




SI B11 09 16
Engine

February 2018
Technical Service

N63, N63TU, S63 and S63TU Engines: Oil Leak from the Rear of the Engine and Transmission Bell Housing

New information provided by this revision is preceded by this symbol .

This Service Information bulletin replaces SI B11 09 16 dated May 2016

What's New:

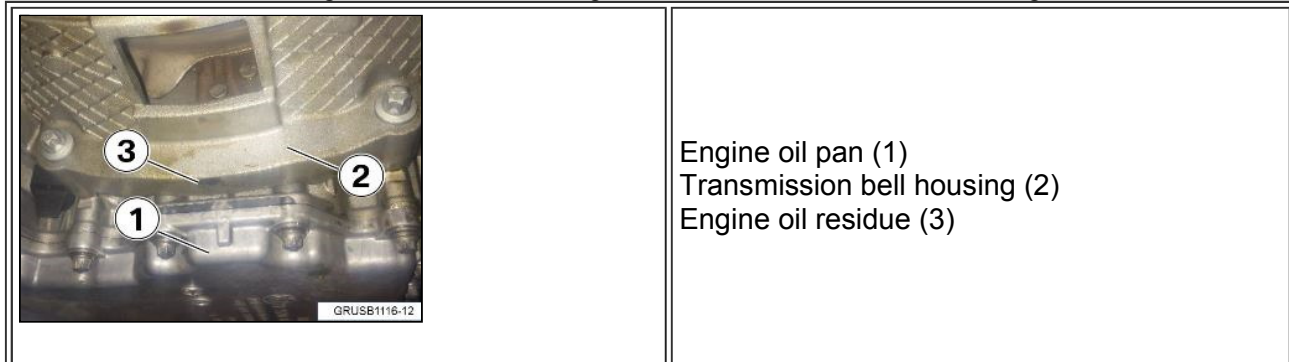
- Rear seal part number update in parts section and attachment

MODEL

E70 (X5)	E71 (X6)	E70 (X5M)	E71 (X6M)
E72 (ActiveHybrid X6)	F01 (7 Series Sedan)	F01 (ALPINA B7)	F02 (7 Series Sedan LWB)
F02 (ALPINA B7 LWB)	F04 (Active Hybrid 7)	F06 (6 Series Gran Coupe)	F06 (ALPINA B6 GC)
F07 (Gran Turismo)	F10 (5 Series Sedan)	F12 (6 Series Convertible)	F13 (6 Series Coupe)
F10 (M5 Sedan)	F12 (M6 Convertible)	F13 (M6 Coupe)	

SITUATION

Customer complains that engine oil is leaking from the center of the vehicle. When verified, the engine oil residue can be seen leaking from between the engine and the transmission bell housing.



PROCEDURE

Refer to the attached procedure for diagnosis steps and repair procedures.

PARTS INFORMATION

If the engine oil leak diagnosis described in the attachment supports the removal of the transmission, replacement of the end cover, rear and the crankshaft seal.

Part Number	Description	Quantity
11 14 2 446 298	Updated, end cover, rear kit	1
UPDATE! Refer to ETK using the vin number of the vehicle	Cap with rear seal (rear crankshaft seal)	1
83 21 2 365 946	Motor Oil SAE 5W-30 Long-life (1 liter)	Up to 2 for topping
82 14 1 467 704	Antifreeze	As needed per the Repair Instructions
Refer to ETK	Transmission Fluid	1 liter

Refer to the ETK and the repair instructions for one time use fastener and component information regarding additional screws, gaskets and seals.

WARRANTY INFORMATION

Covered under the terms of the BMW New Vehicle Limited Warranty for Passenger Cars and Light Trucks or the BMW Certified Pre-Owned Program.

Defect Code:	UPDATE! 1114024800	
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UPDATE! All vehicles except the ALPINA models:

Labor Operation:	Labor Allowance:	Description:
11 65 180	Refer to KSD2	Removing and installing heat shield at top
And:		
11 99 000	5 FRU	Diagnosis work time to verify engine oil leak location
And:		
11 14 750	Refer to KSD2	Removing, installing and replacing rear coolant end cover

Labor operation code 11 65 180 is a Main labor operation. If you are using a Main labor code for another repair, use the Plus code labor operation 11 65 680 instead.

Work time labor operation code 11 99 000 is not considered a Main labor operation. Also, since the "work time" FRU allowance to be claimed is specified, a separate punch time is not required.

Or

UPDATE! All ALPINA models:

Labor Operation:	Labor Allowance:	Description:
11 99 000	See below*	Work time to diagnosis and replace the rear coolant end cover

***ALPINA Work Time Calculation:** Using the “non-APLINA version” of the vehicle being repaired, claim 5 FRU (diagnosis) plus the sum total for the KSD2 listed “FRU allowances” for labor operations 11 65 180 or 11 65 680 and 11 14 750. Explain and itemize this work time on the repair order and in the claim comments.

