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- Before installing, lightly lubricate shaft seal outer circumference and sealing lips with ATF or gear oil, depending on the installation location.
- Depending on the component location, coat the O-rings lightly with ATF or transmission fluid to insert them. This prevents them from being crushed when being installed.
- Use only ATF in the ATF area. Other lubricants cause malfunctions in the hydraulic transmission control.
- The open side on the shaft seals faces the fluid to be sealed off.
- After installing check the ATF level or the transmission fluid level with the transmission installed and correct. Refer to “7-Speed Dual Clutch Transmission 0CJ, 0CK, 0CL” ⇒ Rep. Gr. 34 ; ATF; ATF Level, Checking or for transmission fluid level checking and correcting, refer to ⇒ Rep. Gr. 34 ; Transmission Fluid . 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 or method.
- Bolts or nuts for securing covers and housings should be loosened and tightened diagonally in stages if no tightening sequence is specified.
- Always replace self-locking bolts and nuts.
- 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.
- If self-locking bolts were installed or if regular bolts were installed with locking fluid, then the threaded holes must be cleaned, for example with a thread tap. Otherwise there is the risk that the bolts could break off the next time they are removed.
- The tightening specifications given apply to unoiled bolts and nuts.

Circlips, Snap Rings

- Do not stretch the circlips.
- Replace damaged or stretched circlips.
- The circlips must rest at the bottom of the groove.

Bearings

- Install needle bearings with the lettered side (thicker metal) facing 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.

Shims

- Measure the shims at several locations with a micrometer. Different shim thicknesses make it possible to select the required thickness precisely; install two shims if necessary.

30 – Clutch

1 Clutch

⇒ “1.1 Overview - Flywheel and Dual Clutch”, page 6

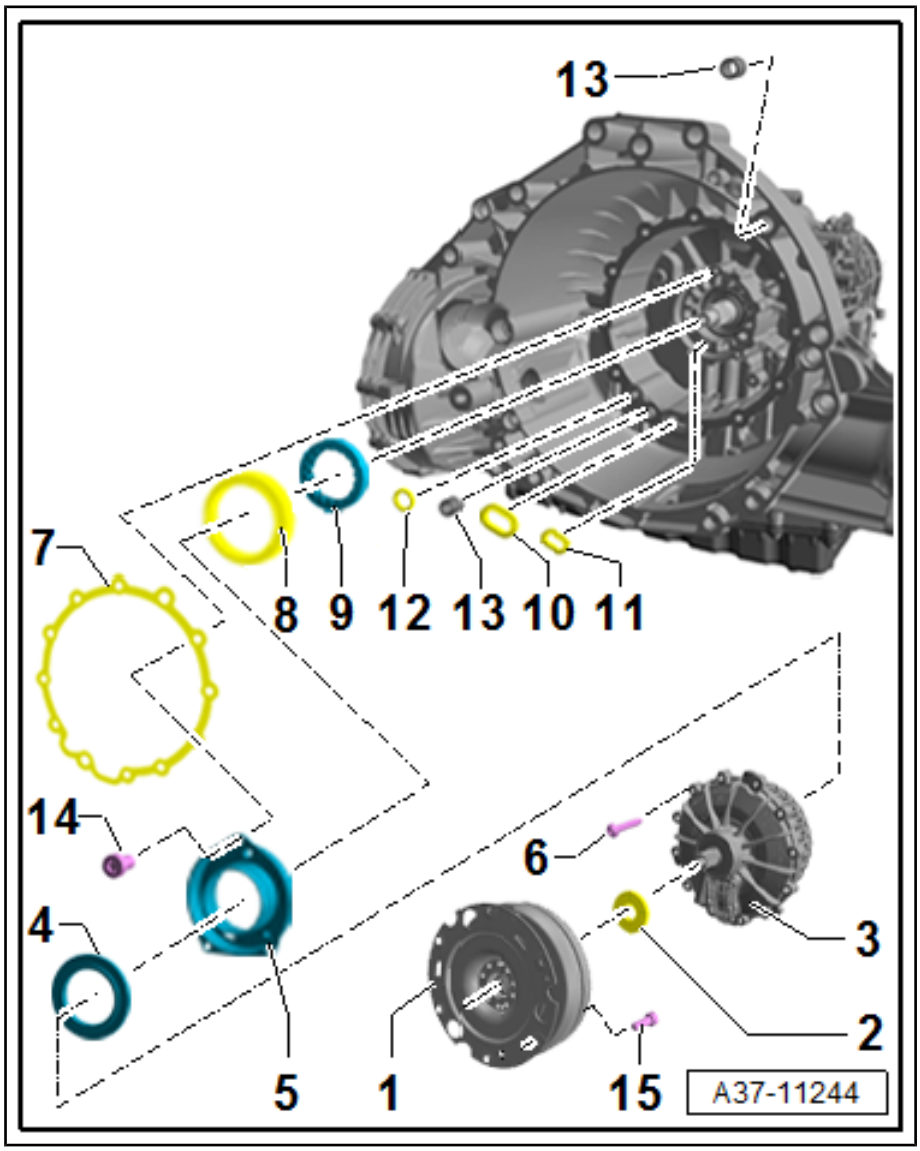
⇒ “1.2 Flywheel, Removing and Installing”, page 7

⇒ “1.3 Dual Clutch, Removing and Installing”, page 9

⇒ “1.4 Input Shaft Seal, Replacing”, page 14

⇒ “1.5 Input Shaft Seal, Replacing”, page 15

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 an installing. Refer to ⇒ “1.2 Flywheel, Removing and Installing”, page 7 .

