Schaeffler E-Axle RepSystem-G

Art-No. 761 0005 10
Repair Solution for E-Axles
Disassembly / Assembly

Stellantis RG1 / RG1L

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Disassembly and assembly
Stellantis RG1 / RG1L

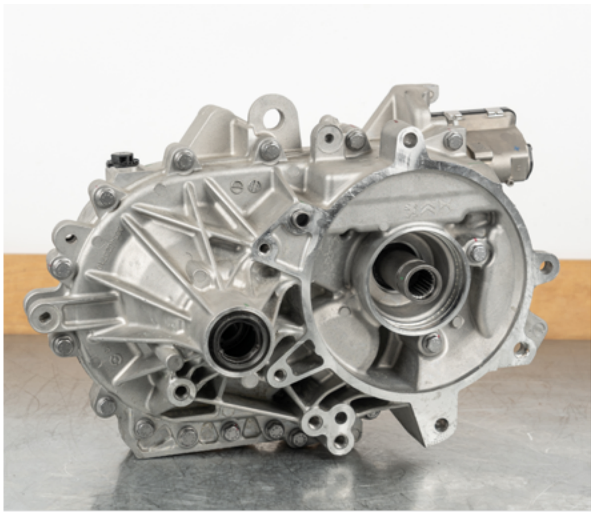
- The vehicle manufacturer's specifications and safety instructions must be observed when removing and installing the drive unit
- Work on electric vehicles may only be carried out in compliance with country-specific legal regulations
- Repairs may only be carried out by specialist staff and using suitable garage equipment
- The bearing seats and the seats of the rotary shaft seals must be cleaned
- The bearing outer rings and the inner rings/rolling elements must not be interchanged
- Cleanliness must be ensured throughout the entire repair process
- When using a threadlocker, it is necessary to clean the threads beforehand

- Drain the transmission oil

- Assemble the oil drain plug with threadlocker and tighten to 35 Nm

- Remove the transmission in accordance with the vehicle manufacturer's specifications

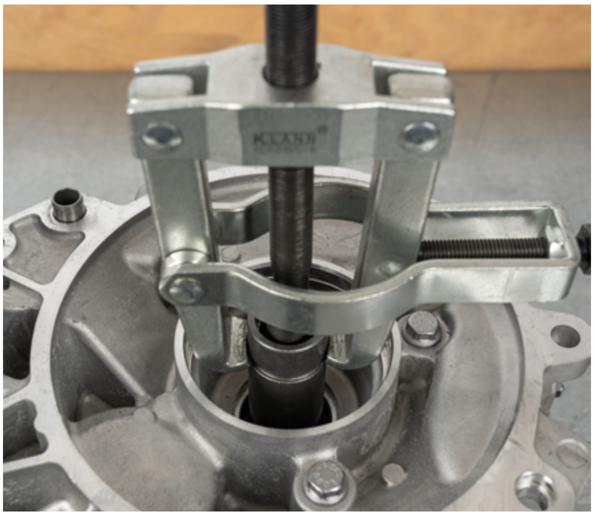
Note:
The vehicle manufacturer recommends using a new sealing ring for the oil drain plug; the corresponding item number is listed in the appendix



- Pull off the toothed sleeve (connecting element between the engine rotor shaft and the transmission input shaft) using a suitable tool

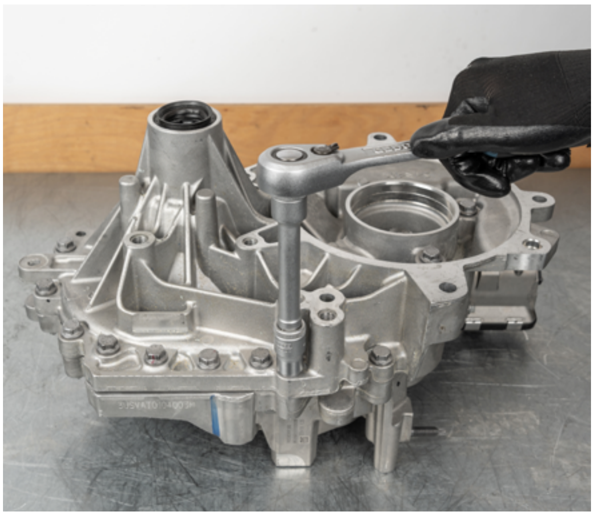
- Clean the toothed sleeve

> **Note:**
> The toothed sleeve is fastened internally to the input shaft via a snap ring

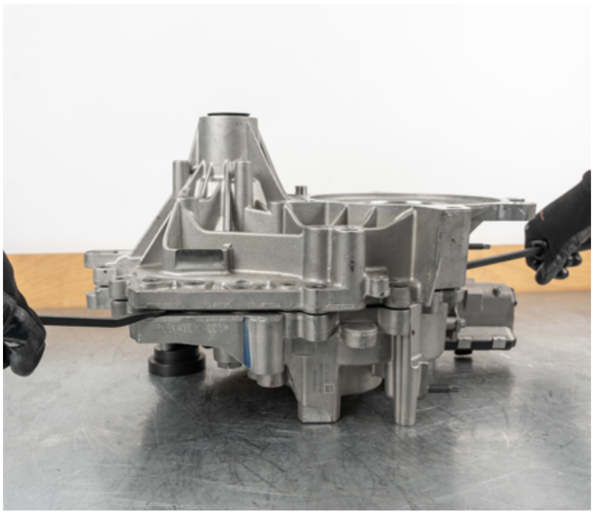


- Disassemble the transmission housing screws

> **Note:**
> Take note of the different screw lengths

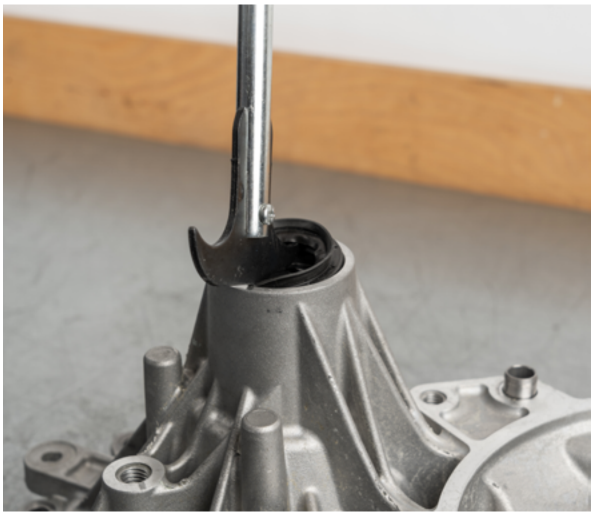


- Use a suitable tool to lift the transmission housing evenly upward without damaging the sealing surfaces



