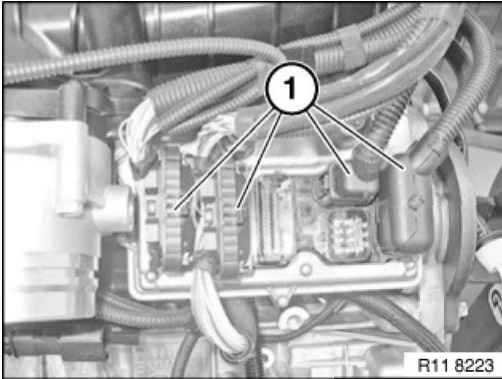
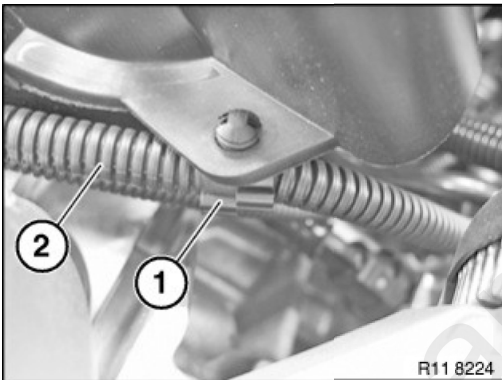


*Necessary preliminary work:*

- Disconnect battery earth lead.
- Remove intake silencer housing.
- Remove ignition coil cover.
- Remove sound insulation from centre bulkhead upper parts
- Release left charge air duct at throttle body.

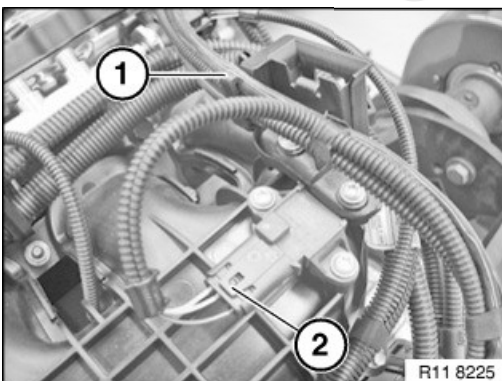


Disconnect all plug connections (1) on engine control unit.



Open retaining clip (1).

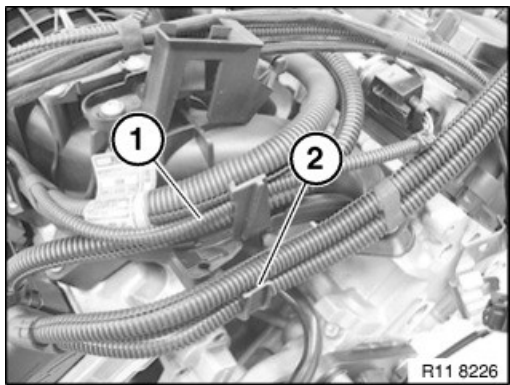
Release wiring harness section (2) from retaining clip (1).



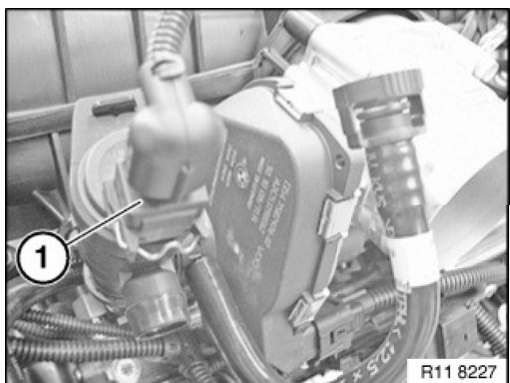
Release all wiring harness sections from holder (1).

Disconnect plug connection (2) at charging pressure sensor.

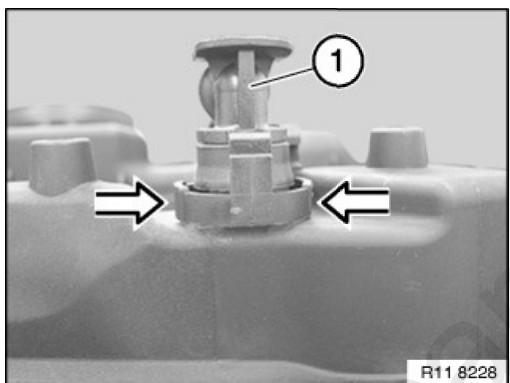




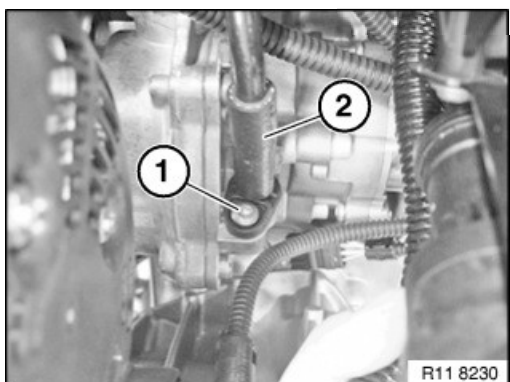
Release all wiring harness sections from holders (1 and 2).



Disconnect plug connection (1) on tank vent valve.

