

**WRV8 - Check Electric Machine on Front and Rear Axles and Replace if necessary (Workshop Campaign)**

Vehicle Type: **Macan 4 (XAB)/Macan Turbo (XAB)**

Model Year: **As of 2024**

Concerns: **Front electric machine or rear electric machine**

Cause: **There is a possibility that the electric machine on the front or rear axle of the affected vehicles does not meet the required specifications.**

Action: Checking electric machine on front and rear axles and replacing if necessary.

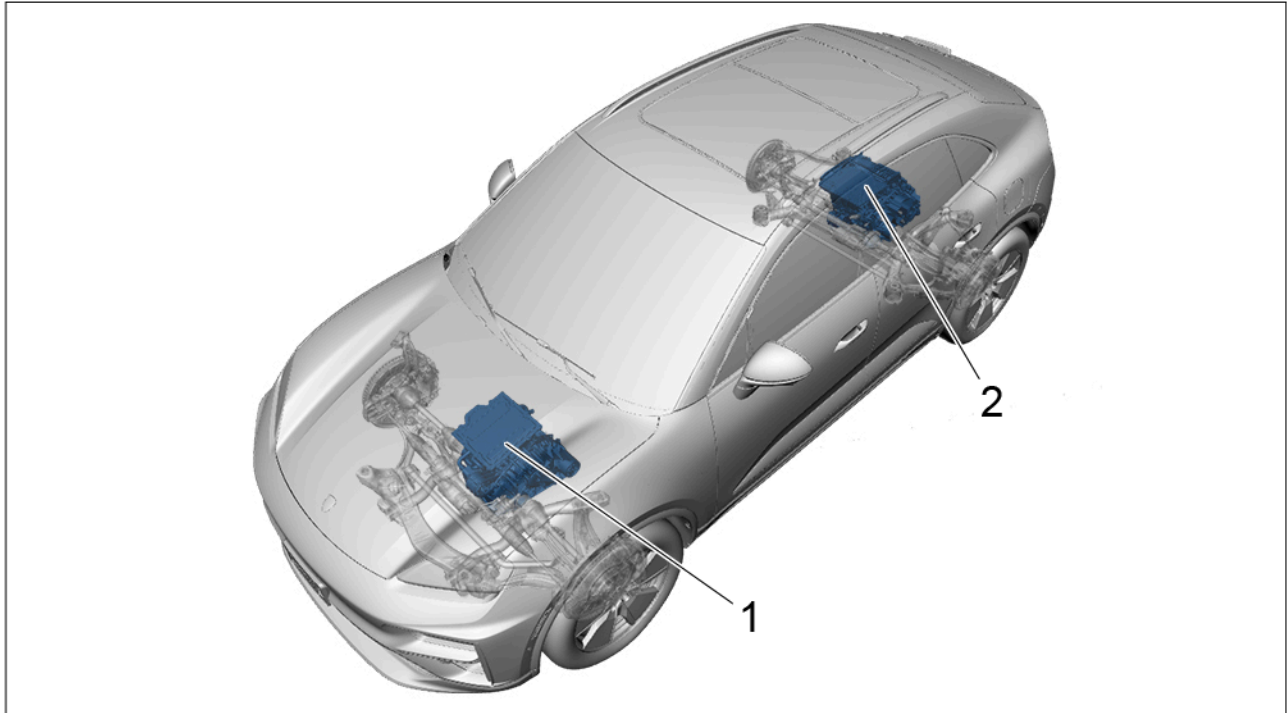


**Information**

The inspection of the electric machine is only necessary for vehicles that are assigned to **scope 3** to **scope 6**. On vehicles with assigned **scope 1** and **scope 2**, the corresponding electric machine must be replaced at the front or rear (without prior inspection).

Affected Vehicles: Only vehicles assigned to the campaign (see also PCSS Vehicle Information).

Installation  
Position:



*Installation position front electric machine and rear electric machine*

- 1 – Front electric machine
- 2 – Rear electric machine

### Required parts



#### Information

No parts are required for testing the front and rear electric machines.



