

**Necessary preliminary work:**

- Remove [intake plenum](#)

Dismantle intake plenum:

- Remove [throttle body](#)
- If applicable, remove [adjuster](#)
- If applicable, remove the [preheating control unit](#)
- If applicable, remove [charging pressure sensor](#)

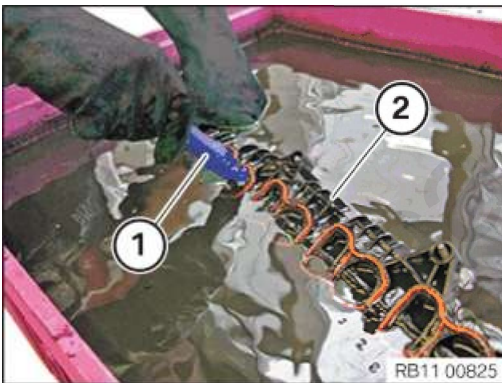


Wear protective goggles and gloves.

**Caution!**

Never place electrical components in cleaning agent!

- Put on personal protective clothing/equipment!
- Prepare cleaning agent: Mix 2 parts water with 1 part BMW universal cleaner (part number: 83 19 2 360 981) mixed
- Place intake plenum in cleaning agent
- Adhere to an application time of at least 1 h



Wear protective goggles and gloves.

**Caution!**

Do not clean electrical components with a parts cleaning unit or high pressure cleaner.

- Remove the intake plenum (2) from the cleaning agent
- Clean the openings of the intake plenum (2) and swirl flaps using the brush (1)
(Part number: 83 19 2 298 237)
- Clean throttle valve, exhaust-gas recirculation valve, mixing tube and mounted parts with brush (1) if necessary
- Clean the intake plenum (2) with a parts cleaning unit or a high-pressure cleaner.
- Check all seals for damage and replace if necessary.



Pay attention to country specific instructions for disposal.

**Required follow-up work:**

Assemble intake plenum:

- Installing the [throttle body](#)
- If applicable, install [adjuster](#)
- If applicable, install [preheating control unit](#)
- If applicable, install [charging pressure sensor](#)

- Install [intake plenum](#)

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Special tools required:

- [11 6 480](#)
- [11 5 320](#)
- [2 356 969](#)
- [2 356 966](#)
- [2 356 967](#)
- [00 9 120](#)



Necessary preliminary work:

- Disconnect [battery negative cable](#)
- Removing [intake plenum](#)
- Remove electric fan if necessary
- Remove [underbody protection](#)
- Remove stiffening plate if necessary

Dismantle intake plenum:

- Remove [throttle body](#)
- If applicable, remove [adjuster](#)
- If applicable, remove [preheating control unit](#)
- If applicable, remove [charging pressure sensor](#)



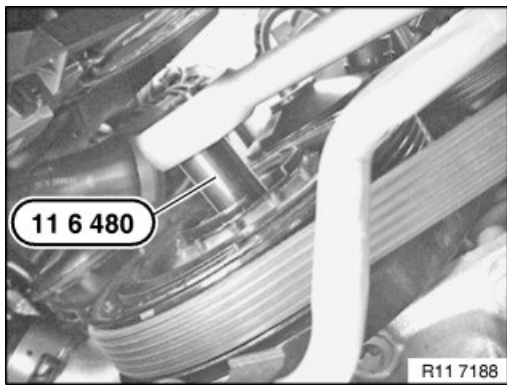
Wear protective goggles and gloves.



Caution!

Never place electrical components in cleaning agent!

- Wear personal protective clothing/equipment
- Prepare cleaning agent: Mix 2 parts water with 1 part [BMW universal cleaner](#) (see Section 3.2)
- Place intake plenum in cleaning agent
- Observe application time of at least 1 hour



Crank engine to cylinder no. 1 TDC setting:

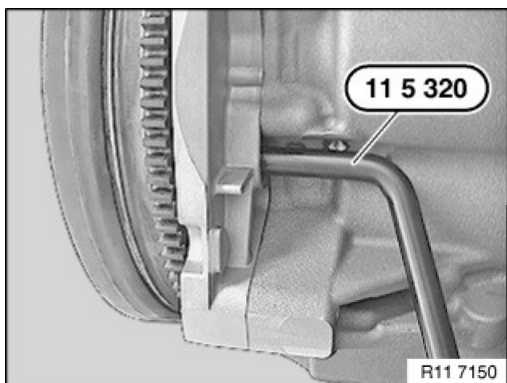
Crank engine with special tool [11 6 480](#) to TDC firing position of cylinder 1.

Caution!

Do not crank engine in reverse direction.

Note:

Figure N47D.



Remove protective cap of timing case cover.

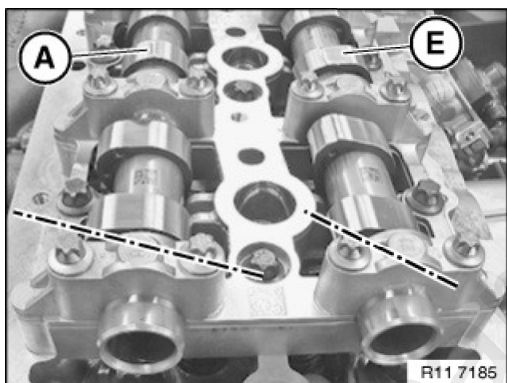
Crank engine at central bolt with special tool [11 6 480](#)

Block crankshaft with special tool [11 5 320](#) in the TDC firing position of cylinder 1.

Caution!

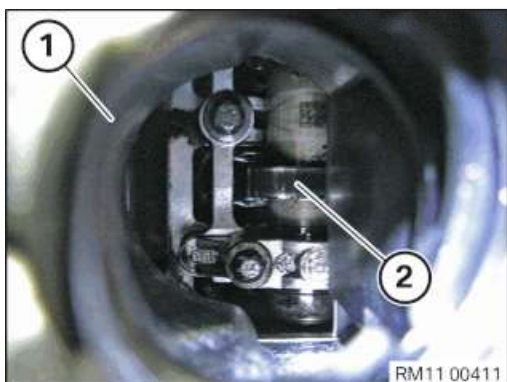
Do not turn the engine back.

Special tool [11 6 480](#) must be removed before starting the engine.



The cam on the intake camshaft (E) points obliquely upwards at cylinder No. 1.

The cam on the exhaust camshaft (A) points obliquely outward to the left at cylinder No. 1.



