

11 00 039 Check compression of all cylinders

PRELIMINARY WORK

1 – Removing the acoustic cover



RISK OF DAMAGE

Damage to the acoustic cover/design cover.

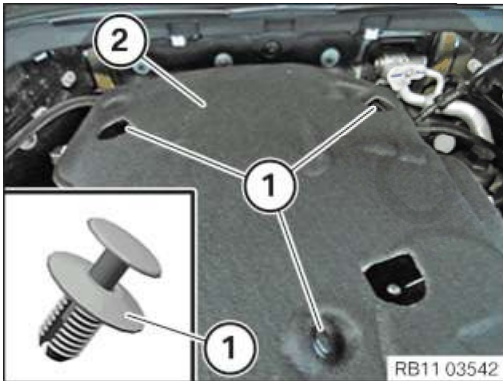
Jerky movements during disassembly and excessive application of force during installation may result in breakage of the acoustic cover/design cover.

- Disassemble or mount the acoustic cover/design cover carefully.
- Disassemble or mount snap-lock couplings of the ball pivots one after the other.
- Disassemble or mount acoustic cover/design cover only at temperatures $>20^{\circ}\text{C}$.
- Use only distilled water as an auxiliary material during installation, no lubricants.



- Unclip the acoustic cover (1) from the holders in the indicated area towards the top.

2 – Remove the acoustic cover for the injectors



- **If installed:** Release the expanding rivet (1).
- Guide the acoustic cover (2) out and remove.

3 – Partially releasing the wiring harness section





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 ... Notes for ESD protection (electrostatic discharge)

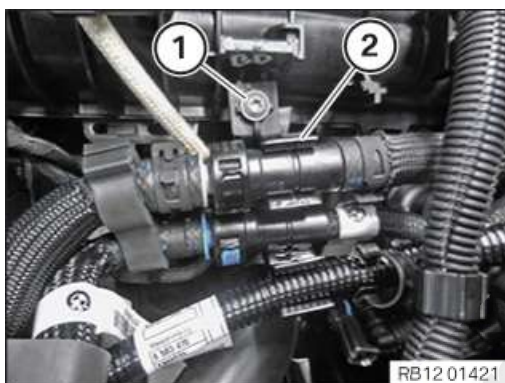


RISK OF DAMAGE

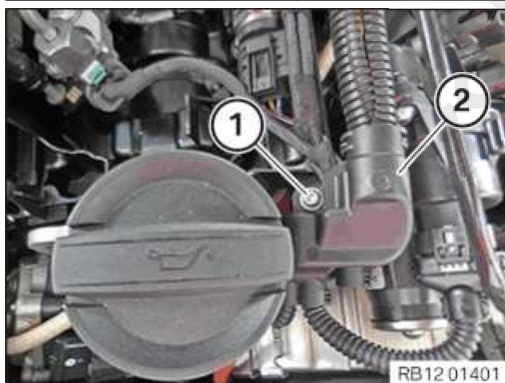
Damage to wires when disconnecting connectors and plug connections.

Sheared wires can cause a short circuit.

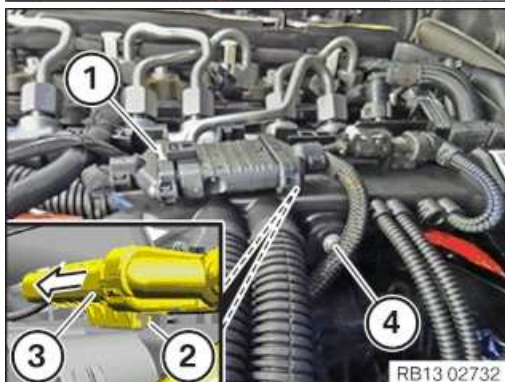
- Do not pull on the wires when disconnecting connectors and plug connections.



- Loosen screw (1).
- Thread out holder (2) and set aside.



- Loosen screw (1).
- Remove the wiring harness section (2) and put to one side.

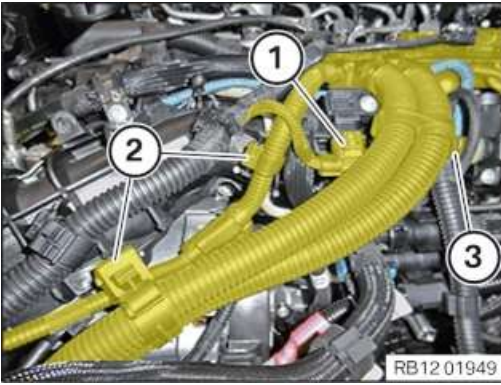


NOTICE

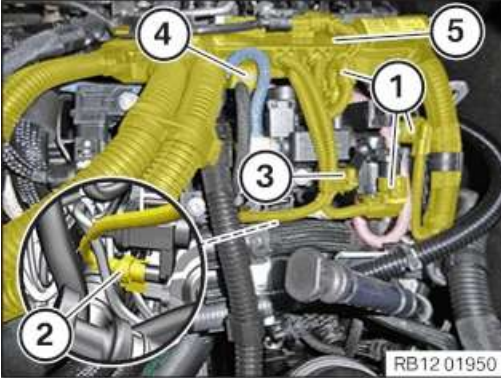
The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

- Unlock plug connection (1) and disconnect.
- Unlock the lock (2).
- Feed out the connector (3) in direction of arrow and remove.
- Loosen screw (4).





- Unlock plug connection (1) and disconnect.
- Loosen clamps (2).
- Loosen clamp (3).



- Unlock and disconnect the plug connection (1).
- Unlock and disconnect the plug connection (2).
- Loosen clamp (3).
- Loosen screw (4).
- Guide out wiring harness section (5) as far as possible and set it aside.

4 – Remove all glow elements



WARNING

Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.



RISK OF DAMAGE

Damage to the glow elements.

Excessive force may damage the glow elements and they may then have to be renewed.

- Handle glow elements with care and do not drop.
- Do not rest the cylinder head on glow elements. Glow elements protrude from the sealing surface of the cylinder head.



RISK OF DAMAGE

Damage to wires when disconnecting connectors and plug connections.

Sheared wires can cause a short circuit.

- Do not pull on the wires when disconnecting connectors and plug connections.





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 ... Notes for ESD protection (electrostatic discharge)



RISK OF DAMAGE

Contaminant or foreign body.

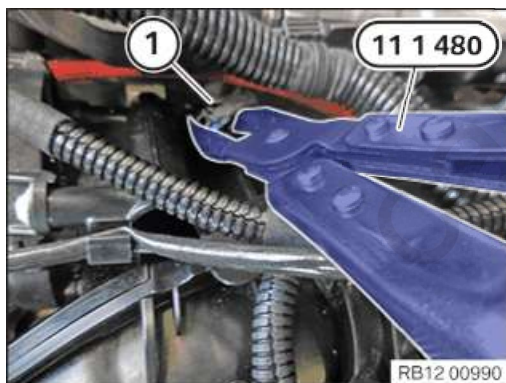
Contamination can result in malfunctions, operating failure or leaks.

