

11 15 510 Measuring internal engine pressure

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 °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 – Check engine oil level

Prerequisite

Vehicle is in a horizontal position.



TECHNICAL INFORMATION

Please comply with instructions in Owner's Handbook.

- Carry out an electronic oil measurement.
- Top up engine oil if necessary.

► Check engine oil level



TECHNICAL INFORMATION

Always check the engine oil level when the engine is at operating temperature (engine oil temperature > 70°C).



- Park vehicle on a horizontal surface.
- Stop the engine and wait for 5 minutes.
- Pull out the oil dipstick and wipe off using a lint-free cloth.



TECHNICAL INFORMATION

Do not pull out or insert the oil dipstick into the guide tube too quickly or slowly.

- Push the oil dipstick into the guide tube up to the limit position and pull it out again.



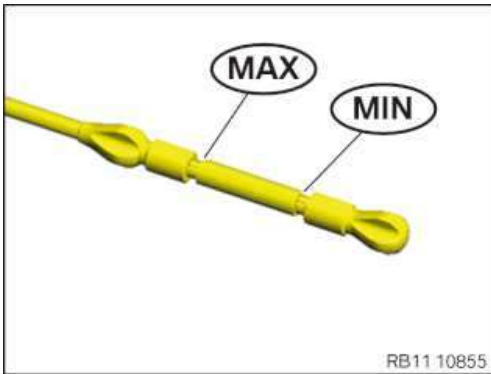
TECHNICAL INFORMATION

The engine oil level must be between the minimum mark and the maximum mark of the oil dipstick.

- Read the engine oil level on the oil dipstick.
- Top up engine oil if necessary.

Oil quantity between the two markings MIN and MAX of the oil dipstick

1.0 l



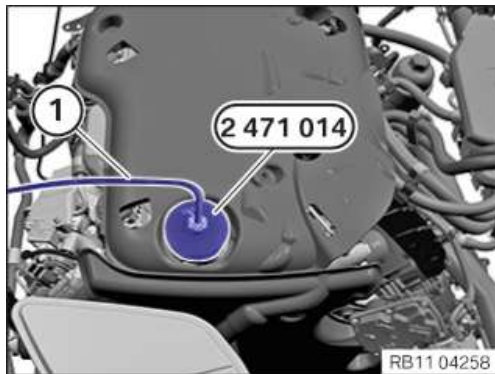
3 – Removing the oil filler cap



- Open oil filler cap (1).



4 – Checking the internal engine pressure



- Guide in and install special tool [2 471 014](#) in place of the oil filler cap.
- Connect connecting hose (1) using special tool [2 471 014](#).

Testing equipment

Connecting hose
 $\varnothing = 8 \times 13$ mm, length = 70 mm

- connect to the Integrated Measurement Interface Box (IMIB) and connecting hose (1).
- Start engine and run at idle speed.

Check

- Measure the internal engine pressure using the Integrated Measurement Interface Box (IMIB).
- Connect diagnosis system and follow diagnosis instructions for pressure test.
 - Power train
 - Digital Diesel Electronics
 - Engine ventilation
 - Internal engine pressure



Differential pressure between ambient pressure and engine internal pressure

Nominal value	0 (-15 - +30) mbar
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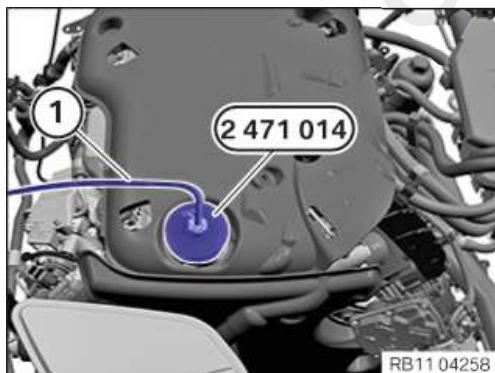
Result

» Deviation between measured value and ambient pressure.

Measure

- Determine possible cause using table and rectify.

	Deviation	Possible cause	Solution
Result 1	Measured value < ambient pressure	Pressure control valve faulty	Renew the pressure control valve
Result 2	Measured value > ambient pressure	Engine ventilation blocked	Clean the engine ventilation



- Release connecting hose (1) from special tool [2 471 014](#).
- Remove special tool [2 471 014](#).



5 – Installing the oil filler cap



- Close oil filler cap (1).

6 – Install acoustic cover

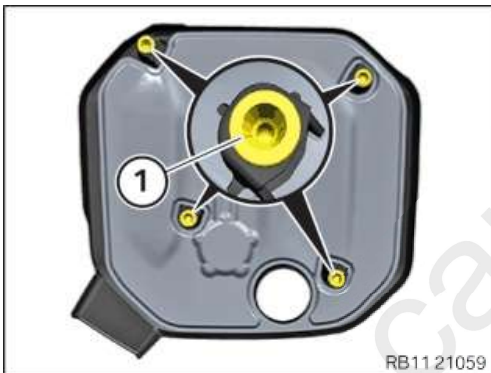


RISK OF DAMAGE

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 $>20^{\circ}\text{C}$.
- 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.

Additional Information

Overview of Special Tools



2 471 014 Lid



Common		Used in step	4
Usage	To measure the pressure in the engine interior. Contour-graphic silhouette foil is included in the delivery specification.		
Included in the tool or work			
Storage location	C58		
Replaced by			
In connection with			
SI-Number	01 02 19 (623)		

Overview Technical Data

Differential pressure between ambient pressure and engine internal pressure		Used in step	4
Nominal value	0 (-15 - +30) mbar		
Oil quantity between the two markings MIN and MAX of the oil dipstick		Used in step	2
			1.0 l

Links

Functional descriptions	Used in step
Checking engine internal pressure	4



11 23 010 Removing and installing/replacing vibration damper



WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.



RISK OF DAMAGE

Damage to battery terminal, the safety battery terminal or the intelligent battery sensor (IBS).

Damaged battery terminals can lead to malfunctions or vehicle electrical system faults.

- Pull off battery terminal from battery pole by carefully moving to and fro. Do not pry off using a tool.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.



WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.



WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.





RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

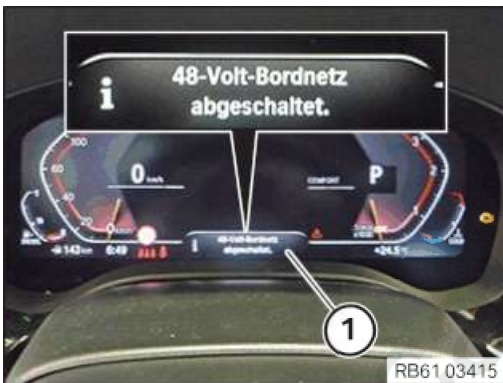


TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet. The deactivation takes place automatically.



Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

- » **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off." (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
 - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

Only when the Check Control message "48 V electrical system switched off." (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

If the absence of voltage is not indicated clearly, contact Technical Support.



Result

» The Check Control message signals that the 48V electrical system has been switched off.

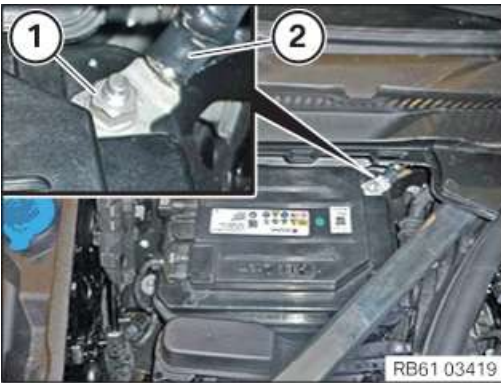
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

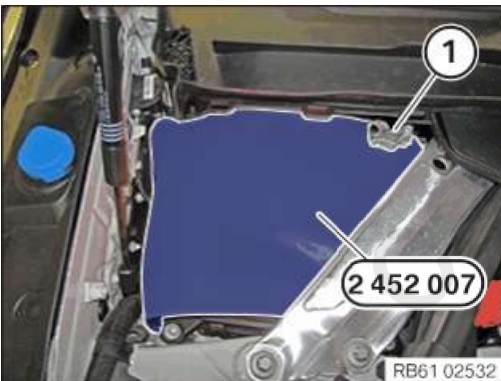
The work "Disconnecting the negative battery cable of the 48-V battery" can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.
- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

3 – Removing the acoustic cover





RISK OF DAMAGE

Damage to the acoustic cover/design cover.

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- 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.

4 – Removing the clean air pipe with the resonator

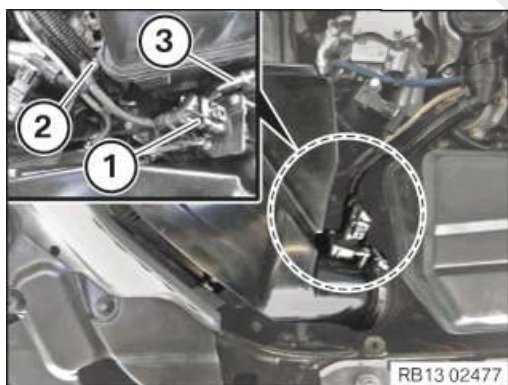


WARNING

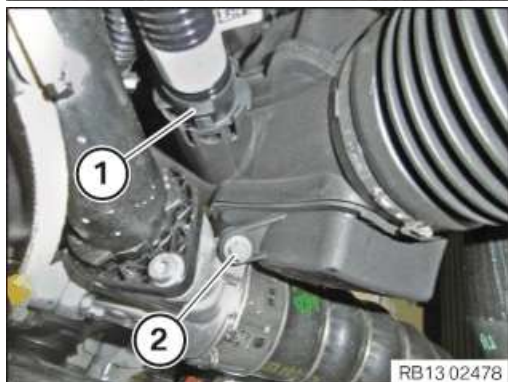
Hot surfaces.

Risk of burning!

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

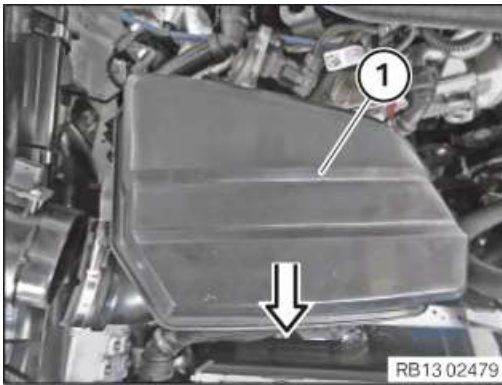


- Unlock plug connection (1) and disconnect.
- Loosen clamp (2).
- Unfasten clamp (3).
- Separate the clean air pipe with resonator from the intake filter housing.



- Unlock engine ventilation line (1), disconnect it and place it aside.
- Loosen screw (2).





- Press and hold clean air pipe with resonator (1) in the direction of the arrow.



- Unlock and loosen clamp (1).



- Feed out and remove clean air pipe with resonator (1) in the direction of the arrow.

5 – Remove acoustic cover of the front engine

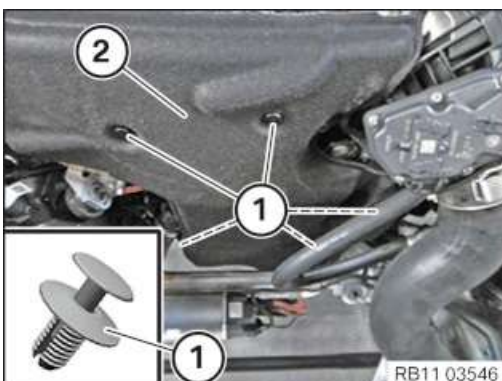


WARNING

Hot surfaces.

Risk of burning!

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



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

6 – Removing the drive belt for the starter motor generator





CAUTION

Spring preload.

Danger of injury!

- The use of the specified special tool (tool) is mandatory.
- The described operation must be carried out properly.



CAUTION

Component with preload.

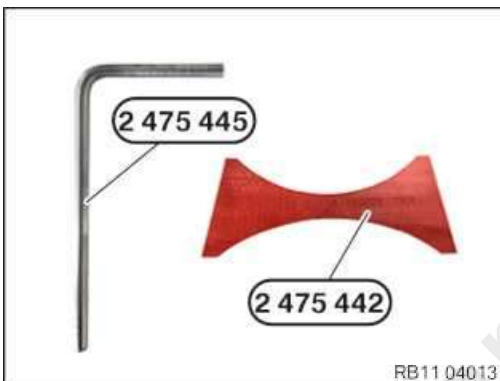
Danger of injury!

- Reduce preload as far as possible before disassembly. Relieve component.

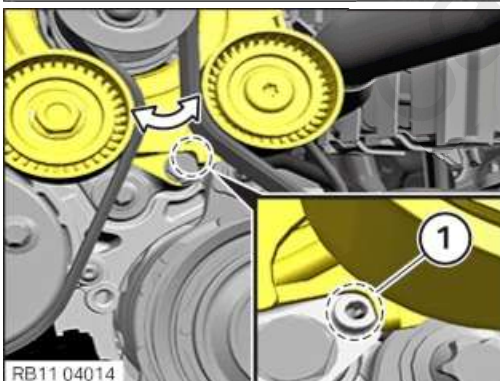


TECHNICAL INFORMATION

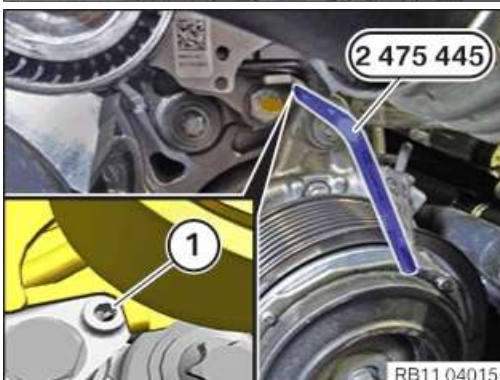
The drive belt must be replaced if contaminated with coolant- and oil residues.



- Prepare the special tool [2 475 442](#) and the special tool [2 475 445](#).

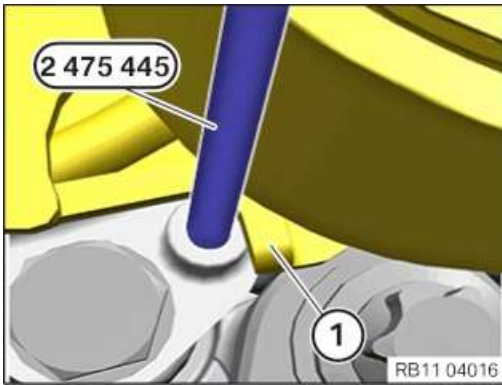


- Position the belt tensioner in the direction of the arrow so that the bore hole is visible in the area (1).

