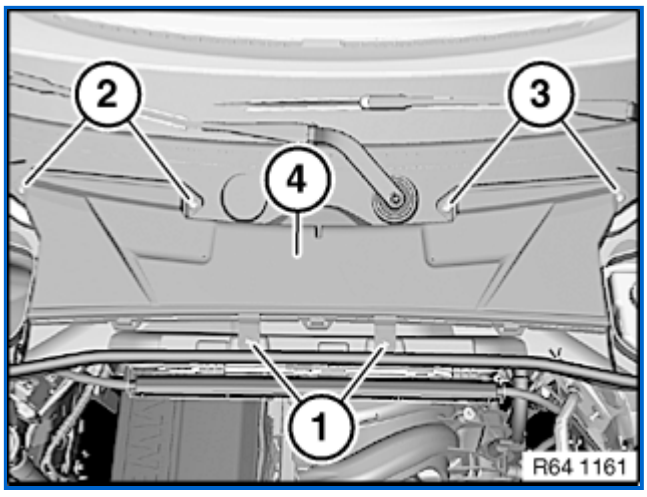
REP-REP-RAE90M57T2-1112800 Cleaning cylinder heat intake channels and intake plenum (E90US, M57T2), VIN: XXXXXXX

ISTA system version	3.53.13.15645	Data version	R3.53	Programming data	-
VIN	XXXXXXX	Vehicle	3'/E90/SEDAN/335d/M57/AUTO/USA/LL/2010/01		
Integration level factory	-	Integration level (current)	-	Integration level (target	-
Mileage	0 km				

11 12 800 Cleaning cylinder heat intake channels and intake plenum (E90US, M57T2)

Special tools required:

- 00 9 120
- 11 6 080
- 2 356 969
- 2 356 970
- 2 356 968
- 2 356 967
- 2 356 966
- 11 6 480

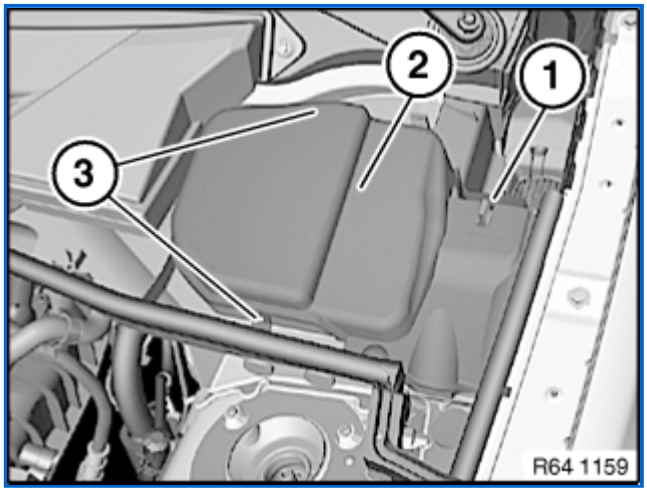


Release screws (1).

Unfasten screws (2 and 3).

Remove upper section of microfilter housing (4).

Installation note:
Make sure upper section of microfilter housing (4) is correctly seated.

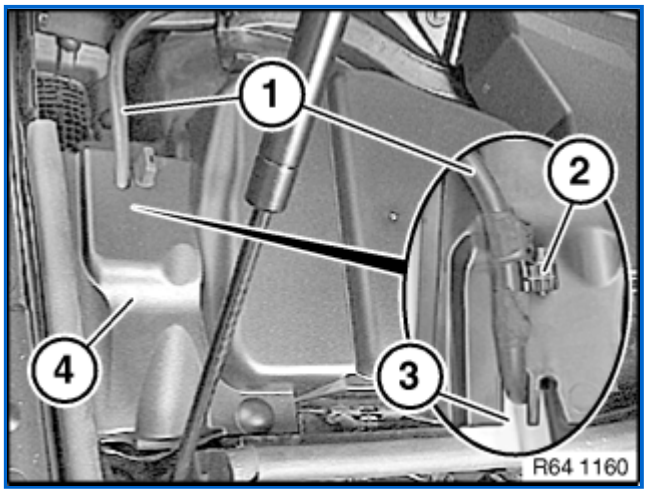


Release holder (1).

Release catches (3).

Remove left cover (2).

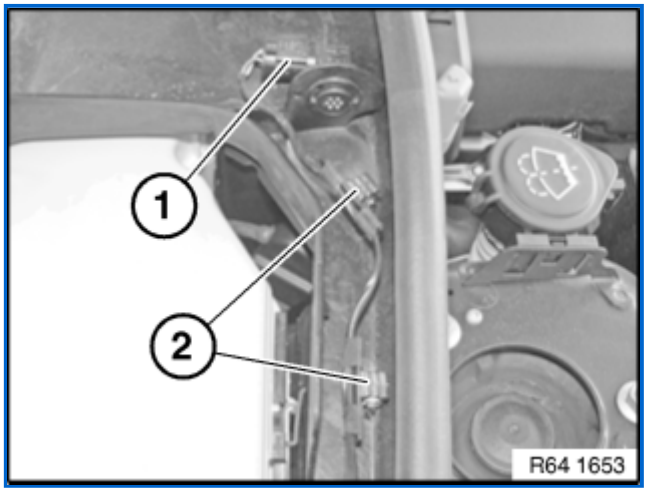
Installation note:
Make sure right cover (2) is correctly seated.



Note:
Right cover (4) is removed in same way as left cover.

Release cable holder (2) and remove hose (1) from cover (4).

Installation note:
Make sure cable clip (2) and hose (1) are correctly seated in recess (3).



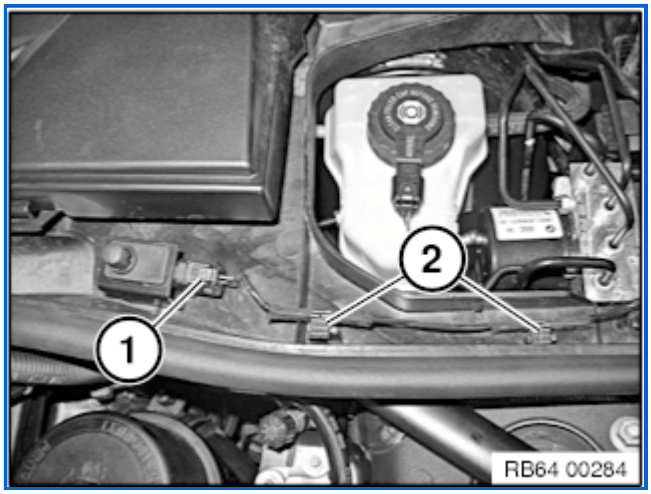
Clamp off battery.

