

**WF49 - Checking Routing of Ground Cable for Front Electric Machine and Reworking if Necessary (Workshop Campaign)**

Vehicle Type: **918 Spyder**

Model Year: **2015**

Concerns: **Ground cable for front electric machine**

Issue: **There is a possibility that a line bracket for the ground cable for potential equalisation of the front electric machine is fitted incorrectly on the affected vehicles.**

As a result, the ground cable may be touching the inner bellows on the front right drive shaft. This can cause noises and can damage the ground cable and bellows.

- Action Required:
- Check routing of ground cable for front electric machine
  - Depending on the result of the check, rework routing of ground cable
  - If the routing of the ground cable must be reworked, also check the ground cable and bellows on the front right drive shaft for damage and replace them if necessary



**Information**

The vehicle must be checked for defects and damage (damage to paintwork, missing parts, etc.) **each time** it is handed over, transferred or delivered. Confirmation that the vehicle is in good condition or details of any damage to the vehicle must be documented and archived for feedback purposes.

Service Level: **The campaign must be carried out by a Service Level 2 Porsche Dealer.**

Service Level 0 Porsche Dealers are **not** authorised to carry out this campaign.

In this case, please contact the nearest Service Level 2 Porsche Dealer and arrange for the transfer of the vehicle and implementation of the measure.

Information on invoicing for the transfer of the vehicle can be found under ⇒ *Technical Information 'WF4900 Invoicing'* at the end of this document.

Affected Vehicles: Only the vehicles assigned to the campaign (see also PIWIS Vehicle Information). This campaign affects 205 vehicles in North America.

Parts Info: **NOTE: PARTS WILL NOT BE AUTOMATICALLY ALLOCATED TO YOUR DEALERSHIP. ALL PARTS MUST BE ORDERED VIA APTEC/PAV.**

**Information**

**No parts are required for checking routing of ground cable** for front electric machine.

Due to the expected repair rate, please do not order **any parts that may be required for reworking** the routing or for **replacing the ground cable and bellows** until **after you have checked** the routing and **discovered that it is not installed correctly**.

**Parts required only for reworking** the routing of the **ground cable**:

Part No.	Designation – Use	Qty.
000.043.210.28	⇒ Combination holder – Ground cable on monocoque	1 ea.
900.123.033.20	⇒ Sealing ring, A10 x 13.5 – Drain plug for cooling system	1 ea.
900.123.007.30	⇒ Sealing ring, A14 x 18 – Drain plug for cooling system	1 ea.
944.573.143.01	⇒ Desiccator – Refrigerant circuit	1 ea.
999.507.309.02	⇒ Speed nut, ST 4.8 – Front apron – Wheel housing liners	Optional (as required)
N 906.271.03	⇒ Speed nut (same as Part No. 918.504.597.00) – Underbody panelling – Wheel housing liners – Front apron	Optional (as required)

**Additional parts required for replacing the ground cable and bellows:**

Part No.	Designation – Use	Qty.
918.611.319.01	⇒ Ground cable with combination holder * – Front electric machine to monocoque	1 ea.
918.349.851.00	⇒ Joint boot repair kit – Front axle	1 ea.

918.349.853.00	⇒ Drive shaft repair kit – Set of fastening parts for drive shaft	1 ea.
999.084.445.01	⇒ Lock nut, M12 x 1.5 – Front-axle cross member to body	2 ea.
N 106.620.01	⇒ Hexagon-head bolt, M8 x 40 – Front engine support to centre tunnel	2 ea.
999.084.656.01	⇒ Hexagon nut, M10 – Spring strut to lower trailing arm – Spring strut to upper mounting saddle – Upper trailing arm to wheel carrier – Anti-roll bar to connecting link – Brake calliper to wheel carrier – Tie rod to wheel carrier	13 ea.
999.084.655.01	⇒ Hexagon nut, M12 x 1.5 – Lower trailing arm to wheel carrier	1 ea.
N 911.744.01	⇒ Multiple-tooth screw, M8 x 35 – Universal joint to steering gear	1 ea.
900.123.007.30	⇒ Sealing ring, A14 x 18 – Drain plug for cooling system	1 ea.

\* The combination holder required for securing the ground cable to the monocoque is part of Part No. 918.611.319.01 and is already prefitted on the ground cable. The combination holder, Part No. 000.043.210.28, for replacing the ground cable does not therefore need to be ordered separately and fitted.

**The following parts are also required for each vehicle:**

- Vehicles **without** Racetrack package (I-no. 808):

999.311.502.01	⇒ Fit bolt, M12 x 1.5 – Front-axle cross member to body	2 ea.
999.311.602.01	⇒ Fit bolt, M10 x 1.5 x 65 – Upper trailing arm to wheel carrier	2 ea.
999.311.604.01	⇒ Fit bolt, M10 x 1.5 x 81 – Tie rod to wheel carrier	1 ea.

999.311.605.01	⇒ Fit bolt, M10 x 1.5 x 52 – Spring strut to upper mounting saddle	2 ea.
999.311.606.01	⇒ Fit bolt, M10 x 1.5 x 72 – Spring strut to lower trailing arm	2 ea.

or:

- Vehicles with **Racetrack package (I-no. 808)**:

999.311.502.02	⇒ Fit bolt, M12 x 1.5 – Front-axle cross member to body	2 ea.
999.311.602.02	⇒ Fit bolt, M10 x 1.5 x 65 – Upper trailing arm to wheel carrier	2 ea.
999.311.604.02	⇒ Fit bolt, M10 x 1.5 x 65 – Tie rod to wheel carrier	1 ea.
999.311.605.02	⇒ Fit bolt, M10 x 1.5 x 52 – Spring strut to upper mounting saddle	2 ea.
999.311.606.02	⇒ Fit bolt, M10 x 1.5 x 72 – Spring strut to lower trailing arm	2 ea.

Materials: **Required materials** (usually already available in the Porsche Centre):

Part No.	Designation – Use	Qty.
000.043.300.35	McLube Sailkote High Performance Dry Lube – Central wheel lock	428g spraying can (approx. 10 grams required per vehicle)

**Also required if the routing of the ground cable must be reworked:**

000.043.301.48	Antifreeze – Medium/low-temperature cooling system	20-litre container (approx. 1.5 litres required per vehicle)
000.043.205.93	Klüberplus Gel grease – O-rings and coolant hoses	100g tube As much as required (approx. 5 grams required per vehicle)

000.043.204.68	Klüber Syntheso Glep grease – O-rings for cooling system	50g tube As much as required (approx. 5 grams required per vehicle)
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**Also required if ground cable and bellows must be replaced:**

000.043.302.72	Pfinder AP14/4 protective wax – Threaded joint securing trailing arm to wheel carrier	100g tube (approx. 5 grams required per vehicle)
000.043.301.48	Antifreeze – High-temperature cooling system	20-litre container (approx. 1.0 litre also required per vehicle)
000.043.110.02	Castrol Optitemp HT1LF grease – Constant-velocity joint on wheel side – Tripod joint on transmission side	100g tube (approx. 235 g required per vehicle: – approx. 105 g on wheel side – approx. 130 g on transmission side)

Tools:

- **9002 - Lifting platform holders**
- **9453 - Access ramps**
- **9454 - Strapping belts**
- **9003 - Socket wrench** for central wheel lock
- **9004 - Socket wrench** for central wheel lock cover
- Torque wrench, 150 – 800 Nm (111 – 592 ftlb.), e.g. **V.A.G 1601 - Torque wrench, 150 - 800 Nm (111 - 592 ftlb.)**
- Torque wrench, 6 – 50 Nm (4.5 – 37 ftlb.), e.g. **V.A.G 1331 - Torque wrench, 6-50 Nm (4.5-37 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.)**
- Hand lamp or pocket lamp

**Additional tools required for reworking routing of ground cable:**

- **9818 - PIWIS Tester II**
- Suitable battery charger, e.g. **VAS 5908 - Battery charger 90A** (charging current limit of max. 60 A required, charger must be set as described in ⇒ *Workshop Manual '9X00IN Battery trickle charging'*.)
- **9027 - Release pin**
- **T40262 - Locking cap**

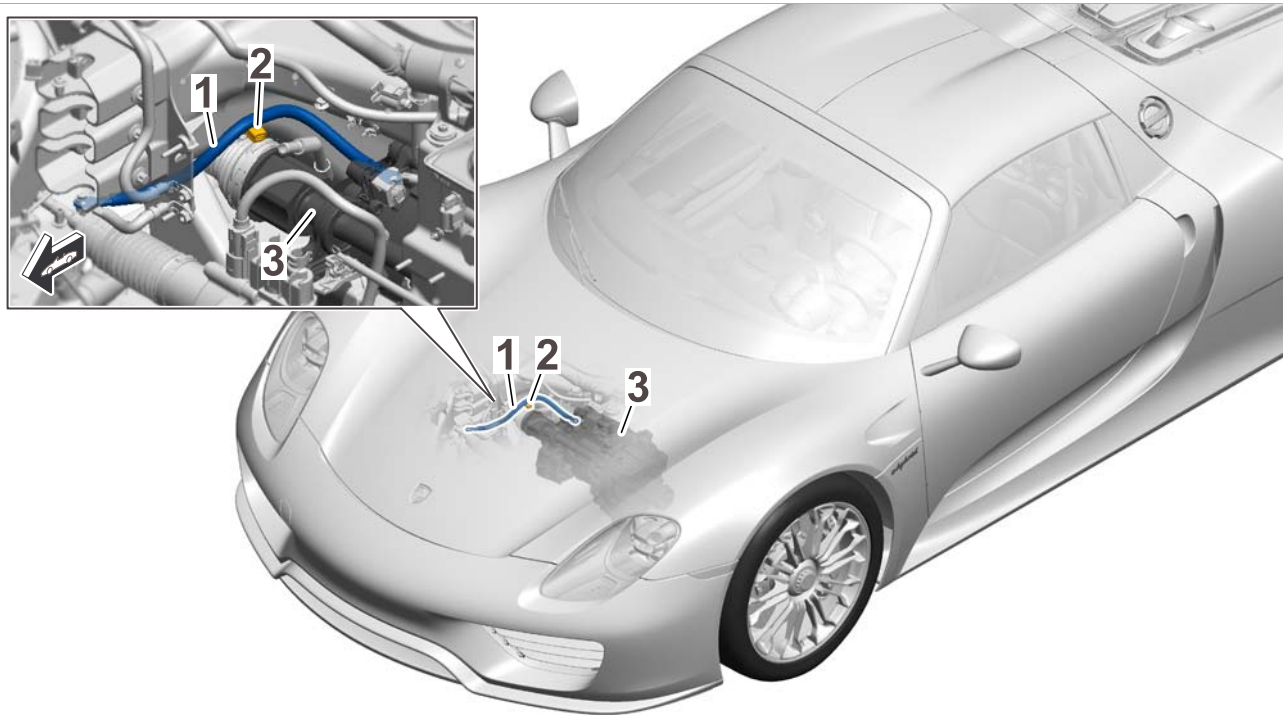
- **VAS 6558/9-6 - High-voltage test adapter HVA 280**
- Suitable air-conditioning recycling unit, e.g. **VAS 6456A - A/C service station with rinsing device**
- **9001 - Socket wrench** for engine cover caps
- **3370 - Hook**
- **VAS 6096/2 - Vacuum pump**
- **9696 - Filling device**
- **9005 - Hose**

**Additional tools required for replacing the ground cable and bellows:**

- Suitable unit lifting platform, e.g. **VAS 6832 - Master Gear unit elevating platform**
- **9011 - Retaining device** for front-axle cross member
- **9032 - Retaining device** for wheel carrier
- **VAS 6941 - Clamping pliers**
- **V.A.G 1275A - Hose clip pliers**
- **9028 - Impact puller**
- **9028/1 - Clamping sleeve**
- **9034 - Retaining device**
- **9034/1 - Press tool**
- Torque wrench, 40 – 200 Nm (30 – 148 ftlb.), e.g. **V.A.G 1332 - Torque wrench, 40-200 Nm (30-148 ftlb.)**
- Torque angle torque wrench, e.g. **VAS 6942 - Torque/torque angle screw tool**

Installation

Position:



*Installation position of ground cable*

- 1 – Ground cable for front electric machine (**check routing**)
- 2 – Line bracket for ground cable (**check that it is fitted securely**)
- 3 – Front electric machine

**Checking routing of ground cable for front electric machine**

- Procedure:
- 1 Raise the vehicle on a lifting platform ⇒ *Workshop Manual '4X00IN Lifting the vehicle'*.
    - 1.1 Position the vehicle between the arms of the lifting platform and push it onto the **9453 - access ramps**.
    - 1.2 Remove underbody covers and fit mounting plates **9002 - Lifting platform holders**, ⇒ *Workshop Manual '518119 Removing and installing jacking points'*.
    - 1.3 Jack and raise the vehicle at the mounting plates.
    - 1.4 Depending on the result of the check, secure the vehicle at the lifting platform arms with **9454 - strapping belts** for carrying out the next steps.
  - 2 Remove front right wheel ⇒ *Workshop Manual '440519 Removing and installing wheel'*.
  - 3 Remove centre underbody cover (at the sides) at the right ⇒ *Workshop Manual '51931901 Removing and installing cover for centre underbody (at the sides)'*.

- 4 Check routing of ground cable ⇒ *Checking routing of ground cable -1-* for the front electric machine. To do this, turn the steering fully to the right and visually inspect the front right drive shaft ⇒ *Checking routing of ground cable -3-* through the cut-out in the monocoque to see whether the **ground cable** ⇒ *Checking routing of ground cable -1-* **is routed above or below the line bracket** ⇒ *Checking routing of ground cable -2-*.

- The **line bracket** ⇒ *Checking routing of ground cable -2-* for the ground cable ⇒ *Checking routing of ground cable -1-* is **visible** through the cut-out in the monocoque: The ground cable is routed **above** the line bracket. The routing does **not** have to be reworked. **Continue with** ⇒ **Step 5**.

- The **ground cable** ⇒ *Checking routing of ground cable -1-* is **visible** through the cut-out in the monocoque: The ground cable is routed **below** the line bracket ⇒ *Checking routing of ground cable -2-*. The ground cable **is not routed correctly** and must be **reworked**. **To do this, continue with** ⇒ *Technical Information 'WF4900 Reworking routing of ground cable for front electric machine'*.

