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## WM 261019 Removing and installing exhaust manifold

### Technical values

Location	Description	Type	Basic value	Tolerance 1	Tolerance 2
Exhaust manifold to cylinder head (all Carrera models)	Hexagon nut, M8 or screw, M8 x 27	Initial tightening	15 Nm (11 ftlb.)		
Exhaust manifold to cylinder head (all Carrera models)	Hexagon nut, M8 or screw, M8 x 27	Final tightening torque angle	35 Grad		
Turbocharger holder to cylinder head	Screw, M8 x 35	Tightening torque	23 Nm (17 ftlb.)		
Turbocharger to exhaust manifold	Hexagon nut, M8 - only use once	Initial tightening	10 Nm (7.5 ftlb.)		
Turbocharger to exhaust manifold	Hexagon nut, M8 - only use once	Final tightening	25 Nm (19 ftlb.)		
Intake pipe to turbocharger	Screw-type clamp - always replace	Tightening torque	5.5 Nm (4 ftlb.)		
Intake pipe to air intake	Screw-type clamp	Tightening torque	3 Nm (2 ftlb.)		
Moulded hose (low-pressure side) on turbocharger and charge-air guide	Screw-type clamp	Tightening torque	5.5 Nm (4 ftlb.)		
Holder for oil and coolant lines to turbocharger	M6 screw	Tightening torque	10 Nm (7.5 ftlb.)		
Control box (wastegate) to turbocharger	Collar nut, M6	Tightening torque	7 Nm (5 ftlb.)	+1 Nm (+0.5 ftlb.)	
Engine carrier to engine mounting	Collar nut, M12	Tightening torque	85 Nm (63 ftlb.)		

### Preliminary work

#### Preliminary work for right exhaust manifold

1. Remove turbocharger. → 213019 *Removing and installing turbocharger - section on "Removing"*

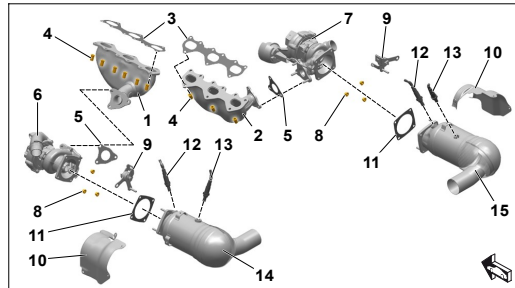
#### Preliminary work for left exhaust manifold

1. remove left rear wheel. → 440519 *Removing and installing wheel - "Removing" section*

- Remove exhaust system. → 260119 Removing and reinstalling exhaust system - section on "Removing"

## Component information

### Component information



Component overview of exhaust manifold

- Exhaust manifold, left
- Exhaust manifold, right
- Metal seal between exhaust manifold and cylinder head
- Fastening nuts securing exhaust manifold to cylinder head
- Metal seal between turbocharger and exhaust manifold
- Left turbocharger
- Right turbocharger
- Fastening nuts securing turbocharger to catalytic converter
- Turbocharger holder
- Heat shield
- Metal seal between turbocharger and catalytic converter
- Oxygen sensor upstream of catalytic converter
- Oxygen sensor downstream of catalytic converter
- Left catalytic converter
- Right catalytic converter

## Removing exhaust manifold

### Removing right exhaust manifold

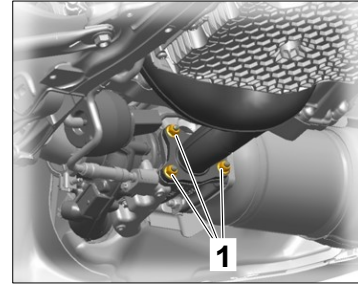


#### Information

The seals must always be replaced following removal.

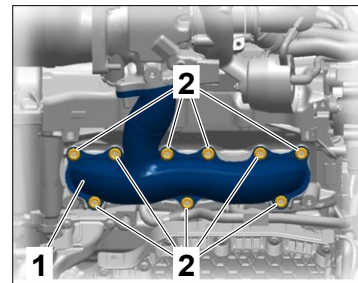
- Unscrew lock nuts -1- on the exhaust manifold/turbocharger flange.