- Adhere to the utmost cleanliness.
- Protect components from contamination e.g. by covering.
- Close off line connections with seal plugs.

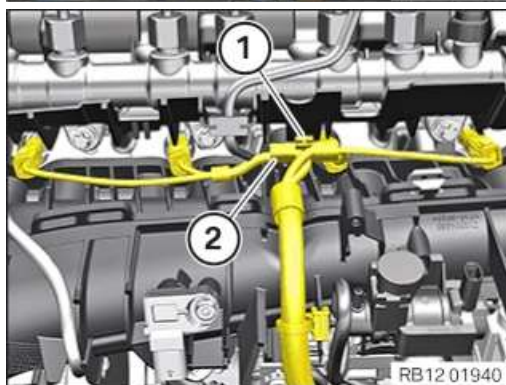


NOTICE

The description is for one component only. The procedure is identical for all further components.



- Unlock and release the connector (1) using special tool [0 490 796 \(11 1 480\)](#).



- Loosen clamp (1).
- Remove the wiring harness section (2) and put to one side.

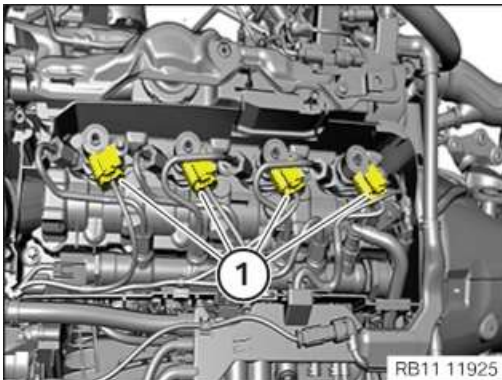




- Unscrew the glow elements with the special tool or conventional tools.

MAIN WORK

5 – Check compression



- Unlock all connectors (1) and disconnect them from the injectors.
This prevents injection.

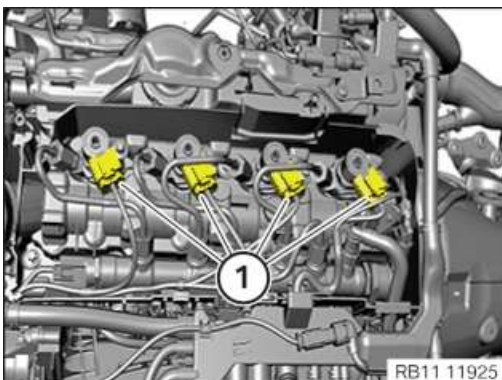


- Screw the special tools [0 490 615 \(11 0 222\)](#) into the bore holes of the individual cylinders.
- Connect special tools [0 490 615 \(11 0 222\)](#) to the measuring device.
- Connect an approved battery charger.
The charger ensures constant battery voltage.
- With vehicles with manual gearbox: Ensure that no gear is engaged.
- Start engine.
- Check compression pressure and compare with the setpoint value.
The number of engine revolutions for the compression check must be identical at each cylinder.

Compression pressure setpoint value

min. 16 bar

- Remove the special tools [0 490 615 \(11 0 222\)](#).
- Attach all connectors to the injectors.
The connectors must lock audibly.

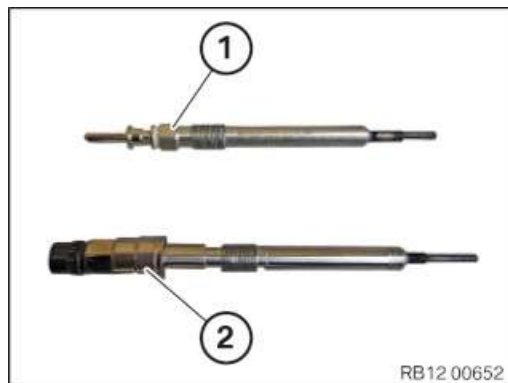


POSTPROCESSES

6 – Install all glow elements



6 – Install all glow elements



TECHNICAL INFORMATION

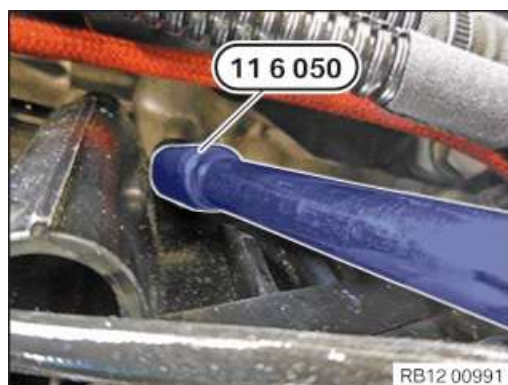
The combustion chamber pressure sensor can and is omitted from a technical point of view.

As an alternative to the combustion chamber pressure sensor, a normal glow element can be installed.

If a glow element is installed as an alternative, the appropriate wiring harness for the glow elements must also be installed.

For more information, see the Electronic Parts Catalogue and other information

- If installed: Install the glow element with **combustion chamber pressure sensor** (2), in the cylinder **2**.
- Install the glow elements (1) in the cylinders **1**, if necessary, **2**, **3** and **4**.



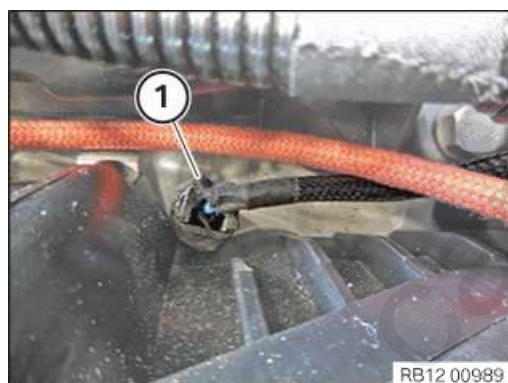
NOTICE

The description is for one component only. The procedure is identical for all further components.

- Screw in and tighten the glow elements with the special tool or conventional tools.

Glow elements to cylinder head

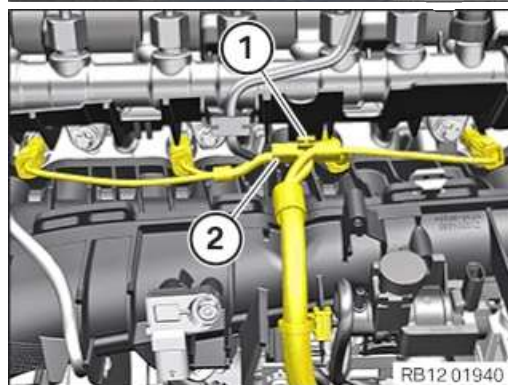
Glow element	Tightening torque	13 Nm
--------------	-------------------	-------



NOTICE

The description is for one component only. The procedure is identical for all further components.