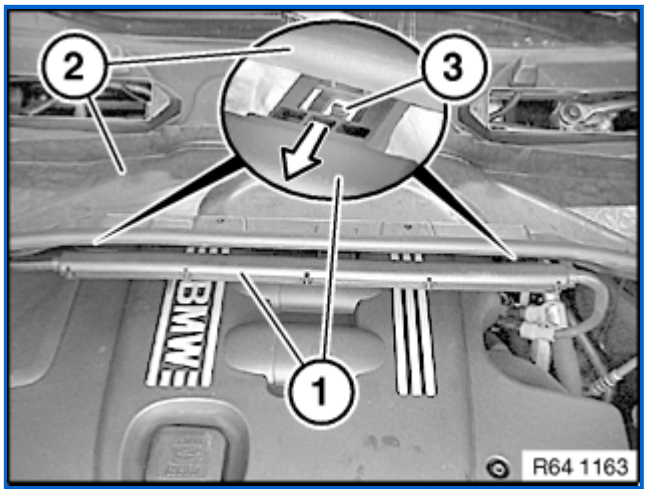
Unfasten plug connection (1) and disconnect.

Unclamp cable from guides (2).

Unfasten plug connection (1) and disconnect.

Unclamp cable from guides (2).



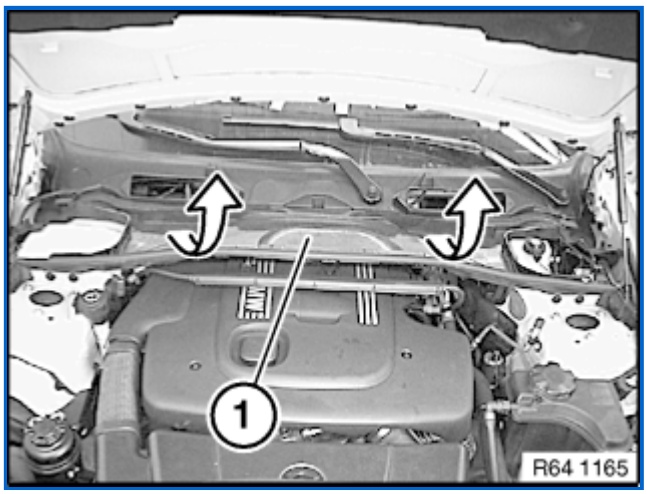


Press retaining lugs (3).

Release cable strip (1) in direction of arrow from lower section of microfilter housing (2).

Installation note:
Retaining lugs (3) must not be damaged or missing.

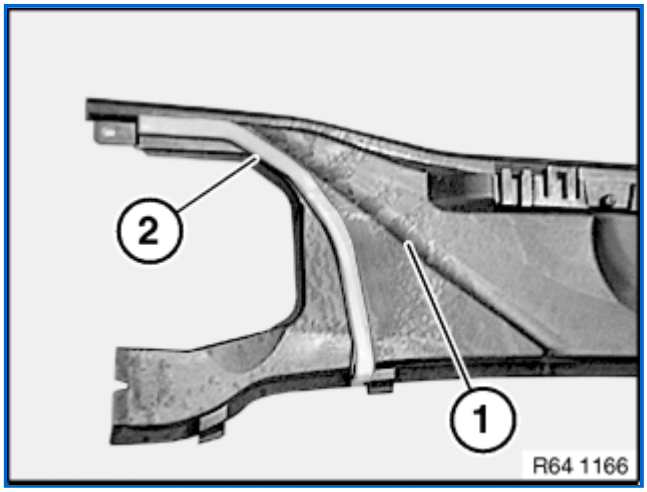
Make sure cable strip is correctly seated.



Feed out microfilter housing lower section (1) in direction of arrow and remove.

Installation note:
Make sure microfilter housing lower section (1) is correctly seated.

Installation note:
Seal (2) of microfilter housing lower section (1) must not be damaged or missing.

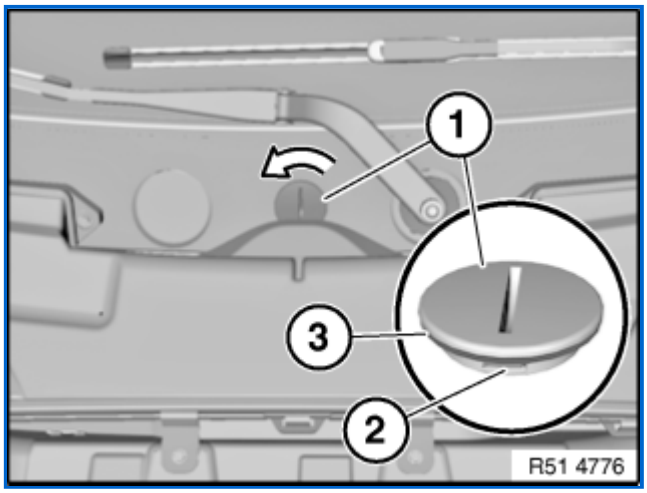


Important!

Risk of damage!

Driving without the tension strut is not permissible, as the body can be damaged.

Tension strut bolts must be tightened to torque and then tightened down with special tool 00 9 120.



Important!

Risk of damage!

Latch mechanism (2) and gasket (3) of the cover (1) must not be damaged.

Even minor damage to the cover (1) can lead to water ingress; replace cover (1) if necessary.

Remove cover (1) and release screw underneath.

Note:

Cover (1) available in two versions:

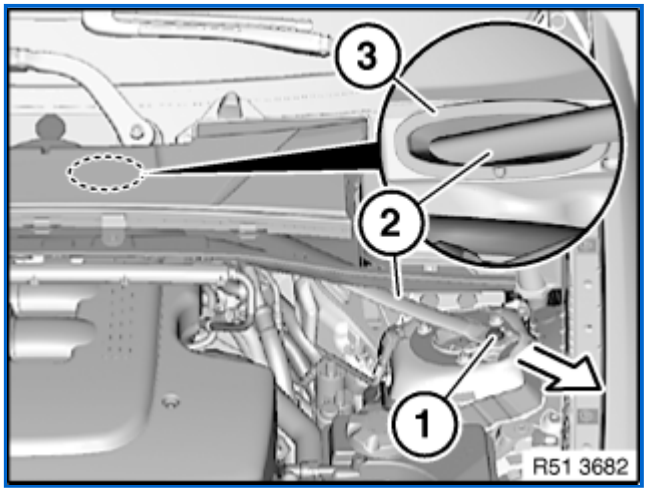
A. Turn cover (with notch) approx. 45° to the left

B. Disengage cover (without notch) in upward direction

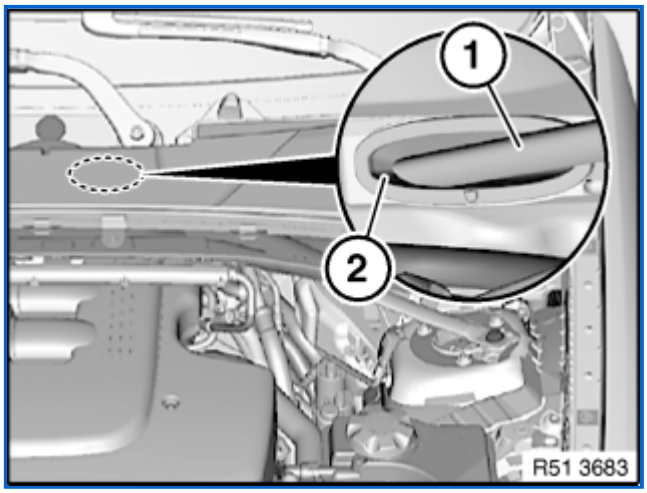
Note:

Grommet (3) must not be pulled out of the bulkhead, as correct feeding in is not possible in installed state.

