



SI B11 08 13
Engine

November 2013
Technical Service

PERFORM THE PROCEDURE OUTLINED IN THIS SERVICE INFORMATION ON ALL AFFECTED VEHICLES BEFORE CUSTOMER DELIVERY OR THE NEXT TIME THEY ARE IN THE SHOP FOR MAINTENANCE OR REPAIRS.

BMW centers must ensure recalls are completed after having been notified by BMW of North America, LLC (BMWNA) that a safety-related defect or noncompliance exists in any motor vehicle or item of replacement equipment in the center's possession at the time of notification. In BMW NA's case, this notification would typically be made by the issuance of a recall notification in the form of a Service Information bulletin (SIB) or transmission of a Dealer Communication System (DCS) recall message.

Under the National Traffic and Motor Vehicle Safety Act of 1966, as amended, if a recall campaign is announced by BMW NA, centers must ensure that all recalls on new vehicles and new items of replacement equipment are completed BEFORE delivery to the consumer. This means that centers may not legally deliver new motor vehicles or new items of replacement equipment to consumers with an open recall.

The Safety Act also prohibits centers from selling or leasing the motor vehicle or item of replacement equipment, unless and until the open recall has been completed BEFORE delivery. This also pertains to vehicles in the Certified Pre-Owned program, and to items of replacement equipment.

Finally, BMW centers should not sell or use parts that have been recalled by BMW NA. Please follow the specific instructions provided by BMW NA on the return or disposition of the parts.

SUBJECT

Recall Campaign 13V- 454: Delivery Stop N20 and N26 Engine - Check and Replace Intake Camshaft

MODEL

E84

E89

F10

F30

F31

F34

F25

SITUATION

A manufacturing defect in the intake camshaft can reduce engine oil lubrication to the engine vacuum pump, which may result in the pump's failure. Failure of the engine vacuum pump can lead to subsequent loss of power-assisted braking.

AFFECTED VEHICLES

This Recall involves certain E84, E89, F10, F30, F31, F34 and F25 vehicles with the N20 and N26 engines produced from May 2012 to August 2013.

In order to determine whether a specific vehicle has had this Recall Campaign completed or is affected by this Recall Campaign, first check the B-pillar label for code number **657**. If code number **657** has been punched out, the campaign has already been performed. If code number **657** has not been punched out, it will be necessary to utilize the "Service Menu" of DCSnet (Dealer Communication System) or the Key Reader. Based on the response of the system, either proceed with the corrective action or take no further action.

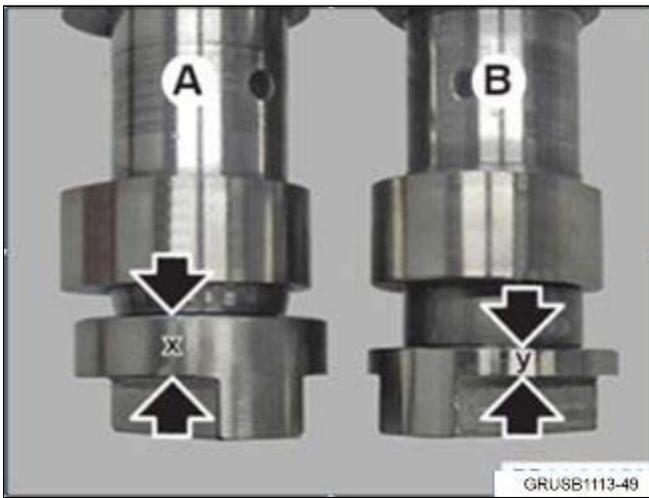
CORRECTION

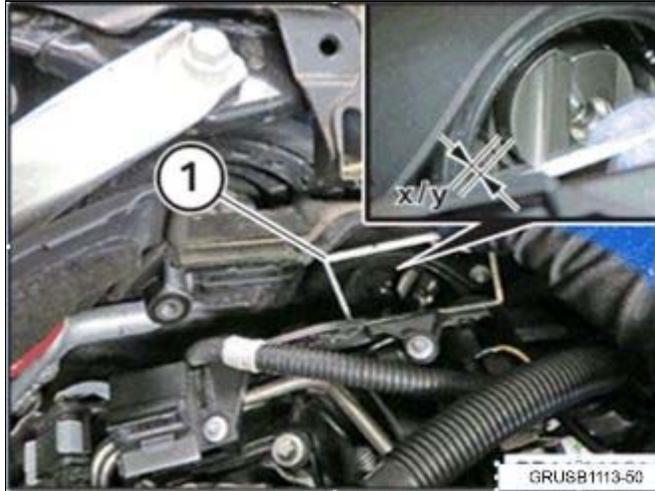
Inspect the intake camshaft and replace it if necessary.

PROCEDURE

Note: Please follow the repair procedure outlined below; it contains modified instructions that optimize the repair procedure. This modified procedure is reflected in the labor operation time allowances.

- To determine the type of camshaft that is installed, the vacuum pump must first be removed. Refer to Repair Instruction 11 66 000, "Remove and refit/replace vacuum pump (N20/N26)." Do not remove the cylinder head cover.

	<ol style="list-style-type: none"> The width of the camshaft material near the vacuum pump drive lug must be identified. In the example, the thickness of the material is highlighted between the arrows. Camshaft A: X = approximately 8 mm Camshaft B: Y = approximately 4 mm
	<ol style="list-style-type: none"> Using a mirror (1), the camshaft can be seen through the vacuum pump opening. If camshaft A is identified using the previous illustration, the intake camshaft must be



replaced. Refer to the camshaft replacement instruction section of this Service Information bulletin. Proceed to the parts section for ordering instructions.

Camshaft A: X = approximately 8 mm

If camshaft B is identified using the previous illustration, the engine and vehicle can be reassembled. No further repairs are required.

