Repair Manual

Audi A4 2008 ➤ ,
Audi A5 Cabriolet 2009 ➤ ,
Audi A5 Coupé 2008 ➤ , Audi A6 2011 ➤ ,
Audi A6 China 2012 ➤ ,
Audi A7 Sportback 2011 ➤ ,
Audi Q5 2008 ➤ , Audi Q5 China 2010 ➤

Servicing - 7-Speed Dual Clutch Transmission 0B5 (S tronic)

Edition 12.2018

List of Workshop Manual Repair Groups

Repair Group

00 - General, Technical Data

30 - Clutch

34 - Controls, Housing

35 - Gears, Shafts

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.

Contents

00 – General, Technical Data

1 Repair Information

(Edition 12.2018)

1.1 Guidelines for Clean Working Conditions

- Always clean the connection locations and the area around them before loosening.
- Clean the transmission and transmission components using Cleaning Solution - D 009 401 04- .
- Use lint-free cloths when cleaning, for example, the “WYPALL X70/WORKHORSE” cloth made by Kimberly-Clark Professional.
- Seal all open lines and connections immediately with clean plugs or caps from the Engine Bung Set - VAS6122- .
- Place removed parts on a clean surface and cover them. Use foil or lint-free cloths.
- Cover or plug unpacked components if repairs cannot be performed immediately.
- Only install clean components: Remove the replacement parts from their packaging just prior to installing them.
- Protect the disconnected connectors from dirt and moisture and only connect when they are dry.

1.2 General Repair Information

Using the Repair Manual

Refer to the “7-speed DSG transmission (S tronic)” repair manual for all special procedures with the transmission installed, depending on the model. The servicing repair manual either does not describe them or describes them only partially. Both repair manual are needed for a successful repair.

Carefulness, cleanliness and the correct tools are required for transmission repairs to be successful. The usual basic safety precautions also, naturally apply when carrying out vehicle repairs.

Some general repair information that applies to several procedures throughout this manual is summarized here. They apply to this repair manual.

Oil, Environmental and Disposal Regulations

- Handle ATF, transmission fluid and other oils carefully.
- Dispose of the drained fluids properly.
- Follow the legal environmental and disposal regulations.
- Follow the information provided on oil packaging.

Special Tools and Equipment

For a complete list of special tools used in the repair manual. Refer to Workshop Equipment and Special Tools.

Transmission

- Follow all the guidelines for clean working conditions. Refer to ⇒ “1.1 Guidelines for Clean Working Conditions”, page 1 .
- If installing parts that can be used again, clean and check them and replace if necessary.
- During installation, make sure that the alignment bushings are fitted correctly.

O-Rings, Shaft Seals, Seals

- O-rings, shaft seals and seals must be replaced.
- After removing gaskets, examine contact surface on housing/ shaft for burr resulting from removal or for other signs of damage.
- Clean the housing separating surface thoroughly before assembling.
- Before installing, lightly lubricate shaft seal outer circumference and sealing lips with ATF or gear oil, depending on installation location.
- Coat O-rings lightly with ATF or transmission fluid before installing them. This prevents them crimping when being installed.
- Always only use approved ATF. Other types of lubrication cause faults to occur in the transmission hydraulics.
- The open side on the shaft seals faces the fluid to be sealed off.
- After installing, check and correct the ATF level or the transmission fluid level (MTF) with the transmission installed. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Automatic Transmission Fluid; ATF Level, Checking or⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Fluid; Transmission Fluid Level, Checking . Specification. Refer to the Parts Catalog.

Bolts and Nuts

- Loosen the bolts opposite the tightening sequence.
- Nuts and bolts which secure covers and housings should be tightened in steps according to the specified tightening sequence and method.
- Nuts and bolts which secure covers and housings should be loosened and tightened crosswise in stages if no tightening sequence is specified.
- Always replace self-locking nuts and bolts.
- If nothing else is specified: Use a wire brush to clean the threads of bolts that were screwed in with locking compound. Use locking fluid when installing the bolts. Refer to the Parts Catalog.
- Threaded holes with self-locking bolts or bolts coated with locking fluid must be cleaned, for example using a thread tap. Otherwise there is a risk that the bolts will shear the next time they are removed.
- The tightening specifications stated apply to non-oiled nuts and bolts.

Circlips, Snap Rings

- Do not overstretch the circlips.
- Replace damaged or stretched circlips.
- The circlips must fit completely inside the groove.

Bearings

- Install needle bearings with lettered side (thicker metal) racing the fitting tool.
- Coat and install the bearings with gear oil or with ATF, depending on the installation location.
- Do not interchange the outer or inner races of bearings of the same size.
- Always replace the tapered roller bearings on one shaft together and use new bearings from a single manufacturer.

Adjusting Shims

- Measure the adjusting shims at several locations with a micrometer. Different shim thicknesses make it possible to select the required thickness precisely; install two shims if necessary.
- Check for burrs and damage. Only install perfect shims.

Mechatronic

> **Caution**
>
> *There is a risk of destroying the transmission control module (Mechatronic) with electrostatic discharge.*
>
> - *Always discharge “static electricity” before working with connectors or the Mechatronic. Do this by touching a grounded object, for example vehicle ground, the vehicle or the hoist.*
> - *Do not touch contacts in transmission connector with hands.*

1.3 Contact Corrosion

Contact corrosion can occur if unsuitable fasteners (bolts, nuts, washers, etc.) are used.

For this reason, only fasteners with a special surface coating may be installed.

In addition, rubber or plastic parts and adhesive are made of materials that do not conduct electricity.

If there are doubts about whether parts can be used or not, then use new parts. Refer to the Parts Catalog.

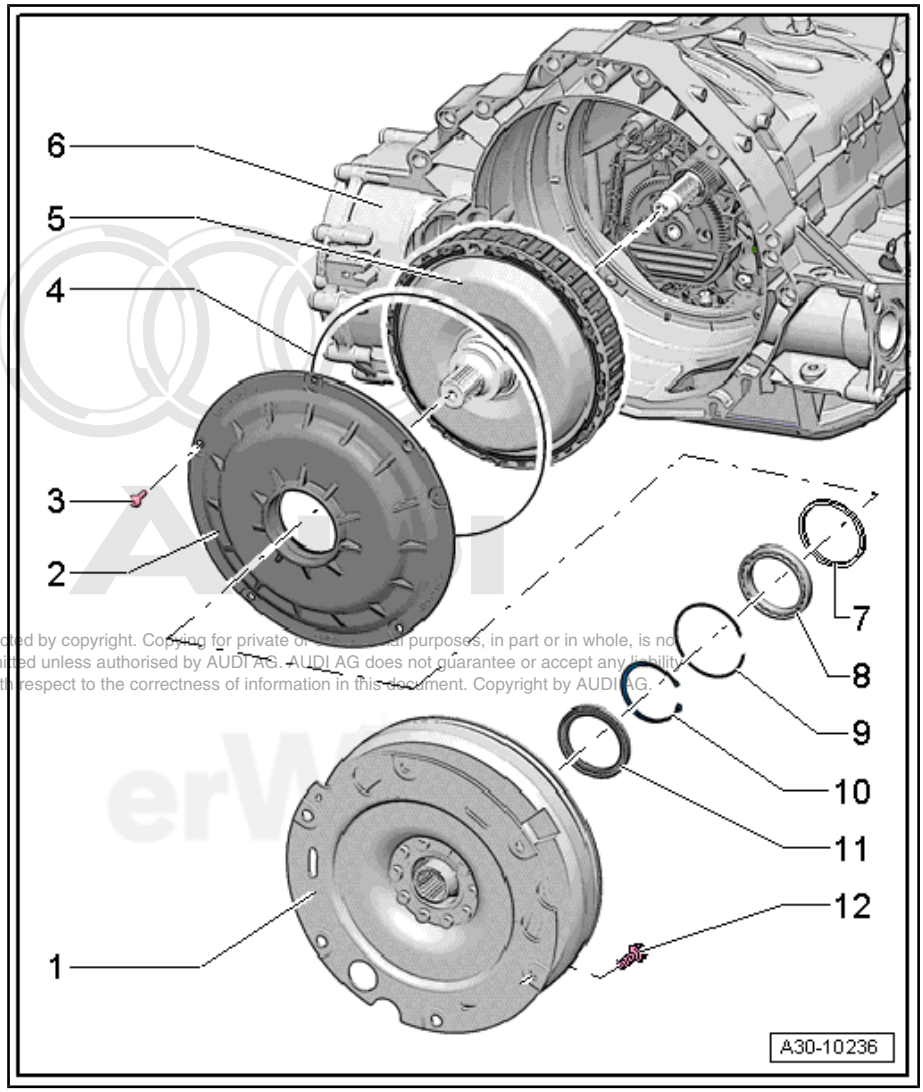
Note

- *Original replacement parts are recommended because they have been tested.*
- *The use of Audi accessories is recommended.*
- *Damage resulting from contact corrosion is not covered by the warranty.*

30 – Clutch

1 Clutch

1.1 Overview - Flywheel and Dual Clutch



1 - Flywheel

- ❑ Refer to the Parts Catalog because there are different versions depending on the date of manufacture.
- ❑ Removing and installing. Refer to ⇒ “1.2 Flywheel, Removing and Installing”, page 5 .

2 - Clutch Cover

- ❑ There are different versions depending on the date of manufacture, with or without a thrust washer (-item 7- ⇒ Item 7 (page 5)), allocation. Refer to the Parts Catalog.
- ❑ Removing. Refer to ⇒ “1.3 DSG Clutch, Removing”, page 7 .
- ❑ Installing. Refer to ⇒ “1.4 Dual Clutch, Installing”, page 9 .

3 - Bolt

- ❑ Tightening specification and sequence. Refer to ⇒ Fig. ““Clutch Cover Tightening Specification and Sequence”“ , page 5

4 - O-Ring

- ❑ Always replace

5 - Dual Clutch

- ❑ Refer to the Parts Catalog because there are different versions depending on the date of manufacture.
- ❑ Removing. Refer to ⇒ “1.3 DSG Clutch, Removing”, page 7 .
- ❑ Installing. Refer to ⇒ “1.4 Dual Clutch, Installing”, page 9 .

- Perform the relevant “Guided Function” using the Vehicle Diagnostic Tester after replacing the dual clutch. Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Control .

6 - Transmission Housing

7 - Thrust Washer

- ❑ Depending on the date of manufacture, clutch cover allocation. Refer to the Parts Catalog.

8 - Ball Bearing

- ❑ For the dual clutch
- ❑ Replacing. Refer to ⇒ “1.1 Input Shaft Ball Bearing, Replacing”, page 67 .

9 - Locking Ring

- ❑ Always replace
- ❑ For ball bearing

10 - Locking Ring

- ❑ Always replace
- ❑ For the dual clutch

11 - Shaft Seal

- ❑ For the input shaft
- ❑ Replacing. Refer to ⇒ “1.2 Input Shaft Seal, Replacing”, page 69 .

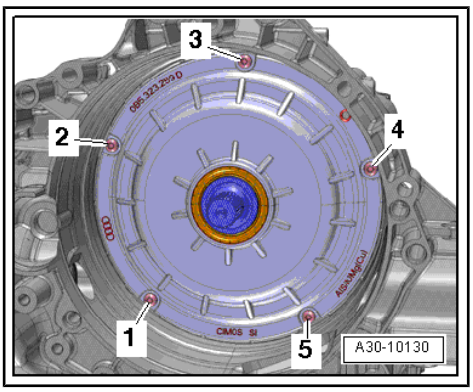
12 - Bolt

- ❑ 60 Nm
- ❑ Always replace

Clutch Cover Tightening Specification and Sequence

– Tighten the bolts in three steps in the sequence shown:

Step	Bolts	Tightening Specification
1.	-1 to 5-	Install by hand evenly until the bolt head contact the clutch cover.
2.	-1 to 5-	Tighten one after the other in 90° steps until the clutch cover contact the transmission housing.
3.	-1 to 5-	10 Nm



1.2 Flywheel, Removing and Installing

Special tools and workshop equipment required

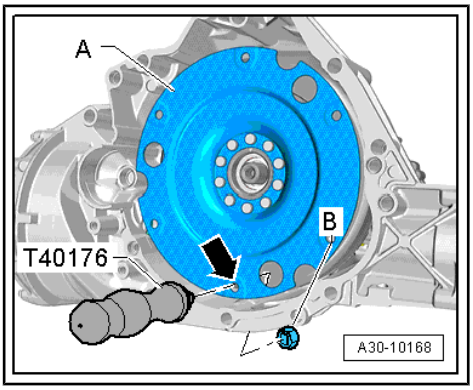
- ♦ Puller - Clutch Module - T40176-
- ♦ Clutch Disc Shaft Spline Lubricant - G 000 100-
- ♦ Grease. Refer to the Parts Catalog.

Removing

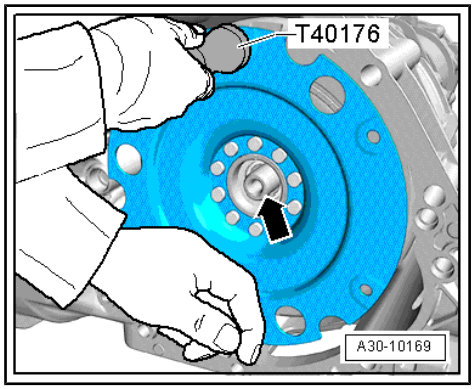
- Secure the transmission on the Engine And Transmission Holder - VAS6095- . Refer to ⇒ “4 Securing on Engine and Transmission Holder”, page 61 .

– Remove the left flange shaft. Refer to ⇒ “4.1 Left Flange Shaft, Removing and Installing”, page 83 .

– Attach the Puller - Clutch Module - T40176- to the flywheel -A- with the nut -B- -arrow-.



– Turn the Puller - Clutch Module - T40176- upward.



Note

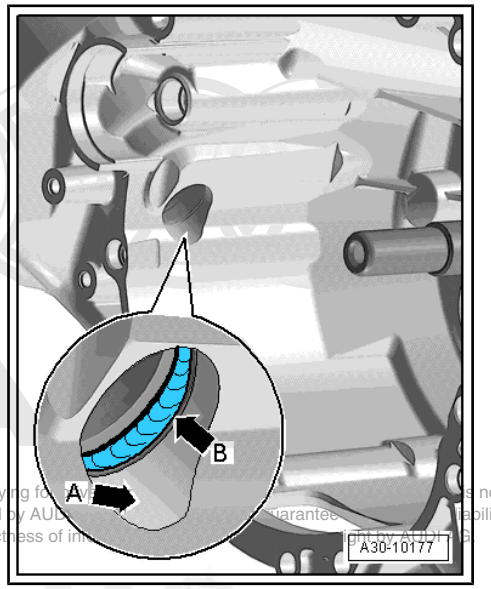
To prevent the flywheel from tilting, counterhold it underneath as illustrated.

– Remove the flywheel from the input shaft -arrow-. Do not tilt the flywheel when doing this.

Installing

Install in reverse order of removal. Note the following:

– Always clean the transmission housing in the area where the differential is accessed -arrow A- and the shaft seal -arrow B-.



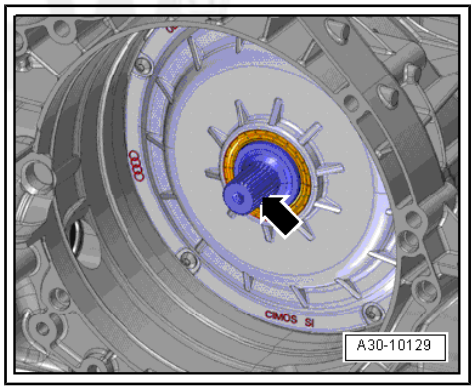
Note

Replace the shaft seal between the differential and transmission housing -arrow B- if it is damaged. Refer to ⇒ *"3.1 Left Seal, Replacing", page 80* .

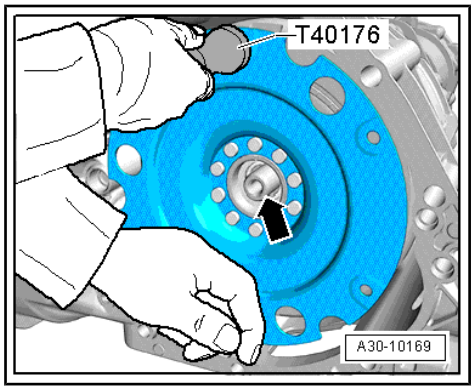
– Fill the space between the sealing- and dust lip half way with sealing grease. Refer to the Parts Catalog.

– Clean the input shaft -arrow-.

– Lubricate the input shaft splines using Grease for Clutch Disc Shaft Splines - G 000 100- .

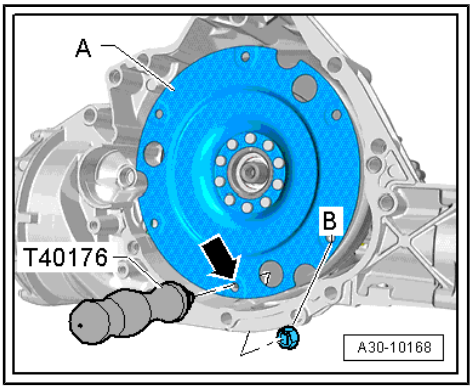


– Slide the clutch module onto the input shaft -arrow- carefully without tilting it.



– Remove the Puller - Clutch Module - T40176- from the flywheel -A-.

– Install the left flange shaft. Refer to ⇒ “4.1 Left Flange Shaft, Removing and Installing”, page 83 .



1.3 DSG Clutch, Removing

Special tools and workshop equipment required

- Engine Support Bridge - Additional Hooks (2 pc.) - 10-222A/2-
- Shop Crane - VAS6100-
- Pulling Hook - T20143/2-
- Dual Clutch Lifting Device - T40123A-
- Oil Sump Assembly Pin - T40199-

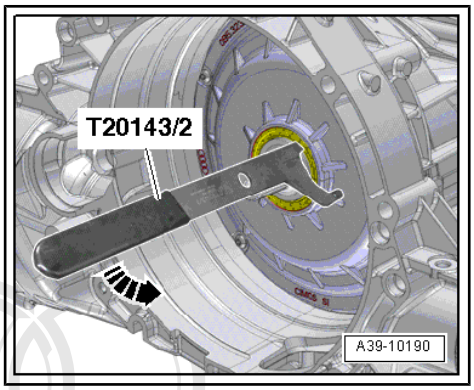
Removing

- Secure the transmission on the Engine And Transmission Holder - VAS6095- . Refer to ⇒ “4 Securing on Engine and Transmission Holder”, page 61 .

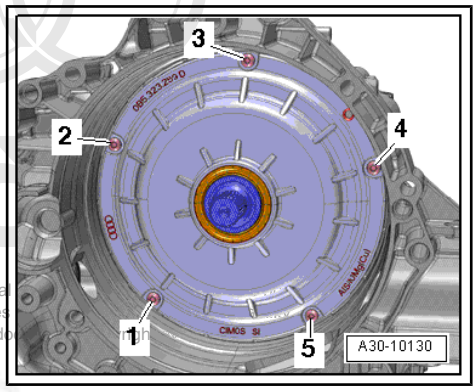
– Remove the flywheel. Refer to ⇒ “1.2 Flywheel, Removing and Installing”, page 5 .

– Drain the ATF. Refer to ⇒ “5.2 ATF, Draining and Filling”, page 62 .

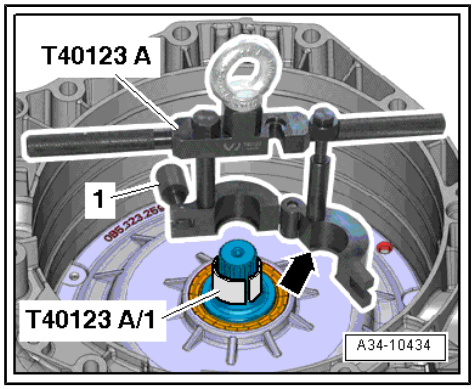
– Pry out the input shaft seal with the Pulling Hook - T20143/2- .



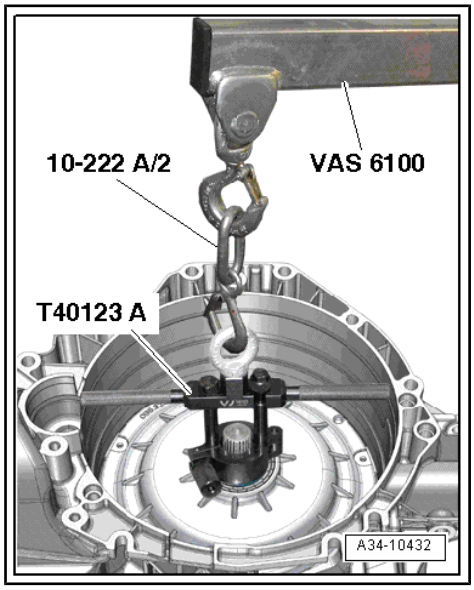
– Remove the bolts -1 through 5-.



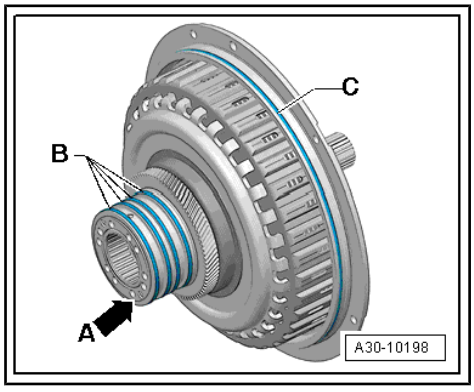
– Turn the inside the Engine and Gearbox Jack - VAS6931- so that it is vertical.
– Place the Dual Clutch Lifting Device Sleeve - T40123A/1- on the drive axle.
– Place the Dual Clutch Lifting Device - T40123A- on the drive axle.
• The edge -arrow- of the lifting device must grip under the Dual Clutch Lifting Device Sleeve - T40123A/1- .
– Close the lifting device and tighten the knurled nut -1- to approximately 20 Nm.
– Make sure the lifting device fits securely on the input shaft.



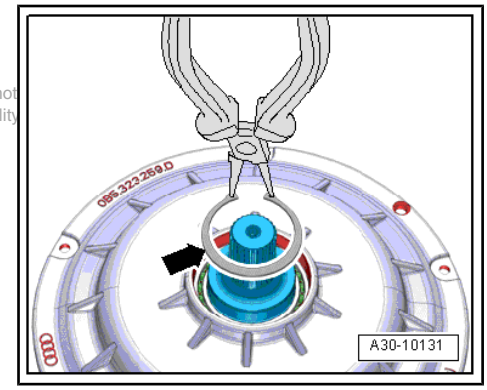
– Connect the Dual Clutch Lifting Device - T40123A- with the Engine Support Bridge - Additional Hooks (2 pc.) - 10-222A/2- and engage in the Shop Crane - VAS6100- .
– Carefully remove the dual clutch out of the transmission housing.



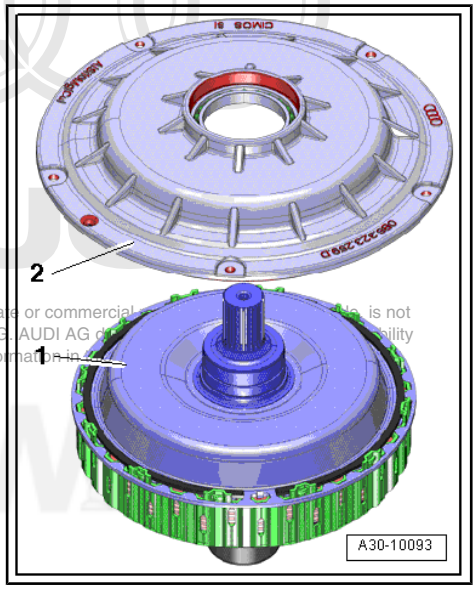
– Lay the dual clutch and cover on a soft surface so that the thin rib -arrow A- does not get damaged.



– Remove the locking ring -arrow- with locking ring pliers.

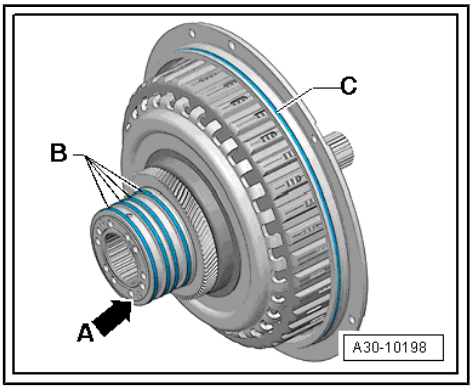


– Remove the clutch cover -2- from the dual clutch -1-.



Note

- *If the clutch cover does not come off, gently strike the input shaft with a rubber hammer while a second technician lifts the clutch cover by hand.*
- *Be careful not to damage the thin rib -arrow A- when doing this.*



1.4 Dual Clutch, Installing

Install in reverse order of removal. Note the following:

Note

Replace the O-ring and the circlip.

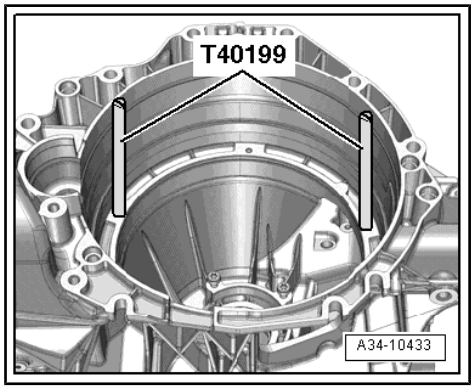
– Clean the sealing surface on the clutch cover.

– Turn the rectangular rings -B- on the hub and check for ease of movement and axial play.

Note

If the rectangular rings do not move easily, then the dual clutch must not be installed.

– Clean the transmission housing around the dual clutch and the sealing surface.

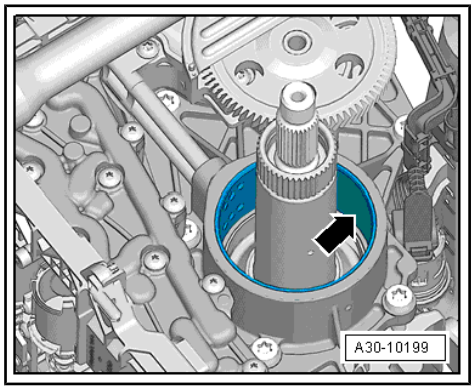


Note

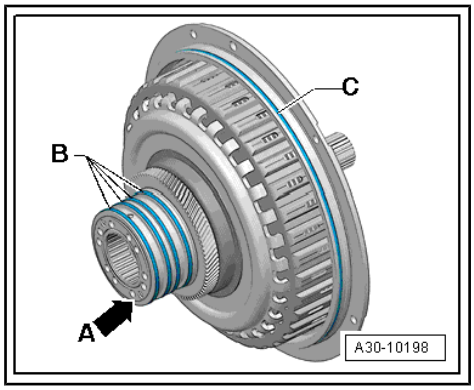
Make sure no dirt can fall into the transmission while cleaning.

– Install the Oil Sump Assembly Pin - T40199- into the threaded hole in the transmission housing as illustrated.

– Check the hole -arrow- in the transmission for wear grooves.

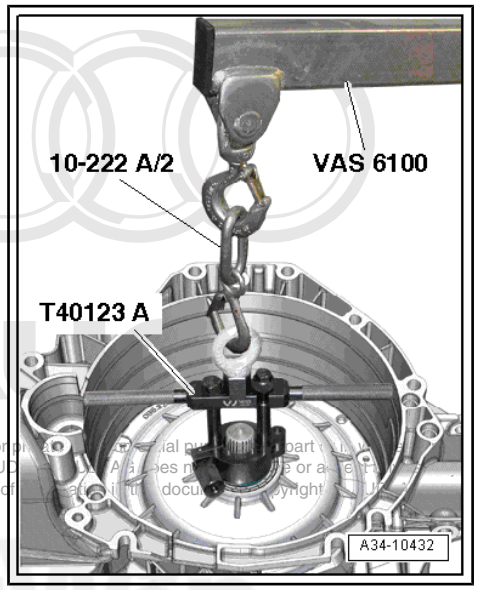


– Coat the O-ring -C- and hub -B- on the dual clutch with ATF.



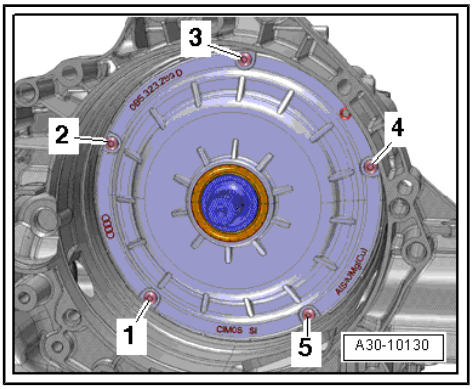
– Install the dual clutch into the transmission housing. Using short lifting/turning motions, allow the input shaft to engage into the ATF pump splines and transmission shafts as illustrated.

- The dual clutch is installed correctly when the clutch cover O-ring noticeably contacts the edge of the transmission housing.



Caution

- *Do not let the O-ring get caught when installing.*
- *Always follow the tightening sequence when tightening the clutch cover bolts -1 through 5-. Refer to (⇒ Fig. ""Clutch Cover Tightening Specification and Sequence"" , page 5).*



– Tighten the clutch cover bolts -1 through 5- to the tightening specification and sequence. Refer to ⇒ Fig. ""Clutch Cover Tightening Specification and Sequence"" , page 5 .

– Replace the input shaft seal. Refer to ⇒ "1.2 Input Shaft Seal, Replacing", page 69 .

– Install the flywheel. Refer to ⇒ "1.2 Flywheel, Removing and Installing", page 5 .

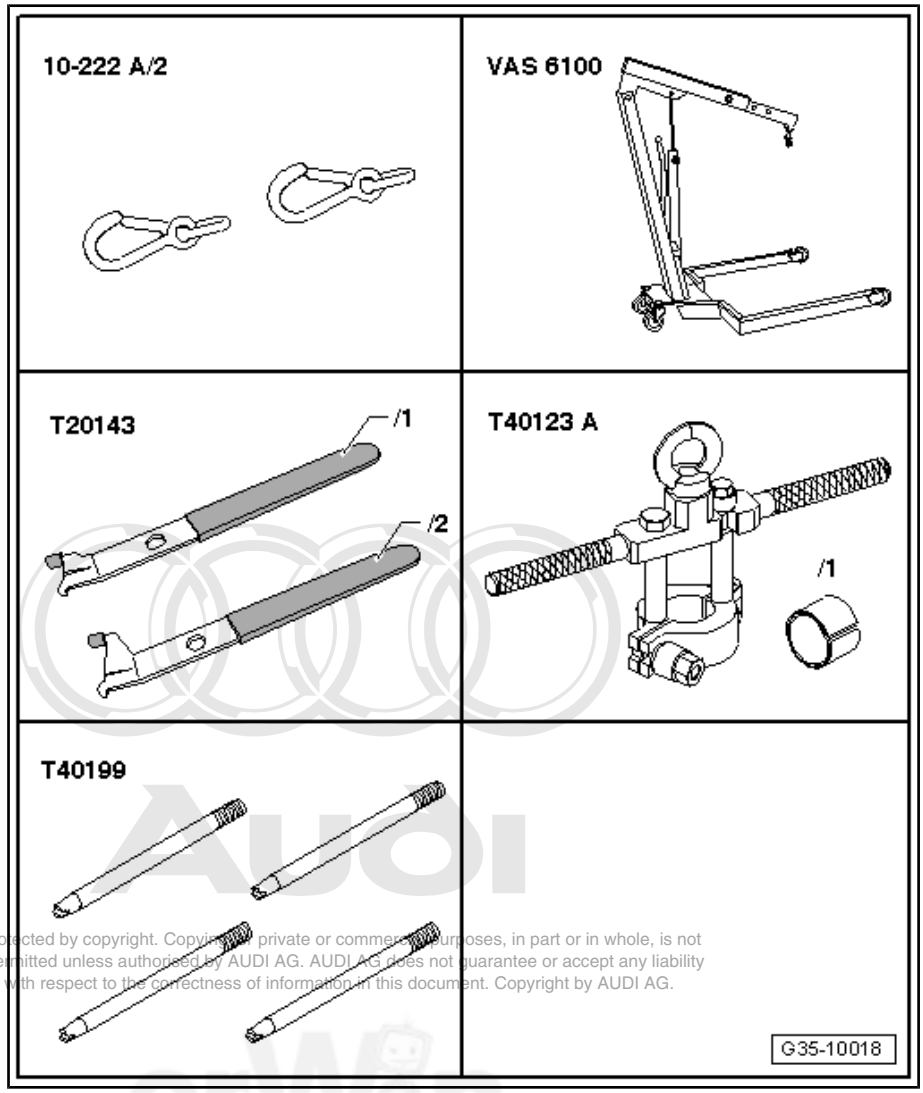
– Fill with ATF after the transmission is installed:

– After installing the transmission, fill the ATF. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Automatic Transmission Fluid; ATF, Draining and Filling .

• Perform the relevant "Guided Function" using the vehicle diagnostic tester after replacing the dual clutch. Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Control .

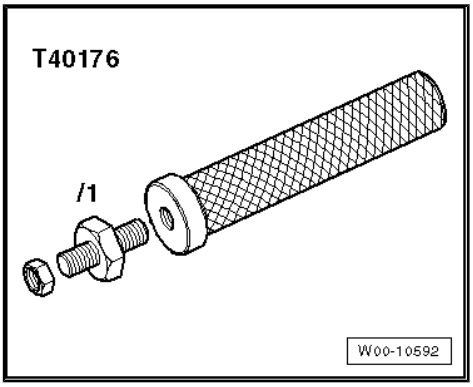
2 Special Tools

Special tools and workshop equipment required



- Engine Support Bridge - Additional Hooks (2 pc.) - 10-222A/2-
- Shop Crane - VAS6100-
- Pulling hook - T20143/2-
- Dual Clutch Lifting Device - T40123A-
- Oil Sump Assembly Pin - T40199-

- Puller - Clutch Module - T40176-

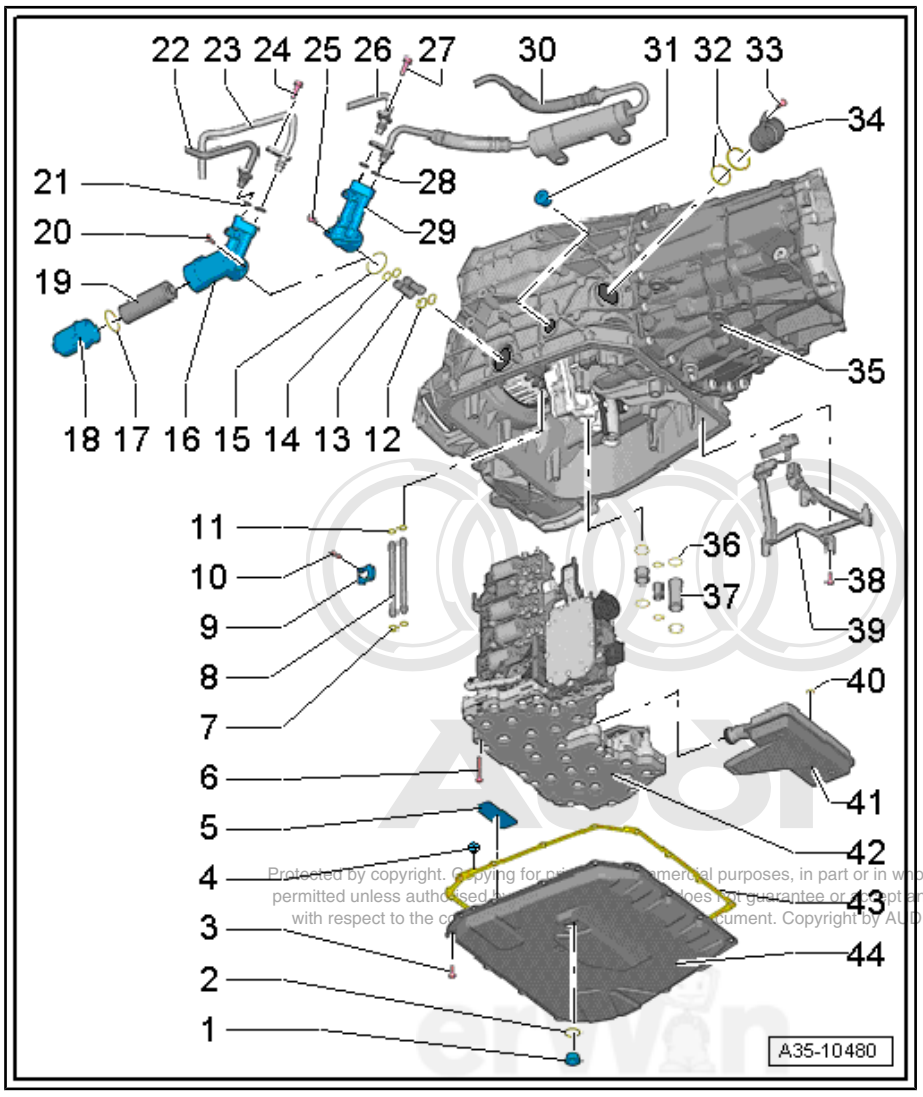


- Clutch Disc Shaft Spline Lubricant - G 000 100-

34 – Controls, Housing

1 Mechatronic

1.1 Overview - Mechatronic



1 - ATF Drain Plug

- ❑ Tightening specification -item 1- ⇒ Item 1 (page 62) .

2 - Seal

- ❑ Always replace

3 - Bolt

- ❑ Tightening specification and sequence. Refer to ⇒ Fig. ““ATF Oil Pan, Tightening Specification and Sequence”“ , page 17
- ❑ Always replace

4 - Expanding Rivet

- ❑ For attaching the gasket to the ATF oil pan
- ❑ Not required for installation

5 - Magnet

- ❑ Insert into the depression in the ATF oil pan
- ❑ Make sure the entire surface contacts oil pan
- ❑ Quantity: 2

6 - Bolt

- ❑ Tightening specification and sequence. Refer to ⇒ Fig. ““ Mechatronic, Tightening Specification and Sequence”“ , page 17
- ❑ Always replace

7 - O-Rings

- ❑ Always replace

8 - ATF Pressure Pipes (Coupling Pressure)

- ❑ Always replace

- ❑ Depending on the date of manufacture, versions may be different. The ATF pressure pipe (clutch pressure) in transmissions of the new version are a single unit and made out of plastic.
- ❑ Plastic ATF pressure pipes are backward compatible.

9 - Retaining Plate
- ❑ Only for the ATF pressure pipe (clutch pressure) made out of metal

10 - Bolt
- ❑ 10 Nm
- ❑ Only for the ATF pressure pipe (clutch pressure) made out of metal

11 - O-Rings
- ❑ Always replace

12 - O-Rings
- ❑ Always replace

13 - ATF Pipes
- ❑ Different versions, depending on date of manufacture

14 - O-Rings
- ❑ Always replace

15 - O-Ring
- ❑ Always replace
- ❑ Different versions, depending on date of manufacture

16 - ATF Filter Housing
- ❑ For transmissions with an ATF filter
- ❑ Replace components that do not have a factory-installed anti-twist mechanism after removing them. Refer to ⇒ page 27

17 - O-Ring
- ❑ Always replace
- ❑ For transmissions with a replaceable ATF filter

18 - ATF Filter Cover
- ❑ 8 Nm
- ❑ For transmissions with a replaceable ATF filter
- ❑ Note that there are different versions

19 - ATF Filter
- ❑ Replace each time the ATF is changed and after performing a repair on the transmission
- ❑ Pay attention to the allocation. Refer to the Parts Catalog is also called a filter
- ❑ Refer to ⇒ “1.7 ATF Filter, Removing and Installing”, page 34

20 - Bolt
- ❑ 10 Nm
- ❑ For transmissions with a replaceable ATF filter
- ❑ Quantity: 3

21 - O-Rings
- ❑ Always replace
- ❑ For transmissions with a replaceable ATF filter

22 - ATF Return Pipe
- ❑ For transmissions with a replaceable ATF filter
- ❑ Removing and installing. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; ATF Circuit; ATF Pipes, Removing and Installing

23 - ATF Supply Pipe
- ❑ For transmissions with a replaceable ATF filter

- ❑ Removing and installing. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; ATF Circuit; ATF Pipes, Removing and Installing

24 - Bolt

- ❑ Tightening specification. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; ATF Circuit; Overview - ATF Circuit
- ❑ For transmissions with a replaceable ATF filter

25 - Bolt

- ❑ 10 Nm
- ❑ For transmissions with an ATF pipe filter
- ❑ Quantity: 3

26 - ATF Return Pipe

- ❑ For transmissions with an ATF pipe filter
- ❑ Removing and installing. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; ATF Circuit; ATF Pipes, Removing and Installing

27 - Bolt

- ❑ Tightening specification. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; ATF Circuit; Overview - ATF Circuit
- ❑ For transmissions with an ATF pipe filter

28 - O-Rings

- ❑ Always replace
- ❑ For transmissions with an ATF pipe filter

29 - ATF Pipe Connection

- ❑ For transmissions with an ATF pipe filter

30 - ATF Pipe Filter

- ❑ Replace when replacing the transmission or if the ATF is extremely dirty.
- ❑ Removing and Installing. Refer to ⇒ 7-Speed Dual Clutch Transmission; Rep. Gr. 34 ; ATF Circuit; ATF Filter, Removing and Installing .

