



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

Memorandum

SENT VIA FAX TRANSMISSION
Subject: **TEST REQUEST: 1999-2003 GM GMT800 Pickup Truck
Parking Brake (EA04-011)**

Date: **AUG - 9 2004**

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

Reply to
Attn. of: **NVS-213gem**

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 parking brake failures in pickup trucks based on model year (MY) 1999-2003 General Motors GMT800 platform (Silverado, Sierra, Avalanche, and Escalade EXT). These vehicles are equipped with four-wheel disc brakes. The rear parking brake consists of a small cable-actuated non-service drum brake contained within the "hat" portion of the rear disc brake rotors. The ½ ton or 1500-series version of these trucks (approximately 90% of the population) uses a Banksia-style parking brake that contains a single brake shoe and significantly fewer components than traditional drum brake designs. This arrangement contains no provision for actively self-centering the brake shoe within the brake drum, a condition that, when combined with rear axle deflection and foreign material contamination, may allow the parking brake linings to sustain prolonged contact with the drum while driving, contributing to premature lining wear-out.

OBJECTIVE:

The objective of this testing is to measure the holding power of the subject parking brake system under different usage/wear conditions, and to identify vehicle/terrain conditions and operator behaviors that may lead to undesired vehicle motion.

TEST EQUIPMENT AND PROCEDURE:

VRTC will obtain up to ten of the complaint vehicles cited in ODI's Vehicle Owners Questionnaire (VOQ) database. For each vehicle obtained, VRTC will:

1. Record basic information concerning the vehicle's condition (including tire pressures and corner weights);



2. Test the parking brake system as-received in accordance with FMVSS 105, Section S5.2. (Page 206 of 49 CFR 571.105 Oct 1, 2002 revision);
3. Measure the grade at which each vehicle will overcome the available parking brake torque in each direction (and the time needed for this to occur);
4. Remove the parking brake components for further testing, replacing them with new parts;
5. Retest each vehicle with new parking brake components in accordance with Item 3 to measure the grade and direction at which it will overcome the available parking brake torque in each direction.

Based on these results, VRTC will then obtain ½ ton payload exemplars of the subject vehicle and three ½ ton peer vehicles: MY 1997-1998 Sierra/Silverado, and MY 1999-2003 Ford F-150 and Dodge Ram 1500.

The exemplar subject vehicle will be used to measure the time needed for a vehicle operator to perform vehicle parking, shutdown, and exit procedures. These times should be compared to rollaway times recorded in the earlier testing. The exemplar vehicle should also be used to evaluate the influence of different surfaces and front-rear weight distribution on rollaway time and grade.

This testing should be performed in the following conditions: as-received, with complaint parts installed, and with new parts installed.

TEST VEHICLE(S):

In coordination with ODI, the Vehicle Research Test Center shall obtain complaint vehicle(s) as required for testing. ODI has supplied VRTC with a listing of fifty-one potential candidate complaint vehicles.

ADDITIONAL INFORMATION:

The project engineer is Gregory Magno, (202) 366-0139, 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.