

#### Service **Technical Information** 141/15 ENU **WF93**

## WF93 - Replacing Vacuum Line for Exhaust Flaps (Workshop Campaign)

Important: CRITICAL WARNING - This campaign includes steps where control unit(s) in the vehicle will be

programmed with the PIWIS Tester. The vehicle voltage must be maintained between 13.5 volts and 14.5 volts during this programming. Failure to maintain this voltage could result in damaged control unit(s). Damage caused by inadequate voltage during programming is not a warrantable defect. The technician must verify the actual vehicle voltage in the PIWIS Tester before starting the campaign and also document the actual voltage on the repair order. Please refer to Equipment Information EQ1401 for a list of suitable

battery chargers/power supplies which should be used to maintain vehicle voltage.

Model Year: 2017

Vehicle type: 911 Carrera (991)/911 Carrera S (991)

> 911 Carrera 4 (991)/911 Carrera 4S (991) 911 Targa 4 (991)/911 Targa 4S (991)

Equipment: Sports exhaust system (I-no. 176)

Carrera S exhaust system

Subject: Vacuum line for exhaust flaps

Issue: There is a possibility that the vacuum line for the exhaust flaps on the affected vehicles was installed too tightly and can loosen at one connection point over the service life of the vehicle.

As a result, there is no guarantee that the exhaust flaps and other vacuum-controlled actuators on the

engine will function correctly. This causes the warning message "Fault cooling system" to be displayed in the instrument cluster.

Remedial

action:

Replace vacuum line for exhaust flaps.

**Affected** 

Vehicles:

Only the vehicles assigned to the campaign (see also PIWIS Vehicle information).

Parts Info:

NOTE: PARTS WILL NOT BE AUTOMATICALLY ALLOCATED TO YOUR DEALERSHIP. ALL PARTS

MUST BE ORDERED VIA A PTEC/PAV.

Vehicles with sports exhaust system (I-no. 176):

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# **Technical Information**

Part No. Designation Qty.

- Use

000 043 210 42 ⇒ Vacuum line, complete 1 ea.

- Sports exhaust system

**911 Carrera S** (991) vehicles **without** sports exhaust system:

Part No. Designation Qty.

Use

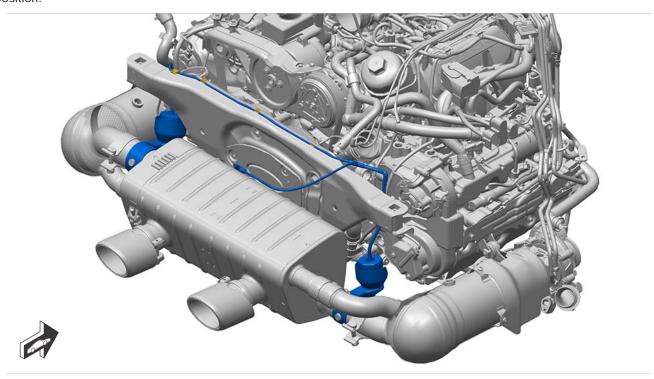
 $\Rightarrow$  Vacuum line, complete 000 043 210 43 1 ea.

- Carrera S exhaust system

Tools:

- Torque screwdriver, 1.5 3 Nm (1 2 ftlb.), e.g. VAS 6494 Torque screwdriver
- 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 1331 Torque wrench, 6-50 Nm/4.5-37** ftlb.
- Suitable hose clip pliers, e.g. V.A.G 1275A Hose clip pliers
- 9818 PIWIS Tester II with PIWIS Tester test software version 16.300.030 (or higher) installed.
- Battery Charger/Power Supply Suitable for AGM Type batteries, recommended current rating of 70A fixed voltage 13.5V to 14.5V. Refer to Equipment Information EQ-1105

Installation position:



Installation position of vacuum line for exhaust flaps (shown on vehicle with sports exhaust system as an example)

#### Preparatory work

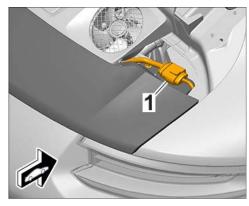
Procedure:

- Raise the vehicle on a lifting platform  $\Rightarrow$  Workshop Manual '4X00IN Lifting the vehicle'.
- 2 Only for Cabriolet/Targa vehicles:

Move convertible top to service position.