31 - ATF Fill and Check Plug

- ❑ Tightening specification -item 4- ⇒ Item 4 (page 62) .

32 - O-Rings

- ❑ Always replace

33 - Bolt

- ❑ 8 Nm

34 - Connector Housing

- – To remove, remove the bolt -33- and turn the connector housing counter-clockwise.

35 - Transmission Housing

36 - O-Rings

- ❑ Always replace

37 - ATF Pipes

- ❑ Always replace
- ❑ Depending on the date of manufacture, versions may be different. The ATF pipes in transmissions for the new version are a single unit and made out of plastic.
- ❑ Plastic ATF pressure pipes are backward compatible.

38 - Bolt

- ❑ 8 Nm
- ❑ Quantity: 5

39 - Wiring Set for the Sensor Module

- ❑ Removing and installing. Refer to ⇒ “3.2 Sensor Module , with integrated transmitters and sensors G612 , G632 , G676 and Circuit Board 3 , Removing and Installing”, page 42 .
- ❑ Replace if the Sensor Module is replaced.

40 - O-Ring

- ❑ Always replace

41 - ATF Suction Filter

- ❑ Removing and installing. Refer to ⇒ “1.3 ATF Filter, Removing and Installing”, page 19 .

42 - DSG Transmission Mechatronic - J743-

- ❑ Removing and installing. Refer to ⇒ “1.4 Mechatronic, Removing and Installing”, page 20 .
- ❑ Tightening specification and sequence ⇒ Fig. ““ Mechatronic, Tightening Specification and Sequence”“ , page 17 .

- Perform the relevant “Guided Function” using the vehicle diagnostic tester after replacing the DSG Transmission Mechatronic - J743- . Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Control .
  - ❑ Remove the circuit board from the DSG Transmission Mechatronic - J743- . Refer to ⇒ “1.5 Overview - Mechatronic Circuit Boards”, page 28 .

43 - Seal

- ❑ Always replace
- ❑ Installing. Refer to ⇒ page 18 .

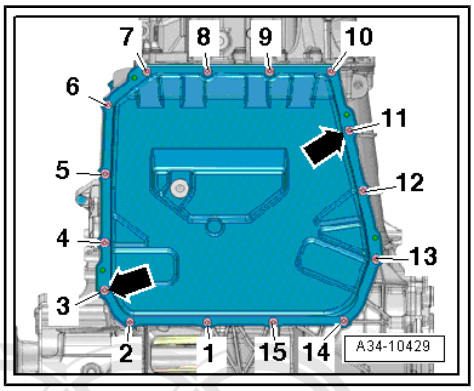
44 - ATF Pan

- ❑ Removing and installing. Refer to ⇒ “1.2 Oil Pan, Removing and Installing”, page 18 .

ATF Oil Pan, Tightening Specification and Sequence

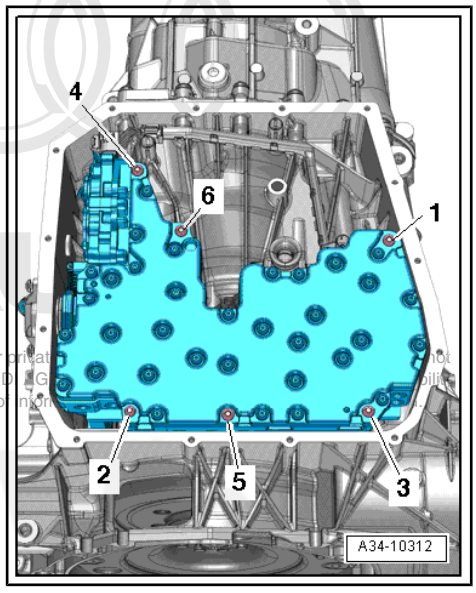
– Tighten the bolts in two stages as described below.

1. Install the bolts -arrows- hand-tight.
2. Tighten the screws -1 through 15- diagonally to 10 Nm and in steps.



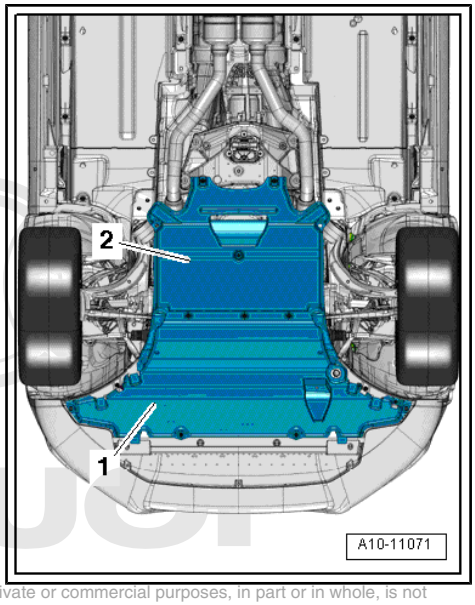
Mechatronic, Tightening Specification and Sequence

– Tighten the bolts to 10 Nm in the sequence -1 to 6-.



1.2 Oil Pan, Removing and Installing

Removing



Note

- *General Repair Instructions. Refer to* ⇒ *"1 Repair Information", page 1* .
- *Rules for cleanliness when working on the DSG transmission. Refer to* ⇒ *"1.1 Guidelines for Clean Working Conditions", page 1* .

The Transmission is Installed.

It is also possible to remove and install the ATF pan when the transmission is installed. Depending on the vehicle model and the engine version, additional work may be required to be able to reach the ATF pan. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Mechatronic

Transmission Removed.

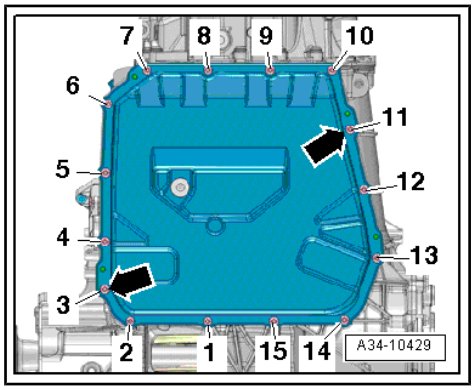
– The transmission is secured to the engine/transmission holder. Refer to ⇒ "4 Securing on Engine and Transmission Holder", page 61 .

– Place the Used Oil Collection and Extraction Unit - SMN372500- under the transmission.

– Drain the ATF. Refer to ⇒ "5.2 ATF, Draining and Filling", page 62 .

– Diagonally Loosen the screws -1 through 15-.

– Remove the bolts and the ATF pan.



Note

Ignore -arrows-.

Installing

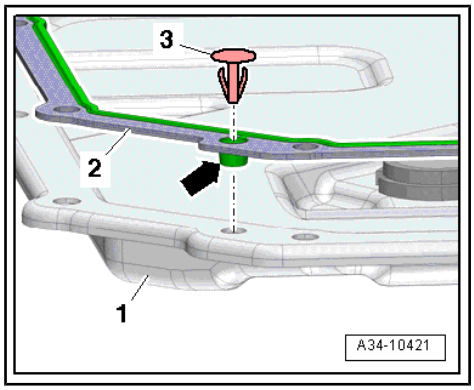
Install in reverse order of removal. Note the following:

– Clean the sealing surfaces.

– Replace the ATF oil pan bolts and gasket.

– Insert the guides -arrow- on the new gasket -2- into the ATF fluid pan -1-.

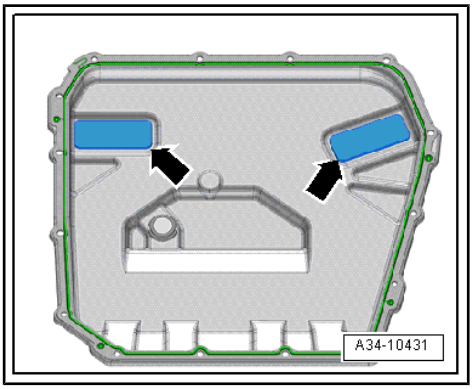
– Attach the gasket (if equipped) and expanding rivets -3- to the ATF pan.



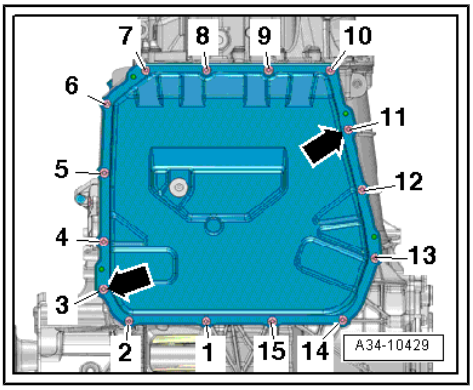
Note

Clips item -3- are only used for assembly help during production.

– Clean the magnets -arrows- in the ATF pan.
– Make sure the magnets completely contact the depressions in the ATF oil pan.



– Tighten the ATF oil pan screws. Refer to ⇒ Fig. ""ATF Oil Pan, Tightening Specification and Sequence"" , page 17 .
– After installing the ATF pan, fill with ATF. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Automatic Transmission Fluid; ATF, Draining and Filling



1.3 ATF Filter, Removing and Installing

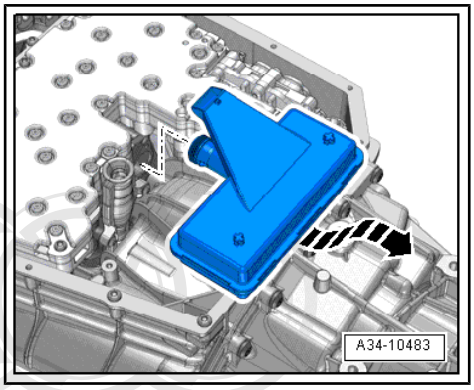
Special tools and workshop equipment required

♦ Used Oil Collection and Extraction Unit - SMN372500-

Removing

Note

♦ *General Repair Instructions. Refer to ⇒ "1 Repair Information", page 1 .*
♦ *Rules for cleanliness when working on the DSG transmission. Refer to ⇒ "1.1 Guidelines for Clean Working Conditions", page 1 .*



– Place the Used Oil Collection and Extraction Unit - SMN372500- under the transmission.
– Remove the ATF oil pan. Refer to ⇒ "1.2 Oil Pan, Removing and Installing", page 18 .
– Carefully pull the ATF suction filter to the rear and off the Mechatronic in direction of -arrow-.

Installing

Install in reverse order of removal. Note the following:

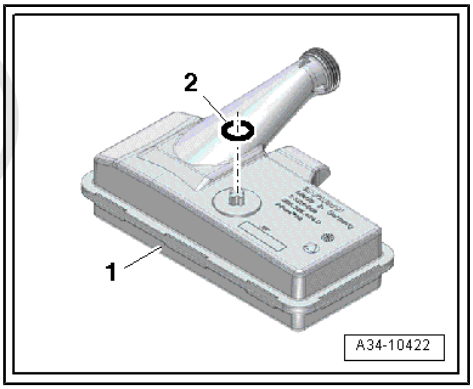
– Install the O-ring -2- on the rear support on the ATF suction filter -1-.

– Install the ATF suction filter suction collar all the way into the opening in the transmission fluid pump.

- The support with the O-ring must fit into the hole inside the transmission housing.

– Install the ATF pan. Refer to ⇒ “1.2 Oil Pan, Removing and Installing”, page 18 .

– After installing the transmission, fill with ATF. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Automatic Transmission Fluid; ATF, Draining and Filling



1.4 Mechatronic, Removing and Installing

Special tools and workshop equipment required

♦ Used Oil Collection and Extraction Unit - SMN372500-

Removing

Note

♦ *General repair instructions. Refer to ⇒ “1 Repair Information”, page 1 .*

♦ *Rules for cleanliness when working on the DSG transmission. Refer to ⇒ “1.1 Guidelines for Clean Working Conditions”, page 1 .*

Caution

There is a risk of destroying the transmission control module (Mechatronic) with static discharge.

- ***Always “discharge” the static electricity before working with electric connectors. Do this by touching a grounded object, for example vehicle ground, the vehicle or the hoist.***
- ***Do not touch contacts in transmission connector with hands.***

The Transmission is Installed.

– Remove the noise insulations -1 and 2-. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Noise Insulation, Removing and Installing .

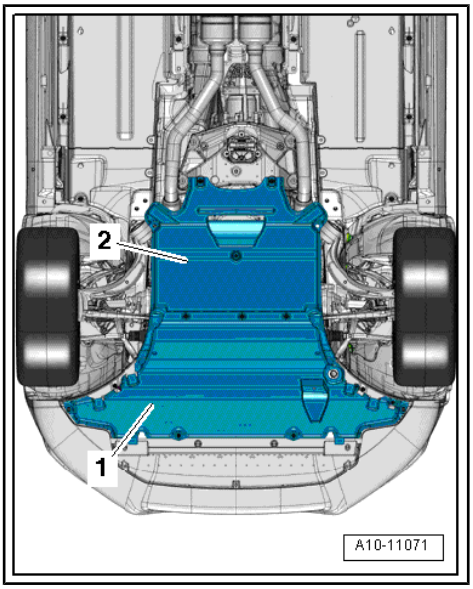
Caution

Danger of Causing Damage to the Transmission.

- *Do not start the engine if there is no ATF in the transmission or if the DSG Transmission Mechatronic - J743- is removed.*

– Move the selector lever into “P”.

– Turn off the ignition and remove the key.

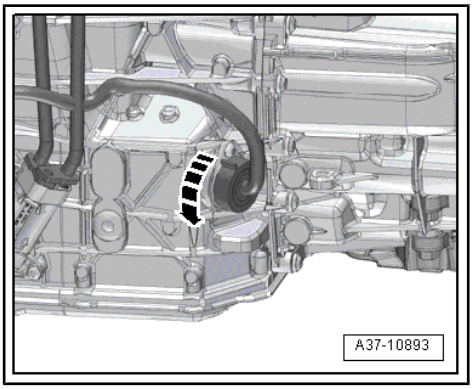


– Turn the twist lock counter-clockwise in direction of -arrow- and disconnect the connector from the transmission.

Transmission, Removed or Installed

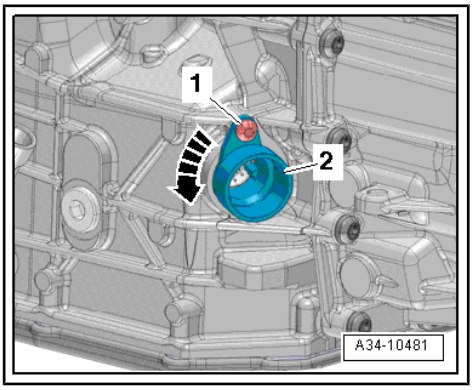
– Remove the ATF oil pan. Refer to ⇒ “1.2 Oil Pan, Removing and Installing”, page 18 .

– Remove the bolt -1-.



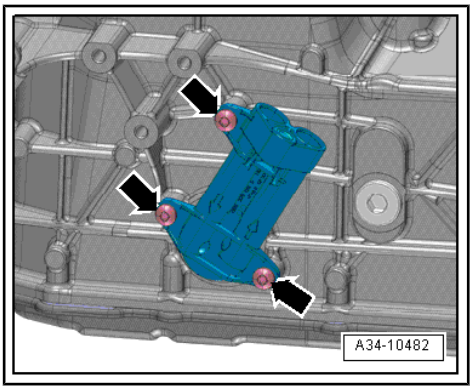
– Turn the connector housing -2- counter-clockwise in direction of -arrow- and remove it.

Vehicles with an ATF Pipe Filter



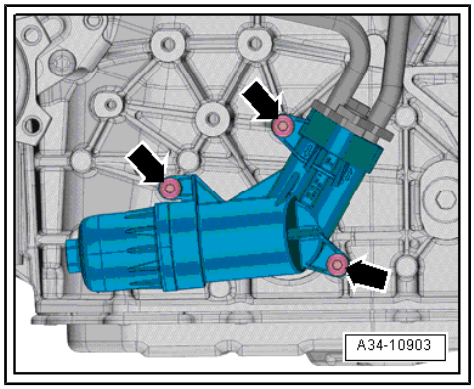
– Remove the bolts -arrows- and remove the connecting piece for the ATF pipes. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; ATF Circuit .

Vehicles with ATF Filter



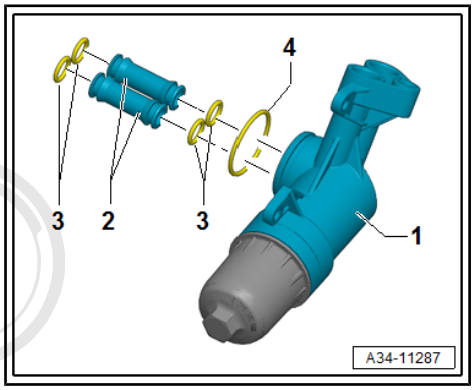
– Remove the bolts -arrows- and remove the ATF filter housing. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; ATF Circuit

All Vehicles



Note

- *The ATF pipes -2- cannot remain attached to the mechatronic, because these would otherwise block the removal.*
- *Always replace the seals -3 and 4-.*

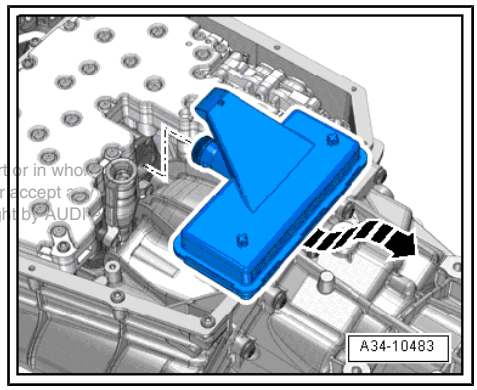


– Carefully pull the ATF filter to the rear and off the Mechatronic in direction of -arrow-.

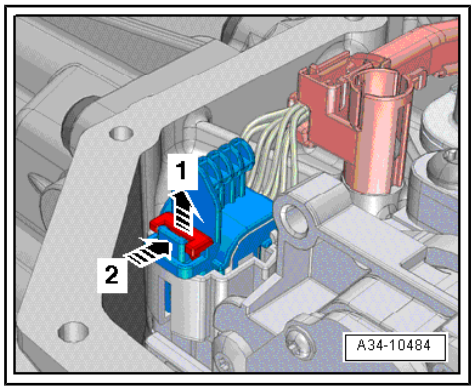
Caution

There is a risk of destroying the transmission control module (Mechatronic) with static discharge.

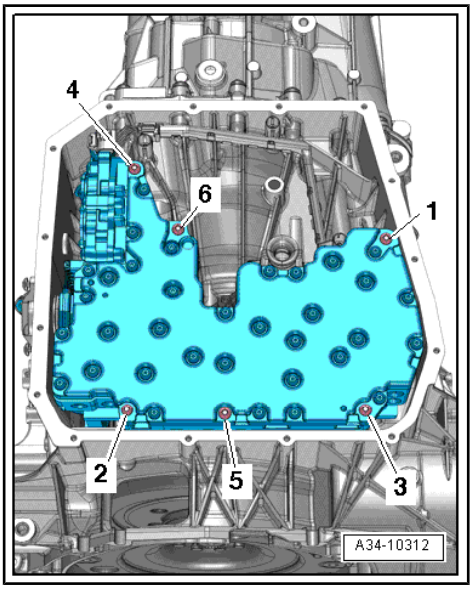
- ***Always "discharge" the static electricity before working with electric connectors. Do this by touching a grounded object, for example vehicle ground, the vehicle or the hoist.***
- ***Do not touch contacts in transmission connector with hands.***



– Pull the retainer in direction of -arrow 1-, push the release down in direction of -arrow 2- and disconnect the connector.



– Remove the bolts in reverse order: -6 to 1-.



Caution

Risk of causing Damage to the Mechatronic.

- *Only bolts -6 to 1- may be loosened.*
- *If other bolts are loosened, this may affect the function of the Mechatronic unit or it may come apart.*

Note

- *The sealing surface must not be damaged.*
- *The Mechatronic fits partially inside the transmission.*
- *If the Mechatronic must be removed, then a second technician will be needed to keep it from falling. Another alternative, the bolts -1 and 2- can be installed slightly to hold the Mechatronic in place while it is being removed.*

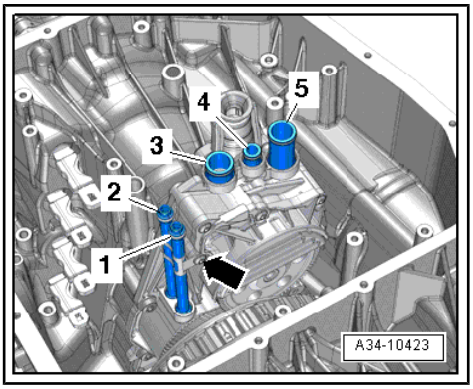
– Remove the Mechatronic.

Caution

Danger of Damaging the Sensor on the Back Side of the Mechatronic.

- *Lay the Mechatronic with the bolt head side facing down only.*

Installing



Note

- *The ATF pressure pipes -1 through 5- are made out of plastic on the newer version of the transmission.*
- *The bracket for the ATF pressure pipes -1 and 2- is not present in this case.*
- *The metal ATF pressure pipes can be replaced with plastic ATF pressure pipes. To do so, remove the bolt -arrow- and remove the bracket.*
- *Coat the seals with ATF before installing.*

– If equipped, remove the bolt for the ATF pressure pipe bracket -arrow-.

– Replace the ATF pressure pipes (clutch pressure) -1 and 2-.

– Replace the ATF pipes -3 through 5-.

– If equipped, tighten the bolt without the ATF pressure pipe bracket -arrow-.

• Tightening specifications. Refer to ⇒ “1.1 Overview - Mechatronic”, page 14 .

Note

Make sure all shift forks and gear positions are in the center position before installing the DSG transmission Mechatronic - J743- .

Adjust the Shift Forks

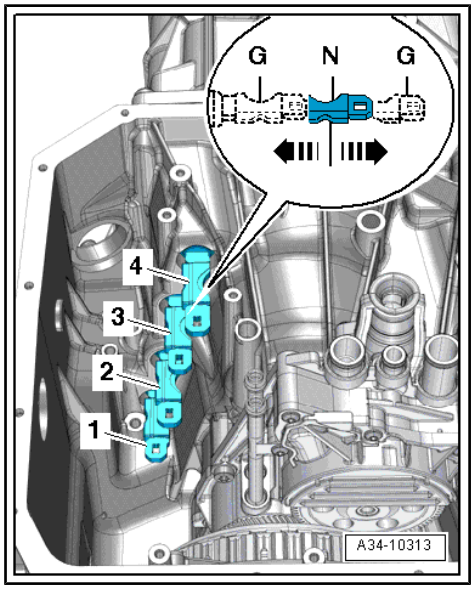
– First check the shift positions for the shift forks -1 through 4- by hand.

Each shift fork has three positions:

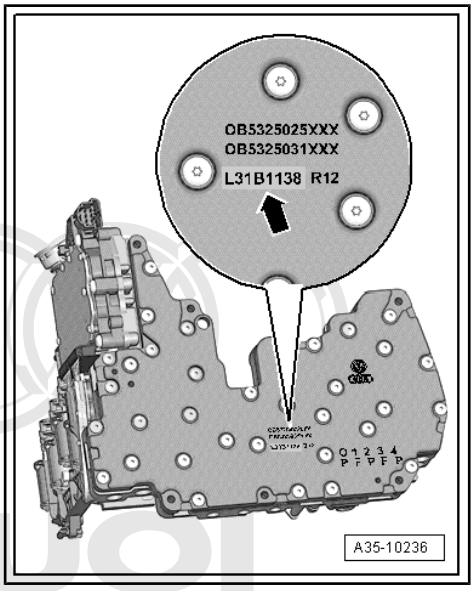
- -G- is engaged
- Idle -N- (center position)
- -G- is engaged

– Move all four shift forks one time into each position -arrows- one after the other.

– After doing this, move the shift forks back into the center position -N-.



Adjust the Gear Selector:



Caution

There is a risk of destroying the transmission control module (Mechatronic) with static discharge.

- *Always "discharge" the static electricity before working with electric connectors. Do this by touching a grounded object, for example vehicle ground, the vehicle or the hoist.*
- *Do not touch contacts in transmission connector with hands.*
- *Do not pry out the plunger on the sensors.*

The gear shifter must be adjusted differently depending on the date of manufacture of the Mechatronic.

The date of manufacture is located only on the Mechatronic identification -arrow-.

The Mechatronic identification consists of:

Mechatronic identification				Example "L31B1138"
L31		B1	138	
L				Year of manufacture: L = 2010 K = 2009 J = 2008 ... etc.
	31			Calendar week in the year of manufacture
		B1		Manufacturer day shift identification: Monday: Shift 1 = A1, Shift 2 = B1, Shift 3 = C1 Tuesday: Shift 1 = D1, Shift 2 = E1, Shift 3 = F1 Wednesday: Shift 1 = G1, Shift 2 = H1, Shift 3 = I1 ... etc.
			138	Running manufacturing number of the shift per day, here, the 138 Mechatronic from shift B1

The gear positions must be adjusted to a different adjustment value from Mechatronic "L31B1138".

Note

- *A Mechatronic with the identification. "L31A1140" was built before Mechatronic "L31B1138" because it was built by the 1st shift (A1) on a Monday.*
- *A Mechatronic with the identification "L31C1009" was built after Mechatronic "L31B1138" because it was built by the 3rd shift (C1) on Monday.*

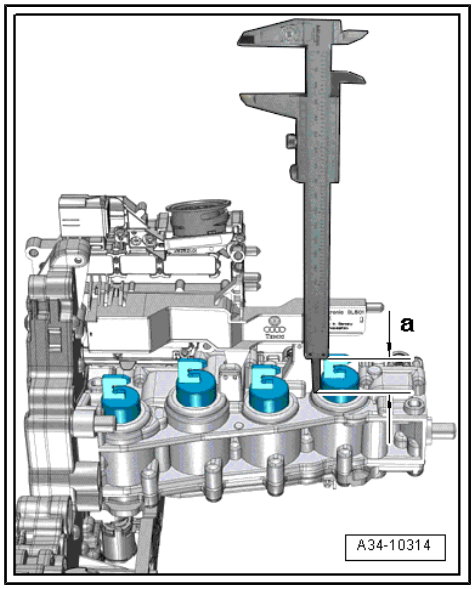
– Move the gear position back and forth and set the 4 gear positions on the back of the Mechatronic in the center position to dimension -a-.

For Mechatronic with Identification Through “L31B1137”:

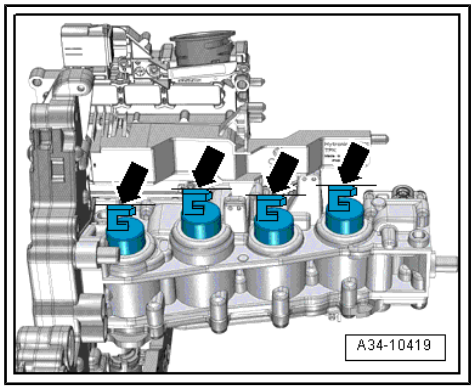
- Dimension -a- = 28 mm

For Mechatronic with Identification From “L31B1137”:

- Dimension -a- = 32 mm.

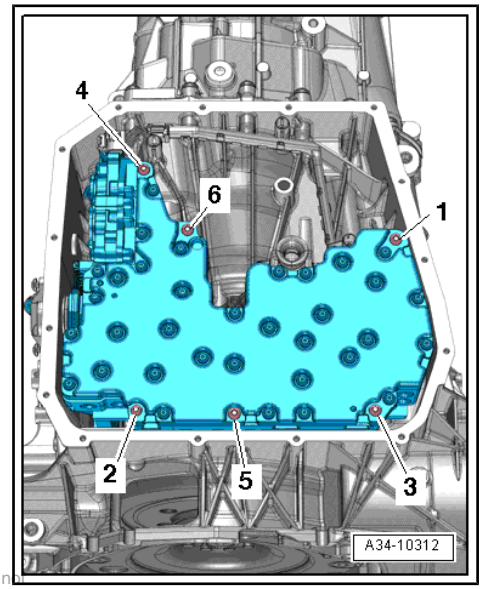


– Align the gear selector yokes -arrows- so that they engage into the eyes in the shift fork when being installed.



– Insert the Mechatronic into the transmission housing.

- The Mechatronic and its bolts must fit easily into the holes in the transmission.
- If the Mechatronic does not go in easily, then it is possible that a shift fork or a gear selector is not in its center position. Check the center position and adjust if necessary.

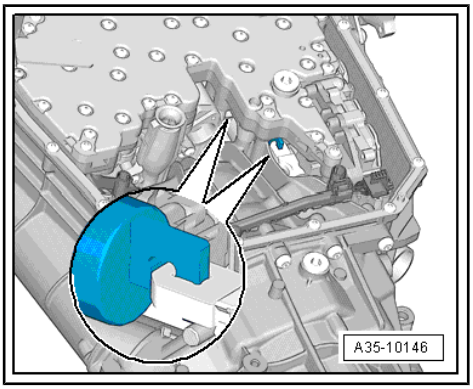


After installing the Mechatronic:

– Using a flashlight, check all the gear selectors through the opening between the Mechatronic and the transmission housing.

• All four gear selector yokes must fit correctly in the shift fork eyes.

– Tighten the Mechatronic bolts. Refer to ⇒ Fig. "" Mechatronic, Tightening Specification and Sequence"" , page 17 .



Install in reverse order, paying attention to the following:

Caution

There is a risk of destroying the transmission control module (Mechatronic) with static discharge.

- ***Always "discharge" the static electricity before working with electric connectors. Do this by touching a grounded object, for example vehicle ground, the vehicle or the hoist.***
- ***Do not touch contacts in transmission connector with hands.***

– Make sure the connector is correctly connected to the Mechatronic.

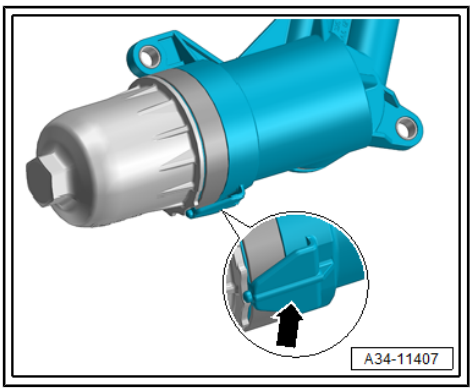
– Install the ATF suction filter. Refer to ⇒ "1.3 ATF Filter, Removing and Installing", page 19 .

– Install the ATF pan. Refer to ⇒ "1.2 Oil Pan, Removing and Installing", page 18 .

– Install the ATF filter housing or ATF line connecting pieces (depending on the version). Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; ATF Circuit

Note

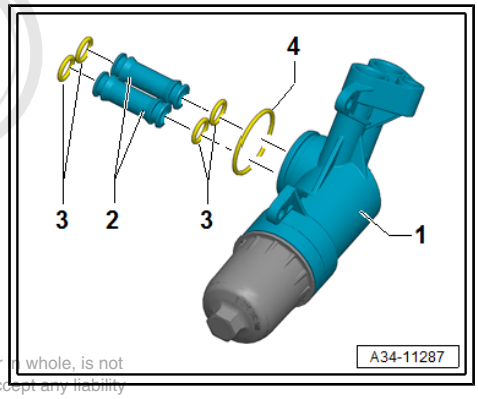
Replace the filter housing without a factory-installed anti-twist mechanism -arrow-



Caution

Danger of leaks!

- *Always replace the seals on the oil lines and on the filter housing and coat with ATF.*
- *Ensure a clean sealing surface.*



Transmission Removed

– Install the transmission. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Transmission, Removing and Installing; Transmission, Installing .

The Transmission Is Installed

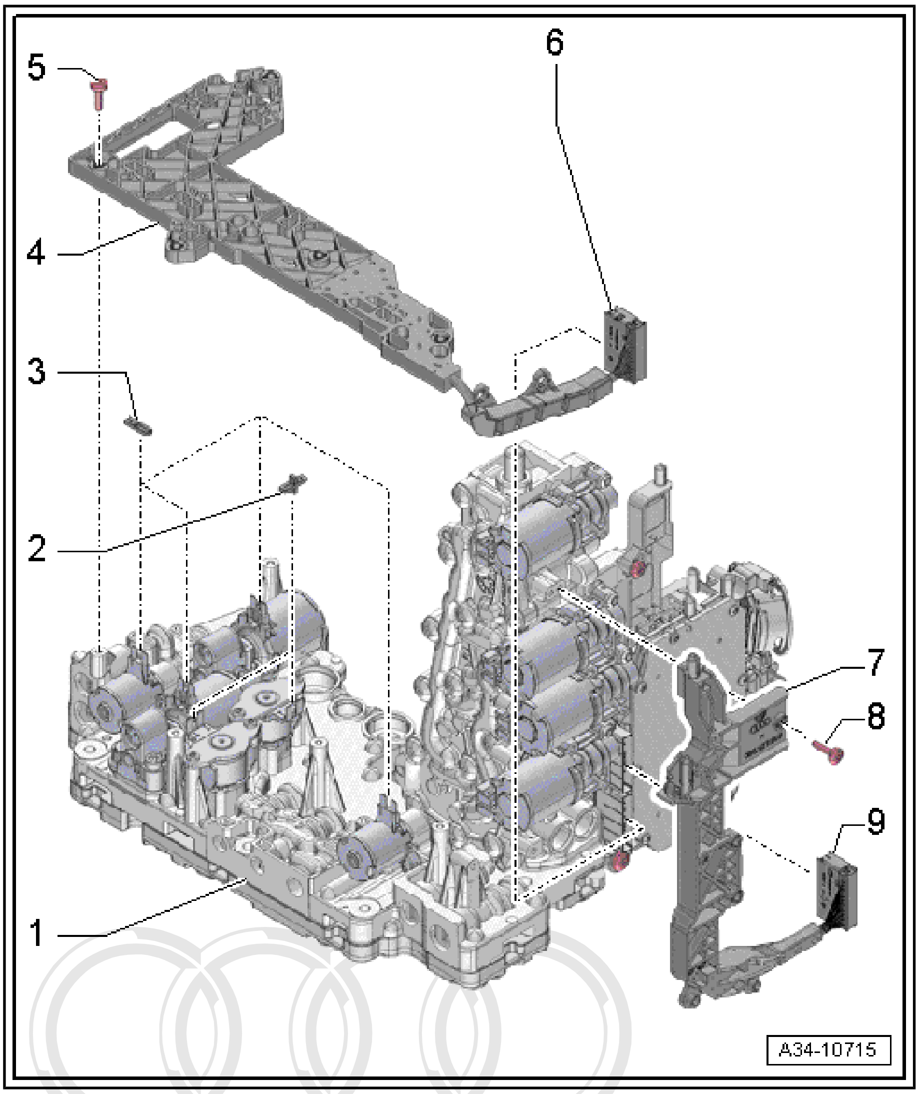
– Fill with ATF. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Automatic Transmission Fluid; ATF, Draining and Filling .

• Perform the relevant “Guided Function” using the vehicle diagnostic tester after replacing the DSG Transmission Mechatronic - J743- . Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Control .

1.5 Overview - Mechatronic Circuit Boards

Note

A protector must be installed before installing the circuit boards. Refer to ⇒ page 30 .



1 - DSG Transmission Mechatronic - J743-

- ❑ Removing and installing. Refer to ⇒ “1.4 Mechatronic, Removing and Installing”, page 20 .

- Perform “Guided Functions” using the Vehicle Diagnostic Tester after replacing the DSG Transmission Mechatronic - J743- . Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Control

2 - Protector. Refer to ⇒ page 30 .

3 - Protector. Refer to ⇒ page 30 .

4 - Circuit Board 1

- ❑ Removing and installing. Refer to ⇒ “1.6 Mechatronic Circuit Board, Removing and Installing”, page 31 .
- ❑ The contact springs on the circuit board can be connected one time only. A circuit board cannot be used again once it has been removed.

5 - Bolt

- ❑ Tightening specification and sequence. Refer to ⇒ Fig. ““Circuit board 1 - Tightening Specification and Sequence““ , page 30

6 - Connector

- ❑ Use a 3.5 mm screwdriver to unlock the connector. Refer to ⇒ page 32

7 - Circuit Board 2

- ❑ Removing and installing. Refer to ⇒ “1.6 Mechatronic Circuit Board, Removing and Installing”, page 31 .
- ❑ The contact springs on the circuit board can be connected one time only. A circuit board cannot be used again once it has been removed.

8 - Bolt

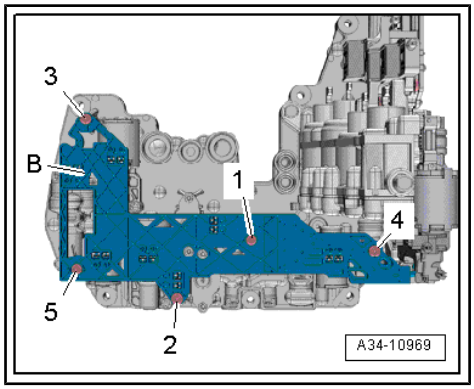
- ❑ Tightening specification and sequence. Refer to ⇒ Fig. ““Circuit board 2 - Tightening Specification and Sequence““ , page 30

9 - Connector

- ❑ Use a 3.5 mm screwdriver to unlock the connector. Refer to ⇒ page 32

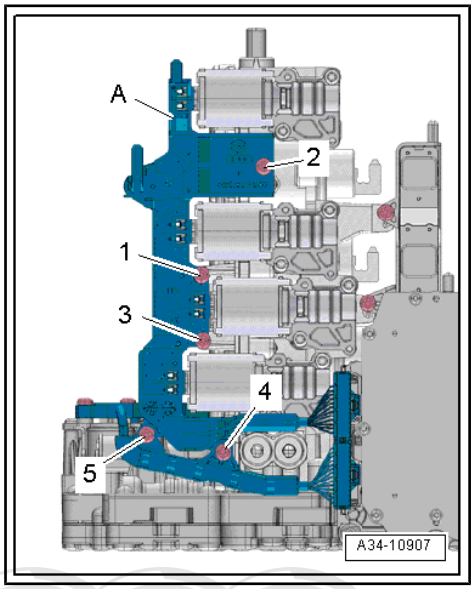
Circuit board 1 - Tightening Specification and Sequence

– Tighten the bolts to 3 Nm in the following sequence: -1 to 5-.



Circuit board 2 - Tightening Specification and Sequence

– Tighten the bolts to 3 Nm in the following sequence: -1 to 5-.



Overview - Protectors

1 - Protector

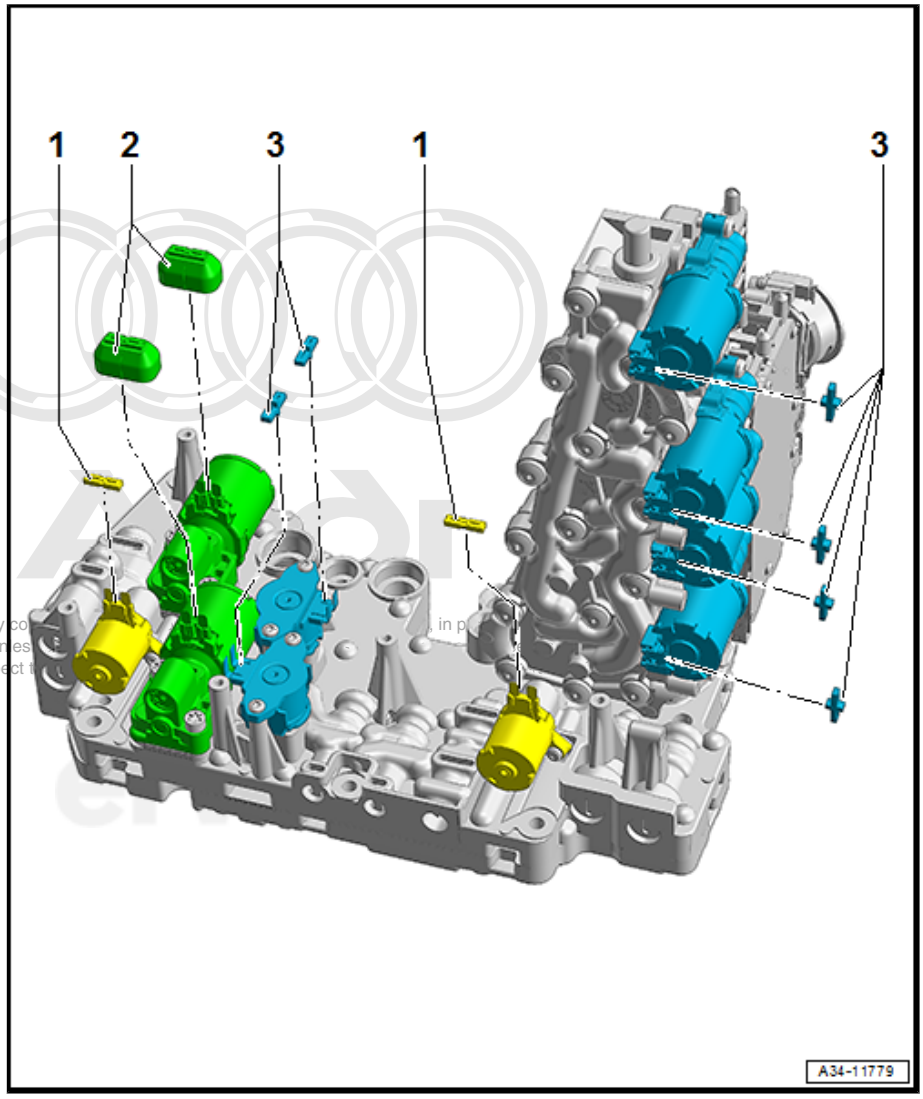
- ❑ Rectangular
- ❑ Quantity: 2

2 - Protector

- ❑ Cap
- ❑ Quantity: 2

3 - Protector

- ❑ Cross-shaped
- ❑ Quantity: 6



1.6 Mechatronic Circuit Board, Removing and Installing

Removing

– Remove the DSG Transmission Mechatronic - J743- . Refer to ⇒ “1.4 Mechatronic, Removing and Installing”, page 20 .