Camshaft B: Y = approximately 4 mm

CAMSHAFT REPLACEMENT

Special tool required:

11 7 110 (Intermediate Lever Tool).

To replace the camshaft, the following preliminary work must be performed:

To remove the DME control unit, proceed as recommended in Repair Instruction 12 14 550, "Replace control unit (DME)" (N20, N26).

To remove the cylinder head cover, proceed as recommended in Repair Instruction 11 12 000, "Remove and refit/seal cylinder head cover" (N20, N26).

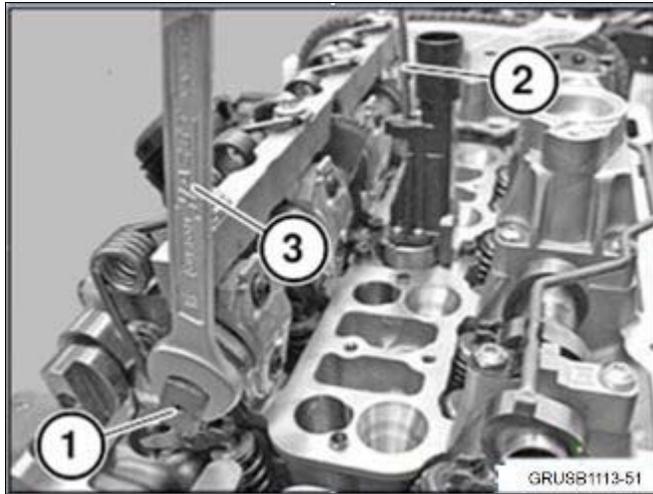
To check the valve timing, proceed as recommended in Repair Instruction 11 31 005, "Check camshaft valve timing" (N20, N26).

To remove the intake adjustment unit, proceed as recommended in Repair Instruction 11 36 046, "Remove and refit/replace intake and exhaust adjustment unit" (N20, N26).

Removal of the intake camshaft:

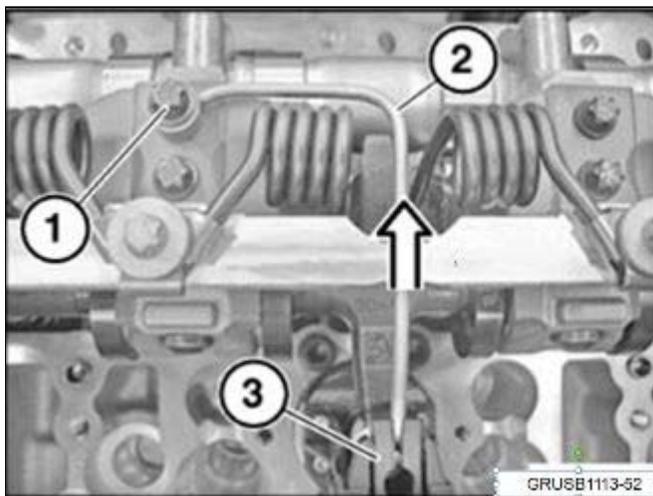
To show the operation more clearly in this procedure, the injector ducts have been removed.

When carrying out this procedure on the engine, the injector ducts and injectors must not be removed.

**Important:**

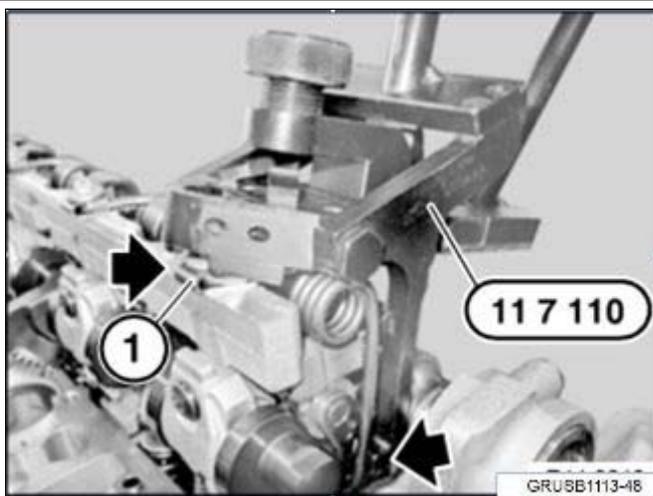
Secure the eccentric shaft (1) with an open-ended wrench (3) (risk of backlash).

Using a 4-mm Allen key (2) and an open-ended wrench (3), slowly turn the eccentric shaft (1) to minimum lift via the actuator motor.



Undo the screw (1) on the oil spray nozzle.

Tightening torque **11 37 4AZ** (oil spray nozzle on bracket 10 Nm)
Remove the oil spray nozzle (2) from the bracket on the actuator drive (3) in the direction of the arrow.



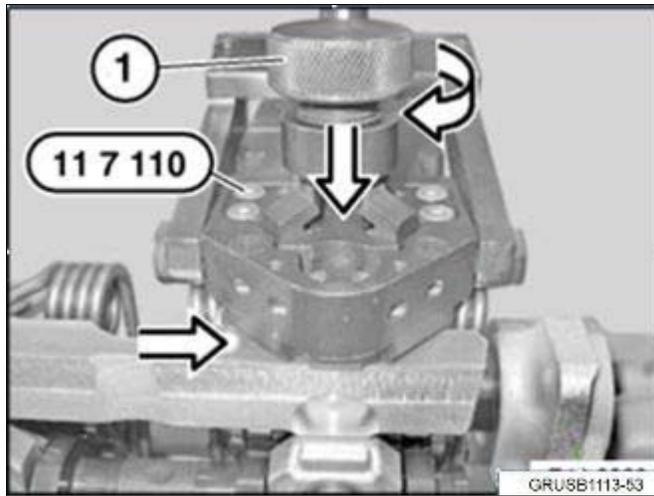
Position special tool 11 7 110 on the return spring (1) (see arrows).