- Connect and lock the connector (1).
The connector (1) must engage audibly.
- Guide in the wiring harness section (2) and install.
- Secure clamps (1).



► When replacing the glow element: Teach in glow elements if necessary

- Teach in glow elements with the diagnosis system.



7 – Partially securing the wiring harness section

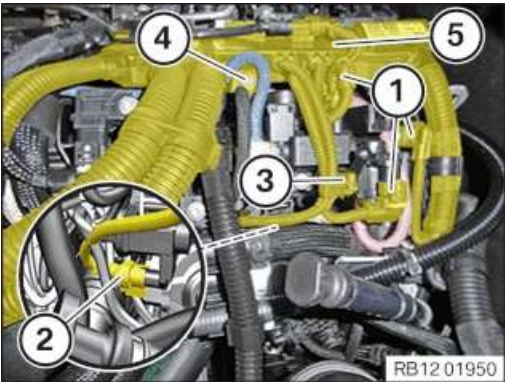


RISK OF DAMAGE

Improper routing of cables and wiring harnesses.

Trapped, crushed or damaged cables may cause short circuits and malfunctions.

- Route all cables without abrasions, do not trap and crush.

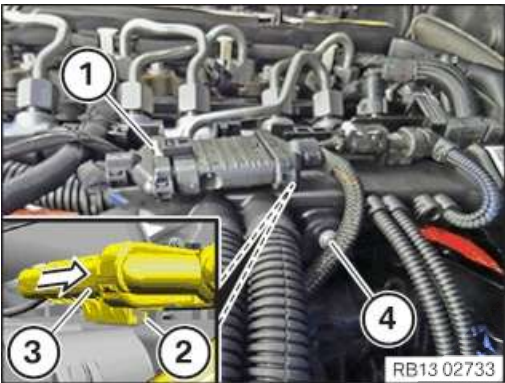


- Guide in the wiring harness section (5) and install.
- Tighten down screw (4).

Wiring harness section to manifold

TS5x20		Tightening torque	3,6 Nm
--------	--	-------------------	--------

- Secure clamps (3).
- Connect connectors (2) and lock.
The connector (2) must engage audibly.
- Connect connectors (1) and lock.
The connectors (1) must engage audibly.



NOTICE

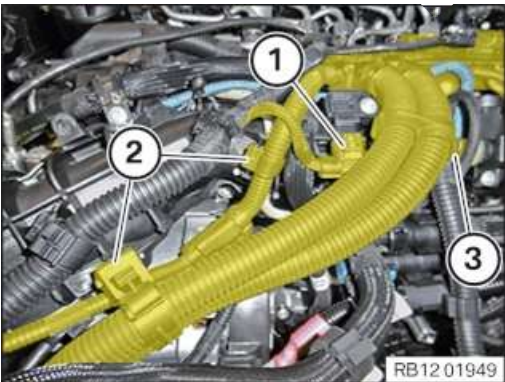
The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

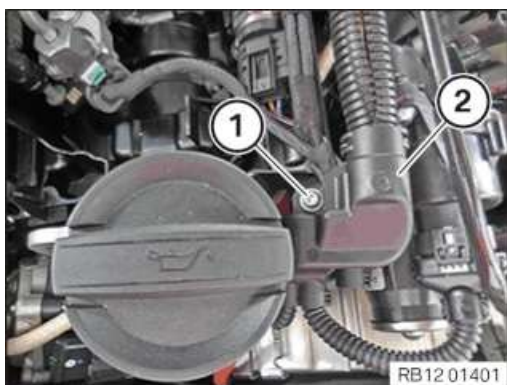
- Tighten down screw (4).

Wiring harness section to manifold

TS5x20		Tightening torque	3,6 Nm
--------	--	-------------------	--------

- Feed in and install the connector (3) in the direction of the arrow.
- Ensure that the lock engages audibly (2).
- Connect connectors (1) and lock.
The connector (1) must engage audibly.
- Secure clamps (3).
- Secure clamps (2).
- Connect connectors (1) and lock.
The connector (1) must engage audibly.

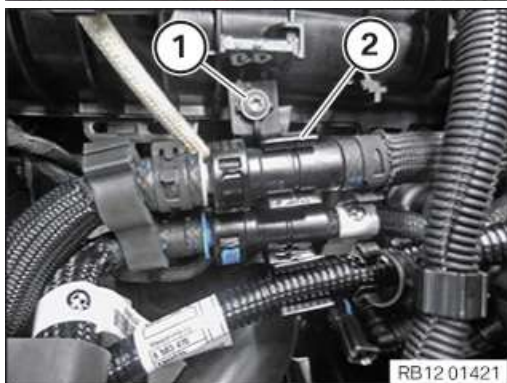




- Guide in the wiring harness section (2) and install.
- Tighten down screw (1).

Wiring harness section to cylinder head cover

TS5x20		Tightening torque	3,6 Nm
--------	--	-------------------	--------

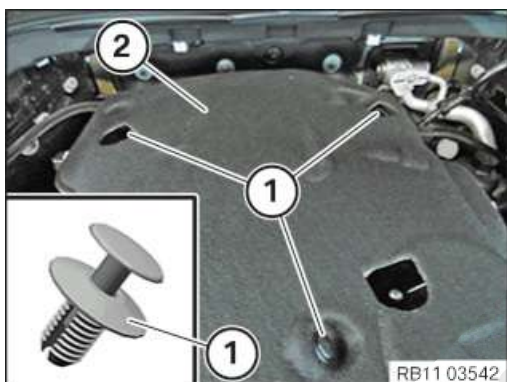


- Insert and install the holder (2).
- Tighten down screw (1).

Holder on intake plenum

TS6X20		Tightening torque	5 Nm
--------	--	-------------------	------

8 – Install the acoustic cover for the injectors



- Feed the acoustic cover (2) in and install.
- **If installed:** Secure the acoustic cover (2) with the expanding rivets (1) .

9 – Install acoustic cover



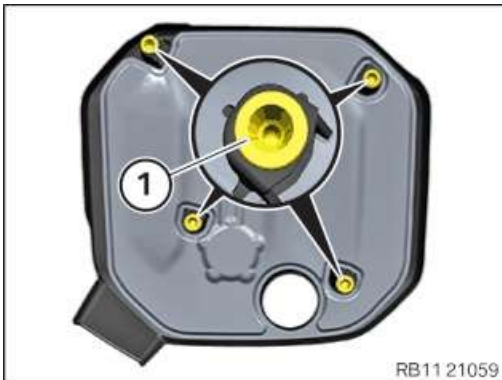
RISK OF DAMAGE

Damage to the acoustic cover/design cover.

Jerky movements during disassembly and excessive application of force during installation may result in breakage of the acoustic cover/design cover.

- Disassemble or mount the acoustic cover/design cover carefully.
- Disassemble or mount snap-lock couplings of the ball pivots one after the other.
- Disassemble or mount acoustic cover/design cover only at temperatures >20 °C.
- Use only distilled water as an auxiliary material during installation, no lubricants.





