



# repair manual

Peugeot e-208  
(2020<)

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with engine code ZK01  
**Ajusa reference EV001201**



# content

- 03** General information
- 04** Technical information
- 05** Battery disconnection
- 08** Composition
- 11** Repair
- 16** Additional information



# general information



## WARNING!

### Electric vehicle propulsion

This vehicle works with high-voltage electricity which can present **risks of severe or even lethal damages**.



## SAFETY PRECAUTIONS

When working with high-voltage circuits or components, make sure that the **following safety guidelines** are fulfilled:

Make sure all the staff working with the high-voltage systems of electric propulsion have been provided with **proper training** to conduct the necessary procedures.

Put up **high-voltage warning** signs to guarantee the staff safety in the work area.

Make sure that the staff who don't have proper training doesn't have access to any high-voltage circuits and components.

Always wear **insulation gloves** under the related local safety rules.

**Insulate** the high-voltage batteries ensemble.

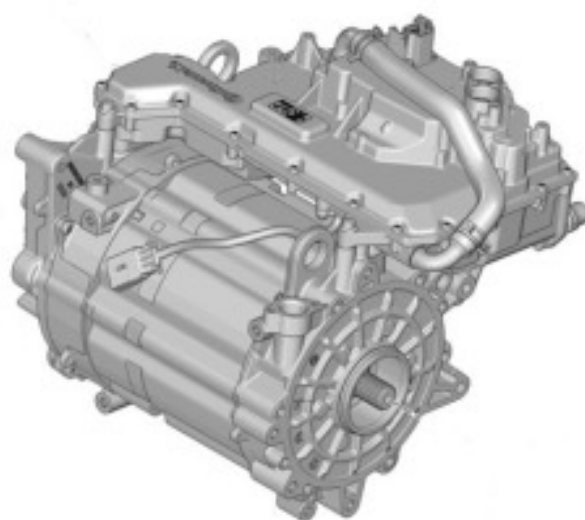
Before working with the electric propulsion system, make sure that the recommended **waiting time after insulating** the high-voltage batteries ensemble has passed by.

Check that the **residual voltage**, which may be in the circuit, is under the recommended safety level.

Make sure that all **test equipment and tools** are suitable to be used in high-voltage circuits or components.

To **ease the identification**, the high-voltage cabling in the electric propulsion system can be covered by an orange insulation.

# technical information



## Types of faults

Insulation fault  
Main rotor bearing problems

## References

Ajusa kit has the reference **EV001201**.

## ZK01 Motor Compatibility – Models, brands & years

Brand	Electric model	Period / approx. years in which the ZK01 motor applies
Peugeot	e-208 (208 II UB_, UP_, UW_, UJ_)	2020 – present
Peugeot	e-2008 (2008 II)	2020 – presente
Opel	Corsa-e (Corsa F)	2019 (launch) – present
Opel	Mokka-e (o Mokka B / Mokka X)	2020 – present
Citroën	ë-C4 (C4 III)	From ~2020
Citroën	ë-Berlingo	From ~2021
Peugeot	e-Expert (electric van)	From ~2021 (depending on version)

### **Shared Technical Specifications (ZK01 motor)**

**Rated power:** 100 kW (≈ 136 hp)

**Torque:** ≈ 260 Nm

**Configuration:** electric motor, front-mounted driving front wheels.

# battery disconnection

## Recommendations to connect and disconnect the battery in electric vehicles

Before getting started it is important to highlight that, in usual inspection and maintenance operations, as well as to disconnect the main battery of the vehicle it **is not necessary to disconnect** the batteries ensemble.

Disconnect the battery only when:

- Replacing the battery.
- In need to reset certain parameters of the vehicle.
- When the car is going to be parked for a long lapse of time, so that the battery doesn't get fully discharged.

## Safety precautions

The batteries ensemble both in electric and hybrid vehicles work with **high voltage**.