– Place the Mechatronic on a clean, soft surface.

Caution

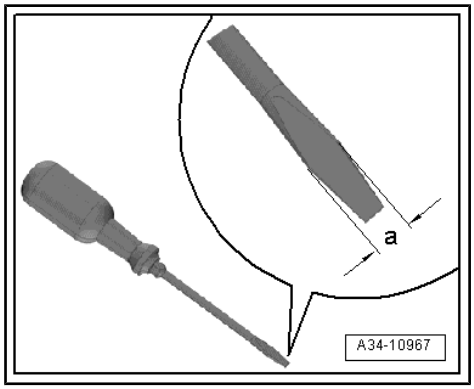
There is a risk of destroying the transmission control module (Mechatronic) with electrostatic discharge.

- *Always “discharge” the static electricity before working with electric connectors. Do this by touching a grounded object, for example vehicle ground, the vehicle or the hoist.*

Caution

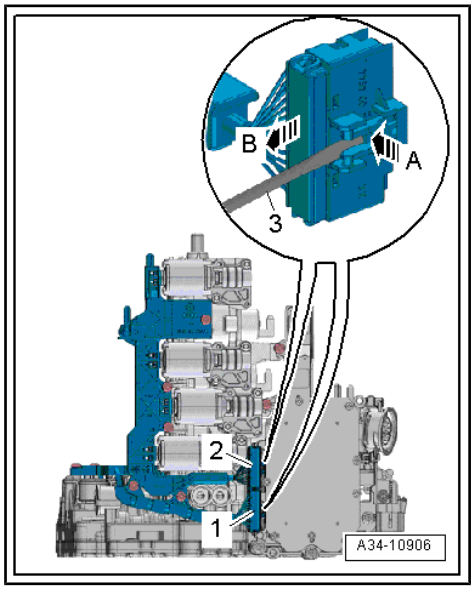
Using an inappropriate tool can damage the transmission control module (Mechatronic).

- *The Mechatronic must be replaced if the locking mechanism for the connectors gets damaged while unlocking and disconnecting the connectors.*
- *Use a screwdriver -a- = maximum 3.5 mm to unlock the connector.*



– Unlock the connectors -1 and 2- on the Mechatronic carefully using a screwdriver -3- in direction of -arrow A- and disconnect them in direction of -arrow B-.

– Loosen the screws -1, 2 and 3- on the small circuit board -A- approximately 5 mm.

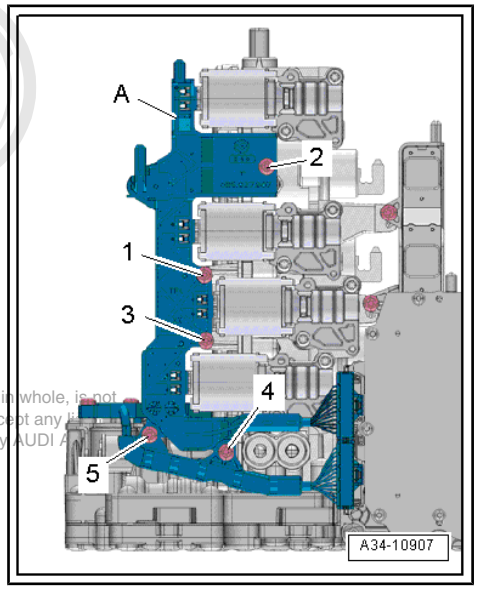


– Remove the screws -4 and 5- completely and move the wiring guide to the side.

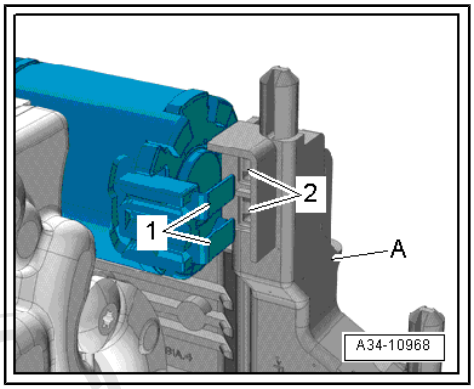
Caution

There is a danger of an insufficient contact connection.

- *The contact springs on the circuit board can be connected one time only. A circuit board cannot be used again once it has been removed.*



– Pull circuit board 2 just far enough until the contact springs -2- on the circuit board are free from the contacts -1- on the valves.
– Remove the screws -1, 2 and 3- carefully and remove circuit board 2.

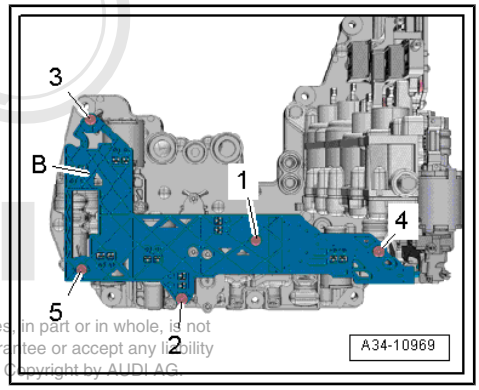


– Loosen the screws -1 through 5- on the large circuit board -B- approximately 5 mm.

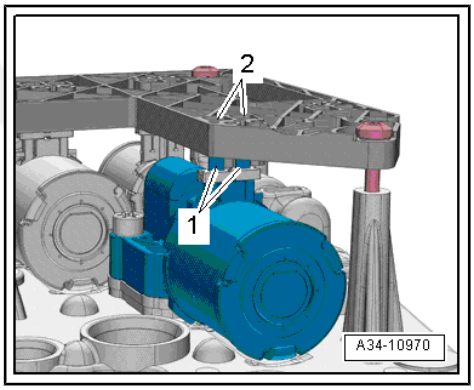
Caution

There is a danger of an insufficient contact connection.

- *The contact springs on the circuit board can be connected one time only. A circuit board cannot be used again once it has been removed.*



– Pull circuit board 1 just far enough until the contact springs -2- on the circuit board are free from the contacts -1- on the valves.

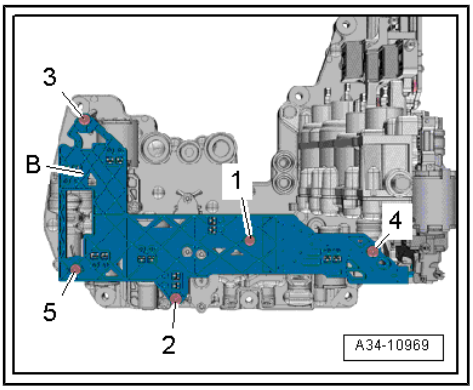


– Remove the screws -1 through 5- completely and remove circuit board 1.

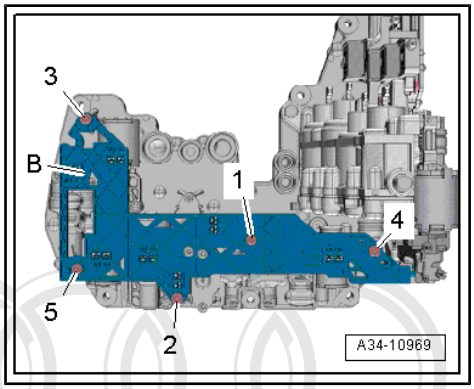
Installing

Note

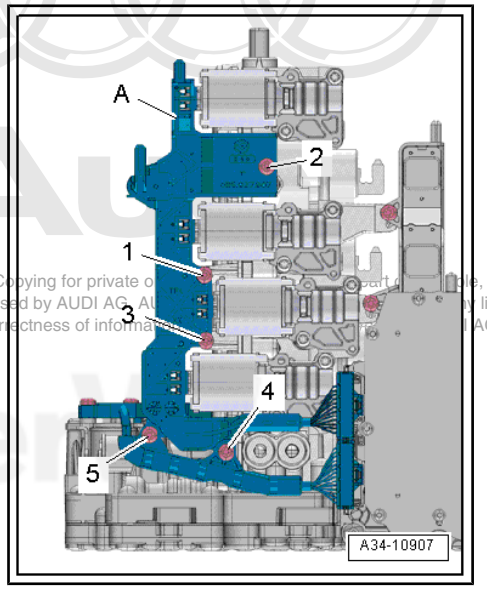
- *A protector must be installed before installing the circuit boards. Refer to ⇒ page 30 .*
- *Install a protector in the transmission if the transmission did not have one installed before.*



– Position the new circuit board 1 -B- carefully on the Mechatronic.
– Install the screws -1 to 5- approximately 2 turns as a guide.
– Push circuit board 1 carefully onto the contacts.
– Install the screws -1 to 5- all way hand-tight and then tighten them to the tightening specification.



– Position the new circuit board 2 -A- carefully on the Mechatronic.
– Install the screws -1, 2 and 3- approximately 2 turns as a guide.
– Push circuit board 2 carefully onto the contacts.
– Position the wiring guide on the alignment sleeves on the small circuit board.
– Install the screws -1 to 5- all way hand-tight and then tighten them to the tightening specification.
– Connect the connectors so that they click into place.
– Install the Dual-Clutch Transmission Mechatronic - J743- . Refer to
⇒ “1.4 Mechatronic, Removing and Installing”, page 20 .



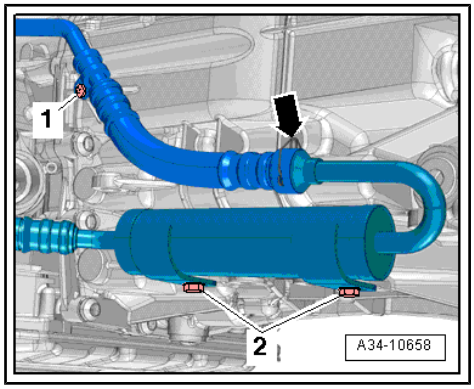
1.7 ATF Filter, Removing and Installing

Special tools and workshop equipment required

♦ Used Oil Collection and Extraction Unit - SMN372500-

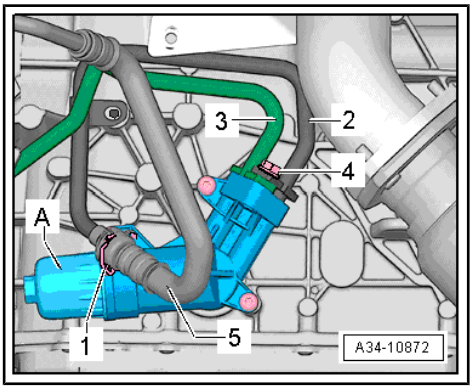
Note

♦ *There are two different ATF filter versions depending on the engine and the date of manufacture.*
♦ *Replace the ATF line filter -arrow- only when replacing a transmission. Removing and installing. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; ATF Circuit .*



Note

The ATF filter -A- must be changed each time the ATF is changed.



Removing the ATF Filter

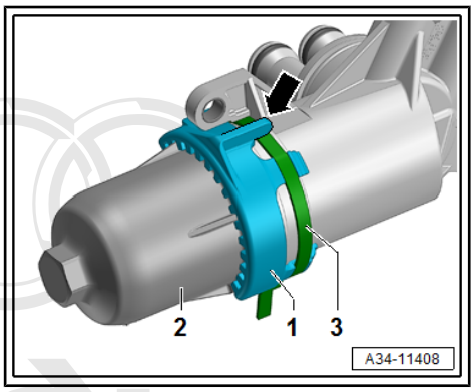
Note

- *Refer to*
  ⇒ "1.1 Guidelines for Clean Working Conditions", page 1 .
- *Always clean the ATF lines and ATF cooler with compressed air (maximum 10 bar (145 psi)) and then flush with ATF before installing a replacement transmission.*

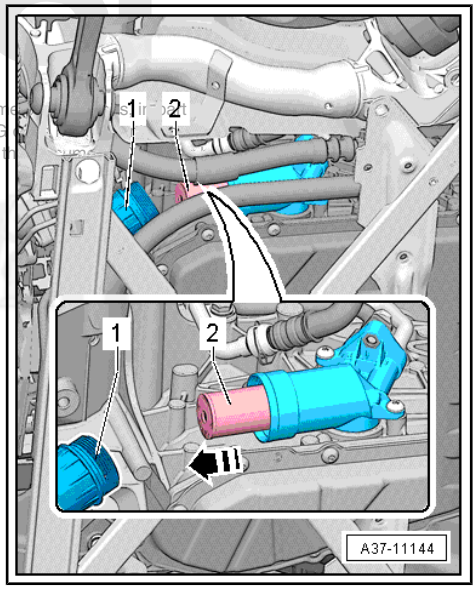
– Drain the ATF. Refer to
⇒ "5.2 ATF, Draining and Filling", page 62 .

– If equipped loosen the securing strap -3- and remove the anti-twist mechanism -1-.

– Remove the cover for the ATF filter -1- and drain the ATF.



– Remove the ATF filter -2- in direction of -arrow- and remove from below.



Installing

Caution

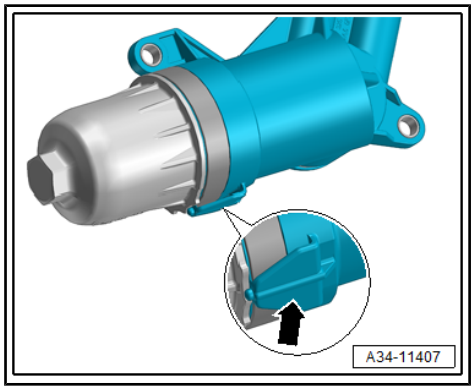
Danger of leaks!

- ***Always replace the seals on the oil lines and the filter housing and coat with ATF.***
- ***Ensure a clean sealing surface.***

Install in reverse order of removal. At the same time pay attention to the following:

There are two different versions of ATF filter housing.

If the factory installed anti-twist mechanism -arrow- is not present, install an ATF-filter cover with upgradable anti-twist mechanism.



Note

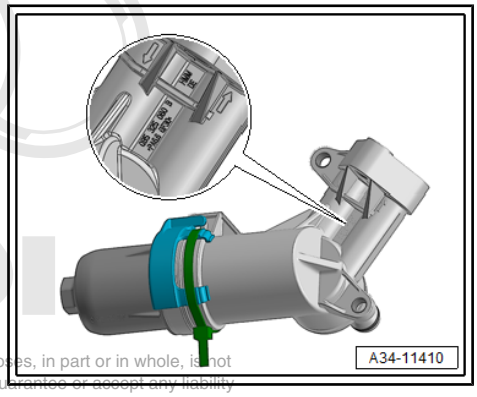
The retrofittable anti-twist mechanism and the related ATF filter cover are available from 07/2014. Refer to the Parts Catalog.

Caution

Leaking ATF filter.

- ***Only use the assigned respective ATF-filter cover for the respective ATF filter housing/***

Allocation of the ATF-Filter Cover to the ATF Filter Housing



Note

Position of the part number for the ATF filter housing.

ATF Filter Housing:	Its ATF-Filter Cover:	Anti-Twist Mechanism:
0B5.325.060.B	0B5.325.240.C	Retrofitted
0B5.325.060.C	0B5.325.240.B	Factory Installed

Note

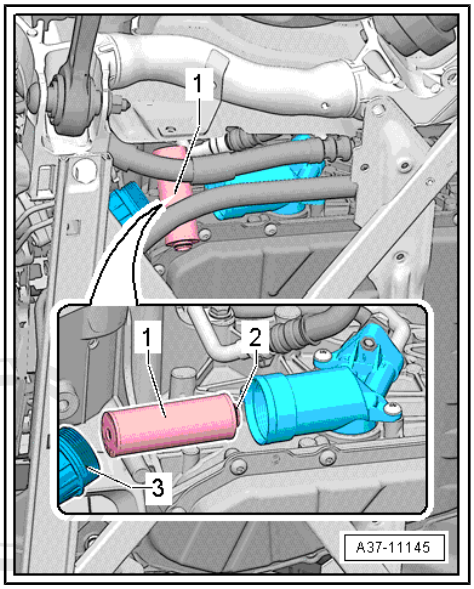
- *Replace the O-ring on the ATF filter cover.*
- *Replace the ATF filter.*

Caution

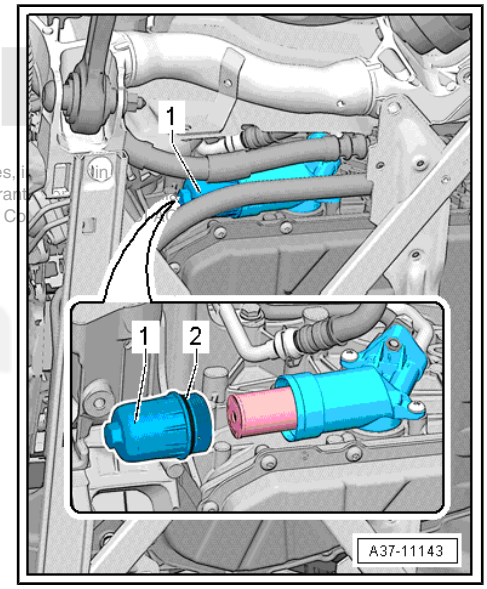
Danger of causing damage to the transmission.

The new ATF filter must not come in contact with water. Even the smallest amount of water, such as a drip of water from the engine compartment or moisture from hands will cause the surface of the ATF filter to swell up. Small paper particles from the filter can come loose and contaminate the Mechatronic.

– Coat the O-ring -2- on the new ATF filter -1- with ATF before installing.



– Coat the O-ring -2- on the ATF filter cover -1- with ATF.
– Install the ATF filter cover -1- and tighten to tightening specifications.

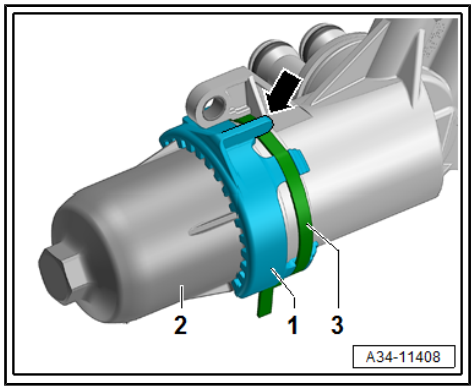


Vehicles without A Factory Installed Anti-Twist Mechanism:

Caution

Filter housing leak.

- *On filter housing without a factory installed anti-twist mechanism the filter cover must always be replaced with upgradable anti-twist mechanism -1-.*



– Secure the anti-twist mechanism -1- on the ATF-filter cover -2- with the securing strap -3-.

Note

The anti-twist mechanism retaining tab -arrow- must touch the filter housing as shown.

– Clean the transmission and attachments.

Tightening Specification. Refer to
⇒ "1.1 Overview - Mechatronic", page 14 .

– Fill with ATF. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Automatic Transmission Fluid; ATF, Draining and Filling .

2 Transmission, Transporting

Special tools and workshop equipment required

- Shop Crane - VAS6100-
- Hook And Support Tool - T40197-
- Hook and Support Tool - T40294-

DANGER!

Do not use the Hook And Support Tool T40197 for the repair (Refer to ⇒ "3.2 Sensor Module , with integrated transmitters and sensors G612 , G632 , G676 and Circuit Board 3 , Removing and Installing", page 42) - There is a risk of injury.

Only use the Hook and Support Tool T40294 for this operation.

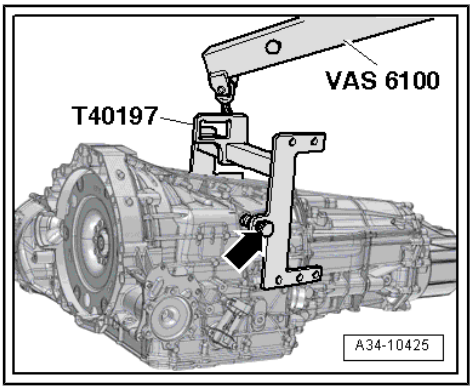
Procedure

- The transmission is removed.

Caution

Transmission components could be damaged if they are not set down correctly.

- *Do not set the transmission on the ATF pan.*



– Engage the Hook And Support Tool - T40197- in the holes on the right side of the transmission and secure it to the left side of the transmission with the knurled bolt -arrow-.

– Lift and transport the transmission with the Shop Crane - VAS6100- .

3 Transmission, Disassembling and Assembling

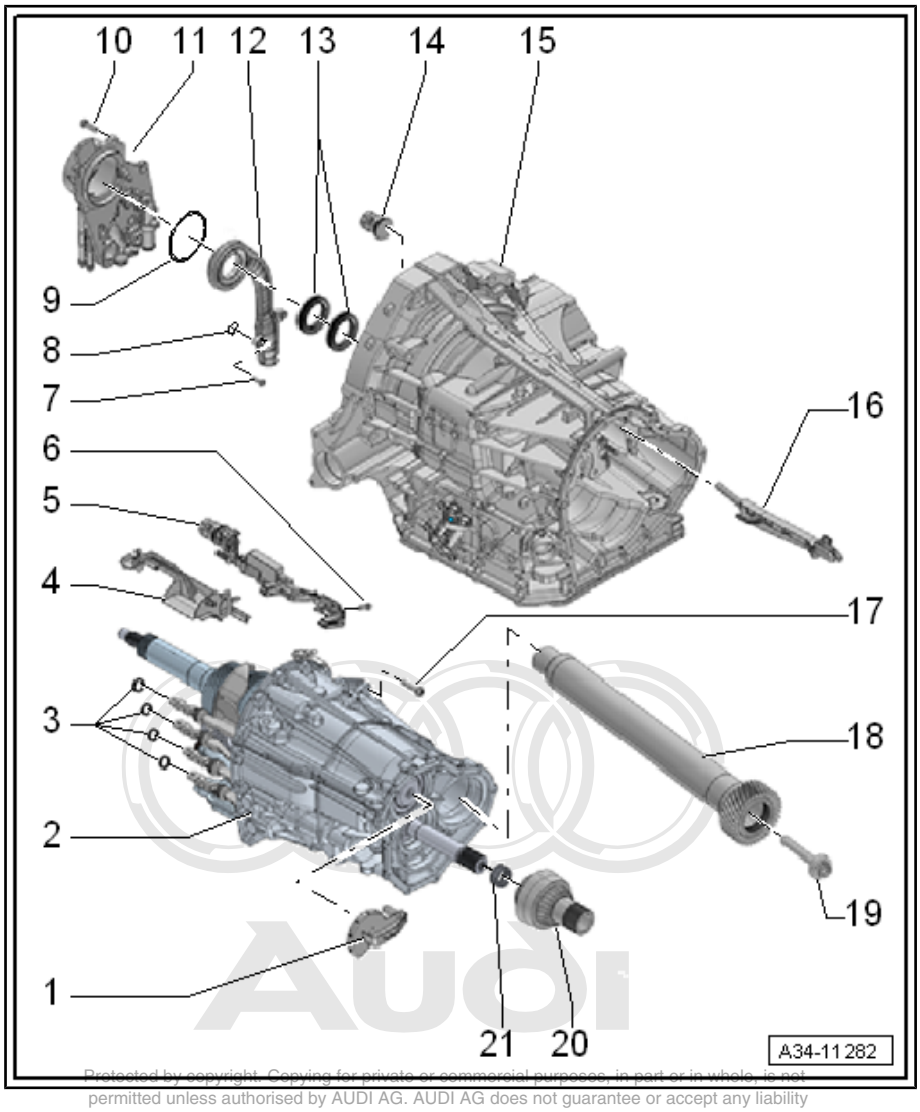
⇒ “3.1 Overview - Transmission”, page 40

⇒ “3.2 Sensor Module , with integrated transmitters and sensors G612 , G632 , G676 and Circuit Board 3 , Removing and Installing”, page 42

⇒ “3.3 Oil Pump and Suction Jet Pump, Removing and Installing”, page 54

⇒ “3.4 Transmission Housing Separator Seals, Replacing”, page 57

3.1 Overview - Transmission



1 - Oil Guide

- ❑ For the input shaft

2 - Transmission Intermediate Housing

- ❑ With wheel set

3 - Gear Position Seal

- ❑ Only replace if damaged
- ❑ Removing and installing. Refer to ⇒ Fig. ““Replace the Gear Position Seal”“ , page 42 .

4 - Front Oil Catch Tray

- ❑ Replace after removal
- ❑ Clipped onto the Sensor Module

5 - Sensor Module

- ❑ With integrated Transmission Input Speed Sensor 2 - G612- , Transmission Input Speed Sensor 1 - G632- , Drive Position Sensor - G676- and Circuit Board 3
- ❑ Refer to the Parts Catalog because there are different versions depending on the date of manufacture.
- ❑ Removing and installing. Refer to ⇒ “3.2 Sensor Module , with integrated transmitters and sensors G612 , G632 , G676 and Circuit Board 3 , Removing and Installing”, page 42 .

6 - Bolt

- ❑ 8 Nm
- ❑ Refer to the Parts Catalog because there are different versions depending on the date of manufacture.

7 - Bolt

- ❑ 4.5 Nm

8 - O-Ring

- ❑ Always replace

9 - O-Ring

- ❑ Always replace

10 - Bolt

- ❑ 25 Nm
- ❑ Quantity: 5

11 - Oil Pump

- ❑ Removing and installing. Refer to
⇒ “3.3 Oil Pump and Suction Jet Pump, Removing and Installing”, page 54 .

12 - Suction Jet Pump

- ❑ Replace the small O-ring (not shown in the illustration)

13 - Shaft Seal

- ❑ The Double seal is connected
- ❑ For the separating wall inside the transmission housing
- ❑ Replacing. Refer to ⇒ “3.4 Transmission Housing Separator Seals, Replacing”, page 57 .

14 - Connector Housing for the Sensor Module

- ❑ Removing and installing. Refer to
⇒ “3.2 Sensor Module , with integrated transmitters and sensors G612 , G632 , G676 and Circuit Board 3 , Removing and Installing”, page 42 .

15 - Transmission Housing

16 - Oil Guide

- ❑ To the front final drive

17 - Bolt

- ❑ Tightening specification and sequence. Refer to
⇒ Fig. ““Transmission Intermediate Housing on the Transmission Housing - Tightening Specification and Sequence”“ , page 42
- ❑ Always replace

18 - Side Shaft

- ❑ With helical gear wheel

19 - Bolt

- ❑ 150 Nm +90°
- ❑ Always replace
- ❑ For the side shaft to the pinion

20 - Spur Gear

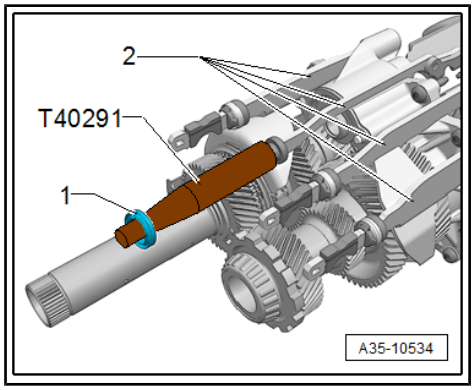
21 - Needle Bearing

Replace the Gear Position Seal

Caution

There is a risk of damaging the gear position

- *Do not use any sharp-edged tools when removing the seals.*



– Remove the seal by hand from the respective gear position -2-.

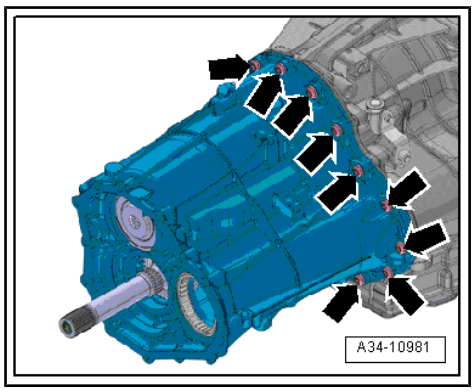
– Coat the new seal -1- with MTF and install on the Seal Installer - Gear Selector - T40291- .

– Place the Seal Installer - Gear Selector - T40291- on the respective gear position -2- and insert the seal -1-.

Transmission Intermediate Housing on the Transmission Housing - Tightening Specification and Sequence

Note

Replace the bolts.



– Tighten the bolts in two stages as described below:

Step	Bolts	Tightening Specification/Additional Turn
1.	-Arrows-	8 Nm diagonally
2.	-Arrows-	120° additional turn diagonally

3.2 Sensor Module , with integrated transmitters and sensors -G612- , -G632- , -G676 - and Circuit Board 3 , Removing and Installing

Special tools and workshop equipment required

- Hook and Support Tool - T40294-
- Counterhold - Side Shaft - T40217-
- Sensor Module Tool - T40228-
- Sealant. Refer to the Parts Catalog.

DANGER!

Caution:

Do not use the Hook And Support Tool T40197 for the following described work procedures - There is a risk of injury.

Only use the Hook and Support Tool T40294 for this operation.

Note

- *The Transmission Input Speed Sensor 2 - G612- , Transmission Input Speed Sensor 1 - G632- , Drive Position Sensor - G676- and Circuit Board 3 are integrated in the Sensor Module . The components can only be replaced as a single Sensor Module unit.*
- *Replace the wiring set for the sensor module (-item 39- ⇒ Item 39 (page 17)) when replacing the Sensor Module .*

Removing

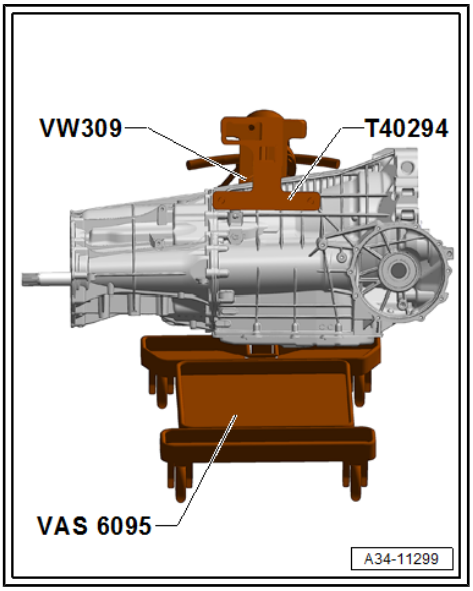
- Secure the transmission on the Engine And Transmission Holder - VAS6095- . Refer to ⇒ “4 Securing on Engine and Transmission Holder”, page 61 .

– Remove the flywheel. Refer to ⇒ “1.2 Flywheel, Removing and Installing”, page 5 .

– Remove the dual clutch. Refer to ⇒ “1.3 DSG Clutch, Removing”, page 7 .

– Remove the DSG Transmission Mechatronic - J743- . Refer to ⇒ “1.4 Mechatronic, Removing and Installing”, page 20 .

– Remove the oil pump and the suction jet pump. Refer to ⇒ “3.3 Oil Pump and Suction Jet Pump, Removing and Installing”, page 54 .



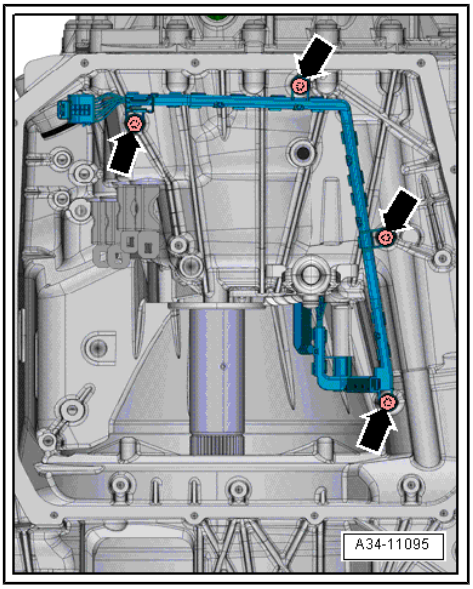
Note

The wiring set for the sensor module must be replaced when replacing the Sensor Module .

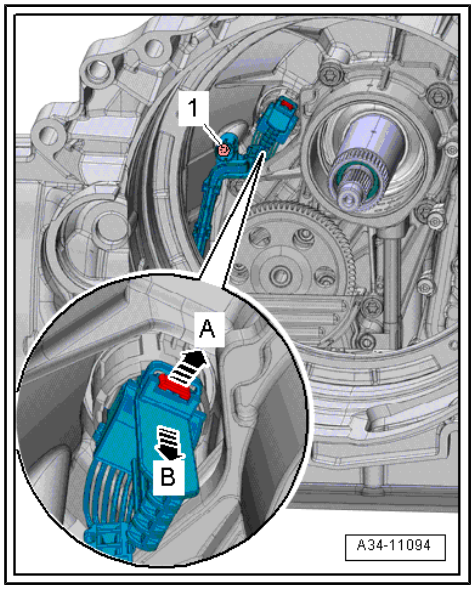
– Loosen the bolts -arrows- on the wiring set for the sensor module.

– Loosen the bolt -1-.

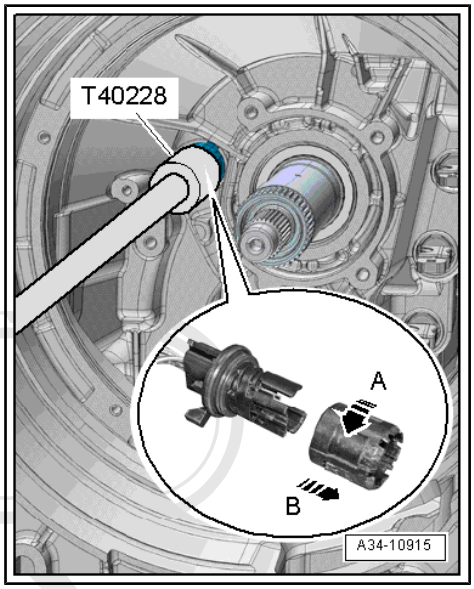
– Pull the fastener in direction of -arrow A- and remove the connector in direction of -arrow B- to disconnect the connector from the Sensor Module .



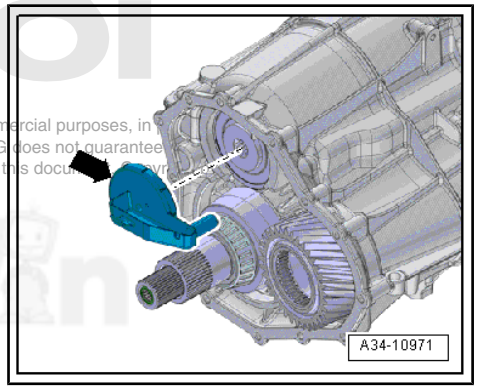
– Remove the wiring set for the sensor module.
– Mount the Sensor Module Tool - T40228- on the connector housing, turn it all the way to the left in direction of -arrow A- and then remove the connector housing for the Sensor Module .



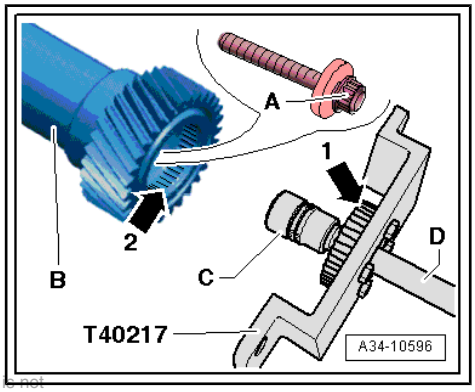
– Remove the connector housing for the Sensor Module in direction of -arrow B-.
– Remove the center differential housing and center differential. Refer to
⇒ “5.2 Self-Locking Center Differential, Removing and Installing”, page 99 .



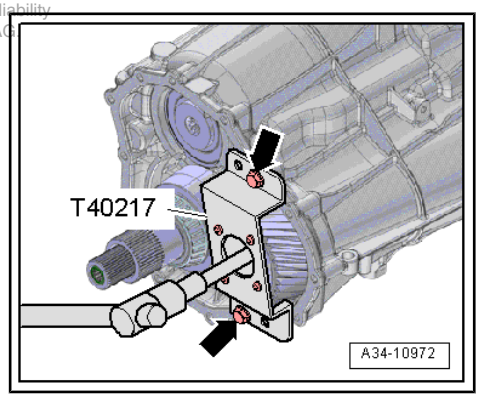
– Remove the oil guide for the input shaft -arrow-.



– Loosen the twelve-point bolt -A- for the side shaft -B- on the pinion as follows:
– Mount a twelve-point socket -C- (21 mm) with an extension -D- over the twelve-point bolt -A-.
– Insert the Counterhold - Side Shaft - T40217- with the outer splines -arrow 1- into the inner splines -arrow 2- on the side shaft.



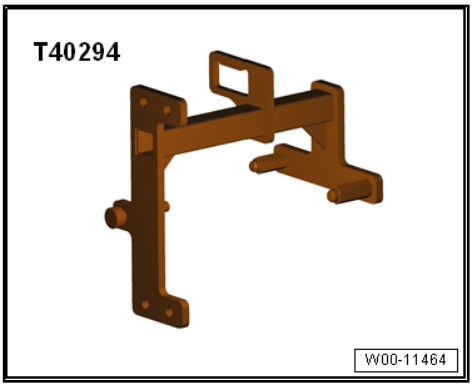
– Tighten the Counterhold - Side Shaft - T40217- on the transmission intermediate housing -arrows-.



DANGER!

Do not use the Hook And Support Tool T40197 for the following described work procedure - There is a risk of injury.

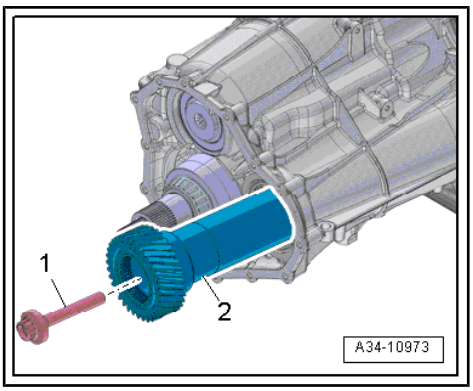
Only use the Hook and Support Tool T40294 for this operation.



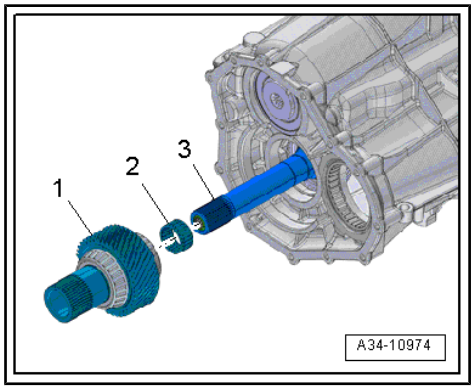
– Remove the bolt -1- and the side shaft -2-.

Note

The bolt has a high loosening torque.

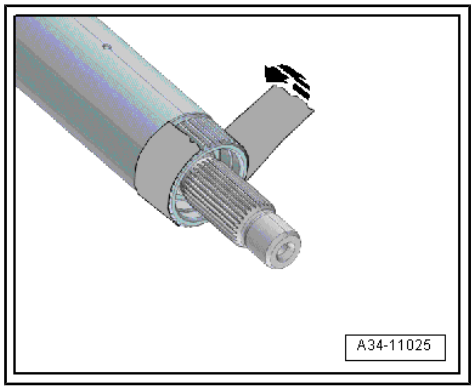


– Remove the spur gear -1- and needle bearing -2- from the output shaft -3-.