- Remove the adjusting washer for the input shaft from the engine-side housing

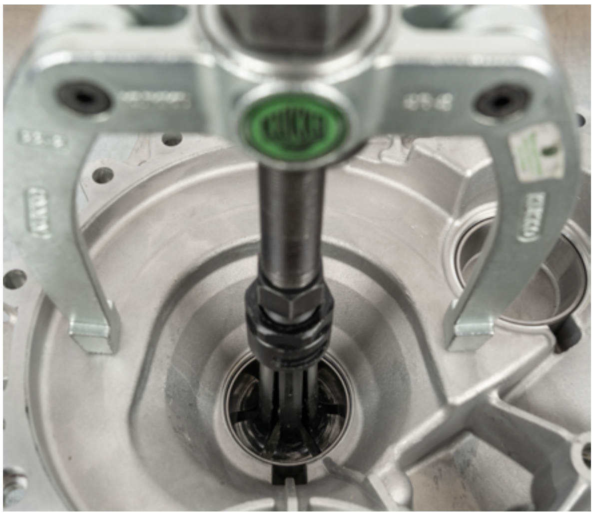
- Turn the housing upside down
- Remove the engine-side shaft seal on the differential gear



- Remove the shaft seal on the input shaft

Note:
Observe and make a note of the installation depth of the shaft seal

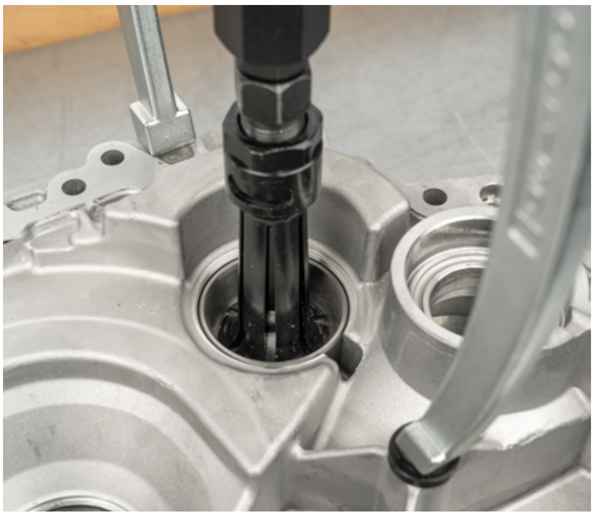
- Turn the housing upside down
- Remove the engine-side bearing outer ring of the differential gear using a suitable internal extractor



> **Note:**
> An adjusting washer is located under the bearing outer ring

- Remove the adjusting washer for the differential gear

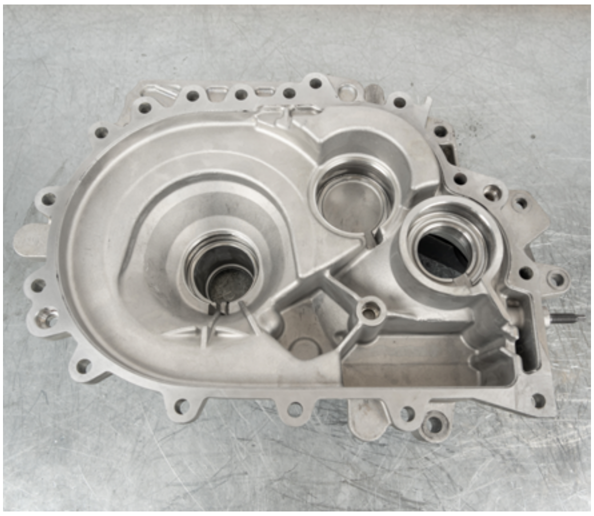
- Remove the engine-side bearing outer ring on the output shaft using a suitable internal extractor



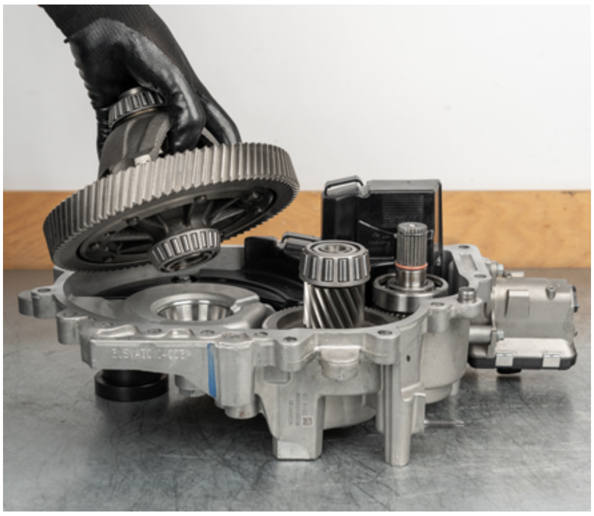
> **Note:**
> An adjusting washer is located under the bearing outer ring

- Remove the adjusting washer from the output shaft

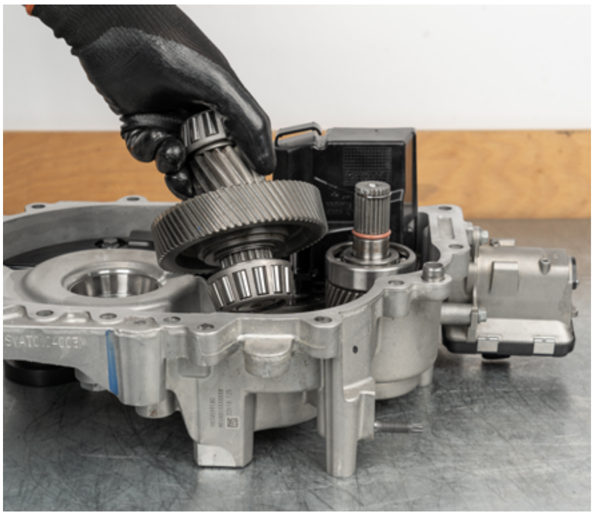
- Remove the sealing residue
- Clean the housing