Note:

Visual inspection via oil filler cap (1) if necessary. Remove oil filler neck if necessary.

Cam (2) on exhaust camshaft points obliquely outward to the left at cylinder No. 1.

Figure N47.



Cleaning intake ports: Caution!

Risk of engine damage!

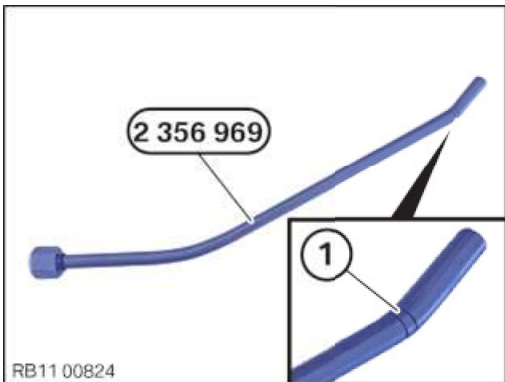
When cleaning the intake ports, it must be ensured that the intake valves of the corresponding cylinder are closed.

Start with the 1st cylinder when cleaning the intake ports.



The following are required:

- Blasting tool [81 29 2 208 034](#)
- Walnut shell granulate
- Vacuum cleaner



Caution!

Front area of sensors is marked with two notches. These can additionally be highlighted in colour.

During the blasting process, only pull the wands out of the vacuum adapter until the mark becomes visible.

Blasting wand for swirl ports:

- [2 356 969](#)



Vacuum adapter for tangential swirl port:

- [2 356 966](#)

Vacuum adapter for swirl port:

- [2 356 967](#)

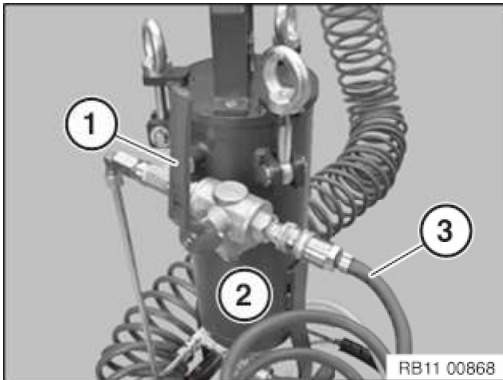


Note:

Use 2 litres of granulate per cleaning operation; this corresponds to a blasting duration of approx. 20 seconds.

Open blasting tool (1) and pour in 2 litres of granulate (2).

Close the device again.

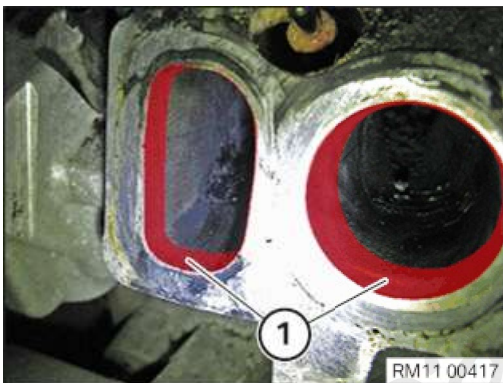


Note:

Operating pressure 6 - 8 bar.

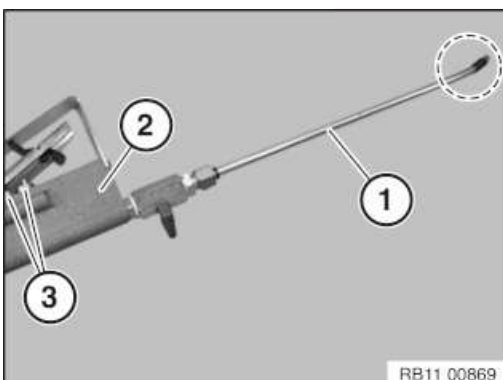
Close main valve (1) on blasting tool (2).

Connect compressed air (3).



Cleaning the swirl port of 1st cylinder:

Prior to the blasting process, clean the front area of both intake ports (1) of first cylinder with a suitable tool (e.g. plastic scraper, brushes 83 19 2 298 237).



Screw together blasting wand [2 356 969](#) (1) and actuator (2).

Open blasting tool and pour in 2 l granulate.

Close the device again.

Note:

Actuator (3) has two stages!

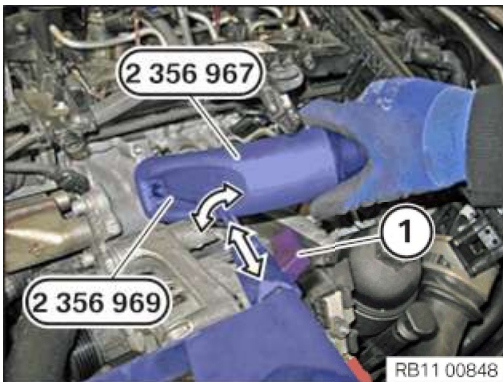
In stage one, only compressed air flows through the blasting wand.

In stage two (operation is fully pressed), granulate is added (blasting process).



Connect vacuum adapter [2 356 967](#) to vacuum cleaner. Hold vacuum adapter [2 356 967](#) against swirl port at no. 1 cylinder.

Open the main valve on the blasting tool and switch the vacuum cleaner on.



Caution!

Danger of injury!

Risk of damage!

Second person required to assist.

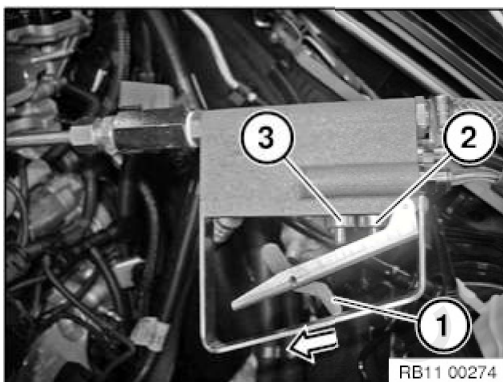
Blasting wand may only be pulled out until the mark becomes visible.



Wear safety goggles

Insert blasting wand [2 356 969](#) in the adapter [2 356 967](#).

Open the actuator valve (1).



Slide locking lever (1) to the front in direction of arrow.

Operate compressed-air valve (2) at stage one; compressed air can now flow in.

Fully operate valve (3) at stage two; walnut shell granulate is now injected.

Clean intake port, rotating the blasting wand and moving it vertically up and down.

Blasting wand may only be pulled out until the mark becomes visible.

