



# OHIO SCHOOL BUS STANDARDS AND INSPECTION MANUAL

2020



## OHIO STATE HIGHWAY PATROL LICENSING AND COMMERCIAL STANDARDS

Revision Date: February 2021



# Table of Contents

- ..... 1
- FOREWORD ..... 5
- ADMINISTRATIVE PROCEDURES ..... 6
  - PROCEDURE FOR OBTAINING IDENTIFICATION NUMBERS ..... 6
  - OBTAINING REGISTRATION AND IDENTIFICATION NUMBER ..... 6
  - CANCELLATION OF IDENTIFICATION NUMBER (4511.762 ORC) ..... 7
  - PREPARING the SCHOOL BUS for SALE/TRADE (4511.762 ORC) ..... 7
  - DEFINITION OF A SCHOOL BUS ..... 7
  - SCHOOL BUS TYPES ..... 8
  - CHANGES IN SCHOOL BUS DESIGN OR EQUIPMENT ..... 8
  - ANNUAL INSPECTION SCHEDULE AND BUS PREPARATION ..... 8
  - INSPECTION SYSTEM ..... 9
  - DECAL VALIDATION & PLACEMENT ..... 9
  - OUT OF SERVICE NOTIFICATION ..... 10
  - CRASH INSPECTIONS ..... 10
  - OTHER USES OF SCHOOL BUSES ..... 10
- INSPECTION & OUT-OF-SERVICE CRITERIA ..... 11
  - GENERAL CARE AND MAINTENANCE ..... 11
  - 4501-5-02 SCHOOL BUS CONSTRUCTION STANDARDS ..... 13
    - (A) Access steps. (except "Type A" buses) ..... 13
    - (B) Air compressor for accessories ..... 14
    - (C) Aisle ..... 15
    - (D) Axles and suspensions ..... 16
    - (E) Battery ..... 17
    - (F) Body construction ..... 19
    - (G) Brakes ..... 22
    - (H) Bumpers ..... 29
    - (I) Color ..... 31
    - (J) Cooling system ..... 32
    - (K) Defroster ..... 33
    - (L) Drive shaft and differential ..... 34
    - (M) Driver's seat ..... 35
    - (N) Electrical system ..... 37
    - (O) Emergency equipment ..... 38
    - (P) Emergency exits ..... 40

(Q) Engine speed governor.....	46
(R) Exhaust system. ....	47
(S) For after treatment systems that require diesel exhaust fluid (DEF). ....	48
(T) Fenders.....	49
(U) Floor covering. ....	50
(V) Frame. ....	52
(W) Fuel fill opening.....	53
(X) Fuel System.....	54
(Y) Glass.....	58
(Z) Heaters. ....	59
(AA) Hoods.....	61
(BB) Horns.....	62
(CC) Electronic stability control .....	63
(DD) Instruments and instrument panel. ....	64
(EE) Insulation. ....	67
(FF) Interior. ....	68
(GG) Inside body height .....	69
(HH) Lamps, signals and backing warning device.....	70
(JJ) Length of a school bus.....	78
(KK) Markings .....	78
(LL) Mirrors.....	82
(MM) Mounting of body on chassis. ....	83
(NN) Mud flaps .....	84
(OO) Noise suppression switch.....	85
(PP) Openings .....	86
(QQ) Paint standard.....	87
(RR) Passenger seats. ....	88
(SS) Engine power. ....	90
(TT) School safety zone decal .....	93
(UU) Service door.....	94
(VV) Service door steps.....	96
(WW) Steering system.....	98
(XX) Stop signal arm.....	100
(YY) Sun visor. ....	101
(ZZ) Tires, rims and wheels. ....	102
(AAA) Tow hooks. ....	104

(BBB) Transmission.....	105
(CCC) Vehicle identification plates.....	106
(DDD) Wheel-housings. ....	106
(EEE) Width.....	107
(FFF) Windows. ....	108
(GGG) Windshield washers.....	109
(HHH) Windshield wipers.....	110
(III) Wiring. ....	111
(JJJ) Lift equipped buses.....	112
4501-5-03 SCHOOL BUSES USED TO TRANSPORT PUPILS WITH SPECIAL NEEDS. ....	114
(A) General requirements.....	114
(B) Aisle width. ....	115
(C) Attachment points. ....	116
(D) Wheelchair securement.....	117
(E) Wheelchair tie down systems.....	117
(F) Seat spacing. ....	118
(G) Special service entrance. ....	118
(H) Special service entrance doors. ....	119
(I) Lift area lighting.....	120
(J) Weight distribution.....	121
(L) Alternator. ....	121
(K) Alternator and power supply.....	121
(M) Power lift.....	121
INSPECTION SEQUENCE .....	123
Inspection methodology: .....	123
Exterior Inspection.....	123
Engine Compartment (Type AI, Type A-II, Type B and Type C buses) .....	124
Undercarriage/Brake Inspection.....	125
Driver compartment inspection.....	126
Passenger Area .....	126

## FOREWORD

This Ohio School Bus Inspection and Out-Of-Service Criteria is developed to serve as a guide for those involved in pupil transportation, mechanics, inspectors, and other persons responsible for ensuring the safe transportation of Ohio's school children and persons attending programs offered by community boards of mental health and county boards of developmental disabilities.

Every effort has been made to update given inspection procedures in accordance with the development of new technologies.

Inspection personnel should refer to the applicable Ohio School Bus Construction Standards, individual manufacturer's specifications, or appropriate service manuals for specific component information.

**In accordance with the Ohio revised code section 4511.76, the school or company administrator is responsible for school buses, which are to be maintained in accordance with the following criteria:**

\*The following information may be found at [www.statepatrol.ohio.gov](http://www.statepatrol.ohio.gov) by clicking on Publications:

The current Ohio School Bus Inspection Criteria

The Ohio School Bus Construction Standards

\*\* Buses requiring a new bus inspection must meet the Ohio School Bus Construction Standards that apply to the manufacture date of the bus.

