



Exhaust system components

Caution!

When doing any repair work, especially in the engine compartment, pay attention to the following due to clearance issues:

- **Route lines of all types (e.g. for fuel, hydraulic, EVAP canister system, coolant and refrigerant, brake fluid, vacuum) and electrical wiring so that the original path is followed.**
- **Ensure sufficient clearance to all moving or hot components.**

Note:

- *After exhaust system repairs, make sure exhaust system is not under stress and that it has sufficient clearance from the bodywork. If necessary, loosen clamp(s) and align exhaust pipe so that sufficient clearance is maintained to the bodywork and support rings carry uniform loads.*
- *Gaskets and self-locking nuts must be replaced.*

Exhaust manifold with attachments, assembly overview ⇒ [26-1, Exhaust manifold with attachments, assembly overview](#)

Front exhaust pipe with catalytic converter and attachments (engine code: BGP), assembly overview ⇒ [26-1, Front exhaust pipe with catalytic converter and attachment \(engine code: BGP\), assembly overview](#),

Front exhaust pipe with catalytic converter and attachments (engine code BGQ), assembly overview ⇒ [26-1, Front exhaust pipe with catalytic converter and attachments \(engine code BGQ\), assembly overview](#) .

Mufflers with mounts, assembly overview ⇒ [26-1, Exhaust system, assembly overview](#)

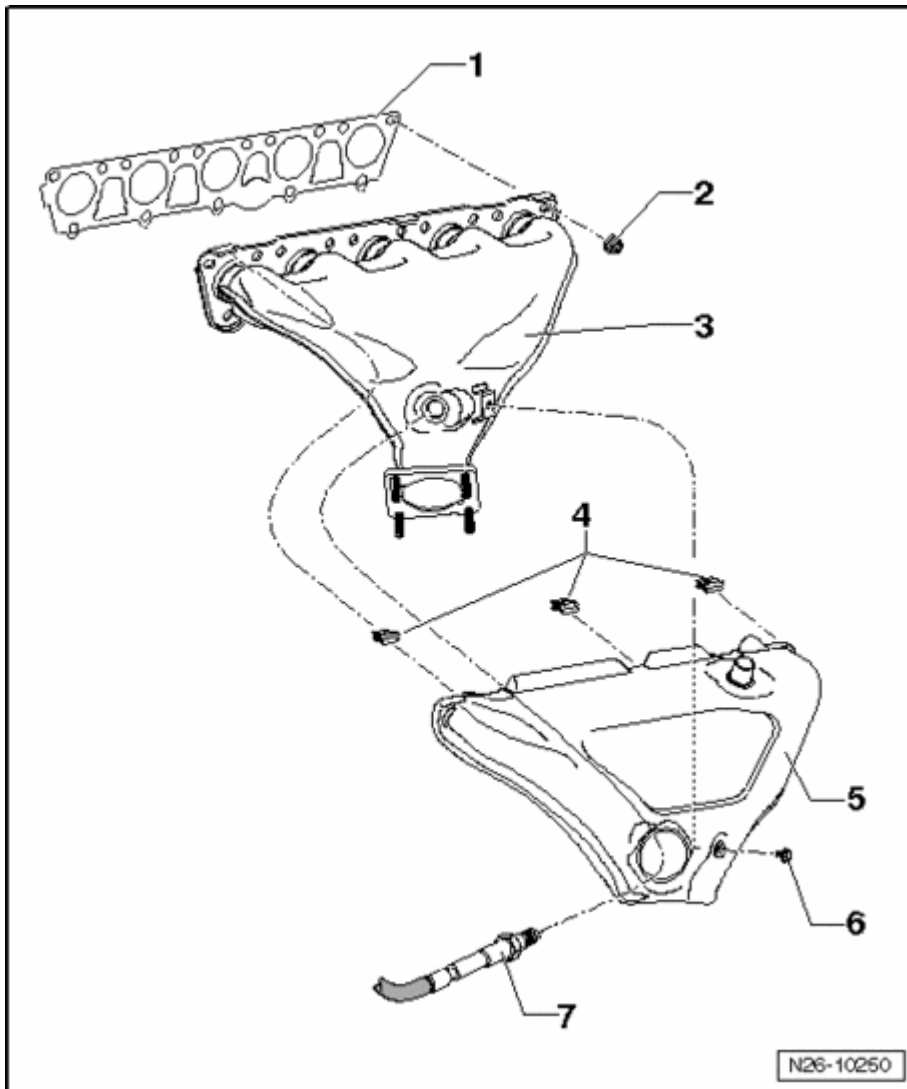
Front exhaust pipe with catalytic converter, removing and installing ⇒ [26-1, Front exhaust pipe with catalytic converter, removing and installing](#) .

Separating and joining front and rear mufflers ⇒ [26-1,](#)

[Front and rear mufflers, separating and joining](#) .

Install exhaust system free of stress ⇒ [26-1, Exhaust system, installing free of tension](#)