#### Information

The **part numbers** of the **required parts and materials** for the respective vehicle can be seen in the **assigned scope**. For an overview of the campaign scopes, see: ⇒ *Technical Information 'Warranty processing'*.

For materials (lubricants) required for carrying out the action, see the corresponding Workshop Manual in PCSS. These lubricants are usually available in the Porsche Center.

### Required tools

- Tools:      **Required tools for testing the electric machine:**
- VAS 6748B - Endoscope inspection camera

**Required tools for vehicles in which the front electric machine must be replaced:**

- Torque wrench, 0.4-2 Nm (0.3-1.5 ftlb.), e.g., **VAS 6253A - torque wrench, 0.4-2 Nm (0.3-1.5 ftlb.)**
- Torque wrench, 2-10 Nm (1.5-7.5 ftlb.), e.g. **V.A.G 1783 - torque wrench, 2-10 Nm (1.5-7.5 ftlb.)**
- Torque wrench, 6-50 Nm (4.5-37 ftlb.), e.g. **V.A.G 1331A - torque wrench, 6-50 Nm (4.5-37 ftlb.)**
- Torque wrench, 40-200 Nm (30-148 ftlb.) e.g., **V.A.G 1332A - torque wrench, 40-200 Nm (30-148 ftlb.)**
- **V.A.G 1601 - Torque Wrench 150-800 Nm (111-592 ftlb.)**
- Battery charger with a current rating of **at least 90 A**, e.g. **VAS 5908 - battery charger 90 A**
- **P90999 - PIWIS Tester 4**
- **VAS 6266A - Wheel fitting trolley**
- **VAS 6935 - Pole terminal puller**
- **VAS 6558A - High-voltage measuring module**
- **VAS 6558A/45 - High-voltage measurement adapter**
- **VAS 6558A/46 - High-voltage measurement adapter**
- **VAS 6558/10-1A - High-voltage test adapter**
- **VAS 6558/10-2 - High-voltage test adapter**
- **T40262 - Locking cap**
- **VAS 6558A/27 - Set of Kelvin clamps and test probes**
- **P90009 - Puller**
- **VAS 6931/1 - Support device**
- **VAS 6931A - Transmission and gearbox jack**
- **VAS 251 809 - Ball joint press-out tool**
- **VAS 251 809/2 - Puller**
- **VAS 6832 - Master Gear unit elevating platform**
- **VAS 6832/8 - Universal assembly tool**
- **T10501 - Socket insert XZN 10**
- **3094 - Hose clamp**
- **VAS 531 011 - Cooling system service equipment**
- **T40498 - Fixing device**
- **VAS 501 027 - Bracket**
- **VAS 6100 - Workshop crane**
- **VAS 501 023 - Lifting equipment**
- **VAS 6095A - Engine and transmission support**
- **VAS 6918 - Quick-clamping unit**
- **VAS 6826 - Steering wheel balance**

**Required tools for vehicles in which the rear electric machine must be replaced:**

- Torque wrench, 2-10 Nm (1.5-7.5 ftlb.), e.g. **V.A.G 1783 - torque wrench, 2-10 Nm (1.5-7.5 ftlb.)**
- Torque wrench, 6-50 Nm (4.5-37 ftlb.), e.g. **V.A.G 1331A - torque wrench, 6-50 Nm (4.5-37 ftlb.)**
- Torque wrench, 40-200 Nm (30-148 ftlb.) e.g., **V.A.G 1332A - torque wrench, 40-200 Nm (30-148 ftlb.)**
- Battery charger with a current rating of **at least 90 A**, e.g. **VAS 5908 - battery charger 90 A**
- **P90999 - PIWIS Tester 4**
- **VAS 6266A - Wheel fitting trolley**