Warning:

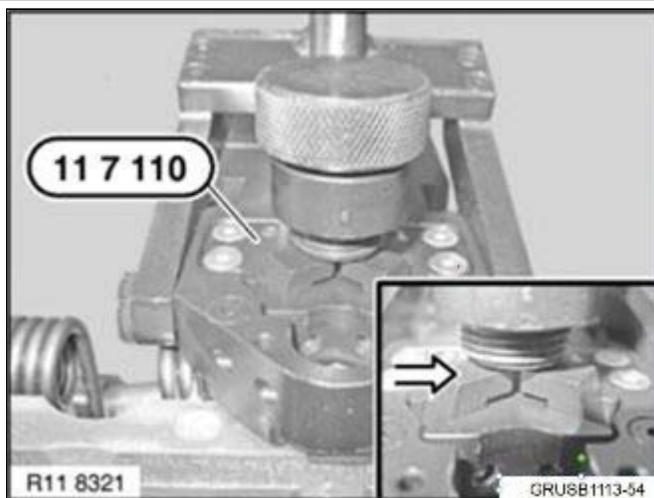
Risk of injury if used incorrectly

Important:

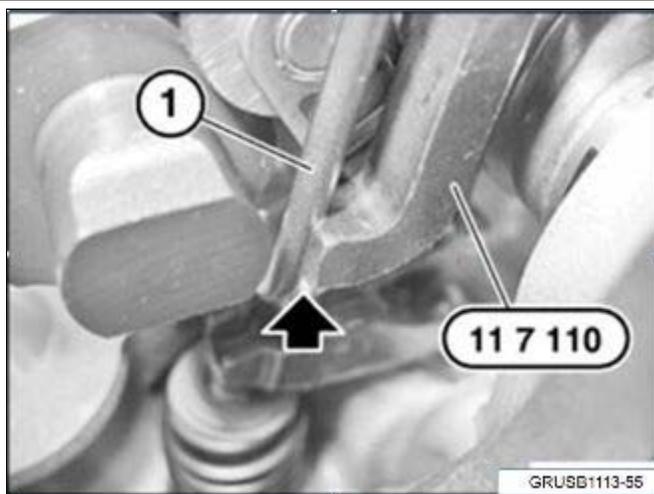
Incorrect handling increases risk of damage!



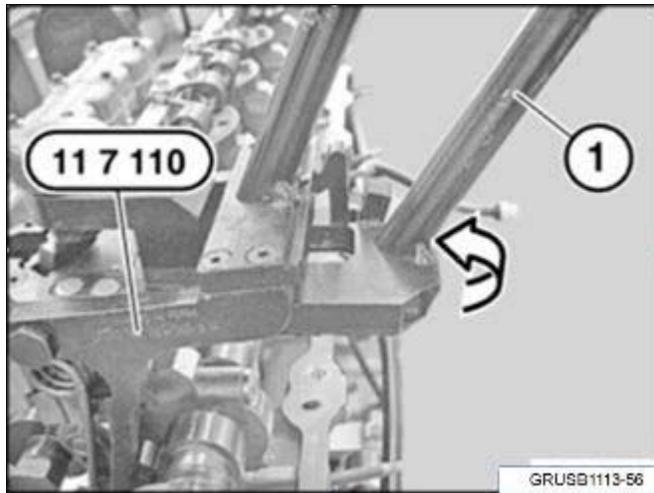
Lay special tool 11 7 110 flat on the cylinder head.
Turn the knurled screw (1) in the direction of the arrow until both of the clamping levers have clamped the return spring in the bracket.



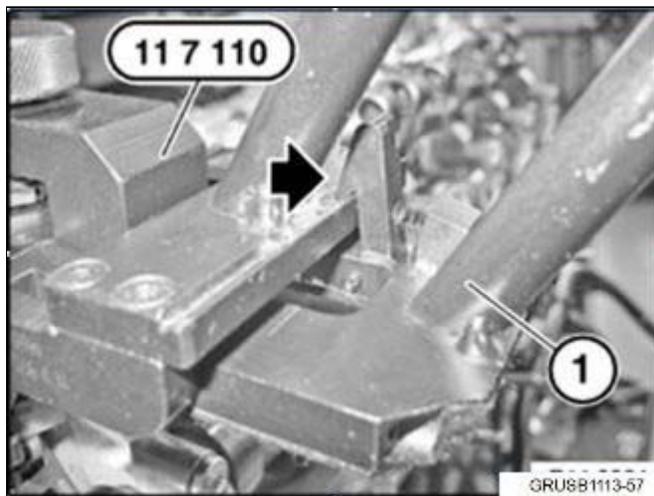
The return spring is correctly preloaded when both of the clamping levers are parallel to the bracket.



Important:
Incorrect handling increases risk of damage!
Both of the return springs (1) (left and right) must be positioned in the side guide of special tool 11 7 110.



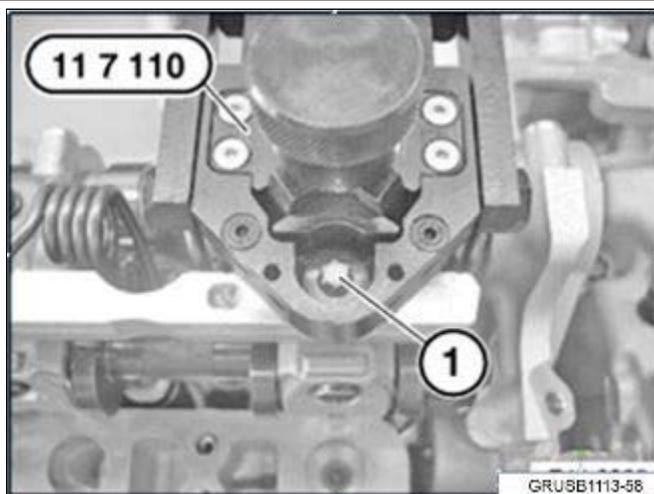
Preload the return spring with the lever (1) on special tool 11 7 110 in the direction of the arrow.