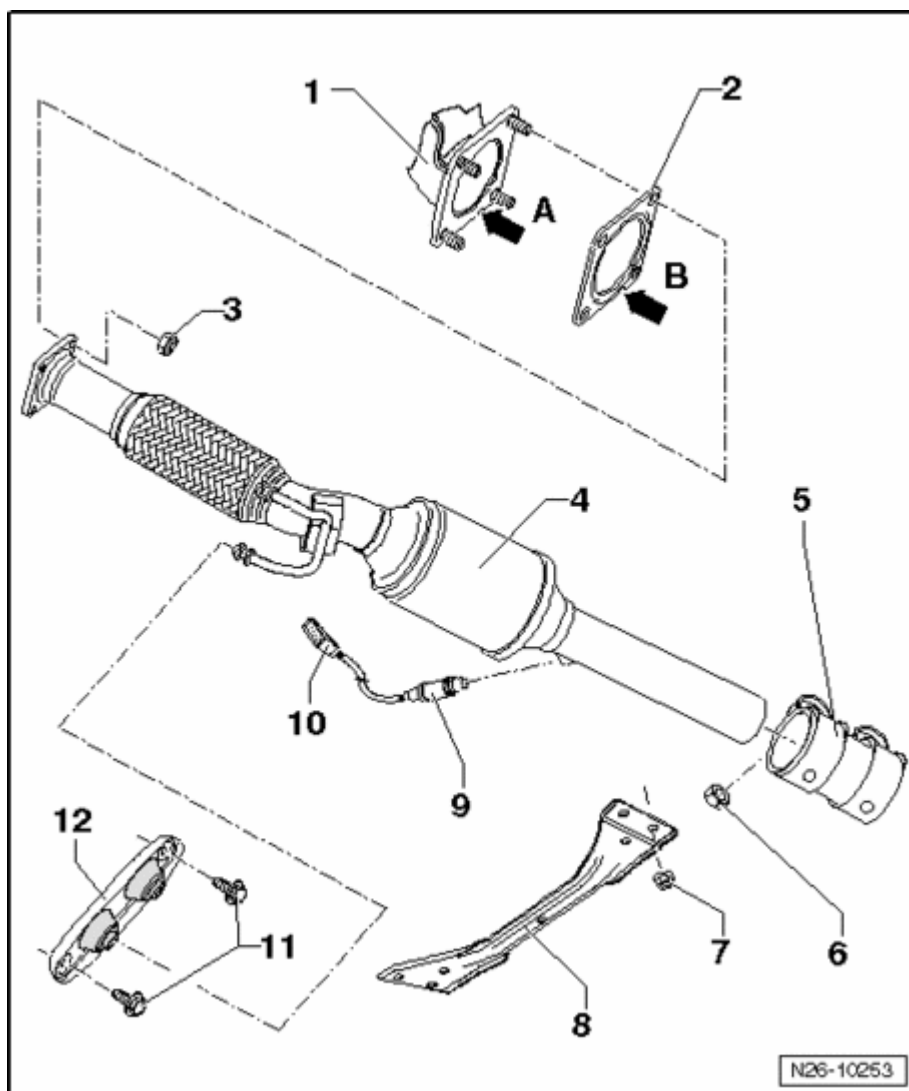
Exhaust manifold with attachments, assembly overview



- **Gasket**
 - Replace
- **25 Nm**
 - Replace
- **Exhaust manifold**
 - Coat stud bolts on cylinder head with hot bolt paste
 - Remove upward

- Clip
- Heat shield
- 10 Nm
- Oxygen sensor G39
 - 55 Nm
 - Only use hot bolt paste to grease thread; do not let paste get onto slits of oxygen sensor body
 - Color of harness connector: black

Front exhaust pipe with catalytic converter and attachment (engine code: BGP), assembly overview,



- **Exhaust manifold**

- Coat stud bolts with hot bolt paste .

- **Gasket**

- Replace
- Note installation position:

Gasket recess - arrow A - must be located at exhaust manifold recess - arrow B - .

- **25 Nm**

- Replace

- **Front exhaust pipe**

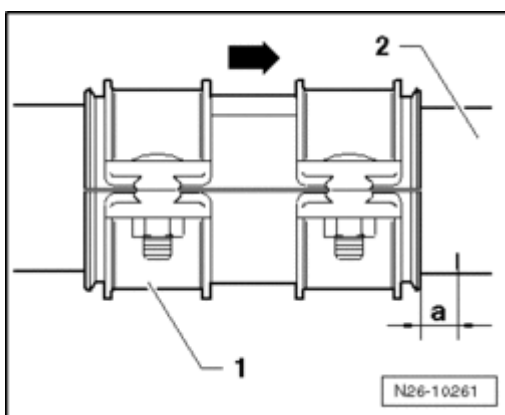
- With catalytic converter
- Protect from shocks and impact stress
- With flex joint
- Flex joint must not be bent more than 10 ° - otherwise it may be damaged
- Removing and installing ⇒ [26-1, Front exhaust pipe with catalytic converter, removing and installing](#)
- Install exhaust system free of stress ⇒ [26-1, Exhaust system, installing free of tension](#)

- **Clamp**

- Before tightening, ensure exhaust system is tension-free ⇒ [26-1, Exhaust system, installing free of tension](#)
- Installed location ⇒ [26-1, Installation position of](#)

[clamp](#)

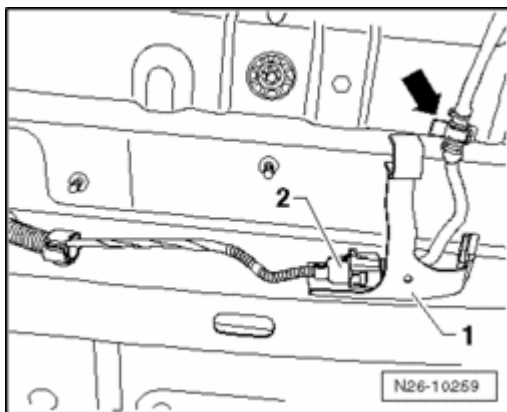
- Tighten bolts evenly
- 25 Nm
- 23 Nm
- Front cross member
- **Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130**
 - 55 Nm
 - Only use hot bolt paste to grease thread; do not let paste get onto slits of oxygen sensor body
- **Connector**
 - Brown, 4-pin
 - Installed location ⇒ [26-1, Harness connector for oxygen sensor - installation position](#)
- 25 Nm
- **Suspended mount**
 - Replace if damaged



Installation position of clamp

- **Arrow** - points in direction of travel.
- Align clamp - **1** - to marking on catalytic converter - **2** -
- **a** - = 5 mm

Mounting bolts must not project beyond lower edge of clamp.