When you notice that the collection container is becoming empty, continue operation for at least 10 seconds at stage one in order to swirl up and draw off the remaining granulate.

Close operation valve. Close main valve, check pressure drop at the pressure gauge.

Evaluate result if necessary.

If necessary, repeat procedure.



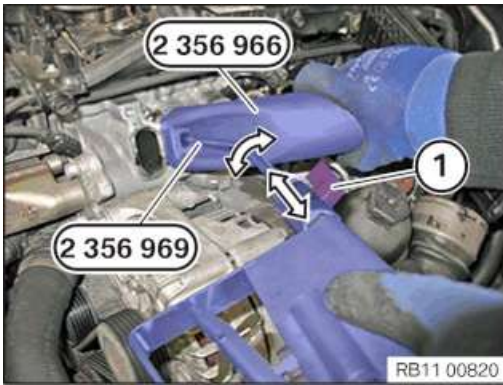
Cleaning the tangential swirl port of 1st cylinder:

Open blasting tool and pour in 2 l granulate.

Close the device again.

Connect vacuum adapter [2 356 966](#) to vacuum cleaner. Hold vacuum adapter [2 356 966](#) on swirl port of first cylinder.

Open the main valve on the blasting tool and switch the vacuum cleaner on.



Caution!

Danger of injury!

Risk of damage!

Second person required to assist.

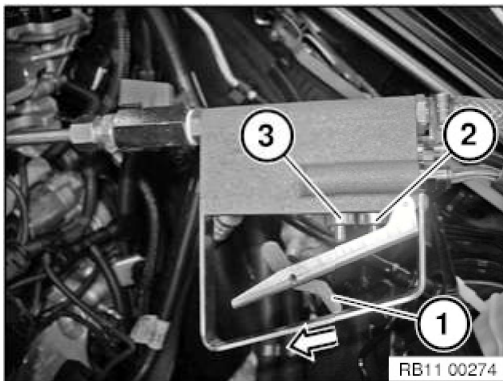
Blasting wand may only be pulled out until the mark becomes visible.



Wear safety goggles

Insert blasting wand [2 356 969](#) in the adapter [2 356 966](#).

Open the actuator valve (1).



Slide locking lever (1) to the front in direction of arrow.

Operate compressed-air valve (2) at stage one; compressed air can now flow in.

Fully operate valve (3) at stage two; walnut shell granulate is now injected.

Clean intake port, rotating the blasting wand and moving it vertically up and down.

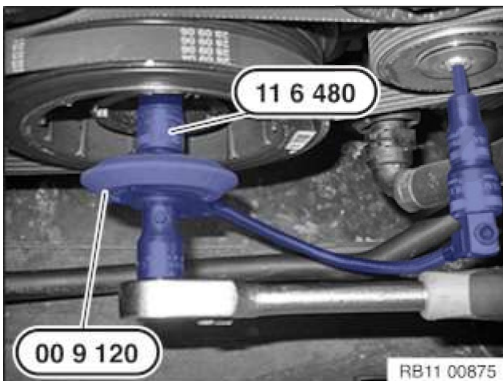
Blasting wand may only be pulled out until the mark becomes visible.

When you notice that the collection container is becoming empty, continue operation for at least 10 seconds at stage one in order to swirl up and draw off the remaining granulate.

Close operation valve. Close main valve, check pressure drop at the pressure gauge.

Evaluate result if necessary.

If necessary, repeat procedure.



Cleaning the other cylinders:

Caution!

Do not crank engine in reverse direction.

Remove special tool for securing the crankshaft.

Proceed in the standard firing order while using the same procedure to clean the swirl ports at the remaining cylinders.

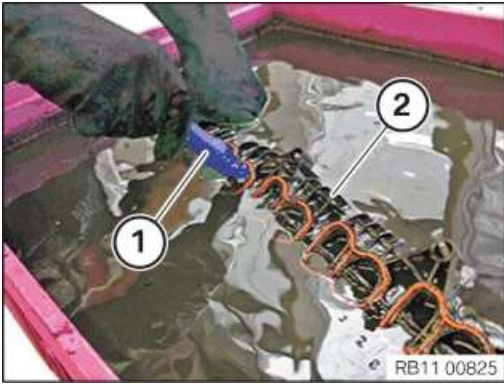
Firing order:

- **1 3 4 2** (4-cylinder engine)
- **1 5 3 6 2 4** (6-cylinder engine)

Thereby, turn motor on the central screw with [00 9 120](#) and [11 6 480](#) respectively by **180°** (4-cylinder-engine) and/or **120°** (6-cylinder-engine).

Note:

Figure M47.



Wear protective goggles and gloves.



Caution!

Do not clean electrical components with a parts cleaning unit or high pressure cleaner!

- Remove the intake plenum (2) from the cleaning agent
- Clean the openings on intake plenum (2) and swirl flap using the brush (1)
(Part number: 83 19 2 298 237)
- Clean throttle valve, exhaust-gas recirculation valve, mixing tube and mounted parts with the brush (1) if necessary
- Then clean intake plenum (2) with a parts cleaning unit or a high-pressure cleaner
- Check all seals for damage and replace if necessary.



Observe country-specific waste disposal regulations.



Required follow-up work:

Dismantle intake plenum:

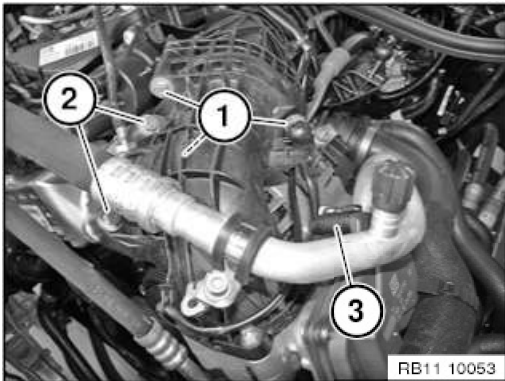
- Installing the [throttle body](#)
- If applicable, install [adjuster](#)
- If applicable, install [preheating control unit](#)
- If applicable, install [charging pressure sensor](#)
- Crank the engine at the central bolt at minimum twice
- Install [intake plenum](#)
- If necessary, install an electric fan
- Install [underbody protection](#)
- If necessary, install stiffening plate
- Connect [battery earth lead](#)
- Reset the quantity correction under:
 - Service functions
 - 01 Drive
 - Digital Diesel Electronics
 - Reset correction values of injectors