- VAS 6558A - High-voltage measuring module
- VAS 6558A/45 - High-voltage measurement adapter
- VAS 6558A/46 - High-voltage measurement adapter
- VAS 6558/10-1A - High-voltage test adapter
- VAS 6558/10-2 - High-voltage test adapter
- T40262 - Locking cap
- VAS 6558A/27 - Set of Kelvin clamps and test probes
- VAS 6931/1 - Support device
- VAS 6931A - Transmission and gearbox jack
- T10337 - Transmission bracket
- VAS 531 011 - Cooling system service equipment
- VAS 6832 - Master Gear unit elevating platform
- VAS 6832/8 - Universal assembly tool
- 3093 - Hose clamp
- VAS 6122 - Engine plug set
- VAS 6095A/1-23 - Engine bracket
- VAS 6100 - Workshop crane
- VW309A - Retainer plate
- VAS 6095A - Engine and transmission support
- P90009 - Puller
- VAS 6918 - Quick-clamping unit
- VAS 6826 - Steering wheel balance

### Check rear electric machine (only for vehicles assigned to Scope 3)

Work Procedure: 1 Remove the rear cover.  
⇒ *Technical Information '519419 Removing and installing rear cover'*



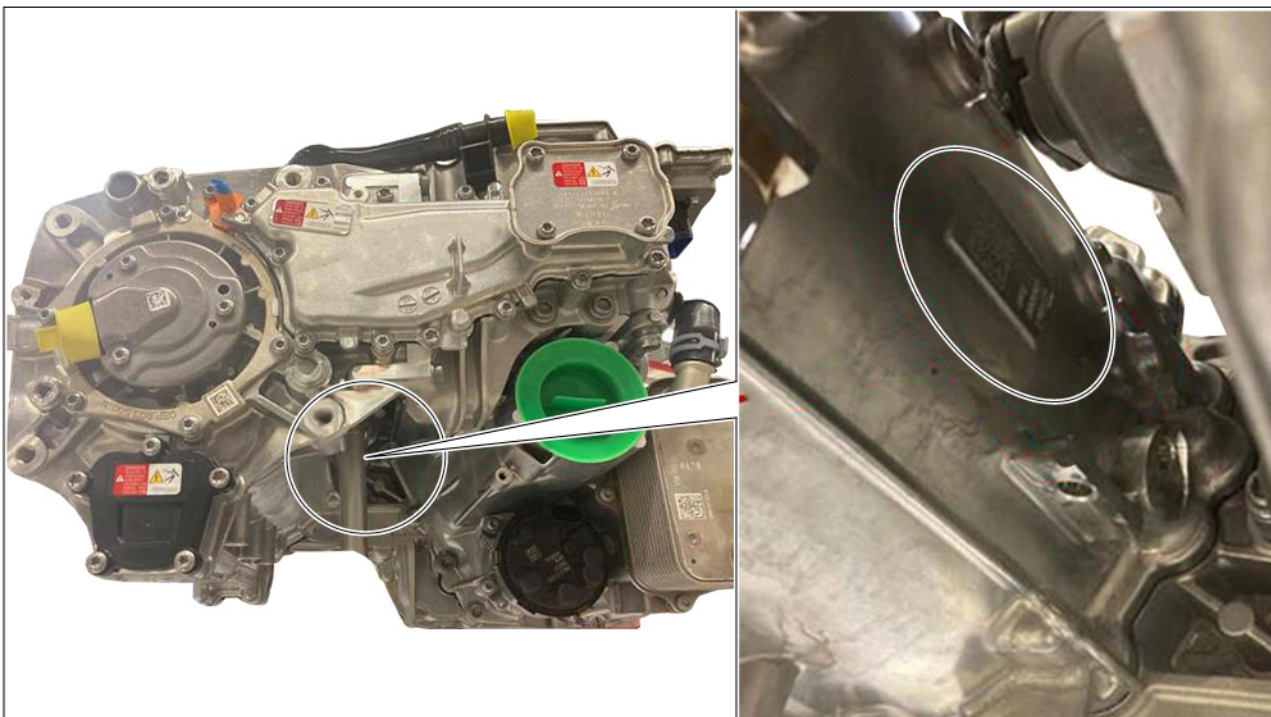
#### Information

The welded marking is located on the rear housing of the electric machine. This consists of a QR code and a combination of letters and numbers. When creating the photo, it must be ensured that the combination of letters and numbers is easily recognizable.

