



This Service Information bulletin supersedes SI B11 07 14 **dated September 2014.**

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.

NEW designates changes to this revision

SUBJECT

Recall Campaign 14V-176: N51, N52K and N52T Engine – Replace VANOS Gear Bolts

MODEL

E70 (X5)

E82 (1 Series Coupe)

E83 (X3)

E88 (1 Series Convertible)

E89 (Z4)

E90 (3 Series Sedan)

E91 (Sports Wagon)

E92 (3 Series Coupe)

E93 (3 Series Convertible)

F10 (5 Series Sedan)

F25 (X3)

NEW SITUATION

The VANOS adjustment units may develop an internal oil leakage that will no longer allow the VANOS to adjust quickly enough. Due to this leakage, the vehicle's engine emergency mode and engine malfunction are permanently active.

AFFECTED VEHICLES

This Recall involves certain E70, E71, E82, E88, E89, E90, E92, E93, F10 and F25 vehicles with the N51, N52K and N52T engines produced from September 2009 to November 2011.

Vehicles which require this Recall Campaign will show the following Campaign Code:

00 11 35 03 00

The Campaign Code is located in the "Open Campaign Information" section in the DCSnet Warranty Vehicle Inquiry and in the Key Reader.

First check if a Recall Campaign label with a code number **684** is already attached to the vehicle's B-pillar.

If a code number **684** has been punched out, the Campaign has already been performed and no further action is necessary.

CUSTOMER RECALL NOTIFICATION LETTER

BMW NA is sending VIN-specific customer Recall notification letters approximately September 25, 2014. A sample letter is attached.

NEW UNAFFECTED VEHICLES

Applicable vehicles which had both VANOS adjustment units (P/N 11 36 7 583 207 and P/N 11 36 7 583 208) or had a complete new or remanufactured engine assembly (with cylinder head) previously replaced on or after September 1, 2012, have installed parts that meet the requirements of this Recall Campaign. No further repair is necessary.

CORRECTION

On the affected vehicles:

1. Replace the VANOS assembly's gear bolts on the units that **do not** have any loose and/or broken bolts (one side or both as applicable).
2. **NEW** If the gear bolts on a VANOS assembly are found loose and/or broken, replace the entire VANOS assembly. If the heads of the bolts are broken, the missing pieces must be found and removed from the engine before the engine repairs are completed.

The VANOS assembly bolt removal and installation video can be viewed via the TIS Website:

1. Select "Service Reference" from the top menu bar.
2. Select "Service Videos"
3. Select "General Search"
4. Select "[11] Engine" and "Submit"

Select "V11 03 14 September 2014 – Recall 14V- 176: N51, N52K, N52T and N55 Engine – Replace VANOS Gear Bolts.

Do not automatically replace both VANOS assemblies if only one unit has a loose and/or broken bolt(s).

Refer to the attachment for special tool requirements, tool operation and repair procedures.

NEW It is necessary that the procedure described in the attachment be performed with the vehicle at room temperature. Performing the torque sequence described in this bulletin with a hot engine will result in an inaccurate torque value.

PARTS INFORMATION

Refer to the appropriate parts list that matches the repair. Each parts table has the description of the repair listed below.

Reuse the strut brace bolts.

Replace the following parts only if they are found damaged or leaking:

Part Number	Description	Quantity
11 12 7 575 422	Coil Sleeve	6
11 12 7 552 280	Valvetronic Motor (VVT) Seal	1
11 12 7 559 699	Valvetronic (VVT) Eccentric Shaft Seal	1

Replacement of the VANOS adjustment units described in this bulletin does not require TeileClearing authorization.

Do not discard the replaced parts. These parts will be requested by the Warranty Parts Return Center (WPRC).

NEW Parts List A:

The parts list below is only for vehicles that receive replacement VANOS adjustment unit bolts for the intake and exhaust.

Part Number	Description	Quantity
11 36 8 602 263	VANOS Bolt (ISA screw M7x21)	8*
11 12 7 582 245	Profile Seal	1

*Additional replacement bolt(s) may be needed if they do not torque to the correct specification. Claim additional bolt(s) as necessary and explain the reason in the claim comments.