### 1.1. Replace lock nuts and flange seal!



*Lock nuts securing turbocharger to exhaust manifold*

2. Screw off fastening nuts -2- .
3. Remove right exhaust manifold -1- .
4. Remove and replace metal seal for exhaust manifold at the cylinder head.
5. Replace damaged threaded bolts.



*Exhaust manifold, right*

### Removing left exhaust manifold



**WARNING**

#### Danger of objects or loads falling down

- Risk of squashing or crushing

→ Secure components to prevent them from falling down.



**Information**

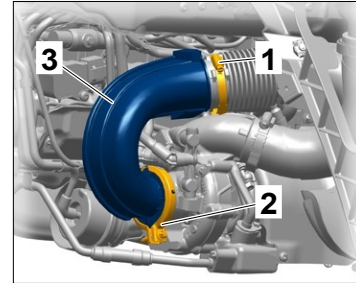
The seals must always be replaced following removal.



**Information**

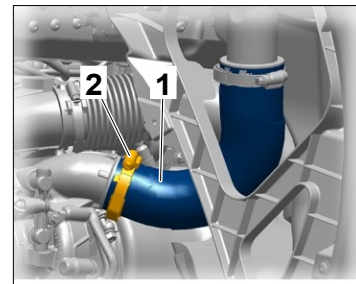
Have sufficient containers and cloths ready in order to collect emerging fluids.

1. Loosen screw-type clamp **-1-** .
2. Loosen screw-type clamp **-2-** .
3. Remove intake pipe **-3-** .



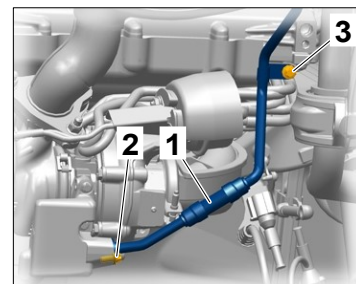
*Intake pipe on turbocharger*

4. Loosen screw-type clamp **-2-** .
5. Remove charge-air hose from turbocharger **-1-** .



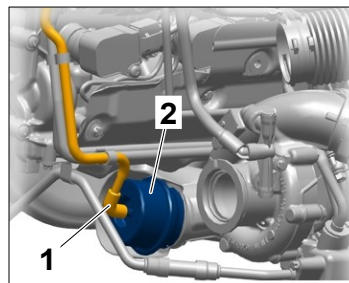
*Charge-air hose on turbocharger*

6. Disconnect oil line **-1-** .
  - 6.1. Unscrew and remove fastening screw **-2-** .
  - 6.2. Unscrew and remove fastening screw **-3-** .
  - 6.3. Carefully bend the oil line **-1-** aside slightly.



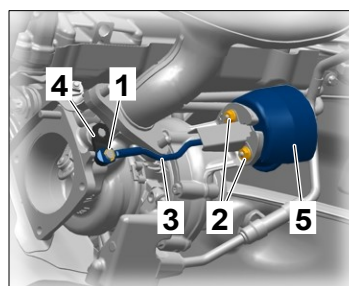
*Oil line on turbocharger*

7. Pull vacuum hose **-1-** off the wastegate control box **-2-** .



*Vacuum hose on wastegate control box*

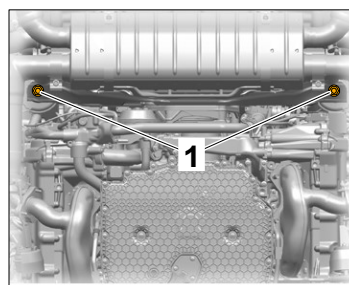
8. Carefully remove circlip **-1-** from the wastegate flap lever arm **-4-** using a suitable tool.
9. Screw off fastening nuts **-2-** .
10. Remove control rod **-3-** of the control box **-5-** from the wastegate flap lever arm **-4-** .
11. Remove control box **-5-** .



