



February 8, 2021

Docket No. NHTSA 2020-0109

National Highway Traffic Safety Administration
US Department of Transportation, Room W12-140
1200 New Jersey Avenue, SE
Washington, DC 20590-0001

Subject: NHTSA Docket No. 2020-0109, Advance Notice of Proposed Rulemaking for FMVSS Candidates for Replacement, Repeal, or Modifications for Reasons Other Than for Considerations Relevant to ADS

Dear Gentlemen:

SAE International will be filing comments in response to the ANPRM relating to FMVSS 103, 104, 106 and 141, but not by the February 8 due date.

Our comments from the Truck and Bus Brake and Advance Driver Assistance Systems Steering Committee pertaining to FMVSS 105, 121, 136 are attached.

The SAE Truck and Bus Brake and Advanced Driver Assistance Systems Steering Committee is an oversight committee reporting to the SAE Truck and Bus Council. The Steering Committee oversees nine technical committees related to brake and wheel-end components, brake and electronic control systems, driver interface, and vehicle braking performance for trucks, truck tractors, trailers, and buses over 10,000 lbs (4500 Kg) GVWR designed primarily for highway use. The technical committees reporting to the Truck and Bus Brake and Advanced Driver Assistance Systems Steering Committee are the Foundation Brake Committee, Brake Systems Committee, Brake Actuator Committee, Hydraulic Brake Committee, Active Safety Systems Committee, Brake Supply and Control Components Committee, Air Brake Tubing and Fitting Committee and the Wheel Committee. The Steering Committee has the authority to establish appropriate committees to develop and maintain documents. The steering committee liaisons with industry groups, regulatory entities, and standards organizations as required.

The SAE Truck and Bus Brake and Advanced Driver Assistance Systems Steering Committee supports the Agency's efforts to replace, remove regulatory barriers and modernize regulations for the purpose of advancing technologies to improve the safety of drivers and passengers on public roads. The SAE steering committee subject matter experts welcome the opportunity to discuss our submission with NHTSA should any questions / comments arise.

Thank you for your consideration,

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FMVSS 121

1. Revise the air compressor requirement for truck and bus as follows:
S5.1.1.1 Air compressor cut-in pressure. The air compressor governor cut-in pressure for each truck and bus shall be 100 psi or greater.
2. S5.1.2.1 SAE requests NHTSA consider revising the reservoir size requirements from a volume base requirement to a performance base ABS and auxiliaries test requirement. This will allow for smaller size reservoirs to be installed at higher pressures allowing for more space on the vehicle chassis.
3. S5.1.2.2 SAE is investigating changes to the reservoir internal hydrostatic pressure structural requirements regarding reservoir materials and operating pressures. We will provide our findings to NHTSA when our investigation is completed.
4. S5.1.7 Service brake stop lamp switch. The use of stop lamp switches for controlling the brake lights is becoming more nonexistent with the integration of electronics and smart dashes in the vehicle. Today the brake lights may be activated through the smart dash using stop lamp control software at 6 psi and higher. Sometimes the brake pedal may not fully retract after brakes are applied, so brake lights remain on. FMVSS 121 currently does not specify when the brake lights should be off. The reference to the service brake stop lamp switch is becoming meaningless as the stop lamp switch is replaced by pressure transducer and a relay for activating the brake lights.
5. Several vehicle manufacturers will be offering ECBS soon, but FMVSS 121 currently does not reference ECBS and ECBS failures. The vehicles will be equipped with a red indicator lamp mounted in front of and in clear view of the driver. When and under what conditions is the red ECBS indicator light activated? When the truck's ECBS fails and the red ECBS indicator light activated, is the truck required to meet emergency stopping distance? What performance requirements have been established to ensure having adequate electrical and pneumatic sources available for the ECBS operation? How will trailers with electric brakes be supported?

SAE EBS Working Group - Possible Changes to FMVSS No. 121 to Support ECBS

A report produced by the SAE EBS Working Group that suggest changes for FMVSS No. 121 to allow ECBS is attached (Appendix A). The document addresses several definitions and attempts to parallel many of the pneumatic requirements with "equivalent" electronic requirements. For example, batteries used for ECBS are compared to air reservoirs. The document briefly addresses the issues of fault detection and indicator lamps for the driver. The issues of tractor/trailer compatibility are also addressed.