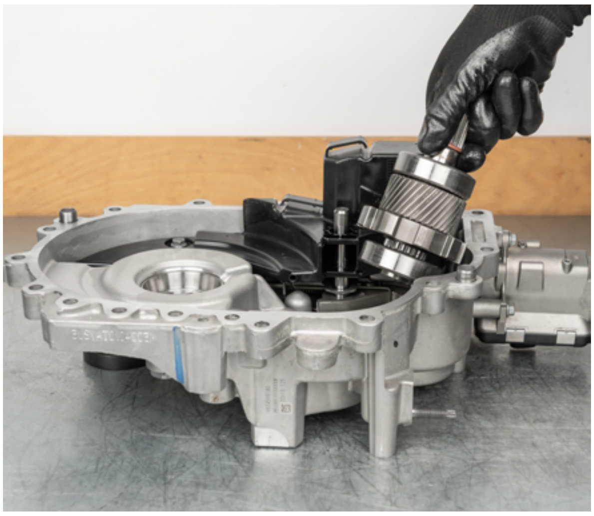
- Remove the differential gear from the transmission-side housing



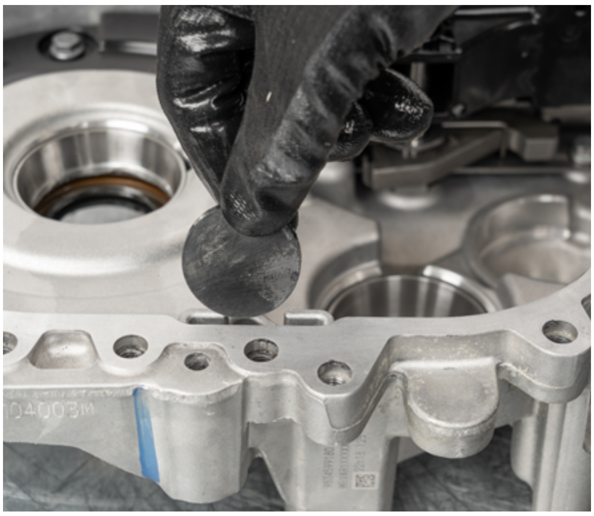
- Remove the output shaft



- Remove the input shaft

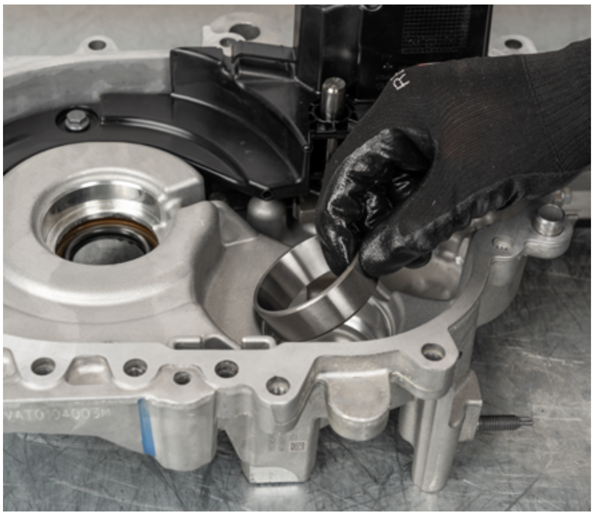


- Remove and clean the magnet

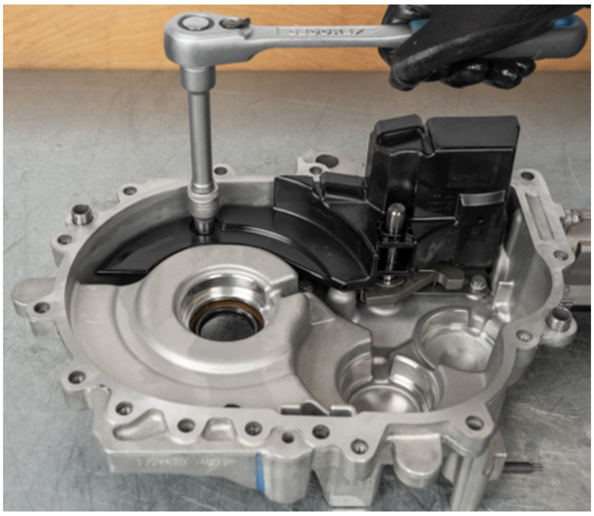


- Remove the transmission-side bearing outer ring of the differential gear

- Remove the transmission-side bearing outer ring of the output shaft

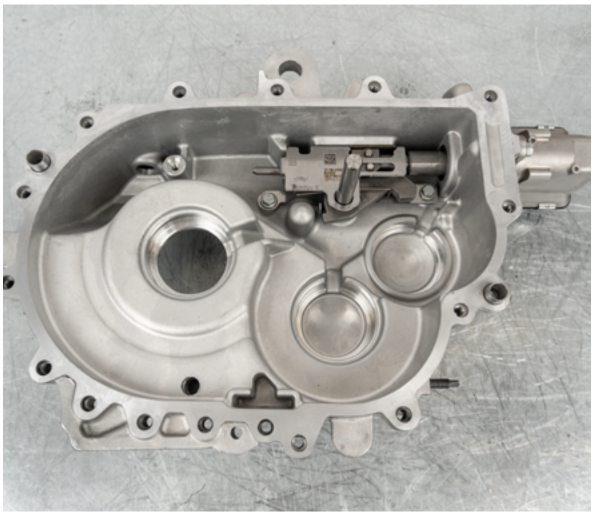


- Remove and clean the oil guide

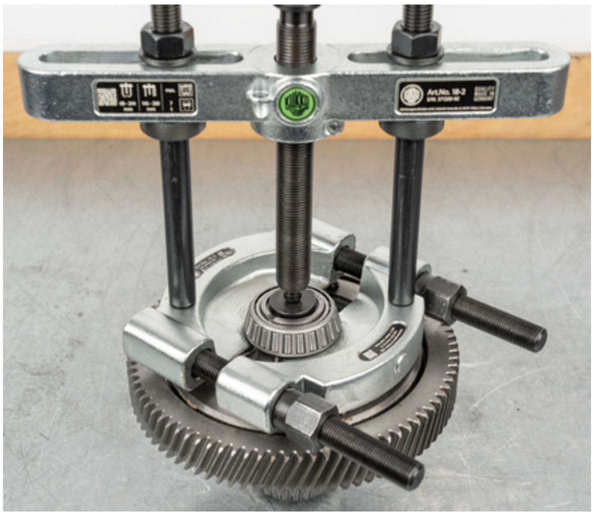


- Turn the housing upside down
- Remove the transmission-side shaft seal ring on the differential gear