- 2 Locate welded marking ⇒ *Check welded marking on rear electric machine housing -Circle-* on rear electric machine housing and use **VAS 6748B - endoscope inspection camera** to create a photo of the welded marking, making sure that the numbers and characters are easily recognisable.



Rear electric motor



Check welded marking on rear electric machine housing

- Then send the photo together with the **VIN** of the **affected vehicle** and the following text via PRMS Warranty>Campaigns ticket to PCNA\_Warranty\_Support. Further procedure according to the PRMS ticket feedback.

**Short problem description:** WRV8 V3718 Inspection of welded marking for electric machine

Dear Sir or Madam, please check the following welding dates:

Vehicle identification number (VIN):

Photo of the rear electric machine welding label:

- Assess feedback from mailing list:

Assessment		Action
(✓)	The rear electric machine <b>meets</b> the required specifications.	<b>Check OK.</b> Continue with Step ⇒ 5 Invoicing: Scope 3.
(x)	The rear electric machine does <b>not</b> meet the required specifications.	<b>Inspection not OK.</b> Replace rear electric machine. Continue with ⇒ <i>Technical Information</i> '519419 Replace rear electric machine

		(only for vehicles with out-of-spec result after scope 4 inspection). Invoicing: Scope 4.
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- 5 Install the rear cover.  
⇒ *Technical Information '519419 Removing and installing rear cover'*

### Replace front electric machine (only for vehicles assigned to Scope 1)

- Work Procedure: 1 Remove **previous** front electric machine and install **new** front electric machine.  
⇒ *Technical Information '934919 Remove and install the front axle module'*



#### Information

Always make sure that the power supply on the vehicle is not interrupted while working with the Porsche System Tester. A battery charger with a current rating of at least 90 A must be connected to the vehicle battery.

The Porsche System Tester instructions take precedence and in the event of a discrepancy, these are the instructions that must be followed. Deviations may occur with later software versions.

The procedure described here has been structured in general terms; different or additional text may be displayed in the Porsche System Tester.

- 2 Program **new** front electric machine.
  - 2.1 **P90999 - PIWIS Tester 4** must be connected to the vehicle before starting it. Establish readiness for operation in the vehicle.

- 2.2 Position the original remote control in the emergency start tray.
  - 2.3 Select the vehicle type if necessary.
  - 2.4 In the **overview**.
  - 2.5 The **P90999 - PIWIS tester 4** starts the vehicle composite test. A new electric spare part/control unit is detected.
  - 2.6 The **P90999 - PIWIS Tester 4** specifies the further procedure.
  - 2.7 Follow the **P90999 - PIWIS Tester 4** instructions in menu.
  - 2.8 Back to the **Overview**.
  - 2.9 Read out all **fault memories** process and delete existing faults if necessary.
  - 2.10 End the diagnostic application.
- 3 Reset rotor position.  
⇒ *Technical Information '933155 Replacing front high-voltage pulse inverter'*
  - 4 End readiness for operation and remove **P90999 - PIWIS Tester 4**.



*Original handheld transmitter in emergency start tray*

### **Replace rear electric machine (only for vehicles with out-of-spec result after scope 4 inspection of the rear electric machine)**

- Work Procedure:
- 1 Remove **previous** rear electric machine.  
⇒ *Technical Information '934119 Remove and install the rear axle module'*
  - 2 Convert engine holder from **previous** rear electric machine to **new** rear electric machine.  
For work procedure, see:  
⇒ *Technical Information '103120 Removing and installing engine carrier (front)'*
  - 3 Install the **new** rear electric machine.  
⇒ *Technical Information '934119 Remove and install the rear axle module'*

**Information**

Always make sure that the power supply on the vehicle is not interrupted while working with the Porsche System Tester. A battery charger with a current rating of at least 90 A must be connected to the vehicle battery.

The Porsche System Tester instructions take precedence and in the event of a discrepancy, these are the instructions that must be followed. Deviations may occur with later software versions.

The procedure described here has been structured in general terms; different or additional text may be displayed in the Porsche System Tester.