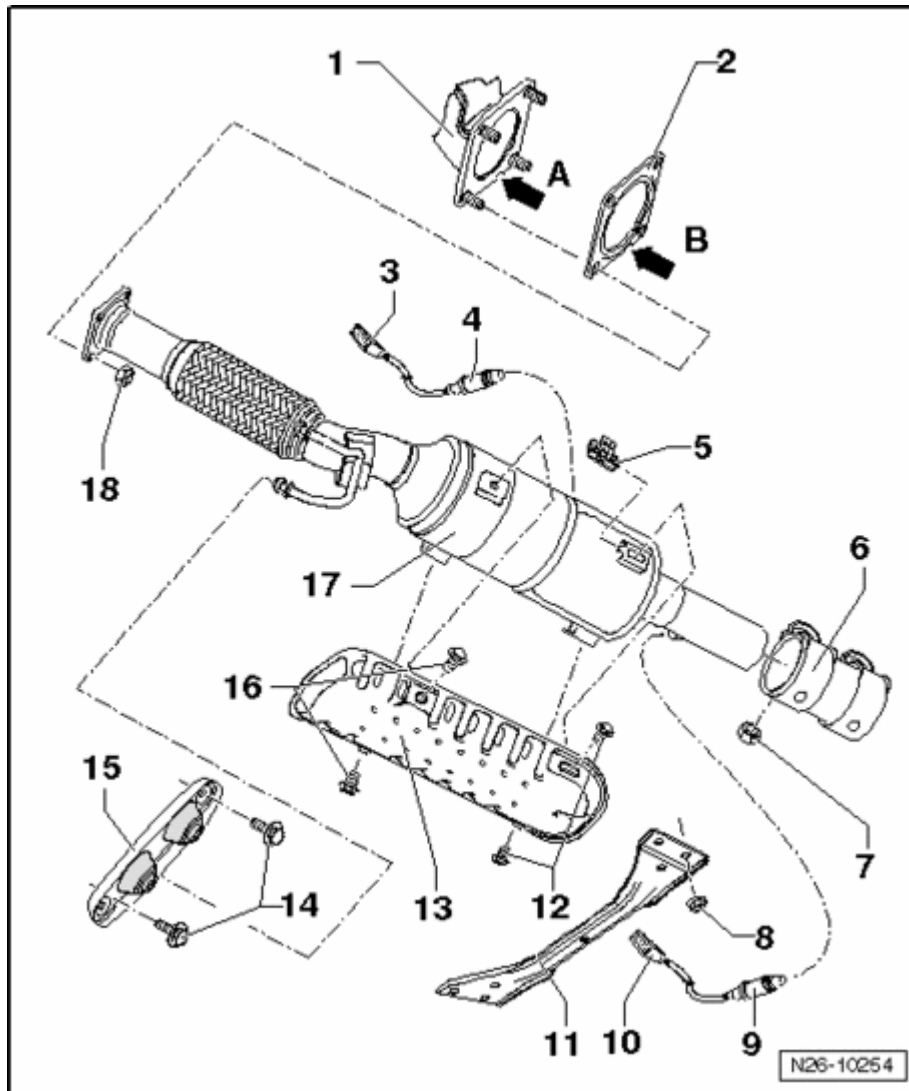


Harness connector for oxygen sensor - installation position

Harness connector is located at right on vehicle floor under cover.

- Bracket
- Harness connector for Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130 , brown

Front exhaust pipe with catalytic converter and attachments (engine code BGQ), assembly overview



- **Exhaust manifold**

- Coat stud bolts with hot bolt paste .

- **Gasket**

- Replace
- Note installation position:

Gasket recess - arrow A - must be located at exhaust manifold recess - arrow B - .

- **Connector**

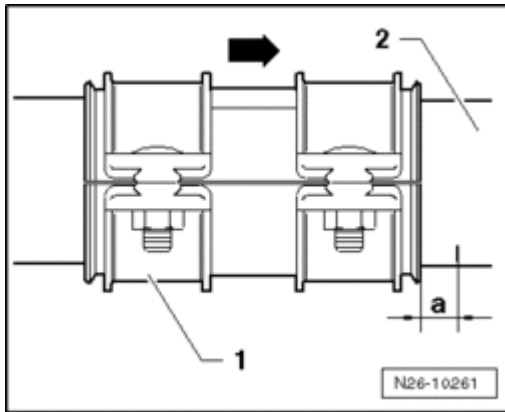
- Black, 4-pin

- **Oxygen Sensor (O2S (in Center**

Three Way Catalytic Converter (TWC), Bank 1 G465

- 55 Nm
- Only use hot bolt paste to grease thread; do not let paste get onto slits of oxygen sensor body
- **Spring nut**
 - Insert from front
- **Clamp**
 - Before tightening, ensure exhaust system is tension-free ⇒ [26-1, Exhaust system, installing free of tension](#)
 - Installed location ⇒ [26-1, Installation position of clamp](#)
 - Tighten bolts evenly
- 25 Nm
- 23 Nm
- **Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130**
 - 55 Nm
 - Only use hot bolt paste to grease thread; do not let paste get onto slits of oxygen sensor body
- **Connector**
 - Brown, 4-pin
 - Installed location ⇒ [26-1, Harness connector for oxygen sensors - installation position](#)

