

DEPARTMENT OF TRANSPORTATION

DIVISION OF MOTOR VEHICLES

Enforcement Service

Supplemental Inspection Of School Buses

School Bus Enhanced Safety Inspection Out-Of-Service Criteria

Standards For Buses Used For Pupil Transportation Manufactured

June 1993 Through December 2002

Chassis Standards For Buses Used For Pupil Transportation Manufactured

June 1993 Through December 2002

Body Standards For Buses Used For Pupil Transportation Manufactured

June 1993 Through December 2002

Standards For Specially Equipped School Buses Manufactured June

1993 Through December 2002

Standards For School Buses Manufactured January 2003 And Thereafter

Chassis Standards For School Buses Manufactured January 2003

And Thereafter

Body Standards For School Buses Manufactured January 2003

And Thereafter

Standards For Specially Equipped School Buses Manufactured

January 2003 And Thereafter

Standards For Type S School Buses

Standards For Alternatively Fueled School Buses

Standards For School Buses Having Fuel Systems Using Liquefied

Petroleum Gas

Standards For School Buses Having Fuel Systems Using Compressed

Natural Gas

Standards For School Buses Having Fuel Systems Using Liquefied

Natural Gas

Proposed Amendments: N.J.A.C. 13:20-30.1 through 30.12

Proposed Repeals: N.J.A.C. 13:20-49F

Proposed New Rules: N.J.A.C. 13:20-30.13 through 30.18, 31, 50, 50A, 50B, 50C, 51, 53, 53A, 53B, and 53C

Proposed Recodification: N.J.A.C. 13:20-49H as 13:20-52

Authorized By:

Lino F. Pereira, Acting Director
Division of Motor Vehicles, with the approval of John J. Farmer, Jr.,
Attorney General, and after consultation with James Weinstein,
Commissioner, Department of Transportation, and with the concurrence of
Robert C. Shinn, Jr., Commissioner, Department of Environmental
Protection.

Authority: N.J.S.A. 39:3B-5, 39:3B-10, 39:3B-24, and Reorganization Plan
No. 005-1998

Calendar Reference: See Summary below for explanation of exception to
calendar requirement.

Proposal Number: PRN 2001 –

Submit comments by _____, 2002 to:

Lino F. Pereira, Acting Director
Division of Motor Vehicles
Attention: Legal Staff
225 East State Street
P.O. Box 162
Trenton, New Jersey 08666-0162

A **public hearing** concerning the State Implementation Plan will be held at 10:00 A.M. on Monday, February 25, 2002 at:

First Floor Public Hearing Room
Department of Environmental Protection
401 East State Street
Trenton, New Jersey

The public hearing concerning the State Implementation Plan will consider the proposed new rule at N.J.A.C. 13:20-30.13, which pertains to the type and character of the emission inspections that are to be performed on gasoline-powered school buses, the facility at which the emission inspections are to be performed, and the frequency of the emission inspections.

The agency proposal follows:

Summary

The public comment period for this proposal will be 60 days, since the proposal is

not listed in the agency calendar. This notice of proposal is excepted from the rulemaking calendar requirement pursuant to N.J.A.C. 1:30-3.3(a)5.

Reorganization Plan No. 005-1998 transferred rulemaking authority relating to the establishment of standards for the construction, design, equipment, and maintenance of school buses from the State Board of Education and the Department of Education to the Division of Motor Vehicles (Division) in the Department of Transportation. The "School Bus Enhanced Safety Inspection Act" (N.J.S.A. 39:3B-18 et seq.), hereinafter referred to as "the Act," directs the Director of the Division of Motor Vehicles to establish by rule a schedule of fines for violations of section 5 of the Act (N.J.S.A. 39:3B-22) and a schedule of out-of-service criteria pursuant to section 6 of the Act (N.J.S.A. 39:3B-23). The Act specifies that fines shall be a minimum of \$50.00 and a maximum of \$500.00 per violation. The out-of-service criteria proposed herein are predicated upon the seriousness of the mechanical, electrical, or vehicular conditions detected at inspection. The out-of-service criteria are intended to address those conditions that are so unsafe as to pose an immediate threat of an accident or breakdown or potentially contribute to loss of control of the school bus by the driver. The Legislature has determined that school bus safety is of paramount importance to the health and welfare of the school children of this State. The purpose of this rulemaking is to promote school bus safety in the State of New Jersey.

The Division is proposing new rules at N.J.A.C. 13:20-50, 50A, 50B, and 50C, which establish standards for school buses manufactured January 2003 and thereafter; new rules at N.J.A.C. 13:20-51, which establish standards for Type S school buses; new rules at N.J.A.C. 13:20-31, which establish school bus out-of-service criteria for

school buses; and new rules at N.J.A.C. 13:20-53, 53A, 53B, and 53C, which establish standards for alternatively fueled school buses. The Division is also proposing amendments to N.J.A.C. 13:20-30 pertaining to the supplemental inspection and maintenance of school buses by the operators of such vehicles.

Subchapter 30, Supplemental Inspection Of School Buses, which pertains to the periodic self-inspection of school buses by school bus operators, is amended and supplemented by the proposal.

N.J.A.C.13:20-30.1 is amended so as to delete an outdated reference to the “New Jersey Department of Public Utilities,” and to add a reference to the “Division’s Commercial Bus Inspection and Investigation Unit.”

N.J.A.C.13:20-30.2, which contains definitions of terms used in the subchapter, is amended to add definitions of the terms “Director,” “Division,” “Driver,” “FMVSS,” “Gross Vehicle Weight Rating,” “In-terminal Inspection,” “Operator,” and “SAE;” to delete definitions of the terms “Lessee” and “Private Person,” and to delete the former definition of the term “School Bus” and replace it with a new definition, which conforms more closely to the statutory language. The rule as proposed for amendment provides that the definitions contained therein also apply to Subchapter 31, which pertains to school bus enhanced safety inspection out-of-service criteria.

The proposed amendments to N.J.A.C.13:20-30.3, which pertains to inspection and maintenance, effectuate various stylistic changes to the rule. Subsection (d)1 is amended to require that inspection and maintenance records include the “model year” of the school bus. Subsection (d)4 is amended to require that inspection and maintenance records include a systematic means for indicating the nature and due date

of “the next” inspection and maintenance operations to be performed “for all systems.”

The proposed amendments to N.J.A.C.13:20-30.4, which prohibits the unsafe operation of any school bus, effectuate various stylistic changes to the rule.

The proposed amendments to N.J.A.C.13:20-30.5, which pertains to the inspection of school buses in operation, effectuate various stylistic changes to the rule. Subsection (b) is amended to provide that the right of examination of State Police or Division of Motor Vehicles’ inspection reports of school buses in operation may be denied pursuant to N.J.S.A. 47:1A-3 in cases where the reports being sought for examination pertain to any investigation in progress, if the inspection, copying, or publication of the reports is not in the public interest. Subsection (c) is amended to include an unsafe condition for the occupants of a school bus as a reason to declare such bus out-of-service. Subsection (g) is amended to provide that no persons may be transported in a school bus that has been declared out-of-service prior to the completion of all “out-of-service” repairs “and the Division’s inspection and certification of all ‘out-of-service’ repairs.” Subsection (j), which required the owner or lessee of a school bus declared out-of-service to forward to the Division a certification of action taken as a result of the inspection within 15 days following the date of the inspection, is proposed for repeal. Subsection (j) is no longer necessary in light of the proposed amendments to subsection (g) which provide for the Division’s inspection and certification of all out-of-service repairs.

The proposed amendments to N.J.A.C.13:20-30.6, which pertains to the inspection of damaged school buses, effectuate various stylistic changes to subsection (a) of the rule. The proposal supplements the rule by the addition of subsection (b),

which provides that an operator shall notify the Division's School Bus Inspection Unit within 72 hours of any accident involving a school bus that has resulted in mechanical damage to such school bus sufficient to require the school bus to be towed from the scene of the accident.

The proposed amendments to N.J.A.C.13:20-30.7, which pertain to daily school bus condition reports by drivers, effect various stylistic changes to the rule. The proposal supplements the rule by the addition of a new subsection (b) that sets forth the items including the driver's name, identification of the school bus, and the various items of equipment that are subject to daily inspection by the driver, that must be included in the driver's daily school bus condition report. The proposal recodifies subsection (b) as subsection (c) and supplements that subsection by requiring the operator to certify on the daily school bus condition report that the defects or deficiencies have been repaired. The proposal further supplements this subsection by requiring the driver to sign the report to acknowledge that he or she has reviewed the report and that there is a certification that the required repairs have been performed.

The proposed amendments to N.J.A.C.13:20-30.8, which specifies various items of school bus equipment required to be inspected or maintained by the operator on a periodic basis, provide that such inspection shall occur at least once every three months, "or every 3,000 miles, or as set forth in the manufacturer's recommended maintenance schedule, whichever occurs first." The proposal also broadens the scope of the rule to include all brake lines, linings, "and components;" axles and "steering" assemblies; "mirror system adjustment;" and safety equipment required by "Federal law or rule," New Jersey "statute, or Division rule." N.J.A.C. 13:20-30.8(a)16 incorporates

by reference Federal Motor Vehicle Safety Standard No. 111 (49 CFR §571.111). Federal Motor Vehicle Safety Standard No. 111 establishes “requirements for the performance and location of rearview mirrors.” The Standard includes definitions of specific terms; mirror requirements for passenger cars; mirror requirements for multipurpose passenger vehicles, trucks, and buses, other than school buses, with a GVWR of 10,000 pounds or less; mirror requirements for multipurpose passenger vehicles and trucks with a GVWR of more than 10,000 and less than 25,000 pounds and buses, other than school buses, with a GVWR of more than 10,000 pounds; mirror requirements for multipurpose passenger vehicles and trucks with a GVWR of 25,000 pounds or more; mirror requirements for school buses; mirror requirements for motor cycles; requirements for mirror construction; and school bus mirror test procedures.

The proposed amendments to N.J.A.C.13:20-30.9, which pertains to inspection standards, provide that all equipment subject to inspection shall meet the standards now or hereafter prescribed by “Federal law or rule, New Jersey” statute or Division “rule.” A former reference in the rule to “regulation of the New Jersey Department of Education” is proposed for repeal in light of Reorganization Plan No. 005-1998.

The proposed amendments to N.J.A.C.13:20-30.10, which pertains to operator certification, effectuate various stylistic changes to the rule.

The proposed amendments to N.J.A.C.13:20-30.11, which pertains to penalties, delete an unnecessary reference to the suspension or revocation of New Jersey “license” privileges.

The proposed amendments to N.J.A.C.13:20-30.12(b) specify that diesel-powered school buses shall be subject to “an annual diesel emission” inspection “by the

Division's School Bus Inspection Unit."

The proposed new rule at N.J.A.C.13:20-30.13 provides at subsection (a) that gasoline-powered school buses shall be subject to applicable gasoline emission standards established by the Department of Environmental Protection, an examination of the muffler and emission control apparatus, and either an idle emission test or a 2,500 RPM emission test, whichever is appropriate based on the GVWR of the school bus, conducted in accordance with N.J.A.C. 7:27-15.5 and either 7:27B-5.3(b) or 7:27B-5.4. Subsection (b) provides that gasoline-powered school buses registered in New Jersey shall be subject to a semiannual emission inspection by the Division's School Bus Inspection Unit at the premises or places of business of the operator of such vehicles to determine compliance with subsection (a) of the rule.

The proposed new rule at N.J.A.C.13:20-30.14 provides at subsection (a) that a person shall not operate a school bus that is registered in this State unless such person has been issued a Commercial Driver License with Passenger Endorsement by the Director or, in the case of a nonresident, has been issued a Commercial Driver License with Passenger Endorsement by his or her state of residence. Subsection (b) provides that a school bus driver shall submit to a criminal history record check at the time of his or her initial application and any renewal application for a Commercial Driver License with Passenger Endorsement authorizing the driver to operate a school bus by providing to the Department of Education his or her name, address and fingerprints taken on standard fingerprint cards by a law enforcement agency as designated by the Superintendent of the New Jersey State Police. Subsection (c) provides that a school bus driver who provides services only to a nonpublic school is not required to undergo a

criminal history record check through the Department of Education pursuant to N.J.S.A. 18A:6-4.13 provided that the chief administrator of the nonpublic school provides written documentation indicating that the school bus driver is not required to undergo a criminal history record check as a condition of employment or service under contract. Subsection (d) provides that notwithstanding subsection (c) of the rule, a school bus driver who provides services only to a nonpublic school and who is not required to undergo a criminal history record check through the Department of Education pursuant to N.J.S.A. 18A:6-4.13 shall submit to a criminal history record check in accordance with N.J.S.A. 39:3-10.1 at the time of his or her initial application and any renewal application for a Commercial Driver License with Passenger Endorsement authorizing the driver to operate a school bus by providing to the Division of Motor Vehicles his or her name, address and fingerprints taken on standard fingerprint cards by a law enforcement agency as designated by the Superintendent of the New Jersey State Police. Subsection (e) provides that the driver shall authorize the Department of Education or the Division, whichever is the appropriate supervising agency, to request the State Bureau of Identification to attach an SBI Number Flag to the school bus driver's SBI numbers in accordance with N.J.A.C. 13:59-1.8. Subsection (f) provides that an operator shall maintain a driver qualification employment record for each driver employed by the operator and specifies the information to be maintained in such record.

The proposed new rule at N.J.A.C.13:20-30.15 provides at subsection (a) that an operator shall present each school bus for a semiannual in-terminal inspection by the Division's School Bus Inspection Unit. Subsection (b) provides that an operator shall present each retired school bus with a capacity of 10 or more passengers for an annual

inspection at a Division-operated State specialty inspection facility or at a licensed private inspection facility. Such inspection shall include, but not be limited to, an inspection of the equipment items specified in the subsection.

The proposed new rule at N.J.A.C.13:20-30.16 contains the inspection fees assessed by the Division in accordance with N.J.S.A. 39:8-2i.

The proposed new rule at N.J.A.C. 13:20-30.17 sets forth the schedule of fines assessed against a school bus operator in accordance with N.J.S.A. 39:3B-22.

The proposed new rule at N.J.A.C. 13:20-30.18 provides that any fine imposed pursuant to the School Bus Enhanced Safety Inspection Act may be collected, with costs, in a summary proceeding pursuant to the Penalty Enforcement Law of 1999.

Subchapter 31, School Bus Enhanced Safety Inspection Out-Of-Service Criteria, establishes a schedule of school bus safety out-of-service inspection criteria. The out-of-service inspection criteria cover the following mechanical systems: brake system; drive shaft; exhaust system; frame; tire and wheel clearance; bumpers; fuel system; headlights, back-up lamps, back-up alarm, red signal warning lamps, amber signal warning lamps, taillamps, stoplamps, and turn signals; instruments and instrument panel; power steering belt(s); steering system; suspension; tires; wheels and rims; back-up warning alarm; battery; emergency doors; service doors; emergency exits; fire extinguishers; heater hoses and lines; mirrors; seat belts for driver and students; seats and crash barriers; steps; stop signal arm; crossing control arm; windshield wipers; wiring; specially equipped school bus doors; specially equipped school bus restraining devices; and specially equipped school bus wheelchairs and mobile seating devices. The out-of-service criteria also cover insurance and driver credentials. The balance of

Subchapter 31 sets forth rules of general application, including the placement of school buses out-of-service, the duration of out-of-service orders, and the prohibition of the operation of a school bus that has been placed out-of-service.

Subchapter 31 incorporates by reference various Federal Motor Vehicle Safety Standards. Federal Motor Vehicle Safety Standard No. 301 (49 CFR §571.301) is incorporated by reference in the proposed new rule at N.J.A.C. 13:20-31.6(a)7. Federal Motor Vehicle Safety Standard No. 301 establishes “requirements for the integrity of motor vehicle fuel systems.” The Standard includes a definition of the term “fuel spillage;” requirements for passenger cars, and multipurpose passenger vehicles, trucks, and buses with a GVWR of 10,000 pounds or less; requirements for school buses with a GVWR greater than 10,000 pounds; and test requirements for fuel spillage in barrier crash test and rollover test. Federal Motor Vehicle Safety Standard No. 108 (49 CFR §571.108) is incorporated by reference in the proposed new rule at N.J.A.C. 13:20-31.7(c)3. Federal Motor Vehicle Safety Standard No. 108 establishes “requirements for original and replacement lamps, reflective devices and associated equipment” for “motor vehicles on the public roads.” The Standard includes definitions of specific terms, subreferences to SAE Standards and Recommended Practices, headlighting requirements, tests and procedures for integral beam and replaceable bulb headlighting systems, deflection test for replaceable light sources, simultaneous aim photometry test, photometric test, and requirements for headlamp concealment devices. Federal Motor Vehicle Safety Standard No. 209 (49 CFR §571.209) is incorporated by reference in the proposed new rules at N.J.A.C. 13:20-31.22(a)2 and 31.30(a)1. Federal Motor Vehicle Safety Standard No. 209 establishes “requirements for seat belt

assemblies . . . for use in passenger cars, multipurpose passenger vehicles, trucks, and buses.” The Standard includes definitions of specific terms and demonstration procedures. Federal Motor Vehicle Safety Standard No. 210 (49 CFR §571.210) is incorporated by reference in the proposed new rules at N.J.A.C. 13:20-31.22(a)3 and 31.30(a)1. Federal Motor Vehicle Safety Standard No. 210 establishes “requirements for seat belt assembly anchorages” for use in “passenger cars, multipurpose passenger vehicles, trucks, and buses.” The Standard includes definitions of specific terms; requirements relating to the type, strength, and location of seat belt anchorages; anchorage requirements for Type I and Type II seat belt assemblies; and test procedures. Federal Motor Vehicle Safety Standard No. 131 (49 CFR §571.131) is incorporated by reference in the proposed new rules at N.J.A.C. 13:20-31.25(a)1 and (a)2. Federal Motor Vehicle Safety Standard No. 131 establishes standards for school bus pedestrian safety devices. The Standard includes definitions of specific terms, stop signal arm requirements, and test procedures. Federal Motor Vehicle Safety Standard No. 222 (49 CFR §571.222) is incorporated by reference in the proposed new rule at N.J.A.C. 13:20-31.30(a)2. Federal Motor Vehicle Safety Standard No. 222 establishes standards for school bus passenger seating and crash protection. The Standard includes definitions of specific terms, seating requirements, seat performance standards, seat cushion retention standards, restraining barrier requirements, wheelchair securement anchorage requirements, wheelchair occupant restraint anchorage requirements, wheelchair occupant restraint requirements, and test procedures. The proposed new rule at N.J.A.C. 13:20-31.20(a)3 incorporates by reference the Society of Automotive Engineers’ Standard J20. SAE Standard J20

establishes standards for “reinforced and flexible hoses intended for use in water and ethylene glycol-based engine-coolant system applications.” The Standard includes definitions of specific terms, dimensional requirements, physical test requirements and procedures, requirements for heater hose, and requirements for radiator hose.

The titles of Subchapters 49A, 49B, 49C, and 49D are proposed for amendment to reflect that the respective subchapters apply to buses used for pupil transportation and manufactured June 1993 through December 2002.

Subchapter 49F, Small Vehicle Standards, is proposed for repeal in that it is superseded by the proposed new Subchapter 51, Standards For Type S School Buses.

Subchapter 50, Standards For School Buses Manufactured January 2003 And Thereafter, sets forth general provisions pertaining to scope and purpose; definitions; and vehicle manufacturer’s certification plate, chassis, body, and/or equipment manufacturer’s certification, converter’s certification, and vendor’s certification. N.J.A.C.13:20-50.1(a) provides that the subchapter shall be applicable to all school buses registered in New Jersey originally designed by the manufacturer to carry 10 or more passengers, excluding the driver. N.J.A.C.13:20-50.1(b) provides that any vehicle used as a school bus shall be registered as a school bus and shall be inspected twice each year by the Division’s School Bus Inspection Unit to ensure that such vehicle is in safe and proper operating condition. N.J.A.C.13:20-50.1(c) provides that the rules set forth in Subchapters 50, 50A, 50B, and 50C shall not apply to autobuses approved for school use and subject to inspection by the Division’s Commercial Bus Inspection and Investigation Unit unless otherwise provided. N.J.A.C.13:20-50.1(e) provides that a parent or legal guardian under contract with a district board of education to transport

only his or her own child or children shall not be required to possess a commercial driver license or to use a motor vehicle registered as a school bus. N.J.A.C.13:20-50.1(f) provides that the rules set forth in Subchapters 50, 50A, 50B, and 50C shall apply to school buses with a January 2003 or later incomplete chassis manufacture date unless otherwise provided. School buses manufactured prior to January 2003 shall comply with the standards in effect when the school bus was manufactured or converted. N.J.A.C.13:20-50.1(g) provides that all equipment and components required by Subchapters 50, 50A, 50B, and 50C shall be maintained in proper operating condition at all times. N.J.A.C.13:20-50.2 contains the definitions applicable to Subchapters 50, 50A, 50B, and 50C. N.J.A.C.13:20-50.3(a) sets forth the information that a manufacturer of a completed vehicle shall include on the vehicle manufacturer's certification plate. N.J.A.C.13:20-50.3(b) sets forth the manner in which the maximum permitted seated passengers and maximum permitted wheelchair capacity is determined for purposes of the vehicle manufacturer's certification plate. N.J.A.C.13:20-50.3(c) provides that the chassis and/or body manufacturer and any manufacturer of school bus equipment shall, upon request, provide evidence and/or certify to the Division and the school bus operator that such chassis, body, and/or equipment meet the standards of Subchapters 50, 50A, 50B, 50C and all applicable Federal Motor Vehicle Safety Standards. N.J.A.C.13:20-50.3(d) provides that any person who alters, converts, or modifies a certified "completed vehicle" shall certify to the Division and the school bus operator that all alterations, conversions, and modifications conform to applicable State and Federal design, construction, testing, and performance standards of Subchapters 50, 50A, 50B, 50C, and all applicable Federal

Motor Vehicle Safety Standards. N.J.A.C.13:20-50.3(e) provides that a vendor who sells or leases school buses shall issue to the buyer or lessee a "Vendor Certification Statement" certifying that the school bus meets all State and Federal standards.

Subchapter 50A, Chassis Standards For School Buses Manufactured January 2003 And Thereafter, sets forth specific chassis standards with regard to the following items: air cleaner; axles; brakes; front bumper; clutch; color; drive shaft; electrical system; exhaust system; front fenders; frame; fuel tank; governor; heating system; horn; instruments and instrument panel; oil filter; openings; passenger load; power and gradability; retarder system; shock absorbers; springs and shackles; steering gear; tires and rims; transmission; turning radius; undercoating; and weight distribution.

Subchapter 50A incorporates by reference two Federal Motor Vehicle Safety Standards. Federal Motor Vehicle Safety Standard No. 301 (49 CFR §571.301) is incorporated by reference in the proposed new rule at N.J.A.C. 13:20-50A.12(f). See the Summary of Subchapter 31 above for a description of Federal Motor Vehicle Safety Standard No. 301. Federal Motor Vehicle Safety Standard No. 120 (49 CFR §571.120) is incorporated by reference in the proposed new rule at N.J.A.C. 13:20-50A.25(c). Federal Motor Vehicle Safety Standard No. 120 establishes requirements for "tire selection and rims for motor vehicles other than passenger cars." The Standard includes definitions of specific terms, specifications for rim marking, and specifications for label information. The proposed new rule at N.J.A.C. 13:20-50A.8(c) incorporates by reference the Society of Automotive Engineers' Recommended Practice J1292. Recommended Practice J1292 pertains to the application of primary wiring distribution system harnesses to automotive, truck, and similar type vehicles and covers the

subjects of performance, operating integrity, efficiency, economy, facility of manufacturing and service of wiring systems. The proposed new rule at N.J.A.C. 13:20-50A.8(c) incorporates by reference the National School Transportation Specifications and Procedures performance specifications for the alternator component of school bus electrical systems. The NSTSP establishes alternator requirements for Type A2 and Type B school buses with a GVWR of 15,000 pounds or less; requirements for Type A2 and Type B school buses with a GVWR over 15,000 pounds and all Type C and Type D school buses; requirements for school buses equipped with electrically powered wheelchair lifts, air conditioning or other accessories; and requirements for belt driven alternators. The proposed new rule at N.J.A.C. 13:20-50A.28 incorporates by reference the Federal Standard, Rustproofing of Commercial (Nontactical) Vehicles (FED-STD-297E). That Standard establishes requirements for rustproofing of commercial, nontactical, self-propelled and towed vehicles procured for U.S. Government use. The Standard includes general requirements pertaining to rustproofing, identification, materials, instructions, contractor inspection system, and workmanship. The Standard also includes detailed requirements pertaining to application equipment, spray guns, wands, spray nozzles, application procedure, film thickness, access and drain holes, application areas and prohibited areas.

Subchapter 50B, Body Standards For School Buses Manufactured January 2003 And Thereafter, sets forth specific body standards with regard to the following items: air conditioning; aisle; back-up warning alarm; battery; bumpers; color; communications; construction; crossing control arm; defrosters; emergency doors; service doors; emergency equipment; emergency exits; fire extinguisher systems; first aid kit; floor;

heaters; identification; inside height; insulation; interior; lamps and signals; metal treatment; mirrors; mounting; overall length; overall width; reflectors; rub rails; sanders and traction devices; seat belts for driver and students; seats and restraining barriers; spray suppressants and mud flaps; steps; step treads; stirrup steps; stop signal arm; storage container; sun shield; tailpipe; tow eyes or hooks; undercoating; ventilation; wheelhousing; windows and windshields; windshield washers; windshield wipers; and wiring.

Subchapter 50B incorporates by reference various Federal Motor Vehicle Safety Standards. Federal Motor Vehicle Safety Standard No. 222 (49 CFR §571.222) is incorporated by reference in the proposed new rules at N.J.A.C. 13:20-50B.1(b) and (f), and at N.J.A.C. 13:20-50B.33(a) and (i). See the Summary of Subchapter 31 above for a description of Federal Motor Vehicle Safety Standard No. 222. Federal Motor Vehicle Safety Standard No. 221 (49 CFR §571.221) is incorporated by reference in the proposed new rule at N.J.A.C. 13:20-50B.8(c). Federal Motor Vehicle Safety Standard No. 221 establishes “requirements for the strength of the body panel joints in school bus bodies.” The Standard includes definitions of specific terms, procedures for preparing the test specimen, and procedures for performing the strength test. Federal Motor Vehicle Safety Standard No. 108 (49 CFR §571.108) is incorporated by reference in the proposed new rules at N.J.A.C. 13:20-50B.13(b), 13:20-50B.23(a), (a)1, (a)3, and (g), and 13:20-50B.29(a). See the Summary of Subchapter 31 above for a description of Federal Motor Vehicle Safety Standard No. 108. Federal Motor Vehicle Safety Standard No. 111 (49 CFR §571.111) is incorporated by reference in the proposed new rule at N.J.A.C. 13:20-50B.25(b). See the Summary of Subchapter 30 above for a

description of Federal Motor Vehicle Safety Standard No. 111. Federal Motor Vehicle Safety Standard No. 208, 209, and 210 (49 CFR §§571.208, 571.209, and 571.210) are incorporated by reference in the proposed new rule at N.J.A.C. 13:20-50B.32(c). Federal Motor Vehicle Safety Standard No. 208 establishes “performance requirements for the protection of vehicle occupants in crashes” and specifies “equipment requirements for active and passive restraint systems.” The Standard includes restraint system requirements for passenger cars; restraint system requirements for trucks, buses, and multipurpose passenger vehicles; seat belt assembly requirements; and testing procedures for the frontal barrier and rollover tests. See the Summary of Subchapter 31 above for a description of Federal Motor Vehicle Safety Standard No. 209 and 210. Federal Motor Vehicle Safety Standard No. 131 (49 CFR §571.131) is incorporated by reference in the proposed new rule at N.J.A.C. 13:20-50B.38(a). See the Summary of Subchapter 31 above for a description of Federal Motor Vehicle Safety Standard No. 131. The proposed new rule at N.J.A.C. 13:20-50B.18(j) incorporates by reference 49 CFR §393.77 pertaining to heater requirements. 49 CFR §393.77 specifies the types of heaters that are prohibited in motor vehicles, establishes specifications for heaters that are to be used in motor vehicles, and establishes certification procedures for heater manufacturers. Subchapter 50B incorporates by reference various Society of Automotive Engineers’ Standards and Recommended Practices. The proposed new rule at N.J.A.C. 13:20-50B.3 incorporates by reference the Society of Automotive Engineers’ Standard J994. SAE Standard J994 defines the “functional, environmental, and life cycle test requirements for electrically operated backup alarm devices primarily intended for use on off-road, self-propelled work machines.” The Standard includes

definitions of specific terms, test equipment specifications, and functional test requirements. The proposed new rule at N.J.A.C. 13:20-50B.10(b) incorporates by reference the Society of Automotive Engineers' Recommended Practice J381. SAE Recommended Practice J381 establishes "uniform test procedures for the defrosting systems of enclosed cab trucks, buses, and multipurpose vehicles." The Recommended Practice includes definitions of specific terms and establishes requirements for the defrosting test including specifications for test equipment, test conditions, test instrumentation, and test procedures. The proposed new rule at N.J.A.C. 13:20-50B.18(f) incorporates by reference the Society of Automotive Engineers' Standard J20. See the Summary of Subchapter 31 above for a description of SAE Standard J20. The proposed new rule at N.J.A.C. 13:20-50B.23(f)9 incorporates by reference the Society of Automotive Engineers' Standard J578. SAE Standard J578 "defines and provides a means for the control of colors employed in motor vehicle external lighting equipment, including lamps and reflex reflectors." The Standard includes definitions of specific terms and test methods of color measurement. The proposed new rule at N.J.A.C. 13:20-50B.38(c) incorporates by reference the Society of Automotive Engineers' Recommended Practice J1133. SAE Recommended Practice J1133 provides "test procedures, requirements, and guidelines for school bus stop arms." The Recommended Practice includes a definition of the term "school bus stop arm," testing standards and methods, design requirements, and installation guidelines. The proposed new rule at N.J.A.C. 13:20-50B.49(a) incorporates by reference the Society of Automotive Engineers' Recommended Practice J1292. See the Summary of Subchapter 50A above for a description of SAE Recommended

Practice J1292. The proposed new rule at N.J.A.C. 13:20-50B.49(b)2 incorporates by reference the Society of Automotive Engineers' Standard J1128. SAE Standard J1128 establishes standards for "low tension primary cable intended for use. . . in surface vehicle electrical systems." The Standard includes definitions of specific terms; sets forth requirements for test conditions and tolerances; establishes specifications for conductors, insulation, outside diameter, and minimum wall thickness; and at Appendix B thereof provides a recommended wire color chart. The proposed new rule at N.J.A.C. 13:20-50B.19(a) incorporates by reference the Federal Highway Administration's Series B of Standard Alphabets for Highway Signs. Series B of Standard Alphabets for Highway Signs sets forth the format for upper-case letters and numerals to be used on traffic control devices on all streets and highways that are approved by the FHWA for application on Federal-aid projects. The proposed new rule at N.J.A.C. 13:20-50B.21(b) incorporates by reference the United States Department of Commerce's Voluntary Product Standard PS 1-95, "Construction and Industrial Plywood." Voluntary Product Standard PS 1-95 pertains to construction and industrial plywood including requirements for the principal types and grades of plywood, wood species, veneer grading, glue bonds, panel construction and workmanship, dimensions and tolerances, grade marking, moisture content, packing of plywood intended for construction and industrial uses, and test methods to determine product compliance. The proposed new rule at N.J.A.C. 13:20-50B.1(h) incorporates by reference the National School Transportation Specifications and Procedures' performance specifications for school buses equipped with air conditioning. The NSTSP establishes performance criteria, test procedures, and manufacturers' responsibility to end users of

school buses equipped with air conditioning. The proposed new rule at N.J.A.C. 13:20-50B.6(d) incorporates by reference the National School Transportation Specifications and Procedures' performance specifications for reflective material. The NSTSP establishes standards relating to location, width, color, and test procedures for reflective materials that are applied to the surface of school buses. The proposed new rule at N.J.A.C. 13:20-50B.24(d) incorporates by reference the American Society for Testing and Materials B117-73, "Standard Method of Salt Spray (Fog) Testing." The Standard describes the apparatus, procedure, and conditions required to create and maintain the salt spray (fog) test environment for determining mass loss due to corrosion. The proposed new rule at N.J.A.C. 13:20-50B.43(a) incorporates by reference Federal Standard, Rustproofing of Commercial (Nontactical) Vehicles (FED-STD-297E). See the Summary of Subchapter 50A above for a description of FED-STD-297E.