- If the **line bracket** ⇒ *Checking routing of ground cable -2-* has **become detached** from the pin cap on the monocoque, the routing of the ground cable must be reworked. **To do this, continue with** ⇒ *Technical Information 'WF4900 Reworking routing of ground cable for front electric machine'*.

- 5 Install centre underbody cover (at the sides) at the right ⇒ *Workshop Manual '51931901 Removing and installing cover for centre underbody (at the sides)'*.

- 6 Fit front right wheel ⇒ *Workshop Manual '440519 Removing and installing wheel'*.

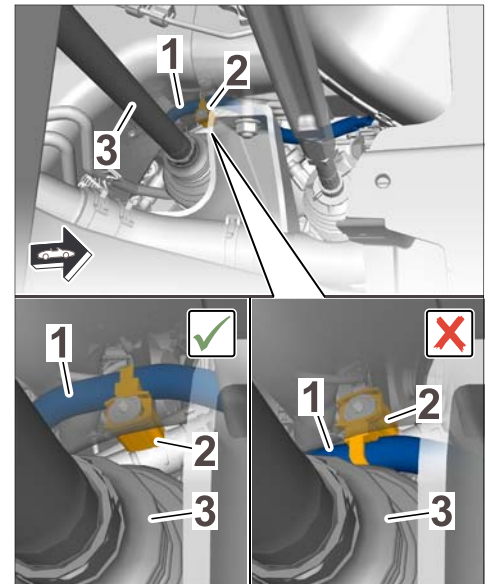
- 7 Lower the vehicle and remove it from the lifting platform ⇒ *Workshop Manual '4X00IN Lifting the vehicle'*.

7.1 Lower the vehicle onto the **9453 - access ramps** with the lifting platform.

7.2 Remove mounting plates **9002 - Lifting platform holders** and install the covers on the underbody ⇒ *Workshop Manual '518119 Removing and installing jacking points'*.

- 8 Enter the campaign in the Warranty and Maintenance booklet.

**End of action required.** For invoicing, see **Scope 1** under ⇒ *Technical Information 'WF4900 Invoicing'*.



*Checking routing of ground cable*



**Reworking routing of ground cable for front electric machine**

- Procedure:
- 1 Observe warning notes for working on the high-voltage vehicle electrical system ⇒ *Workshop Manual '2X00IN General warning notes for working on the high-voltage vehicle electrical system'*.
  - 2 De-energise the high-voltage system and complete the relevant documentation ⇒ *Workshop Manual '2X00IN Isolating high-voltage electrical system from power supply/Starting high-voltage electrical system (diagnostics)'*.  
  
If absence of electric charge could not be verified automatically or if the function could not be run (see display in the 9818 PIWIS Tester II), the voltage must be measured manually.  
For instructions, see ⇒ *Workshop Manual '2X00IN Isolating high-voltage electrical system from power supply/Starting high-voltage electrical system (manual)'*.
  - 3 Secure the vehicle at the lifting platform arms with **9454 - strapping belts** for carrying out the next steps ⇒ *Workshop Manual '4X00IN Lifting the vehicle'*.
  - 4 Remove underbody covers.
    - 4.1 Remove front left wheel and both rear wheels ⇒ *Workshop Manual '440519 Removing and installing wheel'*.
    - 4.2 Remove centre underbody cover (at the sides) at the left ⇒ *Workshop Manual '51931901 Removing and installing cover for centre underbody (at the sides)'*.
    - 4.3 Remove front wheel housing liner (front part) at the right ⇒ *Workshop Manual '50561901 Removing and installing front wheel housing liner (front part)'*.
    - 4.4 Remove front wheel housing liner (rear part) at the left and right ⇒ *Workshop Manual '50561905 Removing and installing front wheel housing liner (rear part)'*.
    - 4.5 Remove front underbody cover ⇒ *Workshop Manual '519219 Removing and installing cover for front underbody'*.
    - 4.6 Remove centre underbody cover ⇒ *Workshop Manual '51931900 Removing and installing cover for centre underbody'*.

**NOTICE**

**No rear-axle support when cover for rear underbody panelling is removed**

- **Hairline cracks in unit carrier**
  - **Axle adjustment values on rear axle deviate from setpoint values**
- ⇒ **Do not fit rear wheels until cover for rear underbody panelling is installed.**
- ⇒ **Do not remove vehicle from the lifting platform until cover for rear underbody panelling is installed.**

- 4.7 Remove rear underbody cover ⇒ *Workshop Manual '519419 Removing and installing cover for rear underbody'*.

- 5 Drain coolant for medium/low-temperature cooling system.
  - 5.1 Remove trim panel for roll-over bar at the left and right ⇒ *Workshop Manual '663519 Removing and installing trim panel for roll-over bar'*.
  - 5.2 Remove engine cover ⇒ *Workshop Manual '108319 Removing and installing engine cover'*.
  - 5.3 Drain coolant for medium- and low-temperature cooling system ⇒ *Workshop Manual '193817 Draining and filling coolant - medium- and low-temperature cooling system'*.
- 6 Remove low-voltage battery ⇒ *Workshop Manual '270619 Removing and installing battery'*.
- 7 Drain the air conditioning system ⇒ *Workshop Manual '870317 Draining and filling refrigerant'*.
- 8 Remove luggage compartment pan.
  - 8.1 Remove front luggage compartment trim panels ⇒ *Workshop Manual '700519 Removing and installing front luggage compartment trim panel'*.
  - 8.2 Remove luggage compartment lamp ⇒ *Workshop Manual '964019 Removing and installing luggage compartment lamp'*.
  - 8.3 Remove cover for transverse lock support ⇒ *Workshop Manual '703919 Removing and installing cover for lock support'*.
  - 8.4 Remove headlights at the left and right ⇒ *Workshop Manual '941519 Removing and installing headlights'*.
  - 8.5 Remove front apron ⇒ *Workshop Manual '631519 Removing and installing front apron'*.
  - 8.6 Remove wiper arm ⇒ *Workshop Manual '922519 Removing and installing wiper arm'*.
  - 8.7 Remove front trim panel ⇒ *Workshop Manual '700219 Removing and installing front trim panel'*.
  - 8.8 Remove cowl panel cover ⇒ *Workshop Manual '664419 Removing and installing cowl panel cover'*.
  - 8.9 Remove luggage compartment pan ⇒ *Workshop Manual '502019 Removing and installing floor front section'*.
- 9 Remove pressure accumulator for front axle lift system ⇒ *Workshop Manual '438219 Removing and installing pressure accumulator for front axle lift system'*.
- 10 Remove front power electronics ⇒ *Workshop Manual '279119 Removing and installing power electronics (front)'*.

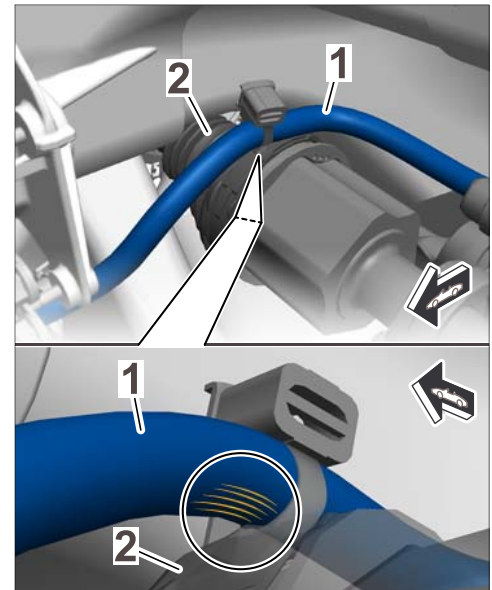
11 Visually inspect the bellows ⇒ *Visual inspection for damage -2-* on the inner right drive shaft and the ground cable ⇒ *Visual inspection for damage -1-* for the front electric machine for damage.

