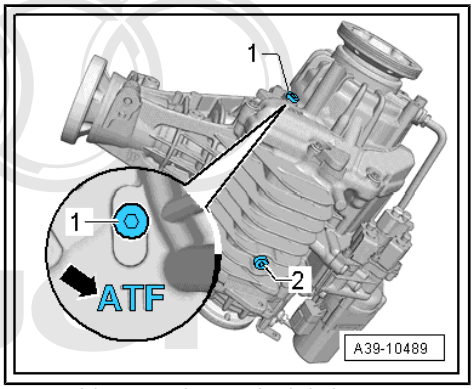


Rear Final Drive 0BE

– Remove the ATF check plug -1- so that the ATF drains faster out of the drain hole.

– Remove the ATF drain plug -2- and drain the ATF.

– Install the new ATF drain plug -2- and tighten. Tightening specification -item 15- ⇒ Item 15 (page 43) .



Continuation for All Rear Final Drives

– Fill with ATF in the rear final drive. Refer to ⇒ “9.8 ATF on Rear Final Drive 0BF and 0BE, Filling”, page 83 .

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9.8 ATF on Rear Final Drive 0BF and 0BE, Filling

Special tools and workshop equipment required

- Vehicle Diagnostic Tester
- Charging Device For Haldex Coupling 2 - VAS6291- or Charging Device For Haldex Coupling 2 - VAS6291A-
- Charging Device For Haldex Coupling 2 - Adapter 2 - VAS6291/2- or Charging Device For Haldex Coupling 2 - Adapter 3 - VAS6291/3-
- Drip Tray

Test Conditions

- The rear final drive must be in the installed position.
- The vehicle must be level.
- The ATF drain plug is installed and tightened. Tightening specification. -item 15- ⇒ Item 15 (page 43) .

Caution

There is a risk of damaging the rear final drive.

- *Only use ATF available as a replacement part. Refer to the Parts Catalog.*
- *Using other fluids can cause malfunctions or final drive failure.*
- *Note the allocation. Refer to the Parts Catalog*
- *The ATF filler tool must be clean and the ATF must not be mixed with any other oils.*

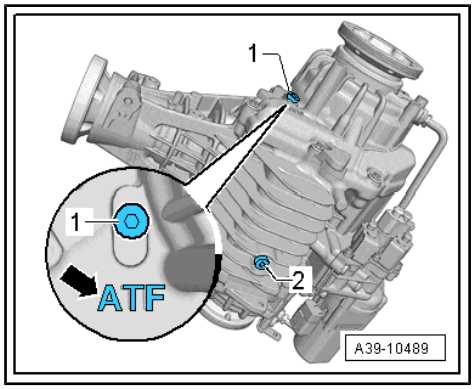
– Use the Charging Device For Haldex Coupling 2 - VAS6291A- to fill.

– Lift the vehicle.

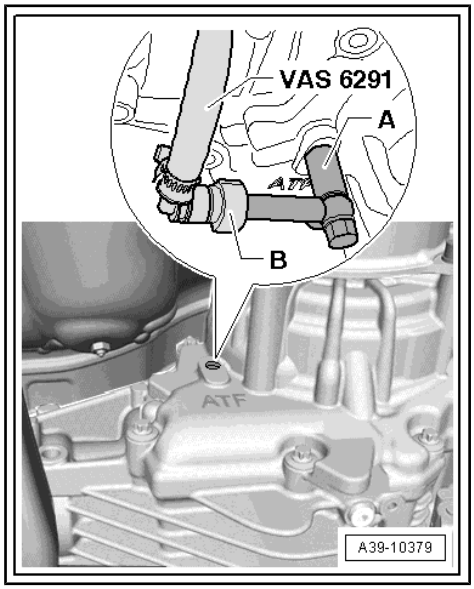
– Remove the ATF check plug -1-.

Caution

The ATF check plug -1- is located on the left side of the rear final drive. Identification »ATF« on the final drive housing -arrow-

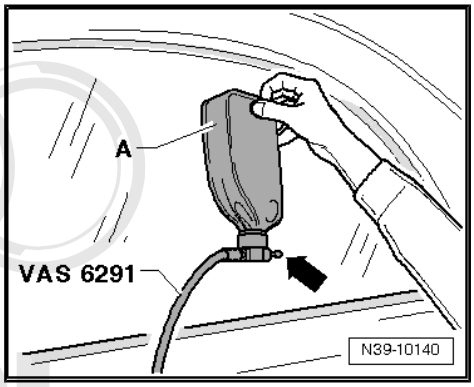


– Disconnect the adapter -A- and elbow -B-.
– Screw in the adapter -A- all the way.
– Attach the elbow -B- to the adapter -A-.
– Route the hose over the left drive axle.
• The hose must not sag. It must be routed over the left rear wheel on the vehicle.
– Lower the vehicle.



– Make sure that the valve -arrow- is closed.
– Install the oil container -A- on the Charging Device For Haldex Coupling 2 - VAS6291A- .
– Open the valve -arrow- and hold the oil container as shown.

The hydraulic control unit and the left and right chambers in the rear final drive are now filled.



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- When the correct filling of the rear final drive hydraulic control module ATF drips from the adapter -A-

If there still is no ATF in the adapter -A-:

– Continue filling until the level is correct.

When ATF starts to leak out of the adapter -A-:

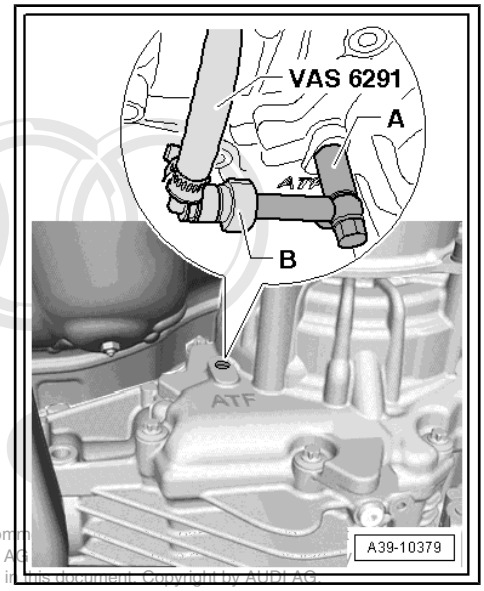
– Lift the vehicle.

– Place the oil container for example on a tool box.

A portion of the excess oil runs back into the oil container.

– If no more ATF runs back, remove the Charging Device For Haldex Coupling 2 - VAS6291A- .

- The oil level is correct when the rear final drive is filled up to the lower edge of the oil fill hole.



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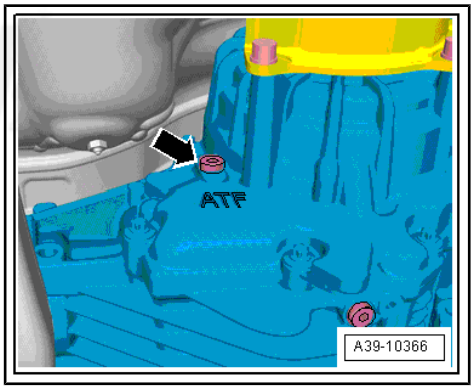
– Install the ATF check plug -arrow- hand-tight.

– Connect the Vehicle Diagnostic Tester and turn on the ignition.

– Select the function `22 - AWD Electronics` in the Vehicle Diagnostic Tester under `Guided Functions` in the directory `22- ATF Filling`.

- Follow all the instructions given by the Vehicle Diagnostic Tester exactly.

The system is filled and bled using the Vehicle Diagnostic Tester .



Note

Repeat the filling process if the system detects there is still air inside the system after performing the `22 - ATF Filling` function.

– Remove the ATF check plug -arrow- again.

Test Condition

- The ATF level is correct when the rear final drive is filled up to the lower edge of the filler hole -arrow-.
- If necessary fill the ATF.
- In the DTC memory there is no entry and no “sporadic malfunction” use the Vehicle Diagnostic Tester .

– Install the new ATF check plug -arrow- and tighten. Tightening specification -item 12- ⇒ Item 12 (page 43) .

10 Flange Shaft Seals, Replacing, Rear Final Drive Removed

⇒ “10.1 Flange Shaft Protective Ring, Replacing”, page 87

- The shaft seal can be only be replaced with the final drive removed.

Special tools and workshop equipment required

- Slide Hammer Set - VW771-
- Seal Installer - Drift Shaft - T40221-
- ATF

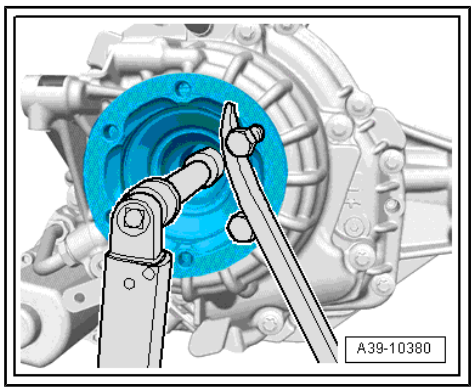
Removing

– Follow all general repair information. Refer to ⇒ “4 General Repair Information”, page 13 .