Release screw (1).



Hold down grommet (3) and pull out left tension strut (2) and right in direction of arrow.

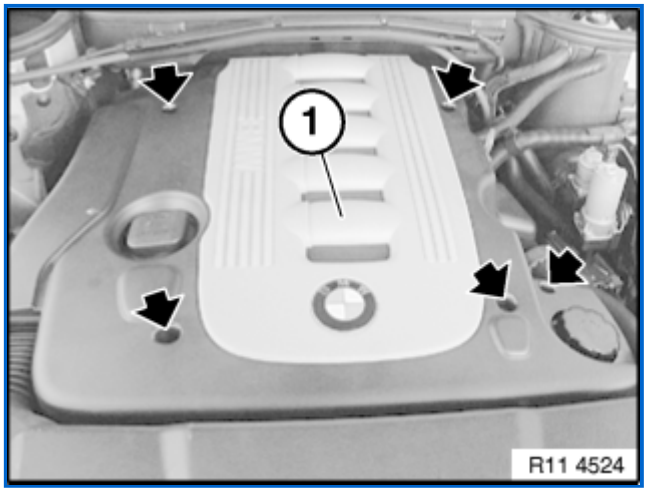


Installation note:
Replace screws.

Feed tension strut (1) carefully into the grommet (2).

Tighten screws to torque and then tighten to angle of rotation using special tool 00 9 120.

Tightening torque 51 71 2AZ.



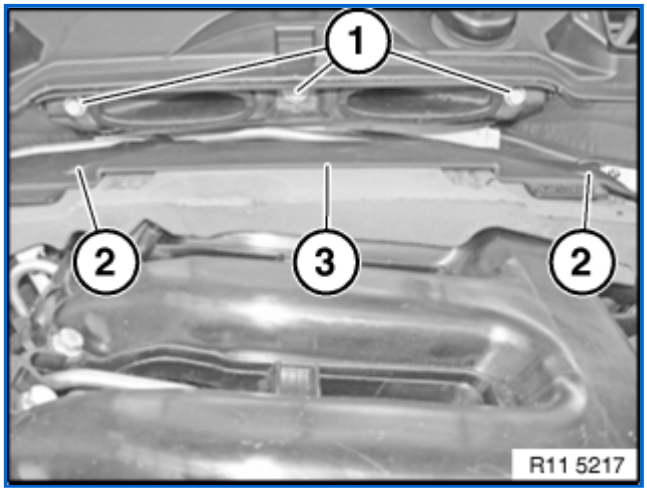
Release screws.

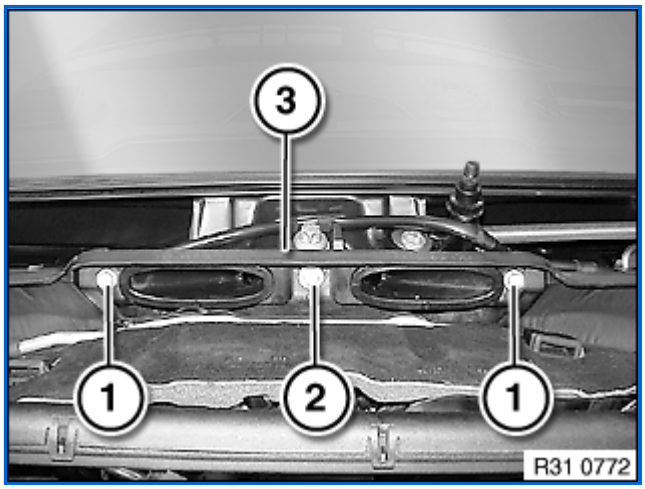
Raise front acoustic cover (1) and remove.

Release screws (1 and 2).

Tightening torque 11 00 2AZ.

Remove acoustic cover (3).



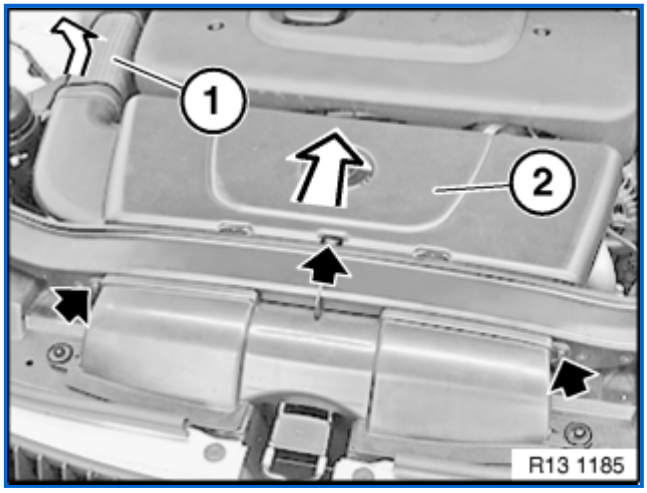


Release screws (1 and 2).

Remove heater end panel (3).

Installation note:

Make sure heater end panel (3) is correctly fitted.



Release screws.

Pull off hose (1) in direction of arrow.

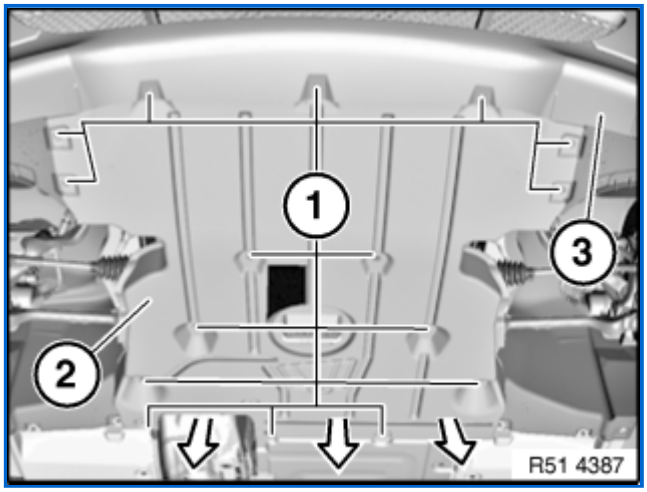
Remove intake port (2) in direction of arrow.