- There is **no visible damage** to the bellows and ground cable: The bellows and ground cable do **not** have to be replaced. **Continue with** ⇒ **Step 12**.
- The **bellows** or **ground cable** show **signs of chafing** ⇒ *Visual inspection for damage -circle-* or **drive shaft grease** is already **leaking out of the bellows**: The **bellows** on the drive shaft and the **ground cable** must be **replaced**. **To do this, continue with** ⇒ *Technical Information 'WF4900 Replacing bellows on inner right drive shaft and ground cable for the front electric machine'*.

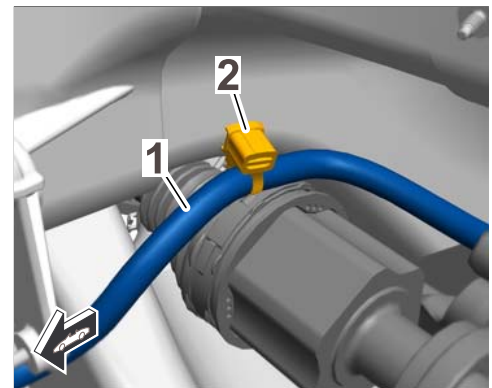
12 Rework routing of ground cable for front electric machine.

12.1 Cut tie-wraps on the line bracket ⇒ *Removing line bracket -2-* for the ground cable ⇒ *Removing line bracket -1-*.

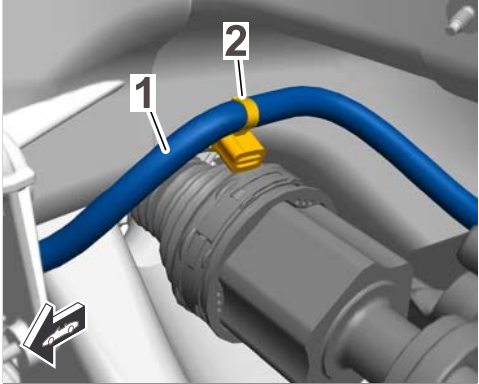
12.2 Unscrew line bracket ⇒ *Removing line bracket -2-* from the pin cap on the monocoque and remove it.



*Visual inspection for damage*



*Removing line bracket*

- 12.3 Screw a new line bracket ⇒ *Installing line bracket -2-* as far as it will go onto the pin cap on the monocoque and then align it so that the tie-wrap is at the top of the line bracket.
- 12.4 Route the ground cable ⇒ *Installing line bracket -1-* **above** the line bracket ⇒ *Installing line bracket -2-* and secure it to the line bracket with the tie-wrap. Cut off the extra length at the end of the tie-wrap and remove it.
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- 13 Install front power electronics ⇒ *Workshop Manual '279119 Removing and installing power electronics (front)'*.
- 14 Install pressure accumulator for front axle lift system ⇒ *Workshop Manual '438219 Removing and installing pressure accumulator for front axle lift system'*.
- 15 Install luggage compartment pan.
- 15.1 Install luggage compartment pan ⇒ *Workshop Manual '502019 Removing and installing floor front section'*.
- 15.2 Install cowl panel cover ⇒ *Workshop Manual '664419 Removing and installing cowl panel cover'*.
- 15.3 Install front trim panel ⇒ *Workshop Manual '700219 Removing and installing front trim panel'*.
- 15.4 Install wiper arm ⇒ *Workshop Manual '922519 Removing and installing wiper arm'*.
- 15.5 Install front apron ⇒ *Workshop Manual '631519 Removing and installing front apron'*.
- 15.6 Install headlights at the left and right ⇒ *Workshop Manual '941519 Removing and installing headlights'*.
- 15.7 Install cover for transverse lock support ⇒ *Workshop Manual '703919 Removing and installing cover for lock support'*.
- 15.8 Install luggage compartment lamp ⇒ *Workshop Manual '964019 Removing and installing luggage compartment lamp'*.
- 15.9 Install front luggage compartment trim panels ⇒ *Workshop Manual '700519 Removing and installing front luggage compartment trim panel'*.
- 16 Install low-voltage battery ⇒ *Workshop Manual '270619 Removing and installing battery'*.
- 17 Start the high-voltage system and complete the relevant documentation ⇒ *Workshop Manual '2X00IN Isolating high-voltage electrical system from power supply/Starting high-voltage electrical system (diagnostics)'*.

Installing line bracket

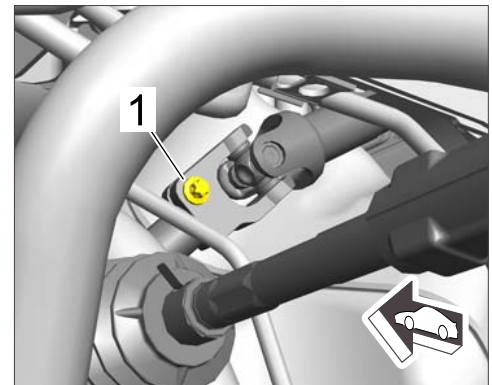
- 18 Fill the air conditioning system ⇒ *Workshop Manual '870317 Draining and filling refrigerant'*.
- 19 Fill in coolant for medium- and low-temperature cooling system and bleed the cooling system.
  - 19.1 Fill in coolant for medium- and low-temperature cooling system ⇒ *Workshop Manual '193817 Draining and filling coolant - medium- and low-temperature cooling system'*.
  - 19.2 Bleed the cooling system ⇒ *Workshop Manual '190107 Bleeding the cooling system - medium/low-temperature cooling system'*.
- 20 Install underbody covers.
  - 20.1 Install rear underbody cover ⇒ *Workshop Manual '519419 Removing and installing cover for rear underbody'*.
  - 20.2 Install centre underbody cover ⇒ *Workshop Manual '51931900 Removing and installing cover for centre underbody'*.
  - 20.3 Install front underbody cover ⇒ *Workshop Manual '519219 Removing and installing cover for front underbody'*.
  - 20.4 Install front wheel housing liner (rear part) at the left and right ⇒ *Workshop Manual '50561905 Removing and installing front wheel housing liner (rear part)'*.
  - 20.5 Install front wheel housing liner (front part) at the right ⇒ *Workshop Manual '50561901 Removing and installing front wheel housing liner (front part)'*.
  - 20.6 Install centre underbody cover (at the sides) at the left and right ⇒ *Workshop Manual '51931901 Removing and installing cover for centre underbody (at the sides)'*.
- 21 Fit front and rear wheels ⇒ *Workshop Manual '440519 Removing and installing wheel'*.
- 22 Install engine cover ⇒ *Workshop Manual '108319 Removing and installing engine cover'*.
- 23 Install trim panel for roll-over bar at the left and right ⇒ *Workshop Manual '663519 Removing and installing trim panel for roll-over bar'*.
- 24 Lower the vehicle and remove it from the lifting platform ⇒ *Workshop Manual '4X00IN Lifting the vehicle'*.
  - 24.1 Lower the vehicle onto the **9453 - access ramps** with the lifting platform.
  - 24.2 Remove mounting plates **9002 - Lifting platform holders** and install the covers on the underbody ⇒ *Workshop Manual '518119 Removing and installing jacking points'*.
- 25 Adjust the headlights ⇒ *Workshop Manual '941515 Adjusting headlights'*.
- 26 Enter the campaign in the Warranty and Maintenance booklet.  
**End of action required.** For invoicing, see **Scope 2** under ⇒ *Technical Information 'WF4900 Invoicing'*.