And:

Defect Code:	1114044800	
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UPDATE ! All vehicles except the ALPINA models:

Labor Operation:	Labor Allowance:	Description:
11 14 605	Refer to KSD2	Replacing rear crankshaft radial oil seal (transmission removed)

Or

UPDATE ! All ALPINA models:

Labor Operation:	Labor Allowance:	Description:
11 99 000	See below**	Work time to replace the rear crankshaft radial oil seal (transmission removed)

****ALPINA Work Time Calculation:** Using the “non-APLINA version,” claim the KSD2 listed “FRU allowance” for labor operation 11 14 605. Explain and itemize this work time on the repair order and in the claim comments.

Sublet – Bulk Materials

Sublet Code 4	See sublet reimbursement calculation below	Reimbursement for the repair-related bulk materials (BMW part number, please do not use the part numbers for claim submission)
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Sublet reimbursement calculation for claiming the “used quantities” of repair-related bulk materials (BMW part numbers) is at dealer net plus your center’s handling.

Enter this material cost in sublet and itemize the amount on the repair order and in claim comment section.

One gallon (3.78 liters) of Antifreeze/Coolant provides 2 gallons or 8 quarts (7.57 liters) when mixed with water to create a 50/50 recommended mixture.

UPDATE ! **Overlapping Labor Procedure – Other Repairs**

If invoicing the KSD2 flat rate labor operation codes for other repair work results in overlapping labor, for those flat rate labor operations that are affected, you can now:

- Replace the stated KSD2 “FRU allowance” with a “reduced FRU value” to eliminate the overlapping labor.

For help in identifying the overlapping labor, please refer to the AIR FRU Plausibility Check (Overlapping Labor Tool) that is located in the AIR Client.

Eligible other repair work being claimed under a different defect code will require separate punch times.

On the repair order and in the claim comment section, please identify and itemize those labor operations being claimed with a "reduced FRU value."

Posted: Friday, February 9, 2018

ATTACHMENTS

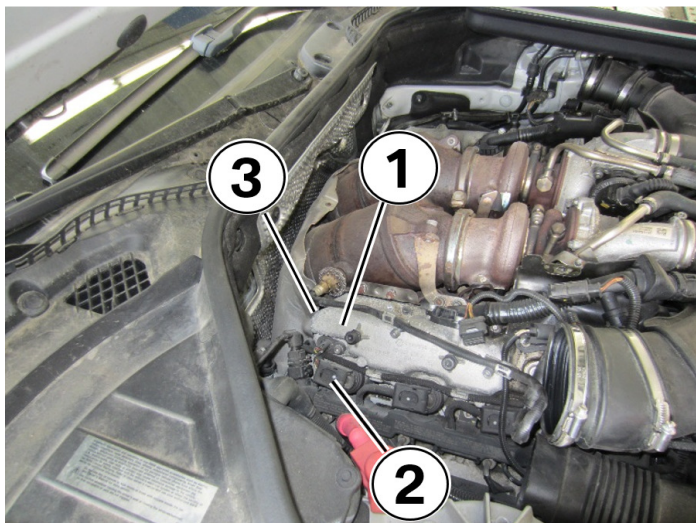
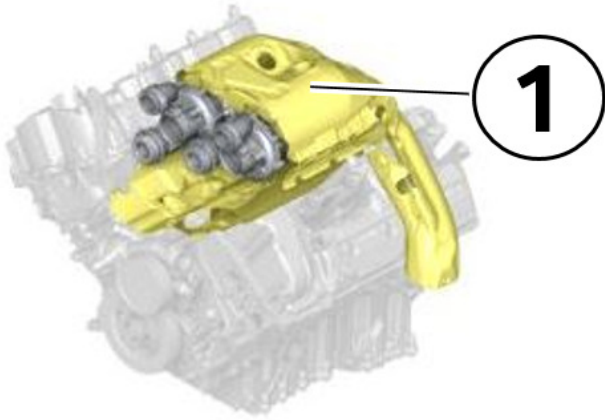
View PDF attachment [**B110916 Oil Leak Diagnosis and Repair.**](#)

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Engine Oil Leak Diagnosis and Repair Procedure

1. Remove the heat shield (1) to diagnose the engine oil leak.

Refer to Repair Instruction 11 65 180
Removing and installing/replacing heat shield at top.