*Wastegate control box*

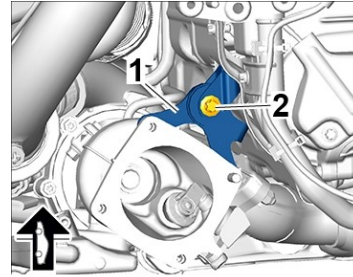
12. Support the engine with a transmission jack.
13. Unscrew and remove fastening nuts **-1-** on the engine carrier.
14. Lower the engine as far as technically possible.

→ 100109 Lowering the engine.



*Fastening screws for engine carrier*

15. Unscrew and remove fastening screw **-2-** from the turbocharger holder **-1-** .



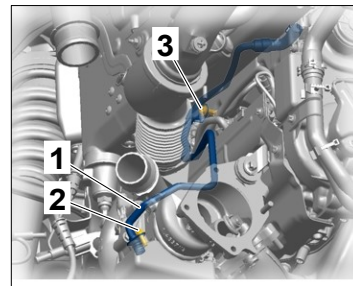
*Left turbocharger holder*

16. Disconnect vent line **-1-** .

- 16.1. Unscrew and remove fastening screw **-2-** .

- 16.2. Unscrew and remove fastening screw **-3-** on the line bracket.

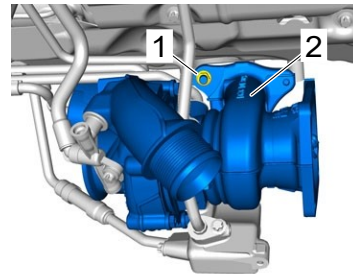
- 16.3. Remove vent line **-1-** from the turbocharger by moving it as far to the side as possible.



*Vent line on turbocharger*

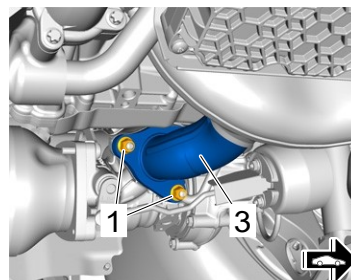
17. Unscrew lock nuts on the exhaust manifold/turbocharger flange.

- 17.1. Unscrew lock nut **-1-** at the top of the flange **-2-** .



*Lock nut on turbocharger flange bank  
1-3, top*

- 17.2. Unscrew lock nuts -1- on the exhaust manifold flange -3- from below.



Lock nuts on exhaust manifold flange bank 1-3, bottom

- 17.3. **Replace lock nuts and flange seal!**

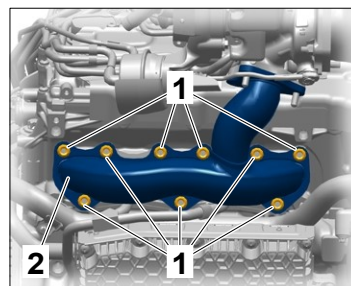
18. Screw off fastening nuts -1- .



#### Information

The help of a second person is required for the following step.

19. Lift turbocharger aside slightly until the exhaust manifold is easily accessible.  
20. Remove exhaust manifold -2- .



Fastening nuts on exhaust manifold, left

21. Remove and replace metal seal for exhaust manifold at the cylinder head.  
22. Replace damaged threaded bolts.

## Installing exhaust manifold

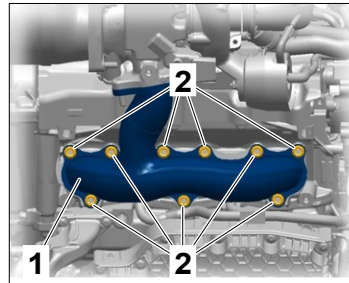
### Installing right exhaust manifold

1. Installation is performed in reverse order to removal.
2. Secure exhaust manifold with new seal to the cylinder head.
  - 2.1. Fastening nuts securing exhaust manifold to cylinder head:

[Initial tightening 15 Nm \(11 ftlb.\)](#)

- 2.2. Fastening nuts securing exhaust manifold to cylinder head:

[Final tightening torque angle 35 Grad](#)

