



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

ODI RESUME

Investigation: EA 12-002
Prompted by:
Date Opened: 04/10/2012
Investigator: Derek Rinehardt **Reviewer:** Jeff Quandt
Approver: Frank Borris
Subject: Vehicle Rollaway

MANUFACTURER & PRODUCT INFORMATION

Manufacturer: BMW OF NORTH AMERICA, LLC
Products: MY 2002 through MY 2008 BMW 7-Series
Population: 121,708

Problem Description: Vehicle rollaway after intended shift to Park.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	3	47	50
Crashes/Fires:	2	14	16
Injury Incidents:	0	5	5
Number of Injuries:	0	5	5
Fatality Incidents:	0	0	0
Other*:	0	0	0

*Description of Other:

ACTION / SUMMARY INFORMATION

Action: An Engineering Analysis has been opened.

Summary:

In response to the Office of Defects Investigation's (ODI) Information Request (IR) for PE11-025, BMW provided ODI with 1 complaint and 46 field reports relating to either incidents of unattended vehicle rollaway or vehicle movement after the driver expected the vehicle gearshift to automatically shift to park. ODI's analysis of the data provided by BMW identified 14 crashes and 5 alleged injuries. ODI has also identified 3 additional reports in its database alleging vehicle rollaway incidents of which 2 resulted in crashes.

The subject vehicles are all equipped with push-buttons ("Start/Stop" button) to control starting/stopping the engine and "Shift-by-Wire" gearshift systems controlled by a column mounted selector lever behind the steering wheel. The "Start/Stop" button also controls switching the ignition and the radio ready state "On" and "Off." Shift-by-wire systems replace the traditional mechanical connection (e.g., cable or linkage) between the gearshift and automatic transmission with an electronic connection controlled by a computer module. When parking the vehicle, the driver has the capability to manually shift the vehicle to park by pressing the Park button on the end of the electronic gearshift lever. However, the instructions for engine shutoff provided in the owner's manual state that pressing the Start/Stop button serves the dual function of switching off the engine and automatically shifting the transmission to park.

In response to ODI's information request for PE11-025, BMW described several circumstances where the subject vehicles may shift to neutral when the driver may expect it to automatically shift to park. First, for Comfort Access System (CAS) vehicles, if the transmission is in neutral when the key fob is in the ignition slot and the Start/Stop button is pressed to shut-off the engine, the transmission will remain in neutral. This is referred to as the Carwash mode and is a normal operating feature of the vehicles that is described in the owner's manual. BMW also described

two circumstances that are not normal operating features and are not described in the owners' manual: (1) with the transmission in drive or reverse and the engine running, if the Start/Stop button is pushed 2 or 3 times within a 0.3 second to 0.5 second interval, the engine will stop and the transmission will shift to Neutral; and 2) if the Park button on the gearshift lever is pressed at the same time that the gearshift lever is actuated (i.e., toggled up or down) to select drive, reverse or neutral; the transmission will shift to neutral or remain in neutral.

Beginning in model year (MY) 2005, BMW introduced CAS as an optional feature package for the subject vehicles. The "key" for CAS equipped vehicles is an electronic code that is sent to the engine control module by a remote transmitter (key fob). An optional docking port (key slot) is provided for driver convenience or to put the vehicle into Car Wash mode, which allows for engine shutoff in neutral. BMW sold approximately 45,000 subject vehicles with CAS and approximately 94 percent of the CAS equipped vehicles were produced from MY 2006 through 2008. Non-CAS subject vehicles were produced from MY 2002 through 2008 and require the remote control to be in the ignition slot located next to the Start/Stop button to start the engine.

The 50 incidents identified by ODI's analysis of complaints and field reports include 18 involving CAS vehicles (39.6 incidents per 100,000 vehicles) and 32 involving non-CAS vehicles (42.0 incidents per 100,000 vehicles). Because the incidents are considered random events, the failure rates were also adjusted for vehicle exposure, resulting in rates of 7.9 and 5.5 incidents per 100,000 vehicle-years for the CAS and non-CAS vehicles, respectively.

This investigation is being upgraded to an Engineering Analysis to further assess the potential safety consequences of the alleged defect in the subject vehicles.

EA12-002 Opening Resume Attachment

The ODI reports cited in the Failure Report section of this resume can be reviewed at www.odi.nhtsa.dot.gov/complaints under the following identification numbers (ODI Nos.):

10185770, 10419177, 10429922