\*\* All repairs must meet or exceed manufacturer specifications.

*(Added 02/22/2021)*

- *School Bus and stop signal arm illumination*

## SECTION A ADMINISTRATIVE PROCEDURES

### ***PROCEDURE FOR OBTAINING IDENTIFICATION NUMBERS***

All buses must first pass inspection by the State Highway Patrol before the school bus is used for pupil transportation.

- *Inspections will not be conducted at dealerships.*
- *Inspectors shall not inspect a bus until titled in the name of the private pupil Transportation Company or school.*
- *In-transit/dealer plates or temporary tags shall not be used to transport students.*

School Bus Owners - When a school bus is newly acquired and ready to be inspected, contact your local Inspector for an inspection date. Assure the title is in the owner's name. It is the responsibility of the owner to assure their bus meets all the Ohio School Bus Construction Standards. The title and school bus will be presented to the inspector during the inspection. When the bus successfully passes the inspection and with current inspection decals affixed to the bus, the bus may be operated for 30 days. During the 30-day period, the bus may be operated without an ID number. A copy of the school bus inspection (HP-32) shall be carried on the bus until the ID number is issued.

### ***OBTAINING REGISTRATION AND IDENTIFICATION NUMBER***

#### ***School Bus Registrations and Identification Number***

The Ohio Bureau of Motor Vehicles issues school bus registrations. After a bus successfully passes a new inspection, the original HP-32C (School Bus Addendum) form shall be forwarded to the Ohio Bureau of Motor Vehicles (BMV). The BMV will assign an identification number along with the registration. This is then returned to the owner of the bus and the assigned identification number will be affixed to the bus in compliance with the applicable School Bus Construction Standard for the appropriate year of the bus. The owner of the bus will receive a copy of the HP-32C form with the assigned identification number, handwritten, in the space provided along with the paper registration.

The Ohio State Highway Patrol form HP32-C shall be forwarded to the following address:

OHIO BUREAU OF MOTOR

Vehicle Information Services/Special Plates

P O BOX 16521 COLUMBUS, OHIO 43216

Phone: (614) 752-7518

Fax: (614) 995-4739

**Please allow 10 business days excluding mail time for processing.**

### ***CANCELLATION OF IDENTIFICATION NUMBER (4511.762 ORC)***

- When a school bus is sold or removed from service, the following procedure is to be followed:
- Complete the Request for Cancellation of School Bus Identification Numbers form (BMV 4175) and mail to:  
Ohio Bureau of Motor Vehicles  
Vehicle Information Services/Special Plates Unit  
P.O. Box 16521, Columbus Ohio 43216-6521
- The BMV 4175 May be obtained at the Ohio Bureau of Motor Vehicles website.

### ***PREPARING the SCHOOL BUS for SALE/TRADE (4511.762 ORC)***

- Remove the assigned identification numbers from front and rear of bus.
- Remove the owners name from both sides of bus.
- Remove inspection decals from both sides of bus.
- Remove the 8-way lights and stop arm if the bus will no longer be used as a school bus.

### ***DEFINITION OF A SCHOOL BUS***

Section 4511.01 (F) of the Ohio Revised Code

(F) "School bus" means every bus designed for carrying more than nine passengers that is owned by a public, private, or governmental agency or institution of learning and operated for the transportation of children to or from a school session or a school function, or owned by a private person and operated for compensation for the transportation of children to or from a school session or a school function, provided "school bus" does not include a bus operated by a municipally owned transportation system, a mass transit company operating exclusively within the territorial limits of a municipal corporation, or within such limits and the territorial limits of municipal corporations immediately contiguous to such municipal corporation, nor a common passenger carrier certified by the public utilities commission unless such bus is devoted exclusively to the transportation of children to and from a school session or a school function, and "school bus" does not include a van or bus used by a licensed child day-care center or type A family day-care home to transport children from the child day-care center or type A family day-care home to a school if the van or bus does not have more than fifteen children in the van or bus at any time.

## ***SCHOOL BUS TYPES***

**Type A School Bus** is a conversion bus constructed utilizing a cutaway front- section vehicle with a left side driver’s door. This definition shall include two classifications: Type A-I, with a Gross Vehicle Weight Rating (GVWR) of 14,500 pounds or less; and Type A-II, with a GVWR of 14,501 pounds or more.

**Type B School Bus** is constructed utilizing a stripped chassis, with GVWR of more than 10,000 pounds, designed for carrying more than ten persons. Part of the engine is beneath and/or behind the windshield and beside the driver’s seat. The entrance door is behind the front wheels.

**Type C School Bus** is a body installed upon a flat-back cowl chassis with a GVWR of more than 10,000 pounds, designed for carrying more than ten persons. The entire engine is in front of the windshield and the entrance door is behind the front wheels. Type C school buses are referred to as “conventional” buses.

**Type D School Bus** is a body installed upon a chassis, with the engine mounted in the front, mid ship, or rear, with a GVWR of more than 10,000 pounds, designed for carrying more than ten persons. The engine may be behind the windshield and beside the driver’s seat; it may be at the rear of the bus, behind the rear wheels; or mid ship between the front and rear axles. The entrance door is ahead of the front wheels. Type D school buses are referred to as “transit style” RE: for “rear-engine”, or FC for “forward control”.

## ***CHANGES IN SCHOOL BUS DESIGN OR EQUIPMENT***

Any changes in design, equipment or additional equipment on a school bus by a school and/or company after receipt of the school bus must have prior approval in writing from the Director, Department of Public Safety, Division of Highway Patrol, Licensing and Commercial Standards section, 1970 W. Broad Street, 4th floor, Columbus, Ohio 43223. Schools and/or companies shall be responsible for any unauthorized items on the school bus.