NEW Parts List B:

The parts list below is only for vehicles that receive one replacement VANOS adjustment unit and VANOS adjustment bolts on the intake or exhaust VANOS adjustment unit.

Part Number	Description	Quantity
11 36 8 602 263	VANOS Bolt (ISA screw M7x21)	4*
11 12 7 582 245	Profile Seal	1

11 36 7 524 954	Collar Screw	1
11 31 7 534 251	Chain Tensioner Seal Ring	1
11 36 7 583 207	Intake VANOS Adjustment Unit	1
or		
11 36 7 583 208	Exhaust VANOS Adjustment Unit	1

*Additional replacement bolt(s) may be needed if they do not torque to the correct specification. Claim additional bolt(s) as necessary and explain the reason in the claim comments.

Parts List C:

The parts list below is only for vehicles that receive both intake and exhaust replacement VANOS adjustment units.

Part Number	Description	Quantity
11 12 7 582 245	Profile Seal	1
11 36 7 524 954	Collar Screw	2
11 31 7 534 251	Chain Tensioner Seal Ring	1
11 36 7 583 207	Intake VANOS Adjustment Unit	1
11 36 7 583 208	Exhaust VANOS Adjustment Unit	1

Additional Work (Parts List B and C): Removing and Installing the Engine Oil Pan when Necessary

Part Number	Description	Quantity
Refer to EPC	Set Oil-Filter Element	1

Also, refer to ETK and the repair instructions for onetime-use fasteners and component information regarding additional and/or replacement screws, gaskets and seals that need to be installed and claimed.

LABEL INSTRUCTIONS

	<p>This Recall Campaign has been assigned code number 684. After the vehicle has been checked and/or corrected, obtain a label NEW (SD 92-439) and:</p> <ol style="list-style-type: none"> Emboss your BMW center warranty number in the middle of the label (1); Punch out code number 684 (2), printed on the label; and Affix the label to the B-pillar as shown.
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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 35 03 00	
Labor Operation:	Labor Allowance:	Description:
11 99 000	1 FRU	No repair is necessary; both VANOS units were replaced on or after 9/1/2012 under warranty or program as shown in DCSnet; no repair reimbursement is required

Note the repair order/claim number, date and mileage of the prior repair in the claim comment section.

Or:

Parts List A:

Labor Operation:	Labor Allowance:	Description:
00 62 097	Refer to KSD2	Replace the bolted connection on the VANOS adjustment units (both)

Or:

Parts List B:

Labor Operation:	Labor Allowance:	Description:
00 62 098	Refer to KSD2	Replace a VANOS (one) adjustment unit; replace the bolted connection on an adjustment unit (other side)

Or:

Parts List C:

Labor Operation:	Labor Allowance:	Description:
00 62 099	Refer to KSD2	Replace both VANOS adjustment units

Labor operation codes 11 99 000 (WT), 00 62 097, 00 62 098 and 00 62 099 are Main labor operations.

Additional Work

With Labor Operations 00 62 098 or 00 62 099, as necessary:

Labor Operation:	Labor Allowance:	Description:

11 13 505	Refer to KSD2	With the replacement of one or both VANOS adjustment units: Removing and installing the engine oil pan to remove fragments
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And/or:

When other additional work and/or parts are required as a result of this issue, including the applicable labor operations listed in KSD2, claim these items under the defect code listed above.

And:

Sublet - Materials

Sublet Code 4	See sublet reimbursement calculation below	Reimbursement for used quantities of required operating fluids (applicable BMW part numbers. Do not use these part numbers for claim submission)
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Sublet calculation: Reimbursement for used quantities of required operating fluids (applicable BMW part numbers) at dealer net plus handling.

Enter the material cost in sublet and itemize the amount in the claim comment section.

And, as necessary:

Prior Repair Expense Review

Note: The reimbursement procedure outlined in [SI B01 10 14](#) for the VANOS Limited Warranty Extension does not apply to these vehicles.

During repair order write-up, please review the following as applicable for prior repairs:

- The DCSnet “Repair History (Claims) – Warranty, Certified Pre-owned or Goodwill
- Authorized BMW center’s customer-pay invoice
- Independent repair shop’s customer-pay invoice

It is important to ensure the repair addresses the VANOS issue described in this Service Information bulletin.