- ⇒ Workshop Manual '6101IN Convertible top service position (Cabriolet)'
- ⇒ Workshop Manual '6101IN05 Convertible top service position'
- Remove engine-compartment blower  $\Rightarrow$  *Workshop Manual '198119 Removing and installing engine-compartment blower'*.
- Remove tail light at the left and right  $\Rightarrow$  Workshop Manual '943119 Removing and installing tail light'.
- Remove rear apron  $\Rightarrow$  Workshop Manual '635519 Removing and installing rear apron'.
- 6 Remove rear spoiler.

6.1 Release and disconnect electric plug connection ⇒ Electric plug connection for rear spoiler -1 - for rear spoiler at the right-hand side of the engine compartment.

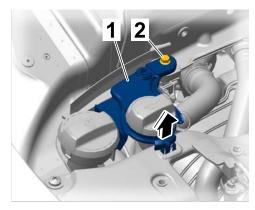


Electric plug connection for rear spoiler

- 6.2 Loosen and unscrew fastening screw ⇒

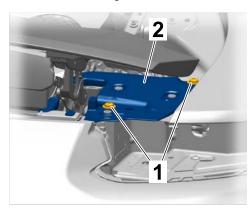
  Loosening oil filler neck -2- for oil filler neck

  ⇒ Loosening oil filler neck -1-.
- 6.3 Unclip oil filler neck ⇒ Loosening oil filler neck -1- on the rear spoiler carrier plate ⇒ Loosening oil filler neck -arrow- and carefully bend it aside.



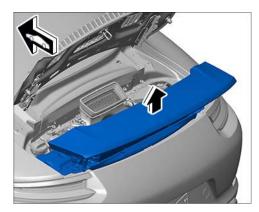
Loosening oil filler neck

6.4 Unscrew and remove fastening screws ⇒ Fastening screws for rear spoiler (right side shown as an example) -1- for the rear spoiler at the left and right-hand side of the carrier plate ⇒ Fastening screws for rear spoiler (right side shown as an example) -2-.



Fastening screws for rear spoiler (right side shown as an example)

- 6.5 Carefully lift the rear spoiler up out of the engine compartment ⇒ Removing rear spoiler -arrow- and set it down on a suitable surface.
- 7 Remove air guide for charge-air cooling ⇒ Workshop Manual '211019 Removing and installing air guide for charge-air cooling'.
- 8 Remove pressure pipe ⇒ Workshop Manual '214119 Removing and installing pressure pipe'.
- 9 Remove air cleaner housing ⇒ Workshop Manual '242519 Removing and installing air cleaner housing'.

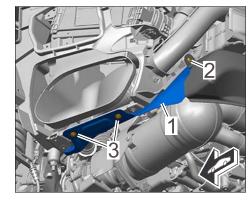


Removing rear spoiler

- 10 Remove heat shields for the catalytic converters **at the left and right**.
  - 10.1 Loosen and unscrew fastening screw ⇒

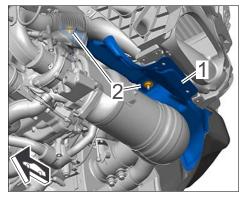
    Fastening screws for heat shield -2- on the
    back of the heat shield ⇒ Fastening screws

    for heat shield -1-.
  - 10.2 Loosen and unscrew fastening screws ⇒ Fastening screws for heat shield -3- on the underside of the vehicle.



Fastening screws for heat shield

- 10.3 Loosen and unscrew speed nuts ⇒ Removing heat shield -2- on the underside of the engine compartment side member.
- 10.4 Detach heat shield ⇒ Removing heat shield
   -1- from the pin caps and guide it out to the rear.
- 11 Remove control box for exhaust flap at the left and right ⇒ Workshop Manual '265120 Removing and installing control boxes for exhaust flaps'.