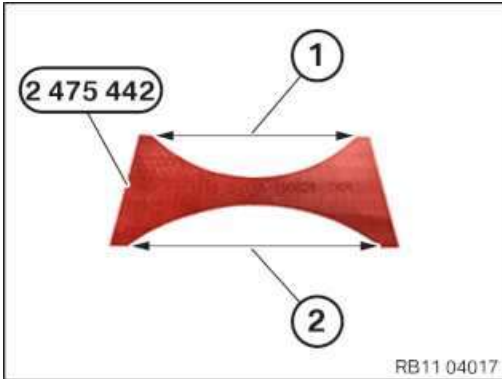


- Guide in the special tool [2 475 445](#) and install it in the bore hole (1).
The special tool [2 475 445](#) must rest against the starter motor generator.





- Ensure that the belt tensioner (1) is supported on the special tool [2 475 445](#).



- Ensure that the radius (1) of the special tool [2 475 442](#) supports the tensioning pulley of the belt tensioner.
- Ensure that the radius (2) of the special tool [2 475 442](#) is supported on the belt pulley of the coolant pump.



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TECHNICAL INFORMATION

Conduct the following operation with the assistance of a second person.

- Twist the tensioning pulley (1) in the direction of the arrow.
- Guide in and install the special tool [2 475 442](#) between the belt pulley of the coolant pump and the tensioning pulley.



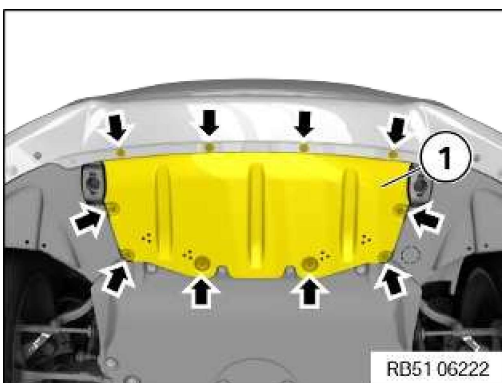
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TECHNICAL INFORMATION

If the drive belt is reused: Mark direction of travel and reinstall drive belt in same direction of travel.

- Guide out and remove the drive belt (1) for the starter motor generator.

7 – Removing the front underbody protection

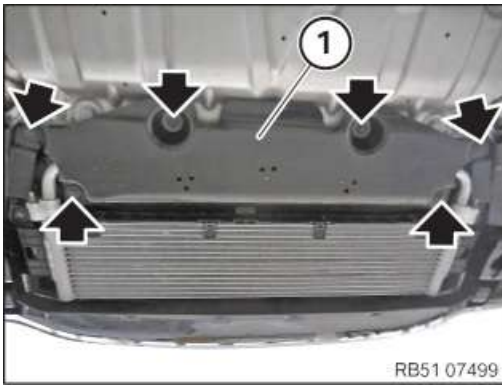


Version A:

Remove screws (arrows).

Feed front underbody protection (1) backwards out of the bumper panel.

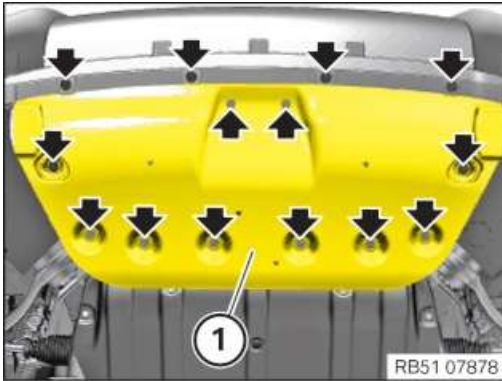




- **Version B:**

Remove screws (arrows).

Guide out front underbody protection (1) and remove it.

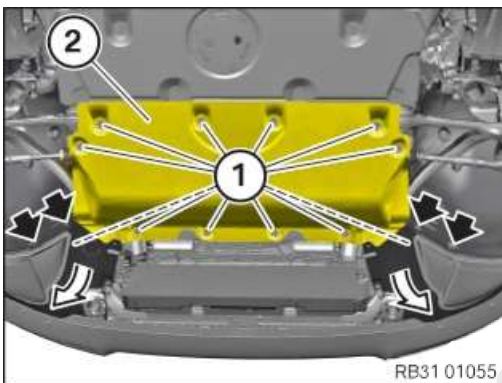


- **Version C:**

Remove screws (arrows).

Guide out front underbody protection (1) and remove it.

8 – Remove the underbody protection of the steering gear



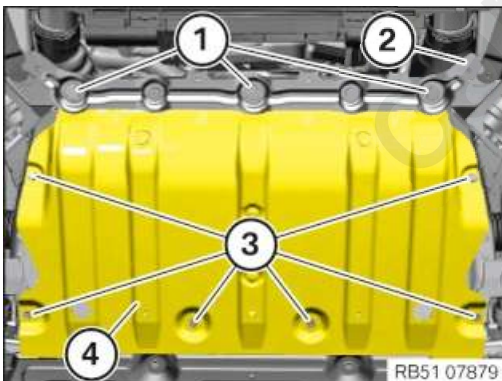
- **Version A:**

Unscrew the screws (arrows) of the wheel arch cover on the wheel arch cover.

Fold the bottom wheel arch cover to the side.

Loosen screws (1).

Remove the underbody protection (2) of the steering gear.



- **Version B:**

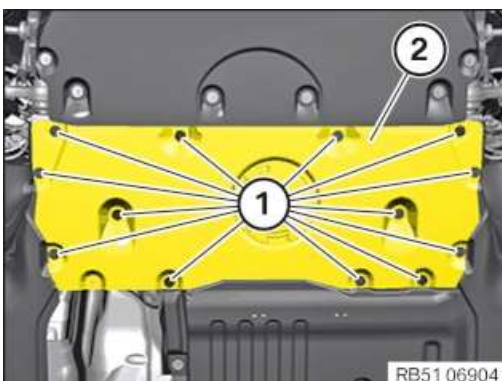
Loosen screws (1).

Remove the holder (2) for the underbody protection.

Loosen screws (3).

Feed out and remove the underbody protection (4) of the steering gear.

9 – Removing the centre underbody protection

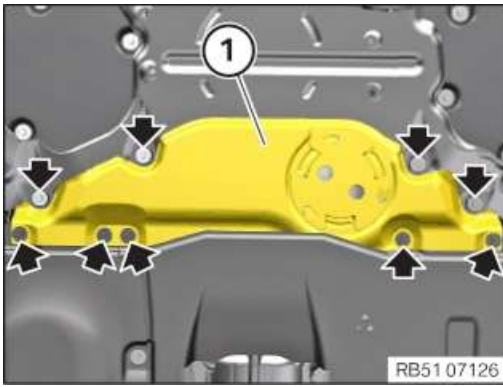


- **Variant with rear wheel drive:**

Loosen screws (1).

Remove centre underbody protection (2) .



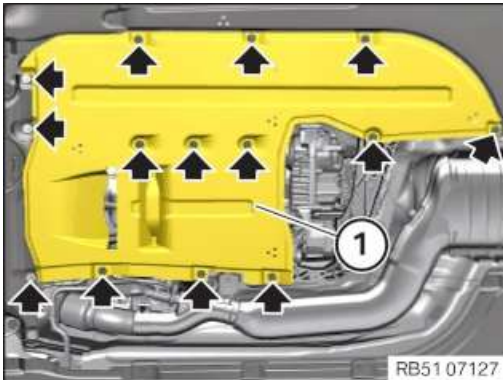


- **Version with all-wheel drive:**

Remove screws (arrows).

Feed out and remove the centre underbody protection (1).

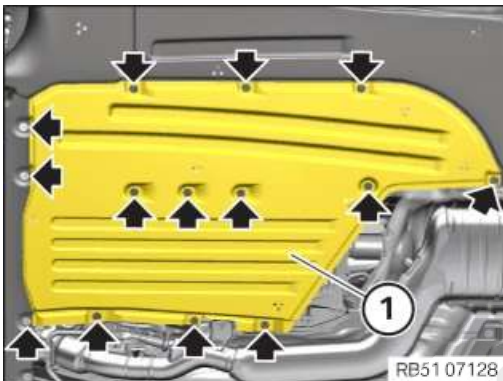
10 – Remove rear underbody protection



- **Version A:**

Remove screws (arrows).

Feed out the rear underbody protection (1).



- **Version B:**

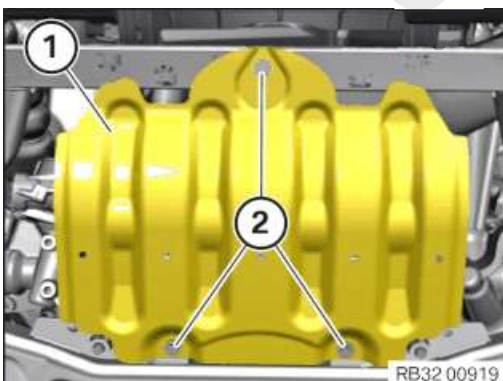
Remove screws (arrows).

Guide out rear underbody protection (1) and remove it.

11 – If installed: Removing the steering underbody protection

Prerequisite

Front underbody protection has been removed.



- Loosen screws (2).

- Remove underbody protection (1).

12 – Removing starter motor

Prerequisite

Battery earth leads are disconnected.





WARNING

Hot surfaces.

Risk of burning!

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



WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

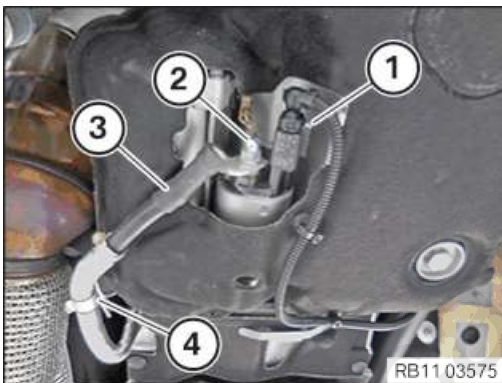
- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.



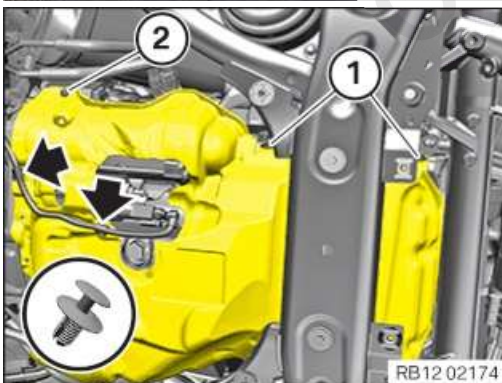
TECHNICAL INFORMATION

Make sure that the acoustic cover is **not** damaged while removing the starter motor.

A damaged lower acoustic cover can only be renewed when the front axle is lowered.

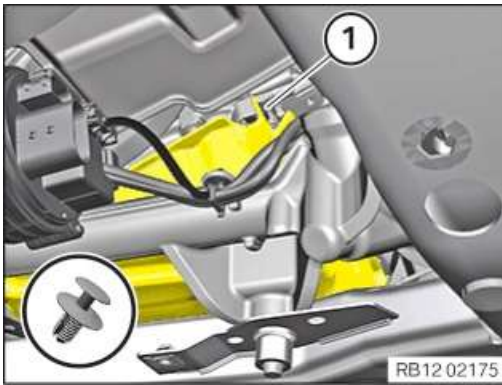


- Unlock plug connection (1) and disconnect.
- Release nut (2).
- Release positive battery cable (3) from holder (4).

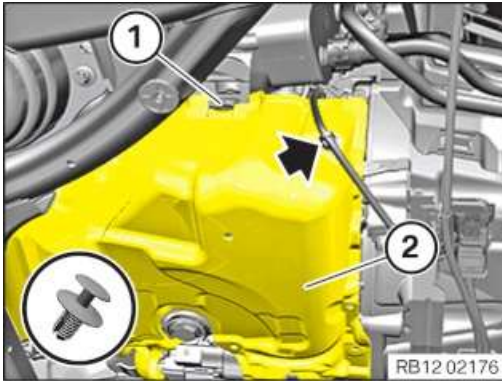


- Loosen the expanding rivet (1).
- Undo fir tree clip (2).
- Release the clamps (arrows).

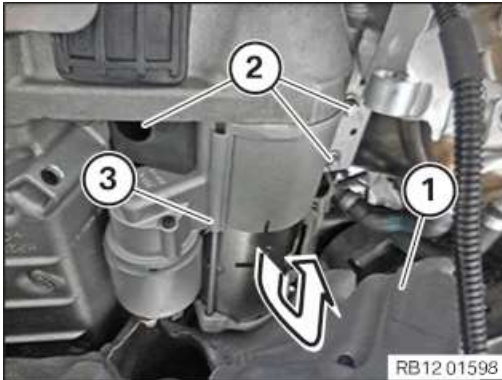




- Loosen expanding rivet (1).
- Lower the acoustic cover of the oil sump.



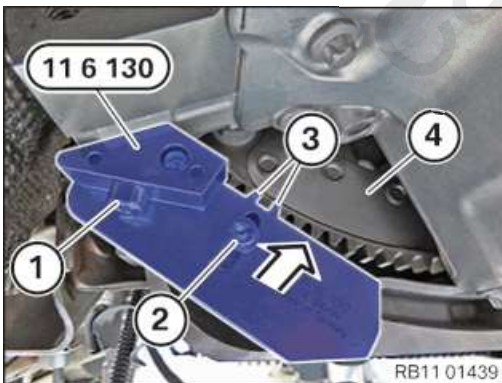
- Loosen expanding rivet (1).
- Loosen the clamp (arrow).
- Lower acoustic cover (2).



- Make sure that the acoustic cover (1) is not damaged.
- Carefully press acoustic cover (1) to one side.
- Loosen screws (2).
- Carefully guide out the starter motor (3) in direction of arrow and remove.