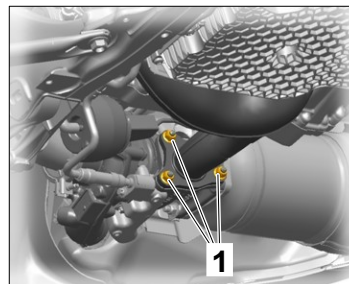


*Exhaust manifold, right*

3. Secure exhaust manifold with new flange seal and new lock nuts to the turbocharger.

[Initial tightening 10 Nm \(7.5 ftlb.\)](#)

[Final tightening 25 Nm \(19 ftlb.\)](#)



*Lock nuts securing turbocharger to exhaust manifold*

### Installing left exhaust manifold



#### Danger of objects or loads falling down

- Risk of squashing or crushing

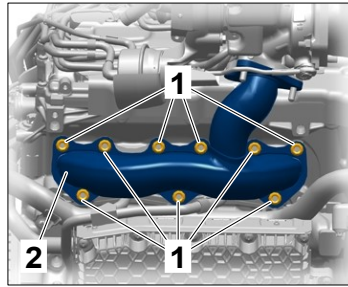
→ Secure components to prevent them from falling down.

1. Installation is performed in reverse order to removal.
2. Secure exhaust manifold with new seal to the cylinder head.

Fastening nuts securing exhaust manifold to cylinder head -1- : [Initial tightening 15 Nm \(11 ftlb.\)](#)



Fastening nuts securing exhaust manifold to cylinder head -1- : [Final tightening torque angle 35 Grad](#)



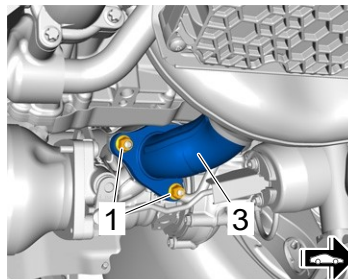
*Fastening nuts on exhaust manifold, left*

3. Turbocharger to exhaust manifold with new flange seal and new lock nuts:

3.1. New lock nuts -1- securing turbocharger to exhaust manifold -3- , bottom:

[Initial tightening 10 Nm \(7.5 ftlb.\)](#)

[Final tightening 25 Nm \(19 ftlb.\)](#)

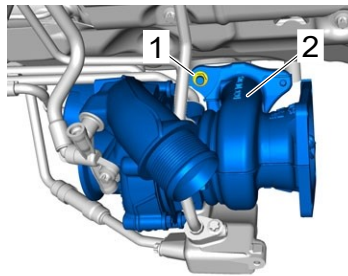


*Lock nuts on exhaust manifold flange bank 1-3, bottom*

3.2. New lock nut -1- securing turbocharger -2- to exhaust manifold, top:

[Initial tightening 10 Nm \(7.5 ftlb.\)](#)

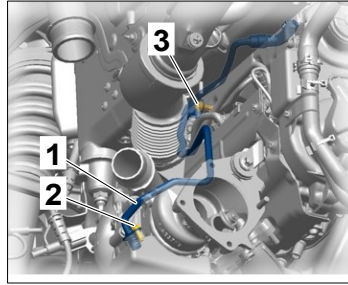
[Final tightening 25 Nm \(19 ftlb.\)](#)



*Lock nut on turbocharger flange bank 1-3, top*

4. Vent line on turbocharger:

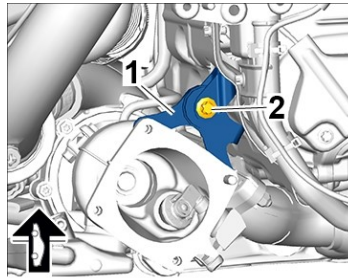
Vent line screws -2 and 3- : [Tightening torque 10 Nm \(7.5 ftlb.\)](#)