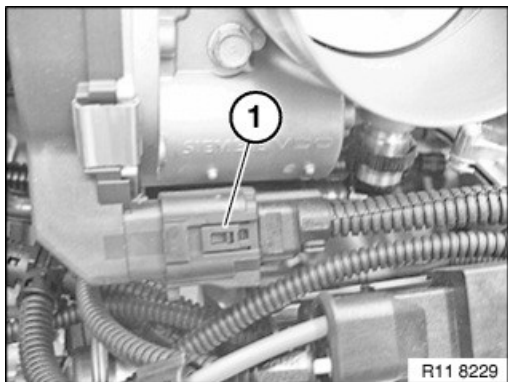


Press and hold down the unlocking device on the vacuum line (1) on the vacuum reservoir (cylinder head cover) in the direction of the arrow.
Detach vacuum line (1) in upward direction.

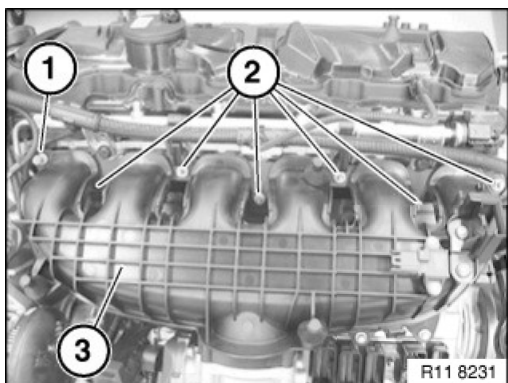


Detach vacuum line (2) in upward direction.





Disconnect plug connection (1) on throttle valve drive.



Release screw (1).

Tightening torque: 11 61 2AZ.

Unscrew nuts (2).

Tightening torque: 11 61 1AZ.



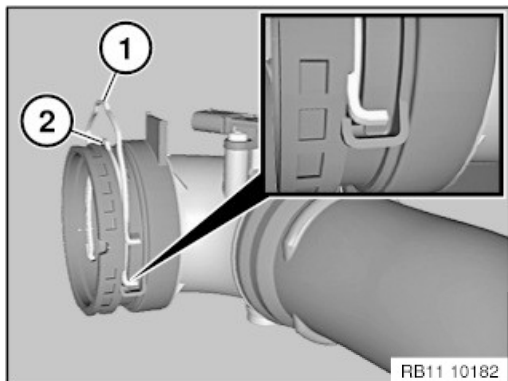
Installation note:
Replace all gaskets.

Assemble engine.



**Necessary preliminary tasks:**

- Remove front underbody protection.
- Release air conditioning compressor (do not draw off and remove).



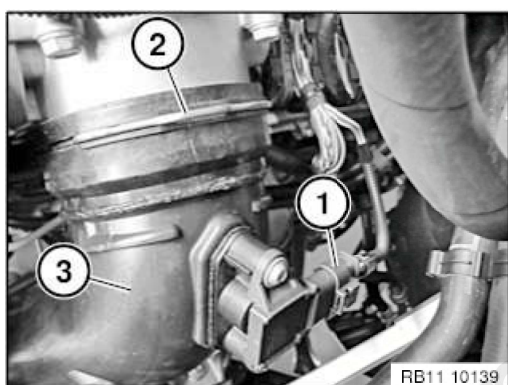
(1) Unlocked

(2) Locked

Installation note:

Ensure locking clamps are correctly fitted.

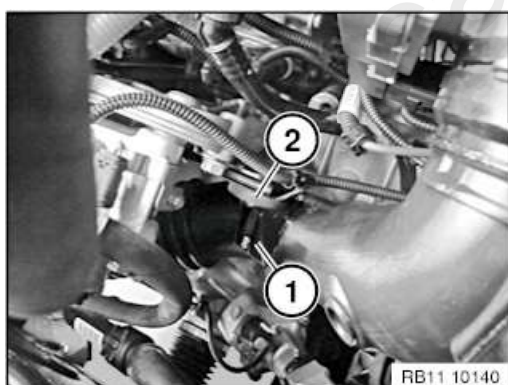
Lock must engage.



Unlock and pull off cable connector (1).

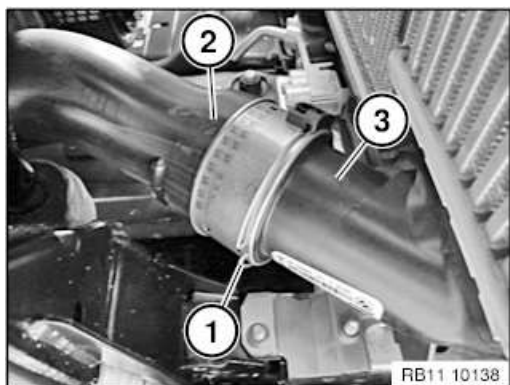
Unlock snap fastener (2).

Pull off charge air duct (3) from throttle body.



Unclip charge air duct (1) from rubber grommet (2).





Unlock snap fastener (1).

Pull off charge air duct (2) from charge air cooler (3).

Installation note:

The seal inside the snap fastener must be coated with anti-friction agent.

Charge air duct (2) must snap audibly into place!