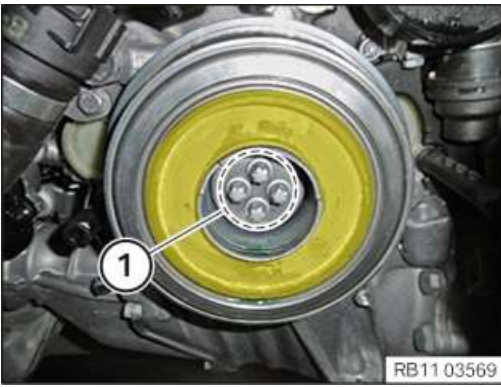
MAIN WORK

13 – Removing the vibration damper



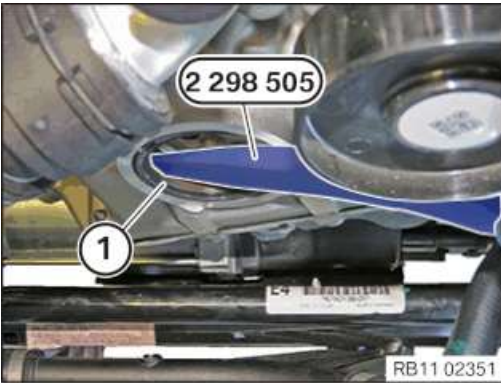
- Position the special tool [0 496 595 \(11 6 130\)](#) and secure it on the timing case cover using the bolt (1).
The special tool [0 496 595 \(11 6 130\)](#) must lie flat on the transmission housing.
- Slide the counter support with the bolt (2) up until the teeth (3) engage completely in the gearing of the flywheel.
- If necessary, turn the engine in the direction of rotation until the teeth (3) engage completely in the gearing of the flywheel (4).
- Tighten the screw (2).





- Loosen screws (1).
- Remove vibration damper.

14 – Remove the crankshaft seal



- Lever out the crankshaft seal (1) with the special tool [2 298 505](#).
Do not scratch the sealing surface on the engine block.

15 – Install the crankshaft seal



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TECHNICAL INFORMATION

The radial shaft seal must be installed dry. Do not use engine oil or lubricant.

- Secure special tool [0 496 128 \(11 8 801\)](#) with special tool [0 496 129 \(11 8 802\)](#) to the crankshaft.



- Position the crankshaft seal (1) on the special tool [0 496 128 \(11 8 801\)](#).

Parts: Crankshaft seal



- Draw in the crankshaft sealing ring with the special tools [0 496 130 \(11 8 803\)](#) and [0 496 131 \(11 8 804\)](#).
- Screw in special tool [0 496 130 \(11 8 803\)](#) until it is flush with the crankcase.



16 – Installing the vibration damper



RISK OF DAMAGE

Radial shaft seal damage.

When installing the vibration damper, the rotary shaft seal can be damaged.

- The special tool must be used to install the vibration damper.



TECHNICAL INFORMATION

When removing and installing or replacing the vibration damper, the rotary shaft seal must be replaced.



- Clean the sealing surface (1) from oil and contamination.

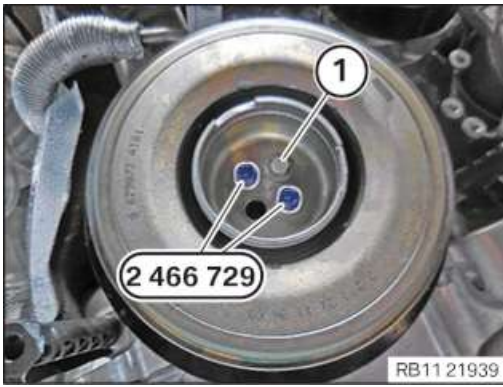


- Screw the special tool [2 466 729](#) hand-tight into the crankshaft.



- Insert vibration damper (1) into the special tool [2 466 729](#) and install.





- Renew screws (1).
- Hand-tight the bolts (1).
- Guide the special tool [2 466 729](#) out and remove.

Parts: Screws

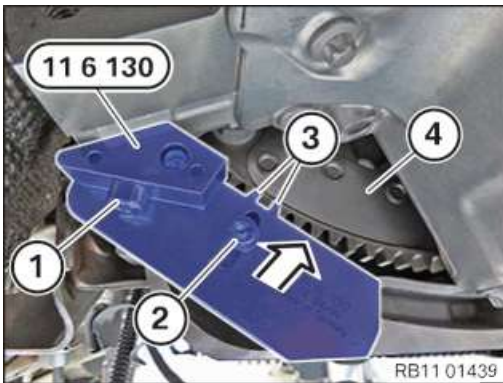


- Renew all remaining screws (1).
- Tighten the screws (1).

Parts: Screws

Vibration damper with belt pulley to crankshaft

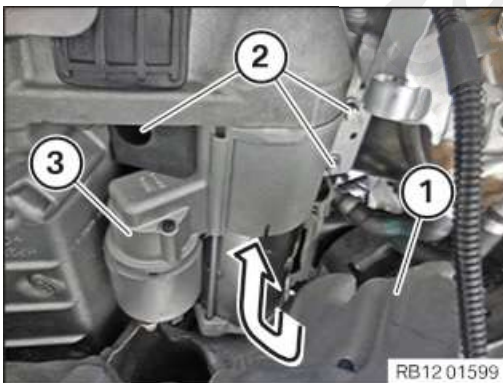
M10x65	Renew screws.	Jointing torque	40 Nm
		Angle of rotation	120 °



- Loosen screw (2).
- Release the gearing (3) of the counter support from the flywheel (4).
- Unscrew the screw (1) and remove the special tool [0 496 595 \(11 6 130\)](#).

POSTPROCESSES

17 – Installing starter motor

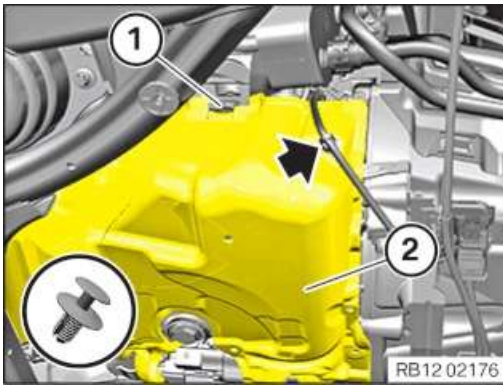


- Make sure that the acoustic cover (1) is not damaged.
- Carefully press the acoustic cover (1) to one side.
- Feed in and install the starter motor (3) in the direction of the arrow.
- Tighten the screws (2).

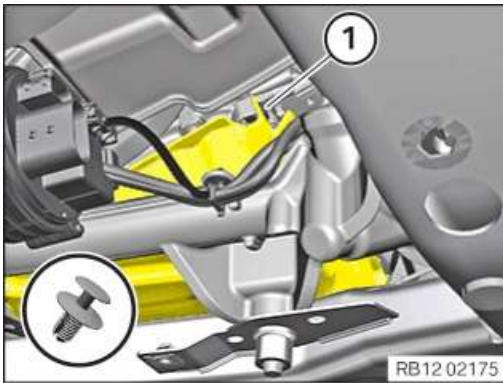
Starter motor to engine

M8X60		Tightening torque	19 Nm
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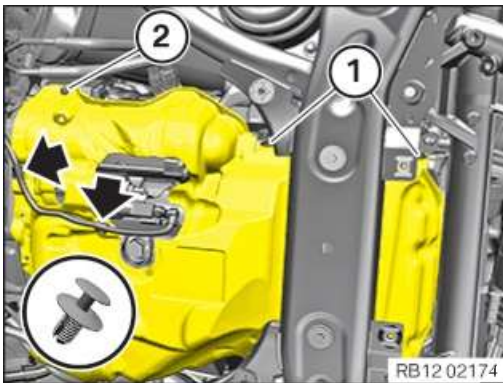




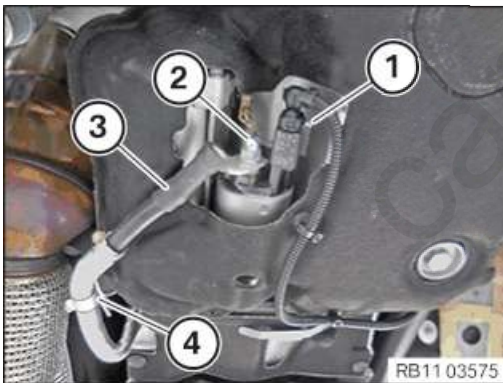
- Position the acoustic cover (2).
- Fasten expanding rivet (1).
- Secure clamp (arrow).



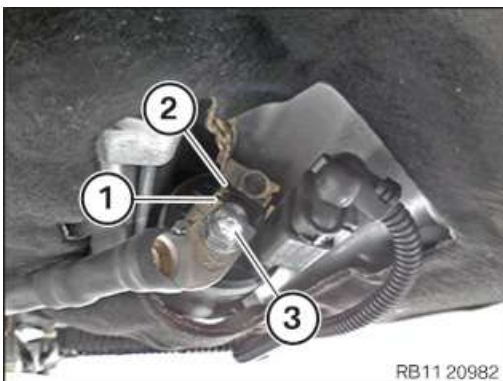
- Fasten expanding rivet (1).



- Secure fir tree clip (2).
- Secure expanding rivet (1).
- Secure the clamps (arrows).



- Fasten positive battery cable(3) in holder (4) and position it on the starter motor.
- Tighten the nut (2) hand-tight.
- Connect the connector (1) and audibly lock it.



CAUTION

Improper routing of the positive battery cable.

Risk of short circuits!

- Route the positive battery cable without abrasions and do not trap.

- Attach the positive battery cable (1) **correctly** to anti-twist lock (2).
- Tighten nut (3).

Battery positive lead to starter

M8

Tightening torque

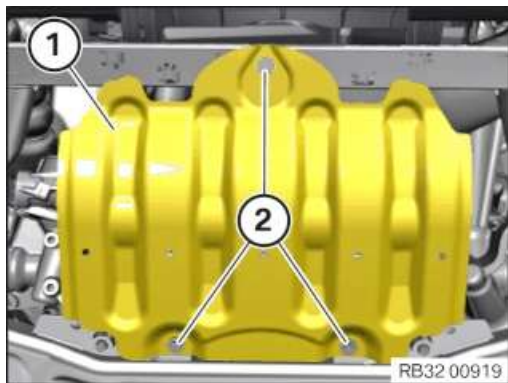
13,5 Nm



18 – If installed: Install underbody protection of the steering

Prerequisite

Front underbody protection has been removed.



- Position underbody protection (1).
- Tighten the screws (2).

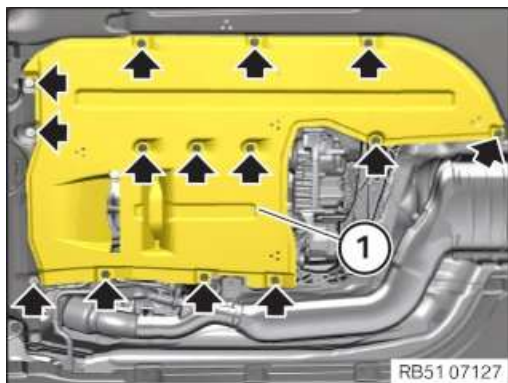
Underbody protection, steering, to front axle support

Multi-purpose bolt M10		Tightening torque	56 Nm
------------------------	--	-------------------	-------

Underbody protection, steering, to front axle support

Hexagon bolt M6		Tightening torque	8 Nm
-----------------	--	-------------------	------

19 – Installing underbody protection at rear



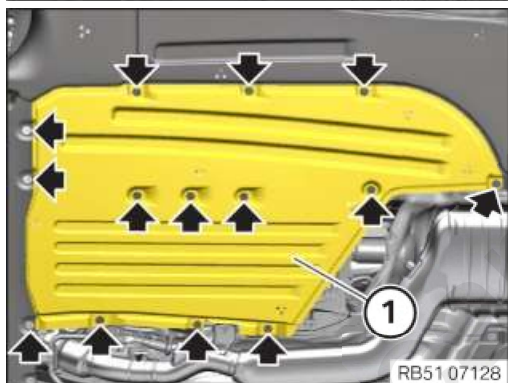
• Version A:

Insert and install the rear underbody protection (1).

Tighten screws (arrows).

Underbody protection

Hexagon screw		Tightening torque	3 Nm
---------------	--	-------------------	------



• Version B:

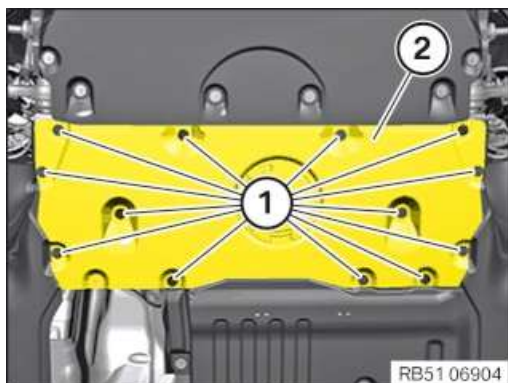
Insert and install the rear underbody protection (1).

Tighten screws (arrows).

Underbody protection

Hexagon screw		Tightening torque	3 Nm
---------------	--	-------------------	------

20 – Installing the centre underbody protection



• Variant with rear wheel drive:

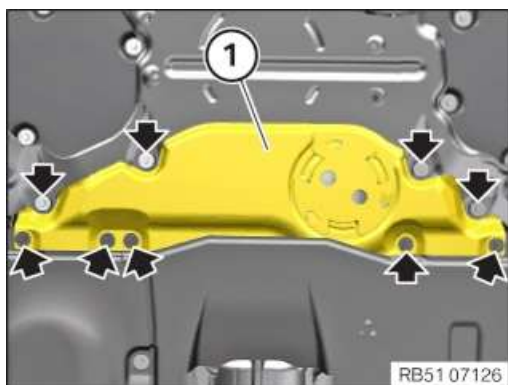
Position central underbody protection (2).

Tighten the screws (1).

Underbody protection

Hexagon screw		Tightening torque	3 Nm
---------------	--	-------------------	------





- **Version with all-wheel drive:**

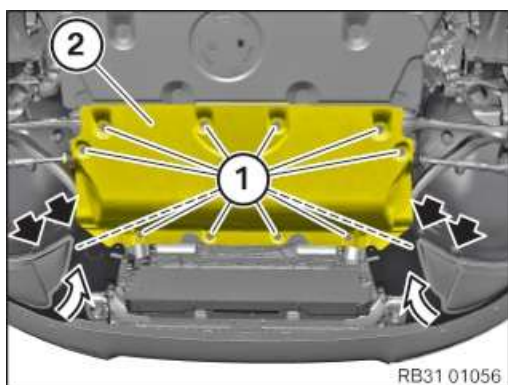
Guide in centre underbody protection (1) and install.