## ***ANNUAL INSPECTION SCHEDULE AND BUS PREPARATION***

*All administrators are responsible for having buses ready for inspection.*

**During annual inspections, any out of service violation will prohibit the issuance of the safety decal.**

**During new bus inspections, any violation will prohibit the issuance of the registration and safety decal.**

*It is suggested that mechanics be present so that defects may be corrected at the time of inspection. This may eliminate the necessity of re-inspection at a later date.*



Each school bus shall comply with this inspection criteria, Ohio School Bus Construction Standards and Ohio Revised Code sections 4511.76 and 4513.02. All school buses shall meet all applicable State and Federal safety standards. Any defect/violation must be repaired prior to the issuance of an inspection safety decal. All defects/violations will be recorded at the time of inspection regardless if the defect/violation is repaired during the inspection.

The Vehicle Identification Number shall appear clearly and be permanently attached to the bus chassis or upon a separate plate or label that is permanently affixed to the interior of the vehicle.

*Buses registered in the state of Ohio will be inspected twice a year.* School buses not presented for an annual inspection will be documented as “not presented”, and inspection safety decals will not be issued.

The letter of approval for any equipment not permitted by construction standards or not on the approved option list must be presented to the inspectors.

## ***INSPECTION SYSTEM***

### **Communication:**

The inspection method and safety protocols shall be discussed with facility personnel prior to conducting any inspection. Safety topics should include hand and verbal directions between the inspector and bus operator. It is imperative that the bus operator strictly follow the direction of the inspector for the safety of those involved in the inspection process.

### **Safety:**

Immediately after the bus is presented, before any portion of the inspection is performed, the rear axle **SHALL** be chocked. Chocks shall be used in front of and to the rear of either side rear wheel assembly. The inspector shall not be under the bus while the engine is running. The only exception to this is if the inspector needs to check the exhaust system for leaks. Prior to the engine being started, the inspector will position him/herself from under the bus. The inspector shall only go back under the bus after advising the bus operator of their intentions. After the exhaust system is checked, the inspection will continue **only after the engine is turned off**. Safety glasses and mechanics type gloves should be worn by the inspector to aid in the prevention of injuries during the inspection process.

## ***DECAL VALIDATION & PLACEMENT***

Decals are to be placed only on school buses that pass the annual inspection. The inspector will validate the decals by stamping out the month in which the annual inspection is conducted. One validation decal is to be placed on each side of the bus, attached at the height of the owner name rail. Right side – in the area of the service door. Left side – as near as possible to the driver’s window but not to be placed on a removable panel. Decals are not transferable and will be removed when the school bus changes ownership. All school buses shall meet all applicable State and Federal safety standards prior to receiving an inspection decal. Decals are valid until the next scheduled annual inspection. ***Decals may be removed if the bus fails a subsequent inspection.***

## ***OUT OF SERVICE NOTIFICATION***

School buses placed out of service will have an “out of service” decal affixed to the windshield and the vehicle’s entrance door. If warranted the inspection decal will also be removed. The bus shall not be used for pupil transportation until the violations have been corrected and the vehicle placed back in service. Upon the completion of the repairs, the out of service decal shall be removed by the school.

## ***CRASH INSPECTIONS***

School buses involved in a crash shall be inspected per Ohio Department of Education’s rules. For inspections purposes, buses involved in any crash shall be reported to the local Ohio State Highway Patrol within 48 hours.

## ***OTHER USES OF SCHOOL BUSES***

In July 1991, the Ohio Attorney General issued an opinion that privately owned school buses may be used for other purposes when not being used to transport students. Some examples are: hauling Christmas trees, transporting adults for hire, or leasing the bus for a special event, such as sports. However, when the school bus is being used for other purposes, it must abide by all regulations pertaining to that use. Refer to 4513.51 and 4513.52 on the Ohio revised code. School buses operating under intrastate or interstate commerce shall comply with the applicable rules and regulations set by the Public Utilities Commission of Ohio (P.U.C.O.) and/or the Federal Motor Carrier Safety Administration.

*As an example, if the bus is to be used to transport adults for hire, it would be required to be registered as a commercial motor vehicle and follow all applicable Federal and State Commercial Motor Vehicle Regulations. Use of the eight- way flashing lights is not permitted when the vehicle is not being used as a school bus.*

## SECTION B INSPECTION & OUT-OF-SERVICE CRITERIA

### ***GENERAL CARE AND MAINTENANCE***

- (1) Every school bus operator and/or provider must systematically inspect, repair, and maintain, or cause to be systematically inspected, repaired, and maintained, all school buses subject to its control.
- (2) Parts and accessories shall be in safe and proper operating condition at all times. These include those specified as “Approved Options”.

---

### Inspection Note

- All buses must be clean inside and out.
- All trash containers must be secured, shall not obstruct any aisle way to any entrance or exit, and shall not interfere with any handrail.
- No flammable fluids, poisons, or aerosol cans are permitted inside the school bus.
- Only items necessary for the operation of the school bus (route slips, schedules, limited cleaning supplies, etc.) may be stored/carried on the bus.
- No oils, fuels, or anti-freeze may be stored/carried on the bus.
- Personal use hand sanitizer (size 12oz or less) stored securely.

---

### Approved Option

- Seat assignment markings are permitted, but shall not cover emergency exit markings.

#### Notes: ***(Added 8/6/20)***

- *Placement of seat assignments shall be consistent throughout the bus. The exemption to this option would be seat closures due to social distance requirements and or public health recommendations. (Closure decals shall be no larger than 12” X 12”).*
- *Permitted markings shall:*
  - *Fit within a 12” X 12” area:*
  - *Decal may be affixed as a sticker or secured to the surface with clear tape.*
  - *Raised lettering or decals will not be permitted seatback or floor.*
- *Permitted locations for seat assignments:*
  - Above or below the window
  - Floor, in the seating area
  - Seatback
- Broom, snow brush, ice scraper, and trash container. All equipment must be secured in the driver’s area.
- Cleaning Supplies ***(Added 8/6/20)***
  - Only items necessary for the operation of the school bus (route slips, schedules, limited cleaning supplies, etc.) may be stored/carried on the bus. Disinfectants must be stored separately in a closed secured compartment/container and out of the reach of passengers while students are on board the

vehicle. If it is impractical to store the disinfectants in the driver's area, they may be secured in the first seat directly behind the driver, passengers cannot occupy the space if this option is utilized. Cleaning and disinfectants shall be stored separately.

