Ford Motor Company

Automotive Safety Office
Environmental and Safety Engineering

March 7, 2006

Mr. Jeffrey Quandt, Chief
Vehicle Control Division
Office of Defects Investigation Safety Assurance
National Highway Traffic Safety Administration
400 Seventh Street, S.W.
Washington D.C. 20590

Dear Mr. Quandt:

Subject: EA04-034:NVS-213dsy

This is in response to the agency's request for additional information relating to the subject investigation.

Videos of two portions of wheel structural durability testing are provided in Appendix A (directory 2006-03-07 Appendix A; filenames "MPG CVPI Video.wmv," "High Speed Curb Impact.avi," and "High Speed Pot Hole Impact.avi") on the enclosed CD. The files contain conventional and high speed video of a 2003 Crown Victoria Police Interceptor (CVPI) vehicle undergoing chuckhole and curb island portions of the Ford vehicle durability test. The square edge chuckhole is four inches deep and the curb island is five and one half inches tall. Durability testing requirements for the CVPI consisted of 830 cycles of Ford Corporate Engineering Test Procedure R-357, a North Atlantic Structure Durability Test for Passenger Cars. Each cycle included three passes on the chuckhole road, each of which included six total four inch square chuckholes (three per side). By completion of the durability test, each wheel was subjected to 7,740 chuckhole impacts, including 2,580 impacts at 15 mph, and 5,160 impacts at 30 mph. The curb island portion of the test was performed every fifth cycle or 166 times. For the curb island portion of the test, the vehicle traveled at 50 mph and brakes were lightly applied just prior to contact with the curb, which reduced speed to no less than 45 mph. A copy of test procedure R-357 was provided in Appendix G of Ford's July 18, 2005, response to EA04-034 for your reference.

Wheel uniformity data (CMM and Akron Standard) for a set of wheels (part number 4W73-1007-AA) that completed 830 cycles of R-357 durability testing was provided in Appendix A of our January 23, 2006, supplemental response to EA04-034. The uniformity data confirms that all four wheels were still within original specifications for runout, suggesting that wheels returned to Ford from the field that no longer meet the original runout specifications likely experienced impact events more severe than the test conditions. Uniformity data for the wheels used for the video demonstration, as well as data for 12 wheels that were subjected to 25 chuckhole and 10 curb island portions of the durability test are included in Appendix B

(directory 2006-03-07 Appendix B; file names "MPG video wheel scans.pdf" and "MPG pot hole test wheel scans.pdf") on the enclosed CD.

In a January 19, 2006, email, the agency requested analysis of a wheel provided to Ford by the California Highway Patrol (CHP) that allegedly experienced a rapid deflation on May 17, 2005, at CHP's Emergency Vehicle Operator Course (EVOC). Hayes-Lemmerz photographed the wheel and provided to Ford the observations, uniformity data and photos that are included in Appendix C (directory 2006-03-07 Appendix C; file names "CHP Observations.pdf," "CHP Wheel Scans.pdf," "CHP Wheel Photos1.ppt," and "CHP Wheel Photos2.ppt") on the enclosed CD. The uniformity data indicates the wheel experienced a sharp impact to the inboard side of the wheel. The photographs and sketches on the wheel map provided by Hayes-Lemmerz identify several scratches and gouges on the outboard face, the inside of the rim (brake side) and the inside surface of the rim drop well (tire side). This wheel appears to have been subjected to very severe usage conditions, while only accumulating 3,570 miles (reference CQIS and MORS reports provided in Appendix B of our September 26, 2005, supplemental response to EA04-034). Hayes-Lemmerz could not determine the condition of the wheel just prior to the incident alleged in the reports. Hayes-Lemmerz will store the wheel until further notice.

As previously discussed, Ford is collecting from various police agencies wheels that have not been represented to have experienced the subject condition. The wheels will be analyzed consistent with other analyses during this investigation. We will advise the agency of our findings.

If you have questions, please contact me.

Sincerely,

R. A. Nevi
Assistant Director
Global Automotive Safety and Compliance

Attachments