Tighten screws (arrows).

Underbody protection

Hexagon screw		Tightening torque	3 Nm
---------------	--	-------------------	------

21 – Install the underbody protection of the steering gear



- **Version A:**

Position the underbody protection (2) of the steering gear.

Tighten the screws (1).

Underbody protection of the steering gear

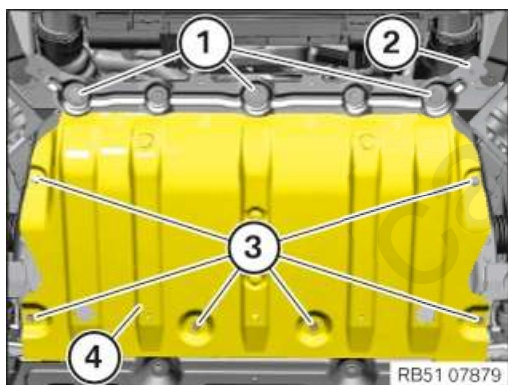
Hexagon screw for thermoplastic		Tightening torque	2.6 Nm
Hexagon bolt M6x20		Tightening torque	8 Nm

- Position the bottom wheel arch cover.

Tighten the screws (arrows) of the lower wheel arch cover on the wheel arch cover.

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm
-----------------------------	--	-------------------	--------



- **Version B:**

Feed in the underbody protection (4) of steering gear and install it.

Tighten the screws (3).

Underbody protection of the steering gear

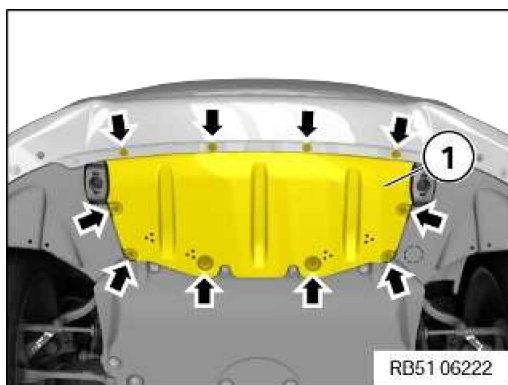
Hexagon screw for thermoplastic		Tightening torque	2.6 Nm
Hexagon bolt M6x20		Tightening torque	8 Nm

- Position the holder (2) for the underide protection.

Tighten the screws (1).

22 – Installing the front underbody protection





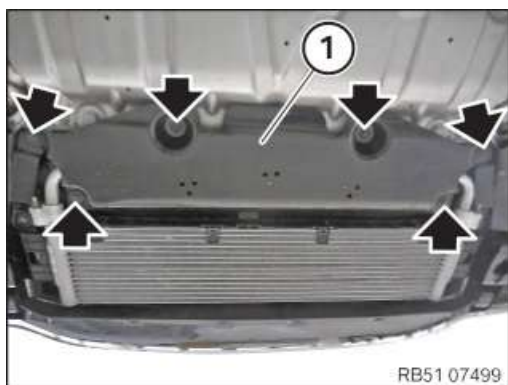
• **Version A:**

Feed in the front underbody protection (1) towards the front under the bumper panel and position.

Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm



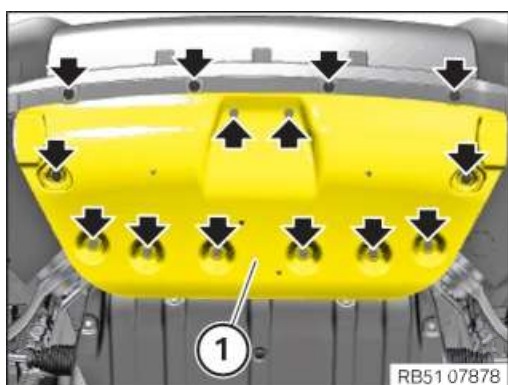
• **Version B:**

Feed in and position the front underbody protection (1).

Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm



• **Version C:**

Feed in and install front underbody protection (1).

Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

23 – Installing the drive belt for the starter motor generator



CAUTION

Spring preload.

Danger of injury!

- The use of the specified special tool (tool) is mandatory.
- The described operation must be carried out properly.



CAUTION

Component with preload.

Danger of injury!

- Reduce preload as far as possible before disassembly. Relieve component.



TECHNICAL INFORMATION

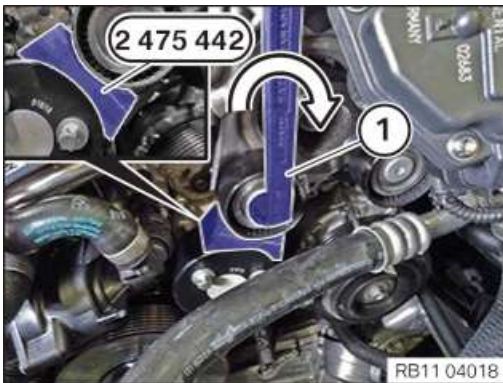
The drive belt must be replaced if contaminated with coolant- and oil residues.



TECHNICAL INFORMATION

If the drive belt is reused: Mark direction of travel and reinstall drive belt in same direction of travel.

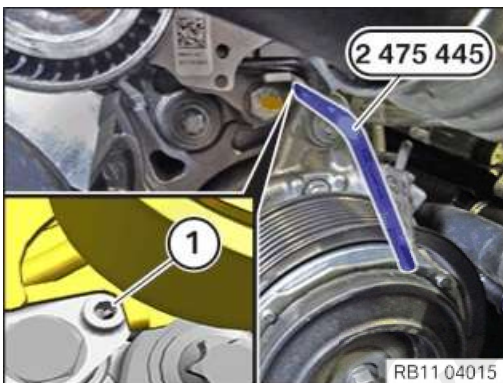
- Feed in and install the drive belt (1) for the starter motor generator.



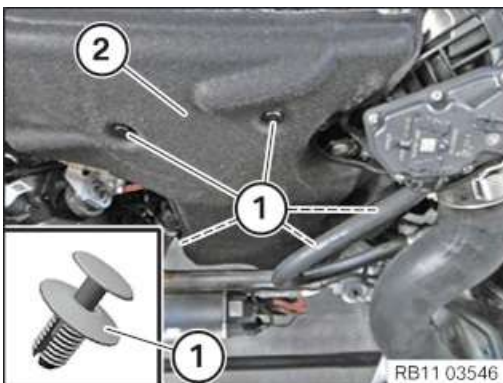
TECHNICAL INFORMATION

Conduct the following operation with the assistance of a second person.

- Turn the tensioning pulley in (1) in the direction of arrow.
- Feed out the special tool [2 475 442](#) between the belt pulley of the coolant pump and the tensioning pulley and remove it.
- Feed out the special tool [2 475 445](#) from the bore hole (1) and remove it.



24 – Install acoustic cover for the engine, front



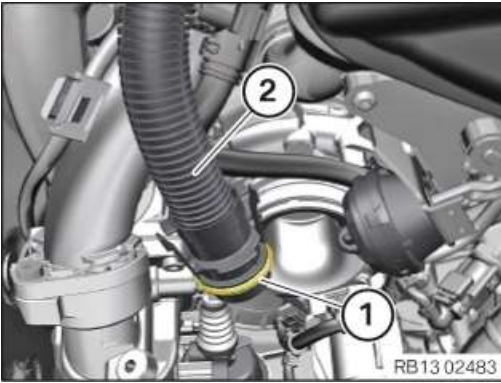
- Feed the acoustic cover (2) in and install.
- Secure the acoustic cover (2) with the expanding rivets (1).

25 – Installing the clean air pipe with resonator





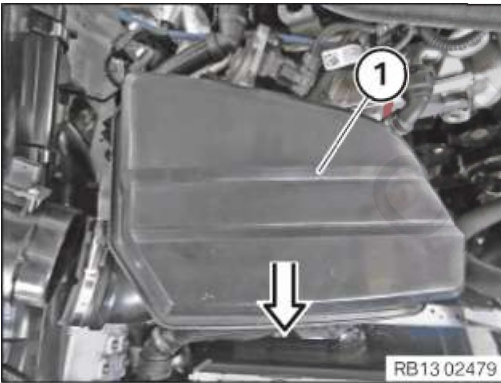
- Check the sealing ring (1) on the exhaust turbocharger for damage and renew if necessary.



- Check the sealing ring (1) for the engine ventilation line (2) for damage and renew where required.



- Feed in and install clean air pipe with resonator (1) in the direction of the arrow.

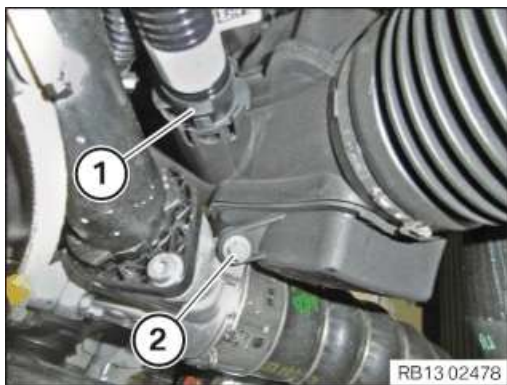


- Press and hold clean air pipe with resonator (1) in the direction of the arrow.



- Attach and lock the clamp (1).
The clamp (1) must engage audibly.

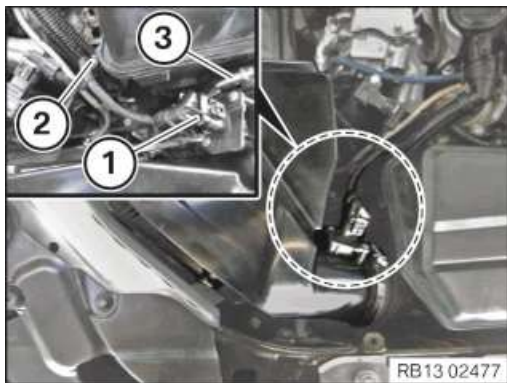




- Tighten down screw (2).

Clean air pipe to exhaust turbocharger

M6X20		Tightening torque	8 Nm
-------	--	-------------------	------



- Connect the clean air pipe with resonator to the intake filter housing.
- Tighten clamp (3).

Clean air pipe to upper section of intake filter housing

Clamp		Tightening torque	3 Nm
-------	--	-------------------	------

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

26 – Install acoustic cover

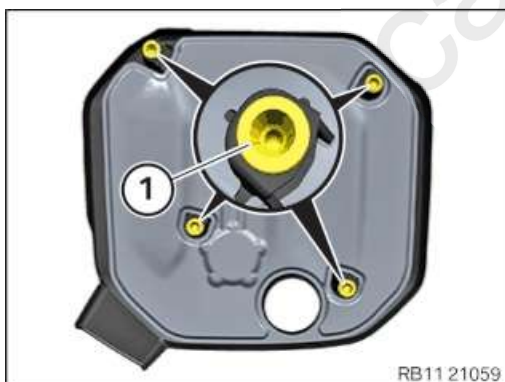


RISK OF DAMAGE

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.



27 – Connecting all battery earth leads



- See additional information.

28 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

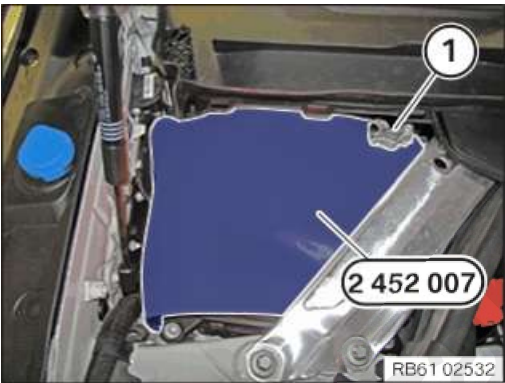


RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm
--------	--	-------------------	-------





- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet. The activation takes place automatically.

Additional Information

Overview of Tightening Torques

Vibration damper with belt pulley to crankshaft

Used in step 16

M10x65	Renew screws.	Jointing torque	40 Nm
		Angle of rotation	120 °

Starter motor to engine

Used in step 17

M8X60		Tightening torque	19 Nm
-------	--	-------------------	-------

Battery positive lead to starter

Used in step 17

M8		Tightening torque	13,5 Nm
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Underbody protection, steering, to front axle support

Used in step 18

Multi-purpose boltM10		Tightening torque	56 Nm
-----------------------	--	-------------------	-------

Underbody protection, steering, to front axle support

Used in step 18

Hexagon bolt M6		Tightening torque	8 Nm
-----------------	--	-------------------	------

Underbody protection

Used in step 1920

Hexagon screw		Tightening torque	3 Nm
---------------	--	-------------------	------

Underbody protection of the steering gear

Used in step 21

Hexagon screw for thermoplastic		Tightening torque	2.6 Nm
Hexagon bolt M6x20		Tightening torque	8 Nm

Wheel arch trim panel, front

Used in step 21

Thermoplastic hexagon screw		Tightening torque	2,6 Nm
-----------------------------	--	-------------------	--------



Underbody protection front

Used in step 22

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

Clean air pipe to exhaust turbocharger

Used in step 25

M6X20		Tightening torque	8 Nm
-------	--	-------------------	------

Clean air pipe to upper section of intake filter housing

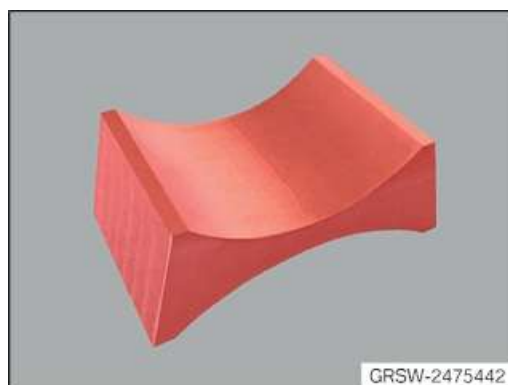
Used in step 25

Clamp		Tightening torque	3 Nm
-------	--	-------------------	------

Negative battery cable to 48-V battery

Used in step 28

Nut M8		Tightening torque	19 Nm
--------	--	-------------------	-------

Overview of Special Tools**2 475 442 Removal and installation tool****Common**

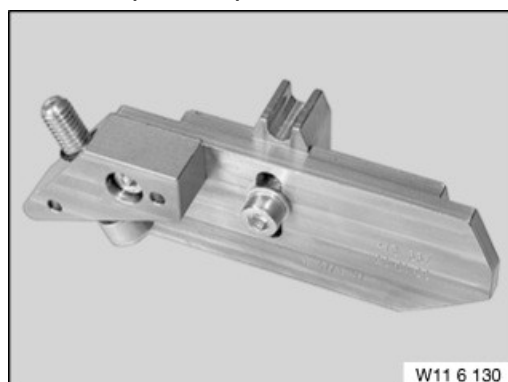
Used in step 623

Usage	For removing and installing the drive belt of the ancillary components.
Included in the tool or work	
Storage location	A8
Replaced by	
In connection with	83302475445
SI-Number	01 19 19 (668)