11 61 ... Removing and installing / replacing mixing tube for intake air (N57 D30 O1 with SCR)

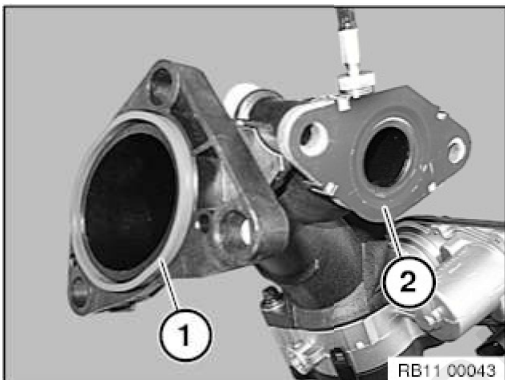


Necessary preliminary work:

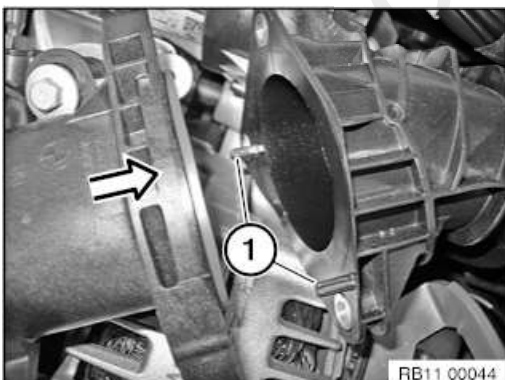
- **Only at the time of replacement or cleaning of the mixing tube:**
Reset adaptation values with diagnosis system
- Remove [throttle body](#)



Release screws (1).
Unfasten screws (2).
Disconnect plug connection (3).
Remove mixing tube.



Installation note:
Replace O-ring (1).
Replace seal (2).



Installation note:
Pay attention to mounting lugs (1).
Remove mixing tube in direction of arrow.



Assemble engine.

**Installation note:**

If the air intake plenum is replaced, the stop values for the swirl flaps must be deleted and taught in again.

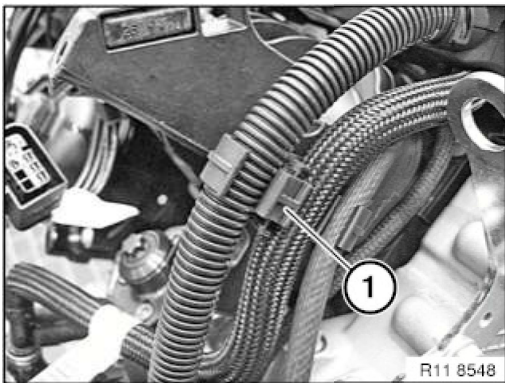
Follow diagnosis instruction.

Attention!

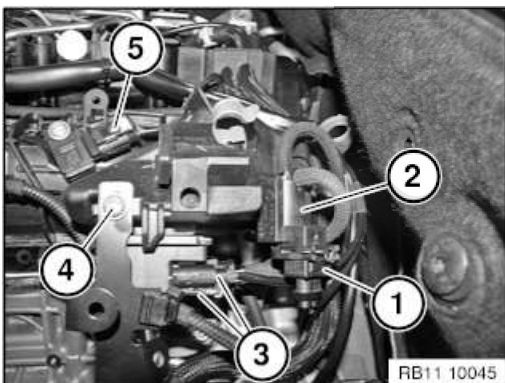
Incorrect assembly of the swirl-flap controller results in malfunction / lack of power!

**Necessary preliminary tasks:**

- [Remove](#) acoustic cover at rear.
- Remove [throttle valve](#) at intake plenum.



Push the cable clamps (1) between the bulkhead and engine on both halves apart and remove.



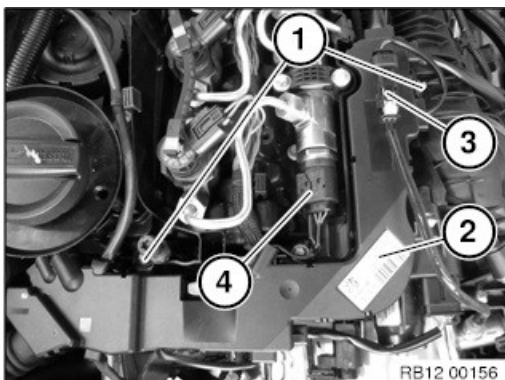
Disconnect plug connection (1) from the electric changeover valve (2) of the engine mount.

Detach the electric changeover valve (2) in direction of arrow and lay to one side.

Disconnect plug connections (3) on preheating control unit.

Release screw (4) on guide tube (oil dipstick).

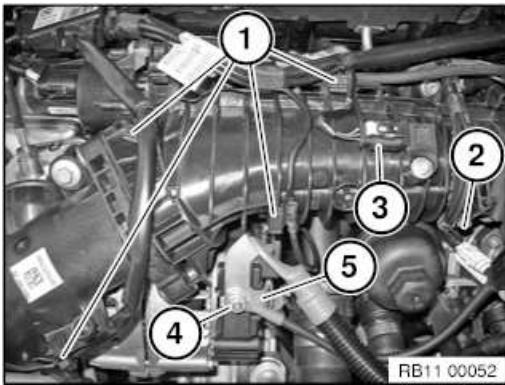
Disconnect plug connection (5).



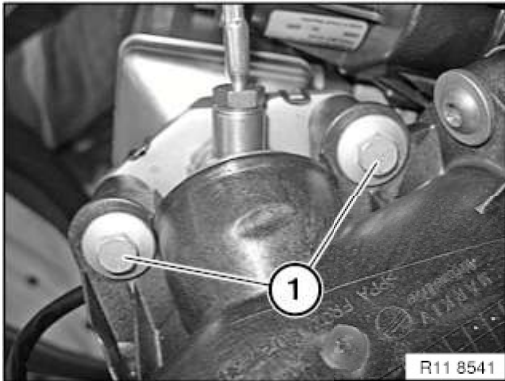
Release screws (1).

Remove cable channel (2) from the cylinder head cover. To do this unlock and detach connectors (3) and (4).