- Check the acoustic cover for correct fit of the rubber mounts (1).



- Clip in the acoustic cover (1) into the holders in the indicated areas.

10 – Delete fault memory



- Connect diagnosis system:
 - Reading out the fault memory
 - Delete fault memory

Additional Information

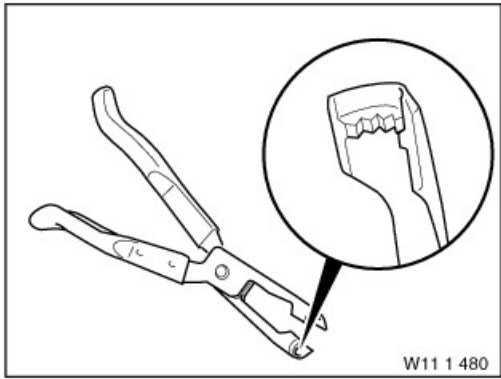
Overview of Tightening Torques

Glow elements to cylinder head			Used in step	6
Glow element		Tightening torque		13 Nm
Wiring harness section to manifold			Used in step	7
TS5x20		Tightening torque		3,6 Nm
Wiring harness section to cylinder head cover			Used in step	7
TS5x20		Tightening torque		3,6 Nm
Holder on intake plenum			Used in step	7
TS6X20		Tightening torque		5 Nm

Overview of Special Tools



0 490 796 (11 1 480) Pliers



Common		Used in step	4
Usage	For removing valve stem seal		
Included in the tool or work			
Storage location	A10		
Replaced by			
In connection with			
SI-Number	01 01 93 (621)		

0 490 615 (11 0 222) Sensor



Common		Used in step	5
Usage	(Test probe) For recording compression testers 11 0 221 and 11 0 160 / engine: M21, M41, M47, M51, M57, M57T2		
Included in the tool or work	0 490 613		
Storage location			
Replaced by			
In connection with			
SI-Number			

Overview Technical Data

Compression pressure setpoint value	Used in step	5
		min. 16 bar

Links

Repair instructions	Used in step
61 35 ... Notes on ESD protection (Electro Static Discharge)	34
61 35 ... Notes on ESD protection (Electro Static Discharge)	34
12 51 010 Replacing wiring harness section for preheating system	6



12 51 010 Replacing wiring harness section for preheating system	6
12 51 010 Replacing wiring harness section for preheating system	6
12 51 010 Replacing wiring harness section for preheating system	6

cardiagn.com



Engine identification

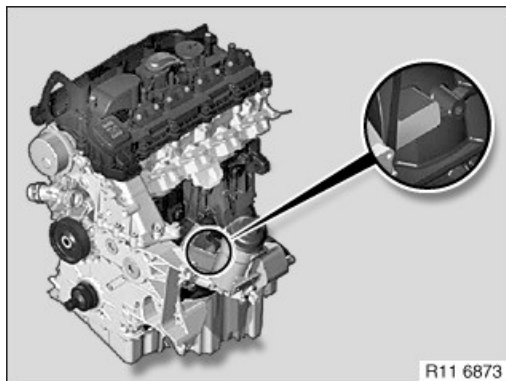


Engine number at the marked surface.

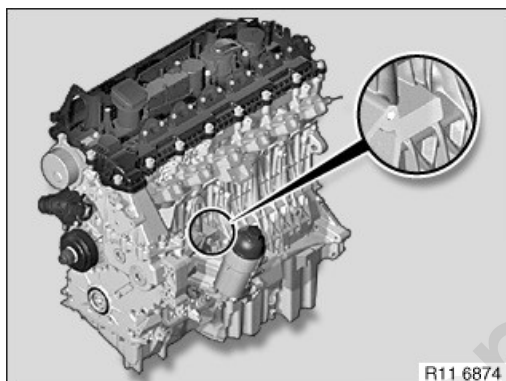
Replacement drives are already assigned a number containing the identification and engine number at the factory.

The old drive number must be imprinted for replacement crankcases.

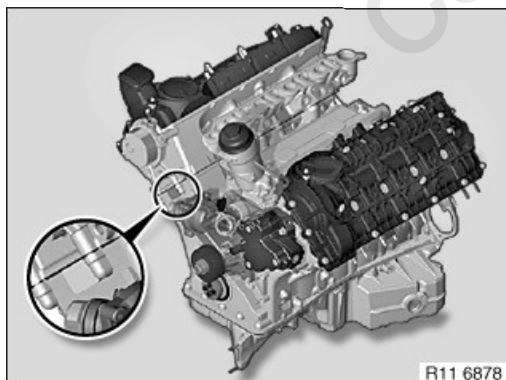
Magnesium crank cases feature a label, the engine number does not need to be embossed.



M47 / M47TU / M47T2

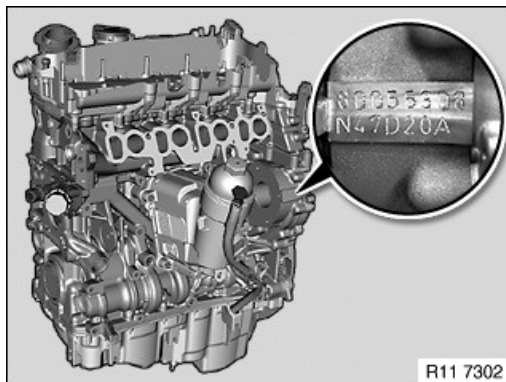


M57 / M57TU / M57T2

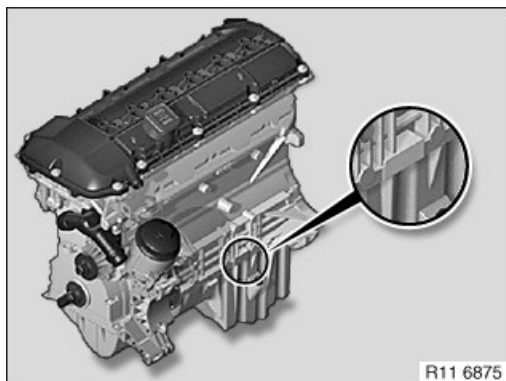


M67 / M67TU

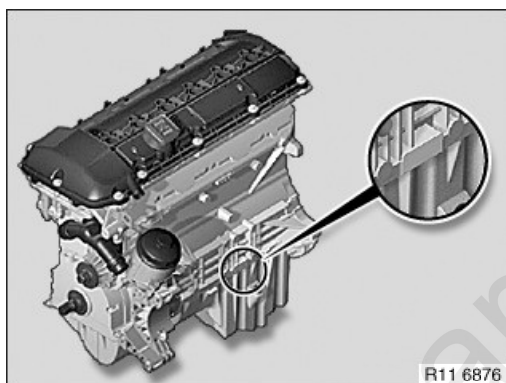




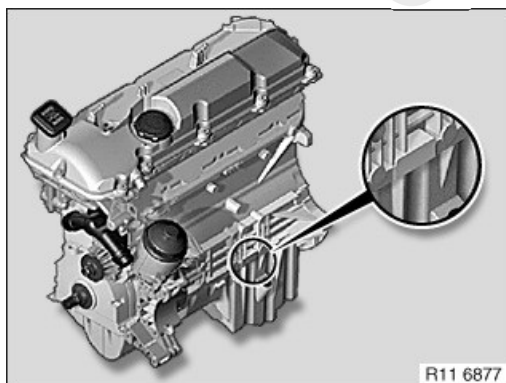
N47 / N47S / N47C / N47T / N57 / N57S / N57T