Lock special tool 11 7 110 by locking the hook on the lever (1), see arrow.

Important:

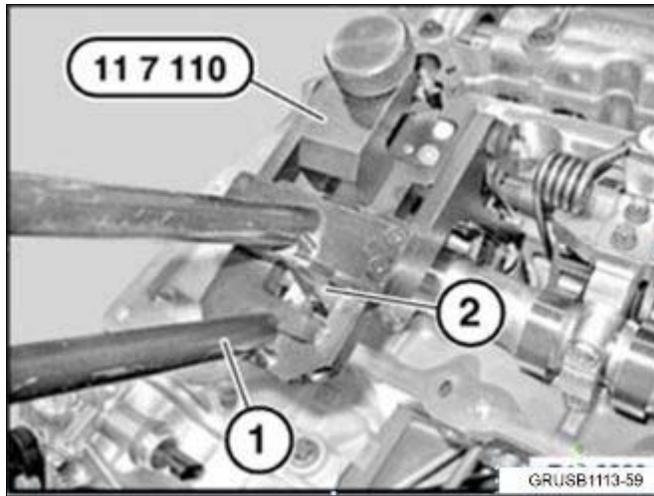
The intermediate lever retainer spring torx screws can only be released with special tool 11 7 110.



Remove the intermediate lever retainer spring torx screw (1).

Warning:

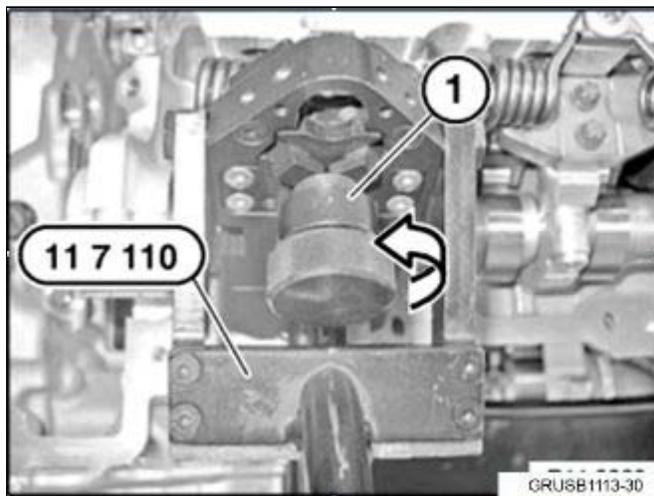
Risk of injury if the tool is used



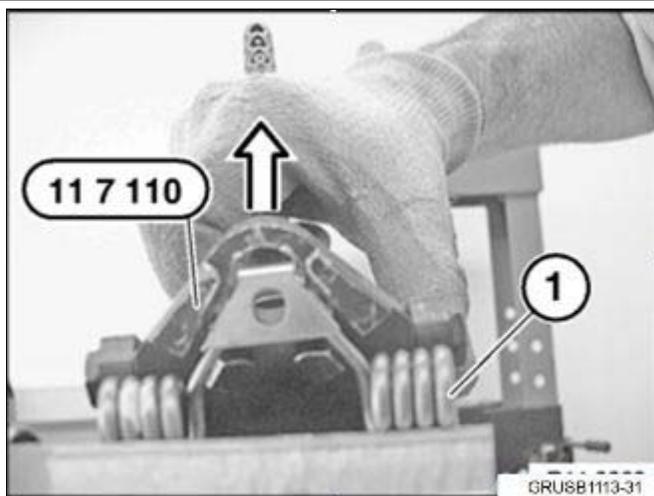
incorrectly
Lever (1) is under spring preload when it is in use.

Important:
Incorrect handling increases risk of damage!

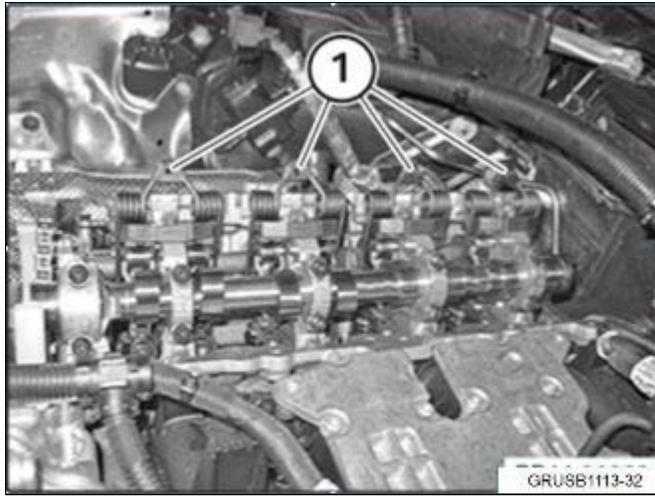
Secure lever (1).
Release the locking hook (2) and slowly allow lever (1) to release the retainer spring.