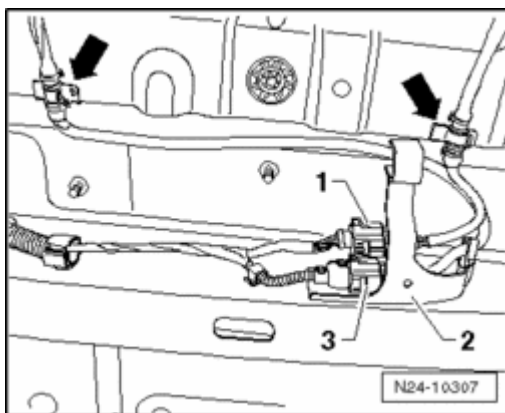
- **Front cross member**
- **5 Nm**
- **Heat shield**
 - For catalytic converter
- **25 Nm**
- **Suspended mount**
 - Replace if damaged
- **10 Nm**
- **Front exhaust pipe**
 - With catalytic converter
 - Protect from shocks and impact stress
 - With flex joint
 - Flex joint must not be bent more than 10 ° - otherwise it may be damaged
 - Removing and installing ⇒ [26-1, Front exhaust pipe with catalytic converter, removing and installing](#)
 - Install exhaust system free of stress ⇒ [26-1, Exhaust system, installing free of tension](#)
- **25 Nm**
 - Replace



Installation position of clamp

- **Arrow** - points in direction of travel.
- Align clamp - **1** - to marking on catalytic converter - **2** - .
- **a** - = 5 mm

Mounting bolts must not project beyond lower edge of clamp.

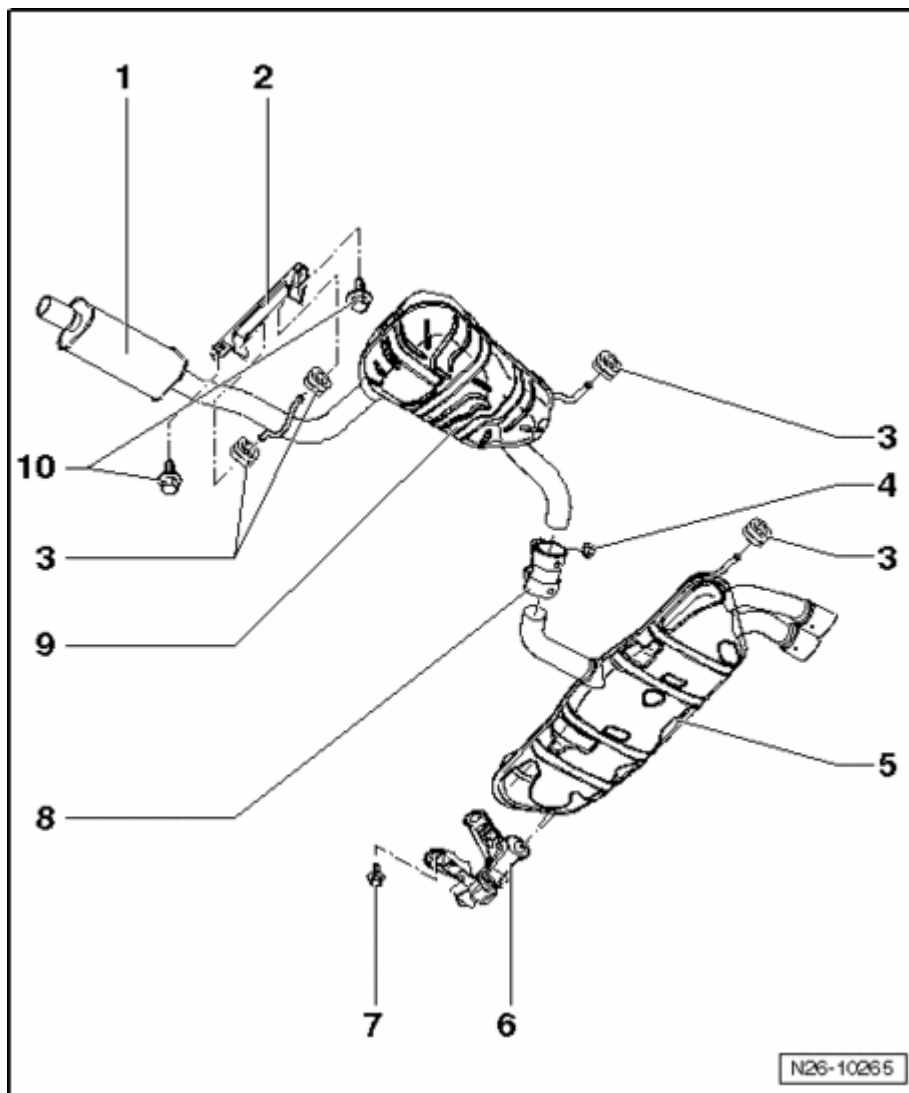


Harness connector for oxygen sensors - installation position

Harness connectors are located at right on vehicle floor under cover.

- Harness connector for Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130 , brown
- Bracket
- Harness connector for Oxygen Sensor (O2S) (in Center Three Way Catalytic Converter (TWC), Bank 1 G465 , black

Exhaust system, assembly overview



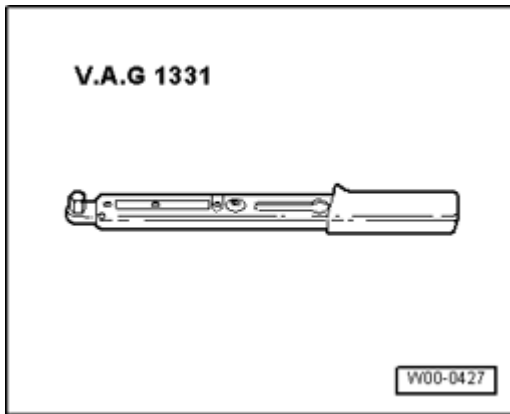
- **Front muffler**
- **Suspended mount**
- **Retaining loop**
 - Replace if damaged
- **25 Nm**
- **Rear muffler**
 - Factory-installed with front muffler as one unit. If repair is necessary, replace separately.
 - Install exhaust system free of stress ⇒ [26-1, Exhaust system, installing free of](#)

[tension](#)