Use the above information to determine which of the following applies.

Repair is necessary and a reimbursement is required: A vehicle is in your workshop for this Recall that had one or both VANOS adjustment units replaced prior to 9/1/2012 or had only one VANOS adjustment unit replaced on or after 9/1/2012.

Or:

No repair is necessary; however, a reimbursement is required: A vehicle is in your workshop for this Recall that had both VANOS adjustment units replaced on or after 9/1/2012.

No future repair is necessary; however, a reimbursement is required: Your center is only presented with a

customer-pay invoice where both VANOS adjustment units were replaced on or after 9/1/2012.

Please retain the “original” customer-pay invoice in your files; this documentation may be requested by BMW during the claim review process.

Sublet – Prior Repair Expense Reimbursement (Recall Submission)

For the three items listed above, submit for the prior repair expense reimbursement under Recall defect code **00 11 35 03 00** and, when applicable, together with the Recall repair, as follows:

Sublet Code 3	See sublet reimbursement below	Prior customer-pay reimbursement
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- Enter the reimbursement as sublet dollar amount (with no markup).
- Comment: VANOS Recall Campaign 14V-176, reimbursement for allowable expenses related to the previous customer-pay repair.
- Note the date and mileage of the prior repair.

Or:

Future repair is necessary and a reimbursement is required: Your center is only presented with a customer-pay invoice where one or both VANOS adjustment units were replaced prior to 9/1/2012 or had only one VANOS adjustment unit replaced on or after 9/1/2012. This vehicle will require a future repair to complete the Recall.

Sublet – Prior Repair Expense Reimbursement (Non-Recall Submission)

Submit a claim for this prior customer-pay repair expense as follows:

Defect Code:	85 99 00 12 NA	
Sublet Code 3	See sublet reimbursement below	Prior Customer-Pay reimbursement

- Enter the reimbursement as sublet dollar amount (with no markup).
- Comment: VANOS Recall Campaign 14V-176, reimbursement for allowable expenses related to the previous customer-pay repair.
- Note the date and mileage of the prior repair.

A claim submission under “Defect Code 85 99 00 12 NA” **will not close the** “open” Recall on the vehicle, since the vehicle was not available to perform the VANOS Recall repair.

CUSTOMER SATISFACTION SUPPORT

BMW of North America, LLC remains committed to providing exceptional service and delivering an Ultimate Customer Experience.

As part of our focus on improving customer satisfaction, your center may claim up to a maximum of \$50.00, a goodwill gesture, to “surprise & delight” the customer. Giving customer options can help tailor the service experience to their liking.

Recommended options:

- Swap loaner vehicle with customer's vehicle and back at a location of their preference (home, office, etc.)
- Top-off the vehicle's fuel tank
- Lifestyle items
- Detail the customer's vehicle

Please extend this goodwill to the customers when Recall Campaign 14V-176 is performed at your center.

Defect Code	85 10 02 54 NA	VANOS Recall Campaign – Customer Support Program
Sublet Code 4	Up to \$50.00	Reimbursement for “Surprise & Delight”

Please explain the type of goodwill provided and itemize the amount on the repair order and in the claim comment section. Retain and file the corresponding invoices.

Note: Aftersales Area Manager (AAM) “Field Authorization” (FAS) is not required.

ALTERNATE TRANSPORTATION

BMW “AMP-UP” Customer Care – Temporary Fleet Increase Initiative

BMW NA expects increased AMP vehicle demand, volume and duration, as a result of VANOS Recall Campaign 14V-176.

Your Area Manager (AM) has a procedure to assist you in calculating and determining if a temporary fleet increase is needed at your center.

This option is not available if your center already has an approved and active temporary fleet increase in place.

Time Periods and Dates for this Initiative

Total Duration:	4 Months (Plus 30-day ramp down)
Request Submission Period:	September 15, 2014 to September 29, 2014
Increase Period:	September 15, 2014 to January 15, 2015
Fleet Level Restoration Deadline:	February 15, 2015

- All requests must be submitted no later than the “Request Submission Period” specified above.
- Approved number of additional vehicles may be added to your existing fleet immediately upon approval and fully utilized for the duration of the pre-determined “Increase Period.”
- Your fleet must be restored to the pre-Customer Care approved limits by the “Fleet Level Restoration Deadline” date, **without** exception.