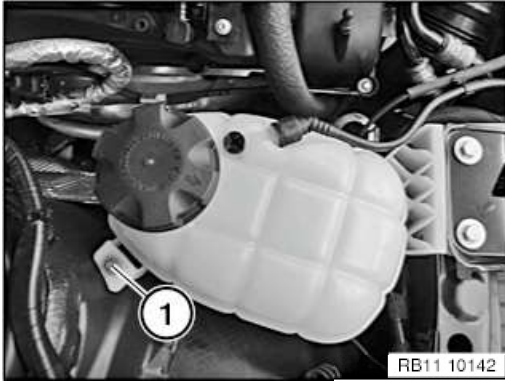
Assemble engine.

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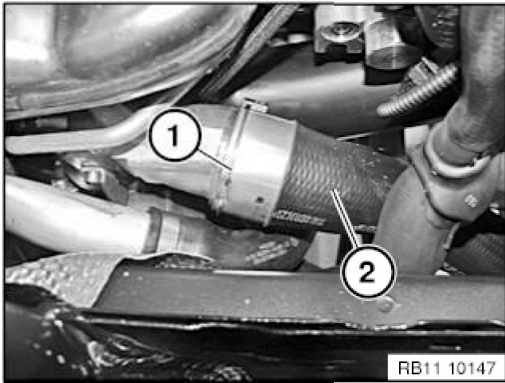


**Necessary preliminary tasks:**

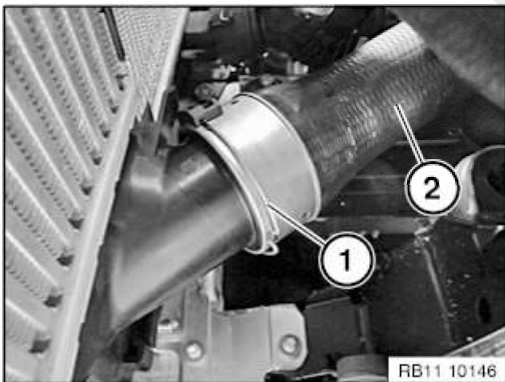
- Remove front underbody protection



Unscrew screw (1) and set expansion tank aside.



Release lock (1) of charge air duct.
Pull charge air duct (2) off of exhaust turbocharger.



Release lock (1) of charge air duct.
Detach charge air duct (2) from charge air cooler.
Feed out charge air duct (2).



Assemble engine.

Check DME control unit (exhaust turbocharger) for correct operation.



**Necessary preliminary work:**

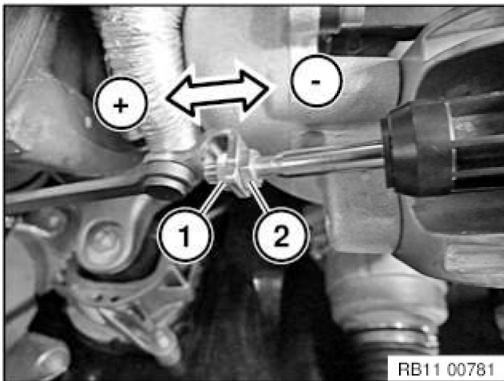
- Remove coolant pump

**Caution!**

Read and comply with notes on protection against electrostatic discharge (ESD protection).

**Note:**

Basic setting of the wastegate linkage can only be checked or adjusted using the diagnosis.

**Caution!**

The adjusting nuts (1 and 2) may only be countered by using two open-end spanners.

Using just one open-end spanner poses risk of damage to the electrical controller drive.

Installation note:

Shorten adjustment travel (-).

Increase adjustment travel (+).

To ensure a reliable setting of the adjustment travel, both adjusting nuts must be marked with a coloured mark.

One full turn of the adjusting nut corresponds to an adjustment travel of **0.75 mm**.

Example 1:

Actual value measured by the diagnostic function: **+0.75 mm**.

Required correction: **+0.75 mm: 0.75 mm = +1.0 turns**.

Adjust the linkage setting correction by turning nut (1) through 1.0 turns in + direction before resetting nut (2) and countering with 6 Nm.

Example 2:

Actual value measured by the diagnostic function: **-1.5 mm**.

Required correction: **-1.5 mm: 0.75 mm = -2 turns**.

Adjust the linkage setting correction by turning nut (2) through 2 turns in - direction before resetting nut (1) and countering with 6 Nm.

Check basic setting again using diagnosis.



Assemble engine.



11 65 300 Remove and install or replace the electrical actuator drive for the wastegate

Prerequisite

- Coolant pump has been removed. For additional information, see 11 51 000.



RISK OF DAMAGE



Electrostatic discharge.

Damage to or destruction of electrical components.

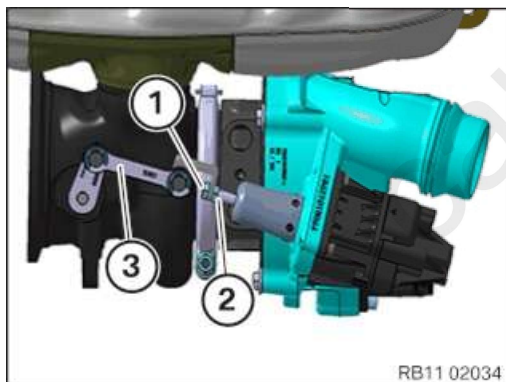
- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 Information on electrostatic discharge (ESD) protection.