- Separating exhaust system
⇒ [26-1, Front and rear mufflers, separating and joining](#)
- **Suspended mount**
 - Replace if damaged
- **25 Nm**
- **Repair clamp**
 - For individual replacement of front and rear mufflers
 - Installed location ⇒ [26-1, Front and rear mufflers, separating and joining](#)
 - Tighten bolts evenly
- **Center muffler**
 - Factory-installed with rear muffler as one unit. If repair is necessary, replace separately.
 - Install exhaust system free of stress ⇒ [26-1, Exhaust system, installing free of tension](#)
 - Separating exhaust system
⇒ [26-1, Front and rear mufflers, separating and joining](#)
- **25 Nm**

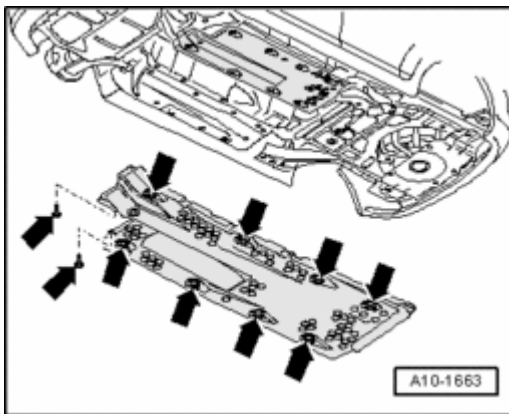
Front exhaust pipe with catalytic converter, removing and installing

Special tools, testers and auxiliary items required



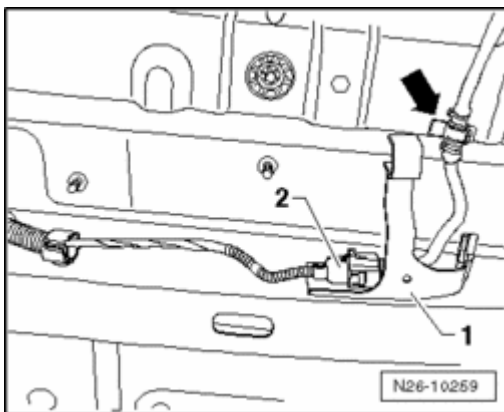
- Torque wrench V.A.G 1331
- Hot bolt paste ⇒ *Electronic Replacement Parts Catalog "ETKA"*

Removing

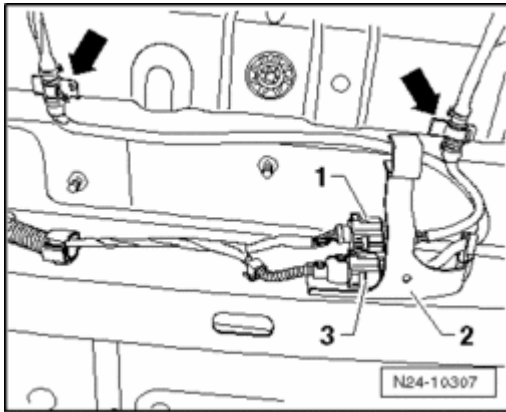


- Remove right underbody trim - **arrows** - .

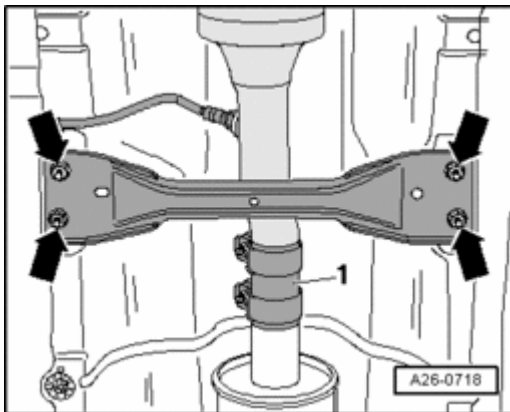
Engine code BGP



- Unclip wire - **arrow** - , pull off bracket - **1** - and disconnect harness connector - **2** - for Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130 .

Engine code BGQ

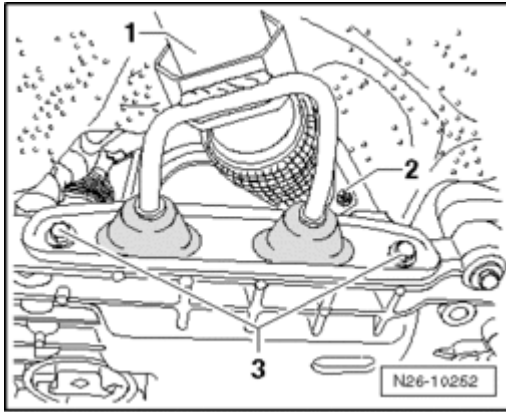
- Unclip lines - **arrows** - , pull off bracket - **2** - and separate connectors - **1** - for Oxygen Sensor (O2S) Behind Three Way Catalytic Converter (TWC) G130 and - **3** - for Oxygen Sensor (O2S) (in Center Three Way Catalytic Converter (TWC), Bank 1 G465) .

Continued for all

- Loosen bolts of clamp - **1** - . Front cross member for vehicle floor must not be removed.

Note:

- *Flex joint in front exhaust pipe must not be bent more than 10 ° , otherwise it may be damaged.*



- Remove mounting nuts - **2** - of front exhaust pipe/exhaust manifold and bolts - **3** - .

- Remove front exhaust pipe - **1** - with catalytic converter from exhaust manifold, slide toward front at sides and guide under front cross member.

Installing

Installation is in reverse order of removal. Note the following:

- Replace gaskets and self-locking nuts.
- Install exhaust system free of stress ⇒ [26-1, Exhaust system, installing free of tension](#) .

Tightening torques:

Component	Nm
Front exhaust pipe to exhaust manifold	25 ¹⁾
■ Replace nuts	
Mount to subframe	25
Clamp	25

¹⁾ Coat stud bolts on exhaust manifold with hot bolt paste .