Automatic only:

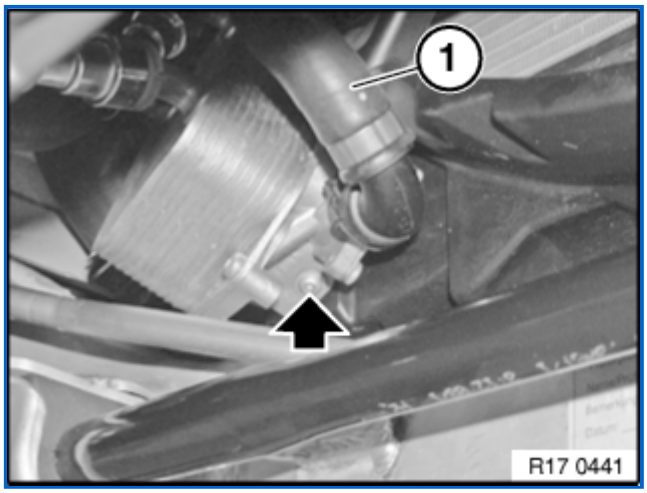
Release screws (1).

Pull out underbody protection (2) under bumper trim panel (3).

Installation note:



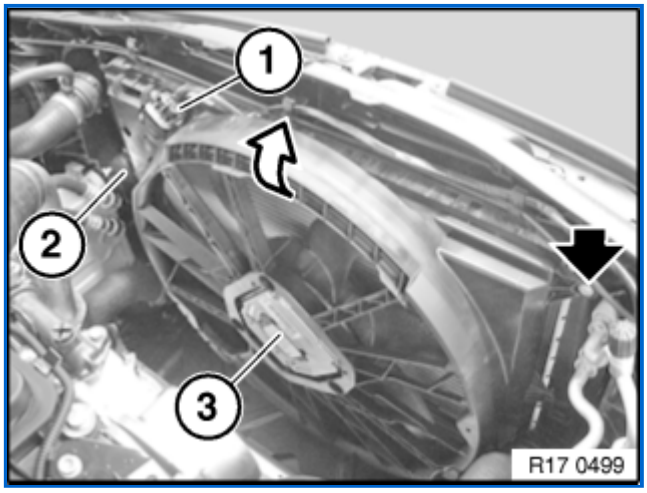
Centre underbody protection (2) and tighten down screws (1).



Automatic only:

Release screw.

Unclamp hose (1) from fan cowl.



Unlock and disconnect the connector (1).

Release screw.

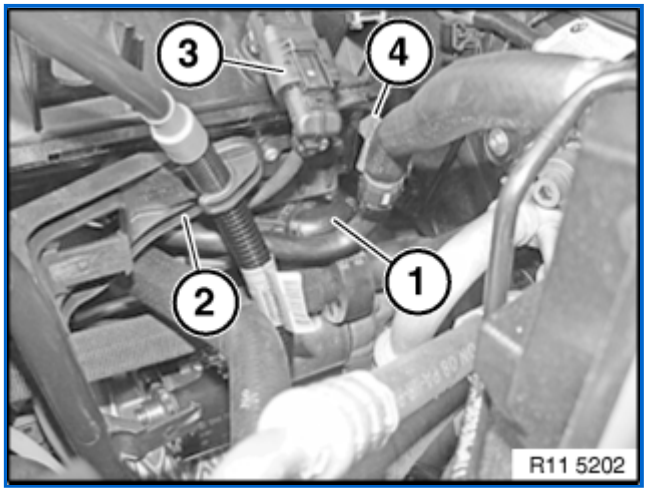
Unlock catch (2) and remove fan cowl (3) towards top.

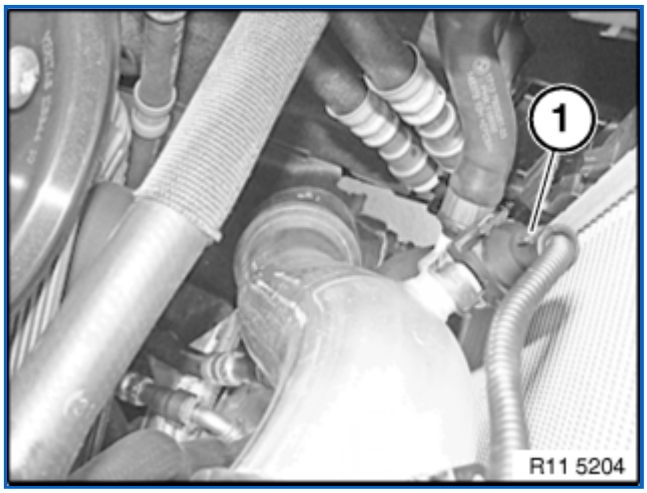
Unlock and disconnect plug connection (1) on swirl-flap actuator.

Release screw (2) on dipstick.

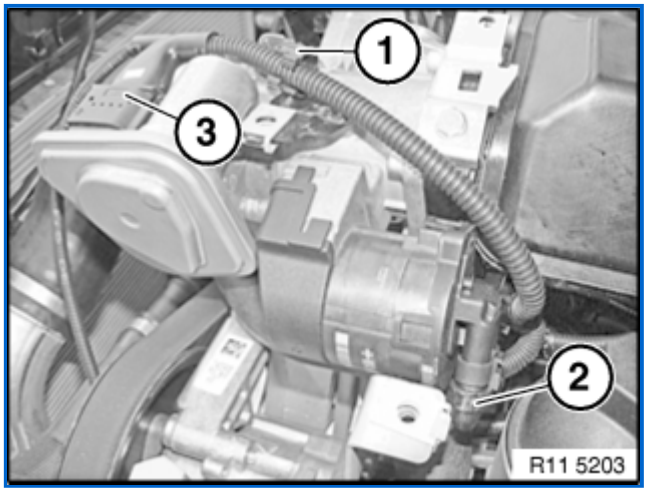
Unlock and disconnect fuel pressure sensor plug connection (3).

Unclip vacuum line (4) from holder.





Disconnect plug connection (1) on right pressure pipe.



Open cable clips (1).

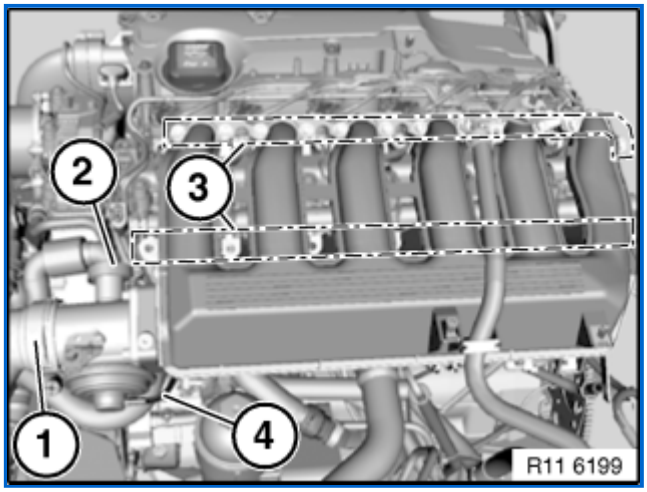
Unlock and disconnect plug connection (2) of exhaust-gas recirculation valve.

Unlock and disconnect plug connection (3) of electromotive throttle actuator.

Note:
Picture shows M57T2 Europe.

Unlock and detach charge air hose (1).

Release profile clamp (2) on exhaust-gas recirculation line.