Subchapter 50C, Standards For Specially Equipped School Buses Manufactured January 2003 And Thereafter, sets forth specific standards with regard to the following items: aisle; communications; construction modifications; doors; glass; identification; lights; power lift; ramp; restraining devices; seating arrangements; securement system for wheelchairs/mobile seating devices and occupants; steps; support equipment and accessories; and wheelchair or other mobile seating device requirements. N.J.A.C. 13:20-50C.1, which sets forth the scope of Subchapter 50C, provides that the standards contained in the subchapter address modifications to school buses designed for transporting students with special transportation needs and are supplementary to the school bus chassis and body standards set forth in Subchapters 50A and 50B.

Subchapter 50C incorporates by reference various Federal Motor Vehicle Safety

Standards. Federal Motor Vehicle Safety Standard No. 210 (49 CFR §571.210) is incorporated by reference in the proposed new rules at N.J.A.C. 13:20-50C.11 and 13:20-50C.13(c). See the Summary of Subchapter 31 above for a description of Federal Motor Vehicle Safety Standard No. 210. Federal Motor Vehicle Safety Standard No. 222 (49 CFR §571.222) is incorporated by reference in the proposed new rule at N.J.A.C. 13:20-50C.13(a) and (g). See the Summary of Subchapter 31 above for a description of Federal Motor Vehicle Safety Standard No. 222. Federal Motor Vehicle Safety Standard No. 209 (49 CFR §571.209) is incorporated by reference in the proposed new rule at N.J.A.C. 13:20-50C.13(c) and (k). See the Summary of Subchapter 31 above for a description of Federal Motor Vehicle Safety Standard No. 209. The proposed new rule at N.J.A.C. 13:20-50C.13(d) incorporates by reference the Society of Automotive Engineers' Recommended Practice J2249. SAE Recommended Practice J2249 establishes design requirements, test methods, and performance requirements for wheelchair tiedown and occupant restraint systems. The Recommended Practice also sets forth requirements for manufacturer's instructions to installers and users, and requirements for product marking and labeling.

Subchapter 51, Standards For Type S School Buses, sets forth specific standards with regard to the following items: capacity; chains or snow tires; emergency equipment; fire extinguisher; first aid kit; floor covering; heater capacity; lettering; rear view mirrors; rear window; seats and backrests; sun visor; and windshield wipers. N.J.A.C. 13:20-51.1, which sets forth the scope of Subchapter 51, provides at subsection (a) that the standards contained in the subchapter apply to any Type S school bus including, but not limited to, vans and passenger automobiles, which is used

for the transportation of children to or from school or school-connected activities. Subsection (b) provides that the subchapter shall also apply to all Type S school buses, including limousines, omnibuses, taxicabs, motor vehicles for which a handicapped placard or registration plates have been issued in accordance with N.J.S.A. 39:4-206, and motor vehicles for which no fee registration plates have been issued in accordance with N.J.S.A. 39:3-27 that are used for two or more modes of transportation, one of which is for the transportation of children to or from school or school-connected activities. Subsection (c) provides that a Type S school bus shall be inspected twice each year by the Division's School Bus Inspection Unit to ensure that such vehicle is in safe and proper operating condition. The time and location of the inspection shall be established by the Director or his or her designee. N.J.A.C. 13:20-51.1(d) and (e) provide, respectively, that motor vehicles with gross vehicle weight ratings of less than 3,000 pounds and trucks shall not be used for the transportation of children to or from school or school-connected activities. N.J.A.C. 13:20-51.1(f) provides that any modification to a Type S school bus for the purpose of transporting children with special needs shall comply with all applicable FMVSS and SAE standards governing the modifications. N.J.A.C. 13:20-51.2 sets forth the definitions applicable to the subchapter.

Subchapter 51 incorporates by reference a Federal Motor Vehicle Safety Standard. Federal Motor Vehicle Safety Standard No. 213 (49 CFR §571.213) is incorporated by reference in the proposed new rule at N.J.A.C. 13:20-51.13(f). Federal Motor Vehicle Safety Standard No. 213 establishes requirements for "child restraint systems used in motor vehicles and aircraft." The Standard includes definitions of

specific terms; sets forth dynamic performance requirements for child restraint system integrity, torso impact protection, and head impact protection; and specifies installation, labeling, and testing requirements.

Subchapter 53, Standards For Alternatively Fueled School Buses, sets forth specific standards with regard to the following items: installation requirements; fuel supply container requirements; markings; venting; manifold shut-off valve; pipes, tubing, hoses, and fittings; supply lines; shut-off valve; carburetor flows; dual fuel systems; relief device; electrical equipment; road clearance; gasoline tank; certified fuel tanks; fuel system; and fuel containers. N.J.A.C.13:20-53.1 sets forth the scope and purpose of the subchapter. N.J.A.C.13:20-53.1(a) provides that the subchapter applies to school buses originally designed by the manufacturer to carry 10 or more passengers used in the transportation of children to or from school and that operate in whole or in part on alternative fuels. N.J.A.C.13:20-53.1(b) provides that the subchapter shall not apply to autobuses approved for school use and subject to inspection by the Division's Commercial Bus Inspection and Investigation Unit unless otherwise provided in the subchapter. N.J.A.C.13:20-53.2 contains the definitions applicable to Subchapters 53, 53A, 53B, and 53C.

Subchapter 53 incorporates by reference various sections of the Federal Motor Carrier Safety Regulations. The proposed new rules at N.J.A.C. 13:20-53.4(a), 53.4(a)7, and 53.19(b) incorporate by reference 49 CFR §393.67. 49 CFR §393.67 establishes standards for liquid fuel tanks including definitions of specific terms; construction standards for joints, fittings, threads, drains and bottom fittings, fuel withdrawal fittings, fill pipes, safety venting systems, pressure resistance, air vents,

markings, and overfill restriction; and test procedures and performance standards for liquid fuel tanks. The proposed new rule at N.J.A.C. 13:20-53.19(a) incorporates by reference 49 CFR §393.65. 49 CFR §393.65 establishes standards for all fuel systems containing and supplying fuel for the operation of motor vehicles, including standards for location, fuel tank installation, fuel lines, and excess flow valves. The proposed new rule at N.J.A.C. 13:20-53.19(c) incorporates by reference 49 CFR §393.69. 49 CFR §393.69 requires compliance with the “Standards for the Storage and Handling of Liquefied Petroleum Gases” of the National Fire Protection Association as determined by the date the fuel system was installed on the motor vehicle and specifies that the tank must be marked to indicate such conformance. The proposed new rule at N.J.A.C. 13:53.4(a)2i incorporates by reference the Society of Automotive Engineers’ Standard J429. SAE Standard J429 establishes mechanical and material requirements for externally threaded fasteners. The Standard sets forth test methods for hardness, specifications for product marking, and requirements for manufacturer’s test reports. The proposed new rule at N.J.A.C. 13:53.2 incorporates by reference section VIII and section IX of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code. Section VIII of the Code provides requirements applicable to the design, fabrication, inspection, testing, and certification of pressure vessels operating at either internal or external pressures exceeding 15 psig. Specific requirements apply to several classes of material used in pressure vessel construction, and also to fabrication methods such as welding, forging and brazing. Section IX of the Code provides requirements relating to the qualification of welding and brazing procedures for component manufacturer. Section IX of the Code also provides requirements pertaining

to qualification and requalification of welders, brazers, and welding and brazing operators in the manufacturer of components.

Subchapter 53A, Standards For School Buses Having Fuel Systems Using Liquefied Petroleum Gas, sets forth specific standards with regard to the following items: fuel supply container; back-flow check valve; fuel supply container markings; valves; safety relief valves; safety relief valve markings; excess flow valve; check valves; vapor equalizing valve; shut-off valve; liquid volume gauge; pressure reducing regulator and vaporizer regulator; vents; and LPG hose for high pressure liquid or vapor use. N.J.A.C.13:20-53A.1 provides that in addition to the National Fire Protection Association standards, fuel systems using liquefied petroleum gas shall also meet the requirements of Subchapter 53A.

The proposed new rules at N.J.A.C. 13:20-53A.2(a) incorporates by reference 49 CFR §393.69. See the Summary of Subchapter 53 above for a description of 49 CFR §393.69. The proposed new rule at N.J.A.C. 13:20-53A.1 incorporates by reference the National Fire Protection Association Specification 58A "Liquefied Petroleum Gases Engine Fuel Systems." The Specification applies to the design and installation of liquefied petroleum gas fuel systems on vehicles. The Specification establishes requirements for vehicular fuel containers, pressure relief devices, pressure gauges, pressure regulators, valves, and system testing.

Subchapter 53B, Standards For School Buses Having Fuel Systems Using Compressed Natural Gas, sets forth specific standards with regard to the following items: fuel supply container; markings; shut-off valve; safety relief devices; gauges; automatic pressure reducing regulators; and vents. N.J.A.C.13:20-53B.1 provides that

in addition to the National Fire Protection Association standards, fuel systems using compressed natural gas shall also meet the requirements of Subchapter 53B.

Federal Motor Vehicle Safety Standard No. 304 (49 CFR §571.304) is incorporated by reference in the proposed new rule at N.J.A.C. 13:20-53B.2(a). Federal Motor Vehicle Safety Standard No. 304 establishes standards for the integrity of compressed natural gas motor vehicle fuel containers. The Standard includes definitions of specific terms; container and material requirements; and test and labeling specifications. The proposed new rule at N.J.A.C. 13:20-53B.1 incorporates by reference the National Fire Protection Association Specification 52A “Compressed Natural Gas Vehicular Fuel Systems.” The Specification applies to the design and installation of compressed natural gas engine fuel systems on vehicles. The Specification establishes standards pertaining to the installation of fuel supply containers, installation of venting systems, installation of piping, installation of valves, installation of pressure gauges, installation of pressure regulators, installation of fueling connections, wiring installation, labeling, and system testing.

Subchapter 53C, Standards For School Buses Having Fuel Systems Using Liquefied Natural Gas, sets forth specific standards with regard to the following items: fuel supply container; markings; valve certification; safety relief valves; shut-off valves; control valve; gauges; pressure reducing regulators; and vents. N.J.A.C.13:20-53C.1 provides that in addition to the National Fire Protection Association standards, fuel systems using liquefied natural gas shall also meet the requirements of Subchapter 53C.

The proposed new rule at N.J.A.C. 13:20-53C.1 incorporates by reference the

National Fire Protection Association Specification 57 “Liquefied Natural Gas Vehicular Fuel Systems.” The Specification applies to the design and installation of liquefied natural gas engine fuel systems on vehicles. The Specification establishes standards relating to vehicular fuel containers, pressure relief devices, pressure gauges, pressure regulators, valves, pumps and compressors, vaporizers, and system testing. The proposed new rule at N.J.A.C. 13:20-53C.2(a) incorporates by reference 49 CFR §178.57 (Specification 4L welded insulated cylinders). 49 CFR §178.57 establishes standards for welded insulated cylinders including specifications relating to type, size, service pressure, and design service temperature; construction material; identification of construction material; manufacture; welding; wall thickness; heat treatment; openings in cylinder; pressure test; physical test; acceptable results for physical tests; test of welds; radiographic examination; rejected cylinders; authorized materials of construction; markings; and inspector’s report. The proposed new rule at N.J.A.C. 13:20-53C.5(d) incorporates by reference the National Fire Protection Association Standard 59A “Standard for the Production, Storage, and Handling of Liquefied Natural Gas” Appendix A. Standard 59A covers the storage, vaporization, transportation, and handling of liquefied natural gas. The Standard establishes specifications pertaining to containers, container filling, container installation, piping, and testing of containers. Appendix A of Standard 59A contains explanatory materials pertaining to the Standard.

Social Impact

The proposal will have a positive social impact upon school bus transportation in New Jersey. The primary purpose of this proposal is to ensure the safety of school bus

drivers and students who are transported to and from school or school-connected activities in school buses. The proposal reflects the public policy of this State relating to school bus safety as set forth in Reorganization Plan No. 005-1998 and the "School Bus Enhanced Safety Inspection Act" (N.J.S.A. 39:3B-18 et seq.).

The proposal has no social impact upon the Division.

Economic Impact

The proposal will have an economic impact on all school districts that provide transportation services for students, school bus chassis and body manufacturers, and school bus operators. The proposed school bus chassis and body standards that will become operative in January 2003 will increase the cost of purchasing a school bus by approximately \$650.00 to \$700.00.

There is an economic impact on school bus operators, who are required to periodically inspect and maintain school buses that are owned or leased by such operators. There is also an economic impact on school bus operators in that they are subject to the out-of-service criteria and civil fines set forth in the proposal.

There is an economic impact on school bus drivers, who will incur annual fees of \$10.00 in order to obtain Division of Motor Vehicles' driver history abstracts of their driving records so that such abstracts may be supplied to their operators/employers to be included as part of the driver qualification records required to be maintained in accordance with the proposed new rule at N.J.A.C. 13:20-30.14(f)4. The \$10.00 fee for driver history abstracts is mandated by N.J.S.A. 39:6-42.

There is an economic impact on the State of New Jersey in funding the Division

of Motor Vehicles, which is responsible for the administration of the rules which are the subject of the proposal. The economic impact on the State is partially defrayed by the Division's collection of statutorily mandated school bus inspection fees.

Federal Standards Statement

Executive Order No. 27(1994) and P.L. 1995, c. 65 require that State administrative agencies that adopt, readopt, or amend State rules include in the proposed rulemaking a statement as to whether the rules impose any standards or requirements that exceed those imposed by Federal law. Federal law (49 U.S.C. §30125) provides that the United States Secretary of Transportation shall prescribe motor vehicle safety standards for school buses and school bus equipment, including minimum performance standards for emergency exits, interior protection for occupants, floor strength, seating systems, crashworthiness of body and frame (including protection against rollover hazards), vehicle operating systems, windows and windshields, and fuel systems. In accordance with that statute, the Secretary of Transportation has established safety standards for school buses and school bus equipment at 49 CFR §571.101 et seq. The standards and requirements set forth in the Division's proposed rulemaking are consistent with the standards and requirements contained in the Federal Motor Vehicle Safety Standards, and a Federal standards analysis is therefore not required.

Jobs Impact

It is anticipated that the proposed amendments and new rules will have a positive

impact on jobs. The school bus industry will need mechanics and inspection personnel in order to comply with the safety standards set forth in the proposed amendments and new rules. Additional Division inspection personnel will be required to administer and enforce the proposed amendments and new rules.

Agriculture Industry Impact

The proposed amendments and new rules will have no impact on the agriculture industry in the State of New Jersey.

Regulatory Flexibility Analysis

The proposal has been reviewed with regard to the Regulatory Flexibility Act, N.J.S.A. 52:14B-16 et seq. The proposal imposes reporting, recordkeeping, and compliance requirements on manufacturers of school buses, converters of completed school buses, vendors who sell or lease school buses, and school bus operators, many of which are small businesses as defined by the Regulatory Flexibility Act. All school buses used to transport students to and from school or school-connected activities must meet the school bus chassis and body standards established in this proposal. The proposal requires the manufacturer of a completed school bus to ensure that the vehicle manufacturer's certification plate contains the information specified in N.J.A.C. 13:20-50.3(a), including a statement that the vehicle meets all applicable State and Federal standards. The proposal, at N.J.A.C. 13:20-50.3(d), requires the converter of a certified completed vehicle to certify to the Division and to the school bus operator that all alterations, conversions, and modifications conform to applicable State and Federal design, construction, testing, and performance standards. The proposal, at N.J.A.C.

13:20-50.3(e), requires vendors who sell or lease school buses to issue to the buyer or lessee a "Vendor Certification Statement" certifying that the school bus meets all State and Federal standards.

Subchapter 30, Supplemental Inspection Of School Buses, as amended by the proposal, continues to require school bus operators to supplement the semiannual inspections that are performed by the Division's School Bus Inspection Unit by periodically inspecting and maintaining their school buses in accordance with equipment standards established by law and regulation. The recordkeeping requirements pertain to the preparation and retention of inspection and maintenance records by school bus operators who are subject to the supplemental self-inspection and maintenance requirements imposed by Subchapter 30. The records required to be prepared and retained by school bus operators form the basis for the Division's administration and enforcement of the motor vehicle inspection laws. See N.J.S.A. 39:8-1 et seq. The proposal does not require small businesses to engage additional professional services. The compliance, recordkeeping and reporting requirements are not viewed as overly burdensome in that school bus operators have been subject to such requirements since 1972 when Subchapter 30 was originally adopted by the Division. Inspection standards and maintenance procedures have been accepted over time as standard industry practice. A small business that operates school buses that do not comply with the applicable school bus inspection standards will incur costs in connection with repairing the school bus in order to bring it into compliance with those standards. It should be noted, however, that such small businesses have for many years been under a continuing self-inspection requirement to inspect and maintain their school buses and

have incurred repair expenses in connection therewith. The Division cannot ascertain the cost small businesses incur in order to bring non-compliant school buses into compliance with the applicable inspection standards, nor does the Division know whether professional services are needed to facilitate compliance. Such cost and the need for professional services are dictated by the extent to which a facility must be improved to conduct inspections or to which a school bus must be repaired to bring it into compliance with the applicable inspection standards. These requirements are intended to set standards for motor vehicle equipment and motor vehicle inspection and maintenance in order to advance highway safety. It is for these reasons that no differentiation based on business size is provided.

Full text of the proposed repeal may be found in the New Jersey Administrative Code at N.J.A.C. 13:20-49F.

Full text of the proposal follows (additions indicated in boldface **thus**; deletions indicated in brackets [thus]):

SUBCHAPTER 30. SUPPLEMENTAL INSPECTION OF SCHOOL BUSES

13:20-30.1 [Applicability] Scope

[The provisions of this Subchapter] **This subchapter** shall [be applicable] **apply** to all school buses registered in this State, except buses [which] **that** are also used for

the transportation of passengers for hire and [which] **that** are subject to inspection by the [New Jersey Department of Public Utilities] **Division's Commercial Bus Inspection and Investigation Unit.**

13:20-30.2 Definitions

The following words and terms, when used in this [Subchapter] **subchapter and in N.J.A.C.13:20-31,** shall have the following meanings[,], unless the context clearly indicates otherwise.

"Director" means the Director of the Division of Motor Vehicles in the Department of Transportation in the State of New Jersey.

"Division" means the Division of Motor Vehicles in the Department of Transportation in the State of New Jersey.

"Driver" means the authorized licensed operator of a school bus.

"FMVSS" means the Federal Motor Vehicle Safety Standards as found in the Code of Federal Regulations (49 CFR Part 571). Copies of the Federal Motor Vehicle Safety Standards as found in the Code of Federal Regulations may be purchased from the Superintendent of Documents, United States Government Printing Office, Washington, DC 20402, (202) 783-3238.

"Gross vehicle weight rating" or "GVWR" means the value specified by the manufacturer as the maximum loaded weight of a single vehicle.

"In-terminal inspection" means an inspection conducted by the Division at the operator's terminal or at a location designated by the Director of any motor

vehicle required to meet the safety regulations for school buses adopted by the Division pursuant to N.J.S.A. 39:3B-5 and 39:3B-5.4 and vehicle emission standards established for engine type pursuant to N.J.S.A. 39:8-2 and 39:8-61.

[“Lessee” means any person under a contract or agreement who exercises control or who operates a school bus under said agreement or contract for 30 days or more.]

“Operator” means the owner or person responsible for the day-to-day operation and maintenance of a school bus.

[“Private person” means anyone other than a Board of Education or the State or a political subdivision thereof.]

[“School bus” means every motor vehicle operated by, or under contract with, a public or governmental agency, or religious or other charitable organization or corporation, or privately operated for compensation for the transportation of children to or from school for secular or religious education.]

“School bus” or “bus” means every motor vehicle operated by, or under contract with, a public or governmental agency, or religious or other charitable organization or corporation, or privately operated for compensation for the transportation of children to or from school for secular or religious education, school-connected activity, day camp, summer day camp, nursery school, child care center, preschool center or other similar places of education and shall be classified in the following manner:

1. A “Type A1” school bus is a conversion or body constructed and installed upon a van-type compact truck or a front-section vehicle chassis,

with a GVWR of 10,000 pounds or less, originally designed by the manufacturer for carrying 10 to 16 passengers;

2. A “Type A2” school bus is a conversion or body constructed and installed upon a van-type compact truck or a front-section vehicle chassis, with a GVWR of more than 10,000 pounds but less than or equal to 14,500 pounds, originally designed by the manufacturer for carrying 10 to 20 passengers;

3. A “Type B” school bus is constructed utilizing a stripped chassis with a GVWR of more than 10,000 pounds, originally designed by the manufacturer for carrying 10 to 30 passengers. Part of the engine is beneath and/or behind the windshield and beside the driver's seat. The service door is behind the front wheels;

4. A “Type C” school bus is a body installed upon a flat back cowl chassis with a GVWR of more than 10,000 pounds, originally designed by the manufacturer for carrying 10 to 54 passengers. The engine is in front of the windshield, or part of the engine is beneath and/or behind the windshield and beside the driver's seat. The service door is behind the front wheels;

5. A “Type D” school bus is a body installed upon a chassis, with the engine mounted in the front, middle, or rear, with a GVWR of more than 10,000 pounds, originally designed by the manufacturer for carrying 10 to 54 passengers. The engine may be behind the windshield and beside the driver's seat; it may be at the rear of the school bus, behind the rear wheels; or it may be

in the middle between the front and rear axles. The service door is ahead of the front wheels; and

6. A “Type S” school bus is a motor vehicle with a GVWR of 3,000 pounds or more, originally designed by the manufacturer with a maximum seating capacity of nine passengers or less excluding the driver.

“SAE” means the Society of Automotive Engineers, Inc. Copies of the Standards and Recommended Practices of the Society of Automotive Engineers may be purchased from the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096, (724) 776-4841.

13:20-30.3 Inspection and maintenance

(a) Every school bus [owned or leased by a private person, Board of Education or the State or a political subdivision thereof,] **that is** registered in this State[,] shall be systematically inspected and maintained **by the operator** to insure that such **school** bus [and accessories are] **is** in safe and proper operating condition.

(b) [A] **An operator of a school bus shall maintain a** systematic inspection **and** maintenance record [shall be maintained] for each [vehicle] **school bus owned or leased by such operator.**

(c) [The minimum inspection to be performed shall be] **An operator shall inspect each school bus owned or leased by such operator** in accordance with the vehicle [manufacturers'] **manufacturer’s** maintenance requirements.

(d) [Such] **The inspection and maintenance** records shall include [, at least] **the following:**

1. An identification of the [vehicle] **school bus** including **the** New Jersey registration **plate** number, make, model, **model year**, [serial] **vehicle identification** number [and] , number of tires, [their] **tire** size, and number of **tire** ply;
2. A record of inspection and repairs indicating [their date and] **the nature of the repairs and the date of completion**;
3. (No change.)
4. A systematic means for indicating for each school bus the nature and due date of [various] **the next** inspection and maintenance operations to be performed **for all systems**;
5. [If leased or otherwise contracted for, such records shall also include an identification] **The name** of the lessor or contractor furnishing the school bus **if a school bus is leased or otherwise contracted for; and**
6. [Daily] **A daily** vehicle condition report by [a] **the** driver.
 - (e) [Any report or record of] **The** inspection **and maintenance records** shall be maintained **by the operator** for the life of the [vehicle inspected] **school bus** and shall be available for inspection [to] **by** the Division [of Motor Vehicles] **or the Office of Student Transportation in the Department of Education**.
 - [(f) All of the records stated in this Section shall be available for inspection to the State Department of Education, Bureau of Pupil Transportation.]

13:20-30.4 Unsafe operation[s] [forbidden] prohibited

[No owner or lessee whether private person, Board of Education, the State or a political subdivision thereof shall drive] **An operator shall not operate** or permit or require a driver to [drive] **operate** any school bus [revealed] **determined** by **the** inspection or operation **thereof** to be in such condition that its operation would be hazardous or likely to result in [a] **the** breakdown of the vehicle, nor shall any driver [drive] **operate** a school bus which by reason of its mechanical condition is so imminently hazardous to operate as to be likely to cause an accident [or], a breakdown of the vehicle, **or an unsafe condition for the occupants thereof.**

13:20-30.5 Inspection of school buses in operation

(a) Every State [police] **Police** officer [,] **and** every [employee] **school bus inspector** of the Division [of Motor Vehicles, Department of Transportation, either at a time deemed reasonable and necessary in the judgment], **at the direction** of the Director [of the Division of Motor Vehicles], or at the request of the [Bureau] **Office** of [Pupil] **Student** Transportation [of] **in** the Department of Education, may enter upon and perform inspections of school buses in operation upon the highways of this State or at the premises or places of business of the [owner or lessee] **operator** of such vehicles provided, however, that such **State Police** officer or [employee] **Division school bus inspector** has been authorized **so** to inspect by the Director [of the Division of Motor Vehicles] and [provided he or she] has been trained [in the techniques] **with regard to school bus inspection standards** and **test** procedures [of inspection and has his or her certification card].

(b) Reports of the inspection described in [subsection] (a) [of this Section] **above** shall be submitted to the Director [of the Division of Motor Vehicles and to the Bureau of Pupil Transportation of the Department of Education] **or his or her designee**. Such reports shall remain on file [in] **at** the Division [of Motor Vehicles] **for two years from the date of the inspection** [and may be considered confidential in the event that further investigation is deemed necessary]. **The right of examination of such reports may be denied pursuant to N.J.S.A. 47:1A-3 in cases where the reports being sought for examination pertain to any investigation in progress, if the inspection, copying, or publication of the reports is not in the public interest.**

(c) Any authorized **State Police** officer or [employee] **Division school bus inspector** shall declare and mark "out-of-service" any school bus which by reason of its mechanical condition may cause a breakdown [or], accident, **or unsafe condition for the occupants thereof**.

(d) Any school bus **that has been** declared and marked "out-of-service" shall not be operated until all **"out-of-service"** repairs have been satisfactorily completed. The term "operate" as used in this [Section] **section** shall include towing the vehicle; provided, however, that vehicles marked "out-of-service" may be towed by means of a vehicle using a crane or hoist; and provided further, that the vehicle combination consisting of the emergency towing vehicle and the "out-of-service" vehicle meets the performance requirements of N.J.S.A. 39:3-68.

(e) No person shall remove any marking indicating **that** a school bus [to be] **has been declared** "out-of-service" prior to **the** completion of all **"out-of-service"** repairs.

(f) (No change.)

(g) No persons may be transported in a [vehicle] **school bus that has been** declared “out-of-service” prior to **the** completion of all **“out-of-service”** repairs **and the** **Division’s inspection and certification of all “out-of-service” repairs.**

(h) The driver of any school bus [receiving] **who receives** notice that the vehicle is “out-of-service” shall deliver such notice to the [owner or lessee operating the vehicle] **operator** upon his **or her** arrival at the next terminal [or], **maintenance** facility, **or place of business** of the [owner or lessee] **operator**. [It shall be the sole responsibility of the owner or lessee that such notice is returned to the Division of Motor Vehicles in accordance with the terms prescribed thereon and in subsections (d) and (e) of this Section.]

(i) [The owner or lessee shall carefully examine such notice.] Any and all defects **and deficiencies** noted [thereon] **on the “out-of-service” notice** shall be corrected. The driver’s failure to comply with [this Section] **(h) above** shall not excuse the [owner or lessee] **operator** from taking appropriate action to correct defects **and deficiencies** which come to his **or her** attention by any means whatsoever.

[(j) Within 15 days following the date of the vehicle inspection, the owner or lessee shall forward to the Division a certificate of action taken as a result of said inspection.]

13:20-30.6 [Damaged vehicles inspection] Inspection of damaged school buses

(a) [No owner or lessee] **An operator** shall **not** permit or require a driver to [drive] **operate**, nor shall any driver [drive] **operate** a school bus [which] **that** has been damaged in an accident or by **any** other cause until **an** inspection has been [made] **performed** by a person qualified to ascertain the nature and extent of the damage and [the relationship of such damage to the safe operation of the school bus nor shall such school bus be operated until] such person has determined [it to be] **that the school bus is** in safe **and proper** operating condition.

(b) **An operator shall notify the Division's School Bus Inspection Unit within 72 hours of any accident involving a school bus that has resulted in mechanical damage to such school bus sufficient to require the school bus to be towed from the scene of the accident.**

13:20-30.7 [Vehicle] **Daily school bus condition report by driver**

(a) Every [owner or lessee operating one or more school buses] **operator** shall require [its] **his or her** drivers to report, and every driver shall prepare such a report in writing at the beginning of his **or her** [day's work] **workday** or tour of duty, which report shall list any defects or [deficiency] **deficiencies** of the school bus discovered by said driver as would be likely to affect the [safety of] **safe** operation of the school bus or result in its mechanical breakdown, or shall indicate that no such defects or deficiencies were discovered by him **or her**.

(b) **The daily school bus condition report shall include, but not be limited to, the following:**

1. **Driver's name, date, school bus registration plate number,**

school bus number assigned by the operator, and mileage;

- 2. Mirror system, including the proper adjustment thereof;**
- 3. Service brakes;**
- 4. Parking brake;**
- 5. Gauges and warning devices;**
- 6. Steering mechanism;**
- 7. Lights and reflectors;**
- 8. Tires;**
- 9. Wheels, rims, and lug nuts;**
- 10. Glazing;**
- 11. Windshield wipers and washer;**
- 12. Fluid leaks;**
- 13. Visible damage;**
- 14. Horn;**
- 15. Exhaust system;**
- 16. Emergency equipment;**
- 17. Emergency exits, windows, and roof hatches;**
- 18. Seats, including seat belts, seat mounting, and the condition thereof; and**
- 19. Special transportation equipment.**

[(b)] **(c)** [Such] **An operator shall examine such** reports [shall be carefully examined,] **and shall repair** the defects **or deficiencies** [reported] **noted** [thereon shall be checked and the] **therein.** **An operator shall certify on the report that the**

defects or the deficiencies have been repaired. The driver shall sign the report to acknowledge that he or she has reviewed the report and that there is a certification that the required repairs have been performed. The report shall become a part of the permanent **inspection and maintenance** records required to be maintained [under Section 30.3 (Inspection and maintenance) of this Chapter] **pursuant to N.J.A.C. 13:20-30.3.**

13:20-30.8 Required practices

(a) The following items of equipment [are required to] **shall** be inspected and maintained at least once every three months, **or every 3,000 miles, or as set forth in the manufacturer's recommended maintenance schedule, whichever occurs first:**

1. All brake[-]lines [and], **linings and components;**
2. – 9. (No change.)
10. Transmission [system];
11. (No change.)
12. Axles and [the tie rod] **steering** assemblies;
13. – 15. (No change.)

