

**VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED, AND EMAIL**

April 9, 2014

Ms. Nancy Lewis  
Associate Administrator for Enforcement  
National Highway Traffic Safety Administration  
1200 New Jersey Ave., S.E.  
Washington, DC 20590

**Re: Recall Campaign  
VANOS Assembly Bolts  
Model Year 2010-12 BMW 1 Series, 3 Series, 5 Series, 5 Series Gran  
Turismo, 6 Series, X3 SAV, X5 SAV, X6 SAV, Z4**

Dear Ms. Lewis:

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act of 1966 and 49 CFR Part 573.

BMW has decided to conduct a voluntary recall in accordance with CFR Parts 573 and 577 for the subject vehicles contained herein. In addition, BMW has decided to implement an extended warranty program for certain other vehicles that have much lower incident rates.

Pursuant to Section 573.6(c), we submit the following information.

- |    |                                 |  |
|----|---------------------------------|--|
| 1. | Manufacturer:                   | Bayerische Motoren Werke AG (BMW AG)   |
|    | Designated Agent:               | Samuel Campbell, III<br>Department Head, Safety Engineering and ITS<br>BMW of North America, LLC<br>200 Chestnut Ridge Rd. (Bldg. 150)<br>Woodcliff Lake, NJ 07677 |
| 2. | Make:                           | BMW  |
|    | Model Year / Model:             | Inclusive Dates of Manufacture:  |
|    | 2010-12 / 1 Series              | January 2010 - August 2011   |
|    | 2010-12 / 3 Series              | September 2009 - February 2012   |
|    | 2011-12 / 5 Series              | September 2009 - August 2011   |
|    | 2010-12 / 5 Series Gran Turismo | September 2009 - November 2011   |
|    | 2012 / 6 Series                 | May 2011 - October 2011  |
|    | 2010-12 / X3 SAV                | January 2010 - September 2011  |
|    | 2010-12 / X5 SAV                | November 2009 - October 2011   |
|    | 2010-12 / X6 SAV                | February 2010 - October 2011   |
|    | 2010-12 / Z4                    | January 2010 - February 2011   |

**Company**  
BMW of North America, LLC

BMW Group Company

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3. The number of vehicles affected is approximately 156,137 as follows:

<u>Model Year / Model</u>	<u>Production Volume</u>
2010-12 / 1 Series	8,983
2010-12 / 3 Series	58,165
2011-12 / 5 Series	37,443
2010-12 / 5 Series Gran Turismo	3,094
2012 / 6 Series	5
2010-12 / X3 SAV	8,483
2010-12 / X5 SAV	33,389
2010-12 / X6 SAV	5,420
2010-12 / Z4	1,155

4. The percentage of vehicles estimated to contain the condition is approximately 2%.
5. This recall involves the housing bolts for the variable camshaft timing (VANOS) adjustment unit on the intake and exhaust camshafts. The housing of the VANOS adjustment unit is assembled with four aluminum bolts. Due to a quality fault, the aluminum bolts can loosen over time and under certain circumstances the bolt heads may break. The VANOS assembly is controlled electrically by valves actuated via engine oil pressure. If the bolt heads loosen or break, the VANOS may leak internally, resulting in the affected camshaft not being adjusted correctly anymore. Since the camshaft position is monitored by the engine electronics, it will be recognized that the camshaft position is deviating from the target position. As a result, the reduced engine power Limp-Home mode will be activated.

The driver will be notified by the Check Engine (or Service Engine Soon) warning light and a Check Control message that the reduced engine power Limp-Home mode is activated either immediately or at startup of the next driving cycle. The driver will notice a distinct change in engine running condition and hear increased engine noise. In rare cases, the engine cannot be started after switching off. In very rare cases, the engine could stall during operation which could lead to a crash.

The name, business address, and telephone number of the suppliers, and country of origin of the components, are:

Supplier (VANOS assembly)  
Hilite Germany GmbH  
Am Schloßfeld 5  
D-97828 Marktheidenfeld  
Germany  
Tel.: +49-9391-911-0

Country of Origin - Germany

Sub-supplier (aluminum bolts)  
RIBE-Richard Bergner Verbindungstechnik GmbH & Co. KG  
Bahnhofsstraße 8-16  
D-91126 Schwabach  
Tel.: 49-9122-870-0

Country of Origin – Germany

6. In 2011, approximately 12 warranty claims were processed in the US market for various malfunctions involving the VANOS system. Some of the warranty claims indicated that the Service Engine Soon lamp was illuminated and some indicated that one or more of the VANOS system bolts were broken. Some of the claims did not contain either of these references, and appear to be unrelated to the issue that is the subject of this recall.