- Note: The type of disinfectant must be authorized by the school's administration, while taking into consideration any recommendations provided by the Department of Health. Container dimensions must not exceed the seat bottom, extend into the aisle way, or above the seatback.

○ Thermometers\* (*Added 8/19/2020*)

- Touchless battery operated handheld thermometers may be used/stored on a bus. The device cannot be used by or distract the bus driver from their statutory obligations. When not in use, the handheld thermometer must be stored securely.
- Devices that utilize thermal imagery capable of checking the temperature of the boarding passengers may be installed at the top of the stairs and to the right of the OEM bus controls. The device must be securely mounted, outside the driver's view, and positioned so as not to create catch points. Power will be provided by direct wire to this device and must be separated with the use of a fuse. The device may give an audible tone or phrase to indicate a normal or high temperature. The device cannot be used by or distract the bus driver from their statutory obligations.

- ***\*School Transportation/Administration should follow their policy for the implementation of on-board temperature reading devices. This should include an efficient and proactive approach to limiting any additional time to the process of boarding students.***

○ Hand Sanitizer: (*Added 06/15/2020*)

- Personal use
  - Stored securely with in the driver's compartment, 12oz or less in capacity.
- Entry mounted dispenser
  - Must be securely installed in the driver/entry area, either behind the handrail or just to the right of the driver on the side of the dash.
  - Cannot cause a catch point to the passengers as they enter or exit, nor can the installation encroach into the bus entry point.
  - Overall dimensions for the dispenser cannot exceed 6" in depth, 7" in width, and 12" in height.

---

## Violation

- Any unauthorized items left on the bus.
- The school bus is not reasonably clean inside and out.

---

## Out of Service

- Loose or unauthorized items, garbage, decorations, or any other item that could compromise the safe operation of the bus.
- Brooms, scrapers, garbage cans not secured or stored in the proper manner.
- Pressurized containers (aerosols).
- Flammable cleaning materials. (Alcohol, turpentine, gasoline).
- Hand sanitizer stored improperly, exceeds dimensions, or mounted dispenser installed incorrectly and/or causing a catch point.



## **4501-5-02 SCHOOL BUS CONSTRUCTION STANDARDS.**

[Comment: For dates and availability of material incorporated by reference in this rule, see paragraph (S) of rule 4501-5-01 of the Administrative Code.]

These standards apply to any school bus used to transport school children to and from school and/or school related activities and events.

### **(A) Access steps. (except "Type A" buses)**

- (1) Steps shall be installed on each side of the school bus to allow access to windshield for cleaning.
- (2) Grab handles shall be securely mounted in a suitable position to assist in using the steps.
- (3) In lieu of steps installed on each side, the steps are permitted in or on the front bumper if the windshield can be accessible for cleaning from that position.

---

## Inspection Note

- None

---

## Approved Option

- Grab Handle
  - May also be yellow polymer coated.

---

### Violation

- Inoperable step or grab handle.

---

### Out of Service

- Missing or damaged access step or grab handle.



### **(B) Air compressor for accessories.**

An accessory compressor that supplies air to accessories only shall be sized appropriately. Accessory compressors shall not be connected to the braking system in any way.

---

### Inspection Note

- Accessory mounting brackets shall be secure. (Compressor, alternator, etc.)

---

### Approved Option

- None

---

### Violation

- Audible air leak at the compressor or proper fittings. (Bus is able to pass air loss test.)

---

### Out of Service

- Cracks or bolts missing in mounting bracket.
- Air leak other than proper connection.
- Audible air leak. (Bus is unable to pass air loss test.)
- Not securely mounted.



**(C) Aisle.**

- (1) Minimum width of aisle shall be twelve inches at floor level.
- (2) Minimum width of aisle between seats shall be twelve inches at seat level.
- (3) The aisle shall not be less than twelve inches wide between any two objects from the service doors to the aisle in the passenger area from floor to ceiling.
- (4) Hold-down fastening devices used on inside engine cover shall be designed to prevent hooking or catching on shoes or clothing.

---

**Inspection Note**

- All aisles leading from the wheelchair area to an emergency door and the lift shall be of sufficient width, minimum of thirty inches, to permit passage of maximum size wheelchair.

---

**Approved Option**

- None

---

**Violation**

- None

---

**Out of Service**

- Minimum width of aisles does not meet Construction Standards.
- Hold down on engine cover not secured or creates trip hazard.



## **(D) Axles and suspensions.**

- (1) The front and rear axles, including suspension assemblies, and all frame-to-ground components, shall have a gross axle weight rating when measured at the ground at least equal to that portion of the load as would be imposed by the chassis manufacturer's maximum gross vehicle weight rating.
- (2) Heavy-duty, double-acting shock absorbers compatible with the manufacturer's rated axle capacity shall be installed on the front and rear of the school bus chassis.
- (3) Suspension assemblies as specified shall maintain/control stability of school bus under all conditions.

---

### **Inspection Note**

- Shock absorbers must be properly mounted to the frame and axle.
  - Seals shall not leak.
- Springs, Torsion Bars and Torque Rods (front & rear)
  - Visually inspect for broken leaf springs, coil springs, torque rod, or torsion bar damage.
  - Inspect spring shackles, bushings, "U" bolts, spring center bolts, and remaining suspension members.
- Air Suspension
  - With the entire system drained of air following the manufacturer's recommended procedures, start the engine and observe the air pressure at which air begins to flow into the suspension system and lift the vehicle.
  - With the system fully charged, inspect for any audible leakage at the bellows, connections or hoses.
- Kingpins
  - Kingpins will be checked randomly per fleet age and size.
  - Eliminate all wheel bearing play by applying service brakes.
  - With front end lifted, grasp tire at top and bottom and attempt to move in and out to detect looseness. (A pry bar may be necessary.)
  - Measure the movement at the top or bottom of the tire at the outer circumference.

