



Repair Manual

Golf 2013 ➤

Golf 2015 ➤

Rear Final Drive

Engine ID	CJXC	CJXB	CYF B						
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Edition 03.2015





List of Workshop Manual Repair Groups

Repair Group

00 - General, Technical Data

39 - Final Drive, Differential

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



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00 – General, Technical Data

1 Safety Precautions

(Edition 03.2015)

⇒ **"1.1 Road Test with Testing Equipment Safety Precautions",
page 1**

⇒ **"1.2 Safety Precautions when Working on Start/Stop System",
page 1**

1.1 Road Test with Testing Equipment Safety Precautions

There is a risk of injury due to unsecured testing equipment.

If the front passenger airbag activates during an accident unsecured testing equipment becomes a dangerous projectile.

- Secure testing equipment on the rear seat.

or

- Have a second person operate testing equipment on the rear seat.

1.2 Safety Precautions when Working on Start/Stop System

Note the following when working on vehicles with a Start/Stop System:

There is a risk of injury from unintended engine start.

The engine can start unexpectedly when the Start/Stop System is activated on the vehicle. A message in the instrument cluster indicates whether the Start/Stop System is activated.

- Deactivate the Start/Stop System: switch off the ignition.



2 Identification

⇒ "2.1 Final Drive Identification", page 2

2.1 Final Drive Identification



Note

- ◆ The »Haldex clutch« is installed in the final drive.
- ◆ The final drive and »Haldex clutch« have separate oil circuits.
- ◆ The final drive "0CQ" is equipped with the »Haldex Clutch Generation V«. Identification

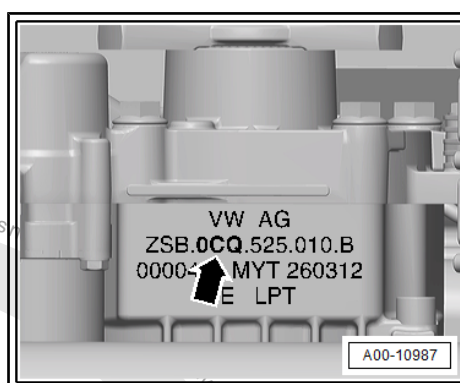
Rear final drive allocation

Rear Final Drive -0CQ-



Note

The identification -arrow- on the »bottom side« of the final drive identifies which final drive is installed.



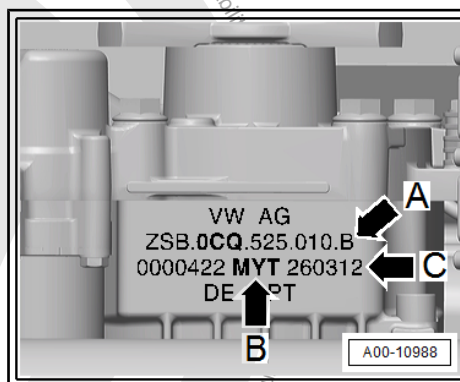
Example of the identification:

-Arrow A- final drive part number

-Arrow B- final drive code letters

-Arrow C- Final drive build date

MYT	26	03	12
Codes	Day	Month	Production year -2012-





3 Repair Information

⇒ [“3.1 General Repair Information”, page 3](#)

⇒ [“3.2 Seals and Gaskets”, page 4](#)

⇒ [“3.3 Nuts and Bolts”, page 4](#)

3.1 General Repair Information

⇒ [“3.1.1 General Information”, page 3](#)

⇒ [“3.1.2 Oil”, page 3](#)

⇒ [“3.1.3 Fasteners”, page 3](#)

⇒ [“3.1.4 Bearings”, page 4](#)

⇒ [“3.1.5 Shims”, page 4](#)

3.1.1 General Information

The highest level of caution and cleanliness along with the correct tools are essential to ensure a satisfactory and successful transmission repair. The general safety precautions, of course, also apply when carrying out repair work.

General information that applies to various different repair procedures is listed here instead of repeating it multiple times throughout the manual. They apply to this repair manual.

- ◆ Determine the cause of the malfunction as accurately as possible using Guided Fault Finding, OBD and Test Instruments before starting any repairs on the Haldex clutch using the Vehicle Diagnostic Tester.

3.1.2 Oil



Note

*The final drive and Haldex clutch have **separate** »oil circuits«.*

The final drive is filled with “gear oil” and the Haldex clutch with “high performance Haldex clutch oil”.

Oil for the “final drive” and “Haldex clutch” is available as a replacement part. Refer to the Parts Catalog.

Do not mix any »additives« in the oil.

Do not reuse drained transmission fluid.



Caution

Be very careful when handling transmission fluid. Dispose of drained transmission fluid correctly.

3.1.3 Fasteners

- ◆ Do not stretch the circlips.
- ◆ Replace damaged or stretched circlips.
- ◆ The circlips contact the bottom of the groove.



3.1.4 Bearings

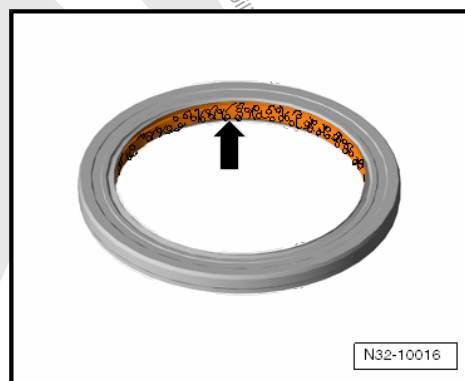
- ◆ Install needle bearings with lettered side (thicker metal) facing the fitting tool.
- ◆ Insert all the bearings in transmission with gear oil.
- ◆ Replace all the tapered roller bearings that are on the same shaft. Use tapered roller bearings from the same manufacturer.
- ◆ Heat the inner races to approximately 100 °C (212 °F) before installing.
- ◆ Do not interchange outer and inner bearing races with those from other bearing of the same size. The bearings are paired.

3.1.5 Shims

- ◆ Measure the shims at several locations with a micrometer caliper. Tolerance variations make it possible to find the exact shim thickness required.
- ◆ Check for burrs or damage.
- ◆ Only install perfect shims.

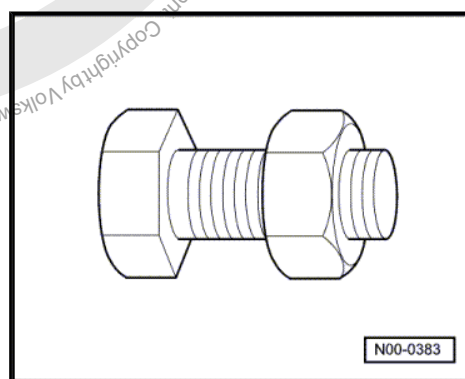
3.2 Seals and Gaskets

- ◆ Replace the O-rings, seals and gaskets.
- ◆ After removing gaskets and seals, always inspect the contact surfaces on the housing/shaft for burrs or damage resulting from removal.
- ◆ Before installing the seals, lightly oil the outer circumference and fill the space between the sealing lips -arrow- halfway with Grease - G 052 128 A1- .
- ◆ The open side of the seals point toward the fluid to be sealed in.
- ◆ Only use DSG transmission fluid. Other lubricants cause malfunctions.
- ◆ Check the oil level in the Haldex clutch after replacing gaskets, O-rings and seals.



3.3 Nuts and Bolts

- ◆ Loosen or tighten the bolts and nuts on the covers or housings diagonally.
- ◆ The tightening specifications stated apply to non-oiled bolts and nuts.
- ◆ Use a wire brush to clean the threads of bolts that were installed with locking fluid. Install the bolts with Locking Fluid - AMV 185 101 A1- .
- ◆ Clean the threaded holes for the self-locking bolts or for the bolts coated with locking fluid. (for example with a thread tap). Otherwise there is the risk that the bolts could break off the next time they are removed.
- ◆ Always replace self-locking bolts and nuts.





4 Technical Data

⇒ "4.1 Transmission/Engine Allocation", page 5

4.1 Transmission/Engine Allocation

Rear Final Drive	0CQ
	(Haldex clutch generation V)
Transmission type	6-speed DSG transmission, DQ 250-6A
Codes	PYP
Engine	2.0L 206/215/221 kW TFSI
Ratio: Z ₂ : Z ₁	27 : 17 = 1.588

Refer to the following data in the Parts Catalog.

- ◆ Production time period.
- ◆ Transmission allocation
- ◆ Engine allocation
- ◆ Drive axle flange diameter

4.2 Capacities

Rear Final Drive	0CQ
	(Haldex clutch generation V)
Final drive capacity	0.95 liter
Haldex clutch capacity	0.85 liter
Replacement capacity in Haldex clutch <ul style="list-style-type: none"> • Change interval. Refer to the Maintenance Tables 	0.65 liter



5 Electrical Components

⇒ **"5.1 Overview - Electrical Components", page 6**

5.1 Overview - Electrical Components



Note

Rear final drive "0CQ" with generation V Haldex clutch.

1 - Haldex Clutch Pump - V181-

- ❑ Can be checked in "Guided Fault Finding" using the Vehicle Diagnostic Tester .
- ❑ Removing and Installing. Refer to ⇒ **"6.3 Haldex Clutch Pump V181, Removing and Installing", page 35** .

2 - All Wheel Drive Control Module - J492-

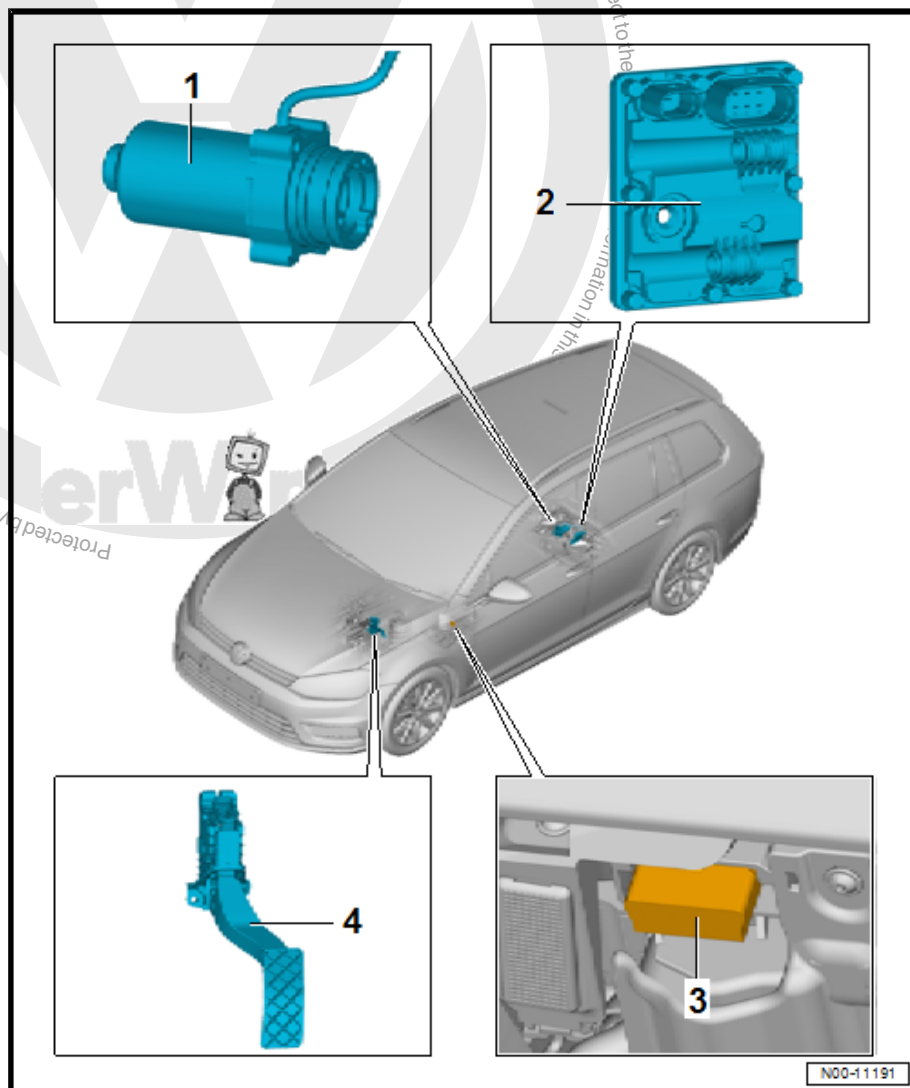
- ❑ Important signals are transmitted from the engine control module and ABS Control Module - J104- via the Data bus to the All Wheel Drive Control Module - J492- .
- ❑ Removing and Installing. Refer to ⇒ **"6.5 Control Module, Removing and Installing", page 41** .

3 - Diagnostic Connection - U31-

- ❑ Component location: inside the left front footwell

4 - Accelerator Pedal Position Sensor - G79- and Accelerator Pedal Position Sensor 2 - G185-

- ❑ Removing and installing. Refer to ⇒ Rep. Gr. 20 ; Accelerator Pedal Module; Accelerator Pedal Module, Removing and Installing .



39 – Final Drive, Differential

1 Final Drive

⇒ [“1.1 Overview - Final Drive”, page 7](#)

⇒ [“1.2 Final Drive, Removing and Installing”, page 7](#)

1.1 Overview - Final Drive

1 - Bolts

- ☐ 60 Nm +180°
- ☐ Quantity: 3
- ☐ Replace after removing

2 - Buffer

- ☐ Place on the bonded rubber bushing. Refer to ⇒ [Fig. “Installation Position of the Upper Rear and Lower Front Bonded Rubber Bushing when Installing the Impact Washer -B-”](#), page 18

3 - Washer

- ☐ Installation position: the driver assistance system (smaller diameter) faces the subframe

4 - Bolts

- ☐ 60 Nm +180°
- ☐ Replace after removing

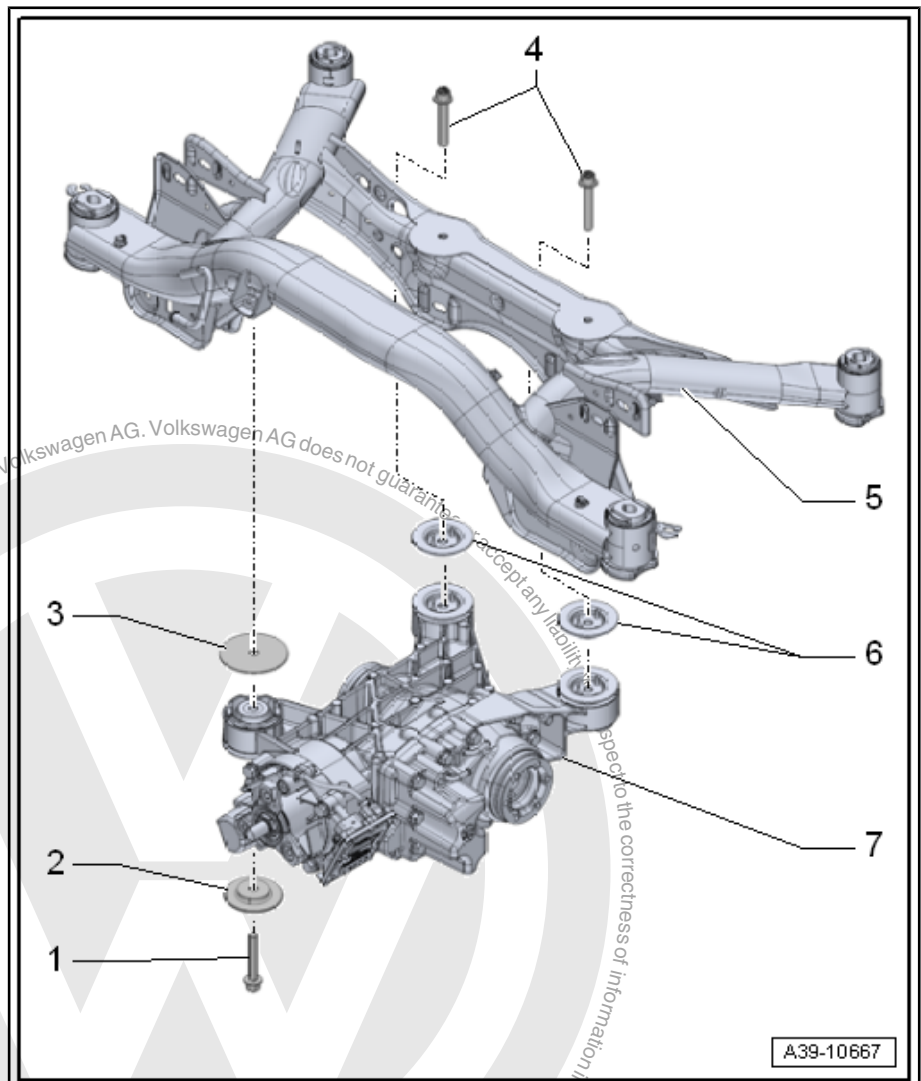
5 - Rear Subframe

6 - Stop Washers

- ☐ Place on the bonded rubber bushing. Refer to ⇒ [Fig. “Installation Position of the Upper Rear and Lower Front Bonded Rubber Bushing when Installing the Impact Washer -B-”](#), page 18

7 - Rear Final Drive

- ☐ Removing and Installing. Refer to ⇒ [“1.2 Final Drive, Removing and Installing”, page 7](#) .
- ☐ Bonded Rubber Bushing, Removing and Installing. Refer to ⇒ [“2.2 Bonded Rubber Bushing, Removing and Installing”, page 16](#) .



1.2 Final Drive, Removing and Installing

Special tools and workshop equipment required

- ◆ Multipoint Socket - T10035- and if necessary Bits for V.A.G. 1331/13 - T10099-
- ◆ Counterhold - Kit - Multiple Use - T10172A- with Counterhold - Kit - Adapter 5 - T10172A/5-



- ◆ Subframe Bushing Tool Kit - 3301- and Thrust Piece - 3301/2-
- ◆ Engine and Gearbox Jack - VAS6931- or Engine/Gearbox Jack - VAG1383A-
- ◆ Bearing Installer - Spindle - 3346/2- and Bearing Installer - Nut - 3346/3-

Brief Description

The rear axle is lowered at the rear bearing areas.

The stabilizer bar and the rear spring are removed, the drive axle is removed from the final drive. Connectors and ventilation lines are disconnected at final drive.

Remove the rear section of the exhaust system with the shield and disconnect the driveshaft from the final drive.

The final drive is lowered with the transmission jack downward at an angle in the direction of travel.

Removing

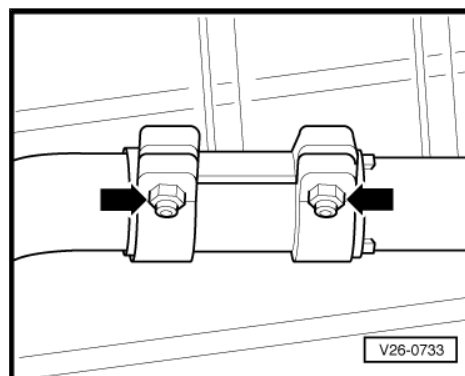


Caution

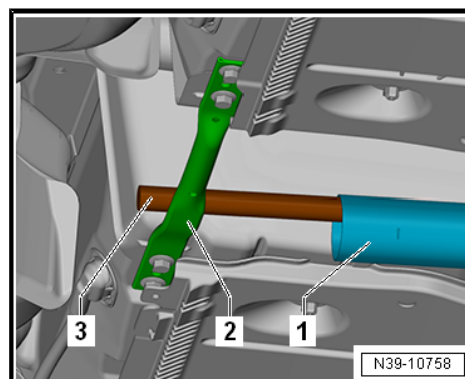
Risk of damaging the decoupling element

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

- Separate the exhaust system at the clamping sleeve -arrows- and remove the rear section of the exhaust system. Refer to ⇒ Rep. Gr. 26 ; Exhaust Pipes and Mufflers; Overview - Muffler .



- Place a pipe or pry bar -3- in the front exhaust pipe -1- and lay it on the tunnel brace -2-.
- Remove the rear stabilizer bar. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 ; Stabilizer Bar; Stabilizer Bar, Removing and Installing .
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation .



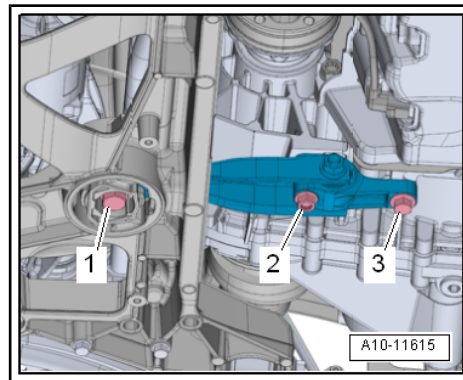


- Remove the pendulum support bolts -2 and 3-.

