§ 180.442 Bifenthrin; tolerances for residues.

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(b)* * *

Commodity	Parts per million	Expiration/Revocation date
* * * * *		
Potato	0.05	12/31/2002
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[FR Doc. 00–24785 Filed 9–26–00; 8:45 am]

BILLING CODE 6560–50–S

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 300

[FRL–6877–9]

National Oil and Hazardous Substances Pollution Contingency Plan National Priorities List

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of deletion of Newsom Brothers Superfund Site from the National Priorities List (NPL).

SUMMARY: EPA Region 4 (EPA) announces the deletion of the Newsom Brothers Superfund Site from the NPL. The NPL constitutes appendix B of 40 CFR part 300 which is the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), which EPA promulgated pursuant to section 105 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). EPA and the State of Mississippi (State) have determined that all appropriate CERCLA actions have been implemented and that no further cleanup by responsible parties is appropriate under CERCLA. Moreover, EPA and the State have determined that remedial activities conducted at the site to date have been protective of public health, welfare, and the environment.

EFFECTIVE DATE: September 27, 2000.

ADDRESSES: Comprehensive information on this Site is available through the EPA Region 4 public docket, which is located at the Region 4 office and is available for viewing by appointment only from 9 a.m. to 4 p.m., Monday through Friday, excluding holidays. Requests for appointments or copies of the background information from the regional public docket should be directed to the EPA Region 4 Docket Office.

The address for the Regional Docket Office is: Ms. Debbie Jourdan, U.S. Environmental Protection Agency, Region 4, 61 Forsyth Street, SW., Atlanta, Georgia 30303. Telephone No.: (404) 562–8862.

Background information from the regional public docket is also available for viewing at the Site information repository located at the following address: South Mississippi Regional Library, 900 Broad Street, Columbia, Mississippi 39429.

FOR FURTHER INFORMATION CONTACT: Carolyn B. Thompson, Remedial Project Manager, U.S. Environmental Protection Agency, Region 4, 61 Forsyth Street, SW., Atlanta, Georgia 30303, (404) 562–8913; Michael T. Slack, P.E., CERCLA Division, Mississippi Department of Environmental Quality, Office of Pollution Control, 101 West Capitol Street, Jackson, MS 39201, (601) 961–5217.

SUPPLEMENTARY INFORMATION: EPA announces the deletion of the Newsom Brothers Superfund Site, Columbia, Mississippi, from the National Priorities List (NPL), which is appendix B of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). EPA identifies sites that appear to present a significant risk to public health, welfare, or the environment and it maintains the NPL as the list of those sites. Sites on the NPL may be the subject of remedial actions financed by the Hazardous Substances Superfund Response Trust Fund (Fund). Pursuant to 42 U.S.C. 9605 (40 CFR 300.425(e)(3) of the NCP), any site deleted from the NPL remains eligible for Fund-financed remedial actions in the unlikely event that conditions at the site warrant such action in the future.

EPA published a Notice of Intent to Delete the Newsom Brothers Site from the NPL on August 2, 2000 in the **Federal Register** (65 FR 47364–47366). The closing date for comments on the Notice of Intent to Delete was September 1, 2000. EPA received one comment and the responsiveness summary is attached to this Notice of Deletion. Deletion of a site from the NPL does not affect responsible party liability or impede agency efforts to recover costs associated with response efforts.

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, does not apply because this action is not a rule, as that term is defined in 5 U.S.C. 804(3).

List of Subjects in 40 CFR Part 300

Environmental protection, Air pollution control, Chemicals, Hazardous substances, Hazardous waste, Intergovernmental relations, Penalties, Reporting and recordkeeping requirements, Superfund, Water pollution control, Water supply.

Dated: September 20, 2000.

A. Stanley Meiburg,

Acting Regional Administrator, Region 4.

40 CFR part 300 is amended as follows:

PART 300—[AMENDED]

1. The authority citation for part 300 continues to read as follows:

Authority: 33 U.S.C. 9601–9657; 42 U.S.C. 1321(c)(2); E.O. 12777, 56 FR 54757, 3 CFR 191 Comp., p. 351; E.O. 12580, 52 FR 2923, 3 CFR, 1987 Comp., p. 193.

Appendix B—[Amended]

2. Table 1 of appendix B to part 300 is amended by removing the site ‘‘Newsom Brothers/Old Reichhold Chemicals,’’ Columbia, Mississippi.

[FR Doc. 00–24787 Filed 9–26–00; 8:45 am]

BILLING CODE 6560–50–P

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

[Docket No. NHTSA–98–4515; Notice 2]

RIN 2127–AF43

Federal Motor Vehicle Safety Standards

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

ACTION: Final rule.

SUMMARY: This document establishes a new Federal motor vehicle safety

standard (FMVSS) FMVSS No. 305, ''Electric-powered vehicles: electrolyte spillage and electrical shock protection'' addressing safety issues exclusive to electric vehicles (EVs). The standard is based upon a notice of proposed rulemaking published on October 13, 1998. It applies to all EVs (except EVs to which FMVSS No. 500 ''Low-Speed Vehicles'' applies) that have a propulsion power source greater than 48 volts and a GVWR of 4536 kg (10,000 lbs) or less.

DATES: The final rule is effective October 1, 2001.

FOR FURTHER INFORMATION CONTACT: For non-legal issues, contact Charles Hott, Office of Safety Performance Standards, NHTSA (202–366–0427). For legal issues, contact Taylor Vinson, Office of Chief Counsel, NHTSA (202–366–5263).

SUPPLEMENTARY INFORMATION:

Table of Contents

1. Background of This Rulemaking Action

The 1990s may be remembered as the beginning of a new generation of electric vehicles (EVs). In mid-decade, General Motors Corporation (GM) introduced the EV1, an electric-powered passenger car, offered for lease in selected western markets in the United States. Other manufacturers, such as Honda and Nissan, have also introduced new EVs. The primary impetus for the introduction of EVs into the marketplace appears to be the Clean Air Act Amendments of 1990 which included provisions for zero emission vehicles (ZEVs). EVs are the only known vehicles that will meet the emission requirements for ZEVs. In California, these provisions were to become effective beginning in model year 1998, and would have required automobile manufacturers to sell, collectively, 40,000 EVs in the model year. However, those provisions were delayed by the California Air Resources Board until model year 2003. At that time, car companies will be required to meet 10 percent of their sales with ZEVs. In addition, the Energy Policy Act of 1992 requires Federal and State fleets to acquire increasing percentages of alternative fueled vehicles.

On December 27, 1991, we published an advance notice of proposed rulemaking (ANPRM) on EV safety (56 FR 67038). The purpose of that notice was to help us to determine which existing Federal motor vehicle safety standards (FMVSS) may need modification to better accommodate the unique technology of EVs and what new FMVSS may need to be developed and issued to assure their safe introduction. We requested comments on a broad range of potential EV safety issues including battery electrolyte spillage and electric shock hazard. The ANPRM elicited widespread public interest and 46 comments were received.

After reviewing the comments and information received in response to the ANPRM, we concluded in a November 18, 1992 notice (57 FR 54354) that it was premature to initiate rulemaking for FMVSSs specifically addressing EVs. In that notice, we stated that further research was needed in the areas of battery electrolyte spillage and electric shock hazard.