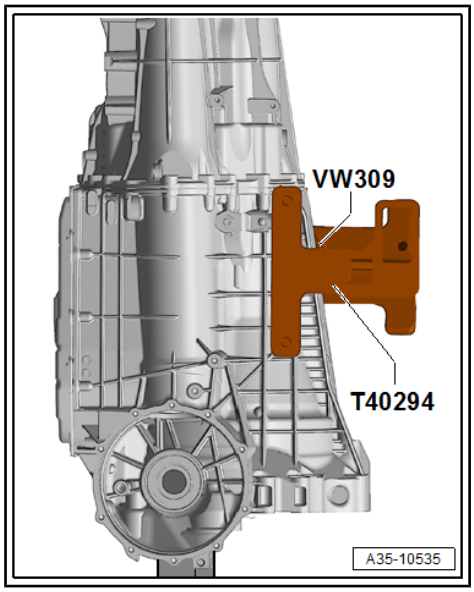
– Wrap the splines for the outer drive axle with adhesive tape in direction of -arrow-, so that the inner surfaces of the suction jet pump are not damaged when removing or installing.

– Coat the tape lightly with grease.



– Adjust the transmission housing on the engine/transmission holder so that it is vertical.

• The clutch side faces down.

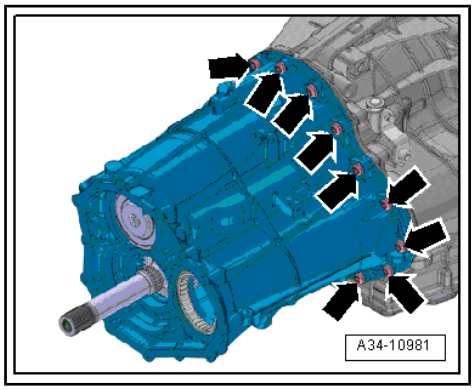


– Remove the bolts -arrows- all around for the transmission intermediate housing.

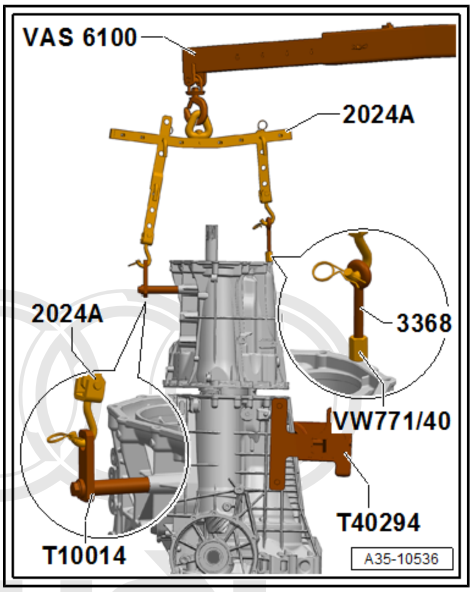
– Install the Three Guide Pins - Gearbox - T40288- in a distance of approximately 120° in the transmission housing bolt holes.

Note

The Guide Pins - Gearbox - T40288- improve the removal of the transmission housing and prevent damage to the seals and components.



– Engage the transmission intermediate housing -1- with the wheel set on the Shop Crane - VAS6100- as shown in the illustration.



WARNING

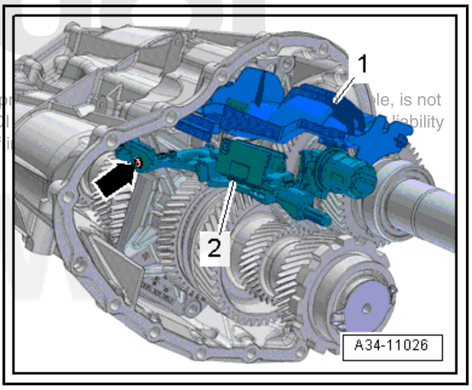
There is the risk of an accident if the support bridge parts are loose.

- *Install each threaded connection on the Lifting Eyebolt -3368- and the Slide Hammer Set - Adapter 40 - VW771/40- until stop to make sure they are secure.*
- *Secure the hooks and locking pins on the Engine Sling - 2024A- with cotter pins.*

– Lift the transmission intermediate housing slowly and carefully off the transmission housing.

– Place the transmission intermediate housing on a workbench.

– Remove the bolt -arrow-, and then remove the Sensor Module -2-.



Note

The front oil catch tray -1- is engaged to the Sensor Module and will also be removed.

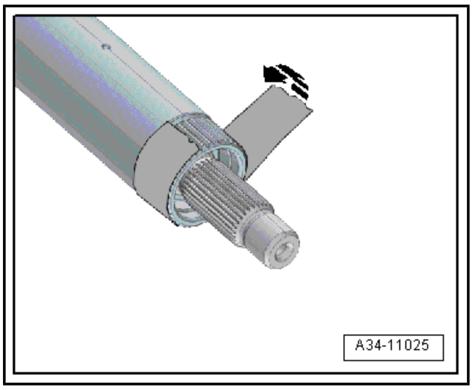
– Release the tabs to remove the front oil catch tray -1- from the Sensor Module .

Installing

- Tightening specifications. Refer to ⇒ “3.1 Overview - Transmission”, page 40 .

Note

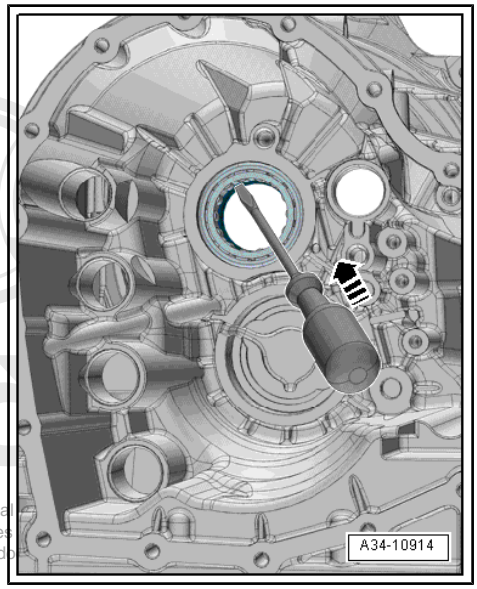
- *Replace any bolts that were tightened with an additional turn.*
- *There are different versions of the sensor module and screw, depending on the date of manufacture. Allocation. Refer to the Parts Catalog.*



– Wrap the splines for the outer drive axle with adhesive tape in direction of -arrow-, so that the inner surfaces of the suction jet pump are not damaged when installing.

– Coat the tape lightly with grease.

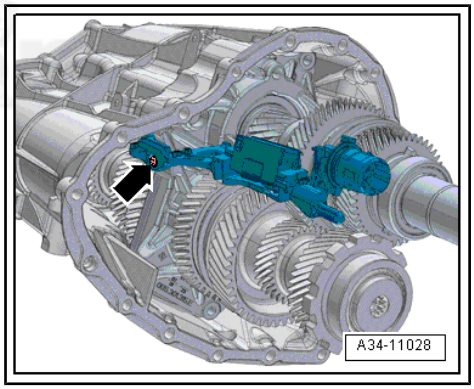
– Remove the shaft seal for the separator in the transmission housing starting from the transmission side with a screwdriver in direction of -arrow-.



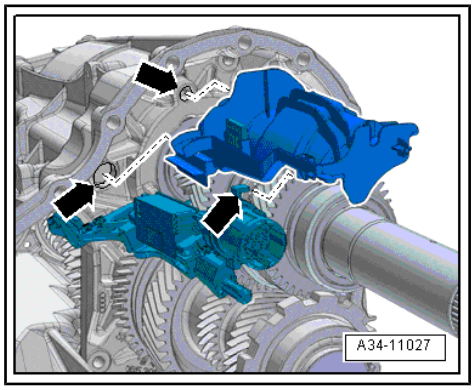
Note

- *Both of the shaft seals for the separator in the transmission housing must always be replaced.*
- *To prevent damaging the seals there are pushed in after assembling the transmission housing with the intermediate housing.*

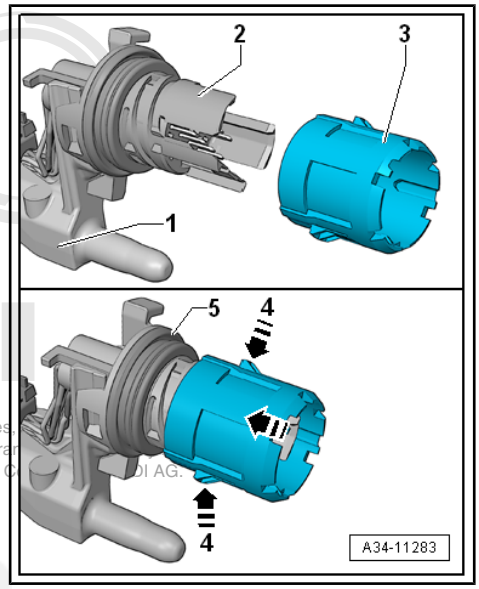
– Insert the Sensor Module into the guide openings and tighten it -arrow-.
– Replace the oil catch tray.



– Insert the front oil catch tray into the holes in the gear carrier and into the guide on the Sensor Module -arrows-.
- The oil catch tray must click into place.



Prepare the connector for the Sensor Module for installation:

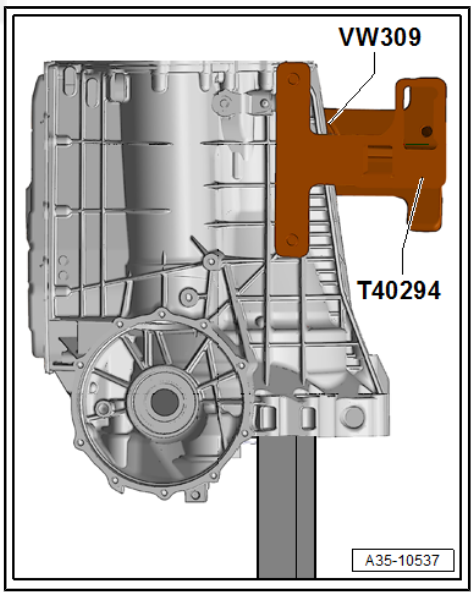


Note

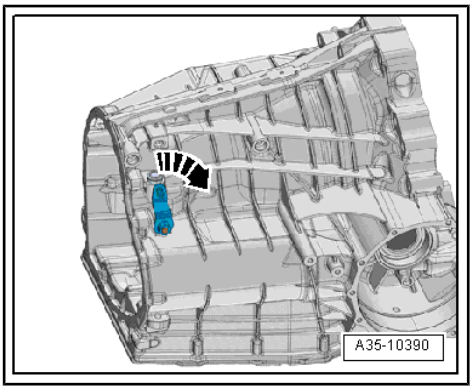
It is necessary to replace the O-ring on the connector -2- for the Sensor Module if the Sensor Module is not being replaced.

- Check whether the connector -2- is secured on the bracket -1- for the Sensor Module .
- Push the connector housing -3- onto the connector until it clicks into place. Do not turn it.
- Coat the gear position seals with MTF -item 3- ⇒ Item 3 (page 40) .
- Check if the retaining tabs in -4- can be pushed in.
- Check the oil catch tray seating.
- Check the seating of the sensor module seals -5-.

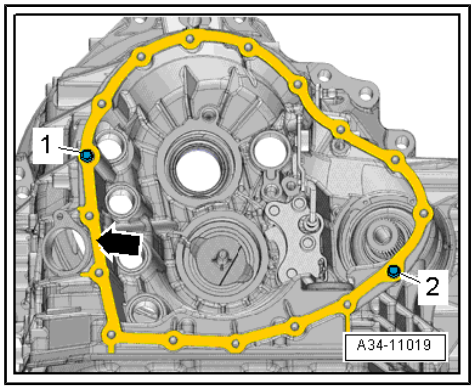
- Adjust the transmission housing on the engine/transmission holder so that it is vertical.



- Move the gearshift lever all the way in direction of travel in direction of -arrow-.



– Make sure the alignment sleeves -1 and 2- are installed inside the transmission housing.

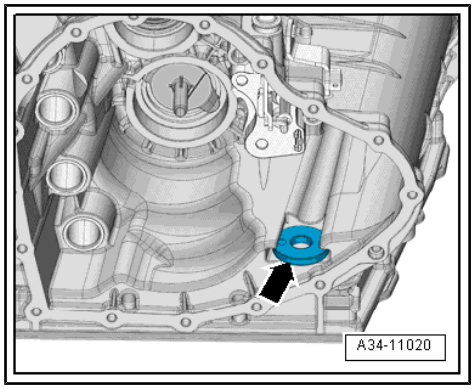


Note

- *The transmission housing sealing surface must be lightly roughened before the assembly.*
- *While doing so, make sure that no debris gets into the transmission.*
- *Suitable abrasive for example 3M bristle disk*

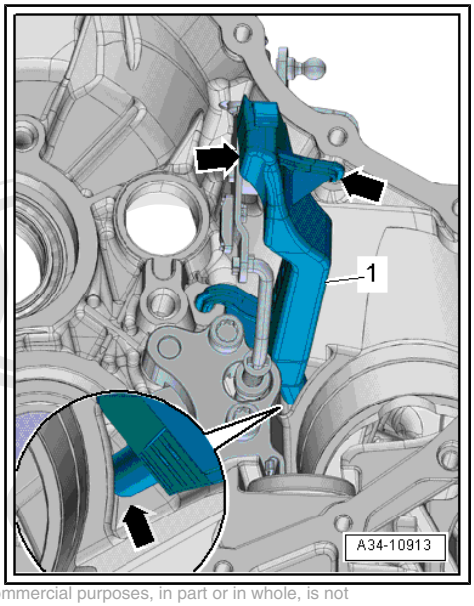
– Coat the transmission housing flange -arrow- evenly and lightly with sealant. Refer to the Parts Catalog.

– Make sure the magnet -arrow- is installed inside the transmission housing.

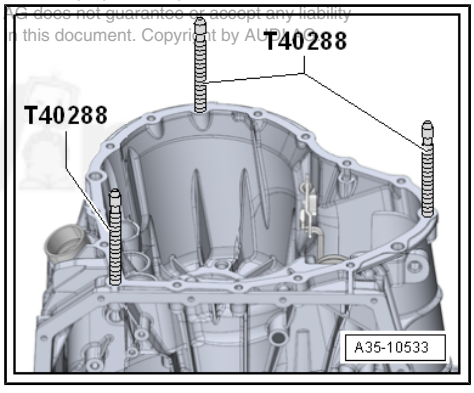


– Insert the front final drive oil guide into the transmission housing.

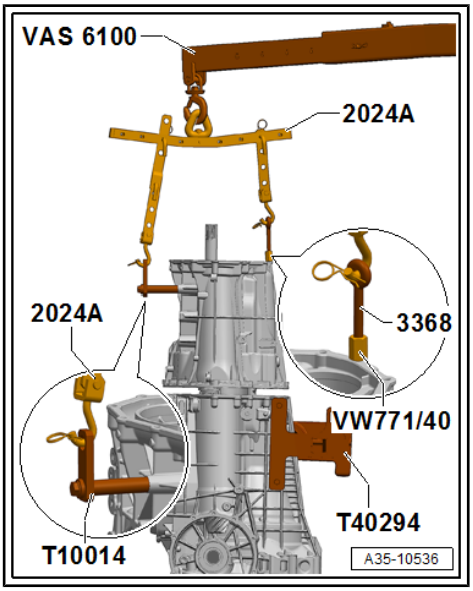
• The oil guide must be inserted into the holes in the transmission housing at three locations -arrows-.



– Install the Guide Pins - Gearbox - T40288- in the threaded holes approximately 120° offset.



– Engage the transmission intermediate housing -1- with the wheel set on the Shop Crane - VAS6100- as shown in the illustration.

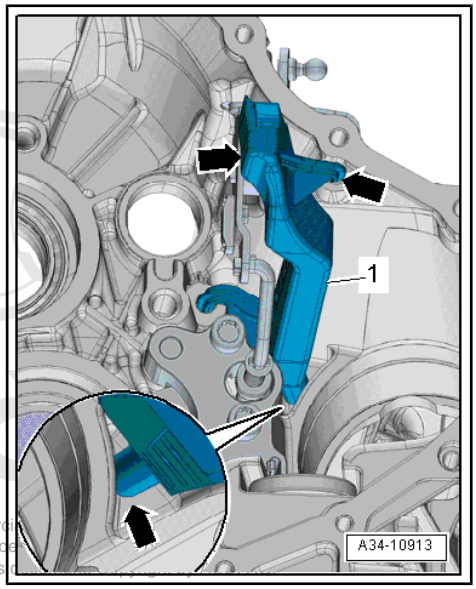


WARNING

There is the risk of an accident if the support bridge parts are loose.

- *Install each threaded connection on the Lifting Eyebolt - 3368- and the Slide Hammer Set - Adapter 40 - VW771/40- until stop to make sure they are secure.*
- *Secure the hooks and locking pins on the Engine Sling - 2024A- with cotter pins.*

– Lower the transmission intermediate housing into the transmission housing slowly and carefully.



Caution

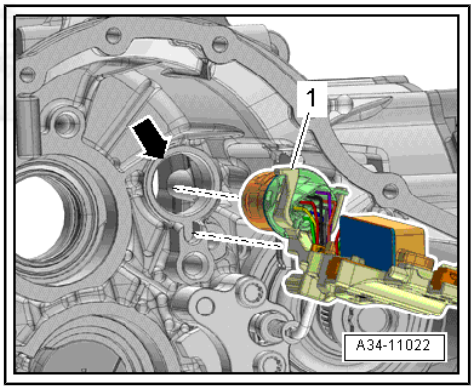
There is a danger of damaging the Sensor Module .

- *When installing the transmission intermediate housing, pay close attention that the Sensor Module is not on the oil guide -1- and will not be damaged.*

There is a risk of damaging the shift fork seal -item 3- ⇒ Item 3 (page 40) .

- *When guiding the transmission intermediate housing pay special attention not to contact the shift fork seal.*

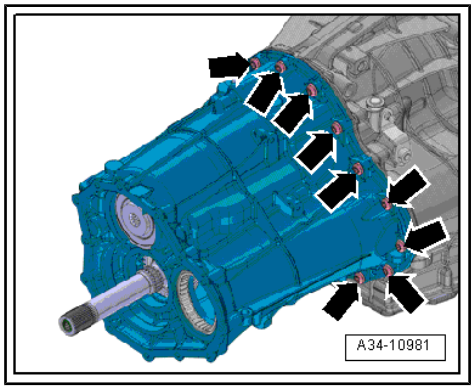
– When lowering the transmission intermediate housing guide it so that the connector -1- from the Sensor Module is guided in the hole -arrow- on the transmission housing without tilting.



Note

The procedure from the transmission intermediate housing side is shown. The procedure from the transmission housing side must also be performed.

– Guild the transmission intermediate housing completely on the transmission housing and secure it. Refer to ⇒ Fig. ""Transmission Intermediate Housing on the Transmission Housing - Tightening Specification and Sequence"" , page 42 .
– Check if the connector retaining tabs for the sensor module are engaged in the transmission housing.

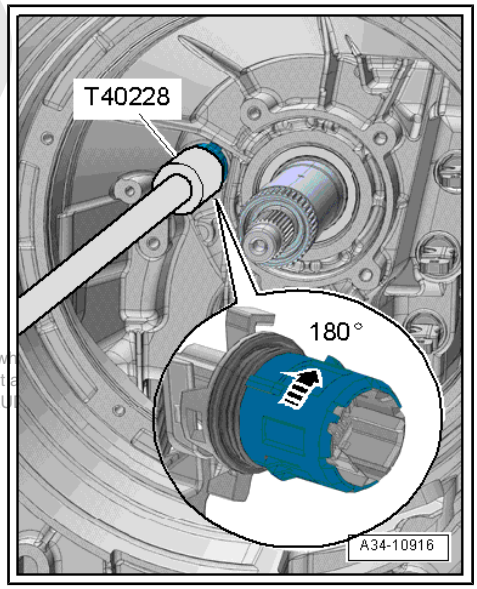


– Connect the Sensor Module Tool - T40228- flush with the connector housing for the Sensor Module .

Note

The tabs for the Sensor Module Tool - T40228- must securely mesh into the openings on the connector housing for the Sensor Module .

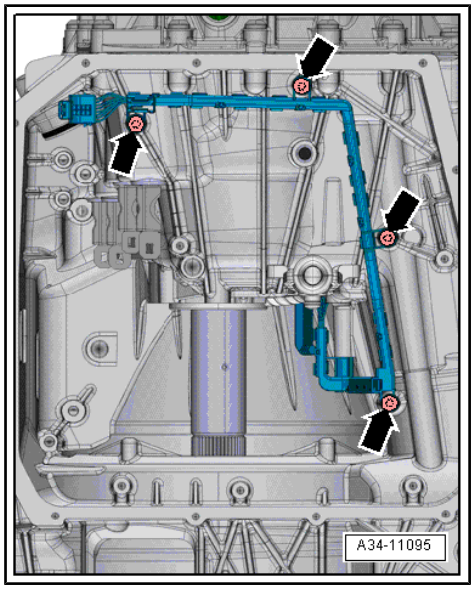
– Turn the connector housing with the Sensor Module Tool - T40228- 180° in the clockwise direction of -arrow- lock it into place.
– Install the shaft seal for the separator in the transmission housing. Refer to ⇒ "3.4 Transmission Housing Separator Seals, Replacing", page 57 .
– Install the oil pump and the suction jet pump. Refer to ⇒ "3.3 Oil Pump and Suction Jet Pump, Removing and Installing", page 54 .



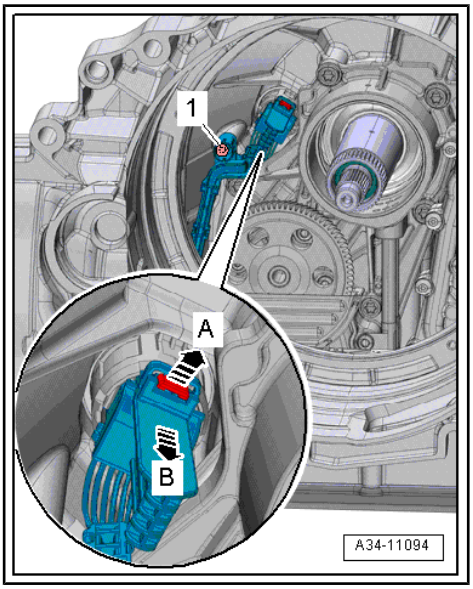
Note

- *The wiring set for the sensor module must be replaced when replacing the Sensor Module .*
- *Bolt tightening specification: position -item 38- ⇒ Item 38 (page 16) .*

– Tighten the bolts -arrows- on the wiring set for the sensor module.



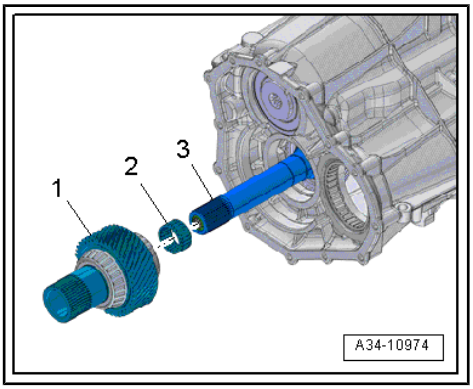
– Carefully press the connector on the Sensor Module completely opposite the direction of -arrow B-.
– Secure the fastener opposite the direction of -arrow A-.
– Make sure that the connector is secured and fastened correctly on the Sensor Module .
– Tighten the bolt -1-.



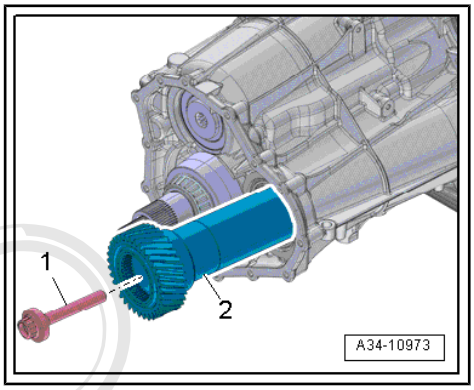
Note

Bolt tightening specification: position -item 38-
⇒ Item 38 (page 16) .

– Mount the needle bearing -2- and spur gear -1- on the output shaft -3-.



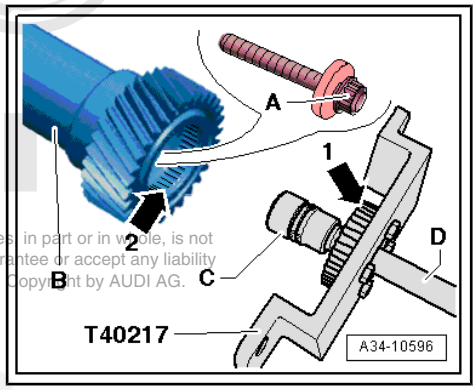
– Insert the side shaft -2- with the bolt -1- into the transmission intermediate housing.



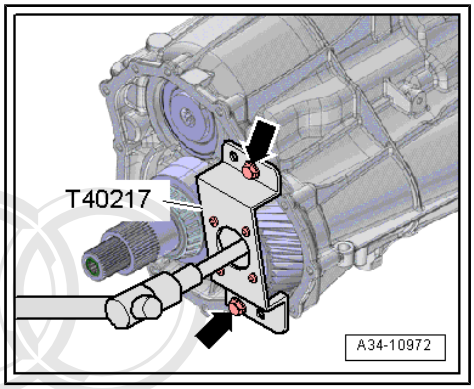
– Insert the side shaft -B- all the way onto the pinion and into the transmission cover.

Tighten the twelve-point bolt -A- for the side shaft -B- on the pinion as follows:

– Mount a twelve-point socket -C- (21 mm) with an extension -D- over the twelve-point bolt -A-.
– Insert the Counterhold - Side Shaft - T40217- with the outer splines -arrow 1- into the inner splines -arrow 2- on the side shaft.



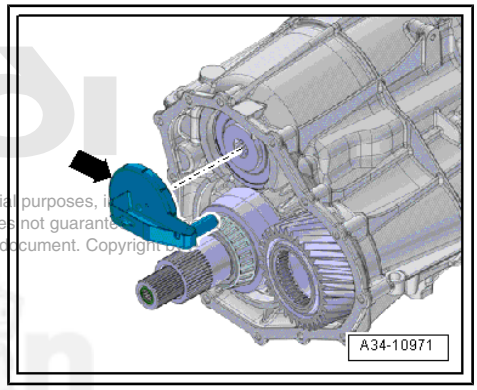
– Tighten the Counterhold - Side Shaft - T40217- on the transmission intermediate housing -arrows-.
– Tighten the bolt for the side shaft.



– Mount the oil guide for the input shaft -arrow-.

Installation is performed in reverse order of removal.

– Install the center differential housing and the center differential. Refer to ⇒ “5.2 Self-Locking Center Differential, Removing and Installing”, page 99 .
– Install the DSG Transmission Mechatronic - J743- . Refer to ⇒ “1.4 Mechatronic, Removing and Installing”, page 20 .
– Push the separator shaft seal in the transmission housing. Refer to ⇒ “3.4 Transmission Housing Separator Seals, Replacing”, page 57 .
– Install the dual clutch. Refer to ⇒ “1.4 Dual Clutch, Installing”, page 9 .
– Install the flywheel. Refer to ⇒ “1.2 Flywheel, Removing and Installing”, page 5 .



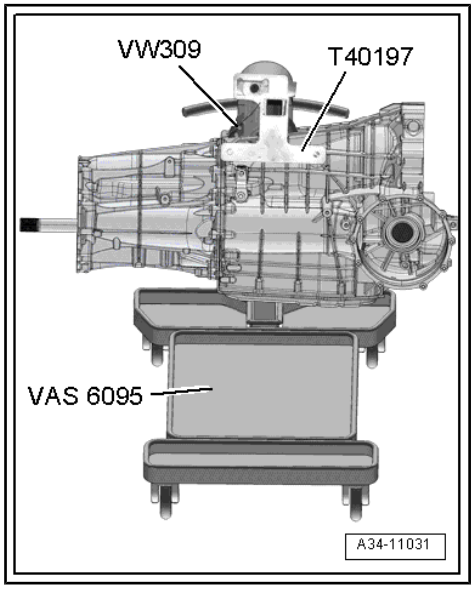
3.3 Oil Pump and Suction Jet Pump, Removing and Installing

Special tools and workshop equipment required

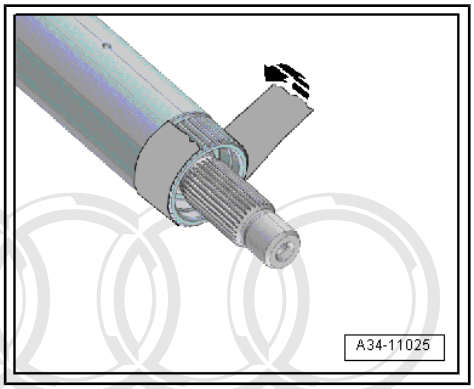
- Counterhold - Side Shaft - T40217-
- Sensor Module Tool - T40228-
- Sealant. Refer to the Parts Catalog.

Removing

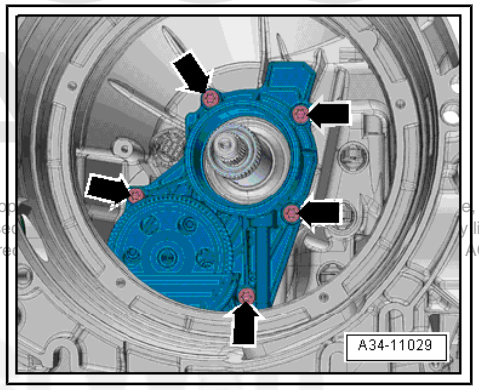
- Secure the transmission on the Engine And Transmission Holder - VAS6095- . Refer to ⇒ “4 Securing on Engine and Transmission Holder”, page 61 .
– Remove the flywheel. Refer to ⇒ “1.2 Flywheel, Removing and Installing”, page 5 .
– Remove the dual clutch. Refer to ⇒ “1.3 DSG Clutch, Removing”, page 7 .
– Remove the DSG Transmission Mechatronic - J743- . Refer to ⇒ “1.4 Mechatronic, Removing and Installing”, page 20 .



– Wrap the splines for the outer drive axle with adhesive tape in direction of -arrow-, so that the inner surfaces of the suction jet pump are not damaged when removing or installing.
– Coat the tape lightly with grease.



– Remove the bolts -arrows- and push the oil pump forward on the input shaft.

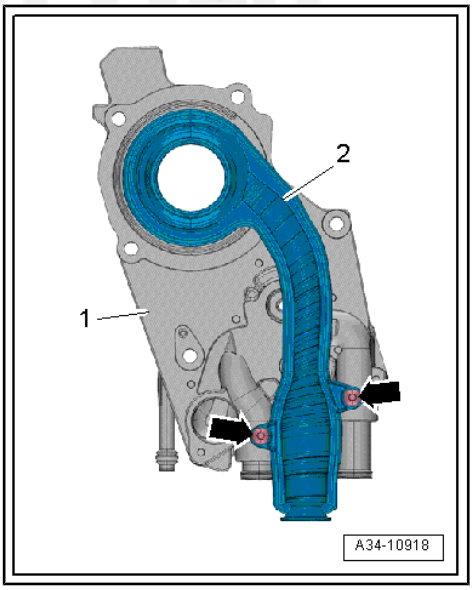


– Remove the bolts -arrows- for the suction jet pump -2- on the back of the oil pump -1-.

Note

The oil pump is shown removed.

– Remove the oil pump and suction jet pump separately from the input shaft.

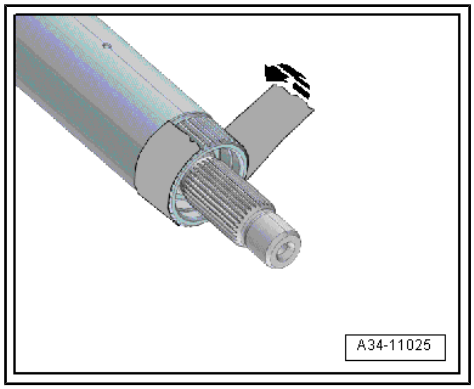


Installing

- Tightening specifications. Refer to ⇒ “3.1 Overview - Transmission”, page 40 .

Note

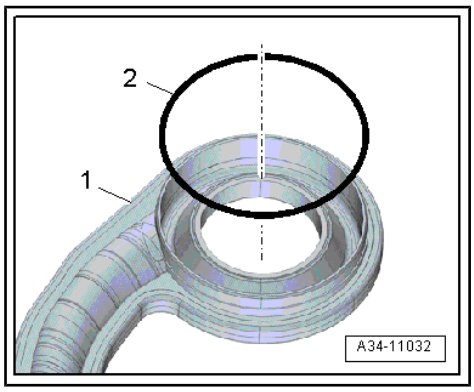
- *Replace any bolts that were tightened with an additional turn.*
- *Replace the O-rings.*



– Wrap the splines for the outer drive axle with adhesive tape in direction of -arrow-, so that the inner surfaces of the suction jet pump are not damaged when installing.

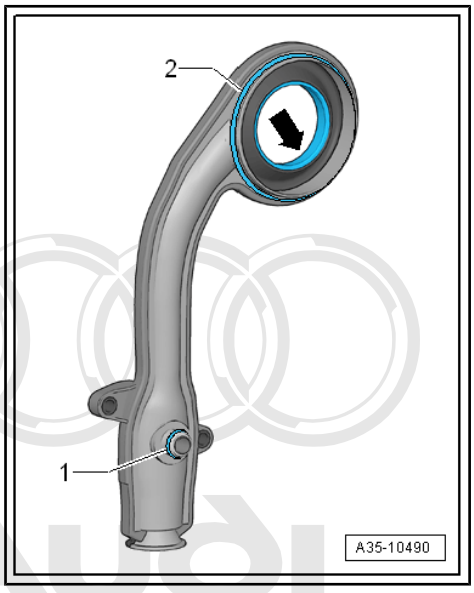
– Coat the tape lightly with grease.

– Push the O-ring -2- onto the seal seat on the suction jet pump -1-.

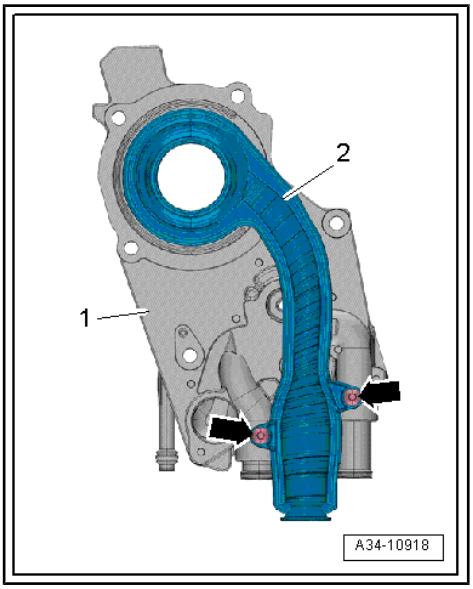


– Check the sealing surface -arrow- on the inside of the large opening in the suction jet pump for damage and replace if necessary.

– Check that the small O-rings -1- are in the correct places on the suction jet pump.



– Push the suction jet pump -2- and oil pump -1- separately onto the input shaft.

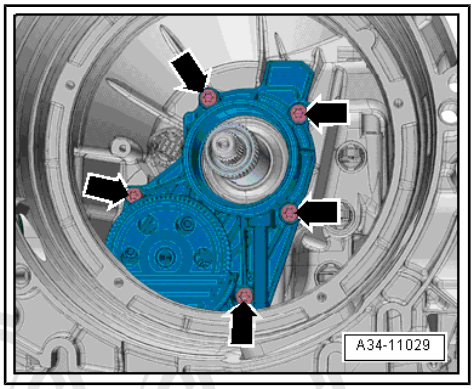


Note

The oil pump is shown removed.

– Position the suction jet pump on the oil pump and tighten the bolts -arrows-.

– Tighten the oil pump -arrows-.



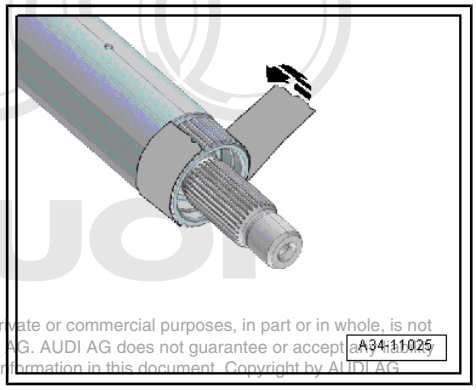
Installation is performed in reverse order of removal.

– Remove the adhesive tape.

– Install the DSG Transmission Mechatronic - J743- . Refer to ⇒ “1.4 Mechatronic, Removing and Installing”, page 20 .

– Install the dual clutch. Refer to ⇒ “1.4 Dual Clutch, Installing”, page 9 .

– Install the flywheel. Refer to ⇒ “1.2 Flywheel, Removing and Installing”, page 5 .



3.4 Transmission Housing Separator Seals, Replacing

Special tools and workshop equipment required

♦ Seal Installer - Clutch Housing - T40260-

Procedure

• Secure the transmission on the Engine And Transmission Holder - VAS6095- . Refer to ⇒ “4 Securing on Engine and Transmission Holder”, page 61 .

– Remove the flywheel. Refer to ⇒ “1.2 Flywheel, Removing and Installing”, page 5 .

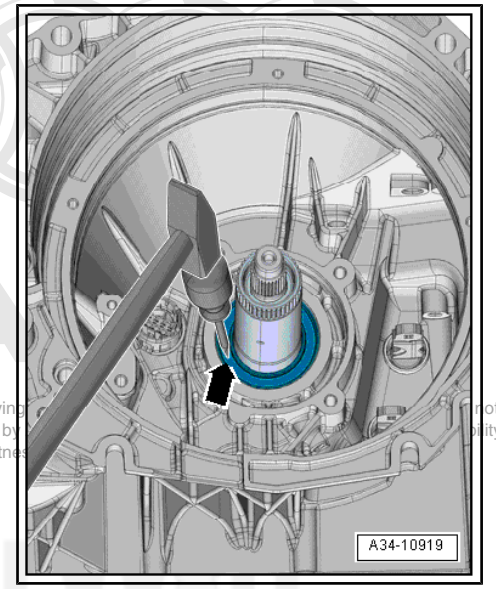
– Remove the dual clutch. Refer to ⇒ “1.3 DSG Clutch, Removing”, page 7 .
– Remove the DSG Transmission Mechatronic - J743- . Refer to ⇒ “1.4 Mechatronic, Removing and Installing”, page 20 .
– Remove the oil pump and the suction jet pump. Refer to ⇒ “3.3 Oil Pump and Suction Jet Pump, Removing and Installing”, page 54 .

Caution

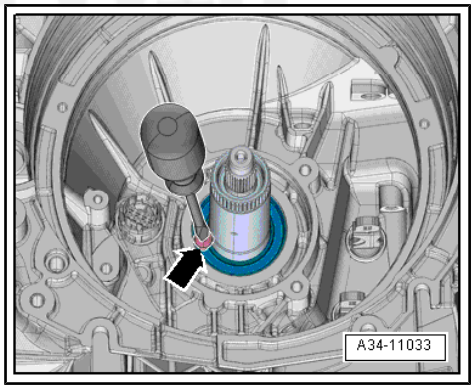
Danger of causing damage to the transmission.

- *In the following procedures, the input shaft surface must not come in contact with hard objects. Damage to the sealing surface on the input shaft will result in leaks.*

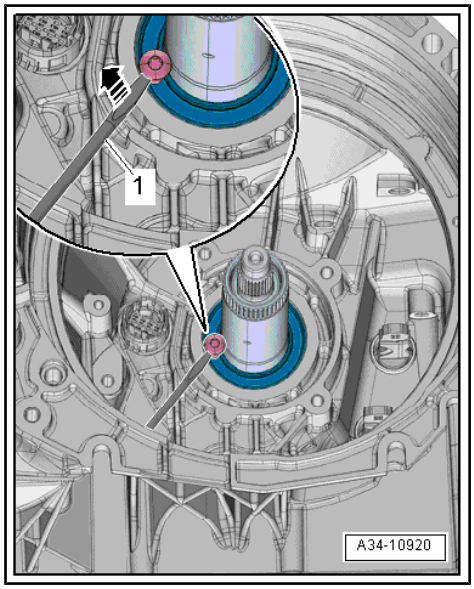
– Place a punch on the shaft seal and drive in a small hole -arrow-.



– Install a screw -arrow- with a large head into the hole in the shaft seal.



– Remove the outer shaft seal using a wide screwdriver in direction of -arrow-.
– Remove the inner shaft seal the same way.



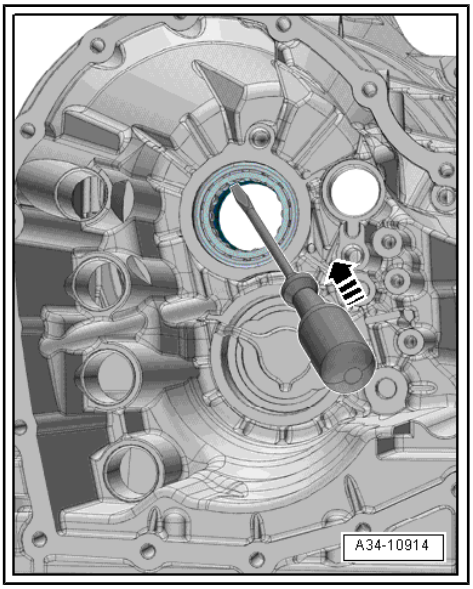
Caution

There is the danger of causing damage to the roller bearing behind the inner shaft seal.