Please refer [SI B01 16 14](#) for more information.

ATTACHMENTS

View PDF attachment [B110714_Q&A.](#)

View PDF attachment [B110714 Customer Letter.](#)

View PDF attachment [B110714 Repair Procedure.](#)

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Changes to this revision are identified by a black bar.

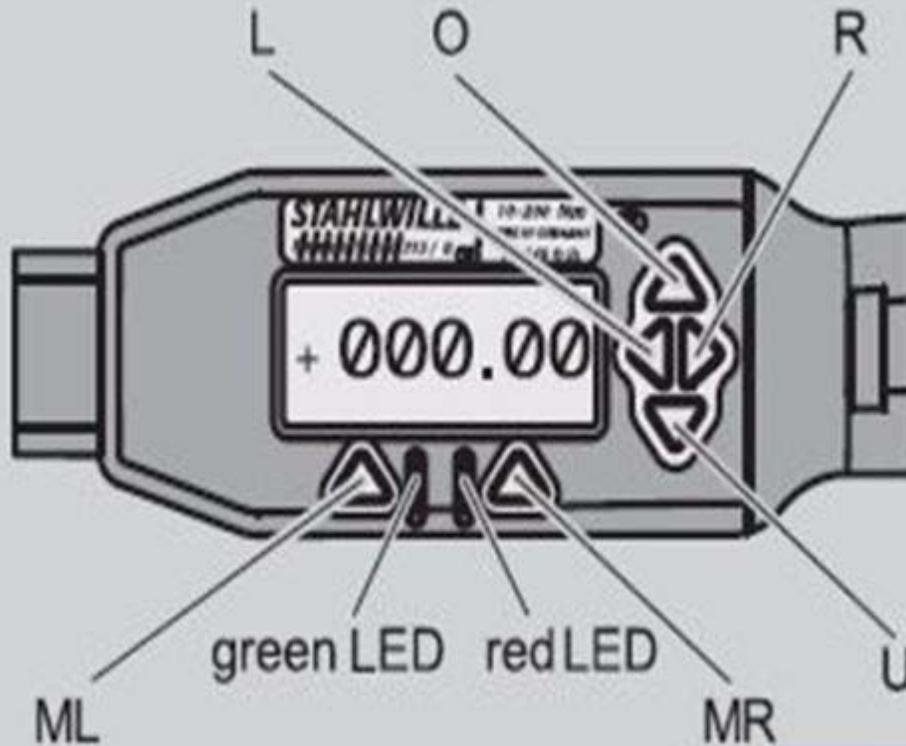
REPAIR PROCEDURE

It is necessary that the procedure described in the attachment be performed with the vehicle at room temperature. Performing the torque sequence described in this bulletin with a hot engine will result in an inaccurate torque value.

Note: Please follow the repair procedure outlined below; it contains modified instructions that apply to vehicles that may or may not have a broken or loose bolt. The ISTA/D repair instructions apply only to the VANOS gear replacement. This modified procedure is reflected in the labor operation time allowances.

Required special tools:	
 <p>A photograph of a metal socket for a torque wrench. The socket is cylindrical with a hexagonal base and a hexagonal top. The part number '83 30 2 333 891' is engraved on the side. A small white label with the text 'GRUSB1114-53' is located at the bottom right of the image.</p>	<p>Socket for Torque Wrench P/N 83 30 2 333 891 Distributed via Automatic Tool Shipment. Refer to SI B04 08 14.</p>
 <p>A photograph of a digital torque wrench. It has a long handle and a head with a digital display screen. A small white label with the text 'GRUSB1114-54' is located at the bottom right of the image.</p>	<p>Torque Wrench P/N 81 64 0 418 185 Distributed via Automatic Tool Shipment. Refer to SI B04 08 14.</p>

Torque Wrench Set Up:



GRUSB1114-55

Initial setup of torque wrench must be completed when using the tool for the first time.

Push any of the green buttons to turn on.

Press the “ML” button to select language. Scroll up and down with the “O” and “U” buttons to select English.