---

### **Approved Option**

- None

---

### **Violation**

- Spring Assembly
  - Any crack in spring not completely broken
- Shock Absorber
  - Missing or damaged dust shield.
- Air Suspension
  - Any cut or damage into the ply of the airbag.





## Out of Service

- Spring Assembly:
  - Any broken leaf in a leaf spring assembly.
  - One or more leaves displaced in a manner that could result in contact with a tire, rim, brake component or frame.
  - Coil Spring broken.
  - Any leaf or portion of any leaf in any spring assembly that is missing or separated
  - Rubber spring missing.
- Shackles and/or “U” bolts are worn or loose or spring center bolt is broken or sheared.
- Any U-bolt or other spring to axle clamp bolt cracked, broken, loose, or missing.
- Any spring hanger or other axle positioning part cracked, broken, loose, or missing resulting in shifting of an axle from its normal position.
- Springs, torque rods, torsion bars or other suspension components are broken or shifted.
- Kingpins with visible movement. (Movement in excess of manufacturer’s specification. Normally ¼ inch.)
- Air Suspension
  - Air begins to flow into the suspension system below 55 PSI
  - Deflated system
  - Any audible air leak
- Shock Absorbers
  - Leaking fluid
  - Loose shock absorber
  - Missing or broken



### **(E) Battery.**

(1) "Type B, C and D" buses:

- (a) A battery or batteries of at least eight hundred cold cranking amperes for a gasoline powered engine.
- (b) A battery or batteries of at least one thousand two hundred fifty cold cranking amperes for a diesel powered engine.

(2) "Type A I and A II" buses:

- (a) A battery or batteries of at least six hundred cold cranking amperes for a gasoline powered engine.
- (b) A battery or batteries of at least one thousand cold cranking amperes for a diesel powered engine.

(3) A battery or batteries of at least one thousand two hundred cold cranking amperes if equipped with a lift.

(4) One-piece, non-spliced battery cables shall be provided by the chassis manufacturer. All cables shall conform to SAE standard J541 with respect to electrical resistance.

- (5) "Type A I and A II" buses may have the battery/batteries located at the manufacturer's standard. Batteries for "Types B, C, and D" buses shall be mounted in the body skirt by the body manufacturer. Rear engine buses may have batteries mounted in engine compartment.
- (6) A drawer-type pull-out tray shall be installed whenever the battery/batteries are accessed through the body fender skirt. The batteries shall be enclosed by a compartment constructed of mill-applied zinc coated steel, or other acid resistant material, provided with drain ports, hold-down carrier mounted so as to avoid blocking filler ports, and latching device to prevent accidental opening. Drawer assembly shall be covered with acid-resistant paint or material. Battery tray shall be equipped with a positive locking device to keep tray from sliding completely out to prevent battery from being dropped.

---

### Inspection Note

- Batteries shall be securely mounted.
- Terminals and connections must be clean and free of corrosion.

---

### Approved Option

- Battery emergency disconnect switch:
  - Must be installed and maintained to manufacturers specifications.
  - Low voltage automatic battery disconnect switches are approved if the switch is connected to and works only off the accessory side of the ignition switch.
- Battery box and fuel tank:
  - On buses used to transport pupils with disabilities, the battery box and fuel tank may be located by the manufacturer to provide equal weight distribution to compensate for power lift weight.
- Battery tender/trickle charger: (*Added 06/15/2020*)
  - Direct Wired
    - Must be installed and maintained to manufacturers specifications.
    - All connections must not interfere with OEM operations and shall be separated from the main lines with the use of a fuse.
    - While not in use, any connection points must be stored securely.
  - Roof Mounted Solar
    - Must be installed and maintained to manufacturers specifications. All roof mounted wiring must be securely affixed to the roof, pass through the roof line requires a sealed/protected entry point and then concealed within the bus body.
    - All connections must not interfere with OEM operations and shall be separated from the main lines with the use of a fuse.
    - A separate voltage/operational display can be installed in the driver's area only if it does not interfere with the operations of OEM controls nor cause a vision obstruction for the driver.
    - The solar panel installation location cannot interfere with operation of the emergency roof hatch(s), any roof mounted lights, and/or safety equipment.
    - The installation height cannot exceed state vehicle requirements nor extend above the roof mounted (light) beacon.

## Violation

- Corrosion on the terminals and/or connections.
- Any battery cable or connection point chafed.
- Any missing or damaged protective grommet where the cable passes through the body or battery box.

## Out of Service

- Batteries not securely mounted.
- Battery tray latch not engaged or loose.
- Battery tray latch missing or inoperable.
- Objects in battery area that may contact the battery terminals and cause a short in the system.
- Any battery cable with damage to the protective coating exposing wire.



### **(F) Body construction.**

- (1) All construction components (except door handles, grab handles, interior decorative parts, other interior plated parts, and components heavier than twelve-gauge), shall be of prime commercial quality mill-applied zinc coated steel, other anti-corrosive coating or composite materials. Components must meet or exceed current strength and durability and all applicable "Federal Motor Vehicle Safety Standards." The zinc plating shall be one hundred twenty grams per meter square minimum coating weight (G60) or equivalent applied by either hot dipping or electroplating. All such construction materials shall be fire resistant.
- (2) All metal surfaces that will be painted shall be chemically cleaned, etched, zinc-phosphate coated, and zinc-chromate or epoxy-primed, or conditioned by equivalent process.
- (3) In providing for the requirements in paragraphs (F)(1) and (F)(2) of this rule, particular attention shall be given to lapped surfaces, welded connections of structural members, cut edges, punched or drilled holed areas in sheet metal, closed or box sections, unvented or undrained areas, and surfaces subject to abrasion during vehicle operation.
- (4) Upon final assembly of the bus body and after mounting body upon chassis, the total unit strength of the school bus shall meet or exceed all strength criteria as established by FMVSS 571.220 and FMVSS 571.221.
- (5) Body construction shall provide a dustproof and watertight unit.
- (6) Exterior body panels shall meet or exceed FMVSS 571.221.