- Any worker who doesn't have proper training mustn't have access to any high-voltage circuits and components.
- Always wear suitable personal protective equipment (PPE).

It is essential to put up the related signs to guarantee the safety both of the area and of the workers.

The **batteries ensemble** of the electric vehicle must be insulated at all times to prevent potential short circuits. To insulate and strip the batteries ensemble there are different special tools:

- Tool No. Ele.2005: Safety cover for the battery pack isolator plug connection.
- Tool No. Ele.2211: Lock for the above-mentioned cover
- Electrical test meter
- Ensure that all devices and test equipment are compatible with high-voltage applications.

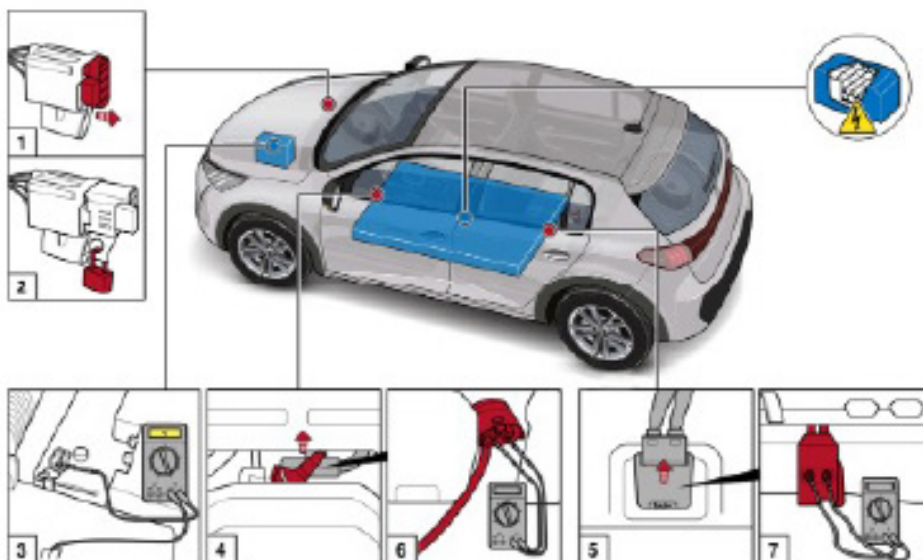
When the batteries are insulated, a recommended **waiting time must pass** by before proceeding to handling the electric propulsion system.

With the insulation multimeter you will check the residual voltage value in the circuit to be sure that such value is under the recommended value.

The high-voltage cabling in electric vehicles has an orange insulation. Knowing this feature, it is easy to identify it.

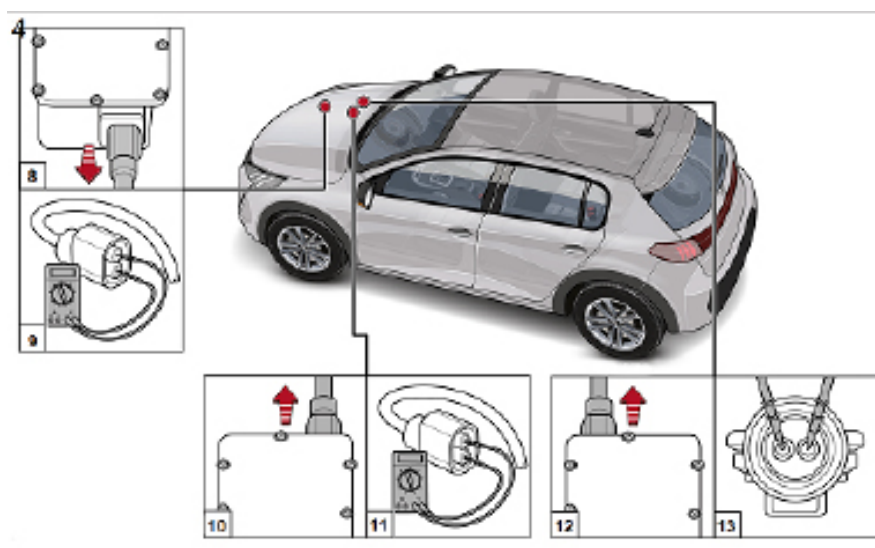
## Disconnection/Isolation of the electric vehicle battery pack