16. Mirror system adjustment, including the proper adjustment thereof in accordance with the school bus mirror test procedure set forth in FMVSS No. 111 (49 CFR §571.111), incorporated herein by reference, as amended and supplemented; and

[16.] **17.** Safety equipment required by **Federal law or rule,** New Jersey [Department of Education] **statute, or Division rule.**

13:20-30.9 Standards[; alteration of standards]

[(a)] All equipment subject to inspection shall meet the standards now or hereafter prescribed by **Federal law or rule, New Jersey** statute, [by regulation of the Director of the] **or** Division [of Motor Vehicles, and by regulation of the New Jersey Department of Education] **rule**.

[(b)] The Director may alter or amend any standard if, in his discretion, he finds that such standard is contrary to safe operation.]

13:20-30.10 Certification

(a) Every [owner or lessee must] **operator shall** certify to the Director, on a form prescribed **by the Director**, that he **or she** has inspected and maintained his **or her** [vehicles] **school buses** in conformity [to] **with** this subchapter.

(b) (No change.)

13:20-30.11 Penalties

Any [owner or lessee] **operator** who violates any provision of this subchapter may be subject to the suspension or revocation of his **or her** New Jersey **school bus** registration [and license] privileges.

13:20-30.12 Compliance with diesel emission standards, equipment requirements, and test procedures; periodic inspection

(a) (No change.)

(b) Diesel-powered school buses registered in New Jersey shall be subject to [periodic] **an annual diesel emission** inspection **by the Division's School Bus Inspection Unit** in accordance with N.J.A.C. 13:20-30.5(a) at the premises or places of business of the [owner or lessee] **operator** of such vehicles to determine compliance with (a) above.

13:20-30.13 Compliance with gasoline emission standards, equipment requirements, and test procedures; periodic inspection

(a) Gasoline-powered school buses registered in New Jersey shall be subject to applicable gasoline emission standards established by the Department of Environmental Protection at N.J.A.C. 7:27-15, an examination of the muffler and emission control apparatus pursuant to N.J.A.C. 7:27-15, and either an idle emission test or a 2,500 RPM emission test, whichever is appropriate based on the GVWR of the school bus, conducted in accordance with N.J.A.C. 7:27-15.5 and either 7:27B-5.3(b) or 7:27B-5.4.

(b) Gasoline-powered school buses registered in New Jersey shall be subject to a semiannual emission inspection by the Division's School Bus Inspection Unit in accordance with N.J.A.C. 13:20-30.5(a) at the premises or places of business of the operator of such vehicles to determine compliance with (a) above.

13:20-30.14 Driver qualification; criminal history record information; driver qualification employment records

(a) A person shall not operate a school bus that is registered in this State unless such person has been issued a Commercial Driver License with Passenger Endorsement by the Director or, in the case of a nonresident, has been issued a Commercial Driver License with Passenger Endorsement by his or her state of residence.

(b) A school bus driver shall submit to a criminal history record check at the time of his or her initial application and any renewal application for a Commercial Driver License with Passenger Endorsement authorizing the driver to operate a school bus by providing to the Department of Education his or her name, address, and fingerprints taken on standard fingerprint cards by a law enforcement agency as designated by the Superintendent of the New Jersey State Police.

(c) A school bus driver who provides services only to a nonpublic school shall not be required to undergo a criminal history record check through the Department of Education pursuant to N.J.S.A. 18A:6-4.13 provided that the chief administrator of the nonpublic school provides written documentation indicating that the school bus driver is not required to undergo a criminal history record check as a condition of employment or service under contract.

(d) Notwithstanding (c) above, a school bus driver who provides services only to a nonpublic school and who is not required to undergo a criminal history record check through the Department of Education pursuant to N.J.S.A. 18A:6-4.13 shall submit to a criminal history record check in accordance with N.J.S.A. 39:3-10.1 at the time of his or her initial application and any renewal

application for a Commercial Driver License with Passenger Endorsement authorizing the driver to operate a school bus by providing to the Division of Motor Vehicles his or her name, address, and fingerprints taken on standard fingerprint cards by a law enforcement agency as designated by the Superintendent of the New Jersey State Police.

(e) The school bus driver shall authorize the Department of Education or the Division, whichever is the appropriate supervising agency, to request the State Bureau of Identification to attach an SBI Number Flag to the school bus driver's SBI numbers in accordance with N.J.A.C. 13:59-1.8.

(f) An operator shall maintain a driver qualification employment record for each driver employed by the operator. A driver qualification employment record shall include the following:

1. The driver's name, social security number, driver license number, driver license type, and the issuing state of the driver's commercial motor vehicle operator's license with appropriate endorsement authorizing the driver to operate a school bus;

2. A medical examiner's certificate of the driver's physical qualification to drive a school bus in the form of a satisfactory medical report completed by a licensed physician;

3. The date of the driver's criminal history record check; and

4. A Division of Motor Vehicles' driver history abstract of the driver that is updated on an annual basis.

13:20-30.15 In-terminal inspection of school buses; inspection of retired school buses

(a) An operator shall present each school bus for a semiannual in-terminal inspection by the Division's School Bus Inspection Unit.

(b) An operator shall present each retired school bus with a capacity of 10 or more passengers for an annual inspection at a Division-operated State specialty inspection facility or at a licensed private inspection facility. Such inspection shall include, but not be limited to, an inspection of the following:

- 1. Chassis and frame;**
- 2. Brake system;**
- 3. Body deterioration;**
- 4. Lighting and electrical system; and**
- 5. Interior seat mounting.**

13:20-30.16 Inspection fees

(a) All school buses registered in New Jersey shall be subject to the inspection fees as follows:

- | | |
|---|-----------------------------------|
| <u>1. School bus specification inspection</u> | <u>\$50.00 per vehicle</u> |
| <u>2. Each semiannual inspection</u> | <u>\$25.00 per vehicle</u> |
| <u>3. Each unscheduled "out-of-service" reinspection requiring an additional trip by the Division's School Bus Inspection Unit</u> | <u>\$25.00 per vehicle</u> |

- 4. Each annual inspection of retired school buses performed at a State specialty inspection facility \$25.00 per vehicle**

13:20-30.17 Schedule of fines

(a) The following fines shall be assessed against an operator in accordance with N.J.S.A. 39:3B-22 per violation for the vehicle inspection violations set forth below:

- | | |
|--|------------------------|
| <u>1. Failure to present or make available a school bus for inspection</u> | <u>\$500.00</u> |
| <u>2. Failure to retain proper records</u> | <u>\$250.00</u> |
| <u>3. Failure to make available any record or document required at time of inspection</u> | <u>\$250.00</u> |
| <u>4. Falsification of any record</u> | <u>\$500.00</u> |
| <u>5. Failure to comply with standards for driver employment records</u> | <u>\$250.00</u> |

13:20-30.18 Collection of fines

Any fine imposed pursuant to the School Bus Enhanced Safety Inspection Act, P.L. 1999, c. 5, may be collected, with costs, in a summary proceeding pursuant to the Penalty Enforcement Law of 1999, N.J.S.A. 2A:58-10 et seq.

SUBCHAPTER 31. SCHOOL BUS ENHANCED SAFETY INSPECTION**OUT-OF-SERVICE CRITERIA****13:20-31.1 Scope**

(a) This subchapter establishes school bus enhanced safety inspection out-of-service criteria. The out-of-service criteria set forth in this subchapter denote critical school bus vehicle inspection items.

(b) The rules set forth in this subchapter are consistent with the Federal Motor Vehicle Safety Standards established by the National Highway Traffic Safety Administration and the National School Transportation Specifications and Procedures, 2000 Revised Edition, which have been issued by the 2000 National Conference on School Transportation.

13:20-31.2 Brake system

(a) The following are the out-of-service criteria pertaining to the brake system:

1. The number of defective brakes is equal to or greater than 20 percent of the brakes on the vehicle, provided, however, that on a three-axle school bus, one defective brake shall constitute an out-of-service violation. Steering axle brakes are to be included in the 20 percent criterion. A defective brake includes any brake that meets one of the following criteria:

i. Absence of effective braking action upon application of the service brakes, such as brake linings' failing to move or to contact the braking surface upon application.

ii. Missing or broken mechanical components, including shoes, linings, pads, springs, anchor pins, spiders, cam rollers, pushrods, and air chamber mounting bolts.

iii. Loose brake components, including air chambers, spiders, and cam shaft support brackets.

iv. Audible air leak at brake chamber.

v. Brake adjustment limits.

(1) One brake at $\frac{1}{4}$ inch or more above the adjustment limit.

(2) Two brakes less than $\frac{1}{4}$ inch beyond the adjustment limit also equal one defective brake.

(3) Any wedge brake where the combined brake lining movement of both the top and bottom shoe exceeds $\frac{1}{8}$ inch.

vi. Brake linings or pads, except on power unit steering axles.

(1) Cracked, loose, or missing brake lining.

(A) Lining cracks or voids of $\frac{1}{16}$ inch in width observable on the edge of the lining.

(B) Portions of a lining segment missing such that a fastening device (rivet or bolt) is exposed when viewing the lining from the edge.

(C) Cracks that exceed 1 ½ inches in length.

(D) Loose fitting segments. (Approximately 1/16 inch or more movement.)

(E) Complete lining segment missing.

(2) The following chart shall be adhered to in determining brake adjustment limits, and is incorporated herein.

COMMERCIAL VEHICLE SAFETY ALLIANCE

NORTH AMERICAN UNIFORM OUT-OF-SERVICE CRITERIA

BRAKE ADJUSTMENT REFERENCE CHART

Reference: Paragraph 1.a. of Part II of the Out-of-Service Criteria Brake Adjustment: Shall not exceed those specifications contained hereunder relating to "Brake Adjustment Limit." (Dimensions are in inches.)

CLAMP-TYPE BRAKE CHAMBER DATA

<u>TYPE</u>	<u>OUTSIDE DIAMETER</u>	<u>BRAKE ADJUSTMENT LIMIT</u>
<u>6</u>	<u>4 1/2</u>	<u>1 ¼</u>
<u>9</u>	<u>5 ¼</u>	<u>1 3/8</u>
<u>12</u>	<u>5 11/16</u>	<u>1 3/8</u>
<u>16</u>	<u>6 3/8</u>	<u>1 ¾</u>

<u>20</u>	<u>6 25/32</u>	<u>1 3/4</u>
<u>24</u>	<u>7 7/32</u>	<u>1 3/4</u>
<u>30</u>	<u>8 3/32</u>	<u>2</u>
<u>36</u>	<u>9</u>	<u>2 1/4</u>

NOTE: A brake found at the adjustment limit is not a violation.

'LONG STROKE' CLAMP-TYPE BRAKE CHAMBER DATA

<u>TYPE</u>	<u>OUTSIDE DIAMETER</u>	<u>BRAKE ADJUSTMENT LIMIT</u>
<u>16</u>	<u>6 3/8</u>	<u>2.0</u>
<u>20</u>	<u>6 25/32</u>	<u>2.0</u>
<u>24</u>	<u>7 7/32</u>	<u>2.0</u>
<u>24*</u>	<u>7 7/32</u>	<u>2.5</u>
<u>30</u>	<u>8 3/32</u>	<u>2.5</u>

***For 3-inch maximum stroke type 24 chambers**

NOTE: A brake found at the adjustment limit is not a violation.

TIE ROD STYLE PISTON BRAKE CHAMBER DATA

<u>TYPE</u>	<u>OUTSIDE DIAMETER</u>	<u>BRAKE ADJUSTMENT LIMIT</u>
<u>30</u>	<u>6 1/2 (165mm)</u>	<u>2.5 (64mm)</u>

NOTE: A brake found at the adjustment limit is not a violation.

BOLT-TYPE BRAKE CHAMBER DATA

<u>TYPE</u>	<u>OUTSIDE DIAMETER</u>	<u>BRAKE ADJUSTMENT LIMIT</u>
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<u>A</u>	<u>6 15/16</u>	<u>1 3/8</u>
<u>B</u>	<u>9 3/16</u>	<u>1 3/4</u>
<u>C</u>	<u>8 1/16</u>	<u>1 3/4</u>
<u>D</u>	<u>5 1/4</u>	<u>1 1/4</u>
<u>E</u>	<u>6 3/16</u>	<u>1 3/8</u>
<u>F</u>	<u>11</u>	<u>2 1/4</u>
<u>G</u>	<u>9 7/8</u>	<u>2</u>

NOTE: A brake found at the adjustment limit is not a violation.

ROTOCHAMBER DATA

<u>TYPE</u>	<u>OUTSIDE DIAMETER</u>	<u>BRAKE ADJUSTMENT LIMIT</u>
<u>9</u>	<u>4 9/32</u>	<u>1 1/2</u>
<u>12</u>	<u>4 13/16</u>	<u>1 1/2</u>
<u>16</u>	<u>5 13/32</u>	<u>2</u>
<u>20</u>	<u>5 15/16</u>	<u>2</u>
<u>24</u>	<u>6 13/32</u>	<u>2</u>
<u>30</u>	<u>7 1/16</u>	<u>2 1/4</u>
<u>36</u>	<u>7 5/8</u>	<u>2 3/4</u>
<u>50</u>	<u>8 7/8</u>	<u>3</u>

NOTE: A brake found at the adjustment limit is not a violation.

DD-3 BRAKE CHAMBER DATA

<u>TYPE</u>	<u>OUTSIDE DIAMETER</u>	<u>BRAKE ADJUSTMENT LIMIT</u>
<u>30</u>	<u>8 1/8</u>	<u>2 1/4</u>

NOTE: A brake found at the adjustment limit is not a violation.

WEDGE BRAKE DATA

The combined movement of both brake shoe lining scribe marks shall not exceed 1/8 inch (3.18mm).

(3) Evidence of oil seepage into or out of the brake lining/drum interface area, including wet contamination of the lining edge accompanied by evidence that further contamination will occur, such as oil running from the drum or a bearing seal. Grease on the lining edge, the back of the shoe, or the drum edge and oil stains with no evidence of fresh oil leakage are not conditions for out-of-service.

(4) Air brakes: Lining with a thickness of less than 1/4 inch or to the wear indicator, if the lining is so marked, measured at the shoe center for drum brakes or less than 1/8 inch for disc brakes.

(5) Hydraulic and electric brakes: Lining with a thickness of 1/16 inch or less at the shoe center for disc or drum brakes.

vii. Missing brake on any axle required to have brakes.

2. In addition to being included in the 20 percent criterion, the following criteria pertaining to steering axle brakes place a school bus in an out-of-service condition:

i. An absence of effective braking action on any steering axle of any school bus required to have steering axle brakes;

ii. A mismatch across any power unit steering axle of:

(1) Air chamber sizes; or

(2) Slack adjuster length; or

iii. Brake linings or pads on the steering axle of any power unit:

(1) Cracked, loose, or missing lining.

(A) Lining cracks or voids 1/16 inch in width are observable on the edge of the lining.

(B) Portions of a lining segment are missing such that a fastening device (rivet or bolt) is exposed when viewing the lining from the edge.

(C) Cracks that exceed 1½ inches in length.

(D) Loose lining segments (approximately 1/16 inch or more movement).

(E) A complete lining segment is missing.

(2) Evidence of oil seepage into or out of the brake lining/drum interface area, including wet contamination of the lining edge accompanied by evidence that further contamination will occur, such as oil running from the drum or a bearing seal. Grease on the lining edge, the back of the shoe, or the drum edge and oil stains with no evidence of fresh oil leakage are not conditions for out-of-service.

(3) Lining with a thickness of less than 3/16 inch for a shoe with a continuous strip of lining or 1/4 inch for a shoe with two pads for drum brakes or to the wear indicator if the lining is so marked, or less than 1/8 inch for air disc brakes, and 1/16 inch or less for hydraulic disc, drum, and electric brakes.

3. The following is the out-of-service criterion pertaining to parking brakes:

i. Any non-manufactured holes or cracks in the spring brake housing section of a parking brake.

4. The following are the out-of-service criteria pertaining to brake drums or rotors (discs):

i. Drums with any external crack or cracks that open upon brake application; or

ii. Any portion of the drum or rotor (disc) is missing or in danger of falling away.

5. The following are the out-of-service criteria pertaining to a brake hose:

i. A hose with any damage extending through the outer reinforcement ply;

ii. A hose that bulges or swells when air pressure is applied;

iii. A hose with an audible leak at other than a proper connection;

iv. Two hoses are improperly joined, such as a splice made by sliding the hose ends over a piece of tubing and clamping the hose to the tube; or

v. An air hose is cracked, broken, or crimped in such a manner as to restrict air flow.

6. The following are the out-of-service criteria pertaining to brake tubing:

i. Tubing with an audible leak at other than a proper connection; or

ii. Tubing is cracked, damaged by heat, broken, or crimped.

7. The following is the out-of-service criterion pertaining to the low pressure warning device:

i. The low pressure warning device is missing, inoperative, or does not operate at 55 pounds per square inch and below, or at one-half of the governor cut-out pressure, whichever is less.

8. The following is the out-of-service criterion pertaining to air loss rate:

i. If an air leak is discovered and the reservoir pressure is not maintained when the governor is cut-in, the reservoir pressure is between 80 and 90 pounds per square inch, the engine is at idle, and the service brakes are fully applied.

9. The following are the out-of-service criteria pertaining to the air reservoir security:

i. The reservoir is separated from its original attachment points by metal fatigue, is broken, or is missing a bolt; or

ii. The reservoir is separated from its original attachment points and the strap securing the reservoir is rotted out or the reservoir is improperly secured with bailing wire, coat hanger-type wire, or other like material.

10. The following are the out-of-service criteria pertaining to the air compressor (normally to be inspected when it is readily visible or when conditions indicate compressor problems):

i. Loose compressor mounting bolts;

ii. Cracked, broken, or loose pulley; or

iii. Cracked or broken mounting brackets, braces, or adapters.

11. The following are the out-of-service criteria pertaining to hydraulic brakes (including power assist over hydraulic and engine-driven hydraulic booster):

i. No brake pedal reserve with the engine running;

ii. The master cylinder is less than one-fourth full;

iii. The power assist unit fails to operate;

iv. Seeping or swelling of a brake hose under application of pressure;

v. A hydraulic hose is abraded or chafed through the outer cover-to-fabric layer;

vi. Fluid lines or connections are restricted, crimped, cracked, or broken;

vii. Any visually observed leaking hydraulic fluid in the brake system upon full brake application; or

viii. Hydraulic system: The brake failure/low fluid warning light is on and/or inoperative.

12. The following are the out-of-service criteria pertaining to the vacuum system:

i. Insufficient vacuum reserve exists to permit one full brake application after the engine is shut off; or

ii. A vacuum hose or line is restricted, is abraded or chafed through the outer cover-to-cord ply, is crimped, cracked, or broken, or a vacuum hose collapses when vacuum is applied.

13:20-31.3 Drive shaft

(a) The following are the out-of-service criteria pertaining to the drive shaft:

1. The drive shaft or a section thereof is not equipped with a metal guard around its circumference; or

2. The drive shaft guard is loose.

13:20-31.4 Exhaust system

(a) The following are the out-of-service criteria pertaining to the exhaust system:

1. Any part of the school bus exhaust system is leaking or discharging under the chassis more than six inches forward of the rearmost part of the school bus when powered by a gasoline or diesel engine, or more than 15 inches forward of the rearmost part of the school bus when powered by other than a gasoline or diesel engine; or

2. Any part of the school bus exhaust system is located so as to be likely to result in the burning, charring, or damaging of the electrical wiring, the fuel supply, or any combustible part of the school bus.

13:20-31.5 Frame; tire and wheel clearance; bumpers

(a) The following are the out-of-service criteria pertaining to frame members:

1. Any cracked, loose, sagging, or broken frame siderail permitting shifting of the school bus body onto moving parts or any other condition indicating an imminent collapse of the frame;

2. Any cracked, loose, or broken frame member adversely affecting support of functional components including, but not limited to, the steering gear, engine, transmission, body parts, or suspension;

3. A crack one and one-half inches long or longer in the frame siderail web that is directed toward the bottom flange;

4. Any crack extending from the frame siderail web around the radius and into the bottom flange;

5. A crack one inch or longer in the siderail bottom flange;

6. Any cracked, loose, sagging, or broken frame siderail resulting from rust, corrosion, or other deteriorating condition, or any improperly welded frame member that permits shifting of the school bus body onto moving parts, or any other condition indicating an imminent collapse of the frame or affecting support of functional components such as the steering gear, engine, transmission, body parts, or suspension;

7. A school bus is not equipped with body fasteners as required by N.J.A.C. 13:20-49.1, 13:20-49C.25, or 13:20-50B.26, whichever is applicable;

8. A school bus is not equipped with cross members as required by N.J.A.C. 13:20-49.1, 13:20-49C.25, or 13:20-50B.26, whichever is applicable; or

9. Any cross member, outrigger, or other structural support is missing, broken, cracked, deformed, shifted, or corroded so as to adversely affect the safe operation of the school bus.

(b) The following is the out-of-service criterion pertaining to tire and wheel clearance:

1. Any condition, including loading, that causes the school bus body or frame to be in contact with a tire or any part of the wheel assemblies at the time of inspection.

(c) The following is the out-of-service criterion pertaining to the bumpers:

1. Any bumper is missing or not properly secured.

13:20-31.6 Fuel system

(a) The following are the out-of-service criteria pertaining to the fuel system:

1. A fuel system with a fuel leak at any point, including refrigeration or heater fuel systems;

2. A fuel tank or any part of the fuel system is not properly secured or fastened to the school bus in accordance with the school bus chassis manufacturer's specifications;

3. A fuel tank improperly attached to the school bus by use of bailing wire, coat hanger-type wire, or other like material;

4. A fuel tank is not filled or vented to the outside of the school bus body so that fuel may drip or drain onto any part of the exhaust system;

5. Except for the filler tube, a portion of the fuel system that is located to the rear of the engine compartment extends above the top of the chassis frame rail;

6. A fuel line is not mounted in a manner so as to obtain maximum protection from the chassis frame;

7. A fuel system is not in compliance with FMVSS No. 301 (49 CFR §571.301), incorporated herein by reference, as amended and supplemented;

or

8. A Type B, C, or D school bus is not equipped with a steel guard around the fuel tank.

13:20-31.7 Headlights, back-up lamps, back-up alarm, red signal warning lamps, amber signal warning lamps, taillamps, stoplamps, and turn signals

(a) The following are the out-of-service criteria pertaining to lighting devices:

1. A school bus does not have at least one headlight operative on low beam;

2. A school bus does not have at least one steadily burning taillamp on the rear of the vehicle visible from 500 feet;

3. A school bus does not have at least one operative stoplamp on the rear of the vehicle visible from 500 feet; or

4. A school bus does not have an operative turn signal on each side of the rear of the vehicle.

(b) The following are the out-of-service criteria pertaining to back-up lamps and back-up alarms:

1. A school bus is not equipped with back-up lamps;

2. Either back-up lamp does not illuminate when the shift control lever for the transmission is placed in reverse gear or the rear emergency door is unlatched;

3. A school bus is not equipped with a back-up alarm; or

4. A school bus is equipped with a back-up alarm that is not in proper operating condition.

(c) The following are the out-of-service criteria pertaining to red signal warning lamps and amber signal warning lamps:

1. A school bus is not equipped with red signal warning lamps and amber signal warning lamps in accordance with N.J.A.C. 13:20-49.1, 13:20-49C.22(e), or 13:20-50B.23(f), whichever is applicable;

2. A school bus is equipped with red signal warning lamps or amber signal warning lamps that are not in proper operating condition; or

3. A school bus is equipped with red signal warning lamps or amber signal warning lamps that do not conform to FMVSS No. 108 (49 CFR §571.108), incorporated herein by reference, as amended and supplemented.

13:20-31.8 Instruments and instrument panel

(a) The following is the out-of-service criterion pertaining to instruments and the instrument panel:

1. A school bus is equipped with an air or vacuum brake indicator gauge or light that is not in proper operating condition so that such gauge or light does not provide a warning to the driver when the air pressure or vacuum is depleted below one-half of its capacity.

13:20-31.9 Power steering belt

(a) The following is the out-of-service criterion pertaining to a power steering belt:

1. A school bus is equipped with a belt that drives a power steering pump or compressor that is not in proper operating condition.

13:20-31.10 Steering system

(a) The following are the out-of-service criteria pertaining to steering wheel free play:

1. When any of the values (movement in inches, centimeters, or degrees) in the chart below are met or exceeded, a school bus shall be placed out-of-service. For power steering systems, the engine must be running. The following chart shall be adhered to in determining steering wheel free play, and is incorporated herein.

COMMERCIAL VEHICLE SAFETY ALLIANCE

NORTH AMERICAN UNIFORM OUT-OF-SERVICE CRITERIA

STEERING WHEEL FREE PLAY CHART

<u>Steering Wheel</u>	<u>Manual System</u>	<u>Power System</u>
<u>Diameter</u>	<u>Movement</u>	<u>Movement</u>
<u>16 inches (41 cm)</u>	<u>30 degrees or</u> <u>4 ½ inches (11.5 cm)</u>	<u>45 degrees or</u> <u>6 ¾ inches (17 cm)</u>
	<u>(or more)</u>	<u>(or more)</u>
<u>18 inches (46 cm)</u>	<u>4 ¾ inches (12 cm)</u>	<u>7 1/8 inches (18 cm)</u>

	<u>(or more)</u>	<u>(or more)</u>
<u>19 inches (48 cm)</u>	<u>5 inches (13 cm)</u>	<u>7 ½ inches (19 cm)</u>
	<u>(or more)</u>	<u>(or more)</u>
<u>20 inches (51 cm)</u>	<u>5 ¼ inches (13 cm)</u>	<u>7 7/8 inches (20 cm)</u>
	<u>(or more)</u>	<u>(or more)</u>
<u>21 inches (53 cm)</u>	<u>5 ½ inches (14 cm)</u>	<u>8 ¼ inches (21 cm)</u>
	<u>(or more)</u>	<u>(or more)</u>
<u>22 inches (56 cm)</u>	<u>5 ¾ inches (15 cm)</u>	<u>8 5/8 inches (22 cm)</u>
	<u>(or more)</u>	<u>(or more)</u>

(b) The following are the out-of-service criteria pertaining to the steering column:

1. Any absence of U-bolt(s) or positioning part(s);
2. Any looseness of U-bolt(s) or positioning part(s);
3. Worn universal joint;
4. Faulty universal joint;
5. Repair-welded universal joint; or
6. The steering wheel not properly secured.

(c) The following are the out-of-service criteria pertaining to the front axle beam and all steering components other than the steering column, including the hub:

1. Any crack; or
2. Any obvious welded repair.

(d) The following are the out-of-service criteria pertaining to the steering gear box:

- 1. Any loose or missing mounting bolt;**
- 2. Any crack in the steering gear box or mounting brackets; or**
- 3. Any obvious welded repair.**

(e) The following are the out-of-service criteria pertaining to the pitman arm:

- 1. Any looseness of the pitman arm on the steering gear output shaft; or**
- 2. Any obvious welded repair.**

(f) The following are the out-of-service criteria pertaining to power steering:

- 1. The auxiliary power assist cylinder is loose; or**
- 2. The power steering pump is inoperable.**

(g) The following are the out-of-service criteria pertaining to ball and socket joints:

- 1. Any movement under steering load of a stub nut;**
- 2. Any motion, other than rotational, between any linkage member and its attachment point of more than 1/8 inch (three mm) measured with hand pressure only; or**
- 3. Any obvious welded repair.**

(h) The following are the out-of-service criteria pertaining to tie rods and drag links:

1. Loose clamp or clamp bolt on a tie rod or a drag link; or

2. Any looseness in any threaded joint.

(i) The following is the out-of-service criterion pertaining to nuts:

1. Loose or missing nut(s) on a tie rod, pitman arm, drag link, steering arm, or tie rod arm.

(j) The following are the out-of-service criteria pertaining to the steering system:

1. Any modification of the steering system that interferes with the free movement of any steering component; or

2. Any other condition that interferes with the free movement of any steering component.

13:20-31.11 Suspension

(a) The following are the out-of-service criteria pertaining to axle parts/members:

1. Any U-bolt or other spring-to-axle clamp bolt is cracked, broken, loose, missing, or not secured by nut(s); or

2. Any spring hanger or other axle-positioning part is cracked, broken, loose, or missing, and results in the shifting of an axle from its normal position.

(b) The following are the out-of-service criteria pertaining to the spring assembly:

1. One-fourth or more of the leaves in any spring assembly are broken;

2. Any leaf or portion of any leaf in any spring assembly is missing or separated;

3. Any broken main leaf in a leaf spring. For purposes of this out-of-service criterion:

i. Any leaf of a leaf spring assembly is a main leaf if it extends, at both ends, to or beyond any of (1) through (3) below. In addition, any leaf of a helper spring assembly is a helper main leaf if it extends, at both ends, to or beyond the load-bearing surface of its contact pad, hanger, or equalizer.

(1) The load-bearing surface of a spring hanger or equalizer;

(2) The spring and cap or insulator box mounted on the axle;

(3) A spring eye.

ii. The radius rod leaf, in springs having such a leaf, shall be treated like the torque, radius, or tracking components set forth in subsection

(c) below for purposes of out-of-service;

4. A broken coil spring;

5. One or more leaves displaced in a manner that could result in contact with a tire, rim, brake drum, or frame;

6. Broken torsion bar spring in torsion bar suspension;

7. Deflated air suspension resulting from system failure or leak;

8. Excessive wear of any spring saddle;

9. Any spring not aligned by a centering pin; or

10. Any worn (beyond the original manufacturer's specifications)

or improperly assembled U-bolt, shock, king pin, ball joint, strut, air bag, or positioning component.

(c) The following is the out-of-service criterion pertaining to torque, radius, or tracking components:

1. Any part of a torque, radius, or tracking component assembly or any part used for attaching same to the vehicle frame or axle, including spring leaves used as a radius or torque rod, is cracked, loose, broken, or missing, or missing bushings in torque or track rods.

