



U.S. Department
of Transportation


**National Highway
Traffic Safety
Administration**

Memorandum

Vehicle Research and Test Center

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Subject: FINAL MEMORANDUM REPORT - VRTC-DCD4069
"Evaluation of Front Suspension Coil Spring Failure in Certain
MY 1999 Pontiac Grand Am and Chevrolet Malibu Vehicles
(EA03-021)" **Date:** JAN 20 2005

From: 
Michael W. Monk **Reply to**
Director, Vehicle Research & Test Center **Attn. of:** NVS-310

To: Kathleen C. DeMeter **NVS-210**
Director, Office of Defects Investigation

Attached are four (4) copies of the subject report. This completes the requirements for this program.

Attachments: Final Report (4)

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VRTC FIELD REPORT

Inspection of a 1999 Pontiac Grand Am

November 2004

VRTC-DCD4089 (EA03-021)
(Front Suspension Coil Spring Fracture)

In support of a request from the National Highway Traffic Safety Administration's Office of Defects Investigation (ODI), the authors, representing the Vehicle Research and Test Center, met with Leonard Kueking on February 25, 2004, in Canal Fulton, Ohio. [REDACTED] was interviewed concerning his report of a broken right-front suspension coil spring in his wife's 1999 Pontiac Grand Am.

[REDACTED] stated that his wife was driving the subject vehicle on a nearby residential street on July 10, 2003. While driving straight, at approximately 20 mph, she heard a very loud noise and the right-front corner of the vehicle dropped, causing the vehicle to swerve abruptly to the right. She was able to keep the vehicle on the roadway and bring it to a stop in about 25 ft. The right-front suspension coil spring allegedly broke and caused the tire to deflate rapidly after it was pierced by a piece of the broken spring. The car could not be driven from the scene of the incident since the front of the vehicle was in contact with the roadway surface.

Figure 1 is a photograph of the subject vehicle. It appeared to be in good mechanical condition and its odometer indicated 72,339 accumulated miles.

Figure 2 is a photograph of the FMVSS label of the subject vehicle. Clearly visible in this view are the vehicle identification number and the date of manufacture.



Figure 1 - Subject Vehicle: 1999 Pontiac Grand Am

According to [REDACTED] the vehicle was repaired on July 11, 2003. During this repair, both front-suspension coil springs and struts and the right-front tire were replaced. The front suspension alignment was also checked and reset at this time.

