

Switch off ignition.



Connect diagnosis system.

Switch the ignition on.

Select "encoding" program.

Follow the instructions in the diagnosis system.

Adjust the following control units:

- EWS (electronic immobiliser)
- DME (Digital Motor Electronics) or
- DDE (Digital Diesel Electronics)

Follow Service Information "Diagnosis and Encoding" on the topic of encoding.

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*Necessary preliminary tasks:*

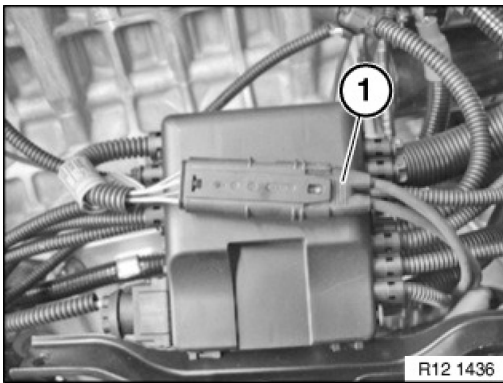
- Read out the fault memory of the DME control unit.
- Switch off ignition.
- Remove high pressure pump.

**Recycling:**

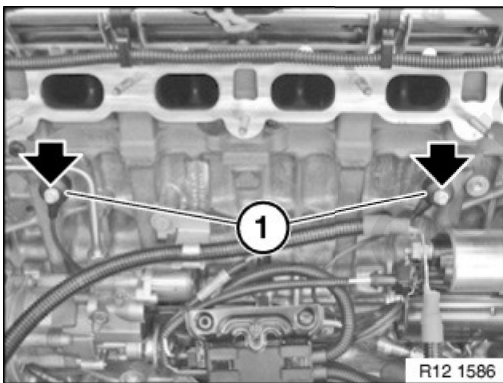
Fuel escapes when fuel lines are detached.

Catch and dispose of escaping fuel.

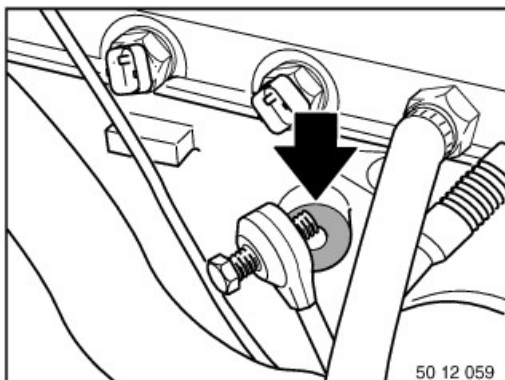
Observe country-specific waste disposal regulations.



Unlock connector (1) and remove.



Release screws on both knock sensors (1) and remove knock sensors (1). *Installation note:*
Tightening torque 13 62 3AZ.

*Installation note:*

Clean contact surface of knock sensors on engine block.





Note:

Reassemble the vehicle.

Check stored fault messages.

Clear diagnostic fault entries from fault memory.

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**Important!**

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

*Necessary preliminary tasks:*

- Switch off ignition.
- Disconnect battery negative lead.
- Remove intake plenum.

Important!

Follow instructions for removing and installing control units

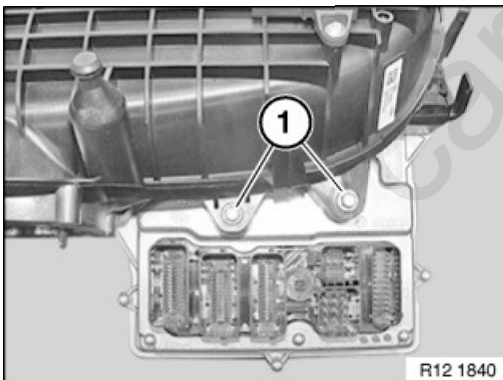
Replacement:

- Carry out programming/encoding
- If no data can be read out from the previous control unit, carry out injection quantity compensation (description at end of instructions).