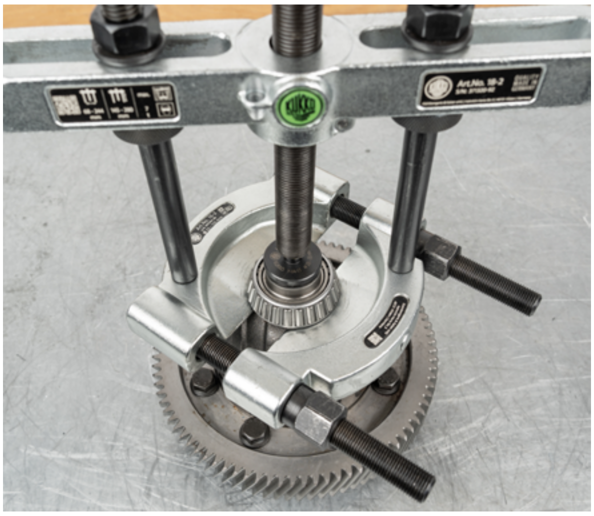
- Turn the housing upside down
- Remove the sealing residue
- Clean the transmission housing



- Remove the transmission-side taper roller bearing of the differential gear



- Remove the engine-side taper roller bearing of the differential gear
- Clean the differential gear

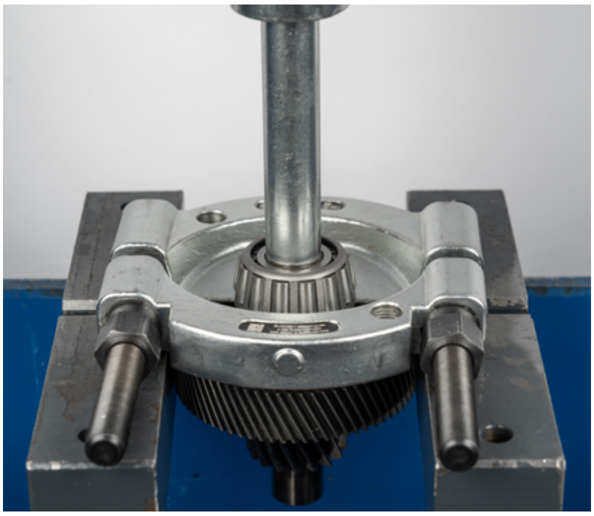


- Press the new engine-side taper roller bearing onto the differential gear

- Press the new transmission-side taper roller bearing onto the differential gear

- Remove the engine-side taper roller bearing from the output shaft

- Remove the transmission-side taper roller bearing from the output shaft
- Clean the output shaft



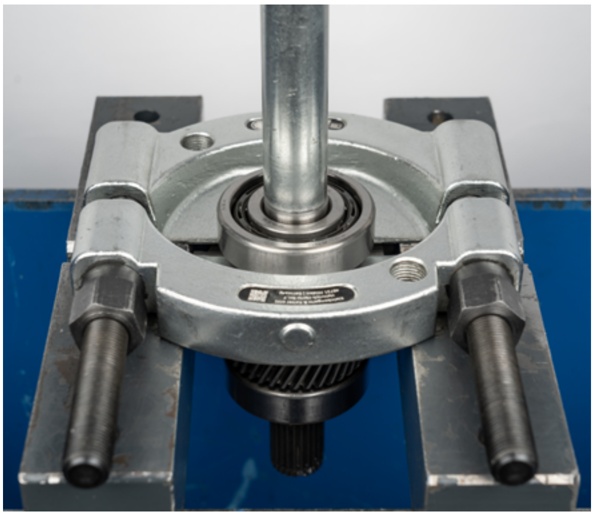
- Press the new transmission-side taper roller bearing onto the output shaft

- Press the new engine-side taper roller bearing onto the output shaft

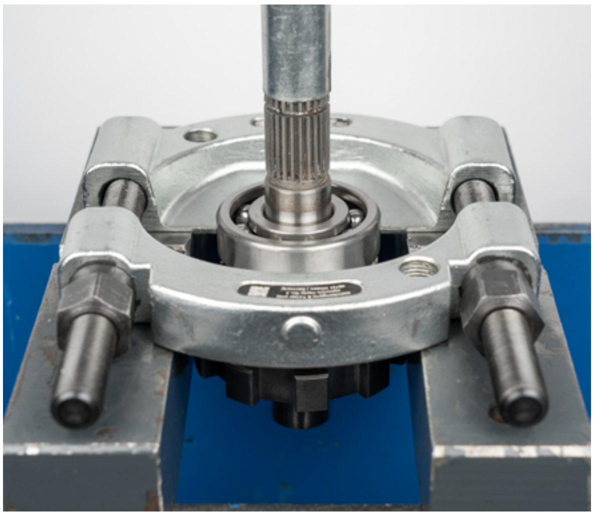
> **Note:**
> Support the output shaft to prevent damage to the transmission-side taper roller bearingn

- Remove the snap ring
- Remove the O-ring

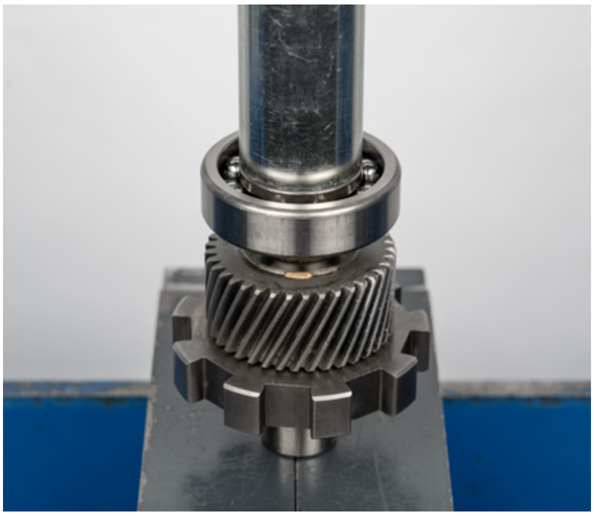
- Remove the transmission-side ball bearing on the input shaft