1 – Check function of DME/DDE



- Connect diagnosis system.
 - Service functions
 - Power train
 - Engine electronics
 - Adjustment functions
 - Adjusting wastegate linkage

2 – Wastegate valve actuator

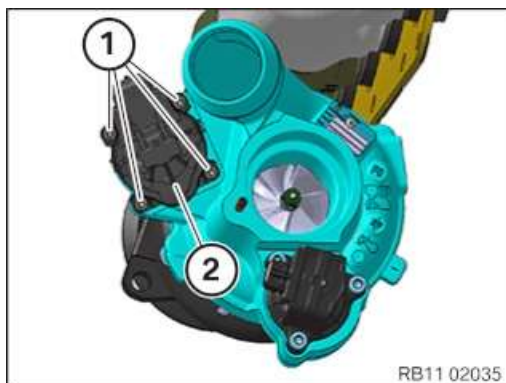


TECHNICAL INFORMATION

The adjusting nuts must be locked using two open-end spanners. If only one open-end spanner is used, there is a risk of the electrical controller drive being damaged.

- Loosen lock nut (1).
Remove wastegate valve linkage (3) from the drive linkage.
Unscrew adjusting nut (2).

3 – Screw connection of the wastegate valve controller

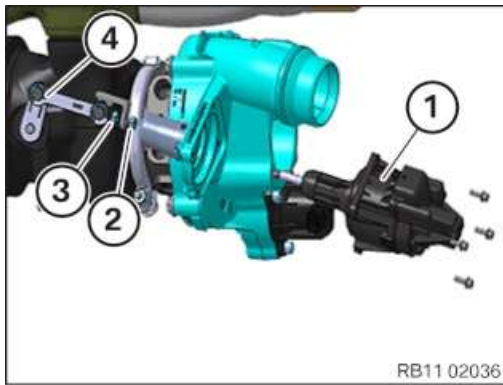


- Loosen screws (1).
- Remove the electrical controller drive (2).

4 – View of the wastegate valve controller

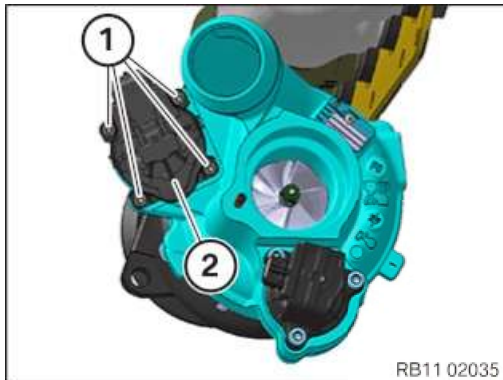


– View of the wastegate valve controller



- Schematic view shows the controller drive of the wastegate valve.
- Electrical wastegate valve controller (1) on the exhaust turbocharger.
- Adjusting nut(2)
- Lock nut(3)
- Wastegate valve linkage (4)

5 – Screwing on the wastegate valve actuator

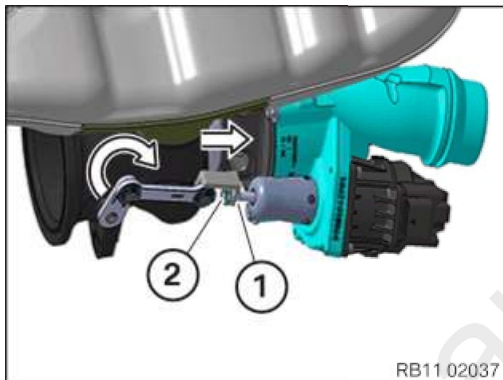


- Position the electrical wastegate valve controller (2) on the exhaust turbocharger.
- Secure the electrical wastegate valve controller with screws (1) using special tool [0 495 018 \(11 4 350\)](#).

Wastegate valve controller to exhaust turbocharger

M4x12		$2 \pm 0,3 \text{ Nm}$
-------	--	------------------------

6 – Installing wastegate linkage at the wastegate valve controller



TECHNICAL INFORMATION

The adjusting nuts must be locked using two open-end spanners. If only one open-end spanner is used, there is a risk of the electrical controller drive being damaged.

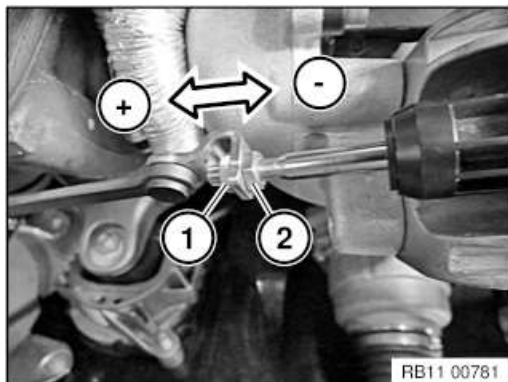
- Screw in adjusting nut (1) on the electrical wastegate valve controller until the limit position.
- Position wastegate linkage in direction of arrow on the electrical wastegate valve controller.
- Close the adjustment lever in direction of arrow by hand.
- Abut adjusting nut (1) to the wastegate linkage.
- Tighten lock nut (2).