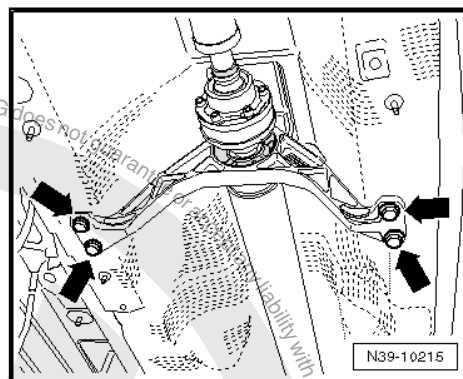


Note

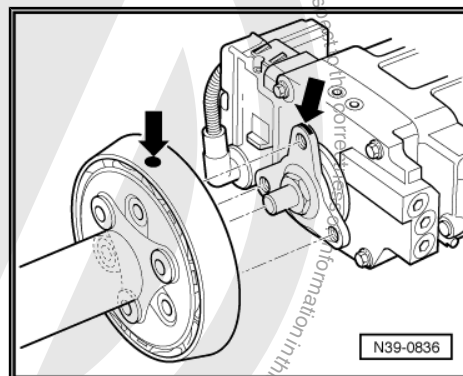
Ignore -item 1-.



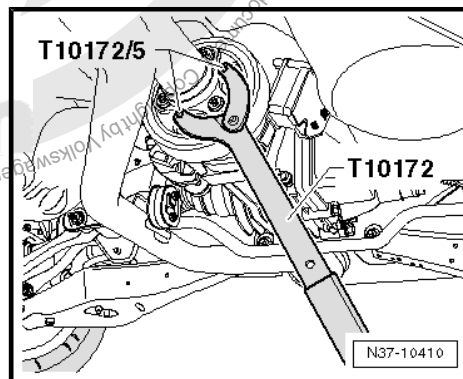
- Loosen, but do not remove, the driveshaft intermediate bearing bolts -arrows-.



- Make sure there is a marking (a color dot) on the flexible disc and the driveshaft flange on the rear final drive -arrows-.
- If the marking is not there, then mark the position of the flexible disc to the driveshaft flange on the rear final drive.

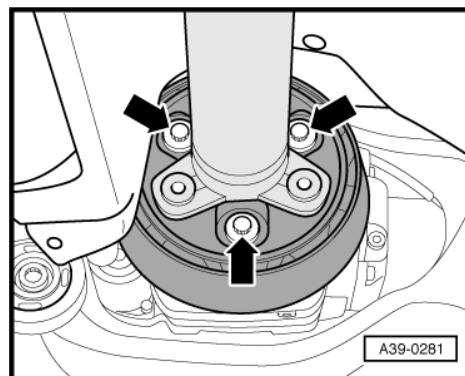


- To loosen the driveshaft bolts, counterhold with the Counterhold - Multiple Use - T10172A, and the Counterhold - Kit - Adapter 5 - T10172A/5- on the rear final drive.





- Remove the driveshaft bolts -arrows- from the rear final drive.

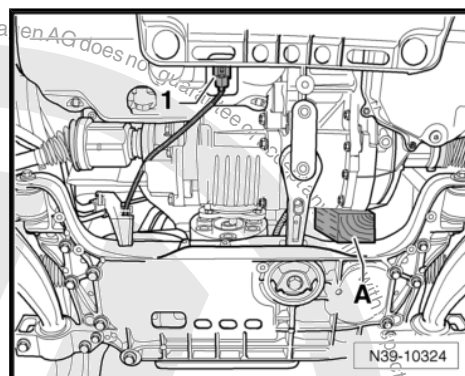


- Press the engine/transmission assembly forward and secure with a suitable piece of wood -A-.



Note

Ignore -item 1-.

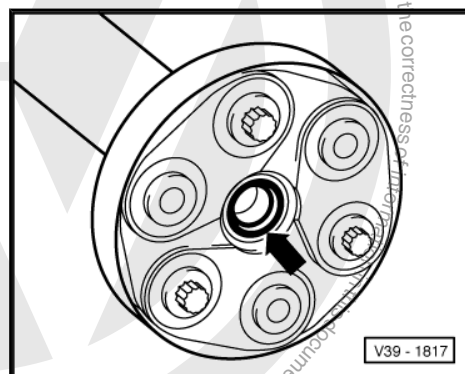


- When removing and installing the driveshaft, be careful not to damage the socket -arrow-.

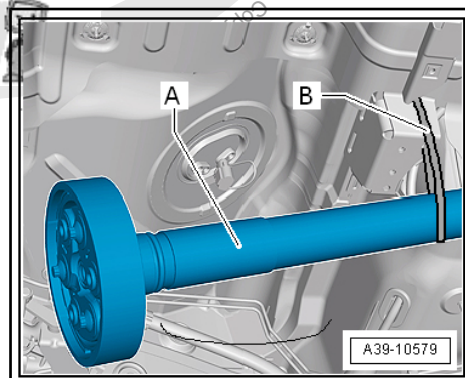


Note

If the seal is damaged the driveshaft must be replaced.

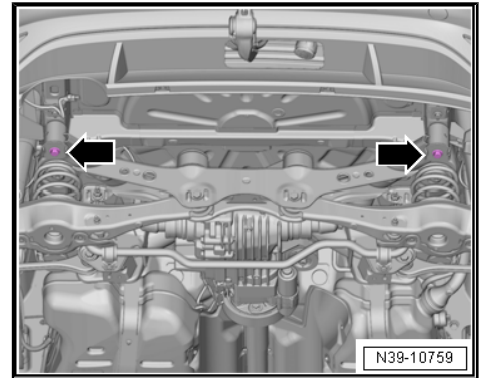


- Remove the driveshaft -A- from the alignment pins on the rear final drive and tie up using for example a wire -B- to the side of the body.
- With a piece of wood positioned underneath, place the Engine and Gearbox Jack - VAS6931- under the rear final drive.





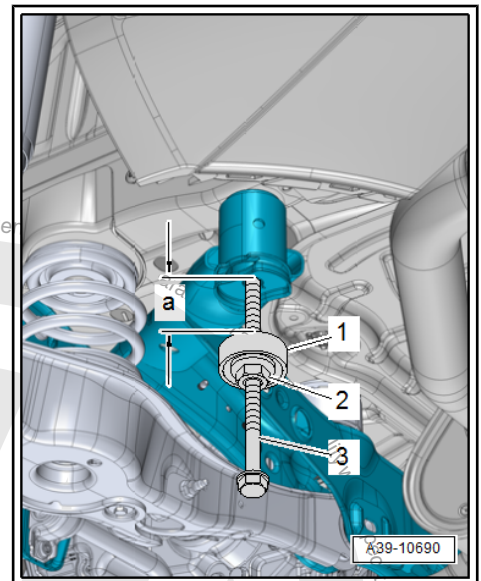
- Loosen the rear axle at the rear bearing areas -arrows-.



- Install the Bearing Installer - Component - 3346/2- with Subframe Bushing Tool Kit - 3301- and the Bearing Installer - Nut - 3346/3- in the body to 15 Nm as shown in the illustration.

- 1 - Subframe Bushing Tool Kit - 3301-
- 2 - Bearing Installer - Nut - 3346/3-
- 3 - Bearing Installer - Component - 3346/2-

- Install the Bearing Installer - Nut - 3346/3- on the Bearing Installer - Component - 3346/2- until the dimension -a- = 40 mm is reached.



Note

Do not lower the subframe more than 40 mm.

- Lower the Engine and Gearbox Jack - VAS6931- until the subframe touches the Subframe Bushing Tool Kit - 3301- .

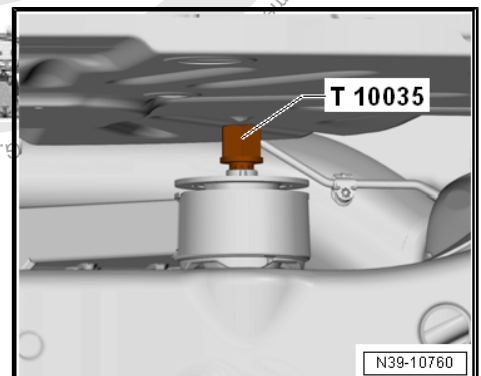


WARNING

There is the risk of an accident.

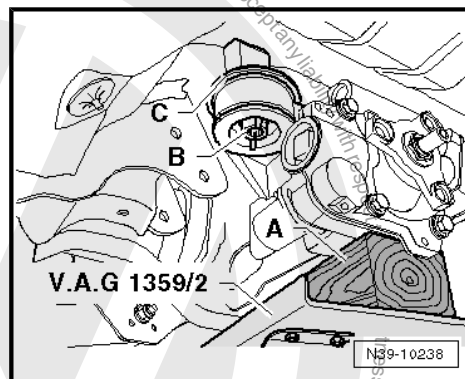
- ♦ *The Engine and Gearbox Jack - VAS6931- may only be used during assembly and must not sit unsupervised under the vehicle.*

- Remove the drive axles from the rear final drive. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 ; Drive Axle; Drive Axle Removing and Installing
- Remove the rear final drive bolts from the rear axle using the Multipoint Socket - T10035- . To remove the bolts the Bits for VAG1331/13 - T10099/1- can also be used.

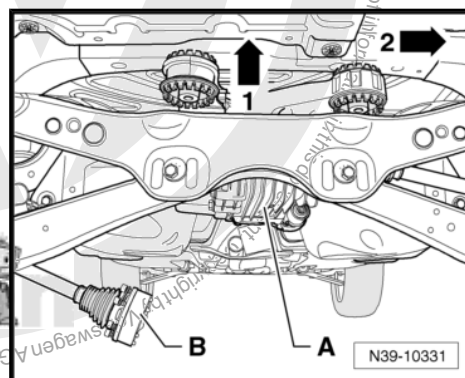




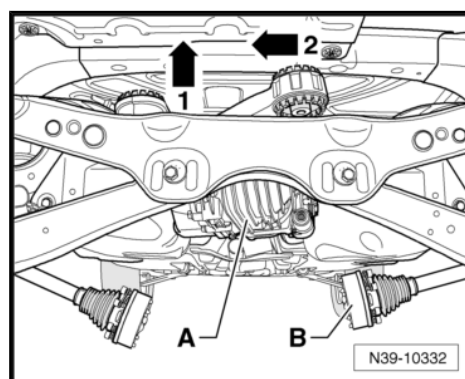
- Remove the bolt -B- from the front bonded rubber bushing.
- Remove the upper washer -C- from the bonded rubber bushing.



- Lift the final drive -A- in the rear -arrow 1- and push it as far as possible to the right -arrow 2-.
- Remove the left drive axle -B- from the flange and carefully lower it.



- Lift the final drive -A- in the rear -arrow 1- and push it as far as possible to the left -arrow 2-.
- Remove the right drive axle -B- from the flange and carefully lower it.
- Move the final drive back to the installed position.



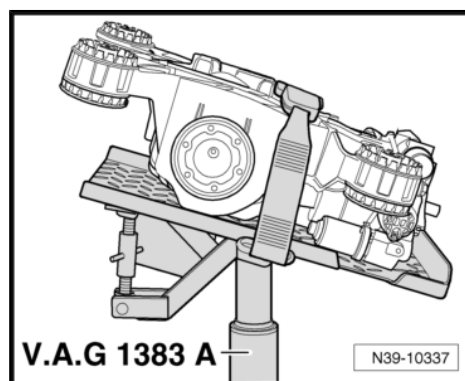
- Secure the final drive using a strap, as shown in the illustration.



Note

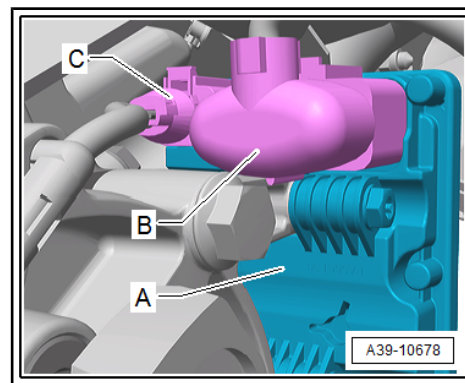
In the illustration, the final drive is removed.

- Tilt the final drive at an angle with the Engine and Gearbox Jack - VAS6931- and lower it slightly, as shown in the illustration.





- Remove the connector -B- from the All Wheel Drive Control Module - J492- -A-. Ignore item -C-.



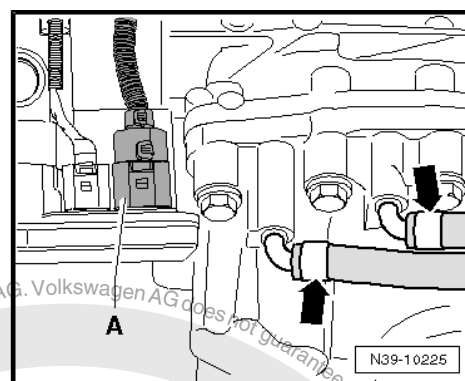
- Remove the vent lines -arrows- from the final drive.



Note

Ignore -item A-.

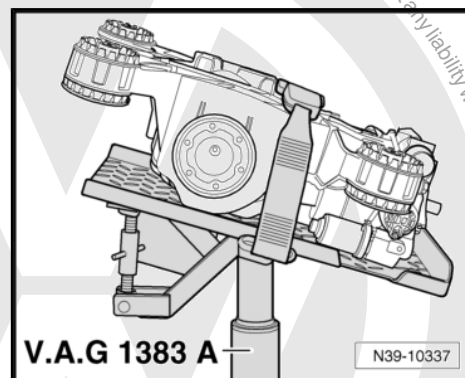
- Lower the final drive more and pull forward to remove. Make sure there is sufficient clearance to the other components while doing this.



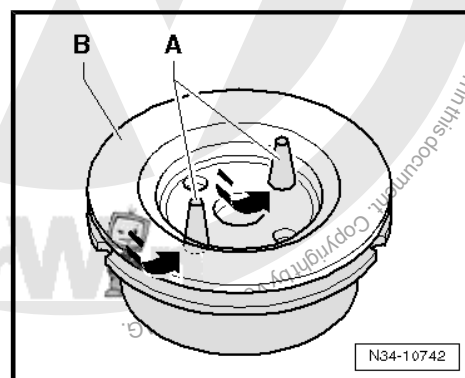
Installing

Install in the reverse order of removal while paying attention to the following:

- Secure final drive against falling down with universal support strap.
- Move the rear final drive to the illustrated position.



- Pay attention that the stop washers -B- are positioned on the rear bearing from above as shown. Correct placement prevents the gummy nipples -A- from falling or sliding out of the washer when installing.





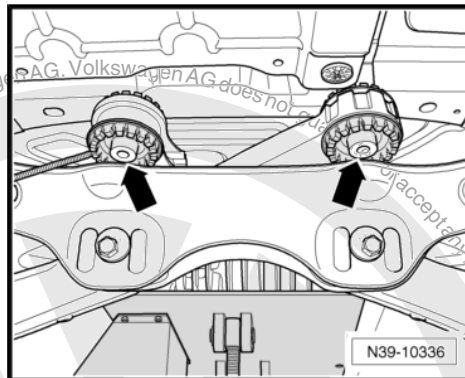
- Before installing the final drive, place the two new bolts in the rear bearing from above -arrows-.

If final drive is replaced:

- Check fluid level in Haldex clutch. Refer to
⇒ [“4.1 Haldex Clutch Oil, Checking Level”, page 21](#).
- Check the final drive oil level. Refer to
⇒ [“3.2 Gear Oil, Checking Level”, page 19](#).

Tightening Specifications

- ◆ Refer to ⇒ [“1.1 Overview - Final Drive”, page 7](#)
- ◆ Refer to ⇒ [“7.1 Overview - Driveshaft”, page 43](#)
- ◆ Overview - Subframe Mount. Refer to ⇒ Rep. Gr. 10 ; Subframe Mount; Overview - Subframe Mount .
- ◆ Exhaust Pipes and Mufflers; Overview - Muffler. Refer to ⇒ Rep. Gr. 26 ; Exhaust Pipes and Mufflers; Overview - Muffler .
- ◆ Overview - Drive Axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 ; Drive Axle; Overview - Drive Axle .
- ◆ Overview - Subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 ; Subframe; Overview - Subframe .
- ◆ Overview - Stabilizer Bar. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 ; Stabilizer Bar; Overview - Stabilizer Bar .
- ◆ Overview - Noise Insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation .





2 Subframe Mount

⇒ ["2.1 Overview - Subframe Mount", page 15](#)

⇒ ["2.2 Bonded Rubber Bushing, Removing and Installing", page 16](#)

2.1 Overview - Subframe Mount



Note

Replace the bonded rubber bushings in »pairs« (upper and lower bushings).

1 - "Upper Rear" Bonded Rubber Bushing

- ☐ With buffer
- ☐ Allocation. Refer to the Parts Catalog.
- ☐ Remove the buffer for removal and installation
- ☐ Removing and Installing. Refer to
⇒ ["2.2 Bonded Rubber Bushing, Removing and Installing", page 16](#).

2 - "Lower Rear" Bonded Rubber Bushing

- ☐ Without buffer
- ☐ Allocation. Refer to the Parts Catalog.
- ☐ Removing and Installing. Refer to
⇒ ["2.2 Bonded Rubber Bushing, Removing and Installing", page 16](#).

3 - "Lower Rear" Bonded Rubber Bushing

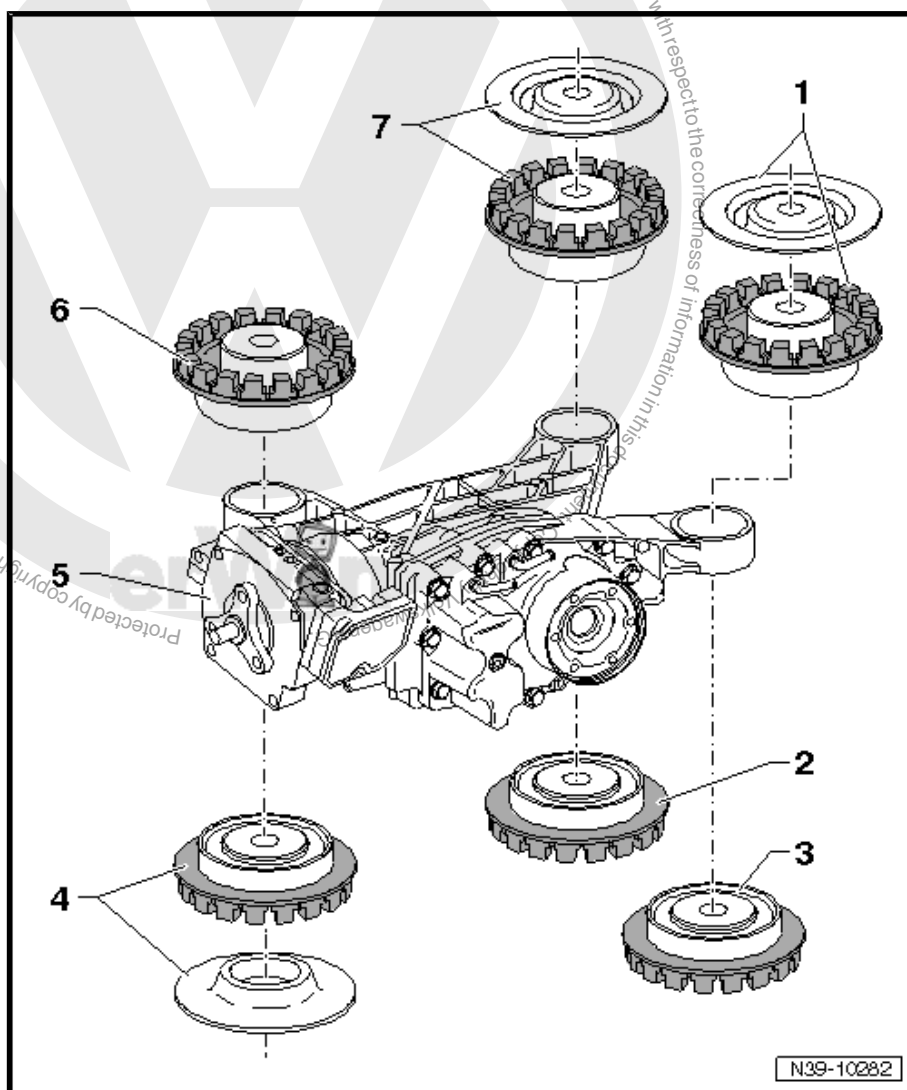
- ☐ Without buffer
- ☐ Allocation. Refer to the Parts Catalog.
- ☐ Removing and Installing. Refer to
⇒ ["2.2 Bonded Rubber Bushing, Removing and Installing", page 16](#).

4 - "Lower Front" Bonded Rubber Bushing

- ☐ With buffer
- ☐ Allocation. Refer to the Parts Catalog.
- ☐ Remove the buffer for removal and installation
- ☐ Removing and Installing. Refer to
⇒ ["2.2 Bonded Rubber Bushing, Removing and Installing", page 16](#).

5 - Rear Final Drive

- ☐ Remove to replace the bonded rubber bushing. Refer to
⇒ ["2.2 Bonded Rubber Bushing, Removing and Installing", page 16](#).





6 - "Upper Front" Bonded Rubber Bushing

- ☐ Without buffer
- ☐ Allocation. Refer to the Parts Catalog.
- ☐ Removing and Installing. Refer to
⇒ ["2.2 Bonded Rubber Bushing, Removing and Installing", page 16](#) .