Shortly thereafter, in 1993, we conducted research and testing on two converted EVs. We tested these vehicles as specified in FMVSS No. 208, ''Occupant Crash Protection.'' Both vehicles were equipped with flooded (i.e., filled with liquid electrolyte) lead-acid batteries located in the engine and luggage compartments in the front and rear of the vehicle. One vehicle was equipped with twelve 12-volt batteries (five in the front and seven in the rear). The other vehicle was equipped with ten 12-volt batteries (four in the front and six in the rear). Both vehicles were subjected to 48 km/h frontal crashes into a fixed barrier. In both cases, the front batteries sustained significant damage, spilling large quantities of electrolyte. On one vehicle, 17.7 liters of electrolyte spilled from the front batteries as a result of the crash and in the other vehicle, 10.4 liters. In addition, electrical arcs were observed under the hood of one vehicle during the crash.

In the following year, we published a notice of request for comments (59 FR 49901, September 30, 1994) to help us to assess the need to regulate battery electrolyte spillage and electric shock hazard of EVs during a crash or rollover. We received 32 comments from automobile manufacturers, EV converters, and industry associations. The majority of the commenters supported some type of Federal regulation for electrolyte spillage and electric shock prevention, provided that the requirements of the regulation were performance-based and not design restrictive to the extent that they might inhibit technology development. Two manufacturers, Ford Motor Company (Ford) and Nissan, and two industry associations (Electric Vehicle Industry Association and Electric Vehicles of America) did not believe that Federal regulation was necessary because electric vehicle design was constantly changing due to technological breakthroughs. However, Ford did state that it would follow the recommendation of industry associations such as the Society of Automotive Engineers (SAE) which, at the time, was developing SAE J1766 ''Recommended Practice For Electric and Hybrid Electric Vehicle Battery Systems Crash Integrity Testing.''

In 1995, we again conducted research and testing, this time on four EVs. Three vehicles were converted to run on electricity and one was built as an EV. The three converted vehicles were equipped with starved (i.e., electrolyte that is absorbed in an inert material to prevent leakage in case of rupture) lead-acid batteries and the vehicle built as an EV was equipped with flooded lead-acid batteries. We subjected three vehicles to 48 km/h frontal crashes similar to the test described in FMVSS No. 208, ''Occupant Crash Protection'' and a fourth to a 54 km/h side crash similar to the test specified in FMVSS No. 214,'' Side Impact Protection.'' Each vehicle was also subjected to pre and post-crash rollover tests to measure electrolyte spillage. The crash and rollover tests revealed that the vehicles with the starved lead-acid batteries had very little leakage (as expected because of their design), while the vehicle with the flooded lead-acid batteries leaked approximately 50 liters of electrolyte. We also performed electrical isolation tests on these vehicles before and after each of the crash tests. Two of the converted EVs maintained their electrical isolation after the crash tests. The other converted EV was the vehicle subjected to a side impact test. That EV chafed a wire which came in contact with the vehicle structure during the crash and did not maintain electrical isolation. The vehicle built as an EV was subjected to a frontal crash test. That vehicle lost electrical isolation when two of the battery connectors came in contact with the battery tunnel during the crash.

2. SAE J1766 FEB96 ''Recommended Practice for Electric and Hybrid Electric Vehicle Battery Systems Crash Integrity Testing''

During our earlier rulemaking activities, there was not yet an industry standard in place that addressed potential safety problems in EVs. However, in February 1996, SAE published its Recommended Practice SAE J1766 ''Recommended Practice for Electric and Hybrid Electric Vehicle Battery Systems Crash Integrity Testing.'' The purpose of SAE J1766 is to define minimum performance standards and establish test methods which evaluate battery system spillage, retention, electrical system isolation, and liquid interaction in electric and hybrid electric vehicles during crash scenarios. The Recommended Practice covers all electric and hybrid EVs with a GVWR of 4536 kg (10,000 lbs) or less.

As the document notes, electric and hybrid EVs contain many types of battery systems. J1766 promotes the use of barriers between occupants and battery systems which are necessary to provide protection from potentially harmful factors and materials within the battery system, which can cause injury to vehicle occupants during different crash scenarios.

The potentially harmful factors and materials include:

> electrical isolation integrity, electrolyte spillage and liquid interactions, and retention of the battery system. Maintaining electrical isolation of the system is important to prevent hazardous shock of vehicle occupants. Electrolyte spillage and battery fluid interactions should be minimized to prevent chemical reactions and electrical conductance. The latter could lead to an electrical shock hazard.

SAE J1766 establishes certain performance criteria to be met when an EV is subjected to the frontal impact procedures of FMVSS No. 208 (including the 30-degree oblique), the side impact procedures of FMVSS 214, and the rear impact procedure of FMVSS No. 301. No spillage of electrolyte into the occupant compartment is permitted. Electrolyte spillage outside the passenger compartment is limited to 5 liters for a 30-minute period after vehicle motion ceases and throughout the post crash rollover test. Battery modules must stay restrained in the vehicle, without any component intruding into the occupant compartment. Electrical isolation between the chassis and high voltage system is at least 500 ohms per nominal volt.

3. Proposed FMVSS No. 305

On October 13, 1998, we proposed that provisions similar to those of SAE J1766 be adopted in a new FMVSS No. 305 to afford the public protection from electrolyte spillage and electric shock hazards in crashes (63 FR 54652). These provisions should help secure the safe introduction of new EVs into the marketplace.

As proposed, FMVSS No. 305 would apply to all passenger cars, and to multipurpose passenger vehicles, trucks, and buses with a GVWR of 4536 kg (10,000 lbs) or less, and to school buses with a GVWR over 4536 kg (10,000 lbs), that use more than 72 volts of electricity as propulsion power. Seventy-two volts is the equivalent of six 12-volt batteries. Under proposed FMVSS No. 305, EVs covered by the standard, other than heavy school buses, would be required to meet leakage and battery retention requirements that are essentially those of SAE J1766 after front (FMVSS No. 208), side (FMVSS No. 214), and rear impact barrier crash tests (FMVSS No. 301). A static rollover test (FMVSS No. 301) would also be conducted both before and after each of these crash tests. Heavy school buses (those with a GVWR greater than 4536 kg) would be required to meet the same performance requirements after a moving contour barrier crash test, without the pre- and post-test rollovers. The performance requirements proposed were that there shall be no electrolyte spillage in the passenger compartment, with spillage outside the compartment limited to 5 liters total in a 30-minute period following the cessation of motion after a crash test. Intrusion of the battery system components into the occupant compartment would also be prohibited. Batteries must be restrained in the vehicle in their original installations. The electric isolation value must be at least 500 ohms per nominal volt, as determined by the SAE procedure for the measurement of the insulation resistance of the propulsion battery of an EV. The standard known resistance Ro (in ohms) should be approximately 500 times the nominal operating voltage of the vehicle (in volts). The Ro is not required to be precisely this value since the equations are valid for any Ro. However, a Ro value in this range should provide good resolution for the voltage measurements.

However, FMVSS No. 305 would not apply to passenger-carrying EVs with a maximum speed of 40 km/h (25 mph) or less. We noted that we had recently issued a standard expressly for low-speed vehicles (LSVs), FMVSS No. 500 (63 FR 33194; June 17, 1998). LSVs are any 4-wheeled vehicles, other than trucks, with a maximum speed of not less than 32 km/hr nor more than 40 km/h. EVs subject to FMVSS No. 500 could include Neighborhood Electric Vehicles (NEVs) and those battery-powered golf cars within the speed range. FMVSS No. 500 does not require LSVs to meet FMVSS Nos. 208, 214, and 301, which contain some 48 and 54 km/h impact barrier tests like those proposed for FMVSS No. 305.

4. Specific Issues for Which We Sought Comment

We received comments from the following 14 companies/organizations: Bombardier Motor Corporation of America, Navistar International Transportation Corp., Blue Bird Body Company, Infrastructure Working Council, Toyota Technical Center, USA, Inc., Ford Motor Company, Nissan North America, Inc., DaimlerChrysler Corporation, General Motors/North American Operations, Applied Safety Technologies Corporation, Mike Beebe, Honda/American Honda Motor Co., Inc., Mitsubishi Motors R & D of America Inc., and Volvo Cars of North America, Inc.