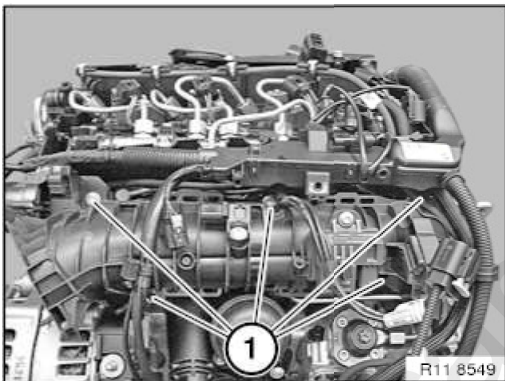
Slide cable channel to one side.



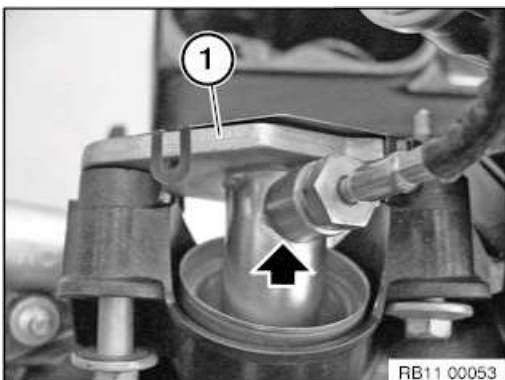
Loosen all cable clamps (1 and 2) on the intake plenum.
 Disconnect plug connection (3) at charge air pressure sensor.
 Release nut (4) on alternator.
 Tightening torque: [12 52 2AZ](#)
 Lay positive battery cable (5) to one side.



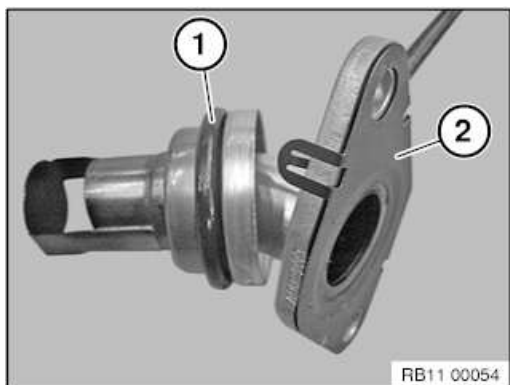
Loosen screws (1) on the exhaust-gas recirculation cooler.



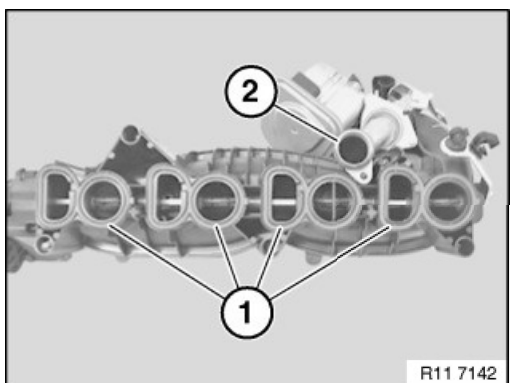
Release screws (1).
 Remove intake system upwards.
 Graphic N47T.



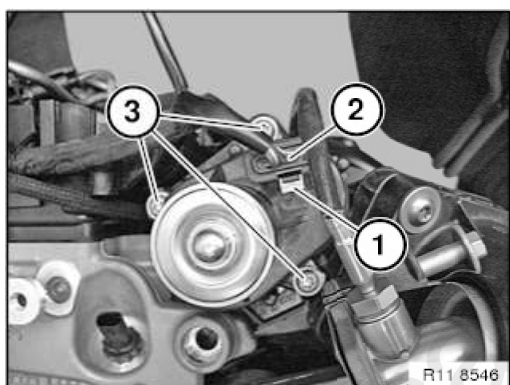
Remove the exhaust-gas recirculation pipe (1) in direction of arrow.



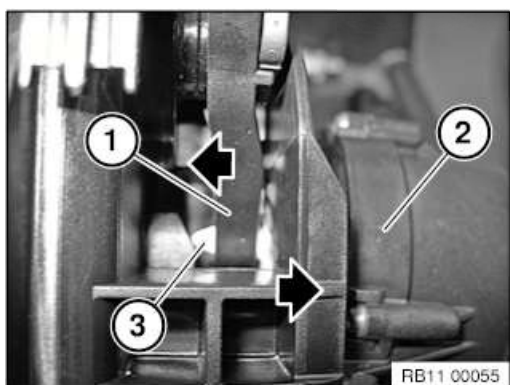
Installation note:
 Replace O-ring (1).
 Replace beaded metal gasket (2).



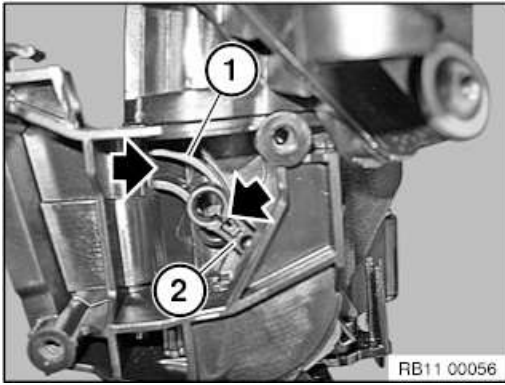
Installation note:
 Replace gaskets (1).
Note:
 Graphic N47.



Replace intake plenum.
 Loosen screws (3).
 Remount swirl-flap controller (2).

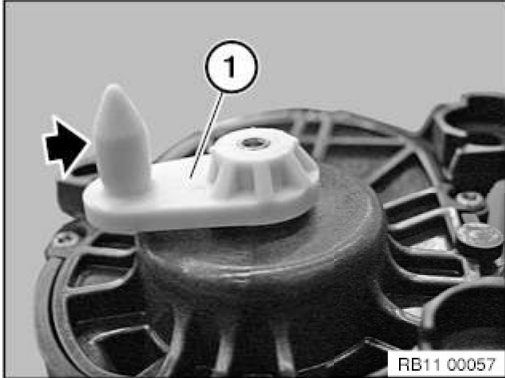


Slide swirl-flap controller (2) in the direction of arrow towards front.
 Lift the connecting lever (1) with a screwdriver in direction of arrow until the guide lever (3) is disconnected from the connecting lever (1).

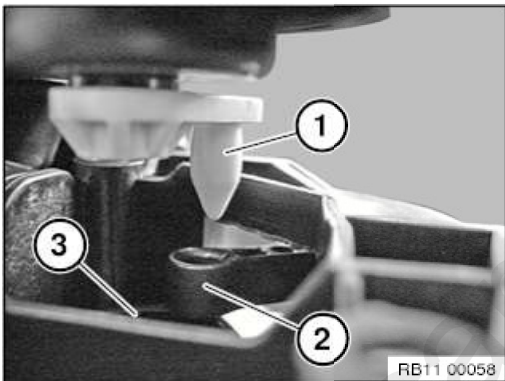


Before the swirl-flap controller can be mounted, the connecting lever (1) must be positioned toward the intake air collected.