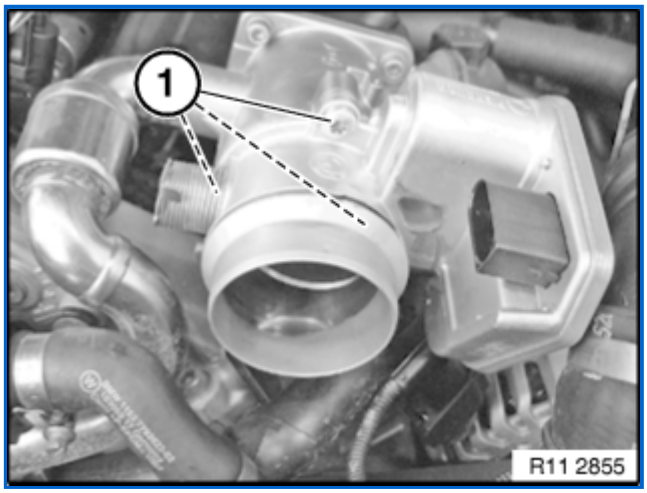


Release screw connection along lines (3).

Remove plenum.

Release injector wiring harness from valve cover.

Installation note:
Replace all gaskets.



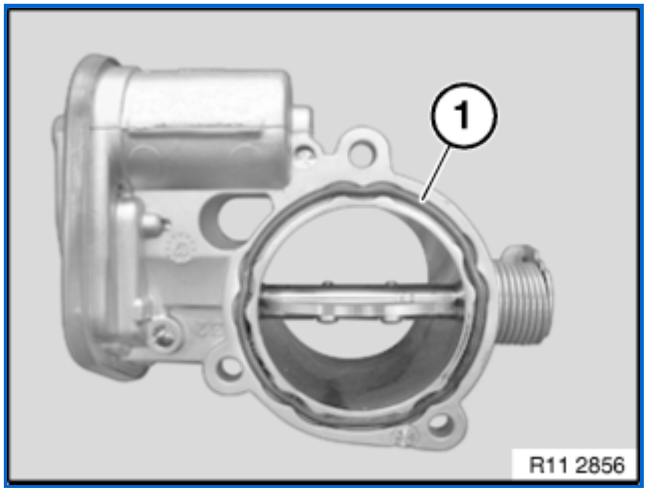
Dismantle intake plenum:

Note:
Picture shows M57T2 Europe.

Release screws (1).

Remove throttle valve from exhaust-gas recirculation valve.

Remove exhaust-gas recirculation valve.



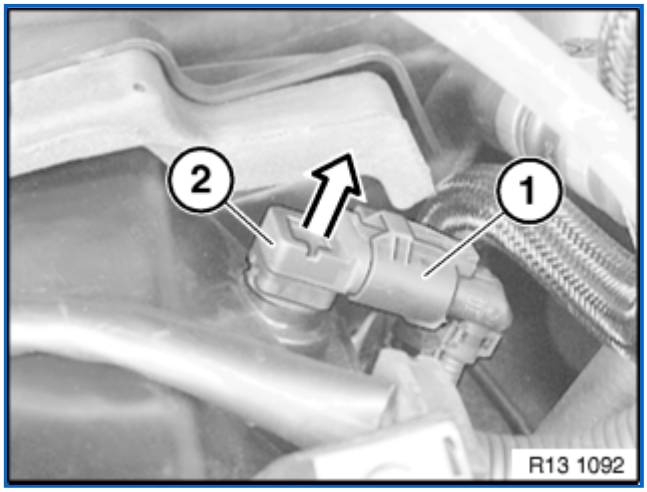
Note:
Picture shows M57T2 Europe.

Installation note:
Clean sealing surfaces.

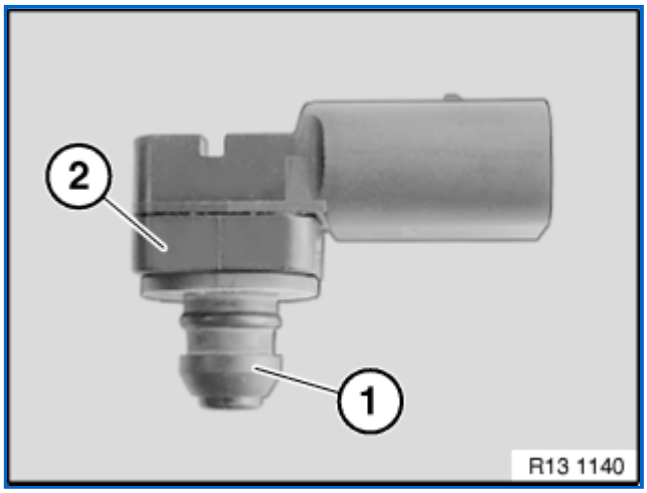
Replace gasket (1).

Unlock and disconnect the connector (1).

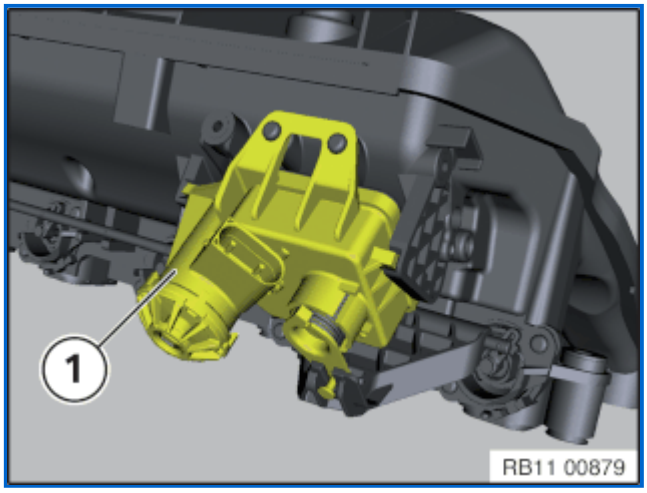
Remove charging pressure sensor (2) in direction of



arrow.



Installation note:
Replace sealing ring (1) of the charging pressure sensor (2).



Important!

Factory setting of swirl-flap controller (1) may be lost.

Electrical swirl-flap controller (1) **must not** be removed from intake plenum.

Cleaning intake plenum:

Wear safety goggles and protective gloves.

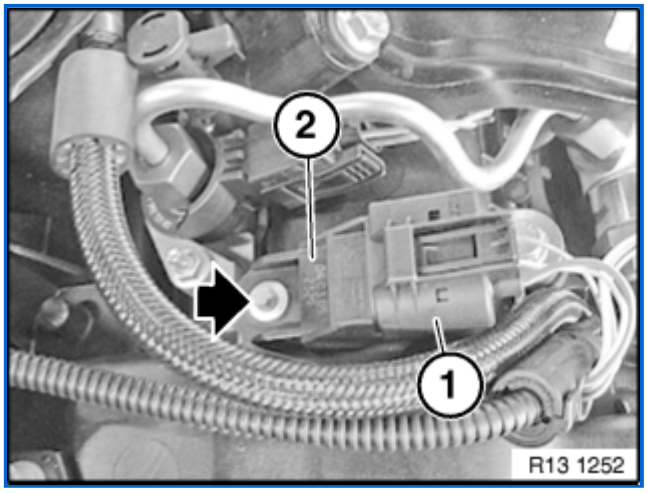
Important!