We asked for comments on six specific issues.

The first issue was the extent to which the proposed rule would necessitate expenditures by manufacturers of EVs to meet electrolyte spillage, battery retention, and electrical isolation test requirements.

Ford and DaimlerChrysler commented specifically on the cost to conform vehicles with a GVWR of 4536 kg (10,000 pounds) or less. Neither believed that there would be any additional cost since the tests for these requirements will be conducted in the course of conventional testing for existing FMVSS. Blue Bird, a manufacturer of large school buses, on the other hand, stated that the cost to conform in terms of dollars, weight, compliance tests, etc. would drastically impair, if not destroy, current research and development activities regarding electric and hybrid electric large school buses. This commenter also stated that it is not aware of any electric or hybrid electric powered school buses currently being offered on a regular production basis. It therefore appears that the cost to conform to FMVSS No. 305 will be negligible for vehicles with a GVWR of 4536 kg (10,000 lbs.) or less.

The second issue was the adequacy of the proposed spillage specification. We present and address these comments below in our discussion pertaining to the adoption of S5.1, a requirement on electrolyte spillage from propulsion batteries.

The third issue was the adequacy of the proposed specification for electrical isolation. We address these comments below on our discussion of S5.3, the specification for electrical isolation that we are adopting.

The fourth and fifth issues concerned the coverage of the proposed standard, and whether the proposed standard should apply to electric Low-Speed Vehicles. We address these issues below in our discussion on the applicability of the final rule.

Sixth, we asked about the appropriateness of a rollover test. The SAE currently recommends that the vehicle undergo a rollover test before the barrier impact test. We are concerned that damage may occur to the test vehicle during rollover that could affect the results of the barrier impact test. Accordingly, we asked for comments as to whether there should be a rollover test before the barrier impact test and as to the importance of conducting a rollover test before the barrier impact test.

None of the commenters believe that the pre-test rollover procedure is necessary. The SAE Electric Vehicle Safety Committee has revised the February 1996 standard. This revised standard was reissued in June 1998. In the revised standard, the SAE determined that it was not necessary to perform the pre-crash static rollover test. It found that no failures occurred to any of the vehicles tested using this procedure. The most significant information regarding safety was only found during a post-crash condition. We believe that the likelihood of electrolyte spillage or shock hazard without a related crash event is extremely remote. Further, we do not see any additional safety benefit in conducting the static rollover test prior to the crash tests. Therefore, this test is not included in the final rule.

5. Modifications to the Final Rule Based Upon the Comments

A. Vehicles to Which FMVSS No. 305 Applies

i. The Standard Will Apply to Vehicles That Use More Than 48 Volts as Propulsion Power

We proposed that the new standard apply to vehicles that use 72 volts or more as propulsion power. However, we were unsure whether there might be vehicles or vehicle designs which are powered, in whole or in part (perhaps a hybrid electric configuration), by less than 72 volts of electricity. We asked whether there were any such and whether it would be appropriate to apply FMVSS No. 305 to them.

Navistar commented that the industry seems to have developed closer to a 50-volt segregation between high and low voltage. SAE J1673 ''High Voltage Automotive Wiring Assembly Design'' covers systems over 50-volts nominal. SAE J1797 ''Packaging of Electric Vehicle Battery Modules'' recommends against exceeding 60-volts DC in a single module during any state. This value equates to a 48–50 volt nominal battery. SAE Information Report 52232 ''Vehicle System Voltage—Initial Recommendations'' suggests not to exceed 65-volts during periodic ripple and 50-volts AC RMS. Again, these values equate to 48–50 volts nominal voltage.

ASTC commented that the final rule should not totally exclude vehicles which are propelled by 72 volts or less. Currently, SAE Standard J52344 JUN98 ''Guidelines for Electric Vehicle Safety,'' defines ''potentially hazardous voltage'' as 60 VDC and above. This is based on the UL standards UL 223 1 and UL 2202. Above this level, it is recommended to design with the intent to protect as one would for any high voltage system.

Mitsubishi argued that the application threshold should be set at or below 60 volts. This is the level specified by the National Electric Code (NEC, article 725) and UL as the limit above which a risk is posed to the human body by high voltage.

On the basis of these comments, we have concluded that that FMVSS No. 305 should not apply only to vehicles that use more than 72 volts as propulsion power as we proposed. It is clear from the commenters and industry standards that 60 volts DC can cause bodily injury. Further, we are not aware of any EV manufacturer which is presently producing motor vehicles propelled by 48 volts DC or less; it seems that these lower voltages are not detrimental to the safety of humans in the same manner that 60 volts DC may be. Accordingly, FMVSS No. 305 will apply to EVs that are propelled by 48 volts or more of electricity.

ii. The Standard Will Not Apply to Low-Speed Vehicles (LSVs)

Although we were aware that two Low-Speed Vehicles (LSVs) will be produced with six 12-volt batteries totaling 72 volts, the Bombardier NV and the GEM vehicle (the Trans2 NEV design upgraded from 48 volts), the proposed rule nevertheless excluded LSVs. However, we asked whether the standard ought not to apply to LSVs after all, and, if so, whether the proposed requirements would be reasonable, practicable, and appropriate for them.

Two commenters recommended against including LSVs in FMVSS No. 305. Bombardier commented that we had extensively discussed the safety features incorporated into FMVSS No. 500 based upon LSVs' design and performance characteristics and concluded in the final rule that this ''rule requires safety equipment on low-speed vehicles consistent with their characteristics and operating environment.'' Bombardier further commented that, in issuing FMVSS No. 500, we had concluded that LSVs, given their limited-speed capability and relatively controlled operating environments, need not be designed to meet the full range of FMVSSs, especially those incorporating dynamic crash requirements. Moreover, complying with the proposed dynamic crash test standards would require LSVs to undergo impact barrier tests at speeds of 48.3 km/h (30 mph). This speed is above the maximum speed of 40 km/h (25 mph) set forth in FMVSS No. 500 of which an LSV is capable.

Ford also argued that FMVSS No. 305 should not apply to electric-powered LSV's. Ford believes that compliance with FMVSS No. 305 would not provide appreciable additional safety benefit for LSV's beyond that provided by compliance to FMVSS No. 500 which is now required. Ford stated that the primary patterns of use for LSVs are anticipated to be Closed Community environments where it is highly unlikely they will be involved in a crash at 30 mph. Ford argued that if LSVs would have to meet the crash requirements of FMVSS No. 305, the manufacturers may be more likely to develop gasoline LSVs than develop zero emission electric-powered LSVs.

Contrary to these comments, Mitsubishi argued that it is possible that flooded lead-acid batteries may be used in LSVs and that the electrolyte leakage from LSVs's so equipped could be far greater than the proposed 5.0 liter limit, and thus pose a risk to humans and the environment. Therefore, Mitsubishi recommended that LSVs be covered by FMVSS No. 305. It is true that LSVs are not required to meet any of the crash test standards and their structures are not the equivalent in strength of conventional passenger cars, presenting the possibility of electrolyte spillage and failure of battery retention in crashes. NHTSA is developing a proposal to add performance requirements for the equipment required by FMVSS No. 500 for LSVs. We will carefully consider Mitsubishi's points about electrolyte leakage in developing that proposal. We prefer to take a comprehensive look at appropriate requirements for LSVs, instead of a piecemeal, standard-by-standard approach.