13:20-31.12 Tires

(a) The following are the out-of-service criteria pertaining to any tire on any steering axle:

1. A front tire with less than 4/32 inch tread when measured in any two adjacent major tread grooves at any location on the tire;

2. A rear tire with less than 2/32 inch tread when measured in any two adjacent major tread grooves at any location on the tire;

3. Any part of the breaker strip or casing ply showing in the tread;

4. Cut, worn, or damaged sidewall to the extent that the ply cord is exposed;

5. A tire labeled "NOT FOR HIGHWAY USE" or carrying other markings that would exclude its use;

6. A visually observable bump, bulge, or knot apparently related to tread or sidewall separation, except for a bulge that does not exceed 3/8 inch in height due to a section repair;

7. A tire flat or with a noticeable leak;

8. A tire so mounted or inflated that it comes in contact with any part of the school bus;

9. The weight carried exceeding the tire load limit, including an overloaded tire resulting from low air pressure;

10. A bias ply tire with more than one ply exposed in the tread area or sidewall or with the exposed area of the top ply in excess of two square inches;

11. A radial ply tire with two or more plies exposed in the tread area or damaged cords evident in the sidewall or the exposed area in excess of two square inches in the sidewall. For a single tire, one tire must meet this condition. On dual wheels, each tire must meet this condition;

12. A regrooved or recapped tire on the front axle; or

13. A Type B, C, or D school bus not equipped with dual rear tires.

13:20-31.13 Wheels and rims

(a) The following is the out-of-service criterion pertaining to rim size:

1. The school bus is equipped with rims of improper size.

(b) The following are the out-of-service criteria pertaining to the lock or side ring:

- 1. Bent, broken, improperly seated, or sprung ring(s); or**
- 2. Mismatched ring(s).**

(c) The following is the out-of-service criterion for wheels and rims:

1. Any wheel/rim is cracked, improperly seated, damaged, or repair-welded.

(d) The following are the out-of-service criteria pertaining to disc wheel cracks:

- 1. Any single crack three inches or more in length;**
- 2. A crack extending between any two holes including hand**

holes, stud holes, and center hole;

- 3. Two or more cracks at any location on the wheel;**
- 4. Disc wheel crack(s) in 1, 2, or 3 above caused by rust or other**

deterioration; or

- 5. Fifty percent or more elongated stud holes on disc wheels with**

the fasteners tight.

(e) The following are the out-of-service criteria pertaining to spoke wheel cracks:

- 1. Two or more cracks more than one inch long across a spoke**

or hub section;

- 2. Two or more web areas with cracks; or**

3. Spoke wheel crack(s) in 1 or 2 above caused by rust or other deterioration, or where rust is bleeding from crack(s).

(f) The following are the out-of-service criteria pertaining to tubeless demountable adapter cracks:

1. Cracks at three or more spokes; or

2. Tubeless demountable adapter cracks in 1 above caused by rust or other deterioration, or where rust is bleeding from crack(s).

(g) The following is the out-of-service criterion pertaining to fasteners (nuts, bolts, studs, lugs):

1. Loose, missing, broken, or cracked (both spoke and disc wheels) deemed ineffective as follows: for 10 fastener positions, three anywhere or two adjacent; for eight fastener positions or less (including spoke wheels and hub bolts), two anywhere.

(h) The following is the out-of-service criterion pertaining to the hub:

1. Excessive wheel bearing play that exceeds the original manufacturer's specifications.

13:20-31.14 Back-up warning alarm

(a) The following are the out-of-service criteria pertaining to the back-up warning alarm:

1. A school bus is not equipped with a back-up warning alarm; or

2. A school bus is equipped with a back-up warning alarm that is not in proper operating condition.

13:20-31.15 Battery

(a) The following are the out-of-service criteria pertaining to the battery:

1. The battery is not securely mounted in the space provided by the chassis manufacturer;

2. A battery cap is missing;

3. A battery cable is not properly insulated;

4. A battery post or a battery cable end is not secure or reasonably free of corrosion;

5. The battery is not secured by a battery holddown(s); or

6. Wiring is exposed or loose.

13:20-31.16 Doors, emergency

(a) The following are the out-of-service criteria pertaining to the emergency door:

1. A school bus is equipped with an emergency door that is not in proper operating condition;

2. The emergency door does not conform to the requirements of N.J.A.C. 13:20-49.1, 13:20-49C.11(h), or 13:20-50B.11(i), whichever is applicable, pertaining to the emergency door fastening device;

3. The emergency door does not conform to the requirements of N.J.A.C. 13:20-49.1, 13:20-49C.11(i), or 13:20-50B.11(j), whichever is applicable, pertaining to the emergency door locking system;

4. The emergency door windows are covered by any metal bars or other screening material; or

5. A school bus is equipped with an emergency door warning device that is not in proper operating condition.

13:20-31.17 Doors, service

(a) The following are the out-of-service criteria pertaining to the service door:

1. A school bus is equipped with a service door that is not in proper operating condition;

2. The service door does not conform to the requirements of N.J.A.C. 13:20-49.1, 13:20-49C.10(a), or 13:20-50B.12(a), whichever is applicable, pertaining to the design of the service door and the control thereof;

3. The service door does not conform to the requirements of N.J.A.C. 13:20-49.1, 13:20-49C.10(b) and (g), or 13:20-50B.12(b) and (i), whichever is applicable, pertaining to the location of the service door;

4. The service door does not conform to the requirements of N.J.A.C. 13:20-49.1, 13:20-49C.10(c), or 13:20-50B.12(c), whichever is applicable, pertaining to minimum horizontal opening and minimum vertical opening;

5. The service door does not conform to the requirements of N.J.A.C. 13:20-49.1, 13:20-49C.10(d), or 13:20-50B.12(d), whichever is applicable, pertaining to service door-type;

6. The service door does not conform to the requirements of N.J.A.C. 13:20-49.1, 13:20-49C.10(e), or 13:20-50B.12(e), whichever is applicable, pertaining to safety glass;

7. The service door does not conform to the requirements of N.J.A.C. 13:20-49.1, 13:20-49C.10(f), or 13:20-50B.12(f), whichever is applicable, pertaining to the vertical closing edges on a split-type door;

8. The service door does not conform to the requirements of N.J.A.C. 13:20-50B.12(g) pertaining to a reverse opening feature on power-operated doors;

9. The service door does not conform to the requirements of N.J.A.C. 13:20-50B.12(h) pertaining to a manual override switch on power-operated doors; or

10. The service door does not conform to the requirements of N.J.A.C. 13:20-50B.12(m) pertaining to sealed doors.

13:20-31.18 Emergency exits

(a) The following are the out-of-service criteria pertaining to emergency exits:

1. A school bus is not equipped with emergency push-out side exit windows or roof safety hatches as required by N.J.A.C. 13:20-49C.12 or 13:20-50B.14, whichever is applicable;

2. A school bus is equipped with emergency push-out side exit windows or roof safety hatches that do not conform to the requirements of N.J.A.C. 13:20-49C.12 or 13:20-50B.14, whichever is applicable;

3. A school bus is equipped with an emergency push-out side exit window or roof safety hatch that is not in proper operating condition;

4. An emergency exit is wired shut or otherwise secured in a closed position so that it cannot be readily opened;

5. An emergency exit is obstructed by baggage, freight, or other items stowed in a manner that impedes access to exits by any occupant of the school bus; or

6. A school bus is equipped with an emergency exit warning device that is not in proper operating condition.

13:20-31.19 Fire extinguishers

(a) The following are the out-of-service criteria pertaining to the fire extinguisher:

1. A school bus is not equipped with a fully-charged fire extinguisher; or

2. A school bus is equipped with a fire extinguisher that does not conform to the requirements of N.J.A.C. 13:20-49.1, 13:20-49C.14, or 13:20-50B.15, whichever is applicable.

13:20-31.20 Heater hoses and lines

(a) The following are the out-of-service criteria pertaining to heater hoses and lines:

1. A heater hose is not supported to protect against excessive wear due to vibration;

2. A heater hose dangles or rubs against the school bus chassis or any other device that has sharp edges;

3. A heater hose does not conform to SAE Standard J20 (October 1997), incorporated herein by reference, as amended and supplemented; or

4. A heater line in the passenger compartment of the school bus is not properly shielded to prevent the scalding of the driver or passengers.

13:20-31.21 Mirrors

(a) The following are the out-of-service criteria pertaining to mirrors:

1. A school bus is not equipped with an interior mirror in accordance with N.J.A.C. 13:20-49.1, 13:20-49C.24, or 13:20-50B.25, whichever is applicable;

2. A school bus is not equipped with exterior mirrors in accordance with N.J.A.C. 13:20-49.1, 13:20-49C.24, or 13:20-50B.25, whichever is applicable; or

3. Any required mirror is broken, discolored, or does not hold a set adjustment.

13:20-31.22 Seat belts for driver and students

(a) The following are the out-of-service criteria pertaining to seat belts:

1. A school bus is not equipped with seat belts in accordance with N.J.S.A. 39:3B-10;

2. A school bus required to be equipped with seat belts in accordance with N.J.S.A. 39:3B-10 is not equipped with seat belt assemblies in accordance with FMVSS No. 209 (49 CFR §571.209), incorporated herein by reference, as amended and supplemented;

3. A school bus required to be equipped with seat belts in accordance with N.J.S.A. 39:3B-10 is not equipped with seat belt assembly anchorages in accordance with FMVSS No. 210 (49 CFR §571.210), incorporated herein by reference, as amended and supplemented; or

4. A school bus required to be equipped with seat belts in accordance with N.J.S.A. 39:3B-10 is not equipped with a seat belt cutter.

13:20-31.23 Seats and crash barriers

(a) The following are the out-of-service criteria pertaining to seats and crash barriers:

1. A school bus is equipped with a seat that is not forward facing;

2. Seat/crash barrier mounting hardware is missing or is not properly installed;

3. A seat leg is not secured to the floor by a minimum of two bolts, washers, and nuts; or

4. A seat frame attached to the seat rail is not fastened with two bolts, washers, and nuts.

13:20-31.24 Steps

(a) The following is the out-of-service criterion pertaining to steps:

1. A school bus is equipped with a grab handle that does not conform to N.J.A.C. 13:20-49.1, 13:20-49C.34(e), or 13:20-50B.35(e), whichever is applicable.

13:20-31.25 Stop signal arm

(a) The following are the out-of-service criteria pertaining to the stop signal arm:

1. A school bus is not equipped with a stop signal arm as required by FMVSS No. 131 (49 CFR §571.131), incorporated herein by reference, as amended and supplemented;

2. A school bus is equipped with a stop signal arm that does not conform to FMVSS No. 131 (49 CFR §571.131), incorporated herein by reference, as amended and supplemented; or

3. A school bus is equipped with a stop signal arm that is not in proper operating condition.

13:20-31.26 Crossing control arm

(a) The following are the out-of-service criteria pertaining to the crossing control arm:

1. A school bus is not equipped with a crossing control arm as required by N.J.S.A. 39:3B-1.1;

2. A school bus is equipped with a crossing control arm that is not mounted in accordance with N.J.A.C. 13:20-49C.44 or 13:20-50B.9, whichever is applicable; or

3. A school bus is equipped with a crossing control arm that is not in proper operating condition.

13:20-31.27 Windshield wipers

(a) The following are the out-of-service criteria pertaining to windshield wipers:

1. Any power unit has a missing windshield wiper or missing part that renders it ineffective; or

2. Any power unit has an inoperative windshield wiper or damaged part that renders it ineffective.

13:20-31.28 Wiring

(a) The following are the out-of-service criteria pertaining to wiring:

1. Wires passing through metal openings are not protected by grommets;

2. Wires are not fastened securely at intervals of not more than 18 inches; or

3. Wire connectors are exposed.

13:20-31.29 Doors; specially equipped school buses

(a) The following are the out-of-service criteria pertaining to doors on specially equipped school buses:

1. A door is not equipped with a warning device that is actuated when the door is not securely closed and the ignition is in the "on" position;

2. A door is equipped with such a warning device that is not in proper operating condition;

3. A door is not equipped with a switch that prevents the lifting mechanism from operating when the power lift platform door is closed; or

4. A door is equipped with such a switch that is not in proper operating condition.

13:20-31.30 Restraining devices; specially equipped school buses

(a) The following are the out-of-service criteria pertaining to restraining devices on specially equipped school buses:

1. The attachment framework or anchorage devices for seat belts, restraining harnesses, or other restraining devices do not conform to FMVSS No. 209 (49 CFR §571.209), incorporated herein by reference, as amended

and supplemented, and FMVSS No. 210 (49 CFR §571.210), incorporated herein by reference, as amended and supplemented; or

2. The wheelchair occupant restraint system does not conform to FMVSS No. 222 (49 CFR §571.222), incorporated herein by reference, as amended and supplemented.

13:20-31.31 Wheelchairs and other mobile seating devices; specially equipped school buses

(a) The following is the out-of-service criterion pertaining to wheelchairs and other mobile seating devices on specially equipped school buses:

1. A school bus that has in its passenger compartment an electric-powered wheelchair equipped with liquid electrolyte batteries.

13:20-31.32 Credentials; insurance

(a) The following are the out-of-service criteria pertaining to insurance credentials:

1. An insurance identification card is not presented for the school bus;

2. An expired insurance identification card is presented for the school bus;

3. An altered insurance identification card is presented for the school bus;

4. A mutilated insurance identification card, which renders the card illegible, is presented for the school bus;

5. A photocopy or facsimile of an insurance identification card is presented for the school bus;

6. An insurance identification card not in the form specified by the Department of Banking and Insurance in N.J.A.C. 11:3-6 is presented for the school bus;

7. An insurance identification card that has an expiration date of more than 14 months from the effective date is presented for the school bus;

8. A temporary insurance identification card without an effective date is presented for the school bus; or

9. An expired insurance binder is presented for the school bus.

13:20-31.33 Placement out-of-service

When an inspection of a school bus discloses the existence of an out-of-service violation(s), such school bus shall be placed out-of-service by authorized representatives of the Division or by law enforcement authorities.

13:20-31.34 Duration of out-of-service order

(a) The school bus shall be placed out-of-service:

1. Until all school bus out-of-service violations are repaired on-site; or

2. Until the school bus is towed by the operator to a repair facility or maintenance garage and all school bus out-of-service violations are repaired.

13:20-31.35 Operation of school bus prohibited

The school bus shall not be operated until all out-of-service violations are remedied and such remedial action is either certified or approved by representatives of the Division.

13:20-31.36 Direction to inspection site

Any authorized representative of the Division may direct any school bus operated in this State to proceed immediately to a designated inspection site for inspection.

13:20-31.37 Examination of driver's operating credentials

Any authorized representative of the Division may demand and examine the driver's operating credentials.

13:20-31.38 Driver out-of-service violations

(a) A driver shall be immediately placed out-of-service and shall not be permitted to continue driving a school bus if such driver:

1. Does not have a commercial driver license (CDL);

2. Has been issued a CDL, but said license is suspended or revoked;

3. Is in possession of an improper class of CDL;

4. Is in possession of a CDL without proper endorsement(s), including the required passenger endorsement;

5. Has been issued a CDL with proper endorsement(s), but said endorsement(s) is suspended or revoked;

6. Is operating a school bus in violation of a CDL restriction;

7. Is not in possession of satisfactory evidence of continuing physical fitness or such evidence is not on file with the Division; or

8. Does not have on file with the Division proof of good character.

(b) In addition to (a) above, the driver shall be subject to the penalties set forth in N.J.S.A. 39:3-10.18.

13:20-31.39 Provision of notice to driver

A school bus operator shall annually provide to each driver employed by the operator a notice containing a copy of N.J.A.C. 13:20-30 and this subchapter.

13:20-31.40 Coercion of driver by operator

No school bus operator shall compel, coerce, or otherwise cause a driver to include false information on a daily school bus inspection report.

**SUBCHAPTER 49A. STANDARDS FOR BUSES USED FOR PUPIL
TRANSPORTATION MANUFACTURED JUNE [,]
1993 [OR THEREAFTER] THROUGH DECEMBER 2002**

**SUBCHAPTER 49B. CHASSIS STANDARDS FOR BUSES USED FOR
PUPIL TRANSPORTATION MANUFACTURED
JUNE 1993 THROUGH DECEMBER 2002**

**SUBCHAPTER 49C. BODY STANDARDS FOR BUSES USED FOR
PUPIL TRANSPORTATION MANUFACTURED
JUNE 1993 THROUGH DECEMBER 2002**

**SUBCHAPTER 49D. SPECIALLY EQUIPPED SCHOOL BUS STANDARDS
FOR BUSES USED FOR PUPIL TRANSPORTATION
MANUFACTURED JUNE 1993 THROUGH DECEMBER
2002**

**SUBCHAPTER 50. STANDARDS FOR SCHOOL BUSES MANUFACTURED
JANUARY 2003 AND THEREAFTER**

13:20-50.1 Scope and purpose

(a) This subchapter shall be applicable to all school buses registered in New Jersey originally designed by the manufacturer to carry 10 or more passengers, excluding the driver, operated by, or under contract with, a public or governmental agency, or religious or other charitable organization or corporation, or privately operated for compensation for the transportation of children to or from school for secular or religious education, school-connected activity, day camp, summer day camp, nursery school, child care center, preschool center or other similar places of education. All such school buses shall comply with the rules set forth in this subchapter and in N.J.A.C. 13:20-50A, 50B, 50C, and all applicable Federal Motor Vehicle Safety Standards.

(b) Any vehicle used for the purposes described in (a) above shall be registered as a school bus and shall be inspected twice each year by the Division's School Bus Inspection Unit to ensure that such vehicle is in safe and proper operating condition. The time and location of the inspection shall be established by the Director or his or her designee.

(c) The rules set forth in this subchapter and in N.J.A.C. 13:20-50A, 50B, and 50C shall not apply to autobuses approved for school use and subject to inspection by the Division's Commercial Bus Inspection and Investigation Unit unless otherwise provided.

(d) An autobus subject to inspection by the Division's Commercial Bus Inspection and Investigation Unit that is used for the transportation of children to or from school shall display a certificate of inspection issued by the Division indicating school use. An autobus is exempt from displaying a certificate for

school use issued by the Division when being used on a preset franchised route and schedule or chartered for school-connected activities.

(e) A parent or legal guardian under contract with a district board of education to transport only his or her own child or children shall not be required to possess a commercial driver license or to use a motor vehicle registered as a school bus.

(f) The rules set forth in this subchapter and in N.J.A.C. 13:20-50A, 50B, and 50C shall apply to school buses with a January 2003 or later incomplete chassis manufacture date unless otherwise provided. School buses manufactured prior to January 2003 shall comply with the standards in effect when the school bus was manufactured or converted.

(g) All equipment and components required by this subchapter and by N.J.A.C. 13:20-50A, 50B, and 50C shall be maintained in proper operating condition at all times.

13:20-50.2 Definitions

The following words and terms, when used in this subchapter and in N.J.A.C. 13:20-50A, 50B, and 50C, shall have the following meanings unless the context clearly indicates otherwise.

“Capacity” means the maximum permitted number of seated passengers if the vehicle contains no wheelchair positions, or the maximum permitted number

of wheelchair positions if the vehicle contains no seated passengers, as certified by the manufacturer on the vehicle manufacturer's certification plate.

"Completed vehicle" means a vehicle that requires no further manufacturing operation to perform its intended function.

"Director" means the Director of the Division of Motor Vehicles in the Department of Transportation in the State of New Jersey.

"Division" means the Division of Motor Vehicles in the Department of Transportation in the State of New Jersey.

"Driver" means the authorized licensed operator of a school bus.

"FMCSR" means the Federal Motor Carrier Safety Regulations as found in the Code of Federal Regulations (49 CFR Part 393). Copies of the Federal Motor Carrier Safety Regulations as found in the Code of Federal Regulations may be purchased from the Superintendent of Documents, United States Government Printing Office, Washington, DC 20402, (202) 783-3238.

"FMVSS" means the Federal Motor Vehicle Safety Standards as found in the Code of Federal Regulations (49 CFR Part 571). Copies of the Federal Motor Vehicle Safety Standards as found in the Code of Federal Regulations may be purchased from the Superintendent of Documents, United States Government Printing Office, Washington, DC 20402, (202) 783-3238.

"Gross axle weight rating" or "GAWR" means the value specified by the manufacturer as the load-carrying capacity of a single axle system, as measured at the tire-ground interfaces.

“Gross vehicle weight” or “GVW” means the total weight of a single vehicle plus its load.

“Gross vehicle weight rating” or “GVWR” means the value specified by the manufacturer as the maximum loaded weight of a single vehicle.

“Incomplete chassis” means an assemblage consisting, at a minimum, of frame and chassis structure, power train, steering system, suspension system and braking system, to the extent that those systems are to be part of the completed vehicle, that requires further manufacturing operation to become a completed vehicle.

“Incomplete chassis manufacture date” means the incomplete vehicle date established by the chassis manufacturer. This date governs the chassis and body manufacturing standards and inspection standards that are applicable to such vehicle.

“Manufacturer” means a person engaged in the business of manufacturing or assembling school buses.

“NSTSP” means the National School Transportation Specifications and Procedures, 2000 Revised Edition (May 2000), which have been issued by the 2000 National Conference on School Transportation. Copies of this publication may be obtained from the Missouri Safety Center, Central Missouri State University, Humphreys Suite 201, Warrensburg, MO 64093, (660) 543-4830.

“Operator” means the owner or person responsible for the day-to-day operation and maintenance of a school bus.

“Parking brake” means a mechanism designed to prevent the movement of a stationary vehicle.

“Passenger” means any person riding in a school bus other than the driver.

“Passenger seat” means a seat other than the driver's seat.

“Person” means any natural person, business, company, firm, partnership, association, corporation, or any other entity.

“School bus” or “bus” when used in N.J.A.C. 13:20-50A, 50B, 50C, or this subchapter shall refer to Type A1, A2, B, C, and D school buses, which shall be classified in the following manner:

1. A “Type A1” school bus is a conversion or body constructed and installed upon a van-type compact truck or a front-section vehicle chassis, with a GVWR of 10,000 pounds or less, originally designed by the manufacturer for carrying 10 to 16 passengers;

2. A “Type A2” school bus is a conversion or body constructed and installed upon a van-type compact truck or a front-section vehicle chassis, with a GVWR of more than 10,000 pounds but less than or equal to 14,500 pounds, originally designed by the manufacturer for carrying 10 to 20 passengers;

3. A “Type B” school bus is constructed utilizing a stripped chassis with a GVWR of more than 10,000 pounds, originally designed by the manufacturer for carrying 10 to 30 passengers. Part of the engine is beneath

and/or behind the windshield and beside the driver's seat. The service door is behind the front wheels;

4. A "Type C" school bus is a body installed upon a flat back cowl chassis with a GVWR of more than 10,000 pounds, originally designed by the manufacturer for carrying 10 to 54 passengers. The engine is in front of the windshield, or part of the engine is beneath and/or behind the windshield and beside the driver's seat. The service door is behind the front wheels; and

5. A "Type D" school bus is a body installed upon a chassis, with the engine mounted in the front, middle, or rear, with a GVWR of more than 10,000 pounds, originally designed by the manufacturer for carrying 10 to 54 passengers. The engine may be behind the windshield and beside the driver's seat; it may be at the rear of the school bus, behind the rear wheels; or it may be in the middle between the front and rear axles. The service door is ahead of the front wheels.

"School bus signal warning lamps" means eight alternately flashing red or amber lamps, mounted horizontally both front and rear, intended to identify a vehicle as a school bus and to inform other users of the highway that the vehicle is stopped or about to stop.

"Seating capacity" means the manufacturer's original passenger capacity design as noted on the manufacturer's vehicle certification plate.

"Service brakes" means the primary mechanism designed to stop a motor vehicle.

“SAE” means the Society of Automotive Engineers, Inc. Copies of the Standards and Recommended Practices of the Society of Automotive Engineers may be purchased from the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096, (724) 776-4841.

“Track seating” means a system installed for the purpose of seating and wheelchair position flexibility.

“UL” means the Underwriters’ Laboratories, Inc.

“Vehicle manufacturer’s certification plate” means the plate issued by the body manufacturer in accordance with N.J.A.C. 13:20-50.3.

“Vendor” means any person engaged in the business of buying, selling, leasing, or exchanging school buses.

13:20-50.3 Vehicle manufacturer’s certification plate; chassis, body, and/or equipment manufacturer’s certification; converter’s certification; vendor’s certification

(a) The manufacturer of a completed vehicle shall ensure that the vehicle manufacturer’s certification plate contains at least the following information:

1. Vehicle identification number;
2. Incomplete chassis manufacture date and completed vehicle

date;

3. The vehicle type (Type A1, A2, B, C, or D);

4. Gross vehicle weight and gross vehicle weight rating;

5. Maximum permitted seated passengers and maximum permitted wheelchair capacity;

6. Year, make, and model number;

7. Body and chassis manufacturer's name, address, and telephone number; and

8. A statement that the vehicle meets all applicable State and Federal standards.

(b) The maximum seated passengers and wheelchair positions as set forth on the vehicle manufacturer's certification plate shall specify the maximum possible seated passengers if there are no wheelchair positions and the maximum possible wheelchair positions if the vehicle contains no passenger seating. To determine capacity, 15 inches of seat space shall be allowed for each seated passenger and 30 inches by 48 inches of wheelchair space shall be allowed for each wheelchair position.

(c) The chassis and/or body manufacturer and any manufacturer of school bus equipment shall, upon request, provide evidence and/or certify to the Division and the school bus operator that such chassis, body, and/or equipment meet the standards of this subchapter, N.J.A.C. 13:20-50A, 50B, and 50C, and all applicable FMVSS.

(d) Any person who alters, converts, or modifies a certified "completed vehicle" shall certify to the Division and the school bus operator that all alterations, conversions, and modifications conform to applicable State and

Federal design, construction, testing, and performance standards of this subchapter, N.J.A.C. 13:20-50A, 50B, and 50C, and all applicable FMVSS.

(e) A vendor who sells or leases school buses for the transportation of children shall issue a "Vendor Certification Statement" to the buyer or lessee, signed by an authorized agent or officer of the company, certifying that the school bus meets all State and Federal standards.

SUBCHAPTER 50A. CHASSIS STANDARDS FOR SCHOOL BUSES

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13:20-50A.1 Air cleaner

(a) The engine air intake cleaner system, including all duct tubing, shall be properly installed by the chassis manufacturer to meet the engine manufacturer's specifications.

(b) The engine air intake system for diesel engines shall have an air cleaner restriction indicator properly installed by the chassis manufacturer to meet the engine manufacturer's specifications.

13:20-50A.2 Axles

The front axle and rear differential, including suspension systems, shall have a GAWR at least equal to that portion of the load that may be carried in accordance with the chassis manufacturer's maximum GVWR.

13:20-50A.3 Brakes

(a) A brake system, including service brakes and parking brake, shall be provided.

(b) School buses using air or vacuum in the operation of the brake system shall be equipped with warning signals, readily audible and visible to the driver, that will emit a continuous warning when the air pressure available in the brake system is 60 pounds per square inch or less or the vacuum available in the brake system is eight inches of mercury or less. The audible warning signal shall be capable of alerting the driver while the school bus is being operated. An illuminated gauge that will indicate to the driver the air pressure in the brake system in pounds per square inch or vacuum in the brake system in inches of mercury shall be provided.

1. A vacuum-assist brake system shall have a reservoir used exclusively for brakes that shall be adequate to ensure loss in vacuum at full stroke application of not more than 30 percent when the engine is not running. The brake system on gasoline-powered engines shall include suitable and convenient connections for the installation of a separate vacuum reservoir.

2. The brake system dry reservoir shall be safeguarded by a check valve or equivalent device so that in the event of failure or leakage in its connection to the source of compressed air or vacuum, the stored dry air or vacuum shall not be depleted by the failure or leakage.

(c) School buses using a hydraulic-assist brake system shall be equipped with an electric source back-up pump system and warning signals, readily audible and visible to the driver, that will emit a continuous warning in the event of a loss of fluid flow from the primary source or failure of the electric source powering the back-up pump system.

(d) The brake lines, booster-assist lines, and control cables shall be protected from excessive heat, vibration, and corrosion and shall be installed in a manner so as to prevent chafing.

(e) The brake system shall be designed to permit the visual inspection of brake lining wear without the removal of any chassis components.

(f) The parking brake shall hold the school bus stationary, or to a limit of traction of the braked wheels, on a 20 percent grade under any condition of legal loading on a surface free of snow, ice, or loose material.

(g) When applied, the parking brake shall remain in the applied position with the capacity set forth in (f) above despite the exhaustion of the source of the energy used for the application of the parking brake or leakage of any kind.

(h) On Type B, C, and D school buses, the parking brake lever shall be mounted to the right of the driver in a position that is easily accessible to the driver. On Type A1 and A2 school buses, the parking brake lever may be mounted in accordance with the chassis manufacturer's specifications and may be mounted to the left of the driver in a position that is easily accessible to the driver.

(i) The parking brake shall be equipped with a warning device visible to the driver that will indicate that the parking brake is engaged.

13:20-50A.4 Bumper, front

(a) A school bus shall be equipped with a front bumper. The front bumper shall be provided by the chassis manufacturer.

(b) The front bumper shall contain no sharp edges and shall be designed so as to prevent snagging.

(c) The front bumper shall be constructed of pressed steel channel or equivalent material. The front bumper shall be at least 3/16 inch thick and not less than eight inches high. The front bumper shall extend beyond the forwardmost part of the body, grille, hood, and fenders. The top line of the front bumper shall extend laterally to the outer edges of the fenders. Notwithstanding the front bumper requirements set forth in this subsection, the front bumpers on Type A1, A2, and B school buses may be in accordance with the chassis manufacturer's specifications.

(d) The front bumper, except breakaway bumper ends, shall be of sufficient strength to permit pushing another vehicle of equal GVW without permanent distortion to the bumper, chassis, or body.

(e) Type B, C, and D school buses shall be equipped with tow eyes or hooks in accordance with the chassis manufacturer's specifications and shall be attached in a manner so as not to project beyond the front bumper.

13:20-50A.5 Clutch

The clutch torque capacity shall be equal to or greater than the engine torque output.

13:20-50A.6 Color

(a) The chassis, including the front bumper, shall be black.

(b) The body cowl, hood, and fenders shall be National School Bus Yellow. The hood may be non-reflective National School Bus Yellow.

(c) Wheels and rims shall be black, gray, white, chrome, silver, or National School Bus Yellow.

(d) The grille shall be gray, chrome, silver, or National School Bus Yellow.

13:20-50A.7 Drive shaft

A school bus shall be protected by a metal guard or guards around the circumference of the front half of the drive shaft to prevent the drive shaft from entering the passenger compartment through the floor or dropping to the ground if broken. If the drive shaft is manufactured in sections, each section of the drive shaft shall be protected by a metal guard or guards around its circumference.

13:20-50A.8 Electrical system

(a) School buses shall be equipped with a battery or batteries as specified by the chassis manufacturer.

1. The storage battery shall have a minimum cold cranking capacity rating equal to the cranking current required for 30 seconds at 0 degrees Fahrenheit and a minimum reserve capacity rating of 120 minutes at 25 amperes.

2. The chassis manufacturer shall supply the battery or batteries and the required battery cable. In all cases the battery cable provided with the chassis shall have sufficient length to allow some slack.

(b) School buses shall be equipped with an alternator.

1. A Type A1, A2, or B school bus shall have an alternator with a minimum output rating of 100 amperes per hour. A school bus equipped with an electrical power lift shall have an alternator with a minimum output rating of 130 amperes per hour.

2. A Type C or D school bus shall have an alternator with a minimum output rating of 160 amperes per hour capable of producing a minimum of 50 percent of its maximum rated output at the engine manufacturer's recommended engine idle speed.

3. A school bus may be equipped with a direct-drive alternator in lieu of a belt-drive alternator. A belt-drive alternator shall be capable of handling the rated output capacity of the alternator with no detrimental affect on any other electrically-powered components or accessories.

