



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

ODI RESUME

Investigation: PE04-065
Date Opened: 09/21/2004 Date Closed: 02/08/2005
Principal Investigator: Kyle Bowker
Subject: Rear Drum Brake Wheel Cylinder Leakage

Manufacturer: Kia Motors America, Inc.
Products: 2002 Kia Spectra
Population: 71,837

Problem Description: Rear drum brake wheel cylinder leakage.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	0	5	5
Crashes/Fires:	0	0	0
Injury Incidents:	0	0	0
# Injuries:	0	0	0
Fatality Incidents:	0	0	0
# Fatalities:	0	0	0
Other*:	0	813	813

*Description of Other: Warranty claims paid to replace leaking wheel cylinders on subject vehicles.

Action: This Preliminary Evaluation has been closed.

Engineer: Kyle M. Bowker KMB
Div. Chief: Jeffrey L. Quandt
Office Dir.: Kathleen C. DeMeter

Date: 02/08/2005
Date: 02/08/2005
Date: 02/08/2005

Summary: The Office Of Defects Investigation (ODI) opened this Preliminary Evaluation to investigate allegations of rear drum brake wheel cylinder leakage in 2002 Kia Spectra vehicles. This investigation was prompted by Kia's Early Warning Report to the agency for the first quarter of 2004, which contained a single field report that identified 13 incidents of wheel cylinder leakage in the subject vehicles.

The subject vehicles are available in both 4-door sedan and 5-door hatchback body styles. The same parts supplier provides wheel cylinders for both vehicle types, although their part numbers differ. These parts are used on all MY2002-2004 Spectra "Type-I" vehicles manufactured through 12/30/2003. Additionally, MY2001-2005 Kia Rio vehicles built through 11/17/2004 use the same wheel cylinders as the subject Spectra "Type-I" 4-door sedan. MY2004 Spectra "Type-II" vehicles, which started production on 12/8/2003, do not use the subject components as they are equipped with rear disc brakes.

The manufacturer notified ODI of one complainant whom alleged a crash caused by, "inadequate brake system response," resulting in one person injured. However, it appears that multiple causal factors may have contributed to the crash incident and no single factor has been identified as the primary cause. In total, ODI is aware of 5 consumer complaints, 1 field report, and 813 warranty claims related to the alleged defect in 2002 Kia Spectra vehicles. None of the complainants alleged degraded stopping performance or loss of braking capability caused by wheel cylinder leakage. To date, the complaint rate is 7.0 per 100,000 vehicles and the warranty rate is 1.13%.

Kia's analysis of warranty return parts indicates a slow rate of fluid loss; tests showed a maximum fluid loss rate of 1cc per 4000 brake applications (the master cylinder reservoir has a 134cc fluid capacity between "Full" and the level at which the brake warning lamp is illuminated). Kia testing of a vehicle equipped with a leaking wheel cylinder showed that after 100 stops from 100 km/h the pedal stroke increased 5%, pedal force increased 13%, and the braking distance increased 7% (51.7m vs. 48.1m) when compared to the same vehicle with a non-leaking wheel cylinder.

A safety-related defect has not been identified at this time and further use of agency resources does not appear to be warranted. Accordingly, this investigation is closed. The closing of this investigation does not constitute a finding by NHTSA that a safety-related defect does not exist. The agency will take further action if warranted by the circumstances.