Press the “MR” button to select.

Press the “ML” button to enter the menu. Select “OK” and scroll using the “O” and “U” buttons to select “presets.” Select the “MR” button to select “modify.”

Scroll down using the “U” button to “shutdown time.” Select the “MR” button to select “modify.” Increase the time by using the “O” button. Press repeatedly until “9” is displayed. Select the “MR” button to “save” the setting. This setting will now automatically turn off the tool after 9 minutes of inactivity, and it will be saved for the next usage.

Select “return” twice with the “ML” button to go back to the main screen.

Select “menu” with the “ML” button.

Ignore “Password.” Do not enter a password.

Select “OK” with the “MR” button.

Scroll with the “O” and “U” buttons to “presets” and select “modify” with the “MR” button.

Scroll with the “O” and “U” buttons to “unit” and select “modify” with the “MR” button.

Scroll with the “O” and “U” buttons to “Nm” and select “OK” with the “MR” button.

Scroll with the “O” and “U” buttons to “adaptor length” and select “modify” with the “MR” button.

Scroll with the “O” and “U” buttons and the “L and R” buttons to enter the digits. Enter 17.50 mm and select “OK” with the “MR” button. This setting identifies the length of the tool, i.e., ratchet head or crow’s foot wrench end.

Select “return” twice with the “ML” button to go back to the main screen.

If the batteries are replaced, the initial setup will need to be performed again.

Selecting and Entering Rotation Angle Mode:

Press the “L” and “R” buttons at the same time. The “preload” screen should now be displayed. Preload is the initial torque setting.

Scroll with the “O” and “U” buttons and the “L and R” buttons to enter the digits. Enter 6.00 (6 Nm initial torque) and select “OK” with the “MR” button. The angle torque screen will be displayed automatically when this is complete.

Scroll with the “O” and “U” buttons and the “L and R” buttons to enter the digits. Enter 60.00 (60 degree angle torque) and select “OK” with the “MR” button. The screen will now state it is the “direct” mode.

Press the “tare” to zero the measurement. The torque wrench is now ready for use.

These values will stay stored as long as the tool is powered up. If the tool turns off after 9 minutes of inactivity, the initial torque and angle torque will be erased and will not be available for the next usage. The values will need to be reentered if the torque wrench turns off.

Alternative removal and installation tools can be sourced locally via SNAP-ON Tools™.

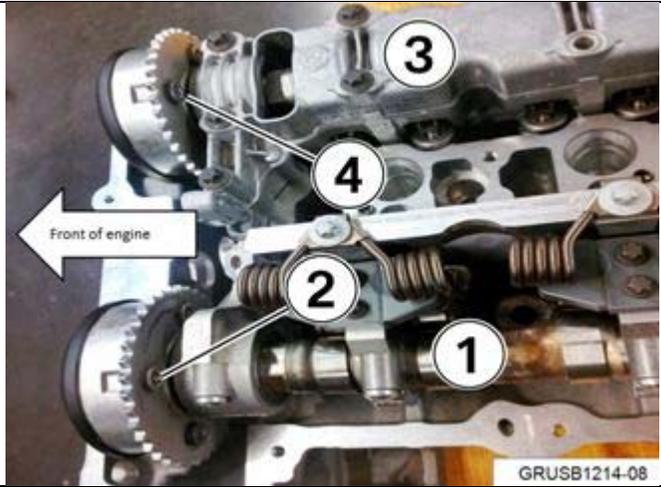
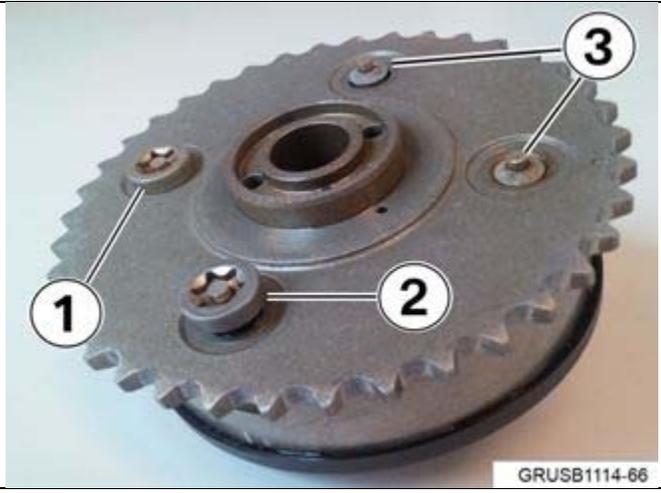
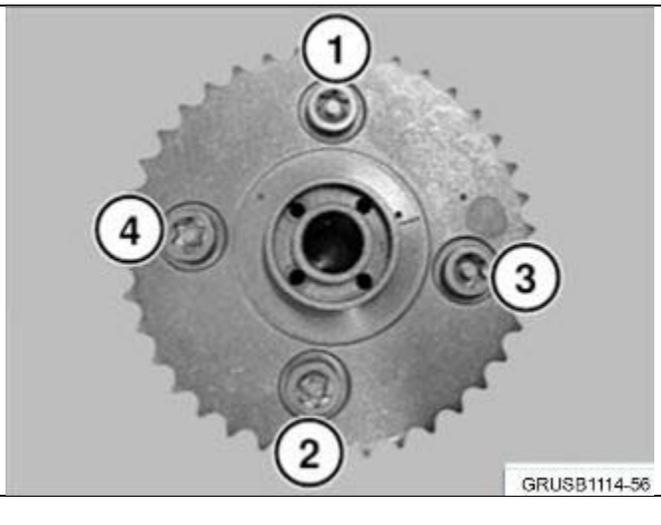
Torque Wrench, Electronic, TechAngle®