2 - Shaft Seal

- ❑ Replacing. Refer to ⇒ “1.5 Input Shaft Seal, Replacing”, page 15 .
- ❑ For the input shaft

3 - Dual Clutch

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

4 - Engaging Bearing

- ❑ Pay attention to the installed position.
- ❑ Can only be replaced together with the clutch
- ❑ Removing an installing. Refer to ⇒ “1.3 Dual Clutch, Removing and Installing”, page 9 .

5 - Clutch Slave Cylinder

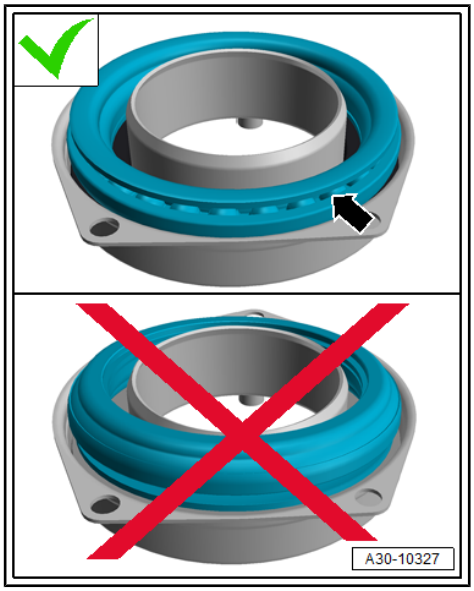
- ❑ Can only be replaced together with the clutch
- ❑ Removing an installing. Refer to ⇒ “1.3 Dual Clutch, Removing and Installing”, page 9 .

6 - Bolt

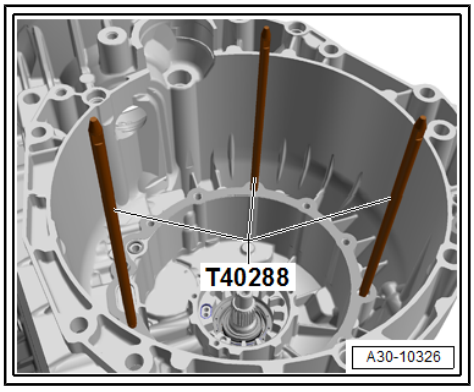
- ❑ 10 Nm + 90°

Note

- *Pay attention that the engaging bearing is installed correctly to the slave cylinder.*
- *The ball bearings are visible! -Arrow-*



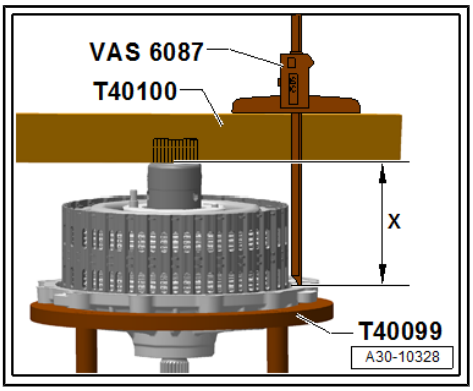
– Install the -T40288- in the threaded hole approximately 120° offset.



Check the Clutch Installation Height

- Before installing the clutch the dimension -x- must be determined.
- To do so use the -T40100- and -VAS6087- to determine the height of the clutch cover to the hub offset as shown.

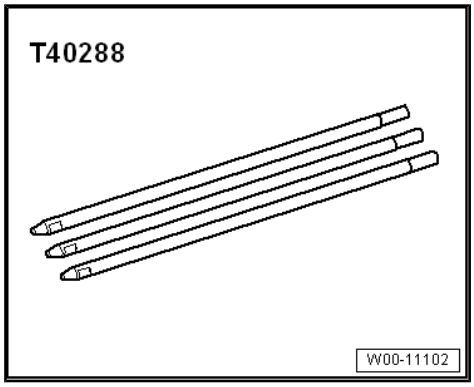
The dimension -x- must be located within the tolerance of 98.91 to 99.61 mm.



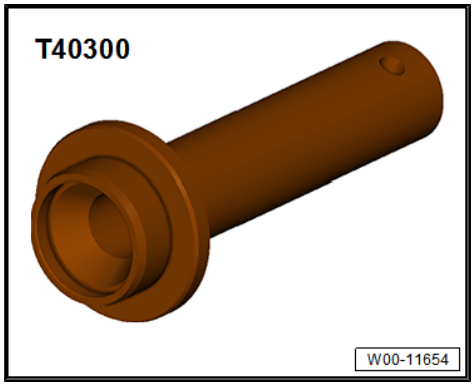
Note

If the dimension -x- is outside of the tolerance, the clutch must be replaced because it is damaged.