- *Do not hit the punch too hard when making the hole in the inner shaft seal otherwise the bearing cage for the roller bearing behind it will get damaged.*

Note

Remove both shaft seals from the transmission side using a screwdriver in direction of -arrow- with the transmission disassembled.

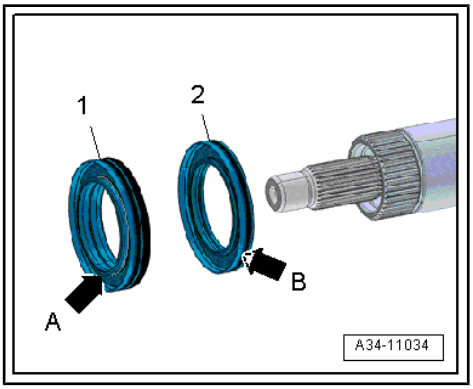


– Position the new shaft seals for installation.

Note

The shaft seals -1- and -2- are supplied as one part, and must be coated with MTF before installing.

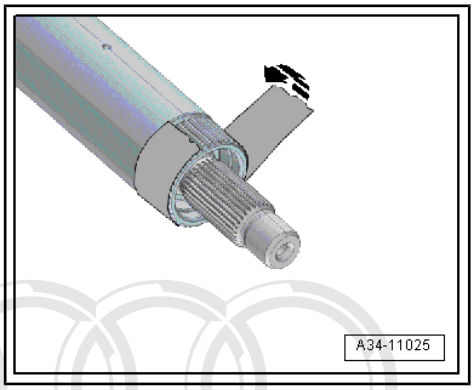
- The spiral spring -arrow A- on the outer shaft seal -1- must face the dual clutch.
- The spiral spring -arrow B- on the inner shaft seal -2- must face the transmission.



Caution

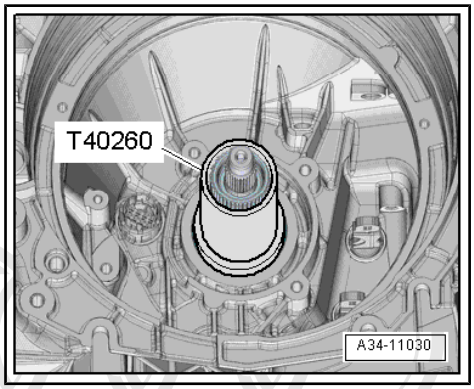
Risk of leaks due to incorrect assembly.

- ***Before installing the shaft seal, wrap the outer input shaft splines with tape.***
- ***After the shaft seal is pushed over the splines, make sure that the sealing lips have not turned inside out.***



– Clip the shaft seals together and slide them over the input shaft.

– Install the shaft seals flush from the clutch side using the Seal Installer - Clutch Housing - T40260- .



Note

The Seal Installer - Clutch Housing - T40260- can be extended using the Press Piece - 60mm - VW415A- .

Installation is performed in reverse order of removal.

– Install the oil pump. Refer to ⇒ “3.3 Oil Pump and Suction Jet Pump, Removing and Installing”, page 54 .
– Install the DSG Transmission Mechatronic - J743- . Refer to ⇒ “1.4 Mechatronic, Removing and Installing”, page 20 .
– Install the dual clutch. Refer to ⇒ “1.4 Dual Clutch, Installing”, page 9 .
– Install the flywheel. Refer to ⇒ “1.2 Flywheel, Removing and Installing”, page 5 .

4 Securing on Engine and Transmission Holder

Special tools and workshop equipment required

- Engine And Transmission Holder - VW6095-
- Holding Plate - VW309A-
- Hook And Support Tool - T40197-
- Hook and Support Tool - T40294-

DANGER!

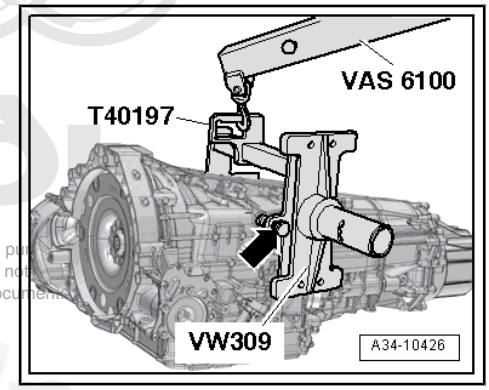
Do not use the Hook And Support Tool T40197 for the repair (Refer to ⇒ "3.2 Sensor Module , with integrated transmitters and sensors G612 , G632 , G676 and Circuit Board 3 , Removing and Installing", page 42) - There is a risk of injury.

Only use the Hook and Support Tool T40294 for this operation.

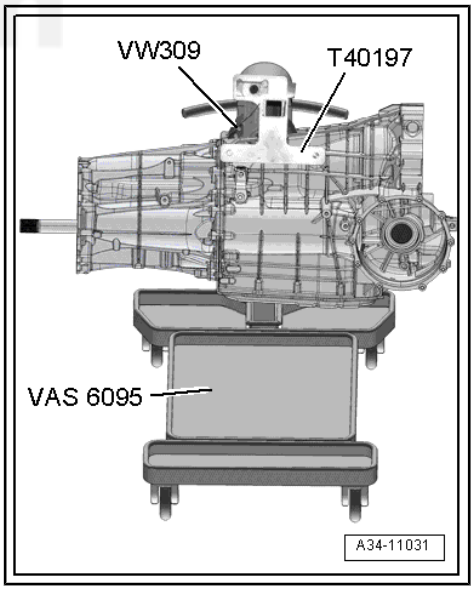
Procedure

- Hold the transmission with the Shop Crane - VAS6100- . Refer to ⇒ "2 Transmission, Transporting", page 39 .

– Attach the Holding Plate - VW309A- to the Hook And Support Tool - T40197- .



– Place the transmission using the Shop Crane - VAS6100- in the Engine And Transmission Holder - VAS6095- .



Note

The vents for the transmission housing and final drive must be closed before turning a filled transmission with oil pan upward on the engine and transmission holder.

5 Automatic Transmission Fluid

⇒ “5.1 ATF Drain Plug, Fill Plug and Check Plug Assembly Overview”, page 62

⇒ “5.2 ATF, Draining and Filling”, page 62

5.1 ATF Drain Plug, Fill Plug and Check Plug Assembly Overview

1 - ATF Drain Plug

- ❑ 45 Nm

2 - Seal

- ❑ Always replace
- ❑ For the ATF drain plug

3 - Transmission Fluid (MTF) fill and Check Plug

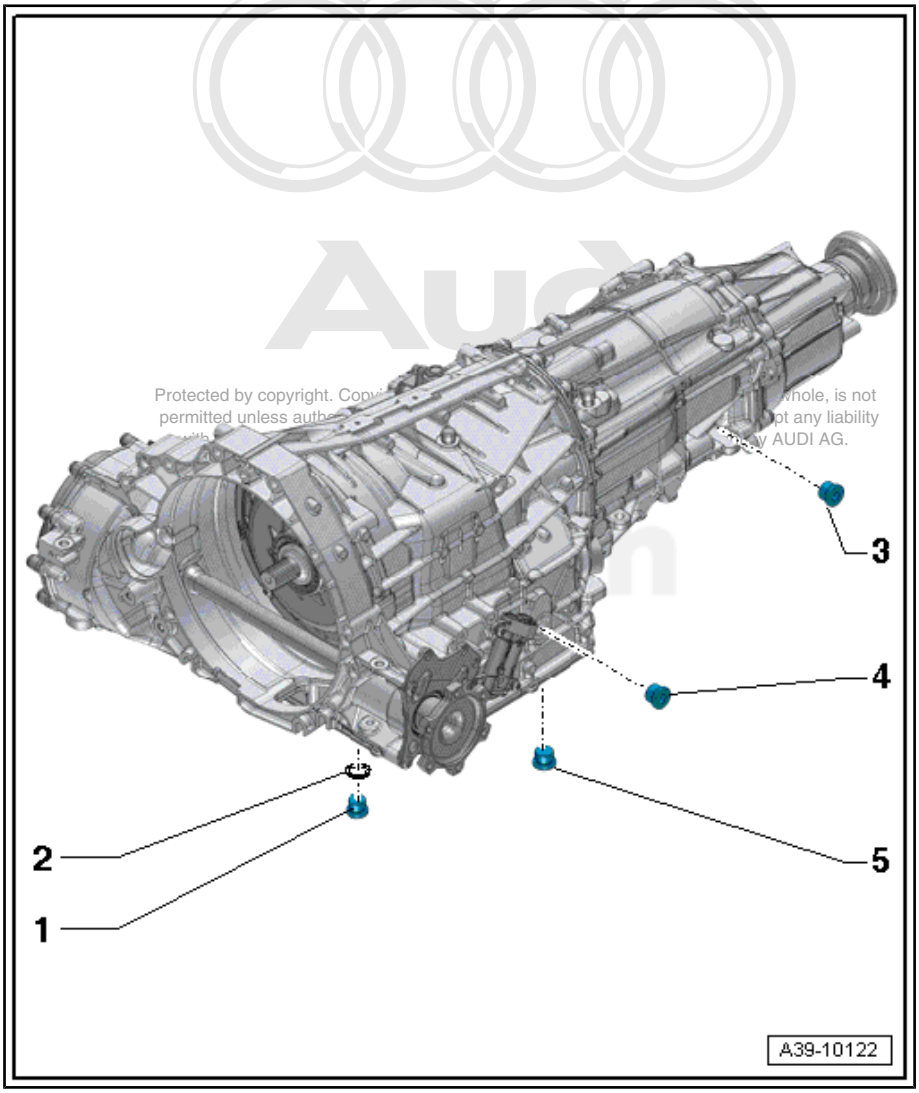
- ❑ Tightening specification 45 Nm
- ❑ Inside the manual transmission, front final drive and transfer case

4 - ATF Fill and Check Plug

- ❑ 45 Nm

5 - Transmission Fluid (MTF) Drain Plug

- ❑ Drain plug tightening specification 45 Nm
- ❑ Inside the manual transmission, front final drive and transfer case
- ❑ Depending on the date of manufacture, Transmission Fluid Temperature Sensor 2 - G754- may also serve as the transmission fluid drain plug; tightening specification for Removing and installing. Refer to ⇒ “2.3 Transmission Fluid Temperature Sensor 2 G754 , Removing and Installing”, page 78 .



5.2 ATF, Draining and Filling

ATF Level, Checking and Correcting: The ATF level can be checked and corrected only if the transmission is installed. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Automatic Transmission Fluid; ATF Level, Checking

Special tools and workshop equipment required

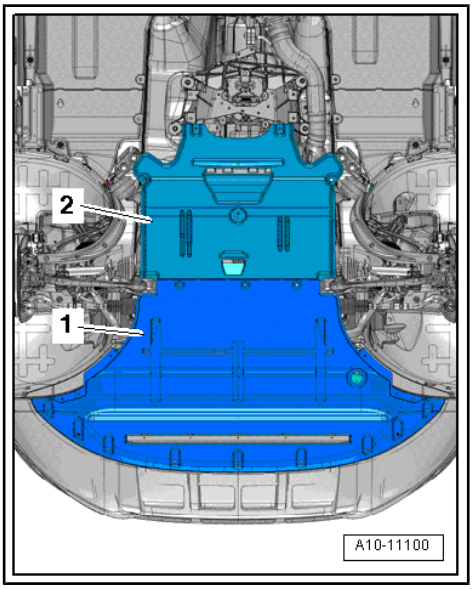
- ♦ Used Oil Collection and Extraction Unit - SMN372500-
- ♦ Protective eyewear

ATF, Draining

Transmission Installed:

- The engine is off.
- Move vehicle onto a four-pillar workshop hoist or over a work pit so that it is absolutely horizontal.
- The selector level is in “P”.
- The parking brake button should be activated to set the electromechanical parking brake.

– Remove the rear noise insulation -2-. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Noise Insulation, Removing and Installing .



Caution

Danger of Causing Damage to the Transmission.

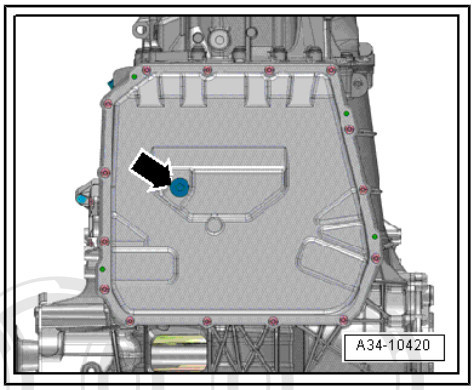
- *Engine must not be started if only a small amount or no ATF is in the transmission after repair work or after significant ATF loss.*

Transmission Removed.

- The transmission is secured to the engine/transmission holder. Refer to
⇒ “4 Securing on Engine and Transmission Holder”, page 61 .

Transmission, Removed or Installed:

– Place the Used Oil Collection and Extraction Unit - SMN372500- under the transmission.



WARNING

Danger of eye injury.

- *Wear protective eyewear.*

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

Note

- *Follow the disposal requirements.*
- *Replace the ATF drain plug seal.*

– Tighten the ATF drain plug.

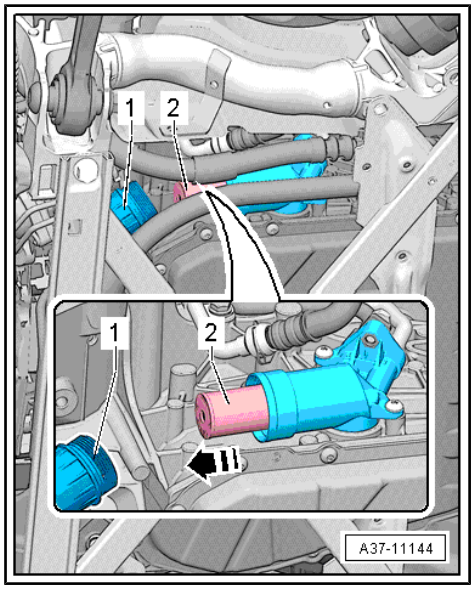
On Transmissions with an ATF Filter -2-:

Caution

Danger of causing damage to the transmission.

- *Always replace the ATF filter -2- every time the ATF is changed.*

– Replace the ATF filter. Refer to
⇒ “1.7 ATF Filter, Removing and Installing”, page 34 .



Continuation for All Transmissions:

Fill the Transmission with ATF.

Caution

Danger of Causing Damage to the Transmission.

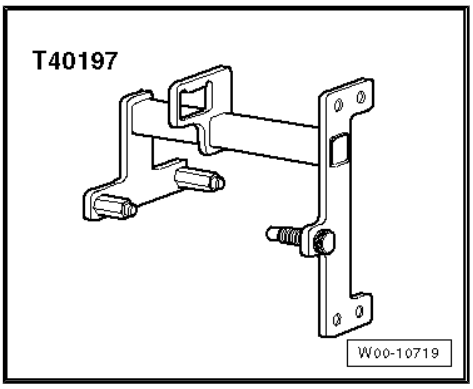
- *Only use replacement part ATF for the DSG transmission 0B5.*
- *Allocation. Refer to the Parts Catalog.*
- *Using other types of ATF can result in the malfunctions or transmission failure.*
- *The ATF filler tool must be clean and the ATF must not be mixed with any other oils.*

– Fill with ATF. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Automatic Transmission Fluid; ATF, Draining and Filling

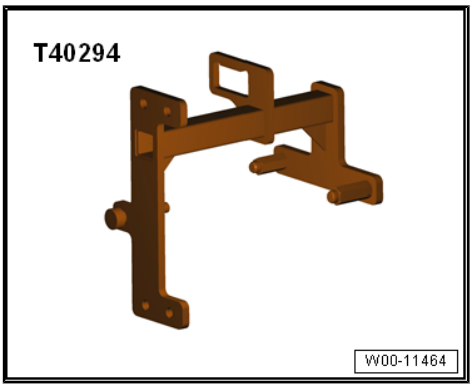
6 Special Tools

Special tools and workshop equipment required

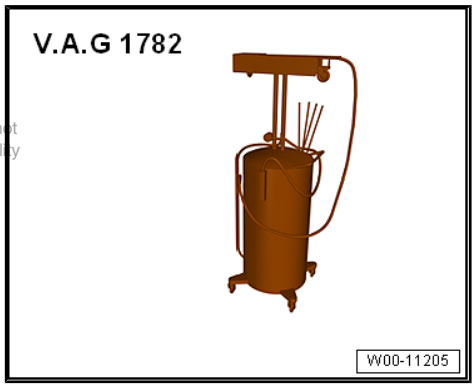
- Hook And Support Tool - T40197-



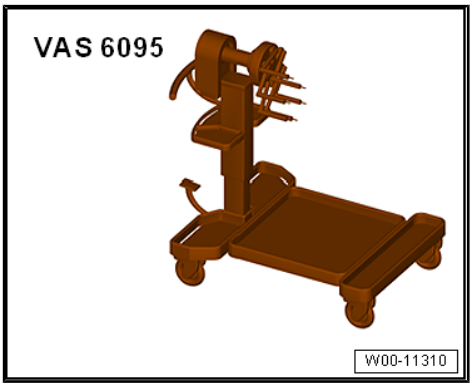
- Hook and Support Tool - T40294-



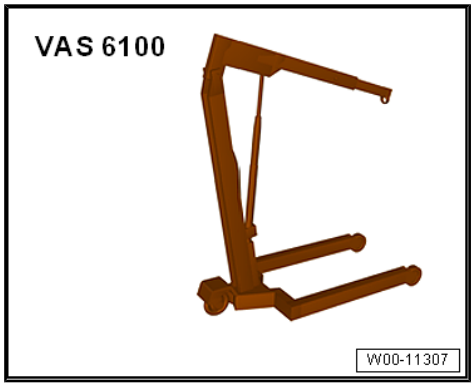
- Used Oil Collection and Extraction Unit - SMN372500-



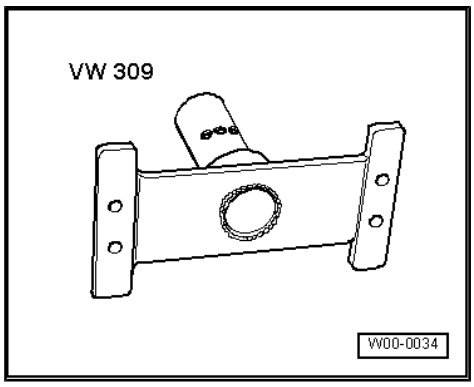
- Engine And Transmission Holder - VW6095-



- Shop Crane - VAS6100-



- Holding Plate - VW309A-



- Protective eyewear
- Seal Installer - Clutch Housing - T40260-
- Counterhold - Side Shaft - T40217-
- Sensor Module Tool - T40228-
- Sealant. Refer to the Parts Catalog.

35 – Gears, Shafts

1 Input Shaft

⇒ “1.1 Input Shaft Ball Bearing, Replacing”, page 67

⇒ “1.2 Input Shaft Seal, Replacing”, page 69

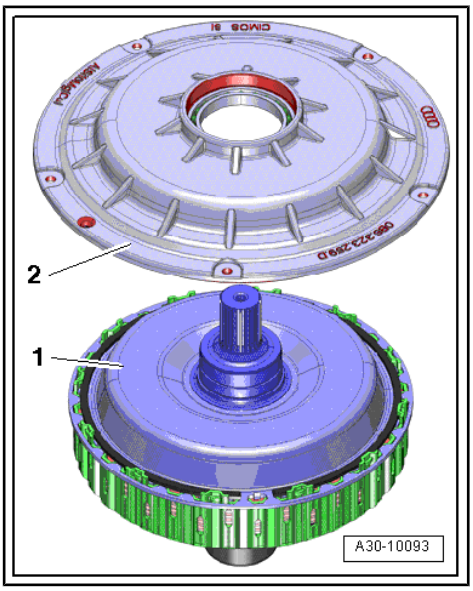
1.1 Input Shaft Ball Bearing, Replacing

Special tools and workshop equipment required

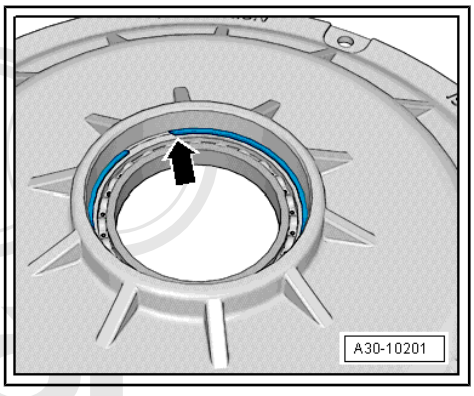
- Press Plate - VW401-
- Press Plate - VW402-
- Press Piece - Multiple Use - VW412-
- Press Piece - 60mm - VW415A-
- Puller - 3046-

Removing

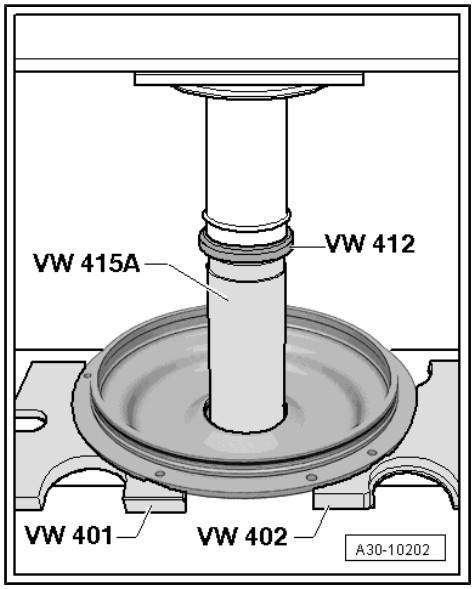
– Remove the dual clutch -1-. Refer to ⇒ “1.3 DSG Clutch, Removing”, page 7 .



– Remove the locking ring -arrow- from the removed clutch cover.

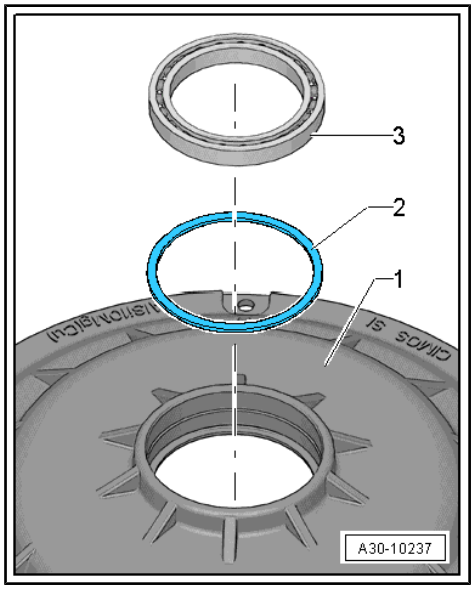


– Remove the dual clutch ball bearing.



Note

- *There may still be a thrust washer -2- behind the ball bearing -3- depending on the clutch cover date of manufacture. If there is, then replace the old one with a new one when installing the new ball bearing.*
- *Replace the ball bearing -3-.*



Installing

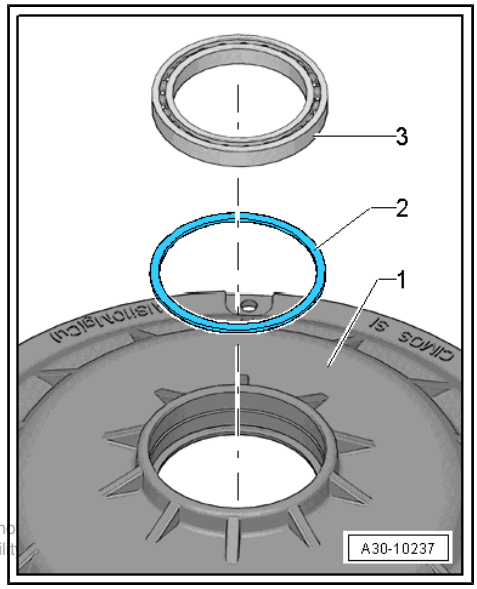
Install in reverse order of removal. Note the following:

– Replace the O-ring and locking rings. Refer to ⇒ “1.1 Overview - Flywheel and Dual Clutch”, page 4 .

Note

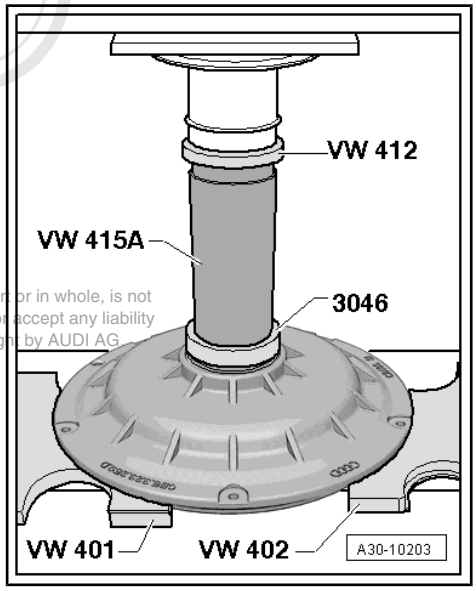
The clutch cover may have or may not have a thrust washer -2-, depending on the date of manufacture. Allocation. Refer to the Parts Catalog.

– If it was there during the removal, then insert a thrust washer -2- into the cover -1-.



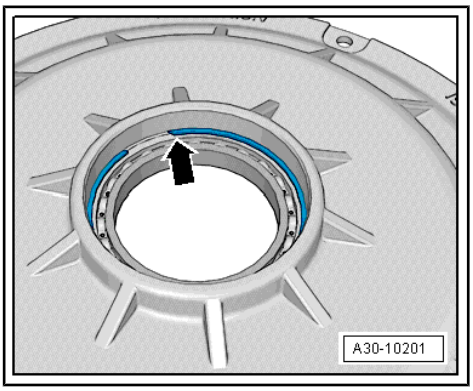
– Install the new dual clutch ball bearing all the way.

• Position the Press Piece - 60mm - VW415A- with the thin shoulder facing up.



– Install the new ball bearing circlip -arrow-.

– Clean the sealing surface on the clutch cover.



1.2 Input Shaft Seal, Replacing

Special tools and workshop equipment required

♦ Pulling Hook - T20143/2-

♦ Seal Installer - Input Shaft - T40198-

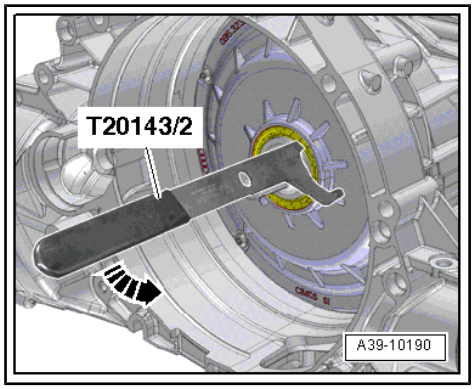
♦ Grease. Refer to the Parts Catalog.

Procedure

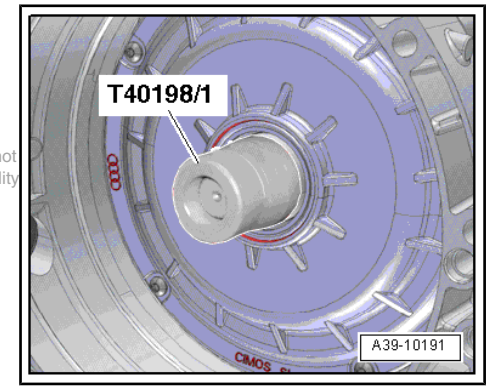
• Secure the transmission on the Engine And Transmission Holder - VAS6095- . Refer to
⇒ “4 Securing on Engine and Transmission Holder”, page 61 .

– Remove the flywheel. Refer to
⇒ “1.2 Flywheel, Removing and Installing”, page 5 .

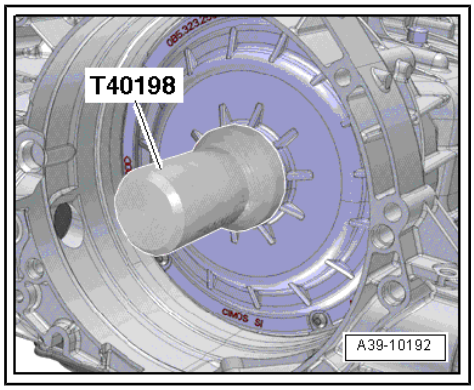
– Pry out the input shaft seal with the Pulling Hook - T20143/2- .



– Place the Seal Installer - Input Shaft Guide Sleeve - T40198/1- on the drive axle.
– Lightly coat the outer circumference of the new shaft seal with oil.
– Fill the space between the sealing- and dust lip half way with sealing grease. Refer to the Parts Catalog.
– Install the shaft seal on the guide sleeve.
• Installed position: Open side of shaft seal faces transmission.

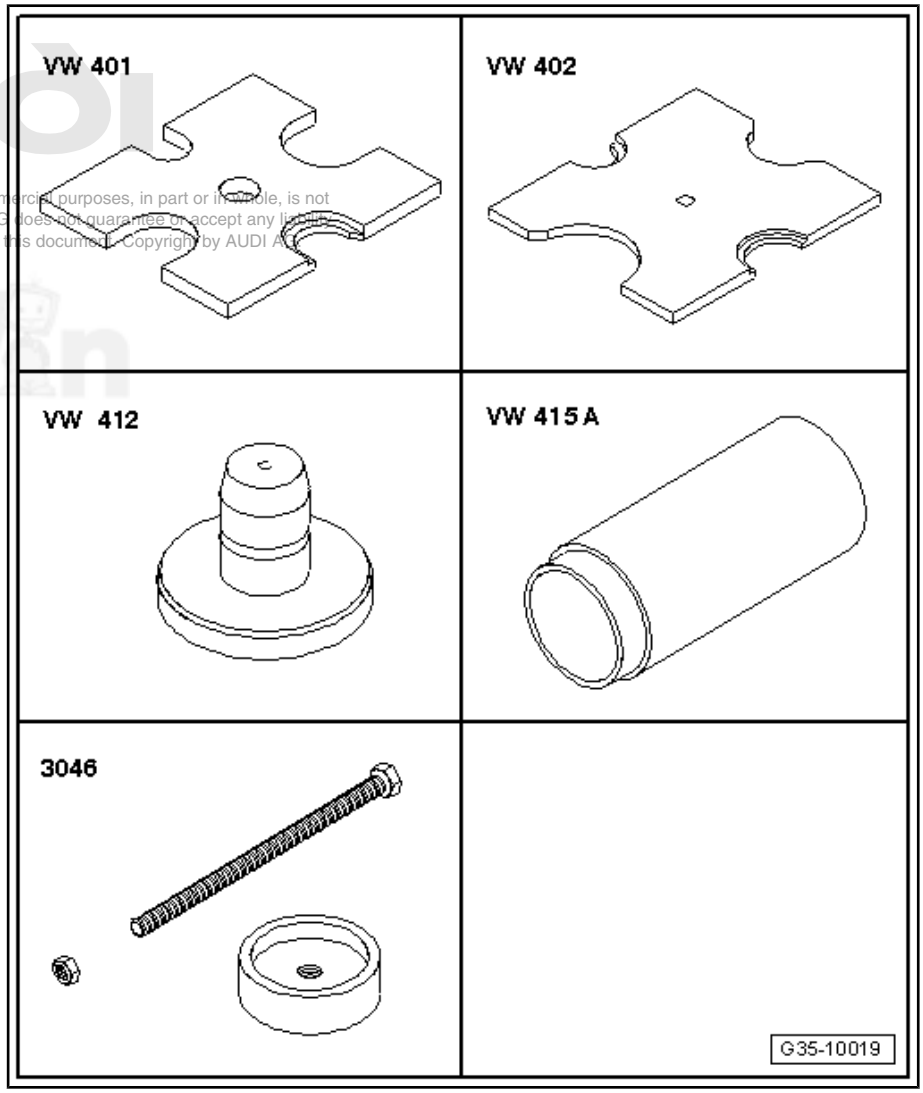


– Drive in the shaft seal with the Seal Installer - Input Shaft - T40198- until it stop without tilting.
– Install the flywheel. Refer to
⇒ “1.2 Flywheel, Removing and Installing”, page 5 .



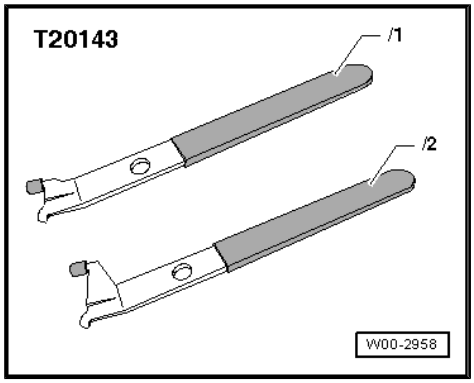
2 Special Tools

Special tools and workshop equipment required

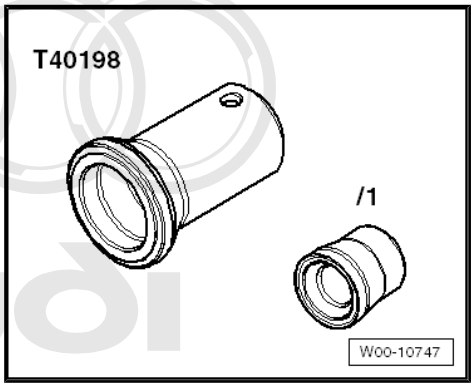


- Press Plate - VW401-
- Press Plate - VW402-
- Press Piece - Multiple Use - VW412-
- Press Piece - 60mm - VW415A-
- Puller - 3046-

- Puller - Crankshaft/Power Steering Seal - T20143-



- Seal Installer - Input Shaft - T40198-

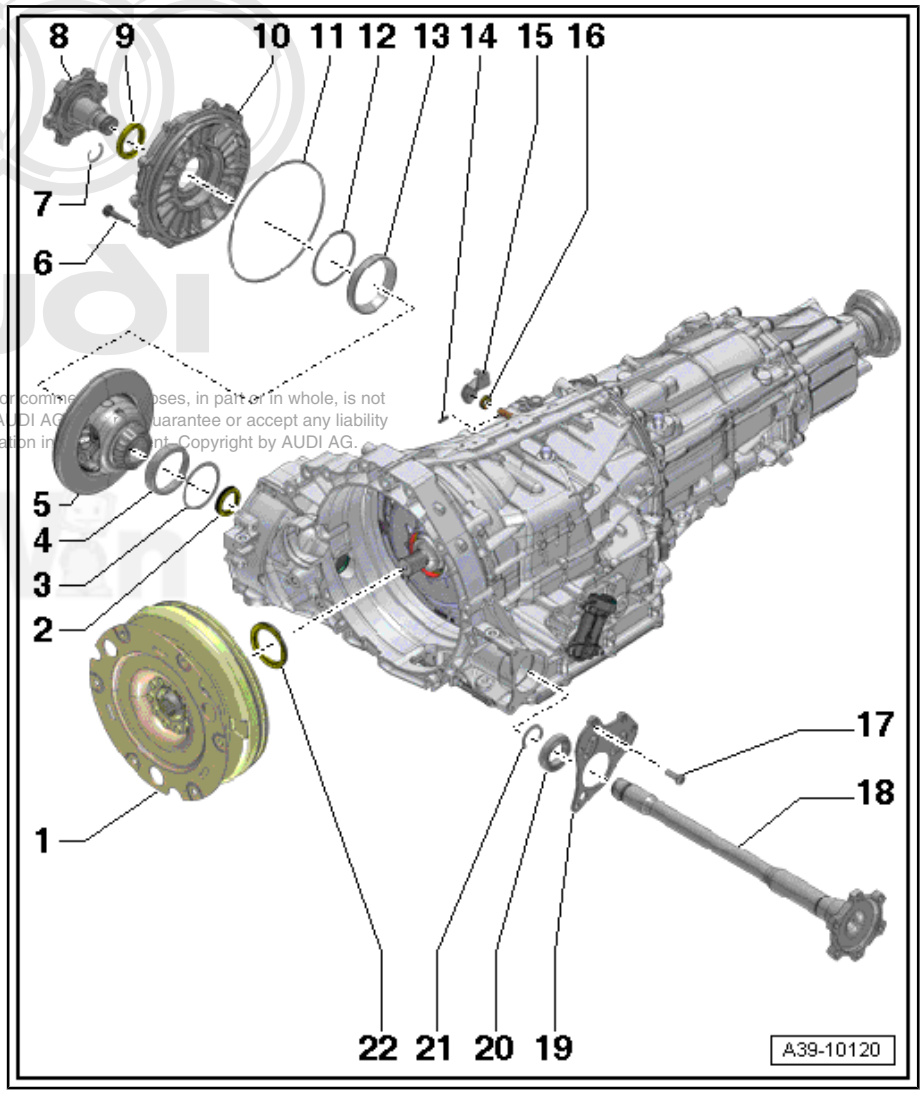


39 – Final Drive, Differential

1 Final Drive

⇒ “1.1 Overview - Final Drive”, page 73

1.1 Overview - Final Drive



1 - Flywheel

- ❑ Removing and installing. Refer to ⇒ “1.2 Flywheel, Removing and Installing”, page 5 .

2 - Shaft Seal

- ❑ For the left flange shaft
- ❑ Between the final drive and the transmission housing
- ❑ Replacing. Refer to ⇒ “3.1 Left Seal, Replacing”, page 80 .

3 - Shim

- ❑ Behind the taper roller bearing outer race

4 - Taper Roller Bearing Outer Race

5 - Differential

6 - Bolt

- ❑ Tightening specification and sequence. Refer to ⇒ Fig. ““Tightening Specification and Sequence, Front Final Drive Cover”“ , page 74
- ❑ Quantity 10

7 - Locking Ring

- ❑ Always replace

8 - Right Flange Shaft

- ❑ Removing and installing. Refer to ⇒ “4.4 Right Flange Shaft, Removing and Installing”, page 92 .

9 - Shaft Seal

- ❑ For the right flange shaft
- ❑ Replacing. Refer to ⇒ “3.2 Right Seal, Replacing”, page 81 .

10 - Front Final Drive Cover

- ❑ Removing and installing. Refer to ⇒ “3.1 Left Seal, Replacing”, page 80 .

11 - O-Ring

- ❑ Always replace
- ❑ On the front final drive cover

12 - Shim

- ❑ Behind the taper roller bearing outer race

13 - Taper Roller Bearing Outer Race

14 - Spring Pin

15 - Gearshift Lever

16 - Shaft Seal

- For the selector shaft
- Replacing. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Selector Mechanism; Selector Shaft Seal, Replacing

17 - Bolt

- 10 Nm + 45°
- Quantity: 3

18 - Left Flange Shaft

- Removing and installing. Refer to ⇒ “4.1 Left Flange Shaft, Removing and Installing”, page 83 .

19 - Bracket

- Attached to the left flange shaft with the ball bearing -20- and the circlip -21-
- Check for traces of wear on the bearing bracket and check the pre-tension on the ball bearing for the left flange shaft. Refer to
⇒ “4.2 Left Flange Shaft Ball Bearing Pre-Tension, Checking and Adjusting”, page 85

20 - Ball Bearing

- For the left flange shaft
- Left Flange Shaft Ball Bearing Pre-Tension, Checking. Refer to
⇒ “4.2 Left Flange Shaft Ball Bearing Pre-Tension, Checking and Adjusting”, page 85
- Replacing. Refer to
⇒ “4.3 Left Flange Shaft Ball Bearing Mounting Bracket, Removing and Installing”, page 91 .

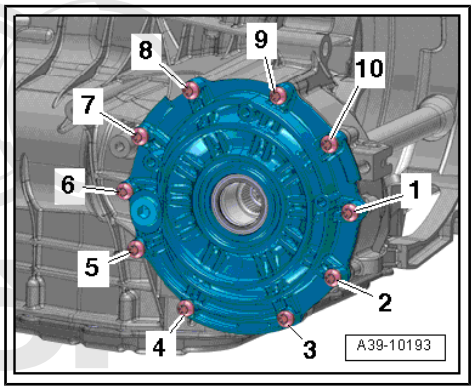
21 - Locking Ring

- Always replace
- For the left flange shaft bearing

22 - Shaft Seal

- For the input shaft
- Replacing. Refer to ⇒ “1.2 Input Shaft Seal, Replacing”, page 69 .

Tightening Specification and Sequence, Front Final Drive Cover



Note

Replace any bolts that were tightened with an additional turn.