– Remove the rear final drive. Refer to ⇒ “8.2 Rear Final Drive, Removing and Installing, Audi A4, A5 Coupé/Sportback/Cabriolet, A6, A7”, page 60 .

– Remove the flange shaft bolt. To do this, install two bolts into the flange and counterhold the flange shaft using an assembly lever.

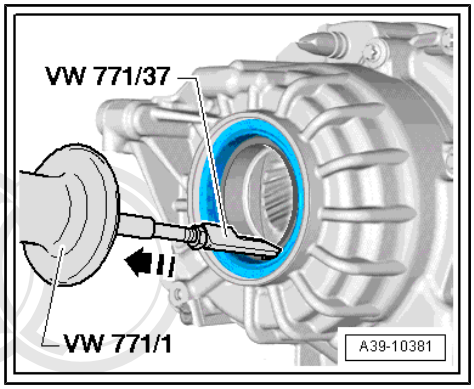
– Remove the flange shaft.



Note

If it not possible to remove the flange shaft by hand, then use the Slide Hammer Set - VW771- to remove it.

– Remove flange shaft seal with the Slide Hammer Set - VW771- and Slide Hammer Set - Hook - VW771/37- .



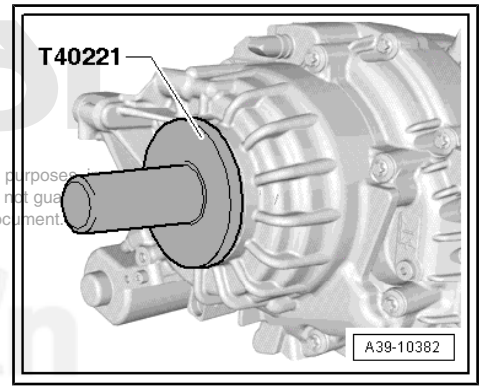
Installing

Install in reverse order of removal. Pay attention to the following:

Install Right Shaft Seal

– Coat the outer circumference and the sealing lips on the shaft seal with ATF.

– Install the shaft seal all the way. Be careful not to bend it.



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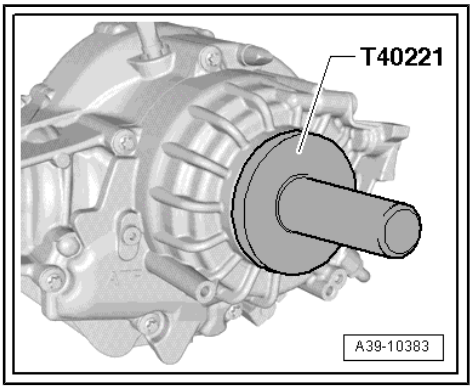
Installing Left Shaft Seal



– Coat the outer circumference and the sealing lips on the shaft seal with ATF.
– Install the shaft seal all the way. Be careful not to bend it.
– Install the flange shaft.

Note

If it is not possible to install the flange shaft all the way in by hand, then use a plastic mallet.

– Tighten the new flange shaft bolt to the tightening specification -item 1- ⇒ Item 1 (page 42) .
– Install the rear final drive. Refer to ⇒ “8.2 Rear Final Drive, Removing and Installing, Audi A4, A5 Coupé/Sportback/Cabriolet, A6, A7”, page 60 .
– Check the ATF level in the rear final drive. Refer to ⇒ “9.6 ATF Level in Rear Final Drive 0BF and 0BE, Checking”, page 81 .

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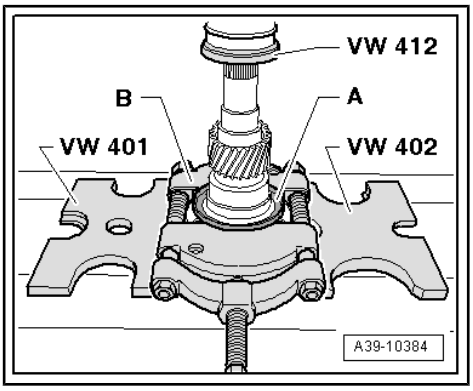
10.1 Flange Shaft Protective Ring, Replacing

Special tools and workshop equipment required

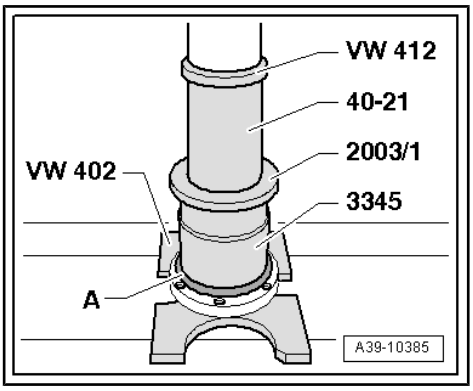


- Press Plate - VW401-
- Press Plate - VW402-
- Press Piece - Multiple Use - VW412-
- Bearing Installer - Differential Bearing - 40-21-
- Seal Installer - Flywheel Oil Seal Kit - Press Sleeve - 2003/1- from the Seal Installer - Flywheel Oil Seal Kit - 2003-
- Bearing Installer - Wheel Bearing - 3345-
- Separating Tool - 22-115mm , such as Puller - Kukko Quick Action Separating Tool - 22-115mm - 17/2-

Removing the Protective Ring -A- from the Flange Shaft

B - Separating Tool - 22-115mm , such as Puller - Kukko Quick Action Separating Tool - 22-115mm - 17/2-

Carefully Press the Ring -A- onto the Flange Shaft.



- Protective ring installation location -A-: The larger outer diameter on the protective ring faces the Bearing Installer - Wheel Bearing - 3345- .

11 Shaft Seal for Flange/Propshaft, Replacing

⇒ “11.1 Rear Final Drive 0BF - Flange/Driveshaft Shaft Seal, Replacing”, page 88

⇒ “11.2 Rear Final Drive 0BE - Replacing, Flange/Driveshaft Shaft Seal”, page 93

⇒ “11.3 Flange/Driveshaft Seal, Replacing”, page 98

11.1 Rear Final Drive 0BF - Flange/Driveshaft Shaft Seal, Replacing

Special tools and workshop equipment required

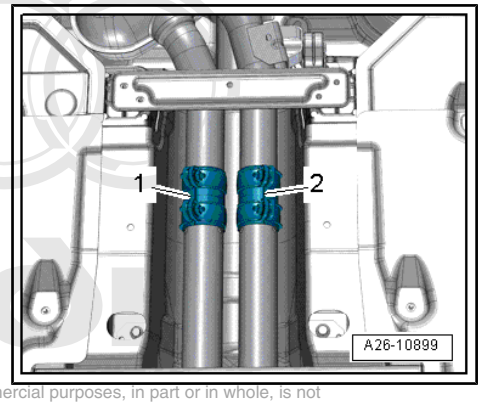
- Puller - Multiple Use - VW391-
- Puller - Unit Injector - T10055-
- -2- Puller - Unit Injector - Adapter 2 - T10055/2-
- Two M 8 x 30 Bolts
- Seal Installer - Hollow Shaft - T10380-
- Seal Installer - Input Shaft - T40222-
- Seal Installer - Input Shaft - Guide Sleeve - T40222/1-
- Sealing Grease - G 052 128 A1-
- Inductive Heater - VAS6414-
- or
- Commercially Available Hot Plate
- and
- Digital Thermometer - VAS6519-

Removing

- Rear final drive installed
- Follow the general repair information. Refer to ⇒ “4 General Repair Information”, page 13 .

– Disconnect the exhaust system at the clamping sleeves -1- and -2-.

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



Note

A second technician is needed to help remove the rear section of the exhaust system.

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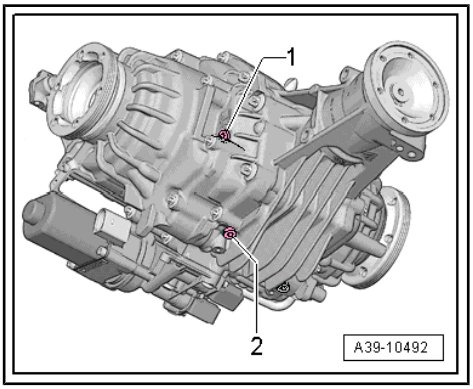
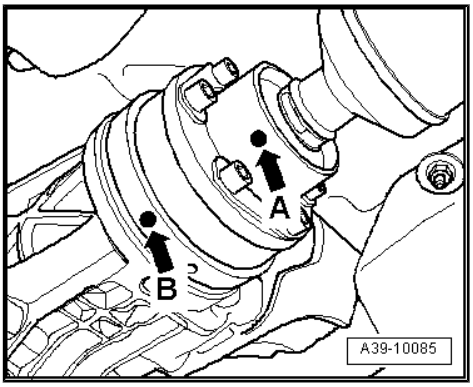
– Open the gear oil drain plug -2- and allow approximately 300 ml of gear oil to drain out.
– Insert the new drain plug -2- and tighten. Tightening specification -item 16- ⇒ Item 16 (page 43) .