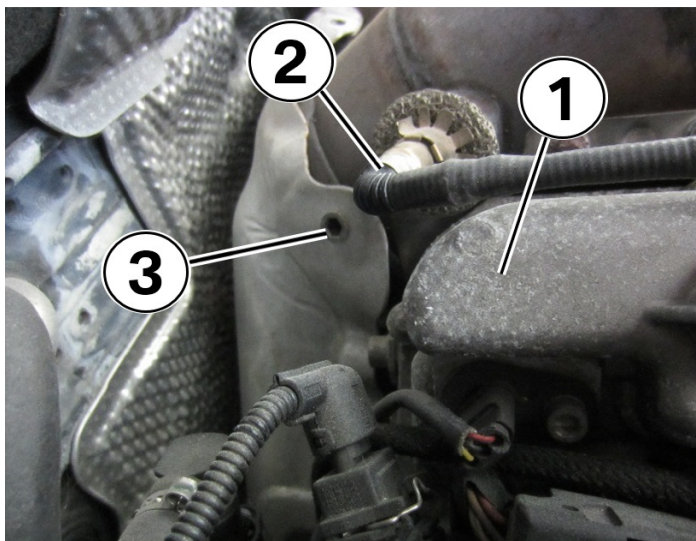


2. The illustration shows an overview of the components found on cylinder bank 1.

Cylinder head cover (1)

Cylinder # 4 (2)

Inspection location (3)



3. The illustration shows an overview of the components found on cylinder bank 1.

Cylinder head cover (1)

Bank 1 post O2 sensor (2)

Heat shield mounting hole (3)



4. Preparing for the inspection:

Bore scope specifications:

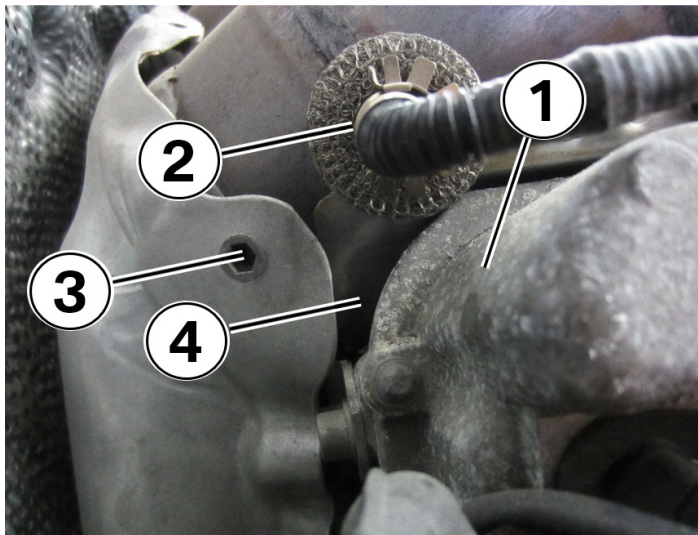
The recommended diameter of the fiber optic cable (imager) should not be greater than 5.5 mm. The 8 mm fiber optic cable (imager) will work but it is very tight and damage may occur to the larger cable and imager.

The recommended borescope and imager can be found at www.centersolutions.com or refer to SI B04 19 15 for more information about the BMW Equipment Program.

Equipment Program Part Numbers:

107 - BK5000 - SNAP ON Video Scope

107- BK8000 – 5.5 mm Dual View Side Imager



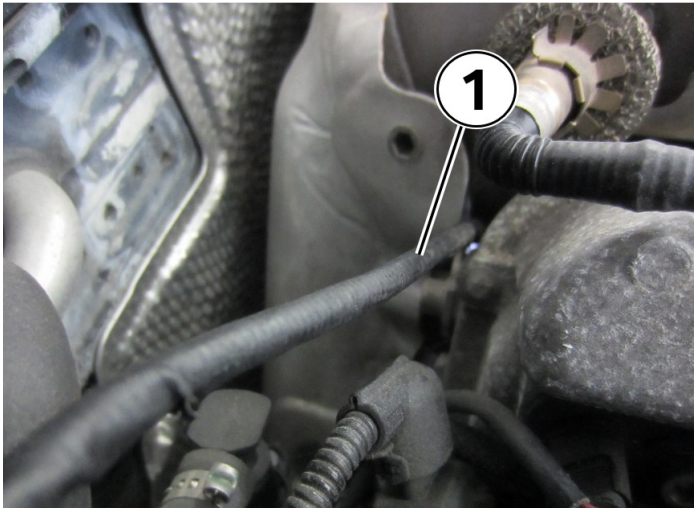
5. The illustration shows an overview of the components found on cylinder bank 1.