– Tighten the bolts in three steps in the sequence shown:

Step	Bolts	Tightening Specification/Additional Turn
1.	-1 to 10-	3 Nm
2.	-1 to 10-	20 Nm
3.	-1 to 10-	Tighten an additional 90°

2 Transmission Fluid

⇒ “2.1 Overview - Transmission Drain and Inspection Plug for Transmission Fluid”, page 75

⇒ “2.2 Transmission Fluid; Transmission Fluid, Draining and Filling”, page 75

⇒ “2.3 Transmission Fluid Temperature Sensor 2 G754 , Removing and Installing”, page 78

2.1 Overview - Transmission Drain and Inspection Plug for Transmission Fluid

The gear set, the manual transmission and the transfer case in the DSG transmission 0B5 share a common transmission fluid chamber, which is checked and filled by a single plug.

1 - ATF Drain Plug

- ❑ Tightening specification 45 Nm

2 - Seal

- ❑ Always replace
- ❑ For the ATF drain plug

3 - Transmission Fluid (MTF) Fill and Check Plug

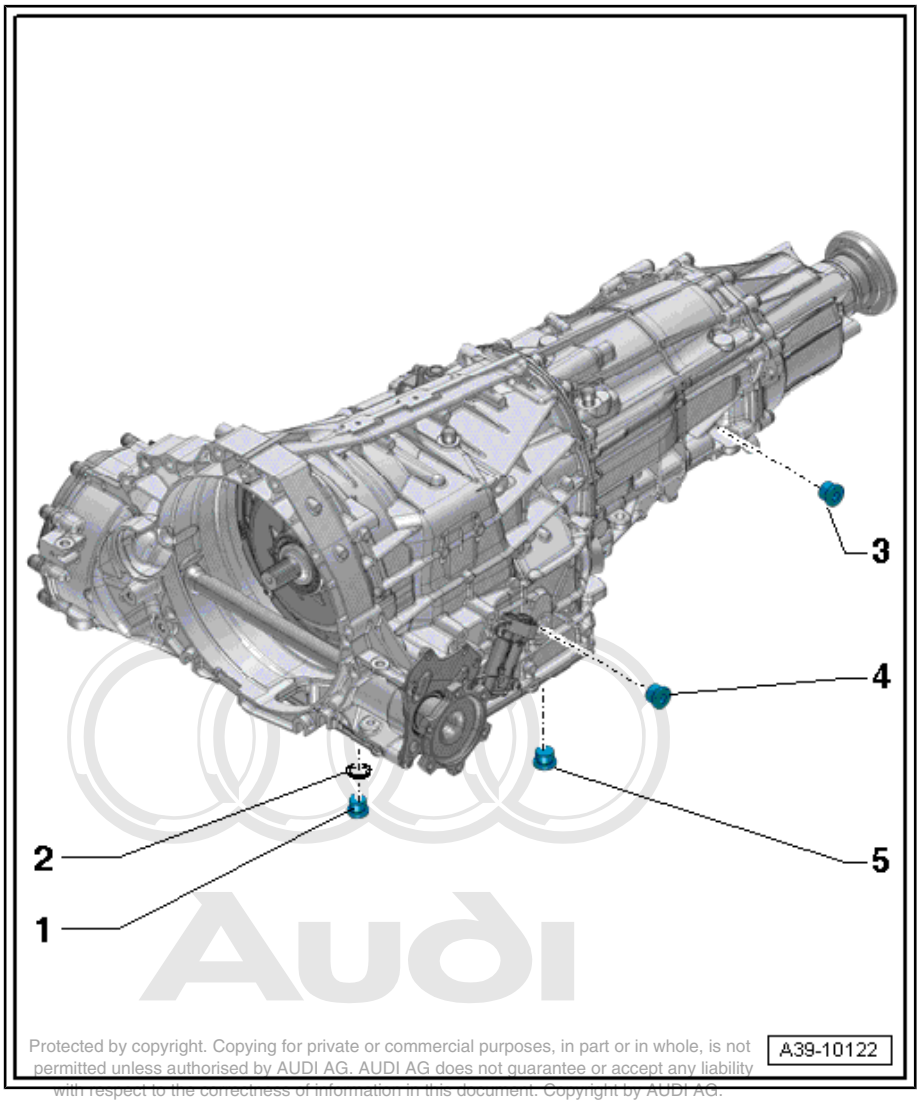
- ❑ 45 Nm
- ❑ Inside the manual transmission, front final drive and transfer case

4 - ATF Fill and Check Plug

- ❑ Tightening specification 45 Nm

5 - Transmission Fluid (MTF) Drain Plug

- ❑ 45 Nm
- ❑ Inside the manual transmission, front final drive and transfer case
- ❑ Depending on the date of manufacture, Transmission Fluid Temperature Sensor 2 - G754- may also serve as the transmission fluid drain plug; tightening specification for Removing and installing. Refer to ⇒ “2.3 Transmission Fluid Temperature Sensor 2 G754 , Removing and Installing”, page 78 .



2.2 Transmission Fluid; Transmission Fluid, Draining and Filling

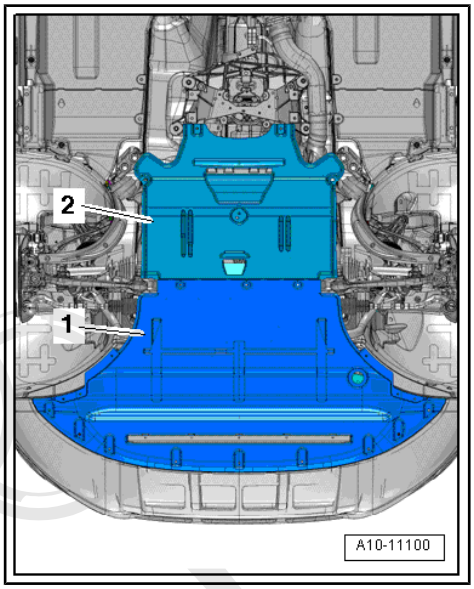
Transmission Fluid Level, Checking and Filling: The transmission fluid level (MTF) can be checked and corrected only if the trans-

mission is installed. Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Fluid; Transmission Fluid Level, Checking

Special tools and workshop equipment required

- Used Oil Collection and Extraction Unit - SMN372500-
- Protective eyewear

Procedure



Note

- *General Repair Instructions. Refer to ⇒ "1 Repair Information", page 1 .*
- *Rules for cleanliness when working on the DSG transmission. Refer to ⇒ "1.1 Guidelines for Clean Working Conditions", page 1 .*

- Gear oil at about 20 °C (68 °F) (room temperature).

Transmission Installed:

- Move vehicle onto a four-pillar workshop hoist or over a work pit so that it is absolutely horizontal.

– Remove the rear noise insulation -2-. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Noise Insulation, Removing and Installing .

Caution

Danger of Causing Damage to the Transmission.

Without any or with too little manual transmission fluid inside the transmission:

- ***Do not start the engine and***
- ***Do not tow the vehicle***

Transmission Removed.

- The transmission is secured to the engine/transmission holder. Refer to ⇒ "4 Securing on Engine and Transmission Holder", page 61 .-

Transmission, Removed or Installed:

– Place the Used Oil Collection and Extraction Unit - SMN372500- under the transmission.

WARNING

Danger of eye injury.

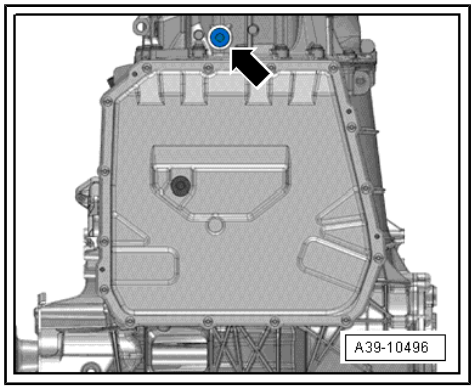
- ***Wear protective eyewear.***

Note

- *Place a cloth over the tunnel crossmember to prevent transmission fluid (MTF) from getting into the cast pockets on the top.*
- *In the following description, vehicles with drain plugs for transmission fluid (MTF) are differentiated from vehicles with Transmission Fluid Temperature Sensor 2 - G754- in place of drain plugs for transmission fluid (MTF).*

– Place a cloth over the tunnel crossmember.

Vehicles with a Transmission Fluid (MTF) Drain Plug -arrow-:

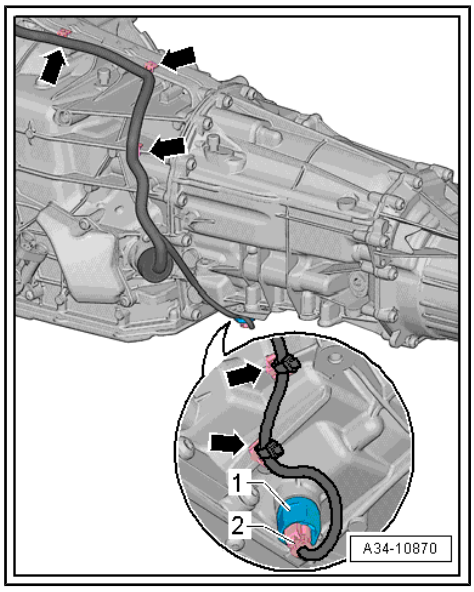


Note

The drain plug for the transmission fluid is located behind the transmission fluid pan.

- Remove the transmission fluid (MFT) drain plug -arrow- on the bottom of the transmission housing.
- Drain the transmission fluid (MTF).
- Tighten the transmission fluid drain plug (MTF) -arrow-.
- Tightening specification. Refer to ⇒ "2.1 Overview - Transmission Drain and Inspection Plug for Transmission Fluid", page 75 .

Vehicles with Transmission Fluid Temperature Sensor 2 - G754- -1- Instead of a Transmission Fluid (MTF) Drain Plug:



- Transmission installed in vehicle: Turn off the ignition.

Note

The connector on the Transmission Fluid Temperature Sensor 2 - G754- can be disconnected only when the ignition is turned off. The transmission will switch to emergency mode if the ignition is on. The counter for the increased temperature will count up and a DTC memory entry will be stored in the Transmission Control Module - J217- after 10 minutes.

- Disconnect the connector -2- from Transmission Fluid Temperature Sensor 2 - G754- and tie it up.

Note

Protect the connector -2- and the contacts on Transmission Fluid Temperature Sensor 2 - G754- from transmission fluid. Clean the connectors immediately if they come in contact with transmission fluid (Manual Transmission Fluid). Transmission fluid can cause contact problems in the connector contacts.

- Remove the Transmission Fluid Temperature Sensor 2 - G754- -1-.
- Drain the transmission fluid (MTF).
- Tighten the Transmission Fluid Temperature Sensor 2 - G754- -1- and connect the connector -2-.
- Tightening specification. Refer to ⇒ "2.1 Overview - Transmission Drain and Inspection Plug for Transmission Fluid", page 75 .

All Vehicles:

- Fill with transmission fluid (MTF). Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Fluid; Transmission Fluid, Draining and Filling

2.3 Transmission Fluid Temperature Sensor 2 - G754- , Removing and Installing

The 7-speed DSG transmission 0B5 (S tronic) has an additional Transmission Fluid Temperature Sensor 2 - G754- to monitor the

transmission fluid temperature of the wheel set on certain engine versions.

- Component location: in place of the manual transmission fluid (MTF) drain plug

Procedure

Transmission Installed:

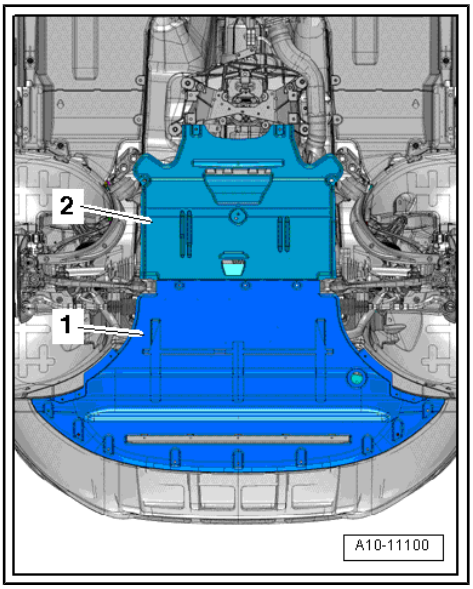
– Remove the rear noise insulation -2-. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Noise Insulation, Removing and Installing .

Caution

Danger of Causing Damage to the Transmission.

Without any or with too little manual transmission fluid inside the transmission:

- *do not start the engine and*
- *do not tow the vehicle*



Transmission Removed.

- The transmission is secured to the engine/transmission holder. Refer to ⇒ “4 Securing on Engine and Transmission Holder”, page 61 .-

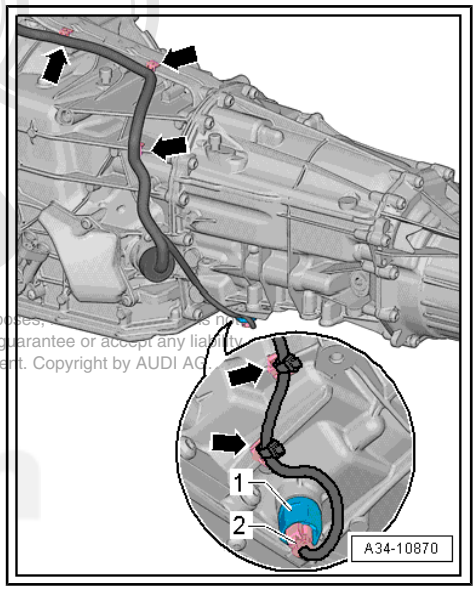
Transmission, Removed or Installed:

– Place the Used Oil Collection and Extraction Unit - SMN372500- under the transmission.

– Disconnect the connector -2- from Transmission Fluid Temperature Sensor 2 - G754- .

Note

Protect the connector -2- and the contacts on Transmission Fluid Temperature Sensor 2 - G754- from transmission fluid. Clean the connectors immediately if they come in contact with transmission fluid (Manual Transmission Fluid). Transmission fluid can cause contact problems in the connector contacts.



– Remove the Transmission Fluid Temperature Sensor 2 - G754- -1-.

– Drain the transmission fluid (MTF).

Install in reverse order of removal. Note the following:

- Tightening Specification: Transmission Fluid Temperature Sensor 2 - G754- to transmission, 45 Nm

– Attach the wiring harness to the transmission -arrows-.

– Fill the transmission fluid (MTF). Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Fluid; Transmission Fluid, Draining and Filling .

– Clean the transmission and tunnel crossmember.

3 Seals

⇒ “3.1 Left Seal, Replacing”, page 80

⇒ “3.2 Right Seal, Replacing”, page 81

⇒ “3.3 Selector Shaft Seal, Replacing”, page 82

3.1 Left Seal, Replacing

Special tools and workshop equipment required

- Used Oil Collection and Extraction Unit - SMN372500-
- Seal Installer - Flange Shaft - T40164-
- Grease. Refer to the Parts Catalog.

Procedure

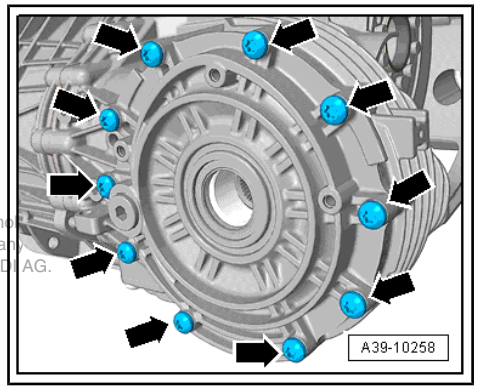
- Secure the transmission on the Engine And Transmission Holder - VAS6095- . Refer to ⇒ “4 Securing on Engine and Transmission Holder”, page 61 .

– Place the Used Oil Collection and Extraction Unit - SMN372500- under the transmission.

– Remove the right flange shaft. Refer to ⇒ “4.4 Right Flange Shaft, Removing and Installing”, page 92 .

– Remove the bolts -arrows-.

– Carefully remove the front final drive cover; when doing this, the transmission fluid will drain out.



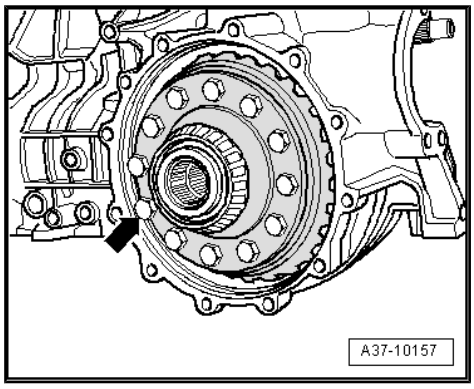
Caution

Danger of causing damage to the differential.

- *Slowly and carefully remove front final driver cover from transmission housing. Otherwise differential can fall out of transmission.*
- *A differential that has fallen out can no longer be installed. If differential falls out, transmission must be replaced.*
- *Make sure the differential bearing inner race and adjustment shims do not fall out of the transmission housing and front final drive cover.*
- *Bearing inner races and adjustments that have fallen out cannot be allocated with workshop equipment.*

– Carefully remove the differential -arrow- and lay it on a soft support.

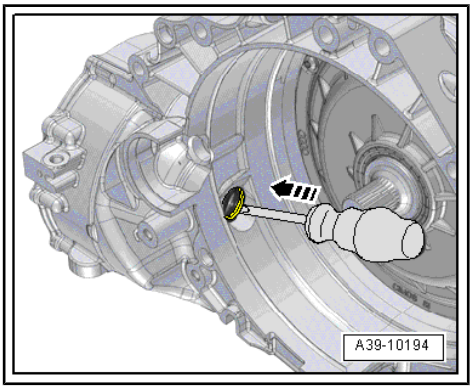
– Remove the left flange shaft. Refer to ⇒ “4.1 Left Flange Shaft, Removing and Installing”, page 83 .



Caution

Danger of damaging the seating surface in the transmission housing.

- *Position the screwdriver.*



– Pry out the seal from the back.

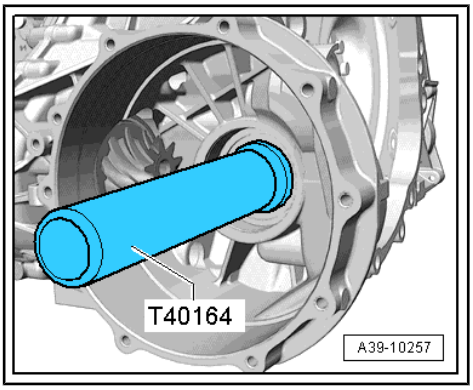
– Lightly coat the new seal on the outside with oil and install it using the Seal Installer - Flange Shaft - T40164- .

• The open side of the seal faces the Thrust Piece for Final Drive at Gearbox - T40164- .

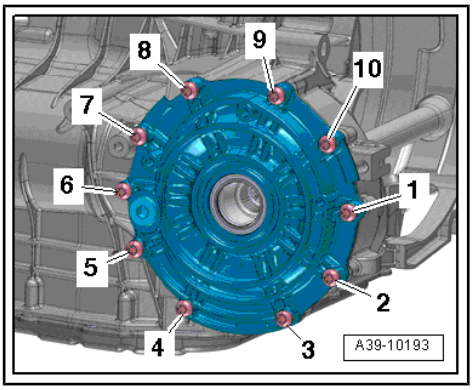
– Install the shaft seal for the left flange shaft using the Seal Installer - Flange Shaft - T40164- all the way; when doing this, do not bend it.

– Fill the space between the sealing- and dust lip half way with sealing grease. Refer to the Parts Catalog.

– Install the differential.



– Install the front final drive cover with a new O-ring and tighten the bolts. Refer to ⇒ Fig. “Tightening Specification and Sequence, Front Final Drive Cover”, page 74 .



– Install the left flange shaft. Refer to ⇒ “4.1 Left Flange Shaft, Removing and Installing”, page 83 .

– Install the right flange shaft. Refer to ⇒ “4.4 Right Flange Shaft, Removing and Installing”, page 92 .

– Fill with transmission fluid (MTF). Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Fluid; Transmission Fluid, Draining and Filling .

3.2 Right Seal, Replacing

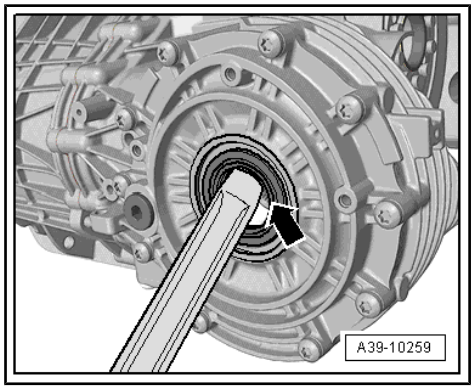
Special tools and workshop equipment required

- Seal Installer - Flange Shaft - T40163-
- Pry lever
- Grease. Refer to the Parts Catalog.

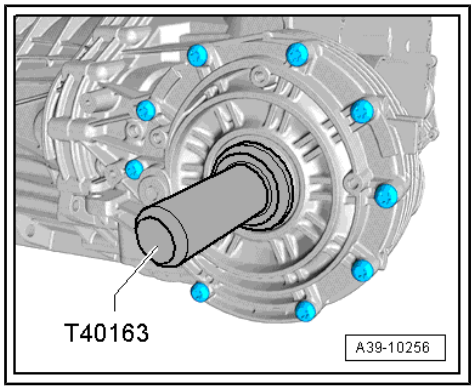
Procedure

– Remove the right flange shaft. Refer to ⇒ “4.4 Right Flange Shaft, Removing and Installing”, page 92 .

– Pry out the flange shaft sealing ring -arrow-.
– Lightly coat the outer circumference of the new shaft seal with oil.



– Drive in the right flange shaft seal using the Seal Installer - Flange Shaft - T40163- until stop without tilting.
– Fill the space between the sealing- and dust lip half way with sealing grease. Refer to the Parts Catalog.
– Install the right flange shaft. Refer to ⇒ “4.4 Right Flange Shaft, Removing and Installing”, page 92 .



3.3 Selector Shaft Seal, Replacing

• The transmission is installed.

Description of the procedure. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Selector Mechanism; Selector Shaft Seal, Replacing

4 Differential

4.1 Left Flange Shaft, Removing and Installing

Special tools and workshop equipment required

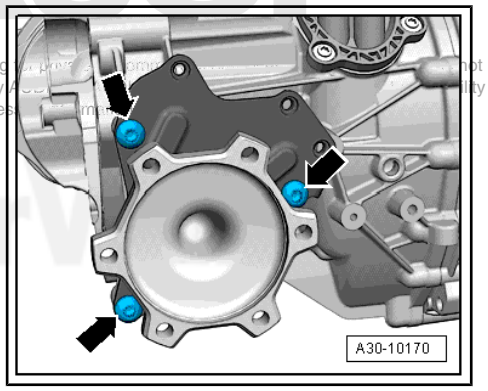
- Grease. Refer to the Parts Catalog.

Removing

- Secure the transmission on the Engine And Transmission Holder - VAS6095- . Refer to ⇒ “4 Securing on Engine and Transmission Holder”, page 61 .

– Tilt the transmission back on the engine/transmission holder so the transmission fluid does not drain out.

– Remove the bolts -arrows- from the flange shaft mounting bracket.

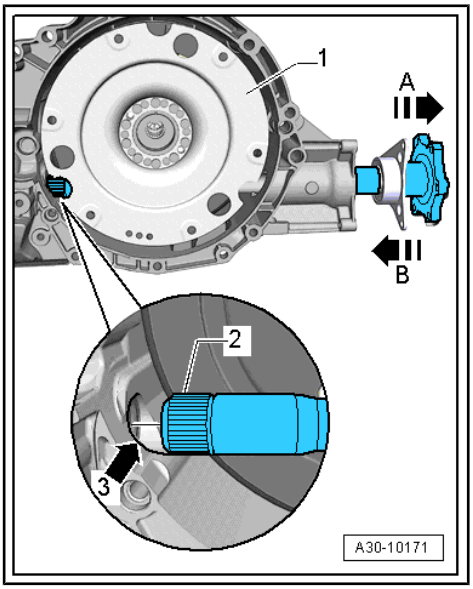


– Remove the left flange shaft -2- from the transmission in direction of -arrow A-.

Note

Ignore -1- and -arrow 3, B-.

– Remove the flywheel ⇒ “1.2 Flywheel, Removing and Installing”, page 5 .

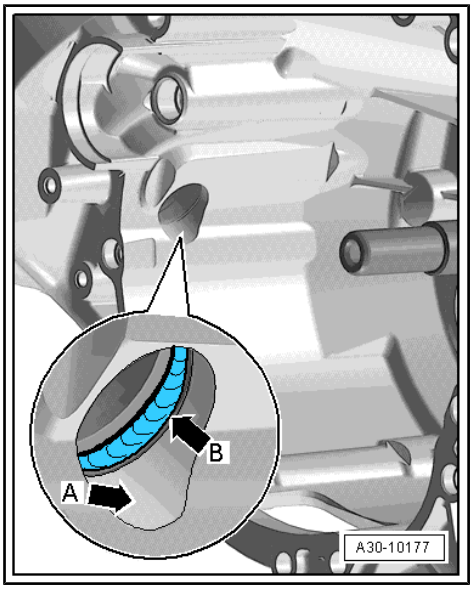


Installing

Install in reverse order of removal. Note the following:

- Tightening specification. Refer to ⇒ “1.1 Overview - Final Drive”, page 73 .

– Always clean the left flange shaft, the transmission housing in the area where the differential is accessed -arrow A- and the shaft seal -arrow B-.



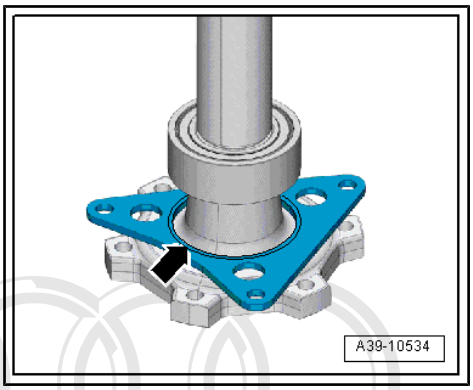
Note

Replace the shaft seal between the differential and transmission housing -arrow B- if it is damaged. Refer to ⇒ “3.1 Left Seal, Replacing”, page 80 .

– Fill the space between the sealing- and dust lip half way with sealing grease. Refer to the Parts Catalog.

– Clean the left flange shaft thoroughly.

The Following Work Must be Performed on the Listed Vehicle Types Up to the Specified VIN:



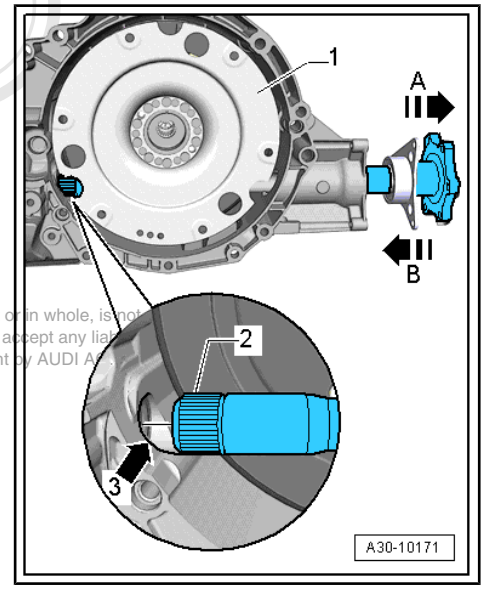
Vehicle Model	VIN	Factory
Audi A4 MY 2008	Through WAUZZZ8K9BN034383	Germany, Neckarsulm
Audi A4 MY 2008	Through WAUZZZ8KXBA082742	Germany, Ingolstadt
Audi A5 Cabriolet MY 2008	Through WAUVGAFH3BN009542	Germany, Neckarsulm
Audi A5 Coupe MY 2008	Through WAUZZZ8T9BA902081	Germany, Ingolstadt
Audi Q5 MY 2008	Through WAUZZZ8R2BA061817	Germany, Ingolstadt

– Check the pre-tension on the ball bearing for the left flange shaft based on the wear pattern on the bearing bracket -arrow-. Refer to ⇒ “4.2 Left Flange Shaft Ball Bearing Pre-Tension, Checking and Adjusting”, page 85 .

♦ Optimize the pre-tension on the ball bearing for the left flange shaft if necessary. Refer to ⇒ “4.2.2 Pre-Tension on Ball Bearing, Optimizing, Left Flange Shaft”, page 86 .

♦ Adjust the pre-tension on the ball bearing for the left flange shaft if necessary. Refer to ⇒ “4.2.3 Pre-Tension on Ball Bearing, Adjusting, Left Flange Shaft”, page 87 .

For all Vehicle Models



– Install the flywheel. Refer to ⇒ “1.2 Flywheel, Removing and Installing”, page 5 .

– Rotate the flywheel. Refer to -1- until the opening to the differential -arrow 3- is seen.

– Install the left flange shaft -2- into the transmission in direction of -arrow B-. When doing this, insert the flange shaft centrally into the shaft seal on the front differential -arrow 3-.

Note

- *If the flange shaft is not centered, the flange shaft splines -2- will damage the shaft seal between the final drive and the transmission housing.*
- *The shaft seal must be replaced if it is damaged.*
- *Ignore -arrow A-.*

– Fill with transmission fluid (MTF). Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Fluid; Transmission Fluid, Draining and Filling .

4.2 Left Flange Shaft Ball Bearing Pre-Tension, Checking and Adjusting

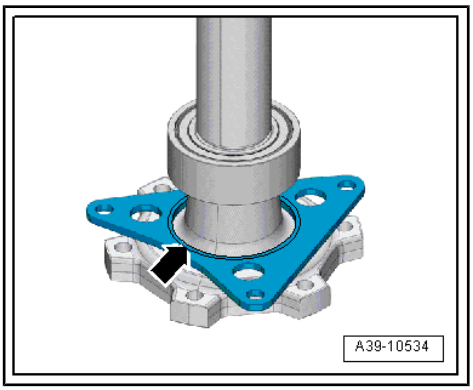
⇒ “4.2.1 Left Flange Shaft Ball Bearing Pre-Tension, Checking”, page 85

⇒ “4.2.2 Pre-Tension on Ball Bearing, Optimizing, Left Flange Shaft”, page 86

⇒ “4.2.3 Pre-Tension on Ball Bearing, Adjusting, Left Flange Shaft”, page 87

4.2.1 Left Flange Shaft Ball Bearing Pre-Tension, Checking

Check the Ball Bearing Pre-Tension Using the Wear Pattern on the Bearing Bracket -arrow-.



Note

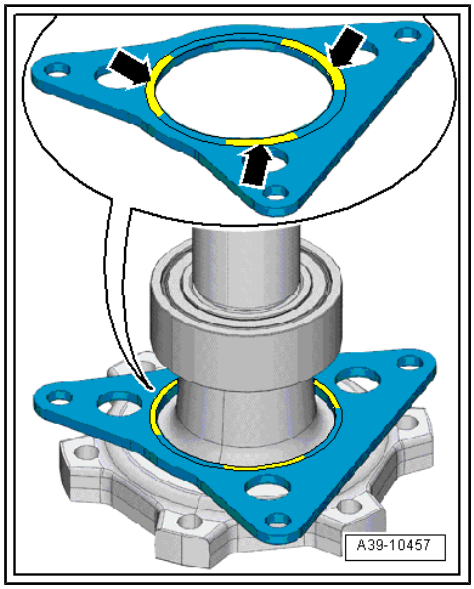
- *The pre-tension on the left flange shaft ball bearing must be checked only on certain vehicles. Refer to the table for a list of the vehicles. Refer to ⇒ page 84 .*
- *This is not necessary on vehicles built later because they have been redesigned.*

• The left flange shaft is removed. Refer to ⇒ “4.1 Left Flange Shaft, Removing and Installing”, page 83 .

Wear Pattern “A”

- Small indentations near the hole on the bearing bracket -arrows-.
- No trace of wear or material erosion.

– Optimize the pre-tension on the ball bearing for the left flange shaft. Refer to
⇒ “4.2.2 Pre-Tension on Ball Bearing, Optimizing, Left Flange Shaft”, page 86 .

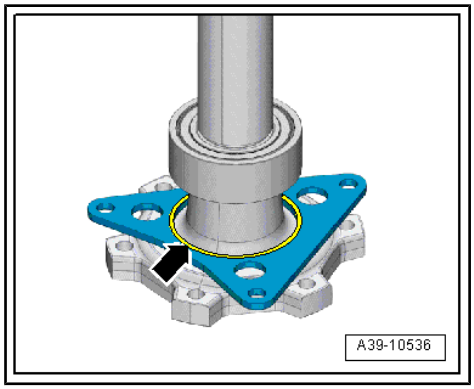


Wear Pattern “B”

- Traces of wear, if necessary, with material erosion all around the hole on the bearing bracket -arrow-.

– Adjust the pre-tension on the left flange shaft bearing. Refer to
⇒ “4.2.3 Pre-Tension on Ball Bearing, Adjusting, Left Flange Shaft”, page 87 .

– Replace the bearing bracket, the ball bearing and the circlip. Refer to
⇒ “4.3 Left Flange Shaft Ball Bearing Mounting Bracket, Removing and Installing”, page 91 .



4.2.2 Pre-Tension on Ball Bearing, Optimizing, Left Flange Shaft

Note

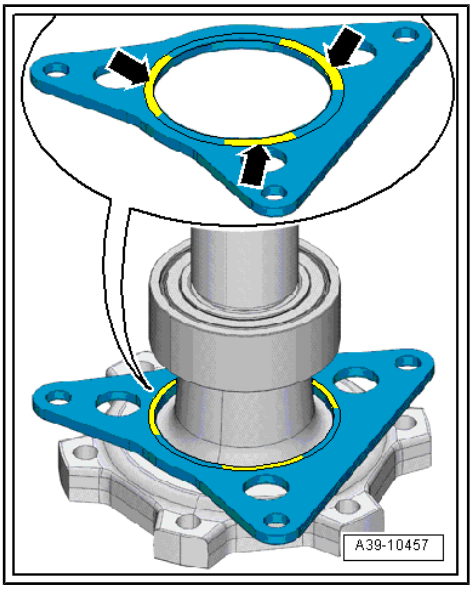
- *the pre-tension on the left flange shaft ball bearing must be optimized only on certain vehicles. Refer to the table for a list of the vehicles. Refer to ⇒ page 84 .*
- *This is not necessary on vehicles built later because they have been redesigned.*

Procedure

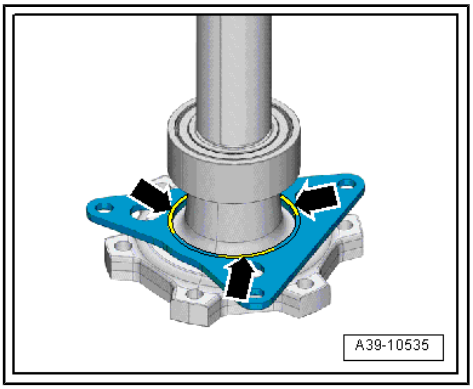
- The left flange shaft is removed. Refer to
⇒ “4.1 Left Flange Shaft, Removing and Installing”, page 83 .

Conditions for optimizing:

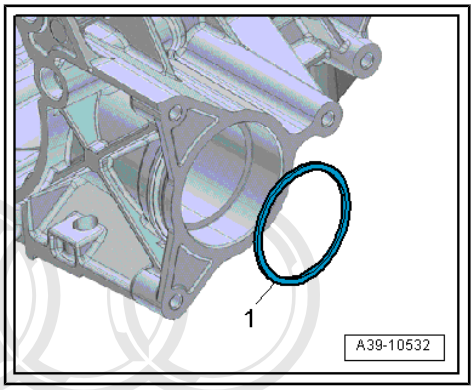
- The bearing bracket does not show any traces of wear or material erosion.
- Small indentations near the hole on the bearing bracket -arrows- are permissible.



- Bearing bracket with wear pattern “A”. Refer to ⇒ page 86 (the bearing bracket does not shown any traces of wear or material erosion).
- A shim is inserted into the bearing seat on the transmission to optimize the pre-tension on the ball bearing.



– Insert a Shim - 0B4 409 227- -1- into the bearing seat on the transmission before installing the flange shaft to improve the pre-tension.
– Install the left flange shaft. Refer to ⇒ “4.1 Left Flange Shaft, Removing and Installing”, page 83 .

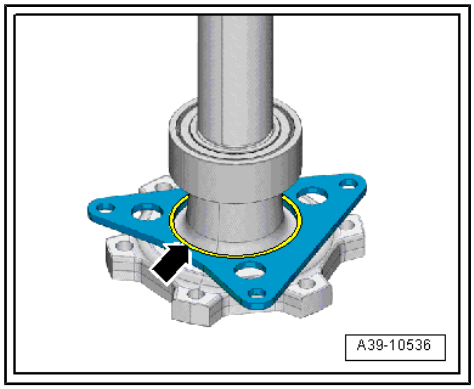


4.2.3 Pre-Tension on Ball Bearing, Adjusting, Left Flange Shaft

Note

- *the pre-tension on the left flange shaft ball bearing must be optimized only on certain vehicles. Refer to the table for a list of the vehicles. Refer to ⇒ page 84 .*
- *This is not necessary on vehicles built later because they have been redesigned.*

- The left flange shaft is removed. Refer to ⇒ “4.1 Left Flange Shaft, Removing and Installing”, page 83 .
- Bearing bracket with wear pattern “B”. Refer to ⇒ page 86 (traces of wear if necessary with material erosion all around the hole).
- The bearing bracket and ball bearing must be replaced. Refer to ⇒ “4.3 Left Flange Shaft Ball Bearing Mounting Bracket, Removing and Installing”, page 91

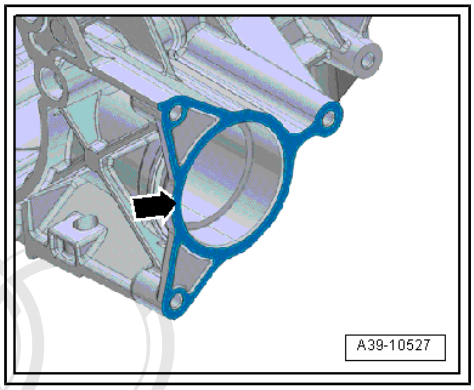


Procedure

– Clean off any dirt and corrosion from the contact surface -arrow- using 150 grain sand paper.

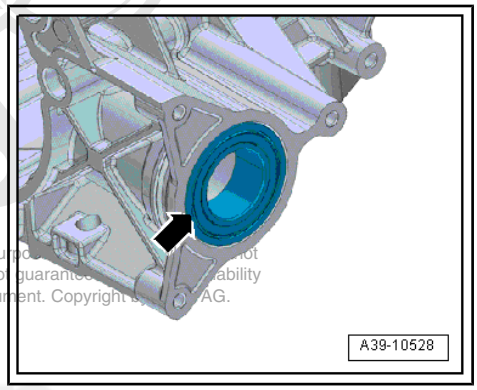
Note

It is not necessary to sand the contact surfaces all the way down to bare metal. It is enough to just remove any dirt and corrosion.



– Clean the contact surface and bearing seat.

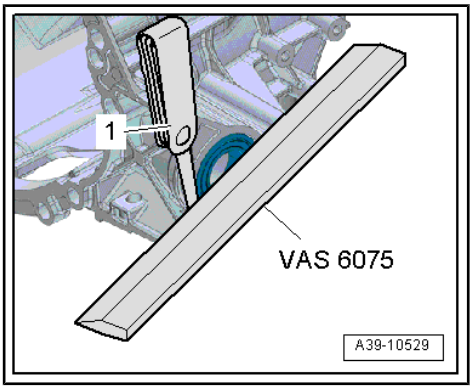
– Install the new left flange shaft ball bearing -arrow- into the bearing seat.



Next procedure:

- By bearing oversize (the bearing sticks out slightly above the contact surface). Refer to ⇒ page 89
- With bearing undersize (the bearing sits deeper than the contact surface). Refer to ⇒ page 90 .

Procedure If There Is Bearing Oversize



– Place Straight Edge - 500mm - VAS6075- straight across the bearing and determine the distance to the contact surface on the transmission housing on both sides with the feeler gauge.
– Write down the measured value.
– Place the straight edge 90° offset across the bearing and determine the distance to the contact surface on the transmission housing on both sides with the feeler gauge.
– Write down the measured value.

Selecting the Shim(s):

Note

Use the smallest value take from the four values to select the shim (s).