Lock nut on wastegate valve controller to exhaust turbocharger

M6		$6,6 \pm 1 \text{ Nm}$
----	--	------------------------

7 – Adjusting the wastegate valve controller





- Shorten adjustment travel (-).

Increase adjustment travel (+).

To ensure a reliable setting of the adjustment travel, both adjusting nuts must be marked with a coloured mark.

One full turn of the adjusting nut (2) corresponds to an adjustment travel of 0.75 mm.

Example 1: Actual value measured by the diagnostic function: **0.75 mm**.

Required correction: **+0.75 mm divided by 0.75 mm** = +1.0 revolutions.

To correct the linkage setting, adjust the nut (1) in the plus (+) direction by 1.0 revolution and then reset the nut (2) and secure it with 6.6 Nm.

Example 2: Actual value measured by the diagnostic function: **-1.5 mm**.

Required correction: **-1.5 mm divided by 0.75 mm** = -2.0 revolutions.

To correct the linkage setting, adjust the nut (2) in the negative (-) direction by 2.0 revolutions and then reset the nut (1) and secure it with 6.6 Nm.

Check basic setting again with the diagnosis system.

Additional Information

Overview of Tightening Torques

Wastegate valve controller to exhaust turbocharger

Used in step 5

M4x12	2 ± 0,3 Nm
-------	------------

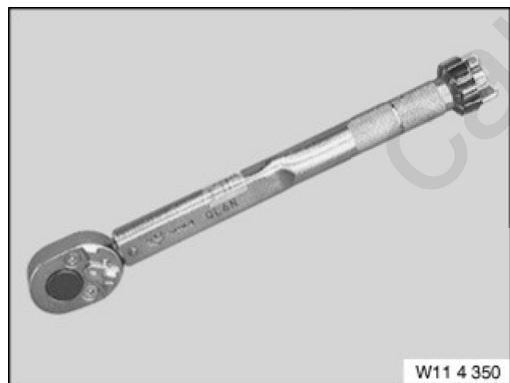
Lock nut on wastegate valve controller to exhaust turbocharger

Used in step 6

M6	6,6 ± 1 Nm
----	------------

Overview of Special Tools

0 495 018 (11 4 350) Torque wrench



Common

Used in step 5

Usage	For installing bearing strips of camshaft. Adjustment range 2 up to 6 Nm.
Included in the tool or work	
Storage location	B51
Replaced by	
In connection with	
SI-Number	01 02 10 (618)

Links

Repair instructions

Used in step

61 35 ... Notes on ESD protection (Electro Static Discharge)

11 51 000 Removing and installing/replacing the coolant pump \PREMIUM

11 51 000 Removing and installing/renewing coolant pump (N55)

11 51 000 Removing and installing/renewing coolant pump (N55)

11 51 000 Removing and installing/renewing coolant pump (N55)

11 51 000 Removing and installing/replacing coolant pump (N55 hybrid)



11 51 000 Removing and installing/renewing coolant pump (N55)

11 51 000 Removing and installing/renewing coolant pump (N55)

11 51 000 Removing and installing/renewing coolant pump (N55)

11 51 000 Removing and installing/replacing coolant pump (N55 hybrid)

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**Warning!****Risk of burning!**

Only perform this repair work on an engine that has **cooled down**.

**Warning!**

The module consists of exhaust turbo charger and exhaust manifold.

The weight of the turbocharger is approx. 15 kg.

**Attention!**

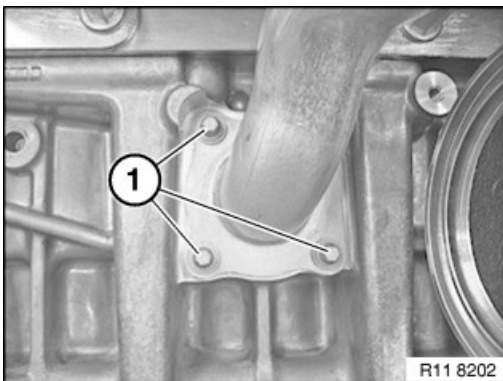
Read and comply with notes on protection against electrostatic discharge (ESD protection).

**Note:**

Troubleshooting on exhaust turbocharger.

**Necessary preliminary work:**

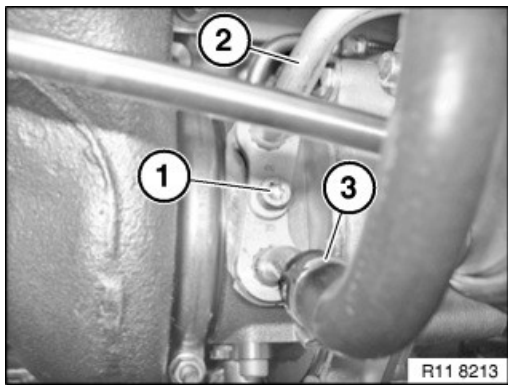
- Remove exhaust system.
- Remove the catalytic converter.
- Remove charge air duct.
- Drain coolant.
- Remove expansion tank.
- Remove air duct
- Remove right engine mount.



Release screws (1).

Tightening torque 11 53 4AZ.