Never place electrical components in a cleaning

bath!

Prepare cleaning bath with 1 part BMW universal cleaner (see Section 3.2) and 2 parts water.

Place intake plenum in cleaning bath. Leave to soak for at least 1 hour.



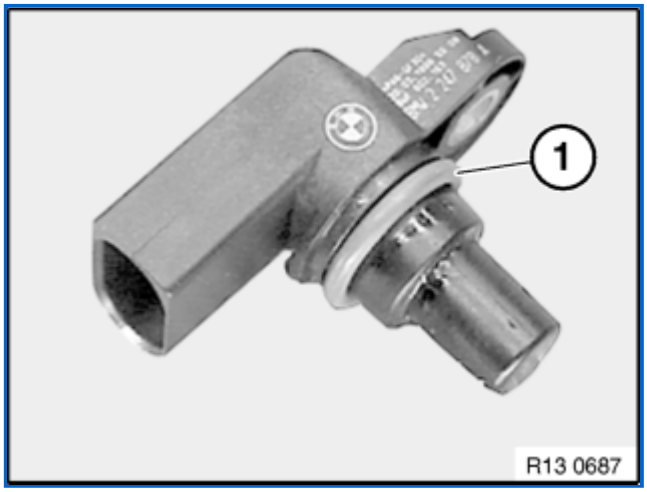
Crank engine to cylinder no. 1 TDC setting:

Unlock and disconnect the connector (1).

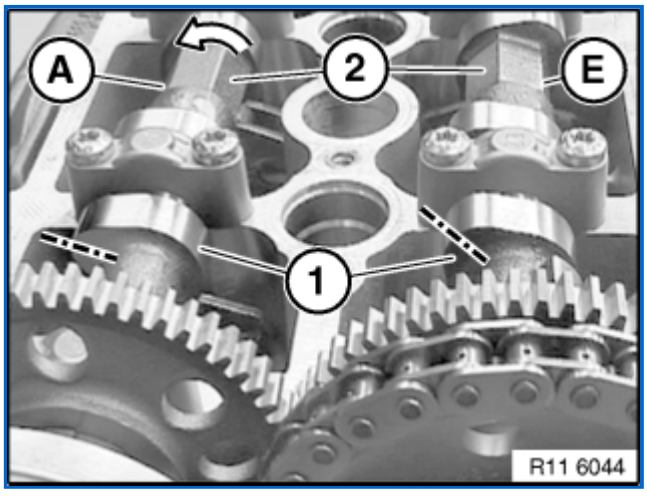
Release screw.

Tightening torque 13 62 8AZ.

Remove pulse sensor (2).



Installation note:
Check sealing ring (1) for damage and replace if necessary.



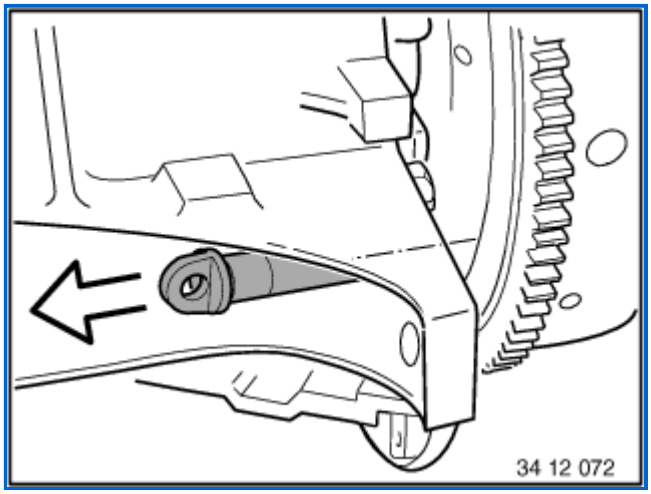
Note:
Illustration shows valve cover removed for greater clarity.

Important!
Do not crank engine in reverse direction.

Visual inspection via camshaft sensor opening.

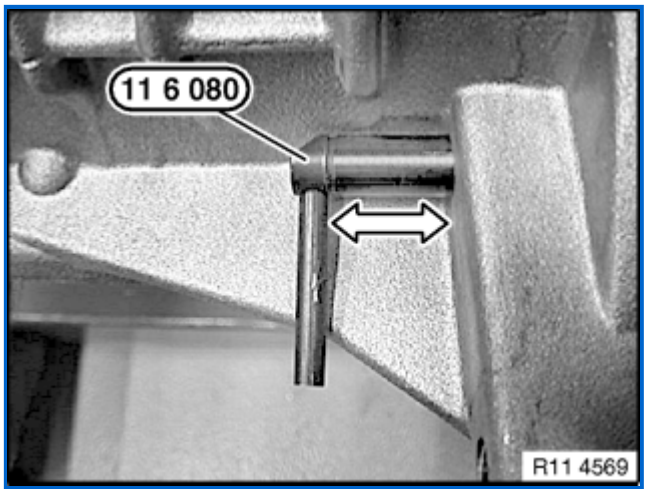
Crank engine at central bolt.

In the TDC setting, cams (1) on camshafts (2) of the 1st cylinder point in the direction of travel to the right.



Remove protective cap in direction of arrow.

Installation note:
Reinstall protective cap with some grease.



Crank engine at central bolt in direction of rotation until piston of 1st cylinder is in TDC setting.

Secure the crankshaft in the TDC setting with special tool 11 6 080.

Important!

Do not turn the engine back.

Special tool 11 6 080 must be removed before starting the engine.

Cleaning intake ports:

Important!

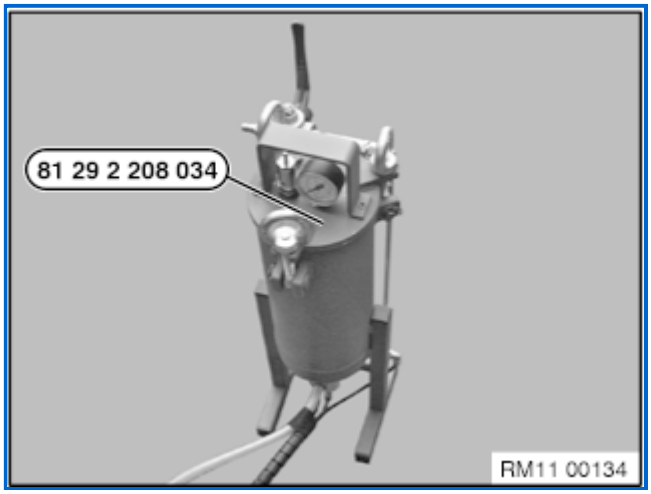
Risk of engine damage!