7 - "Upper Rear" Bonded Rubber Bushing

- ☐ With buffer
- ☐ Allocation. Refer to the Parts Catalog.
- ☐ Remove the buffer for removal and installation
- ☐ Removing and Installing. Refer to
⇒ ["2.2 Bonded Rubber Bushing, Removing and Installing", page 16](#) .

2.2 Bonded Rubber Bushing, Removing and Installing

Special tools and workshop equipment required

- ◆ Locking Pin Driver - 30-505-
- ◆ Press Piece - Bushing - 50mm Diameter - VW554-
- ◆ Bushing Installer - Rear Axle Beam - 3128-
- ◆ Rear Bushing Tool Press Piece - T40033/1-
- ◆ Assembly Tool Kit - Traverse - T10030/5-
- ◆ Bearing Installer - Component - 3346/2-
- ◆ Bearing Installer - Control Arm Nut - 3346/3-
- ◆ Puller - Kukko Internal - 12-16mm - 21/1-
- ◆ Puller - Kukko Counterstay - 22/1-

Removing

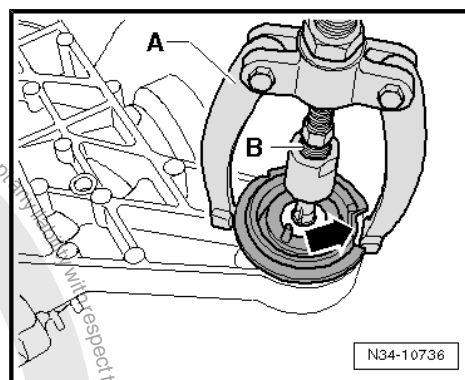
- Remove the rear final drive. Refer to
⇒ ["1.2 Final Drive, Removing and Installing", page 7](#)

Removing the "Upper Rear" Bonded Rubber Bushing

A - Counter support, for example Puller - Kukko Counterstay - 22/1-

B - Internal puller 12 to 16 mm, for example Puller - Kukko Internal - 12-16mm - 21/1-

- A piece must be broken out of the bonded rubber bushing collar -arrow- to attach the Puller - Kukko Counterstay - 22/1- .
- Insert the Puller - Kukko Internal - 12-16mm - 21/1- in the separating gap of the upper and lower bonded rubber bushing and tension.



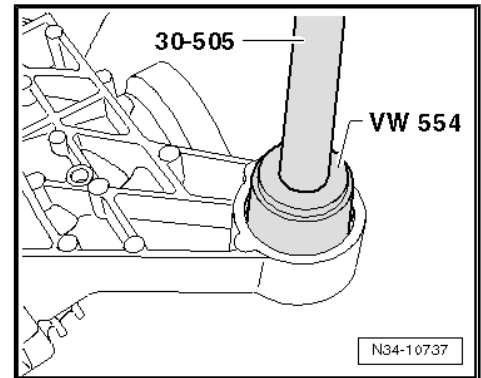


Removing the "Lower Rear" Bonded Rubber Bushing



Note

If the bonded rubber bushing should be replaced separately, it can be removed with the Puller - Kukko Counterstay - 22/1- and the Puller - Kukko Internal - 12-16mm - 21/1- . Refer to ⇒ Fig. "Removing the Upper Rear Bonded Rubber Bushing" , page 16 .



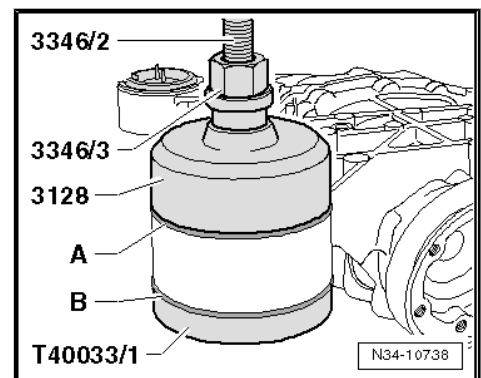
Installing the "Upper Rear" -A- and "Lower Rear" -B- Bonded Rubber Bushings

- Lay a washer with an »internal diameter of 15 mm« and an »outer diameter of a minimum of 27 mm« on the Bearing Installer - Component - 3346/2- before it is installed.



Note

Instead of the Rear Bushing Tool Press Piece - T40033/1- the Bearing Installer - Control Arm Press Piece - 3416/1- can also be used.



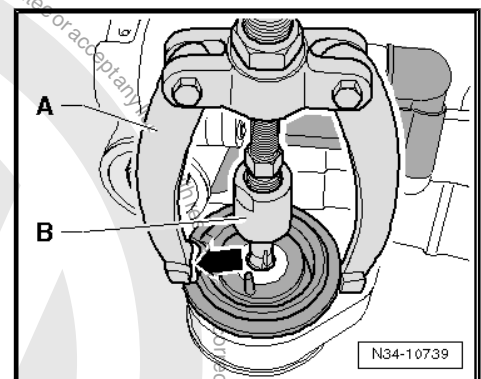
Removing the "Lower Front" Bonded Rubber Bushing

- To prevent oil from leaking out of the final drive and the Haldex clutch in the following step, seal off both vent pipes.
- Place the final drive on the work bench with the upper section facing down and remove the bonded rubber bushing.

A - Counter support, for example Puller - Kukko Counterstay - 22/1-

B - Internal puller 12 to 16 mm, for example Puller - Kukko Internal - 12-16mm - 21/1-

- A piece must be broken out of the bonded rubber bushing collar -arrow- to attach the Puller - Kukko Internal - 12-16mm - 21/1- .
- Insert the Puller - Kukko Counterstay - 22/1- in the joint of the upper and lower bonded rubber bushing and tension.

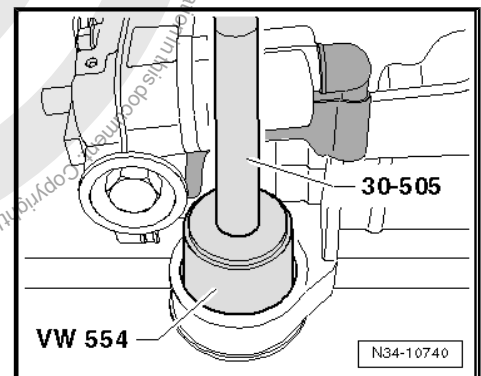


Removing the "Upper Front" Bonded Rubber Bushing



Note

If the bonded rubber bushing should be replaced separately, it can be removed with the Puller - Kukko Counterstay - 22/1- and the Puller - Kukko Internal - 12-16mm - 21/1- . Refer to ⇒ Fig. "Removing the Upper Rear Bonded Rubber Bushing" , page 16 .





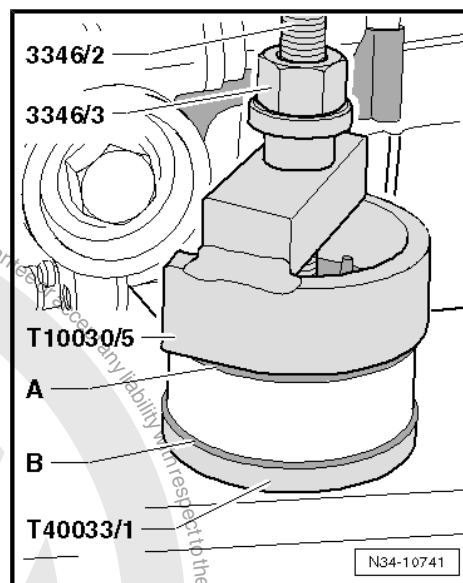
Installing the "Lower Front" -A- and "Upper Front" -B- Bonded Rubber Bushings.

- Lay a washer with an »internal diameter of 15 mm« and an »outer diameter of a minimum of 27 mm« on the Bearing Installer - Component - 3346/2- before it is installed.



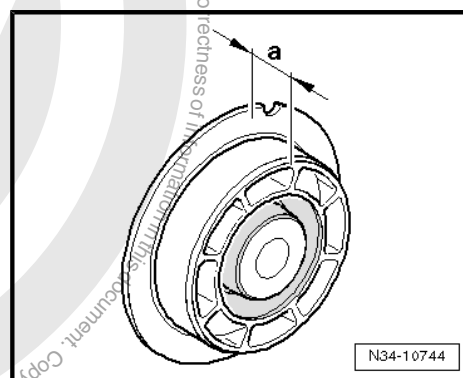
Note

Instead of the Rear Bushing Tool Press Piece - T40033/1- the Bearing Installer - Control Arm Press Piece - 3416/1- can also be used.



Characteristics of the "Upper Rear" and "Lower Front" Bonded Rubber Bushings

The "upper rear" and "lower front" bonded rubber bushings can be differentiated.



Dimension "a" mm	Bonded Rubber Bushing
22	"upper rear"
17	"lower front"

Installation Position of the "Upper Rear" and "Lower Front" Bonded Rubber Bushing when Installing the Impact Washer -B-

- Final drive in its installation position.

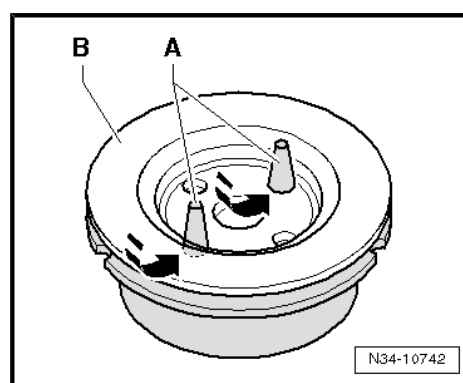
Installation Location of the "Upper Rear" and "Lower Front" Bonded Rubber Bushing:

- ♦ The "upper rear" bonded rubber bushings -item 1-
⇒ [Item 1 \(page 15\)](#) are positioned with the pins -A- facing up.
- ♦ The "lower front" bonded rubber bushings -item 4-
⇒ [Item 4 \(page 15\)](#) are positioned with the pins -A- facing down.

Installing the Buffer -B-

- Pull the pins -A- into the holes in the stop washer -B-
-arrows-.

The buffer -B- is then connected to the bonded rubber bushing and cannot be lost.





3 Gear Oil

⇒ [“3.1 Overview - Drain and Check Plugs”, page 19](#)

⇒ [“3.2 Gear Oil, Checking Level”, page 19](#)

3.1 Overview - Drain and Check Plugs

1 - Drain Plug for Haldex Oil

- ☐ 32 Nm
- ☐ Replace after removing

2 - Oil Filler Plug for Haldex Oil

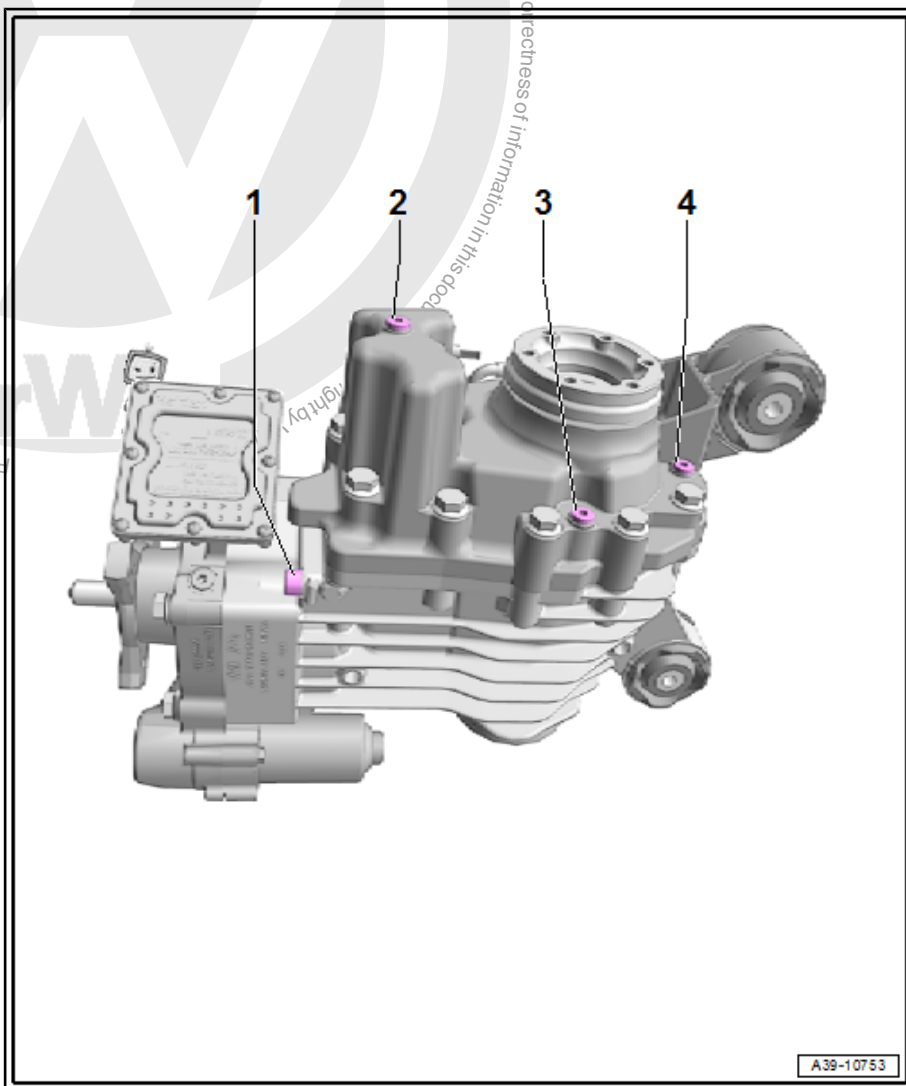
- ☐ 15 Nm
- ☐ Replace after removing

3 - Gear Oil Drain Plug

- ☐ 19 Nm
- ☐ Replace after removing

4 - Oil Filler Plug for Gear Oil

- ☐ 19 Nm
- ☐ Replace after removing



3.2 Gear Oil, Checking Level

Special tools and workshop equipment required

- ◆ Shop Crane - Drip Tray - VAS6208-
- ◆ Charging Device For Haldex Coupling 2 - VAS6291A-

Test Requirement

- The vehicle must be level.
- Transmission fluid specification for rear final drive. Refer to the Parts Catalog.



Note

Checking the oil level

- Place the Shop Crane - Drip Tray - VAS6208- under the final drive.
- Remove the oil filler plug -arrow- for the Gear Oil .

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

- Tighten the new oil filler plug -arrow-.

Filling the Oil

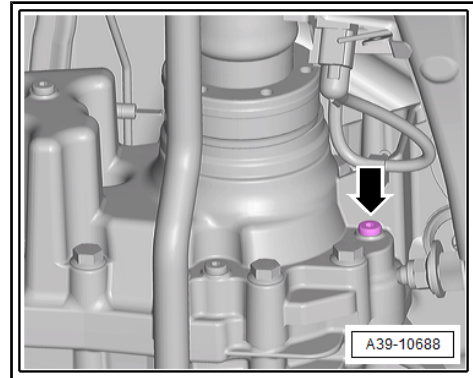
- Add enough oil using Charging Device For Haldex Coupling 2 - VAS6291A- until it runs out between the filler tool adapter and the transmission housing.
- Remove the filler tool and adapter; a little oil left over will run out.

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

- Tighten the new oil filler plug -arrow-.

Tightening Specifications

- ◆ Refer to ⇒ [“3.1 Overview - Drain and Check Plugs”, page 19](#)





4 High-Performance Haldex Clutch Oil

⇒ [“4.1 Haldex Clutch Oil, Checking Level”, page 21](#)

⇒ [“4.2 High-Performance Haldex Clutch Oil, Draining and Filling”, page 21](#)

⇒ [“4.3 High-Performance Haldex Clutch Oil, Changing”, page 23](#)

4.1 Haldex Clutch Oil, Checking Level

Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester
- ◆ Shop Crane - Drip Tray - VAS6208-
- ◆ High-Performance Haldex Clutch Oil . Refer to the Parts Catalog.

Test Requirements

- The oil temperature must be 20 to 40 °C (68 to 104 °F).
- The oil temperature can be reached by driving the vehicle for awhile.
- The vehicle must be level.
- Final drive must be in installation position to check oil level.
- Read the oil temperature use the Vehicle Diagnostic Tester in Guided Functions.
- The oil temperature must be 20 to 40 °C (68 to 104 °F).

Checking the Oil Level

- Place the Shop Crane - Drip Tray - VAS6208- under the final drive.
- Remove oil level inspection plug -A-.



Note

Oil level is correct if Haldex clutch is filled to lower edge of oil filler hole or up to 3 mm below oil filler hole.

- If necessary, only fill with High-Performance Haldex Clutch Oil . Refer to
⇒ [“4.2 High-Performance Haldex Clutch Oil, Draining and Filling”, page 21](#) .

Tightening Specifications

- ◆ Refer to ⇒ [“3.1 Overview - Drain and Check Plugs”, page 19](#)

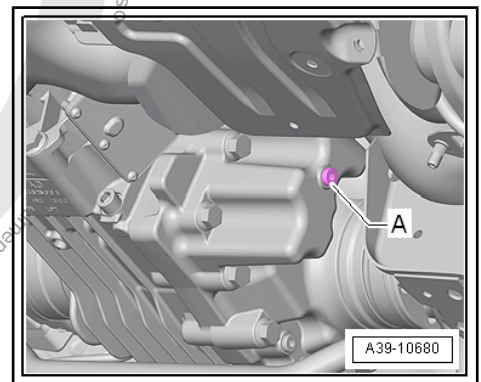
4.2 High-Performance Haldex Clutch Oil, Draining and Filling

Special tools and workshop equipment required

- ◆ Charging Device For Haldex Coupling 2 - VAS6291A-
- ◆ Shop Crane - Drip Tray - VAS6208-

Draining oil

- The vehicle must be level.
- Place the Shop Crane - Drip Tray - VAS6208- underneath.

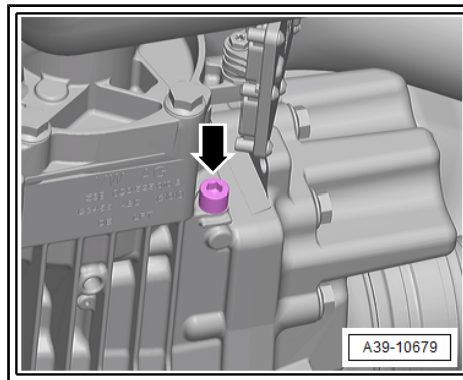




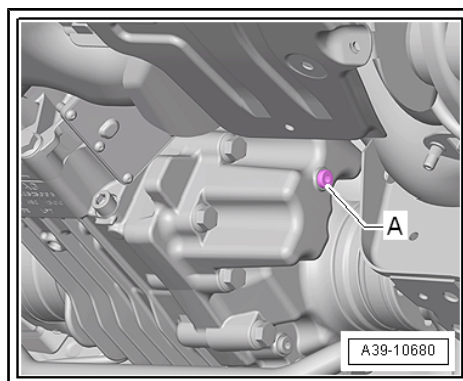
- Remove the drain plug -arrow- and completely drain the High Performance Haldex Clutch Oil .
- Install a new drain plug -arrow- and tighten to the tightening specification.

Oil, Filling

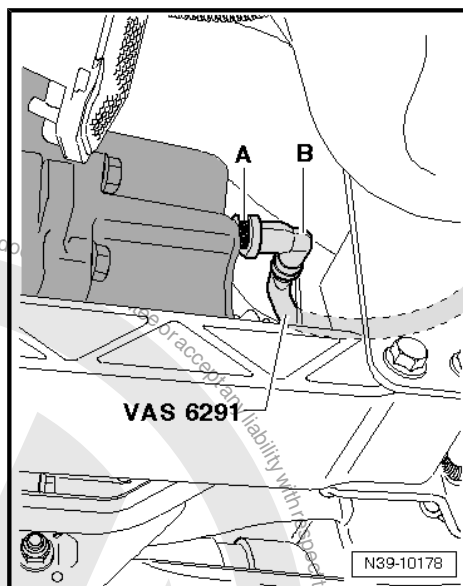
- Place the Shop Crane - Drip Tray - VAS6208- under the final drive.



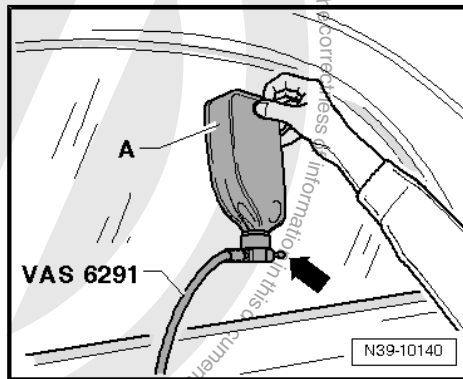
- To add oil use the Charging Device For Haldex Coupling 2 - VAS6291A- .
- Remove the oil filler plug -A- for the High-Performance Haldex Clutch Oil .



- Disconnect the adapter -A- and elbow -B-.
- Install the adapter -A- all the way.
- Lock the elbow -B- with the adapter -A-.
- Route the Charging Device For Haldex Coupling 2 - VAS6291A- hose over the drive axle.
- The hose must not hang through. It must enter above left rear wheel on vehicle.
- Lower the vehicle.



- Close the valve -arrow-.
 - Attach the oil container -A- to the Charging Device For Haldex Coupling 2 - VAS6291A- .
 - Open the valve -arrow- and hold the oil container as illustrated.
- Haldex clutch is now filled.