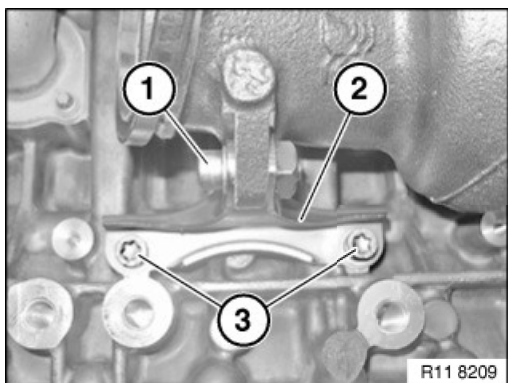
Release screw (1).

Tightening torque 11 53 10AZ.

If necessary, use appropriate tool to loosen coolant return line (3) and coolant flow line (2) at connection point.

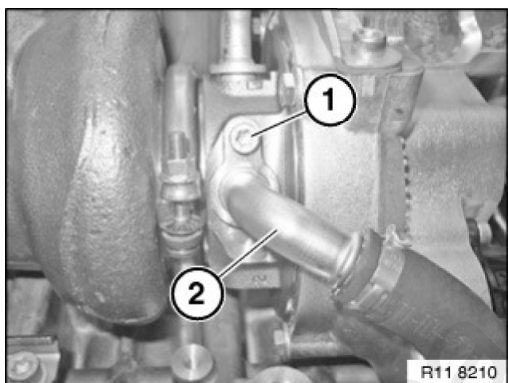
Installation note:

Renew sealing rings.



Release screw (1).

Loosen screws (3) but do not remove.



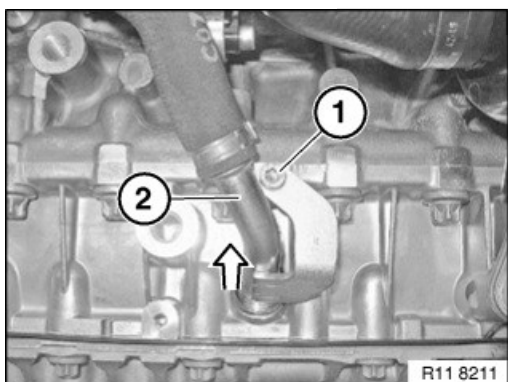
Release screw (1).

Tightening torque 11 42 6AZ.

If necessary, use appropriate tool to loosen oil return lines (2).

Installation note:

Renew the sealing ring.



Release screw (1).

Tightening torque 11 42 7AZ.

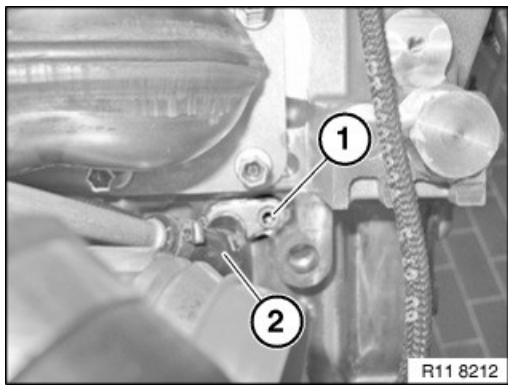
If necessary, use appropriate tool to loosen oil return lines (2).

Oil may escape when the oil return line is disconnected.

Installation note:

Renew the sealing ring.





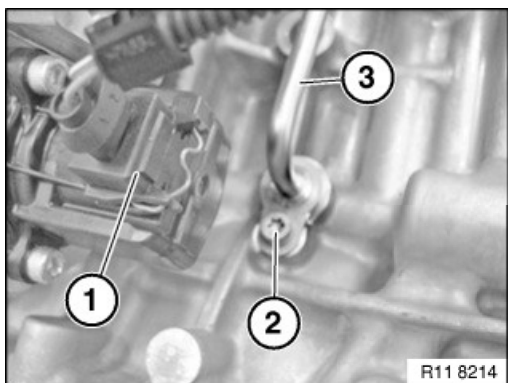
Release screw (1).

Tightening torque: 11 42 4AZ.

If necessary, use appropriate tool to loosen coolant return lines (2) at connection point.

Installation note:

Renew the sealing ring.



Loosen plug connection (1) at blow-off valve.

Release screw (2).

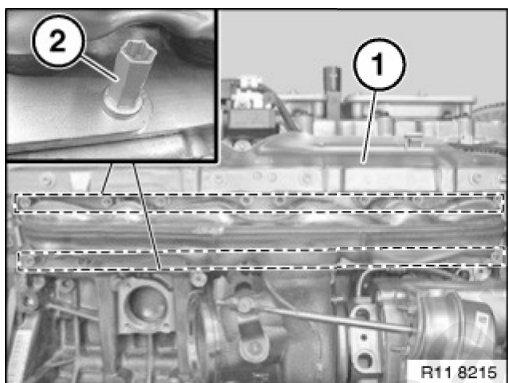
Tightening torque 11 65 4AZ.

Release connection of oil feed line (3) with a suitable tool.

Oil may escape when the oil return line is disconnected.

Installation note:

Renew the sealing ring.



Remove heat shield (1).