**Important!**

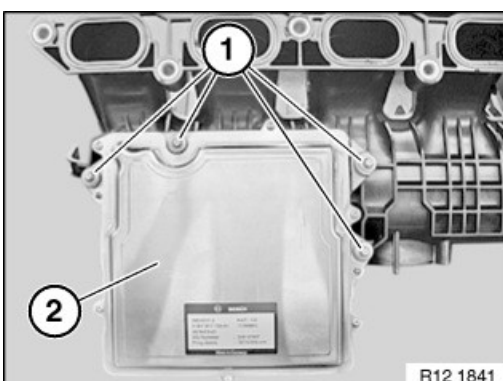
It is absolutely essential to read out the fault memory with the BMW diagnosis system and to create a fault memory printout.

Switch off ignition.



Release screws (1).

Tightening torque 12 14 2AZ.



Release screws (1).

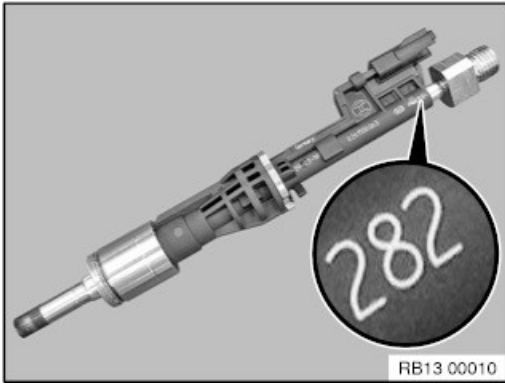
Tightening torque 12 14 1AZ.

Remove control unit from intake plenum.

Installation note:

Renew gasket between intake plenum and control unit.





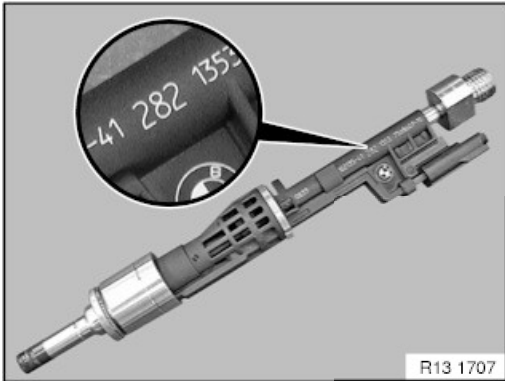
Injection quantity compensation:

If the DME control unit has been replaced, it will also be necessary to carry out adjustment of the injectors!

Injection quantity compensation is carried out with the aid of so-called adjustment values.

The adjustment value is printed with three digits - depending on the version - on the injector body.

The adjustment values must be stored in the new control unit!



If injector quantity compensation is not carried out, the engine may run roughly or fail to start.

Read off the adjustment values and enter according to the installation location (cylinder) of the injectors:

- Connect BMW diagnosis system
- Identify vehicle
- Select "Function selection"
- Select "Service functions"
- Select "Engine electronics"
- Select "Adjustment function"
- Select "Adjust injectors"
- Select "Test plan"
- The adjustment value must be entered for each cylinder.



Note:

Check stored fault message.

Delete fault memory.

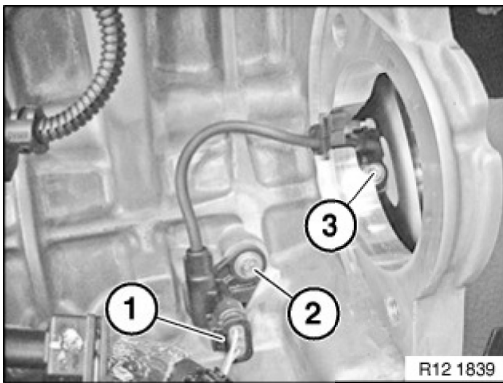


**Important!**

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

*Necessary preliminary tasks:*

- Read out the fault memory of the DME control unit.
- Switch off ignition.
- Remove starter motor.



Unlock connector (1) and remove.

Release screw (2).

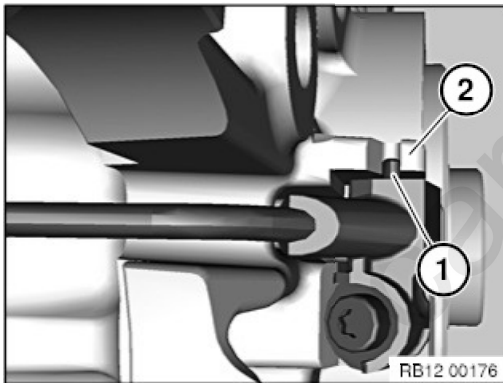
Tightening torque 13 62 2AZ.