Cylinder head cover (1)

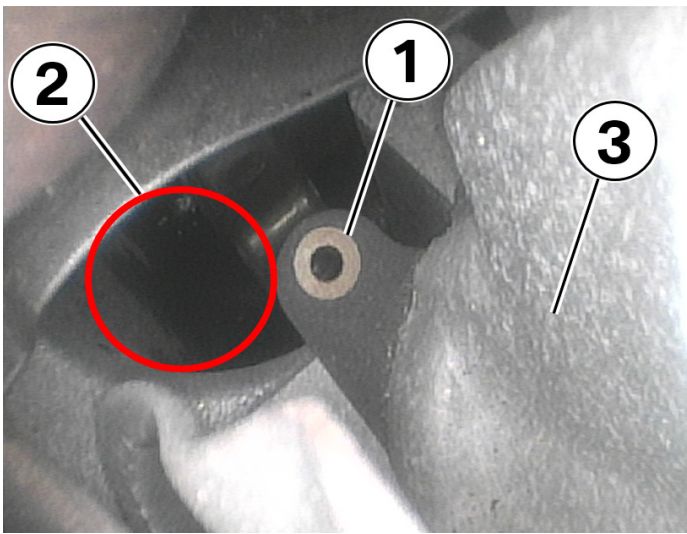
Bank 1 post O2 sensor (2)

Heat shield mounting hole (3)

Insert bore scope here (4) on an angle downward.



6. Approach angle of the bore scope (1) is approximately 45 degrees.



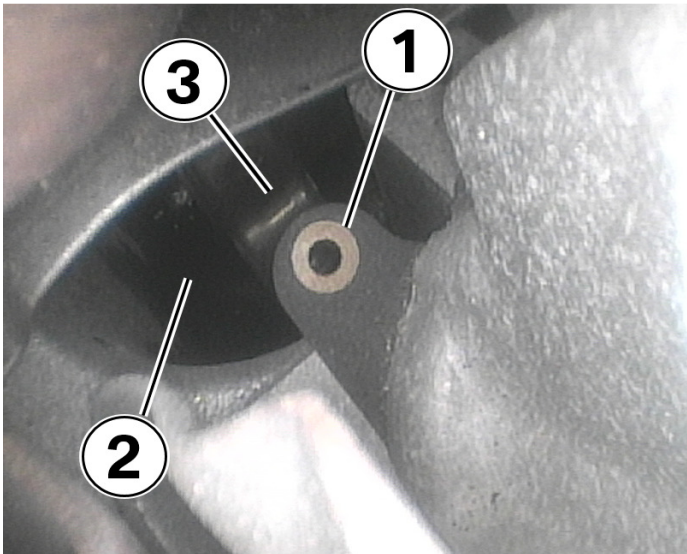
7. After inserting the bore scope you must locate the cylinder head gasket tab. (1).

The tab is approximately 135 mm straight down from original entry point.

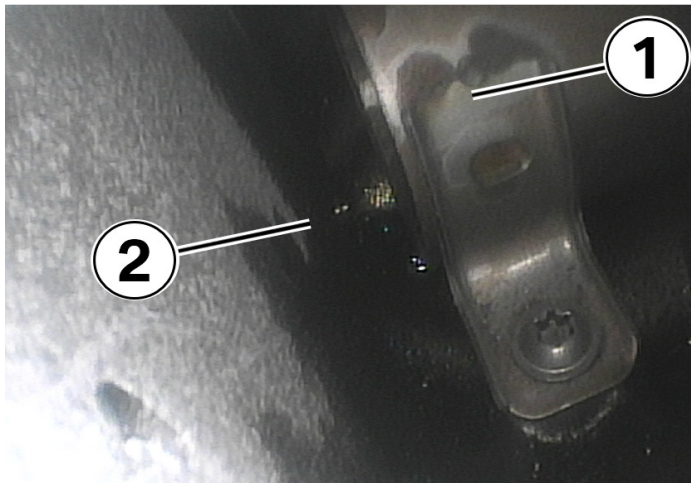
Cylinder head gasket tab (1)

Gap in heat shields (2)

Cylinder head (3)



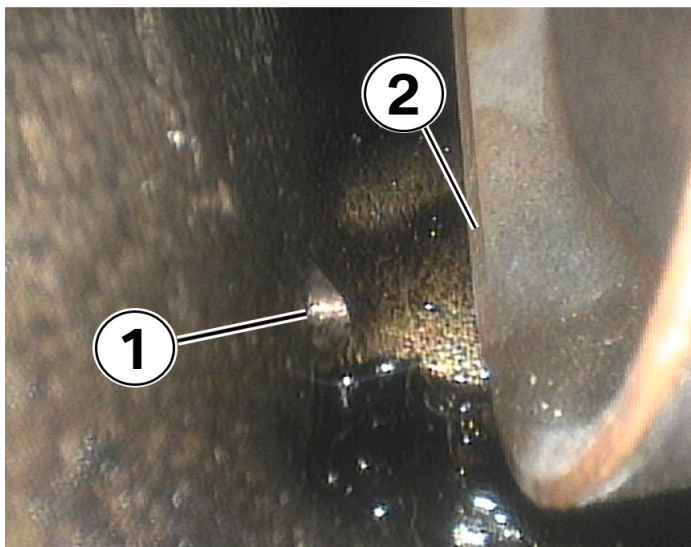
8. Feed the bore scope past the left side (1) of the cylinder head gasket tab (2) towards the vacuum reservoir (3).