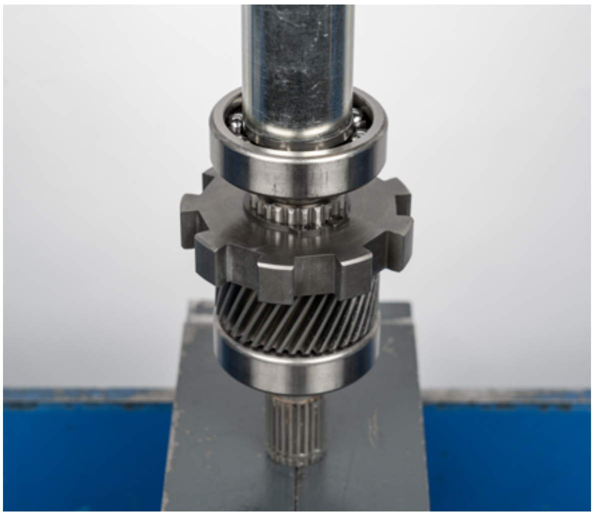
- Remove the engine-side ball bearing on the input shaft
- Clean the input shaft



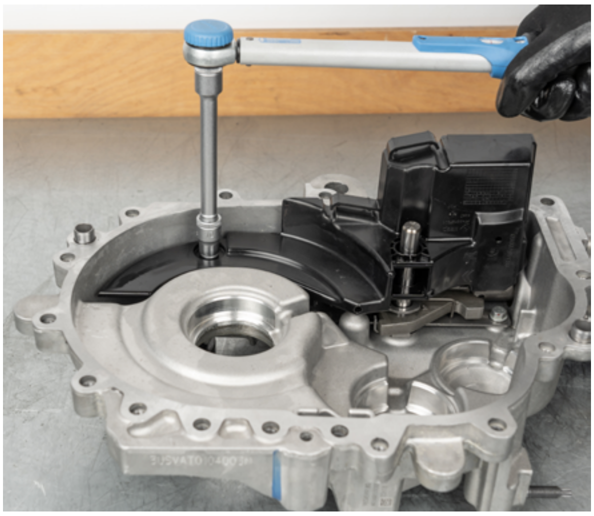
- Press the new engine-side ball bearing onto the input shaft



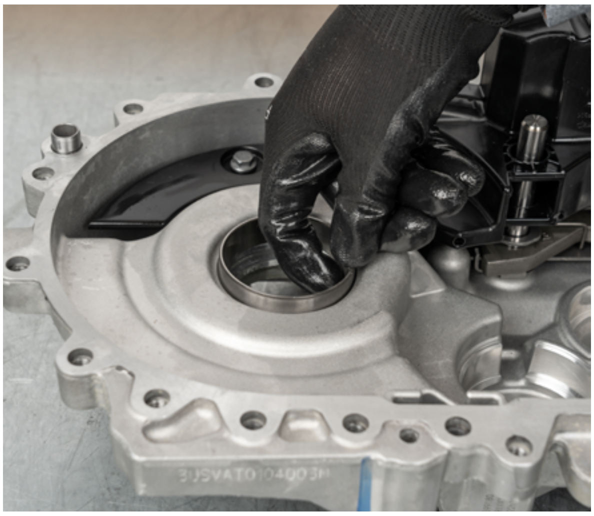
- Press the new transmission-side ball bearing onto the input shaft



- Mount the oil guide and tighten the screw to 10 Nm

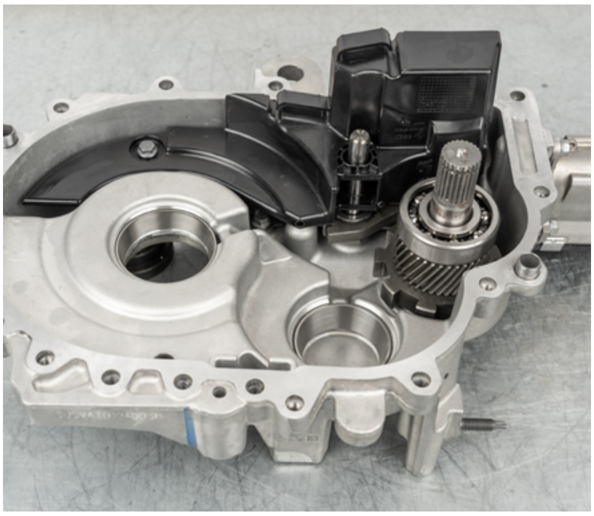


- Install the new bearing outer ring of the differential gear in the transmission-side housing

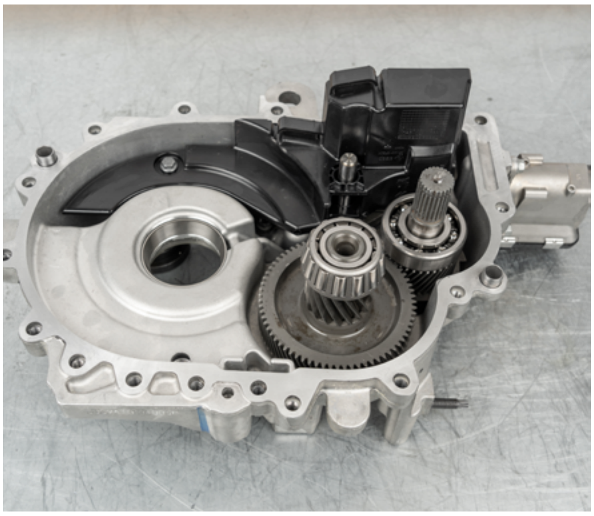


- Install the new bearing outer ring of the output shaft in the transmission-side housing

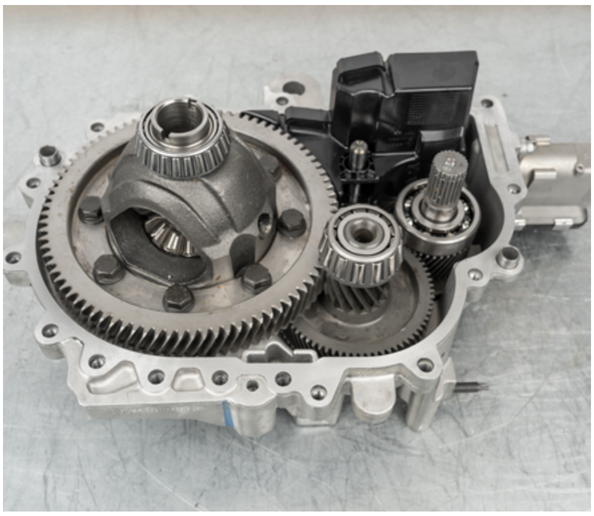
- Insert the input shaft into the transmission side of the housing