## Replacing bellows on inner right drive shaft and ground cable for the front electric machine

- Procedure:
- 1 Drain coolant for high-temperature cooling system ⇒ *Workshop Manual '193817 Draining and filling coolant - high-temperature engine cooling system'*
  - 2 Remove passenger compartment heater (PTC heating core) ⇒ *Workshop Manual '828019 Removing and installing passenger compartment heater'*.
  - 3 Remove coolant lines on the front-axle cross member.  
⇒ *Workshop Manual '196419 Removing and installing front coolant pipes - medium- and low-temperature cooling system'*  
⇒ *Workshop Manual '196419 Removing and installing front coolant pipes - high-temperature cooling system'*
  - 4 Loosen and unscrew clamping screw ⇒ *Universal joint for steering column-1* for the universal joint for the steering column on the steering gear.  
To do this, secure the steering wheel in centre position. The clamping screw is then accessible through an opening in the monocoque.
  - 5 Remove front-axle cross member (subframe).
 

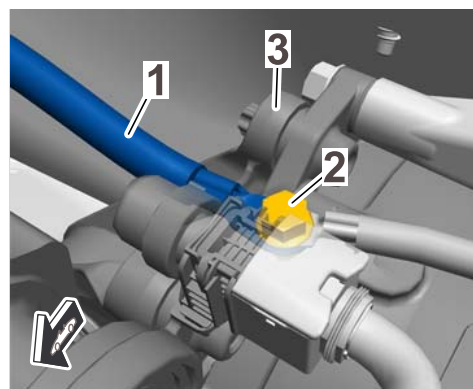
### Information

    - **Do not open the brake hydraulic system (brake lines remain connected).**
  - 5.1 Loosen front brake calliper at the left and right on the wheel carriers ⇒ *Workshop Manual '473919 Removing and installing front brake calliper'*.  
Suspend brake callipers on the vehicle using tie-wraps, for example.
  - 5.2 Loosen anti-roll bar at the connecting links ⇒ *Workshop Manual '407819 Removing and installing connecting link for anti-roll bar'*.
  - 5.3 Loosen upper trailing arms at the left and right on the wheel carrier ⇒ *Workshop Manual '401519 Removing and installing upper trailing arm'*.
  - 5.4 Remove front spring struts at the left and right ⇒ *Workshop Manual '408519 Removing and installing front spring strut'*.
  - 5.5 Remove front-axle cross member ⇒ *Workshop Manual '400919 Removing and installing front-axle cross member (subframe)'*.
  - 6 Replace ground cable for front electric machine.



*Universal joint for steering column*

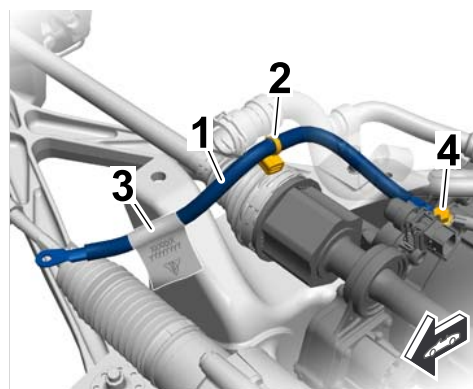
- 6.1 Loosen and unscrew fastening screw ⇒ *Removing ground cable -2-* for the ground cable ⇒ *Removing ground cable -1-* at the front electric machine ⇒ *Removing ground cable -3-*. Pull off and remove ground cable.



*Removing ground cable*

- 6.2 Position new ground cable ⇒ *Installing ground cable -1-* with the threaded eyelet **without identification tag** ⇒ *Installing ground cable -3-* on the electric machine in such a way that the ground cable is **routed to the right when viewed in direction of travel**.

Make sure that the line bracket ⇒ *Installing ground cable -2-* is positioned on the underside of the ground cable and that the identification tag ⇒ *Installing ground cable -3-* is positioned **in front of** the line bracket when viewed in direction of travel.



*Installing ground cable*

- 6.3 Screw in and tighten fastening screw ⇒ *Installing ground cable -4-* for the ground cable ⇒ *Installing ground cable -1-*. Counter at the ground cable to prevent the ground cable from turning.  
**Tightening torque 10 Nm (7.5 ftlb.)**

- 7 Replace bellows on the inner right drive shaft.
  - 7.1 Remove right wheel carrier at the lower wishbone ⇒ *Workshop Manual '400519 Removing and installing front wheel suspension'*.
  - 7.2 Remove drive shaft from the wheel carrier you have just removed ⇒ *Workshop Manual '404119 Removing and installing front drive shaft'*.



**Information**

The drive shaft has a tripod joint on the inside and a constant-velocity joint on the outside. The procedure and materials required for the inner and outer bellows are thus different.

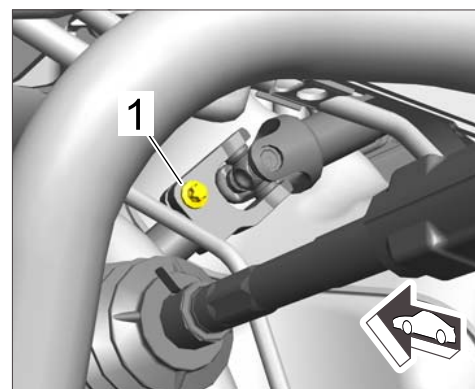
- Pull the bellows down or push it on over the wheel side of the drive shaft.
- Always replace both bellows (inner and outer).
- Clean the drive shaft before installing the new bellows so that the bellows do not get dirty when sliding them on.
- The bellows on the transmission side and the bellows on the wheel side are not identical parts. Take note of which bellows belongs at which end of the drive shaft. **Do not mix up the parts.**

- 7.3 Replace inner and outer bellows ⇒ *Workshop Manual '404755 Drive shaft: Replacing inner and outer bellows'*.
  - 7.4 Install drive shaft on the right wheel carrier ⇒ *Workshop Manual '404119 Removing and installing front drive shaft'*.
  - 7.5 Install right wheel carrier at the lower wishbone ⇒ *Workshop Manual '400519 Removing and installing front wheel suspension'*.
- 8 Install front-axle cross member (subframe).
    - 8.1 Install front-axle cross member ⇒ *Workshop Manual '400919 Removing and installing front-axle cross member (subframe)'*.
    - 8.2 Install front spring struts at the left and right ⇒ *Workshop Manual '408519 Removing and installing front spring strut'*.
    - 8.3 Secure upper trailing arms at the left and right on the wheel carrier ⇒ *Workshop Manual '401519 Removing and installing upper trailing arm'*.
    - 8.4 Secure anti-roll bar at the connecting links ⇒ *Workshop Manual '407819 Removing and installing connecting link for anti-roll bar'*.
    - 8.5 Secure front brake calliper at the left and right to the wheel carriers ⇒ *Workshop Manual '473919 Removing and installing front brake calliper'*.