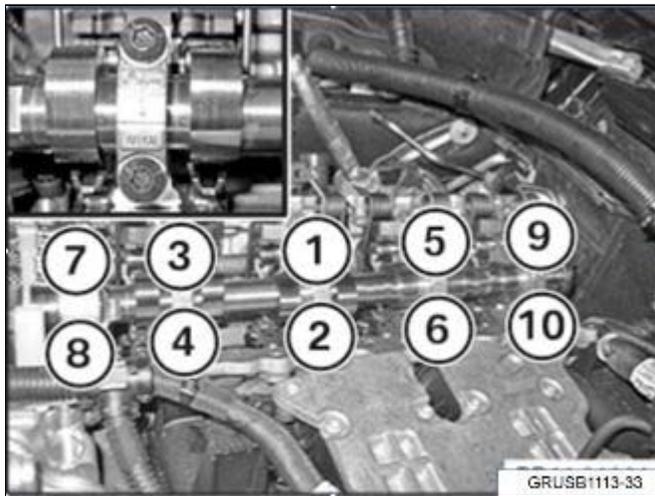
Turn the knurled screw (1) on special tool 11 7 110 in the direction of the arrow.



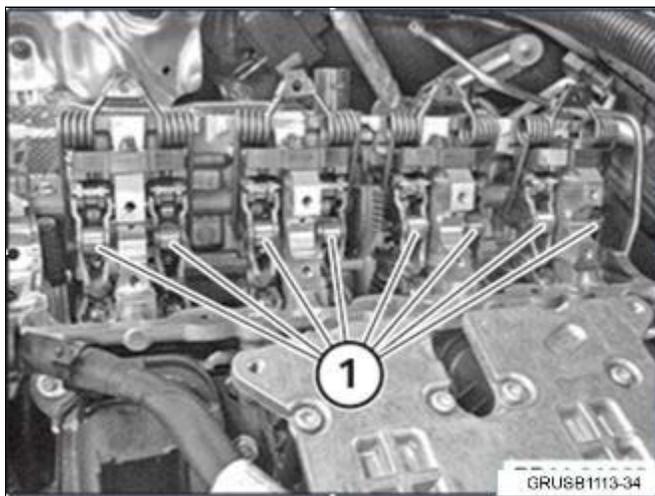
Release special tool 11 7 110 from the retainer spring (1) in the direction of the arrow.



Retainer springs (1) remain on the engine.

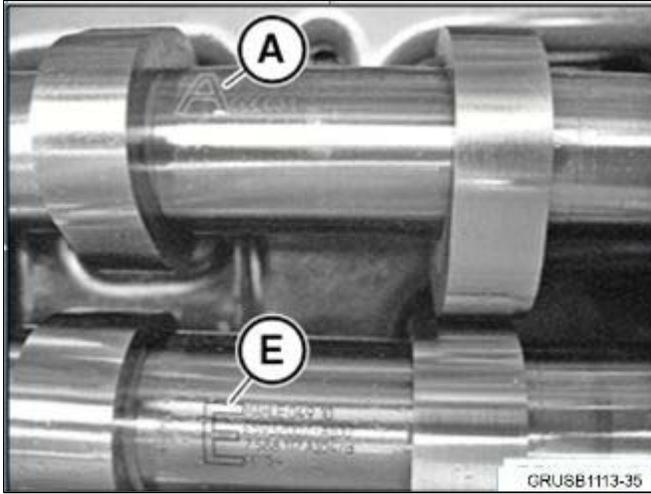


All bearing caps are marked with numbers from 1 to 4.
The front bearing cap is a thrust bearing and it is not marked.
Loosen and remove the bolts on all bearing caps (1 to 10).
Store all of the bearing caps in numeric order.



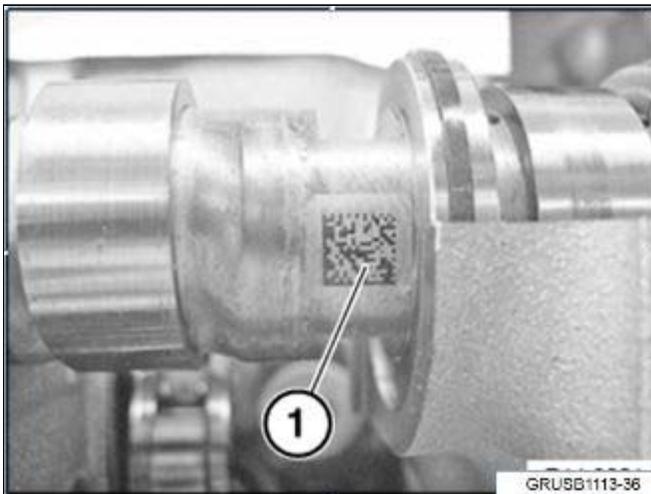
Important:

Do **not** remove the intermediate levers (1).
Interchanging the intermediate levers (1) may cause engine speed fluctuations during idling.
Remove the intake camshaft.

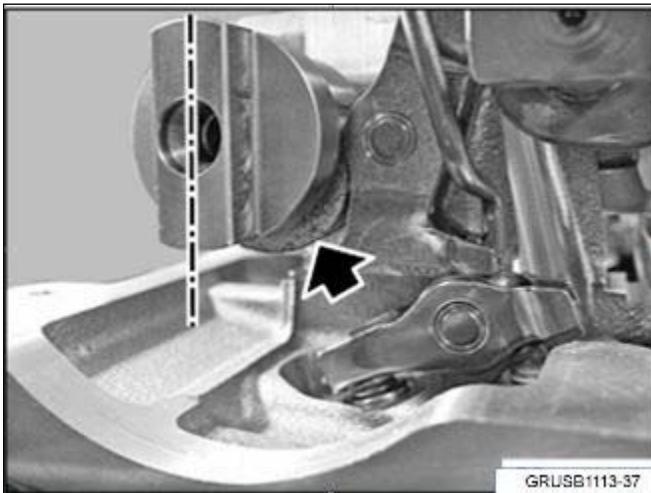


**Installation of the intake camshaft:
Important:**

The markings on the intake and exhaust camshafts are different. Interchanging the intake and exhaust camshafts will cause engine damage.
A = Exhaust camshaft
E = Intake camshaft