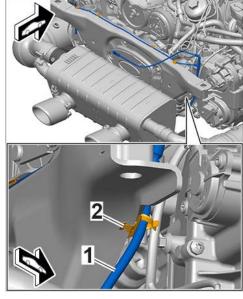


Removing heat shield

## Replacing vacuum line for exhaust flaps

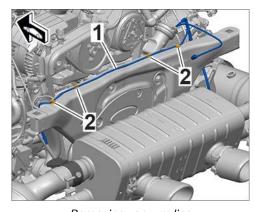
Procedure: 1 Remove old vacuum line for exhaust flaps.

1.1 Loosen steel flexi-pipe ⇒ Securing steel flexi-pipe at the right -1- going to the right control box from the bracket ⇒ Loosening steel flexi-pipe at the right -2- on the engine carrier.



Loosening steel flexi-pipe at the right

- 1.2 Starting at the outside, unclip vacuum line ⇒ Removing vacuum line -1- from the four clips ⇒ Removing vacuum line -2- on the engine carrier one after the other.
  Make sure to leave the clips on the engine carrier.
- 1.3 Lift vacuum line for exhaust flaps up out of the engine compartment and remove it.

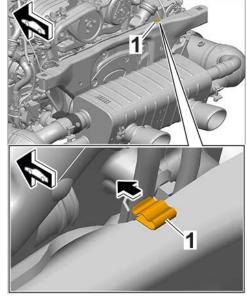


Removing vacuum line

2 Pull outer right retaining clip ⇒ Removing retaining clip -1- for the vacuum line off the engine carrier ⇒ Removing retaining clip -arrow- and remove it.

This clip will no longer be required due to the shape of the new vacuum line.

- 3 Install new vacuum line for exhaust flaps.
  - 3.1 Guide steel flexi-pipes at the left and right into the engine compartment and then set the vacuum line down on the engine carrier.

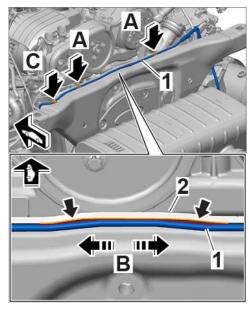


Removing retaining clip

- 3.2 Clip vacuum line ⇒ Installing new vacuum line -1 into the two centre retaining clips ⇒ Installing new vacuum line -arrows A- on the engine carrier.
- 3.3 Align the vacuum line ⇒ Installing new vacuum line -1 in the engine compartment ⇒ Aligning vacuum line -bottom in such a way that the bend in the vacuum line is aligned with the bend ⇒ Aligning vacuum line -arrows on the engine carrier ⇒ Installing new vacuum line -2 -.

To do this, carefully move the vacuum line in the retaining clips to the left or right ⇒ *Aligning vacuum line* -arrows B-.

3.4 Clip vacuum line into the outer left retaining clip ⇒ Installing new vacuum line -arrow C-.



Installing new vacuum line

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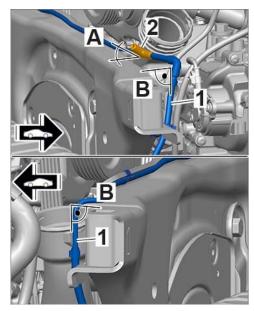


#### Information

To avoid malfunctions as a result of vacuum lines slipping off, the following points must be observed when fitting vacuum lines:

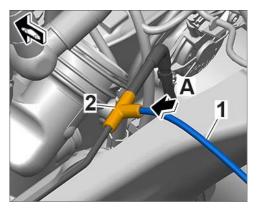
- Route vacuum lines without tension
- Only use water if required as a sliding compound when fitting vacuum lines
- Vacuum lines must be pushed into the connection pieces as far as the marking (approx. 10 mm)
- 3.5 Align the plug connection ⇒ Aligning vacuum line -2- in such a way that the connecting piece is pointing approx. 15-20° up from the engine carrier ⇒ Aligning vacuum line -Angle A-.