Note

When the Haldex clutch is filled properly, oil escapes at adapter -A-.

- Raise the vehicle.
- If oil escapes, place an oil container under the Haldex clutch (for example, on a workshop cart).

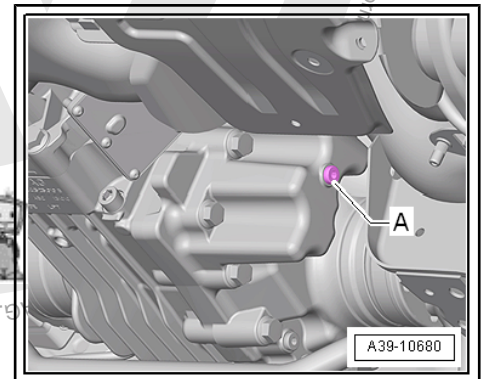
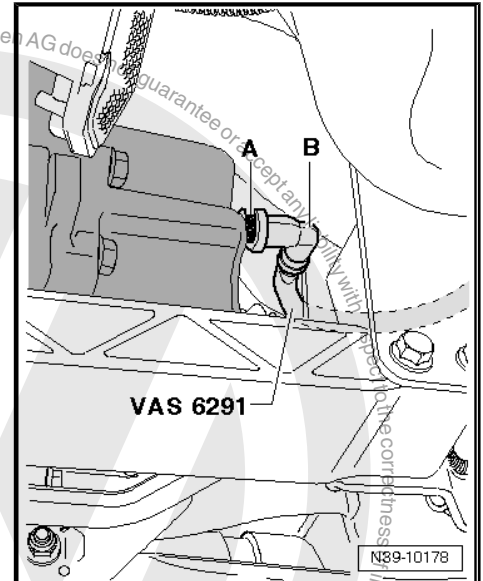
Overflowing oil now runs back into the oil container.

- When the oil stops flowing, remove the Charging Device For Haldex Coupling 2 - VAS6291- .
- The Haldex clutch is not filled up to the lower edge of the oil filler hole.

- Install a new oil filler plug -A-.
- Finally, check the oil level in Haldex clutch. Refer to ➔ [“4.1 Haldex Clutch Oil, Checking Level”, page 21](#) .

Tightening Specifications

- ◆ Refer to ➔ [“3.1 Overview - Drain and Check Plugs”, page 19](#)



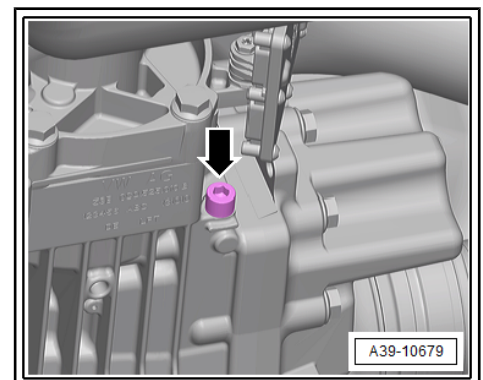
4.3 High-Performance Haldex Clutch Oil, Changing

Special tools and workshop equipment required

- ◆ Shop Crane - Drip Tray - VAS6208-
- ◆ High-Performance Haldex Clutch Oil . Refer to the Parts Catalog.

Procedure

- Place the Shop Crane - Drip Tray - VAS6208- underneath.
- Remove the drain plug -arrow- and completely drain the High Performance Haldex Clutch Oil .
- Install a new drain plug -arrow- and tighten to the tightening specification.

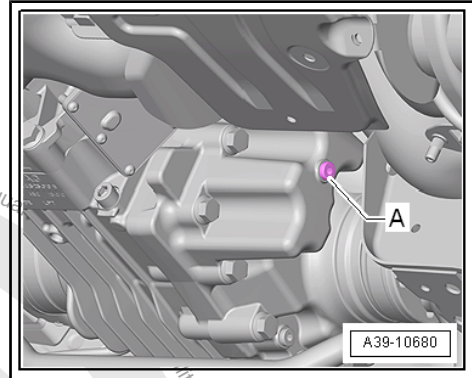




- Remove the oil filler plug -A- for the High-Performance Haldex Clutch Oil and fill with High-Performance Haldex Clutch Oil . Refer to
⇒ [“4.2 High-Performance Haldex Clutch Oil, Draining and Filling”, page 21](#) .
- Finally, check the oil level in Haldex clutch. Refer to
⇒ [“4.1 Haldex Clutch Oil, Checking Level”, page 21](#) .

Tightening Specifications

- ◆ Refer to ⇒ [“3.1 Overview - Drain and Check Plugs”, page 19](#)





5 Seals

⇒ ["5.1 Overview - Seals", page 25](#)

⇒ ["5.2 Right Seal, Replacing", page 25](#)

⇒ ["5.3 Left Seal, Replacing", page 27](#)

⇒ ["5.4 Input Shaft Seal, Replacing", page 28](#)

5.1 Overview - Seals

1 - Nut

- ☐ 210 Nm
- ☐ Replace after removing
- ☐ Secure with Locking Fluid - D 000 600- . Refer to the Parts Catalog.

2 - Driveshaft Flange

- ☐ Removing and Installing. Refer to
⇒ ["5.4 Input Shaft Seal, Replacing", page 28](#) .

3 - Flange/Driveshaft Seal

- ☐ Replacing. Refer to
⇒ ["5.4 Input Shaft Seal, Replacing", page 28](#) .

4 - Right Seal

- ☐ For the right flange shaft
- ☐ Replacing. Refer to
⇒ ["5.2 Right Seal, Replacing", page 25](#) .

5 - Circlip

- ☐ Replace after removing flange shaft.

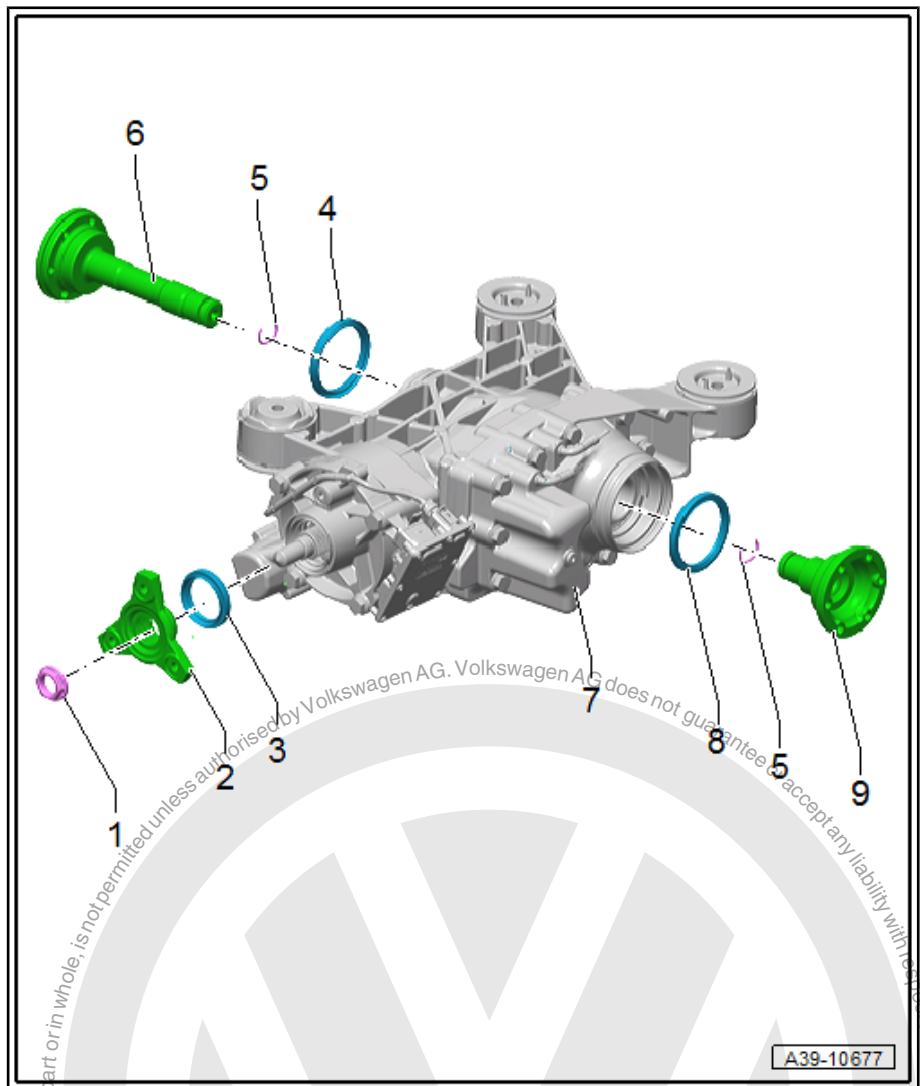
6 - Right Flange Shaft

7 - Rear Final Drive

8 - Left Seal

- ☐ For the left flange shaft
- ☐ Replacing. Refer to
⇒ ["5.3 Left Seal, Replacing", page 27](#) .

9 - Left Flange Shaft



5.2 Right Seal, Replacing

Special tools and workshop equipment required

- ◆ Slide Hammer Set - VW771-
- ◆ Puller - Seal Lever - VW681-
- ◆ Puller - Kukko Puller - 60-200mm Width, 250mm Length - 18/2-
- ◆ Seal Installer - Flange Shaft - 3305-
- ◆ Transmission Support - Pins 34 - 3282/34-



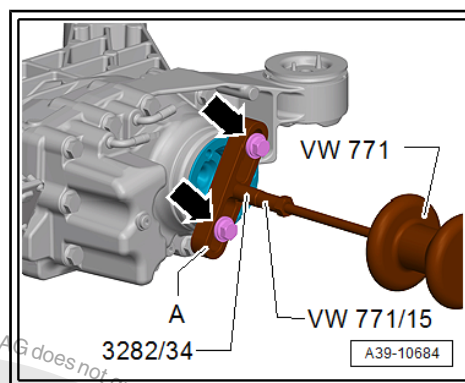
◆ Sealing Grease - G 052 128 A1-

Removing

- Remove the right drive axle. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 42 ; Drive Axle; Drive Axle, Removing and Installing .

The following images show the left side of the final drive when removed. The procedure for the right is identical.

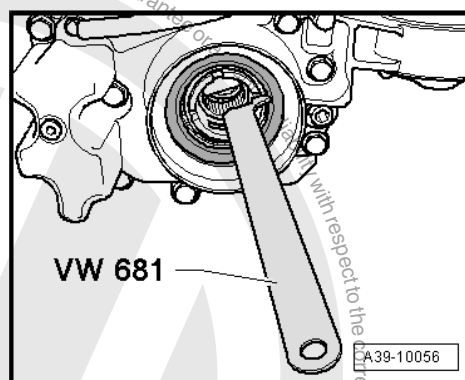
- Remove the spindles from the Puller - Kukko Puller - 50-110mm Width, 150mm Length - 18/2- bridge and install the Transmission Support - Pins 34 - 3282/34- in place of them.
- Attached the bridge -A- with two M8 x 30 bolts -arrows- to the flange shaft.
- Remove the flange shaft.



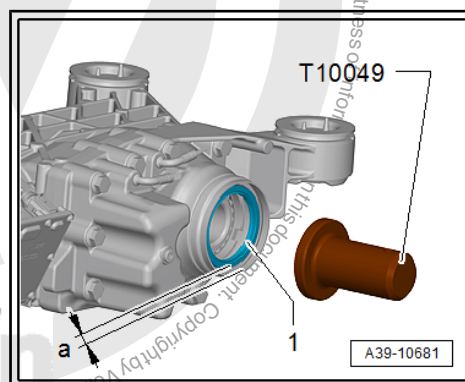
- Pry off flange shaft seal with the Puller - Seal Lever - VW681- .

Installing

Install in the reverse order of removal while paying attention to the following:



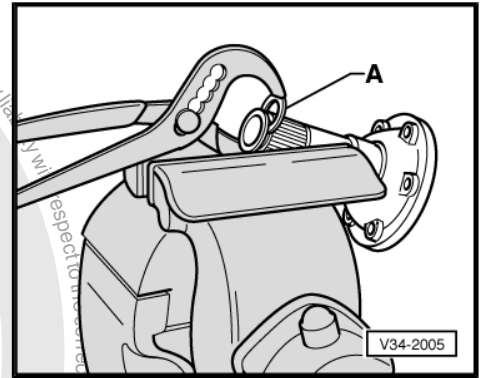
- Lightly lubricate the outer diameter of the new sealing ring -1- and using the Seal Installer - Flange Shaft - T10049- drive in to the dimension -a-. Do not tilt the seal when installing it.
- Dimension -a- = 4.8 ± 0.1 mm; Measured from the housing flat surface to seal.
- Do not drive in the seal all the way.
- Maintain a parallel alignment of a maximum 0.25 mm between the seal -1- to the housing flat surface.
- Fill the space between the sealing/dust lip halfway with Sealing Grease - G 052 128 A1- .



Replacing the Circlip



- Clamp the flange shaft in a vise with protective jaws.
 - Use the new circlip -A- to press the previous circlip out of the flange shaft groove.
 - Install the flange shaft using a plastic hammer and if necessary a drift.
 - Install the drive axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 ; Drive Axle; Drive Axle, Removing and Installing .
- Check the gear oil level in the rear final drive. Refer to ⇒ ["3.2 Gear Oil, Checking Level", page 19](#) .



5.3 Left Seal, Replacing

Special tools and workshop equipment required

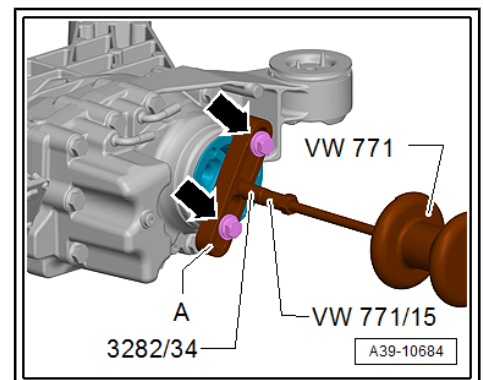
- ◆ Slide Hammer Set - VW771-
- ◆ Puller - Seal Lever - VW681-
- ◆ Puller - Kukko Puller - 60-200mm Width, 250mm Length - 18/2-
- ◆ Seal Installer - Flange Shaft - 3305-
- ◆ Transmission Support - Pins 34 - 3282/34-
- ◆ Sealing Grease - G 052 128 A1-

Removing

- Remove the left drive axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 ; Drive Axle; Drive Axle, Removing and Installing .

The following illustrations show the final drive removed.

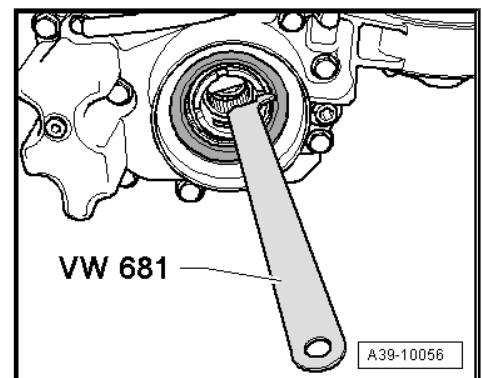
- Remove the spindles from the Puller - Kukko Puller - 50-110mm Width, 150mm Length - 18/2- bridge and install the Transmission Support - Pins 34 - 3282/34- in place of them.
- Attached the bridge -A- with two M8 x 30 bolts -arrows- to the flange shaft.
- Remove the flange shaft.



- Pry off flange shaft seal with the Puller - Seal Lever - VW681- .

Installing

Install in the reverse order of removal while paying attention to the following:

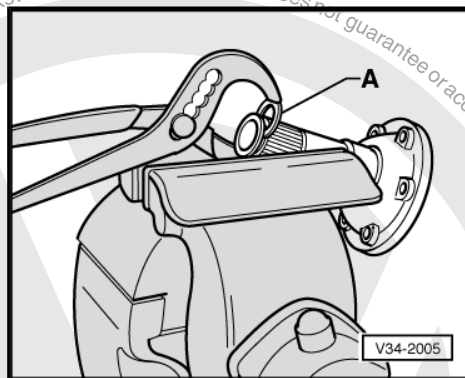
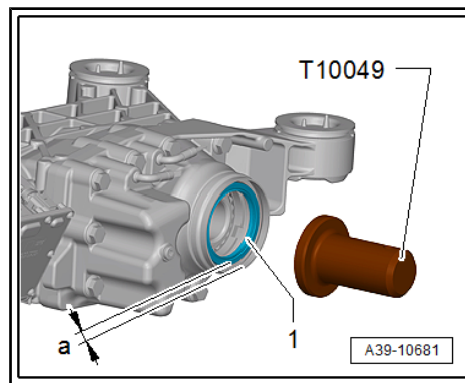




- Lightly lubricate the outer diameter of the new sealing ring -1- and using the Seal Installer - Flange Shaft - T10049- drive in to the dimension -a-. Do not tilt the seal when installing it.
- Dimension -a- = 4.8 ± 0.1 mm; Measured from the housing flat surface to seal.
- Do not drive in the seal all the way.
- Maintain a parallel alignment of a maximum 0.25 mm between the seal -1- to the housing flat surface.
- Fill the space between the sealing/dust lip halfway with Sealing Grease - G 052 128 A1- .

Replacing the Circlip

- Clamp the flange shaft in a vise with protective jaws.
- Use the new circlip -A- to press the previous circlip out of the flange shaft groove.
- Install the flange shaft using a plastic hammer and if necessary a drift.
- Install the drive axle. Refer to ⇒ Suspension - Wheels, Steering; Rep. Gr. 42 ; Drive Axle; Drive Axle, Removing and Installing .
- Check the gear oil level in the rear final drive. Refer to ⇒ ["3.2 Gear Oil, Checking Level", page 19](#) .



5.4 Input Shaft Seal, Replacing

Special tools and workshop equipment required

- ◆ Press Piece - 37mm - VW416B-
- ◆ Puller - Seal Lever - VW681-
- ◆ Counterhold - Crankshaft Sprocket - 3415-
- ◆ Seal Installer - Shaft Seal Ring - T10019-
- ◆ Tensioning Strap - T10038-
- ◆ Counterhold - Kit - Multiple Use - T10172A- with Counterhold - Kit - Adapter 5 - T10172A/5-
- ◆ Used Oil Collection and Extraction Unit - SMN372500-
- ◆ Puller - Kukko 3 Jaw - 100x100mm - 12/1-
- ◆ Locking Compound - D 000 600-
- ◆ Bolt M10 x 25
- ◆ Socket Hex Head Screw M8 x 15



Removing

- Strap in the vehicle on both sides at the vehicle hoist lifting arms with the Tensioning Strap - T10038- .

1 - Tensioning Strap - T10038-



WARNING

If the vehicle is not secured, there is the risk that it could slip from the hoist.

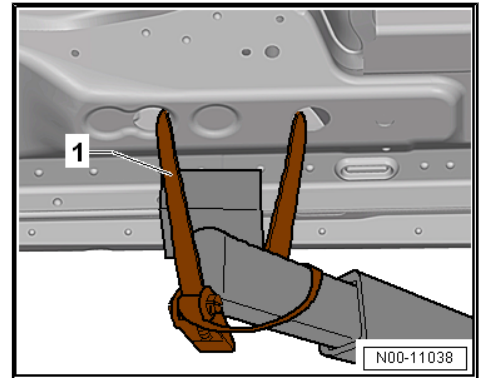
- Remove the noise insulation. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation .



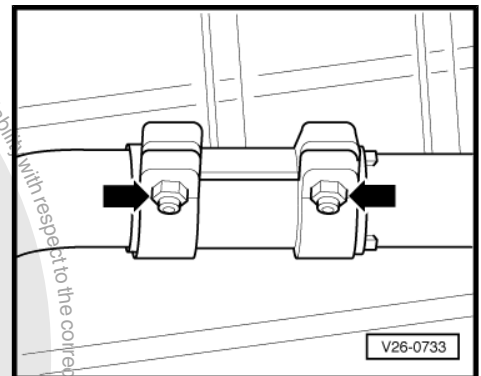
Caution

Risk of damaging the decoupling element

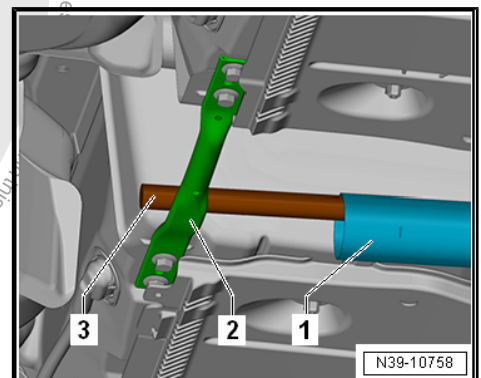
- ◆ *Do not bend the decoupling element more than 10°.*
- ◆ *Do not load the decoupling element.*
- ◆ *Do not damage the wire mesh on the decoupling element.*



- Separate the exhaust system at the clamping sleeve -arrows- and remove the rear section of the exhaust system. Refer to ➤ Rep. Gr. 26 ; Exhaust Pipes and Mufflers; Overview - Muffler .