– Remove the driveshaft from the rear final drive. Refer to ⇒ “2 Driveshaft, Removing and Installing from Rear Final Drive”, page 27 .

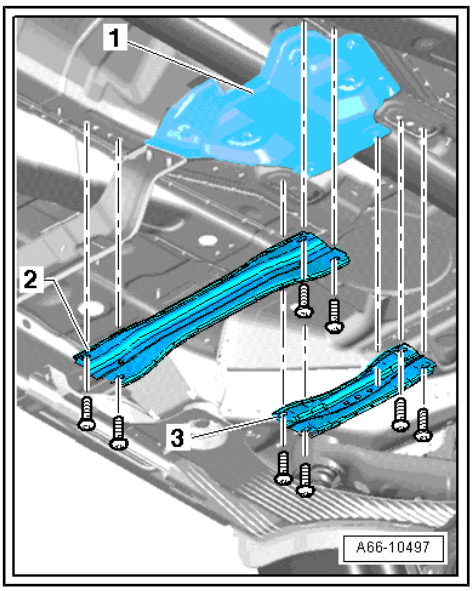
Audi A8

– Guide the driveshaft between the fuel tank and the subframe downward toward the rear and attach it on the side.



Audi A4, A5 Coupe/Sportback/Cabrio

– Remove the front crossmember -2-.
– Remove the rear crossmember -3- and the heat shield -1-.



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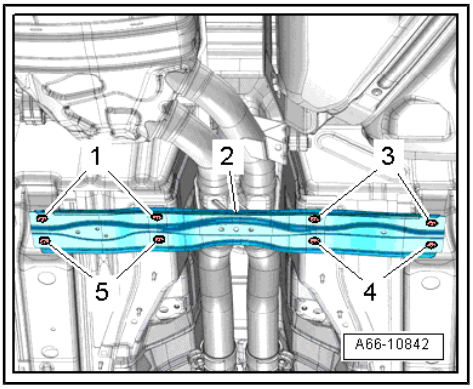
Audi A6 and A7

– Remove the crossbrace -2-. Refer to ⇒ Body Exterior; Rep. Gr. 66 .



Audi A4, A5 Coupe/Sportback/Cabrio, A6, A7

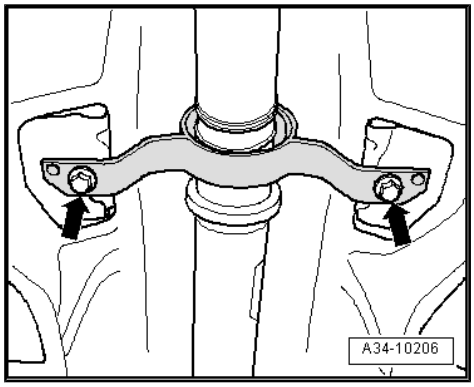
– Remove the bolts -arrows- for the driveshaft intermediate bearing.

– Lower the driveshaft at the intermediate bearing.

– Guide the driveshaft between the fuel tank and the subframe downward and toward the rear while doing this.

– Install the intermediate bearing bolts -arrows- by hand.

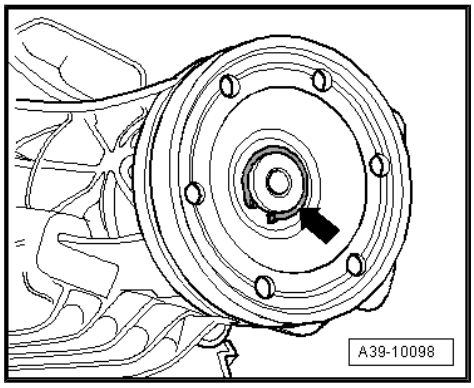
– Tie the driveshaft to the side.



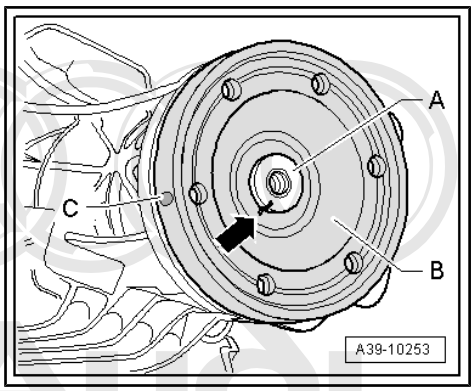
Continuation for All Vehicles

– Remove the High Temperature Grease in the flange/driveshaft.

– Remove the circlip -arrow-.



– Mark the position of the flange/driveshaft -B- on the pinion -A- -arrow-.

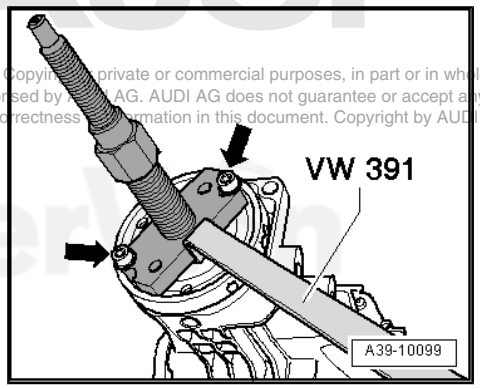


Note

- *This marking -arrow- is needed so the colored dot -C- on the outer flange remains in its original position.*
- *This ensures the imbalance in the rear final drive will be as small as possible.*

– Install the Two M8 x 33 bolts -arrow- in the flange.

– Remove the flange/driveshaft with the Puller - Multiple Use - VW391- .



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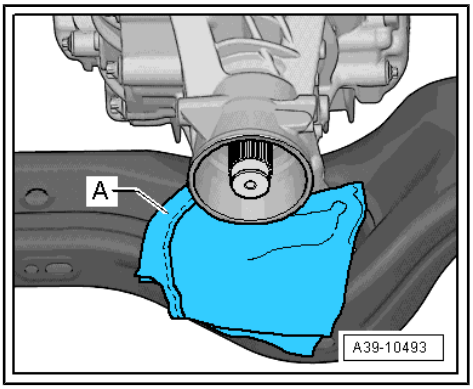
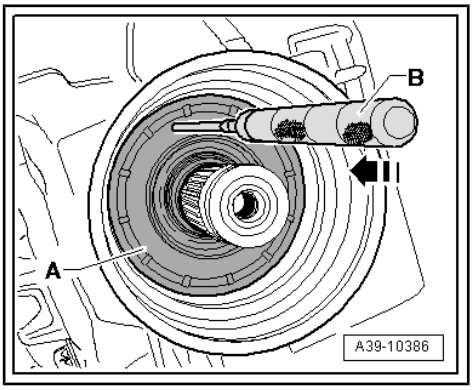
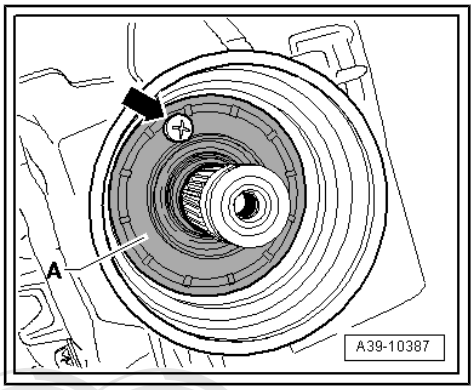
– Lay a super absorbent cloth -A- under the final drive on the subframe.



– Knock through the metal ledge of the shaft seal -A-, for example, with a scriber -B- direction of the -arrow-.

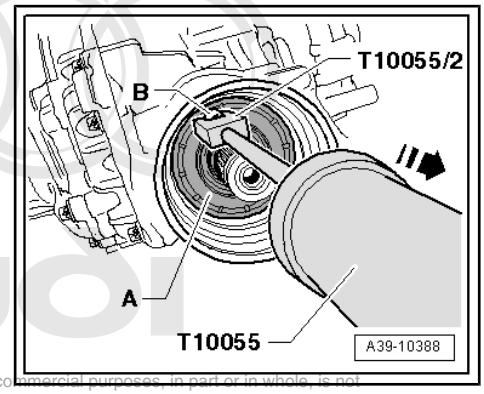


– Then install a bolt -arrow- in this shaft seal opening -A-.



– Remove the flange/driveshaft seal -A- in the direction of -arrow-.