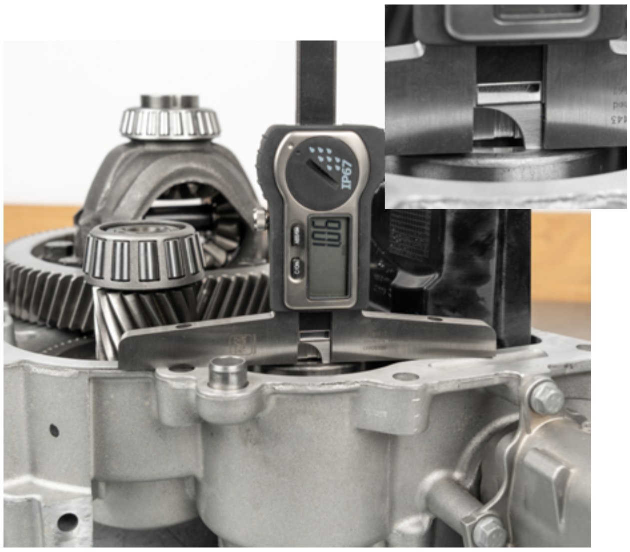
- Insert the output shaft into the housing



- Insert the differential gear into the housing



- Determine the adjusting washer for the input shaft:
  - Rotate the shaft 10 times
  - Measure distance “A” between the sealing surface of the transmission-side housing and the bearing outer ring
  - Note distance “A”



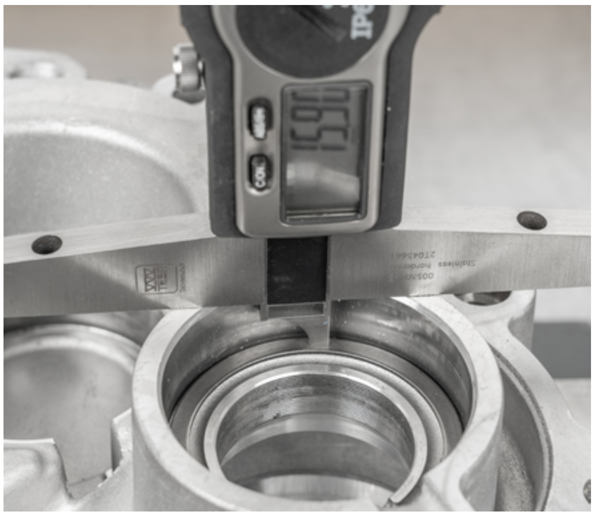
- Determine the distance “B” between the sealing surface of the housing and the bearing seat of the input shaft

- Measure and make a note of distance “B1”

- Place the old adjusting washer of the input shaft in the engine-side housing

- Measure and make a note of distance “B2”

- Calculate distance “B”: “B = B1 – B2”



- The nominal value of the bearing clearance is 0.02 mm to 0.12 mm

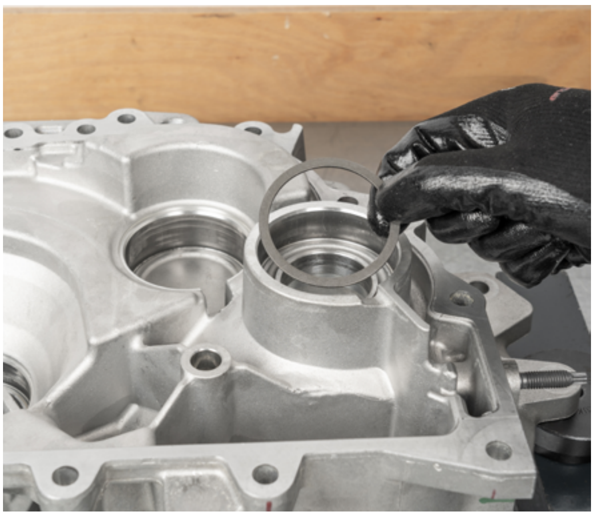
- Calculate the bearing clearance Bearing clearance = A – B

Note:
Negative value (-) = preload positive value (+) = clearance

- **Example:**
  Dimension A = 1.06 mm
  Dimension B1 = 16.91 mm
  Dimension B2 = 15.90 mm (including existing adjusting washer, e.g. 1.4 mm)
  Calculated dimension B = B1 – B2 = 1.01 mm
  Bearing clearance A – B = 0.05 mm --› is within the nominal value
  --› 1.4-mm adjusting washer should be selected

- If the determined value is outside the above nominal value, the required bearing clearance must be adapted by adjusting the adjusting washer

- Insert the calculated adjusting washer into the engine-side bearing seat



Note:
To keep the adjusting washer in position, lubricate the adjusting washer with a suitable grease, e.g. KLÜBER 46 MR 401
The item numbers of the adjusting washers are listed in the appendix

- Determine the adjusting washer for the output shaft:
  - Rotate the shaft 10 times
  - Place the new outer ring on the corresponding taper roller bearing of the output shaft
  - Place the old adjusting washer for the output shaft on the outer ring
  - Measure and make a note of distance “C” between the sealing surface of the transmission-side housing and the adjusting washer

> **Note:**
> Apply a force of 50 N to the outer ring when measuring

- Measure distance “D” between the sealing surface of the housing and the bearing seat of the output shaft

- Make a note of distance “D”

> **Note:**
> The thickness of the flat rulers must be omitted from the calculation