4. The required alternator output capacity shall be determined in accordance with the performance specifications for the alternator component of

school bus electrical systems set forth in the NSTSP, 2000 Revised Edition (May 2000) at pages 13-14, incorporated herein by reference, as amended and supplemented.

(c) All wiring shall be of a standard color and number coding and shall conform to SAE Recommended Practice J1292 (October 1981), incorporated herein by reference, as amended and supplemented.

1. The chassis shall be delivered to the school bus operator with a wiring diagram that coincides with the wiring of the chassis.

2. The chassis manufacturer shall install a readily accessible terminal strip or plug on the body side of the cowl, or in an accessible location in the engine compartment of school buses designed without a cowl. The terminal strip or plug shall contain the following terminals for the body connections:

i. Main 100 amperes body circuit;

ii. Taillamps;

iii. Right turn signal;

iv. Left turn signal;

v. Stoplamps;

vi. Back-up lamps; and

vii. Instrument panel lights that are rheostat-controlled by the headlamp switch.

13:20-50A.9 Exhaust system

(a) The exhaust pipe, muffler, and tailpipe shall be outside the school bus body compartment and shall be attached to the chassis.

(b) The exhaust system components shall not be installed in a location that is likely to result in the burning, charring, or damaging of the electrical wiring, the fuel supply, or any combustible part of the school bus. The exhaust system on a gasoline-powered chassis shall be properly insulated from the fuel system, including the fuel tank and fuel tank connections, by a securely attached metal shield at any point where an exhaust system component is 12 inches or less from the fuel tank or fuel tank connections. When a metal shield is required, the metal shield shall provide a minimum clearance of two inches between the exhaust system components and the electrical wiring, fuel tank, fuel tank connections, and/or combustible components.

(c) The tailpipe shall be constructed of a corrosion-resistant tubing material at least equal in strength and durability to 16-gauge steel tubing of equal diameter.

1. The exhaust system tailpipe shall terminate to the rear of all doors and windows designed to be opened for ventilation.

2. The exhaust system shall not discharge to the atmosphere immediately below an emergency exit, fuel tank, or fuel tank fill pipe.

3. The exhaust system tailpipe of a gasoline-powered engine shall extend to the rear bumper or to the left or right side of the school bus body and shall discharge to the atmosphere either:

i. At or within six inches forward of the rearmost part of the school bus on either side; or

ii. At or beyond the rear school bus bumper up to a maximum of two inches.

4. The exhaust system tailpipe of an engine powered by a fuel other than gasoline shall extend to the rear bumper or to the left or right side of the school bus body and shall discharge to the atmosphere either:

i. At or within 15 inches forward of the rearmost part of the school bus on either side; or

ii. At or beyond the rear school bus bumper up to a maximum of two inches.

(d) The tailpipe diameter from the muffler to the end of the tailpipe shall comply with the chassis manufacturer's specifications.

(e) The muffler shall be constructed of corrosion-resistant material.

13:20-50A.10 Fenders, front

(a) The outer edges of the front fenders, measured at the fender line, shall extend beyond the outer edges of the front tires when the front wheels are in a straight-ahead position.

(b) The front fenders shall be properly braced and shall not require attachment to any part of the school bus body.

(c) The front fenders shall not have any sharp edges.

13:20-50A.11 Frame

(a) The frame or its equivalent shall be of such design and strength characteristics as to correspond to at least standard practices for trucks of the same general load characteristics.

(b) Frames shall not be modified for the purpose of extending the wheelbase.

(c) Holes in the top or bottom flanges or side units of the frame shall not be permitted except as provided in the original chassis frame. Welding to the frame shall be by the chassis manufacturer or as approved by the chassis manufacturer.

(d) Frame lengths shall be established in accordance with the design criteria for the complete vehicle.

13:20-50A.12 Fuel tank

(a) A fuel tank(s) having a minimum 30-gallon capacity shall be provided by the chassis manufacturer. The actual draw capacity of each fuel tank shall be 25 gallons. If a fuel tank size larger than 30 gallons is supplied, the actual draw shall be 83 percent of the tank capacity. A fuel tank(s) shall be filled and vented to the outside of the body and the fuel filler shall be placed in a location where accidental fuel spillage will not drip or drain onto any part of the exhaust system.

(b) No portion of the fuel system that is located to the rear of the engine compartment, except the filler tube, shall extend above the top of the chassis

frame rail. Fuel lines shall be mounted to the chassis frame so as to obtain the maximum possible protection from the chassis frame.

(c) A fuel filter with a replaceable element shall be installed between the fuel tank and the engine.

(d) A school bus constructed with a power lift unit may have the fuel tank mounted on the left chassis frame rail or behind the rear wheels.

(e) A Type A2, B, C, and D school bus shall be equipped with a steel guard around the fuel tank. A Type A1 school bus shall be equipped with a fuel tank in accordance with the manufacturer's specifications.

(f) The fuel system shall comply with FMVSS No. 301 (49 CFR §571.301), incorporated herein by reference, as amended and supplemented.

13:20-50A.13 Governor

(a) When an engine is mounted in the middle or rear of a school bus, a governor shall be installed to limit engine speed to the maximum revolutions per minute recommended by the engine manufacturer, or a tachometer shall be installed so that the engine speed may be known to the driver.

(b) An engine governor may be installed in front engine school buses.

(c) A governor may be installed to limit road speed.

13:20-50A.14 Heating system

The chassis engine shall have plugged openings for the purpose of supplying hot water for the school bus heating system. The openings shall be

suitable for attaching 3/4 inch pipe thread/hose connectors. The engine shall be capable of supplying water at a temperature of at least 170 degrees Fahrenheit at a flow rate of 50 pounds per minute at the return end of 30 feet of one-inch inside diameter automotive hot water heater hose.

13:20-50A.15 Horn

School buses shall be equipped with dual horns of a standard make. Each horn shall be capable of emitting a sound audible under normal conditions at a distance of 200 feet.

13:20-50A.16 Instruments and instrument panel

(a) The chassis shall be equipped with the following instruments and gauges:

1. Speedometer;
2. Odometer;
3. Ammeter with graduated charge and discharge indications or alternator light. An ammeter and its wiring shall be compatible with the generating capacities of the system. A voltmeter may be provided in lieu of an ammeter;
4. Oil pressure gauge;
5. Water temperature gauge;
6. Fuel gauge;
7. Upper beam headlight indicator light;

8. Air or vacuum brake indicator gauge equipped with a warning buzzer and light indicating when air pressure or vacuum is depleted below one-half of its capacity. A telltale warning light indicator shall be permitted in lieu of a gauge on school buses equipped with a hydraulic-over-hydraulic brake system;

9. Turn signal indicator lights;

10. Glow-plug indicator light, where appropriate; and

11. Stoplight indicator light.

(b) Lights shall not be permitted in lieu of gauges except as otherwise provided in (a) above.

(c) All instruments shall be easily accessible for maintenance and repair.

(d) Instruments and gauges shall be mounted on an instrument panel in such a manner that each is clearly visible to the driver while he or she is seated in the driver's seat with the seat belt engaged.

(e) The instrument panel shall have lamps of sufficient candlepower to illuminate all instruments, gauges, and the gearshift selector indicator for an automatic transmission.

(f) Instruments and gauges shall be appropriately identified.

13:20-50A.17 Oil filter

An oil filter with a replaceable element shall be provided and shall be connected by flexible oil lines if the oil filter is not of a built-in or engine-mounted design. The oil filter shall have a capacity of at least one quart.

13:20-50A.18 Openings

All openings in the floorboard or fire wall between the chassis and the passenger compartment including, but not limited to, the gearshift selector/lever and the parking brake lever shall be sealed. Hoses, electrical lines, cables, and other equipment that pass through the fire wall shall be sealed with a rubber grommet and/or suitable compound designed for such use to prevent chafing and to prevent fumes from entering the passenger compartment of the school bus.

13:20-50A.19 Passenger load

(a) The GVW is the sum of the chassis weight, plus the body weight, plus the driver's weight, plus the seated passengers' weight.

(b) For purposes of this section:

1. The driver's weight is 150 pounds; and

2. The passengers' weight is 120 pounds per student.

(c) The GVW shall not exceed the chassis manufacturer's GVWR for the chassis.

(d) School buses having a GVWR of 26,001 or more pounds shall display the GVWR on each side of the school bus in black letters and numbers at least three inches but not more than six inches in height.

13:20-50A.20 Power and gradability

The GVWR shall not exceed 185 pounds per published net horsepower of the engine at the manufacturer's recommended maximum number of revolutions per minute.

13:20-50A.21 Retarder system

A retarder system may be used which shall maintain the speed of the fully-loaded school bus at 19 miles per hour on a seven percent grade for 3.6 miles.

13:20-50A.22 Shock absorbers

School buses shall be equipped with double-action shock absorbers compatible with the manufacturer's rated axle capacity at each wheel location.

13:20-50A.23 Springs and shackles

(a) The capacity of the springs or suspension assemblies shall be commensurate with the chassis manufacturer's GVWR.

(b) If leaf-type rear springs are used, they shall be of a progressive-type.

(c) Springs shall be aligned by a centering pin.

(d) U-bolts shall be secured by nuts.

13:20-50A.24 Steering gear

(a) The steering gear shall conform to the chassis manufacturer's standard and shall be designed to ensure proper performance when the school bus is operated with maximum load and at maximum speed.

(b) The steering mechanism shall be accessible for external adjustment.

(c) No changes shall be made to the steering apparatus that are not approved by the chassis manufacturer.

(d) There shall be a clearance of at least two inches between the steering wheel and the cowl, instrument panel, windshield, or any other surface.

(e) Power steering is required and shall be of the integral-type with integral valves.

(f) The steering system shall be designed to provide a means of lubrication for all wear points, if wear points are not permanently lubricated.

13:20-50A.25 Tires and rims

(a) Tires and rims of proper size and tires with a load-rating commensurate with the chassis manufacturer's GVWR shall be provided.

(b) Tubeless tires mounted on one-piece drop center rims may be used.

(c) All tires shall be of the same size, type, construction, and load-rating. The load-rating shall meet or exceed the GVWR, as required by FMVSS No. 120 (49 CFR §571.120), incorporated herein by reference, as amended and supplemented. Tires on Type C and D school buses may be of more than one type of construction provided all tires on the same axle are the same type of construction.

(d) A school bus may be equipped with a spare tire and rim assembly of the same size as those mounted on the school bus. A spare tire shall not be stored inside the passenger compartment of the school bus.

(e) A school bus may be equipped with a spare tire carrier properly mounted under the floor in an area accessible to the driver.

(f) The tire tread depth shall at no time be less than 4/32 of an inch on the front tires and 2/32 of an inch on the rear tires as measured on two adjacent treads by a Dill gauge or its equivalent.

(g) Regrooved or recapped tires shall not be used on the front axle of a school bus.

(h) Dual rear tires shall be provided on Type A2, B, C, and D school buses.

(i) Tire chains, snow tires, all-weather tires, or tires marked with "M & S" shall be used for the drive wheels to enhance the safe operation of the school bus during adverse weather conditions. The "M & S" marking is not necessary if a rear tire has a retread that is a snow/mud-type tread and meets the minimum tire tread depth standards of (f) above.

(j) Spacers shall be as specified by the manufacturer and shall not be altered.

13:20-50A.26 Transmission

(a) When an automatic transmission is used, it shall provide at least three forward speeds and one reverse speed.

(b) When a manual transmission is used, second gear and higher shall be synchronized except when incompatible with engine power. A minimum of three forward speeds and one reverse speed shall be provided.

(c) A diagram of the shifting control pattern shall be located in a position easily visible to the driver.

(d) The automatic transmission shift lever shall be equipped with a detent mechanism to ensure that the transmission cannot accidentally move from “neutral” to a drive gear without driver effort.

(e) School buses that are not equipped with a “park” position on the shift control selector for automatic transmissions shall be equipped with a heavy-duty parking brake.

(f) The transmission shift control lever/mechanism shall be mounted to the right of the steering column.

(g) The shift indicator shall align with the corresponding gear.

13:20-50A.27 Turning radius

(a) A chassis with a wheelbase of 264 inches or less shall have a right and left turning radius of not more than 42 1/2 feet, curb-to-curb measurement.

(b) A chassis with a wheelbase of more than 264 inches shall have a right and left turning radius of not more than 44 1/2 feet, curb-to-curb measurement.

13:20-50A.28 Undercoating

The undersides of steel or metallic-constructed front fenders shall be coated with a rustproofing compound meeting or exceeding Federal Standard Rustproofing of Commercial (Nontactical) Vehicles (FED-STD-297E), incorporated herein by reference, as amended and supplemented. Copies of the above Federal Standard, which is approved by the Commissioner, Federal Supply Service, United States General Services Administration, may be obtained from the General Services Administration, Federal Supply Service Bureau, Specification Section, Suite 8100, 470 East L'Enfant Plaza, S.W., Washington, DC 20407. The undercoating material shall be nonflammable, shall not peel, crack, chip, or melt, and shall be stable under both high and low temperatures.

13:20-50A.29 Weight distribution

The weight distribution of a fully-loaded school bus on a level surface shall not exceed the manufacturer's front and rear GAWR.

SUBCHAPTER 50B. BODY STANDARDS FOR SCHOOL BUSES

MANUFACTURED JANUARY 2003 AND
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13:20-50B.1 Air conditioning

(a) School buses may be equipped with an air conditioning system.

(b) Installation of any air conditioning unit shall not infringe on the inside height requirements set forth in N.J.A.C. 13:20-50B.20. Installation of any air conditioning ducting shall not infringe on the head protection zone as set forth in FMVSS No. 222 (49 CFR §571.222), incorporated herein by reference, as amended and supplemented.

(c) An air conditioning unit shall not obstruct the rear emergency exit and shall be mounted in such a manner that it will not cause injury upon entering or exiting the school bus.

(d) An air conditioning unit shall not be installed over a passenger seat or wheelchair position. An air conditioning ducting system that is mounted over a seat or wheelchair position shall not extend into the passenger compartment more than eight inches from the bulkhead nor more than 11 inches from the ceiling of the school bus. Any ducting system shall be designed and installed so as to be free of projections and sharp edges. Any ductwork shall be installed so that exposed edges face the front of the school bus and do not present sharp edges. The bottom and corners of such ductwork shall be padded with one-inch thick fire block material.

(e) Floor-mounted air conditioning units shall not be installed in a manner that allows passengers to stand or step onto the unit.

(f) Any evaporator or ducting system shall be designed and installed so as to be free of projections and sharp edges and shall be padded to prevent injury. Any air conditioning ducts that are mounted over a seated position shall not extend more than eight inches from the bulkhead nor be higher than 11

inches. Any ducting shall not infringe on the head protection zone as set forth in FMVSS No. 222 (49 CFR §571.222), incorporated herein by reference, as amended and supplemented.

(g) Roof-mounted air conditioning units shall not restrict the operation of any roof safety hatch.

(h) The air conditioning unit shall meet the performance specifications for air conditioning set forth in the NSTSP, 2000 Revised Edition (May 2000) at pages 30-31, incorporated herein by reference, as amended and supplemented.

(i) Notwithstanding (b) above, an air conditioning unit may be installed over the engine or driver's compartment in a Type D school bus.

(j) Notwithstanding (b) above, an air conditioning unit may be installed over the driver's compartment in a Type C school bus.

13:20-50B.2 Aisle

(a) The minimum clearance of all aisles shall be 12 inches unless otherwise provided in this subchapter.

1. The aisle leading to a service door and a rear emergency door shall be a minimum width of 12 inches.

2. The aisle leading from the center aisle to a side emergency door shall be a minimum width of 24 inches.

3. The aisle leading to the emergency door and the power lift door from each wheelchair position shall be a minimum width of 30 inches.

4. On Type A1 school buses, the aisle opening at the rear emergency door shall be a minimum width of 22 inches, a minimum height of 45 inches, and a minimum depth of six inches.

5. On Type A2, B, C, and D school buses, the aisle opening at the rear emergency door shall be a minimum width of 24 inches, a minimum height of 45 inches, and a minimum depth of 12 inches.

(b) Aisles shall not be obstructed at any time by any barrier, seat, wheelchair mounting, or other object.

(c) The seatbacks shall be slanted so as to provide a minimum aisle clearance of 15 inches as measured from the tops of the seatbacks.

13:20-50B.3 Back-up warning alarm

An automatic audible back-up warning alarm shall be installed in the area behind the rear axle of the school bus and shall comply with SAE Standard J994 (August 1993), incorporated herein by reference, as amended and supplemented. The back-up warning alarm shall not be activated when the side or rear emergency doors are opened unless the school bus is in reverse.

13:20-50B.4 Battery

(a) A battery is to be furnished by the chassis manufacturer.

(b) The body manufacturer shall securely attach the battery on a slide-out or swing-out tray in a closed, vented compartment in the body skirt, so that the battery is accessible for convenient servicing from the outside. The battery

compartment door or cover shall be hinged at the front or top and secured by a conveniently operated latch or other type of fastening device.

(c) The battery shall be securely mounted in the space provided for by the chassis manufacturer and shall be equipped with battery caps. Battery posts and battery cable ends shall be secure and free of corrosion. Battery cables shall be in accordance with the manufacturer's specifications and shall be insulated and installed so as to prevent the shorting of the electrical system.

13:20-50B.5 Bumpers

(a) A school bus shall be equipped with a front and rear bumper.

(b) Bumpers shall contain no sharp edges and shall be designed so as to prevent snagging.

(c) The front bumper shall be provided by the chassis manufacturer. The front bumper shall be black and shall extend beyond the forwardmost part of the body, grille, hood, and fenders of the school bus. The front bumper shall extend across the full width of the school bus to the outer edges of the fenders. Bumper brackets shall be secured to the bumper.

(d) A front safety shield may be attached directly under the school bus front bumper. The front safety shield shall be constructed of rigid plastic, fiberglass, steel, or equivalent material. The shield shall be designed to withstand abnormal vibration or severe atmospheric conditions. The front safety shield shall be removable to permit towing. The front safety shield's overall width shall not extend beyond the front tire width when the school bus wheels are in a

straight-ahead position. The bottom edge of the shield shall terminate 12 to 14 inches above the road surface. The front surface of the front safety shield may be solid, perforated, or louvered, and shall be black.

(e) The rear bumper shall be provided by the body manufacturer. The rear bumper shall be constructed of pressed steel channel or equivalent material. The rear bumper shall be at least 3/16 inch thick. The rear bumper on Type A1 school buses shall be a minimum of eight inches high. The rear bumper on Type A2, B, C, and D school buses shall be a minimum of 9 1/2 inches high.

(f) The bumpers shall be of sufficient strength to permit pushing by another vehicle without permanent distortion to the bumper, chassis, or body.

(g) The rear bumper shall be wrapped around the back corners of the school bus and shall extend forward at least 12 inches, measured from the rearmost point of the school bus body at the floor line, and shall be flush-mounted to the body sides or protected with an end panel.

(h) The rear bumper shall be attached to the chassis frame in such a manner that it may be easily removed. The rear bumper shall be braced so as to withstand impact from the rear or side, and shall be attached in a manner so as to prevent to the greatest extent possible the hitching of rides.

(i) The rear bumper shall extend at least one inch beyond the rearmost part of the body surface measured at the floor line. The rear bumper shall not contain any holes other than the opening to accommodate the exhaust pipe and the manufacturer's drain holes. If there is an opening in the bumper to accommodate an exhaust pipe, the opening shall not be more than one-half inch

larger than the exhaust pipe diameter. There shall be at least one and one-half inches of bumper material above and below the opening measured from the top edge and bottom edge of the bumper. The bumper shall be reinforced around the opening.

(j) A school bus shall not be equipped with a rear bumper designed in a manner so that it can be used as a step.

13:20-50B.6 Color

(a) The school bus body, including the fenders and doors, shall be National School Bus Yellow.

(b) The body exterior paint trim, bumpers, lamp hoods, emergency door arrow, rub rails, exterior mirror assembly and support brackets shall be black.

(c) The words "EMERGENCY DOOR" shall be applied on both the inside and outside of the emergency door in red letters at least two inches high with a brushstroke at least 3/16 inch wide.

(d) National School Bus Yellow reflective material may be applied to the school bus. The material used shall be of an automotive engineering grade or better, shall meet initial reflectance values in accordance with performance specifications for reflective material set forth in the NSTSP, 2000 Revised Edition (May 2000) at page 36, incorporated herein by reference, as amended and supplemented, and at Appendix B (Retroreflective Sheeting Daytime Color Specification) thereof at page 199, incorporated herein by reference, as amended and supplemented, and shall retain at least 50 percent of the initial reflectance

values for a minimum of six years. Reflective materials and markings, if used, may include any or all of the following:

1. If reflective materials and markings are applied to the bumpers, the bumpers shall be marked with stripes of reflective National School Bus Yellow or non-contrasting reflective material. The stripes shall be two inches wide and shall be evenly spaced across the entire width of the bumper. The stripes shall run diagonally at 45 degree angles from the top of the bumper to the bottom of the bumper toward the centerline of the bumper.

2. If reflective materials and markings are applied on the rear, the rear of the school bus body shall be marked with a strip of reflective National School Bus Yellow material no greater than two inches in width to be applied to the back of the school bus, extending from the lower left corner of the "SCHOOL BUS" lettering, across to the left side of the school bus, then vertically down to the top of the bumper, across the school bus on a line immediately above the bumper to the right side, then vertically up to a point even with the strip placement on the left side, and concluding with a horizontal strip terminating at the lower right corner of the "SCHOOL BUS" lettering.

3. If reflective materials and markings are applied to the sides, the sides of the school bus body shall be marked with reflective National School Bus Yellow material at least two inches but not more than 12 inches in width, extending the length of the school bus body and located vertically as close as practicable to the belt line.

(e) The background of the front and/or rear "SCHOOL BUS" signs shall be marked with reflective National School Bus Yellow material.

(f) The roof of the school bus may be painted white provided that at least a six-inch National School Bus Yellow border is maintained above the top window line. The front and rear roof caps shall remain National School Bus Yellow.

13:20-50B.7 Communications

(a) School buses may be equipped with an electronic voice communication system.

(b) A public address sound system with interior flush-mounted speakers and exterior speakers may be installed.

13:20-50B.8 Construction

(a) The school bus construction shall be of prime commercial quality steel or other metal or material with strength at least equivalent to all-steel as certified by the body manufacturer.

(b) The construction shall provide a dustproof and watertight unit and the exterior shall be designed to prevent to the greatest extent possible the hitching of rides.

(c) The school bus body joints, excluding the body panel joints created when body components are attached to components furnished by the chassis

manufacturer, shall conform to FMVSS No. 221 (49 CFR §571.221), incorporated herein by reference, as amended and supplemented.

(d) A school bus may be equipped with steel side panel skirts between the front and rear axles of the school bus. The side panel skirts shall extend to the bottommost elevation of any chassis component located between the front and rear axles of the school bus. The side panel skirts shall be apportioned into three equal sections. The side panel skirts shall terminate no less than 12 inches above the level road surface. A school bus may be equipped with steel side panel skirts behind the rear axles of the school bus. The bottom of the side panel skirts, which are located behind the rear axle, shall taper upward to the bottommost part of the rear bumper.

(e) School buses shall not be equipped with stanchions, interior luggage racks, roof luggage racks, luggage access ladders, or any other equipment that may obstruct the passenger compartment.

13:20-50B.9 Crossing control arm

(a) Every school bus shall be equipped with a crossing control arm.

(b) The construction and design of the crossing control arm shall offer safe and trouble-free operation.

(c) The crossing control unit shall be installed on the right side of the front bumper. The crossing control arm shall not obstruct the front license plate on the school bus.

(d) The open crossing control arm shall extend forward from the front bumper at least 70 inches. The crossing control arm shall be powered by either vacuum, air pressure, or electricity. Manual operation of the crossing control arm shall not be permitted.

(e) The crossing control arm shall be activated automatically to the fully-extended position when the red school bus signal warning lights are in operation. An override switch may be installed that prevents the automatic extension of the crossing control arm, provided the override switch is within the reach of the driver and has an audible warning buzzer to indicate that the crossing control arm has been deactivated.

13:20-50B.10 Defrosters

(a) Defrosting and defogging equipment shall direct a sufficient flow of heated air onto the windshield, the window to the left of the driver, and the glass in the viewing area directly to the right of the driver to eliminate frost, fog, or snow. The defroster unit shall have a separate blower motor in addition to the heater motor. A Type A1 school bus shall be equipped with defrosting and defogging equipment that will direct a sufficient flow of heated air onto the windshield to eliminate frost, fog, or snow in accordance with the manufacturer's specifications.

(b) The defrosting system shall conform to SAE Recommended Practice J381 (April 1994), incorporated herein by reference, as amended and supplemented.

(c) The defrosting and defogging system shall be capable of furnishing heated outside ambient air, except that that part of the system furnishing additional air to the windshield, service door, and stepwell may be of the recirculating air-type.

(d) Auxiliary fans shall not be considered a defrosting or defogging system.

(e) Portable heaters shall not be used in school buses.

13:20-50B.11 Doors, emergency

(a) The emergency door shall be hinged on the right side if the emergency door is located in the rear end of the school bus and on the front side if the emergency door is located on either side of the school bus. All emergency doors shall open outward and shall be equipped with a device to hold the door open during emergencies and school bus evacuation drills.

(b) A Type A1 school bus equipped with double emergency doors shall be hinged on the outside edges of the doors and shall have three one-point fastening devices attached to the body.

(c) The emergency door shall be labeled inside and outside to indicate how the door is to be opened. A black arrow on the outside shall indicate how the emergency door is to be opened. The opening instructions on the inside shall be red or black.

(d) The upper portion of an emergency door shall be equipped with approved safety glazing, the exposed area of which shall be not less than 400 square inches.

1. A rear view wide-angle lens may be attached to one rear school bus window. The lens shall not cover more than one-third of the glass area.

(e) The lower portion of the rear emergency door on a Type A2, B, C, or D school bus shall be equipped with approved safety glazing, the area of which shall be not less than 350 square inches.

(f) A school bus shall not be equipped with steps leading to the emergency door.

(g) The words "EMERGENCY DOOR" shall be applied on both the inside and outside of the emergency door in red letters at least two inches high with a brushstroke at least 3/16 inch wide. The letters shall be placed either directly above the emergency door or on the top of the emergency door in the metal panel above the safety glazing. There shall be no lettering on the glass.

(h) The emergency door shall be designed to be opened from the inside and the outside of the school bus and shall be equipped with a quick release fastening device designed to prevent accidental release. The emergency door fastening device shall not be controlled from the driver's seat. The release mechanism shall be free of any obstruction that may prevent a quick release in case of an emergency.

(i) The emergency door fastening device shall be equipped with an electric plunger-type switch connected to a buzzer located in the driver's compartment that will indicate to the driver that the slide bar has moved and the emergency door is about to open. The switch that operates the buzzer shall be enclosed in a metal case and the wires leading from the switch shall be concealed in the school bus body. The switch shall be installed so that the plunger contacts the farthest edge of the slide bar in such a manner that any movement of the slide bar shall immediately close the circuit on the switch and activate the buzzer.

(j) The emergency door may be equipped with a locking system that incorporates an interlocking electrical circuit that prevents the engine of the school bus from being started while the emergency door is locked. A buzzer shall be provided in the driver's compartment that will indicate to the driver that the door lock has been tampered with while the school bus is in motion. No other locking system designed for school bus security shall be used. The engine ignition system of a school bus shall not operate if an emergency door is locked from either inside or outside the school bus.

(k) The emergency door shall be equipped on the outside with a non-detachable handle designed to permit the opening of such door from the outside. The handle shall be designed so as to prevent to the greatest extent possible the hitching of rides.

(l) The emergency door windows shall not be covered by any metal bars or other screening material.

(m) The emergency door shall be equipped with padding at the top edge of each door opening. The padding shall be at least three inches wide and one-inch thick, and shall extend the full width of the door opening. The emergency door shall have a securely fastened rubber seal around the circumference of the door opening.

(n) There shall be no obstruction higher than 1/4 inch across the bottom of any emergency door opening.

(o) The emergency door shall be equipped with a fastening device to hold the door open during emergencies and school bus evacuation drills. A fastening device affixed to the outside shall not protrude more than 3/4 inch from the school bus body or door, or be of a type that may cause injury when it is not securing the emergency door in its open position.

(p) The emergency door shall contain no numbering or lettering other than the words "EMERGENCY DOOR" and the emergency door arrow.

13:20-50B.12 Doors, service

(a) The service door is the door intended to be used by passengers to enter and exit the school bus. The service door shall be under the control of the driver and shall be designed so as to afford easy release and prevent accidental opening. When a hand lever is used, no parts of the lever shall come together so as to cause injury.

(b) The service door shall be located on the right side of the school bus opposite the driver and within the direct view of the driver.

(c) The service door on a Type A2, B, C, or D school bus shall have a minimum horizontal opening of 24 inches and a minimum vertical opening of 68 inches. The service door on a Type A1 school bus shall have a minimum opening area of 1,200 square inches.

(d) The service door shall be a split-type, sedan-type, or jackknife-type. A split-type door includes any sectioned door that divides and opens inward or outward. If one section of a split-type door opens inward and the other section opens outward, the front section shall open outward.

(e) The glass portion of the door panels shall be approved safety glass. The bottom of each lower glass panel shall not be more than 10 inches from the top surface of the bottom step. The top of the upper glass panel shall not be more than three inches from the top of the door. A Type A1 school bus that is not equipped with a split-type door shall have an upper panel window of safety glass with an area of at least 350 square inches.

(f) The vertical closing edges on a split-type door shall be equipped with a flexible material to protect against injury. A Type A1 school bus that is not equipped with a split-type door may conform to the chassis manufacturer's service door specifications.

(g) A power-operated door shall be designed with a reverse opening feature that is activated when there is an obstruction in the doorway.

(h) A power-operated door shall be equipped with a manual override switch to permit the operation of the door when there is a loss of power.

(i) There shall be no door to the left of the driver on a Type B, C, or D school bus. A Type A1 or A2 school bus may conform to the manufacturer's specifications for a driver's entrance door.

(j) All doors shall be equipped with padding at the top edge of each door opening. The padding shall be at least three inches wide and one inch thick and shall extend the full width of the door opening.

(k) When a school bus is equipped with air brakes, air-operated doors, or other air-operated assemblies, excluding windshield wipers, the school bus shall be equipped with an additional air tank(s) for the operation of those assemblies.

(l) Service door trim may be National School Bus Yellow or black in color.

(m) A service door shall not be sealed.

13:20-50B.13 Emergency equipment

(a) Every school bus shall have a pry bar at least 24 inches in length that shall be securely mounted in the school bus in a location readily accessible to the driver.

(b) Each school bus shall contain at least three reflectorized triangular road-warning devices in compliance with FMVSS No. 108 (49 CFR §571.108), incorporated herein by reference, as amended and supplemented, which shall be securely mounted in an accessible place in the driver's compartment.

(c) A school bus may be equipped with an identified vehicle fluid clean-up kit that is removable, moistureproof, and mounted in an accessible place in the driver's compartment.