M52 / M52TU

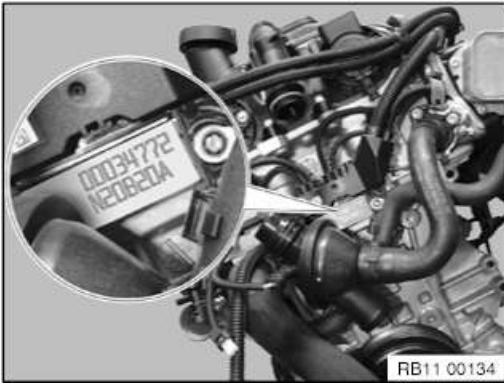


M54

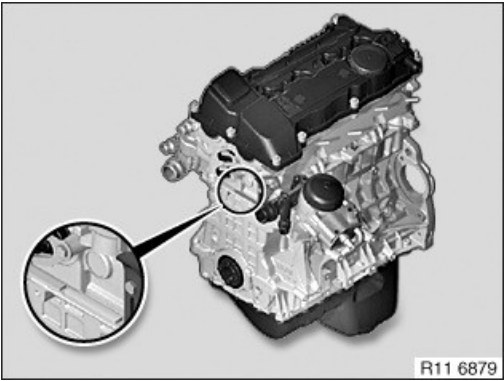


M56

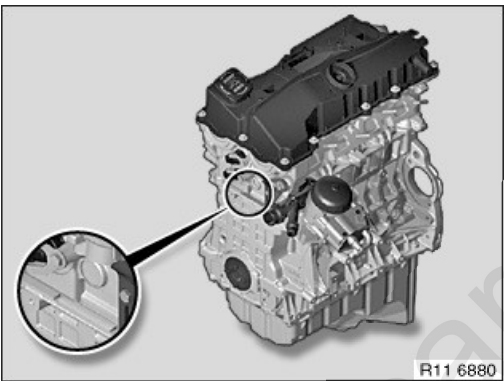




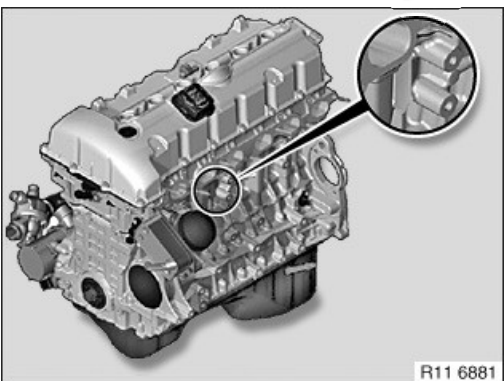
N20 / N26



N40 / N45 / N45T / N43

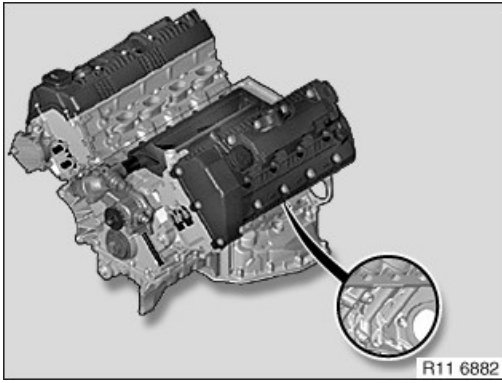


N42 / N46 / N46T

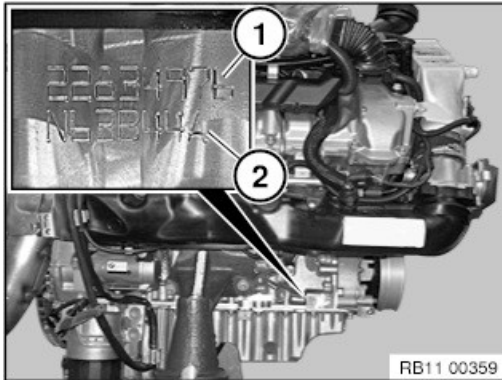


N51 / N52 / N52K / N52T / N53 / N54 / N55





N62 / N62TU



Position (1) engine number.

Position (2) engine code letters.

N63, N63O1, N63O2

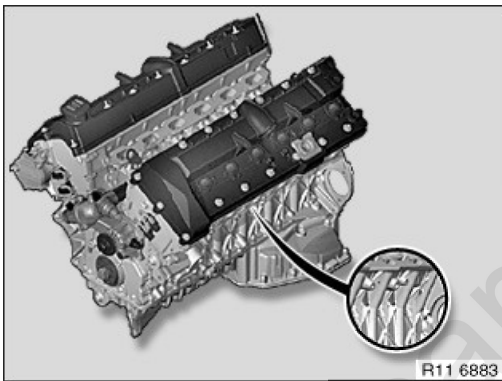
S63

N74, N74O1,

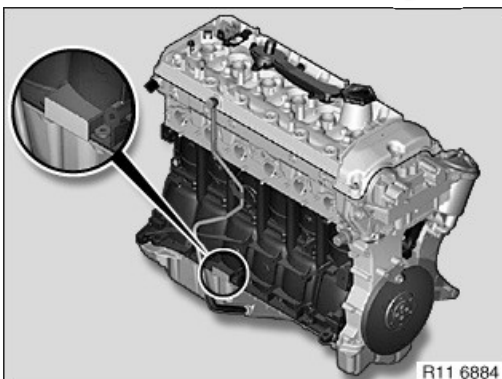
S63T0 to engine number 2001 0052 on right side cyl. 1-4.

S63T0 from engine number 2001 0053 on left side cyl. 5-8.

E72 Vehicles must be imprinted on the left side cyl. 5-8.