To do this, turn the connecting piece on the vacuum line  $\Rightarrow$  Aligning vacuum line -1- if necessary and check that the steel flexi-pipes at the left and right are still routed straight down  $\Rightarrow$  Aligning vacuum line -Angle B-.



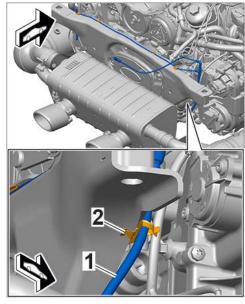
Aligning vacuum line

3.6 Push connecting line ⇒ Inserting connecting line -1- as far as the marking into the connecting piece ⇒ Inserting connecting line -2- on the vacuum line ⇒ Inserting connecting line -arrow A-.



Inserting connecting line

3.7 Insert steel flexi-pipe ⇒ Securing steel flexi-pipe at the right -1- going to the right control box into the bracket ⇒ Securing steel flexi-pipe at the right -2- on the engine carrier.



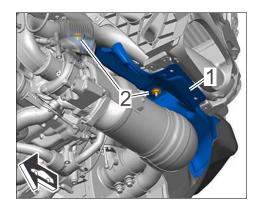
Securing steel flexi-pipe at the right

## **Concluding work**

Procedure:

- 1 Install control box for exhaust flap at the left and right ⇒ Workshop Manual '265120 Removing and installing control boxes for exhaust flaps'.
- 2 Install heat shields for the catalytic converters **at the left and right**.
  - 2.1 Guide in heat shield ⇒ Installing heat shield
     -1- on the vehicle and position it on the pin caps.
  - 2.2 Screw on and tighten speed nuts ⇒ Installing heat shield -2- on the pin caps.

Tightening torque 2.5 Nm (2 ftlb.)



Installing heat shield

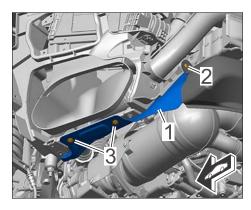
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2.3 Screw in and tighten fastening screws ⇒ Fastening screws for heat shield -2, 3- for the heat shield.

Tightening torque 3.2 Nm (2 ftlb.) +/-0.6 Nm (+/-0.4 ftlb.)

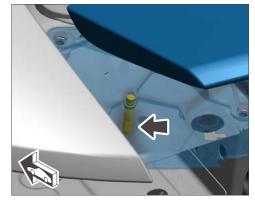
3 Install air cleaner housing ⇒ Workshop Manual '242519 Removing and installing air cleaner housing'.

Make sure that the new connecting line for exhaust flaps that was installed previously is routed without tension.



Fastening screws for heat shield

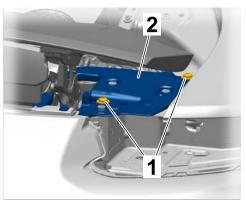
- 4 Install pressure pipe ⇒ Workshop Manual '214119 Removing and installing pressure pipe'.
- 5 Install air guide for charge-air cooling ⇒ Workshop Manual '211019 Removing and installing air guide for charge-air cooling'.
- 6 Install rear spoiler.
  - 6.1 Carefully lift rear spoiler into installation position in the engine compartment. When doing this, make sure that the guide pin ⇒ Inserting guide pin -arrow- at the left and right is positioned correctly in the respective guide groove.



Inserting guide pin

6.2 Screw in and tighten fastening screws ⇒
Fastening screws for rear spoiler (right side
shown as an example) -1- for the rear spoiler
at the left and right side of the carrier plate ⇒
Fastening screws for rear spoiler (right side
shown as an example) -2-.

Tightening torque 23 Nm (17 ftlb.)

