



U.S. Department  
of Transportation

**National Highway  
Traffic Safety  
Administration**

# ODI RESUME

**Investigation:** EA 13-004  
**Prompted by:**  
**Date Opened:** 04/26/2013  
**Investigator:** Derek Rinehardt      **Reviewer:** Jeff Quandt  
**Approver:** Frank Borris  
**Subject:** Loss of Steering Control

## MANUFACTURER & PRODUCT INFORMATION

**Manufacturer:** Ford Motor Company  
**Products:** MY 2005 - 2008 Ford Crown Victoria Police Interceptor Models  
**Population:** 195,000  
**Problem Description:** Separation of the lower steering column shaft from the upper steering column shaft resulting in a loss of steering control.

## FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
<b>Complaints:</b>	5	2	6**
<b>Crashes/Fires:</b>	0	0	0
<b>Injury Incidents:</b>	0	0	0
<b>Fatality Incidents:</b>	0	0	0
<b>Other*:</b>	0	9	9

\*Description of Other: Warranty claims related to loss of steering.

\*\* Total eliminates duplicates received by ODI and manufacturer.

## ACTION / SUMMARY INFORMATION

**Action:** An Engineering Analysis has been opened.

### Summary:

In the subject vehicles, the mechanical connection between the steering wheel and rack and pinion steering assembly consists of the steering column and an upper and lower intermediate shaft. A disconnection of any of these components from the steering system will create a loss of steering control. Allegations of a loss of steering control incidents reviewed during Preliminary Evaluation PE12-025 appear to be related to a separation of the upper and lower shafts within the steering the column.

In response to the Office of Defects Investigation's (ODI) Information Request (IR) during PE12-025, Ford provided 2 complaints and 9 warranty claims related to the alleged defect in the subject vehicles (see Figure 1 for an exemplar picture). ODI has received 5 complaints related to the alleged defect, including 1 related to an incident reported in one of the Ford complaints. The incident rate involving subject vehicles is 7.7 per 100,000 vehicles (15 total incidents). Five of the 15 incident vehicles were associated with a prior history report of a frontal impact incident.

ODI also analyzed field data for MY 2005 through MY 2008 non-CVPI Crown Victoria and Grand Marquis models and MY 2009 through MY 2011 CVPI models, which use a similar steering column and intermediate shaft design. This analysis identified 4 reports from Ford and 2 complaints to ODI, including 1 duplicative of a complaint provided by Ford, resulting in 5 total incidents and an incident rate of 1.1 per 100,000 vehicles for a vehicle population of approximately 436,000 vehicles. In the peer vehicle analysis, 4 of 5 incident vehicles had a prior history report of a frontal impact incident.

ODI also identified 42 reports (39 reports associated with subject vehicles and 3 reports associated peer vehicles) of

the lower steering column shaft bearing displacement that did not result in complete separations of the upper to lower steering column shafts (see Figure 2). Vehicles with this condition were identified during inspections of police fleets or during vehicle repairs for complaints of looseness, binding or noise in the steering system while turning.

An Engineering Analysis has been opened to further assess the scope, frequency, consequence, and contributing factors to the steering column shaft separations.

The VOQs associated with the opening of this investigation and a loss of steering control are:

10347404, 10474596, 10475950, 10477192, and 10479893.

### Lower Steering Column Shaft Complete Separation

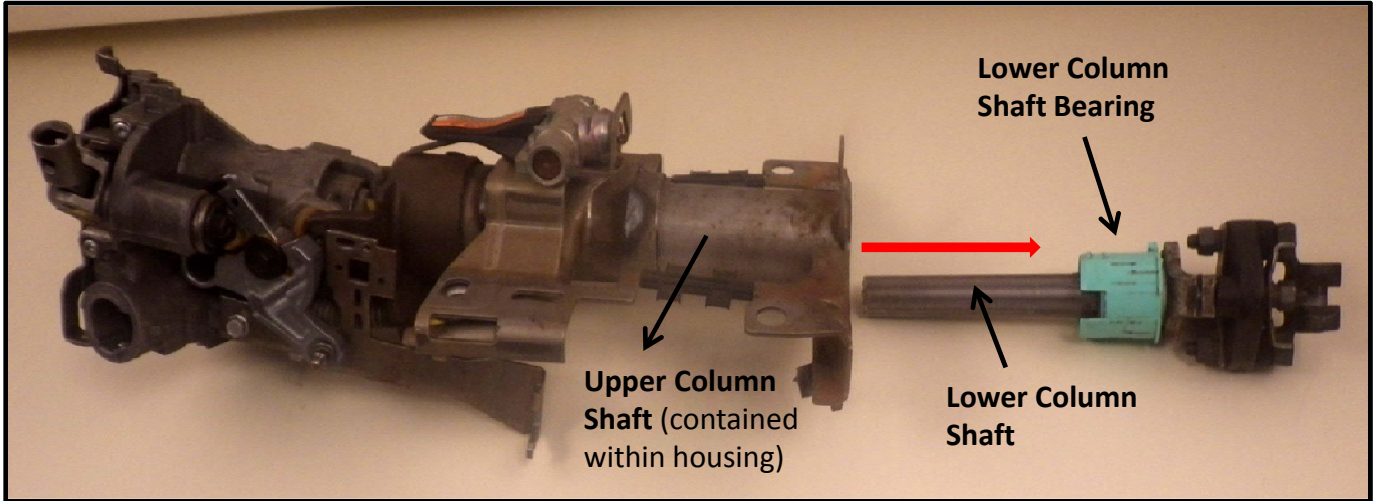
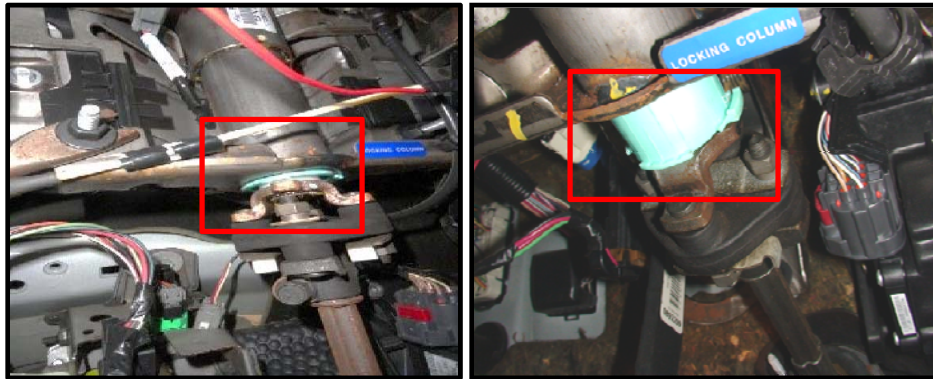


Figure 1

### Lower Column Shaft Bearing Displacement



Displaced Lower Bearing

Figure 2