sidewall or allowed to remain on the sidewall, at the retreader's option. The symbols to be used in the tire identification number for tire manufacturers and retreaders are: ''A, B, C, D, E, F, H, J, K, L, M, N, P, R, T, U, V, W, X, Y, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0.'' Tires manufactured or retreaded exclusively for mileage-contract purchasers are not required to contain a tire identification number if the tire contains the phrase ''for mileage contract use only'' permanently molded into or onto the tire sidewall in lettering a least one-quarter inch high.

* * * * *

(b) *Second grouping.* For new tires, the second group, of no more than two symbols, shall be used to identify the tire size. For retreaded tires, the second group, of no more than two symbols, shall identify the retread matrix in which the tire was processed or a tire size code if a matrix was not used to process the retreaded tire. Each new-tire manufacturer and retreader shall maintain a record of each symbol used, with the corresponding matrix or tire size and shall provide such record to the NHTSA upon written request.

* * * * *

8. Section 574.6 would be amended by revising the introductory paragraph and paragraph (c) to read as follows:

§ 574.6 Identification mark.

To obtain the identification mark required by § 574.5(a), each manufacturer of new or retreaded pneumatic tires shall apply in writing to Tire Identification and Recordkeeping, National Highway Traffic Safety Administration, Department of Transportation, 400 Seventh Street, SW, Washington, DC 20590, identify itself as a tire manufacturer or retreader and furnish the following information:

* * * * *

(c) The type of tires manufactured at each plant, for example, pneumatic tires for passenger cars, buses, trucks or motorcycles; or pneumatic retreaded tires.

Issued on September 19, 1995.

Barry Felrice,

Associate Administrator for Safety Performance Standards.

[FR Doc. 95–23690 Filed 9–25–95; 8:45 am]

BILLING CODE 4910–59–P

49 CFR Part 571

[Docket No. 85–6; Notice 10]

RIN 2127–AA13

Federal Motor Vehicle Safety Standards; Hydraulic Brake Systems; Passenger Car Brake Systems

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation, DOT.

ACTION: Further supplemental notice of proposed rulemaking (FSNPRM).

SUMMARY: This notice proposes amendments to FMVSS Nos. 105 *Hydraulic Brake Systems* and 135, *Passenger Car Brake Systems,* to accommodate electric vehicles. The proposal is based on a supplemental notice of proposed rulemaking (SNPRM; Notice 7) published on January 15, 1993, and responds to comments submitted to that notice. Amendments of FMVSS No. 105 based on this FSNPRM (Notice 10) would apply to electric trucks, buses, and multipurpose passenger vehicles. They would also apply to electric passenger cars which had not availed themselves of the option of conforming to FMVSS No. 135, which will become mandatory for all passenger cars manufactured on and after September 1, 2000.

COMMENT DATE: Comments on the FSNPRM are due November 27, 1995.

ADDRESSES: Comments should be addressed to Docket 85–6; Notice 10, and submitted to Docket Room, NHTSA, Room 5108, 400 Seventh St. SW., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: T. Droneburg, Office of Vehicle Safety Standards, NHTSA (Phone: 202–366–6617; FAX: 202–366–4329).

SUPPLEMENTARY INFORMATION:

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Background

On January 15, 1993, NHTSA published a Supplemental Notice of Proposed Rulemaking (SNPRM) concerning brake system performance of electric vehicles (EVs) (Docket No. 85–6; Notice 7, 58 FR 4649). The reader is referred to that notice for information on the rulemaking history of electric vehicle braking, and for background discussion of the proposed brake system requirements.

Notice 7 proposed amendments to FMVSS No. 105 *Hydraulic Brake Systems* and revised portions of a proposed FMVSS No. 135 *Passenger Car Brake Systems.* FMVSS No. 135 has now been issued as a final rule (Notice 8, 60 FR 6411), effective March 6, 1995. Passenger car manufacturers, including those of EVs, have the choice of compliance with either braking standard between now and September 1, 2000. At that time, FMVSS No. 135 will become the sole brake standard that applies to passenger cars. However, FMVSS No. 105 will continue to apply to vehicles other than passenger cars. Because EVs are not restricted to passenger cars, and include pickup trucks, vans, and buses, amendments to FMVSS No. 105 are required to accommodate them.

Comments on the SNPRM were received from General Motors Corporation (GM), Mitsubishi Motors America Inc., American Auto Manufacturers Association (AAMA), Marc Pelletier and Associates (Pelletier), PSA Peugeot Citröen (Peugeot), SMH Swiss Corp. (SMH), Chrysler Corporation, Ford Motor Company, ITT TEVES of Germany (ITT), BMW of North America, American Honda, and Toyota.

The comments supported the rulemaking, although Ford, Chrysler, Peugeot, and Pelletier argued that it is premature at this time to initiate rulemaking because of rapidly advancing technology and the chance that a standard might unduly influence or stifle EV brake system development and improvement. NHTSA is aware of these concerns and is developing its proposals to set safety performance requirements without imposing design restrictions.

Peugeot and Pelletier were concerned with the role of regenerative braking systems (RBS) in service brake performance. Both believe that RBS

should be allowed to contribute to determination of an EV's braking ability under the FMVSS. NHTSA agrees in principle, but the agency believes that certain conditions must be satisfied in order for RBS to be considered to be part of the service brake system. In particular, application of any service braking must be by means of the service brake control (brake pedal) and there must be no means of declutching or turning the RBS on and off. This subject is discussed in more detail later in this notice, under the individual requirements.

The SNPRM's preamble had stated (p. 4650) that all known EV designs are equipped with antilock braking systems (ABS). Chrysler agreed that this was true for present designs but that it could not be assumed that all future EVs would have ABS. NHTSA does not assume that all future EVs will have ABS, and the proposed amendments to both standards provide for both possibilities. The subject of mandatory ABS for future vehicles of all types is being treated in separate rulemaking actions by the agency.

This FSNPRM reflects refinements of the earlier Notice 7 rather than presenting a different approach. These refinements are discussed below. Unless otherwise indicated, the changes noted apply to both FMVSS No. 105 and FMVSS No. 135.

Definitions

Under Notice 7, ''Maximum speed of an electric vehicle'' would be determined in accordance with SAE Recommended Practice J227a *Electric Vehicle Test Procedure,* February 1976, with the propulsion batteries at not less than 90 percent of full charge at the beginning of the test run.