We noted that FMVSS No. 500's definition of LSV does not include trucks and asked whether trucks that are powered by less than 72 volts of electricity should be covered if their maximum speed is not more than 40 km/h (25 mph). Ford commented, in essence, that trucks should be included in the standard unless they cannot achieve a maximum speed of 25 mph regardless of their voltage. Inasmuch as load-carrying vehicles with a maximum speed that exceeds 20 mph are classified as ''trucks'' and therefore must meet requirements in 30 mph barrier crash tests of other FMVSS, we see no logical basis on which low-speed trucks should be excused from the barrier crash specifications of FMVSS No. 305, and therefore they are not excluded from the standard. However, we shall revisit this issue if FMVSS No. 500 is ever amended to include low-speed trucks.

iii. The Standard Will Not Apply to Large Electric-Powered Schoolbuses

We proposed that FMVSS No. 305 also apply to electric school buses with a GVWR of greater than 4356 kg (10,000 lbs). Blue Bird, Navistar and IWC commented that FMVSS No. 305 should not be applicable to large school buses. Navistar argued that it may seem logical to apply the same requirements to electric-powered school buses with a GVWR of greater than 4536 kg, but that, in reality, these vehicles can be quite different from electric-powered passenger vehicles. The electric propulsion system and components have to be much larger for school buses with a GVWR greater than 4536 kg and this creates packaging, shock hazard protection, and costs that are different from electric-powered passenger vehicles.

Blue Bird argued that the standard should not apply to large school buses until appropriate testing and research are conducted to determine if the requirements are justified, reasonable, appropriate and practicable. The school bus manufacturer commented that there currently are limited applications in which electric vehicle technology may be practical and that school bus service is one of these. It also said that the research that is currently in progress may be vitally important to the successful development of large electric-powered vehicles. Blue Bird stated that it is not aware of any electric or hybrid electric powered school buses currently being offered on a regular production basis. The few electric school buses that it currently produces contain 3636 kg (8,000 pounds) of batteries and support structure. The weight of the additional structure required to protect the battery modules could be substantial and this can only be accomplished by a reduction in capacity or an addition of a tandem axle. Blue Bird further argued that the extension of the proposed requirements to large school buses would constitute regulation of research and development activities rather than the regulation of production vehicles for consumer use.

IWC argued that it would be premature at this time to require bus manufacturers to comply with a standard which was developed without consideration for their application.

We agree that, in terms of cost and weight, FMVSS No. 305 could have a substantial effect on large school buses. Further, it is plausible that the additional weight and cost associated with applying FMVSS No. 305 to large school buses could restrict the development of electric-powered school buses. We do not believe that at this time large school buses should be covered by FMVSS No. 305 because the testing we proposed would require a massive safety cage to prevent the batteries from becoming damaged and leaking the electrolyte. Current school bus construction appears sufficient to prevent the electrolyte from entering the passenger compartment. There are many issues that must be resolved before issuing an FMVSS applicable to the crashworthiness of large electric-powered school buses, such as appropriate test procedures and the added weight of more battery containment. Accordingly, this aspect of the proposed rule has not been adopted.

We note that we do not regard electric school buses as ''research and development vehicles.'' They are production vehicles and certified as conforming to all applicable FMVSS. We anticipate that Blue Bird and other manufacturers developing electric school buses will take all appropriate measures to ensure the safety of school children from electrolyte spillage and electrical shock hazards even though these buses are not required to comply with FMVSS No. 305.

B. S5.1 Electrolyte Spillage From Propulsion Batteries.

We proposed that:

S5.1 Electrolyte spillage from propulsion batteries. There shall be no spillage of electrolyte from propulsion batteries into the passenger compartment. Not more than 5.0 liters of electrolyte from propulsion batteries shall leak outside the passenger compartment. Spillage and leakage are measured from the time the vehicle ceases motion after a crash until 30 minutes thereafter, and throughout any static rollover before or after a crash test.

DaimlerChrysler believes that a requirement of ''no spillage'' may be appropriate for a voluntary standard, but not for a regulation. In this commenter's view, during the post-test static rollover, a measurable quantity of spillage should be specified in S5.1, for example, 100 ml maximum of spillage into the passenger compartment in the first 30 minutes after the crash test.

GM agrees with the intent of this requirement, and participated in writing the provision into SAE J1766. GM also argued that this provision is appropriate in the context of an SAE Recommended Practice. The literal inability to measure zero—i.e., ''no spillage''—creates a practicability problem in the context of an FMVSS. GM noted that the agency's other fuel integrity standards do allow a small non-zero amount of fuel spillage. GM recommended that proposed S5.1 be revised to allow a small non-zero amount (perhaps one deciliter) of electrolyte spillage into the passenger compartment.

Our desired goal is zero spillage, and we believe that it can be achieved with current battery technology. Although a requirement of ''no spillage'' would differ from the performance required of fuel systems in other FMVSS, there is a distinction: batteries are not subject to the same operating conditions as fuel tanks. Fuel tanks are filled frequently, which requires that the be opened and closed. Batteries recharge through applying electricity to the terminals and do not require opening on a regular basis. However, given the concern about the phrase ''no spillage,'' we are adopting the phrase ''no visible trace'' as a substitute which we believe is a more practicable specification.

The value of 5.0 liters derives from SAE J1766 and is based upon the amount of electrolyte that is contained in present large automotive batteries. Commenters were asked for their views on whether a different amount may be more appropriate to protect the public in EV crashes.

Ford and DaimlerChrysler commented specifically on the proposed limit. Ford argued that the 5.0 liters of electrolyte spillage should be the maximum that is allowed. DaimlerChrysler believes the 5.0 liter limit to be satisfactory and stated that, in all probability, spillage will be a blend of electrolyte and battery coolant, rather than electrolyte alone.

Navistar and Blue Bird both argued that the proposed limit of 5.0 liters is too restrictive for large school buses. Given the fact that we have decided to exclude large school buses from FMVSS No. 305, we simply note, without discussion, that these comments were submitted.

Upon review, we have replaced the words ''crash'' and ''crash test'' in S5.1 with the more accurate ''barrier impact test.'' For the same reason, we have also substituted ''impact'' for ''crash'' in other paragraphs of the standard.

Accordingly, S5.1 as adopted reads:

S5.1 Electrolyte spillage from propulsion batteries. Not more than 5.0 liters of electrolyte from propulsion batteries shall spill outside the passenger compartment, and no visible trace of electrolyte shall spill into the passenger compartment. Spillage is measured from the time the vehicle ceases motion after any barrier impact test until 30 minutes thereafter, and throughout any static rollover after any barrier impact test.

Note that we have eliminated the word ''leakage'' from the final rule. We used it as a synonym for ''spillage'' in the proposed rule. Both words indicate the escape of electrolyte from the battery. Elimination of ''leakage'' will avoid questions of whether we intended different meanings for these words. You will note also that rollover before a crash test has also been deleted. The reason for this is discussed in the paragraph below relating to S6.1.

C. S5.2 Battery Retention

We proposed that:

Battery modules shall remain restrained in the location in which they are installed in the vehicle. No part of any battery system component shall enter the passenger compartment, as determined by a visual inspection.

Navistar argued that this is too restrictive and that the wording can have a variety of meanings. It suggested adopting the wording of J1766 in which the battery modules must stay restrained to the vehicle. Blue Bird commented that the batteries or any part thereof pose no more danger or safety threat than any other part of a school bus that may become detached during a barrier crash test. Echoing Navistar, it said that the requirement that battery modules shall remain restrained in the location in which they are installed in the vehicle may not be necessary from a safety viewpoint. Mitsubishi argued that slight movement of the batteries does not necessarily pose a safety risk, and suggested modifying that the ''Battery module must not separate from the battery system.'' In Toyota's view, the definition of battery module includes the venting system and it is unlikely the venting system entering the passenger compartment could cause harm. Volvo argued that the proposed requirement is unnecessarily design restrictive and may prevent innovative and better (safer) solutions that would have the potential of improving occupant protection as compared to a design solution that would comply with the proposed requirement.

