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Schaeffler E-Axle RepSystem-M

Part no. 762 0005 10
Repair solution for e-axle
disassembly/assembly

Stellantis ZK01

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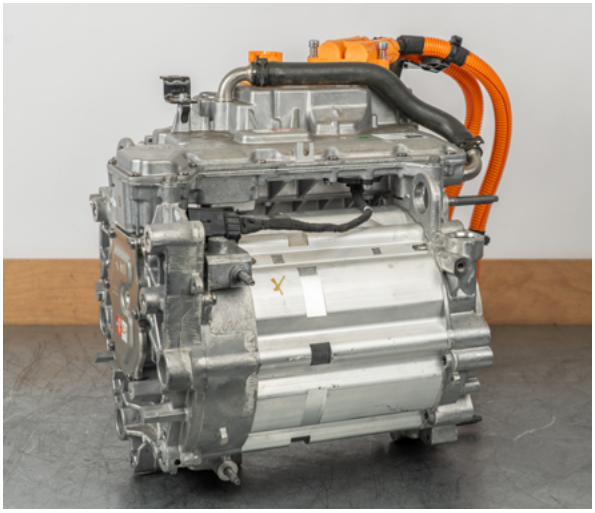
Disassembly and assembly Stellantis ZK01

- 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 sealing rings need to be cleaned
- Cleanliness must be ensured throughout the entire repair process
- Due to the high magnetic forces, the rotor must be protected against surrounding metal particles/chips
- When using a threadlocker, it is necessary to clean the threads beforehand
- The rotor and stator must not touch each other during the disassembly or assembly processes. Failure to comply with this may result in unwanted noise generation and malfunctions

- **Danger to life due to electric and magnetic fields**
  Electrical and magnetic fields are created on the high-voltage system. There is a risk of death or serious injury due to malfunction of active implants (e.g. pacemakers, insulin pumps, hearing aids). Persons with active implants must not carry out any work on the high-voltage system.

- Remove the transmission, engine, and power electronics per the vehicle manufacturer's specifications
- Remove the transmission from the engine in accordance with the vehicle manufacturer's specifications
- Drain the coolant residue
- Remove attachment parts

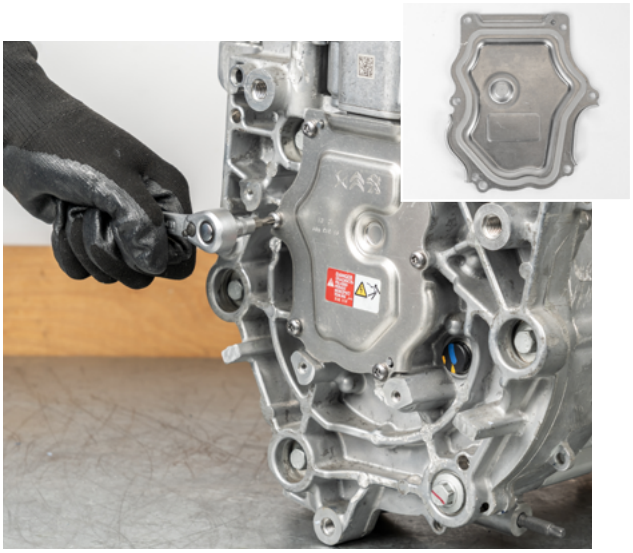
Important:
During further (dis-)assembly, no coolant should enter the interior of the engine or power electronics



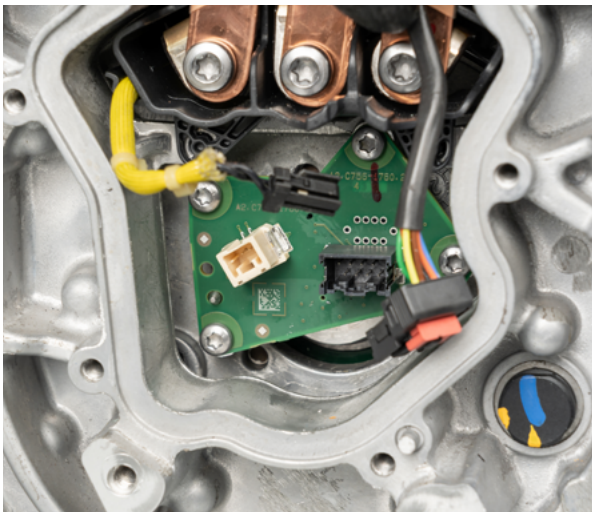
- Remove the screws of the HV cover
- Remove cover

Note:
Safety screw connection – TS 25 bit insert required.

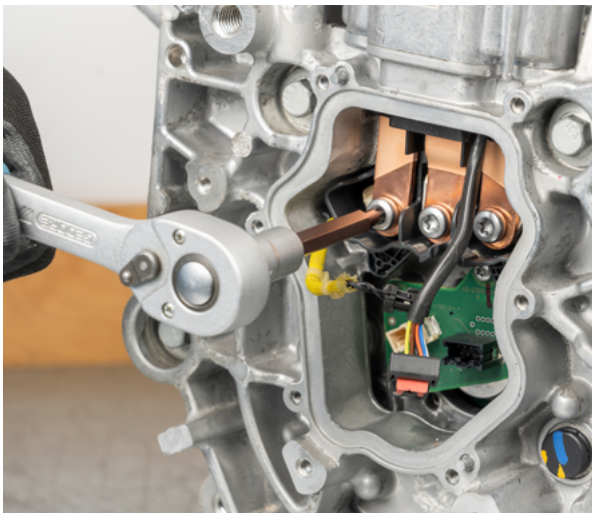
Check the seal of the HV cover for damage. In the event of damage, the engine and power electronics must be replaced! The use of an alternative sealing material is not permitted.