P/N ATECH1FR240B



GRUSB1114-63

 <p style="text-align: center;">GRUS81114-64</p>	<p>T45 TORX Socket (Long) P/N BLPTL3845TP</p>
 <p style="text-align: center;">GRUS81114-65</p>	<p>Adaptor, 1/4" Internal drive x 3/8" External drive P/N TA3 (1/4" to 3/8")</p>
<p>Preliminary Work:</p>	
<p>1. Remove the cylinder head cover per Repair Instruction 11 12 000, "Removing and installing or sealing cylinder head cover."</p>	
<p>2. Remove the fan and fan cowl per Repair Instruction 17 11 035, "Removing and installing/replacing fan cowl with electric fan."</p>	
<p>IMPORTANT: Do not reuse aluminum bolts. Once the aluminum bolts are removed, they must be replaced with new bolts.</p>	

	<p>Overview of components:</p> <p>Intake camshaft (1)</p> <p>Intake VANOS gear assembly bolts (2)</p> <p>Exhaust camshaft (3)</p> <p>Exhaust VANOS gear assembly bolts (4)</p>
	<p>3. Evaluation of bolt:</p> <p>If any of the bolts were loose or broken during this procedure, the VANOS assembly will need to be replaced. Refer to step 14.</p> <p>VANOS bolt is tight (1)</p> <p>VANOS bolt is loose (2)</p> <p>VANOS bolt heads have sheared off (3)</p> <p>Note: VANOS gear assembly removed from engine for clarity. Do not remove VANOS Gear Assembly</p>
<p>Intake VANOS Adjustment Unit:</p>	
	<p>4. Replace and torque the aluminum bolts (1-4) one at a time.</p> <p>Note: 1-4 is not a sequence; they can be replaced in any sequence.</p> <p>IMPORTANT: Never loosen more than one VANOS assembly bolt (1-4) at a time to avoid losing the sealing and alignment of gear assembly.</p>



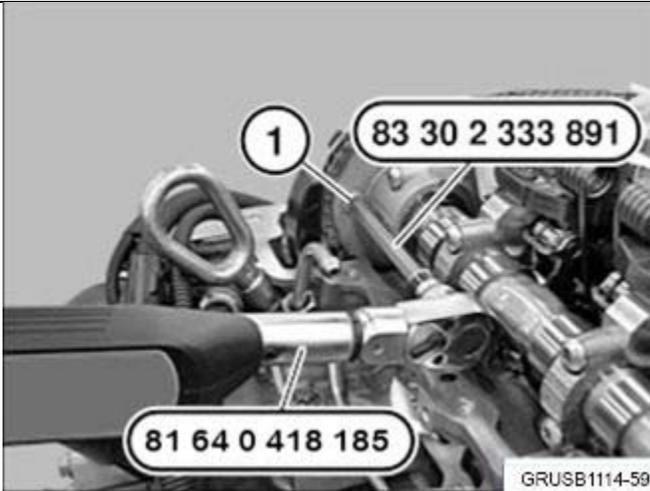
5. Turn the engine by hand, using a suitable tool on the crankshaft central bolt to align one of the bolts (1), as shown in the illustration.