- The nominal value of the bearing preload is **-0.22 mm to -0.12 mm**

- Calculate the bearing preload
  Bearing preload = D – C

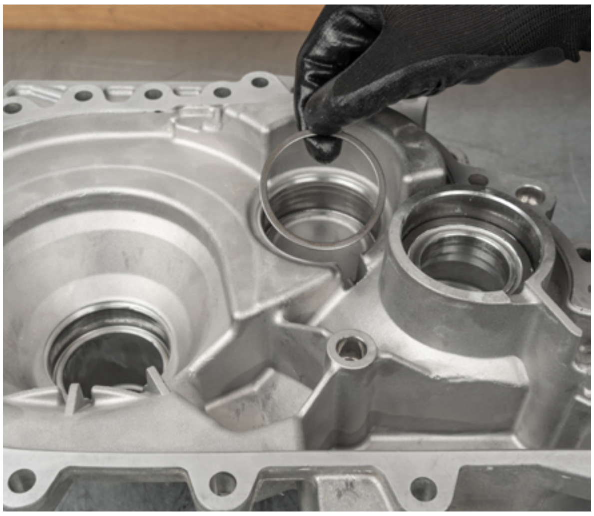
> **Note:**
> Negative value (-) = preload
> positive value (+) = clearance

- **Example:**
  Dimension C = 44.20 mm (including existing adjusting washer, e.g. 1.4 mm)
  Dimension D = 44.00 mm
  Bearing preload D – C = - 0.20 mm --> is within the specified nominal value
  --> 1.4-mm adjusting washer should be selected

- If the determined value is outside the above nominal value, the required bearing clearance must be adapted by adjusting the adjusting washer

- Insert the calculated adjusting washer into the engine-side bearing seat

> **Note:**
> The item numbers of the adjusting washers are listed in the appendix



- Press a new engine-side outer bearing ring for the output shaft into place

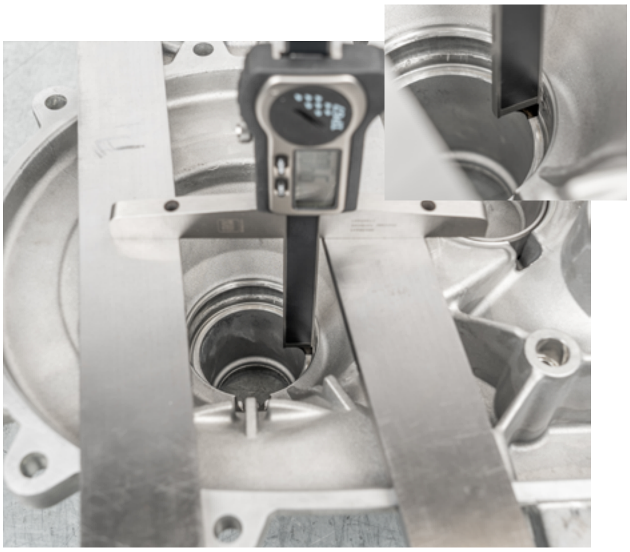
- Determine the adjusting washer for the differential gear:
  - Rotate the shaft 10 times
  - Place the new outer ring on the corresponding taper roller bearing of the differential gear
  - Place the old adjusting washer for the differential gear on the outer ring
  - To centrally align the depth gauge, use e.g. the old outer ring of the bearing
  - Measure and make a note of distance “E” between the sealing surface of the transmission-side housing and the bearing outer ring

Note:
Apply a force of 50 N to the outer ring when measuring
The thickness of the old outer ring must be omitted from the calculation

- Measure distance “F” between the sealing surface of the housing and the bearing seat of the differential gear

- Make a note of distance “F”

Note:
The thickness of the flat rulers must be omitted from the calculation



- The nominal value of the bearing preload is **-0.22 mm to 0.02 mm**

- Calculate the bearing preload
  Bearing preload = F – E

Note:
negative value (-) = preload
positive value (+) = clearance

- **Example:**
  Dimension E = 94.12 mm (including existing adjusting washer, e.g. 1.4 mm)
  Dimension F = 94.00 mm
  Bearing preload F – E = - 0.12 mm --> is within the nominal value
  --> 1.4-mm adjusting washer should be selected

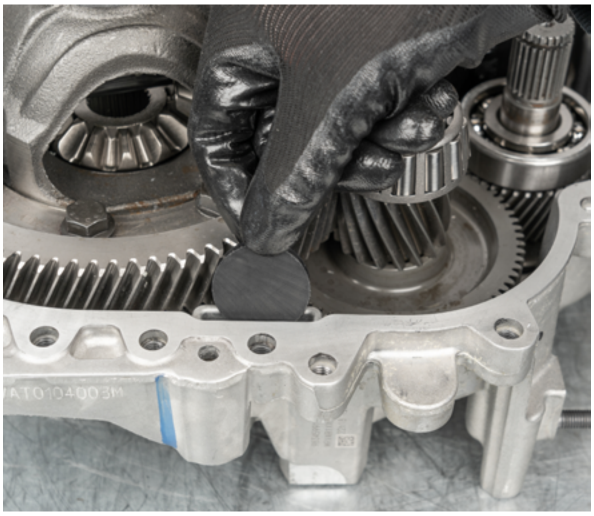
- If the determined value is outside the above nominal value, the required bearing clearance must be adapted by adjusting the adjusting washer

- Insert the calculated adjusting washer into the engine-side bearing seat

> **Note:**
> The item numbers of the adjusting washers are listed in the appendix

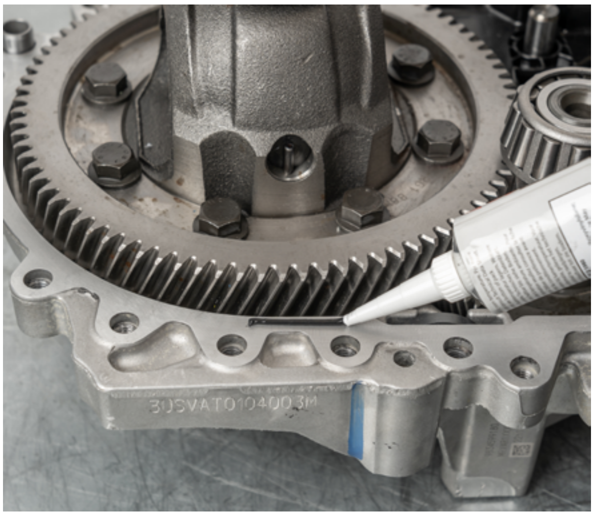
- Press a new engine-side outer bearing ring for the output shaft into place