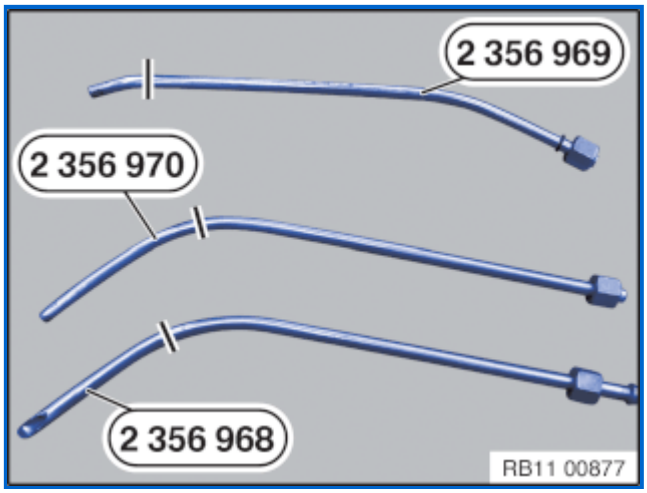
The intake valves of the corresponding cylinder must be closed when cleaning the intake ports.

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





Important!

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 tangential swirl port:

- 2 356 969

Blasting wands for swirl port:

- 2 356 970 with straight outlet
- 2 356 968 with lateral outlet

Vacuum adapter for tangential swirl port:

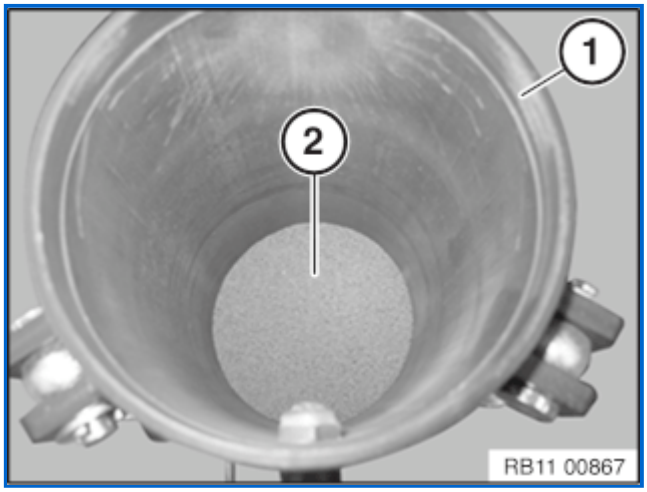
- 2 356 967

Vacuum adapter for swirl port:

- 2 356 966

Note:

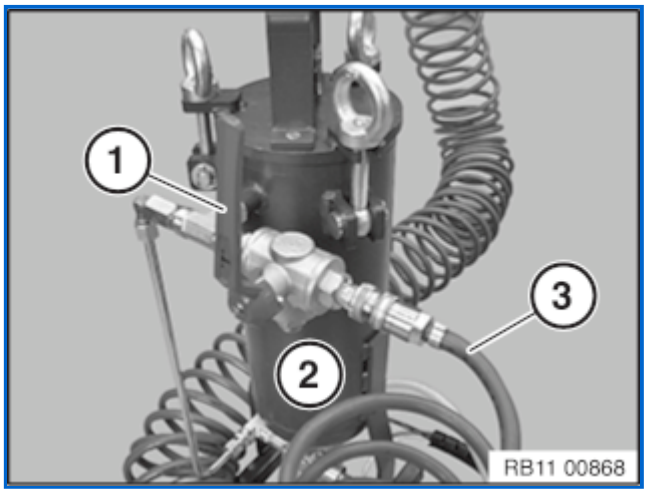
Use 2 litres of granulate per cleaning operation; this corresponds to a blasting duration of



approx. 20 seconds.

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

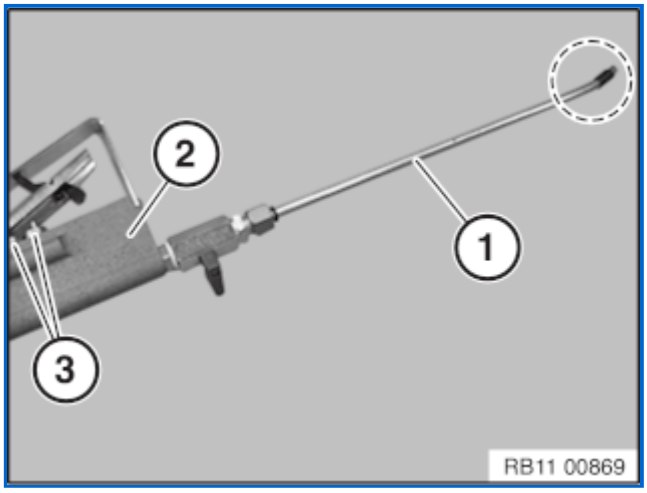
Close the device again.



Note:
Operating pressure 6 - 8 bar.

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

Connect compressed air (3).



Cleaning the tangential swirl port of 1st cylinder:

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

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).

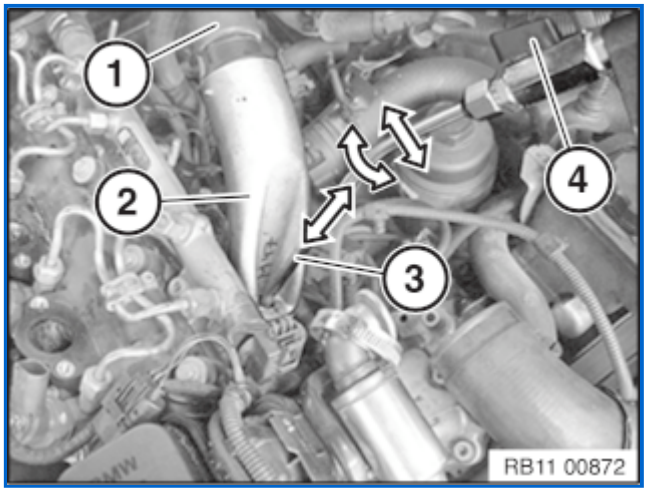
Important!

Danger of injury!

Risk of damage!

Second person required to assist.

Blasting wand may only be pulled out far enough until the mark becomes visible!



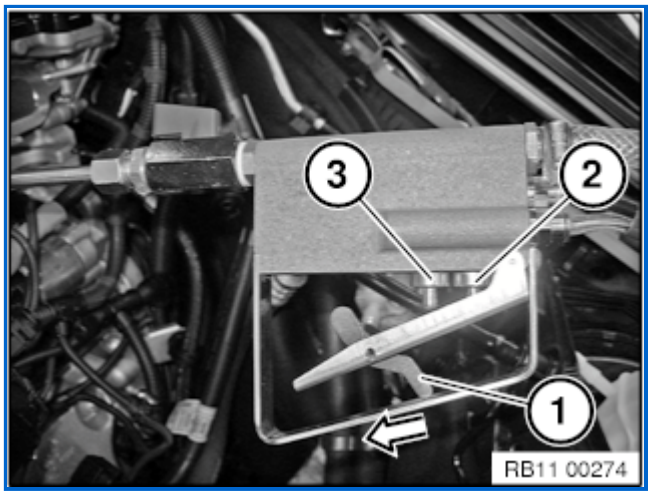
Wear safety goggles.