GM and Peugeot asked that NHTSA designate the appropriate sections of SAE J227a that apply to maximum speed. Under *Acceleration Characteristics on a Level Road,* sections 7.1 through 7.3 of SAE J227a specify that the vehicle is to be accelerated from a standing start at its maximum attainable, or permissible, acceleration rate until either the vehicle's peak speed is reached or until a safe speed limit is attained. This procedure is essentially the same as is currently specified in both FMVSS 105 and 135, except that the length of the roadway used for determining maximum speed is limited to 2 miles. SAE J227a places no limit on the length of the roadway, and gives no objective criterion for a determination that the actual maximum speed has been reached.

Upon further consideration of this issue, NHTSA has tentatively decided that determination of EV maximum speed would be better addressed by modification of the existing procedures than by reference to portions of SAE J227a that are of doubtful objectivity. Although under this FSNPRM roadway length would remain at 2 miles, the agency requests comments on whether EVs are incapable of accelerating to their maximum speed within 2 miles, and, if so, what greater distance would be more appropriate. Commenters should also address any problems a longer distance would create for existing test facilities. A sentence specifying the state of battery charge would still have to be added to both standards. Notice 7 proposed that the lower limit of the state of charge be 90 percent; this notice increases that to 95 percent. This will allow somewhat faster acceleration of the EV, and will also be consistent with the state of charge proposed for the braking performance tests. Accordingly, this notice proposes that a sentence specifying the state of charge of the batteries for determination of maximum speed be added to paragraph S5.1.1.4 of FMVSS No. 105, and to the definition of ''maximum speed'' in FMVSS No. 135.

In Notice 7's proposed definition of ''Regenerative braking system (RBS)'', the propulsion motors may be used as a retarder for partial braking of the vehicle in addition to the service brake system, while returning electrical energy to the batteries. The phrase ''in addition to the service brake system'' has been stricken in the revised proposed definition to remove the implication that a regenerative braking feature cannot be a part of the service brake system, following consideration of comments by ITT and SMH. If the RBS is automatically controlled by an application of the service brake control, and if there is no means for the driver to declutch or otherwise deactivate it, and if the vehicle has no ''neutral'' transmission position, then the effect of the RBS is always present when the service brake control is applied. In that case, NHTSA believes it reasonable to consider the RBS to be part of the service brake system. Since the amount of retardation provided by a RBS is dependent on the state of charge of the vehicle's batteries, the service brake requirements must be met at any state of charge. On the other hand, if the RBS is not controlled by the service brake pedal, or if it can be disconnected or turned off when the service brake control is applied, it is to be deactivated during tests of the service brake system, and is considered an auxiliary braking device (not part of the service brake system) for purposes of those tests. A system that is automatically applied at a low level when the accelerator pedal is released and applied at a higher level when the brake pedal is depressed could still be considered part of the service brake system, as long as the other criteria stated above are met. This view of RBS is consistent with the agency's treatment of other non-friction braking effects, such as exhaust or driveline retarders or engine braking.

In addition, NHTSA is also proposing revising definitions that already exist in the two standards, those of ''Backup system'' and ''Split service brake system.'' The word ''automatically'' would be added in ''Backup system'' in FMVSS No. 105 for consistency so that it would be identical to the definition of the term in FMVSS No. 135. ''Split service brake system'' in both standards would be amended to specify that the system is ''designed so that a single failure in any subsystem (such as a leakage-type failure of a pressure component of a hydraulic subsystem except structural failure of a housing that is common to two or more subsystems, or an electrical failure in an electric subsystem) does not impair the operation of any other subsystem.'' This change recognizes the possibility that vehicles may be equipped with non-hydraulic subsystems, such as hydraulic on the front and electric on the rear.

NHTSA has declined to redefine ''backup system'', ''brake control unit'' and ''directly controlled wheel'' as suggested by Pelletier, which failed to provide reasons for its requests.

NHTSA also declined BMW's request to define EVs to include hybrid-powered vehicles with RBS because the definition of EV proposed already includes vehicles with ''a non-electrical source of power designed to charge batteries''. This term, in NHTSA's view, includes an internal combustion engine which may provide propulsion as an alternative to electric power.

Pelletier wanted additional definitions for ''compound service brake system'', ''electric braking'', ''friction braking'' and ''electromagnetic braking'' which had not been proposed. But the commenter provided no justification for them, nor any indication where they would be used in the FMVSS. Therefore, these definitions are not being proposed in this notice.

Finally, BMW questioned NHTSA's apparently interchangeable use of the terms ''electric'' and ''electronic'', and recommended the term ''electric'' for both. In response to this comment, NHTSA is using ''electric'' where appropriate, but retaining the use of

''electronic'' where use of that term is more appropriate.

Partial Failure

With respect to the partial failure provisions that were proposed to be added to FMVSS No. 105 in a new paragraph S5.1.2.3, GM and AAMA commented that they could be interpreted as requiring partial failure performance during a simultaneous failure of a hydraulic subsystem circuit (as described in S5.1.2.1) and an electric subsystem circuit (as described in proposed S5.1.2.3). In order to avoid any misinterpretation these commenters recommended that S5.1.2.3 be modified to clarify that the vehicle ''shall be capable of stopping from 60 mph within the corresponding distance specified in Column IV of Table II when there is a single failure in an electric brake circuit, and with all other systems intact.'' NHTSA agrees, and S5.1.2.3 is reproposed with more definitive wording.

In addition, new wording is proposed under the partial failure requirements to address failures of an RBS that is part of the service brake system, since the RBS is not a separate ''circuit'' of the service brake system, thus the present wording in the Standards is not appropriate.

Brake System Indicator Lamp

Notice 7 proposed requirements in both FMVSS that brake system indicator lamps must activate under certain conditions ''for a vehicle with electric brake actuation'' and ''for a vehicle with electric transmission of the brake control signal.''

BMW commented that, for a failed electric-control transmission, the requirement for a failure indicator should be limited to the service brake system, and that indication of failures of an electric control transmission of the parking brake should be left to the manufacturer. NHTSA agrees. The purpose of the indicator is to evaluate the integrity of the electric control transmission circuitry which, if failed, will have an effect on the performance of the service brakes. Accordingly, NHTSA is adding the word ''service'' to Notice 7's proposed S5.3.1 (e) and (f) of FMVSS No. 105 and S5.5.1 (e) and (f) of FMVSS No. 135.