9. Continue to push the bore scope towards the vacuum reservoir (1). The engine valley drain hole is location is just to the left of the vacuum reservoir (2).

Metal vacuum reservoir shown in photo.

As the bore scope approaches the drain hole it will become more apparent.



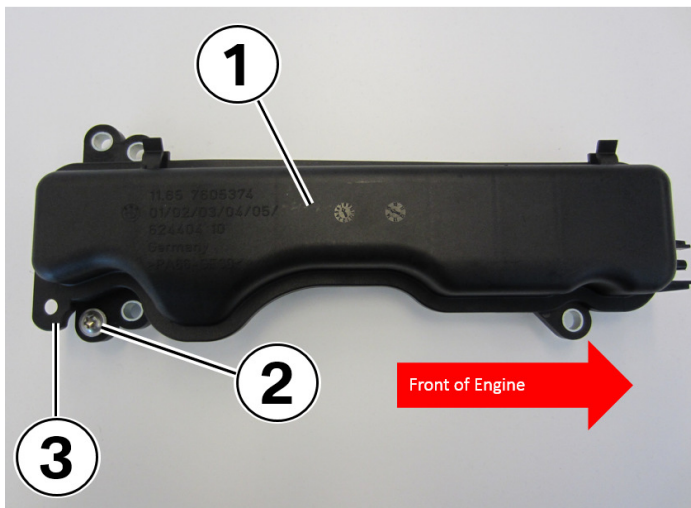
10. Inspect the surrounding area of the engine valley drain hole (1).

Engine valley drain hole (1)

Metal vacuum reservoir (2) shown.

This is a clean picture. No oil can be seen in the oil drain hole (1).

The dark material at the bottom of the photo is dust and dirt. This material appears to be reflective but it is dry.

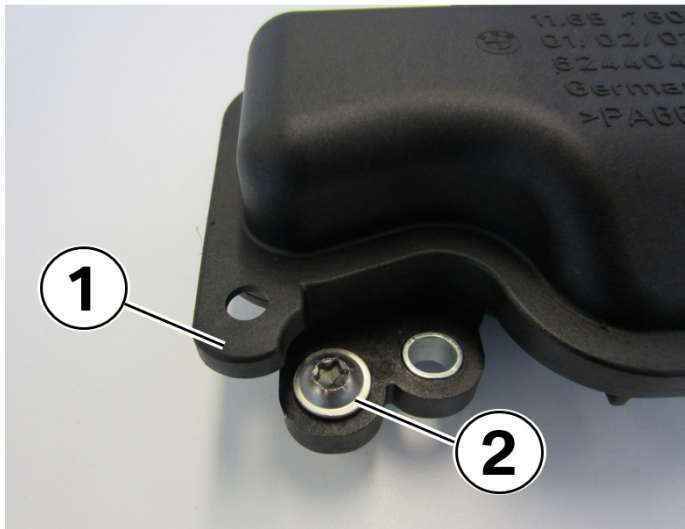


It is possible that a black plastic vacuum reservoir (1) is installed. This illustration provides an overview of the entire component and specific points of the component.

Reservoir (1)

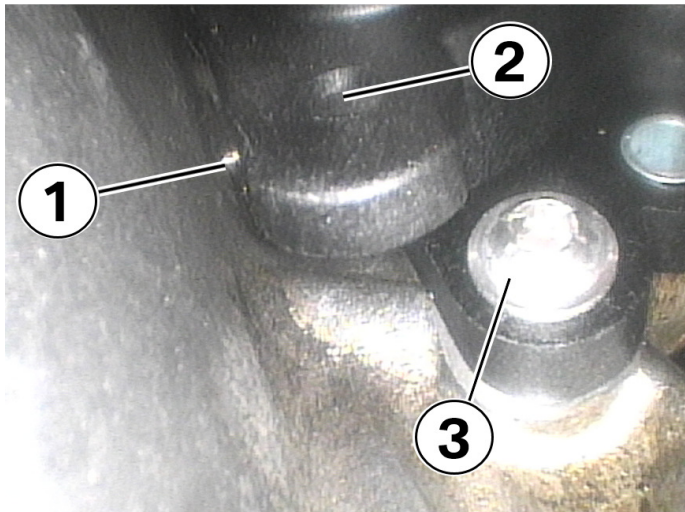
Reservoir mounting screw (2)