Remove the bolt (1) using the required special tool (2).



6. Clean the threads on the VANOS assembly using compressed air to remove the excess oil. The torque wrench results will be more consistent when cleaning the threads for more than 3 seconds.

Always wear safety glasses.



7. IMPORTANT: The bolts require initial torque and angle torque. Observe the procedures in this step and the next step very carefully!

Move the torque wrench slowly and smoothly during the initial torque and angle torque steps. Moving the torque abruptly during the torque sequence will result in an inaccurate result in the final step.

Install one new P/N 11 36 8 602 263 aluminum VANOS bolt and apply the initial torque, using the required special tools to the specification below.

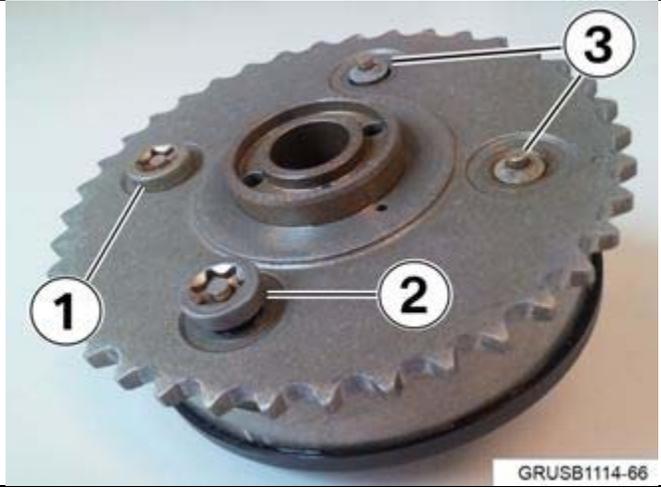
Initial torque: 6 Nm

Turn the torque wrench very slowly and do not over-torque the bolt. The handle of the torque wrench will vibrate and the green LED will briefly blink when the 6 Nm have been reached.

Angle torque: 60°

The torque wrench will automatically switch to angle torque and show zero degrees. Begin turning the torque wrench. The red and green LEDs will blink on the tool, warning the technician that the desired value is approaching. When 60 degrees has been reached, the handle will vibrate and the green LED will illuminate. The screen may or may not record the angle torque. Do not be alarmed if the screen freezes and captures a value that is a few degrees lower than the desired value.

Do not rotate the torque wrench any further after the handle vibrates and both LEDs illuminate.

	<p>8. While performing the angle torque, the digital screen on the torque wrench will display the current Nm meter value. This value should be between 8 Nm-14 Nm.</p> <p>If the displayed value is not within the specification, the bolt will need to be removed and replaced with a new bolt again. Repeat as necessary.</p> <p>To reset the torque wrench and clear the screen to Nm again, just press the “MR” button to continue replacing additional bolts.</p>
<p>9. If any of the bolts were loose or broken during this procedure, the VANOS assembly will need to be replaced. Refer to step 16.</p> <p>If no bolts were found loose, repeat steps 4-8 for the remaining 3 bolts on the VANOS gear assembly. It is good practice to mark each bolt head with a felt marker as it is replaced, so one is not mistaken and removed again.</p> <p>When all of the intake VANOS assembly bolts have been replaced successfully, proceed to step 10.</p>	
<p>Exhaust VANOS Adjustment Unit:</p>	
	<p>10. Evaluation of bolt:</p> <p>If any of the bolts were loose or broken during this procedure, the VANOS assembly will need to be replaced. Refer to step 16.</p> <p>VANOS bolt is tight (1)</p> <p>VANOS bolt is loose (2)</p> <p>VANOS bolt heads have sheared off (3)</p> <p>Note: VANOS gear assembly removed from engine for clarity. Do not remove VANOS Gear Assembly</p>



11. Replace and torque the aluminum bolts (1-4) one at a time.

IMPORTANT: Never loosen more than one VANOS assembly bolt (1-4) at a time to avoid losing the sealing and alignment of gear assembly.