-B- bolt



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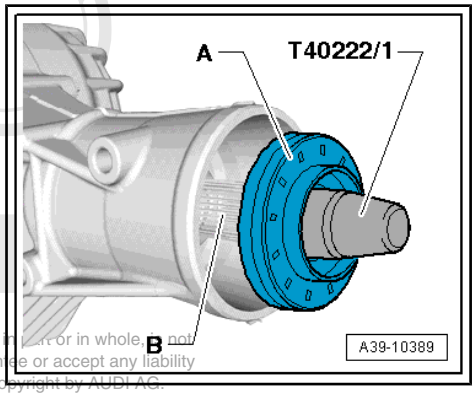
Installing

Install in reverse order of removal. Pay attention to the following:

– Fill the space between the sealing/dust lip halfway with Sealing Grease - G 052 128 A1- .

– Place the new shaft seal -A- on the Seal Installer - Input Shaft - Guide Sleeve - T40222/1- .



Note

Make sure the shaft seal spring is in its installation position behind the sealing lip.

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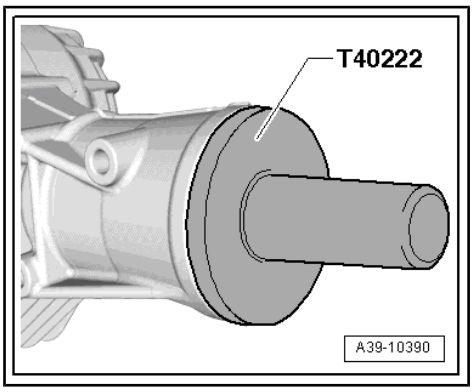
– Coat outer edge of the seal with gear oil.

– Push the Seal Installer - Input Shaft - Guide Sleeve - T40222/1- and the shaft seal -A- onto the pinion -B-.

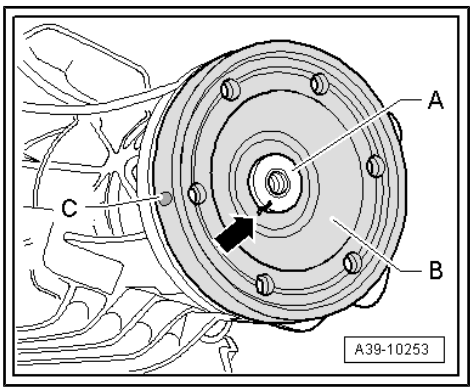
– Install the shaft seal all the way. Be careful not to bend it.



– Warm the flange/driveshaft -B- with a Inductive Heater - VAS6414- or a Heating Plate to 115 °C (239 °F).

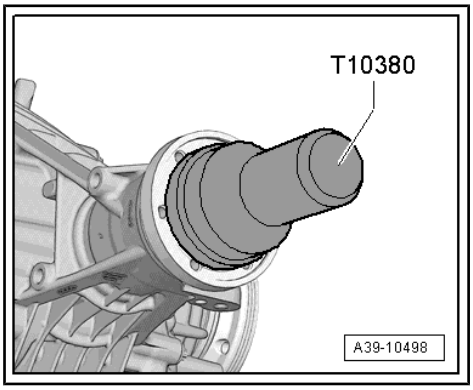
WARNING

- *Wear safety gloves.*
- *If using a Heating Plate the temperature must be observed using a Digital Thermometer - VAS6519- .*



– Position the flange/driveshaft -B- on the pinion -A- so that the marking -arrow- lines up.

– Install the flange/driveshaft with the Seal Installer - Hollow Shaft - T10380- .



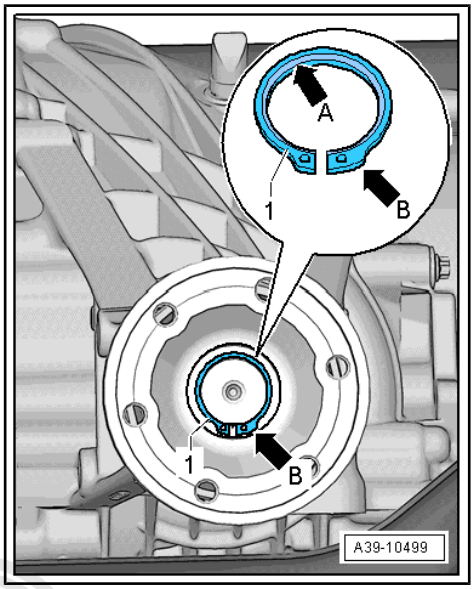
Install the circlip -1- as follows:

- Always replace the circlip -1-.
- The bevel on the inner diameter of the circlip -arrow A- faces out, toward the drive axle.
- The wide tab on the circlip -arrow B- must be on the right side, as illustrated.

– Measure the thickness of the old circlip -1-.

– Install a new circlip -1- having the same thickness as the old one. Refer to the Part Catalog.

– Install the new circlip -1-.



Note

- *A new circlip -arrow- must be selected when replacing the flange/driveshaft.*
- *For this, determine and insert the thickest circlip -arrow- that can still be installed in the groove. Refer to the Parts Catalog for the part number.*

– Fill the rear final drive gear oil 0BF. Refer to ⇒ “9.4 Gear Oil in Rear Final Drive 0BF, Filling”, page 77 .

– Install the driveshaft on the rear final drive ⇒ page 28 .

Audi A4, A5 Coupe/Sportback/Cabrio, A6, A7

– Attach the driveshaft center support to the body free of tension. Tightening specification -item 9- ⇒ Item 9 (page 30) .

– Install the heat shield and the crossmember. Refer to ⇒ Body Exterior; Rep. Gr. 66 .

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Continuation for All Vehicles

– Install the rear section of the exhaust system. Refer to ⇒ Rep. Gr. 26 .

11.2 Rear Final Drive 0BE - Replacing, Flange/Driveshaft Shaft Seal

Special tools and workshop equipment required

- Press Piece - Multiple Use - VW431-
- Puller - Unit Injector - T10055-
- Puller - Unit Injector - Adapter 2 - T10055/2-
- Seal Installer - Hollow Shaft - T10380-
- Seal Installer - Propshaft - T40247-
- Seal Installer - Propshaft - Guide Sleeve - T40247/1-
- -1- Puller - Kukko 2-Arm - 70-180mm - 20/10-
- Inductive Heater - VAS6414-
- or
- Commercially Available Hot Plate
- and
- Digital Thermometer - VAS6519-
- Drip Tray

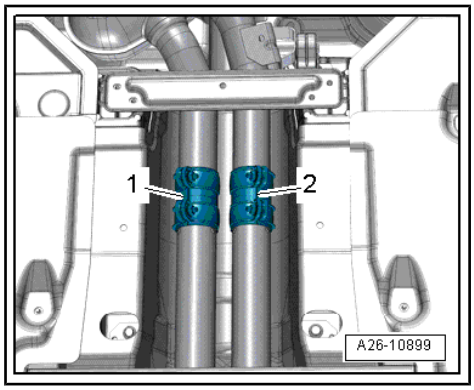
♦ Sealing Grease - G 052 128 A1-

Removing

- Rear final drive installed

– Disconnect the exhaust system at the clamping sleeves -1 and 2-.

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



Note

A second technician is needed to help remove the rear section of the exhaust system.

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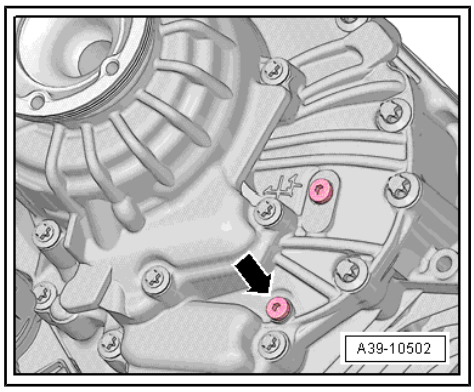
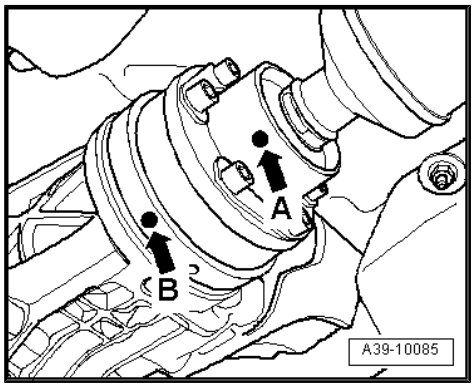
– Open the gear oil drain plug -arrow- and allow approximately 300 ml of gear oil to drain out.

– Insert the new drain plug -arrow- and tighten. Tightening specification -item 16- . Refer to ⇒ Item 16 (page 43) .



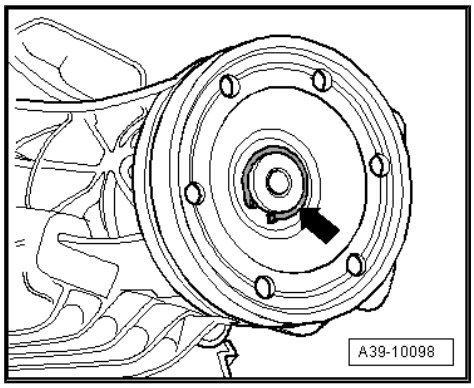
– Remove the driveshaft from the rear final drive. Refer to ⇒ “2 Driveshaft, Removing and Installing from Rear Final Drive”, page 27 .