TP-121

1. FMVSS 121 (S5.3.1) Unless there are requirements that SAE unaware of, SAE recommends NHTSA to review and consider the proposed changes. Cost and time to do the test can be reduced by revising the sequence of multiple loading conditions, such as to laden, draw bar/hill and unloaded. FMVSS 121 has multiple loading condition in the test sequence.

	TRUCK TRACTORS (Current)	TRUCK TRACTORS (Proposed)
1.	Burnish	Burnish
2.	Stability and control test at GVWR	Stability and control test at GVWR
3.	Stability and control test at LLVW	Service brake stopping distance test at GVWR
4.	Manual brake adjustment allowed	Parking brake test at GVWR
5.	Service brake stopping distance test at GVWR	Manual brake adjustment allowed
6.	Parking brake test at GVWR	Stability and control test at LLVW
7.	Manual brake adjustment allowed	Service brake stopping distance at LLVM
8.	Service brake stopping distance at LLVM	Emergency brake stopping distance tests at LLVM
9.	Emergency brake stopping distance tests at LLVM	Parking brake test at LLVW
10.	Parking brake test at LLVW	Final Inspection
11.	Final Inspection	

2. FMVSS 121 requires a better definition of LLVW for an incomplete vehicle. Issues found with the drive axle being too light.

3. There are concerns regarding the burnishing procedures regarding new energy electric vehicles. The burnishing of the brakes on electric trucks is time consuming and difficult due to the battery duty cycles. While some manufacturers of electric trucks claim a range of 100 miles, but the truck range during burnishing is substantially less. Burnishing electric truck brakes can take weeks versus 3 to 4 days with traditional diesel-powered vehicles. There are concerns regarding the condition of the linings after one cycle of burnish before having to recharge the vehicle. Current FMVSS 121 requires driver only take breaks in 25 snubs increments. We are recommending a change in the required number of consecutive snubs to accommodate the vehicle's available battery capacity.

TP- 136

4. Bus (S6.3.3.2) Load a bus to GVWR by placing 150 lbs of ballast at each designated seating position (DSP). Load additional ballast, as necessary, in the luggage compartment to achieve test weight. If the bus does not have a luggage compartment, load the bus floor with the appropriate ballast. Secure ballast to prevent excessive movement during the test runs.
 - Loading conditions for short wheelbase buses, the GVWR is often still the same as a longer wheelbase bus. This leads to less seats to load with water dummies. On short wheelbase buses extreme loading conditions that are not realistic are required to achieve GVWR. This includes loading the aisleway with three to four 1,000 lb steel blocks and cribbing in 50 lb shot bags, which far exceeds any normal luggage load.

5. Burnish the Brakes (S7.4.1.1) There are concerns regarding the burnishing procedures regarding new energy electric vehicles. The burnishing of the brakes on electric trucks is time consuming and difficult due to the battery duty cycles. While some manufacturers of electric trucks claim a range of 100 miles, but the truck range during burnishing is substantially less. Burnishing electric truck brakes can take weeks versus 3 to 4 days with traditional diesel-powered vehicles. There are concerns regarding the condition of the linings after one cycle of burnish before having to recharge the vehicle. Current FMVSS 136 requires driver only take breaks in 25 snubs increments. We are recommending a change in the required number of consecutive snubs to accommodate the vehicle's available battery capacity.

FMVSS 105

6. FMVSS 105 Test Sequence needs to be reviewed. Cost and time to do the test can be reduced by reducing the brake test sequence of multiple loading conditions, such as to laden, draw bar/hill and unloaded. FMVSS 105 has multiple loading condition in the test sequence.
7. FMVSS 105 requires a better definition of LLVW for an incomplete vehicle. Issues found with the drive axle being too light.
8. Burnish the Brakes (S7.4) There are concerns regarding the burnishing procedures regarding new energy electric vehicles. The burnishing of the brakes on electric trucks is time consuming and difficult due to the battery duty cycles. While some manufacturers of electric trucks claim a range of 100 miles, but the truck range during burnishing is substantially less. Burnishing electric truck brakes can take weeks versus 3 to 4 days with traditional diesel-powered vehicles. There are concerns regarding the condition of the linings after one cycle of burnish before having to recharge the vehicle. Current FMVSS 105 requires driver only take breaks in 25 snubs increments. We are recommending a change in the required number of consecutive snubs to accommodate the vehicle's available battery capacity.