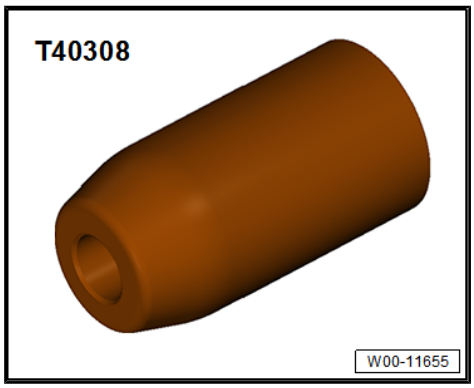
- Guide Pins - Gearbox - T40288-



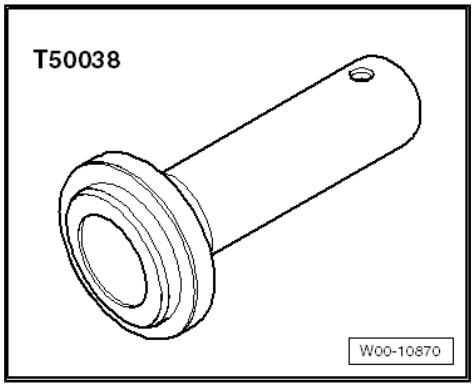
- Thrust Piece - T40300-



- Assembly Sleeve - T40308-



- Thrust Piece - T50038-



4 Transmission, Disassembling and Assembling

⇒ “4.1 Overview - Transmission”, page 25

⇒ “4.2 Overview - Gear Set”, page 29

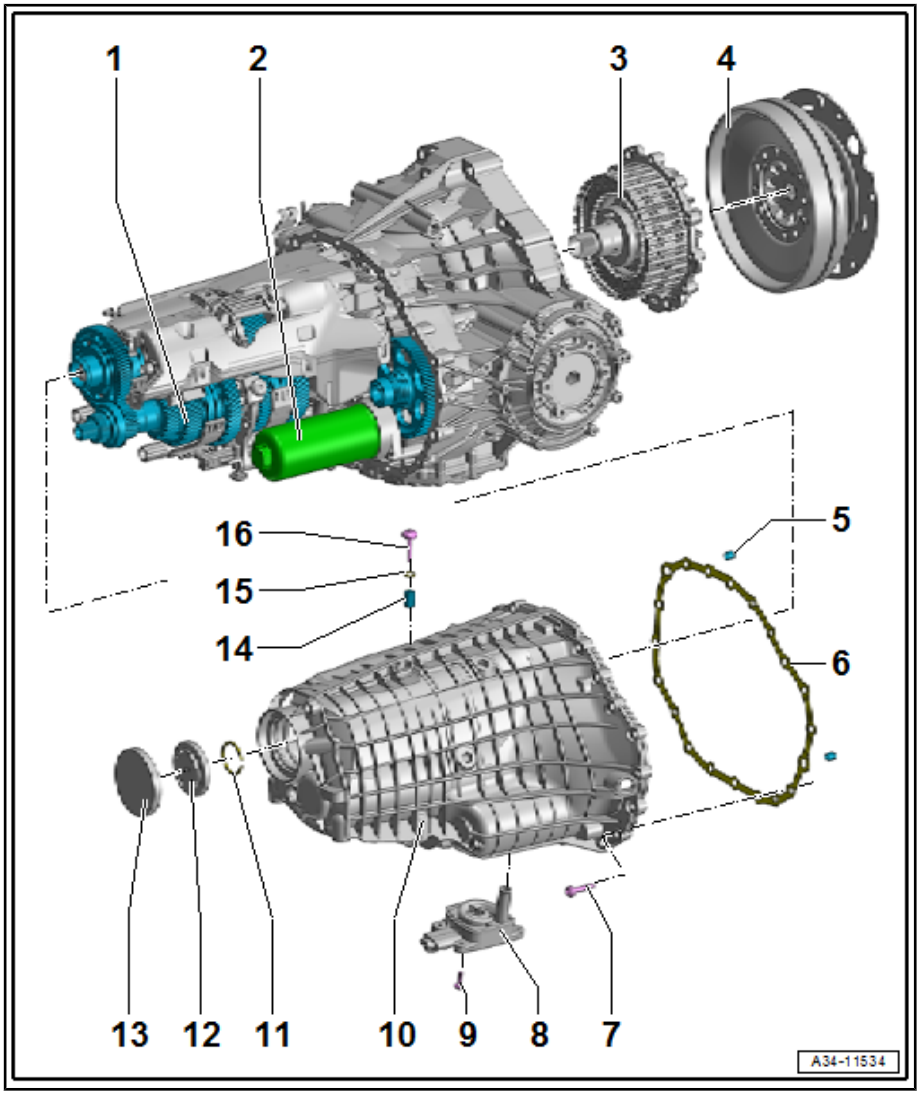
⇒ “4.3 Transmission, Disassembling and Assembling”, page 32

4.1 Overview - Transmission

⇒ “4.1.1 Overview - Transmission, FWD Vehicles”, page 25

⇒ “4.1.2 Overview - Transmission, AWD Vehicles”, page 27

4.1.1 Overview - Transmission, FWD Vehicles



1 - Gear Set

- ❑ Removing and installing. Refer to ⇒ “4.2.1 Overview - Gear Set, FWD Vehicles”, page 29 .

2 - Hydraulic Pressure Reservoir

- ❑ Observe the safety notes. Refer to ⇒ “1.3 ATF Pump, Deactivating and Draining the Hydraulic Pump Reservoir”, page 4 .
- ❑ Removing and installing. Refer to ⇒ “4.3.2 Gear Actuator Module and Hydraulic Pressure Reservoir, Removing and Installing”, page 42 .
- ❑ Disposal. Refer to ⇒ “4.3.3 Hydraulic Pressure Reservoir, Disposing”, page 45 .

3 - Dual Clutch

- ❑ Removing and installing. Refer to ⇒ “1.3 Dual Clutch, Removing and Installing”, page 9 .

4 - Flywheel

- ❑ Removing and installing. Refer to ⇒ “1.2 Flywheel, Removing and Installing”, page 7 .