1. Fully open the driver's window.
2. Ensure that the hood and tailgate are completely open.
3. Make sure the parking brake is engaged.
4. Ensure the gear selector is in P (Park).
5. Confirm that the ignition is off and that the vehicle keys are not left inside the cabin.
6. Wait 5 minutes.
7. Unplug the service connector as shown in fig.1.
8. Secure the service connector with a lock to prevent unintentional reconnection, as shown in fig.2.
9. Disconnect the positive cable of the vehicle's main battery
10. Wait 2 minutes.
11. Check the voltage on the positive cable of the vehicle's main battery to ensure there is no residual voltage (0 V) in the circuit, using tool VAT1, as shown in fig.3.
12. Wrap the positive terminal of the vehicle's main battery with insulating tape to prevent unintentional reconnection.



Service connector location

13. Lift the vehicle.
14. Remove the underbody shield of the electric motor.
15. Unplug the wiring connector at the front of the electric vehicle battery pack, as shown in fig.4.
16. Unplug the wiring connector at the rear of the electric vehicle battery pack, as shown in fig.5.
17. Check the voltage between terminals 1 and 2 of the battery pack wiring connector to ensure that the residual voltage in the circuit is below 0 V before proceeding, using tool VATI, as shown in fig.6.
18. Check the voltage between terminals 1 and 2 of the battery pack wiring connector again to ensure that the residual voltage in the circuit is below 0 V before proceeding, using tool VATI, as shown in fig.7.
19. Lower the vehicle.
20. Unplug the air conditioning compressor wiring connector from the electric vehicle battery pack charger, as shown in fig.8.
21. Check the voltage between terminals 1 and 2 of the air conditioning compressor wiring connector to ensure that the residual voltage in the circuit is below 0 V before proceeding, using tool VATI, as shown in fig.9.
22. Unplug the coolant heater wiring connector from the electric vehicle battery pack charger, as shown in fig.10.



Main battery location



23. Check the voltage between terminals 1 and 2 of the coolant heater wiring connector to ensure that the residual voltage in the circuit is below 0 V before proceeding, using tool VAT1, as shown in fig.11.

24. Unplug the charger wiring connector from the electric vehicle battery pack, as shown in fig.12.

25. Connect Test Cable Adapter 1 to the electric vehicle battery pack charger, using tool No. 9832667880.

26. Check that the voltage at the terminals of Test Cable Adapter 1 is below 0 V before proceeding, using tool VAT1, as shown in fig.13.

27. Remove Test Cable Adapter 1 from the electric vehicle battery pack charger.

28. Lift the vehicle.

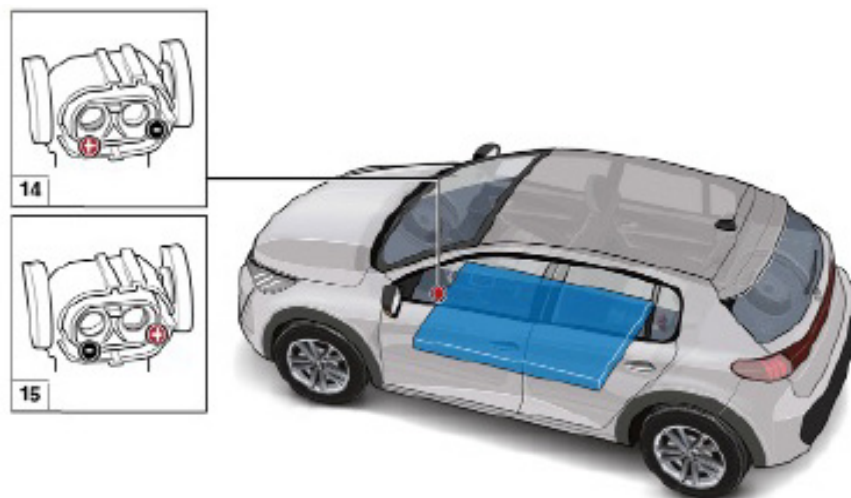
29. Connect Test Cable Adapter 2 to the electric vehicle battery pack, as shown in fig.4, using tool No. 9832922980.