2 475 445 Pin**Common**

Used in step 623

Usage	Tool for drive belt of 48 V ancillary components
Included in the tool or work	
Storage location	A8
Replaced by	
In connection with	83302475442 83302475444
SI-Number	01 19 19 (668)

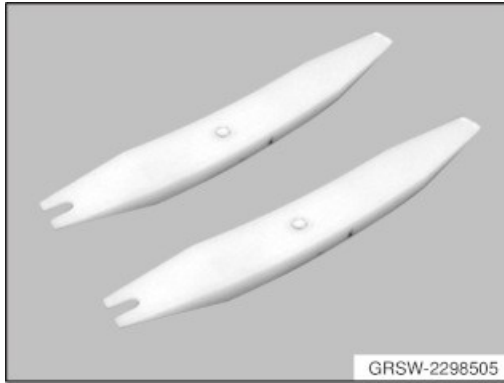
0 496 595 (11 6 130) Holder**Common**

Used in step 1316

Usage	(counter support) For securing flywheel when releasing and tightening down screw connection of vibration absorber. Series: E90, E91, E92 with 4WD.
Included in the tool or work	
Storage location	B26
Replaced by	
In connection with	
SI-Number	01 05 09 (519)



2 298 505 Wedge

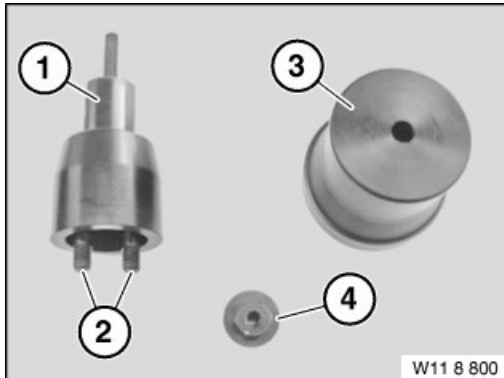


Common

Used in step 14

Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

0 496 128 (11 8 801) Basic body

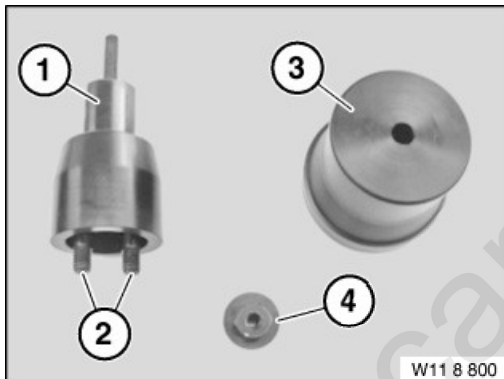


Common

Used in step 15

Usage	Available only as a complete tool set 11 8 800 = 83 30 0 496 127 - as of 30.11.2011
Included in the tool or work	0 496 127
Storage location	
Replaced by	
In connection with	
SI-Number	01 05 07 (353)

0 496 129 (11 8 802) Screw

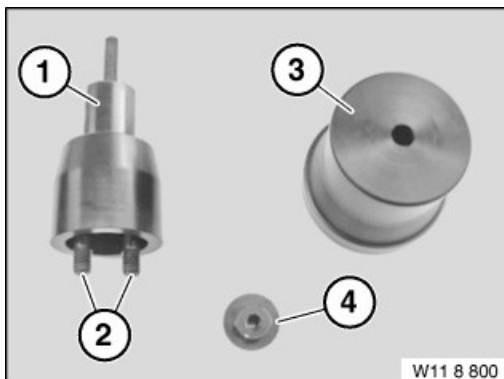


Common

Used in step 15

Usage	(Set of screws) Can only be ordered as part of complete tool 11 9 660 = 0495955
Included in the tool or work	0 496 127
Storage location	
Replaced by	
In connection with	
SI-Number	01 05 07 (353)

0 496 130 (11 8 803) Holding sleeve



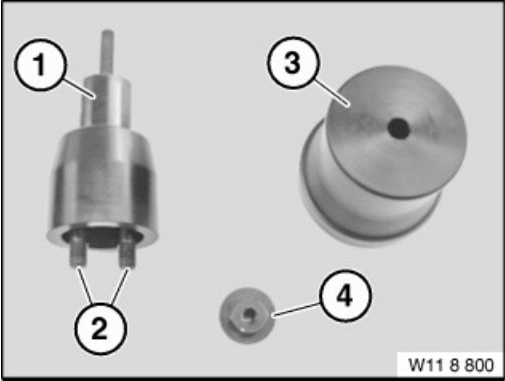
Common

Used in step 15

Usage	(Thrust piece) sale of existing inventory and then available as part of complete tool set 11 8 800 = 83 30 0 496 127 only - as of 30.11.2011
Included in the tool or work	0 496 127
Storage location	
Replaced by	
In connection with	
SI-Number	01 05 07 (353)



0 496 131 (11 8 804) Nut



Common		Used in step
Usage	(Nut with collar) available as part of set of tools 11 8 800 = 83 30 0 496 127 only - as of 30.11.2011	15
Included in the tool or work	0 496 127	
Storage location		
Replaced by		
In connection with		
SI-Number	01 05 07 (353)	

2 466 729 Fitting aid



Common		Used in step
Usage	For the installation of the vibration damper. Engine: B48, B58. Contour-graphic silhouette foil is included in the delivery specification.	16
Included in the tool or work		
Storage location	B55	
Replaced by		
In connection with		
SI-Number	01 07 18 (545)	

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	128

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	227
61 20 900 Disconnecting and connecting battery earth lead	227
61 20 900 Disconnecting and connecting battery earth lead	227
61 20 900 Disconnecting and connecting battery earth lead	227
61 20 900 Disconnecting and connecting battery earth lead	227
61 20 900 Disconnecting and connecting battery earth lead	227
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	227
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	227
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	227
61 20 900 Disconnecting and connecting battery earth lead	227
61 20 900 Disconnecting and connecting battery earth lead	227



11 23 010 Removing and installing/replacing vibration damper



WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.



RISK OF DAMAGE

Damage to battery terminal, the safety battery terminal or the intelligent battery sensor (IBS).

Damaged battery terminals can lead to malfunctions or vehicle electrical system faults.

- Pull off battery terminal from battery pole by carefully moving to and fro. Do not pry off using a tool.

PRELIMINARY WORK

1 – Disconnecting all battery earth leads



- See additional information.

2 – 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.

3 – Removing the clean air pipe with the resonator

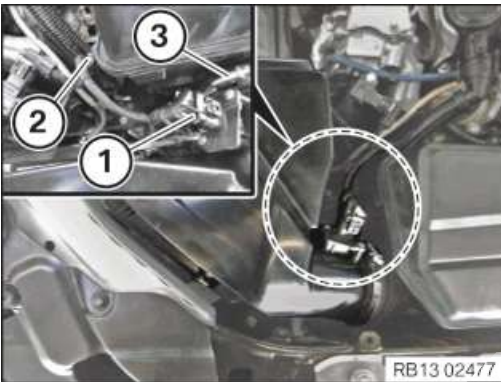


WARNING

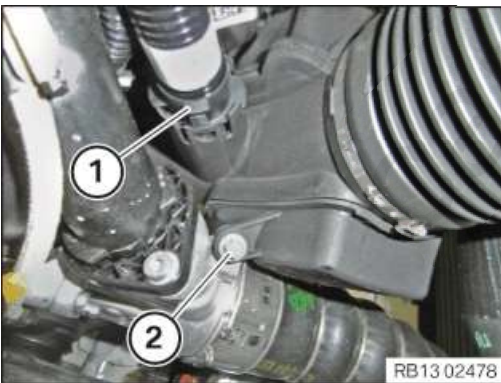
Hot surfaces.

Risk of burning!

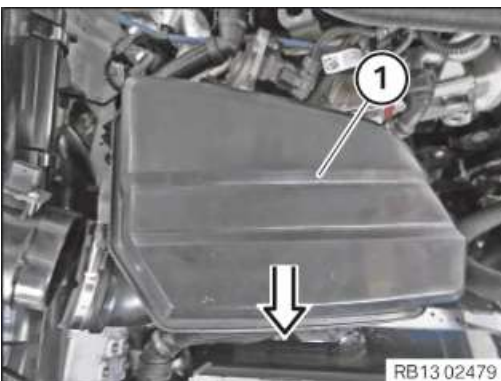
- Perform all work only on components that have cooled down.



- Unlock plug connection (1) and disconnect.
- Loosen clamp (2).
- Unfasten clamp (3).
- Separate the clean air pipe with resonator from the intake filter housing.



- Unlock engine ventilation line (1), disconnect it and place it aside.
- Loosen screw (2).



- Press and hold clean air pipe with resonator (1) in the direction of the arrow.





- Unlock and loosen clamp (1).



- Feed out and remove clean air pipe with resonator (1) in the direction of the arrow.

4 – Remove acoustic cover of the front engine

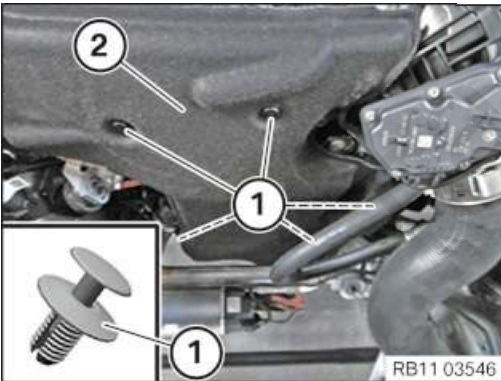


WARNING

Hot surfaces.

Risk of burning!

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



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

5 – Removing the drive belt for alternator



CAUTION

Spring preload.

Danger of injury!

- The use of the specified special tool (tool) is mandatory.
- The described operation must be carried out properly.





CAUTION

Component with preload.

Danger of injury!

- Reduce preload as far as possible before disassembly. Relieve component.



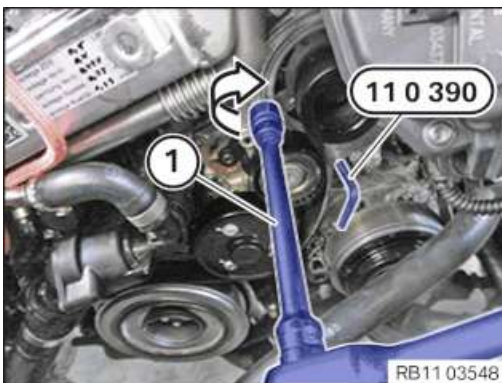
TECHNICAL INFORMATION

If the drive belt is reused: Mark direction of travel and reinstall drive belt in same direction of travel.

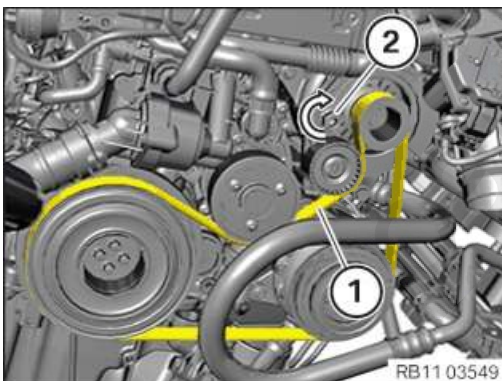


TECHNICAL INFORMATION

The drive belt must be replaced if contaminated with coolant- and oil residues.

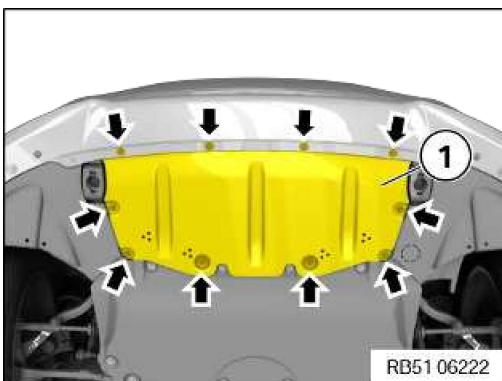


- If reusing the drive belt for alternator: Mark the direction of rotation.
- Relax the belt tensioner in the direction of the arrow using a standard tool (1).
- Fix the belt tensioner with the special tool [0 496 268 \(11 0 390\)](#).



- Relieve belt tensioner at hexagon head (2) in direction of arrow up to limit position.
- Guide out and remove drive belt for alternator (1).

6 – Removing the front underbody protection

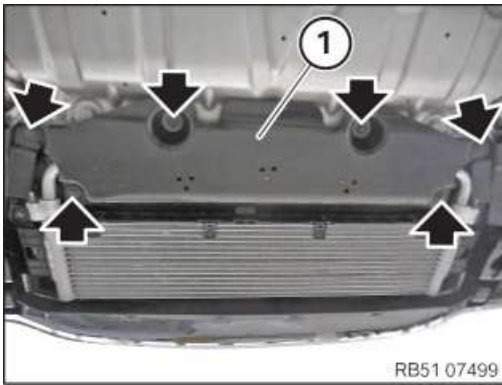


• Version A:

Remove screws (arrows).

Feed front underbody protection (1) backwards out of the bumper panel.

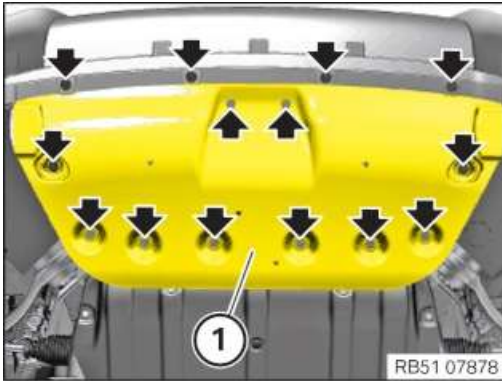




- **Version B:**

Remove screws (arrows).

Guide out front underbody protection (1) and remove it.