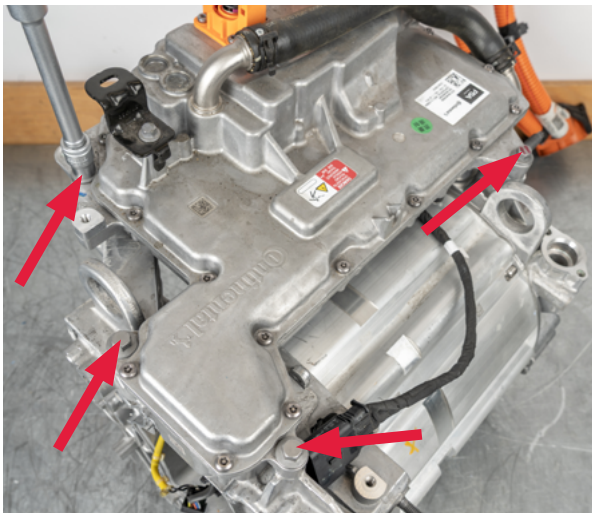
- Disconnect the plug connections of the rotor position sensor and the temperature sensor



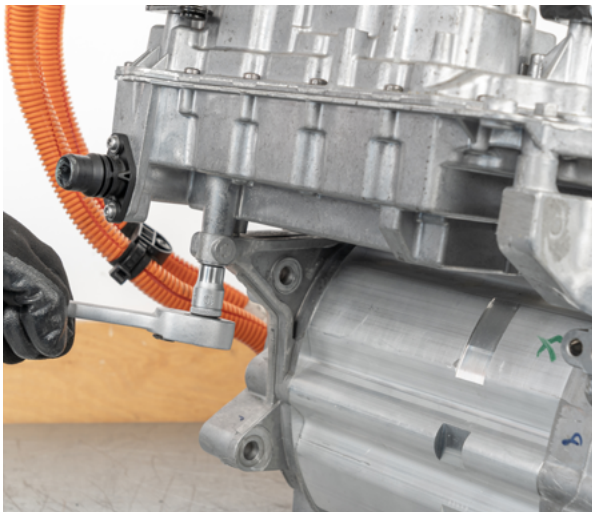
- Remove the screws of the high-voltage terminal



- Remove the four screws connecting the power electronics and the engine

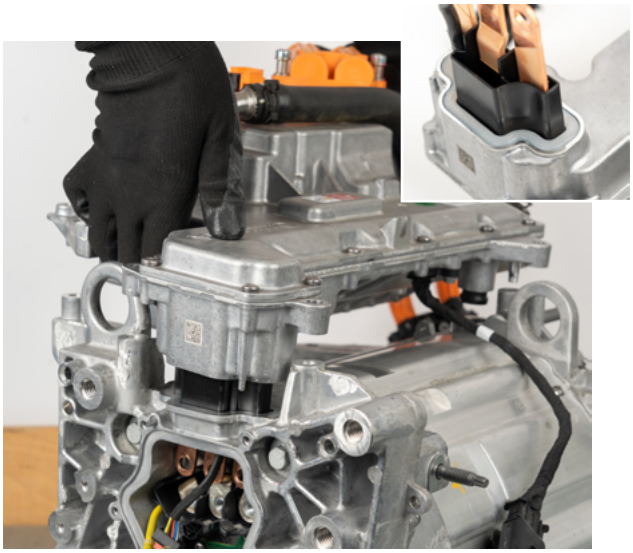


- Remove the screw on the underside for connecting the power electronics and the engine

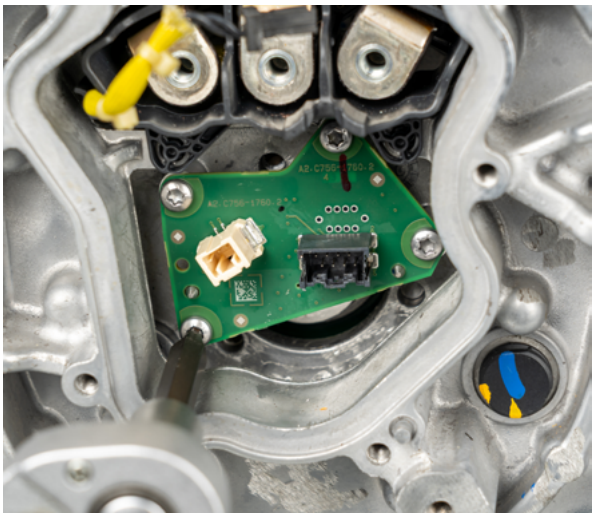


- Remove the power electronics

Note:
Take note of the cable routing. To avoid damage, the power electronics must be lifted parallel to the engine without being tilted.
Check the seal of the power electronics for damage. In the event of damage, the engine and power electronics must be replaced! The use of an alternative sealing material is not permitted.