(7) Floor.

- (a) The floor shall be not less than fourteen-gauge mill, corrosive resistant coated steel or composite materials. If zinc plated, the plating shall be one hundred twenty grams per meter square minimum coating weight (grade sixty) or equivalent applied by either hot dipping or electroplating.
- (b) The floor may be flat.
- (c) "Type A" buses have an additional step from the step well.
- (d) A fuel access plate shall be installed for easy access to fuel gauge mechanism. ("Type A" buses excluded)

(8) Rub rails.

- (a) Manufacturers shall install one rub rail at approximately seat level, except for the opening for engine compartment side door in a rear engine bus. This rail shall extend from the main vertical post behind the service door to the forward-most vertical post on the left side of the body, including left side emergency door. (Rear emergency door exempted)
- (b) A second rub rail shall be installed at approximately the floor line and cover the same longitudinal area as the seat level rail, except at wheel housings, and needs only to extend to the radii of right and left rear corners.
- (c) A third rub rail may be installed on the lower edge of the body skirt.
- (d) All rub rails shall be attached at each body post and all other upright structural members.
- (e) Each rub rail shall be four inches or more in width in its finished form and shall be constructed of sixteen gauge metal or other material of equivalent strength suitable to help protect body side panels from damage.
- (f) All rub rails shall be mounted outside of body panels.
- (g) Additional external rub rails are permissible if they form an integral part of the body construction and meet the fastening requirements.

(9) Fold out steps may be installed at the regular service entrance.

- (a) The fold out step will provide a step level that is six inches or less to ground level.
- (b) The fold out step may be power activated or manually operated.

(10) If the ceiling is so constructed to contain lap joints, the forward panel shall be lapped by the rear panel and the exposed edges shall be beaded, hemmed, flanged or otherwise treated to minimize sharp edges.

(11) All body components shall be designed and constructed to avoid the entrapment of moisture.

---

### Inspection Note

- Body panels and rub rails shall conform to the normal contour of the school bus body.
- Body sheet metal shall have no holes due to rust or damage. All holes are to be repaired by use of panels, covering plate or body putty depending upon type and amount of damage.
- All repairs must maintain the structural integrity of the bus.
- Holes cut or drilled for installation of equipment shall be utilized for that purpose or covered.

---

### Approved Option

- Cup holder:
  - Must be installed and positioned so they do not interfere with the safe operation, nor can the placement of the cup holder be outside the seated reach of the bus driver.
  - Cup holders cannot be installed within the view of the front windshield.
    - Permitted cup holder styles:
      - One piece plastic cup holders, recess mounted in the front or side dash.
      - Metal fold-out cup holders, permanently/securely attached.
- Fire suppression system:
  - Fire suppression systems must be installed per the manufacturer's recommendations and checked annually by a qualified technician.
  - Installation shall not interfere with the driver's ability to operate any OEM controls and shall be completely isolated from the vehicle's electrical system by means of a fuse or breaker.
  - The suppressant delivery points may be installed in the engine compartment, battery box, and undercarriage of the vehicle.
  - Mounting of the system shall be outside of the passenger compartment and have no effect on the vehicles structure to include welding or drilling into the main frame.
  - The cylinder and gauges shall be contained in a metal protective box and marked on three sides in 2 inch red letters "Fire Suppression" on a white background.
  - The system shall be isolated to prevent accidental discharge of the suppression contents.
- A monitor to show the status of the unit may be installed in the driver's area in such a way as to not interfere with the safe operation of the bus.
  - Panels:
    - Body panels if other than steel or composite material may be used only if meets FMVSS 571.221.
- Special padded/foam covered panels may be installed on the interior walls (to prevent head injury to self-abusive children) following these guidelines:
  - The padded panels shall be constructed of the same materials used in the construction of the bus seat(s).
    - The special panel may cover the window.
    - The panel(s) shall be attached to the sidewall of the bus.
    - The panels shall not obstruct any portion of an emergency window or exit.

- Materials used in the construction of the special panels shall comply with FMVSS 571.302.
- Storage compartments:
  - Storage compartments outside the school bus under the floor and in place of the skirt side panels. Equipment type storage boxes, supplied by manufacturers, installed under the bus seats.
  - An emergency equipment cabinet installed in the driver's compartment to include the body fluid cleanup kit, fire extinguisher, first aid kit, and the highway warning kit. This cabinet, if installed, shall be labeled in contrasting colored letters at least two inches high and identify the contents within and shall not protrude into the driver or passenger impact zones as established in FMVSS 571.222. The cabinet shall not decrease the headroom at the entrance door, steps, aisle way or any emergency door.
- Fireproof storage pouch may be secured to the barrier behind the driver's seat.
- Undercoating:
  - The entire underside of the bus body, including floor sections, cross member and below floor-line side panels, may be coated with rustproofing material that meet or exceed all performance requirements of SAE J1959.

---

### Violation

- Any loose or missing fasteners in the body, ceiling or rub rails.

---

### Out of Service

- Any holes that allow air infiltration into passenger compartment (Except Manufacturer's ventilation passages).
- Body damage that could affect the structural integrity of the bus and or cause sharp edges or projections in the body panels.
- Color not in compliance with ORC 4511.77
- Interior or exterior rust hole in the body, floor or rub rail.
- Loose or missing section of body, ceiling or rub rail.