30. Check that the voltage at the terminals of Test Cable Adapter 2 is below 0 V before proceeding, using tool VAT1.

31. Remove Test Cable Adapter 2 from the electric vehicle battery pack, as shown in fig.4.

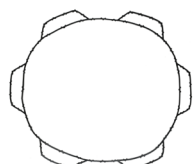
32. Lower the vehicle.

## Electric vehicle battery pack connection

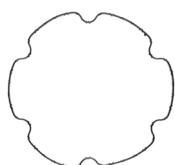


1. Plug in the charger wiring connector of the electric vehicle battery pack, as shown in fig.12.
2. Plug in the coolant heater wiring connector, as shown in fig.10.
3. Plug in the air conditioning compressor wiring connector, as shown in fig.8.
4. Lift the vehicle.
5. Check that the resistance between terminal 2 of the battery pack wiring connector and the outer edge of terminal 1 (ground shield) is greater than 2 MΩ before proceeding, using tool CTRL-ISOL, as shown in fig.14.
6. Check that the resistance between terminal 1 of the battery pack wiring connector and the outer edge of terminal 2 (ground shield) is greater than 2 MΩ before proceeding, using tool CTRL-ISOL, as shown in fig.15.
7. Plug in the electric vehicle battery pack wiring connector, as shown in fig.4.
8. Plug in the electric vehicle battery pack wiring connector, as shown in fig.5.
9. Install the underbody shield of the electric motor.
10. Lower the vehicle. Connect the vehicle's main battery. Refer to the corresponding procedure for the vehicle's main battery.
11. Remove the lock from the service connector (Fig. 2).
12. Plug in the service connector (Fig. 1).
13. Ensure the transmission is in neutral (N). Turn the ignition to "READY."
14. Ensure that the "READY" indicator lights up on the instrument cluster.
15. Turn off the ignition.

# composition



**Stator gasket – encoder side /  
transmission side<sup>1</sup>**  
(2 units)



**Gasket on outer stator cover<sup>2</sup>**  
(1 unit)



**Gasket on inner stator cover<sup>3</sup>**  
(1 unit)



**Left transmission seal<sup>4</sup>**  
(1 unit)



**Right transmission seal<sup>5</sup>**  
(1 unit)



**Primary shaft output seal<sup>6</sup>**  
(1 unit)



**Electric motor/transmission case  
union gasket<sup>7</sup>**  
(1 unit)



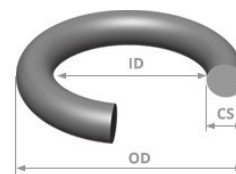
**Coupling sleeve<sup>8</sup>**  
(1 unit)



**Inverter cooling sleeve<sup>9</sup>**  
(1 unit)



**O-rings gaskets kit**  
(11 units)



<b>Transmission case breather gasket<sup>10</sup></b> (1 unit)	11,00	6,50	2,30
<b>Lock actuator gasket<sup>11</sup></b> (1 unit)	40,90	34,50	3,20
<b>Rotor shaft / primary shaft input gasket<sup>12</sup></b> (2 units)	25,90	19,50	3,20
<b>Inverter coolant inlet gasket<sup>13</sup></b> (1 unit)	28,60	25,10	1,78
<b>Inverter plug<sup>14</sup></b> (2 units)	16,00	16,00	5,30
<b>Breather plug gasket<sup>15</sup></b> (1 unit)	19,50	12,50	3,50
<b>Engine coolant outlet gasket<sup>16</sup></b> (1 unit)	25,50	20,30	2,62
<b>Oil drain plug gasket<sup>17</sup></b> (1 unit)	20,00	16,00	2,00
<b>Inverter coolant inlet gasket<sup>18</sup></b> (1 unit)	27,00	20,00	3,50

# repair

The following are simple steps showing the repair of this motor.