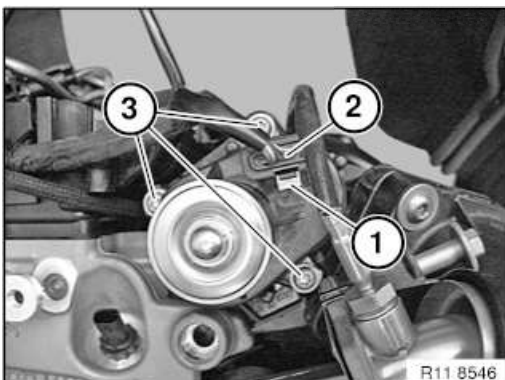
Prepare the connecting lever (2) for the guide (1) on the intake plenum.



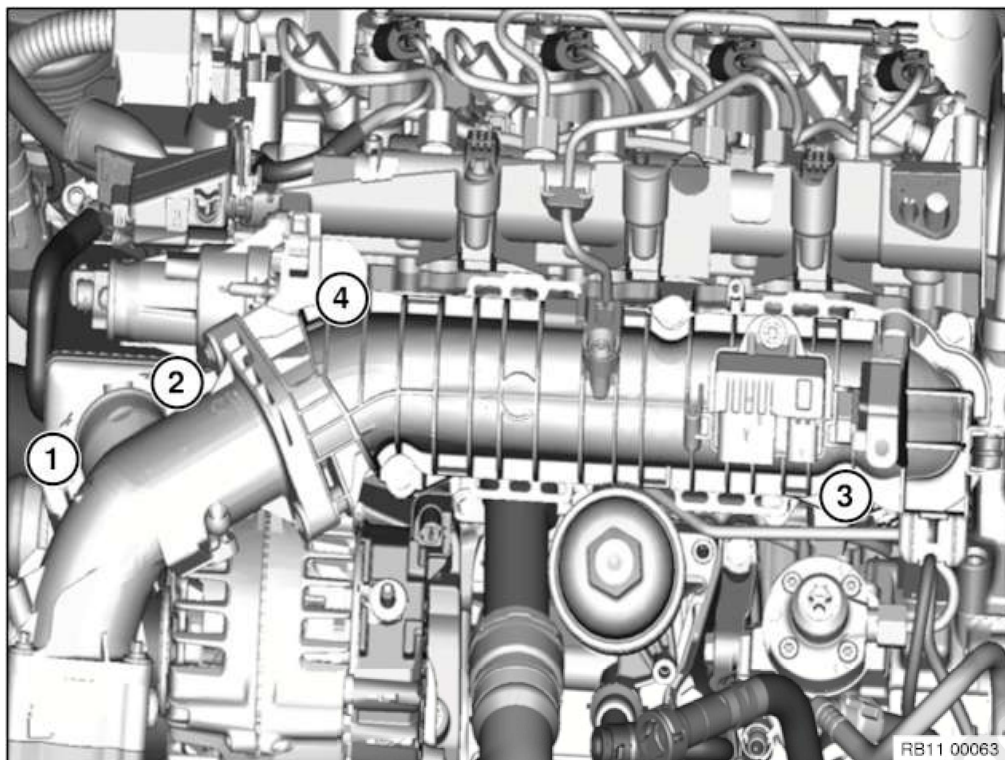
The adjustment plate (1) on the swirl-flap controller is edited at the marked area.



The adjustment plate (1) on the swirl-flap controller must be positioned with the connecting lever (2) of the swirl flaps toward the guide groove (3) on the intake air collector before the swirl-flap controller can be attached.

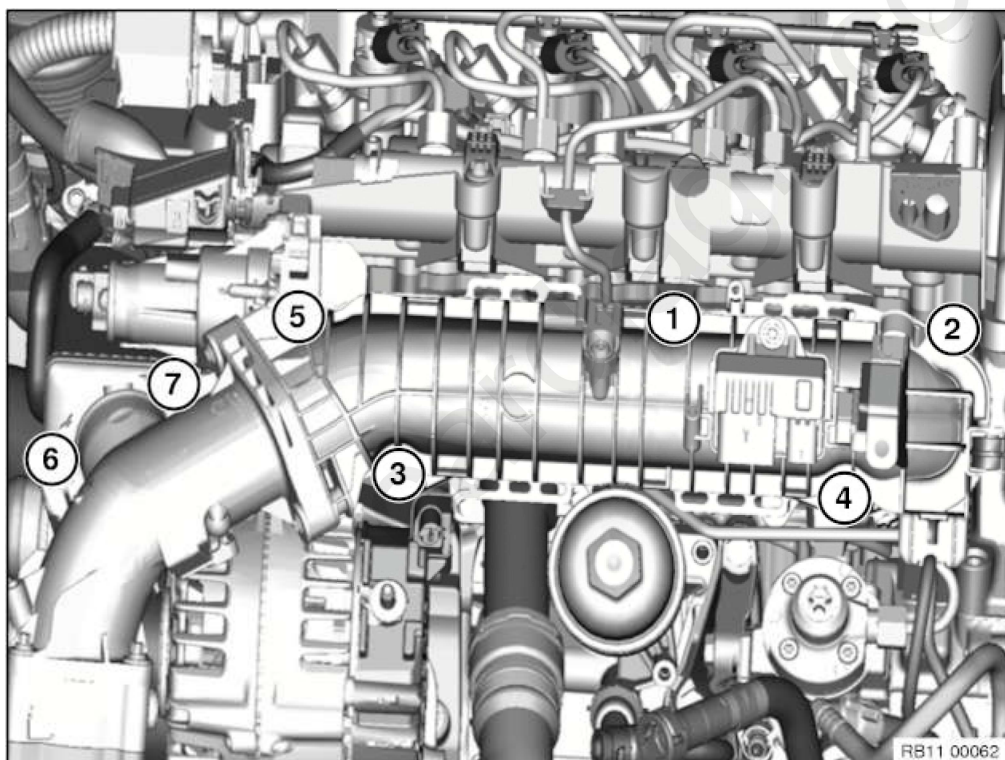


Secure the actuator drive (1) with screws (3).