*Vent line on turbocharger*

5. Turbocharger holder:

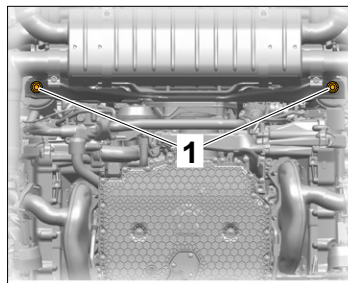
Screw for turbocharger holder -2- : [Tightening torque 23 Nm \(17 ftlb.\)](#)



*Left turbocharger holder*

6. Engine carrier to engine mount:

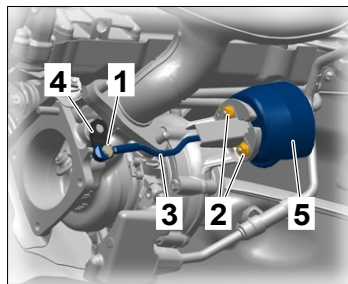
Fastening nuts for engine carrier -1- : [Tightening torque 85 Nm \(63 ftlb.\)](#)



*Fastening nuts for engine carrier*

7. Wastegate control box to turbocharger:

Fastening nuts securing wastegate control box to turbocharger -2- : [Tightening torque 7 Nm \(5 ftlb.\) +1 Nm \(+0.5 ftlb.\)](#)

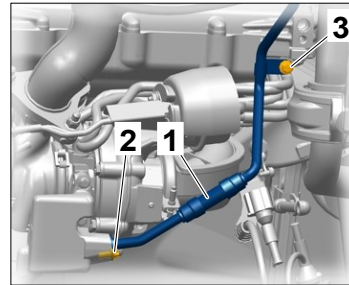


*Wastegate control box*

## 8. Oil lines on turbocharger:

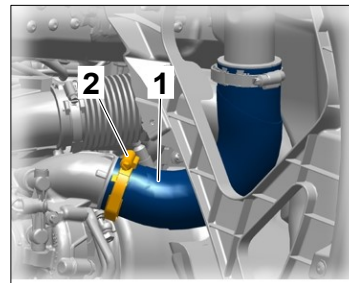
Screw securing oil line to turbocharger **-2-** : [Tightening torque 10 Nm \(7.5 ftlb.\)](#)

Screw securing oil line to holder **-3-** : [Tightening torque 10 Nm \(7.5 ftlb.\)](#)

*Oil line on turbocharger*

## 9. Screw-type clamp on pressure hose:

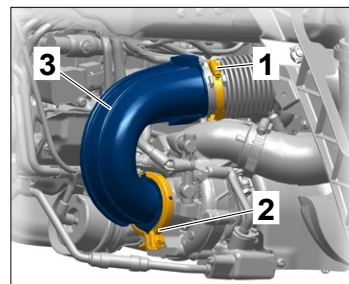
Screw-type clamp securing charge-air hose to turbocharger **-2-** : [Tightening torque 5.5 Nm \(4 ftlb.\)](#)

*Pressure hose on turbocharger*

## 10. Screw-type clamps on intake pipe:

Screw-type clamp securing intake pipe to turbocharger **-2-** : [Tightening torque 5.5 Nm \(4 ftlb.\)](#)

Screw-type clamp securing intake pipe to intake air line **-1-** : [Tightening torque 3 Nm \(2 ftlb.\)](#)



### *Intake pipe on turbocharger*

11. Check engine-oil level and correct it if necessary.

## **Subsequent work**

### **Subsequent work for right exhaust manifold**

1. Install turbocharger. → *213019 Removing and installing turbocharger - section on "Installing"*

### **Subsequent work for left exhaust manifold**

1. Install the exhaust system. → *260119 Removing and installing exhaust system - section on "Installing"*
2. Install left rear wheel. → *440519 Removing and installing wheel - "Installing" section*

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991110, 991111, 991120, 991121, 991140, 991141, 991150, 991151, 991310, 991311, 991320, 991321, 991340, 991341, 991410, 991411, 991420, 991421, 991440, 991441, 991510, 991511, 991520, 991521, 991540, 991541, 991610, 991611, 991620, 991621, 991640, 991641

Model year as of 2017

C00, C02, C05, C06, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C41, C45, C45, C46, C96, C97, C98, C99