GM, Ford, AAMA, Peugeot, BMW, and Honda recommended that failure of RBS should only be indicated for EVs that depend upon RBS to meet the stopping distance requirements. NHTSA disagrees, and believes that any failure of a part of the service brake system should be indicated, whether or not that component is required for the vehicle to meet the stopping distance requirements. If a vehicle is equipped with RBS which is part of the service brake system, then the failure warning requirement should apply to it. The suggestion of the commenters is akin to saying, for example, that if a vehicle is capable of meeting the service brake stopping distance requirements with its rear brakes disconnected, then there is no need to warn a driver of a failure in the vehicle's rear brakes. NHTSA does not see any logic in the commenters' views.

Toyota commented that an RBS failure indicator should be amber rather than red because the driver would still be able to bring the vehicle safely to a stop with the hydraulic brake system. NHTSA has not adopted Toyota's suggestion. The red indicator color signifies that the EV's deceleration capability has decreased due to a failure in the service brake system, and this is true whether the failure is in a hydraulic circuit or in the RBS.

Procedure for Determining Battery State of Charge

NHTSA proposed that the state of charge of the propulsion batteries be determined in accordance with SAE J227a *Electric Vehicle Test Procedure*, February 1976 (S6.2.1 of FMVSS No. 105, S6.3.11.1 of Standard No. 135). For clarification, this is being reproposed to specify that the applicable sections of J227a are 3.2.1 through 3.2.4, 3.3.1 through 3.3.2.2, 3.4.1 and 3.4.2, 4.2.1, 5.2, 5.2.1, and 5.3.

Procedures for Charging Batteries During Burnish

Notice 7 proposed that ''[d]uring the burnish procedure, the propulsion batteries may be charged by external means if the vehicle is otherwise unable to complete the burnish procedure'' (proposed S6.2.2 of FMVSS No. 105, S6.3.11.2 of FMVSS No. 135).

GM and AAMA believe it is important to specify clearly the battery state-of-charge for the entire burnish procedure so that different testers obtain the same results when evaluating a given vehicle design. In their view, the state of battery charge can have a dramatic effect on the amount of brake burnish that occurs in EVs, and that it is especially important in EVs with regenerative braking. At the extreme, it is likely that an EV performing the 200-stop burnish with no regenerative braking will experience a significantly greater degree of brake burnish than an EV with maximum regenerative braking. GM, Chrysler and Ford recommended that the batteries be charged to 95 per cent or greater capacity at 40-stop increments.

NHTSA agrees with these comments. The burnish procedures result in a maximum distance between each of the burnish stops of 1.24 miles. The continuous acceleration and deceleration of a burnish procedure could result in fairly extensive battery depletion after approximately 40 stops. Therefore, these sections are being reproposed to specify a condition of 95 percent or greater battery charge after each increment of 40 burnish stops. In response to comments by Ford and GM, charging at a more frequent interval would be permitted during a 40-stop interval if the vehicle is incapable of achieving the initial burnish test speed during that particular 40-stop sequence. In addition, the manufacturer would be permitted the option of recharging by external means or by substituting other propulsion batteries at 95 per cent or greater charge. Substitution responds to Honda's concern that the time needed for recharging batteries could lead to a protracted test.

In addition, if an EV has a manual control for setting the level of regenerative braking, at the beginning of each burnish procedure the control would be set to provide maximum regenerative braking throughout each burnish. This proposed condition is being added at the suggestion of GM which recommended specifying the setting for an RBS control that is driver operated.

Procedure for Charging Batteries During Performance Testing

This affects proposed S6.2.3 of FMVSS No. 105 and S6.3.11.3 of FMVSS No. 135. Under Notice 7, the propulsion batteries would not be recharged during the road tests between burnish procedures. GM, AAMA, Chrysler, Ford, and Honda, all concerned that EVs might not be capable of completing the post-burnish road test sequence on a single battery charge, recommended that the provisions be modified to prescribe the 95 percent or greater state of charge at the onset of each road test procedure and to provide explicit instructions for battery recharging during the road test sequence.

NHTSA concurs with the comment that having the state of charge at 95 percent or greater only at the beginning of the first performance test may create problems with EVs obtaining the test speeds for the latter tests of the sequence, having the necessary driving range to complete the tests, and being able to minimize the fluctuations in the RBS. Therefore, the procedure proposed in Notice 7 is modified to specify that the batteries be charged to not less than

95 percent of capacity at the start of each road test procedure. Substitution of batteries charged to not less than 95 percent of capacity would be allowed as an alternative to recharging. However, no further charging of the propulsion batteries would occur during the performance tests themselves.

Mitsubishi asked that the lower limit of charge of the propulsion batteries at the beginning of the first brake test be changed to from 95 percent to 90 percent, because the high speed test is carried out at not less than 90 percent of full charge, and because it believes that it is difficult to distinguish a fully charged condition with an accuracy of 5 percent. NHTSA does not agree with these comments. Under Notice 7, the state of charge at the beginning of each test would be at not less than 95 percent of full charge. By adopting this test condition, NHTSA intends that the batteries be essentially at full charge, and the 5 percent tolerance allows a reasonable margin for accuracy of measurement.

The Appropriate Value for Low Battery Charge

Under Notice 7 (S6.2.6 of FMVSS No. 105, S6.3.11.6 of FMVSS No. 135), EVs equipped with electric brakes would perform certain specified tests ''with the propulsion batteries at one percent or less of full charge.'' GM, AAMA, and Chrysler commented that the proposed 1 percent state of charge for an EV's propulsion batteries is far more stringent than what is required to satisfy the safety need to assure the efficiency of an EV's brake system as the propulsion battery charge declines to minimum levels. AAMA commented that an EV in actual use would never undergo all the different types of stops prescribed in the standard after it reaches the threshold of immobility.

Comments indicated that those EVs with electric brake systems have the systems receiving power either from the EV's propulsion batteries, or from an auxiliary battery. BMW and Chrysler also indicated that automatic shut-down of the propulsion motors is usually provided to avoid damaging the batteries at low charge and to provide a continuing source of energy for lighting and hazard warning system flashers. However, not all EVs have this automatic shut-down feature.