13:20-50B.14 Emergency exits

(a) School buses shall be equipped with emergency push-out side exit windows that are vertically hinged on the forward side of the window as follows:

1. One emergency push-out exit window per side.

i. Emergency push-out side exit windows shall not be placed directly opposite each other.

ii. Each emergency push-out side exit window shall be equipped with a warning buzzer, located in the driver's compartment, to alert the driver when the latch for the emergency push-out side exit window is released.

iii. Each emergency push-out side exit window shall be outlined around its outside perimeter with a retroreflective tape with a minimum width of 2.5 centimeters and shall be either red, white, or yellow in color.

iv. Each emergency push-out side exit window shall have the designation "EMERGENCY EXIT" in red or black letters at least 5 centimeters high with a brushstroke at least 3/16 inch wide. The red or black letters shall contrast with the color of the surface upon which they are placed. The lettering shall be placed either directly above the push-out side exit window, or at the top of, or at the bottom of the push-out side exit window on both the inside and outside surfaces of the school bus. Concise operating instructions describing

the motions necessary to unlatch and open the emergency push-out side exit window shall be located within 15 centimeters of the release mechanism on the inside surface of the school bus. The instructions shall be in letters at least one centimeter high and of a color that contrasts with its background.

v. Emergency push-out side exit windows shall not be located directly above the stop signal arm.

vi. Emergency push-out side exit windows shall not be obstructed at any time by any barrier, seat, door, or other object.

2. School buses may be equipped with additional emergency push-out side exit windows.

(b) School buses shall be equipped with roof safety hatches as follows:

1. Each Type A2, B, C, or D school bus shall be equipped with two roof safety hatches. One roof safety hatch shall be located as near as practicable to a point equidistant from the midpoint of the passenger compartment and the forwardmost limit of the passenger compartment and the other roof safety hatch shall be located as near as practicable to a point equidistant from the midpoint of the passenger compartment and the rearmost point of the passenger compartment. Each Type A1 school bus shall be equipped with one roof safety hatch, which shall be located as near as practicable to the midpoint of the passenger compartment.

2. The roof safety hatch or hatches shall be constructed of metal, fiberglass, or equivalent material and shall be equipped with interior and exterior

latch releases. Each roof safety hatch shall provide a minimum opening of 20 inches by 20 inches.

3. Each roof safety hatch shall be equipped with a warning buzzer, located in the driver's compartment, to alert the driver when the latch for the roof safety hatch has been released. Each roof safety hatch shall have the designation "EMERGENCY EXIT" in red or black letters at least two inches high with a brushstroke at least 3/16 inch wide. The lettering shall be located on the inside and outside surfaces of the roof safety hatch or within 12 inches of the roof safety hatch opening. Concise operating instructions describing the motions necessary to unlatch and open the roof safety hatch shall be located within six inches of the release mechanism on the inside and outside of the school bus.

13:20-50B.15 Fire extinguisher systems

(a) Every school bus shall be equipped with an automatic fire extinguisher system for the engine compartment. The fire extinguisher system shall be installed in accordance with the chassis manufacturer's specifications.

(b) School buses may be equipped with fire extinguisher systems in other locations in accordance with the chassis manufacturer's specifications.

(c) An indicator light shall be provided in the driver's compartment that will indicate to the driver the existence of a fire in the engine compartment of the school bus. The indicator light shall remain lit until the system is serviced and the light reset.

(d) Every school bus shall be equipped with at least one UL-approved pressurized, dry chemical-type fire extinguisher, complete with hose, mounted in a bracket located in the driver's compartment and readily accessible to the driver and passengers. A pressure gauge shall be mounted on the fire extinguisher that can be easily read without removing the fire extinguisher from its mounted position. The fire extinguisher shall be fully-charged and display an inspection tag.

(e) The fire extinguisher shall be approved by the UL with a total rating of 2A10BC or greater. The operating mechanism shall be sealed with a type of seal that will not interfere with the use of the fire extinguisher.

(f) A school bus shall not be equipped with a fire extinguisher system that uses the chemical Halon as the fire suppression agent.

13:20-50B.16 First aid kit

(a) Every school bus shall be equipped with a removable first aid kit. The first aid kit shall be moistureproof and dustproof and shall be mounted in an accessible place in the immediate vicinity of the driver's compartment. The words "FIRST AID" shall be printed on the kit in letters that are clearly visible. If the first aid kit is stored in a storage compartment, the storage compartment shall be identified by the words "FIRST AID" in red letters at least two inches high with a brushstroke at least 3/16 inch wide. The storage compartment may also be marked with the Red Cross symbol.

(b) The first aid kit shall contain at a minimum the following items:

1. Two rolls of adhesive tape, one inch by 2 1/2 yards;
2. Twenty-four sterile gauze pads, three inches by three inches;
3. One hundred adhesive bandages, 3/4 inch by three inches;
4. Eight two-inch bandage compresses;
5. Ten three-inch bandage compresses;
6. Two sterile gauze roller bandages, two inches by six feet;
7. Two nonsterile triangular bandages, approximately 40 inches by 35 inches by 54 inches, with two safety pins;
8. Three sterile gauze pads, 36 inches by 36 inches;
9. Three sterile eye pads;
10. One pair latex gloves;
11. One pair rounded-end scissors;
12. One mouth-to-mouth airway;
13. One sharpened pencil; and
14. One small writing pad.

13:20-50B.17 Floor

(a) The floor in the underseat area, including the tops of the wheelhousing, the driver's compartment, and the toe board, shall be covered with nonskid rubber floor covering or equivalent material having a minimum overall thickness of .125 inch.

(b) The floor covering in the aisle shall be of an aisle-type rubber or equivalent material, wear-resistant, and ribbed. The minimum overall thickness shall be .187 inch measured from the tops of the ribs.

(c) The floor covering shall be permanently bonded to the floor and shall not crack when subjected to sudden changes in temperature. The bonding or adhesive material shall be waterproof and shall be of a type recommended by the manufacturer of the floor covering material. All seams shall be sealed with a waterproof sealer.

(d) If a flush-mounted, screw-down plate is provided to access the fuel tank sending unit, it shall be secured, sealed, and insulated. The plate shall be covered with a nonskid surface when it is located in the aisle.

13:20-50B.18 Heaters

(a) Heaters shall be of a hot water and/or combustion-type.

(b) If only one heater is used, it shall be of a fresh air or combination fresh air and recirculating air-type.

(c) If more than one heater is used, the additional heater(s) may be of the recirculating air-type.

(d) The heating system shall be capable of maintaining a temperature of not less than 40 degrees Fahrenheit throughout the school bus at the average low temperature for the month of January as established by the United States Department of Commerce, National Weather Service, for the area in which the school bus is to be operated.

(e) Every heater installed by a body manufacturer shall bear a nameplate that indicates that the heater rating is in accordance with specifications for heating systems set forth in the NSTSP, 2000 Revised Edition (May 2000) at pages 29-30, incorporated herein by reference, as amended and supplemented. The nameplate shall be affixed by the heater manufacturer and shall constitute the manufacturer's certification that the heater performance is as shown on the nameplate.

(f) Heater hoses shall be adequately supported to guard against excessive wear due to vibration. The heater hoses shall not dangle or rub against the chassis or any device that has sharp edges and shall not interfere with or restrict the operation of any engine function. Heater hoses shall conform to SAE Standard J20 (October 1997), incorporated herein by reference, as amended and supplemented. Heater lines on the interior of the school bus shall be shielded to prevent scalding of the driver or passengers.

(g) Each hot water heater system installed by the body manufacturer shall include one shut-off valve in the pressure line and one shut-off valve in the return line with both valves at or near the engine or at another location accessible to the driver that will isolate the heating system from the engine in the event of a leak. Each hot water heater system shall also include a water flow regulating valve installed in the pressure line for convenient operation by the driver while seated.

(h) Each hot water heater system installed by the body manufacturer shall include accessible bleeder valves installed in an appropriate place in the return lines to remove air from the heater lines.

(i) A rear engine school bus shall be equipped with a hot water heater booster pump.

(j) All combustion-type heaters shall comply with 49 CFR §393.77, incorporated herein by reference, as amended and supplemented.

(k) Access panels shall be provided to make heater motors, cores, and fans readily accessible for service. An outside access panel may be provided for the driver's heater.

(l) A diesel bus may be equipped with an auxiliary heater designed to preheat the engine and passenger compartment. The exhaust for this type of heater may vent under an operable window.

13:20-50B.19 Identification

(a) The words "SCHOOL BUS" shall be applied to the body of a school bus, or on signs attached thereto, in black letters not less than eight inches high on both the front and rear of the school bus between the signal warning lamps. The lettering shall be placed as high as possible without impairment of its visibility. The lettering shall conform to Series B of Standard Alphabets for Highway Signs, Federal Highway Administration, 1966 Edition, Reprinted May 1972, incorporated herein by reference, as amended and supplemented, copies of which may be obtained from the Federal Highway Administration, 400 Seventh

Street, S.W., Room 3408, Washington, DC 20590. An illuminated front and rear destination sign with the words "SCHOOL BUS" in black letters not less than eight inches high on a background of National School Bus Yellow may be used.

(b) Buses that are subject to inspection by the Division's Commercial Bus Inspection and Investigation Unit and have been approved for school use shall conform to the requirements of (a) above. If attached signs are used, they shall comply with the following:

1. The sign on the front of the school bus shall have the words "SCHOOL BUS" printed in black letters not less than eight inches high on a background of National School Bus Yellow;

2. The sign on the rear of the school bus shall be at least 10 square feet in size, shall be painted National School Bus Yellow, and shall have the words "SCHOOL BUS" printed in black letters not less than eight inches high; and

3. Attached signs shall be removed or covered whenever the school bus is not being used for student transportation to or from school or school-connected activities.

(c) There shall be no lettering on the front or rear of a school bus other than that specified in this subchapter.

(d) Only signs and lettering limited to the name and municipality of the school bus owner or operator and any numbers and/or letters necessary for school bus identification shall appear on the sides of the school bus:

1. The school bus owner's or operator's name and municipality, as set forth on the school bus registration, shall be located on each side of the exterior of the school bus in black letters at least three inches high. The name and municipality shall be below the window line and shall be completely horizontal.

2. Numbers and/or letters necessary for school bus identification shall be in prominent locations on the front and rear of the side of the school bus below the window line. The numbers and/or letters shall be white, black, or National School Bus Yellow and shall be not more than six inches in height. Numbers and/or letters necessary for school bus identification may also be located on the bumpers.

3. School buses having a GVWR of 26,001 or more pounds shall display the GVWR on each side of the school bus in black letters and numbers at least three inches but not more than six inches in height.

(e) Neither the interior nor exterior of a school bus shall exhibit advertising of any kind, except that the school bus manufacturer's and vendor's trade names may be displayed on the school bus and the area of the school bus adjacent to the fuel inlet may be labeled so as to identify the type of fuel required.

(f) A route destination sign may be affixed to the right side of a school bus inside the lower portion of the side window located directly behind the first seatback. The route destination sign shall be a maximum of eight inches by 12 inches. A route destination sign shall not be displayed on any other window.

(g) If a route destination sign is affixed to the exterior of a school bus, it shall be affixed to the right side of the school bus to the left of the service door directly below the first window between the rub rails. The route destination sign shall be a maximum of eight inches by 12 inches.

13:20-50B.20 Inside height

The inside body height of a school bus shall be not less than 72 inches measured from the ceiling to the nonskid floor surface at any point on the centerline from the front bulkhead to the rear bulkhead. The inside body height of a Type A1 school bus shall be not less than 62 inches measured from the ceiling to the nonskid floor surface at any point on the centerline from the front bulkhead to the rear bulkhead.

13:20-50B.21 Insulation

(a) The ceiling and walls of a school bus shall be insulated with fire-resistant material so as to reduce noise and minimize vibration.

(b) If floor insulation is used, it shall be five-ply nominal 5/8 inch- thick plywood, and it shall equal or exceed properties of exterior-type softwood plywood, C-D grade, as set forth in the specifications of the Voluntary Product Standard, PS 1-95, "Construction and Industrial Plywood" published by the United States Department of Commerce, Technology Administration, National Institute of Standards and Technology (March 1996). A copy of PS 1-95 may be obtained from the United States Department of Commerce, National Institute for

Standards and Technology, Office of Product Standards, Gaithersburg, Maryland 20899. When plywood is used, all exposed edges shall be sealed. Type A1 school buses may be equipped with nominal ½ inch-thick plywood or equivalent material. Equivalent material may be used to replace plywood, provided it has an equal or greater insulation R value, deterioration, sound abatement, and moisture-resistant properties. The insulation shall be securely fastened to the steel floor in the passenger compartment of the school bus.

13:20-50B.22 Interior

(a) The interior of a school bus shall be free of all projections including, but not limited to, luggage racks that may cause injury. An inner lining shall be installed on ceilings and walls. If the ceiling is constructed with lapped joints, the forward panel shall be lapped by the rear panel and the exposed edges shall be beaded, hemmed, flanged, or otherwise treated so as to minimize sharp edges.

(b) The driver's area in front of the forwardmost padded restraining barriers shall be of sufficient size so as to permit the mounting of all required safety equipment and vehicle operating equipment.

(c) Every school bus shall be constructed so that the noise level measured at the ear of the occupant nearest to the primary vehicle noise source shall not exceed 85 decibels when tested in accordance with the Noise Test Procedure set forth in Appendix B of the NSTSP, 2000 Revised Edition (May 2000) at page 198, incorporated herein by reference, as amended and supplemented.

13:20-50B.23 Lamps and signals

(a) Each lamp on the exterior of a school bus shall be marked with the SAE rating for its proper use and shall conform to FMVSS No. 108 (49 CFR §571.108), incorporated herein by reference, as amended and supplemented.

1. Every school bus shall be equipped with clearance and identification lamps as set forth in FMVSS No. 108 (49 CFR §571.108), incorporated herein by reference, as amended and supplemented. Each clearance, marker, or identification lamp shall be of the two-bulb design and shall automatically be activated whenever the headlights or parking lamps are activated in a steadily burning state.

2. Every school bus shall be equipped with two parking lamps installed on the front of the school bus.

3. Every school bus shall be equipped with two white rear back-up lamps that are at least four inches in diameter or, if a shape other than round, a minimum of 13 square inches of illuminated area in accordance with FMVSS No. 108 (49 CFR §571.108), incorporated herein by reference, as amended and supplemented. If back-up lamps are placed on the same horizontal line as the stop lamps and turn signal lamps, they shall be positioned to the inside. Back-up lamps shall be illuminated when either the shift control lever for the transmission is placed in reverse gear or the rear emergency door is unlatched.

4. Every Type C or D school bus shall be equipped with an armored marker-type amber lamp on each side of the school bus body

immediately behind the service door on the right side and symmetrically opposite on the left side of the school bus. Armored marker-type amber lamps shall be connected to the turn signals. Type A1, A2, and B school buses may be equipped with armored marker-type amber lamps.

(b) Every school bus shall be equipped with interior lamps that adequately illuminate the aisle, stepwell, and any step outside the stepwell area leading to the aisle. The stepwell light and any light for any step outside the stepwell area leading to the aisle shall be illuminated by the service door operating switch, which shall be illuminated only when the headlights and clearance lights are on and the service door is open. The source of the stepwell illumination shall be located within the stepwell. Each step outside the stepwell area leading to the aisle shall be equipped with an independent light.

(c) Body instrument panel lights shall be controlled by an independent rheostat switch.

(d) A school bus may be equipped with a light to illuminate the area outside of the service door.

(e) Every school bus shall be equipped with a telltale light, plainly visible to the driver, to give a positive indication that the stoplights are operating.

(f) Alternately flashing signal warning lamps shall be provided as follows:

1. Every school bus shall be equipped with strobe or incandescent signal warning lamps.

2. Red signal warning lamps are alternately flashing lamps mounted horizontally both front and rear, intended to identify a vehicle as a school bus and to inform other users of the highway that the school bus is stopped on the highway to take on or discharge school children.

i. Every school bus shall be equipped with two front and two rear red signal warning lamps located approximately six inches below the top of the school bus, as near to the sides as possible, and equidistant from the center.

ii. The red signal warning lamps shall be activated by an automatic switch on the service door opener. Opening the service door shall automatically cut off the amber signal warning lamps and activate the red signal warning lamps. Closing the service door shall automatically cut off the red signal warning lamps and recycle the signal warning lamp system for the next stop.

3. Amber signal warning lamps are alternately flashing lamps mounted horizontally both front and rear, intended to identify a vehicle as a school bus and to inform other users of the highway that the school bus is about to stop on the highway to take on or discharge school children.

i. In addition to the four red signal warning lamps described in (f)2 above, four amber signal warning lamps shall be installed with one amber signal warning lamp located near each red signal warning lamp, at the same level, but closer to the vertical centerline of the school bus.

ii. The amber signal warning lamps shall be activated, approximately 300 feet prior to each school bus stop, by a foot switch located on

the floorboard directly in front of the driver. A school bus may be equipped with a hand switch that is easily accessible to the seat-belted driver.

4. The system of red and amber signal warning lamps shall be wired so that the amber signal warning lamps are energized manually, and the red signal warning lamps are automatically energized (with the amber signal warning lamps automatically deenergized) when the stop signal arm is extended and when the school bus service door is opened. An amber signal warning lamp cancel switch, easily accessible to the driver, shall be installed to allow the driver to cancel the amber signal warning lamps without using the master switch or opening the service door.

5. All flashers for alternately flashing red and amber signal warning lamps shall be enclosed in the school bus body in a readily accessible location.

6. Each school bus shall be equipped with indicator lights that monitor the proper operation of the front and rear alternately flashing signal warning lamps. The indicator lights shall be mounted in full view of the driver. If the full circuit current passes through the indicator lights, each circuit shall be protected by a fuse or circuit breaker.

7. The area around the lens of each alternately flashing signal warning lamp and extending outward from the edge of the lamp approximately three inches shall be black in color. In those installations where there is no flat vertical portion of the school bus body immediately surrounding the entire lens of the lamp, a black circular or square band approximately three inches wide shall

be installed immediately below and to both sides of the lens on the body or roof area against which the signal warning lamp is seen from a distance of 500 feet along the axis of the school bus.

8. Visors or hoods, black in color, with a minimum depth of four inches shall be provided.

9. If strobe alternately flashing signal warning lamps are utilized, the front and rear signal warning lamps shall be equipped with eight seven-inch sealed beam electronic strobe lamps, four red and four amber, working in an automatic integrated system. The exterior surface of the lens shall be smooth and shall meet the color specifications set forth in SAE Standard J578 (June 1995), incorporated herein by reference, as amended and supplemented.

i. The solid-state strobe power supply shall provide the electrical power to energize the sealed beam flash tubes. The power supply shall energize the lamps at a combined alternating flash rate of 120-128 flashes per minute. The power supply shall be fully enclosed in a metal container, with a minimum metal wall thickness of .060 inches, and shall be mounted within the front or rear bulkheads.

(g) The school bus body shall be equipped with two rear turn signal lamps that conform to FMVSS No. 108 (49 CFR §571.108), incorporated herein by reference, as amended and supplemented. Each rear turn signal lamp shall have a diameter of at least seven inches, or shall have an illuminated lens area of at least 38 square inches if the turn signal lamp is of a shape other than round. Each Type A1 school bus shall be equipped with two rear turn signal lamps that

each have at least 21 square inches of illuminated lens area. Turn signal lamps shall be connected to the chassis hazard warning switch to cause simultaneous flashing of the turn signal lamps when needed as a vehicular traffic hazard warning. Turn signal lamps shall be placed as wide apart as practical and their centerline shall be approximately eight inches below the rear window.

(h) Every school bus shall be equipped with four combination red stoplamps/taillamps as follows:

1. Two combination lamps shall be mounted on the rear of the school bus body just inside the turn signal lamps. Each combination lamp shall have a diameter of at least seven inches, or shall have an illuminated lens area of at least 38 square inches if the combination lamp is of a shape other than round.

2. Two combination lamps shall be mounted on the rear of the school bus body between the belt line and floor line. Each combination lamp shall have a diameter of at least four inches, or shall have an illuminated lens area of at least 12 square inches if the combination lamp is of a shape other than round. The rear license plate lamp may be combined with one lower taillamp. Stoplamps shall be activated by the service brakes and shall emit a steady light when illuminated.

3. Type A1 school buses may be equipped with stoplamps and taillamps that conform to the manufacturer's specifications.

(i) A white flashing strobe light may be installed on the roof of a school bus at a location not to exceed one-third the body length forward from the rear of the roof edge, or on the roof of a school bus in the area directly over the

restraining barrier on the driver's side. The light shall have a single clear lens emitting light 360 degrees around its vertical axis. The light shall not extend above the roof so as to place the school bus in violation of the maximum height standard set forth in N.J.S.A. 39:3-84. A manual switch and a pilot light shall be included to indicate to the driver when the light is in operation. The light may be wired to activate with the amber alternately flashing signal warning lamps, continuing through the full loading or unloading cycle, and may be equipped with an override switch to allow activation of the light at any time for use in inclement weather.

13:20-50B.24 Metal treatment

(a) All metal used in the construction of a school bus body, including items such as structural members, inside and outside panels, door panels, and floor sills, shall be zinc-coated or aluminum-coated or treated by an equivalent process before the school bus is constructed. This subsection shall not apply to items such as door handles, grab handles, interior decorative parts, and other interior plated parts.

(b) All metal parts that will be painted shall be chemically cleaned, etched, zinc-phosphate coated, and zinc-chromate or epoxy primed, or conditioned by an equivalent process.

(c) In complying with the requirements of this section, particular attention shall be given to lapped surfaces, welded connections of structural members, cut edges on punched or drilled hole areas in sheet metal, closed or boxed sections, unvented or undrained areas, and surfaces subject to abrasion during vehicle operation.

(d) As evidence that the requirements of this section have been met, samples of materials and sections used in the construction of the school bus body shall not lose more than 10 percent of material by weight when subjected to a 1,000-hour salt spray test in accordance with American Society for Testing and Materials B 117-73, "Standard Method of Salt Spray (Fog) Testing," incorporated herein by reference, as amended and supplemented, copies of which may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428, (610) 832-9585.

13:20-50B.25 Mirrors

(a) An interior mirror shall be provided that is either clear view laminated glass or clear view glass bonded to a backing that retains the glass in the event of breakage. The mirror shall have rounded corners and protected edges. Every Type A2, B, C, or D school bus shall be equipped with an interior mirror that is a minimum of six inches by 30 inches. Every Type A1 school bus shall be equipped with an interior mirror that is a minimum of six inches by 16 inches.

(b) Every school bus shall be equipped with a system of exterior mirrors that conform to FMVSS No. 111 (49 CFR §571.111), incorporated herein by reference, as amended and supplemented, as follows:

1. A rear view mirror system that shall be capable of providing a view along the left and right sides of the school bus. The rear view mirror system shall provide the driver with a view of the rear tires at ground level, a view to the rear of the school bus a minimum distance of 200 feet, and a view at least 12 feet perpendicular to each side of the school bus at the rear axle line; and

2. A cross view mirror system that shall provide the driver with indirect vision of an area at ground level encompassing the entire width of the school bus from the front bumper forward to a point where the driver can see by direct vision. The cross view mirror system on every school bus shall also provide the driver with indirect vision of the area at ground level around the left and right front corners of the school bus, including the areas adjacent to the tires and service door, to a point where the cross view mirror system overlaps with the rear view mirror system.

i. No portion of the cross view mirror assembly shall project more than six inches forward or laterally from the outermost limits of the school bus at the point of installation.

ii. No portion of the cross view mirror assembly shall unduly obstruct either the light emitted from any required lamp or the driver's view of vehicular traffic.

(c) Stick-on convex mirrors shall not be attached to any mirror surface.

(d) Mounting brackets shall be affixed to the school bus so as to be securely fastened to the structural frame members of the school bus body, or shall be affixed to the existing exterior rear view mirror mounting brackets. Exterior mirror housing and support brackets shall be black. The mirror attachments such as clips, nuts, screws, rims, and rings may be black or chrome.

13:20-50B.26 Mounting

(a) The chassis frame shall support the rear body cross member. The school bus body shall be attached to the chassis frame at each main floor sill, except where chassis components interfere with such attachment, in such a manner so as to prevent shifting or separation of the school bus body from the chassis under severe operating conditions.

(b) Body fasteners shall conform to the manufacturer's specifications. The distance between the fasteners that secure the body to the chassis shall not exceed 42 inches along the length of the chassis frame. The fasteners shall be located directly opposite each other along the length of the chassis frame. Type A1 and A2 school buses that utilize the original chassis manufacturers' floor plans shall conform to the manufacturers' mounting specifications.

(c) Isolators shall be placed at all contact points between the body and the chassis frame on each body-on-chassis-type school bus, and shall be attached to the chassis frame or body so that it will not move under severe operating conditions.

13:20-50B.27 Overall length

The maximum overall length of a school bus body shall not exceed 40 feet, excluding the bumpers. The maximum overhang of the body to the rear of the center of the rear axle shall not be in excess of one-third of the total length of the vehicle.

13:20-50B.28 Overall width

The maximum overall width of a school bus shall not exceed 96 inches, excluding accessories.

13:20-50B.29 Reflectors

(a) Every school bus shall be equipped with reflectors that comply with FMVSS No. 108 (49 CFR §571.108), incorporated herein by reference, as amended and supplemented, as follows:

1. On the rear: two red reflectors, equally spaced as far from the center as practical and at the same height.

2. On each side: two reflectors, one amber at or near the front, and one red at or near the rear.

3. On school buses 30 feet or more in length: one amber reflector on each side of the school bus body as near to the center as practical.

(b) Reflectors shall be marked with the SAE rating for their proper use.

13:20-50B.30 Rub rails

(a) There shall be one rub rail located on each side of the school bus approximately at seat cushion level that shall extend from the rear side of the service door completely around the school bus body (except the emergency door, the service door, and the service compartment) to the point of curvature near the outside cowl on the left side of the school bus.

(b) There shall be one additional rub rail located on each side approximately at the floor line that shall cover the same longitudinal area as the upper rub rail, except at the wheelhousing, and shall extend only to the radii of the right and left rear corners of the school bus.

(c) Each rub rail shall be attached at each body post and at all other upright structural members.

(d) Each rub rail, in its finished form, shall be four inches or more in width. Each rub rail shall be constructed of 16-gauge steel or suitable material of equivalent strength, and shall be constructed in corrugated or ribbed fashion.

(e) Both rub rails shall be applied outside the body or outside the body posts. Pressed-in or snap-on rub rails do not satisfy the requirements of this section.

(f) Rub rails are not required to extend around the rear corners on a Type A1, A2, or B school bus with a chassis manufacturer's body, or on a Type C or D school bus with a rear luggage or a rear engine compartment.

(g) There shall be a rub rail or equivalent bracing located horizontally at the bottom edge of the body side skirts.

(h) Rub rails shall be black.

13:20-50B.31 Sanders and traction devices

(a) When used, a sander shall:

1. Be of a hopper cartridge valve-type;
 2. Have a metal hopper with all interior surfaces treated to prevent condensation of moisture;
 3. Be of at least 100 pound grit capacity;
 4. Have a cover on the filler opening of the hopper that screws into place, sealing the unit airtight;
 5. Have discharge tubes extending to the front of each rear wheel under the fender;
 6. Have non-clogging discharge tubes with slushproof, nonfreezing rubber nozzles;
 7. Be operated by an electric switch with a telltale pilot light mounted on the instrument panel;
 8. Be exclusively driver-controlled; and
 9. Have a gauge to indicate that the hopper(s) is down to one-quarter capacity.
- (b) Automatic traction chains may be used.

13:20-50B.32 Seat belts for driver and students

(a) A Type 2 lap/shoulder belt shall be provided for the driver. The assembly shall be equipped with an automatic locking retractor for the continuous belt system. The lap portion of the belt system shall be guided or anchored where practical to prevent the driver from sliding sideways under the lap belt.

(b) The seat belt shall have a button-type latch and the floor- anchored belt section shall be booted to keep the buckle within the driver's reach.

(c) Every school bus shall be equipped with passenger lap safety belts or lap and shoulder safety belts for each seat position that conform to FMVSS No. 208, 209, and 210 (49 CFR §571.208, §571.209, and §571.210), incorporated herein by reference, as amended and supplemented. If safety belt floor installation is used, attachment hardware shall be designed to prevent attaching bolts and other parts from becoming inadvertently disengaged from the floor of the school bus.

(d) Every school bus shall be equipped with a seat belt cutter for use in an emergency. The seat belt cutter shall be designed to prevent injury during use. The seat belt cutter shall be sheathed and secured in a safe location in the driver's compartment.

13:20-50B.33 Seats and restraining barriers

(a) Every seat and restraining barrier shall conform to the requirements of FMVSS No. 222 (49 CFR §571.222), incorporated herein by reference, as amended and supplemented.

(b) Every seat shall have a minimum cushion depth of 15 inches measured from the front of the seatback to the front edge of the seat.

(c) Seatback height shall be 28 inches, or 24 inches as measured from the seating reference point as that term is defined in 49 CFR §571.3.

(d) The seat, seatback cushion, and restraining barrier shall be completely encapsulated and shall meet the performance criteria in the School Bus Seat Upholstery Fire Block Test set forth in Appendix B of the NSTSP, 2000 Revised Edition (May 2000) at pages 199-201, incorporated herein by reference, as amended and supplemented.

(e) Every seat shall face forward and shall not be of a type that flips or folds.

(f) The space between seats shall be not less than 27 inches nor more than 31 inches as measured from the center of each front seat leg.

(g) Each seat leg shall be secured to the floor by a minimum of two bolts, washers, and nuts.

(h) Every seat frame attached to the seat rail shall be fastened with two bolts, washers, and nuts or flange-headed nuts.

(i) The driver's seat shall be of the highback-type with a minimum seatback adjustment of 15 degrees and with a head restraint to accommodate a 95th percentile adult male. The driver's seat shall meet the performance criteria

in the School Bus Seat Upholstery Fire Block Test set forth in Appendix B of the NSTSP, 2000 Revised Edition (May 2000) at pages 199-201, incorporated herein by reference, as amended and supplemented, and shall be secured with nuts, bolts, and washers or flange-headed nuts. The space between the back of the driver's seat, in the rearmost position, and the front surface of the restraining barrier located directly behind the driver shall be in accordance with FMVSS No. 222 (49 CFR §571.222), incorporated herein by reference, as amended and supplemented, for barrier deflection.

(j) Every school bus shall be equipped with a restraining barrier located behind the driver's seat. Every school bus shall also be equipped with a restraining barrier forward of any designated seating position, excluding wheelchair positions, that does not have the rear surface of another school bus passenger seat in front of that position. Restraining barriers shall be located within a minimum of 28 inches and a maximum of 32 inches measured from the front of the seatback of the seat for which they are required. Restraining barriers shall be the same height and width as the back of the passenger seat for which they are required.

13:20-50B.34 Spray suppressants and mud flaps

A school bus shall be equipped with spray suppressants or mud flaps when the angle formed by the intersection of a line on the level road surface projected rearward from the point where the rearmost tire contacts the ground

and a line projected from the point where the rearmost tire contacts the ground to the bottom edge of the rear bumper exceeds 22 1/2 degrees.

13:20-50B.35 Steps

(a) The first step at the service door of Type A1, A2, B, and C school buses shall be not less than 10 inches nor more than 14 inches from the ground, based on standard chassis specifications. The first step at the service door of Type D school buses shall be not less than 12 inches nor more than 16 inches from the ground.