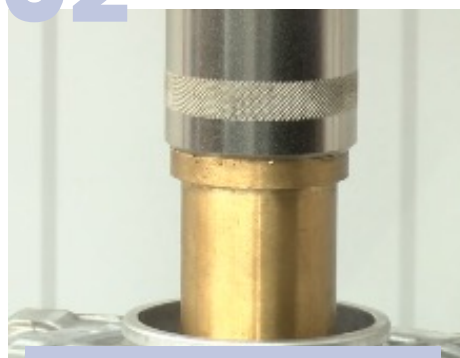
## 01



### *Stator gasket*

We begin the assembly by installing **stator gasket – encoder side / transmission side<sup>1</sup>** in its housing, ensuring correct positioning and full seating in the cavity.

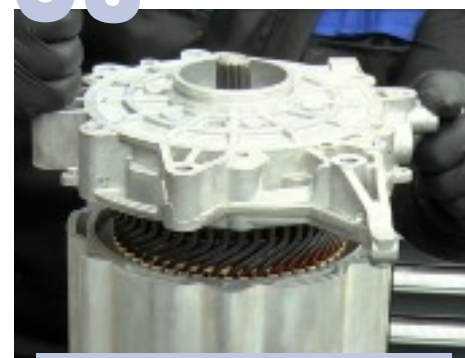
## 02



### *Rotor bearing installation*

It is time to install the bearing on the rotor. For this, we will use a hydraulic press. Once aligned, we lower it into its final position.

## 03



### *Rotor installation in stator*

Next, the assembly is inserted into the stator, taking extreme care due to magnetic attraction forces. Once installed, the retaining ring and the grounding brush are mounted in their corresponding positions.

## 04



### *Input shaft*

While in this position, install the **rotor shaft / primary shaft input gasket<sup>12</sup>** and the **electric motor/transmission case union gasket<sup>7</sup>** ensuring they are properly seated in their housing.

## 05



### *Bearing cooling*

We install the cooling gaskets, **gasket on inner stator cover<sup>3</sup>** and **gasket on outer stator cover<sup>2</sup>** in their corresponding cavities, tightening their screws to 10 Nm.

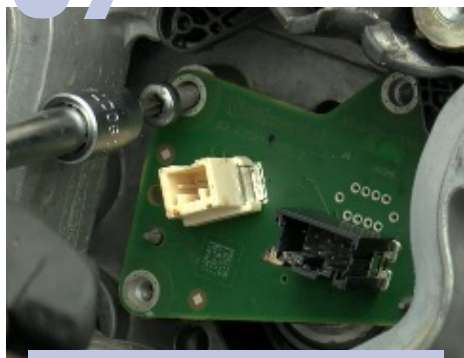
## 06



### *Stator cover encoder side*

We install the second stator **stator gasket – encoder side / transmission side<sup>1</sup>** on the cover and place it over the stator, remembering to first install the temperature sensor. Tighten the cover to 50 Nm.

# 07



## Encoder

We install the encoder and secure it with its screws, tightening to 4 Nm. Next, we can connect the temperature sensor.