This FSNPRM takes each of the above into account. For EVs equipped with electric brakes powered by the propulsion batteries, at the beginning of each of the specified tests, for those EVs with automatic shut-down capability of the propulsion system, the propulsion batteries would be not less than one percent and not more than two percent above the EV actual automatic shut-down critical value. The critical value is determined by measuring the state-of-charge of the propulsion battery(s) at the instant that automatic shut-down occurs. For those EVs with no automatic shut-down capability, the batteries would be at not less than one percent and not more than two percent above the state of charge at which the brake failure warning indicator is illuminated. For vehicles which have an auxiliary battery(s) that provides electrical energy to operate the electric brakes (whether EVs or not) the auxiliary batteries would be at not less than one percent and not more than two percent above the state of charge at which the brake failure warning indicator is illuminated.

Procedure for Testing at Full Charge and Low Charge

GM thought that NHTSA should add a modified effectiveness test near the end of the road test sequence, specifically, immediately after the spike stop test (S7.17–FMVSS No. 105) or the recovery performance test (S7.17–FMVSS No. 135). Such a test with depleted batteries could be used to show that brakes operate effectively under a depleted charge condition. NHTSA declines to accept this suggestion. The intent of the standard is not to match real-world driving conditions, but simply to assure that an EV will continue to operate safely if any one of the test conditions occurs while the vehicle is in operation.

GM also recommended that this new test be applicable to all EVs rather than limiting it to EVs equipped with electric brakes as proposed in the SNPRM. The justification for this suggestion is that EVs with conventional hydraulic brakes could rely on electricity for certain aspects of brake performance, such as power assist.

NHTSA has decided not to propose the new test suggested by GM. There is already a failed power assist test in the standard, and the approach proposed satisfactorily treats the low battery charge situation.

Other Test Conditions

GM informed NHTSA that it has found it can be difficult to achieve the minimum initial brake temperatures specified in FMVSS Nos. 105 and 135 when relatively high levels of regenerative braking are present. GM recommended that manufacturers be allowed the option of disregarding the prescribed initial brake temperatures when testing EVs equipped with RBS. However, GM believed that the temperatures could be achieved if the agency adopted its recommendation to specify that batteries be charged to 95 percent or greater at the onset of each of the road test procedures. Since NHTSA has, in fact, made this change in this FSNPRM, the agency does not anticipate that EVs equipped with RBS will have any difficulty achieving initial brake temperatures for the road test procedures.

Peugeot was concerned that S6.3.11.5 as proposed for FMVSS No. 135 in Notice 7 (S6.3.13.2 of this FSNPRM) would not allow use of its steering column lock to disable the EV motor for tests to be conducted ''in neutral.'' The language permits the use of any means with which the vehicle is equipped that disconnects the drivetrain from the electric propulsion source. However, the agency would interpret that language as meaning any means that is available while the vehicle is being driven. A steering column key lock would only be used when the vehicle is parked, and as such would not be available during driving. Therefore, the vehicle would be considered to have no neutral position, and would be tested accordingly.

Comments were also received on the vehicle test condition of proposed S7.7.2(e) of FMVSS No. 135. The test is conducted ''with no electromotive force applied to the vehicle propulsion motor(s)''. Pelletier would qualify this phrase by adding ''other than any electromagnetic force that is automatically applied.'' In NHTSA's opinion, this addition is unnecessary. The electromagnetic force referred to is a residual force resulting from the magnetic fields within the motor, and is not considered to be ''applied'' to the motor.

Static Parking Brake Test

Proposed S7.7.1.3 in FMVSS No. 105 and S7.12.2(o) in FMVSS No. 135 would add language to clarify the means for activating electric parking brakes. GM believed that Notice 7's language would be restricted to designs which utilize the foundation brake friction elements to provide the parking brake function. It asked the agency to consider modifying the requirement to read: ''[f]or vehicles with electrically activated parking brakes, apply the parking brakes by activating the parking brake control.'' NHTSA concurs with this suggestion and appropriate changes are being proposed in this FSNPRM.

Inoperative Brake Power or Power Assist Unit

Toyota commented that S7.10.3 (FMVSS No. 105) and S7.11.3(m) (FMVSS No. 135), as proposed by the SNPRM could be read as requiring

vehicles to be tested to simulate simultaneous failure of an electrically-actuated brake system and another brake power or power assist unit. In response to Toyota's comment, modified language is proposed to clarify that tests would be ''conducted with any single electrical failure in the electrically-actuated brake system instead of a failure of any other brake or brake power assist unit, and all other systems intact.''

ABS and Dynamic Parking Brake Tests

FMVSS No. 135 as issued did not adopt the proposed S7.3 ABS performance, of which S7.3.4 *Test procedures and performance requirements* and the SNPRM's proposed S7.3.4.4 would have been a part. Therefore S7.3.4.4, or a variation thereof, is not being reproposed at this time.

Nor did FMVSS No. 135 as issued adopt a dynamic parking brake test, thus rendering it unnecessary for the agency to adopt proposed S7.13.1(d) which would have excepted electric parking brakes from such a test.

Adhesion Utilization—Torque Wheel Method

With respect to the application of the torque wheel test to EVs with electric brakes and/or RBS (proposed in Notice 7 as S7.4.5.3 of Standard No. 135, now proposed as S7.4.5.1), Notice 7 asked for comments, pointing out that the torque wheel method utilizes hydraulic line pressure in the calculations which obviously would not be available for electric brakes. GM commented that some adaptation of the method might be required for an EV that was manufactured with electrically actuated front brakes and without ABS. Mitsubishi recommended that an alternative method for calculating the torque wheel test for EVs with RBS be incorporated, such as a test that calculates the amount of braking effort exerted by the operator on the brake pedal. Ford believes that the current torque wheel test procedure is valid in concept but must be adjusted to be more comprehensive for mixed type brake systems.

NHTSA is aware that the torque wheel test will only accommodate vehicles with hydraulic brakes on at least one axle, and that any vehicle with ABS is not subject to the test. For vehicles with electric brakes on all wheels, the torque wheel test would have to be studied in depth to find the correct factors and test procedures for converting electrical energy into brake torque for purposes of calculating objective brake factors. However, this would be appropriate only for an EV without ABS that is braked only electrically, and NHTSA is unaware that any such configuration is planned for production. Thus, there appears to be no present need for the agency to give further consideration to this issue. If and when an all electric-braked vehicle without ABS is planned for production, the agency could revisit this issue. However, NHTSA believes that it would not be appropriate to expend extensive agency resources to accommodate a vehicle design that in all probability will never be built.