(b) Step risers shall not exceed a height of 10 inches. If plywood has been installed on top of the steel floor or step, the maximum riser height may be increased by the thickness of the plywood used.

(c) Steps shall be enclosed to prevent the accumulation of ice or snow.

(d) Steps shall not protrude beyond the side body line of the school bus.

(e) A school bus shall be equipped with a grab handle not less than 20 inches in length. The grab handle shall be in an unobstructed location inside the doorway on the left side adjacent to the passenger compartment. Grab handles shall be designed so as to prevent snagging.

13:20-50B.36 Step treads

(a) Steps shall be covered with a nonskid material. Steps, including the aisle step and the floor line platform area, shall be covered with 3/16 inch rubber

floor covering or with other material equal in wear-resistance and abrasion-resistance to top grade rubber. Steps, including the floor line platform area, shall have a 1 ½ inch white or yellow nosing.

(b) The rubber step treads shall be permanently bonded to the stepwell metal. The stepwell metal shall be a minimum 24-gauge cold rolled steel. The ribbed/grooved design of the step treads shall run at a 90 degree angle to the long dimension of the step tread.

(c) The rubber portion of step treads shall have the following characteristics:

1. Special compounding for good abrasion-resistance and a coefficient of friction of at least 0.6 for the step surface, and 0.8 for the step nosing;

2. Flexibility so that it can be bent around a one-half inch mandrel both at 130 degrees Fahrenheit and 20 degrees Fahrenheit without breaking, cracking, or crazing; and

3. A durometer hardness of 85 to 95.

13:20-50B.37 Stirrup steps

If the windshield and/or lamps are not easily accessible from the ground, there shall be at least one folding stirrup step or recessed foothold and suitably located handles on each side of the front of the school bus body. Steps are permitted in or on the front bumper in lieu of stirrup steps if the windshield and lamps are easily accessible for cleaning from that position.

13:20-50B.38 Stop signal arm

(a) Every school bus shall be equipped with a stop signal arm on the left side of the school bus body that meets the requirements of FMVSS No. 131 (49 CFR §571.131), incorporated herein by reference, as amended and supplemented. The stop signal arm shall not be mounted below an emergency window. The stop signal arm shall be an octagonal shape. The flashing lamps in the stop signal arm shall be connected to the alternately flashing red signal warning lamp circuits. Vacuum, electric, or air operation of the stop signal arm is optional. The stop signal arm shall be 17.72 inches by 17.72 inches in diameter. The stop signal arm shall be red in color on both sides with a white border. The word "STOP" shall be displayed on the stop signal arm in white upper case letters 5.9 inches in height and may be illuminated with white lights.

(b) When two stop signal arms are installed on a school bus, the rearmost stop signal arm shall not contain any lettering, symbols, markings, or reflectorized material on the forward side. The face of the forward stop sign and the rear of the rear stop sign may be covered with reflectorized type III material. If a rear stop signal arm been installed on a school bus, it shall be on the same horizontal plane as the front stop signal arm.

(c) Each stop signal arm shall have two red lamps that meet SAE Recommended Practice J1133 (May 1996), incorporated herein by reference, as amended and supplemented, and have a flash rate of 60-120 flashes per minute and shall be mounted at the extreme top and bottom of the stop signal arm. The stop signal arm shall be installed on the left side of the school bus and when

extended shall be perpendicular to the side of the school bus. The top of the sign shall be within six inches of the lower edge of the driver's window frame, and at least nine inches from the side of the school bus.

(d) The stop signal arm shall be automatically extended when the red signal warning lamps are activated.

13:20-50B.39 Storage container

If tools, tire chains, and/or tow chains are carried on the school bus, a storage container of adequate strength and capacity shall be provided. Such storage container may be located either inside or outside of the passenger compartment. If such storage container is located inside the passenger compartment, it shall have a cover capable of being securely locked and shall be under the control of the driver. The storage container shall be fastened to the floor in close proximity to either the service door or the emergency door. The storage container shall not be deemed a passenger seat and shall not be covered by a seat cushion.

13:20-50B.40 Sun shield

Every Type A2, B, C, and D school bus shall be equipped with an interior adjustable, transparent sun shield not less than six inches by 30 inches with a finished edge. The sun shield shall be installed in a position convenient for use by the driver. A Type A1 school bus may be equipped with a sun shield not less than six inches by 16 inches.

13:20-50B.41 Tailpipe

(a) The tailpipe shall be constructed of a corrosion-resistant tubing material at least equal in strength and durability to 16-gauge steel tubing. The tailpipe diameter from the muffler to the end of the tailpipe shall comply with the chassis manufacturer's specifications.

(b) The exhaust system tailpipe shall terminate to the rear of all doors and windows designed to be opened for ventilation.

(c) The exhaust system shall not discharge to the atmosphere immediately below an emergency exit, fuel tank, or fuel tank fill pipe.

(d) The exhaust system tailpipe of a gasoline-powered engine shall extend to the rear bumper or to the left or right side of the school bus body and shall discharge to the atmosphere either:

1. At or within six inches forward of the rearmost part of the school bus on the left or right side; or

2. At or beyond the rear school bus bumper up to a maximum of two inches.

(e) The exhaust system tailpipe of an engine powered by a fuel other than gasoline shall extend to the rear bumper or to the left or right side of the school bus body and shall discharge to the atmosphere either:

1. At or within 15 inches forward of the rearmost part of the school bus on the left or right side; or

2. At or beyond the rear school bus bumper up to a maximum of two inches.

(f) A tailpipe that terminates at either the left or right side of the school bus shall extend to, but not beyond, the edge of the school bus body.

13:20-50B.42 Tow eyes or hooks

Tow eyes or hooks may be furnished on the rear of the school bus provided that they are attached so that they do not project beyond the rear bumper. Tow eyes or hooks attached to the chassis frame shall be furnished by either the chassis or body manufacturer. The installation shall be in accordance with the chassis manufacturer's specifications.

13:20-50B.43 Undercoating

(a) The entire underside of the school bus body, including floor sections, cross members, and side panels below the floor line, shall be coated with a rustproofing compound for which the compound manufacturer has issued a certification of compliance to the school bus body manufacturer that the compound meets or exceeds all performance and qualitative specifications for body undercoating set forth in Federal Standard Rustproofing of Commercial (Nontactical) Vehicles (FED-STD-297E), incorporated herein by reference, as amended and supplemented. Copies of the above Federal Standard, which is approved by the Commissioner, Federal Supply Service, United States General Services Administration, may be obtained from the General Services Administration, Federal Supply Service Bureau, Specification Section, Suite 8100, 470 East L'Enfant Plaza, S.W., Washington, DC 20407.

(b) The undercoating compound shall be applied with suitable airless or conventional spray equipment to the recommended film thickness and shall show no evidence of voids in the cured film. The undercoating material shall be nonflammable, shall not peel, crack, chip, or melt, and shall be stable under both high and low temperatures.

13:20-50B.44 Ventilation

(a) The school bus body shall be equipped with a controlled ventilation system of sufficient capacity so as to provide the proper quantity of air under normal operating conditions without the opening of windows except in hot weather.

(b) A static-type nonclosable exhaust vent shall be installed in the low-pressure area of the roof.

(c) Type C and D school buses shall be equipped with auxiliary fans. One six-inch diameter two-speed auxiliary fan with a protective cage shall be installed on each side of the driver position on such school bus. Each fan shall be controlled by a separate switch. If an auxiliary fan is used on a Type A1, A2, or B school bus, it shall be a nominal six-inch diameter fan with a protective cage. Each fan shall be controlled by a separate switch.

13:20-50B.45 Wheelhousing

(a) The wheelhousing opening shall allow for easy tire removal and service.

(b) The wheelhousing shall be attached to the floor sheets in such a manner so as to prevent any dust, water, or fumes from entering the school bus body. The wheelhousing shall be constructed of at least 16-gauge steel, or other material of equal strength.

(c) The inside height of the wheelhousing above the floor line shall not exceed 12 inches.

(d) The wheelhousing shall provide clearance for the installation and use of tire chains on single and dual-powered driving wheels.

(e) The wheelhousing shall not extend into the emergency door opening.

13:20-50B.46 Windows and windshields

(a) Each full side window shall provide an unobstructed emergency opening at least nine inches high and at least 22 inches wide, obtained by lowering the window.

1. When the body design does not permit the installation of a full side window, the window located directly in front of the side emergency door and the rearmost side windows may be in accordance with the manufacturer's standard and shall be operational.

2. Push-out-type, split sash emergency windows may be used.

(b) Push-out emergency windows shall be provided in accordance with N.J.A.C. 13:20-50B.14.

(c) Glass in all side and rear windows shall be AS-2 or better grade. Equivalent plastic of AS-4 or better grade shall be used only in side windows of the school bus behind the driver.

(d) Glass in the windshield shall be AS-1 grade. The windshield shall have a horizontal gradient tinted band starting slightly above the line of the driver's vision and gradually decreasing in light transmission to 20 percent or less at the top of the windshield. Glass in the windshield shall be heat-absorbent, laminated plate glass. The windshield shall be large enough to permit the driver to see the highway clearly, shall be slanted to reduce glare, and shall be installed between the front corner posts that are so designed and placed as to afford minimum obstruction to the driver's view of the highway.

(e) All glass in the windshield, windows, and doors shall be approved safety glass, so mounted that a permanent mark is visible, and of sufficient quality to prevent distortion of the driver's view in any direction.

(f) All exposed edges of glass shall be banded.

(g) School buses shall be equipped with stationary windows to the upper right and upper left of the rear emergency door.

(h) Windows shall be free of window guards or bars both inside and outside.

13:20-50B.47 Windshield washers

A windshield washer system shall be provided. The windshield washer system shall have a pumping mechanism with fluid for washing the windshield.

13:20-50B.48 Windshield wipers

(a) A windshield wiping system, two-speed or more, shall be provided.

(b) The windshield wipers shall be operated by one or more air or electric motors of sufficient power to operate the wipers. If one motor is used, the windshield wipers shall work in tandem to provide a full sweep of the windshield.

13:20-50B.49 Wiring

(a) All wiring shall conform to SAE Recommended Practice J1292 (October 1981), incorporated herein by reference, as amended and supplemented.

(b) Wiring shall be arranged in circuits as required with each circuit protected by a fuse or circuit breaker. One extra fuse for each size fuse that is used on the school bus shall be conveniently located in the fuse area unless the school bus is equipped with circuit breakers. A system of color and number coding shall be used.

1. The following body interconnecting circuits shall be color-coded as follows:

<u>Function</u>	<u>Color</u>
<u>Left Rear Turn Signal Light</u>	<u>Yellow</u>
<u>Right Rear Turn Signal Light</u>	<u>Dark Green</u>
<u>Stoplights</u>	<u>Red</u>
<u>Back-Up Lights</u>	<u>Blue</u>

Taillights Brown

Ground White

Ignition Feed, Primary Feed Black

2. The color of the cables shall conform to SAE Standard J1128 (May 2000), incorporated herein by reference, as amended and supplemented.

3. Wiring shall be arranged in at least six regular circuits as follows:

i. Head, tail, stop (brake), and instrument panel lamps;

ii. Clearance and stepwell lamps (stepwell lamps shall be actuated when the service door is opened);

iii. Dome lamp;

iv. Ignition and emergency door signal;

v. Turn signal lamps; and

vi. Alternately flashing signal warning lamps.

4. Any of the above combination circuits may be subdivided into additional independent circuits.

5. Whenever heaters and defrosters are used, at least one additional circuit shall be installed.

6. Whenever the circuit panel permits, all other electrical functions (such as sanders and electric-type windshield wipers) shall be provided with independent and properly protected circuits.

7. Each body circuit shall be coded by number or letter on a diagram of circuits and shall be attached to the body in a readily accessible location.

(c) The entire electrical system of the school bus body shall be designed for the same voltage as the chassis on which the school bus body is mounted.

(d) All wiring shall have an amperage capacity exceeding the designed load by at least 25 percent. All wiring splices shall be in an accessible location and shall be noted as splices on the wiring diagram.

(e) An easily readable body wiring diagram shall be furnished with each school bus body or affixed in an area convenient to the electrical accessory control panel.

(f) The main power supply to the body shall be attached to a terminal on the chassis.

(g) Wires passing through metal openings shall be protected by a grommet.

(h) Wires not enclosed within the body shall be fastened securely at intervals of not more than 18 inches. All joints shall be soldered or joined by equally effective connectors so that no connectors are exposed.

(i) A heavy-duty solenoid switch shall be installed in the main electrical power supply line to the body circuits on each Type A2, B, C, and D school bus. The solenoid switch shall be energized by the school bus ignition switch. Hazard and turn signal lamp circuits shall operate independently of the ignition switch.

**SUBCHAPTER 50C. STANDARDS FOR SPECIALLY EQUIPPED SCHOOL
BUSES MANUFACTURED JANUARY 2003 AND
THEREAFTER**

13:20-50C.1 Scope

(a) The following standards address modifications to school buses designed for transporting students with special transportation needs. These standards are supplementary to the school bus chassis and body standards set forth in N.J.A.C. 13:20-50A and 50B.

(b) Specially equipped school buses shall continue to meet the school bus chassis and body standards set forth in N.J.A.C. 13:20-50A and 50B after modifications are made.

13:20-50C.2 Aisle

The aisle leading to the emergency door and the power lift door from each wheelchair position shall be a minimum width of 30 inches.

13:20-50C.3 Communications

Every school bus shall be equipped with an electronic voice communication system.

13:20-50C.4 Construction modifications

(a) A power lift door that has been modified by removing the power lift in order to accommodate passenger seating shall:

1. Be sealed;
2. Be equipped with an operable window that conforms to the requirements of N.J.A.C. 13:20-50B.46(a);
3. Handles, both inside and outside, removed and all holes sealed;
4. Existing rub rails replaced with continuous full-length rub rails; and
5. All existing hardware for wheelchair or lift securement removed and all openings sealed.

13:20-50C.5 Doors

(a) A school bus with a power lift shall be equipped with a special service door to accommodate the power lift.

1. The door shall be located on the right side of the school bus and designed so as not to obstruct the regular service door.
2. The opening may extend below the floor through the bottom of the body skirt. If such an opening is used, reinforcements shall be installed at

the front and rear of the floor opening to support the floor. This opening shall be certified as meeting the manufacturer's specifications for structural strength.

3. A drip molding shall be installed above the door opening to divert water from the entrance.

4. The door posts and headers shall be reinforced to provide support and strength equivalent to the sides of the school bus.

5. A single door or double doors shall be used.

6. The door(s) shall have a fastening device to hold it open. A fastening device(s) affixed to the outside shall not protrude more than $\frac{3}{4}$ inch from the school bus body or door(s), nor be of a type that may cause injury when it is not securing the door(s) in its open position.

7. The doors shall be weathersealed.

8. When manually-operated dual doors are provided, the rear-mounted door shall have at least a one-point fastening device to the header. The forward-mounted door shall have at least three one-point fastening devices: one to the header, one to the floor line of the body, and one into the rear-mounted door.

9. The door and hinge mechanism strength shall be equivalent to or greater than the strength of the emergency exit door.

10. The door material, panels, and structural strength shall be equivalent to those of the service and emergency doors. The color, rub rail extensions, lettering, and other exterior features shall match adjacent sections of the body.

11. The doors shall have windows set in rubber within one inch of the lower line of the adjacent sash.

12. Doors shall be equipped with a device that will actuate an audible or flashing visible signal, located in the driver's compartment, when the doors are not securely closed and the ignition is in the "on" position.

13. A switch shall be installed so that the lifting mechanism will not operate when the power lift platform door is closed.

14. Doors shall be equipped with padding at the top edge of the door opening. The padding shall be at least three inches wide and one inch thick. The padding shall extend the full width of the door opening.

13:20-50C.6 Glass

(a) Approved tinted safety glass or approved tinted plastic may be installed in side windows of the school bus to the rear of the driver.

(b) Tinted safety glass shall be AS-3 or better grade.

13:20-50C.7 Identification

A school bus equipped with a power lift shall display at least one International Symbol of Accessibility on the back of the school bus below the window line. The International Symbol of Accessibility shall not exceed 12 square inches in size, shall be white on a blue background, and shall be of a high-intensity reflectorized material.

13:20-50C.8 Lights

Lights shall be placed on the school bus to illuminate the power lift door, doorway, and landing area.

13:20-50C.9 Power lift

(a) A school bus used for the transportation of students who use wheelchairs or other mobile seating devices, or who require life support equipment, shall be equipped with a power lift.

(b) The power lift, with a skid-resistant platform, shall be located on the right side of the school bus body and shall be confined within the school bus body when not extended.

(c) The lifting mechanism and platform shall be capable of lifting a minimum weight of 800 pounds. The power lift platform shall have a minimum width of 30 inches unobstructed by the required handrails. The minimum length of the platform between the outer edge barrier and the inner edge shall be 40 inches.

(d) When the power lift platform is stored, it shall be securely fastened.

(e) Controls shall be provided that enable the operator to activate the power lift mechanism from either inside or outside of the school bus.

(f) The power lift shall be designed to prevent the platform from dropping while in operation in the event of a single failure of any load-carrying component.

(g) The power lift shall be equipped with a manual back-up system for use in the event of a power failure.

(h) The power lift shall be designed to allow the lift platform to rest securely on the ground.

(i) The outboard power lift platform edge and sides shall be designed to prevent a wheelchair or other mobile seating device from slipping or rolling off of the platform. The power lift platform outer edge barrier shall be designed to be automatically or manually lowered when the platform is at ground level, but shall not be equipped with any type of latch that could result in the lowering of the outer edge barrier when the platform is above ground level.

(j) The power lift platform shall be equipped with a handrail on each side of the power lift platform. Each handrail shall be 25 to 34 inches in height above the platform and a minimum of 18 inches in length and shall be designed to fold when in a stored position. A handrail with a curved-end design shall be at least 24 inches in length.

(k) A self-adjusting, skid-resistant plate shall be installed on the outer edge of the power lift platform to minimize the incline from the power lift platform to ground level. This plate, if so designed, may also serve as the restraining device described in (i) above.

(l) A circuit breaker shall be installed between the power source and the power lift motor if electrical power is used.

(m) The power lift design shall prevent excessive pressure that may result in damage to the power lift system when the platform is fully lowered or raised.

(n) The power lift mechanism shall be designed to prevent the lift platform from being folded or stored when occupied.

(o) An interlock shall be provided to prevent the school bus from moving when the power lift or ramp is not in its fully stored and locked position.

13:20-50C.10 Ramp

(a) When a power lift system is not adequate to load and unload students with special needs, a ramp device may be used.

1. When a ramp is used, it shall be of sufficient strength and rigidity to support the wheelchair or other mobile seating device, occupant, and attendant(s). The ramp shall be equipped with a protective flange on each longitudinal side to keep the wheelchair or other mobile seating device on the ramp.

2. The floor of the ramp shall be constructed of nonskid material.

3. The ramp shall be equipped with handles and shall be of a weight and design that enables one person to lift or move the ramp.

4. The ramp shall have at least three feet of length for each foot of incline.

13:20-50C.11 Restraining devices

Seat frames may be equipped with attachments or devices to which belts, restraining harnesses, or other devices may be attached. Attachment framework or anchorage devices, if installed, shall conform to FMVSS No. 210 (49 CFR §571.210), incorporated herein by reference, as amended and supplemented.

13:20-50C.12 Seating arrangements

(a) Flexibility in seat spacing to accommodate special devices shall be permitted to meet passenger needs.

(b) School buses may be equipped with track seating.

1. The floor track shall be recessed into the floor with the top of the track level with the floor surface.

2. Track shall not be installed across the power lift door area.

3. Track shall be installed in a manner that maintains a 30 inch aisle leading to the emergency and power lift doors. This shall be determined by allowing for 30 inches by 48 inches for each wheelchair position.

4. Track shall provide for the installation of passenger seats in accordance with N.J.A.C. 13:20-50B.33(e).

(c) All seats and wheelchair positions shall face forward.

13:20-50C.13 Securement system for wheelchairs/mobile seating devices and occupants

(a) The school bus body shall be designed for the positioning and securement of wheelchairs/mobile seating devices and occupants in a forward facing position. Securement system hardware and attachment points for the forward facing system shall be provided. The wheelchair/mobile seating device securement system and the occupant restraint system shall comply with all applicable requirements of FMVSS No. 222 (49 CFR §571.222), incorporated herein by reference, as amended and supplemented.

(b) The wheelchair/mobile seating device securement system shall have a minimum of four anchorage points, with a minimum of two body floor attachment points located at the rear and a minimum of two body floor attachment points located at the front of the space designated for the wheelchair/mobile seating device.

(c) A Type 2 lap/shoulder belt restraint system that meets all applicable requirements of FMVSS No. 209 and 210 (49 CFR §571.209 and §571.210), incorporated herein by reference, as amended and supplemented, shall be provided for restraint of the occupant's pelvic lap area and upper torso area.

(d) The wheelchair/mobile seating device securement and occupant restraint system shall be designed to pass a dynamic sled test at a minimum impact speed/deceleration force of 30 miles per hour/20 gravities. The dynamic test shall be performed in accordance with the procedures set forth in Appendix A of SAE Recommended Practice J2249 (January 1999), “(Normative) Frontal Impact Test,” incorporated herein by reference, as amended and supplemented. When tested, the wheelchair/mobile seating device securement and occupant

restraint system shall meet the performance requirements specified in section 6.2 of SAE Recommended Practice J2249 (January 1999), "Frontal Sled Impact Test," incorporated herein by reference, as amended and supplemented. The dynamic test shall be performed using system assemblies, components, and attaching hardware that are identical to the final installation in type, configuration, and positioning. The body structure at the anchorage points may be simulated for the purpose of the sled test, but the simulated structure shall not exceed the strength of the attachment structure to be used in the final body installation. The test dummy shall be retained within the securement system throughout the test and forward movement shall be such that no portion of the test dummy's head or knee pivot points passes through a vertical transverse plane intersecting the forwardmost point of the floor space designed for the mobile seating device. All hardware shall remain positively attached throughout the test and there shall be no failure of any component. Each mobile seating device belt assembly including attachments, hardware, and anchorages shall be capable of withstanding a force of not less than 2,500 pounds.

(e) The belt material at each space designated for the mobile seating device and the occupant restraint system shall be similar in size and fabric.

(f) If an anchorage unit is surface-mounted, the anchorage height above the floor surface shall not exceed 3/4 inch and the anchorage unit shall be ramped on all sides.

(g) The wheelchair/mobile seating device securement system and occupant restraint system shall comply with all applicable requirements of

FMVSS No. 222 (49 CFR §571.222), incorporated herein by reference, as amended and supplemented.

(h) The occupant restraint system shall be designed to be attached to the school bus body, either directly or in combination with the wheelchair or mobile seating device securement system, by a method that prevents the transfer of weight or force from the wheelchair/mobile seating device to the occupant in the event of an impact.

(i) Securement system attachments or coupling hardware not permanently attached to the school bus body shall be designed to prevent such attachments or hardware from being accidentally disconnected.

1. The following fasteners shall not be used for any occupant restraint or equipment securement:

i. T-bar or T-hook fasteners; or

ii. Touch fasteners, vinyl lap or shoulder belts.

(j) All attachment or coupling devices shall be accessible and operable without the use of tools or other mechanical assistance.

(k) All securement and restraint system hardware and components shall be free of sharp or jagged areas and shall be of a noncorrosive material or shall be treated to resist corrosion in accordance with FMVSS No. 209 (49 CFR §571.209), incorporated herein by reference, as amended and supplemented.

(l) The occupant restraint system shall be made of materials that do not stain, soil, or damage an occupant's clothing.

(m) The mobile seating device or securement system hardware shall not block access to either the emergency door or the power lift door.

(n) The school bus body floor and sidewall structures where the securement and restraint system anchorages are attached shall have equal or greater strength than the load requirements of the system(s) being installed.

(o) For each school bus equipped with a securement system, the following information shall be provided by the securement system manufacturer to either the school bus body manufacturer or the school bus operator:

1. Detailed instructions regarding the installation and use of the system, including a parts list; and

2. Detailed instructions, including a diagram, regarding the proper placement and positioning of the system, including correct belt angles.

13:20-50C.14 Steps

(a) The first step at the service door shall be not less than 10 inches nor more than 14 inches from the ground, based on standard chassis specifications. The first step at the service door on a Type D school bus shall be not less than 12 inches nor more than 16 inches from the ground.

(b) Step risers shall not exceed a height of 10 inches. If plywood has been installed on top of the steel floor or step, the maximum riser height may be increased by the thickness of the plywood.

(c) On a school bus equipped with a power lift, the steps shall be the full width of the stepwell, excluding the thickness of the doors in an open position.

(d) The steps shall be enclosed to prevent the accumulation of ice or snow.

(e) The steps shall not protrude beyond the body line of the school bus.

(f) Grab handles, not less than 20 inches in length, shall be provided inside the doorway on both sides in unobstructed locations. Grab handles shall be designed so as to prevent snagging.

13:20-50C.15 Support equipment and accessories

(a) Portable student support equipment or special accessory items, including but not limited to crutches, walkers, canes, other ambulating devices, oxygen bottles, and ventilators, shall be securely fastened at a mounting location able to withstand a pulling force of five times the weight of the item, or shall be stored in an enclosed, latched compartment. The compartment shall be capable of withstanding forces applied to its interior equal to five times the weight of its contents without failure of the compartment's integrity and securement to the school bus.

(b) The school bus shall be equipped with an evacuation blanket that is fireproof or is made of flameproof material.

13:20-50C.16 Wheelchair or other mobile seating device requirements

(a) A wheelchair or other mobile seating device shall be equipped with an occupant restraint belt and hand brake that is furnished and maintained by the owner of such wheelchair or other mobile seating device.

(b) An electric-powered wheelchair shall be equipped with a gel-cel (non-liquid electrolyte) battery. Liquid electrolyte batteries shall not be permitted in the passenger compartment of a school bus.

(c) The area designed for a wheelchair or other mobile seating device position shall be 30 inches by 48 inches.

SUBCHAPTER 51. STANDARDS FOR TYPE S SCHOOL BUSES

13:20-51.1 Scope

(a) This subchapter shall apply to any Type S school bus including, but not limited to, vans and passenger automobiles, which is used for the transportation of children to or from school or school-connected activities.

(b) This subchapter shall also apply to all Type S school buses, including limousines, omnibuses, taxicabs, motor vehicles for which a handicapped placard or registration plates have been issued in accordance with N.J.S.A. 39:4-206, and motor vehicles for which no fee registration plates have been issued in accordance with N.J.S.A. 39:3-27 that are used for two or more modes of transportation, one of which is for the transportation of children to or from school or school-connected activities.

(c) A Type S school bus shall be inspected twice each year by the Division's School Bus Inspection Unit to ensure that such vehicle is in safe and proper operating condition. The time and location of the inspection shall be established by the Director or his or her designee.

(d) A motor vehicle with a GVWR of less than 3,000 pounds shall not be used for the transportation of children to or from school or school-connected activities.

(e) A motor vehicle with a manufacturer's statement of origin that identifies the vehicle as a truck shall not be used for the transportation of children to or from school or school-connected activities.

(f) Any modification to a Type S school bus for the purpose of transporting children with special needs shall comply with all applicable FMVSS and SAE standards governing the modifications.

13:20-51.2 Definitions

The following words and terms, when used in this subchapter, shall have the following meanings unless the context clearly indicates otherwise.

"Director" means the Director of the Division of Motor Vehicles in the Department of Transportation in the State of New Jersey.

"Division" means the Division of Motor Vehicles in the Department of Transportation in the State of New Jersey.

"Driver" means the authorized licensed operator of a Type S school bus.

“FMVSS” means the Federal Motor Vehicle Safety Standards as found in the Code of Federal Regulations (49 CFR Part 571). Copies of the Federal Motor Vehicle Safety Standards as found in the Code of Federal Regulations may be purchased from the Superintendent of Documents, United States Government Printing Office, Washington, DC 20402, (202) 783-3238.

“Gross vehicle weight rating” or “GVWR” means the value specified by the manufacturer as the maximum loaded weight of a single vehicle.

“Operator” means the owner or person responsible for the day-to-day operation and maintenance of a Type S school bus.

“Passenger” means any person riding in a Type S school bus other than the driver.

“SAE” means the Society of Automotive Engineers, Inc. Copies of the Standards and Recommended Practices of the Society of Automotive Engineers may be purchased from the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096, (724) 776-4841.

“Type S school bus” means a motor vehicle with a GVWR of 3,000 pounds or more, originally designed by the manufacturer with a maximum seating capacity of nine passengers or less excluding the driver, operated by, or under contract with, a public or governmental agency, or religious or other charitable organization or corporation, or privately operated for compensation for the transportation of children to or from school for secular or religious education, school-connected activity, day camp, summer day camp, nursery school, child care center, preschool center, or other similar places of education.

“UL” means the Underwriters’ Laboratories, Inc.

13:20-51.3 Capacity

(a) The maximum number of passengers who may be transported in each Type S school bus shall be determined by the seat measurement. Fifteen inches of seat length shall be provided for each passenger.

(b) There shall be no standees.

13:20-51.4 Chains or snow tires

The drive wheels of Type S school buses shall be equipped with tire chains, all-weather tires, or snow tires for safe operation in areas of snow and/or ice.

13:20-51.5 Emergency equipment

(a) Emergency equipment shall be provided consisting of at least the following:

1. A seat belt cutter;
2. A spare tire;
3. A jack;
4. A lug wrench; and
5. Three red reflectorized triangular warning devices.

13:20-51.6 Fire extinguisher

(a) A fully-charged dry chemical fire extinguisher with a pressure gauge approved by the UL with the minimum UL rating of B2, C2, 1/2 BC, or 10BC shall be provided. The fire extinguisher shall be mounted in a bracket in a convenient location in the driver's compartment and display an inspection tag.

(b) A Type S school bus shall not be equipped with a fire extinguisher system that uses the chemical Halon as the fire suppression agent.

13:20-51.7 First aid kit

(a) A removable first aid kit shall be provided. The first aid kit shall be a moistureproof and dustproof container without a lock, with the words "FIRST AID" printed on the cover. The contents shall be maintained as follows:

1. Six single unit sterile gauze pads, three inches by three inches;

2. Two gauze bandages, one inch by 10 yards;

3. One roll of adhesive tape, one inch by 2 1/2 yards;

4. Twelve bandaid plastic strips;

5. One triangular bandage, approximately 40 inches by 54 inches,

with a safety pin; and

6. One pair rounded-end scissors.

(b) If the first aid kit is stored in a storage compartment, the location of the kit shall be identified by the words "FIRST AID" or marked with the Red Cross symbol.

13:20-51.8 Floor covering

A securely attached nonskid material floor covering shall be provided.

13:20-51.9 Heater capacity

The heater shall be capable of bringing the interior temperature of the Type S school bus up to and maintaining a minimum temperature of 50 degrees Fahrenheit.

13:20-51.10 Lettering

A Type S school bus may display lettering that indicates the name of the operator and the name of the municipality in which the operator has his or her principal place of business, wording to indicate that the vehicle stops at railroad crossings, and wording to indicate that the vehicle is carrying children. A Type S school bus shall not display any advertising.

13:20-51.11 Rear view mirrors

Approved rear view mirrors shall be mounted inside and outside of a Type S school bus. Outside mirrors shall be mounted on both sides of the Type S school bus.