GM focused on the proposal that ''no part of any battery system component shall enter the passenger compartment, as determined by a visual inspection.'' Proposed S4 defines a battery system component as: ''* * * any part of a battery module, interconnect, venting system, battery restraint device, and battery box or container which holds the individual battery modules.'' GM noted that the proposed battery retention requirement should recognize the possibility that battery system components may be located inside the passenger compartment by design. GM further argued that the prohibition against the presence of the battery container inside the passenger compartment per se serves no safety purpose and that the proposed language could be interpreted as an unnecessary design restriction. GM recommended the following alternative wording for S5.2:

S5.2 *Battery retention.* Battery modules shall remain restrained in the location in which they are installed in the vehicle. No part of any battery system component that is positioned outside the passenger compartment shall enter the passenger compartment during the test procedures described in S7 of this standard, as determined by visual inspection.

We note that the intent of the proposed requirements in S5.2 was to ensure that the battery modules would not become unattached and become flying projectiles in a crash or subsequent rollover. We agree with Navistar that the wording can have a variety of meanings, as is clearly shown based on the comments received. We have also concluded that the proposed language is unnecessarily design restrictive and should be modified to avoid unnecessary confusion. Further, the test procedures are located in S6 (S7 specifies the test conditions). We therefore are adopting the following wording for S5.2:

S5.2 *Battery Retention.* Battery modules located inside the passenger compartment shall remain restrained in the location in which they are installed. No part of any battery system component that is located outside the passenger compartment shall enter the passenger compartment during the test procedures of S6 of this standard, as determined by visual inspection.

D. S5.3 Electrical Isolation

We proposed that:

Electrical isolation between the battery system and the vehicle electricity-conducting structure shall be maintained at a minimum of 500 ohm/volt.

Navistar and GM argued that momentary loss of isolation should not be regarded as a noncompliance. If electrical isolation measurements were made real-time during the crash test, a detected momentary loss of isolation could be interpreted as violating this requirement. In GM's opinion, paragraph 4.4.3 of SAE J1766 recognizes that, during a crash, electrical isolation may be lost momentarily and should be immediately restored.

We concur that S5.3 as proposed could be interpreted to mean that any loss of isolation is prohibited. In our view, momentary loss is not an undue safety risk provided that the system subsequently restores itself. We are revising S5.3 to indicate that the measurement is to be taken after each crash test. S5.3 as adopted reads:

S5.3 *Electrical isolation.* Electrical isolation between the battery system and the vehicle electricity-conducting structure after each test shall be not less than 500 ohms/volt.

E. S6.1 Pre-Impact Test Static Rollover

We proposed that a vehicle must meet the requirements of S5.1, S5.2, S5.3 after being rotated on its longitudinal axis to successive increments of 90 degrees, before each crash test. Upon review, however, we are concerned that damage may occur to the test vehicle during rollover that could affect the results of the barrier impact test. Further, none of the commenters argued that the pre-impact test static rollover procedure was necessary. We also believe that the likelihood of electrolyte spillage or shock hazard without a related impact event is extremely remote. Accordingly, we have eliminated the proposed pre'impact static rollover from the final rule.

F. S6.3 Side Moving Deformable Barrier Impact

We proposed that:

S6.3 *Side impact moving deformable barrier crash.* After a static rollover, when the vehicle is impacted from the side by a deformable barrier moving at 54 km/h, the vehicle shall meet the requirements of S5.1, S5.2, and S5.3.

Honda stated that the side impact test specified in S6.3 of proposed FMVSS 305 does not mention the installation of the test dummy in the test vehicle. Honda argued that, in order to prevent any possible misunderstanding, we should prescribe a dummy installation in the final rule that is identical to that in FMVSS No. 214.

We agree, and are so specifying. The test dummy that should be used in this and other tests is a 50th percentile male dummy as specified in subpart F of 49 CFR Part 572. To simplify the regulatory text, we are adopting that definition of ''dummy'' in S3. The final rule, then, revises S6.3 to read as follows:

S6.3 *Side moving deformable barrier impact.* The vehicle must meet the requirements of S5.1, S5.2, and S5.3 when it is impacted from the side by a barrier conforming to part 587 of this chapter that is moving at any speed up to and including 54 km/h, with dummies positioned in accordance with S7 of Sec. 571.214 of this chapter.

G. S7.1 Battery State of Charge

We proposed that:

S7.1 *Battery state of charge.* The battery system is charged using the vehicle manufacturer's recommended charging system. All tests are performed with the propulsion batteries charged to not less than 95 percent capacity.

Navistar commented that it may be unrealistic to obtain 95 percent state of charge on some hybrid electric vehicles. Typically hybrid electric vehicles do not operate with batteries fully charged like fully electric vehicles. It may be more representative to test at nominal working voltage or state of charge for the system. Similarly, Toyota commented that the 95 percent requirement seems unreasonable for hybrid electric vehicles. It suggested that the test be performed with the batteries charged to the level recommended by the manufacturer. DaimlerChrysler argued that the batteries will not maintain 95 percent capacity because they are under a load at the point of impact, and will have been discharged somewhat. Honda stated that, for hybrid vehicles, the vehicle controls the batteries' state of charge with its vehicle's Electrical Control Unit. Finally, Honda reminded us that, in the final rule of FMVSS 105, we agreed to revise the proposed rule from ''95 percent battery state of charge'' to ''manufacturer's recommended state of charge or 95 percent battery state of charge.''

We agree with the above comments and note that the June 1998 revised version of SAE J1766 changed 4.1.2 to read ''The Battery system shall be fully charged prior to the crash test using the vehicle manufacturers recommended charging procedure.'' We therefore are adopting the following wording:

S7.1 *Battery state of charge:* The battery system shall be at the maximum state of charge recommended by the manufacturer, as stated in the vehicle operator's manual or on a label that is permanently attached to the vehicle, or, if the manufacturer has made no recommendation, at a state of not less than 95 percent of the maximum capacity of the battery system.

H. S7.7 Electrical Isolation Test Procedure

We proposed that S7.7.1 read as follows:

S7.7.1 The propulsion battery system is connected to the vehicle's propulsion system, and the vehicle ignition is in the ''on'' (traction (propulsion) system energized) position.

GM asked that this sentence be clarified in the final rule, to avoid confusion and inconsistent interpretations of the test procedure, and state that the isolation measurement is from the battery side of the contactors or automatic disconnect system and the vehicle chassis, consistent with SAE J1766. Navistar argued that the specification that the propulsion battery be connected to the vehicle propulsion system during the electrical isolation test indicates that any safety devices such as fuses or contractors that were opened during or as a result of the crash would have to be re-closed for this test. Navistar stated that since such devices would be included in the design to provide a high degree of safety in a crash, it does not seem appropriate to require these safety features be defeated to determine if the test has met the requirements. Navistar is incorrect. The propulsion battery is connected to the vehicle propulsion system before a dynamic test. During the electrical isolation test, any safety devices such as fuses or contactors are not closed.

We agree with GM that we intended to have the voltage measurement taken from the battery side of the contactors if they are used. We do not agree with Navistar that the contactors would need to be reclosed for this test. During the SAE discussions in which the revisions to SAE J1766 were being developed, there was considerable attention focused on whether the electrical isolation measurement to chassis should be taken from the battery side or the traction side of the contactors. All agreed that the measurement is taken from the battery side of the contactors to the vehicle chassis because the procedure is meaningless if the voltage measurement is made between the output side of opened contactors and vehicle chassis, since there would likely be no voltage between those points.