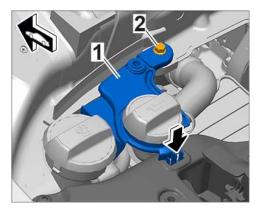


Fastening screws for rear spoiler (right side shown as an example)

- 6.3 Position oil filler neck ⇒ Securing oil filler neck -1- on the coolant filler neck and clip it into the carrier plate for rear spoiler ⇒ Securing oil filler neck -arrow-.
- 6.4 Screw in and tighten fastening screw ⇒

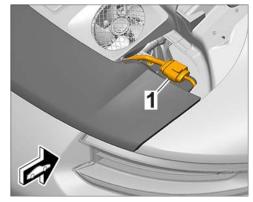
  Securing oil filler neck -2- for oil filler neck.

  Tightening torque 10 Nm (7.5 ftlb.)



Securing oil filler neck

- 6.5 Connect electric plug connection ⇒ Electric plug connection for rear spoiler -1- for rear spoiler at the right-hand side of the engine compartment until the connector engages securely and locks with an audible click.
- 7 Install and adjust rear apron ⇒ Workshop Manual '635519 Removing and installing rear apron'.
- 8 Install tail light at the left and right ⇒ Workshop Manual '943119 Removing and installing tail light'.



Electric plug connection for rear spoiler

Install engine-compartment blower ⇒ Workshop

Manual '198119 Removing and installing engine-compartment blower'.

#### 10 Only for Cabriolet/Targa vehicles:

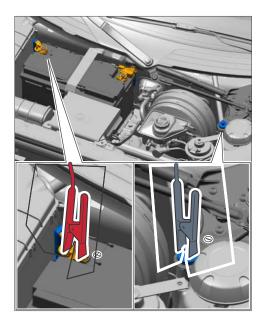
Move convertible top out of service position.

- ⇒ Workshop Manual '6101IN Convertible top service position (Cabriolet)'
- ⇒ Workshop Manual '6101IN05 Convertible top service position'
- 11 Lower the vehicle and remove it from the lifting platform.
- 12 Perform standardisation run for rear spoiler.
  - 12.1 Connect a battery charger with a current rating of at least 40 A (e.g. VAS 5907 Battery charger 45A).

First connect the positive cable of the charger to the positive terminal of the battery and then connect the negative cable of the charger to the ground point for jump-lead starting  $\Rightarrow$  External power connection.

Then switch on the battery charger and start charging the battery.

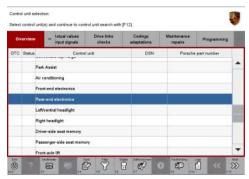
- 12.2 Switch on the ignition.
- 12.3 **9818 PIWIS Tester II** must be connected to the vehicle communication module (VCI) via the **USB cable**. Then connect the communication module to the vehicle and switch on the PIWIS Tester.
- 12.4 On the PIWIS Tester start screen, call up the ⇒ 'Diagnostics' menu and select the vehicle type ⇒ '911' ⇒ '991'.



External power connection

The diagnostic application is then started and the control unit selection screen is populated.

- 12.5 In the control unit selection screen (⇒
  'Overview' menu), select the ⇒ 'Rear-end
  electronics' control unit and press •>>" to
  confirm your selection ⇒ Selecting rear-end
  electronics control unit.
- 12.6 When the question "Create Vehicle Analysis Log (VAL)?" appears, either press F12" to create a VAL or press F11" if you do not want to create a VAL.
- 12.7 Press •>>" to acknowledge the message Selecting rear-end of that may appear informing you that campaigns for the vehicle are stored in the PIWIS information system.



Selecting rear-end electronics control unit

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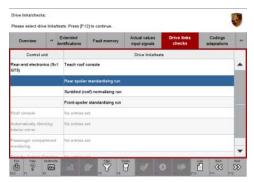
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- 12.8 Once the 'Rear-end electronics' control unit has been found, select the ⇒ 'Drive links/checks' menu.
- 12.9 Select the ⇒ 'Teach' function and press
  →>" to confirm your selection ⇒ 'Teach' function.