Plastic vacuum reservoir tab (3)



Plastic vacuum reservoir tab (1)

Mounting screw (2)



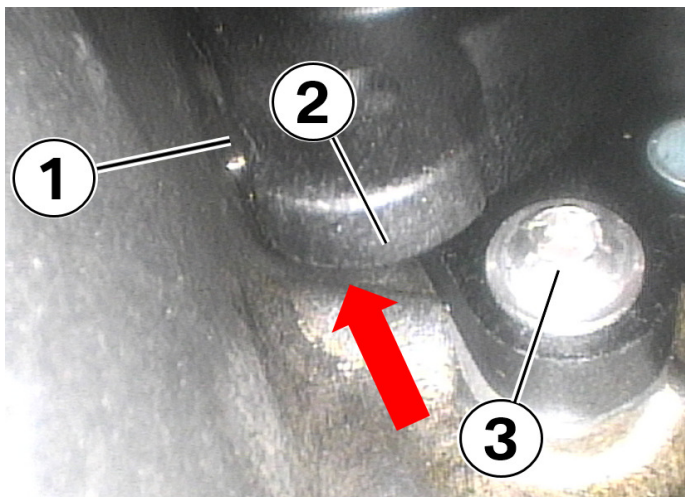
Diagnosis in the vehicle:

It may be more difficult to position the bore scope but it will only take a few minutes more to make the diagnosis.

Engine valley drain hole (1)

Plastic vacuum reservoir tab (2)

Reservoir mounting screw (3)



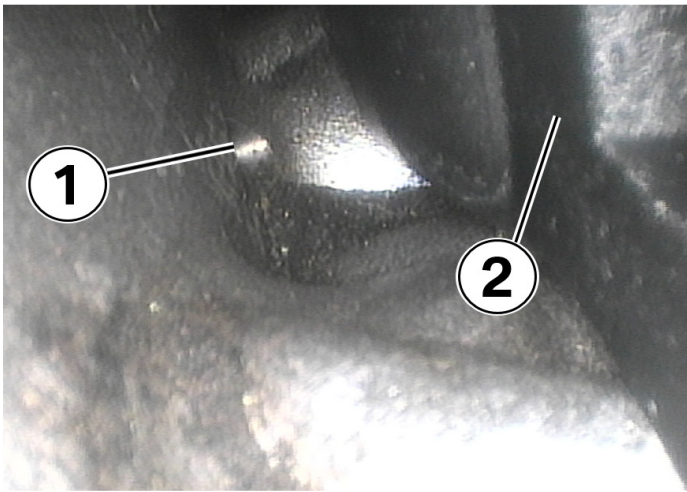
Continue to push bore scope down ward towards the plastic vacuum reservoir tab (2).

The bore scope needs to be moved towards the direction of the red arrow and under the tab (2) to have the best viewing angle of the engine valley drain hole (1).

Engine valley drain hole (1)

Plastic vacuum reservoir tab (2)

Reservoir mounting screw (3)



Once the bore scope has gone under the plastic reservoir tab then the engine valley drain hole (1) and surrounding area can be clearly inspected.

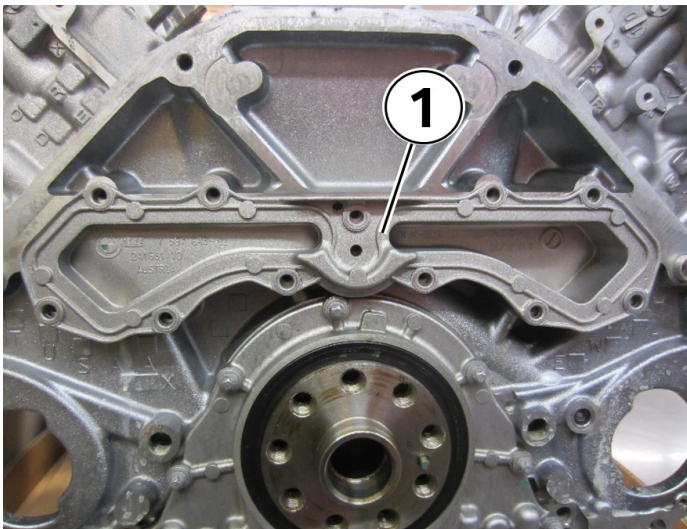
The dark material at the bottom of the photo is dust and dirt. This material appears to be reflective but it is dry.