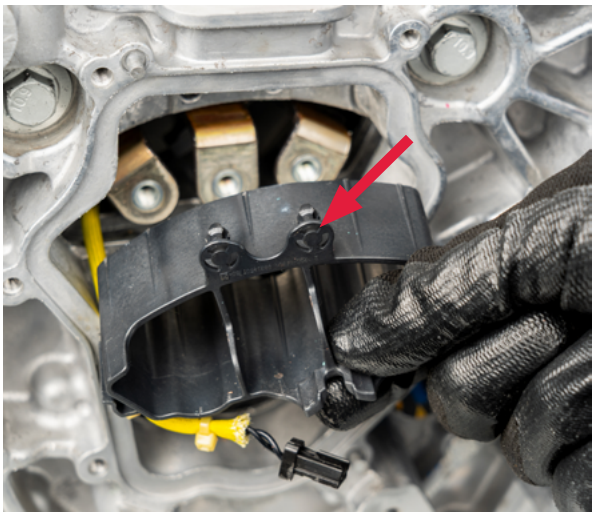


- Remove the screws and the printed circuit board

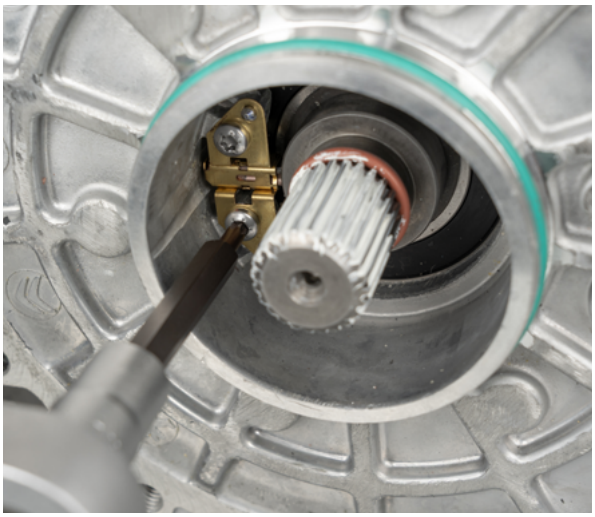


- Remove the phase guard

Note:
Observe the position pins of the phase protection. The temperature sensor cable is routed to the phase protection.



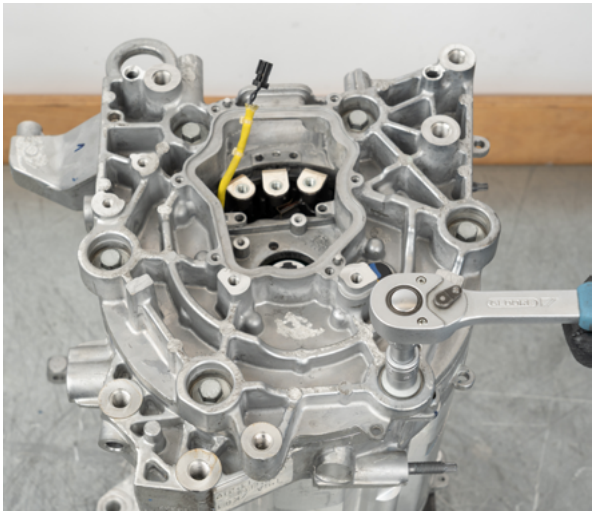
- Turn the engine upside down
- Remove screws and disassemble carbon brush



- Remove the O-ring of the engine flange

- Remove the O-ring from the rotor shaft
- Clean the rotor shaft gearing

- Turn the engine upright
- Remove the engine housing screws

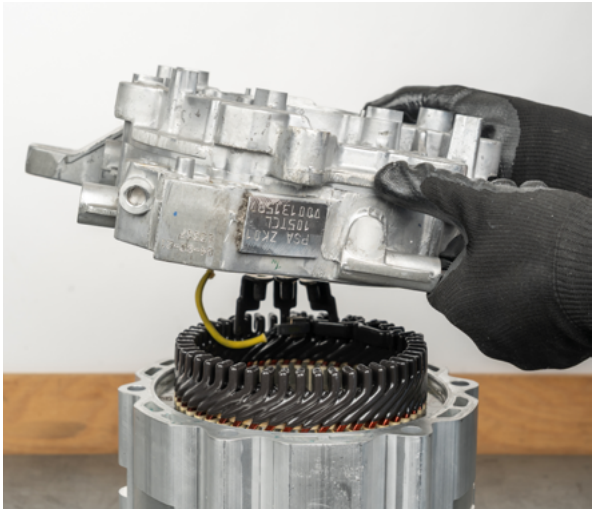


- Remove the rotor from the stator housing

Note:
An appropriate fixture must be used to carry out the disassembly to ensure that the two components do not touch each other.
It is important to ensure that the stator is fixed together with the housing cover on the rotor position sensor side of the fixture.

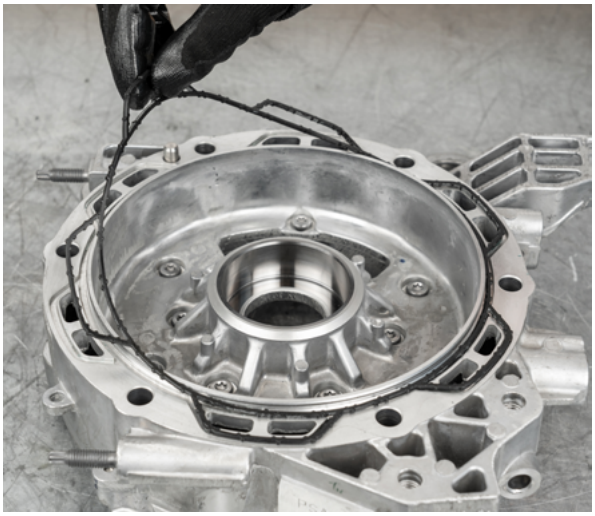
Important:
Due to the high magnetic forces, the rotor must be protected against surrounding metal particles/ chips