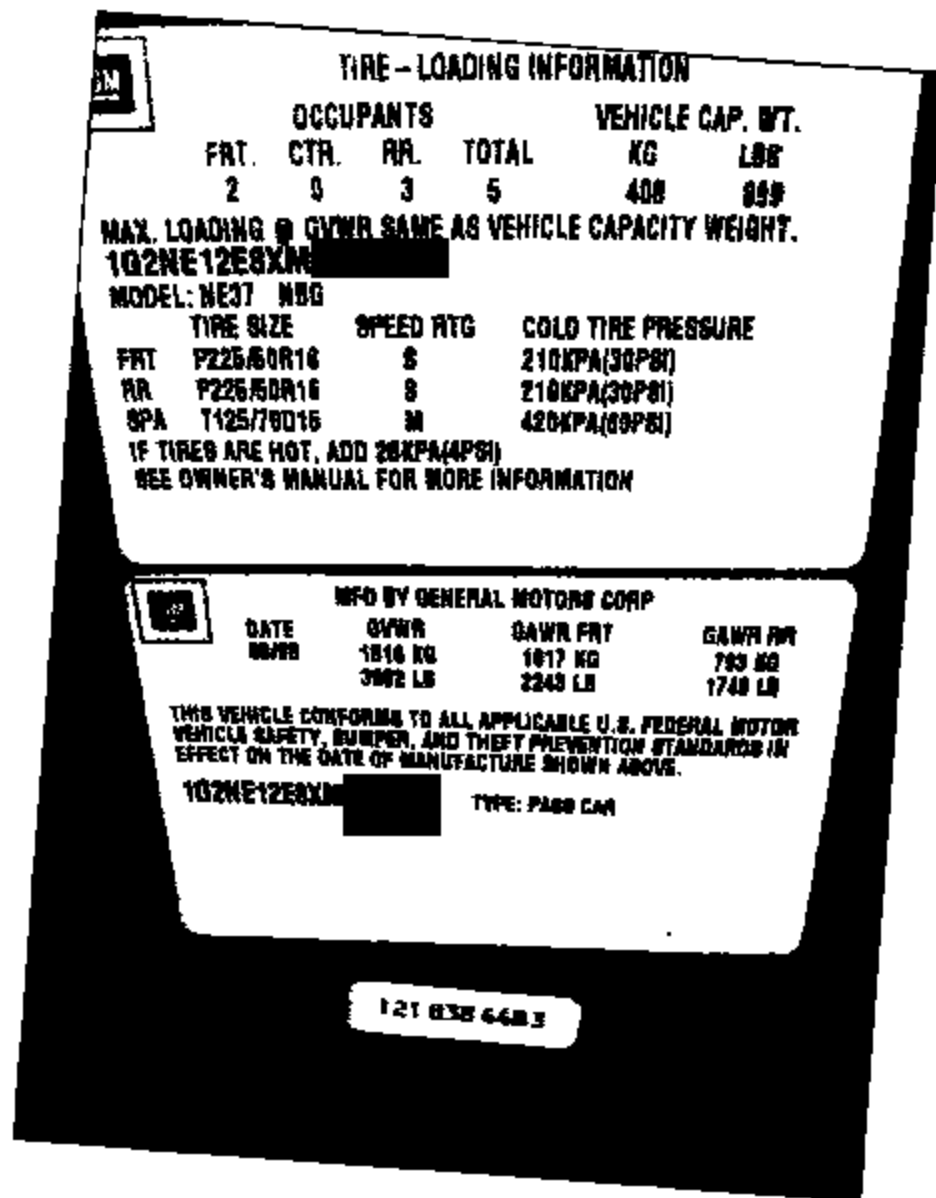


Figure 2 - FMVSS Door Label on the Subject Vehicle

The authors inspected the vehicle in the owner's garage. The rear wheels were chocked, the front of the vehicle was raised with a jack, and the vehicle was lowered onto jack stands. Both front wheels were removed and the suspension, wheels, and wheel wells were inspected.

An inspection of the left-front wheel well of the subject vehicle revealed no visible signs of impact marks, evidence of tire contact, or gouge marks. Figure 3 is a photograph of the right-front wheel well of the subject vehicle. No impact marks, evidence of tire contact, or gouge marks were visible in the wheel well. Figure 4 is a photograph of the inside of the right-front wheel. The right-front wheel was inspected and no impact marks, scratches, chips, or gouge marks were visible. Nothing unusual was noted about the design, configuration, or location of front suspension components or front wheels during this inspection.

The owner gave the authors a piece of a broken coil spring that was allegedly found on the roadway behind the vehicle after the incident. Figure 5 is a photograph of this piece of the broken coil spring.