Engine valley drain hole (1)

Plastic vacuum reservoir (2)

11. If engine oil is found in this area then the root cause of the engine oil leak resides in the components on top of the engine i.e. turbocharger oil lines, turbo charger, etc. Further basic diagnosis will be needed to find the root cause this engine oil leak. Do not remove the transmission from the vehicle.

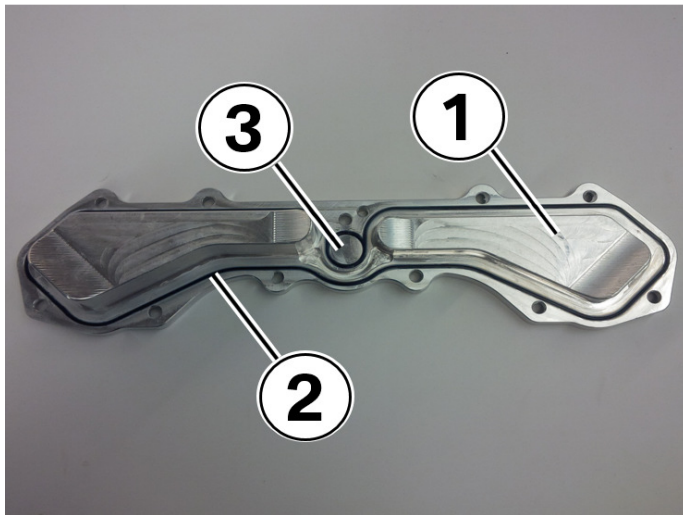
If no engine oil residue is found at the engine valley drain hole then the root cause of the engine oil leak will be inside the transmission bellhousing. The most likely cause will be a leaking engine oil galley plug located behind the engine cover, rear and or the crankshaft rear seal. Continue to step 12.



12. Drain the coolant from the engine. Refer to Repair Instruction 17 00 005 Draining and adding coolant.

Refer to Repair Instruction 11 14 250 Removing and installing/sealing rear engine cover.

Rear engine cover (1)



P/N 11 14 2 246 298 Updated End Cover, Rear Kit overview.

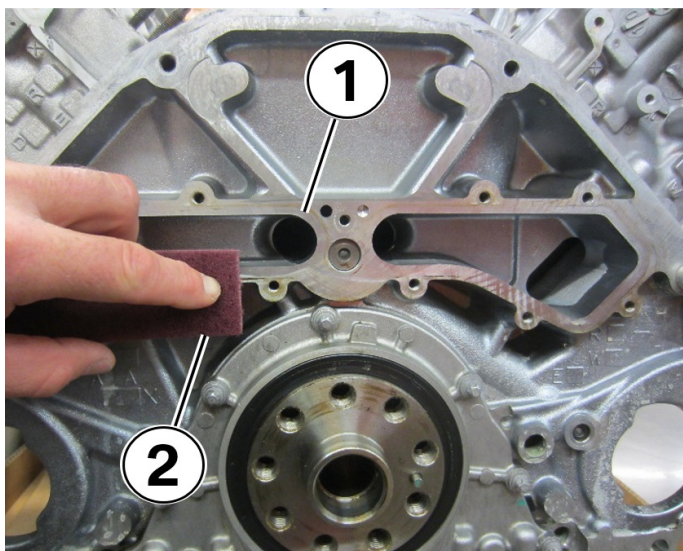
Billet aluminum housing (1)

Integrated Viton seal (2)

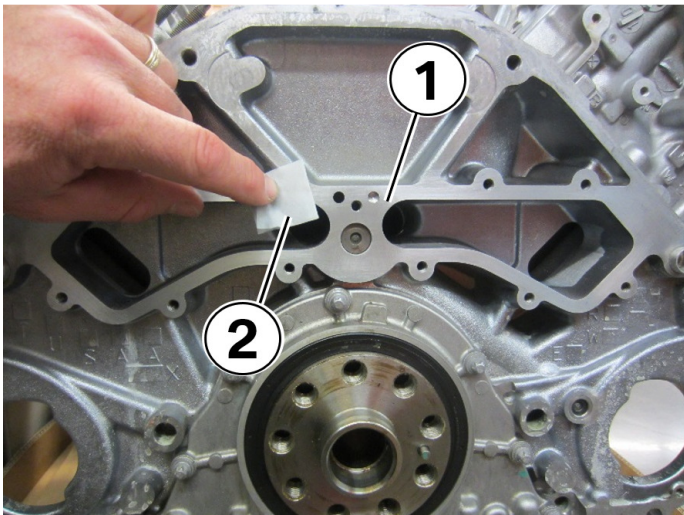
Additional sealed surfaced (3) to encapsulate the leaking engine oil galley plug.