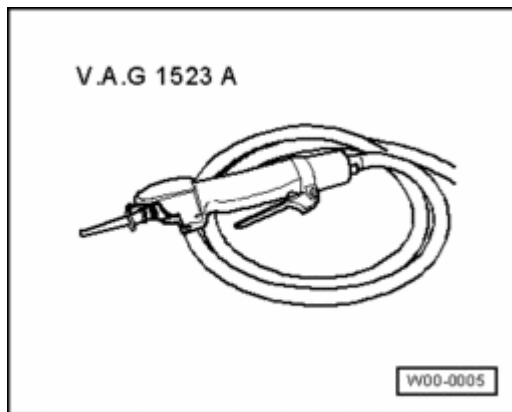
Front and rear mufflers, separating and joining

Note:

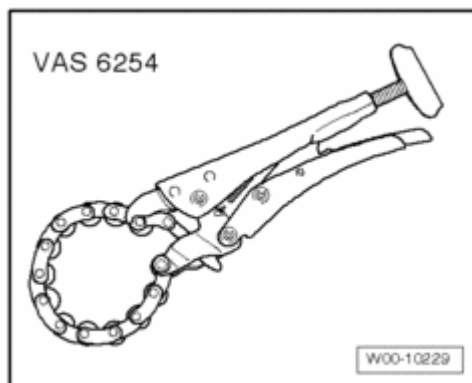
- A separating point has been provided in the connecting pipe for individual replacement of the front or rear muffler.

- *The separating point is marked by depressions around the circumference of the exhaust pipe.*

Special tools, testers and auxiliary items required



- Body repair saw V.A.G 1523 A or

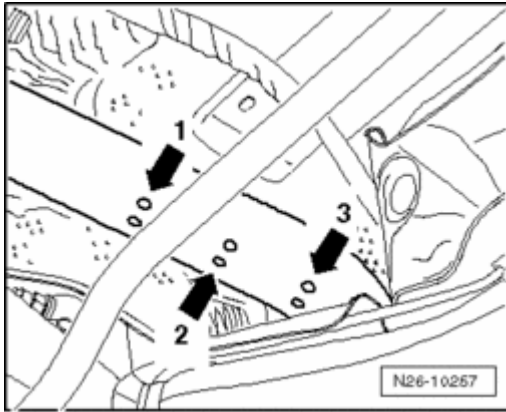


- Chain pipe cutter VAS 6254
- Protective glasses

Separating

Warning!

To prevent injuries from metal shavings, wear protective goggles and protective clothing.



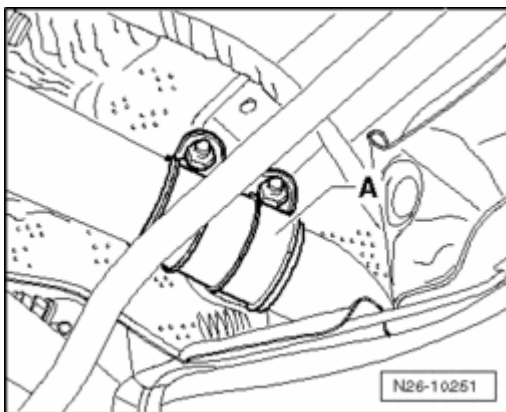
- Cut exhaust pipe at separation point - **arrow 2** - e.g. using body repair saw V.A.G 1523 A at a right angle.

Joining

Note:

- A second technician is required for installing the repair clamp.

- Secure front muffler in retainers. The front clamp remains loosely connected to pipes.
- Align rear muffler horizontally and hold it in this position.
- Position repair clamp at side markings - **arrow 1** - and - **arrow 3** - .

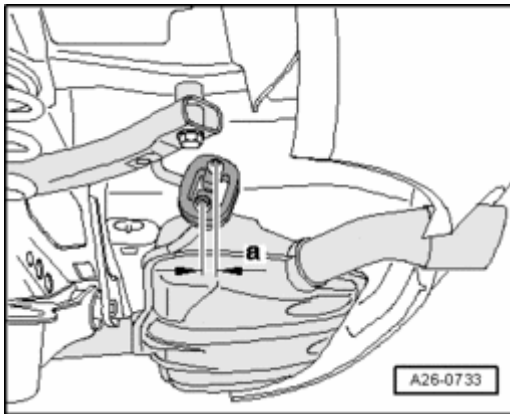


- Screw repair clamp - **A** - as depicted and tighten it to 25 Nm.
- Then align exhaust system free of tension ⇒ [26-1, Exhaust system, installing free of tension](#) .

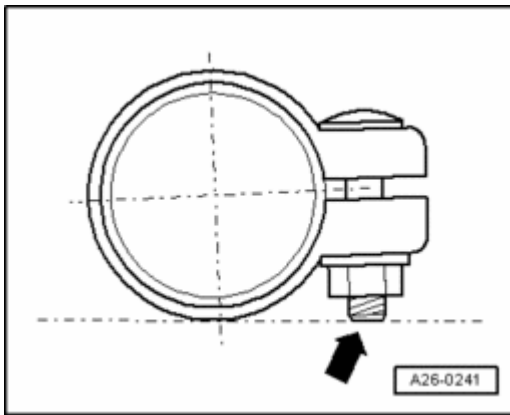
Exhaust system, installing free of tension

- Align exhaust system when cold.

- Loosen bolts of front double clamp $\Rightarrow$ [Item - 6 -](#) .

