

indicated that few vehicles equipped with ABS would fail the proposed test.

DaimlerChrysler disagreed with the proposed requirement that "no part" of the test vehicle leave the marked lane of the braking curve during a stop. Instead, DaimlerChrysler requested that this requirement be changed so that a vehicle would comply if no part of any point of contact of any tire left the lane during the stop. The company noted that the agency proposal did not clearly indicate how any departure of any part of the vehicle from the traveled lane would be detected. DaimlerChrysler further indicated that vehicles with large rear overhang would be placed at a severe disadvantage since any lateral movement of the rear wheels would result in the rear of a longer vehicle moving closer to the outside of the lane. DaimlerChrysler also requested that NHTSA delete the specification that the braking-in-a-curve test be conducted on a wet surface. In DaimlerChrysler's view, the requirement that the surface be wet is unnecessary. In the company's view, it is immaterial whether the test surface is dry or wet if the surface has the proper coefficient of friction (PFC).

The comments submitted by vehicle manufacturers and trade groups were nearly unanimous in their disapproval of the proposed requirement that testing be conducted with vehicles in both a lightly loaded condition and a loaded-to-GVWR condition. HDBMC stated that many single-unit trucks and buses have already been tested for braking-in-a-curve performance and that, with regard to loading condition, the worst-case condition is when the vehicle is lightest. HDBMC also stated that in the case of testing in the loaded-to-GVWR condition, it recommends that the center-of-gravity height for the ballast should be not more than 32 inches above the frame rails. Haldex and HDBMC also recommended that the 32-inch load height for single-unit trucks be specified for 60-mph straight-line stopping distance tests as well.

BCVS advocated deletion of the fully-loaded braking-in-a-curve test for the following reasons: A lightly-loaded test condition is the most severe condition; the SAE recommended practice (RP) J1626 "Braking Stability and Control Performance Test Procedures for Air and Hydraulic Brake Equipped Trucks, Truck-Tractors and Buses" specifies that the braking-in-a-curve performance test be conducted in the lightly-loaded condition with the loaded-to-GVWR condition optional; loading the vehicle increases the risk of rollover; and determining an appropriate loading specification for the variety of vehicle configurations and body forms would be

difficult. BCVS further stated that if NHTSA believes that the fully-loaded braking-in-a-curve test is essential, then the load center-of-gravity height should be established at a height that is not likely to lead to vehicle rollover. Concerns about vehicle rollover apparently also prompted BCVS to suggest that the allowance of 1,000 lbs. for a rollbar, and 500 lbs. for driver and instrumentation, which was proposed in the NPRM for the lightly-loaded braking-in-a-curve test for single-unit trucks and buses, be applied to other lightly-loaded road tests in FMVSS No. 121.³

Ford stated that it believes there is no useful information to be obtained from conducting the braking-in-a-curve test with the vehicle loaded-to-GVWR. Ford cited the fact that the SAE Truck and Bus Vehicle Deceleration and Stability Subcommittee found that 29 out of 31 single-unit vehicles tested in the braking-in-a-curve test the lightly-loaded test condition performed the same or worse than when tested in the loaded-to-GVWR test condition. Ford states that the two vehicles that performed better in the loaded-to-GVWR test condition were heavier-duty trucks and had sufficient margins of compliance in both loading conditions.

TMA stated that because of safety concerns, NHTSA should reconsider its decision to require the braking-in-a-curve test in the loaded-to-GVWR test condition. TMA believes that a loaded-to-GVWR vehicle could slide off the low coefficient test surface of the 500-foot radius curve onto a higher coefficient of friction surface and then rollover. TMA cited NHTSA statements in the NPRM that the NHTSA tests involving vehicles with a load at a high center of gravity height caused an unsettling feeling [to the test driver] with regard roll stability. TMA presented data to support its view that testing in the loaded-to-GVWR condition is less stringent than testing in the lightly-loaded condition. TMA concluded that testing in the loaded-to-GVWR condition provides no additional confirmation of vehicle performance, presents a significant safety risk of vehicle rollover, and would increase test burdens without any measurable benefit to vehicle safety.

In addition to advocating removal of the requirement that vehicles be tested in a loaded-to-GVWR condition, a number of commenters indicated that the proposed test sequence be changed.

To reduce costs associated with loading and unloading test vehicles,

Bosch requested that the braking-in-a-curve test be performed following the loaded-to-GVWR parking brake test, with the loaded-to-GVWR braking-in-a-curve test followed by the lightly loaded braking-in-a-curve test, for both hydraulic- and air-braked single-unit vehicles. Bosch also stated that it appeared that the agency had not considered the costs incurred by different phases of the test sequence requiring loading and unloading of the test vehicle. Bosch requested that the test sequence be changed to eliminate the requirement that empty vehicles be loaded solely for the purpose of conducting the braking-in-a-curve test after brake burnishing. Ford requested that if the agency decided to drop the loaded-to-GVWR braking-in-a-curve test, the test sequence be changed so that burnish and loaded-to-GVWR straight-line stops be conducted first, followed by braking-in-a-curve tests in the lightly-loaded condition, followed by lightly-loaded straight-line stops. In Ford's view, this sequence would eliminate one loading and unloading cycle and improve test efficiency.

One manufacturer, Mitsubishi, commented that the requirements proposed for the force and timing of brake pedal applications during the braking-in-a-curve test are too stringent. The proposal specified that a brake pedal force of 150 lbs. be achieved within 0.2 second from the initial application of force to the brake control (brake pedal) and that this minimum force be maintained for the duration of the stop. Mitsubishi believes that this application time would be difficult to achieve. The company provided test data from tests conducted on single unit trucks showing that test drivers could achieve 150 lbs. of pedal force within 0.2 seconds in only three out of 10 sample stops.

TMA and NTEA criticized our proposal as imposing significant test burdens and costs on small businesses beyond what those entities should reasonably be expected to bear. These commenters are concerned that final stage manufacturers and alterers may not be able to rely on the certification of an incomplete vehicle manufacturer to the extent portrayed by the agency in proposing the new requirements, particularly since many trucks are configured for highly specialized applications. Moreover, TMA argued that since NHTSA is proposing performance requirements for all classes of vehicles, it should consider removing the existing ABS equipment requirements. TMA stated these equipment requirements are unduly restrictive and may impede

³ NHTSA has published a final rule (66 FR 64154) amending FMVSS No. 121 by incorporating the 1,000 lbs. rollbar provision.