- Remove the housing cover from the stator



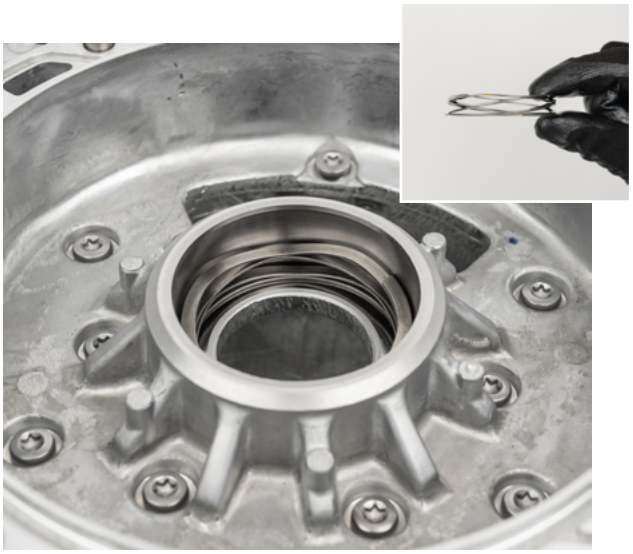
- Remove the shaft spring from the bearing seat

- Remove the seal
- Clean the cover

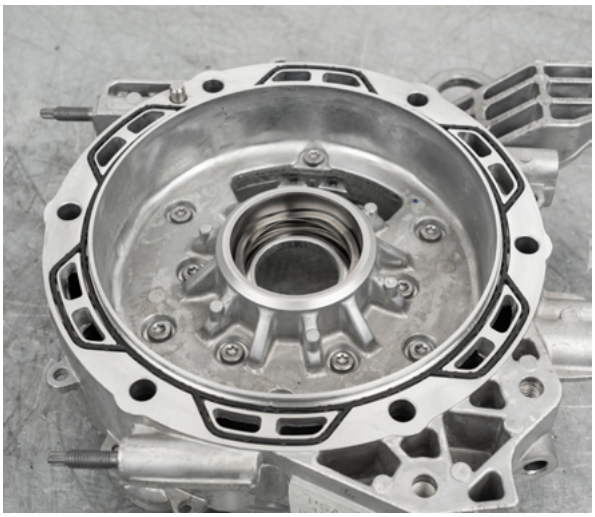


- Insert the shaft spring back into the bearing seat

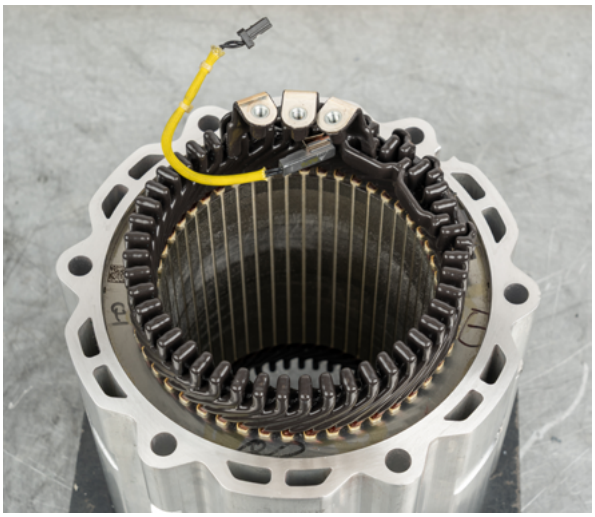
Note:
The flat side of the spring must be mounted in the bearing seat towards the housing cover.
To keep the shaft spring in position, apply suitable grease to the component, e.g. KLÜBER 46 MR 401.



- Clean the sealing surface of the housing cover
- Mount the new seal in the housing cover

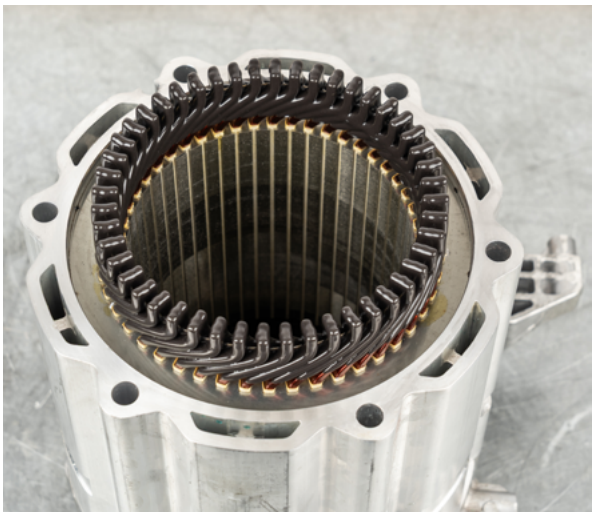


- Clean the sealing surface of the stator housing

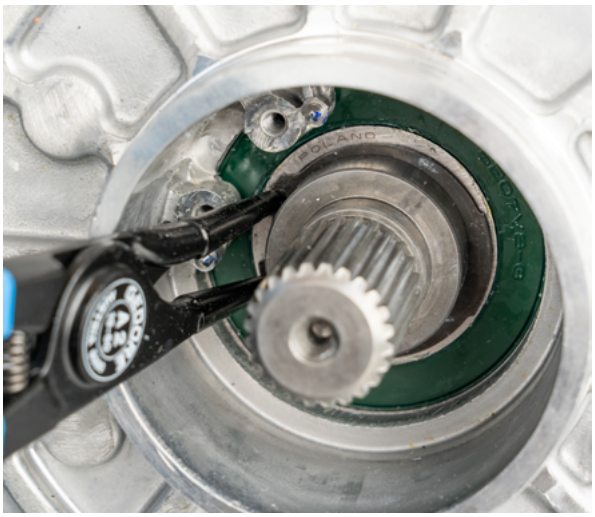


- Turn the stator housing over and mount it on the housing cover of the rotor position sensor side