Similarly, for a vehicle equipped with RBS that is not under the control of ABS, the adhesion utilization of the vehicle would be affected by the RBS in a manner that would be dependent on the state of charge of the vehicle's batteries. For such a vehicle, the torque wheel method of calculating adhesion utilization curves that is in Standard No. 135 would not be directly applicable. The most recent draft of proposed ECE Regulation 13–H would require, for such a vehicle, that the adhesion utilization provisions be met under the conditions of both minimum and maximum regenerative braking. While the agency agrees in concept with this approach, Regulation 13–H does not specify any detailed method for obtaining the adhesion utilization curves as Standard No. 135 does. NHTSA believes that a research program would be necessary to develop modifications to the present procedures to accommodate the effects of RBS, but, similar to the all electric-braked issue, questions whether such a vehicle would ever be built. Therefore, requirements to accomodate such a system are not included in this notice. The agency requests comments on whether any manufacturer has plans to produce an electric vehicle that is equipped with RBS that is part of the service brake system but that is not also equipped with ABS. At present, the agency is not aware of any such plans, and does not believe it would be appropriate to expend limited agency resources to develop requirements for a design that will in all probability never be built. If any manufacturer does foresee such a vehicle being built, the agency solicits comments on what would be appropriate adhesion utilization test procedures for such a vehicle.

The reader will find that provisions of this FSNPRM not discussed by this notice are substantially the same as those proposed by Notice 7.

Proposed Effective Date

It is tentatively found for good cause shown that an effective date earlier than 180 days after issuance of the final rule would be in the public interest, and it is proposed that the effective date would be 30 days after publication of the final rule.

Regulatory Analysis

Executive Order 12866 (Regulatory Planning and Review) and DOT Regulatory Policies and Procedures

This rulemaking has not been reviewed under Executive Order 12866. NHTSA has considered the economic implications of this regulation and determined that it is not significant within the meaning of the DOT Regulatory Policies and Procedure. It does not initiate a substantial regulatory program or involve a change in policy.

Regulatory Flexibility Act

The agency has also considered the effects of this rulemaking action in relation to the Regulatory Flexibility Act. I certify that this rulemaking action would not have a significant economic effect upon a substantial number of small entities. Motor vehicle manufacturers are generally not small businesses within the meaning of the Regulatory Flexibility Act. Accordingly, no Regulatory Flexibility Analysis has been prepared.

Executive Order 12612 (Federalism)

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 12612 on ''Federalism.'' It has been determined that the rulemaking action does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

National Environmental Policy Act

NHTSA has analyzed this rulemaking action for purposes of the National Environmental Policy Act. The rulemaking action would not have a significant effect upon the environment. There is no environmental impact associated with adaptation of test procedures to make them more appropriate for vehicles already required to comply with the Federal motor vehicle safety standards. The rulemaking action would not have a direct effect. However, to the extent that this rulemaking might facilitate the introduction of Evs which are powered by an electric motor drawing current from rechargeable storage batteries, fuel cells, or other portable sources of electric current, and which may include a nonelectrical source of power designed to charge batteries and components thereof, the rulemaking would have a beneficial effect upon the environment and reduce fuel consumption because EVs emit no

hydrocarbon emissions and do not depend directly upon fossil fuels to propel them.

Executive Order 12778 (Civil Justice Reform)

This proposed rule would not have any retroactive effect. Under 49 U.S.C. 30103, whenever a Federal motor vehicle safety standard is in effect, a state may not adopt or maintain a safety standard applicable to the same aspect of performance which is not identical to the Federal standard. Section 30161 of Title 49 sets forth a procedure for judicial review of final rules establishing, amending or revoking Federal motor vehicle safety standards. That section does not require submission of a petition for reconsideration or other administrative proceedings before parties may file suit in court.

Comments

Interested persons are invited to submit comments on the FSNPRM. It is requested but not required that 10 copies be submitted.

All comments must not exceed 15 pages in length. (49 CFR 553.21). Necessary attachments may be appended to these submissions without regard to the 15-page limit. This limitation is intended to encourage commenters to detail their primary arguments in a concise fashion.

If a commenter wishes to submit certain information under a claim of confidentiality, three copies of the complete submission, including purportedly confidential business information, should be submitted to the Chief Counsel, NHTSA, at the street address given above, and seven copies from which the purportedly confidential information has been deleted should be submitted to the Docket Section. A request for confidentiality should be accompanied by a cover letter setting forth the information specified in the agency's confidential business information regulation. 49 CFR Part 512.

All comments received before the close of business on the comment closing date indicated above for the proposal will be considered, and will be available for examination in the docket at the above address both before and after that date. To the extent possible, comments filed after the closing date will also be considered. Comments received too late for consideration in regard to the final rule will be considered as suggestions for further rulemaking action. Comments on the proposal will be available for inspection in the docket. The NHTSA will continue to file relevant information as it becomes available in the docket after the closing date, and it is recommended that interested persons continue to examine the docket for new material.

Those persons desiring to be notified upon receipt of their comments in the rules docket should enclose a self-addressed, stamped postcard in the envelope with their comments. Upon receiving the comments, the docket supervisor will return the postcard by mail.

List of Subjects in 49 CFR Part 571

Imports, Motor vehicle safety, Motor vehicles

PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

In consideration of the foregoing, it is proposed that 49 CFR part 571 be amended as follows:

1. The authority citation for part 571 would continue to read as follows:

Authority: 49 U.S.C. 322, 30111, 30115, 30117, 30166; delegation of authority at 49 CFR 1.50.

2. Section 571.105 would be amended by:

a. Revising its heading;

b. Revising S1, S3, the definitions of ''backup system'' and ''split service brake system'' in S4 and adding to S4, in alphabetical order, definitions of ''Electric vehicle *or* EV'' and ''Regenerative braking system *or* RBS'';

c. Amending S5.1.1.4 to add a sentence at the end thereof below the undesignated table;

d. Adding S5.1.2.3, S5.1.2.4, and S5.1.3.5;

e. Revising the introductory text of S5.3.1 and adding S5.3.1(e), (f), and (g);

f. Revising the introductory text of S5.3.5(c)(1) and S5.4.3;

g. Revising S5.5;

h. Adding S6.2 through S6.2.6;

i. Revising the introductory text of S7.7.1.3 and adding S7.7.1.3(c); and

j. Adding S7.9.5 and S7.9.6.

The revised and added heading and paragraphs would read as follows:

§ 571.105 Standard No. 105; Hydraulic and/or electric brake systems.

S1. *Scope.* This standard specifies requirements for hydraulic and/or electric service brake systems and associated parking brake systems.