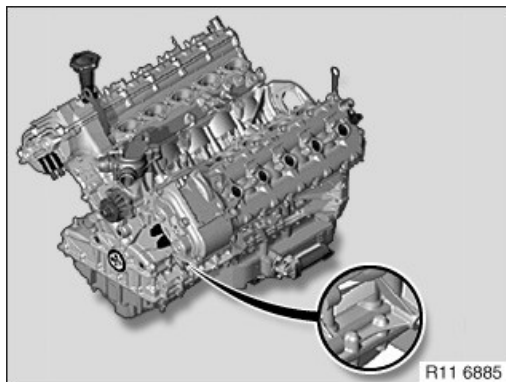


N73



S54

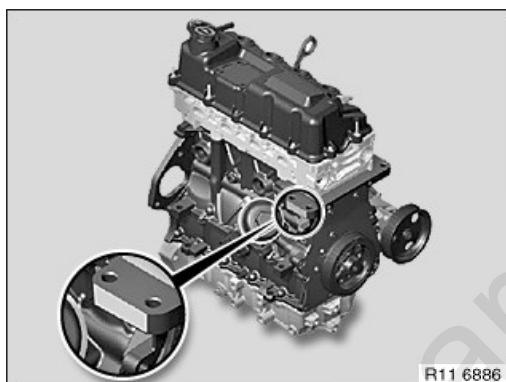




S85 / S65



S55

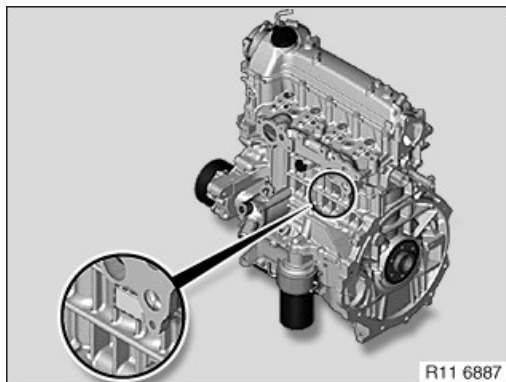


W10 / W11



W16

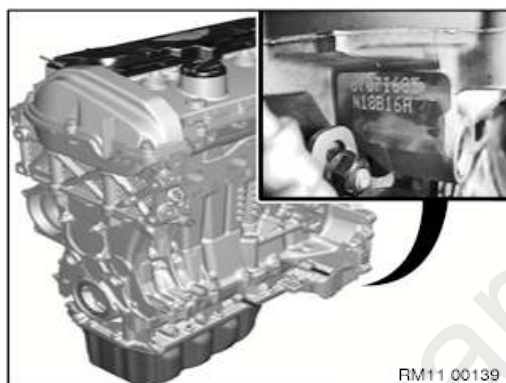




W17



W20

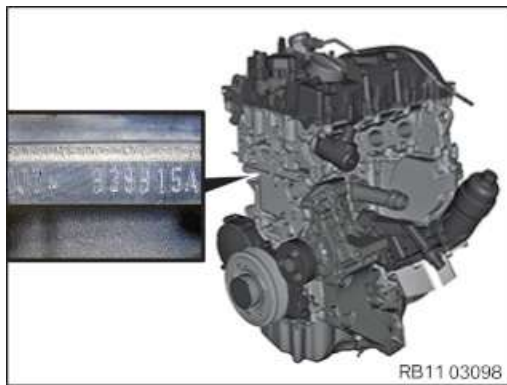


N12 / N13 / N14 / N16 / N18



B37 / B38A / B47 / B48A





B38B / B48B

RB11 03098



B38

RB11 22034



B57

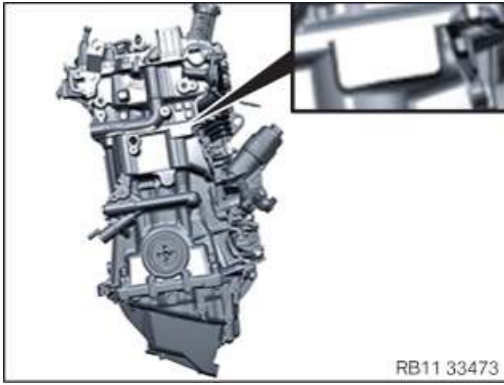
RB11 03097



B58

RB11 03096





S58



Assemble engine.

cardiagn.com



11 00 300 Engine oil consumption measurement

Attention!

This procedure for measuring oil consumption may not be used for the S 85 due to the oil pan design.

Many complaints about oil consumption are caused by the oil level being measured using the wrong method.

The oil consumption should be measured after a distance of 7,500 km at the earliest, as the process of running in the engine will not have been essentially completed and the engine oil consumption stabilised until this distance has been covered.

Engine oil consumption that may occur in an engine can only be determined by the customer on the basis of the refilled engine oil quantity. As soon as the engine oil level falls below the MAX mark on the dipstick, many customers top up the engine oil without paying attention to a number of basic rules, such as the vehicle must be standing on level ground, a certain period of time must be left to allow the oil to flow back to the sump. In such cases, the available container sizes (e. g. 1-litre can) make it easy to top up above the MAX mark. Too much added engine oil is damaging to the engine and is consumed more quickly due to the splash effect.

It is therefore recommended to allow the engine oil level to the MIN mark and only then to add the required engine oil quantity. The distance between the marks is equivalent to approx. 1.0 to 1.5 litres.

The procedure for checking the oil level is given in the Owner's Handbook for the vehicle concerned.

The service delegates will only deal with claims made under warranty if exact measurements by weighing are available (see below).

Measuring oil consumption by weighing:

To assess a warranty or goodwill claim, only the following oil consumption measurement method by weighing can be accepted (this must have been carried out by a BMW contractual partner):

Note:

The engine must not leak any oil.

Engine oil may only be drained off when the engine is at its normal operating temperature. The engine oil temperature must be at least 90 °C and read off on the diagnosis system.

Preparation:

1. Eliminate any leaks and traces of oil before measuring the engine oil consumption.
2. Allow the engine to run at idling speed for 5 minutes, during which the engine oil temperature must not drop below 90 °C.
3. Unscrew the main flow oil filter cover (the engine oil will flow back into the oil sump from the oil filter housing).
4. Unscrew the oil drain plug.
5. Allow the engine oil to drain off for 15 minutes.
If necessary, remove the fan/fan cowl.
6. Turn the engine once through 360 degrees by the vibration damper.
7. Allow the engine oil to drain off for 15 minutes.
8. Retighten the primary flow oil filter.
9. Pour in the specified engine oil quantity for the engine type in question (with filter change).
10. Drive the vehicle for a distance of at least 1,000 km/500 miles. Increasing the mileage will produce significantly better measuring results.

Measurement procedure:

11. Check the engine for leaks; if the engine is not tight, the examination will not be meaningful.
12. Prepare the measuring container to be able to capture the oil quantity.
13. Allow the engine to run at idling speed for 5 minutes, during which the engine oil temperature must not drop below 90 °C.
14. Unscrew the main flow oil filter cover (the engine oil will flow back into the oil sump from the oil filter housing).
15. Unscrew the oil drain plug.



16. Allow the engine oil to drain off for 15 minutes.
If necessary, remove the fan/fan cowl.
17. Turn the engine once through 360 degrees by the vibration damper.
18. Allow the engine oil to drain off for 15 minutes.
19. Weight the **amount of drained engine oil**. (Engine oil has a density of about 0.86 g/cm³ at room temperature.)