'Teach' function

12.10 Select the function ⇒ 'Standardisation run for rear spoiler' and press •>>" to confirm your selection ⇒ Standardisation run for rear spoiler.



Standardisation run for rear spoiler

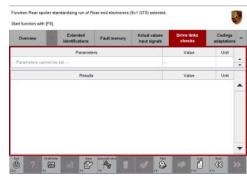
# NOTICE

#### **Electrically moved components**

- · Danger of limbs being trapped or severed
- · Risk of damage to components
- ⇒ Do not reach into the danger area.
- ⇒ Do not move components or tools into the danger area.
- ⇒ Keep third parties away from the danger area.

12.11 Press • F8" to start the standardisation run *⇒ Starting standardisation run*.

The rear spoiler moves **automatically** to both end positions and then returns to its original position.



Starting standardisation run

When the standardisation run is complete, the message **"Function completed"** is displayed under "Status" in the PIWIS Tester display  $\Rightarrow$  *Standardisation run successful*.

- 12.12 Press •<<" to return to the start page of the ⇒ 'Drive links/checks' menu.
- 12.13 Select the ⇒ 'Overview' menu and press•<< " to return to the control unit selection screen.</li>
- 12.14 Switch off the ignition.
- 12.15 Disconnect the PIWIS Tester from the vehicle.
- 12.16 Switch off and disconnect the battery charger.
- 13 Enter the campaign in the Warranty and Maintenance booklet.

# Function Rear spaller standardising nan of Rear-end electrorics (Rcl GTS) selected. Start function with [F6]. Onerview Extended Selectifications | Fault memory | Actual values | Grive limbs | Codings | extended | Selectifications | Fault memory | Actual values | Grive limbs | Codings | extended | ex

Standardisation run successful

#### **Warranty Invoicing**

#### Scope 1: Replacing vacuum line for exhaust flaps

Vehicles with sports exhaust system (I-no. 176) and body shape Coupé

#### Working time:

Replacing vacuum line for exhaust flaps

Includes: Removing and installing engine-compartment blower

Removing and installing tail lights Removing and installing rear apron Removing and installing rear spoiler

Removing and installing air cleaner housing

Removing and installing heat shields for catalytic converters Removing and installing control boxes for exhaust flaps

Connecting and disconnecting battery charger

Labor time: 258 TU

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Connecting and disconnecting PIWIS Tester Performing standardisation run for rear spoiler

Parts required:

000 043 210 42 Vacuum line, complete

Sports exhaust system

1 ea.

Labor time: 264 TU

Warranty Invoicing: ⇒ Damage Code WF93 66 000, Repair Code 2

#### Scope 2: Replacing vacuum line for exhaust flaps

• Vehicles with **sports exhaust system** (I-no. 176) and body shape **Cabriolet** 

#### Working time:

Replacing vacuum line for exhaust flaps

Includes: Moving convertible top into service position

Removing and installing engine-compartment blower

Removing and installing tail lights Removing and installing rear apron Removing and installing rear spoiler

Removing and installing air cleaner housing

Removing and installing heat shields for catalytic converters Removing and installing control boxes for exhaust flaps

Connecting and disconnecting battery charger Connecting and disconnecting PIWIS Tester Performing standardisation run for rear spoiler

### Parts required:

000 043 210 42 Vacuum line, complete

- Sports exhaust system

1 ea.

Warranty Invoicing:  $\Rightarrow$  Damage Code WF93 66 000, Repair Code 2

#### Scope 3: Replacing vacuum line for exhaust flaps

Vehicles with sports exhaust system (I-no. 176) and body shape Targa

1 ea.