* * * * *

S3. *Application.* This standard applies to passenger cars, multipurpose passenger vehicles, trucks, and buses with hydraulic and/or electric service brake systems.

S4. *Definitions.*

* * * * *

Backup system means a portion of a service brake system, such as a pump, that automatically supplies energy, in the event of a primary brake power source failure.

* * * * *

Electric vehicle or *EV* means a motor vehicle that is powered by an electric motor drawing current from rechargeable storage batteries, fuel cells, or other portable sources of electrical current, and which may include a non-electrical source of power designed to charge batteries and components thereof.

* * * * *

Regenerative braking system or *RBS* means an electrical energy system that is installed in an EV for recovering kinetic energy, and which uses the propulsion motor(s) as a retarder for partial braking of the EV while returning electrical energy to the propulsion batteries.

* * * * *

Split service brake system means a brake system consisting of two or more subsystems actuated by a single control, designed so that a single failure in any subsystem (such as a leakage-type failure of a pressure component of a hydraulic subsystem except structural failure of a housing that is common to two or more subsystems, or an electrical failure in an electric subsystem) does not impair the operation of any other subsystem.

* * * * *

S5.1.1.4 * * * For an EV, the speed attainable in 2 miles is determined with the propulsion batteries at a state of charge of not less than 95 percent at the beginning of the run.

S5.1.2 *Partial failure.*

* * * * *

S5.1.2.3 For a vehicle manufactured with a service brake system in which the brake signal is transmitted electrically between the brake pedal and some or all of the foundation brakes, regardless of the means of actuation of the foundation brakes, the vehicle shall be capable of stopping from 60 mph within the corresponding distance specified in Column IV of Table II with any single failure in any circuit that electrically transmits the brake signal, and with all other systems intact.

S5.1.2.4 For an EV manufactured with a service brake system that incorporates RBS, the vehicle shall be capable of stopping from 60 mph within the corresponding distance specified in Column IV of Table II with any single failure in the RBS, and with all other systems intact.

* * * * *

S5.1.3.5 *Electric brakes.* Each vehicle with electrically-actuated

service brakes (brake power unit) shall comply with the requirements of S5.1.3.1 with any single electrical failure in the electrically-actuated service brakes and all other systems intact.

* * * * *

S5.3 *Brake system indicator lamp.*

* * *

S5.3.1 An indicator lamp shall be activated when the ignition (start) switch is in the ''on'' (''run'') position and whenever any of the conditions (a) or (b), (c), (d), (e), (f), and (g) occur:

* * * * *

(e) For a vehicle with electrically-actuated service brakes, failure of the source of electric power to the brakes, or diminution of state of charge of the batteries to less than a level specified by the manufacturer for the purpose of warning a driver of degraded brake performance.

(f) For a vehicle with electric transmission of the service brake control signal, failure of a brake control circuit.

(g) For an EV with RBS that is part of the service brake system, failure of the RBS.

* * * * *

S5.3.5 * * *

(c)(1) If separate indicators are used for one or more of the conditions described in S5.3.1(a) through S5.3.1(g) of this standard, the indicator display shall include the word ''Brake'' and appropriate additional labeling, except as provided in (c)(1)(A) through (D) of this paragraph.

* * * * *

S5.4.3 *Reservoir labeling*—Each vehicle equipped with hydraulic brakes shall have a brake fluid warning statement that reads as follows, in letters at least one-eighth of an inch high: ''WARNING, Clean filler cap before removing. Use only _____ fluid from a sealed container.'' (Inserting the recommended type of brake fluid as specified in 49 CFR 571.116, e.g., ''DOT 3''). The lettering shall be—

S5.5 *Antilock and variable proportioning brake systems.* In the event of failure (structural or functional) in an antilock or variable proportioning brake system, the vehicle shall be capable of meeting the stopping distance requirements specified in S5.1.2 for service brake system partial failure. For an EV that is equipped with both ABS and RBS that is part of the service brake system, the ABS must control the RBS.

* * * * *

S6.2 Electric vehicles and electric brakes.

S6.2.1 The state of charge of the propulsion batteries is determined in accordance with SAE Recommended Practice J227a, *Electric Vehicle Test Procedure,* February 1976. The applicable sections of J227a are 3.2.1 through 3.2.4, 3.3.1 through 3.3.2.2, 3.4.1 and 3.4.2, 4.2.1, 5.2, 5.2.1, and 5.3.

S6.2.2 At the beginning of the first effectiveness test specified in S7.3, the propulsion batteries are at a state of charge of not less than 95 percent. During each burnish procedure, the propulsion batteries are restored to a state of charge of not less than 95 percent after each increment of 40 burnish stops until each burnish procedure is complete. The batteries may be charged at a more frequent interval during a particular 40-stop increment only if the EV is incapable of achieving the initial burnish test speed during that increment. During each burnish procedure, the propulsion batteries may be charged by an external means or replaced by batteries that are at a state of charge of not less than 95 percent. For EVs having a manual control for setting the level of regenerative braking, the manual control, at the beginning of each burnish procedure, is set to provide maximum regenerative braking throughout the burnish.

S6.2.3 At the beginning of each performance test in the test sequence (S7.3, S7.5, S7.7 through S7.11, and S7.13 through S7.19 of this standard), unless otherwise specified, an EV's propulsion batteries are at a state of charge of not less than 95 percent (the batteries may be charged by external means or replaced by batteries that are at a state of charge of not less than 95 percent). No further charging of the propulsion batteries occurs during any of the performance tests in the test sequence of this standard.

S6.2.4 (a) For an EV equipped with RBS, the RBS is considered to be part of the service brake system if it is automatically controlled by an application of the service brake control, if there is no means provided for the driver to disconnect or otherwise deactivate it, and if the vehicle has no ''neutral'' transmission position. This RBS is operational during all burnishes and all tests, except for the test of a failed RBS. If the level of retardation provided by this RBS is subject to control by the driver (other than through the service brake control), it is set to produce the maximum regenerative braking effect during the burnishes, and the minimum regenerative braking effect during the test procedures.

(b) If the RBS is not part of the service brake system, it is operational and set to produce the maximum regenerative braking effect during the burnishes, and is disabled during the test procedures.

S6.2.5 For tests conducted ''in neutral,'' the operator of an EV with no ''neutral'' position (or other means such as a clutch for disconnecting the drive train from the propulsion motor(s)) does not apply any electromotive force to the propulsion motor(s). Any electromotive force that is applied to the propulsion motor(s) automatically remains in effect unless otherwise specified by the test procedure.