Figure 3 - Right Front Wheel Well of the Subject Vehicle

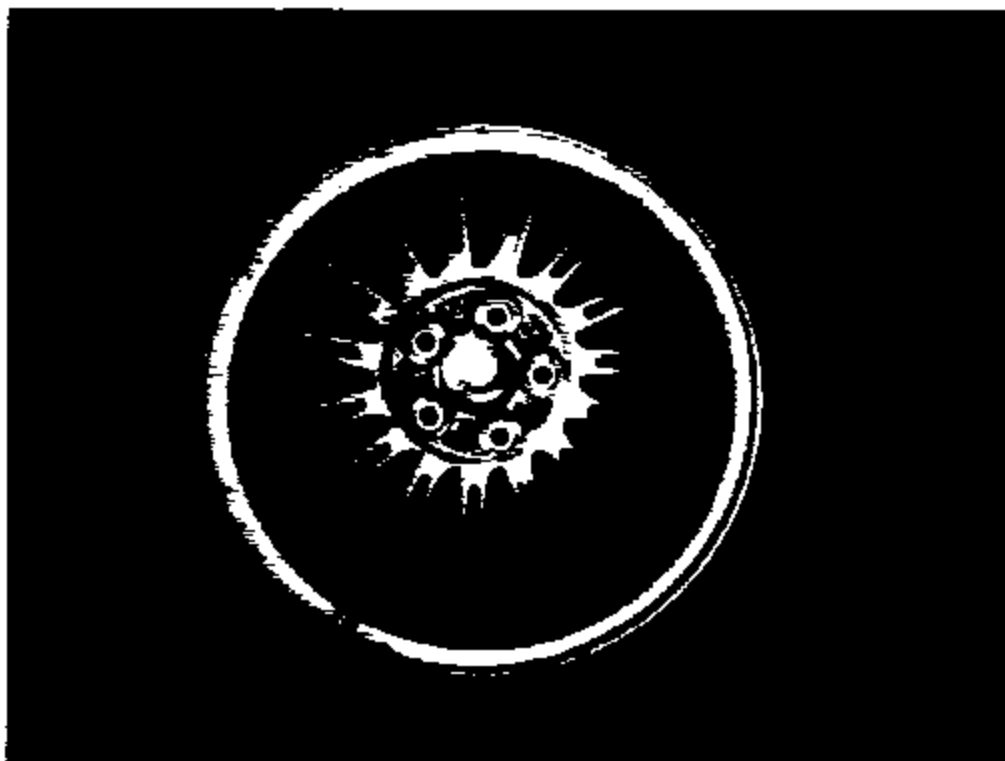


Figure 4 - Right Front Wheel of the Subject Vehicle

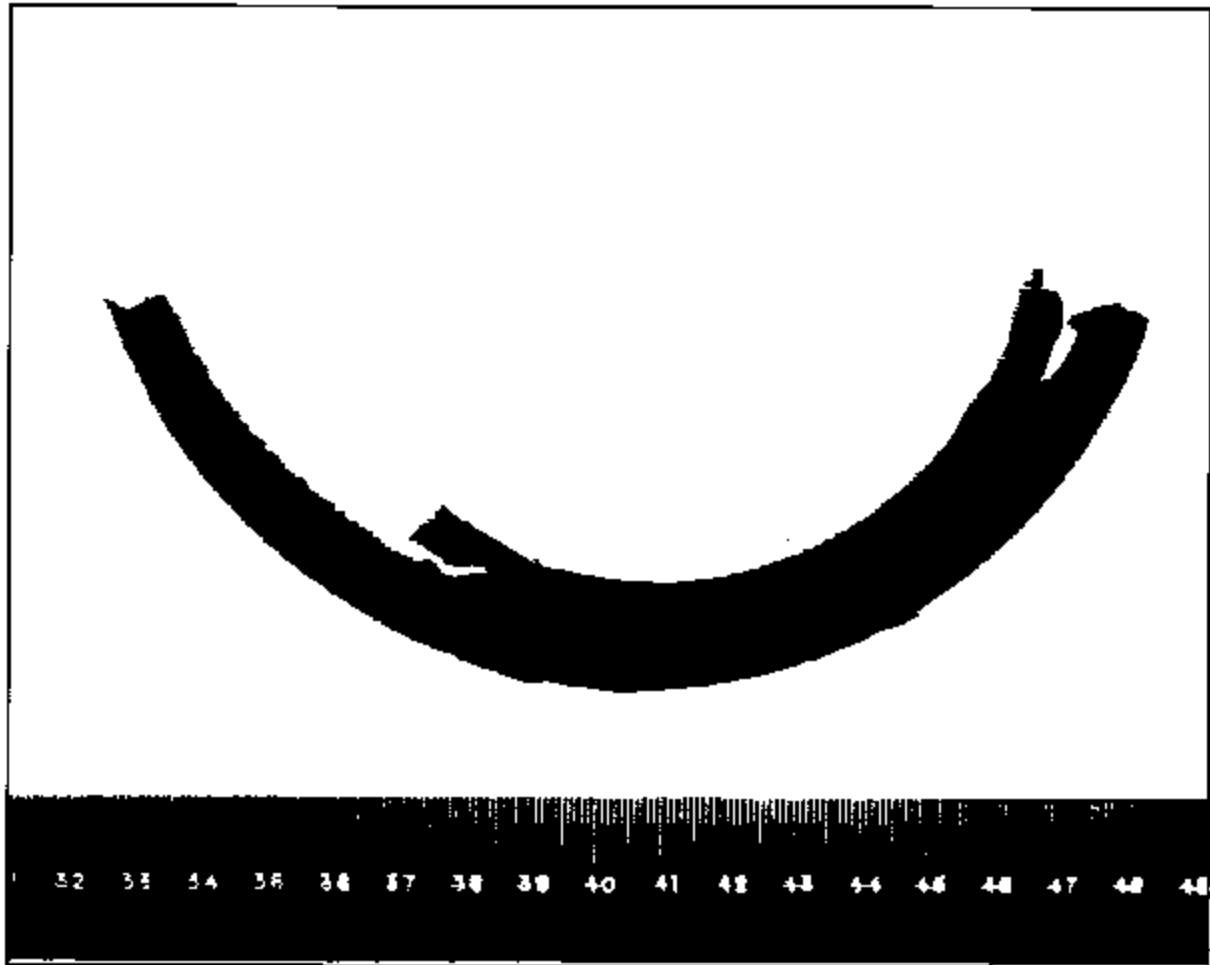
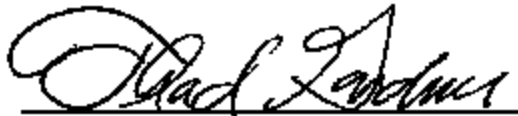


Figure 5 - Piece of Broken Spring Recovered From the Scene of the Incident

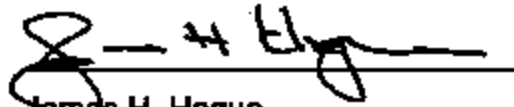
The authors inspected the site of the incident, which was located on a smooth residential street with a posted speed limit of 25 mph. Apparently, the suspension of the vehicle was not subjected to a significant perturbation when the spring broke since there was no impact marks on the nearby curb and the asphalt pavement appeared to be in good condition.

It is the opinion of the authors that the right-front suspension coil spring did indeed break in an unusual manner, and probably caused part of the broken spring to

contact the right-front tire. The tire was probably pierced by the broken spring, causing it to deflate rapidly. The combination of the broken spring and deflated tire caused the right-front of the vehicle to contact the roadway surface, which rendered the vehicle inoperative.



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