Amount of oil added (cm³) - amount of oil drained off (g): 0.86 g/cm³

Engine oil consumption = $\frac{\text{Amount of oil added (cm}^3\text{) - amount of oil drained off (g): 0.86 g/cm}^3}{\text{mileage reading when draining - mileage reading when adding engine oil}}$

Example:

Volume of oil added at mileage reading 44,800: 4.000 cm³

Weight of oil added at mileage reading 45,900: 2.700 g

4.000 cm³ - 2.700 g : 0.86 g/cm³

Engine oil consumption = $\frac{4.000 \text{ cm}^3 - 2.700 \text{ g} : 0.86 \text{ g/cm}^3}{45,900 \text{ km} - 44,800 \text{ km}} = 0.78 \text{ cm}^3/\text{km}$

0.78 cm³/km = 0.78 l/1,000 km

Test certificate for engine oil consumption:

Vehicle data: _____

BMW (type): _____

Chassis number: _____

Added oil quantity (in ccm): _____

ccm

at kilometre reading: _____

less drained off oil quantity (in g) : 0.86
(g/ccm)

ccm

at kilometre reading: _____

=> oil consumption: _____

ccm

=> mileage: _____
km

Oil consumption [l/1000 km] =

_____ [ccm] oil consumption _____ [km] mileage

Oil consumption after balancing out: _____ l/1000 km

Oil grade: _____

Oil grade: _____

Viscosity: _____

Cause of damage: _____

Dealer address

Signature





Procedure for engine oil consumption measurement, see following documents:

- Engine oil consumption measurement (all without S85)
- Engine oil consumption measurement (only S85 with one oil drain plug)
- Engine oil consumption measurement (only S85 with two oil drain plugs)
- Record on oil consumption measurement

cardiagn.com



11 Equipment recoding special tool number of the transverse member for fixing the engine in the installation location

Equipment recoding from 00 0 200 to 00 6 0 000

Designation	Special tool new	Special tool previous
Cross-member, previous	---	00 0 200
Cross-member, new	00 6 000	---
Mounting bridge	00 6 001	00 0 201
Spindle with hook	00 6 002	00 0 202
Extension	00 6 003	00 0 203
Adapter support	00 6 004	00 0 204
Extension	00 6 005	00 0 205
Chain with hook	00 6 006	00 0 209
Set of supports	00 6 010	00 0 206
Set of supports	00 6 020	00 0 207
Set of supports	00 6 030	00 0 208
Connector	00 6 031	---
Profile strip (2 x)	00 6 032	---
Supports (4 x)	00 6 033	---
Set of supports	00 6 040	---
Profile strip	00 6 041	00 0 451
Supports (2 x)	00 6 042	00 0 452
Supports, short (2 x)	00 6 043	---
Set of supports	00 6 050	---
Profile strip (2 x)	00 6 051	---
Supports, short (2 x)	00 6 052	---
Supports, long (2 x)	00 6 053	---
Support, long	00 6 060	---
Supports (2 x)	00 6 070	---



11 00 ... Handling components after flood damage

Flood damage can occur if the permissible fording depth of a vehicle is exceeded. Ingress of water can cause damage to the engine (water shock) or components.

Because dirt particles generally enter into the component with the water (e.g. starter motor, wiring harness), the components need to be thoroughly inspected.

Residual moisture in the components leads to corrosion (increased contact resistance in the component), which can lead to a component failure at a later time.

If water ingress into the electrical components cannot be ruled out, it is recommended to replace the component to ensure correct functioning through the vehicle lifetime.

cardiagn.com



11 00 ... Overview of consumables (Electronic Parts Catalogue)

1.0 Sealing compound for **injection**.

	Repair instructions (engine)	Designation, Electronic Parts Catalogue	Part number, Electronic Parts Catalogue	Application examples
1.1	S55, S65, S85	Loctite 171000 primer	83 19 7 515 683	For hardening Loctite 193140 sealing compound
1.2	S55, S65, S85	Loctite 193140 liquid sealing compound	83 19 0 439 030	Sealing between crankcase upper section and lower section
1.7	W20	Dow Corning liquid sealing compound	07 58 0 397 777	Sealing between crankcase upper section and lower section Sealing of oil sump

2.0 Sealing compound for **application**.

	Designation in repair instructions	Designation, Electronic Parts Catalogue	Part number, Electronic Parts Catalogue	Application examples
2.1	M41, M47, M47TU, M47T2, M50, M51, M52, M52TU, M54, M57, M57TU, M57T2, M60, M62 N12, N14, N16, N18 N20, N26 N40, N42, N45, N45N, N46, N46N, N43, N47, N47top, N47C N47D1 N51, N52, N52N, N53, N54, N55, N57, N57T, N62, N62TU, N63, N63O1 N73, N73H, N74 S14, S38, S50, S52, S54, S62, S65, S85	Drei Bond 1209 liquid sealing compound	07 58 9 062 376	For sealing junction points on crankcase
2.2	N12, N13, N14, N16, N18, N20, N26, N40, N42, N43, N45, N46, N51, N52, N53, N54, N55 W10, W11, W16,	Loctite 5970 liquid sealing compound	83 19 0 404 517	Sealing between crankcase upper section and lower section.
2.2	N47top, N47D1, N47C1 N57D1 N57S1, B32 ,B36 ,B37 ,B38 ,B42 ,B46 ,B47 ,B48 ,B57 ,B58	Loctite 5970 liquid sealing compound	83 19 0 404 517	Timing case cover sealing, oil sump, coolant pump, component carrier.
2.3	N12, N14, N16, N18 W16	Loctite 648 liquid sealing compound	07 58 9 067 732	Sealing between the seal plug and crankcase
2.4	N12, N13, N14, N16, N18 W16	Loctite 121078 liquid sealing compound	83 19 2 223 765	Sealing between cover sleeve and crankcase



3.0 Cleaning agent.

	Designation in repair instructions	Designation, Electronic Parts Catalogue	Part number, Electronic Parts Catalogue	Application examples
3.1	N12, N13, N14, N18, N20, N26, N45, N46, N45T, N46T, N43, N51, N52, N52Kp, N52TU, N53, N55, N63, N63S, N63 Hybrid, N63O1, N63O2 N73, N74 B37, B38 B47, B48, B58	Cold cleaner (chlorine free)	83 19 0 026 956	Cleaning assemblies, washing engine
3.2	M47, M47T1 M47T2, M57 M57T1, M57T2 N47 K/U/O/T 0/1 N47C	Universal cleaner	83 19 2 360 981	Clean intake pipe.
3.3	All	Brake cleaner	83 19 2 365 214	Only clean components as directed in the repair instructions with brake cleaner.