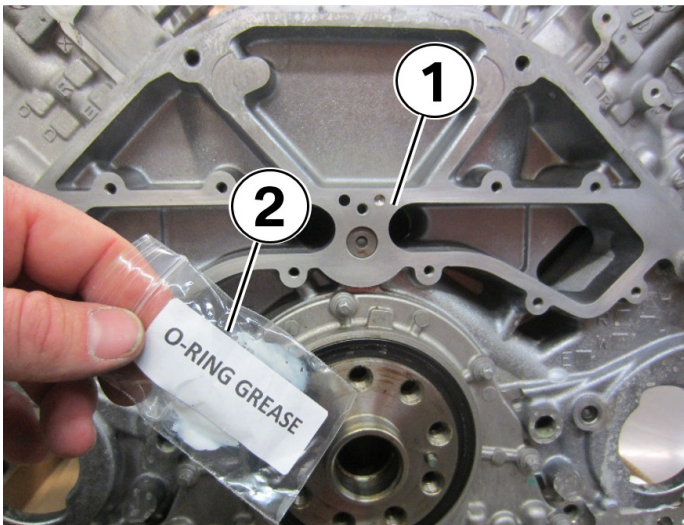
Included in the kit is a Scotch Brite cleaning pad, alcohol preparation pad and O-ring grease.



13. Clean the engine crankcase sealing surface (1) using the Scotch Brite cleaning pad (2) included with the new cover kit P/N 11 14 2 246 298.



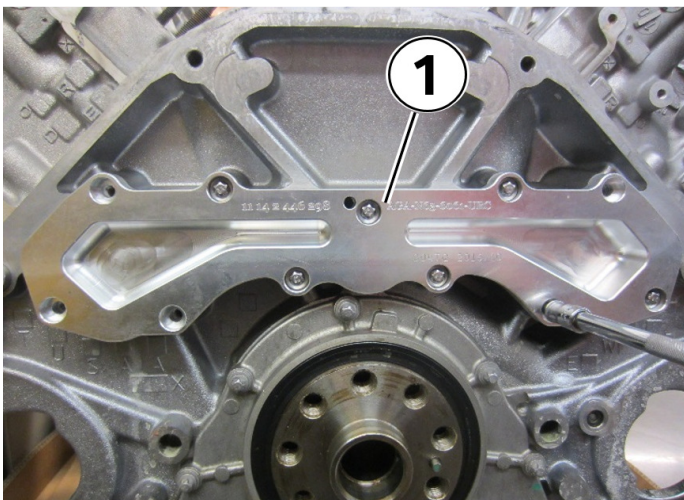
14. Remove all residual oils from the sealing surface (1) using the alcohol preparation pad (2) included with the new cover kit.



15. Lubricate the sealing surface (1) with the O-ring grease (2) supplied in the new cover kit.

Apply a thin film of grease over the entire sealing area.

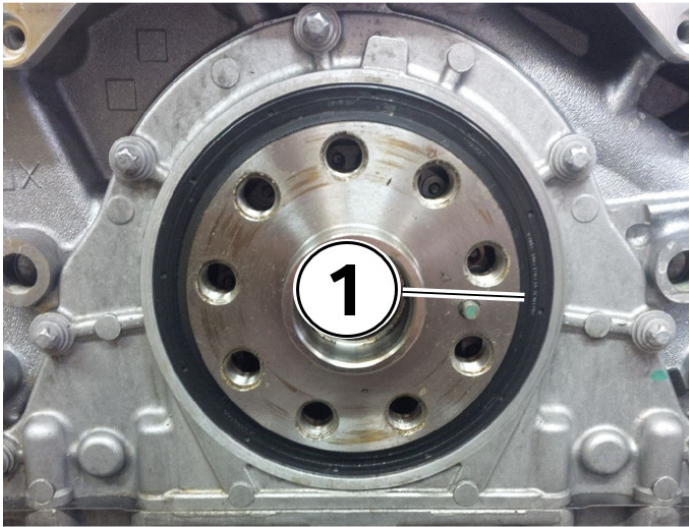
The new cover already has O-ring grease applied to the sealing area. Do not remove the grease from the cover.



16. Install the new cover (1).

Refer to Repair Instruction 11 14 250 Removing and installing/sealing rear engine cover for the proper torque and assembly procedures.

Reuse the original M6 bolts and torque them to **10 Nm**.



17. Replace the crankshaft rear seal and seal housing (1).

Refer to Repair Instruction 11 41 151 Replacing crankshaft radial seal on transmission side.

Always enter the vin number into ETK to receive the proper part number. **UPDATE!**

18. Reassemble the vehicle as per the applicable Repair Instructions in ISTA/D.

Refill the coolant to the specified level found in Repair Instruction 17 00 005 Draining and adding coolant.