



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

# Memorandum

**Subject:** TEST REQUEST:  
Alleged wheel stud fracture in model year (MY) 1997-2000  
Ford Windstar minivans.

**Date:** JUL | 2003

**From:** Kathleen C. DeMeter, Director  
Office of Defects Investigation

**Reply to  
Attn. of:** NVS-213cla  
EA03-004

**To:** Michael Monk, Director  
Vehicle Research and Test Center

This memorandum requests the Vehicle Research and Test Center (VRTC) to conduct testing as described below.

## BACKGROUND:

The Office of Defects Investigation (ODI) is currently investigating alleged wheel stud failures in MY 1997-2000 Ford Windstar vehicles (EA03-004). Complaints received by ODI and Ford indicate that the wheel nuts can become loose allowing the wheel and brake rotor to move on the hub, resulting in damage to the wheel studs and possibly resulting in wheel separation with little or no warning. The manufacturer has studied the issue and maintains that it has found no defects in the design or manufacture of the subject components, and that the failures that have occurred can be attributed to improper service or maintenance of the vehicle. ODI's analysis of its complaint database indicates that peer minivans of similar age have experienced wheel stud failures and consequent wheel separations at significantly lower rates than the subject vehicles.

## OBJECTIVE:

The objectives of this testing are to:

- 1) Identify the root cause of the stud failures by analyzing failed parts, assessing design and use factors, and assisting ODI in the collection and evaluation of appropriate information from Ford and peer manufacturers; and
- 2) Conduct a vehicle survey to assess wheel stud condition and nut torque in sets of subject and peer minivans.

## TEST EQUIPMENT AND PROCEDURE:

VRTC will coordinate with ODI in selecting the appropriate procedures and equipment to achieve the test objectives.

## TEST VEHICLE(S):

In coordination with ODI, the Vehicle Research Test Center shall obtain appropriate vehicles and vehicle components for survey and testing.



**ADDITIONAL INFORMATION:**

The project engineer is Chris Lash (Phone: 202/366-2370) who will discuss the details of the testing with your engineers. We would like to have VRTC's proposal of the procedure prior to test startup.

**FINAL REPORT:**

It is requested that the test work and draft report be completed as scheduling allows in coordination with ODI.

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