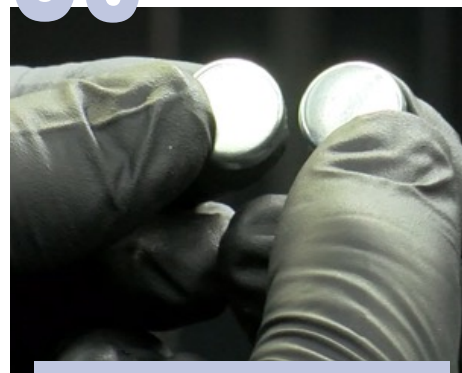
# 08



## Inverter

Next, it's time for the inverter cooling. For this, we install the **inverter cooling sleeve**<sup>9</sup> then mount the cover and tighten it to 8 Nm.

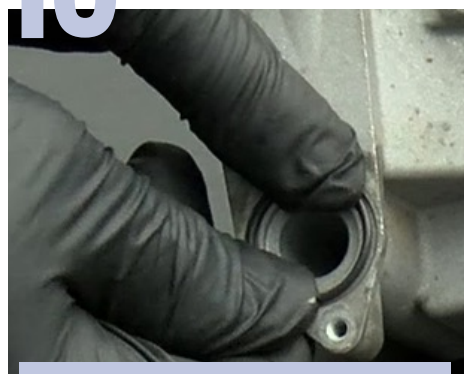
# 09



## Inverter electrical connection

Once the terminals of the electrical connector are tightened to 4 Nm, it is time to install the **inverter plug**<sup>14</sup> pressing it firmly into its housing.

# 10



## Inverter cooling

Install the Inverter coolant inlet seal in its housing. Then, install the cooling nozzle and tighten it to a torque of 8 Nm.

Depending on the type of inverter, the **inverter coolant inlet gasket**<sup>13</sup> or the **inverter coolant inlet gasket**<sup>18</sup> must be installed.

# 11



## Motor cooling step

We continue with the installation of the inverter on the motor, but first we must install the **coupling sleeve**<sup>8</sup>. Once the assembly is aligned, tighten the fixing screws to 25 Nm.

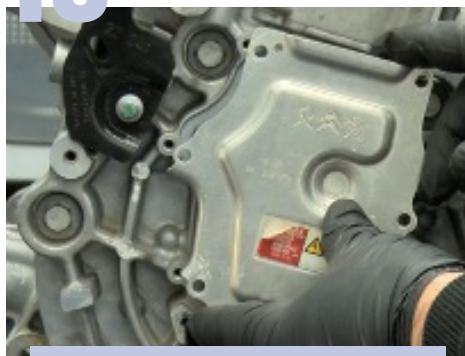
# 12



## Three phase connections

We can now install the screws for the stator three-phase terminals, tightening them to 10 Nm. After that, we can connect the electrical data connector.

# 13



### Three phase terminal cover

We continue with the installation of the three-phase terminal cover, tightening it to 8 Nm.

# 14



### Breather

Installation of the motor breather plug, using the **breather plug gasket**<sup>15</sup>.

# 15



### Transfer case output seal

We install the **primary shaft output seal**<sup>6</sup> ensuring it is properly seated and avoiding pinching the lip during insertion.

# 16



### Primary input shaft

Installation of the **rotor shaft / primary shaft input gasket**<sup>12</sup> in its housing on the shaft.

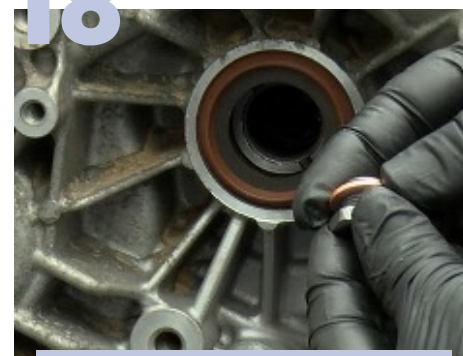
# 17



### Transmission seals

Next, we will install the side seals on both sides of the transmission **left transmission seal**<sup>4</sup> and **right transmission seal**<sup>5</sup>.