12. Turn the engine by hand using a suitable wrench on the crankshaft central bolt to align the bolt (1) as shown in the illustration.

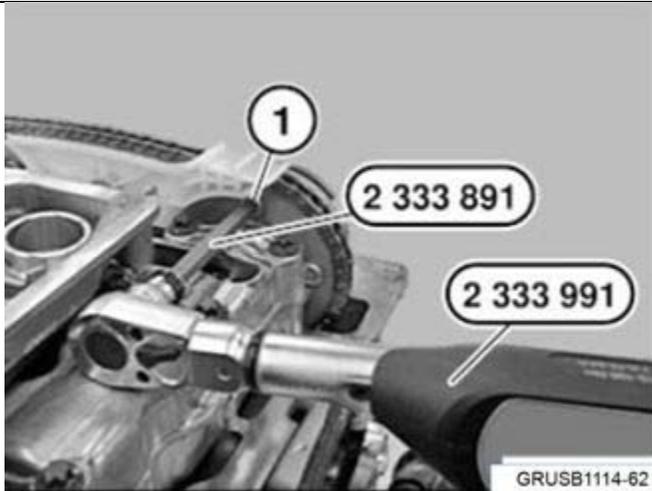
Remove the bolt (1) using the required special tool.

Note: The tool will be on a slight angle when loosening.



13. Clean the threads on the VANOS assembly using compressed air to remove the excess oil. The torque wrench results will be more consistent when cleaning the threads for more than 3 seconds.

Always wear safety glasses.



14. IMPORTANT: The bolts require initial torque and angle torque. Observe the procedures in this step and the next step very carefully!

Move the torque wrench slowly and smoothly during the initial torque and angle torque steps. Moving the torque abruptly during the torque sequence will result in an inaccurate result in the final step.

Install one new P/N 11 36 8 602 263 aluminum VANOS bolt and apply the initial torque, using the required special tools to the specification below.

Initial torque: 6 Nm

Turn the torque wrench very slowly and do not over-torque the bolt. The handle of the torque wrench will vibrate and the green LED will briefly blink when the 6 Nm have been reached.

Angle torque: 60°

The torque wrench will automatically switch to angle torque and show zero degrees. Begin turning the torque wrench. The red and green LEDs will blink on the tool, warning the technician that the desired value is approaching. When 60 degrees has been reached, the handle will vibrate and the green LED will illuminate. The screen may or may not record the angle torque. Do not be alarmed if the screen freezes and captures a value that is a few degrees lower than the desired value.

Do not rotate the torque wrench any further after the handle vibrates and both of the LEDs illuminate.

Note: The tool will be on a slight angle when tightening.

	<p>15. While performing the angle torque, the digital screen on the torque wrench will display the current Nm meter value. This value should be between 8 Nm-14 Nm.</p> <p>If the displayed value is not within the specification, the bolt will need to be removed and replaced with a new bolt again. Repeat as necessary.</p> <p>To reset the torque wrench and clear the screen to Nm again, just press the “MR” button to continue replacing additional bolts.</p>
<p>16. If any of the bolts were found loose or broken during this procedure, the affected VANOS assembly will need to be replaced. Refer to step 17.</p> <p>If no bolts were found loose, repeat steps 10-15 for the remaining 3 bolts on the applicable VANOS gear assembly. It is good practice to mark each bolt head with a felt marker as it is replaced, so one is not mistaken and removed again. Refer to step 18 when complete.</p>	
<p>17. If any of the VANOS bolts were found loose or broken, that VANOS unit will need to be replaced. Refer to Repair Instruction 11 36 046, “Removing and installing or replacing intake and exhaust camshaft adjusters.”</p>	
<p>18. Reassemble the vehicle per the applicable repair instructions.</p>	
<p>Refer to SI B11 07 14 for the Parts and Warranty information.</p>	