5 - Alignment Sleeve

6 - Seal

- ❑ Always replace

7 - Transmission Housing Bolt

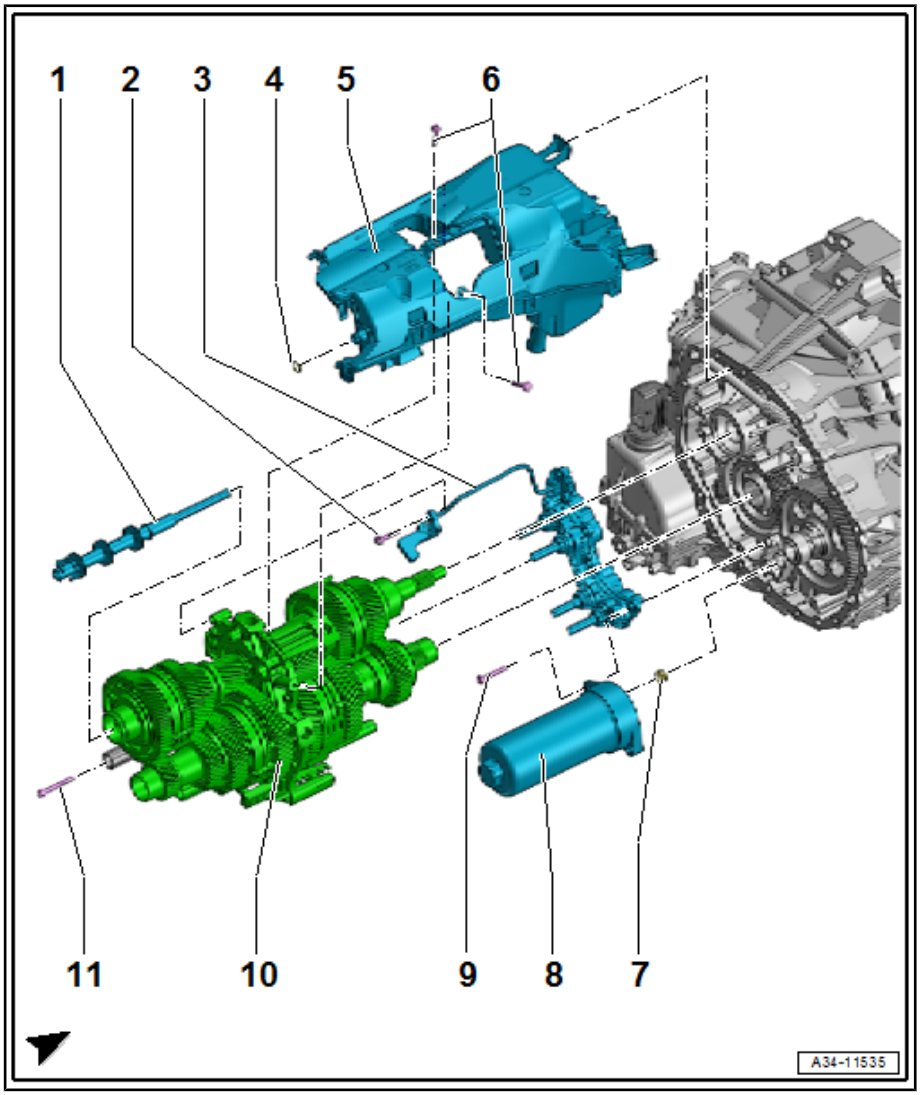
- ❑ Always replace

4.2 Overview - Gear Set

⇒ “4.2.1 Overview - Gear Set, FWD Vehicles”, page 29

⇒ “4.2.2 Overview - Gear Set, AWD Vehicles”, page 30

4.2.1 Overview - Gear Set, FWD Vehicles



1 - Oil Pipe

2 - Bolt

- ❑ 3 Nm + 90°
- ❑ Always replace
- ❑ M6 × 30

3 - Gear Positioner with:

- ❑ Transmission Input Speed Sensor 1 - G632-
- ❑ Transmission Input Speed Sensor 2 - G612-
- ❑ Gear Position Distance Sensor 1 - G487-
- ❑ Gear Position Distance Sensor 2 - G488-
- ❑ Gear Position Distance Sensor 3 - G489-
- ❑ Gear Position Distance Sensor 4 - G490-
- ❑ Removing an installing. Refer to ⇒ “4.3.2 Gear Actuator Module and Hydraulic Pressure Reservoir, Removing and Installing”, page 42 .

4 - Seal

- ❑ Always replace

5 - Oil Pan

- ❑ Always replace

6 - Bolt

- ❑ 3 Nm + 90°
- ❑ Always replace
- ❑ M6 × 30

7 - Seal

- ❑ Always replace

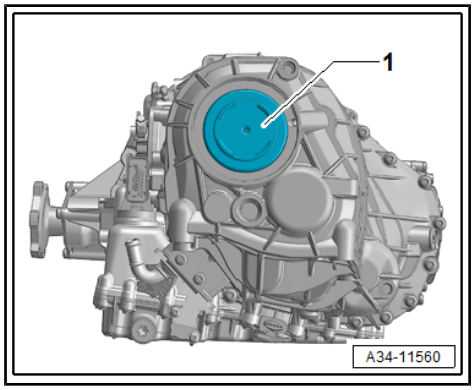
8 - Hydraulic Pressure Reservoir

- ❑ Observe the safety notes. Refer to ⇒ “1.3 ATF Pump, Deactivating and Draining the Hydraulic Pump Reservoir”, page 4 .
- ❑ Removing an installing. Refer to ⇒ “4.3 Transmission, Disassembling and Assembling”, page 32 .
- ❑ Disposal. Refer to ⇒ “4.3.3 Hydraulic Pressure Reservoir, Disposing”, page 45 .

9 - Bolts

- ❑ 3 Nm + 90°
- ❑ Always replace
- ❑ M6 × 30

– Remove the oil catch tray -1-.



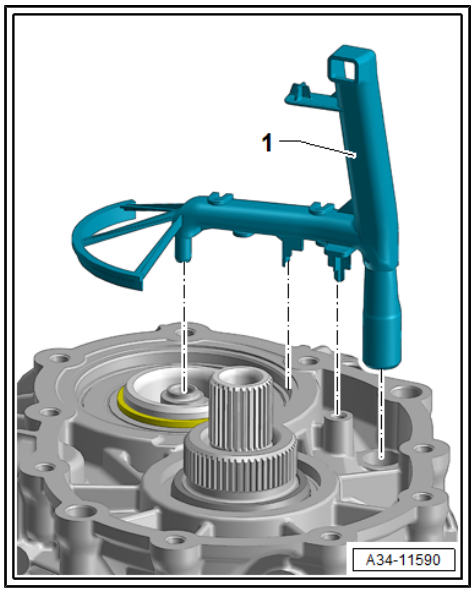
AWD Vehicles

– Remove the all wheel drive clutch/self-locking center differential.