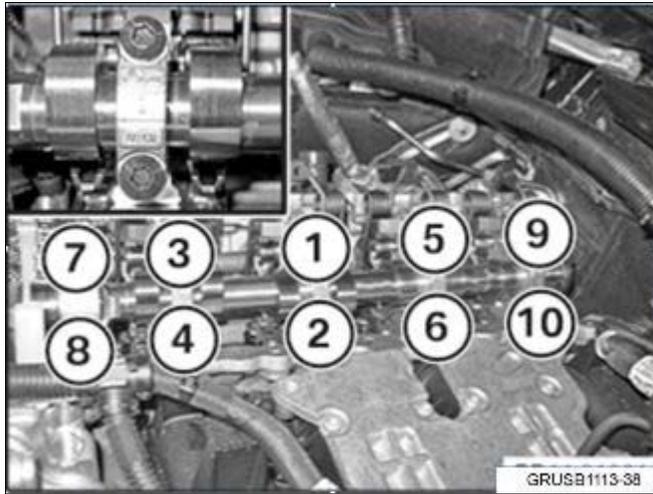


Place the intake camshaft in the position so that the date code (1) is pointing upwards.



Position the intake camshaft so that the cylinder #4 camshaft lobes are pointing diagonally downwards in relation to the vacuum pump lug. See the dotted line and arrow.

All bearing caps are marked with

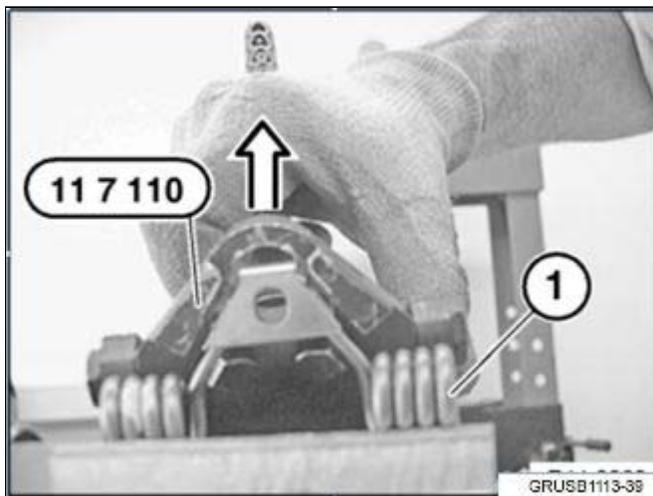


numbers from 1 to 4.

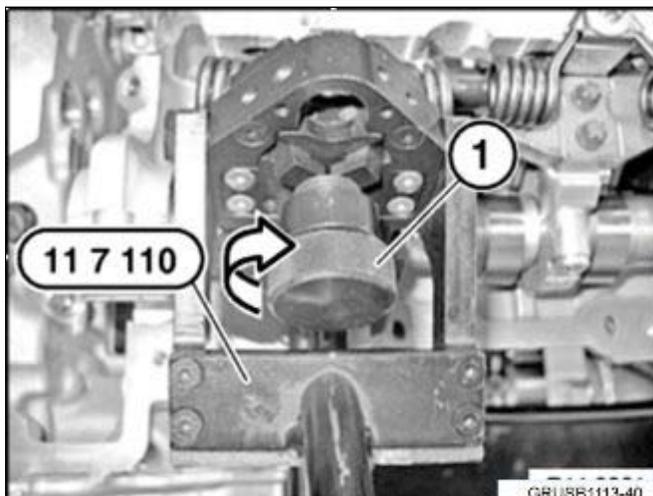
The front bearing cap is a thrust bearing and it is not marked.

Insert and torque the bolts on the bearing caps starting with (10) and ending with (1).

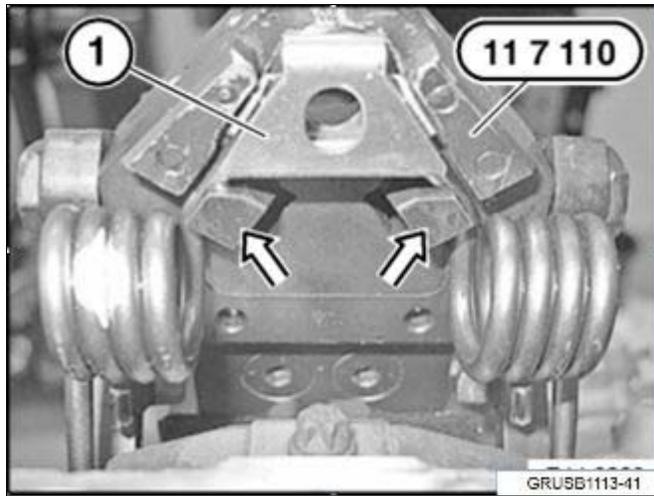
Tightening torque 11 31 3AZ - intake camshaft bearing cap to cylinder head
10 Nm



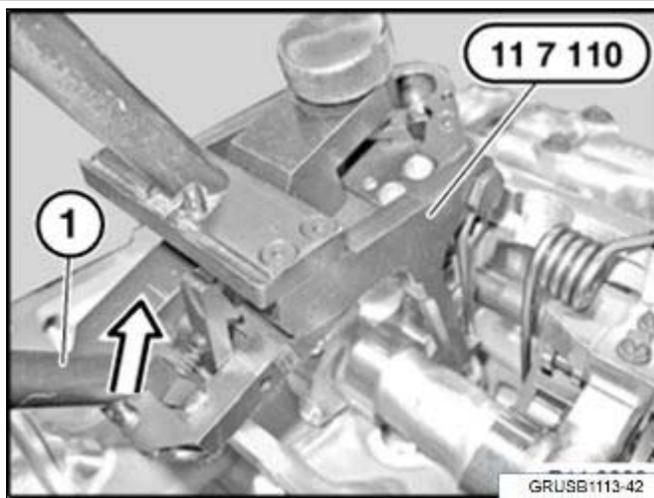
Position special tool 11 7 110 on the retainer spring.