Remove connector housing from crankcase.

Release screw (3).

Tightening torque 13 62 8AZ.

Pull pulse sensor from crankcase and remove.

*Installation note:*

During installation of pulse sensor make sure that guide pin (1) of pulse sensor is inserted in guiding groove (2) of crankcase.

*Note:*

Assemble engine.

Check stored fault message.

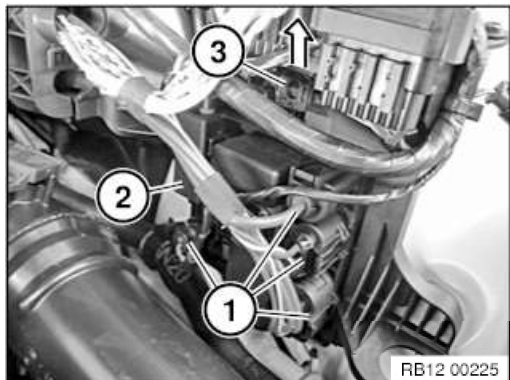
Delete fault memory.





Necessary preliminary work:

- Switch off ignition.
- Disconnect battery negative lead.



Unlock and pull off all connectors (1) from power distribution module.

Remove cover (2).

Release nut beneath it and set positive battery cable aside.

Tightening torque 12 52 7AZ.

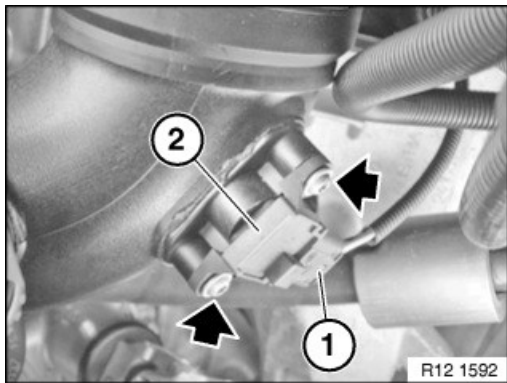
Release lock (3) in direction of arrow.

Feed out and remove power distribution module.



Reassemble the vehicle.

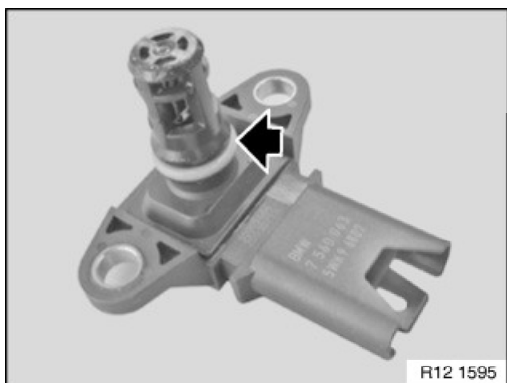




Unlock connector (1) and remove.

Release screws and pull pressure sensor (2) out of charge air duct.

Tightening torque 13 62 4AZ.



Installation note:

Check sealing ring for damage, replace if necessary.

When installing, coat sealing ring with suitable lubricant.



Note:

Reassemble the vehicle.

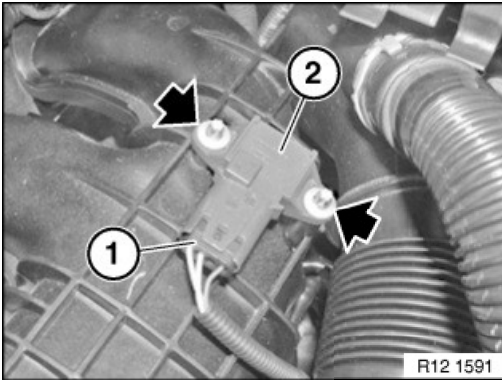
Check stored fault messages.

Delete fault memory.