Refer to ⇒ 7-Speed Dual Clutch Transmission 0CJ, 0CK, 0CL, 0DN; Rep. Gr. 39 ; Center Differential; Center Differential, Removing and Installing .

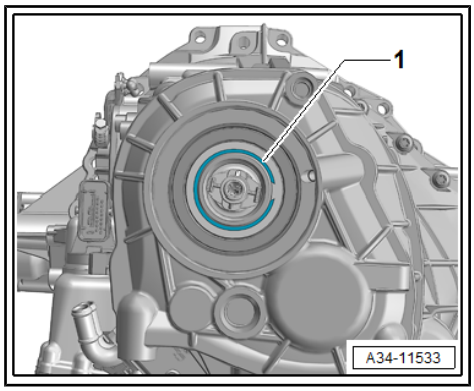
Refer to ⇒ 7-Speed Dual Clutch Transmission 0CJ, 0CK, 0CL, 0DN; Rep. Gr. 39 ; All Wheel Drive Clutch; All Wheel Drive Clutch, Removing and Installing .

– Remove the oil catch tray -1-.

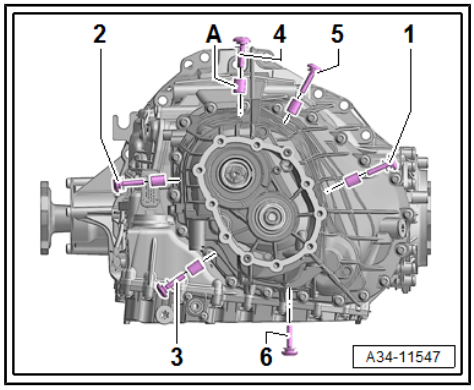


All Vehicles

– Remove the circlip -1-.



– Remove the bolts -1 to 6-.



5 Transmission Fluid Circuit

⇒ "5.1 Overview - Transmission Fluid Circuit", page 47

⇒ "5.2 Transmission Fluid Pump, Removing and Installing", page 47

5.1 Overview - Transmission Fluid Circuit

1 - Plug

- ❑ 8 Nm +30°
- ❑ Replace after removing.
- ❑ For the ATF check and fill hole

2 - Plug

- ❑ 35 Nm
- ❑ Replace after removing.
- ❑ For transmission fluid inspection and fill hole

3 - Transmission Fluid Pump (MTF Pump)

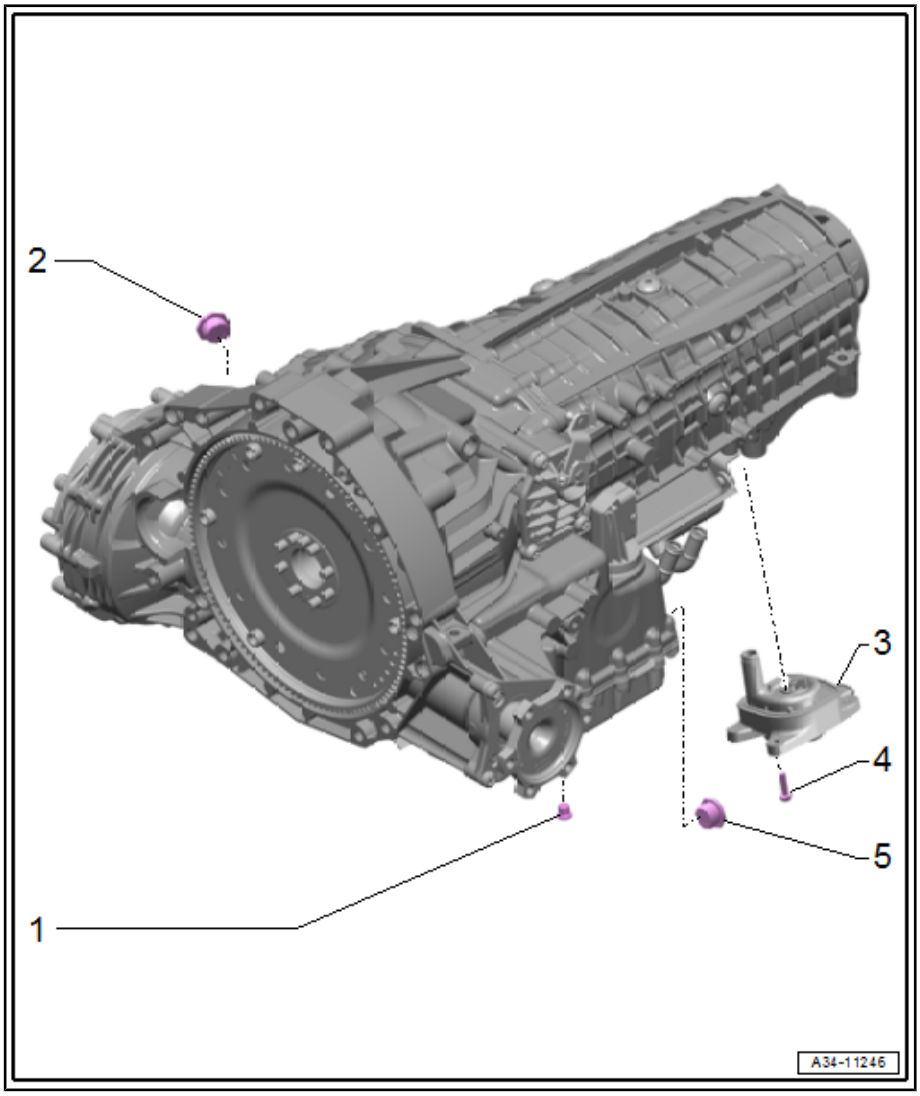
- ❑ With seal welded on
- ❑ Must be removed for draining the transmission fluid (MTF).
- ❑ Replace the transmission fluid pump if the seal is damaged.
- ❑ Removing and installing. Refer to ⇒ Rep. Gr. 34 ; Transmission Fluid Circuit; Transmission Fluid Pump, Removing and Installing .