Graphic N47T. *Installation note:*
Position the intake system on the cylinder head.

Tack the air intake system on in the following order (from 1 to 4).



Graphic N47T.

Installation note:
To ensure tightness of the air intake system, the tightening sequence must be complied with.
Tighten the air intake system in sequence (1 to 7).

Tightening torque: [11 61 1AZ](#).



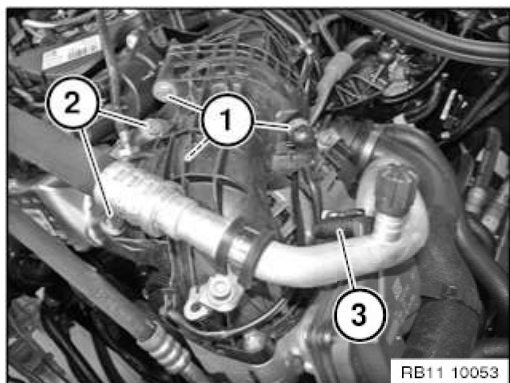
Assemble engine.
Check air intake system for leaks.
Check function of DDE.

11 61 ... Removing and installing/renewing mixing tube for intake air (N57 D30 U/O/T 1)

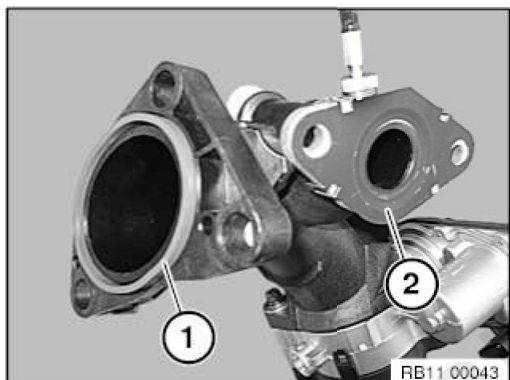


Necessary preliminary work:

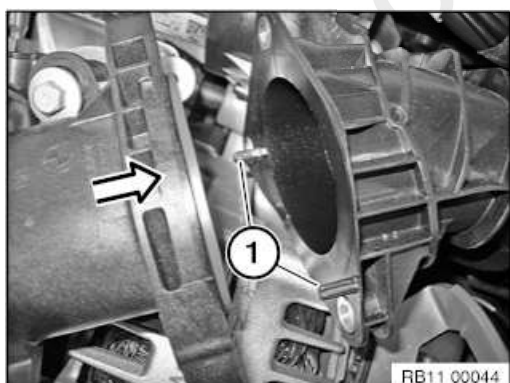
- **Only on replacement or cleaning of the mixing tube.** Reset adaptation values with diagnosis system
- Remove [throttle valve assembly](#).



Release screws (1).
Unfasten screws (2).
Disconnect plug connection (3).
Remove mixing tube.



Installation note:
Replace O-ring (1).
Replace seal (2).



Installation note:
Pay attention to mounting lugs (1).
Remove mixing tube in direction of arrow.



Assemble engine.

11 61 360 Removing and installing/renewing pressure pipe from exhaust turbocharger to charge air cooler (N57 D30 O/T 1)



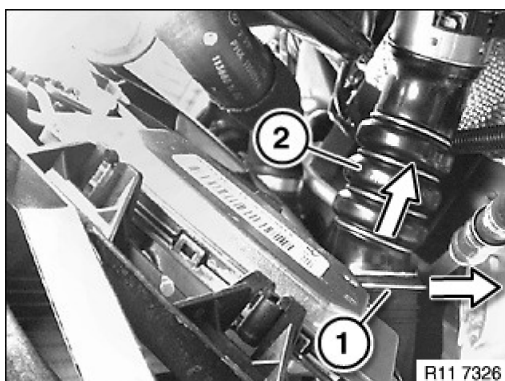
Important!

In the event of a leak at the pressure pipe, there is a **risk of damage** to the exhaust turbocharger.



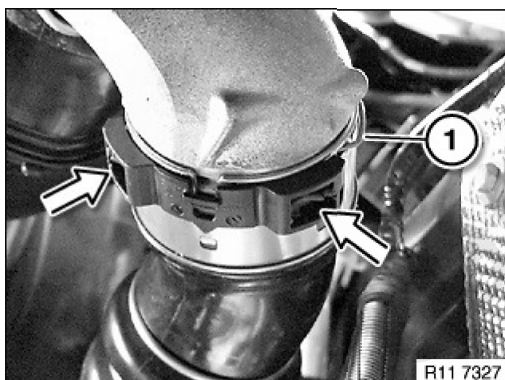
Necessary preliminary work:

- Remove front [underbody protection](#).



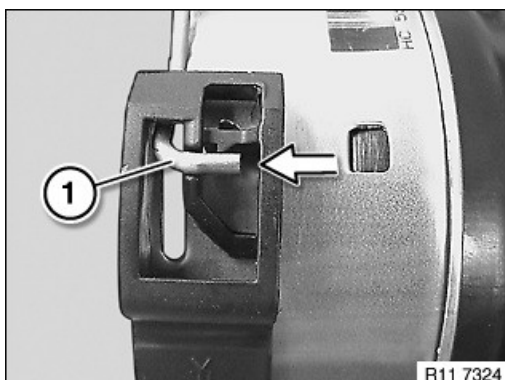
Release lock (1) in direction of arrow.

Release pressure pipe (2) in direction of arrow.



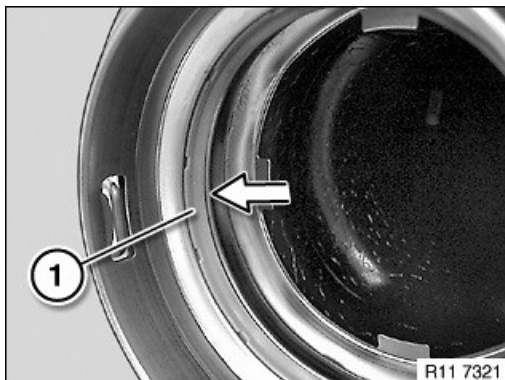
Release lock (1).

Lock (1) must snap into place in fixture (see arrows).



Note:

Snap lock (1) into place on lock (see arrow).



Check sealing lip (1) for damage. *Installation note:*
If sealing lip (1) is damaged, the gasket must be replaced.

Important!

In the event of a leak at the pressure pipe, there is a **risk of damage** to the exhaust turbocharger.