- 9 Push universal joint of the steering column onto the steering gear at the correct position. Note the position of the notch for the clamping screw while doing this.  
Screw in and tighten clamping screw ⇒ *Universal joint for steering column-1* used to secure the universal joint of the steering column to the steering gear.

**Tightening torque 20 Nm (15 ftlb.) +90°**



*Universal joint for steering column*

- 10 Install coolant lines on the front-axle cross member.  
⇒ *Workshop Manual '196419 Removing and installing front coolant pipes - medium- and low-temperature cooling system'*  
⇒ *Workshop Manual '196419 Removing and installing front coolant pipes - high-temperature cooling system'*
- 11 Install passenger compartment heater (PTC heating core) ⇒ *Workshop Manual '828019 Removing and installing passenger compartment heater'*.
- 12 Install front power electronics ⇒ *Workshop Manual '279119 Removing and installing power electronics (front)'*.
- 13 Install pressure accumulator for front axle lift system ⇒ *Workshop Manual '438219 Removing and installing pressure accumulator for front axle lift system'*.
- 14 Install luggage compartment pan.
  - 14.1 Install luggage compartment pan ⇒ *Workshop Manual '502019 Removing and installing floor front section'*.
  - 14.2 Install cowl panel cover ⇒ *Workshop Manual '664419 Removing and installing cowl panel cover'*.
  - 14.3 Install front trim panel ⇒ *Workshop Manual '700219 Removing and installing front trim panel'*.
  - 14.4 Install wiper arm ⇒ *Workshop Manual '922519 Removing and installing wiper arm'*.
  - 14.5 Install front apron ⇒ *Workshop Manual '631519 Removing and installing front apron'*.
  - 14.6 Install headlights at the left and right ⇒ *Workshop Manual '941519 Removing and installing headlights'*.
  - 14.7 Install cover for transverse lock support ⇒ *Workshop Manual '703919 Removing and installing cover for lock support'*.
  - 14.8 Install luggage compartment lamp ⇒ *Workshop Manual '964019 Removing and installing luggage compartment lamp'*.

- 14.9 Install front luggage compartment trim panels ⇒ *Workshop Manual '700519 Removing and installing front luggage compartment trim panel'*.
- 15 Install low-voltage battery ⇒ *Workshop Manual '270619 Removing and installing battery'*.
- 16 Start the high-voltage system and complete the relevant documentation ⇒ *Workshop Manual '2X00IN Isolating high-voltage electrical system from power supply/Starting high-voltage electrical system (diagnostics)'*.
- 17 Fill the air conditioning system ⇒ *Workshop Manual '870317 Draining and filling refrigerant'*.
- 18 Fill in coolant and bleed the cooling system.
  - 18.1 Fill in coolant for high-temperature cooling system ⇒ *Workshop Manual '193817 Draining and filling coolant - high-temperature engine cooling system'*.
  - 18.2 Fill in coolant for medium- and low-temperature cooling system ⇒ *Workshop Manual '193817 Draining and filling coolant - medium- and low-temperature cooling system'*.
  - 18.3 Bleed the cooling system.  
⇒ *Workshop Manual '190107 Bleeding the cooling system - high-temperature engine cooling system'*  
⇒ *Workshop Manual '190107 Bleeding the cooling system - medium- and low-temperature cooling system'*
- 19 Install underbody covers.
  - 19.1 Install rear underbody cover ⇒ *Workshop Manual '519419 Removing and installing cover for rear underbody'*.
  - 19.2 Install centre underbody cover ⇒ *Workshop Manual '51931900 Removing and installing cover for centre underbody'*.
  - 19.3 Install front underbody cover ⇒ *Workshop Manual '519219 Removing and installing cover for front underbody'*.
  - 19.4 Install front wheel housing liner (rear part) at the left and right ⇒ *Workshop Manual '50561905 Removing and installing front wheel housing liner (rear part)'*.
  - 19.5 Install front wheel housing liner (front part) at the right ⇒ *Workshop Manual '50561901 Removing and installing front wheel housing liner (front part)'*.
  - 19.6 Install centre underbody cover (at the sides) at the left and right ⇒ *Workshop Manual '51931901 Removing and installing cover for centre underbody (at the sides)'*.
- 20 Fit front and rear wheels ⇒ *Workshop Manual '440519 Removing and installing wheel'*.
- 21 Install engine cover ⇒ *Workshop Manual '108319 Removing and installing engine cover'*.

- 22 Install trim panel for roll-over bar at the left and right ⇒ *Workshop Manual '663519 Removing and installing trim panel for roll-over bar'*.
- 23 Lower the vehicle and remove it from the lifting platform ⇒ *Workshop Manual '4X00IN Lifting the vehicle'*.
  - 23.1 Lower the vehicle onto the **9453 - access ramps** with the lifting platform.
  - 23.2 Remove mounting plates **9002 - Lifting platform holders** and install the covers on the underbody ⇒ *Workshop Manual '518119 Removing and installing jacking points'*.
- 24 Perform suspension alignment and make adjustments if necessary.
  - ⇒ *Workshop Manual '449503 Suspension alignment, complete'*
  - ⇒ *Workshop Manual '4X00IN Adjustment values for suspension alignment'*
- 25 Adjust the headlights ⇒ *Workshop Manual '941515 Adjusting headlights'*.
- 26 Enter the campaign in the Warranty and Maintenance booklet.  
**End of action required.** For invoicing, see **Scope 3 and 4** under ⇒ *Technical Information 'WF4900 Invoicing'*.

**Warranty Invoicing**

Service Level: **The required service level for carrying out this campaign depends on the remedial action to be carried out:**

**Service Level 0** Porsche Dealers are **not** authorised to carry out this campaign. In accordance with the service concept for the 918 Spyder, the vehicle must be transferred to the nearest Service Level 2 Porsche Dealer in order to check the routing of the ground cable. If the components need to be reworked or replaced, the vehicle must be handed over to the nearest Service Level 2 Porsche Dealer.

**In this case, Service Level 0 Porsche Dealers** can invoice the cost items listed below for vehicle acceptance, transporting the vehicle and accepting the vehicle following return transport using the **new vehicle warranty** for the vehicle in accordance with the specifications in the 918 Spyder After Sales Fact Book 2014:

- Vehicle acceptance 100 TU
- Transporting the vehicle 100 TU
- Acceptance of the vehicle following return transport 50 TU
- Costs for transporting the vehicle to and from the Porsche Centre Amount as per invoice \*

\* Please document copy of invoice in PQIS

Please invoice the costs by specifying **Damage code C902 97 000** and enter the technical reason by specifying **Coding C9020 9735** in PQIS. Also specify **Campaign WF49** under Comment.

**Service Level 2 Porsche Dealers** must always submit an invoice for the relevant **campaign scope**.



### Information

The working times specified below were determined specifically for carrying out this campaign and may differ from the working times published in the Labor Operation List in PWIS.

Scope 1: **Checking routing of ground cable for front electric machine** – Parts do not need to be reworked or replaced.