4 - Bolt

- ❑ 3 Nm +90°
- ❑ Replace after removing.

5 - Drain Plug

- ❑ 35 Nm
- ❑ Replace after removing.
- ❑ For the ATF



5.2 Transmission Fluid Pump, Removing and Installing

Chapter: transmission fluid pump, removing and installing can be found in the repair manual »7-Speed Dual Clutch Transmission 0CJ, 0CK, 0CL«

Refer to ⇒ Rep. Gr. 34 ; Transmission Fluid Circuit; Transmission Fluid Pump, Removing and Installing .

21 - Seal

22 - Seal

23 - Valve Body

- ❑ Removing and installing Transmission Control Module - J217- removing. Refer to ⇒ “9.7 Transmission Control Module J217 , Removing and Installing”, page 65 .

24 - Seal

25 - Seal

26 - Low Pressure Switch

9.3 Overview - Solenoid Valves and Pressure Regulating Valves in Valve Body

1 - Automatic Transmission Pressure Regulating Valve 1 - N215-

- ❑ Clutch pressure valve 1

2 - Automatic Transmission Pressure Regulating Valve 2 - N216-

- ❑ Clutch pressure valve 2

3 - Solenoid Valve 2 - N89-

- ❑ Gear Actuator 2-R

4 - Solenoid Valve 1 - N88-

- ❑ Gear Actuator 1-3

5 - Solenoid Valve 6 - N93-

- ❑ Clutch safety valve

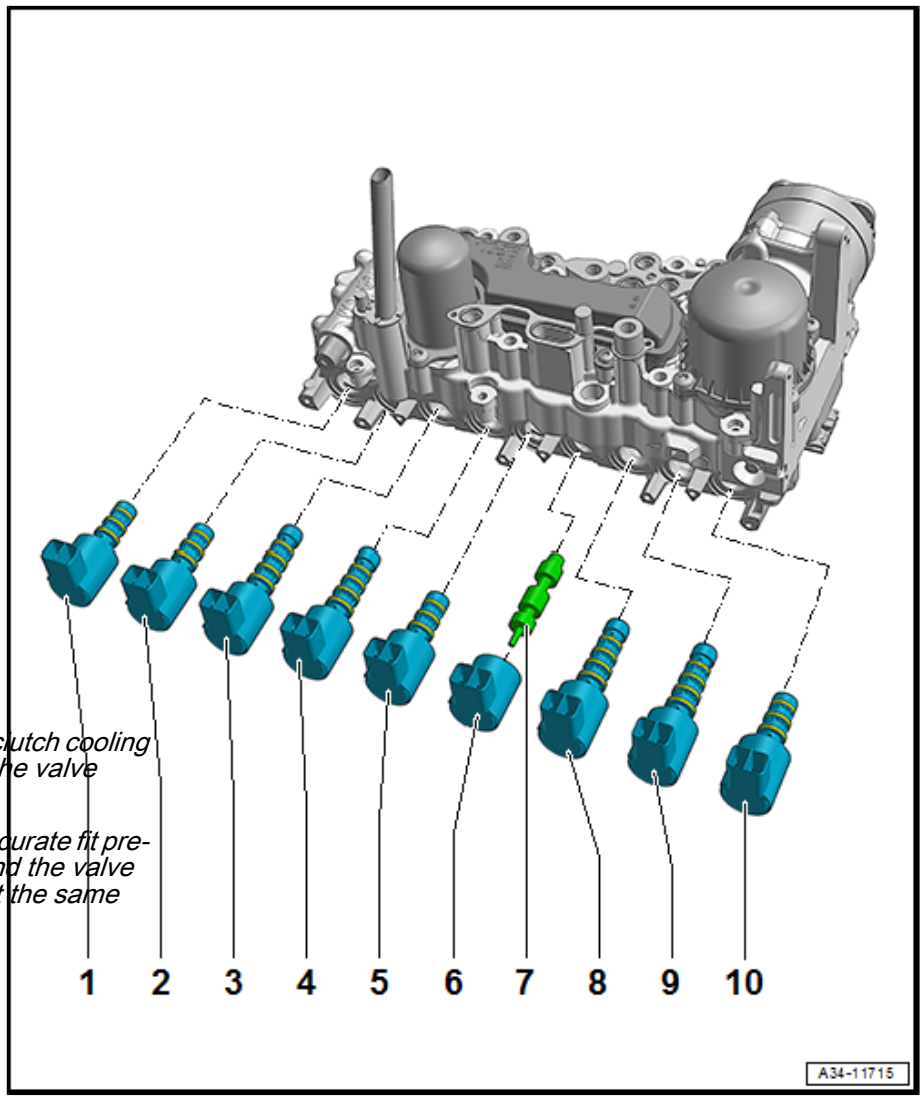
6 - Solenoid Valve 5 - N92-

- ❑ For clutch cooling valve

7 - Clutch Cooling Valve

Note

- ♦ *Do not remove the clutch cooling valve it remains in the valve body!*
- ♦ *The height of the accurate fit prevents reinstalling and the valve body is damaged at the same time.*