GM recommended that S7.7.1 be revised to read as follows, and we have accepted that recommendation (note that the deletion of proposed S7.6 pertaining to the testing of large school buses has resulted in a renumbering of S7.7 to S7.6):

S7.6.1 Prior to the barrier crash, the propulsion battery system is connected to the vehicle's propulsion system, and the vehicle ignition is in the ''on'' (traction (propulsion) system energized) position. If the vehicle utilizes an automatic disconnect between the propulsion battery system and the traction system, the electrical isolation measurement after the crash is made from the battery side of the automatic disconnect to the vehicle chassis.

Proposed paragraph S7.7.3 (now S7.6.3) set forth a procedure for measuring voltage in Figure 1. Upon review, we have decided that only the first two sentences related to the procedure itself. We are adopting these sentences as proposed. The remaining material we set forth here, as it relates to propulsion battery voltage (Vb). We anticipate that Vb after the crash test will be approximately the same as Vb before the crash test. After the crash test, a Vb greater than zero is required in order to conduct the remainder of the procedure of S7.6.3. If Vb after the crash test is zero, this indicates that a short across the propulsion battery has occurred, which precludes the remainder of this test procedure. A short across the propulsion battery may be conspicuous by virtue of arcing, fire, and/or component meltdown.

Navistar stated S7.7.6 and S7.7.7 in the proposal specify a standard known resistance without reference to any approximate size. Navistar agrees that the magnitude of this resistor is not critical to the measurement. Navistar recommended that the word ''standard'' be deleted. We agree, and have eliminated it from S7.6.6 and S7.6.7. With respect to S7.6.7, we did not provide in the NPRM the background for the equation used to calculate electrical isolation for SAE J1766. We have placed a copy of the derivation in Docket No. NHTSA–98–4515.

I. Editorial Comments

GM called our attention to typographical or technical corrections that should be corrected in the final rule. We have done so. In Figure 1, the description is revised to ''Measurement Location for Vb Voltage.'' In Figure 3, the symbol within the circle is ''V2'' rather than ''Vb.'' In Figure 4, the equation for Ri is revised to:

Ri = Ro[1 +(V2/V1)][(V1 − V1')/V1']

In Figure 5, the equation for Ri is revised:

Ri = Ro[1 +(V1 /V2)][(V2 − V2')V2']

6. Effective Date

We have concluded that an effective date of approximately one year after the issuance of the final rule is sufficient for manufacturers covered by FMVSS No. 305 to comply with the proposed new safety standard. The major EV manufacturers all are using, or plan to use, battery types that are not susceptible to leaking large amounts of electrolytes. To our knowledge, all incorporate a device that would shut-off the propulsion battery current or prevent loss of electrical isolation in the event of a crash or short circuit.

7. Rulemaking Analyses

Executive Order 12866 and DOT Regulatory Policies and Procedures. This document was not reviewed under Executive Order 12866. It has been determined that the rulemaking action is not significant under Department of Transportation regulatory policies and procedures.

Informal discussions with some EV manufacturers indicate that the industry is aware of SAE J1766 and that manufacturers are planning or producing EVs with batteries designed for minimal leakage, and to shut off the current or prevent loss of electrical isolation in the event of a crash. We believe that a substantial portion of the nascent EV industry is already designing its production to comport with SAE J1766. The added costs of our tests are minimal, as reflected in the comments on this issue in response to the notice of proposed rulemaking. The frontal barrier impact test of S6.1 of FMVSS No. 305 is the same test specified in FMVSS Nos. 208 and 301. The rear moving barrier impact test is the same test specified in FMVSS No. 301. The lateral moving barrier impact test is the same test specified in FMVSS No. 214. This means that there will be no additional costs imposed for testing an EV to which FMVSS Nos. 208, 214, and 301 already apply. To the extent that one or more of these standards do not apply to a specific EV type, the additional testing costs are not considered significant. The cost of a frontal impact test is $18,600 and the rollover test following, $1,500. The cost of a rear moving barrier impact test is $5,200, and the rollover test following, $1,500. The cost of a lateral moving barrier impact test is $18,000, and the rollover test following, $1,500. To this must be added the cost of the test vehicle for each test, to which we have assigned an approximate figure of $30,000. Accordingly, the impacts of the rule are so minimal as not to warrant preparation of a full regulatory evaluation.

Regulatory Flexibility Act. We have also considered the impacts of this rulemaking action in relation to the Regulatory Flexibility Act (5 U.S.C. Sec. 601 *et seq.* I certify that this rulemaking action does not have a significant economic impact upon a substantial number of small entities.

The following is our statement providing the factual basis for the certification (5 U.S.C. Sec. 605(b)). The technology to prevent leakage of electrolytes, battery retention, and electrical isolation in the event of the crash of a battery-powered motor vehicle is simple and has been well known for years. The specifications of the industry standard, J1766, have been settled since February 1996. As noted above, we believe that a substantial portion of the nascent EV industry is already designing its production to comport with SAE J1766. Verification of compliance with FMVSS No. 305 can be determined by rollover tests conducted after an EV is tested for compliance with the barrier impact specifications of FMVSS No. 301 and the cost of testing to this standard is not impacted, as we have discussed above. However, as noted above, if an EV is not required to comply with FMVSS No. 301, there will be the added cost of three rollover tests and a rear moving barrier impact test, plus the cost of a test vehicle, if the EV manufacturer chooses to certify its vehicle on the basis of an actual test rather than on engineering studies, computer simulations, mathematical calculations, or other means. We estimate the total costs for these tests as $38,200 for this segment of the EV industry. Since the overall economic impact is not considered to be significant, the agency has not determined formally whether the entities affected by the rules are ''small businesses'' within the meaning of the Regulatory Flexibility Act. In NHTSA's experience, manufacturers of motor vehicles are generally not ''small businesses.'' Accordingly, no regulatory flexibility analysis has been prepared.

Executive Order 13132 (Federalism). Executive Order 13132 on ''Federalism'' requires us to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of ''regulatory policies that have federalism implications.'' The E.O. defines this phrase to include regulations ''that have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.'' This final rule, which regulates the manufacture of certain motor vehicles, will not have substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in E.O. 13132.

National Environmental Policy Act. We have analyzed this rulemaking action for purposes of the National Environmental Policy Act. The rulemaking action will not have a significant effect upon the environment as it does not affect the present method of manufacturing motor vehicle lighting equipment.

Civil Justice Reform. This rule will not have any retroactive effect. Under 49 U.S.C. 30103(b)(1), 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 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.

Unfunded Mandates Reform Act of 1995. The Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4) requires agencies to prepare a written assessment of the cost, benefits and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector, of more than $100 million annually. Because this rule will not have a $100 million effect, we have not prepared an Unfunded Mandates assessment.

National Technology Transfer and Advancement Act. Section 12(d) of the National Technology Transfer and Advancement Act (the Act) requires agencies to evaluate and use existing voluntary consensus standards in its regulatory activities unless doing so would be inconsistent with applicable law (e.g., the statutory provisions regarding our vehicle safety authority) or otherwise impractical. In meeting that requirement, we are required to consult with voluntary, private sector, consensus standards bodies. Examples of organizations generally regarded as voluntary consensus standards bodies include the American Society for Testing and Materials (ASTM), the Society of Automotive Engineers (SAE), and the American National Standards Institute (ANSI). If we do not use available and potentially applicable voluntary consensus standards, we are required by the Act to provide Congress, through OMB, an explanation for not using such standards.