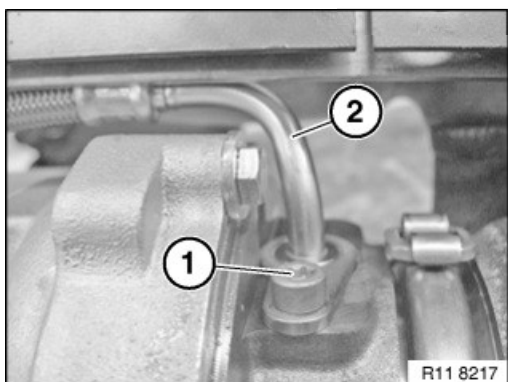
Tightening torque: 11 65 2AZ.

Loosen all flange nuts (2) along the line.

Remove module by manoeuvring downwards on gearbox side.

Note:

Overall weight of module is **approximately 15 kg**.



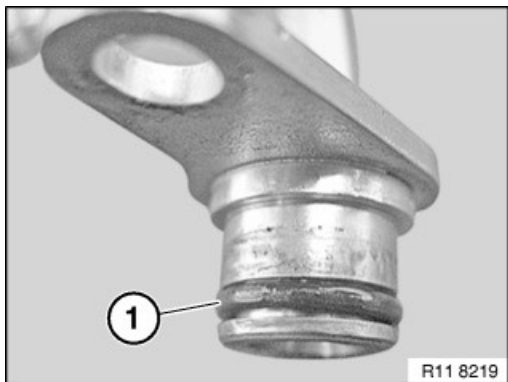
Note:

The oil feed line (2) can only be replaced after removal of the exhaust turbocharger.

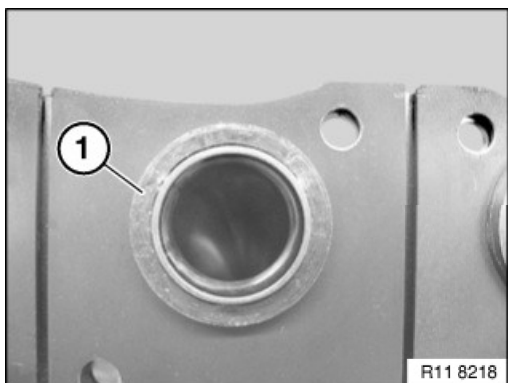
Release screw (1).

Release connection of oil feed line (2) with a suitable tool.

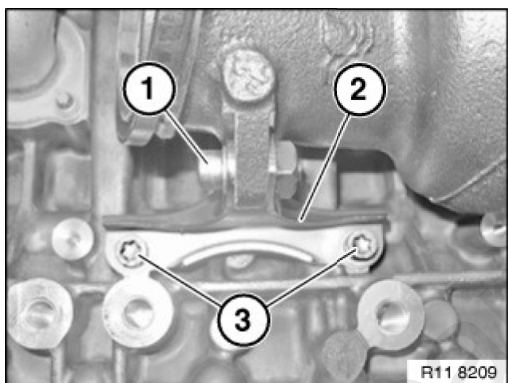




Installation note:
Replace all sealing rings (1).

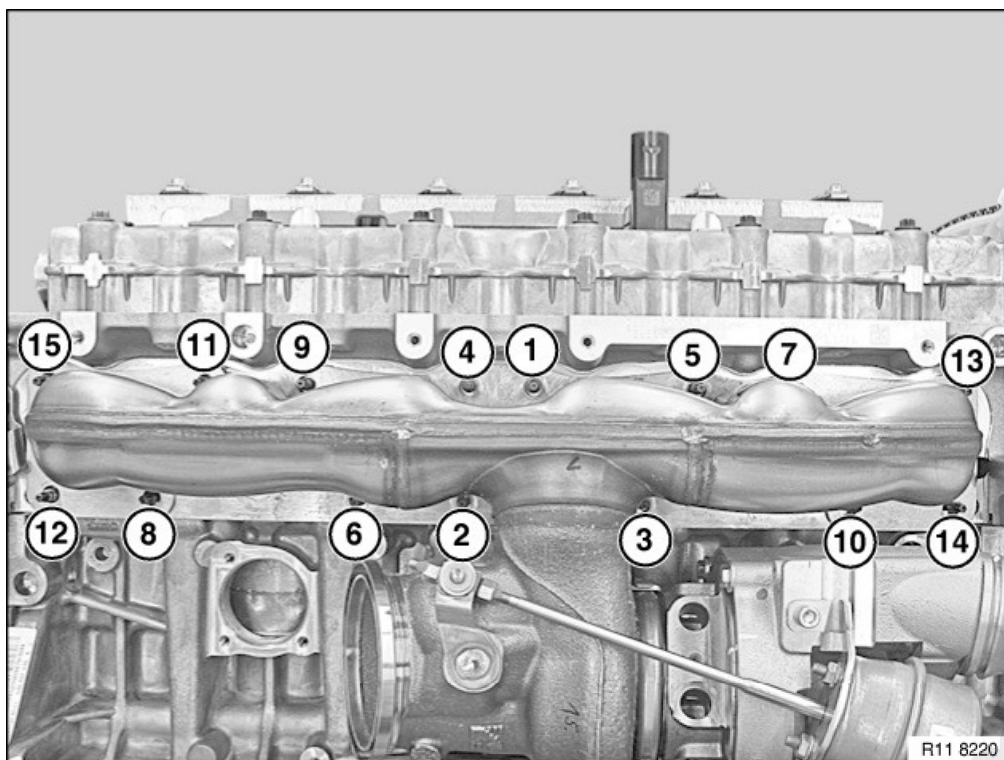


Installation note:
Replace all graphite seals (1).
Position turbocharger on cylinder head and hold in place with two bolts.