– Guide the driveshaft between the fuel tank and the subframe downward toward the rear and attach it on the side.

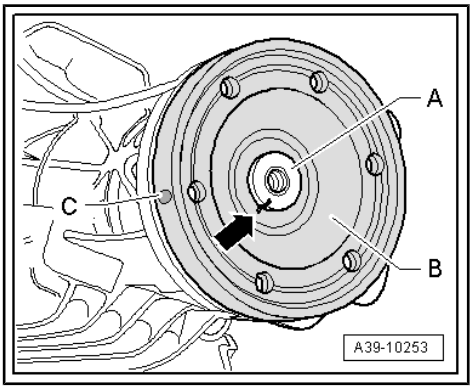


– Remove the High Temperature Grease in the flange/driveshaft.

– Remove the circlip -arrow-.



– Mark the position of the flange/driveshaft -B- on the pinion -A- -arrow-.

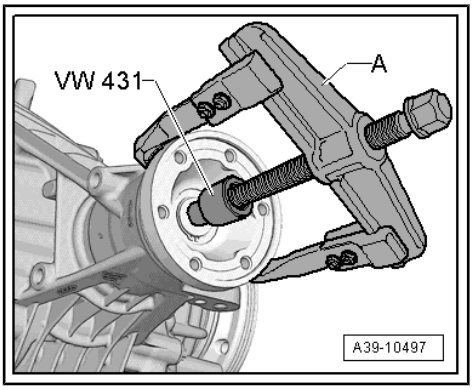


Note

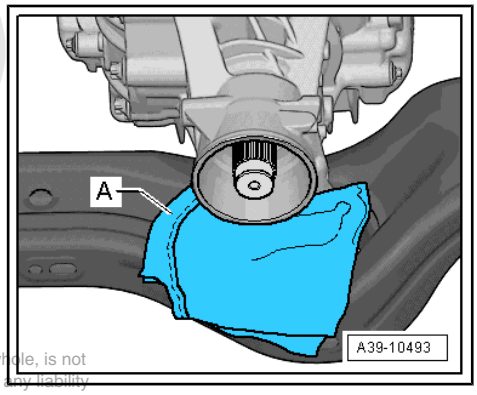
- *This marking -arrow- is needed so the colored dot -C- on the outer flange remains in its original position.*
- *This ensures the imbalance in the rear final drive will be as small as possible.*

– Remove the flange/driveshaft.

A - For example the Puller - Kukko 2-Arm - 70-180mm - 20/10-



– Lay a super absorbent cloth -A- under the final drive on the subframe.



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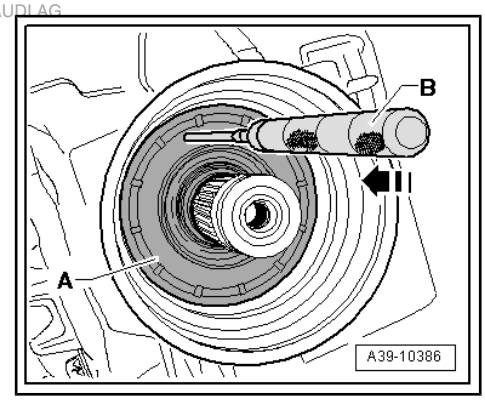
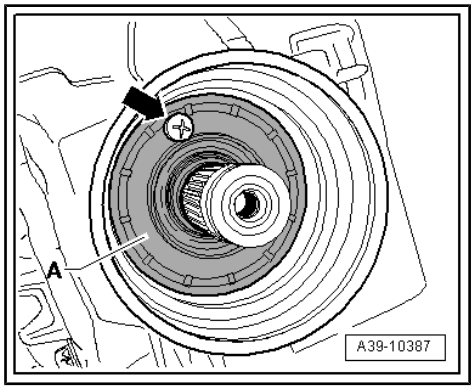
– Knock through the metal ledge of the shaft seal -A-, for example, with a scriber -B- direction of the -arrow-.

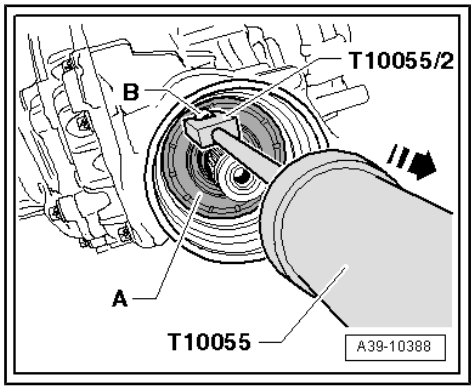


– Then install a bolt -arrow- in this shaft seal opening -A-.



– Remove the flange/driveshaft seal -A- in the direction of -arrow-.

B - Bolt



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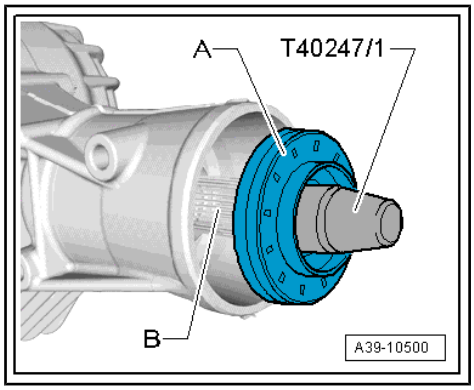
Installing

Install in reverse order of removal. Pay attention to the following:

– Fill the space between the sealing/dust lip halfway with Sealing Grease - G 052 128 A1- .

– Coat outer edge of the seal with gear oil.

– Place the new shaft seal -A- on the Seal Installer - Propshaft - Guide Sleeve - T40247/1- .

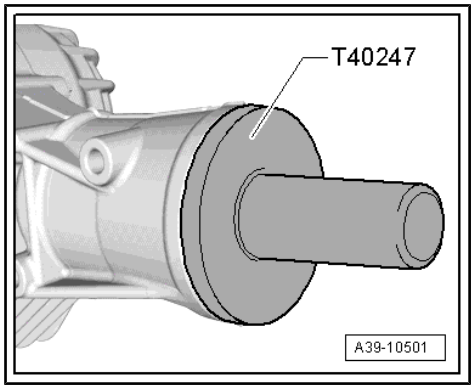


Note

Make sure the shaft seal spring is in its installation position behind the sealing lip.

– Push the Seal Installer - Propshaft - Guide Sleeve - T40247/1- and the shaft seal -A- onto the pinion -B-.

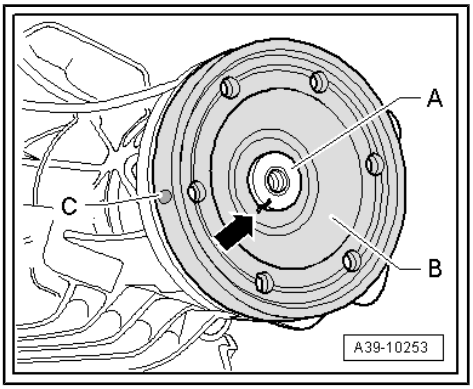
– Install the shaft seal all the way. Be careful not to bend it.



– Warm the flange/driveshaft -B- with a Inductive Heater - VAS6414- or a Heating Plate to 115 °C (239 °F).

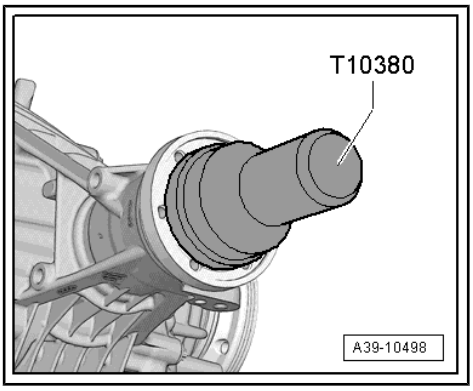
WARNING

- *Wear safety gloves.*
- *If using a Heating Plate the temperature must be observed using a Digital Thermometer - VAS6519- .*



– Position the flange/driveshaft -B- on the pinion -A- so that the marking -arrow- lines up.

– Install the flange/driveshaft with the Seal Installer - Hollow Shaft - T10380- .