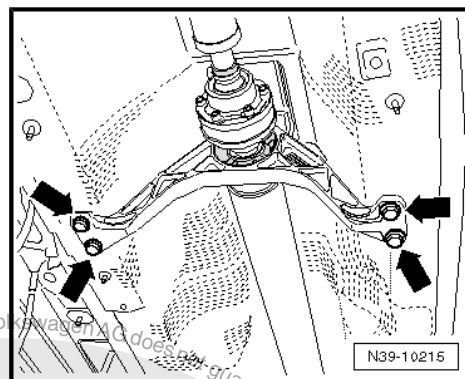


Place a pipe or pry bar -3- in the front exhaust pipe -1- and lay it on the tunnel brace -2-.

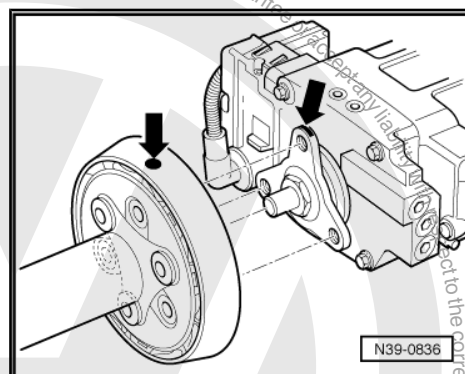




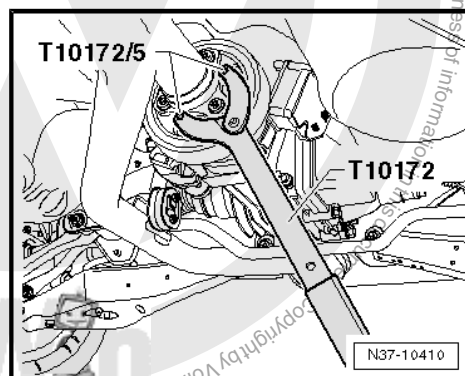
- Loosen, but do not remove, the driveshaft intermediate bearing bolts -arrows-.



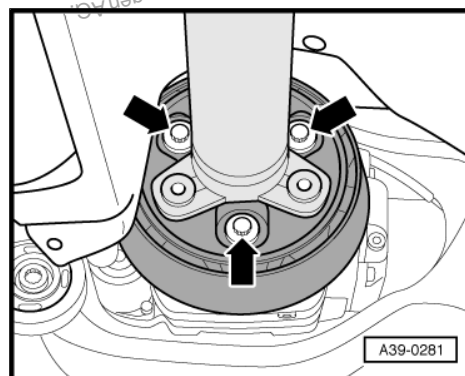
- Make sure there is a marking (a color dot) on the flexible disc and the driveshaft flange on the rear final drive -arrows-.
- If the marking is not there, then mark the position of the flexible disc to the driveshaft flange on the rear final drive.



- To loosen the driveshaft bolts, counterhold with the Counterhold - Multiple Use - T10172A- and the Counterhold - Kit - Adapter 5 - T10172A/5- on the rear final drive.



- Remove the driveshaft bolts -arrows- from the rear final drive.



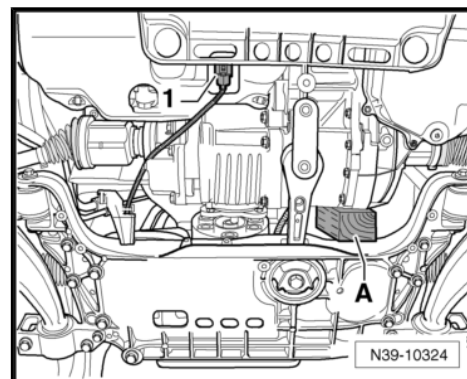


- Press the engine/transmission assembly forward and secure with a suitable piece of wood -A-.



Note

Ignore -item 1-.

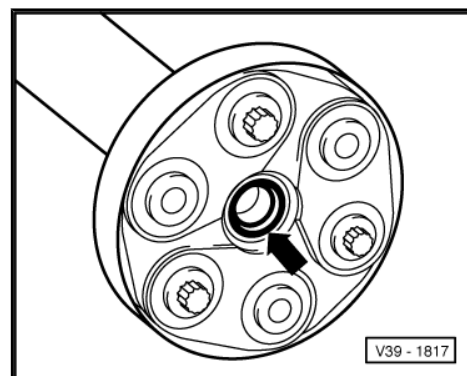


- When removing and installing the driveshaft, be careful not to damage the socket -arrow-.

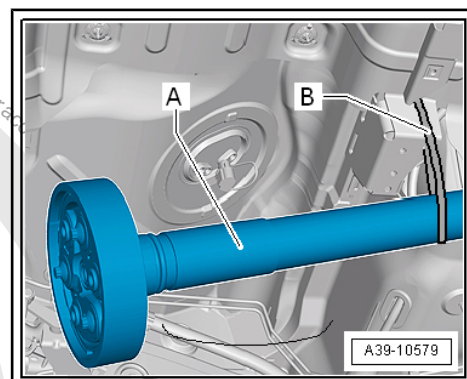


Note

If the seal is damaged the driveshaft must be replaced.



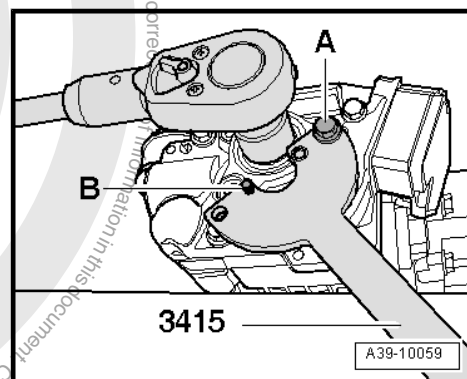
- Remove the driveshaft -A- from the alignment pins on the rear final drive and tie up using for example a wire -B- to the side of the body.



- Remove the flange/driveshaft hex nut.

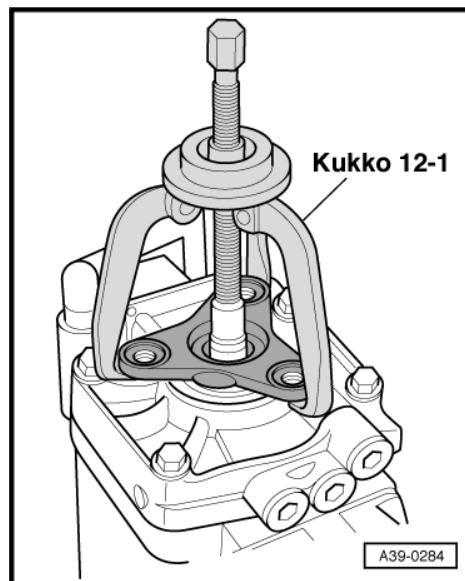
A - M10 x 25 Bolts

B - M8 x 15 Bolt (installed in the Counterhold - Crankshaft Sprocket - 3415- from the rear)





- Remove the flange/driveshaft. If difficult use the Puller - Kukko 3 Jaw - 100x100mm - 12/1- .

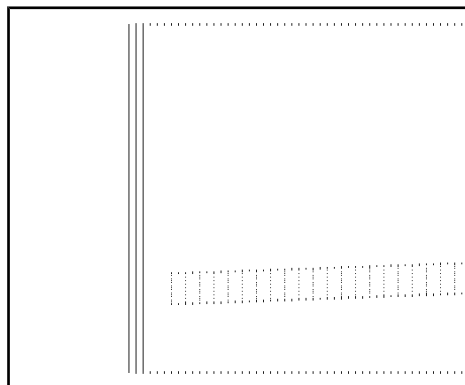


- Remove the seal using the Puller - Seal Lever - VW681- .

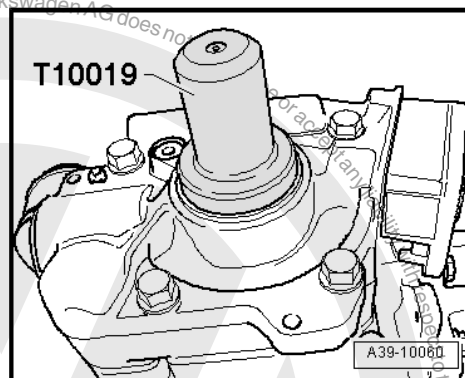
Installing

Install in the reverse order of removal while paying attention to the following:

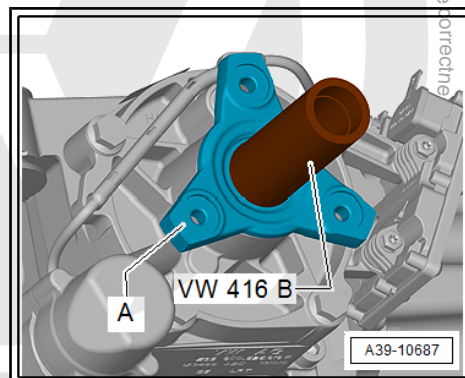
- Before installation, lightly coat the new sealing ring with the High-Performance Haldex Clutch Oil on the outer diameter and between the sealing lips.



- Drive in the new sealing ring to the stop using the Seal Installer - Shaft Seal Ring - T10019- . Do not tilt the seal when installing it.



- Install the flange/driveshaft A- using Press Piece - 37mm - VW416B- .





- Install and tighten the new hex nuts using Locking Fluid - D 000 600- .

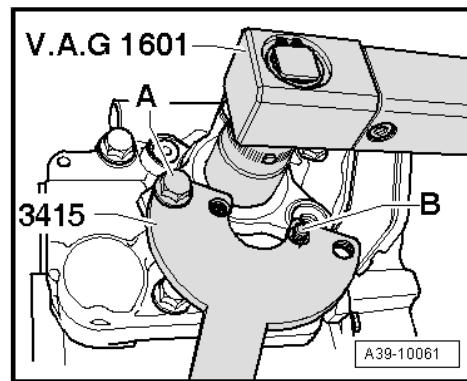
A - M10 x 20 Hex Bolts

B - M8 x 15 Bolt (installed in the Counterhold - Crankshaft Sprocket - 3415- from the rear)

- Check the oil level in the Haldex clutch. Refer to
⇒ [“4.1 Haldex Clutch Oil, Checking Level”, page 21](#) .

Tightening Specifications

- ◆ Refer to ⇒ [“7.1 Overview - Driveshaft”, page 43](#)





6 Haldex Clutch

⇒ [“6.1 Overview - Haldex Clutch”, page 34](#)

⇒ [“6.2 Function, Checking”, page 35](#)

⇒ [“6.3 Haldex Clutch Pump V181 , Removing and Installing”, page 35](#)

⇒ [“6.4 Haldex Clutch, Removing and Installing”, page 37](#)

⇒ [“6.5 Control Module, Removing and Installing”, page 41](#)

6.1 Overview - Haldex Clutch

⇒ [“6.1.1 Overview - Haldex Clutch, Generation V”, page 34](#)

6.1.1 Overview - Haldex Clutch, Generation V



Note

The Haldex clutch can be removed and installed with the rear final drive still installed.

1 - O-Ring

- ☐ Coat with High-Performance Haldex Clutch Oil and then install.
- ☐ Replace after removing

2 - All Wheel Drive Control Module - J492-

- ☐ Removing and Installing. Refer to
⇒ [“6.5 Control Module, Removing and Installing”, page 41](#).

3 - Bolts

- ☐ 9.5 Nm
- ☐ Quantity: 2

4 - Flange/Driveshaft Seal

- ☐ Replacing. Refer to
⇒ [“5.4 Input Shaft Seal, Replacing”, page 28](#).

5 - Flange/Driveshaft

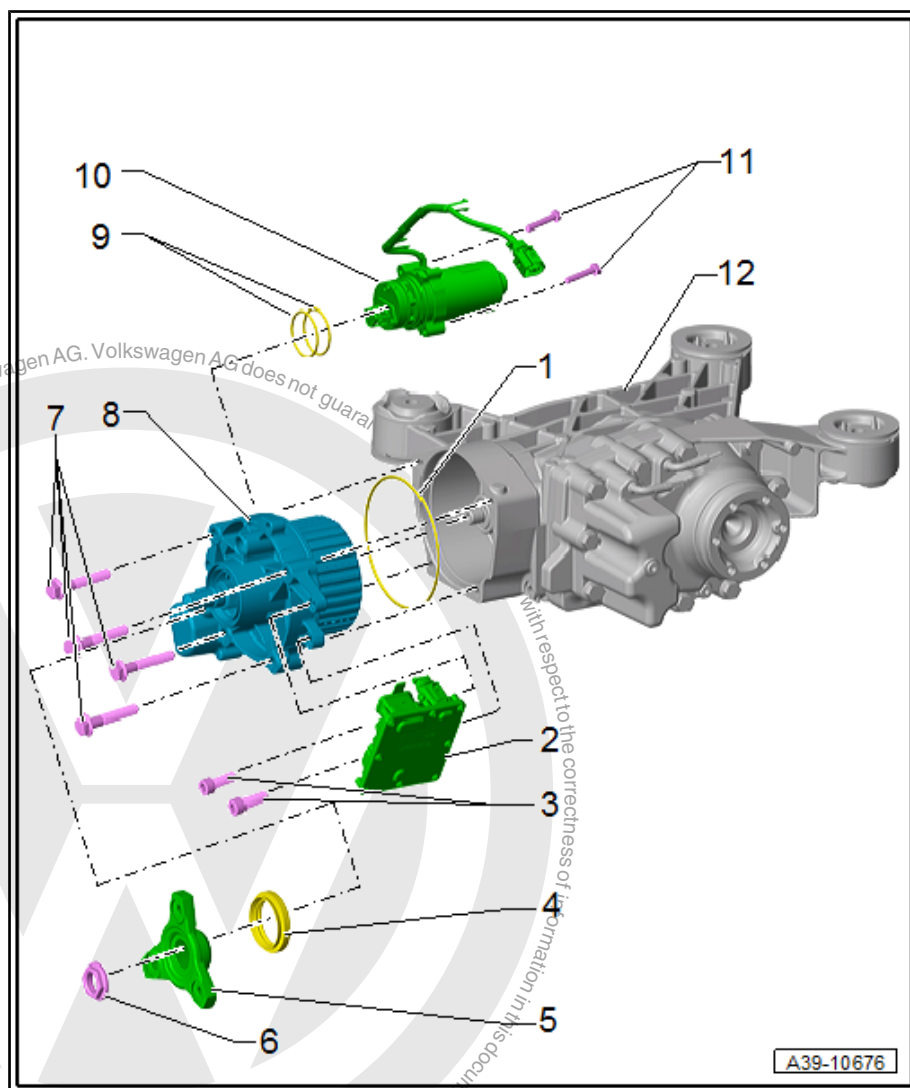
- ☐ Removing and Installing. Refer to
⇒ [“5.4 Input Shaft Seal, Replacing”, page 28](#).

6 - Nut

- ☐ 210 Nm
- ☐ Replace after removing
- ☐ Secure using Locking Compound - D 000 600-

7 - Bolts

- ☐ 50 Nm
- ☐ Quantity: 4





8 - Haldex Clutch Housing

- ☐ Haldex clutch, removing and installing. Refer to
⇒ [“6.4 Haldex Clutch, Removing and Installing”, page 37](#) .

9 - O-Ring

- ☐ Quantity: 2
- ☐ Diameter 43.5 mm
- ☐ For Haldex Clutch Pump - V181-
- ☐ Coat with High-Performance Haldex Clutch Oil and then install.
- ☐ Replace after removing

10 - Haldex Clutch Pump - V181-

- ☐ Removing and Installing. Refer to
⇒ [“6.3 Haldex Clutch Pump V181 , Removing and Installing”, page 35](#) .

11 - Bolts

- ☐ 9.5 Nm
- ☐ Quantity: 2

12 - Rear Final Drive

- ☐ Removing and Installing. Refer to ⇒ [“1.2 Final Drive, Removing and Installing”, page 7](#) .

6.2 Function, Checking



Note

Check the Haldex clutch during a test drive using the Vehicle Diagnostic Tester .



WARNING

*Pay attention to the safety precautions to prevent possible injury when performing measuring tests or test drives. Refer to
⇒ [“1 Safety Precautions”, page 1](#) .*

- Check the function use the Vehicle Diagnostic Tester in [Guided Functions](#).
- Start the output diagnostic test mode and follow the instructions on the tester.

6.3 Haldex Clutch Pump - V181- , Removing and Installing

⇒ [“6.3.1 Haldex Clutch Pump V181 , Removing and Installing, Generation V”, page 35](#)

6.3.1 Haldex Clutch Pump - V181- , Removing and Installing, Generation V

Special tools and workshop equipment required

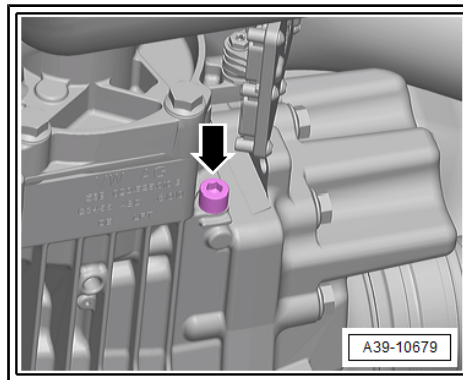
- ◆ Used Oil Collection and Extraction Unit - SMN372500-

Removing

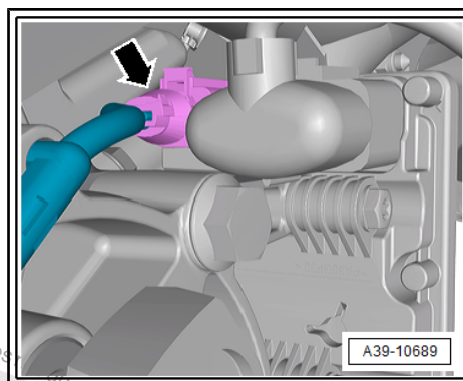
- Turn off the ignition.
- Place the Used Oil Collection and Extraction Unit - SMN372500- under rear the final drive.



- Remove the drain plug -arrow- and completely drain the High Performance Haldex Clutch Oil .
- Install the drain plug -A- with the new seal and tighten.



- Remove the connector -arrow- for the Haldex Clutch Pump - V181- from the All Wheel Drive Control Module - J492- .



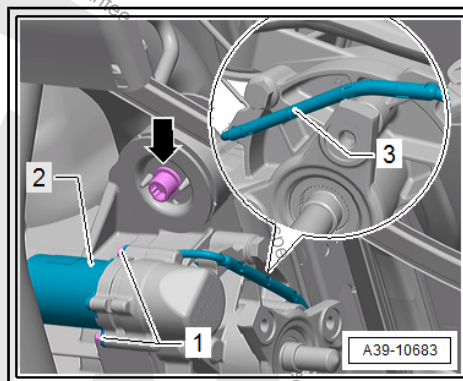
- Unclip and free up the wiring harness -3- for the Haldex Clutch Pump - V181- from the housing.



Note

Ignore the bolt -arrow-.

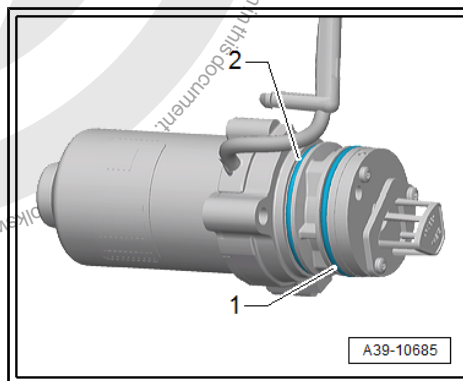
- Place the Used Oil Collection and Extraction Unit - SMN372500- under rear the final drive.
- Remove the bolt -1- for the Haldex Clutch Pump - V181- -2-.
- Remove the Haldex Clutch Pump - V181- -2- from the Haldex Clutch housing.



Installing

Install in the reverse order of removal while paying attention to the following:

- If the removed Haldex Clutch Pump - V181- is being installed again, replace the O-rings -1 and 2-.
- Coat the O-rings -1 and 2- lightly with High-Performance Haldex Clutch Oil .





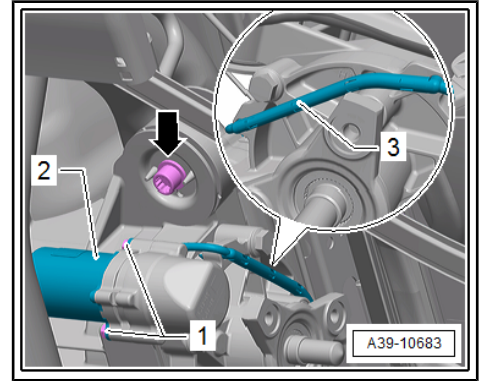
- Press the Haldex Clutch Pump - V181- -2- until stop in the Haldex clutch housing. Make sure the wiring harness -3- is routed correctly.



Note

Ignore the bolt -arrow-.

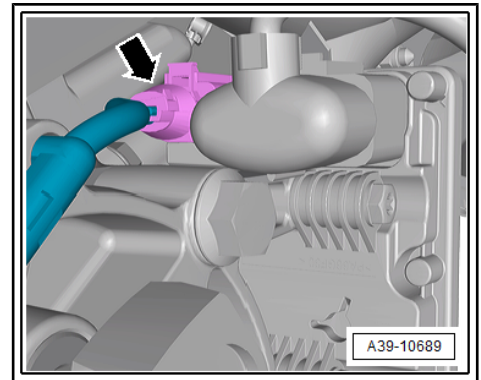
- Tighten the bolts -1-.