- Specified value, bearing oversize = 0.5 to 0.8 mm

	Smallest bearing oversize (example = 0.1 mm)
+	Shim(s) thickness, (thickness = 0.3 mm)
=	Bearing pre-load, (specified value = 0.5 to 0.8 mm)

Example:

1 shim:

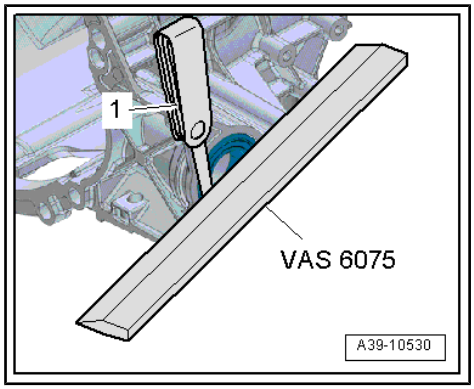
0.1 mm + 0.3 mm = 0.4 mm, “bearing pre-load is too small”

2 shims:

0.1 mm + 0.3 mm + 0.3 mm = 0.7 mm, “bearing pre-load is in the specified range”

- Result: Insert two 0.3 mm shims to reach the bearing pre-load = 0.7 mm within the 0.5 to 0.8 mm specified value.

Procedure If There Is Bearing Undersize



Note

The bearing undersize can only be determined in the described procedure.

- Place Straight Edge - 500mm - VAS6075- straight across the contact surface on the transmission housing and measure the distance to the bearing on both sides with a feeler gauge.
- Write down the measured value.
- Place straight edge 90° offset across the contact surface on the transmission housing and measure the distance to the bearing on both sides with a feeler gauge.
- Write down the measured value.

Selecting the Shim(s):

Note

- *Use the largest value take from the four values to select the shim(s).*
- *Enter the measured bearing undersize as negative value (“–”) into the calculation.*

- Specified value, bearing oversize = 0.5 to 0.8 mm

–	Larger determined bearing undersize (example -0.15 mm)
+	Shim(s) thickness, (thickness = 0.3 mm)
=	Bearing pre-load (specified value = 0.5 to 0.8 mm)

Example:

1 shim:

–0.15 mm + 0.3 mm = 0.15 mm, “bearing pre-load is too small”

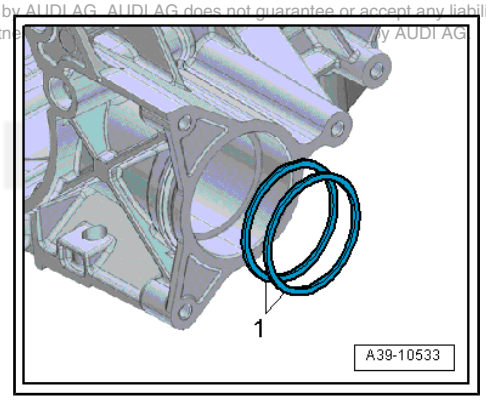
3 Shims:

–0.15 mm + 0.3 mm + 0.3 mm + 0.3 mm = 0.75 mm, “bearing pre-load is in the specified range”

- Result: A 0.75 mm bearing pre-load within the specified value of 0.5 to 0.8 mm is reached by installing three 0.3 mm shims.

Continuation for All

- Replace the bearing bracket, the ball bearing and the circlip. Refer to ⇒ “4.3 Left Flange Shaft Ball Bearing Mounting Bracket, Removing and Installing”, page 91 .
- Insert the determined number of shims -0B4 409 227- item -1- into the bearing seat on the transmission before installing the flange shaft.
- Install the left flange shaft. Refer to ⇒ “4.1 Left Flange Shaft, Removing and Installing”, page 83 .



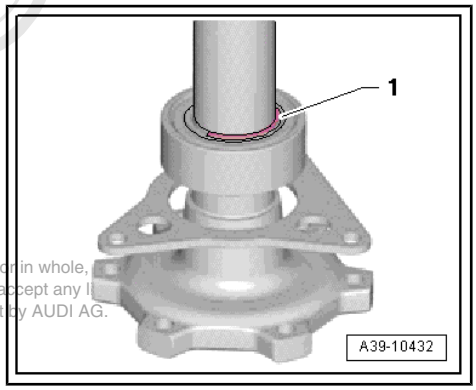
4.3 Left Flange Shaft Ball Bearing Mounting Bracket, Removing and Installing

Special tools and workshop equipment required

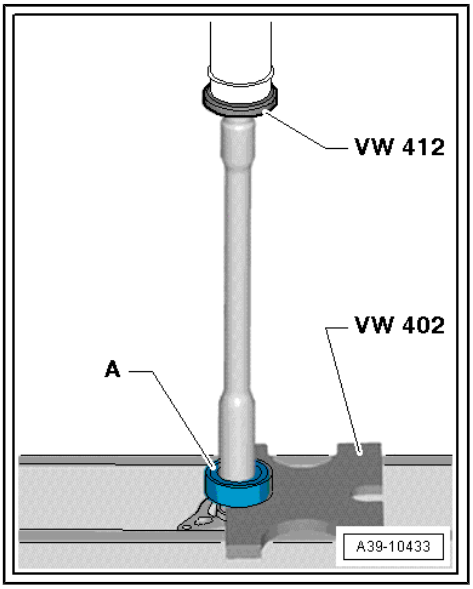
- Press Plate - VW401-
- Press Plate - VW402-
- Press Piece - Multiple Use - VW412-
- Press Piece - 42mm - VW516-

– Remove the left flange shaft. Refer to ⇒ “4.1 Left Flange Shaft, Removing and Installing”, page 83 .

– Remove the locking ring -1- from the flange shaft.



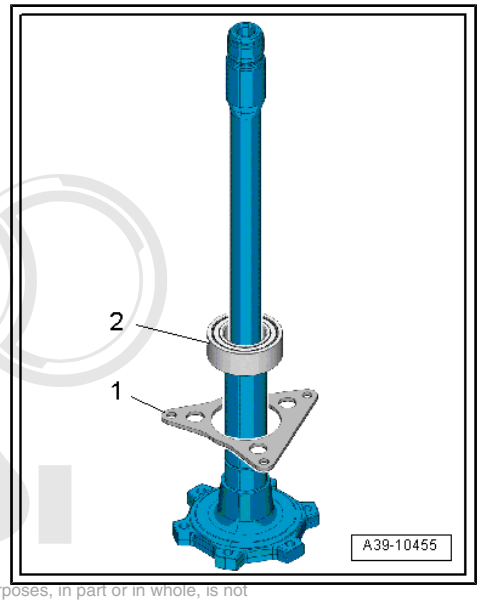
– Remove the ball bearing -A- from the flange shaft



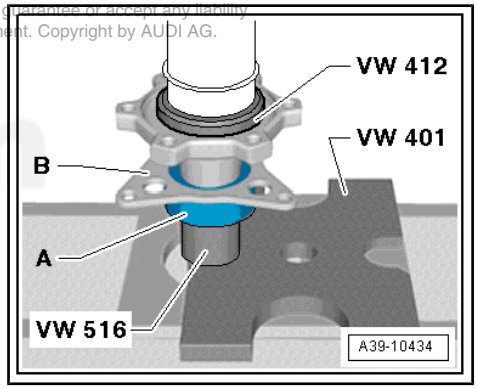
– Install the new bearing bracket -1-.

• Installed position: The printed side faces the drive axle flange.

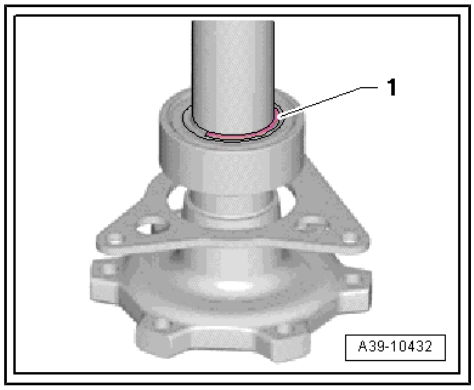
– Install the new ball bearing -2-.



– Install the ball bearing -A- all the way on with the bearing bracket -B- installed.



– Install the circlip -1- in the flange shaft groove.



4.4 Right Flange Shaft, Removing and Installing

Special tools and workshop equipment required

- Bearing/Bushing Installer - Multiple Use - VW295A-
- Slide Hammer Set - VW771-
- Lifting Eyebolt - 3368-
- Used Oil Collection and Extraction Unit - SMN372500-
- Grease. Refer to the Parts Catalog.
- M10 nut, quantity: 2

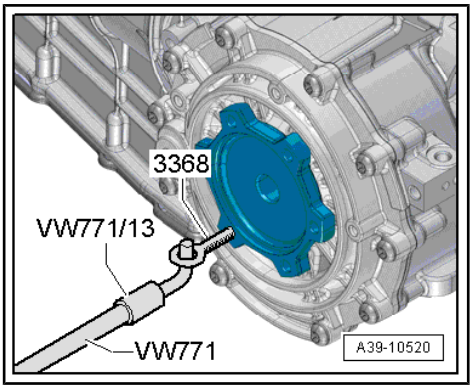
Removing

- Secure the transmission on the Engine And Transmission Holder - VAS6095- . Refer to ⇒ “4 Securing on Engine and Transmission Holder”, page 61 .

– Place the Used Oil Collection and Extraction Unit - SMN372500- under the transmission.

– Install the Lifting Eyebolt - 3368- into a threaded hole in the right flange shaft.

– Position the Slide Hammer Set - VW771- with the -VW771/13- on the Lifting Eyebolt - 3368- and remove the flange shaft.



Installing

Install in reverse order of removal. Note the following:

Note

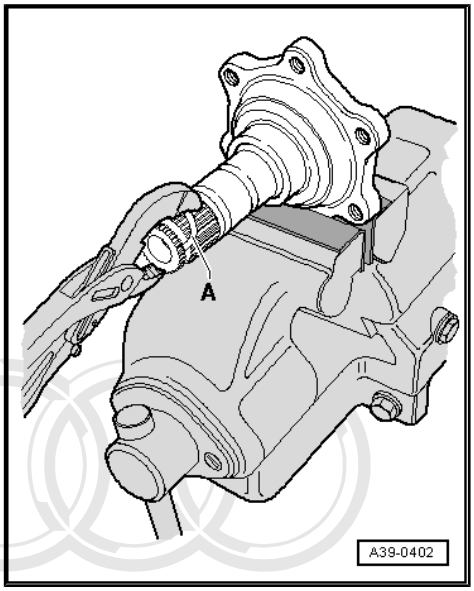
Replace the circlip on the right flange shaft.

– Clamp the flange shaft in a vise with jaw protectors. Remove the old circlip from the groove in the flange shaft using the new circlip -A-.

– Fill the space between the sealing- and dust lip half way with sealing grease. Refer to the Parts Catalog.

– Drive in the right flange shaft using the Bearing/Bushing Installer - Multiple Use - VW295A- .

– Fill the transmission fluid (MTF). Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Fluid; Transmission Fluid, Draining and Filling .



5 Center Differential

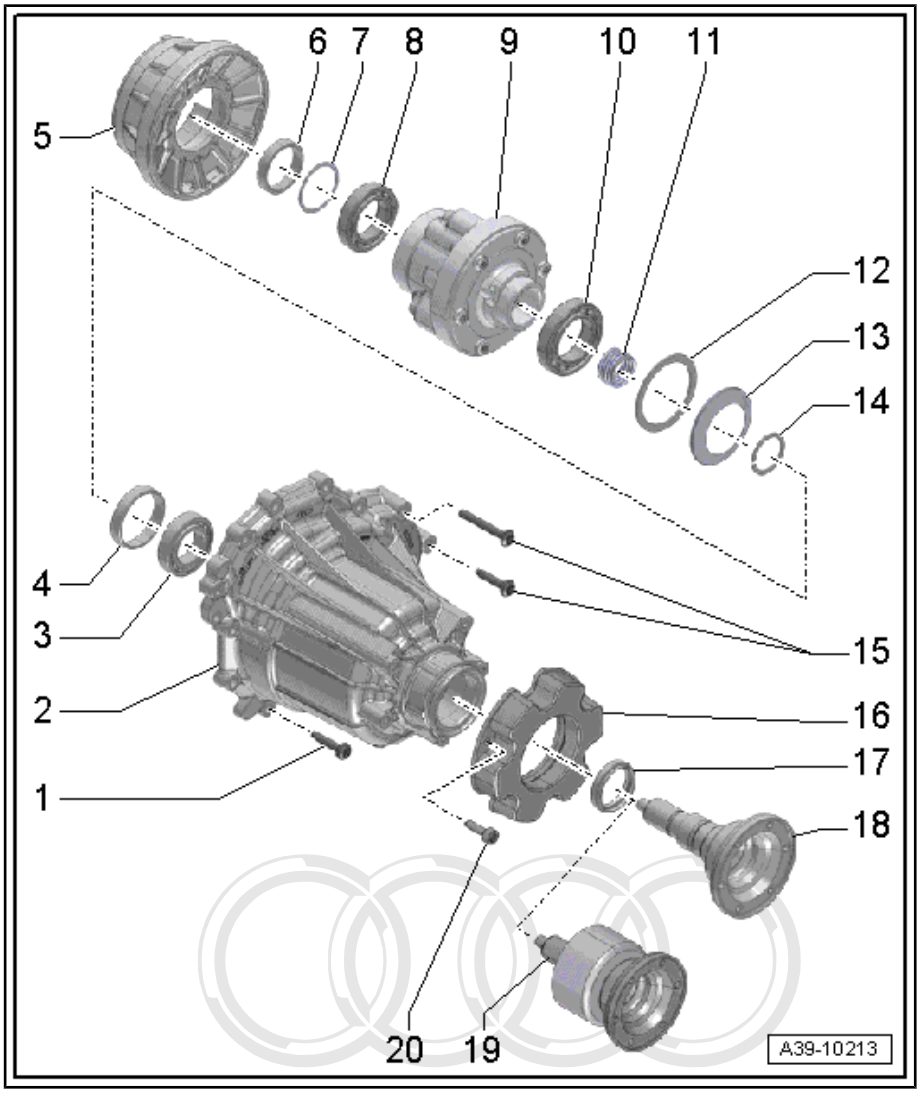
5.1 Overview - Self-Locking Center Differential

5.1.1 Overview - Self-Locking Center Differential, Bolted Driveshaft

Note

- *Refer to ⇒ “1 Repair Information”, page 1 .*
- *Refer to ⇒ “1.1 Guidelines for Clean Working Conditions”, page 1 .*

The Center Differential Housing Can Also be Removed and Installed With The Transmission Installed. Refer to ⇒ “5.2.1 Self-Locking Center Differential, Removing and Installing, Bolted Driveshaft”, page 99 .



1 - Bolt

- ❑ Tightening specification and sequence. Refer to ⇒ Fig. ""Tightening Specification and Sequence, Center Differential Housing - Bolted Driveshaft"" , page 96
- ❑ Always replace
- ❑ Aluminum bolts
- ❑ Quantity 11

2 - Housing

- ❑ For the center differential
- ❑ Refer to ⇒ "5.2.1 Self-Locking Center Differential, Removing and Installing, Bolted Driveshaft", page 99

3 - Ball Bearing

- ❑ For the flange shaft
- ❑ Refer to ⇒ "5.3.1 Rear Flange Shaft, Seal and Ball Bearing, Removing and Installing", page 105

4 - Spacer Sleeve

- ❑ Removing and installing. Refer to ⇒ "5.3.1 Rear Flange Shaft, Seal and Ball Bearing, Removing and Installing", page 105 .

5 - Gear Carrier

- ❑ Installed position: The tab must fit into the opening in the transmission intermediate housing

6 - Spacer Sleeve

7 - Shim

8 - Ball Bearing

- ❑ For the center differential

9 - Center Differential

10 - Ball Bearing

- ❑ For the center differential

11 - Pressure Spring

12 - Shim

13 - Plate Spring

- ❑ Installed position: The side curved outward faces the shaft seal -17-

14 - Locking Ring

- ❑ For the flange shaft
- ❑ Removing and installing. Refer to ⇒ "5.3.1 Rear Flange Shaft, Seal and Ball Bearing, Removing and Installing", page 105 .

15 - Bolt

- ❑ Tightening specification and sequence. Refer to ⇒ Fig. ““Tightening Specification and Sequence, Center Differential Housing - Bolted Driveshaft”“ , page 96
- ❑ Always replace
- ❑ Steel bolts
- ❑ Quantity: 2

16 - Balance Weight

- ❑ Installed depending on the version

17 - Shaft Seal

- ❑ Refer to ⇒ “5.3.1 Rear Flange Shaft, Seal and Ball Bearing, Removing and Installing”, page 105

18 - Rear Flange Shaft

- ❑ Without vibration damper
- ❑ Allocation. Refer to the Parts Catalog.
- ❑ Removing and installing. Refer to ⇒ “5.3.1 Rear Flange Shaft, Seal and Ball Bearing, Removing and Installing”, page 105 .

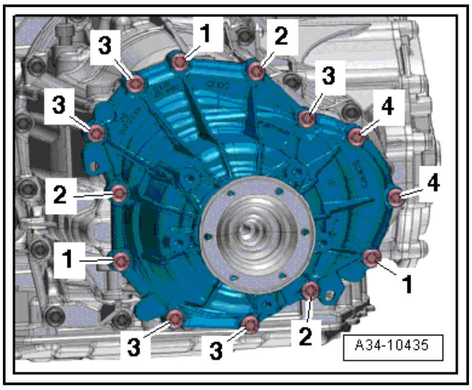
19 - Rear Flange Shaft

- ❑ With vibration damper
- ❑ Allocation. Refer to the Parts Catalog.
- ❑ Removing and installing. Refer to ⇒ “5.3.1 Rear Flange Shaft, Seal and Ball Bearing, Removing and Installing”, page 105 .

20 - Bolt

- ❑ 20 Nm +90°
- ❑ Always replace

Tightening Specification and Sequence, Center Differential Housing - Bolted Driveshaft



– Tighten the bolts in eight steps as follows:

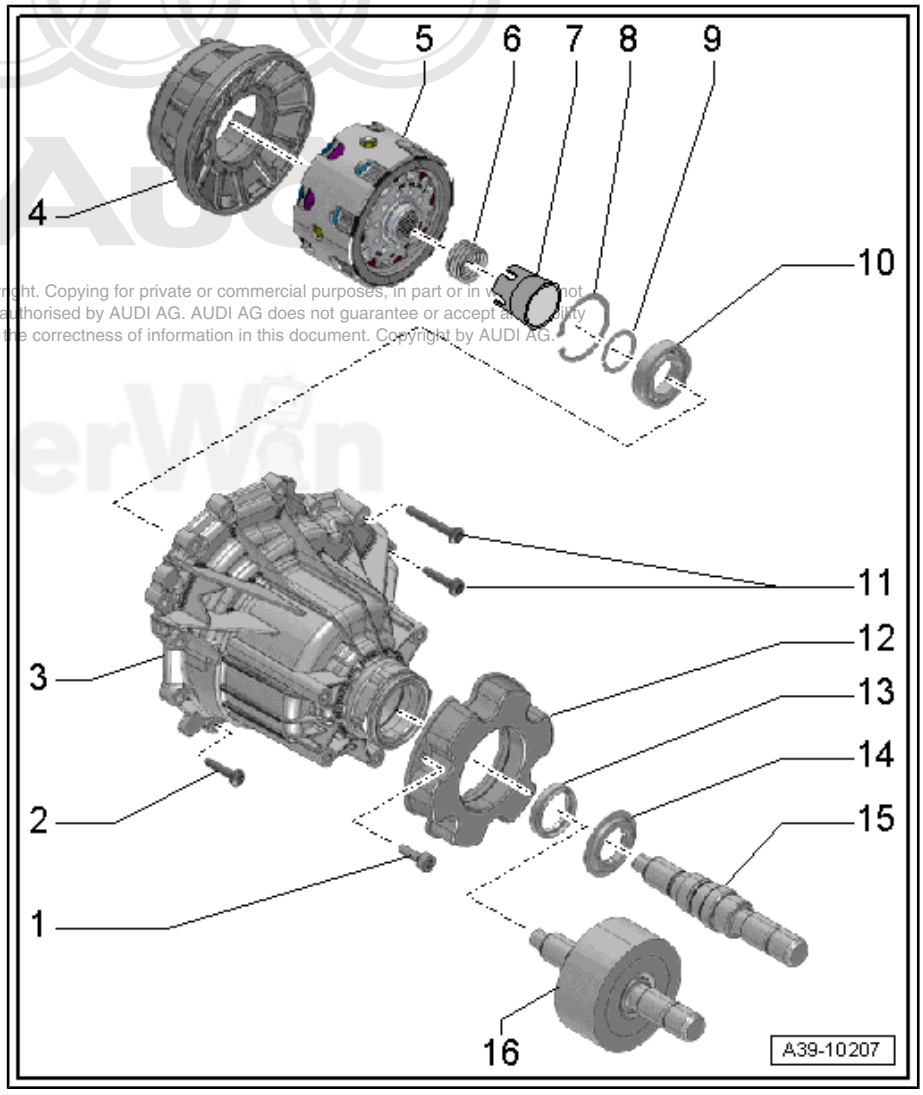
Step	Bolts	Tightening Specification/Additional Turn
1.	Aluminum bolts -1-	8 Nm
2.	Aluminum bolts -2-	Install the bolt hand-tight.
3.	Aluminum bolts -1-	Loosen again and then install all the way hand-tight
4.	Aluminum bolts -3-	Install the bolt hand-tight.
5.	Steel bolts -4-	Install the bolt hand-tight.
6.	-1, 2, 3, 4-	10 Nm diagonally
7.	Steel bolts -4-	15 Nm
8.	-1, 2, 3, 4-	90° additional turn, diagonally

5.1.2 Overview - Self-Locking Center Differential, Mounted Driveshaft

Note

- ♦ *Refer to ⇒ “1 Repair Information”, page 1 .*
- ♦ *Refer to ⇒ “1.1 Guidelines for Clean Working Conditions”, page 1 .*

The Center Differential Housing Can Also be Removed and Installed with the Transmission Installed. Refer to ⇒ "5.2.1 Self-Locking Center Differential, Removing and Installing, Bolted Driveshaft", page 99 .



1 - Bolt

- ❑ 20 Nm +90°
- ❑ Always replace

2 - Bolt

- ❑ Tightening specification and sequence. Refer to ⇒ Fig. ""Tightening Specification and Sequence, Center Differential Housing - Attached Driveshaft"", page 98
- ❑ Always replace
- ❑ Aluminum bolts
- ❑ Quantity 11

3 - Housing

- ❑ For the center differential
- ❑ Refer to ⇒ "5.2 Self-Locking Center Differential, Removing and Installing", page 99

4 - Gear Carrier

- ❑ Installed position: The tab must fit into the opening in the transmission intermediate housing

5 - Center Differential

6 - Pressure Spring

7 - Assembly Sleeve

- ❑ Does not have to be installed again

8 - Locking Ring

- ❑ For the transmission output shaft ball bearing with splines
- ❑ Removing and installing. Refer to ⇒ "5.3.2 Transmission Output Shaft with Splines, Seal and Ball Bearing, Removing and Installing", page 108 .

9 - Locking Ring

- ❑ For the transmission output shaft with splines
- ❑ Removing and installing. Refer to ⇒ "5.3.2 Transmission Output Shaft with Splines, Seal and Ball Bearing, Removing and Installing", page 108 .

10 - Ball Bearing

- ❑ For the transmission output shaft with splines
- ❑ Refer to ⇒ "5.3.2 Transmission Output Shaft with Splines, Seal and Ball Bearing, Removing and Installing", page 108

11 - Bolt

- ❑ Tightening specification and sequence. Refer to ⇒ Fig. ""Tightening Specification and Sequence, Center Differential Housing - Attached Driveshaft"" , page 98
- ❑ Always replace
- ❑ Steel bolts
- ❑ Quantity: 2

12 - Balance Weight

- ❑ Installed depending on the version

13 - Shaft Seal

- ❑ Replace on vehicles with vibration damper. Refer to ⇒ "5.3.2 Transmission Output Shaft with Splines, Seal and Ball Bearing, Removing and Installing", page 108 .
- ❑ Replace on vehicles without vibration damper. Refer to ⇒ "5.4.1 Transmission Output Shaft Seal, Replacing, Transmission Output Shaft with Splines without Vibration Damper", page 111

14 - Dust Ring

- ❑ Replace after removing
- ❑ Depends on the version; for vehicles without a torsional vibration damper. Refer to the Parts Catalog.

15 - Transmission Output Shaft with Splines without Vibration Damper

- ❑ Allocation. Refer to the Parts Catalog.
- ❑ Removing and installing. Refer to ⇒ "5.3.2 Transmission Output Shaft with Splines, Seal and Ball Bearing, Removing and Installing", page 108 .

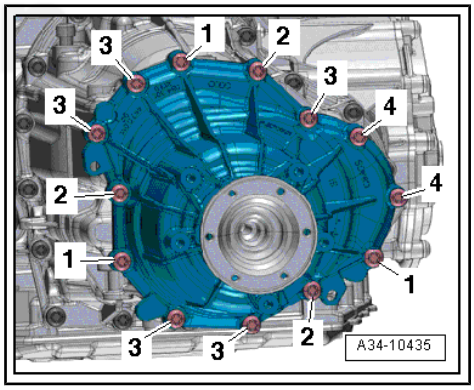
16 - Transmission Output Shaft with Splines and Vibration Damper

- ❑ Allocation. Refer to the Parts Catalog.
- ❑ Removing and installing. Refer to ⇒ "5.3.2 Transmission Output Shaft with Splines, Seal and Ball Bearing, Removing and Installing", page 108 .

Tightening Specification and Sequence, Center Differential Housing - Attached Driveshaft

– Tighten the bolts in eight steps as follows:

Step	Bolts	Tightening Specification/Additional Turn
1.	Aluminum bolts -1-	8 Nm
2.	Aluminum bolts -2-	Install the bolt hand-tight.
3.	Aluminum bolts -1-	Loosen again and then install all the way hand-tight
4.	Aluminum bolts -3-	Install the bolt hand-tight.
5.	Steel bolts -4-	Install the bolt hand-tight.
6.	-1, 2, 3, 4-	10 Nm diagonally
7.	Steel bolts -4-	15 Nm
8.	-1, 2, 3, 4-	90° additional turn, diagonally



5.2 Self-Locking Center Differential, Removing and Installing

⇒ "5.2.1 Self-Locking Center Differential, Removing and Installing, Bolted Driveshaft", page 99

⇒ "5.2.2 Self-Locking Center Differential, Removing and Installing, Mounted Driveshaft", page 102

5.2.1 Self-Locking Center Differential, Removing and Installing, Bolted Driveshaft

Special tools and workshop equipment required

- Used Oil Collection and Extraction Unit - SMN372500-
- Sealant. Refer to the Parts Catalog.

Removing with Transmission Installed

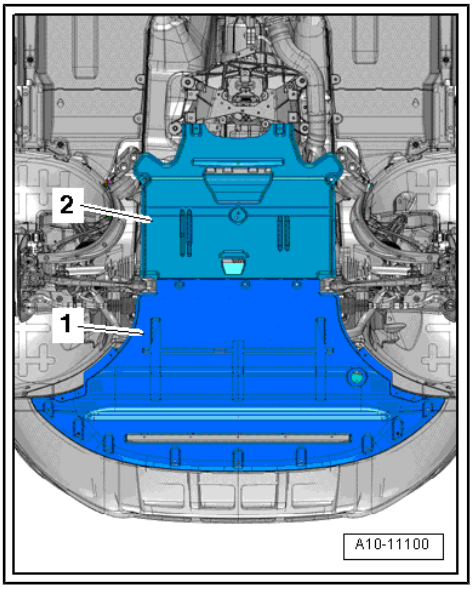
It is possible to remove the center differential housing with the transmission still installed.

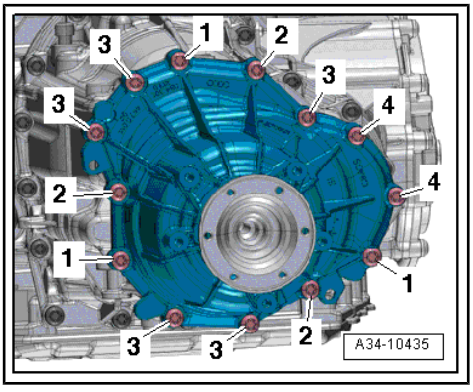
– Perform the vehicle-specific preliminary work. Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Center Differential .

Removing with the Transmission Removed

– Secure the transmission on the Engine And Transmission Holder - VAS6095- . Refer to ⇒ "4 Securing on Engine and Transmission Holder", page 61 .

Continuation for a Removed or Installed Transmission





– Place the Used Oil Collection and Extraction Unit - SMN372500- under the transmission.

– Remove the bolts -1 through 4- and carefully remove the center differential housing. The transmission fluid (MTF) will leak out while doing this.

Caution

Danger of damaging the center differential.

- *Carefully and slowly pull center differential housing off of transmission toward rear. Otherwise the center differential can fall out of the transmission.*
- *A center differential that has fallen out may not be installed.*

– Remove the pressure spring -3-, shim(s) -4- and plate spring -5-.

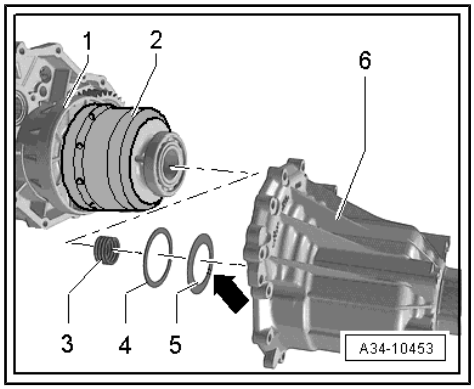
– Pull the center differential -2- toward the rear.

If the gear carrier -1- remains in the center differential housing, proceed as follows:

Caution

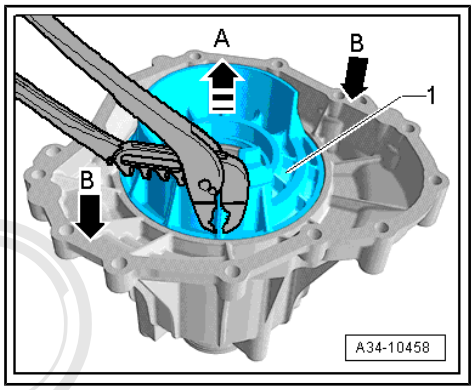
Danger of damaging the sealing surface on the center differential housing.

- ***Use a hammer to hit the housing on several places.***



– Hold the gear carrier -1- by one of the side ribs with pliers and remove it in direction of -arrow A-.

– Using a Rubber Hammer, tap the housing on alternating sides -arrows B-.



Installing

Install in reverse order of removal. Note the following:

- Tightening specifications. Refer to ⇒ “5.1.1 Overview - Self-Locking Center Differential, Bolted Driveshaft”, page 94 .

Note

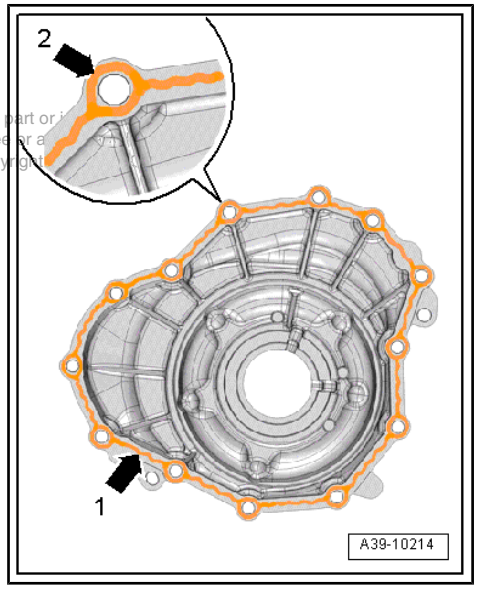
Replace the bolts for the center differential housing.

– Clean both housing separating surfaces thoroughly. They must be free of oil and grease.

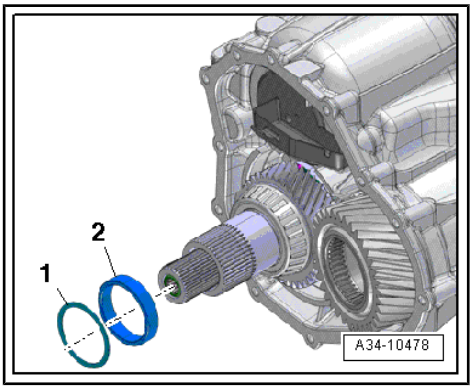
– Apply a bead sealant -arrow 1- evenly and not too thick on the housing surfaces; sealant. Refer to the Parts Catalog.

– Place a sealing ring round each bolt hole to prevent contact corrosion -arrow 2-.

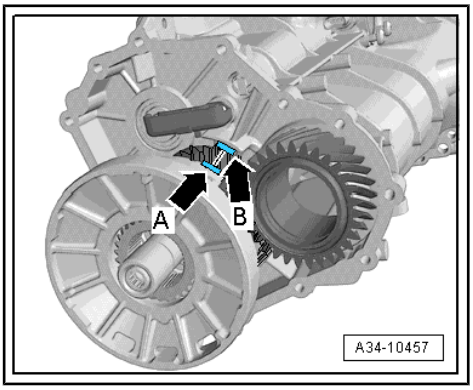
– Coat the gear carrier surfaces with transmission fluid (MTF).



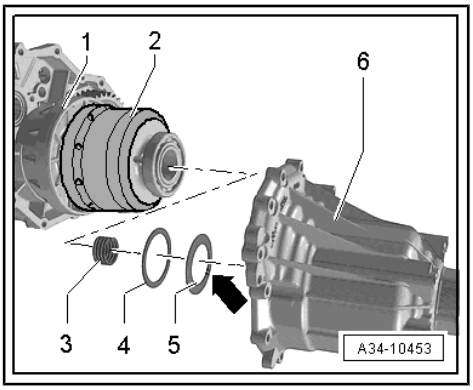
– Make sure the spacer sleeve -2- and the shim -1- are mounted on the output shaft.



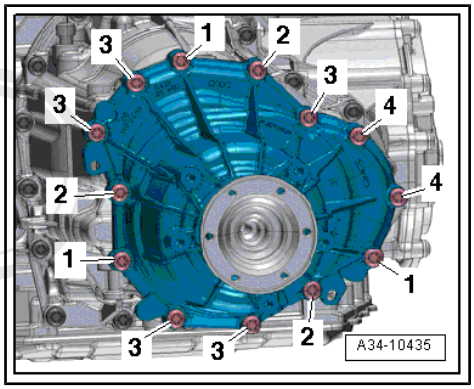
– Coat both outer ring surfaces on the gear carrier slightly with transmission fluid (MTF).
– Insert the gear carrier.
• Installed position: The tab on the gear carrier -arrow A- must fit into the opening in the transmission intermediate housing -arrow B-.



– Place the center differential -2- on the transmission -1-.
– Install the pressure spring -3- into the center differential.
– Attach the plate spring -5- and shim(s) -4- in the center differential housing -6- with a little grease.
• Plate spring installation location: The side rounded on the outside faces the flange shaft.



– Press the center differential housing centrally on until it makes contact with the transmission intermediate housing and hold it securely.
– Tighten the center differential housing bolts. Refer to ⇒ Fig. ""Tightening Specification and Sequence, Center Differential Housing - Bolted Driveshaft"" , page 96 .
– Install the transmission. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Transmission, Removing and Installing; Transmission, Installing .



Note

Check the vehicle data label or the designation on the rear final drive itself to determine which one is installed in the vehicle. Then select the correct rear final drive repair manual.

– Install the (attached) driveshaft. Refer to ⇒ Rear Final Drive 0BC, 0BD, 0BE, 0BF; Rep. Gr. 39 ; Description and Operation
– Fill with transmission fluid (MTF). Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Fluid; Transmission Fluid, Draining and Filling

5.2.2 Self-Locking Center Differential, Removing and Installing, Mounted Driveshaft

Special tools and workshop equipment required

- Used Oil Collection and Extraction Unit - SMN372500-
- Sealant. Refer to the Parts Catalog.

Removing with Transmission Installed

It is possible to remove the center differential housing with the transmission still installed.

– Perform the vehicle-specific preliminary work. Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Center Differential

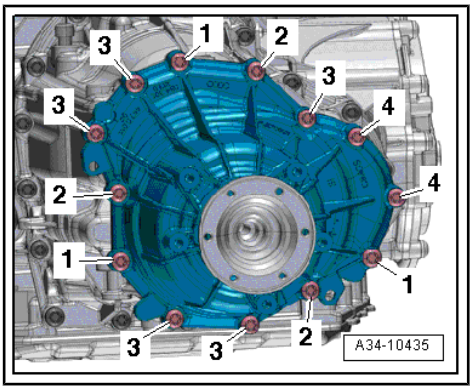
Removing with the Transmission Removed

– Secure the transmission on the Engine And Transmission Holder - VAS6095- . Refer to ⇒ "4 Securing on Engine and Transmission Holder", page 61 .

Continuation for a Removed or Installed Transmission

– Place the Used Oil Collection and Extraction Unit - SMN372500- under the transmission.

– Remove the bolts -1 through 4- and carefully remove the center differential housing. The transmission fluid (MTF) will leak out while doing this.



Caution

Danger of damaging the center differential.

- *Carefully and slowly pull center differential housing off of transmission toward rear. Otherwise the center differential can fall out of the transmission.*
- *A center differential that has fallen out may not be installed.*

– Remove the guide sleeve -4- and pressure spring -3-.

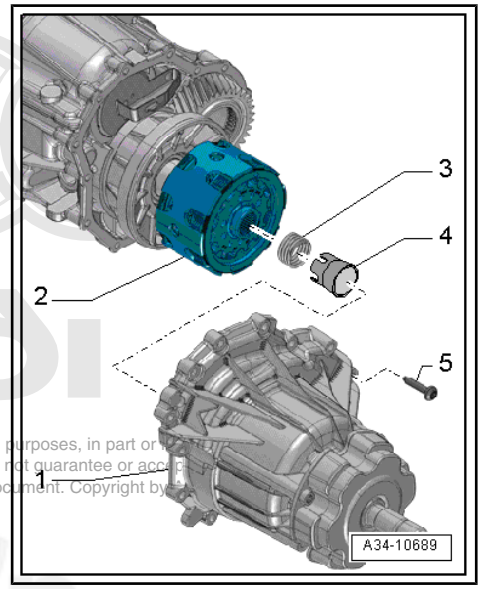
– Pull the center differential -2- toward the rear.

If the gear carrier -1- remains in the center differential housing, proceed as follows:

Caution

Danger of damaging the sealing surface on the center differential housing.

- *Use a hammer to hit the housing carefully on several places.*

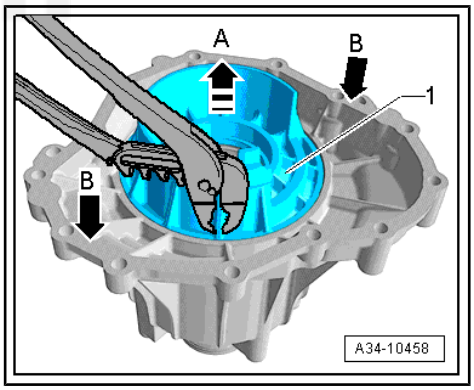


Note

In this case the center differential is pulled off together with the center differential housing.

– Hold the gear carrier -1- by one of the side ribs with pliers and remove it in direction of -arrow A-.

– Using a Rubber Hammer, tap the housing on alternating sides -arrows B-.



Installing

Install in reverse order of removal. Note the following:

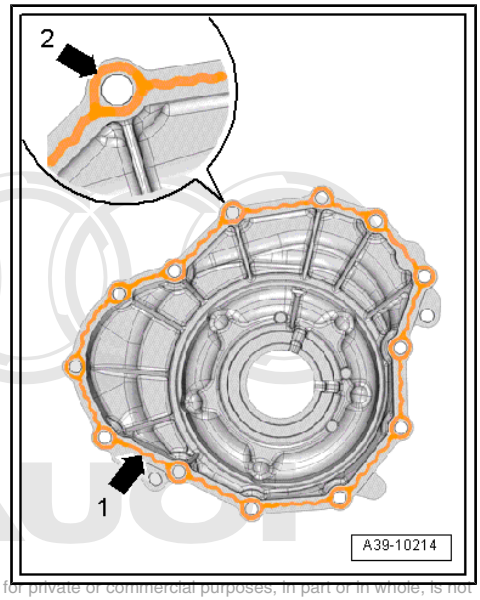
- Tightening specifications. Refer to ⇒ “5.1 Overview - Self-Locking Center Differential”, page 94 .

Note

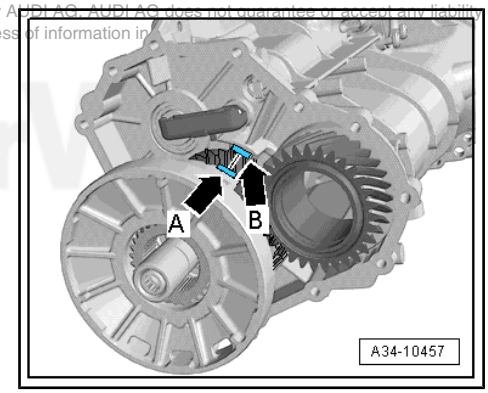
Replace the bolts for the center differential housing.

– Clean both housing separating surfaces thoroughly. They must be free of oil and grease.