On August 22, 2011, BMW China received the first field report from its dealer network regarding a malfunction of the VANOS system on a Model Year 2010 BMW X5 produced on May 27, 2010. The report did not include a customer stalling complaint, however the report advised the orange check engine warning light was displayed, in conjunction with increased engine noise.

On October 21, 2011, the first dealer field report was received in the US market pertaining to a Model Year 2011 BMW X5 SAV produced in June 2010 with approximately 29,000 miles. In the report and corresponding warranty claim, the customer stated that the Service Engine Soon lamp was illuminated and that the vehicle stalled. During vehicle repair, it was noted that some of the VANOS attachment bolts were broken. No further dealer field reports in the US market were received for approximately six months.

On March 29, 2012, a second dealer field report was received in the US market. Similar to the first dealer field report, it pertained to a Model Year 2011 BMW X5 SAV produced in June 2010 with approximately 32,000 miles. In this report, the customer stated that the Service Engine Soon lamp illuminated, but that the vehicle had not stalled. During vehicle repair, it was noted that some of the VANOS attachment bolts were broken.

During early 2012, an increasing number of field cases were received in other markets involving possible loosening and subsequent breaking of the VANOS attachment bolts. The cases indicated that only certain 6-cylinder turbocharged engines produced during specific weeks in 2010 were affected. At that time, a root cause was yet to be identified. As a result of the increase in field cases, an engineering team was established to understand and resolve the issue.

Between September 2011 and June 2012, the engineering team investigated the production data of the supplier and sub-suppliers, analyzed field data, evaluated differences in vehicle configurations, examined returned parts from the field, and performed various vehicle and system tests. On March 19, 2012 a report regarding the malfunction of a VANOS system on a vehicle in the Chinese market became available to the engineering team. Metallurgical analysis of the failed bolts pointed to possible creep damage. Further analyses of additional field data and production records suggested that only engines of specific production periods were affected.

On June 20, 2012, due to the increasing number of field cases worldwide, BMW decided to conduct an action in the Chinese market for vehicles produced between February 2, 2010 and October 15, 2010. The action consisted of replacing the VANOS units and the attachment bolts at the vehicle's next dealer visit. However, in the US market, due to the very low rate of occurrence, it was decided to perform this action only if a vehicle experienced this condition. A Service Information Bulletin was released in June 2012. The markets continued to be monitored.

In 2013, BMW received several more dealer field reports from the US market pertaining to conditions in which the Service Engine Soon lamp was illuminated and that one or more of the VANOS attachment bolts had broken. However, none of the reports suggested that a stalling condition had occurred. Most of the reports pertained

to vehicles with approximately 40,000 miles which were produced between May and July 2010. However, to ensure all possibly affected vehicles were being addressed, the Service Information Bulletin was updated to expand the number of models and the dates of vehicle production.

On February 24, 2014, the Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) in China initiated an investigation and submitted an information request to BMW China, in conjunction with 9 customer complaints containing 4 allegations of stalling.

Between March 1 and March 18, 2014, BMW reviewed and analyzed the cases submitted by AQSIQ in cooperation with the investigation. BMW came to the conclusion that this issue was not safety-related.

On March 18, 2014, BMW decided to implement an action in the Chinese market (with customer notification) for certain models equipped with a VANOS engine that was produced between September 2009 and July 2011.

On April 2, 2014, AQSIQ published this action as a safety related recall. BMW China subsequently accepted the determination by AQSIQ to conduct this type of campaign.

On April 2, 2014, BMW decided to conduct a voluntary recall in the US. In addition, BMW decided to offer an extended warranty program for vehicles with similar engines but which exhibit much lower rates of occurrence.

BMW has not received any reports, nor is BMW otherwise aware, of any accidents or injuries related to this issue.

7. Not applicable.
8. The four bolts connecting each VANOS adjustment unit to both the intake and exhaust camshafts will be replaced. BMW expects to begin dealer notification in April 2014 and complete dealer notification in May 2014. BMW expects to begin owner notification in May 2014 and complete owner notification in June 2014.

In addition, owners of approximately 170,172 Model Year 2010-2012 BMW vehicles equipped with inline 6 cylinder engines, but which experience much lower rates of VANOS bolt failure, will receive an extended warranty to address this condition.

9. Not applicable.
10. A copy of the Service Bulletin will be submitted when available. A draft copy of the owner notification letter will be submitted when available.
11. Not applicable.

Sincerely,

BMW OF NORTH AMERICA, LLC



Sam Campbell  
Department Head  
Safety Engineering and Intelligent Transportation Systems