Check sealing ring for damage. *Installation note:*
If sealing ring is damaged, replace gasket.

Important!

In the event of a leak at the pressure pipe, there is a **risk of damage** to the exhaust turbocharger.



Assemble engine.
Check air intake system for leaks.

11 61 350 Removing and installing/renewing pressure pipe on throttle body (N57 D30 O/T 1)



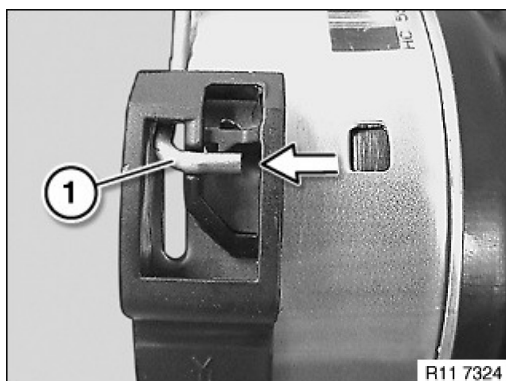
Important!

In the event of a leak at the pressure pipe, there is a **risk of damage** to the exhaust turbocharger.



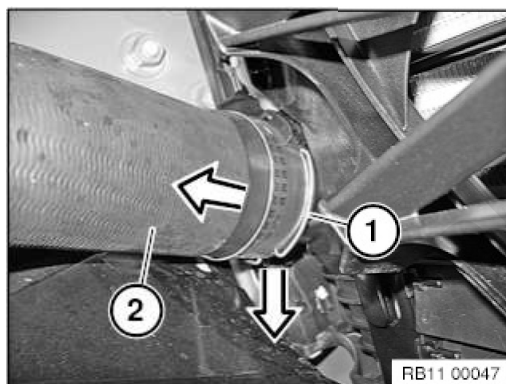
Necessary preliminary work:

- Remove front [underbody protection](#).



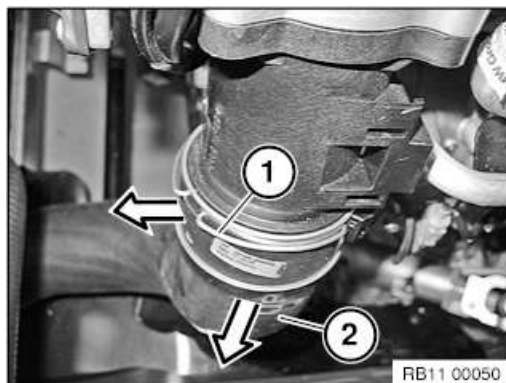
Note:

Lock (1) must snap into place in bracket (see arrow).



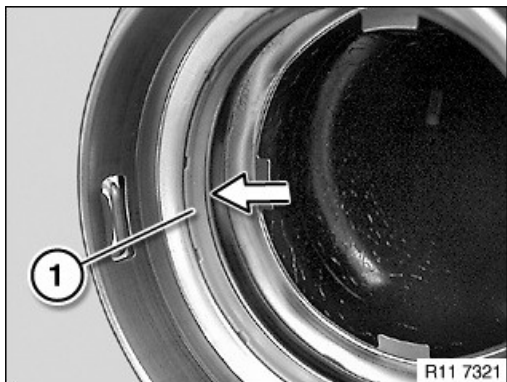
Release lock (1) with a suitable tool.

Disconnect pressure pipe (2) from charge air cooler.



Release lock (1) in direction of arrow.

Release pressure pipe (2) in direction of arrow.



Important!

In the event of a leak at the pressure pipe, there is a **risk of damage** to the exhaust turbocharger.

Check sealing lip (1) for damage. *Installation note:*

If sealing lip (1) is damaged, the gasket must be replaced.



Important!

In the event of a leak at the pressure pipe, there is a **risk of damage** to the exhaust turbocharger.

Check sealing ring for damage. *Installation note:*

If sealing ring is damaged, replace gasket.



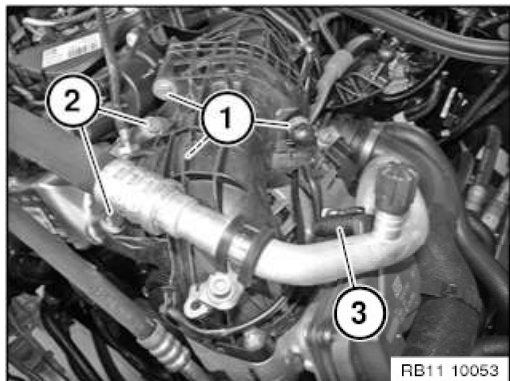
Assemble engine.

Check air intake system for leaks.

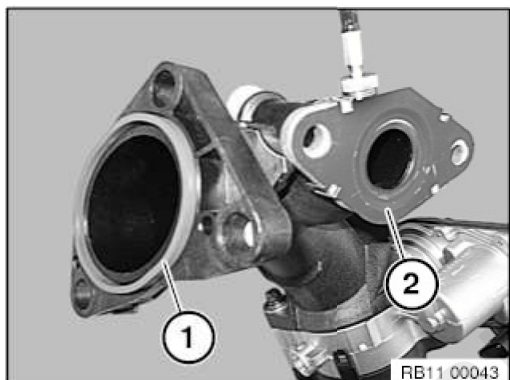


Necessary preliminary work:

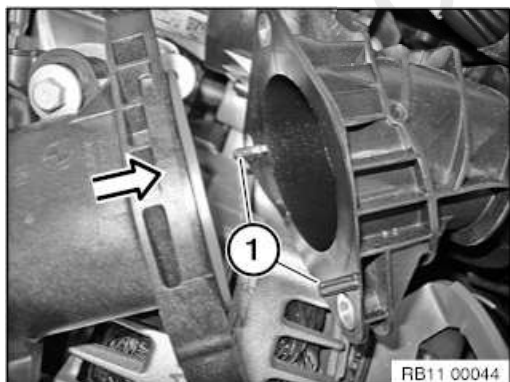
- **Only at the time of replacement or cleaning of the mixing tube:**
Reset adaptation values with diagnosis system
- Remove [throttle body](#)



Release screws (1).
Unfasten screws (2).
Disconnect plug connection (3).
Remove mixing tube.



Installation note:
Replace O-ring (1).
Replace seal (2).



Installation note:
Pay attention to mounting lugs (1).
Remove mixing tube in direction of arrow.



Assemble engine.