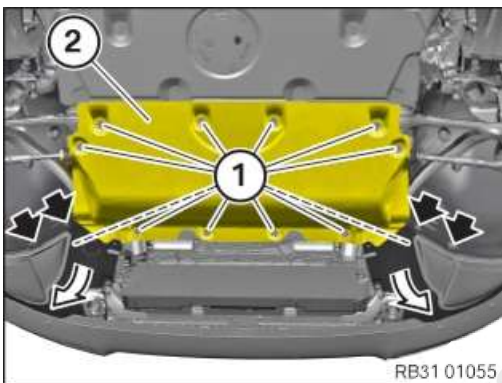


- **Version C:**

Remove screws (arrows).

Guide out front underbody protection (1) and remove it.

7 – Remove the underbody protection of the steering gear



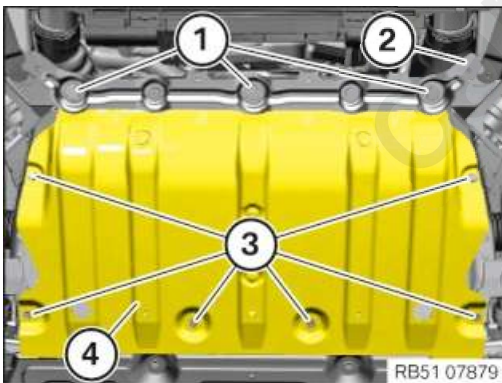
- **Version A:**

Unscrew the screws (arrows) of the wheel arch cover on the wheel arch cover.

Fold the bottom wheel arch cover to the side.

Loosen screws (1).

Remove the underbody protection (2) of the steering gear.



- **Version B:**

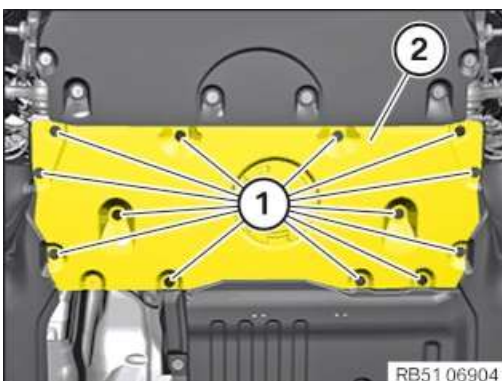
Loosen screws (1).

Remove the holder (2) for the underide protection.

Loosen screws (3).

Feed out and remove the underbody protection (4) of the steering gear.

8 – Removing the centre underbody protection

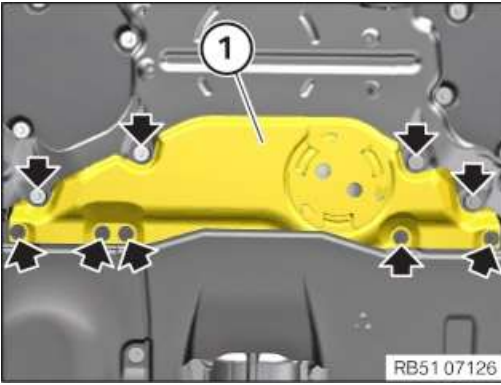


- **Variant with rear wheel drive:**

Loosen screws (1).

Remove centre underbody protection (2) .



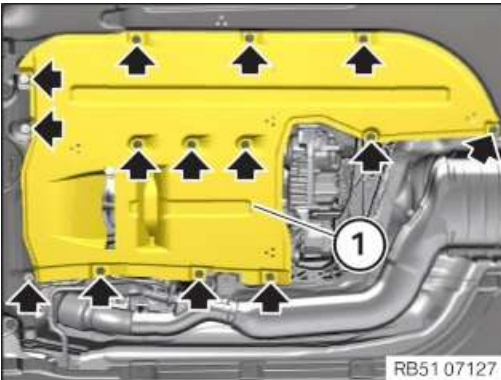


- **Version with all-wheel drive:**

Remove screws (arrows).

Feed out and remove the centre underbody protection (1).

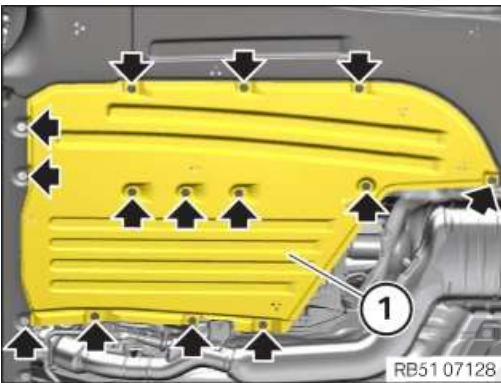
9 – Remove rear underbody protection



- **Version A:**

Remove screws (arrows).

Feed out the rear underbody protection (1).



- **Version B:**

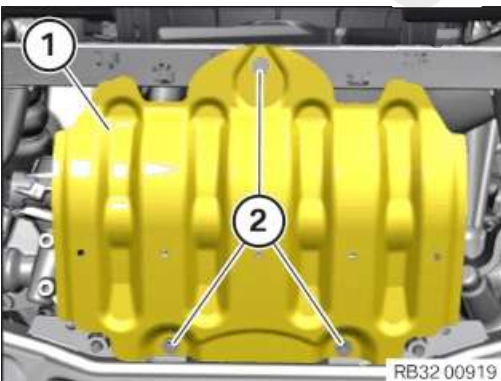
Remove screws (arrows).

Guide out rear underbody protection (1) and remove it.

10 – If installed: Removing the steering underbody protection

Prerequisite

Front underbody protection has been removed.



- Loosen screws (2).

- Remove underbody protection (1).

11 – Removing starter motor

Prerequisite

Battery earth leads are disconnected.





WARNING

Hot surfaces.

Risk of burning!

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



WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

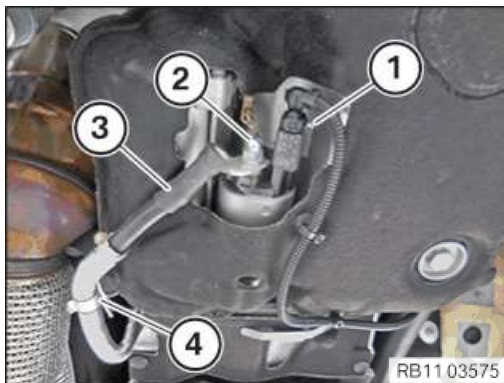
- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.



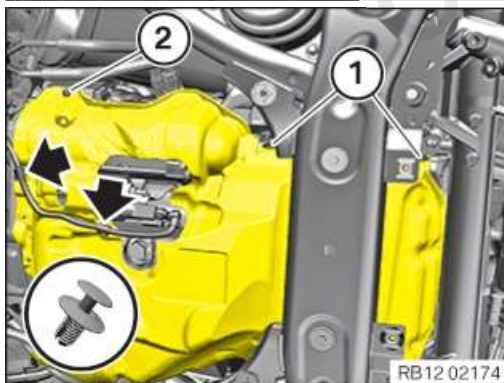
TECHNICAL INFORMATION

Make sure that the acoustic cover is **not** damaged while removing the starter motor.

A damaged lower acoustic cover can only be renewed when the front axle is lowered.

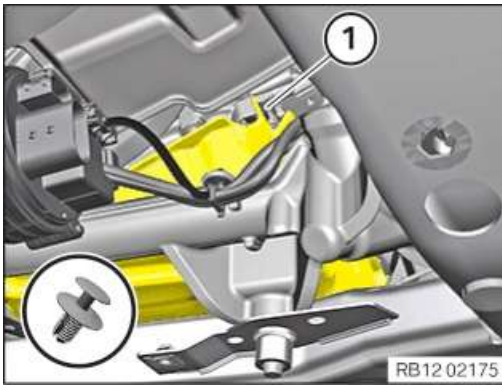


- Unlock plug connection (1) and disconnect.
- Release nut (2).
- Release positive battery cable (3) from holder (4).

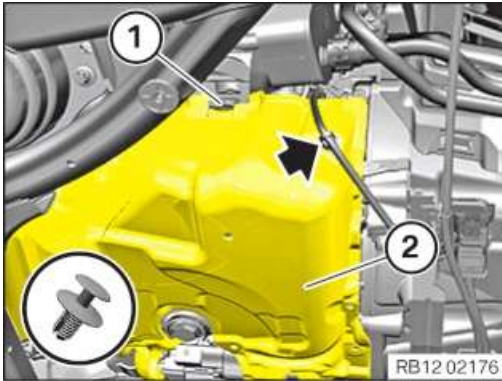


- Loosen the expanding rivet (1).
- Undo fir tree clip (2).
- Release the clamps (arrows).

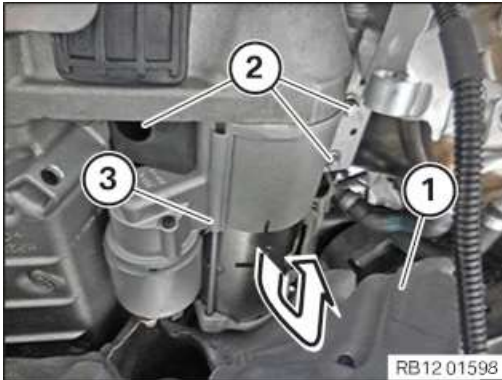




- Loosen expanding rivet (1).
- Lower the acoustic cover of the oil sump.



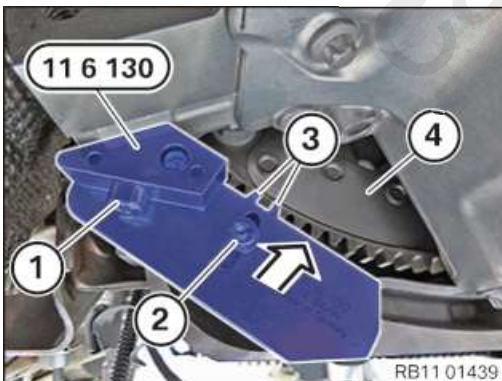
- Loosen expanding rivet (1).
- Loosen the clamp (arrow).
- Lower acoustic cover (2).



- Make sure that the acoustic cover (1) is not damaged.
- Carefully press acoustic cover (1) to one side.
- Loosen screws (2).
- Carefully guide out the starter motor (3) in direction of arrow and remove.

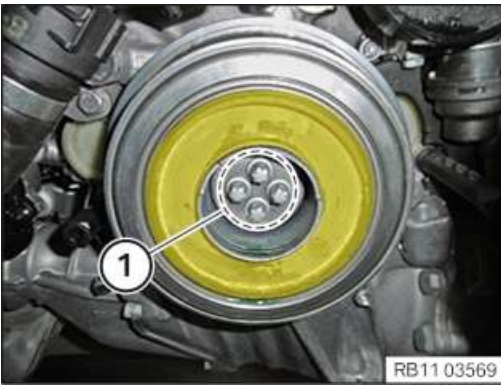
MAIN WORK

12 – Removing the vibration damper



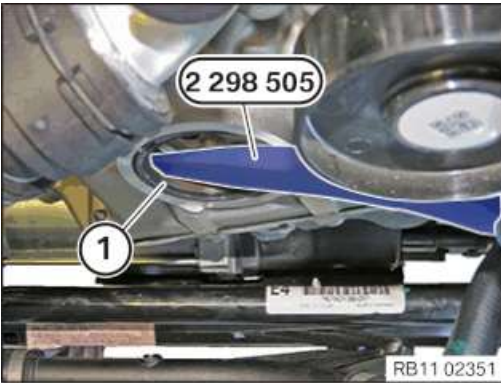
- Position the special tool [0 496 595 \(11 6 130\)](#) and secure it on the timing case cover using the bolt (1).
The special tool [0 496 595 \(11 6 130\)](#) must lie flat on the transmission housing.
- Slide the counter support with the bolt (2) up until the teeth (3) engage completely in the gearing of the flywheel.
- If necessary, turn the engine in the direction of rotation until the teeth (3) engage completely in the gearing of the flywheel (4).
- Tighten the screw (2).





- Loosen screws (1).
- Remove vibration damper.

13 – Remove the crankshaft seal



- Lever out the crankshaft seal (1) with the special tool [2 298 505](#).
Do not scratch the sealing surface on the engine block.

14 – Install the crankshaft seal



i

TECHNICAL INFORMATION

The radial shaft seal must be installed dry. Do not use engine oil or lubricant.

- Secure special tool [0 496 128 \(11 8 801\)](#) with special tool [0 496 129 \(11 8 802\)](#) to the crankshaft.



- Position the crankshaft seal (1) on the special tool [0 496 128 \(11 8 801\)](#).

Parts: Crankshaft seal



- Draw in the crankshaft sealing ring with the special tools [0 496 130 \(11 8 803\)](#) and [0 496 131 \(11 8 804\)](#).
- Screw in special tool [0 496 130 \(11 8 803\)](#) until it is flush with the crankcase.



15 – Installing the vibration damper



RISK OF DAMAGE

Radial shaft seal damage.

When installing the vibration damper, the rotary shaft seal can be damaged.

- The special tool must be used to install the vibration damper.



TECHNICAL INFORMATION

When removing and installing or replacing the vibration damper, the rotary shaft seal must be replaced.



- Clean the sealing surface (1) from oil and contamination.

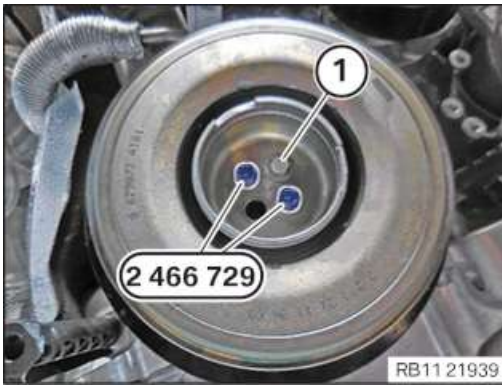


- Screw the special tool [2 466 729](#) hand-tight into the crankshaft.



- Insert vibration damper (1) into the special tool [2 466 729](#) and install.





- Renew screws (1).
- Hand-tight the bolts (1).
- Guide the special tool [2 466 729](#) out and remove.

Parts: Screws

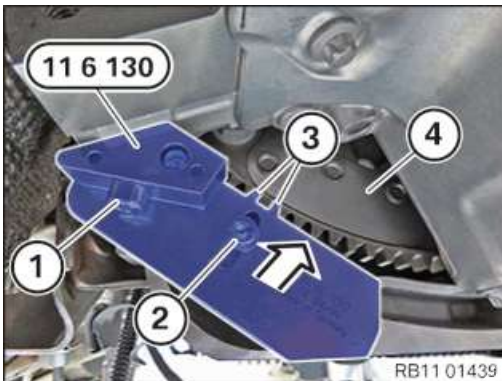


- Renew all remaining screws (1).
- Tighten the screws (1).