S6.2.6 A vehicle equipped with electrically-actuated service brakes also performs the tests specified in S7.3, S7.5, S7.7 through S7.11, and S7.13 through S7.19 of this standard with the batteries providing power to those electrically-actuated brakes, at the beginning of each test, in a depleted state of charge for condition (a), (b), or (c) of this paragraph as appropriate. An auxiliary means may be used to accelerate an EV to test speed. The tests in S6.2.6 are conducted after completing the tests in S6.2.3.

(a) For an EV equipped with electrically-actuated service brakes deriving power from the propulsion batteries, and with automatic shut-down capability of the propulsion motor(s), the propulsion batteries are at not more than two percent and not less than one percent above the EV actual automatic shut-down critical value. The critical value is determined by measuring the state-of-charge of the propulsion battery(s) at the instant that automatic shut-down occurs.

(b) For an EV equipped with electrically-actuated service brakes deriving power from the propulsion batteries, and with no automatic shut-down capability of the propulsion motor(s), the propulsion batteries are at not more than two percent and not less than one percent above the actual state of charge at which the brake failure warning signal, required by S5.3.1(e) of this standard, is illuminated.

(c) For a vehicle which has an auxiliary battery(s) that provides electrical energy to operate the electrically-actuated service brakes, the auxiliary battery(s) is at not more than two percent and not less than one percent above the actual state of charge at which the brake failure warning signal, required by S5.3.1(e) of this standard, is illuminated.

* * * * *

S7.7.1 *Test procedure for requirements of S5.2.1.*

* * * * *

S7.7.1.3 With the vehicle held stationary by means of the service brake

control, apply the parking brake by a single application of the force specified in (a), (b), or (c) of this paragraph, except that a series of applications to achieve the specified force may be made in the case of a parking brake system design that does not allow the application of the specified force in a single application:

* * * * *

(c) For a vehicle using an electrically-activated parking brake, apply the parking brake by activating the parking brake control.

* * * * *

S7.9 *Service brake system test—partial failure.*

* * * * *

S7.9.5 For a vehicle in which the brake signal is transmitted electrically between the brake pedal and some or all of the foundation brakes, regardless of the means of actuation of the foundation brakes, the tests in S7.9.1 through S7.9.3 of this standard are conducted by inducing any single failure in any circuit that electrically transmits the brake signal, and all other systems intact. Determine whether the brake system indicator lamp is activated when the failure is induced.

S7.9.6 For an EV with RBS that is part of the service brake system, the tests specified in S7.9.1 through S7.9.3 are conducted with the RBS disconnected and all other systems intact. Determine whether the brake system indicator lamp is activated when the RBS is disconnected.

3. Section 571.135 would be amended by:

a. Revising the definitions of ''backup system'', ''maximum speed'', and ''split service brake system'' in S4, and adding in S4, in alphabetical order, definitions for ''Electric vehicle'' and ''Regenerative braking system'';

b. Adding S5.1.3;

c. Revising the introductory text of S5.4.3 and S5.5.1 and adding S5.5.1 (e), (f), and (g);

d. Revising the introductory text of S5.5.5(d);

e. Adding S6.3.11, S6.3.12, and S6.3.13;

f. Revising S7.10, S7.10.3(f), and S7.10.4;

g. Adding S7.11.3(m); and

h. Revising S7.12.2(i).

The revised and added paragraphs would read as follows:

§ 571.135 Standard No. 135; Passenger Car Brake Systems.

* * * * *

S4. *Definitions.*

* * * * *

Electric vehicle or *EV* means a motor vehicle that is powered by an electric motor drawing current from rechargeable storage batteries, fuel cells, or other portable sources of electrical current, and which may include a non-electrical source of power designed to charge batteries and components thereof.

* * * * *

Maximum speed of a vehicle or *VMax* means the highest speed attainable by accelerating at a maximum rate from a standing start for a distance of 3.2 km (2 miles) on a level surface, with the vehicle at its lightly loaded vehicle weight, and, if an EV, with the propulsion batteries at a state of charge of not less than 95 percent at the beginning of the run.

* * * * *

Regenerative braking system or *RBS* means an electrical energy system that is installed in an EV for recovering kinetic energy, and which uses the propulsion motor(s) as a retarder for partial braking of the EV while returning electrical energy to the propulsion batteries.

Split service brake system means a brake system consisting of two or more subsystems actuated by a single control, designed so that a single failure in any subsystem (such as a leakage-type failure of a pressure component of a hydraulic subsystem except structural failure of a housing that is common to two or more subsystems, or an electrical failure in an electric subsystem) does not impair the operation of any other subsystem.

* * * * *

S5.1.3 *Regenerative braking system.* (a) For an EV equipped with RBS, the RBS is considered to be part of the service brake system if it is automatically activated by an application of the service brake control, if there is no means provided for the driver to disconnect or otherwise deactivate it, and if the vehicle has no ''neutral'' transmission position.

(b) For an EV that is equipped with both ABS and RBS that is part of the service brake system, the ABS must control the RBS.

* * * * *

S5.4.3. *Reservoir labeling.* Each vehicle equipped with hydraulic brakes shall have a brake fluid warning statement that reads as follows, in letters at least 3.2 mm (⅛ inch) high: ''WARNING: Clean filler cap before removing. Use only _____ fluid from a sealed container.'' (Inserting the recommended type of brake fluid as specified in 49 CFR 571.116, *e.g.*, ''DOT 3.'') The lettering shall be:

* * * * *

S5.5.1. *Activation.* An indicator shall be activated when the ignition (start) switch is in the ''on'' (''run'') position and whenever any of conditions (a) through (g) occur:

* * * * *

(e) For a vehicle with electrically-actuated service brakes, failure of the source of electric power to those brakes, or diminution of state of charge of the batteries to less than a level specified by the manufacturer for the purpose of warning a driver of degraded brake performance.

(f) For a vehicle with electric transmission of the service brake control signal, failure of a brake control circuit.

(g) For an EV with a regenerative braking system that is part of the service brake system, failure of the RBS.

* * * * *

S5.5.5. *Labeling.*

* * * * *

(d) If separate indicators are used for one or more of the conditions described in S5.5.1(a) through S5.5.1(g), the indicators shall display the following wording:

* * * * *

S6.3.11 *State of charge of batteries for EVs.*

S6.3.11.1 The state of charge of the propulsion batteries is determined in accordance with SAE Recommended Practice J227a, *Electric Vehicle Test Procedure,* February 1976. The applicable sections of J227a are 3.2.1 through 3.2.4, 3.3.1 through 3.3.2.2, 3.4.1 and 3.4.2, 4.2.1, 5.2, 5.2.1 and 5.3.