Note:
Take note of the cable routing

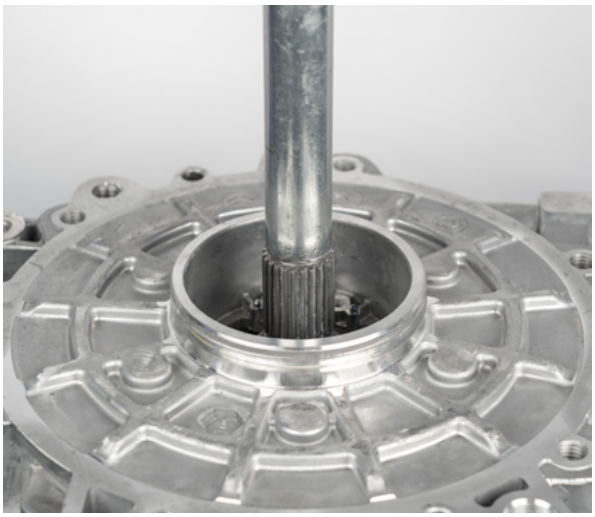


- Place the rotor on the workbench
- Remove the snap ring from the rotor shaft



- Press the rotor out of the housing cover

Note:
The rotor is highly magnetic and must not be damaged on the press table.



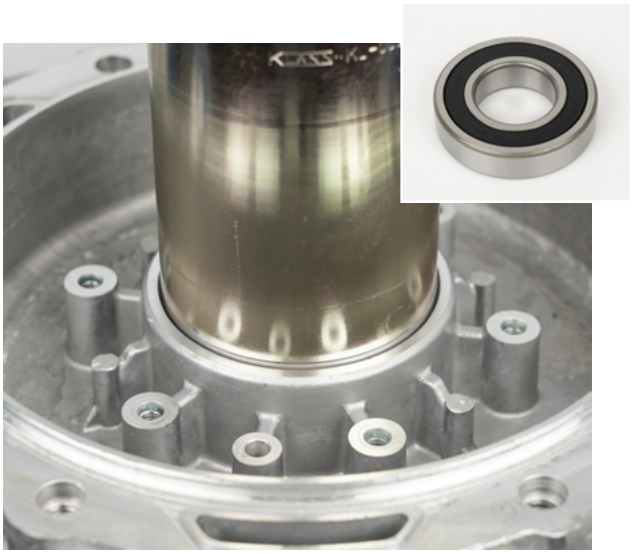
- Remove the seal from the housing cover

- Remove the screws from the bearing shield
- Remove the bearing shield

- Press out the bearing

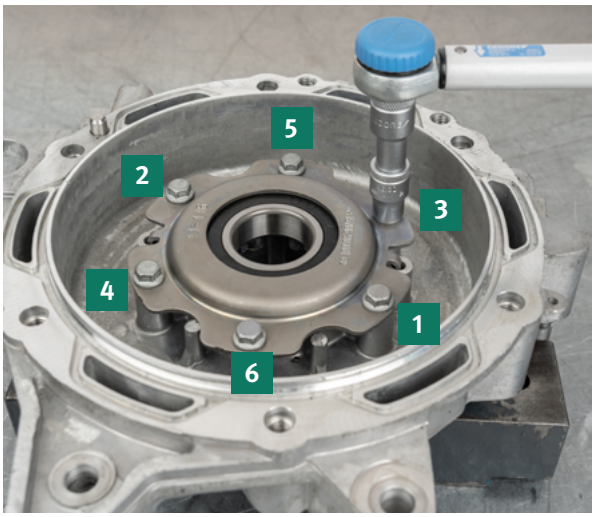
- Clean the cover
- Press in the new bearing

Note:
The existing bearing may have visual differences compared to the new one.

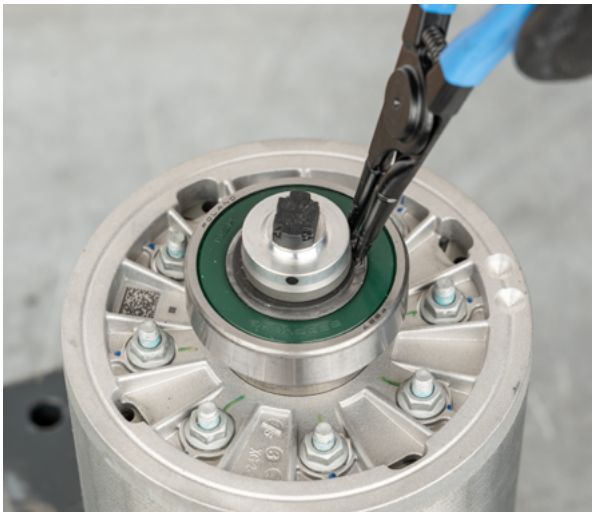


- Install the bearing shield

- Insert screws with a suitable thread-locking agent, e.g. Loctite 243, and tighten to 16 Nm in accordance with the tightening sequence