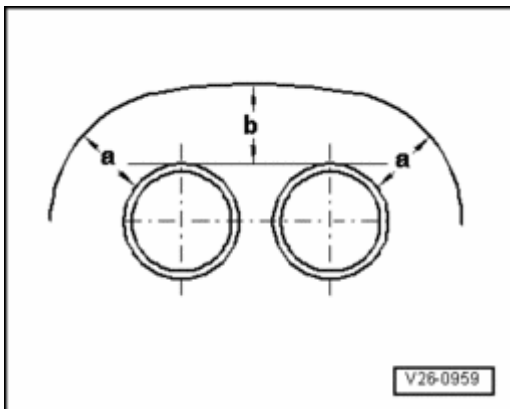


- Push exhaust system far enough forward so that the pre-tension at the retaining loop at rear muffler dimension - **a** - = 15 to 17 mm.



- Install clamping sleeve so that the end of the bolt does not extend beyond the lower edge of the clamping sleeve.
 - Threaded connection points towards right.
- Tighten clamping sleeve bolts uniformly to 25 Nm.

Tail pipes, aligning



- Align rear muffler so that distance - **a** - between bumper

cut-out and right and left tail pipes is equal.

At the same time, distance - **b** - of bumper cutout must run parallel to tail pipes.

- To align tail pipes, loosen rear muffler mounting components if necessary.



Secondary air injection (AIR) system

Caution!

When doing any repair work, especially in the engine compartment, pay attention to the following due to clearance issues:

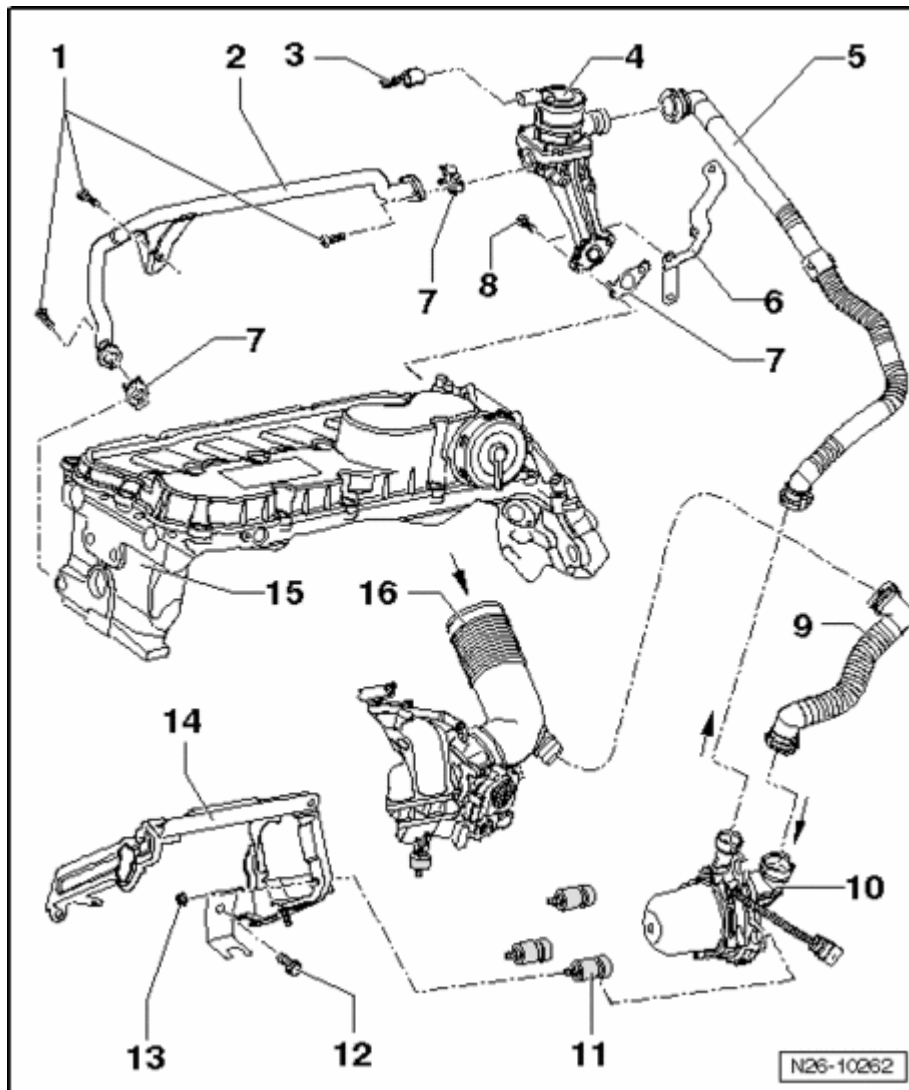
- ***Route lines of all types (e.g. for fuel, hydraulic, EVAP canister system, coolant and refrigerant, brake fluid, vacuum) and electrical wiring so that the original path is followed.***
- ***To prevent damage to the lines, make sure there is sufficient clearance to all moving or hot components.***

Secondary air injection (AIR) system, assembly overview
⇒ [26-2, Secondary Air Injection \(AIR\) system, assembly overview](#)

Secondary Air Injection (AIR) Pump Motor V101 ,
removing and installing ⇒ [26-2, Secondary Air Injection \(AIR\) Pump Motor V101 , removing and installing](#) .