As we have explained in the preamble, this final rule is based upon SAE J1766 FEB96 ''Recommended Practice for Electric and Hybrid Electric Vehicle Battery Systems Crash Integrity Testing,'' and is substantially similar to it in its specifications for prohibition of electrolyte spillage in front, side, and rear impacts, and batter retention during such impacts, and electrical isolation. No other voluntary consensus standards are addressed by this rulemaking.

List of Subjects in 49 CFR Part 571

Imports, Motor vehicle safety, Motor vehicles, Reporting and recordkeeping requirements.

PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

In consideration of the foregoing, 49 CFR part 571 is amended as follows:

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

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

2. A new § 571.305 is added to subpart B to read as set forth below:

§ 571.305 Standard No. 305; Electric-powered vehicles: electrolyte spillage and electrical shock protection.

S1. *Scope.* This standard specifies requirements for limitation of electrolyte spillage, retention of propulsion batteries during a crash, and electrical isolation of the chassis from the high-voltage system, to be met by vehicles that use electricity as propulsion power .

S2. *Purpose.* The purpose of this standard is to reduce deaths and injuries during a crash which occur because of electrolyte spillage from propulsion batteries, intrusion of propulsion battery system components into the occupant compartment, and electrical shock.

S3. *Application.* This standard applies to passenger cars, and to multipurpose passenger vehicles, trucks and buses with a GVWR of 4536 kg or less, that use more than 48 volts of electricity as propulsion power and whose speed attainable in 1.6 km on a paved level surface is more than 40 km/h.

S4. *Definition.*

Battery system component means any part of a battery module, interconnect, venting system, battery restraint device, and battery box or container which holds the individual battery modules.

Dummy means a 50th percentile male test dummy as specified in subpart F of part 572 of this chapter.

S5. *General requirements.* Each vehicle to which this standard applies, when tested according to S6 under the conditions of S7, must meet the requirements of S5.1, S5.2, and S5.3.

S5.1 *Electrolyte spillage from propulsion batteries.* Not more than 5.0 liters of electrolyte from propulsion batteries shall spill outside the passenger compartment, and no visible trace of electrolyte shall spill into the passenger compartment. Spillage is measured from the time the vehicle ceases motion after a barrier impact test until 30 minutes thereafter, and throughout any static rollover after a barrier impact test.

S5.2 *Battery Retention.* Battery modules located inside the passenger compartment must remain in the location in which they are installed. No part of any battery system component that is located outside the passenger compartment shall enter the passenger compartment during the test procedures of S6 of this standard, as determined by visual inspection.

S5.3 *Electrical isolation.* Electrical isolation between the battery system and the vehicle electricity-conducting structure after each test must be not less than 500 ohms/volt.

S6. *Test requirements.* Each vehicle to which this standard applies, under the conditions of S7, must be capable of meeting the requirements of any applicable single barrier crash/static rollover test sequence, without alteration of the vehicle during the test sequence. A particular vehicle need not meet further test requirements after having been subjected to a single barrier crash/static rollover test sequence.

S6.1 *Frontal barrier crash.* The vehicle must meet the requirements of S5.1, S5.2 and S5.3 when it is traveling longitudinally forward at any speed, up to and including 48 km/h, and impacts a fixed collision barrier that is perpendicular to the line of travel of the vehicle, or at any angle up to 30 degrees in either direction from the perpendicular to the line of travel of the vehicle.

S6.2 *Rear moving barrier impact.* The vehicle must meet the requirements of S5.1, S5.2, and S5.3, when it is impacted from the rear by a barrier moving at any speed up to and including 48 km/h, with a dummy at each front outboard designated seating position.

S6.3 *Side moving deformable barrier impact.* The vehicle must meet the requirements of S5.1, S5.2, and S5.3 when it is impacted from the side by a barrier that conforms to part 587 of this chapter that is moving at any speed up to and including 54 km/h, with dummies positioned in accordance with S7 of Sec. 571.214 of this chapter.

S6.4 *Post-impact test static rollover.* The vehicle must meet the requirements of S5.1, S5.2, and S5.3, after being rotated on its longitudinal axis to each successive increment of 90 degrees after each impact test specified in S6.1, S6.2, and S6.3.

S7. *Test conditions.* When the vehicle is tested according to S6, the requirements of S5 must be met under the conditions in S7.1 through S7.6.7. Where a range is specified, the vehicle must be capable of meeting the requirements at all points within the range.

S7.1 *Battery state of charge.* The battery system is at the maximum state of charge recommended by the manufacturer, as stated in the vehicle operator's manual or on a label that is permanently affixed to the vehicle, or, if the manufacturer has made no recommendation, at a state of not less than 95 percent of the maximum capacity of the battery system.

S7.2 *Vehicle conditions.* The switch or device that provides power from the propulsion batteries to the propulsion motor(s) is in the activated position or the ready-to-drive position.

S7.2.1 The parking brake is disengaged and the transmission, if any, is in the neutral position. In a test conducted under S6.3, the parking brake is set.

S7.2.2 Tires are inflated to the manufacturer's specifications.

S7.2.3 The vehicle, including test devices and instrumentation, is loaded as follows:

(a) A passenger car is loaded to its unloaded vehicle weight plus its rated cargo and luggage capacity weight, secured in the luggage area, plus the necessary test dummies as specified in S6, restrained only by means that are installed in the vehicle for protection at its seating position.

(b) A multipurpose passenger vehicle, truck, or bus with a GVWR of 4536 kg or less is loaded to its unloaded vehicle weight plus the necessary dummies, as specified in S6, plus 136 kg or its rated cargo and luggage capacity weight, whichever is less. Each dummy is restrained only by means that are installed in the vehicle for protection at its seating position.

S7.3 *Static rollover test conditions.* In addition to the conditions of S7.1 and S7.2, the conditions of S7.4 of Sec. 571.301 of this chapter apply to the conduct of static rollover tests specified in S6.4.

S7.4 *Rear moving barrier impact test conditions.* In addition to the conditions of S7.1 and S7.2, the conditions of S7.3 of Sec. 571.301 of this chapter apply to the conduct of the rear moving barrier impact test specified in S6.2. The rear moving barrier is described in S8.2 of Sec. 571.208 of this chapter and diagramed in Figure 1 of Sec. 571.301 of this chapter.

S7.5 *Side moving deformable barrier impact test conditions.* In addition to the conditions of S7.1 and S7.2, the conditions of S6.10, S6.11, and S6.12 of Sec. 571.214 of this chapter apply to the conduct of the side moving deformable barrier impact test specified in S6.3.

S7.6 *Electrical isolation test procedure.* In addition to the conditions of S7.1 and S7.2, the conditions in S7.6.1 through S7.6.7 apply to the measurement of electrical isolation specified in S5.3.

S7.6.1 Prior to any barrier impact test, the propulsion battery system is connected to the vehicle's propulsion system, and the vehicle ignition is in the ''on'' (traction (propulsion) system energized) position. If the vehicle utilizes an automatic disconnect between the propulsion battery system and the traction system, the electrical isolation measurement after the impact is made from the battery side of the automatic disconnect to the vehicle chassis.

S7.6.2 The voltmeter used in this test measures direct current values and has an internal resistance of at least 10 MΩ

S7.6.3 The voltage is measured as shown in Figure 1 and the propulsion battery voltage (Vb) is recorded. Before any vehicle impact test, Vb is equal to or greater than the nominal operating voltage as specified by the vehicle manufacturer.

S7.6.4 The voltage is measured as shown in Figure 2, and the voltage (V1) between the negative side of the propulsion battery and the vehicle chassis is recorded.