4.0 Lubricant for application.

	Designation in repair instructions	Designation, Electronic Parts Catalogue	Part number, Electronic Parts Catalogue	Application examples
4.1	N12, N13, N18, N20, N26, N42, N46, N46TU, N51, N52, N52KP, N52TU, N55, N62, N62TU, N63O0, N63O1, N63O2, N63M3, N63T3 N73 S55, S58, S63T0 S63T1, S63T2, S63T4 B36, B38, B46, B48, B58	Lubricating grease Longtime PD1	83 19 2 160 340	For greasing the splined shaft on actuator drive/gearing of intermediate shaft.
4.2	M47, M47TU, M47T2, M57, M57TU, M57T2,	High-temperature assembly paste	83 23 0 309 003	For greasing the thread on the exhaust turbocharger.



4.3	N12, N13, N14, N16, N18 N20, N26, N40, N42, N45, N45TU N46, N46TU, N43. N51, N52, N52Kp, N52TU, N53, N54, N55. N62, N62TU, N63O0, N63O1, N63O2 N63M3, N63T3 N73, N73H, N74. S63T1, S65, S85. B36, B38, B46, B48, B58	High temperature paste	83 19 2 158 851 83 19 2 158 852	For greasing the screw threads on the oxygen sensor.
4.4	N47, N47O1 N47C1, N47T N47D1 N57 N57D1 N63O0, N63O1, N63O2 S63, S63T0	Copper paste	81 22 9 400 794	For greasing the double hex head bolt on the exhaust turbocharger. For greasing the central bolt on the VANOS gear.
4.5	M47, M47TU, M47T2 M57, M57TU, M57T2 N47, N47O1 N47C1, N47T N47D1 N57 N57D1	High- temperature grease (Urethyn E2).	83 23 0 441 070	For greasing the injectors or injector shafts. Solenoid valve and piezo injector.
4.6	N47T0, N47T1 N57T0, N57T1, N57S1 B47T0,	Assembly paste	83 23 9 407 778	For lubricating the O- rings of the pressure pipes. Multistage turbocharging assembly.
4.7	W20	Assembly paste, grease	No longer greased.	For greasing the torsion splined shaft.
4.8	N63O1, N63O2	Assembly paste, grease	83 23 9 407 778	For greasing the central bolt on the crankshaft.
4.9	W20	Assembly paste, grease	83 23 9 407 778	Grease the O-ring on alternator.

5.0 lubricant for **filling**

	Designation in repair instructions	Designation, Electronic Parts Catalogue	Part number, Electronic Parts Catalogue	Application examples
5.1	M47, M57	Exhaust turbocharger additive	83 19 2 362 168	For filling the exhaust turbocharger after the renewal.
5.2	B32, B36, B37, B38, B42, B46, B47, B48, B58	Exhaust turbocharger additive, petrol MSP	83 19 2 457 276	For filling the exhaust turbocharger after the renewal.

6.0 Lubricants to loosen locked **screw connections**.

	Designation in repair instructions	Designation, Electronic Parts Catalogue	Part number, Electronic Parts Catalogue	Application examples
--	---------------------------------------	---	---	----------------------



6.1	M47, M47TU, M47TU2, M57, M57TU, M57TU2. N47, N47C, N47D1, N57, N57D1, N57S1 W16, W17, B37, B47, B57	Brunox lubricating grease	83 23 0 418 567	For releasing the glow elements.
6.2	E89 F10, F11.	Brunox lubricating grease	83 23 0 418 567	For releasing and tightening the screw connection of the rubber mounts.

7.0 Leak detection spray and contact spray

	Designation in repair instructions	Designation, Electronic Parts Catalogue	Part number, Electronic Parts Catalogue	Application examples
7.1	Petrol: N13, N20, N26, N54, N55 B38, B48, B58 Diesel fuel: M47, M47TU, M47TU2, M57, M57TU, M57TU2. N47, N47C, N47D1, N57, N57D1, B37, B47	Leak detection spray	83 19 9 407 861	Check turbocharging path for leak tightness. Example: leakage on charge air hose or charge air cooler.
7.2	S55	Contact spray	81 22 9 400 208	For cleaning and protecting of electrical plug connections.

8.0 Screw lock

	Designation in repair instructions	Designation, Electronic Parts Catalogue	Part number, Electronic Parts Catalogue	Application examples
8.1	B48, B58	Loctite No. 243	83 19 2 210 339	Belt pulley to coolant pump



00 Safety information for working on vehicles with automatic engine start-stop function (MSA)



Warning!

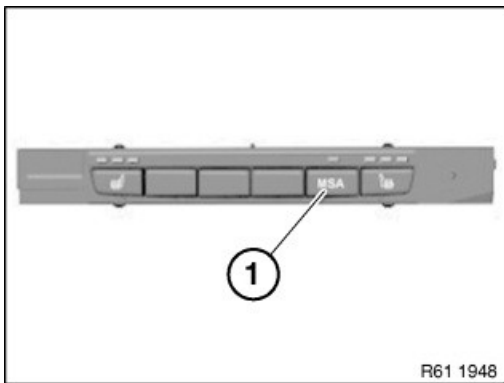
If the engine hood/bonnet contact is pulled upwards (workshop mode), the information "switch closed" is output. The automatic engine start-stop function is active.

An automatic engine start is possible.

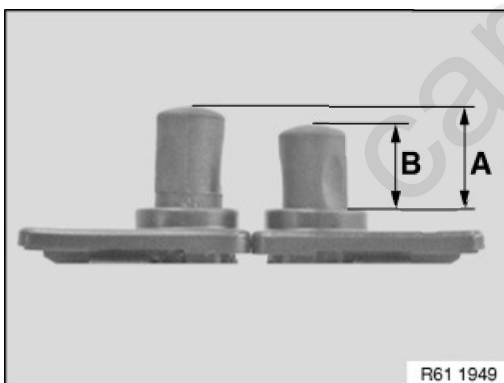
Observe safety precautions when working on MSA vehicles.

Before carrying out practical work on the engine, always ensure that the MSA functionality is deactivated so as to prevent automatic engine starting while work is being carried out in the engine compartment.

MSA function is deactivated by:



- Deactivate MSA by means of button (1) in passenger compartment
- Open seat belt buckle and driver's door



- Open engine bonnet/hood and ensure that engine hood/bonnet contact is not in workshop mode
 - Workshop mode
A = 10 mm
 - Basic setting (engine hood/bonnet open)
B = 7 mm

To make sure that the engine hood/bonnet contact is at the basic setting, if necessary press the hood/bonnet contact up to the limit position before starting work and slowly release.



When working with diagnosis tools:

- Observe instructions in diagnosis tool





Note:

For further information on automatic engine start-stop function (MSA):

- Refer to the Service Information (bulletin) (for manual transmissions) Service Information (bulletin) 61 01 07 335
- Refer to the Service Information (bulletin) (for automatic transmissions or twin-clutch gearboxes) Service Information (bulletin) 61 01 10 629

cardiagn.com