- 4 Program **new** rear electric machine.
  - 4.1 **P90999 - PIWIS Tester 4** must be connected to the vehicle before starting it. Establish readiness for operation in the vehicle.
  - 4.2 Position the original remote control in the emergency start tray.
  - 4.3 Select the vehicle type if necessary.
  - 4.4 In the **overview**.
  - 4.5 The **P90999 - PIWIS tester 4** starts the vehicle composite test. A new electric spare part/control unit is detected.
  - 4.6 The **P90999 - PIWIS Tester 4** specifies the further procedure.
  - 4.7 Follow the **P90999 - PIWIS Tester 4** instructions in menu.
  - 4.8 Back to the **Overview**.
  - 4.9 Read out all **fault memories**, process and delete existing faults if necessary
  - 4.10 End the diagnostic application.
- 5 Reset rotor position.  
⇒ *Technical Information '931855 Replace high-voltage rear pulse inverter'*
- 6 Teach anti-theft protection functions (VKMS).  
⇒ *Technical Information '387455 Replacing parking lock (V682)'*
- 7 End readiness for operation and remove **P90999 - PIWIS Tester 4**.



*Original handheld transmitter in emergency start tray*

## Warranty processing



### Information

The specified labor times were determined specifically for carrying out this campaign and include all necessary preliminary and subsequent rework. The labor time may differ from the labor time published in the Labor Operation List in the PCSS.

## Scope 1: Replacing electric machine on front axle

### Labor time:

Replacing electric machine on front axle

Labor time: **1355 TU**

### Includes:

- Deactivating and activating high-voltage system
- Removing and installing wheels
- Removing and installing front cover
- Removing and installing front wheel housing liner
- Loosening and securing front brake callipers
- Removing and installing wheel bearing housing
- Loosening and fastening engine mount
- Checking and topping up coolant
- Programming electric machine
- Resetting rotor position
- Measuring vehicle front and rear
- Calibrating front camera
- Calibrating control unit for distance measuring sensor
- Calibrating steering-angle sensor for PSM

### Required parts:

Part No.	Designation – Location	Quantity
PAC901131B	Drive motor for electric drive – Front axle	1 piece
PAF91221601	M10 x 85 hexagon-head bolt – Strut (dome strut)	4 pieces
PAF102861	M10 hexagon collar nut, self-locking – Connecting link	4 pieces
WHT007061	Double-hex socket, M10 x 85 – Connecting link	2 pieces
PAF107004	Hexagon flange bolt, M10 x 70 – Connecting link	2 pieces

PAF009781	Double-hex collar nut, M12 x 1.5, self-locking – Control arm to lower trailing arm	4 pieces
N 10699401	Hexagon-head bolt, M10 x 50 – Upper trailing arm	4 pieces
PAF009363C	Hexagon flange bolt (combination), M16 x 1.5 x 68 – Front drive shaft	2 pieces
PAD501303	Retaining ring – Front drive shaft	2 pieces
PAF104018	Hexagon collar nut, M14 x 1.5 – Spring strut fork	2 pieces
N 91236301	Hexagon-head bolt (combination) M14 x 1.5 x 100 – Spring strut fork	2 pieces
N 91070001	M8 x 30 cheese head bolt – Steering column lower part	1 piece
PAF913006	Twelve-edged flange screw (combination) AM 16 x 1.5 x 125 – Front-axle carrier, rear	2 pieces
PAF913173	Hexagon-head bolt (combination) M14 x 1.5 x 120 – Front-axle carrier, rear	2 pieces
PAF91237901	Hexagon flange bolt (combination), M14 x 1.5 x 100 – Center front axle carrier	2 pieces
PAF912998	Hexagon flange bolt (combination), M16 x 1.5 x 95 – Front axle carrier, front	2 pieces
PAF908342	Hexagon-head bolt (combination) BM10 x 105 x 45 – Front axle carrier, front	2 pieces
PAF912963	Hexagon flange bolt (combination), M14 x 1.5 x 85 – Motor carrier right and left	2 pieces
PAF004571	Collared cheese head bolt with multiple-tooth head, M14 x 1.5 x 115 – Brake calliper front	4 pieces
or		
PAF004572	Collared cheese head bolt with multiple-tooth head, M14 x 1.5 x 135 – Brake calliper front	4 pieces
<b>Required materials</b> (usually already available at the Porsche Center):		
00004321086	Brake fluid (30 litres)	0.01 pieces
V04015003P	Coolant additive	0.03 pieces
⇒ <b>Damage number WRV8 066 000 2</b>		