8 - Solenoid Valve 3 - N90-

- ❑ Gear Actuator 5-7

9 - Solenoid Valve 4 - N91-

- ❑ Gear Actuator 4-6

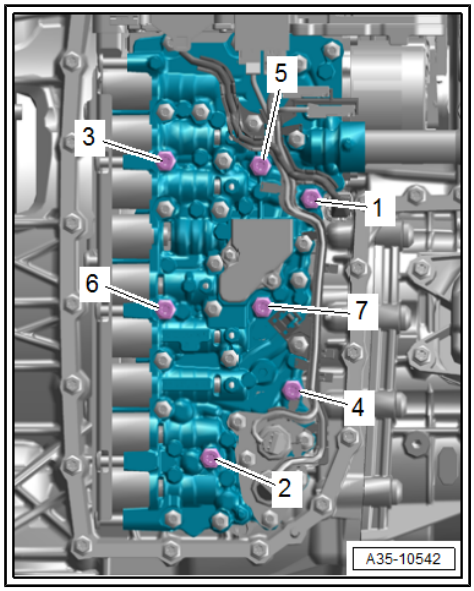
10 - Automatic Transmission Pressure Regulating Valve 3 - N217-

- ❑ Gear actuator module valve

WARNING

The system may be under pressure.

- *Make sure that the ATF pressure reservoir is discharged. Refer to ⇒ "1.3 ATF Pump, Deactivating and Draining the Hydraulic Pump Reservoir", page 4 .*
- *When the system status is not clear, for example the cause of a faulty transmission control module, only loosen the mechatronic bolts to a minimal degree, so that the oil pressure in the hydraulic pressure reservoir can decrease slowly.*
- *Wear protective eyewear.*



– Loosen the bolt in the sequence -1 to 7- a 1/2 turn.

– Remove the bolts -2 and 5- and install the two -T40199- in their place.

– Remove the remaining bolts -1, 3, 4, 6 and 7-.

Caution

Risk of causing damage to the Mechatronic.

- *Only bolts -1 through 7- may be loosened.*
- *If other bolts are loosened, this may impair the function of the Mechatronic unit or it may come apart.*

Note

- *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.*

Caution

Risk of causing damage to the Mechatronic.

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

– Remove the Mechatronic.

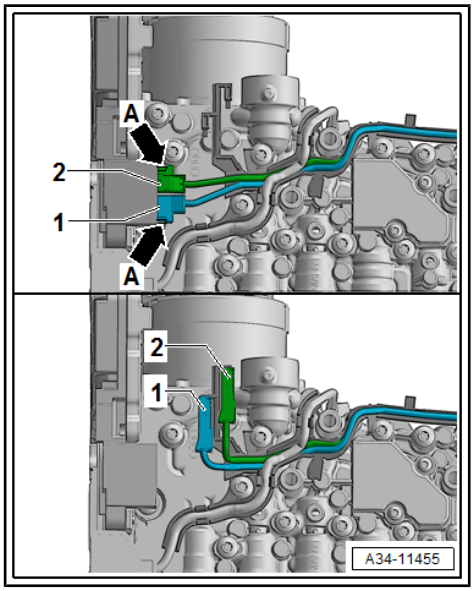
Caution

Contamination damages the Mechatronic.

- *A clean work environment is required for working on the Mechatronic.*

- Place the removed Mechatronic on a clean surface and cover it. Use foil or lint-free cloths.

– Release the connector for the Hydraulic Pressure Sensor 1 - G545- -1- and Hydraulic Pressure Sensor 2 - G546- -2- at the retaining tabs -arrows- and disconnect from the Transmission Control Module - J217- .
– Secure the connector as shown in the designated transportation safeguard.
– Remove the Mechatronic. Refer to ⇒ “9.6 Mechatronic, Removing and Installing”, page 59 .

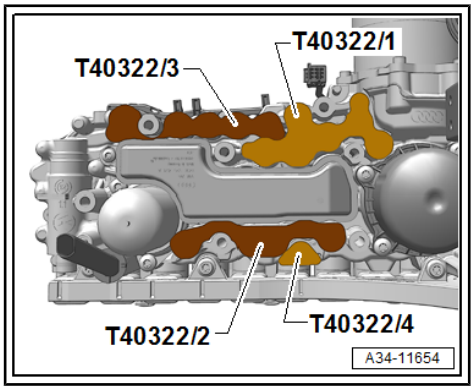


Caution

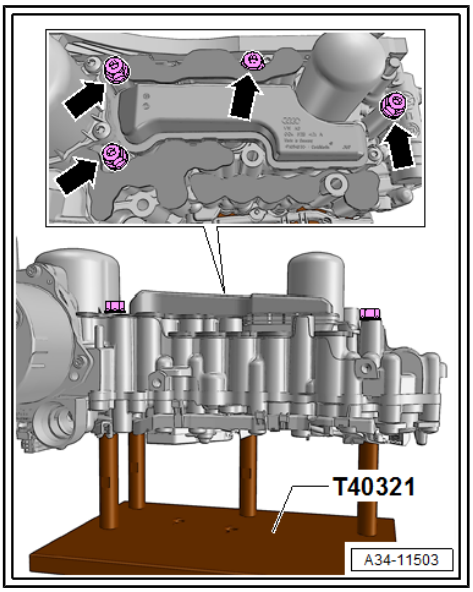
Contamination damages the Mechatronic.