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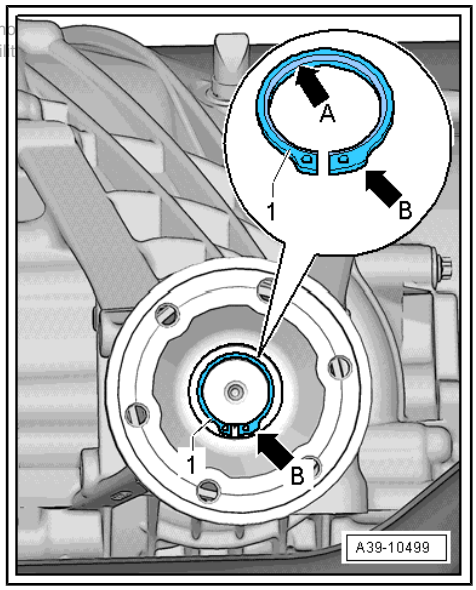
Install the circlip -1- as follows:

- Always replace the circlip -1-.
- The bevel on the inner diameter of the circlip -arrow A- faces out, toward the driveshaft.
- The wide tab on the circlip -arrow B- must be on the right side, as illustrated.

– Measure the thickness of the old circlip -1-.

– Install a new circlip -1- having the same thickness as the old one. Refer to the Part Catalog.

– Install the new circlip -1-.



Note

- *A new circlip -arrow- must be selected when replacing the flange/driveshaft.*
- *For this, determine and insert the thickest circlip -arrow- that can still be installed in the groove. Refer to the Parts Catalog for the part number.*

– Fill with gear oil in the rear final drive 0BE. Refer to ⇒ “9.5 Gear Oil in Rear Final Drive 0BE, Filling”, page 79 .

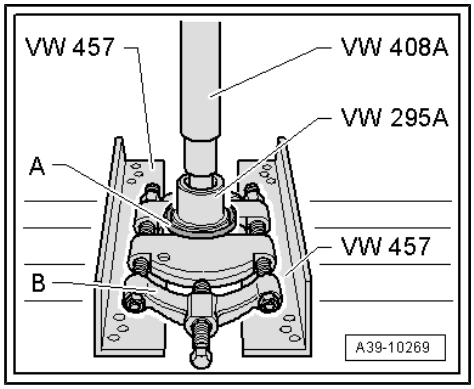
– Install the driveshaft on the rear final drive. Refer to ⇒ page 28 .

– Install the rear section of the exhaust system. Refer to ⇒ Rep. Gr. 26 .

11.3 Flange/Driveshaft Seal, Replacing

Special tools and workshop equipment required

- Bearing/Bushing Installer - Multiple Use - VW295A-
- Press Plate - VW402-
- Press Piece - Rod - VW408A-
- Support Channels - VW457-
- Separating tool 22 to 75 mm , such as Puller - Kukko Quick Action Separating Tool - 12-75mm - 17/1-

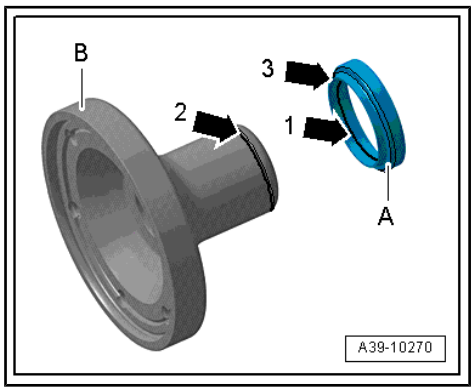


Remove the Ring -A- from the Flange/Driveshaft.

B - Separating Tool - 12-75mm , such as Puller - Kukko Quick Action Separating Tool - 12-75mm - 17/1-

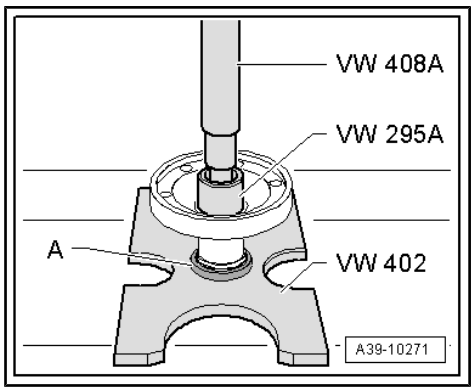
Installation Location of the Protective Ring -A- on the Flange/ Driveshaft

- The ridge -arrow 1- on the protective ring -A- must fit into the groove -arrow 2- on the flange -B-. The smaller outer circumference -arrow 3- faces the flange.



Install the Protective Ring -A- onto the Flange/Driveshaft.

- The protective ring -A- must fit into the groove all around the flange. Refer to ⇒ Fig. ""Installation Location of the Protective Ring -A- on the Flange/Driveshaft"" , page 98 .



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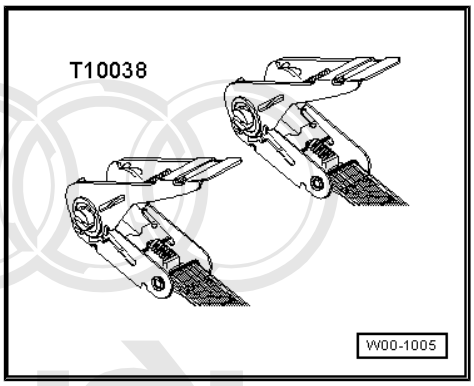
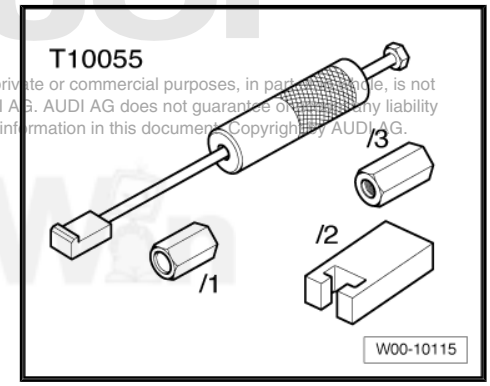
12 Special Tools

Special tools and workshop equipment required

- Tensioning Strap - T10038-



- Puller - Unit Injector - T10055-



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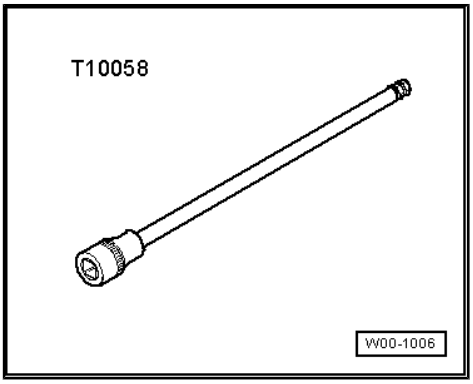
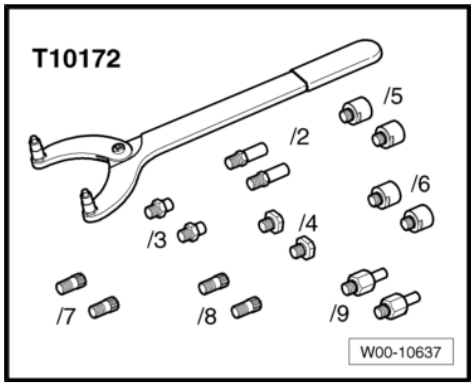
- -2- Puller - Unit Injector - Adapter 2 - T10055/2-
- Hex Ball Socket - T10058-

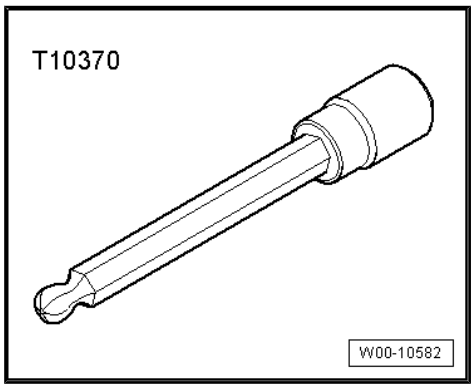


- Counterhold - Multiple Use - T10172A-
- Counterhold - Kit - Adapter 5 - T10172/5- (M8 Bolts)

- Counterhold - Kit - Adapter 6 - T10172/6- (M10 Bolts)



- Hex Socket - 4mm - T10370-



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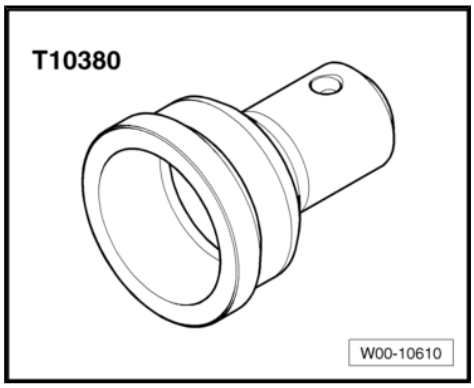
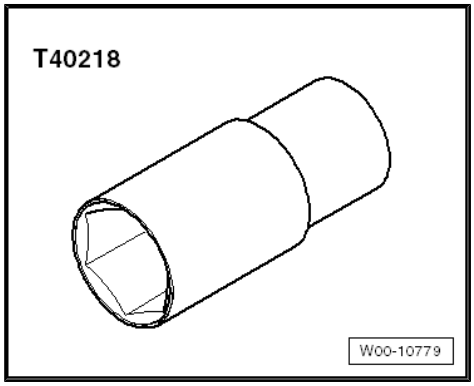
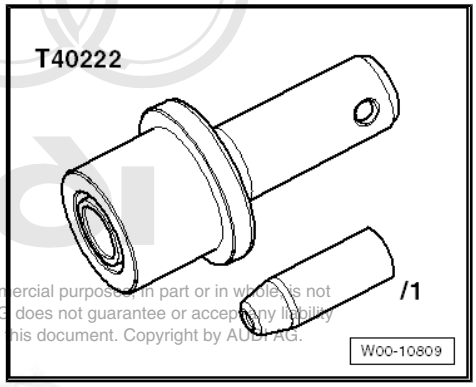
- Seal Installer - Hollow Shaft - T10380-