Clamp the retainer spring by turning the knurled screw (1) in the direction of the arrow.



The retainer spring (1) is in the correct position when the locking hooks (see arrows) enclose the retainer spring.



Warning:

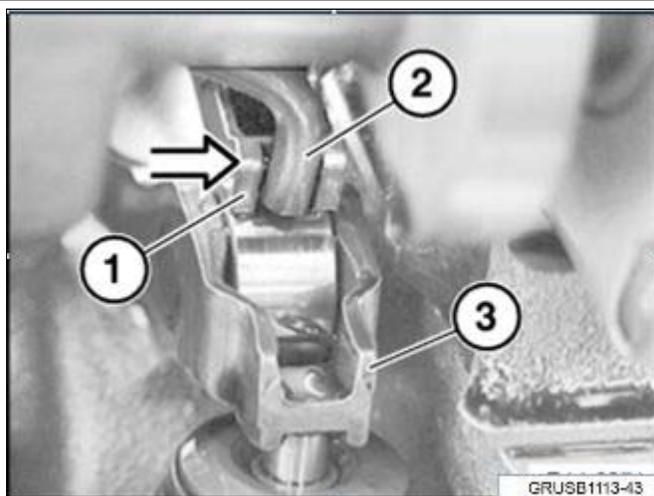
Risk of injury if used incorrectly

Important:

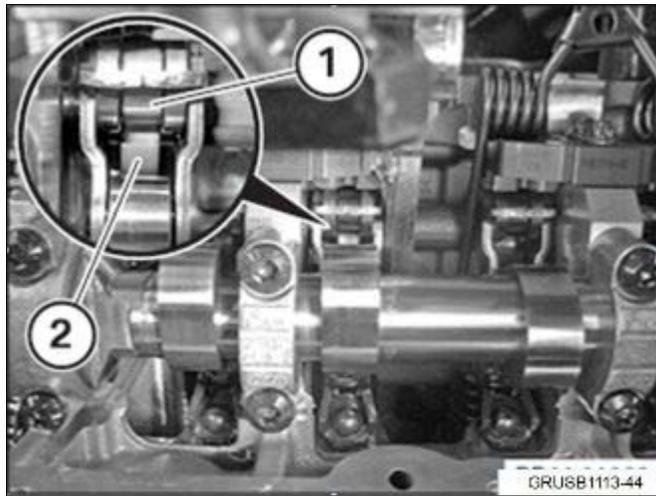
Incorrect handling increases risk of damage!

Check the retainer spring on the intermediate lever for the correct installation position.

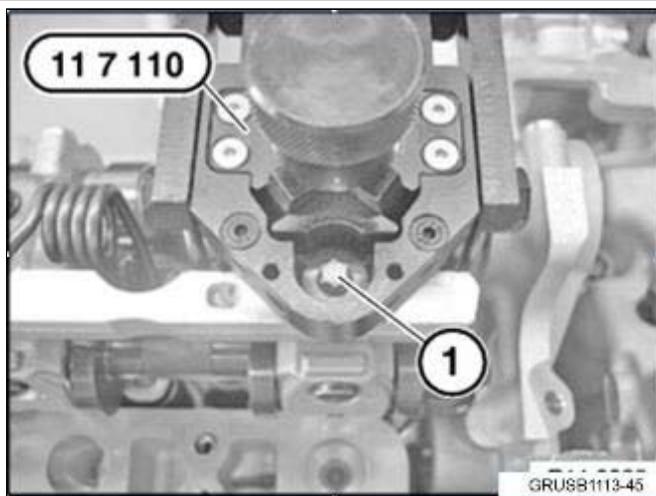
Move special tool 11 7 110 as far as it will travel in the direction of the arrow.



Install the return spring (2) into the intermediate lever bracket (1) (see arrow). Check the roller drag lever (3) for the correct installation position.

**Important:**

Check that the intermediate lever (1) is correctly installed on the eccentric shaft

**Important:**

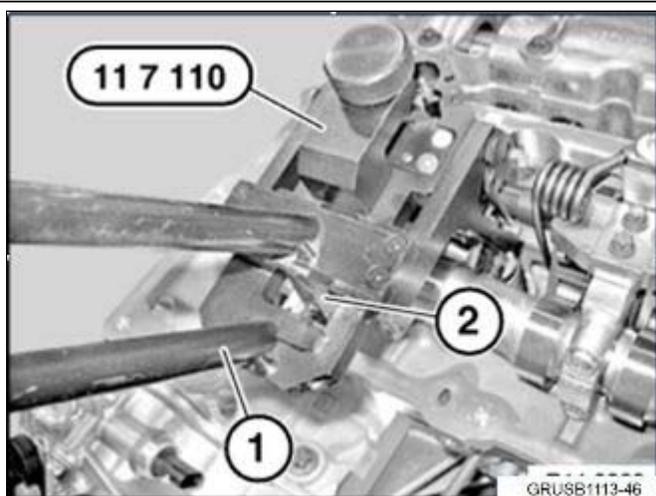
Pay attention to the bolt thread on the cylinder head.

Important:

Incorrect handling increases risk of damage!

Torque the bolt (1).