- Connect the connector -arrow- for the Haldex Clutch Pump - V181- to the All Wheel Drive Control Module - J492- .
- Add High Performance Haldex Clutch Oil and check the oil level in the Haldex clutch. Refer to [⇒ “4.1 Haldex Clutch Oil, Checking Level”, page 21](#) .

Tightening Specifications

- ◆ Refer to [⇒ “3.1 Overview - Drain and Check Plugs”, page 19](#)
- ◆ Refer to [⇒ “6.1 Overview - Haldex Clutch”, page 34](#)



6.4 Haldex Clutch, Removing and Installing

[⇒ “6.4.1 Haldex Clutch, Removing and Installing, Generation V”, page 37](#)

6.4.1 Haldex Clutch, Removing and Installing, Generation V

Special tools and workshop equipment required

- ◆ Used Oil Collection and Extraction Unit - SMN372500-
- ◆ Counterhold - Kit - Multiple Use - T10172A- with Counterhold - Kit - Adapter 5 - T10172A/5-
- ◆ Guide Pins - T10093-

Removing



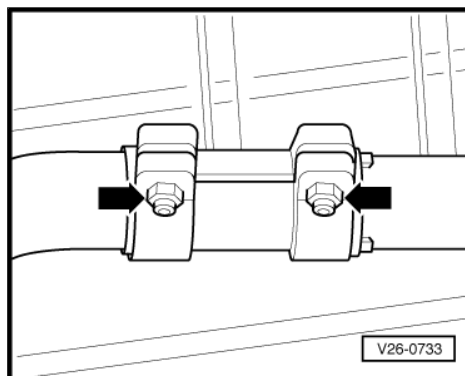
Caution

Risk of damaging the decoupling element

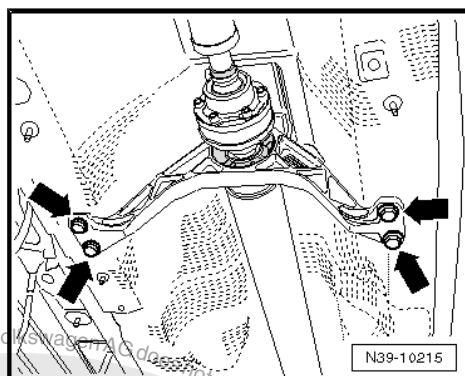
- ◆ ***Do not bend the decoupling element more than 10°.***
- ◆ ***Do not load the decoupling element.***
- ◆ ***Do not damage the wire mesh on the decoupling element.***



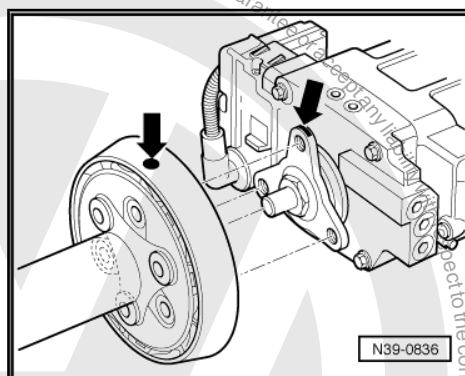
- Loosen the nuts for the clamping sleeve -arrows- and slide it toward the rear.
- Tie the front exhaust pipe to the underbody.
- Remove the rear section of the exhaust system. Refer to ➔ Rep. Gr. 26 ; Overview - Exhaust Pipes/Mufflers; Muffler .



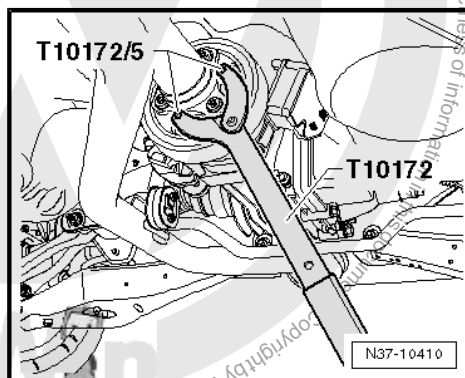
- Loosen, but do not remove, the driveshaft intermediate bearing bolts -arrows-.



- Make sure there is a marking (a color dot) on the flexible disc/driveshaft and the rear final drive flange -arrows-.
- If the mark is not there, then mark the position of the flexible disc/driveshaft to the driveshaft flange on the rear final drive.

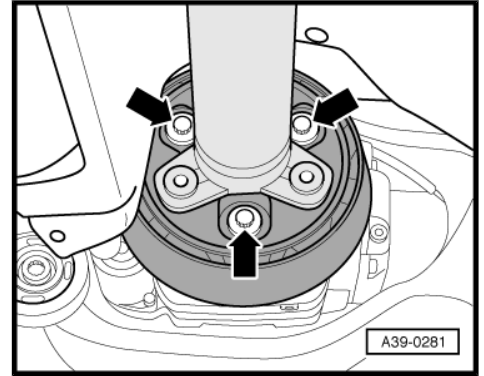


- To loosen the driveshaft bolts, counterhold with the Counterhold - Multiple Use - T10172A and the Counterhold - Kit - Adapter 5 - T10172A/5- on the rear final drive.





- Remove the driveshaft bolts -arrows- from the rear final drive.

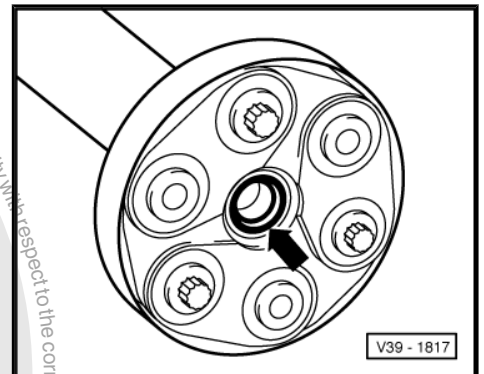


- Remove the driveshaft from the alignment pins at the rear final drive. Press the driveshaft slightly forward when doing this. Therefore remove the bolts from the intermediate bearing/driveshaft if necessary.

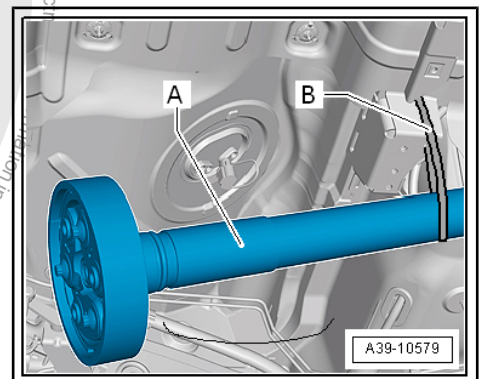
Caution

Risk of damaging the seal -arrow- in the driveshaft flange.

◆ **Remove the driveshaft horizontally from the alignment pins.**



- Then tie up the rear area of the driveshaft -A- with for example a wire -B- to the side of the body.

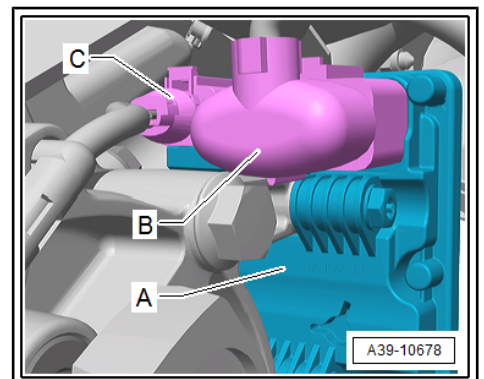


- Disconnect the connector -B- from the All Wheel Drive Control Module - J492- -A-.

Note

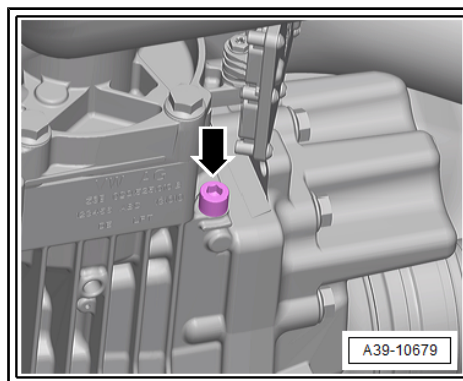
Do not disconnect the connector -C-.

- Place the Used Oil Collection and Extraction Unit - SMN372500- under rear the final drive.

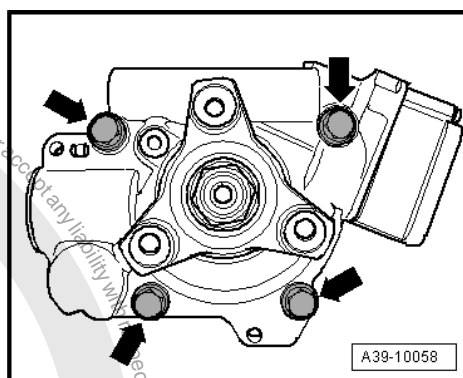




- Remove the drain plug -arrow- and completely drain the High Performance Haldex Clutch Oil .
- Install the drain plug -arrow- with the new seal and tighten.



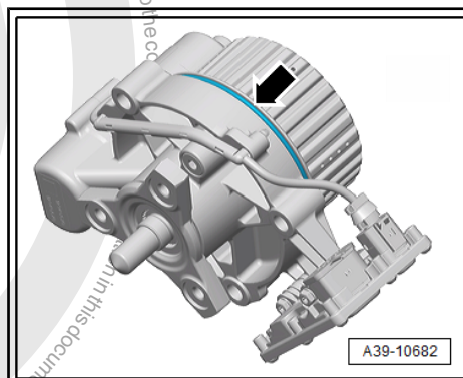
- Remove the fastening bolts -arrows- and remove the Haldex clutch from the rear final drive.



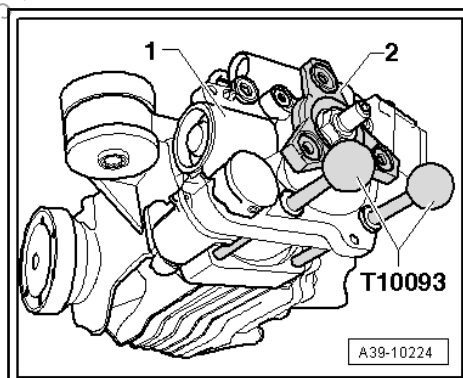
Installing

Install in the reverse order of removal while paying attention to the following:

- Remove the old O-ring -arrow- from the Haldex clutch.
- Insert the new O-ring -arrow- and lightly lubricate with High Performance Haldex Clutch Oil .



- Insert the Haldex clutch -1- in the rear final drive. Install the Guide Pins - T10093- for exact guidance.
- Rotate at flange/driveshaft -2- and insert Haldex clutch all the way in.

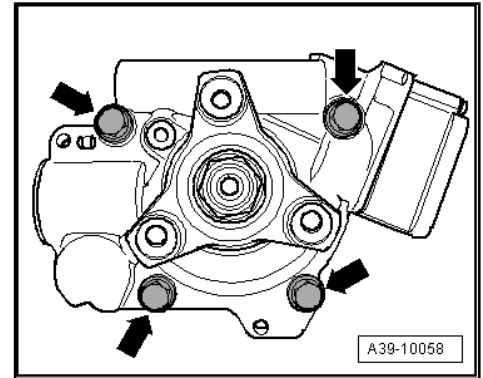




- Tighten the bolts -arrows-.
- Connect the connector -B- from the All Wheel Drive Control Module - J492- -A-.

The connector -C- must also be connected.

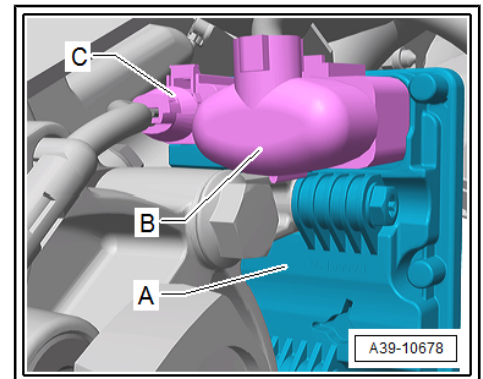
- Attach the driveshaft to the rear final drive. Refer to
⇒ ["7.2 Driveshaft, Removing and Installing", page 44](#) .
- Install the exhaust system and align it without tension. Refer to ⇒ Rep. Gr. 26 ; Overview - Exhaust Pipe/Muffler; Muffler .



- Add High Performance Haldex Clutch Oil and check the oil level in the Haldex clutch. Refer to
⇒ ["4.1 Haldex Clutch Oil, Checking Level", page 21](#) .

Tightening Specifications

- ◆ Refer to ⇒ ["3.1 Overview - Drain and Check Plugs", page 19](#)
- ◆ Refer to ⇒ ["6.1 Overview - Haldex Clutch", page 34](#)



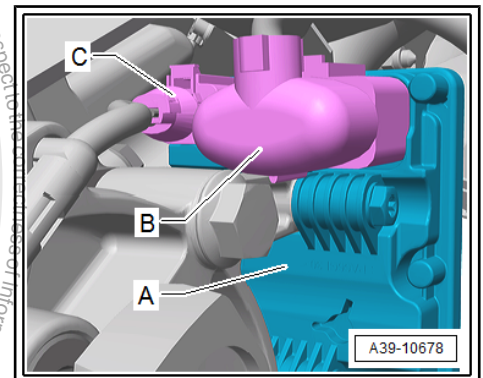
6.5 Control Module, Removing and Installing

⇒ ["6.5.1 AWD Control Module J492 , Removing and Installing, Generation V", page 41](#)

6.5.1 AWD Control Module - J492- , Removing and Installing, Generation V

Removing

- Disconnect the connectors -B and C- from the All Wheel Drive Control Module - J492- -A-.





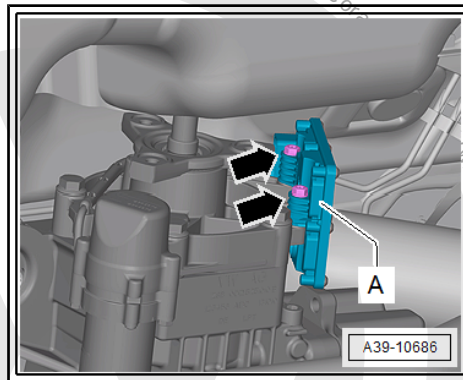
- Remove the bolts -arrows- for the All Wheel Drive Control Module - J492- from the Haldex clutch.
- Remove the All Wheel Drive Control Module - J492- -A-.

Installing

Install in the reverse order of removal while paying attention to the following:

Tightening Specifications

Component	Tightening Specification
Bolt for All Wheel Drive Control Module - J492- to the Haldex clutch	9.5 Nm





7 Driveshaft

⇒ [“7.1 Overview - Driveshaft”, page 43](#)

⇒ [“7.2 Driveshaft, Removing and Installing”, page 44](#)

⇒ [“7.3 Front Flexible Disc, Removing and Installing”, page 47](#)

⇒ [“7.4 Rear Flexible Disc, Removing and Installing”, page 48](#)

7.1 Overview - Driveshaft



Note

Do not perform any repair work on the driveshaft.

1 - Transmission with Bevel Gear

2 - Bolt

- ☐ 50 Nm and 90° additional turn.
- ☐ Allocation. Refer to the Parts Catalog.
- ☐ For flexible disc to driveshaft
- ☐ Replace after removing

3 - Front Flexible Disc

- ☐ Allocation. Refer to the Parts Catalog.

4 - Bolt

- ☐ 60 Nm
- ☐ Allocation. Refer to the Parts Catalog.
- ☐ For flexible disc to bevel gear

5 - Driveshaft

- ☐ Cannot be separated at the joint - arrow-
- ☐ Allocation. Refer to the Parts Catalog.
- ☐ Removing and Installing. Refer to
⇒ [“7.2 Driveshaft, Removing and Installing”, page 44](#) .

6 - Bolt

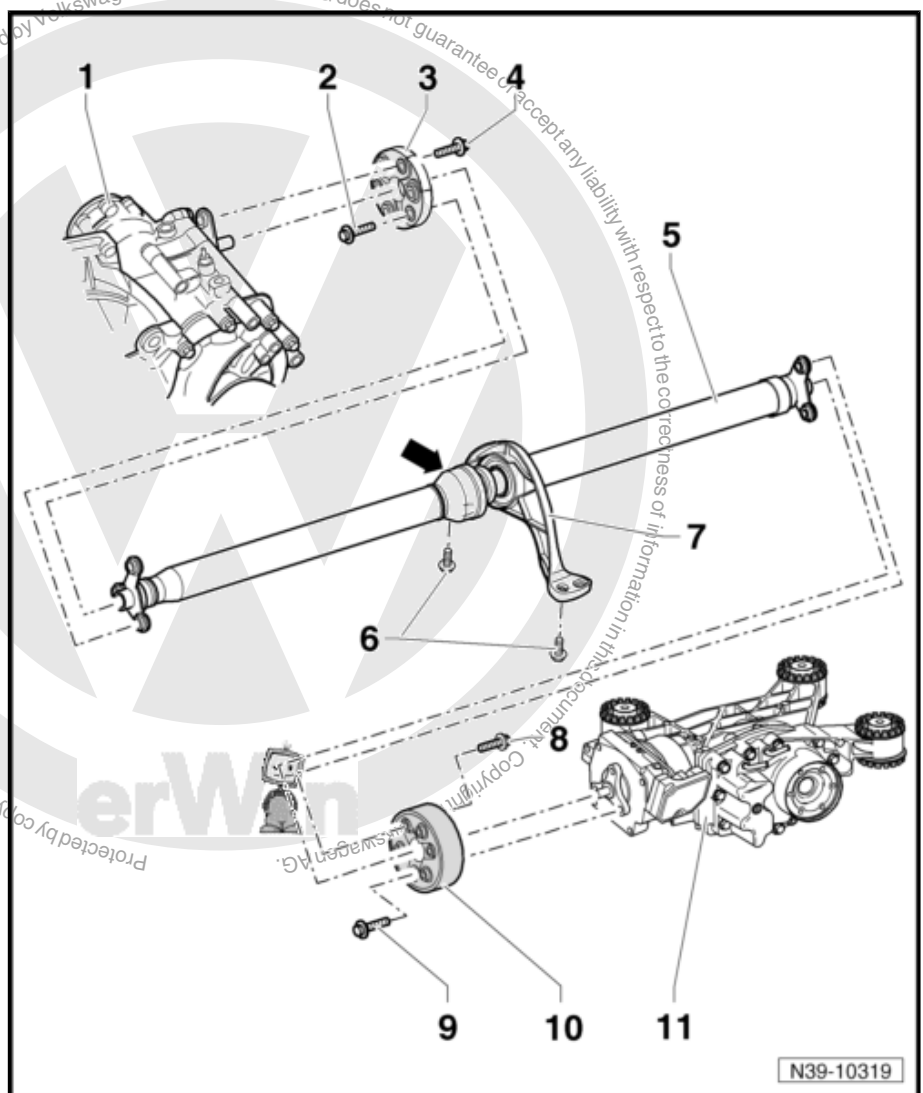
- ☐ 25 Nm
- ☐ Allocation. Refer to the Parts Catalog.

7 - Intermediate Bearing

- ☐ Align free of tension

8 - Bolt

- ☐ 50 Nm and 90° additional turn.
- ☐ Allocation. Refer to the Parts Catalog.





- ☐ For flexible disc to driveshaft
- ☐ Replace after removing

9 - Bolt

- ☐ 60 Nm
- ☐ Allocation. Refer to the Parts Catalog.
- ☐ For flexible disc to final drive

10 - Flexible Disc with Vibration Damper

- ☐ Allocation. Refer to the Parts Catalog.

11 - Rear Final Drive

- ☐ Removing and Installing. Refer to ⇒ ["1.2 Final Drive, Removing and Installing", page 7](#) .

7.2 Driveshaft, Removing and Installing

Special tools and workshop equipment required

- ◆ Counterhold - Multiple Use - T10172A-
- ◆ Engine and Gearbox Jack - VAS6931- or Engine/Gearbox Jack - VAG1383A-



Note

- ◆ *Perform work on driveshaft on a two-column workshop hoist if possible.*
- ◆ *Mark 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.*
- ◆ *Do not bend the driveshaft, only store and move when fully extended.*
- ◆ *Do not allow the driveshaft to »hang down« during removal. Always support it.*
- ◆ *Always remove or install the driveshaft horizontally with respect to the drive flange.*

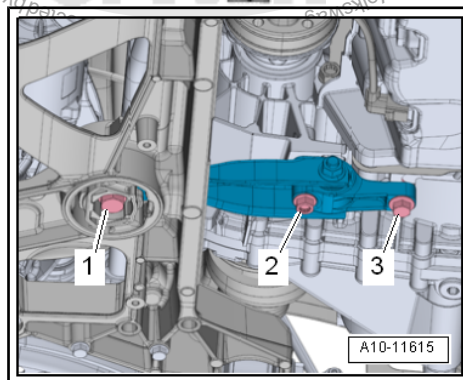
Removing

- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation
- Remove the exhaust system. Refer to ⇒ Rep. Gr. 26 ; Exhaust Pipe/Muffler; Overview - Muffler .
- Remove the bolts -2 and 3- for the pendulum support.