# 18



### Drain plug

We will install the **oil drain plug gasket**<sup>17</sup> and tighten it to 20 Nm.

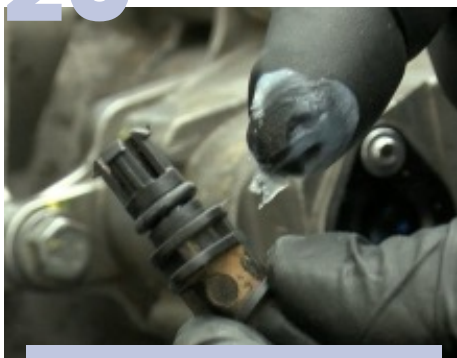
# 19



### *Lock actuator*

Installation of the **lock actuator gasket<sup>11</sup>**, once inserted, assemble the actuator and tighten its screws to 15 Nm.

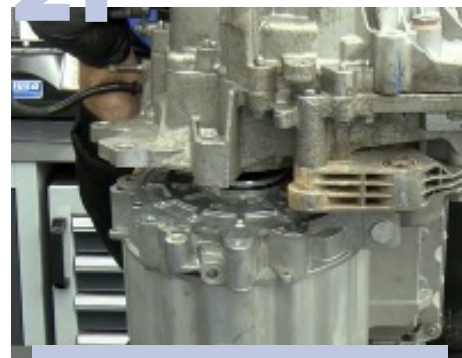
# 20



### *Transmission case breather*

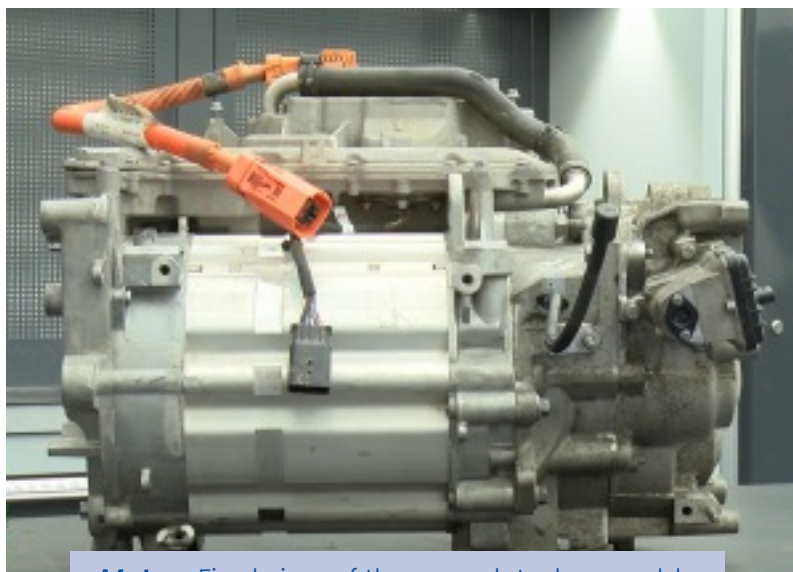
Proceed with the installation of the breather sealing gasket in the transmission housing **transmission case breather gasket<sup>10</sup>**.

# 21



### *Motor to transmission coupling*

We align the rotor output shaft with the transfer case input shaft. Apply gentle pressure until both components engage. Tighten the connecting bolts to 45 Nm.



**Motor** · Final view of the completed assembly

## additional information

Do you know which are the **tools you need** to repair the motor of an electric vehicle? Do you know the **safety measures** to conduct this repair? Is it that you don't know where to start?

Visit the electric vehicle section on our website where we will give you the answers to all these doubts and much more.

You will be able to see the **safety measures video** as well as the **video tutorial** in which you'll see step by step the assembly of the Ajusa kit related to this vehicle.

Furthermore, you can contact our technical assistance department to solve any doubt.

**Subscribe** to our Youtube channel and learn everything you must know about mechanics.



Click here to watch the **assembly video**:

VÍDEO