Tightening torque 11 37 2AZ (torsion spring/return spring on cylinder head) to 10 Nm

**Warning:**

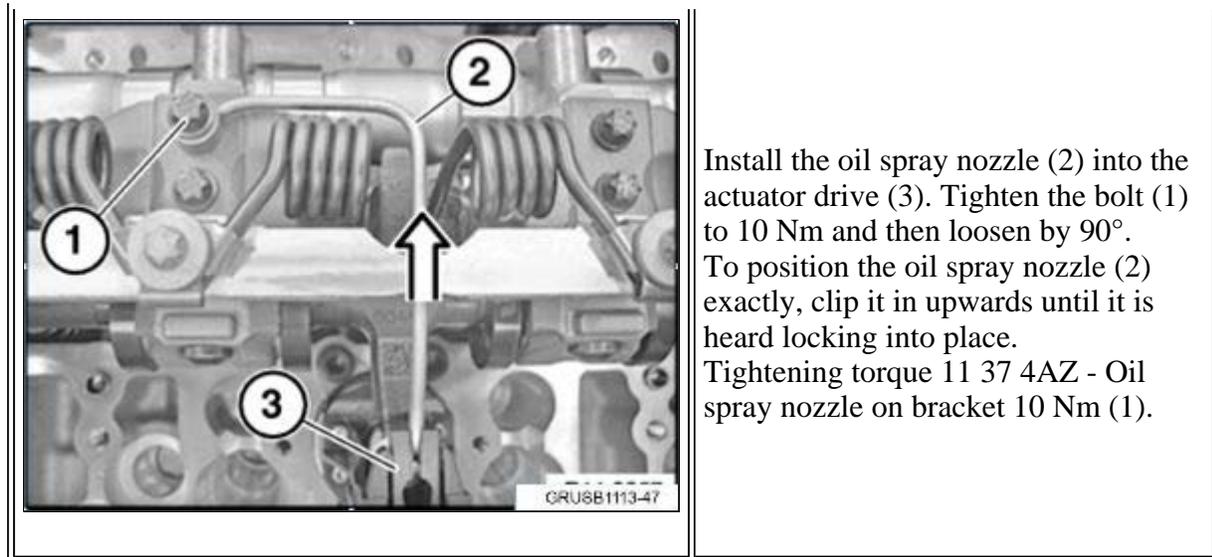
Risk of injury if used incorrectly
Lever (1) is under spring preload when it is in use.

Important:

Incorrect handling increases risk of damage!

Secure the lever (1). Press back the locking hook (2) and the return spring can now be detensioned.

Check again that the intermediate lever and return spring are correctly installed. Remove special tool 11 7 110.



Install the oil spray nozzle (2) into the actuator drive (3). Tighten the bolt (1) to 10 Nm and then loosen by 90°. To position the oil spray nozzle (2) exactly, clip it in upwards until it is heard locking into place. Tightening torque 11 37 4AZ - Oil spray nozzle on bracket 10 Nm (1).

Continue with the following repair procedures to complete the repairs.

To install the intake adjustment unit, proceed as recommended in Repair Instruction 11 36 046, “Remove and refit/replace intake and exhaust adjustment unit” (N20, N26).

To adjust the valve timing, proceed as recommended in Repair Instruction 11 31 505, “Adjust camshaft valve timing” (N20, N26).

To fit the cylinder head cover, proceed as recommended in Repair Instruction 11 12 000, “Remove and refit/seal cylinder head cover” (N20, N26).

To install the DME control unit, proceed as recommended in Repair Instruction 12 14 550, “Replace control unit (DME)” (N20, N26) (no injector adjustment necessary).

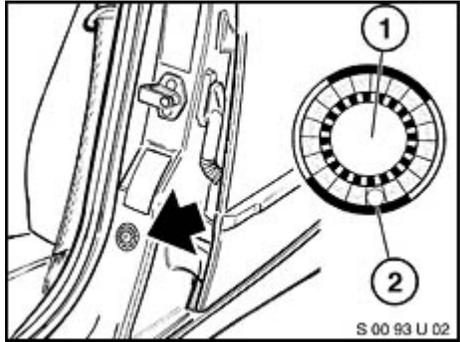
PARTS INFORMATION

The parts list below is only for vehicles that qualify for intake camshaft replacement as per the procedure steps 2-3. Refer to ETK and the repair instructions for onetime use fastener and component information regarding additional screws, gaskets and seals, with the exception of the three items described below.

- Reuse the strut brace bolts for all repair procedures related to this delivery stoppage notification.
- Both of the high-pressure pump screws P/N 07 12 9 905 597 are to be reused. High-pressure pump supply line P/N 13 53 7 585 426 is to be reused; adhere to proper torque specification at all times when removing and reinstalling.

Part Number	Description	Quantity
11 31 7 616 469	Intake camshaft	1
11 12 7 588 418	Cylinder head cover gasket set	1
11 31 7 631 972	Chain tensioner seal ring	1

LABEL INSTRUCTIONS

	<p>This Recall Campaign has been assigned code number 657. After the vehicle has been checked and/or corrected, obtain a label (SD 92-420) and:</p> <ul style="list-style-type: none"> A. Emboss your BMW center warranty number in the middle of the label (1); B. Punch out code number 657 (2), printed on the label; and C. Affix the label to the B-pillar as shown.
---	---

If the vehicle already has a label from a previous Service Action/Recall Campaign, affix the new label next to the old one. Do not affix one label on top of another one, because a number from an underlying label could appear in the punched-out hole of the new label.

WARRANTY INFORMATION

Reimbursement for this Recall will be via normal claim entry utilizing the following information:

Defect Code:	00 11 20 03 00	
Labor Operation:	Labor Allowance:	Description:
00 61 871	Refer to KSD	Determining the type of intake camshaft; no repair is necessary
or		
00 61 872	Refer to KSD	Determining the type of intake camshaft and replacing the camshaft

Labor operation codes 00 61 871 and 00 61 872 are both Plus labor operations.

[Copyright ©2013 BMW of North America, Inc.]