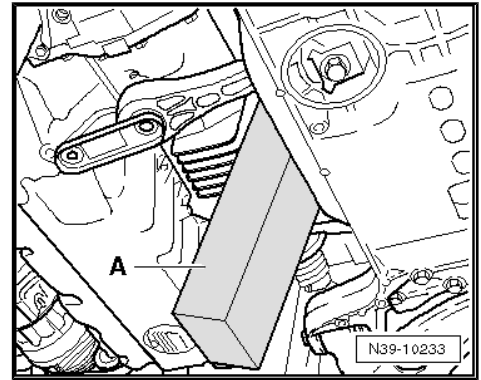
Note

Ignore -item 1-.

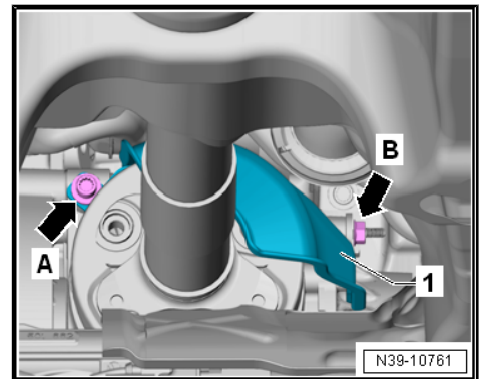




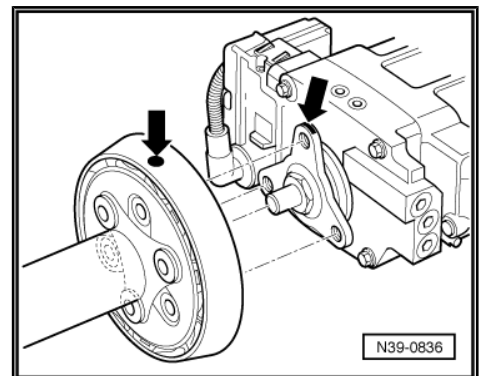
- Press the »engine and transmission« forward and secure the position with a suitable piece of wood -A-.



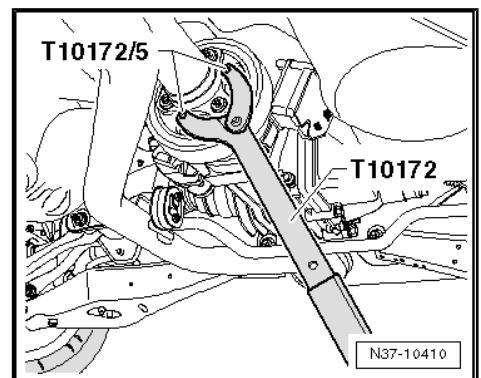
- Remove the bolts -A and B- from the bevel box and remove the heat shield -1-.
- Remove the center tunnel heat shield under the intermediate bearing. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Trim Panel; Overview - Underbody Trim Panels .
- Remove the rear tunnel brace. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Trim Panel; Overview - Underbody Trim Panels .



- Make sure there is a marking (a color dot) on the flexible disc and the driveshaft flange on the rear final drive -arrows-.
- If the marking is not there, then mark the position of the flexible disc to the driveshaft flange on the rear final drive.



- To loosen the driveshaft bolts, counterhold with the Counterhold - Multiple Use - T10172A- and the Counterhold - Kit - Adapter 5 - T10172A/5- on the rear final drive.



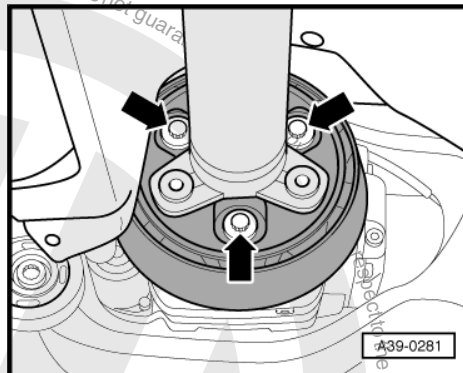


- Remove the driveshaft bolts -arrows- from the rear final drive.

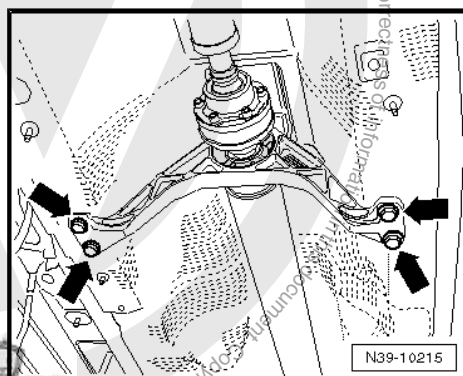


Note

- ♦ *The alignment pins on the bevel box, the rear final drive and in the center through the intermediate bearing hold the drive-shaft in place.*
- ♦ *A second technician is needed to for the further removal of the driveshaft.*



- Remove the intermediate bearing -arrows- and if possible, re-move the drive axle to the rear in its fully extended length.

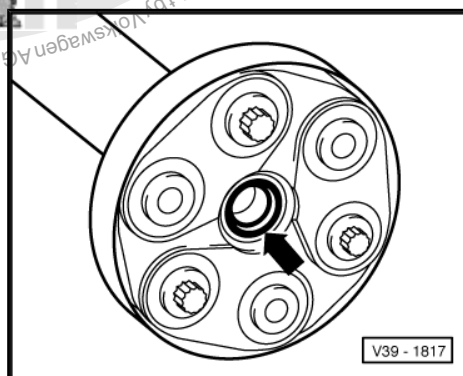


- When removing and installing the driveshaft, be careful not to damage the bushing -arrow-.



WARNING

To prevent damaging the boot in the intermediate bearing, re-move and install the driveshaft in its fully extended position and also store it in this position.



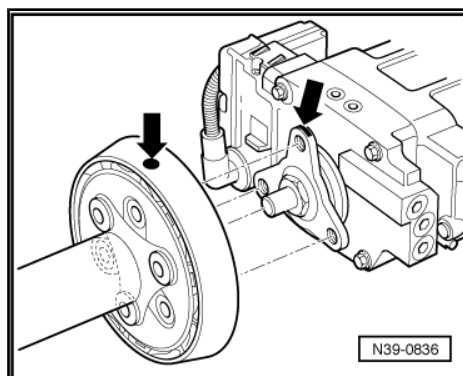
Installing

Install in the reverse order of removal while paying attention to the following:



Note

- ♦ *Install all parts marked to each other in their original positions.*
 - ♦ *Replace the bolts that were tightened with an additional turn.*
- Attach to the driveshaft to the rear final drive making sure the markings -arrows- are lined up.
 - Install the bolts -arrows- for the intermediate bearing but do not tighten them.
 - Tighten the bolts for attaching the driveshaft flexible disc to the bevel box and to the rear final drive.
 - Align the intermediate bearing in the oblong holes so that nei-ther the driveshaft nor the intermediate bearing are under stress.

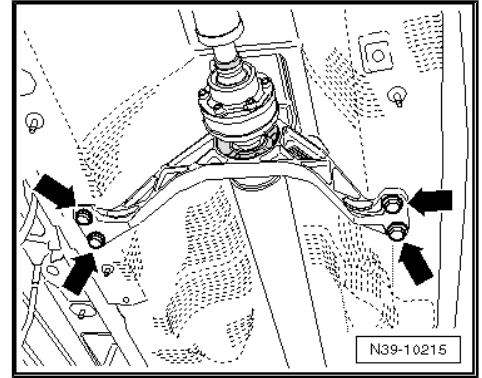




- Tighten the bolts -arrows-.

Tightening Specifications

- ◆ Refer to ➤ [“7.1 Overview - Driveshaft”, page 43](#)
- ◆ Overview - Subframe. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 40 ; Subframe; Overview - Subframe .
- ◆ Exhaust Pipes and Mufflers; Overview - Muffler. Refer to ➤ Rep. Gr. 26 ; Exhaust Pipes and Mufflers; Overview - Muffler .
- ◆ Tunnel brace ➤ underbody panel; overview- underbody panels. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Underbody Panel; Overview - Underbody Panels .
- ◆ Heat Shield ➤ Trim Strips/Trim/Extensions/Trim Panels; Overview - Heat Shield. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Trim Strips, Trim, Extensions and Trim Panels; Overview - Heat Shield .
- ◆ Overview - Noise Insulation. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation .



Component	Tightening Specification
Bolt -A- on bevel box heat shield	20 Nm
Bolt -B- on bevel box heat shield	40 Nm

7.3 Front Flexible Disc, Removing and Installing

Special tools and workshop equipment required

- ◆ Engine and Gearbox Jack - VAS6931-
- ◆ Counterhold - Kit - Multiple Use - T10172A-

Brief Description

Remove and install the front flexible disc **only** when the driveshaft is removed.

Removing



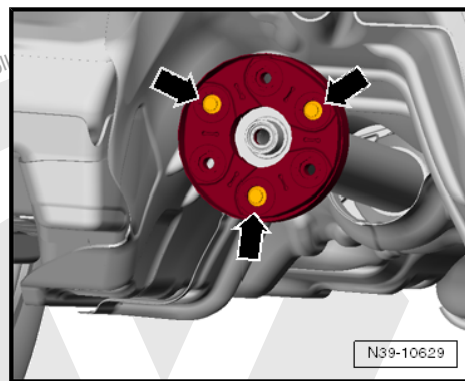
Note

- ◆ *A two-column workshop hoist should be used when working on the driveshaft.*
- ◆ *Mark 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.*
- ◆ *Do not bend the driveshaft, only store and move when fully extended.*
- Remove the driveshaft. Refer to ➤ [“7.2 Driveshaft, Removing and Installing”, page 44](#) .
- Lay the driveshaft down fully extended.

The following illustration show it installed.



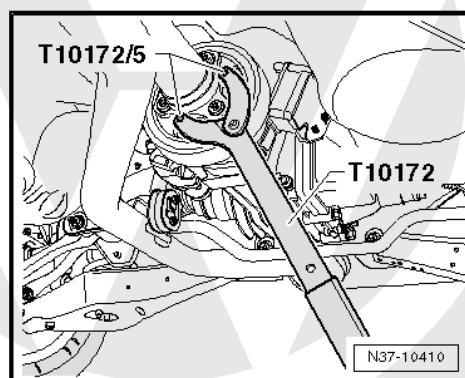
Remove the front flexible disc from the driveshaft -arrows-.



- Counterhold using Counterhold - Kit - Multiple Use - T10172A- when loosening and tightening the bolts.

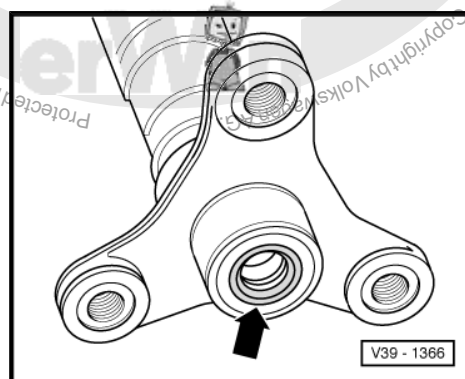
Installing

Install in the reverse order of removal while paying attention to the following:



Note

- ◆ *Sealing rings in driveshaft flanges -arrow- must not be damaged when removing and installing.*
- ◆ *Replace the driveshaft if it is damaged.*
- ◆ *Do not tilt the driveshaft. Push it horizontally onto the centering pins.*
- ◆ *Install all driveshaft parts marked in relation to each other in same position when reinstalling.*



- Attach the flexible disc to the driveshaft using new bolts.

Installation position of flexible disc with shield

- ◆ The open side of the shield faces away from the driveshaft.
- ◆ Install the flexible disc so that the heat shield touches the driveshaft flange
- Install the driveshaft. Refer to
⇒ [“7.2 Driveshaft, Removing and Installing”, page 44](#) .

Tightening Specifications

Refer to ⇒ [“7.1 Overview - Driveshaft”, page 43](#)

7.4 Rear Flexible Disc, Removing and Installing

Special tools and workshop equipment required

- ◆ Engine and Gearbox Jack - VAS6931-



Removing



Note

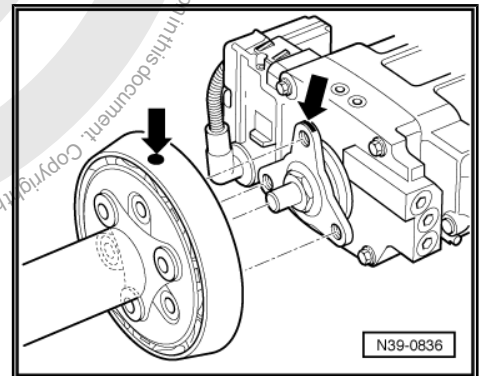
- ◆ *A two-column workshop hoist should be used when working on the driveshaft.*
- ◆ *Mark the position of all the parts to each other before removing them. Install in the same position otherwise the imbalance will be excessive and the bearings could get damaged causing rumbling noises.*
- ◆ *Do not bend the driveshaft, only store and move when fully extended.*

The following applies only to installing the removed parts.

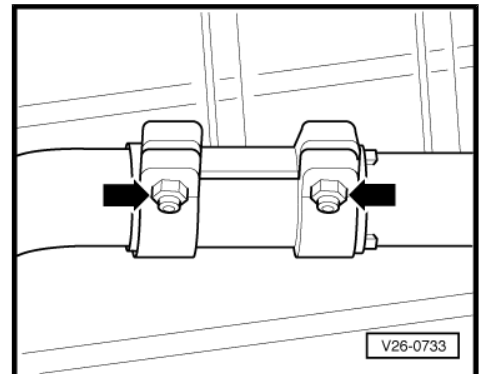
- Before removing, see if there is a marking (color dot) on the flexible disc and on the flange/final drive as well as on the flange/driveshaft -arrows-. If the dot is not there, mark the installed position of the flexible disc -arrows-.

Continuation for all:

- Remove the noise insulation. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation .
- Support the front part of the exhaust system using the Engine and Gearbox Jack - VAS6931- .



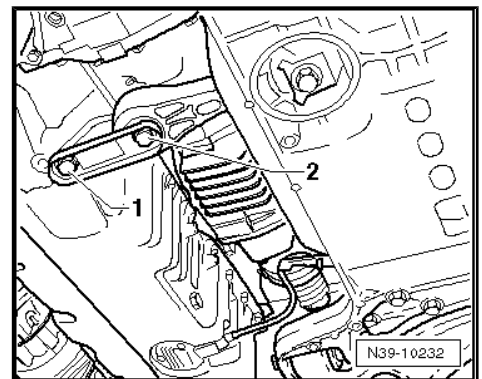
- Separate the exhaust system at the clamping sleeve -arrows- and remove the rear section of the exhaust system. Refer to ➤ Rep. Gr. 26 ; Exhaust Pipes and Mufflers; Overview - Muffler .



Note

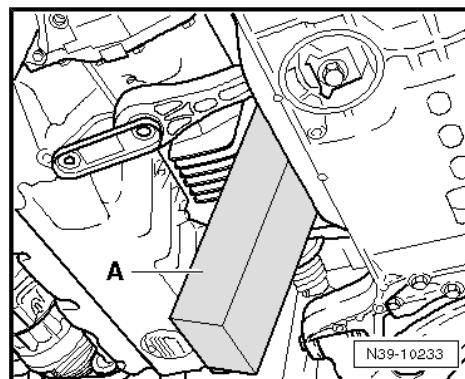
Do not bend the exhaust system decoupling element more than 10° or it could be damaged.

- Remove the bolts -1 and 2- from the pendulum support.

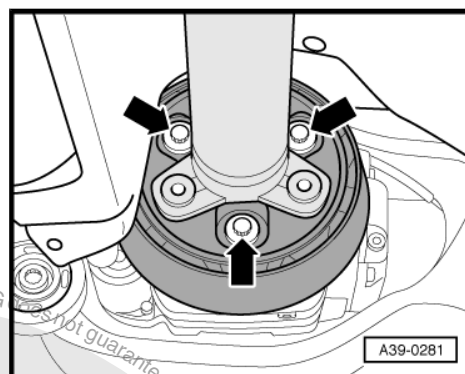




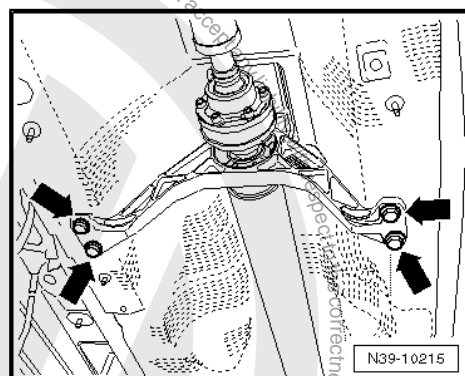
- Press the »engine and transmission« forward slightly and secure it with a suitable piece of wood -A-.
- Remove the center tunnel heat shield under the intermediate bearing. Refer to ➔ Body Exterior; Rep. Gr. 66 ; Underbody Trim Panel; Overview - Underbody Trim Panels .



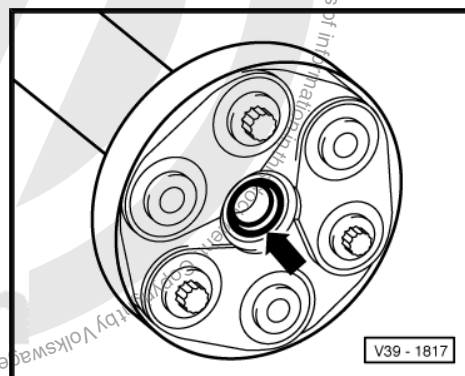
- Remove the flexible disc with the vibration damper from the rear final drive -arrows-.
- To loosen and tighten the driveshaft on the final drive, a second technician must press the brake pedal and hold it.



- Remove the bolts -arrows- from the intermediate bearing.
- Remove the driveshaft from the final drive and lay it on the tunnel brace; place a cloth on the tunnel brace to protect the shaft.



- When removing and installing the driveshaft, be careful not to damage the bushing -arrow-.





- Secure the intermediate bearing to the body with two bolts -arrows- after removing the driveshaft. This way the front flexible disc will not be unnecessarily loaded.

Remove the rear flexible disc with the vibration damper from the driveshaft.

Installing

Install in the reverse order of removal while paying attention to the following:



Note

- ◆ *Sealing rings in driveshaft flanges -arrow- must not be damaged when removing and installing.*
- ◆ *Replace the driveshaft if it is damaged.*
- ◆ *Do not tip rear driveshaft tube, push horizontally onto centering pins.*
- ◆ *Install all driveshaft parts marked in relation to each other in same position when reinstalling.*

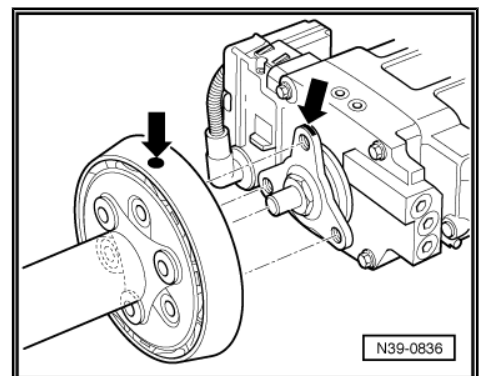
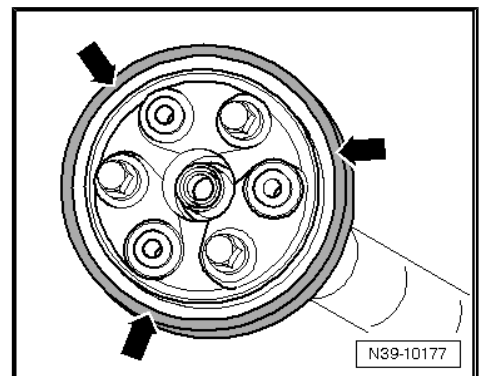
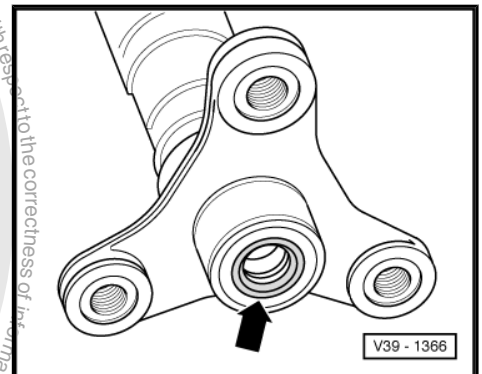
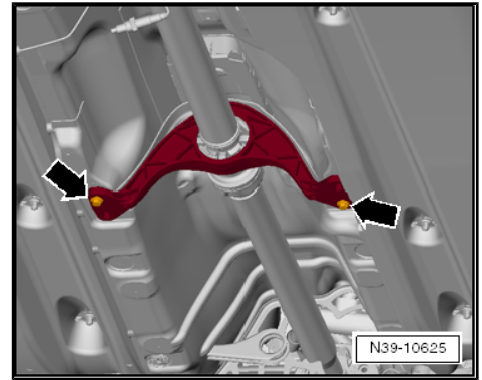
Attach the flexible disc to the driveshaft using new bolts. Tightening specifications. Refer to
➔ ["7.1 Overview - Driveshaft", page 43](#) .