- Socket - 27mm - T40218-



- Seal Installer - Input Shaft - T40222-



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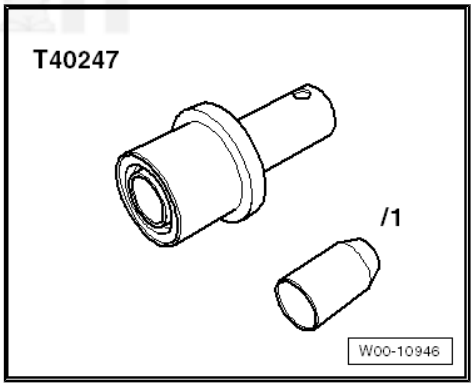
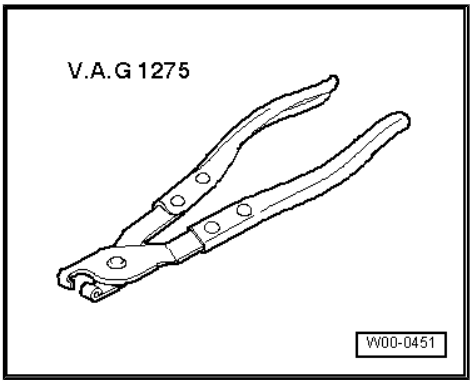
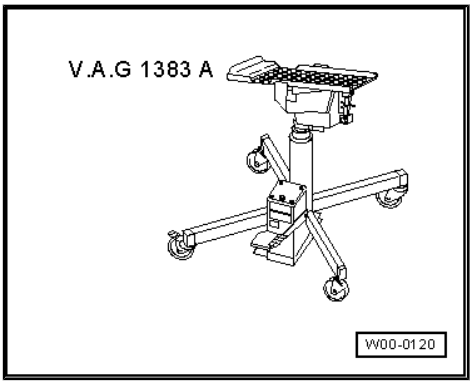
- Seal Installer - Input Shaft - Guide Sleeve - T40222/1-
- Seal Installer - Propshaft - T40247-



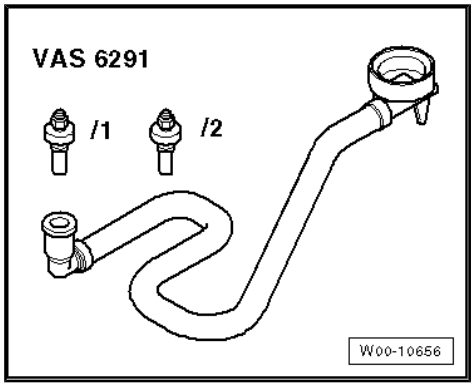
- Seal Installer - Propshaft - Guide Sleeve - T40247/1-
- Hose Clip Pliers - VAG1275A-



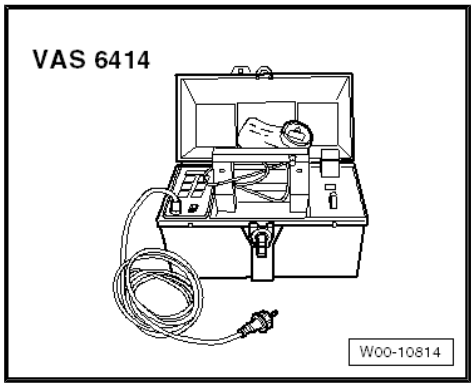
- Engine and Gearbox Jack - VAS6931- with Universal Transmission Support - VAG1359/2-



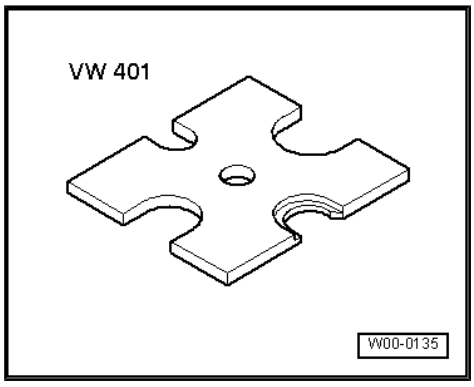
- Charging Device For Haldex Coupling 2 - VAS6291- or Charging Device For Haldex Coupling 2 - VAS6291A-



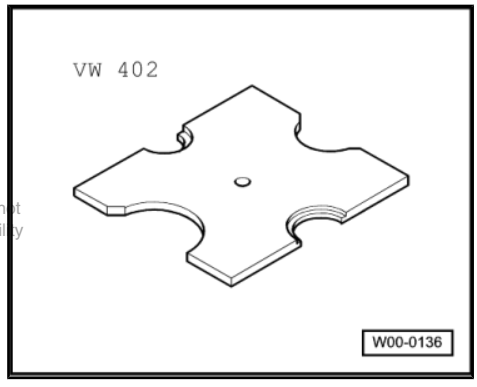
- Charging Device For Haldex Coupling 2 - Adapter 2 - VAS6291/2- or Charging Device For Haldex Coupling 2 - Adapter 3 - VAS6291/3-
- Inductive Heater - VAS6414-



- Press Plate - VW401-



- Press Plate - VW402-



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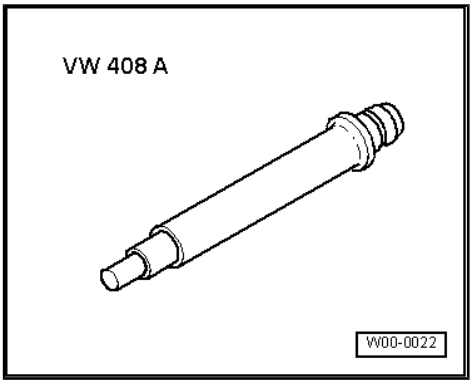
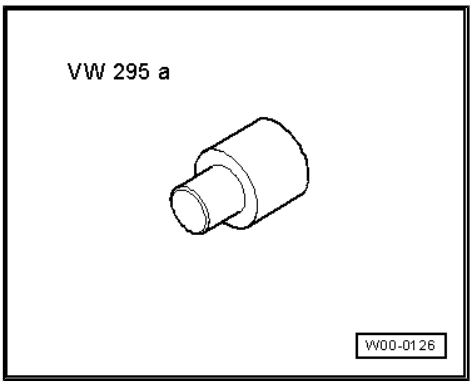
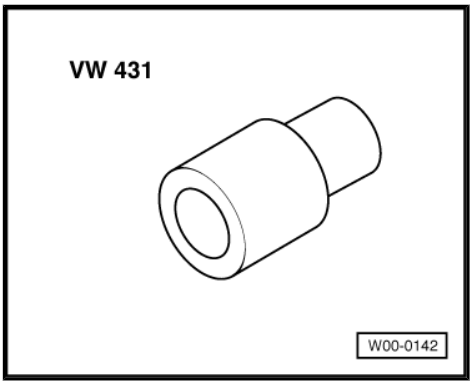
- Press Piece - Rod - VW408A-



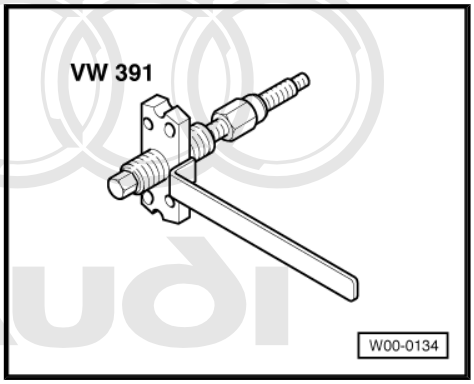
- Bearing/Bushing Installer - Multiple Use - VW295A-