Parts: Screws

Vibration damper with belt pulley to crankshaft

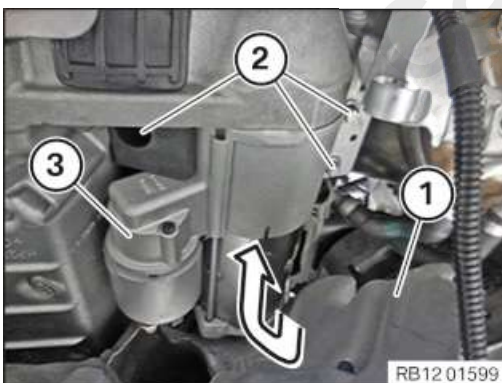
M10x65	Renew screws.	Jointing torque	40 Nm
		Angle of rotation	120 °



- Loosen screw (2).
- Release the gearing (3) of the counter support from the flywheel (4).
- Unscrew the screw (1) and remove the special tool [0 496 595 \(11 6 130\)](#).

POSTPROCESSES

16 – Installing starter motor

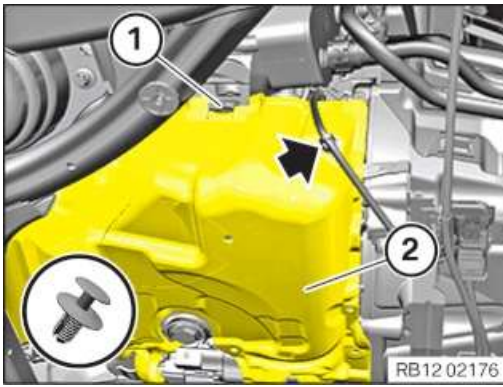


- Make sure that the acoustic cover (1) is not damaged.
- Carefully press the acoustic cover (1) to one side.
- Feed in and install the starter motor (3) in the direction of the arrow.
- Tighten the screws (2).

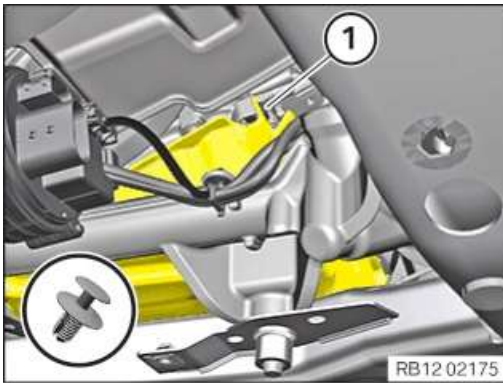
Starter motor to engine

M8X60		Tightening torque	19 Nm
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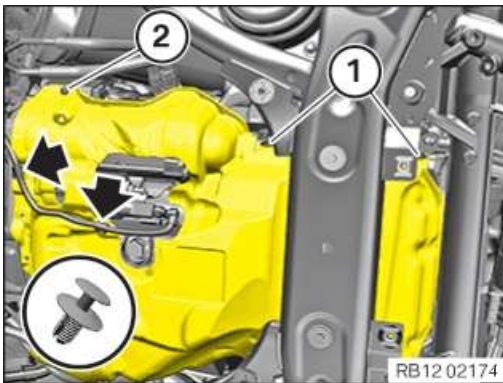




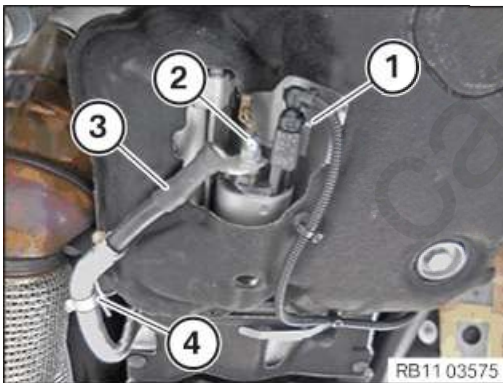
- Position the acoustic cover (2).
- Fasten expanding rivet (1).
- Secure clamp (arrow).



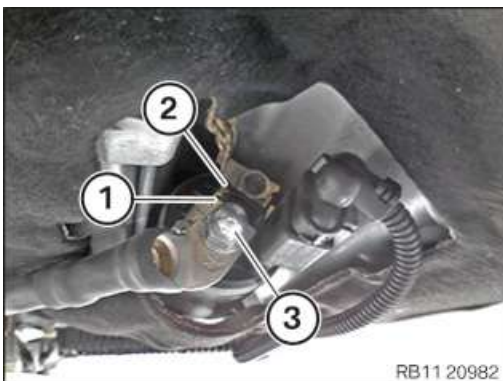
- Fasten expanding rivet (1).



- Secure fir tree clip (2).
- Secure expanding rivet (1).
- Secure the clamps (arrows).



- Fasten positive battery cable(3) in holder (4) and position it on the starter motor.
- Tighten the nut (2) hand-tight.
- Connect the connector (1) and audibly lock it.



CAUTION

Improper routing of the positive battery cable.

Risk of short circuits!

- Route the positive battery cable without abrasions and do not trap.

- Attach the positive battery cable (1) **correctly** to anti-twist lock (2).
- Tighten nut (3).

Battery positive lead to starter

M8

Tightening torque

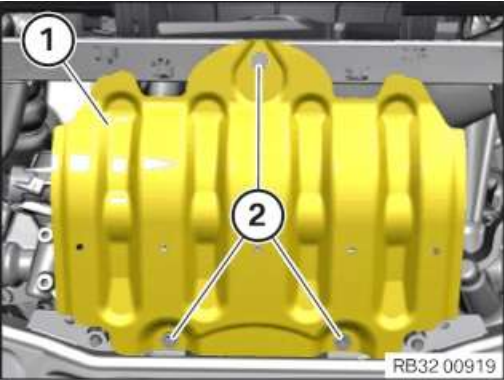
13,5 Nm



17 – If installed: Install underbody protection of the steering

Prerequisite

Front underbody protection has been removed.



- Position underbody protection (1).
- Tighten the screws (2).

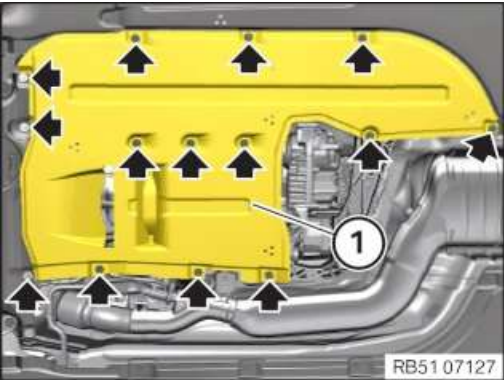
Underbody protection, steering, to front axle support

Multi-purpose boltM10		Tightening torque	56 Nm
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Underbody protection, steering, to front axle support

Hexagon bolt M6		Tightening torque	8 Nm
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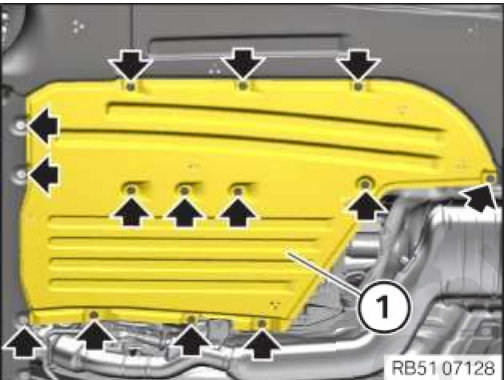
18 – Installing underbody protection at rear



- **Version A:**
Insert and install the rear underbody protection (1).
Tighten screws (arrows).

Underbody protection

Hexagon screw		Tightening torque	3 Nm
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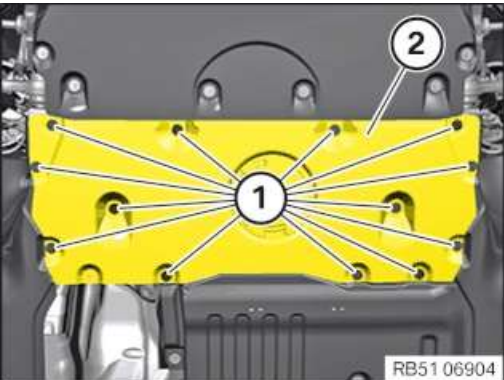


- **Version B:**
Insert and install the rear underbody protection (1).
Tighten screws (arrows).

Underbody protection

Hexagon screw		Tightening torque	3 Nm
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19 – Installing the centre underbody protection

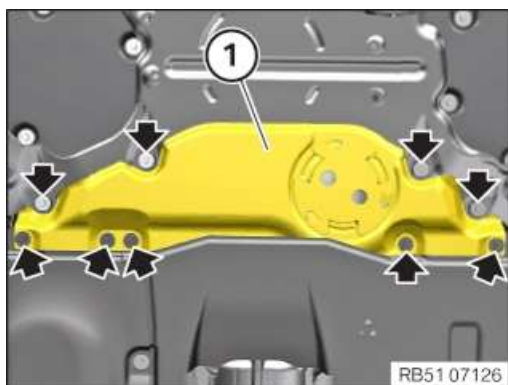


- **Variant with rear wheel drive:**
Position central underbody protection (2).
Tighten the screws (1).

Underbody protection

Hexagon screw		Tightening torque	3 Nm
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- **Version with all-wheel drive:**

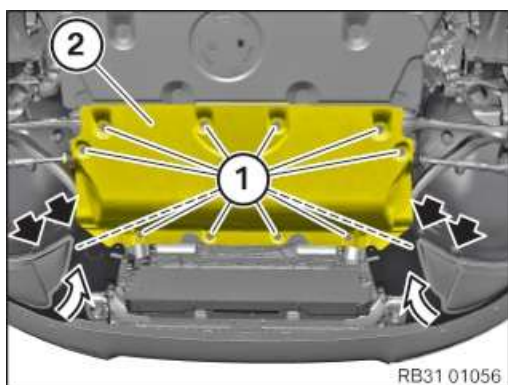
Guide in centre underbody protection (1) and install.

Tighten screws (arrows).

Underbody protection

Hexagon screw		Tightening torque	3 Nm
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20 – Install the underbody protection of the steering gear



- **Version A:**

Position the underbody protection (2) of the steering gear.

Tighten the screws (1).

Underbody protection of the steering gear

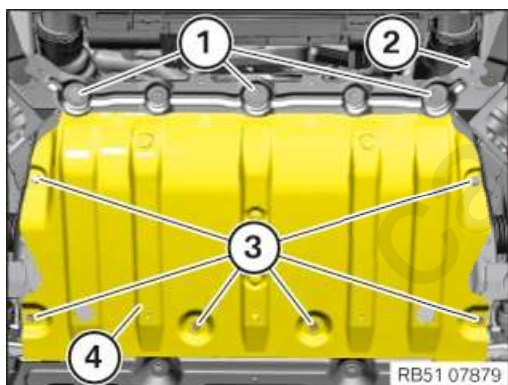
Hexagon screw for thermoplastic		Tightening torque	2.6 Nm
Hexagon bolt M6x20		Tightening torque	8 Nm

- Position the bottom wheel arch cover.

Tighten the screws (arrows) of the lower wheel arch cover on the wheel arch cover.

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm
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- **Version B:**

Feed in the underbody protection (4) of steering gear and install it.

Tighten the screws (3).

Underbody protection of the steering gear

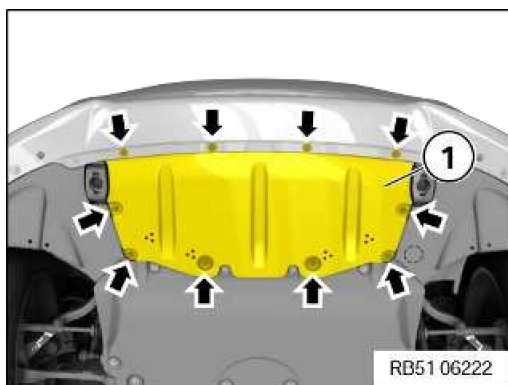
Hexagon screw for thermoplastic		Tightening torque	2.6 Nm
Hexagon bolt M6x20		Tightening torque	8 Nm

- Position the holder (2) for the underride protection.

Tighten the screws (1).

21 – Installing the front underbody protection





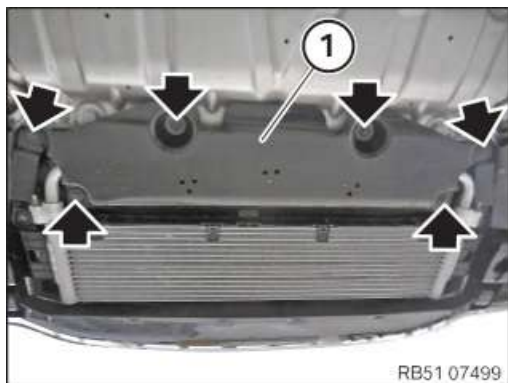
• **Version A:**

Feed in the front underbody protection (1) towards the front under the bumper panel and position.

Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm



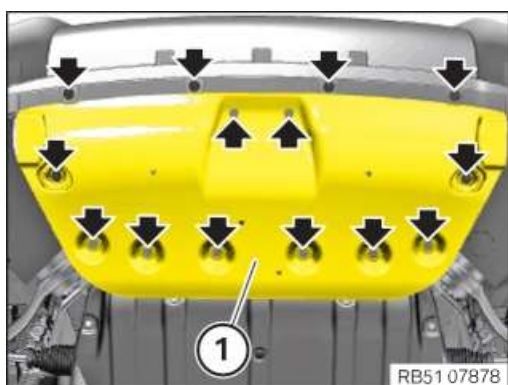
• **Version B:**

Feed in and position the front underbody protection (1).

Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm



• **Version C:**

Feed in and install front underbody protection (1).

Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

22 – Installing the drive belt for alternator



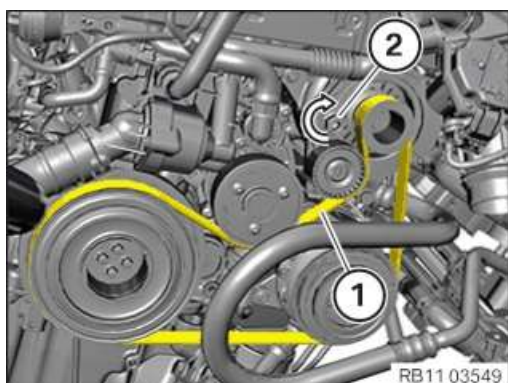
TECHNICAL INFORMATION

If the drive belt is reused: Mark direction of travel and reinstall drive belt in same direction of travel.