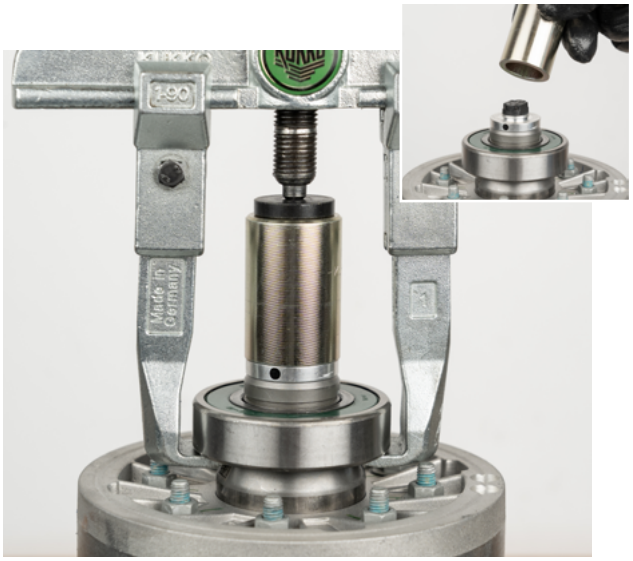


- Remove the snap ring from the rotor shaft



- Remove the bearing from the rotor using a suitable tool

Note:
To avoid damage, do not apply any force to the magnet at the end of the rotor shaft. When removing the bearing, support it with a suitable sleeve, for example.



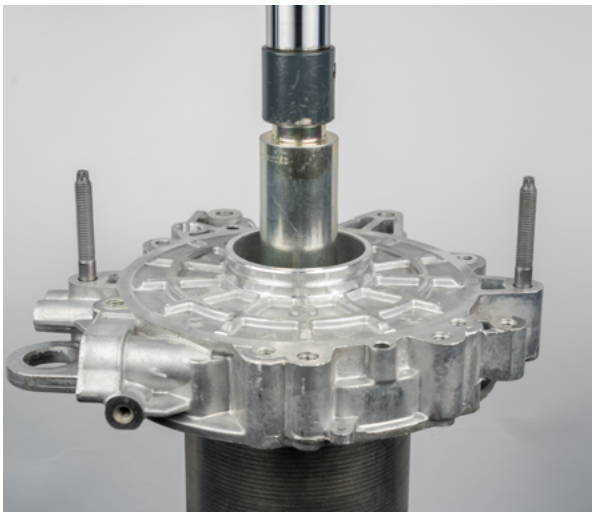
- Press on a new ball bearing

Note:
To avoid damage, do not apply any force to the magnet at the end of the rotor shaft. Use a suitable sleeve when pressing on the bearing.
The existing bearing may have visual differences compared to the new one.

- Insert the snap ring

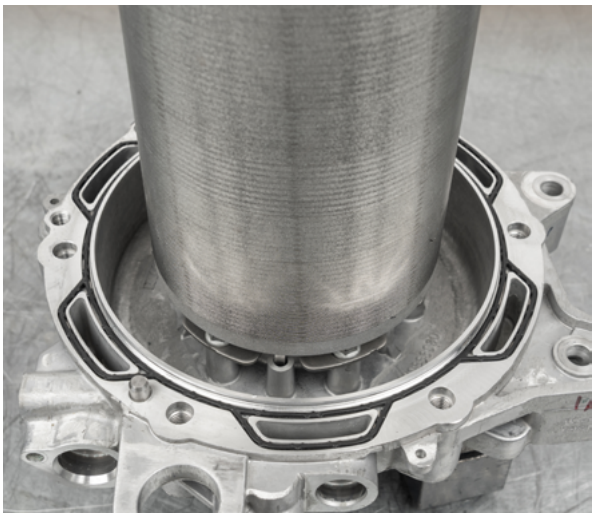
- Press the bearing onto the rotor along with the housing cover

Note:
To avoid damage, do not apply any force to the magnet at the end of the rotor shaft. You may wish to support the rotor shaft while pressing in the bearing, for example using a suitable sleeve.

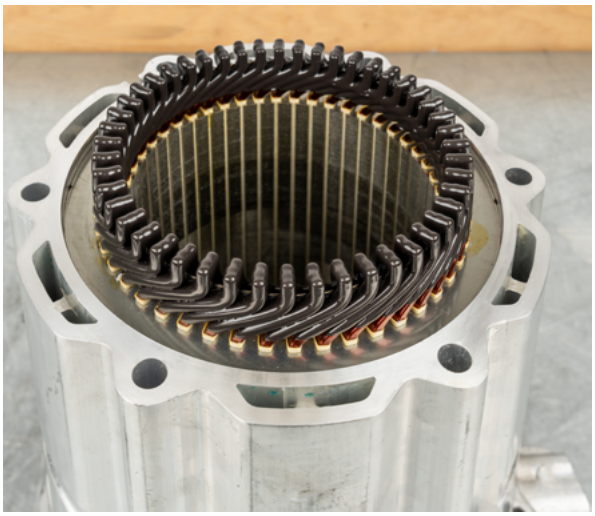


- Insert the snap ring

- Clean the sealing surface of the housing cover
- Mount the new seal in the housing cover



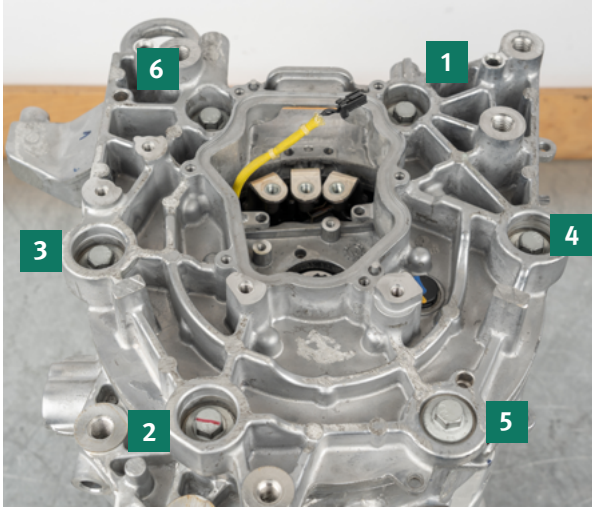
- Clean the sealing surface of the stator housing