- Press Piece - Multiple Use - VW431-



- Puller - Multiple Use - VW391-



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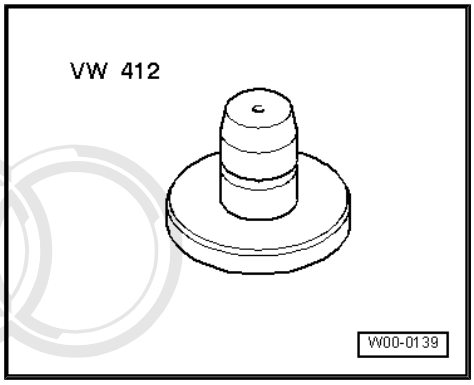
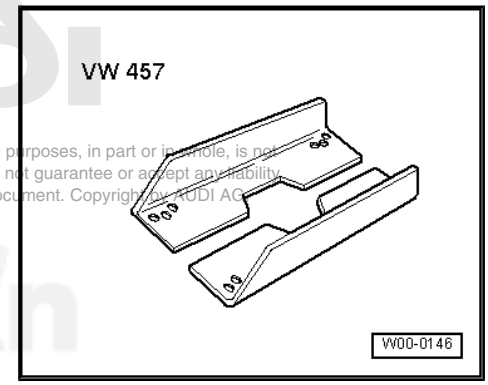
- Press Piece - Multiple Use - VW412-



- Support Channels - VW457-



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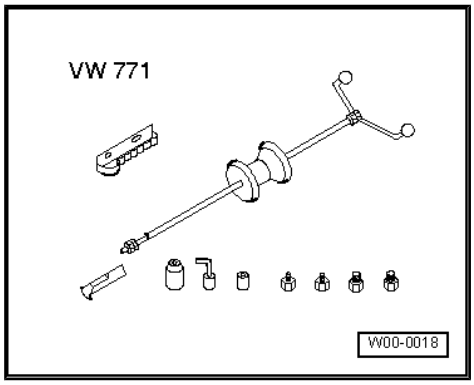
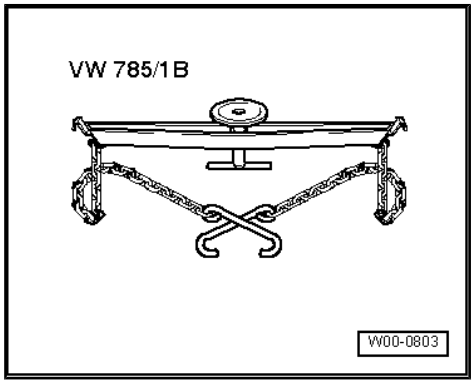
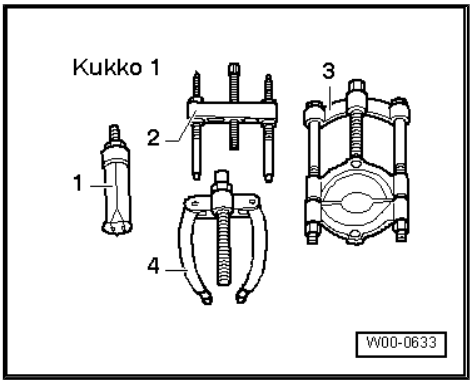
- Slide Hammer Set - VW771-



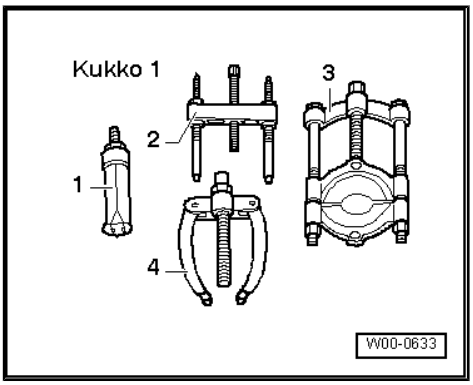
- Transmission Support - VW785/1B-



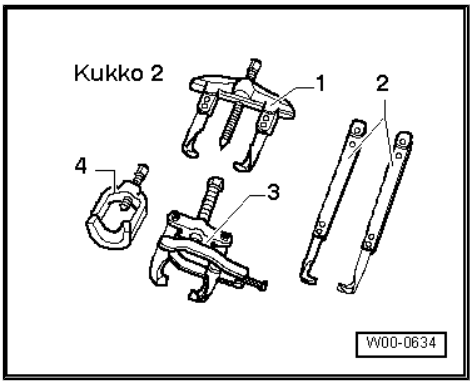
- -3- Separating tool 22 to 75 mm , such as Puller - Kukko Quick Action Separating Tool - 12-75mm - 17/1-



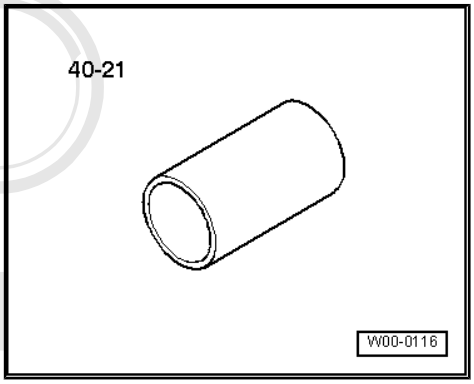
- -3- Separating Tool - 22-115mm , such as Puller - Kukko Quick Action Separating Tool - 22-115mm - 17/2-



- -1- Puller - Kukko 2-Arm - 70-180mm - 20/10-



- Bearing Installer - Differential Bearing - 40-21-



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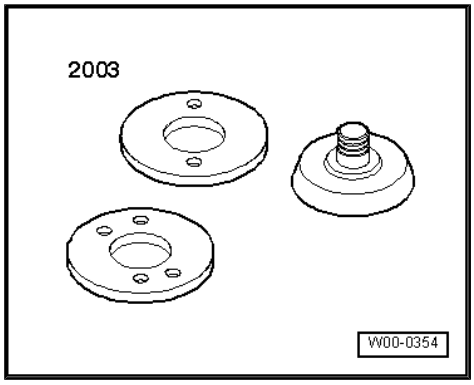
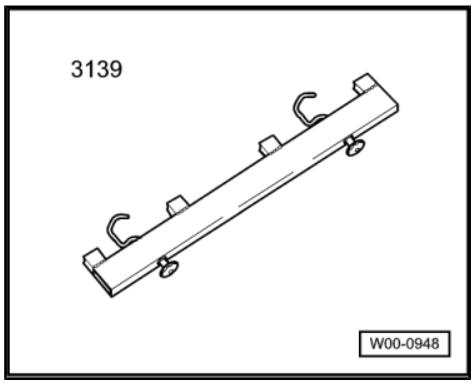
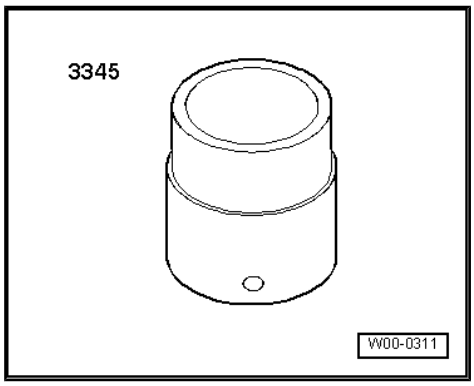
- Seal Installer - Flywheel Oil Seal Kit - Press Sleeve - 2003/1- from the Seal Installer - Flywheel Oil Seal Kit - 2003-



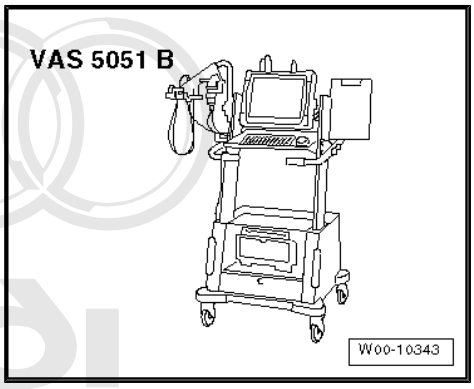
- Driveshaft Alignment Fixture - 3139-



- Bearing Installer - Wheel Bearing - 3345-



- Vehicle Diagnostic Tester



- Seal Installer - Drift Shaft - T40221-
- Digital Thermometer - VAS6519-
- Commercially Available Hot Plate
- Drip Tray

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13 Revision History

DRUCK NUMBER: A005A403921

Factory Edition	Edit Edition	Job Type	Impact	Feedback	Notes	Quality Checked By
	08/16/2016	Local Update	Low		Change Obergrup to “Drivetrain”	Tom Perry
	5/13/2015	New structure and link checking				Jim Harder
	1/15/2015	Title Change				Jim Harder

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Cautions & Warnings

Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Audi retailer or other qualified shop. We especially urge you to consult an authorized Audi retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Audi.

- Disconnect the battery negative terminal (ground strap)whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.

- Audi is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Audi retailer parts department for the latest information.

- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the VAG 1551 Scan Tool (ST).

- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.

- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.

- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.

- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.

- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.

- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.

- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.

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next

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Version 1.0

Cautions & Warnings

- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.

- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.

- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.

- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.

- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly, do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Audi specifications. Makeshift tools, parts and procedures will not make good repairs.

- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.

- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.

- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.

- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.

- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.

- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.

- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.

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Version 1.0

Cautions & Warnings

- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).

- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Audi Service technicians should test, disassemble or service the airbag system.

- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.

- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Audi Service technicians using the VAG 1551 Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.

- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.

- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

I have read and I understand these Cautions and Warnings.

back OK

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