#### Working time:

Checking routing of ground cable for front electric machine	Labor time: <b>137 TU</b>
Includes:	<ul style="list-style-type: none"> <li>Raising and lowering the vehicle</li> <li>Removing and installing right front wheel</li> <li>Removing and installing centre underbody cover (at the sides) at the right</li> </ul>

#### Required materials:

000.043.300.35	McLube Sailkote High Performance Dry Lube (428g spraying can)	0.03 ea. (= approx. 10 g)
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**Warranty Invoicing:** ⇒ **Damage code WF49 66 000, Repair code 1**

Scope 2: **Checking and reworking routing of ground cable for front electric machine** – Ground cable and bellows do not have to be replaced.

#### Working time:

Reworking routing of ground cable for front electric machine	Labor time: <b>844 TU</b>
Includes:	<ul style="list-style-type: none"> <li>Checking routing of ground cable for front electric machine</li> <li>Checking ground cable and bellows for damage</li> <li>Removing and installing all wheels</li> <li>Removing and installing centre underbody cover (at the sides) at the left and right</li> <li>Removing and installing front wheel housing liner (front part) at the left and right</li> <li>Removing and installing front wheel housing liner (rear part) at the left and right</li> <li>Removing and installing front underbody cover</li> <li>Removing and installing centre underbody cover</li> <li>Removing and installing rear underbody cover</li> </ul>

Isolating high-voltage electrical system from power supply/Starting high-voltage electrical system with documentation  
 Draining and filling coolant for low/medium-temperature cooling system  
 Removing and installing low-voltage battery  
 Emptying and filling the air conditioning system  
 Removing and installing luggage compartment pan  
 Removing and installing pressure accumulator for front axle lift system  
 Removing and installing front power electronics  
 Adjusting headlights

**Parts required:**

000.043.210.28	Combination holder for ground cable	1 ea.
900.123.033.20	Sealing ring, A10 x 13.5	1 ea.
900.123.007.30	Sealing ring, A14 x 18	1 ea.
944.573.143.01	Desiccator	1 ea.
999.507.309.02	Speed nut, ST 4.8	Optional (as required)
N 906.271.03	Speed nut	Optional (as required)

**Required materials:**

000.043.300.35	McLube Sailkote High Performance Dry Lube (428g spraying can)	0.03 ea. (= approx. 10 g)
000.043.301.48	Antifreeze (20-litre container)	0.08 ea. (= approx. 1.5 litres)
000.043.205.93	Klüberplus Gel grease (100g tube)	0.05 ea. (= approx. 5 g)
000.043.204.68	Klüber Syntheso Glep grease (50g tube)	0.1 ea. (= approx. 5 g)

**Warranty Invoicing: ⇒ Damage code WF49 66 000, Repair code 2**

Scope 3: **Checking routing of ground cable for front electric machine and replacing ground cable and bellows**

- Vehicles **without** Racetrack package (I-no. 808)

**Information**

The time required for **measuring the vehicle height as well as the camber and toe adjustment values** on the front axle is **included** in the working time.

All work that must be carried out in order to **adjust the wheel alignment positions** and parts required during the adjustment process are **not** included in the **scope of this campaign** and must be invoiced using a separate warranty claim.

**Working time:**

Replacing ground cable and bellows

Labor time: **1356 TU**

Includes:

- Checking routing of ground cable for front electric machine
- Checking ground cable and bellows for damage
- Removing and installing all wheels
- Removing and installing centre underbody cover (at the sides) at the left and right
- Removing and installing front wheel housing liner (front part) at the left and right
- Removing and installing front wheel housing liner (rear part) at the left and right
- Removing and installing front underbody cover
- Removing and installing centre underbody cover
- Removing and installing rear underbody cover
- Isolating high-voltage electrical system from power supply/starting high-voltage electrical system with documentation
- Draining and filling coolant for low/medium/high-temperature cooling system
- Removing and installing low-voltage battery
- Emptying and filling the air conditioning system
- Removing and installing luggage compartment pan
- Removing and installing pressure accumulator for front axle lift system
- Removing and installing front power electronics
- Removing and installing passenger compartment heater (PTC heating core)
- Removing and installing coolant lines on front-axle cross member
- Loosening and securing universal joint for steering column on steering gear
- Removing and installing front-axle cross member (subframe)
- Removing and installing front right drive shaft
- Replacing inner and outer bellows for front right drive shaft
- Performing suspension alignment

Adjusting headlights

**Parts required:**

918.611.319.01	Ground cable with combination holder for front electric machine	1 ea.
918.349.851.00	Front joint boot repair kit	1 ea.
918.349.853.00	Set of fastening parts for front drive shaft	1 ea.
999.084.445.01	Lock nut, M12 x 1.5	2 ea.
N 106.620.01	Hexagon-head bolt, M8 x 40	2 ea.
999.084.656.01	Hexagon nut, M10	13 ea.
999.084.655.01	Hexagon nut, M12 x 1.5	1 ea.
N 911.744.01	Multiple-tooth screw, M8 x 35	1 ea.
999.311.502.01	Fit bolt, M12 x 1.5	2 ea.
999.311.602.01	Fit bolt, M10 x 1.5 x 65	2 ea.
999.311.604.01	Fit bolt, M10 x 1.5 x 81	1 ea.
999.311.605.01	Fit bolt, M10 x 1.5 x 52	2 ea.
999.311.606.01	Fit bolt, M10 x 1.5 x 72	2 ea.
900.123.033.20	Sealing ring, A10 x 13.5	1 ea.
900.123.007.30	Sealing ring, A14 x 18	2 ea.
944.573.143.01	Desiccator	1 ea.
999.507.309.02	Speed nut, ST 4.8	Optional (as required)
N 906.271.03	Speed nut	Optional (as required)

**Required materials:**

000.043.300.35	McLube Sailkote High Performance Dry Lube (428g spraying can)	0.03 ea. (= approx. 10 g)
000.043.301.48	Antifreeze (20-litre container)	0.13 ea. (= approx. 2.5 litres)
000.043.205.93	Klüberplus Gel grease (100g tube)	0.05 ea. (= approx. 5 g)
000.043.204.68	Klüber Syntheso Glep grease (50g tube)	0.1 ea. (= approx. 5 g)
000.043.110.02	Castrol Optitemp HT1LF grease (100g tube)	2.4 ea. (= approx. 235 g)

000.043.302.72	Pfinder AP14/4 protective wax (100g tube)	0.05 ea. (= approx. 5 g)
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**Warranty Invoicing:** ⇒ Damage code WF49 66 000, Repair code 2

Scope 4:

**Checking routing of ground cable for front electric machine and replacing ground cable and bellows**

- Vehicles with **Racetrack package (I-no. 808)**



**Information**

The time required for **measuring the vehicle height as well as the camber and toe adjustment values** on the front axle is **included** in the working time.

All work that must be carried out in order to **adjust the wheel alignment positions** and parts required during the adjustment process are **not** included in the **scope of this campaign** and must be invoiced using a separate warranty claim.