- Install the rotor in the stator housing

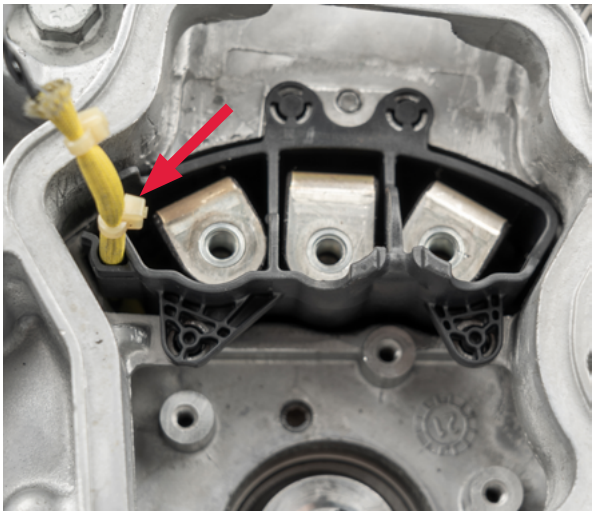
Note:
An appropriate fixture must be used to carry out the assembly to ensure that the two components do not touch each other.
It is important to ensure that the stator is fixed together with the housing cover on the rotor position sensor side of the fixture.

- Tighten the screws of the housing cover in accordance with the tightening sequence
  - Level 1: 17.5 Nm
  - Level 2: 51.5 Nm

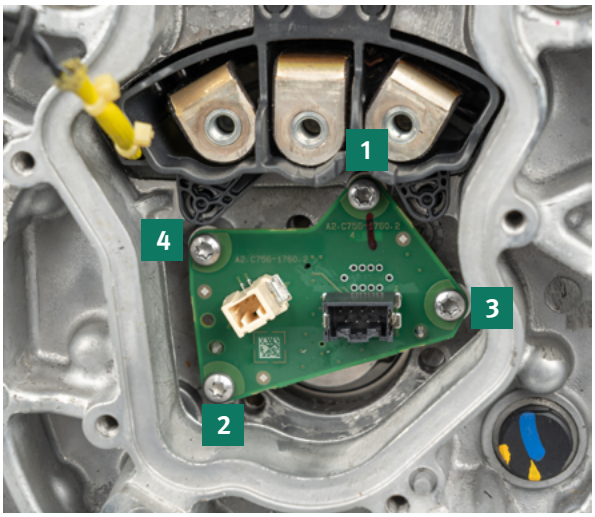


- Install phase protection
- Attach the cable to the groove provided

Note:
Both clips must be located outside the stator housing.



- Align and insert the printed circuit board using the position pins in the housing
- Tighten the screws to 3 Nm in accordance with the tightening sequence



- Remove the connecting element of the cooling channel from the power electronics

- Clean the sealing surfaces
- Lightly wet the new connecting element with the vehicle-specific coolant and mount it into the power electronics

Important:
Ensure that the connecting element is positioned vertically when mounting the power electronics on the engine.

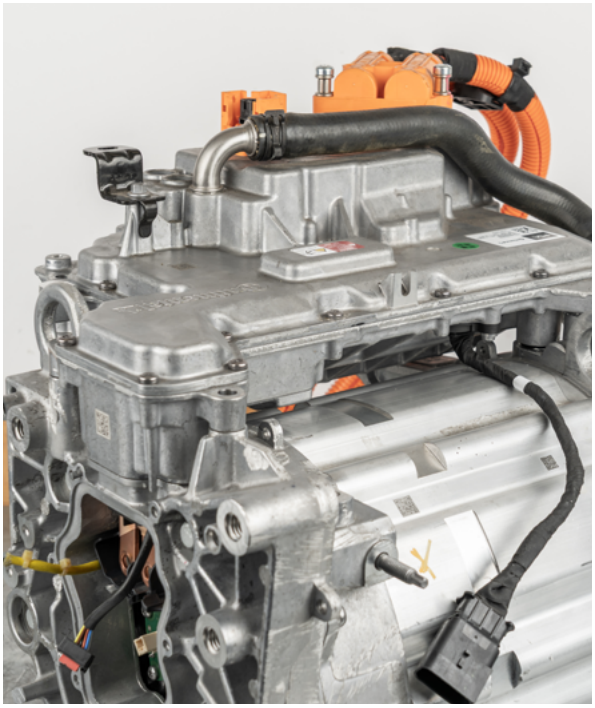
- Clean the sealing surfaces

- Feed the high-voltage terminal connections and rotor position sensor cables through the opening in the housing cover

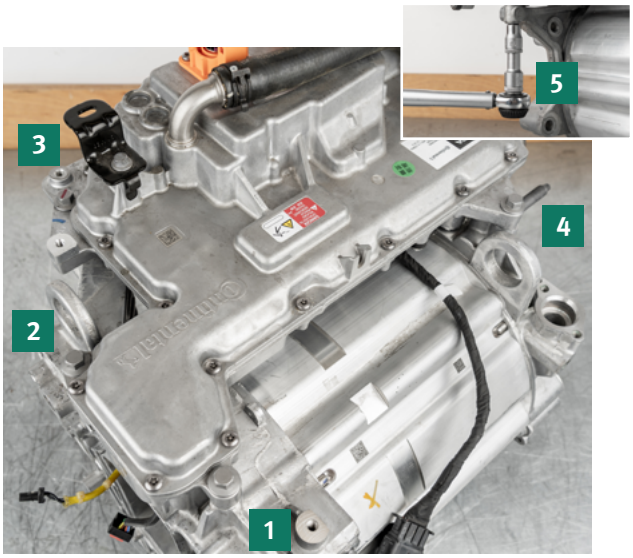
- Mount the power electronics

Note:
Check the seal of the power electronics for damage. In the event of damage, the engine and power electronics must be replaced! The use of an alternative sealing material is not permitted.
To avoid damage and leaks, the power electronics must be placed in parallel on the end position of the engine without being tilted.