S7.6.5 The voltage is measured as shown in Figure 3, and the voltage (V2) between the positive side of the propulsion battery and the vehicle chassis is recorded.

S7.6.6 If V1 is greater than or equal to V2, insert a known resistance (Ro) between the negative side of the propulsion battery and the vehicle chassis. With the Ro installed, measure the voltage (V1') as shown in Figure 4 between the negative side of the propulsion battery and the vehicle chassis. Calculate the electrical isolation (Ri) according to the formula shown. This electrical isolation value (in ohms) divided by the nominal operating voltage of the propulsion battery (in volts) must be equal to or greater than 500.

S7.6.7 If V2 is greater than V1, insert a known resistance (Ro) between the positive side of the propulsion battery and the vehicle chassis. With the Ro installed, measure the voltage and record the voltage (V2') between the positive side of the propulsion battery and the vehicle chassis as shown in Figure 5. Calculate the electrical isolation (Ri) according to the formula shown. This electrical isolation value (in ohms) divided by the nominal operating voltage of the propulsion battery (in volts) must be equal to or greater than 500.

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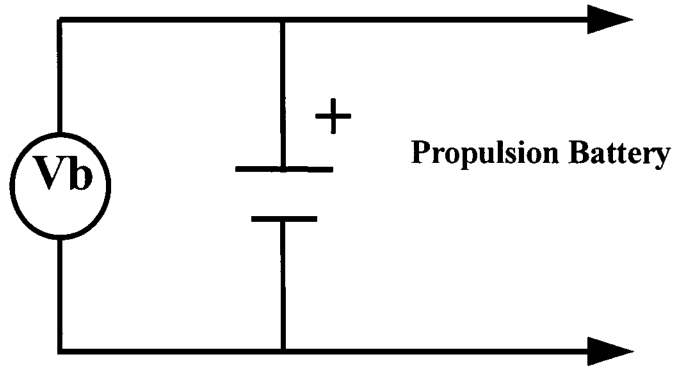

Figure 1. S7.6.3 Measurement Location For Vb Voltage

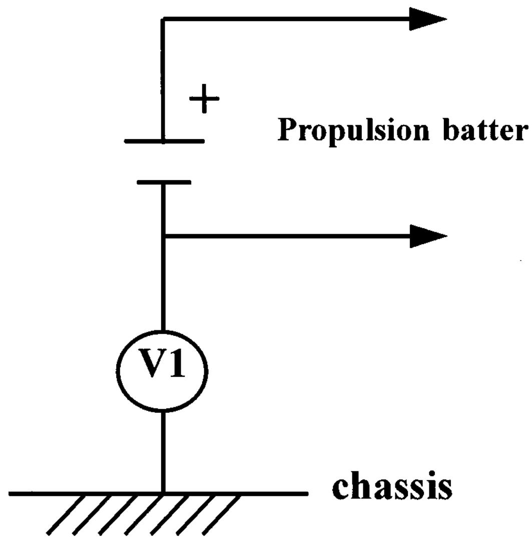

Figure 2. S7.6.4 Measurement Location For V1 Voltage

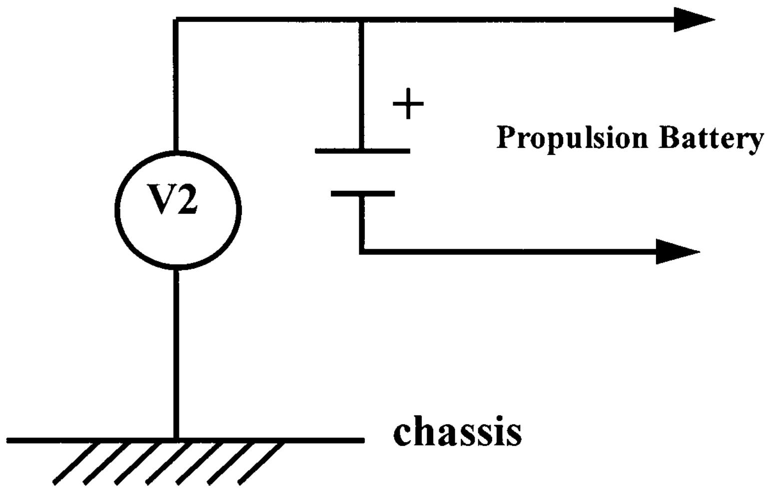

Figure 3. S7.6.5 Measurement Location For V2 Voltage

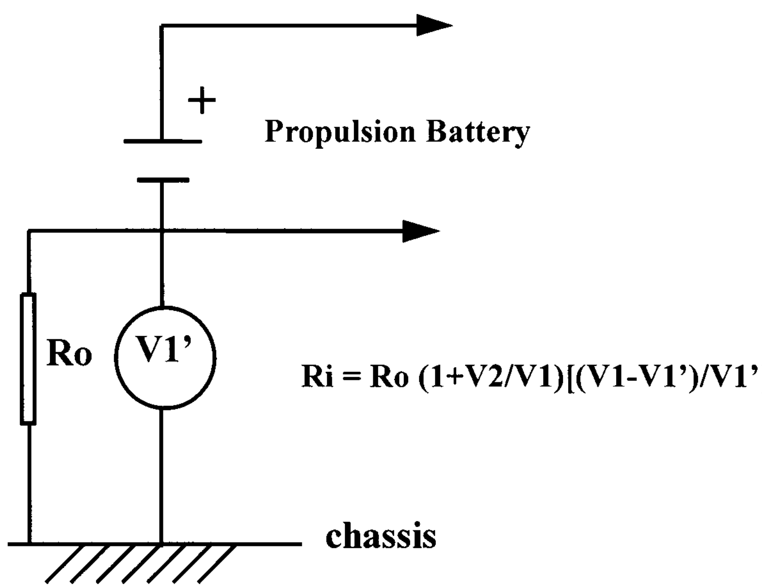

Figure 4. S7.6.6 Measurement Location For V1' Voltage

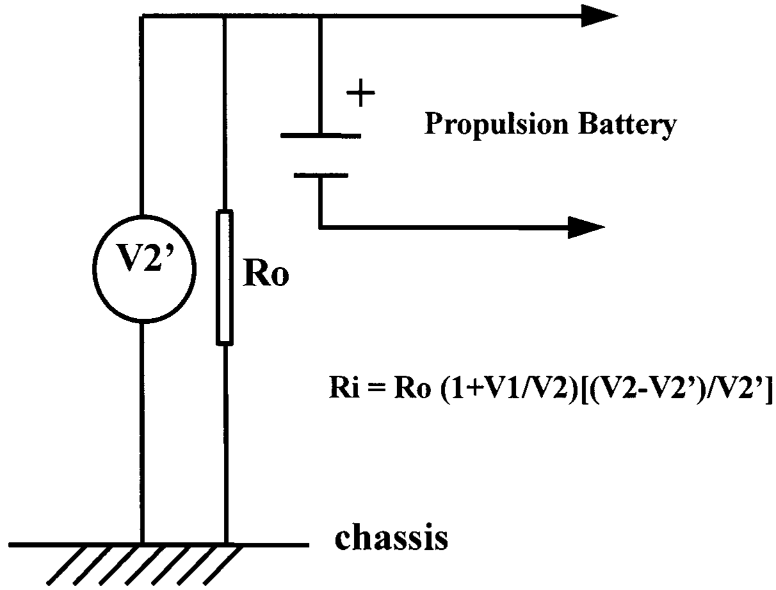

Figure 5. S7.6.7 Measurement Location For V2' Voltage

Issued on: September 21, 2000.

Sue Bailey,

Administrator.

[FR Doc. 00–24839 Filed 9–26–00; 8:45 am]

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