Labor time: 282 TU

Labor time: 258 TU

#### Working time:

Replacing vacuum line for exhaust flaps

Includes: Moving convertible top into service position

Removing and installing engine-compartment blower

Removing and installing tail lights
Removing and installing rear apron
Removing and installing rear spoiler
Removing and installing air cleaner housing

Removing and installing heat shields for catalytic converters Removing and installing control boxes for exhaust flaps

Connecting and disconnecting battery charger Connecting and disconnecting PIWIS Tester Performing standardisation run for rear spoiler

#### Parts required:

000 043 210 42 Vacuum line, complete

- Sports exhaust system

Warranty Invoicing: ⇒ Damage Code WF93 66 000, Repair Code 2

#### Scope 4: Replacing vacuum line for exhaust flaps

911 Carrera S Coupé/911 Carrera 4S Coupé (991) vehicles without sports exhaust system

#### Working time:

Replacing vacuum line for exhaust flaps

Includes: Removing and installing engine-compartment blower

Removing and installing tail lights Removing and installing rear apron Removing and installing rear spoiler

Removing and installing air cleaner housing

Removing and installing heat shields for catalytic converters Removing and installing control boxes for exhaust flaps

Connecting and disconnecting battery charger Connecting and disconnecting PIWIS Tester Performing standardisation run for rear spoiler

## Parts required:

000 043 210 43 Vacuum line, complete 1 ea.

- Carrera S exhaust system

Warranty Invoicing: ⇒ Damage Code WF93 66 000, Repair Code 2

Service

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1 ea.

2

Labor time: 264 TU

## Scope 5: Replacing vacuum line for exhaust flaps

 911 Carrera S Cabriolet/911 Carrera 4S Cabriolet (991) vehicles without sports exhaust system

## Working time:

Replacing vacuum line for exhaust flaps

Includes: Moving convertible top into service position

Removing and installing engine-compartment blower

Removing and installing tail lights
Removing and installing rear apron
Removing and installing rear spoiler
Removing and installing air cleaner housing

Removing and installing heat shields for catalytic converters

Removing and installing control boxes for exhaust flaps

Connecting and disconnecting battery charger Connecting and disconnecting PIWIS Tester Performing standardisation run for rear spoiler

Parts required:

000 043 210 43 Vacuum line, complete

- Carrera S exhaust system

Warranty Invoicing: ⇒ Damage Code WF93 66 000, Repair Code 2

#### Scope 6: Replacing vacuum line for exhaust flaps

911 Targa 4S (991) vehicles without sports exhaust system

#### Working time:

Replacing vacuum line for exhaust flaps

Includes: Moving convertible top into service position

Removing and installing engine-compartment blower

Removing and installing tail lights Removing and installing rear apron Removing and installing rear spoiler

Removing and installing air cleaner housing

Removing and installing heat shields for catalytic converters Removing and installing control boxes for exhaust flaps

Connecting and disconnecting battery charger Connecting and disconnecting PIWIS Tester Performing standardisation run for rear spoiler

Parts required:

Labor time: 282 TU

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000 043 210 43 Vacuum line, complete

1 ea.

– Carrera S exhaust system

Warranty Invoicing: ⇒ Damage Code WF93 66 000, Repair Code 2

#### References:

- ⇒ Workshop Manual '198119 Removing and installing engine-compartment blower'
- ⇒ Workshop Manual '211019 Removing and installing air guide for charge-air cooling'
- ⇒ Workshop Manual '214119 Removing and installing pressure pipe'
- ⇒ Workshop Manual '242519 Removing and installing air cleaner housing'
- ⇒ Workshop Manual '265120 Removing and installing control boxes for exhaust flaps'
- ⇒ Workshop Manual '4X00IN Lifting the vehicle'
- ⇒ Workshop Manual '6101IN Convertible top service position (Cabriolet)'
- ⇒ Workshop Manual '6101IN05 Convertible top service position'
- ⇒ Workshop Manual '635519 Removing and installing rear apron'
- ⇒ Workshop Manual '943119 Removing and installing tail light'

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Tester are the ones that must be followed.

Dealership	Service Manager	 Shop Foreman	 Service Technician	 	 
Distribution					
Routing	Asst. Manager	 Warranty Admin.	 Service Technician	 	 

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