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

ODI RESUME

Investigation: PE 08-029 Date Closed: 08/21/08
Date Opened: 04/22/2008
Principal Investigator: Andrea Noel
Subject: Front Sub-frame Corrosion

Manufacturer: Hyundai Motor Company
Products: 1999 – 2002 Hyundai Sonata
Population: 197,906

Problem Description: Front sub-frame corrosion may result in collapse or separation of the right front wheel.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	91	350	421
Crashes/Fires:	1	1	2
Injury Incidents:	0	0	0
# Injuries:	0	0	0
Fatality Incidents:	0	0	0
# Fatalities:	0	0	0
Other*:	0	1017	1017

*Description Of Other: Warranty Claims for sub-frame assembly replacement.

Action: This Preliminary Evaluation has been upgraded to an Engineering Analysis (EA08-016).

Engineer: *Andrea Noel* A.N. Date: *08/21/2008*
Div. Chief: *Jeffrey L. Quandt* Date: *08/21/2008*
Office Dir.: *Kathleen C. DeMeter* Date: *08/21/2008*

Summary:
The Office of Defects Investigation (ODI) opened Preliminary Evaluation, PE08-029, on April 22, 2008, based on 40 consumer complaints alleging front sub-frame corrosion in Model Year (MY) 1999 through 2002 Hyundai Sonata vehicles. Complaints describe severe corrosion of the vehicle sub-frame in the area where the right-front lower control arm is attached. In some vehicles, sub-frame corrosion has caused complete or partial detachment of the control arm, resulting in wheel collapse or separation.

In response to ODI's Information Request letter for PE08-029, Hyundai provided owner complaints, field reports, and warranty claim data for approximately 197,906 MY 1999 through 2002 subject vehicles sold or leased in the United States. The base warranty for the subject vehicles is 60 months or 60,000 miles, whichever occurs first. According to Hyundai, prolonged exposure to the road salts may result in corrosive damage to the sub-frame. Hyundai re-designed the sub-frame early in the MY 2004 production (November 2003) to address problems with premature corrosion of the crossmember near the right-front suspension attachment.

(Continued on page two)

8/27/08

ODI's analysis of both complaint and warranty data for the MY 1999 through 2002 Sonata vehicles shows that the failure rates are significantly higher in salt belt states, which account for approximately 50 percent of vehicle sales and over 90 percent of complaints and warranty claims related to the alleged defect (note: for purposes of this investigation the "salt belt" includes Connecticut, Delaware, the District of Columbia, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia and Wisconsin).

According to Hyundai, the alleged defect results in a progressive loss of structural integrity of the sub-frame and there is ample opportunity for the problem to be detected (by inspection, steering feel or tire wear anomalies) and repaired before it reaches a state where a safety related incident may occur. Hyundai identified 4 allegations of vehicle disablement and 1 allegation of a crash; where the lower control arm broke from the vehicle while driving at 55 mph and the driver lost control and drove into a yard. There were no reported injuries. ODI received a separate allegation of a crash, where the complainant alleged that while driving around a slight curve at 65 mph on a freeway, the vehicle sub-frame fractured and the driver lost control of the vehicle and went off the road. Again, no injuries were reported. Approximately one-third of the complaints to ODI allege that the sub-frame corrosion resulted in a loss of control and/or a vehicle disablement due to wheel collapse or separation.

This investigation has been upgraded to an Engineering Analysis (EA08-016) covering MY 1999 through early-2004 Hyundai Sonata vehicles in salt-belt states and equipped with the subject sub-frame design to further assess the frequency and safety consequences of the alleged defect.

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