S6.3.11.2 At the beginning of the burnish procedure (S7.1 of this standard) in the test sequence, the propulsion batteries are at a state of charge of not less than 95 percent. During the 200-stop burnish procedure, the propulsion batteries are restored to a state of charge of not less than 95 percent after each increment of 40 burnish stops until the burnish procedure is complete. The batteries may be charged at a more frequent interval during a particular 40-stop increment only if the EV is incapable of achieving the initial burnish test speed during that increment. During the burnish procedure, the propulsion batteries may be charged by external means or replaced by batteries that are at a state of charge of not less than 95 percent. For an EV having a manual control for setting the level of regenerative braking, the manual control, at the beginning of the burnish procedure, is set to provide maximum regenerative braking throughout the burnish.

S6.3.11.3 At the beginning of each performance test in the test sequence

(S7.2 through S7.17 of this standard), unless otherwise specified, an EV's propulsion batteries are at a state of charge of not less than 95 percent (the batteries may be charged by external means or replaced by batteries that are at a state of charge of not less than 95 percent). No further charging of the propulsion batteries occurs during any of the performance tests in the test sequence of this standard.

S6.3.12 *State of charge of batteries for electrically-actuated service brakes.* A vehicle equipped with electrically-actuated service brakes also performs the tests specified in S7.2 through S7.17 of this standard with the batteries providing power to those electrically-actuated brakes, at the beginning of each test, in a depleted state of charge for conditions (a), (b), or (c) as appropriate. An auxiliary means may be used to accelerate an EV to test speed. The tests in S6.3.12 are conducted after completing the tests in S6.3.11.3.

(a) For an EV equipped with electrically-actuated service brakes deriving power from the propulsion batteries and with automatic shut-down capability of the propulsion motor(s), the propulsion batteries are at not more than two percent and not less than one percent above the EV actual automatic shut-down critical value. The critical value is determined by measuring the state-of-charge of the propulsion battery(s) at the instant that automatic shut-down occurs.

(b) For an EV equipped with electrically-actuated service brakes deriving power from the propulsion batteries and with no automatic shut-down capability of the propulsion motor(s), the propulsion batteries are at not more than two percent and not less than one percent above the actual state of charge at which the brake failure warning signal, required by S5.5.1(e) of this standard, is illuminated.

(c) For a vehicle which has an auxiliary battery(s) that provides electrical energy to operate the electrically-actuated service brakes, the auxiliary battery(s) is at not more than two percent and not less than one percent above the actual state of charge at which the brake failure warning signal, required by S5.5.1(e) of this standard, is illuminated.

S6.3.13 *Electric vehicles.*

S6.3.13.1 (a) For an EV equipped with an RBS that is part of the service brake system, the RBS is operational during the burnish and all tests, except for the test of a failed RBS. If the level of retardation provided by this RBS is subject to control by the driver (other than through the service brake control), it is set to produce the maximum regenerative braking effect during the burnish, and the minimum regenerative braking effect during the test procedures.

(b) For an EV equipped with an RBS that is not part of the service brake system, the RBS is operational and set to produce the maximum regenerative braking effect during the burnish, and is disabled during the test procedures.

S6.3.13.2 For tests conducted ''in neutral'', the operator of an EV with no ''neutral'' position (or other means such as a clutch for disconnecting the drive train from the propulsion motor(s)) does not apply any electromotive force to the propulsion motor(s). Any electromotive force that is applied to the propulsion motor(s) automatically remains in effect unless otherwise specified by the test procedure.

* * * * *

S7.2.4 *Performance requirements.*

* * * * *

(f) An EV with RBS that is part of the service brake system shall meet the performance requirements over the entire normal operating range of the RBS.

* * * * *

S7.4.5 *Performance requirements.*

* * *

S7.4.5.1 An EV with RBS that is part of the service brake system shall meet the performance requirement over the entire normal operating range of the RBS.

* * * * *

S7.7.3. *Test conditions and procedures.*

* * * * *

(h) For an EV, this test is conducted with no electromotive force applied to the vehicle propulsion motor(s), but with brake power or power assist still operating, unless cutting off the propulsion motor(s) also disables those systems.

* * * * *

S7.10 *Partial failure.*

* * * * *

S7.10.3. *Test conditions and procedures.*

* * * * *

(f) Alter the service brake system to produce any single failure. For a hydraulic circuit, this may be any single rupture or leakage type failure, other than a structural failure of a housing that is common to two or more subsystems. For a vehicle in which the brake signal is transmitted electrically between the brake pedal and some or all of the foundation brakes, regardless of the means of actuation of the foundation brakes, this may be any single failure in any circuit that electrically transmits the brake signal. For an EV with RBS that is part of the service brake system, this may be any single failure in the RBS.

* * * * *

S7.10.4 *Performance requirements.* For vehicles manufactured with a split service brake system, in the event of any failure in a single subsystem, as specified in S7.10.3(f), and after activation of the brake system indicator as specified in S5.5.1 of this standard, the remaining portions of the service brake system shall continue to operate and shall stop the vehicle as specified in S7.10.4(a) or S7.10.4(b). For vehicles not manufactured with a split service brake system, in the event of any failure in any component of the service brake system, as specified in S7.10.3(f), and after activation of the brake system indicator as specified in S5.5.1 of this standard, the vehicle shall, by operation of the service brake control, stop 10 times consecutively as specified in S7.10.4(a) or S7.10.4(b).

S7.11.3. *Test conditions and procedures.*

* * * * *

(m) For vehicles with electrically-actuated service brakes (brake power unit), this test is conducted with any single electrical failure in the electrically-actuated service brakes instead of a failure of any other brake power or brake power assist unit, and all other systems intact.

(n) For an EV with RBS that is part of the service brake system, this test is conducted with the RBS disconnected and all other systems intact.

* * * * *

S7.12.2. *Test conditions and procedures.*

* * * * *

(i) For a vehicle equipped with mechanically-applied parking brakes, make a single application of the parking brake control with a force not exceeding the limits specified in S7.12.2(b). For a vehicle using an electrically-activated parking brake, apply the parking brake by activating the parking brake control.

* * * * *

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Barry Felrice,

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