Connect vacuum cleaner (1) to vacuum adapter 2 356 967 (2) and direct towards the tangential swirl port of the 1st cylinder.

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

Insert blasting wand (3) into the adapter (2).

Open the actuator valve (4).



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.

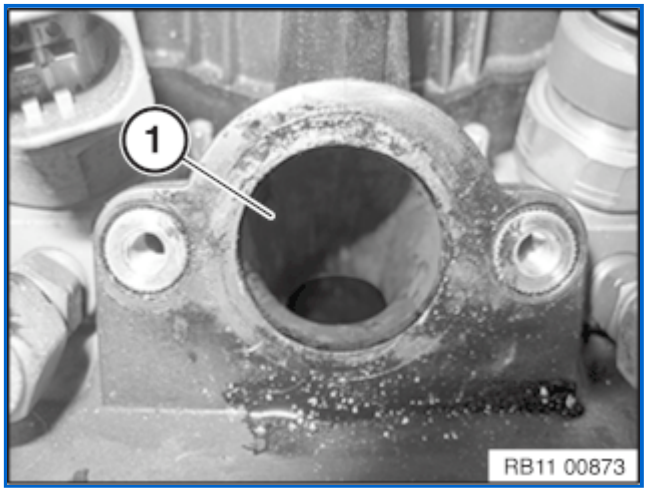
Blasting wand may only be pulled out far enough until the mark becomes visible!

When you notice that the 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 main valve, check pressure drop at the pressure gauge.

If necessary, evaluate the result (recommendation: endoscope or similar device).

If necessary, repeat procedure.



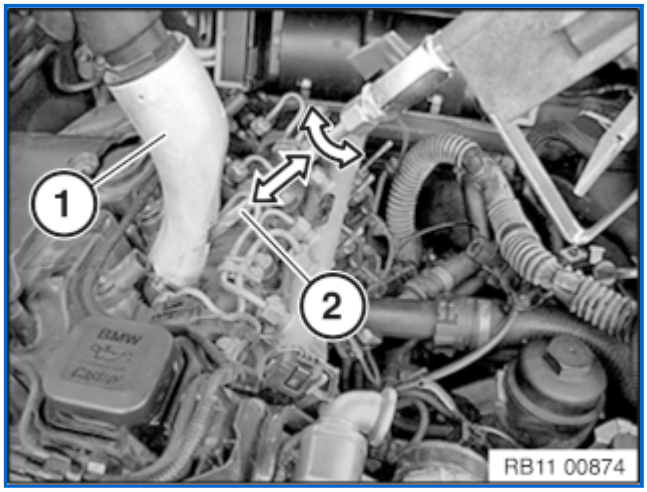
Cleaning the swirl port of 1st cylinder:

Important!

Risk of damage!

Plastic section (1) of the swirl port must not be blasted.

Before blast-cleaning, mechanically clean the plastic section of the swirl port (1) in the cylinder head cover (e. g. using a plastic scraper, brushes 83 19 2 298 237 or similar tools).



Note:
Two blasting wands must be used for the swirl port.

This means that two individual cleaning operations are necessary.

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

Important!

Danger of injury!

Risk of damage!

Second person required to assist.

Blasting wand may only be pulled out far enough until the mark becomes visible!

Wear safety goggles.

Swap over vacuum adapter 2 356 966 (1) and blasting wands (2).

Carry out one complete cleaning operation (identical to that for cleaning the tangential swirl port) with blasting wand2 356 968 and then one complete cleaning operation with blasting wand 2 356 970.

To prevent damage to the valve cover, blasting wand may only be pulled out until the mark becomes visible!

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

If necessary, evaluate the result (recommendation: endoscope or similar device).

If necessary, repeat procedure.

Check that there is no granulate residue in both intake ports; if necessary, draw off/blow out.

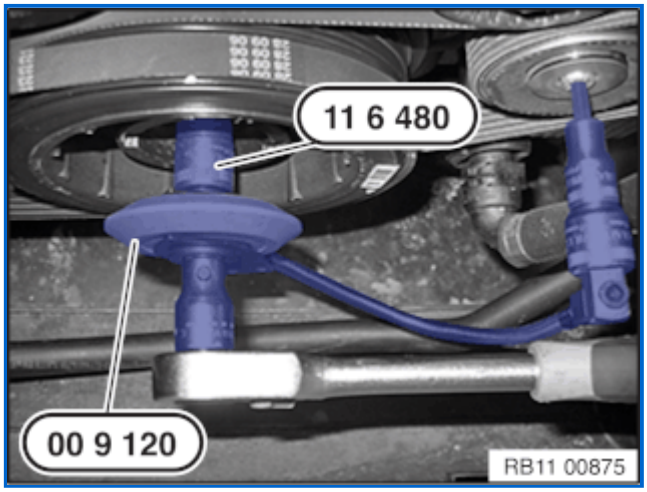
Cleaning the other cylinders:

Important!

Do not crank engine in reverse direction.

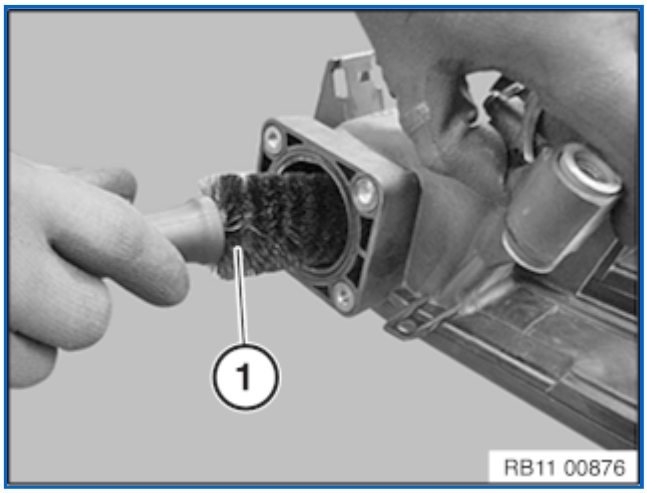
Remove special tool for securing the crankshaft.

Clean the tangential swirl ports and swirl ports of the



other cylinders as described above, observing the firing order 1 5 3 6 2 4.

As you do this, use special tool 00 9 120 and 11 6 480 to crank the engine at the central bolt by 120° in each case.



Cleaning intake plenum:

Wear safety goggles and protective gloves.

Remove plenum from cleaning bath.

Clean plenum openings and swirl flaps with brush set (1) part number: 83 19 2 298 237.

Clean throttle valve, exhaust-gas recirculation valve and mounted parts with brush set.

Important!

Do not clean electrical components with a component washing machine or high pressure cleaner.

Protect electrical swirl-flap controller against splash water.

Cover electrical swirl-flap controller accordingly.

Then clean the plenum with a component washing machine or high pressure cleaner.

Observe country-specific waste disposal regulations.

Crank motor at central bolt at least twice.

Assemble engine.

Clear diagnostic fault entries from fault memory.