13:20-51.12 Rear window

The rear window shall be non-ventilating.

13:20-51.13 Seats and backrests

(a) Securely fastened seats and backrests shall be provided. Seats shall be forward facing and shall be spring or foam rubber upholstered.

(b) A "jump-type" or folding seat shall not be permitted.

(c) Each seat exit shall be clear of obstructions.

(d) A vehicle shall not be used as a Type S school bus if the seat in front of the seat to be exited from must be folded in order for a passenger to exit the vehicle.

(e) A seat belt shall be provided for the driver and for each passenger.

(f) A child passenger restraint system or booster seat, as described in FMVSS No. 213 (49 CFR §571.213), incorporated herein by reference, as amended and supplemented, shall be provided for each passenger under the age of eight years and weighing less than 80 pounds.

13:20-51.14 Sun visor

An adjustable sun visor shall be provided.

13:20-51.15 Windshield wipers

A windshield wiper(s) shall be provided so as to provide clear vision for the driver.

Recodify existing N.J.A.C.13:20-49H as 13:20-52 (No change in text.)

**SUBCHAPTER 53. STANDARDS FOR ALTERNATIVELY FUELED SCHOOL
BUSES**

13:20-53.1 Scope and purpose

(a) To ensure the safety of students, this subchapter shall apply to school buses originally designed by the manufacturer to carry 10 or more passengers used in the transportation of children to or from school pursuant to N.J.A.C. 13:20-50.1(a) and that operate in whole or in part on alternative fuels. Such school buses shall comply with N.J.A.C. 13:20-53A, 53B, or 53C, whichever is applicable, this subchapter including all applicable standards incorporated herein, and industry-recommended practices.

(b) This subchapter shall not apply to autobuses approved for school use and subject to inspection by the Division's Commercial Bus Inspection and Investigation Unit unless otherwise provided.

13:20-53.2 Definitions

The following words and terms, when used in this subchapter and in N.J.A.C. 13:20-53A, 53B, and 53C, shall have the following meanings unless the context clearly indicates otherwise.

“Alteration” means any change in the construction, design, or installation of a fuel supply container or system that affects the strength or safety of the fuel system.

“Alternative fuel” means any fuel other than gasoline or diesel, excluding battery or fuel cell power systems, but including CNG, LNG, and LPG.

“ASME Code” means sections VIII and IX of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, incorporated herein by reference, as amended and supplemented. Copies of the ASME Code may be obtained from the American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016, (800) THE-ASME.

“CNG” means compressed natural gas.

“Cradle” means a supporting and/or protective structure that surrounds a fuel system container, enclosing it as necessary to provide physical security and integrity, and that may support its weight in whole or in part.

“Director” means the Director of the Division of Motor Vehicles in the Department of Transportation in the State of New Jersey.

“Division” means the Division of Motor Vehicles in the Department of Transportation in the State of New Jersey.

“Dual fuel” means the simultaneous use of gasoline or diesel and an alternative fuel, but not a mixture thereof.

“FMCSR” means the Federal Motor Carrier Safety Regulations as found in the Code of Federal Regulations (49 CFR Part 393). Copies of the Federal Motor Carrier Safety Regulations as found in the Code of Federal Regulations may be

purchased from the Superintendent of Documents, United States Government Printing Office, Washington, DC 20402, (202) 783-3238.

“FMVSS” means the Federal Motor Vehicle Safety Standards as found in the Code of Federal Regulations (49 CFR Part 571). Copies of the Federal Motor Vehicle Safety Standards as found in the Code of Federal Regulations may be purchased from the Superintendent of Documents, United States Government Printing Office, Washington, DC 20402, (202) 783-3238.

“Fuel supply container” or “fuel cylinder” means a container or cylinder installed on a vehicle to supply fuel for the propulsion system of the vehicle.

“Fuel system” means the fuel cylinder, supply lines, and all ancillary fuel equipment.

“LNG” means liquefied natural gas.

“LPG” means liquefied petroleum gas.

“Liquid fuel” means any fuel that is in a liquid state under normal ambient atmospheric conditions of temperature and pressure.

“NFPA” means the National Fire Protection Association. Copies of the National Fire Protection Association standards may be obtained from the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02269, (617) 770-3000.

“Passenger seat” means a seat other than the driver's seat.

“School bus” or “bus” when used in N.J.A.C. 13:20-53A, 53B, 53C, or this subchapter shall refer to Type A1, A2, B, C, and D school buses, which shall be classified in the following manner:

1. A "Type A1" school bus is a conversion or body constructed and installed upon a van-type compact truck or a front-section vehicle chassis, with a GVWR of 10,000 pounds or less, originally designed by the manufacturer for carrying 10 to 16 passengers;

2. A "Type A2" school bus is a conversion or body constructed and installed upon a van-type compact truck or a front-section vehicle chassis, with a GVWR of more than 10,000 pounds but less than or equal to 14,500 pounds, originally designed by the manufacturer for carrying 10 to 20 passengers;

3. A "Type B" school bus is constructed utilizing a stripped chassis with a GVWR of more than 10,000 pounds, originally designed by the manufacturer for carrying 10 to 30 passengers. Part of the engine is beneath and/or behind the windshield and beside the driver's seat. The service door is behind the front wheels;

4. A "Type C" school bus is a body installed upon a flat back cowl chassis with a GVWR of more than 10,000 pounds, originally designed by the manufacturer for carrying 10 to 54 passengers. The engine is in front of the windshield, or part of the engine is beneath and/or behind the windshield and beside the driver's seat. The service door is behind the front wheels; and

5. A "Type D" school bus is a body installed upon a chassis, with the engine mounted in the front, middle, or rear, with a GVWR of more than 10,000 pounds, originally designed by the manufacturer for carrying 10 to 54 passengers. The engine may be behind the windshield and beside the driver's

seat; it may be at the rear of the school bus, behind the rear wheels; or it may be in the middle between the front and rear axles. The service door is ahead of the front wheels.

“SAE” means the Society of Automotive Engineers, Inc. Copies of the Standards and Recommended Practices of the Society of Automotive Engineers may be purchased from the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096, (724) 776-4841.

“Supply line” means the piping, tubing, or hose, including all related fittings, through which vapor or liquid passes between the first shut-off valve at the fuel supply container and the final stage regulator or vaporizer.

“UL” means the Underwriters' Laboratories, Inc.

“Vaporizer” means a device that converts liquefied natural gas and liquefied petroleum gas to the gaseous state by means of heat.

13:20-53.3 Installation requirements

(a) The installation of LPG, CNG, or LNG fuel systems on school buses equipped with gaseous fuel carburetors shall be in accordance with the following requirements:

1. Fuel supply containers on school buses shall not be located in or above the passenger compartment; and
2. Fuel supply containers shall be installed and fitted so that

no gas from fueling and gauging operations or from relief valves can be released inside the driver, passenger, or luggage compartment.

13:20-53.4 Fuel supply container requirements

(a) Fuel supply containers shall meet all applicable requirements of the ASME Code, 49 CFR §393.67, incorporated herein by reference, as amended and supplemented, and the following requirements:

1. Each container and cradle shall be mounted in a protected location to minimize damage from collision. All valves and gauges shall be protected by doors or other means.

2. To prevent damage from road hazards, slippage, loosening, or rotation, each container or cradle shall be secured to the school bus body, bed, or frame by either of the following means:

i. By attaching bolts not less than 7/16 inch in diameter that meet SAE Standard J429 (January 1999), incorporated herein by reference, as amended and supplemented, for grade 5 threaded fasteners and self-locking nuts to at least four securement points and, where bolts pierce body metal but not frame, by reinforcing both sides of each securement point with metal plates at least $\frac{3}{4}$ inch thick and seven square inches in area; or

ii. By using other means that render the container or cradle capable of withstanding at a minimum in any direction a static force of eight times the weight of the fully-loaded container.

3. Each container shall be secured to its cradle by means

capable of withstanding at a minimum in any direction a static force of eight times the weight of the fully-loaded container.

4. No portion of the container or container valve(s) in communication with the liquid or vapor shall be located behind the rear frame cross member of the school bus unless such container or container valve(s) is provided with protection equivalent to that provided by the rear frame cross member.

5. The weight of the container shall not, in any way, be supported by outlets, valves, manifold, or other fuel connections.

6. No part of the container shall be field-welded. Only saddle plates, brackets, or other non-pressure parts that were provided and installed by the manufacturer of the container may be field-welded.

7. No container shall be repaired until the method of repair has been authorized by the container manufacturer. United States Department of Transportation containers shall be repaired in accordance with applicable United States Department of Transportation regulations and shall meet the applicable standards set forth in 49 CFR §393.67, incorporated herein by reference, as amended and supplemented. The replacement of valves, fittings, and accessories intended for the same purpose is not considered a repair.

8. Containers located less than eight inches from the engine or exhaust system shall be shielded against direct heat.

9. Filler caps shall fit snugly to prevent leakage of fuel while the school bus is standing or in motion.

13:20-53.5 Markings

Markings of set-to-discharge pressure for safety relief devices and working pressure of fuel supply containers required by this subchapter shall be visible either directly or by use of a mirror after installation. All remote filling inlets shall be visibly marked with the type of fuel and the lowest working pressure of any fuel supply container in the system.

13:20-53.6 Venting

(a) All safety devices that may discharge to the atmosphere shall be vented to the outside of the school bus, and all discharge lines and outlets shall be installed as follows:

1. Discharge lines shall be constructed of metal other than aluminum and shall be of a size and so located and maintained as not to restrict the maximum flow of the safety device. Flexible metallic lines shall be used when necessary.

2. The discharge line of a fuel supply container installed inside a compartment shall extend to the outside of the compartment.

3. Discharge lines shall be located as far from the exhaust outlet as is practicable and shall direct escaping gas upward within 45 degrees of vertical. Escaping gas shall not impinge upon fuel supply containers and shall not be directed into wheel wells, at other vehicles in traffic, or at engine air intake inlets.

4. The discharge line from the safety relief valve on all school buses shall be located at the rear of the school bus, directed upward, and extended to the top of the school bus roof. Means shall be provided to verify that the discharge line is clear.

5. Outlets shall be protected by caps, covers, or other means to keep water or dirt from collecting in the discharge lines. Protective devices shall not restrict the flow of gas.

6. Each discharge line and its connectors shall withstand the pressure caused by the discharge of vapor or liquid from a safety device in the fully-open position.

7. CNG containers may be vented to the outside of the school bus with a flexible bag. Such bag shall be constructed of a material that is nonflammable or self-extinguishing. The bag and attachments shall be capable of withstanding an internal pressure produced by a flow rate of 300 cubic feet per minute with a safety factor of not less than four. The bag shall be shielded or installed in a protected location to prevent damage from unsecured objects or abrasion.

13:20-53.7 Manifold shut-off valve

Manifolds connected to fuel supply containers shall be supported to minimize vibration and shall be installed in a protected location or shielded to prevent damage from unsecured objects. A normally closed automatic shut-off valve that is held open by electrical current shall be installed in the outlet of the

manifold and marked with the words "AUTOMATIC SHUT-OFF VALVE." The automatic shut-off valve shall be wired so that it shuts off when the ignition switch is in the "off" or "accessory" position and when engine vacuum or oil pressure is not present.

13:20-53.8 Pipes, tubing, hoses, and fittings

(a) All pipes, tubing, hoses, and fittings shall meet the following requirements:

1. All materials and assemblies shall be designed for the widest pressure and temperature ranges to which they may be subjected with a pressure safety factor of at least four.

2. All materials, including gaskets and packing materials, shall be compatible with the fuel used in the system and its service conditions. Aluminum pipe, tubing, or fittings shall not be used between the fuel supply container and first-stage regulator. When used, copper tubing shall be seamless.

3. A pipe thread sealant impervious to the action of the fuel used in the system shall be applied to all male pipe threads prior to assembly. Only tin-silver (95 percent tin, five percent silver) or silver braze alloy shall be used on sweat-type joints or fittings.

13:20-53.9 Supply lines

(a) Every gasoline or diesel fuel supply line shall have the fuel supply line fitting located in the top of the tank.

(b) Supply lines passing through a panel shall be protected by grommets or similar devices, which shall snugly fit both the supply lines and the holes in the panel. Supply lines shall have a minimum clearance of eight inches from the engine exhaust system unless they are shielded from exhaust heat. Supply lines shall be supported at least every 24 inches and shall be prevented from sagging. Damaged supply lines shall be replaced, not repaired.

13:20-53.10 Shut-off valve

An automatic fuel supply shut-off valve shall be installed in a protected location adjacent to the manual shut-off valve on all school buses and shall be activated by engine vacuum or oil pressure.

13:20-53.11 Carburetor flows

Means shall be provided in the fuel system to prevent the flow of gaseous fuel to the carburetor when the ignition is in the “off” or “accessory” position, or from the carburetor when engine vacuum or oil pressure is not present.

13:20-53.12 Dual fuel systems

A dual fuel system using liquid and gaseous fuels shall have an automatic shut-off valve installed in the liquid fuel line to the carburetor.

13:20-53.13 Relief device

A by-pass relief device shall be installed in the fuel pump or between the

fuel pump and the automatic shut-off valve in the liquid fuel line to the carburetor on a school bus equipped with a dual fuel system for the use of gasoline and gaseous fuels. The relief device need not be installed on a fuel pump containing a by-pass relief device as original equipment.

13:20-53.14 Electrical equipment

(a) Radio transmitters, radio receivers, electric motors, or other electrical equipment (except lamps and wiring) shall not be mounted in a compartment with fuel supply containers, unless one of the following conditions is met:

1. All piping, connectors, and valves on the fuel supply containers are exterior to and sealed from the compartment containing electrical equipment;

2. All piping, connectors, and valves within the compartment are contained in a vapor tight enclosure and vented to the atmosphere outside of the school bus; or

3. The electrical equipment is contained in a vapor tight enclosure that is vented to the atmosphere outside of the school bus.

13:20-53.15 Road clearance

The fuel system, including the fuel supply container, shall be installed with as much road clearance as possible. The lowest part of any component in the fuel system, including protective guards and fuel cradles, shall not be lower than

the lowest edge of the vehicle differential housing under maximum spring deflection.

13:20-53.16 Gasoline tank

The gasoline tank shall not be placed below the aisle to a door unless the area over such tank is adequately protected by metal shielding.

13:20-53.17 Certified fuel tanks

Diesel or gasoline fuel tanks shall be certified and marked by the manufacturer to be in compliance with United States Department of Transportation requirements.

13:20-53.18 Fuel system

All parts of the fuel system shall be securely installed outside of the passenger compartment and shall be located so as to prevent damage to any part of the passenger compartment.

13:20-53.19 Fuel containers

(a) Fuel containers for all fuels shall conform to 49 CFR §393.65, incorporated herein by reference, as amended and supplemented.

(b) A fuel container for liquid fuel shall, in addition to (a) above, conform to 49 CFR §393.67, incorporated herein by reference, as amended and supplemented, and shall have:

1. Suitable baffles;
2. A supply line taken from the top of the fuel tank; and
3. All parts of the electrical system located under any part of the

fuel system including the fuel tank, carburetor, gasoline pump, gasoline filter, or fuel line connections shielded from possible fuel leakage.

(c) Fuel containers for LPG shall, in addition to (a) above, conform to 49 CFR §393.69, incorporated herein by reference, as amended and supplemented.

(d) For a fuel supply system using LPG, CNG, or LNG, such a system shall be constructed and installed in accordance with the provisions of N.J.A.C. 13:20-53A, 53B, or 53C, whichever is applicable, and this subchapter.

SUBCHAPTER 53A. STANDARDS FOR SCHOOL BUSES HAVING FUEL SYSTEMS USING LIQUEFIED PETROLEUM GAS

13:20-53A.1 General provision

In addition to the NFPA Standard 58A “Liquefied Petroleum Gases Engine Fuel Systems”, incorporated herein by reference, as amended and supplemented, in effect at the time of installation, fuel systems using LPG shall also meet the requirements of this subchapter.

13:20-53A.2 Fuel supply container

(a) Each LPG fuel supply container shall be constructed, inspected, and

permanently marked in accordance with 49 CFR §393.69, incorporated herein by reference, as amended and supplemented, or the ASME Code.

(b) Fuel supply containers constructed to the United States Department of Transportation specifications shall have a minimum service pressure of 240 pounds per square inch.

(c) Fuel supply containers constructed to the ASME Code specifications shall have a minimum working pressure of 250 pounds per square inch.

(d) Each fuel supply container shall be equipped with an outage valve or a fixed liquid level gauge to indicate when the container is 80 percent full. A float gauge shall not be used to meet this requirement.

(e) Each fuel supply container shall have a fill valve that limits the amount of fuel that may be pumped into such container to 80 percent of the container capacity.

13:20-53A.3 Back-flow check valve

When two or more fuel supply containers are used, a back-flow check valve with a pressure setting not higher than 500 pounds per square inch shall be installed between the back-flow check valves and the filling operation. A hydrostatic relief valve with a pressure setting not lower than 350 pounds per square inch shall be installed in each fuel line to prevent the passage of fuel between the fuel supply containers during gaseous fuel cutoff to the carburetor.

13:20-53A.4 Fuel supply container markings

(a) Each LPG fuel supply container constructed in accordance with ASME specifications shall be permanently marked with the following information:

- 1. The official ASME Code U symbol;**
- 2. The manufacturer's name, initials, or trademark;**
- 3. The maximum allowable working pressure in pounds per square inch at degrees Fahrenheit;**
- 4. The serial number; and**
- 5. The year built.**

(b) Each LPG fuel supply container constructed in accordance with United States Department of Transportation specifications shall be permanently marked with the following information:

- 1. The letters "USDOT" or "ICC" (referring to the former Interstate Commerce Commission) with the applicable specifications and service pressure;**
- 2. The manufacturer's name, initials, or trademark, as registered with the United States Department of Transportation;**
- 3. The serial number; and**
- 4. The year tested.**

(c) All fuel supply container inlets and outlets, except those for relief valves and gauging devices, shall be permanently marked to indicate whether they connect to vapor or liquid space.

Each valve shall be of a type that has been tested and listed by the UL or by any other nationally recognized testing laboratory as meeting the UL requirements for LPG. Each valve shall be securely mounted and shielded or installed in a protected location to prevent damage from excessive vibration or unsecured objects.

13:20-53A.6 Safety relief valves

(a) One or more spring-loaded internal safety relief valves shall be installed in each fuel supply container that is connected to vapor space.

(b) The fuel supply container shall be permanently marked to indicate the “set to discharge pressure” after the safety relief valves have been installed in the container.

(c) Safety relief valves for United States Department of Transportation fuel supply containers shall be approved by the Federal Bureau of Explosives and the valve setting shall be as required by that Bureau.

(d) The safety relief valve setting for ASME fuel supply containers shall be not less than 100 percent nor more than 110 percent of the maximum allowable service pressure of the container.

13:20-53A.7 Safety relief valve markings

(a) Permanent markings on safety relief valves in ASME fuel supply containers shall include:

1. The manufacturer’s name, initials, or trademark;

2. The manufacturer's design or type number;

3. The discharge pressure in pounds per square inch;

4. The discharge capacity in cubic feet of air per minute at 60 degrees Fahrenheit and 14.7 pounds per square inch; and

5. The ASME or UL symbol.

(b) Permanent markings on safety relief valves in United States Department of Transportation fuel supply containers shall include:

1. The manufacturer's name, initials, or trademark;

2. The catalog number;

3. The discharge pressure in pounds per square inch; and

4. The discharge capacity in cubic feet of air per minute at 60 degrees Fahrenheit and 14.7 pounds per square inch.

13:20-53A.8 Excess flow valve

(a) An internal excess flow valve shall be provided that is designed to close when maximum volume escapes through the smallest connection in the supply line valve or gauging device outlets.

(b) The internal excess flow valve shall have a by-pass not to exceed a No. 60 drill size opening to allow for the equalization of pressure.

13:20-53A.9 Check valves

(a) The inlet connection in the fuel supply container shall be fitted with either an internal and external check valve or an internal check valve with an

adjacent or remote manual shut-off valve.

(b) The inlet of the filling system shall be capped, except when filling, to withstand the maximum service pressure of the fuel supply container.

(c) Every fuel supply container shall have an internal and an external check valve connected to the container and shall be equipped for filling outside of the school bus passenger compartment.

13:20-53A.10 Vapor equalizing valve

A vapor equalizing valve may be installed in the fuel supply container. The valve shall be capped, except when filling, to withstand the maximum pressure of the container.

13:20-53A.11 Shut-off valve

A manually-operated shut-off valve shall be installed in the fuel supply container outlet connection serving the supply line and shall be marked "SHUT-OFF VALVE."

13:20-53A.12 Liquid volume gauge

(a) Every LPG fuel supply container shall be equipped with a liquid volume gauge, which shall be designed and installed as follows:

1. The gauging device shall be a type that has been listed by the UL or by any other nationally recognized testing laboratory as meeting the UL requirements for LPG.

2. The gauge shall be securely mounted and shielded or installed in a protected location to prevent damage from excessive vibration or unsecured objects.

3. A gauge that requires the bleeding of the product shall be equipped with a bleeder valve and the product shall be bled to the outside of the school bus passenger compartment. A restricting orifice not larger than a No. 54 drill size shall be installed inside the fuel supply container.

13:20-53A.13 Pressure reducing regulator and vaporizer regulator

An automatic pressure reducing regulator or a vaporizer regulator designed to withstand a service pressure of at least 250 pounds per square inch shall be installed between the LPG fuel supply container and the carburetor. All regulators and vaporizers shall be of a type that has been tested and listed by the UL or by any other nationally recognized testing laboratory as meeting the UL requirements for LPG. The regulator or vaporizer shall be installed so that its weight is not placed on, or supported alone by, the attached tubing or flexible lines.

13:20-53A.14 Vents

Every compartment in which an LPG fuel supply container is installed shall be vented to the atmosphere unless all piping and connectors are outside of the compartment. The vent or vents shall be installed at the lowest practicable point of the compartment and shall have an open area totaling not less than three

square inches.

13:20-53A.15 LPG hose for high pressure liquid or vapor use

(a) All LPG hose and hose assemblies shall have a working pressure of not less than 350 pounds per square inch and a burst pressure of not less than 1750 pounds per square inch.

(b) Each LPG hose shall be reinforced with corrosion-resistant wire braid and shall be of a type that has been tested and listed by the UL or by any other nationally recognized testing laboratory as meeting the UL requirements for LPG.

(c) Each LPG hose shall have the following permanent identification markings in letters and numerals at least $\frac{3}{4}$ inch in height at intervals of 24 inches or less:

1. The manufacturer's name, initials, or trademark;
2. LPG or LP Gas; and
3. The working pressure.

SUBCHAPTER 53B. STANDARDS FOR SCHOOL BUSES HAVING FUEL
SYSTEMS USING COMPRESSED NATURAL GAS

13:20-53B.1 General provision

In addition to the NFPA Standard 52A "Compressed Natural Gas Vehicular

Fuel Systems”, incorporated herein by reference, as amended and supplemented, in effect at the time of installation, fuel systems using CNG shall also meet the requirements of this subchapter.

13:20-53B.2 Fuel supply container

(a) Each CNG fuel supply container shall be constructed and inspected in accordance with FMVSS No. 304 (49 CFR §571.304), incorporated herein by reference, as amended and supplemented, and shall have a rated service pressure of not less than 2250 pounds per square inch at 70 degrees Fahrenheit.

(b) The working pressure shall be stamped on the CNG fuel supply container near the filler connection.

(c) The CNG fuel supply container shall not be filled beyond the working pressure stamped thereon corrected for the ambient temperature at the time of filling as prescribed by the United States Department of Transportation.

13:20-53B.3 Markings

(a) Each CNG fuel supply container shall have the following identification markings:

1. The letters “USDOT” with the applicable specification and working pressure;

2. The manufacturer’s name, initials, or trademark;

3. The serial number; and

4. The year tested.

13:20-53B.4 Shut-off valve

(a) A manually-operated shut-off valve shall be in direct contact with the CNG fuel supply container and shall be marked "SHUT-OFF VALVE."

(b) A shut-off valve shall not be used for CNG unless it has been certified for that purpose by the manufacturer.

(c) The shut-off valve shall be securely mounted and shielded or installed in a protected location to prevent damage from excessive vibration or unsecured objects.

13:20-53B.5 Safety relief devices

(a) One or more safety relief devices shall be installed in the CNG fuel supply container in order to vent the fuel to the outside of the school bus passenger compartment.

(b) Safety relief devices shall be approved as to type, size, quantity, and location by the Federal Bureau of Explosives and shall be permanently marked as follows:

- 1. The manufacturer's name, initials, or trademark;**
- 2. The flow capacity in cubic feet per minute; and**
- 3. The yield temperature rating in degrees Fahrenheit.**

13:20-53B.6 Gauges

(a) Gauges used in CNG systems shall be designed and installed as

follows:

1. Gauging devices shall be designed for the most severe pressure and temperature conditions to which the devices may be subjected with a pressure safety factor of not less than four; and

2. Gauges shall be securely mounted and shielded or installed in protected locations to prevent damage from excessive vibration or unsecured objects.

13:20-53B.7 Automatic pressure reducing regulators

(a) An automatic pressure reducing regulator or regulators shall be installed in every CNG system to reduce fuel supply container pressure to a value consistent with the working pressure required by the carburetor. Means shall be provided to prevent regulator malfunction due to refrigeration effects.

(b) Every automatic pressure reducing regulator shall be installed so that its weight is not placed on, or supported alone by, the attaching line or lines.

(c) Every automatic pressure reducing regulator shall be designed to the CNG fuel supply container's maximum working pressure and temperature with a pressure safety factor of not less than four.

13:20-53B.8 Vents

Every compartment in which a CNG fuel supply container is installed shall be vented to the atmosphere, unless all piping and connectors outside of the compartment are vapor-sealed and vented to the atmosphere. The vent or vents

shall be installed at the highest practicable point of the compartment and shall have an open area totaling not less than three square inches.

**SUBCHAPTER 53C. STANDARDS FOR SCHOOL BUSES HAVING FUEL
SYSTEMS USING LIQUEFIED NATURAL GAS**

13:20-53C.1 General provision

In addition to the NFPA Standard 57 “Liquefied Natural Gas Vehicular Fuel Systems”, incorporated herein by reference, as amended and supplemented, in effect at the time of installation, fuel systems using LNG shall also meet the requirements of this subchapter.

13:20-53C.2 Fuel supply container

(a) Each LNG fuel supply container shall be constructed and inspected in accordance with 49 CFR §178.57 (Specification 4L welded insulated cylinders), incorporated herein by reference, as amended and supplemented, with the exception of subsections 178.57-13 and 178.57-20 and the reports to the Federal Bureau of Explosives in subsection 178.57-4(d), incorporated herein by reference, as amended and supplemented. Each LNG container shall meet the following additional requirements:

1. The unrelieved fuel pressure inside the LNG fuel supply container shall not exceed 100 pounds per square inch within a total 72-hour

period consisting of 48 hours at 60 degrees Fahrenheit, 12 hours at 70 degrees Fahrenheit, and 12 hours at 90 degrees Fahrenheit ambient temperatures when the container has been filled with LNG conditioned at one atmosphere;

2. The LNG fuel supply container shall be equipped with a liquid level gauging device and a dip tube to prevent filling beyond 90 percent by volume at atmospheric pressure; and

3. Each completed LNG fuel supply container, including its supporting structure and valves, enclosures, and lines normally attached thereto, shall have structural integrity to withstand damage from deceleration and acceleration forces resulting from a 30 miles per hour front-end or rear-end collision with the type of vehicle in which the container is installed. A test of other means as established by a national standards testing institute shall demonstrate that the LNG fuel supply container and its openings do not rupture in such collisions.

13:20-53C.3 Markings

(a) Each LNG fuel supply container shall be permanently marked as follows:

1. The service pressure;
2. The serial number;
3. The manufacturer's name, initials, or trademark;
4. The inspector's mark; and
5. The date tested.

(b) All inlets and outlets, except relief valves and gauging devices, shall be permanently marked to designate whether they make contact with vapor or liquid space.

13:20-53C.4 Valve certification

Valves shall be certified for LNG use by the manufacturer or certified for cryogenic service at temperatures down to and including minus 320 degrees Fahrenheit. All valves shall be securely mounted and shielded or installed in a protected location to prevent damage from excessive vibration or unsecured objects.

13:20-53C.5 Safety relief valves

(a) Each LNG fuel supply container shall be equipped with one or more safety relief valves.

(b) A safety relief valve(s) shall be installed in a line that is connected to the vapor space of the container. A safety relief valve shall be installed between two shut-off valves in a supply line to prevent a buildup of pressure between the valves in the "off" position.

(c) The discharge pressure of a safety relief valve shall not exceed 125 percent of the service pressure of the LNG fuel supply container.

(d) A safety relief valve shall have sufficient capacity to meet the requirements of NFPA Standard 59A "Standard for the Production, Storage, and Handling of Liquefied Natural Gas" Appendix A, incorporated herein by

reference, as amended and supplemented, and be capable of preventing explosion of the normally-charged cylinder when it is placed in a fire.

(e) A safety relief valve shall be permanently marked as follows:

1. The manufacturer's name, initials, or trademark;
2. The catalog number;
3. The discharge pressure in pounds per square inch; and
4. The discharge capacity in cubic feet of air per minute at 60

degrees Fahrenheit and 14.7 pounds per square inch.

13:20-53C.6 Shut-off valves

(a) One manually-operated shut-off valve shall be secured directly to the tank vapor outlet with no intervening fitting other than the safety relief valve and shall be marked "VAPOR SHUT-OFF VALVE."

(b) Another manually-operated shut-off valve shall be secured directly to the tank liquid outlet and shall be marked "LIQUID SHUT-OFF VALVE."

(c) Automatic shut-off valves that are held open by electrical current may be used in lieu of manual shut-off valves at either the tank vapor port or tank liquid port, or both. An automatic shut-off valve shall be wired so that it shuts off when the ignition switch is in the "off" or "accessory" position and when engine vacuum or oil pressure is not present.

13:20-53C.7 Control valve

A positive shut-off valve shall be installed in the fuel supply lines as close

to the LNG fuel supply containers as possible, automatically closing off and preventing the flow of fuel to the carburetor when the ignition switch is in the “off” or “accessory” position.

13:20-53C.8 Gauges

(a) Gauges used in LNG systems shall be designed and installed as follows:

1. Gauging devices shall be designed for the most severe pressure and temperature conditions to which the devices may be subjected with a pressure safety factor of not less than four;

2. Gauges shall be securely mounted and shielded or installed in protected locations to prevent damage from excessive vibration or unsecured objects; and

3. A gauging device that requires bleeding of the product shall be equipped with a bleeder valve and the product shall be bled to the outside of the school bus passenger compartment.

13:20-53C.9 Pressure reducing regulators

LNG systems shall be equipped with one or two-stage pressure reducing regulators. The regulators shall be installed so that their weight is not placed on, or supported alone by, the attaching tubing or flexible lines.

13:20-53C.10 Vents

Every compartment in which an LNG fuel supply container is installed shall be vented to the atmosphere unless all piping and connectors are outside of the compartment. The vent or vents shall be installed at the highest practicable point of the compartment and shall have an open area totaling not less than three square inches.