– Apply a bead sealant -arrow 1- evenly and not too thick on the housing surfaces; sealant. Refer to the Parts Catalog.
– Place a sealing ring round each bolt hole to prevent contact corrosion -arrow 2-.
– Coat the gear carrier surfaces with transmission fluid (MTF).



– Coat both outer ring surfaces on the gear carrier slightly with transmission fluid (MTF).
– Insert the gear carrier.
• Installed position: The tab on the gear carrier -arrow A- must fit into the opening in the transmission intermediate housing -arrow B-.

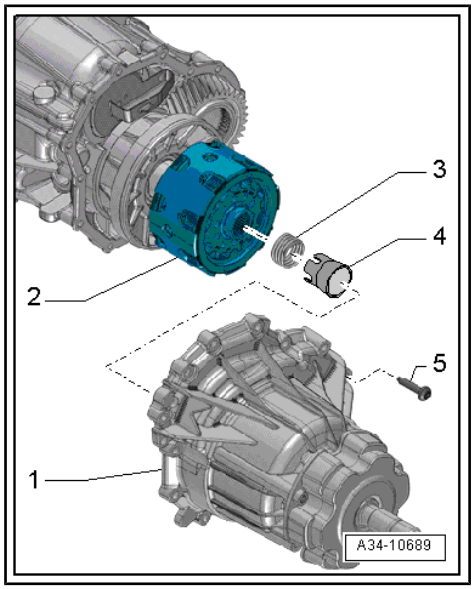


– Place the center differential -2- on the transmission.

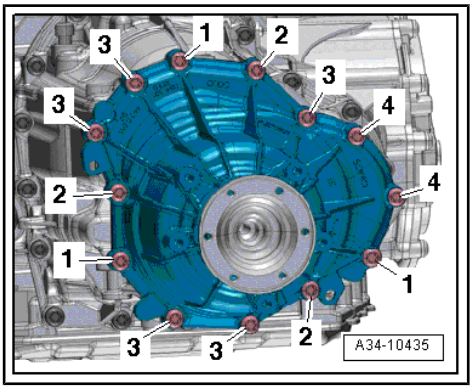
Note

The guide sleeve -4- is only necessary for production and must not be reinstalled.

– Install the pressure spring -3- into the center differential.



– Press the center differential housing centrally on until it makes contact with the transmission intermediate housing and hold it securely.
– Tighten the center differential housing bolts. Refer to ⇒ Fig. ""Tightening Specification and Sequence, Center Differential Housing - Bolted Driveshaft"" , page 96 .
– Install the transmission. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Transmission, Removing and Installing; Transmission, Installing



Note

Check the vehicle data label or the designation on the rear final drive itself to determine which one is installed in the vehicle. Then select the correct rear final drive repair manual.

– Install the (attached) driveshaft. Refer to ⇒ Rear Final Drive 0BC, 0BD, 0BE, 0BF; Rep. Gr. 39 ; Description and Operation
– Fill with transmission fluid (MTF). Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Fluid; Transmission Fluid, Draining and Filling

5.3 Center Differential Housing, Servicing

⇒ "5.3.1 Rear Flange Shaft, Seal and Ball Bearing, Removing and Installing", page 105

⇒ "5.3.2 Transmission Output Shaft with Splines, Seal and Ball Bearing, Removing and Installing", page 108

5.3.1 Rear Flange Shaft, Seal and Ball Bearing, Removing and Installing

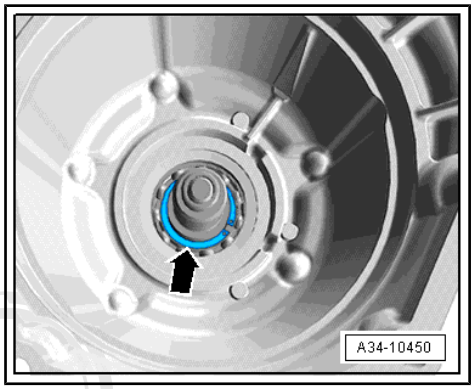
Special tools and workshop equipment required

- Press Plate - VW401-
- Press Plate - VW402-
- Press Piece - Multiple Use - VW412-
- Press Piece - 60mm - VW415A-
- Press Piece - Press Tube - 30-100-
- Press Piece - Front Control Arm - 2040-
- Seal Installer - Cardan Flange - T40165-
- Plate - T40285- for vehicles with torsional vibration damper or without vibration damper
- Grease. Refer to the Parts Catalog.

Procedure

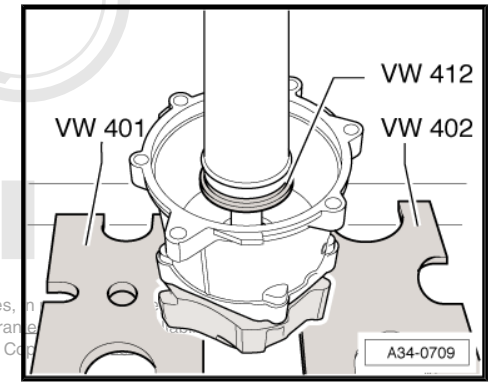
– Remove the center differential housing. Refer to ⇒ “5.2.1 Self-Locking Center Differential, Removing and Installing, Bolted Driveshaft”, page 99 .

– Remove the circlip -arrow-.



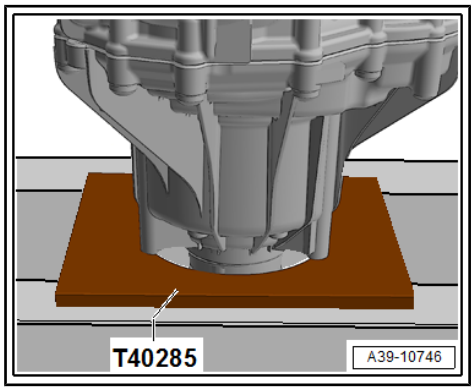
Transmission with Bolted Vibration Damper

– Remove the flange shaft by positioning the center differential housing so the flange shaft does not touch the Press Plate - VW401- and Press Plate - VW402- .



Transmission with Torsional Vibration Damper or without Vibration Damper

– Remove the flange shaft by allowing the housing for the center differential to rest on the Plate - T40285- .

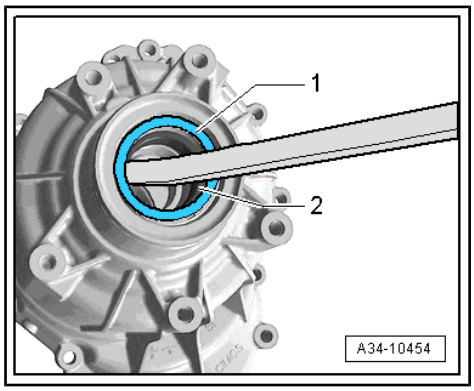


All Transmissions

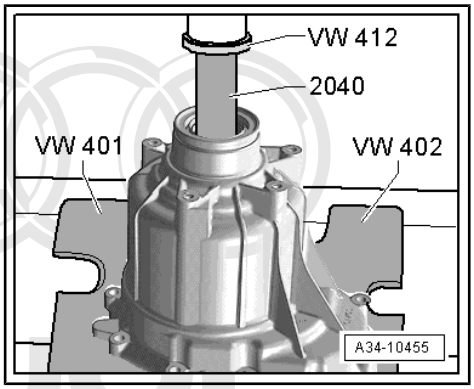
Note

Ignore item -2-.

– Pry out the shaft seal -1-.



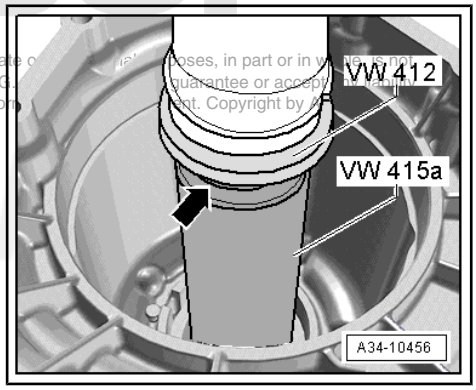
– Remove the flange shaft ball bearing and spacer sleeve if necessary.



– Installing the flange shaft ball bearing.

• The shoulder on the Press Piece - 60mm - VW415A- -arrow- faces the Press Piece - Multiple Use - VW412-

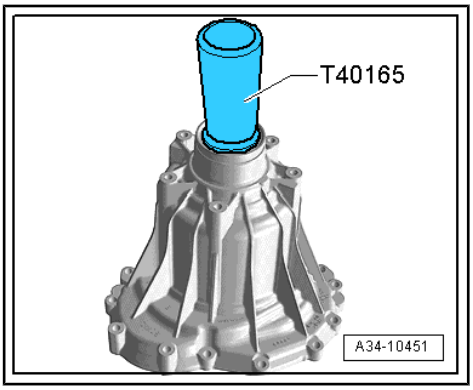
– The press in the spacer sleeve -item 4- ⇒ Item 4 (page 95) using the Press Piece - 60mm - VW415A- .



– Lightly oil the outer circumference on the shaft seal and then install it all the way using the Seal Installer - Cardan Flange - T40165- .

• Installed position: Open side of shaft seal faces transmission.

– Fill the space between the sealing- and dust lip half way with sealing grease. Refer to the Parts Catalog.

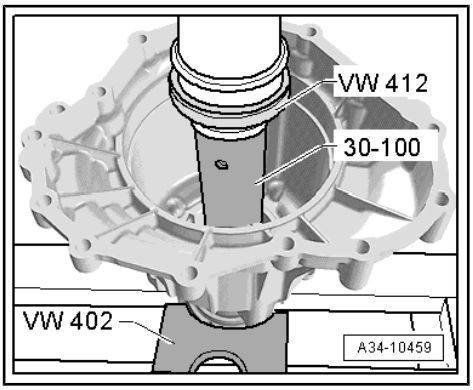


– Install the flange shaft.

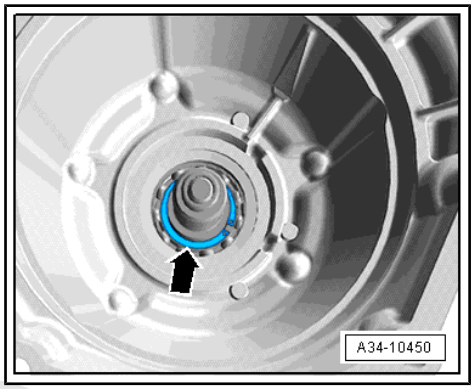
– Install the flange shaft into the center differential housing from underneath.

– Position the housing and flange shaft on the Press Plate - VW402- under the shop press.

– Press in the bearing inner race using the Press Piece - Press Tube - 30-100- on the flange shaft.



– Install a new circlip -arrow- on the flange shaft.
– Install the center differential housing. Refer to ⇒ “5.2.1 Self-Locking Center Differential, Removing and Installing, Bolted Driveshaft”, page 99 .



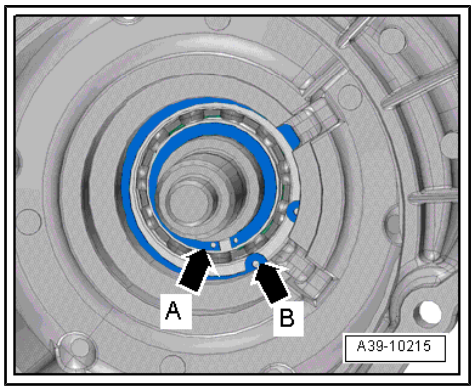
5.3.2 Transmission Output Shaft with Splines, Seal and Ball Bearing, Removing and Installing

Special tools and workshop equipment required

- Press Plate - VW401-
- Press Plate - VW402-
- Press Piece - Multiple Use - VW412-
- Press Piece - Press Tube - 30-100-
- Press Piece - Front Control Arm - 2040-
- Seal Installer - Output Shaft - T40238-
- Grease. Refer to the Parts Catalog.

Procedure

– Remove the center differential housing. Refer to ⇒ “5.2 Self-Locking Center Differential, Removing and Installing”, page 99 .
– Remove the circlip -arrow A-.
– Remove the locking ring -arrow B- as well if the ball bearing is also being removed.

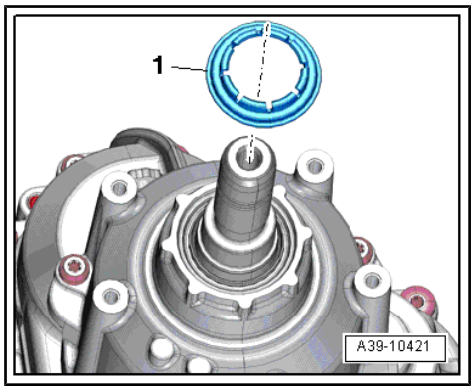


Transmission Output Shaft With Splines without Vibration Damper:

– Pry off the dust ring -1-.

Note

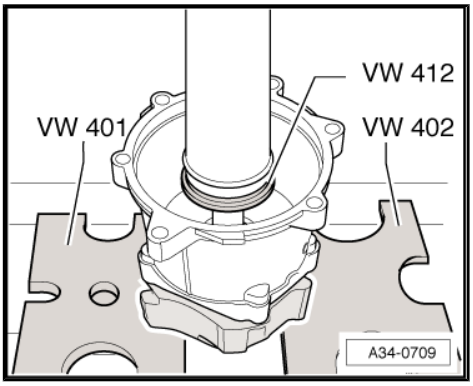
The dust ring cannot be removed without destroying it.



– Position the center differential housing so that the transmission output shaft with splines does not touch the thrust plates Press Plate - VW401- and Press Plate - VW402- and remove the transmission output shaft with splines.

Transmission Output Shaft With Splines and Vibration Damper:

– Position the center differential housing so that the vibration damper does not touch the thrust plates Press Plate - VW401- and Press Plate - VW402- and remove the transmission output shaft with splines.

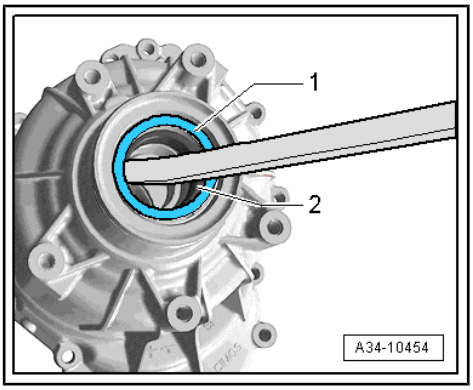


All:

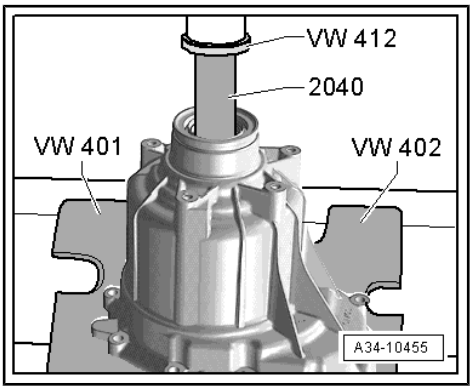
– Pry out the shaft seal -1-.

Note

Ignore item -2-.

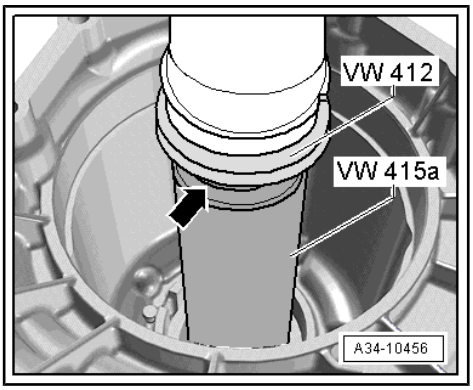


– Remove the transmission output shaft ball bearing with splines, if necessary.



– Install the transmission output shaft ball bearing.

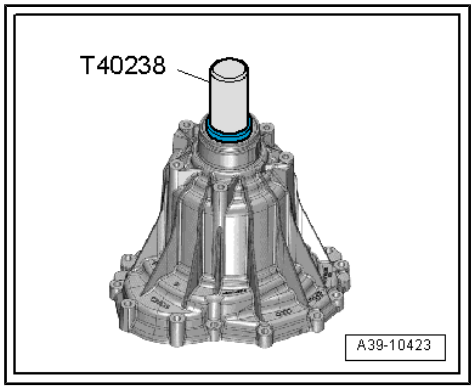
• The shoulder on the Press Piece - 60mm - VW415A- -arrow- faces the Press Piece - Multiple Use - VW412- .



– Coat the seal on the outer circumference lightly with oil and then install it all the way in using Seal Installer - Output Shaft - T40238- .

• Installed position: Open side of shaft seal faces transmission.

– Fill the space between the sealing- and dust lip half way with sealing grease. Refer to the Parts Catalog.



– Install the transmission output shaft into the center differential housing as follows:

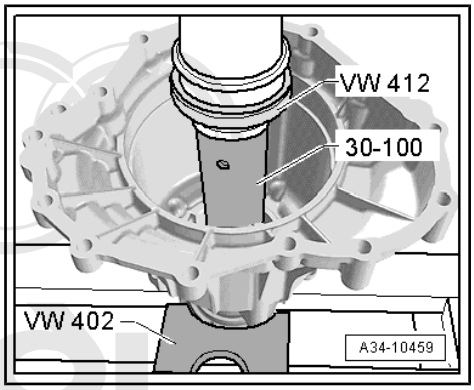
– Attach the vibration damper (if equipped) to the center differential housing. Tightening specification. Refer to ⇒ “5.1 Overview - Self-Locking Center Differential”, page 94 .

– Install the transmission output shaft with splines into the center differential housing from underneath.

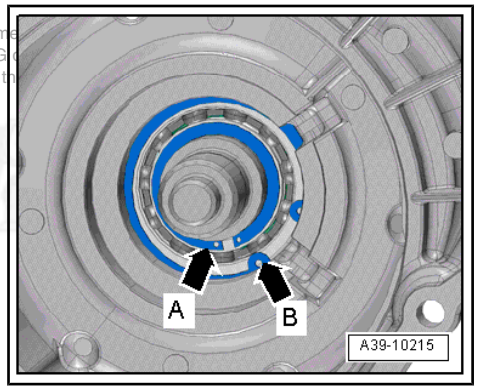
– Position the housing and transmission output shaft on the Press Plate - VW402- under the shop press.

– Mount the Press Plate - 30-100- on the ball bearing inner race.

– Install the transmission output shaft.



– Mount the new locking ring -arrow A- for the transmission output shaft with splines and -arrow B- for the ball bearing.

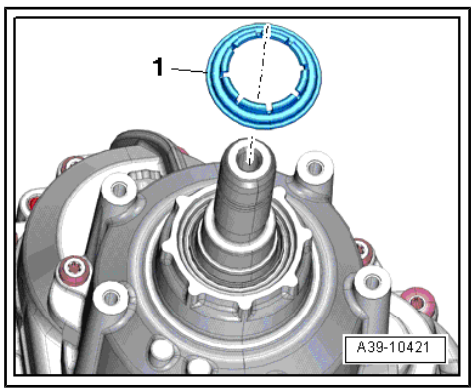


Transmission Output Shaft with Splines without Vibration Damper:

– Install a new dust ring -1-.

All:

– Install the center differential housing. Refer to ⇒ “5.2 Self-Locking Center Differential, Removing and Installing”, page 99 .



5.4 Transmission Output Shaft Seal, Replacing

⇒ "5.4.1 Transmission Output Shaft Seal, Replacing, Transmission Output Shaft with Splines without Vibration Damper", page 111

⇒ "5.4.2 Transmission Output Shaft Seal, Replacing, Transmission Output Shaft with Splines with Vibration Damper", page 113

5.4.1 Transmission Output Shaft Seal, Replacing, Transmission Output Shaft with Splines without Vibration Damper

Special tools and workshop equipment required

- Puller - Crankshaft/Power Steering Seal - T20143/1-
- Seal Installer - Output Shaft - T40238-
- Grease. Refer to the Parts Catalog.

Procedure

Note

- *Refer to ⇒ "1 Repair Information", page 1 .*
- *Refer to ⇒ "1.1 Guidelines for Clean Working Conditions", page 1 .*

The Transmission Is Installed.

It is possible to replace the transmission output shaft seal with the transmission installed.

Note

Check the vehicle data label or the designation on the rear final drive itself to determine which one is installed in the vehicle. Then select the correct rear final drive repair manual.

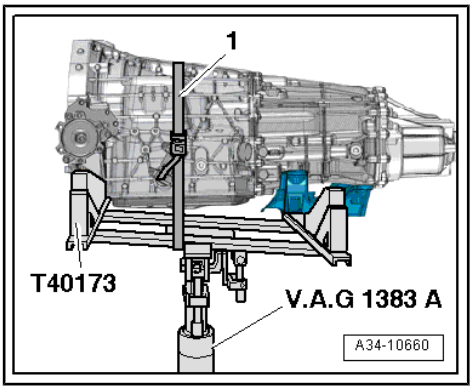
– Remove the (attached) driveshaft. Refer to ⇒ Rear Final Drive 0BC, 0BD, 0BE, 0BF; Rep. Gr. 39 ; Removal and Installation

Transmission Removed

– Secure the transmission to the Gearbox Support - T40173- using a tension strap -1-.

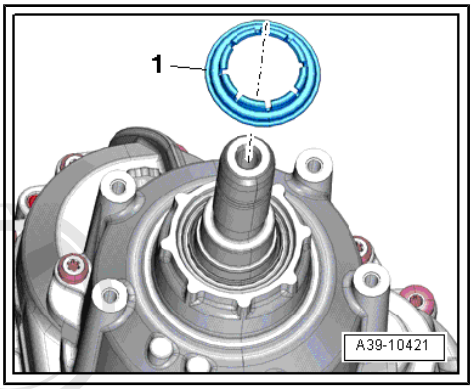
or

– Secure the transmission on the Engine And Transmission Holder - VAS6095- . Refer to ⇒ "4 Securing on Engine and Transmission Holder", page 61 .



Continuation for a Removed or Installed Transmission

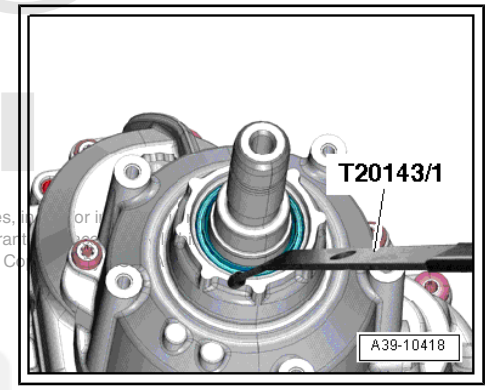
– Pry off the dust ring -1-.



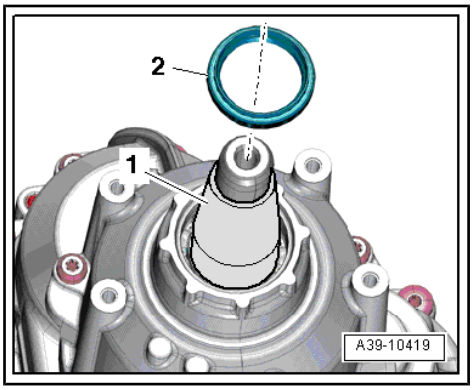
Note

The dust ring cannot be removed without destroying it.

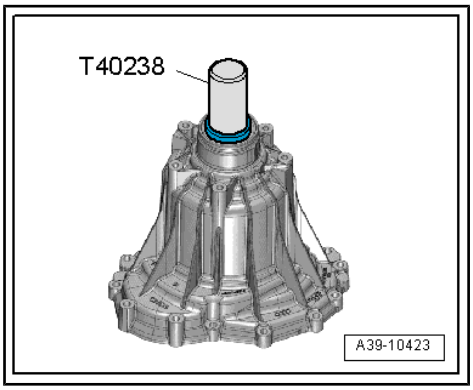
– Shaft Seal, Transmission Output Shaft with Splines, Removing
– Clean the running and sealing surface.
– Coat outer edge of seal with gear oil.



– Mount the Seal Installer - Output Shaft - T40238/1- item -1- on the transmission output shaft with splines.
– Fill the space between the sealing- and dust lip half way with sealing grease. Refer to the Parts Catalog.
– Install the shaft seal -2-.
• Installed position: The open side of the seal faces the transmission housing.



– Install the shaft seal all the way around evenly using Seal Installer - Output Shaft - T40238- . Do not bend the seal.



– Install a new dust ring -1-.

– Install the transmission. Refer to ⇒ S tronic Transmission; Rep. Gr. 34 ; Transmission, Removing and Installing; Transmission, Installing

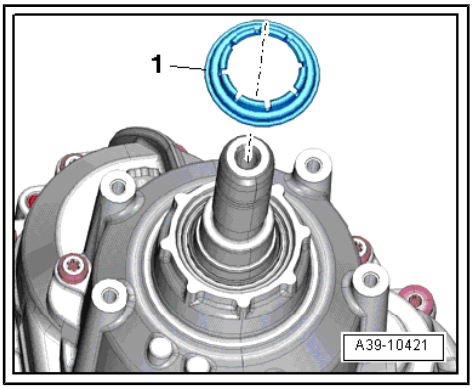
Continuation for an Installed Transmission

Note

Check the vehicle data label or the designation on the rear final drive itself to determine which one is installed in the vehicle. Then select the correct rear final drive repair manual.

– Install the (attached) driveshaft. Refer to ⇒ Rear Final Drive 0BC, 0BD, 0BE, 0BF; Rep. Gr. 39 ; Description and Operation

– Fill with transmission fluid (MTF). Refer to ⇒ S tronic Transmission; Rep. Gr. 39 ; Transmission Fluid; Transmission Fluid, Draining and Filling



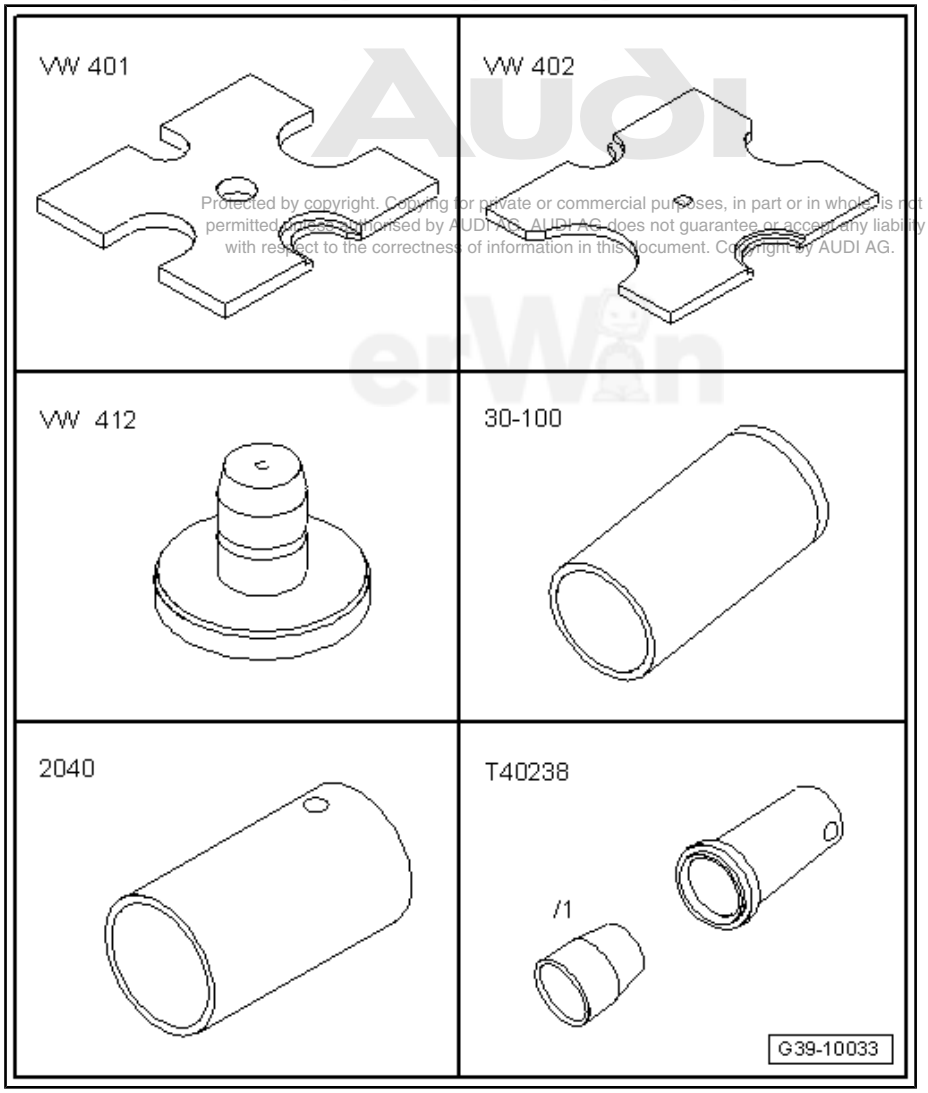
5.4.2 Transmission Output Shaft Seal, Replacing, Transmission Output Shaft with Splines with Vibration Damper

The transmission output shaft with splines on vehicles with a vibration damper must be removed in order to replace the transmission output shaft seal with splines.

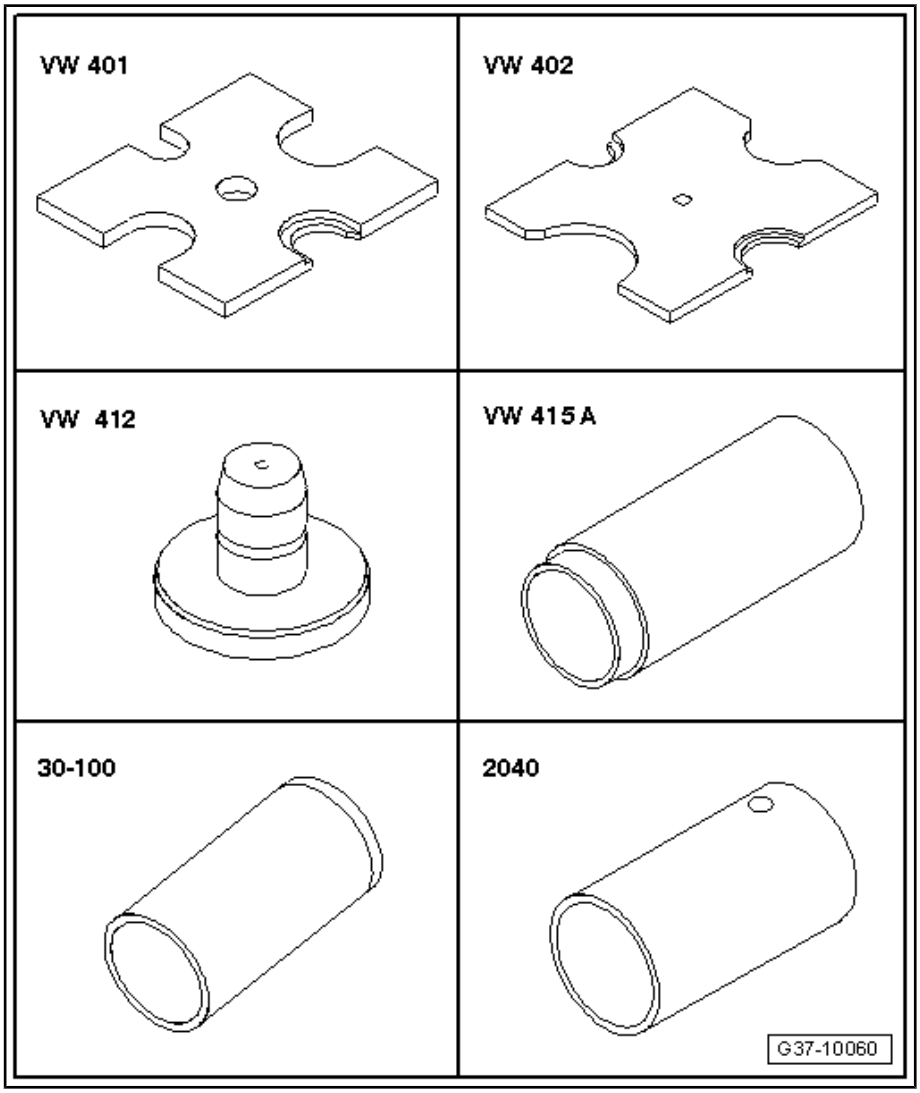
Refer to
⇒ "5.3.2 Transmission Output Shaft with Splines, Seal and Ball Bearing, Removing and Installing", page 108 .

6 Special Tools

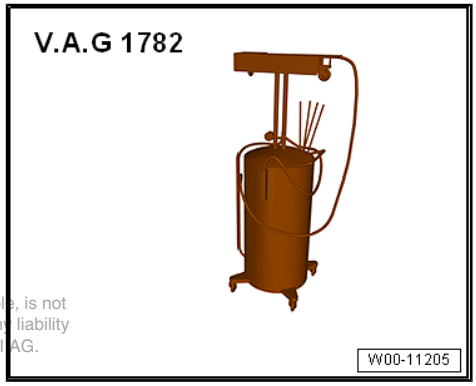
Special tools and workshop equipment required



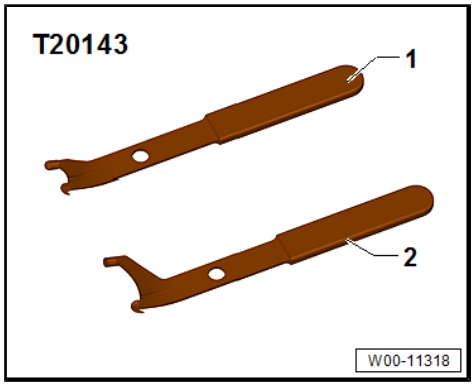
- Press Plate - VW401-
- Press Plate - VW402-
- Press Piece - Multiple Use - VW412-
- Press Piece - Press Tube - 30-100-
- Press Piece - Front Control Arm - 2040-
- Seal Installer - Output Shaft - T40238-
- Grease. Refer to the Parts Catalog.



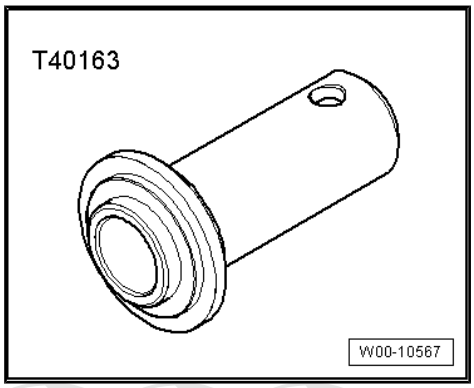
- Press Plate - VW401-
- Press Plate - VW402-
- Press Piece - Multiple Use - VW412-
- Press Piece - 60mm - VW415A-
- Press Piece - Press Tube - 30-100-
- Press Piece - Front Control Arm - 2040-
- Used Oil Collection and Extraction Unit - SMN372500-



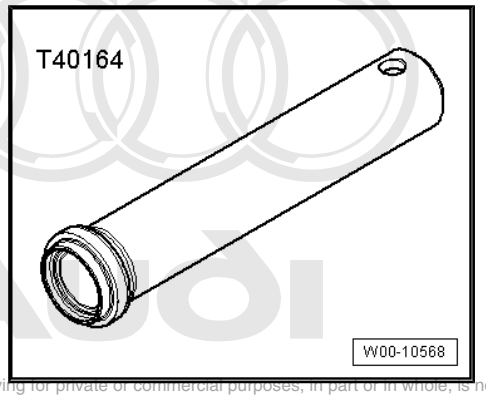
- Puller - Crankshaft/Power Steering Seal - T20143/1-



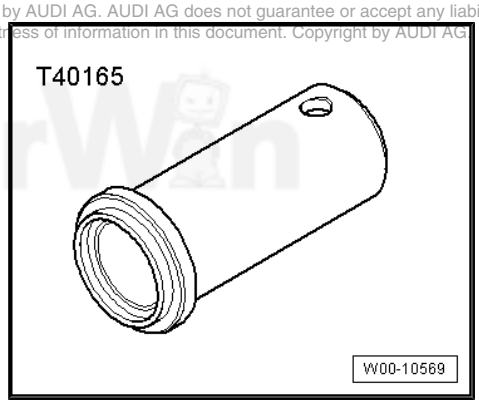
- Seal Installer - Flange Shaft - T40163-



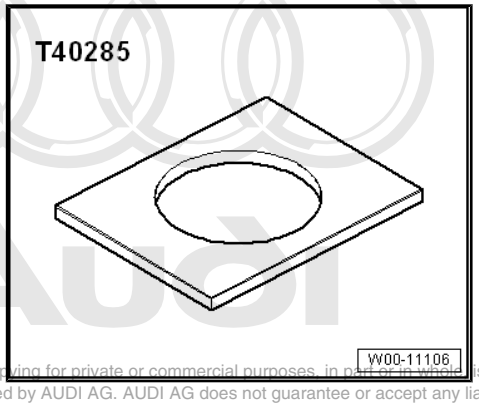
- Seal Installer - Flange Shaft - T40164-



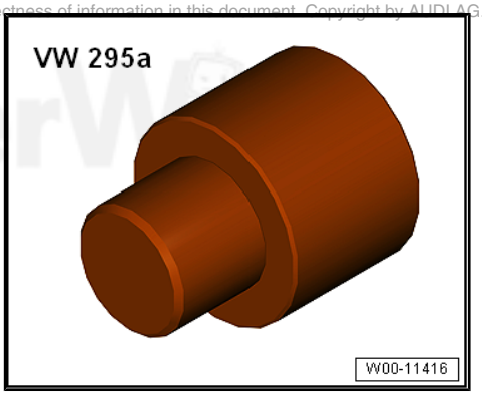
- Seal Installer - Cardan Flange - T40165-



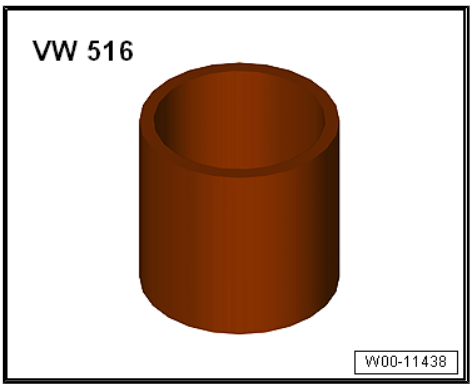
- Plate - T40285- for vehicles with torsional vibration damper or without vibration damper



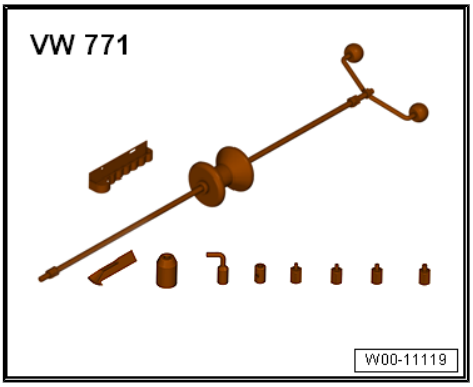
- Bearing/Bushing Installer - Multiple Use - VW295A-



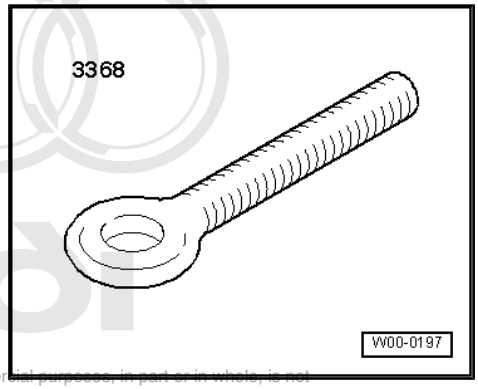
- Press Piece - 42mm - VW516-



- Slide Hammer Set - VW771-



- Lifting Eyebolt - 3368-



7 Revision History

DRUCK NUMBER: A005AI01121

Factory Edition	Edit Edition	Job Type	Feedback	Notes	Quality Checked By
12.20018	12/06/2018	Factory Update	N/A		Eric P.
11.2018	11/16/2018	Correction	N/A	Updated Revision History	Eric P.
11.2018	10/29/2018	Factory Update	N/A		Eric P.
09.2014	08/16/2016	Local Update	N/A	Change Obergrup to “Drivetrain”	Tom Perry
09.2014	5/6/2015	Link Checking	N/A		Jim Harder
09.2014	3/24/2015	Factory Update	N/A		Jim Harder
	1/15/2015	Title Change	N/A		Jim Harder
	11/18/2014	Link Checking	N/A	This book refers to various models and has links referring to the Q5 book and others referring to the A6/A7 book	Tom Perry
	08/13/2014	Factory Update w/ Feedback	1034781		Eric P.

Cautions & Warnings

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

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

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

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

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

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

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

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

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

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

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

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

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Cautions & Warnings

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

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

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

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

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

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

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

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

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

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

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

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

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Cautions & Warnings

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

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

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

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

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

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

I have read and I understand these Cautions and Warnings.

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