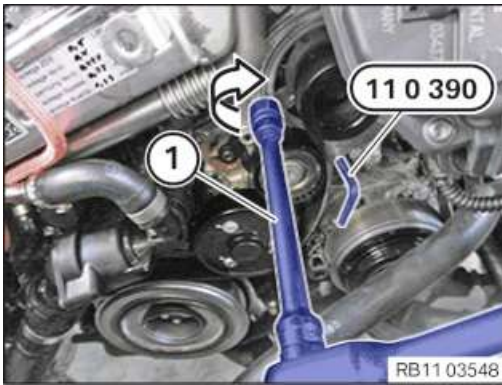
TECHNICAL INFORMATION

The drive belt must be replaced if contaminated with coolant- and oil residues.



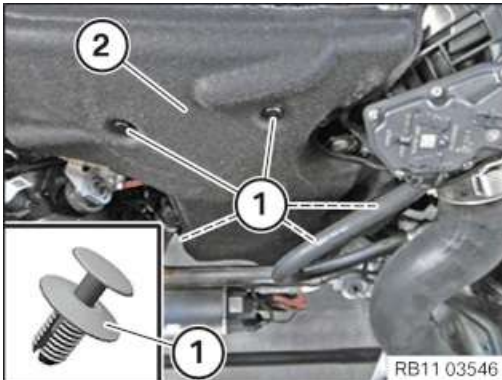
- Check drive belt for alternator (1) for coolant and oil residues and, if necessary, renew it.
- Relieve belt tensioner at hexagon head (2) up to limit position in direction of arrow.
- Install drive belt for alternator (1).





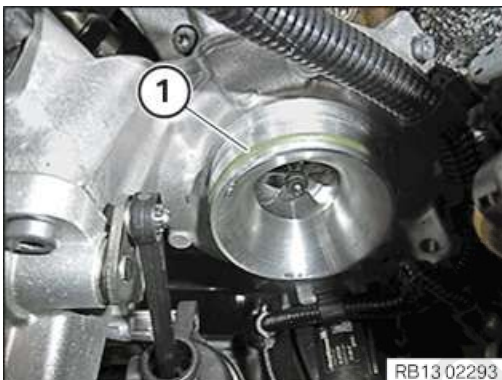
- Increase the preload of the belt tensioner using conventional tool (1) in the direction of arrow until the special tool [0 496 268 \(11 0 390\)](#) can be removed.
- Remove special tool [0 496 268 \(11 0 390\)](#).
- Stretch the drive belt for the alternator.

23 – Install acoustic cover for the engine, front

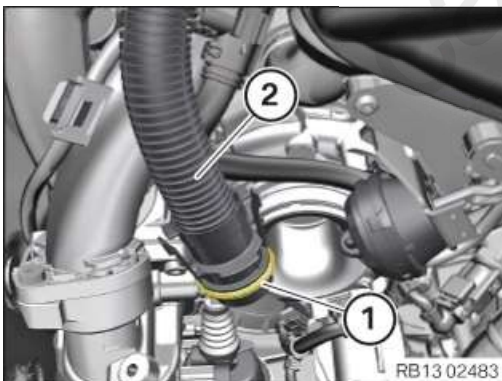


- Feed the acoustic cover (2) in and install.
- Secure the acoustic cover (2) with the expanding rivets (1).

24 – Installing the clean air pipe with resonator



- Check the sealing ring (1) on the exhaust turbocharger for damage and renew if necessary.

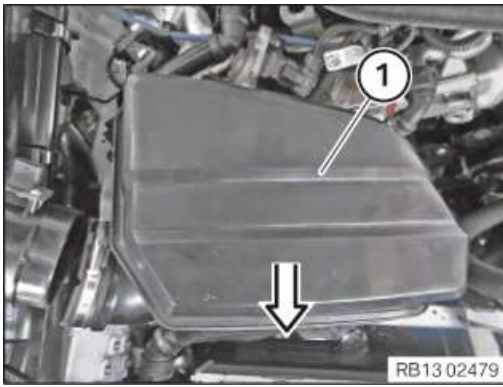


- Check the sealing ring (1) for the engine ventilation line (2) for damage and renew where required.



- Feed in and install clean air pipe with resonator (1) in the direction of the arrow.

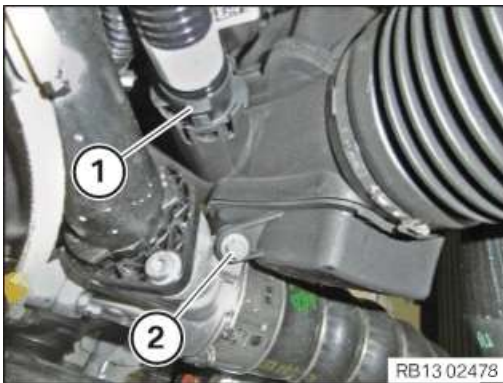




- Press and hold clean air pipe with resonator (1) in the direction of the arrow.



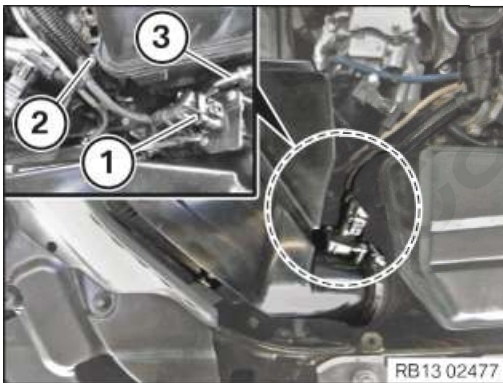
- Attach and lock the clamp (1).
The clamp (1) must engage audibly.



- Tighten down screw (2).

Clean air pipe to exhaust turbocharger

M6X20		Tightening torque	8 Nm
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- Connect the clean air pipe with resonator to the intake filter housing.
- Tighten clamp (3).

Clean air pipe to upper section of intake filter housing

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

25 – Install acoustic cover



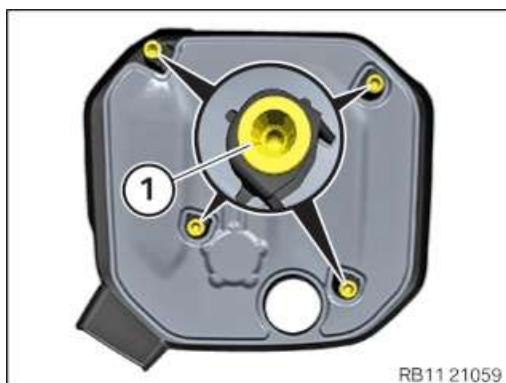
RISK OF DAMAGE

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.

26 – Connecting all battery earth leads



- See additional information.

Additional Information

Overview of Tightening Torques

Vibration damper with belt pulley to crankshaft

Used in step 15

M10x65	Renew screws.	Jointing torque	40 Nm
		Angle of rotation	120 °

Starter motor to engine

Used in step 16

M8X60		Tightening torque	19 Nm
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Battery positive lead to starter

Used in step 16

M8		Tightening torque	13,5 Nm
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Underbody protection, steering, to front axle support

Used in step 17

Multi-purpose boltM10		Tightening torque	56 Nm
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Underbody protection, steering, to front axle support

Used in step 17

Hexagon bolt M6		Tightening torque	8 Nm
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Underbody protection

Used in step 1819

Hexagon screw		Tightening torque	3 Nm
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Underbody protection of the steering gear

Used in step 20

Hexagon screw for thermoplastic		Tightening torque	2.6 Nm
Hexagon bolt M6x20		Tightening torque	8 Nm

Wheel arch trim panel, front

Used in step 20

Thermoplastic hexagon screw		Tightening torque	2,6 Nm
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Underbody protection front

Used in step 21

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

Clean air pipe to exhaust turbocharger

Used in step 24

M6X20		Tightening torque	8 Nm
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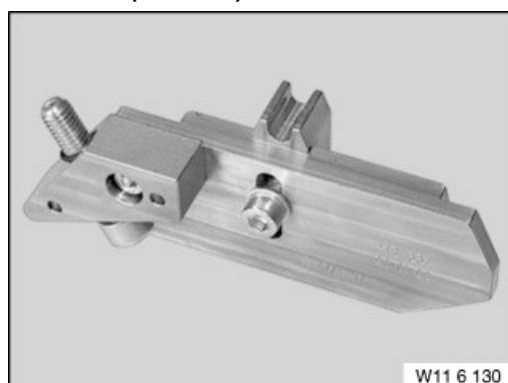
Clean air pipe to upper section of intake filter housing

Used in step 24

Clamp		Tightening torque	3 Nm
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Overview of Special Tools**0 496 268 (11 0 390) Pin****Common**

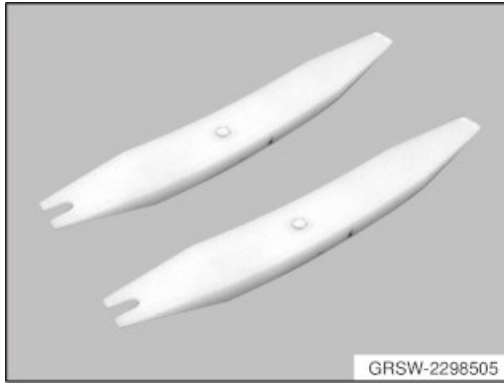
Used in step 522

Usage (roll pin) For securing new tensioning pulley (poly-V belt)**Included in the tool or work****Storage location** B24**Replaced by****In connection with****SI-Number** 01 15 07 (390)**0 496 595 (11 6 130) Holder****Common**

Used in step 1215

Usage (counter support) For securing flywheel when releasing and tightening down screw connection of vibration absorber. Series: E90, E91, E92 with 4WD.**Included in the tool or work****Storage location** B26**Replaced by****In connection with****SI-Number** 01 05 09 (519)

2 298 505 Wedge



Common

Used in step 13

Usage Set (delivery of 2 pieces)

Included in the tool or work

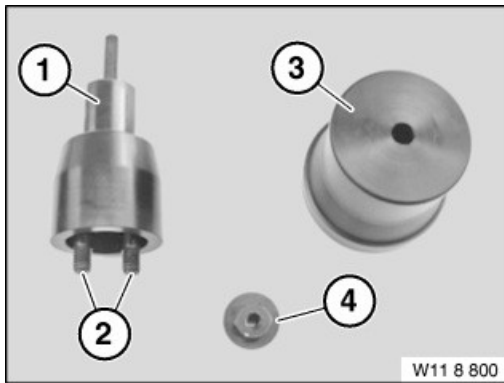
Storage location C34

Replaced by

In connection with

SI-Number 01 03 12 (792)

0 496 128 (11 8 801) Basic body



Common

Used in step 14

Usage Available only as a complete tool set 11 8 800 = 83 30 0 496 127 - as of 30.11.2011

Included in the tool or work 0 496 127

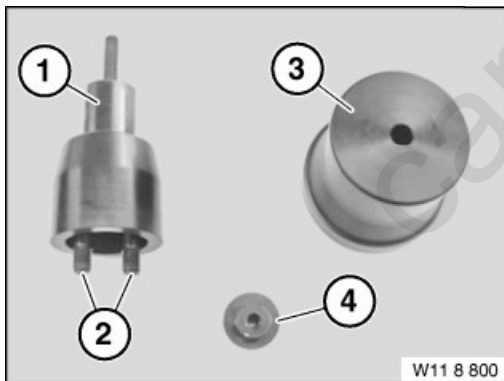
Storage location

Replaced by

In connection with

SI-Number 01 05 07 (353)

0 496 129 (11 8 802) Screw



Common

Used in step 14

Usage (Set of screws) Can only be ordered as part of complete tool 11 9 660 = 0495955

Included in the tool or work 0 496 127

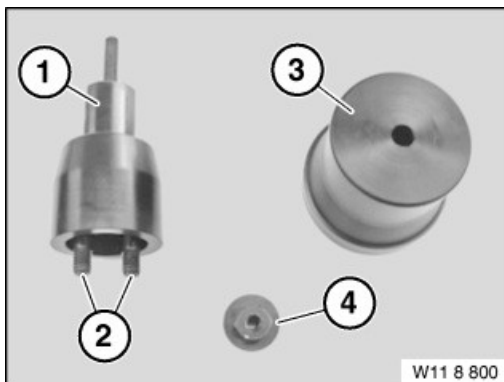
Storage location

Replaced by

In connection with

SI-Number 01 05 07 (353)

0 496 130 (11 8 803) Holding sleeve



Common

Used in step 14

Usage (Thrust piece) sale of existing inventory and then available as part of complete tool set 11 8 800 = 83 30 0 496 127 only - as of 30.11.2011

Included in the tool or work 0 496 127

Storage location

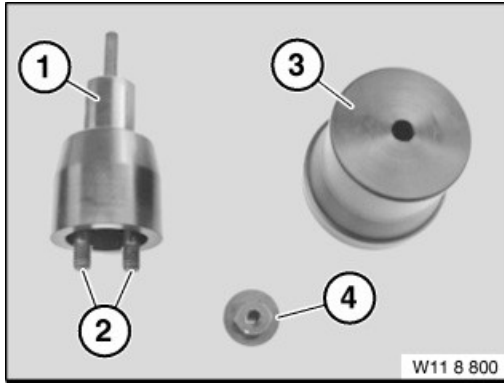
Replaced by

In connection with

SI-Number 01 05 07 (353)



0 496 131 (11 8 804) Nut



Common

Used in step 14

Usage	(Nut with collar) available as part of set of tools 11 8 800 = 83 30 0 496 127 only - as of 30.11.2011
Included in the tool or work	0 496 127
Storage location	
Replaced by	
In connection with	
SI-Number	01 05 07 (353)

2 466 729 Fitting aid



Common

Used in step 15

Usage	For the installation of the vibration damper. Engine: B48, B58. Contour-graphic silhouette foil is included in the delivery specification.
Included in the tool or work	
Storage location	B55
Replaced by	
In connection with	
SI-Number	01 07 18 (545)

Links

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	126
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	126
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126
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61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126



61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	126
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	126
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126
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