Secondary Air Injection (AIR) valve, checking ⇒ [26-2, Secondary Air Injection \(AIR\) Solenoid Valve N112 , checking](#)

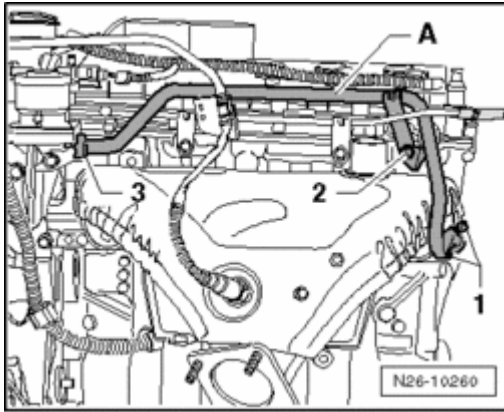
Secondary Air Injection (AIR) system, assembly overview



- 10 Nm
- Connecting pipe
 - Observe tightening sequence ⇒ [26-2, Connecting tube - tightening sequence](#)
- Connector
 - For Secondary Air Injection (AIR) Solenoid Valve N112
- Secondary air injection (AIR) solenoid valve N112
 - Do not disassemble
 - Checking ⇒ [26-2, Secondary Air Injection \(AIR\)](#)

[Solenoid Valve N112 ,
checking](#)

- **Pressure pipe**
 - Ensure seated tightly
 - To disengage, squeeze together securing ring
- **Bracket**
- **Gasket**
 - Allocation ⇒ *Electronic parts catalog "ETKA"*
- **10 Nm**
- **Intake manifold**
 - For secondary air injection pump
- **Secondary air injection (AIR) pump motor V101**
 - Removing and installing ⇒ [26-2, Secondary Air Injection \(AIR\) Pump Motor V101 , removing and installing](#)
- **Rubber bushing**
- **25 Nm**
- **10 Nm**
- **Intake manifold support**
 - With mount for Secondary Air Injection (AIR) pump motor V101
- **Intake tube**
- **Cylinder head**



Connecting tube - tightening sequence

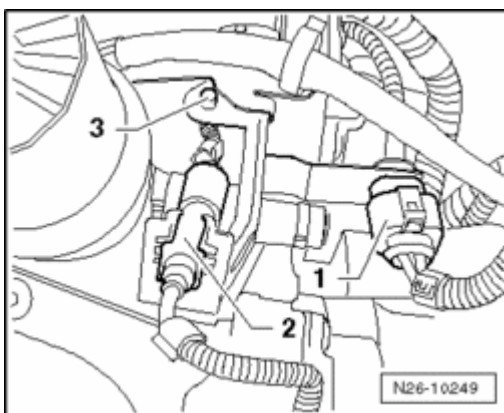
- Replace all seals of connecting tube - **A** - .
- Install all bolts only hand-tight.
- Tighten bolts - **1** - first, then bolt - **2** - and lastly bolts - **3** - to 10 Nm.

Secondary Air Injection (AIR) Pump Motor V101 , removing and installing

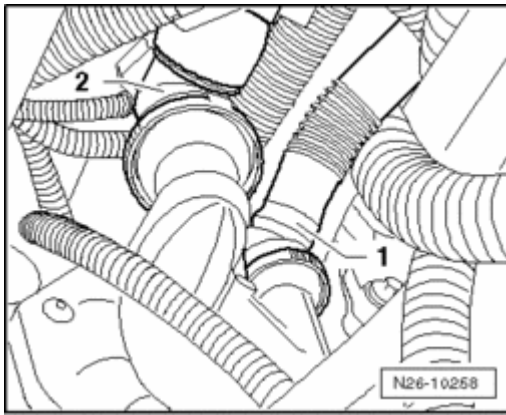
Removing

- Remove noise insulation

⇒ [Repair Manual, Body Exterior, Repair Group 50.](#)



- Disconnect connectors - **1** - and - **2** - .
- Press out clip - **3** - for cable guide.
- Press out cable clip at top front mounting bolt.



- Disconnect pressure hose - **1** - and intake hose - **2** - .
To do so, compress securing ring.

- Remove mounting nuts and remove Secondary Air Injection (AIR) Pump Motor V101 upward. When doing this, press lower bolt (rubber bushing) slightly in order to get by at transmission.

Installing

Installation is in reverse order of removal. Note the following:

- Make sure that pressure pipe and intake hose lock securely to Secondary Air Injection (AIR) Pump Motor V101 .

Tightening torque:

Component	Nm
Secondary Air Injection (AIR) Pump Motor V101 to intake manifold support	10

Secondary Air Injection (AIR) Solenoid Valve N112 , checking

Special tools, testers and auxiliary items required



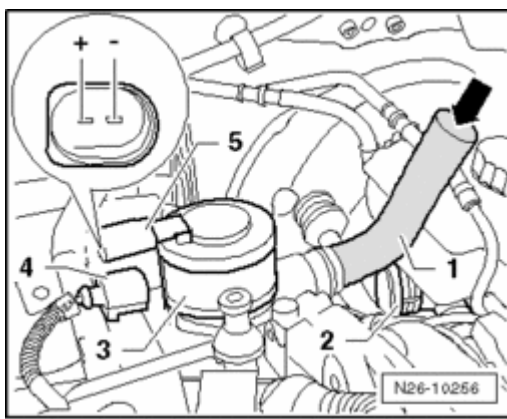
- Connector test set V.A.G 1594C
- Assisting hose, e.g. coolant hose

Work sequence

Note:

- *Do not use compressed air during following check!*

- Remove engine cover with air filter ⇒ [24-1, Engine cover with air filter, removing and installing](#) .



- Disconnect pressure hose - **2** - from Secondary Air Injection (AIR) Solenoid Valve N112 - **3** - . To do so, compress securing ring.
- Disconnect harness connector - **4** - .
- Slide assisting hose - **1** - , e.g. coolant hose, into Secondary Air Injection (AIR) Solenoid Valve N112 .
- Blow forcefully into assisting hose - **arrow** - .

Valve must be closed.

If air can be blown through valve with assisting hose properly sealed:

- Replace Secondary Air Injection (AIR) Solenoid Valve N112 .

If valve is closed:

- Connect terminals on connector connection - **5** - with adapter cables from connector test kit V.A.G 1594C to battery positive (+) and negative (-).
- Blow forcefully into assisting hose - **arrow** - .

Valve must be opened.

If no air can be blown through valve with assisting hose properly sealed:

- Replace Secondary Air Injection (AIR) Solenoid Valve N112 .