- *A clean work environment is required for working on the Mechatronic.*

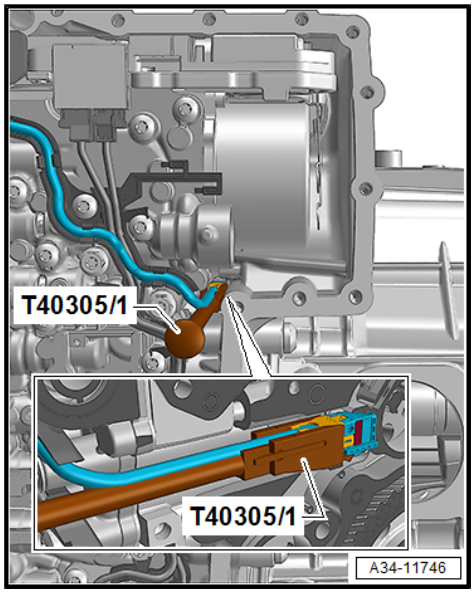
– Seal off the ATF channels with the -T40322/1-4- .



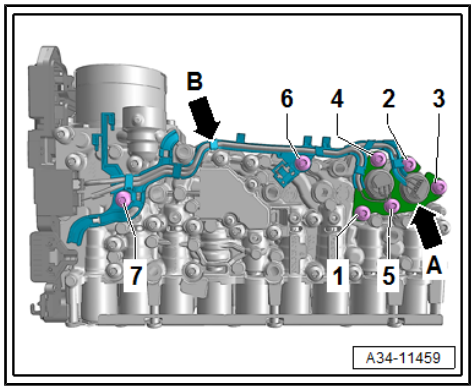
– Secure the Mechatronic on the Retaining Bracket .



– Disconnect the connector using the -T40305- .



– Loosen the bolts in the sequence -7 to 1-.
– Remove the Hydraulic Pressure Sensor 1 - G545- -1- and Hydraulic Pressure Sensor 2 - G546- with the retaining plate -arrow A- and wiring guide -arrow B-.

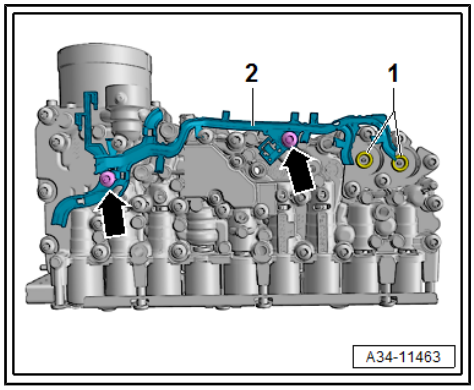


Installing

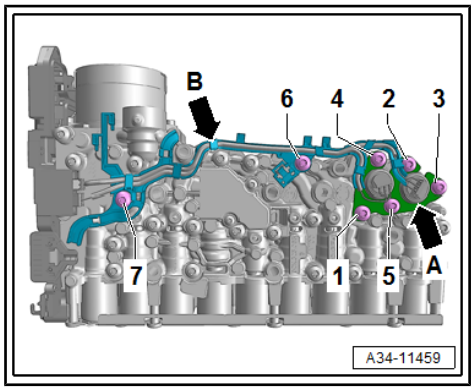
Note

Replace the wiring guide -2-.

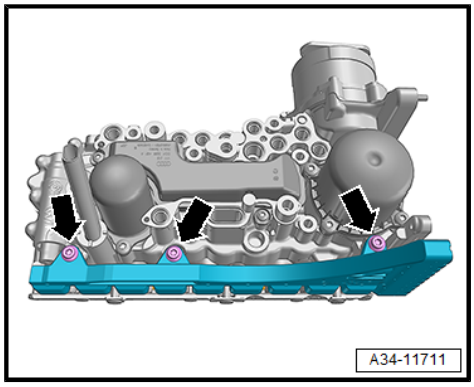
– Coat the new seal -1- with ATF and install in the valve body as shown.
– Install the wiring guide -2- with both bolts -arrows- hand-tight.



– Install the Hydraulic Pressure Sensor 1 - G545- -1- and Hydraulic Pressure Sensor 2 - G546- with the retaining plate -arrow A- and bolts -1 to 5- hand-tight.

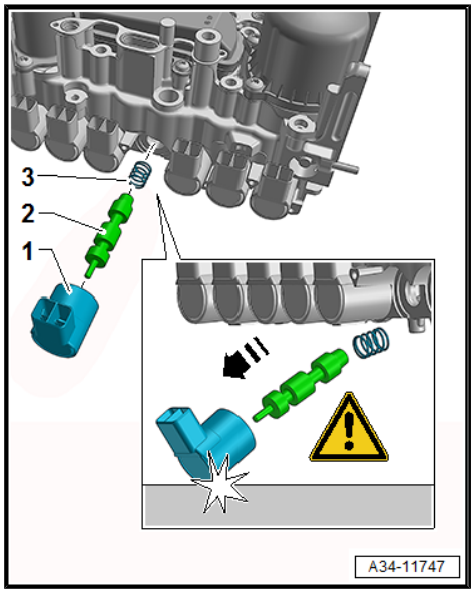


– Remove bolts -arrows- and remove the contact element.

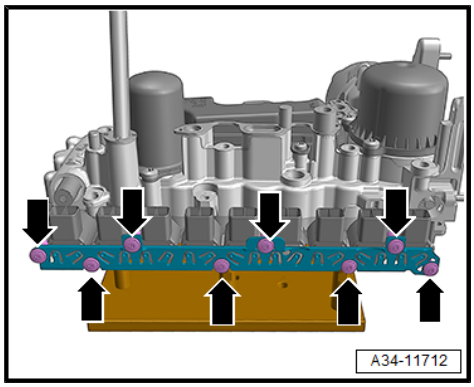


Note

- *Hold the Solenoid Valve 5 - N92- -1- when removing the mounting rail.*
- *The clutch cooling valve -2- and the spring -3- must remain in the valve body.*



– Remove the bolts -arrows- and remove the mounting rail.



– Remove the valves if necessary carefully pry out as shown in direction of -arrows-.