### **(G) Brakes.**

All braking systems and components shall meet or exceed the minimum requirements specified in applicable Federal Motor Vehicle Safety Standards 571.105 or 571.121 and the following:

- (1) Air or hydraulic brake systems are acceptable. If brakes are air actuated, they shall be of the cam drum type on front and rear wheels, disc front and drum rear or four-wheel disc. Brakes that are hydraulically actuated, shall be disc front and drum rear or four-wheel disc.
- (2) All air brake systems shall have both visual and audible warning systems that activate as required by FMVSS 571.121. Hydraulic brake systems that utilize hydraulic power assist shall have both visual and audible warning systems that activate as required by FMVSS 571.105.
- (3) For air brake systems, an air pressure gauge shall be provided in the instrument panel capable of complying with CDL pre-trip inspection requirements.
- (4) Air compressors that supply air to brakes must have sufficient rated capacity that meets or exceeds FMVSS 571.121 (minimum of thirteen cubic feet per minute) and shall be pressure oil fed. Clean air to all compressors shall be supplied and filtered through the engine air cleaner.
- (5) All air supplied from the air tanks shall be taken at or above the center line of the air tank to avoid contaminants entering the braking system or air operated accessories.
- (6) All school buses equipped with air brakes shall require a desiccant type air dryer with a renewable or replaceable desiccant cartridge (filter). Dryer shall incorporate an automatic purge and drain cycle with heating element.

---

### Inspection Note

- Brakes (Must comply with FMVSS 571.105 or 571.121.)
- Pedal
  - Pedal blocks or adjustable pedals, if used, shall be installed only by manufacturer on buses bid after 01/01/1991.
- Brake Lines
  - No cuts or breaks in the line.
  - No lines shall be in contact with the exhaust system or chassis components.
  - No evidence of leaks, crimping, rust or excessive wear.
  - No frayed lines or rubbing against other components.
- Brake Hoses
  - No hose with any damage extending through the outer reinforcement ply. Thermoplastic nylon may have braid reinforcement or color difference between cover and inner tube. Exposure of second color is cause for rejection.
  - No bulge or swelling when pressure is applied.
  - No audible or visible leaks.
  - No improper joints (such as a splice made by sliding the hose ends over a piece of tubing and clamping the hose to the tube).
  - No brake lines or hoses that are broken or crimped.
- Brake Linings or Pads
  - Linings may be checked through drum inspection slots.
  - Lining or pad should be firmly attached to the shoe.
    - Not saturated with oil, grease, or brake fluid.
- Minimum Lining Thickness:
  - **Non-steering axle**

- (a) Drum - 1/4 inch
  - (b) Disc - 1/8 inch
- **Steering axle**
  - (a) Drum - 3/16 inch
  - (b) Disc - 1/8 inch
- **Type “A” bus 10,000 GVWR or less**
  - (a) Drum - 2/32 inch
  - (b) Disc - 2/32 inch
- **Brake Drums or Rotors**
  - Any external cracks that open when brakes are applied (Do not confuse short hairline internal check cracks with flexural cracks).
  - Any portion of the drum or rotor missing or in danger of falling away.
- **Hydraulic, Vacuum Assist, or Hydraulic Assist**
  - Should be able to maintain brake pedal height under moderate foot force (40-60 pounds) for one minute without pumping.
  - With vehicle in stopped position and brake pedal depressed under moderate foot force (40-60 pounds) there should be a minimum of one-third of the total available pedal travel (manufacturer’s specification) remaining on non-powered systems.
    - Inspect calipers for leakage, loose support key, retaining screw, or torn dust boots.
    - Electric hydraulic brake assist motor must be heard when brake pedal is depressed with the engine off.
    - Hydraulic brake systems shall have visible and audible warning signal to indicate loss of pressure (Buses bid after 01/01/1988).
    - Check for any fluid leaks on wheel cylinders, master cylinders, hydrovac, and hose connections on buses using vacuum assisted brakes. Check for brake fluid around the brake booster - between the booster and firewall.
    - If bus is equipped with air or vacuum assist, it shall have a visible warning signal and gauge to indicate any loss of air or vacuum. Buzzer shall be installed in combination with the gauge and warning signal on air operated brake systems. Buzzer must be loud enough to be heard over engine noise.
- **Air Brake**
  - Air brake adjustment cannot be checked by feel of the pedal.
  - Check for air leaks from reservoirs, chambers, valves, connections and lines.
    - Start engine and build to full pressure until air compressor cuts out, stop engine, check for one minute; without a brake application, there should not be a pressure drop on gauge or audible leaks.
    - Start engine and build to full pressure until air compressor cuts out, stop engine, make a brake application and hold down for one minute; there should not be a pressure drop on gauge or audible leaks.
  - Quick release valve, when installed, shall be operative.
  - Visible and audible warning system shall activate when the air pressure gauge drops below 60 PSI the audible warning must be loud enough to be heard over engine noise.
  - Check all moisture ejection valves for leaks and proper operation. This valve is not required if the bus is equipped with an air dryer.
  - Check air dryer and after cooler for leaks and proper operation. Buses manufactured after 07/01/1988 shall be equipped with an air dryer.
  - A manufactured discharge of air during brake checks is acceptable.
  - All buses shall be inspected to ensure that the slack adjusters are in proper adjustment. The effective length of the slack adjuster on each end of an axle must be the same.



