



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

ODI RESUME

Investigation: EA04-034
Prompted By: Consumer Complaints, RQ04-007
Date Opened: 12/21/2004
Principal Investigator: Scott Yon
Subject: Fracture of the steel wheel rim

Manufacturer: Ford Motor Company
Products: MY 2003 - 2005 Ford Crown Victoria Police and Taxi
Population: 114,000 (Estimated)

Problem Description: The rim cracks at the circumferential weld allowing the potential for catastrophic failure and loss of vehicle control.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	25	27	45
Crashes/Fires:	1	1	1
Injury Incidents:	1	1	1
# Injuries:	1	1	1
Fatality Incidents:	0	0	0
# Fatalities:	0	0	0
Other*:	0	72	72

*Description Of Other: Warranty claims involving fractured steel wheels.

Action: Open an Engineering Analysis.

Engineer: D. Scott Yon

Date: 12/22/2004

Div. Chief: Jeffrey L. Quandt

Date: 12/22/2004

Office Dir.: Kathleen C. DeMeter

Date: 12/22/2004

Summary: During a September 23, 2004 meeting and in subsequent discussions in November, Ford advised the Office of Defects Investigation (ODI) of their plans to introduce an improved steel wheel for manufacturing and service component use on the subject vehicles, indicating this would occur in December 2004. The new wheel design incorporates an additional manufacturing process (shot peening) which lowers tensile stress in the surface layer of the rim material adjacent to the circumferential weld. Theoretically this should improve rim durability by reducing fatigue crack initiation sites. Indications from Ford's accelerated testing methods show an improvement in the performance of the new wheel. In addition to prior safety recall 03V279 and service action (SA) 03M03, Ford will announce a new extended warranty SA for vehicles built prior to December 2004 that suffer rim fractures in service. The new wheel design will be used as a remedy. Ford advises that a SA is sufficient for addressing future wheel failures (including recall 03V279 remedy wheel failures) because: 1) failure rates are low based on Ford's analysis, and 2) driver warnings (repetitive slow air loss, and/or steering wheel vibration) allow early and safe detection of cracked wheels.

ODI has received 25 Vehicle Owner Questionnaire (VOQ) reports (involving 22 vehicles) which allege a rim fracture of one or more steel wheels. About half the reports involve vehicles built with the remedy wheel used for Recall 03V279, and most of the remaining vehicles were subject to the recall. The process of identifying pertinent Ford complaints is made difficult by Ford's prior recall and warranty program activities. The manufacturer complaint and warranty counts noted above, which primarily involve failures of Recall 03V279 remedy wheels, are based on ODI analysis conducted to date and are considered to be conservative.

Further investigation is required, thus ODI has upgraded Recall Query 04-007 to an Engineering Analysis (EA). During the EA, pertinent failure reports and consequences will be identified and reviewed. ODI and Ford will discuss details for conducting an audit analysis of failed wheels replaced under the new SA. Additionally, ODI is awaiting Ford's lab analysis of two wheels which were the subject of VOQ reports, one of which was involved in the noted crash event. A determination will be made as to whether Ford's service action is sufficient for addressing ongoing rim fractures.

Refered 1/3/05 day

updated 1/3/2005 day