Location of flexible disc with vibration damper:

- ◆ The brace on the outer diameter -arrows- faces away from the driveshaft tube.
- ◆ Each of the three protruding sleeves on the flange/driveshaft and on the flange/final drive engages in the locating bores in the flexible disc.

The following applies only to installing the removed flexible disc.

- Attach the driveshaft to the flange/driveshaft on the rear final drive so that the markings -arrows- line up.





- When removing and installing the driveshaft, be careful not to damage the bushing -arrow-.



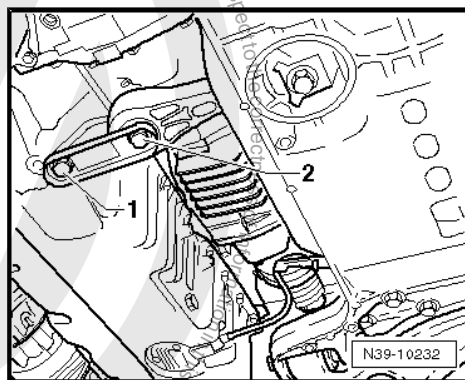
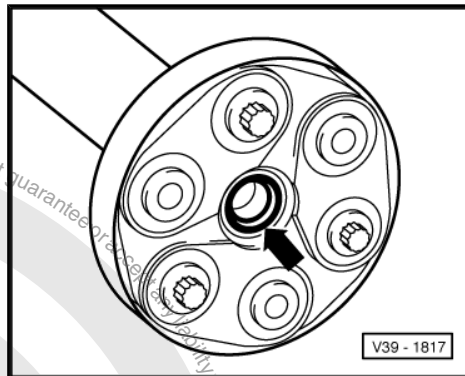
Note

Install the intermediate bearing without tension.

- Align the intermediate bearing in its oblong hole so the drive-shaft or bearing is not under stress.
- Tighten the intermediate center bearing only after the drive-shaft has been attached.
- Tighten the driveshaft and intermediate bearing.
- Tighten the pendulum support with »new« bolts. Tightening specifications. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Subframe; Overview - Subframe
- Install the center tunnel heat shield under the intermediate bearing. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Trim Panel; Overview - Underbody Trim Panels .
- Install the rear section of the exhaust system. Refer to ⇒ Rep. Gr. 26 ; Exhaust Pipes/Mufflers; Overview - Muffler .
- Install the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation .

Tightening Specifications

Refer to ⇒ ["7.1 Overview - Driveshaft", page 43](#)

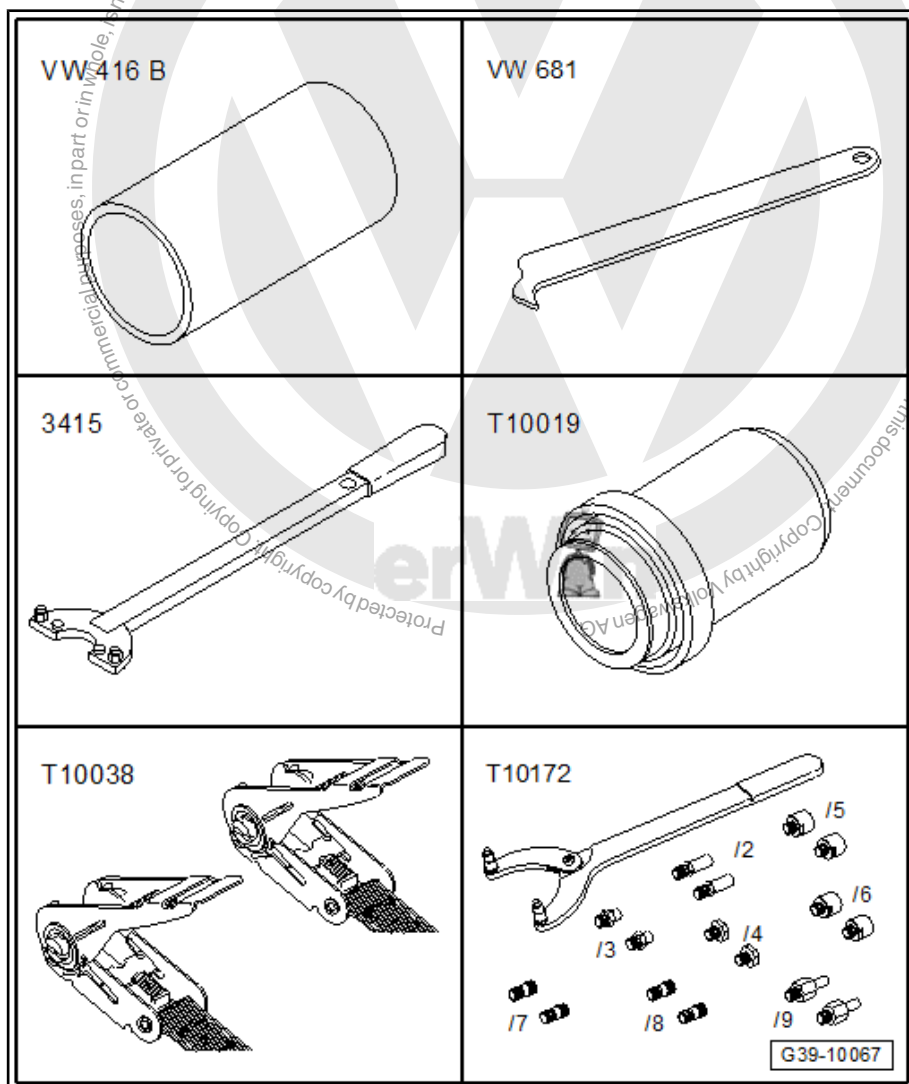




8 Special Tools

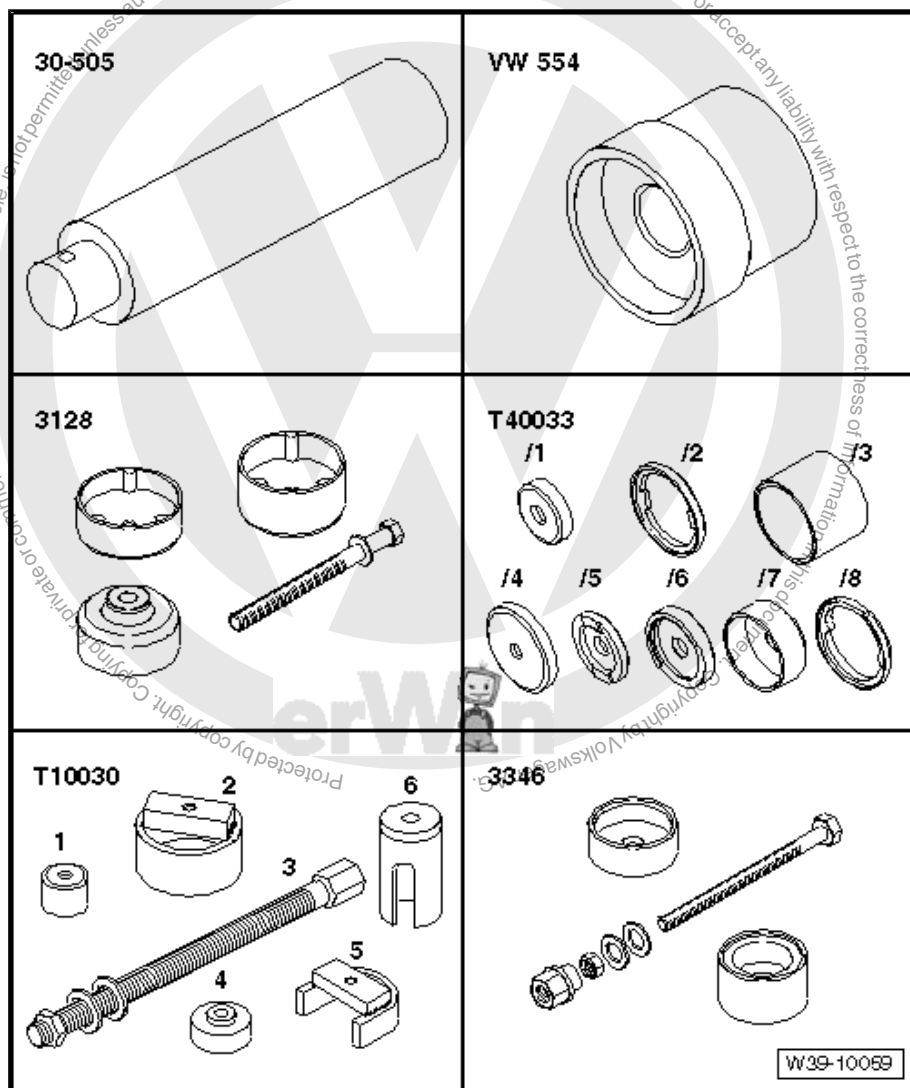
Special tools and workshop equipment required

- ◆ Press Piece - 37mm - VW416B-
- ◆ Puller - Seal Lever - VW681-
- ◆ Counterhold - Crankshaft Sprocket - 3415-
- ◆ Seal Installer - Shaft Seal Ring - T10019-
- ◆ Tensioning Strap - T10038-
- ◆ Counterhold - Kit - Multiple Use - T10172A- with Counterhold - Kit - Adapter 5 - T10172A/5-



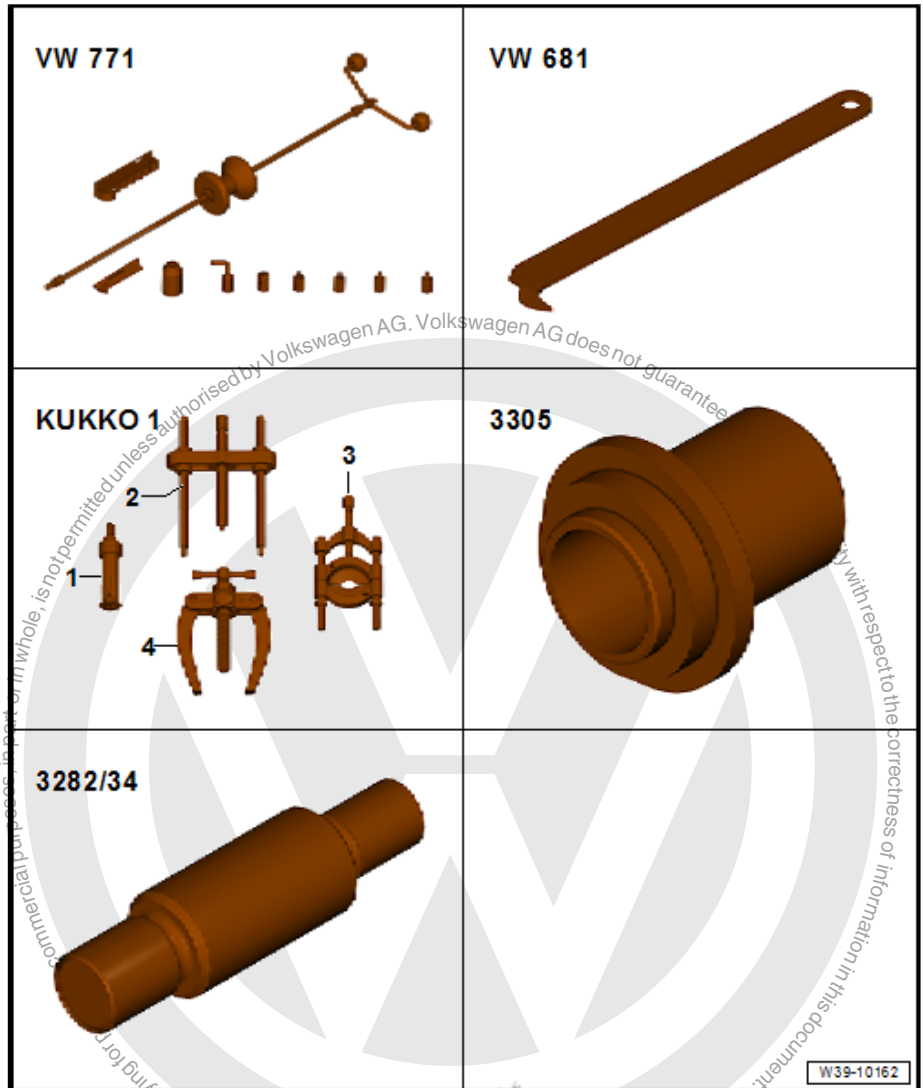


- ◆ Locking Pin Driver - 30-505-
- ◆ Press Piece - Bushing - 50mm Diameter - VW554-
- ◆ Bushing Installer - Rear Axle Beam - 3128-
- ◆ Rear Bushing Tool Press Piece - T40033/1-
- ◆ Assembly Tool Kit - Transverse - T10030/5-
- ◆ Bearing Installer - Component - 3346/2-
- ◆ Bearing Installer - Control Arm Nut - 3346/3-



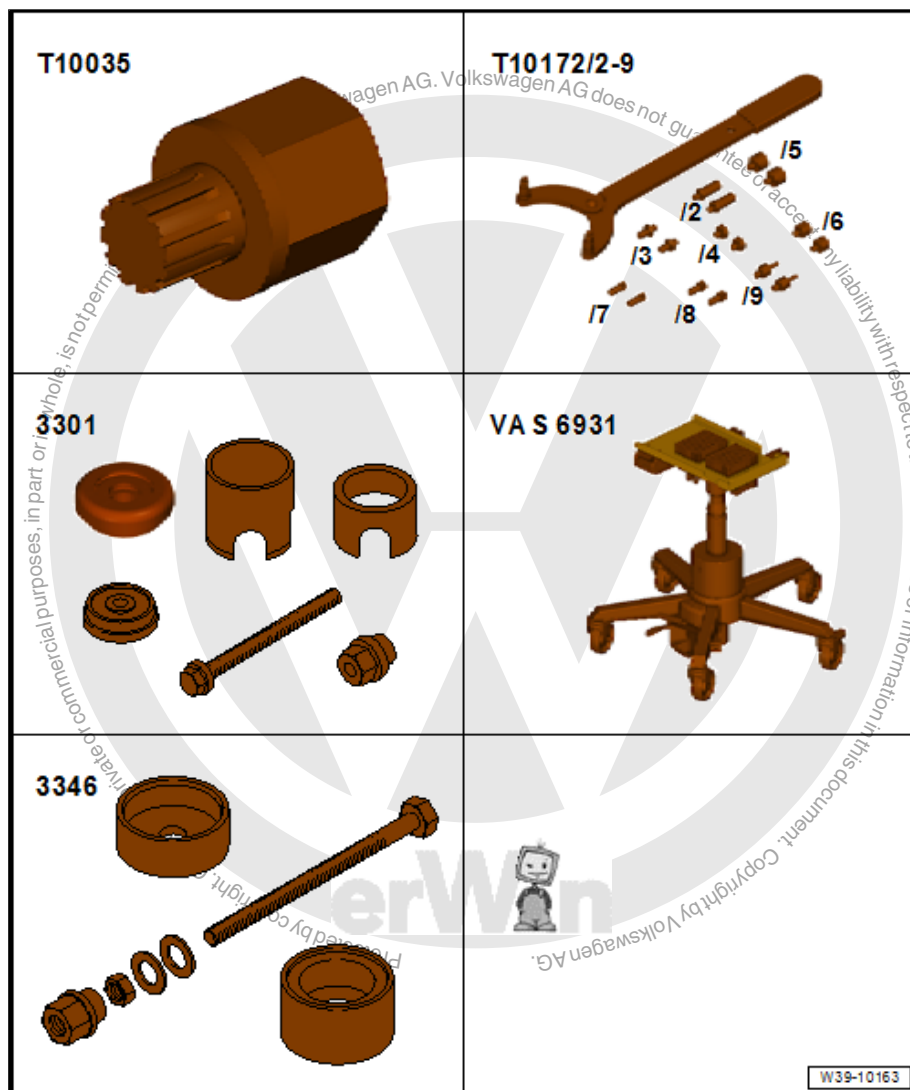


- ◆ Slide Hammer Set - VW771-
- ◆ Puller - Seal Lever - VW681-
- ◆ Puller - Kukko Puller - 60-200mm Width, 250mm Length - 18/2-
- ◆ Seal Installer - Flange Shaft - 3305-
- ◆ Transmission Support - Pins 34 - 3282/34-





- ◆ Multipoint Socket - T10035- and if necessary Bits for V.A.G. 1331/13 - T10099-
- ◆ Counterhold - Kit - Multiple Use - T10172A- with Counterhold - Kit - Adapter 5 - T10172A/5-
- ◆ Subframe Bushing Tool Kit - 3301- and Thrust Piece - 3301/2-
- ◆ Engine and Gearbox Jack - VAS6931- or Engine/Gearbox Jack - VAG1383A-
- ◆ Bearing Installer - Spindle - 3346/2- and Bearing Installer - Nut - 3346/3-



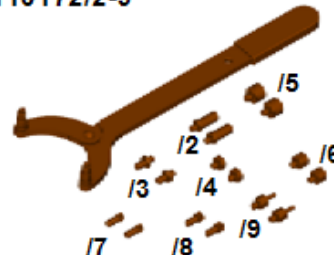


- ◆ Used Oil Collection and Extraction Unit - SMN372500-
- ◆ Counterhold - Kit - Multiple Use - T10172A- with Counterhold - Kit - Adapter 5 - T10172A/5-
- ◆ Guide Pins - T10093-

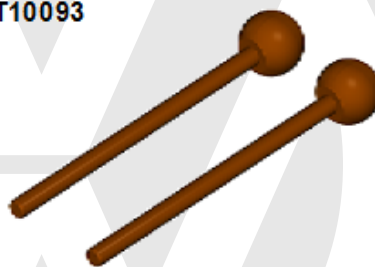
V.A.G 1782



T10172/2-9



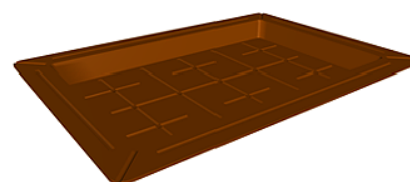
T10093



W39-10164

- ◆ Shop Crane - Drip Tray - VAS6208-

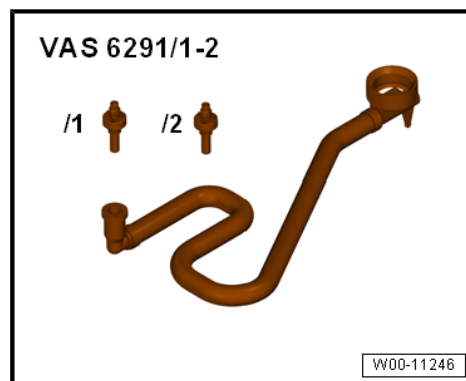
VAS 6208



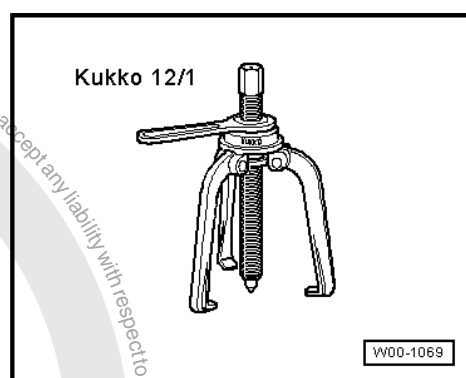
W00-11209



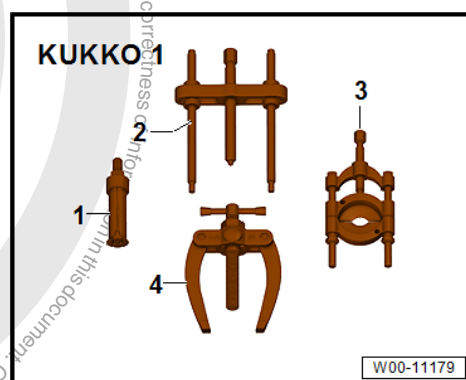
- ◆ Charging Device For Haldex Coupling 2 - VAS6291A-



- ◆ Puller - Kukko 3 Jaw - 100x100mm - 12/1-



- ◆ -1- Puller - Kukko Internal - 12-16mm - 21/1-



- ◆ -4- Puller - Kukko Counterstay - 22/1-

Edition K0059213021 FU 03/31/2015 - TMP



9 Revision History

Re- vi- sion	Date	Job Type	Feedback #	Notes	Editor
4	03/31/2015	Factory Update			Tom Perry
3	12/9/2014	Factory Update			Jim Harder
2	11/19/2014	Link Checking			Jim Harder
1	11/13/2014	Factory New	N/A		Eric Puterbaugh

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 Volkswagen retailer or other qualified shop. We especially urge you to consult an authorized Volkswagen retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Volkswagen.
- 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.
- Volkswagen 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 Volkswagen 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.
- 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.

Cautions & Warnings

- 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 Volkswagen 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.
- 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 Volkswagen Service technicians should test, disassemble or service the airbag system.

Cautions & Warnings

- 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 Volkswagen 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.