Insert the bolt (1), but do not tighten it yet.





Attention!

The module consists of exhaust gas turbo loader and exhaust gas manifold and must be installed stress-free.

Torque and torque sequence must be observed without fail.

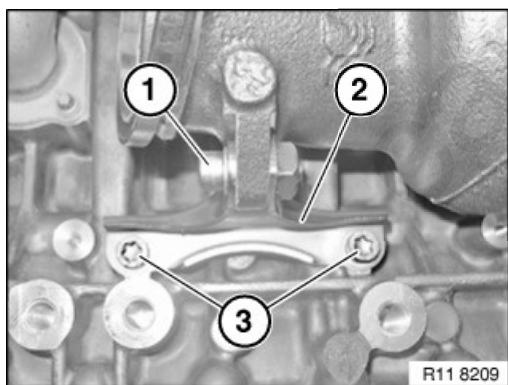
Tightening torque: 11 65 1AZ.

1. Join all flange nuts in sequence 1 to 15 to **8 Nm**.
2. Tighten all flange nuts to a torque of **13 Nm** in sequence (1 to 15).

Installation note:

Flange nuts 1 to 5 are accessible from above.

Flange nuts 6 to 15 are accessible from below.



Secure screws (3).

Tightening torque: 11 65 9AZ.

Tighten bolt (1).

Tightening torque 11 65 8AZ.



Top up coolant.

Assemble engine.

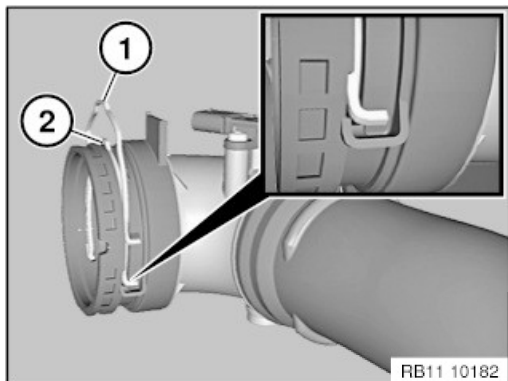
Note the instructions in the diagnosis system.

Carry out BMW leakage test for air intake system.



**Necessary preliminary tasks:**

- Remove front underbody protection.
- Release air conditioning compressor (do not draw off and remove).



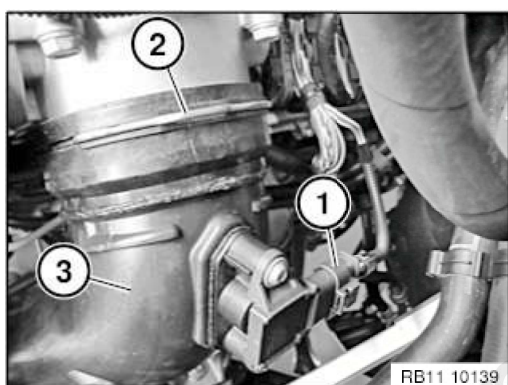
(1) Unlocked

(2) Locked

Installation note:

Ensure locking clamps are correctly fitted.

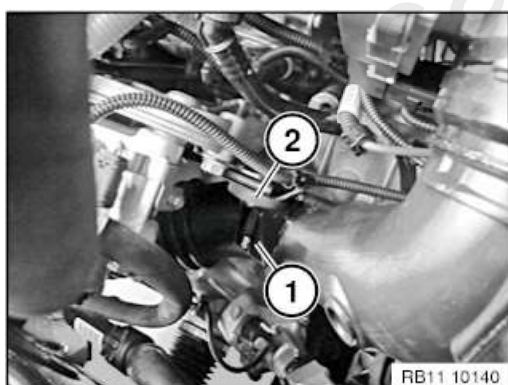
Lock must engage.



Unlock and pull off cable connector (1).

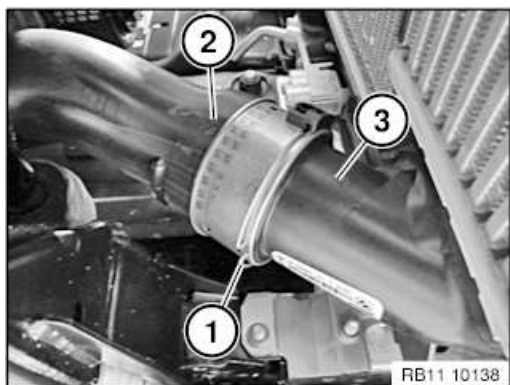
Unlock snap fastener (2).

Pull off charge air duct (3) from throttle body.



Unclip charge air duct (1) from rubber grommet (2).





Unlock snap fastener (1).

Pull off charge air duct (2) from charge air cooler (3).

Installation note:

The seal inside the snap fastener must be coated with anti-friction agent.

Charge air duct (2) must snap audibly into place!



Assemble engine.

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