Scope 2: **Not relevant for this campaign**

Scope 3: **Check electric machine on the rear axle**

**Labor time:**

Check electric machine on rear axle Labor time: **50 TU**  
 Includes: Removing and installing rear cover

⇒ **Damage number WRV8 66 000, repair code 1**

Scope 4: **Checking and replacing electric machine on rear axle**

**Labor time:**

Checking and replacing electric machine on rear axle Labor time: **986 TU**  
 Includes: Removing and installing rear cover  
 Deactivating and activating high-voltage system  
 Removing and installing wheels  
 Removing and installing rear wheel housing liners  
 Loosening and fastening rear brake calliper  
 Removing and installing wheel bearing housing  
 Loosening and fastening engine mount  
 Loosening and fastening engine carrier  
 Checking and topping up coolant  
 Programming rear electric machine  
 Resetting rotor position  
 Teaching anti-theft functions (VKMS) Measuring vehicle front/rear  
 Calibrating front camera  
 Calibrating control unit for distance measuring sensor  
 Calibrating steering-angle sensor for PSM

**Required parts:**

Part No.	Designation – Location	Quantity
PAD901142A	Drive motor for electric drive – Rear axle	1 piece
PAF911476	Hexagon-head bolt (combi) M14 x 1.5 x 48 – Rear brake carrier	4 pieces
PAF103353	Hexagon nut M14 x 1.5 – Trailing arm	2 pieces

N 91236301	Hexagon-head bolt (combination) M14 x 1.5 x 100 – Front axle strut/engine mount	3 pieces
N 91236401	Hexagon-head bolt (combination) M12 x 1.5 x 100 – Shock absorber	2 pieces
N 10106403	Hexagon collar nut, self-locking – Shock absorber	2 pieces
N 91066101	Hexagonal bolt (combination), M10 x 35 – Shock absorber	4 pieces
PAF912630	Hexagon flange bolt (combination), M14 x 1.5 x 170 x 115-S – Rear axle, rear	2 pieces
PAF913078	Hexagon-head bolt with multiple-tooth head (Duo) BM16 x 1,5 x 195 x 90-S2 – Rear axle, front	2 pieces
PAF107192	Hexagon flange bolt (combination) – Bracket, rear axle, front	4 pieces
PAF010085	Hexagon-head bolt, self-locking M8 x 22 - MK – Brake calliper rear	4 pieces
PAF104029	Hexagon collar nut, M12 x 1.5 – Upper control arm, front	4 pieces
PAF912878	Hexagon-head bolt with multiple-tooth head (Duo) M12 x 1.5 x 85-S22 – Upper control arm, rear	6 pieces
PAF006496	Hexagon flange bolt (combination), M14 x 1.5 x 100 – Tie rod	2 pieces
PAF912938A	Twelve-edged flange screw (combination) AM14 x 1.5 x 110 – Rear axle module	2 pieces
PAF912363	Hexagon-head bolt (combination) M14 x 1.5 x 100 – Rear axle module	1 piece
PAC501395	Circlip on drive shaft – Drive shaft	2 pieces
PAB121809A	Seal – Coolant reservoir	1 piece
N 10702302	Hexagon-head bolt M12 x 1.5 x 50 – Right engine carrier/front engine carrier	7 pieces
PAF913022	Hexagon flange bolt BM12 x 1.5 x 145 – Left engine carrier	4 pieces
PAF912938	Twelve-edged flange screw (combination) AM14 x 1.5 x 110 – Left and right engine mount	2 pieces

N 91236301	Hexagon-head bolt (combination) M14 x 1.5 x 100 – Front engine mount	1 piece
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**Required materials** (usually already available at the Porsche Center):

00004321086	Brake fluid (30 litres)	0.01 pieces
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V04015003P	Coolant additive	0.03 pieces
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⇒ **Damage number WRV8 066 000 2**

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