Important:
All contact surfaces on the high-voltage terminal must be cleaned before assembly.

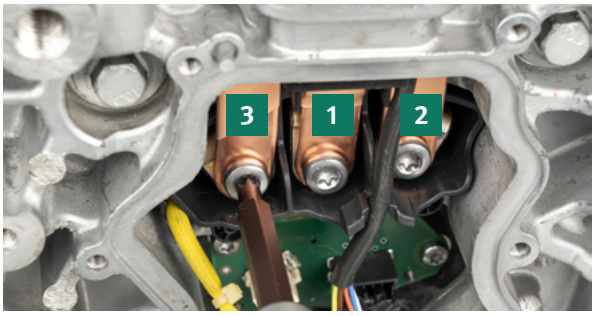


- Tighten the five screws for connecting the power electronics to the engine to 25 Nm in accordance with the tightening sequence

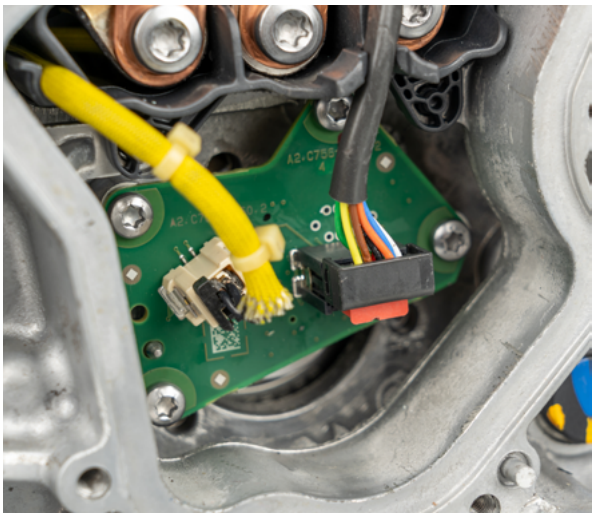


- Tighten the new screws on the high-voltage terminal to 5 Nm in accordance with the tightening sequence

Note:
The connections must be mounted in a de-energized state

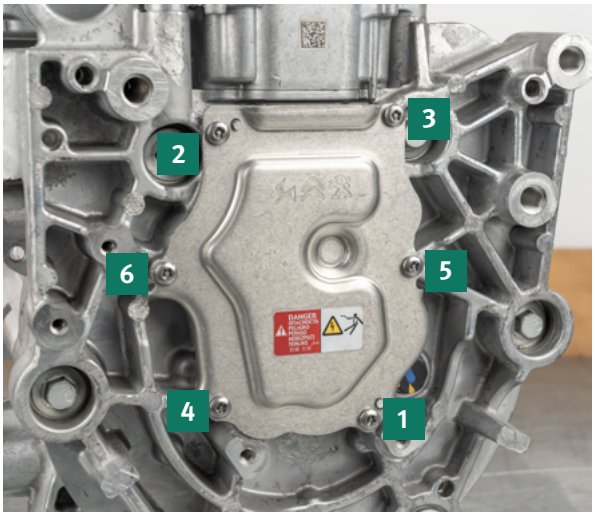


- Attach the plugs of the temperature and rotor position sensor to the printed circuit board
- Insert the cable into the groove provided



- Clean the sealing surfaces
- Mount the HV cover and tighten the screws to 5 Nm in accordance with the tightening sequence

Note:
Check the seal of the HV cover for damage. In the event of damage, the engine and power electronics must be replaced!
The use of an alternative sealing material is not permitted.

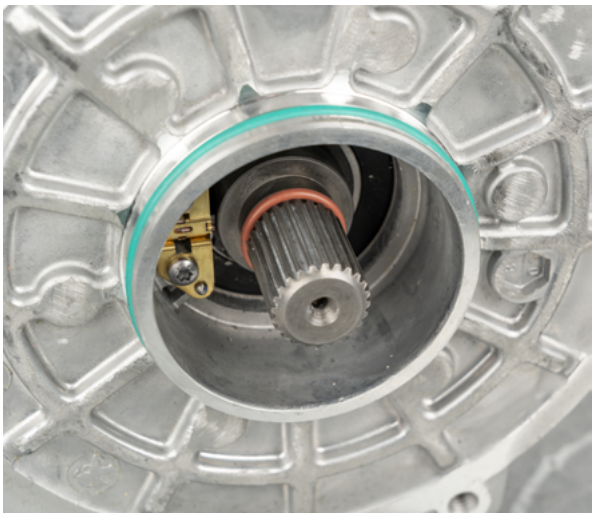


- Turn over the engine housing
- Mount the carbon brush and tighten the screws to 3 Nm

- Mount a new O-ring on the engine flange

- Mount a new O-ring on the rotor shaft.

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



- In the front area, apply suitable lubricating grease to the teeth of the rotor shaft, e.g. KLÜBER 46 MR 401

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

- Mount attachment parts
- Mount the transmission on the engine in accordance with the vehicle manufacturer's specifications
- Install the transmission, engine and power electronics in accordance with the vehicle manufacturer's specifications

Note:
The tightening torque for the transmission and engine mounting screws/nuts is 60 Nm