**Working time:**

Replacing ground cable and bellows

Labor time: **1356 TU**

Includes:

- Checking routing of ground cable for front electric machine
- Checking ground cable and bellows for damage
- Removing and installing all wheels
- Removing and installing centre underbody cover (at the sides) at the left and right
- Removing and installing front wheel housing liner (front part) at the left and right
- Removing and installing front wheel housing liner (rear part) at the left and right
- Removing and installing front underbody cover
- Removing and installing centre underbody cover
- Removing and installing rear underbody cover
- Isolating high-voltage electrical system from power supply/starting high-voltage electrical system with documentation
- Draining and filling coolant for low/medium/high-temperature cooling system
- Removing and installing low-voltage battery
- Emptying and filling the air conditioning system
- Removing and installing luggage compartment pan
- Removing and installing pressure accumulator for front axle lift system
- Removing and installing front power electronics



Removing and installing passenger compartment heater (PTC heating core)  
 Removing and installing coolant lines on front-axle cross member  
 Loosening and securing universal joint for steering column on steering gear  
 Removing and installing front-axle cross member (subframe)  
 Removing and installing front right drive shaft  
 Replacing inner and outer bellows for front right drive shaft  
 Performing suspension alignment  
 Adjusting headlights

**Parts required:**

918.611.319.01	Ground cable with combination holder for front electric machine	1 ea.
918.349.851.00	Front joint boot repair kit	1 ea.
918.349.853.00	Set of fastening parts for front drive shaft	1 ea.
999.084.445.01	Lock nut, M12 x 1.5	2 ea.
N 106.620.01	Hexagon-head bolt, M8 x 40	2 ea.
999.084.656.01	Hexagon nut, M10	13 ea.
999.084.655.01	Hexagon nut, M12 x 1.5	1 ea.
N 911.744.01	Multiple-tooth screw, M8 x 35	1 ea.
999.311.502.02	Fit bolt, M12 x 1.5 (I-no. 808)	2 ea.
999.311.602.02	Fit bolt, M10 x 1.5 x 65 (I-no. 808)	2 ea.
999.311.604.02	Fit bolt, M10 x 1.5 x 81 (I-no. 808)	1 ea.
999.311.605.02	Fit bolt, M10 x 1.5 x 52 (I-no. 808)	2 ea.
999.311.606.02	Fit bolt, M10 x 1.5 x 72 (I-no. 808)	2 ea.
900.123.033.20	Sealing ring, A10 x 13.5	1 ea.
900.123.007.30	Sealing ring, A14 x 18	2 ea.
944.573.143.01	Desiccator	1 ea.
999.507.309.02	Speed nut, ST 4.8	Optional (as required)
N 906.271.03	Speed nut	Optional (as required)

**Required materials:**

000.043.300.35	McLube Sailkote High Performance Dry Lube (428g spraying can)	0.03 ea. (= approx. 10 g)
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000.043.301.48	Antifreeze (20-litre container)	0.13 ea. (= approx. 2.5 litres)
000.043.205.93	Klüberplus Gel grease (100g tube)	0.05 ea. (= approx. 5 g)
000.043.204.68	Klüber Syntheso Glep grease (50g tube)	0.1 ea. (= approx. 5 g)
000.043.110.02	Castrol Optitemp HT1LF grease (100g tube)	2.4 ea. (= approx. 235 g)
000.043.302.72	Pfinder AP14/4 protective wax (100g tube)	0.05 ea. (= approx. 5 g)

**Warranty Invoicing: ⇒ Damage code WF49 66 000, Repair code 2**

- References:
- ⇒ *Workshop Manual '108319 Removing and installing engine cover'*
  - ⇒ *Workshop Manual '190107 Bleeding the cooling system - high-temperature engine cooling system'*
  - ⇒ *Workshop Manual '190107 Bleeding the cooling system - medium- and low-temperature cooling system'*
  - ⇒ *Workshop Manual '193817 Draining and filling coolant - high-temperature engine cooling system'*
  - ⇒ *Workshop Manual '193817 Draining and filling coolant - medium- and low-temperature cooling system'*
  - ⇒ *Workshop Manual '196419 Removing and installing front coolant pipes - high-temperature cooling system'*
  - ⇒ *Workshop Manual '196419 Removing and installing front coolant pipes - medium- and low-temperature cooling system'*
  - ⇒ *Workshop Manual '2X00IN General warning notes for working on the high-voltage vehicle electrical system'*
  - ⇒ *Workshop Manual '2X00IN Isolating high-voltage electrical system from power supply/Starting high-voltage electrical system (diagnostics)'*
  - ⇒ *Workshop Manual '2X00IN Isolating high-voltage electrical system from power supply/Starting high-voltage electrical system (manual)'*
  - ⇒ *Workshop Manual '270619 Removing and installing battery'*
  - ⇒ *Workshop Manual '279119 Removing and installing (front) power electronics'*
  - ⇒ *Workshop Manual '4X00IN Lifting the vehicle'*
  - ⇒ *Workshop Manual '4X00IN Adjustment values for suspension alignment'*
  - ⇒ *Workshop Manual '400519 Removing and installing front wheel suspension'*
  - ⇒ *Workshop Manual '400919 Removing and installing front-axle cross member (subframe)'*
  - ⇒ *Workshop Manual '401519 Removing and installing upper trailing arm'*
  - ⇒ *Workshop Manual '404119 Removing and installing front drive shaft'*
  - ⇒ *Workshop Manual '404755 Drive shaft: Replacing inner and outer bellows'*
  - ⇒ *Workshop Manual '407819 Removing and installing connecting link for anti-roll bar'*
  - ⇒ *Workshop Manual '408519 Removing and installing front spring strut'*
  - ⇒ *Workshop Manual '438219 Removing and installing pressure accumulator for front axle lift system'*
  - ⇒ *Workshop Manual '440519 Removing and installing wheel'*

- ⇒ Workshop Manual '449503 Suspension alignment, complete'
- ⇒ Workshop Manual '473919 Removing and installing front brake calliper'
- ⇒ Workshop Manual '502019 Removing and installing floor front section'
- ⇒ Workshop Manual '50561901 Removing and installing front wheel housing liner (front part)'
- ⇒ Workshop Manual '50561905 Removing and installing front wheel housing liner (rear part)'
- ⇒ Workshop Manual '518119 Removing and installing jacking points'
- ⇒ Workshop Manual '519219 Removing and installing cover for front underbody'
- ⇒ Workshop Manual '51931900 Removing and installing cover for centre underbody'
- ⇒ Workshop Manual '51931901 Removing and installing cover for centre underbody (at the sides)'
- ⇒ Workshop Manual '519419 Removing and installing cover for rear underbody'
- ⇒ Workshop Manual '631519 Removing and installing front apron'
- ⇒ Workshop Manual '663519 Removing and installing trim panel for roll-over bar'
- ⇒ Workshop Manual '664419 Removing and installing cowl panel cover'
- ⇒ Workshop Manual '700219 Removing and installing front trim panel'
- ⇒ Workshop Manual '700519 Removing and installing trim panel for front luggage compartment'
- ⇒ Workshop Manual '703919 Removing and installing cover for lock support'
- ⇒ Workshop Manual '828019 Removing and installing passenger compartment heater'
- ⇒ Workshop Manual '870317 Draining and filling refrigerant'
- ⇒ Workshop Manual '9X00IN Battery trickle charging'
- ⇒ Workshop Manual '922519 Removing and installing wiper arm'
- ⇒ Workshop Manual '941515 Adjusting headlights'
- ⇒ Workshop Manual '941519 Removing and installing headlights'
- ⇒ Workshop Manual '964019 Removing and installing luggage compartment lamp'

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