*Necessary preliminary tasks:*

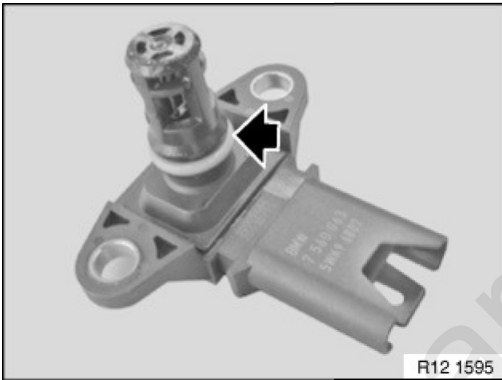
- Read out the fault memory of the DME control unit.
- Switch off ignition.
- Remove ignition coil cover.
- Partially release ignition coil cover.



Unlock connector (1) and remove.

Release screws and pull differential-pressure sensor (2) out of intake plenum.

Tightening torque 13 62 4AZ.

*Installation note:*

Check sealing ring for damage. Replace damaged sealing ring.

When installing, coat sealing ring with suitable lubricant.

*Note:*

Reassemble the vehicle.

Check stored fault message.

Delete fault memory.

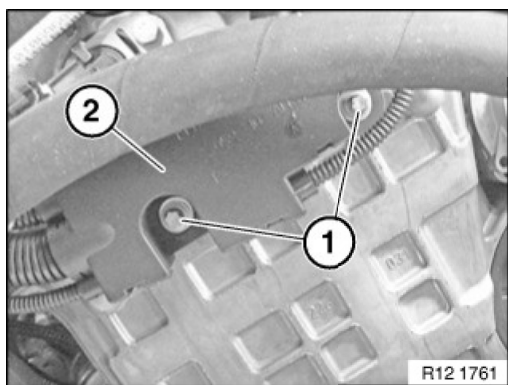


**Important!**

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

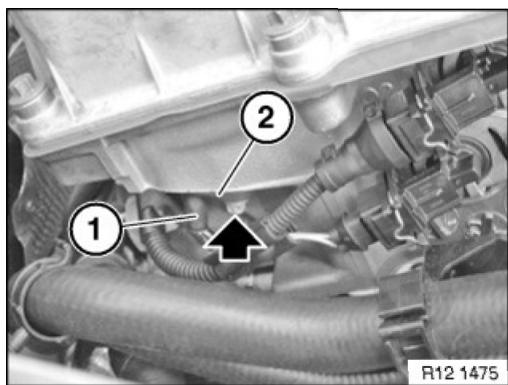
*Necessary preliminary tasks:*

- Read out the fault memory of the DME control unit.
- Switch off ignition.
- Remove intake silencer housing.



Release screws (1).

Slide cable channel (2) to one side.



Unlock connector (1) and remove.

Release screw.

Tightening torque 13 62 1AZ.

Remove pulse sensor (2).

*Note:*

Check stored fault messages.

Delete fault memory.

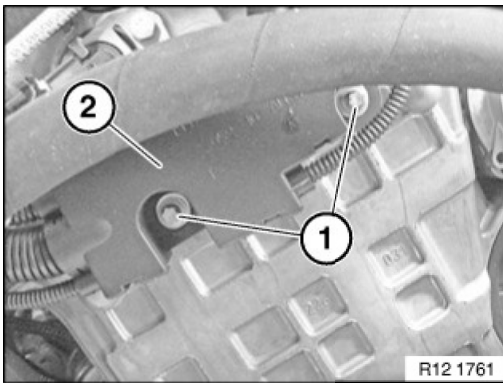


**Important!**

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

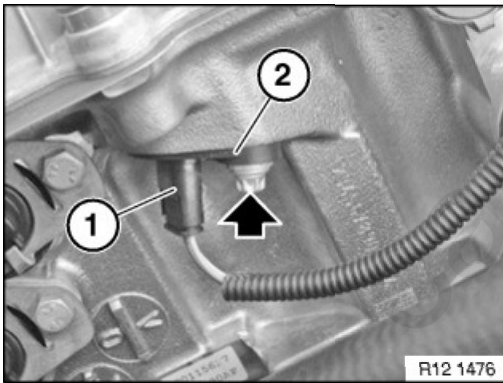
*Necessary preliminary tasks:*

- Read out the fault memory of the DME control unit.
- Switch off ignition.
- Remove intake silencer housing.



Release screws (1).

Slide cable channel (2) to one side.



Unlock connector (1) and remove.

Release screw.

Tightening torque 13 62 1AZ.

Remove pulse sensor (2).

*Note:*

Check stored fault messages.

Delete fault memory.