- Place the magnet in the transmission-side housing



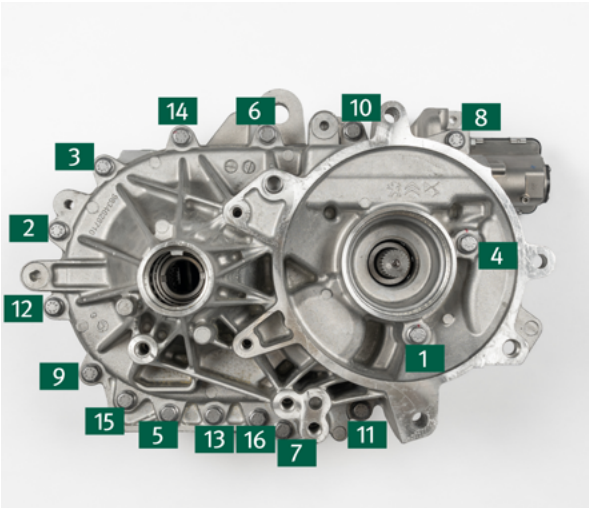
- Clean the sealing surfaces using a suitable cleaning agent, e.g. Loctite SF 7063
- Apply a suitable sealant to the housing, e.g. Loctite SI 5980
- Assemble the engine-side housing

> **Note:**
> Ensure that the guide sleeves are correctly positioned in the housing



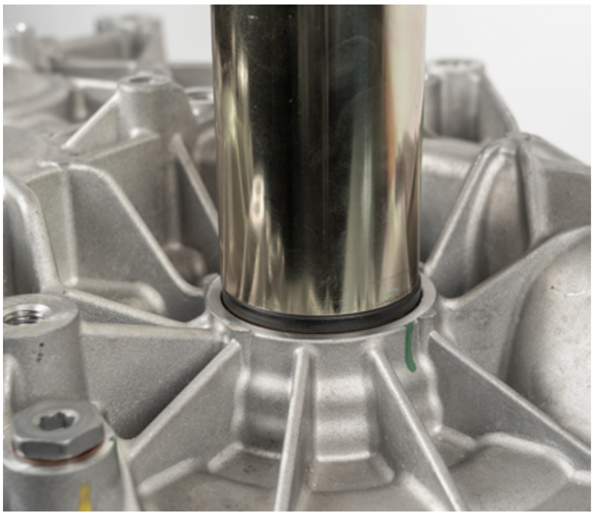
- Insert the screws and tighten them to 30 Nm in accordance with the tightening sequence

> **Note:**
> Take note of the different screw lengths



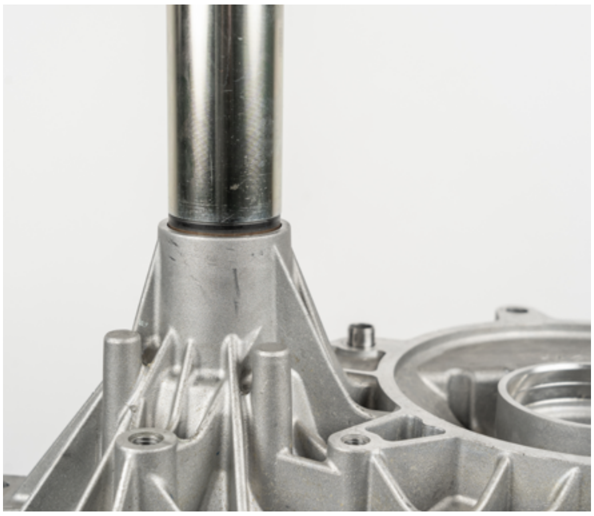
- Press the new transmission-side shaft seal for the differential gear into the transmission housing

Note:
If necessary, lubricate with oil type HVBFE2



- Turn the housing upside down
- Mount the new engine-side shaft seal for the differential gear in the transmission housing

Note:
If necessary, lubricate with oil type HVBFE2



- Mount the new engine-side shaft seal of the input shaft to the previous installation depth using a suitable sleeve

Note:
If necessary, use the following lubricants: LUB PE 1563/LUB GEL 1835
Remove the seal protection after installation

- Mount a new O-ring on the input shaft

- Mount the snap ring on the input shaft

Note:
The O-ring must not be damaged by the toothing on the input shaft

- Apply suitable lubricating grease to the toothing on the input shaft in the area above the snap ring, e.g. KLÜBER 46 MR 401.

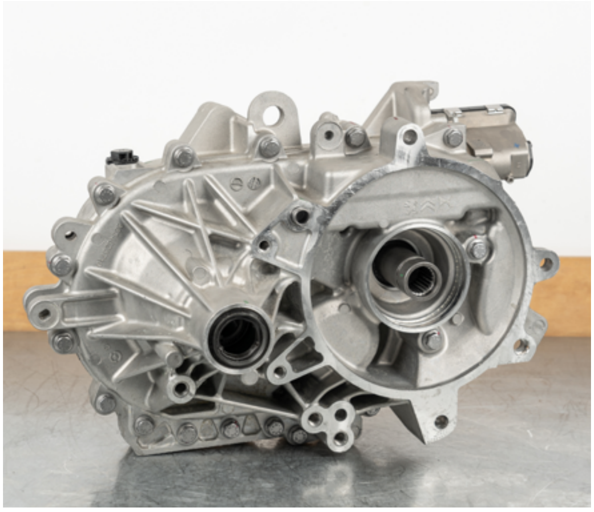
Note:
Use a cloth to remove any excess grease from the grooves and the end of the shaft

- Slide the toothed sleeve onto the input shaft until the snap ring engages in the groove

Note:
The groove on the outer diameter of the toothed sleeve points toward the engine

- Reinstall the transmission, observing the vehicle manufacturer’s instructions

- Transmission oil quantity: 1.1 liters
  OEM spare part number for the oil: 16 180 784 80
  Tightening torque for the oil filler plug: 12 Nm



Note:
Tightening torque of mounting screws/
nuts for transmission and engine: 60 Nm

Appendix

1. Sealing ring for the oil drain plug
Copper sealing ring
OE item number 698870

Oil drain plug
OE item number 98 253 407 80

2. Adjusting washers for the input shaft bearing
Set of adjusting washers
OE item number 98 252 804 80

3. Adjusting washers for the output shaft bearing
Set of adjusting washers
OE item number 98 252 804 80

4. Adjusting washers for the differential gear bearing
Set of adjusting washers
OE item number 2357 A4

5. Oil filler plug
Transmission filler plug
OE item number 98 296 300 80