- The service brake chambers and spring brake chambers on each end of an axle must be the same.
- All air tanks shall be securely mounted.
- Drain valve shall operate with hand pressure.
- Safety and check valves shall be operative. A random sample of buses, a minimum of twenty percent of the total bus fleet, shall be inspected to ensure that air supply components are operating properly.
- Moisture ejectors required unless equipped with air dryer system. Alcohol evaporators are permitted. Air dryer systems are required after 07/01/1988.
- Check air compressor for frayed, chunking or loose belts, loose mounting bolts, cracked or loose pulley or mounting brackets and braces, and excessive oil leaking from compressor.
- Air pressure build-up time. Fully charge the system to governed cut out. Pump the service brake pedal to lower the system air pressure to below 80PSI using the dash gauges. With the engine operating at the manufacturer's maximum recommended governed speed, time from the time the air pressure gauges passes 85 PSI to the time it passes 100 PSI The time should not exceed 40 seconds. If the school contests the results, contact the manufacturer for the systems build up time per Federal Motor Vehicle Safety Standards 571.121 S5.1.1. If the system fails the manufacturer's build up time, repairs are needed.
- **Parking Brake**
  - The parking brake shall hold the vehicle on any grade on which it is operated, under all conditions of loading, and on a surface free from snow, ice, or loose material. With the exception of vehicles equipped with drive shaft parking brakes. Spot check — apply and put in gear with engine at idle; vehicle should not move. • Any bus bid after 09/01/1998 will have a red indicator light.
  - Buses with air brakes may have the parking brake set automatically below 40 PSI It shall not set higher than 40 PSI
  - If parking brake pop off valve does not set automatically, test the spring brake. With the gauges at zero, start the bus; place the bus in gear at idle. The spring brake shall hold the school bus in place without the pop off valve pulled setting the parking brake.
- **Parking Brake Assembly on Drive Shaft**
  - Check brake lining to ensure not covered in grease and is intact.
  - Assembly shall be properly mounted with no loose bolts or nuts.
  - The parking brake shall hold the vehicle on any grade on which it is operated, under all conditions of loading, on a surface free from snow, ice, or loose material.

### Approved Option

- **Brake equipment:**
  - “Visual” brake stroke indicators.
- **Interlock Systems**
  - Service brake interlock:
  - Service door - A system may be installed which automatically applies the service brakes when the red warning lights are activated and the service door is opened. If the service brake interlock system malfunctions a continuous amber light, mounted on the driver's control panel with an identification label and a unique audible warning will activate. The system will do a

self-test when activated with the amber warning light and audible warning momentarily going on and off, indicating the system is working.

- Lift door - A system may be installed which automatically applies the service brake when the lift door is open. If the service brake interlock malfunctions a continuous amber light, mounted on the drivers control panel with an identification label, and a unique audible warning will activate. May be installed to meet FMVSS 571.403/404.
  
- **Transmission/Parking Brake Interlocking Devices:**
  - Interlocking device which will “lock” the transmission/parking brake. Prior to installation of the device, the device and installation must be approved by the guidelines established by OAC 4501-5-09.

---

### Violation

- Brake Lines (Hydraulic)
  - Chafing of any brake line
- Brake Hoses (Air)
  - Chafing of any brake hose
- Drain valve(s) inoperable on any Air Reservoir (Tanks)
- Pedal
  - Brake pedal pad worn or missing.
  - Inoperable adjustable brake pedal (if installed).



### Out of Service

- ANY defective brake on the vehicle. A defective brake includes any brake that meets one of the following:
  - General:
    - Absence of effective braking action upon application of the service brakes (Such as brake linings failing to move or contacting braking surface upon application).
    - Missing or broken mechanical components including: shoes; linings; pads; springs; anchor pins; cam rollers; pushrods, and air chamber mounting bolts.
    - Loose brake components including air chambers and camshaft support brackets.
  - Brake linings or pads which are cracked, missing or loose; oil seepage into or out of the brake lining/drum interface area; any lining below manufacturer’s recommended thickness.



Out-of-Service  
Portion of lining missing that exposes a fastening device.



Out-of-Service  
Cracks or voids that exceed 1/16" in width.  
Cracks that exceed 1-1/2" in length.

- Air Brakes:
  - Any audible air leak in any part of the air system (examples – air doors, air-operated stop signs, air suspensions).
  - Any continuous visible loss of air pressure viewed on the air gauges.
  - Inoperative air gauges.
  - Mismatched air chamber sizes and brake adjuster length.
  - Any brake outside the brake adjustment limit. (A brake found at the adjustment limit is not a violation.)
  - Low pressure warning device missing, inoperative or does not operate at 55 PSI and below (Both audible and visual must work with engine running).
  - Any damage to a hose extending through the outer reinforcement ply.
  - Bulge/swelling of any air brake line at any time.
  - Any hose improperly joined or spliced.
- Air Compressor
  - Loose compressor mounting bolts.
  - Cracked, broken or loose pulley.
  - Cracked or broken mounting brackets, braces or adapter.
- Air Reservoir (Tanks):
  - Not properly secured; separated from its original attachment points.
  - If tanks drained, any inoperative safety component (check valve, double check valve, and inversion valve). No air lost as described in the School Bus Inspection Manual during test.

**CLAMP TYPE BRAKE CHAMBER DATA**

Type	Outside Diameter	Adjustment Limit
6	4-1/2	1-1/4
9	5-1/4	1-3/8
12	5-11/16	1-3/8
16	6-3/8	1-3/4
20	6-25/32	1-3/4
24	7-7/32	1-3/4
30	8-3/32	2
36	9	2-1/4

**BOLT TYPE BRAKE CHAMBER DATA**

Type	Outside Diameter	Adjustment Limit
A	6-15/16	1-3/8
B	9-3/16	1-3/4
C	8-1/16	1-3/4
D	5-1/4	1-1/4
E	6-3/16	1-3/8
F	11	2-1/4
G	9-7/8	2

**'LONG STROKE' CLAMP TYPE BRAKE CHAMBER DATA**

Type	Outside Diameter	Adjustment Limit
12	5-11/16	1.75
16	6-3/8	2.0
20	6-25/32	2.0
24	7-7/32	2.0
24*	7-7/32	2.5
30	8-3/32	2.5

\* For 3" maximum stroke type 24 chambers.

**ROTOCHAMBER DATA**

Type	Outside Diameter	Adjustment Limit
9	4-9/32	1-1/2
12	4-13/16	1-1/2
16	5-13/32	2
20	5-15/16	2
24	6-13/32	2
30	7-1/16	2-1/4
36	7-5/8	2-3/4
50	8-7/8	3

**TIE ROD STYLE PISTON BRAKE CHAMBER DATA**

Type	Outside Diameter	Adjustment Limit
30	6-1/2 (165mm)	2.5 (64mm)

**DD-3 BRAKE CHAMBER DATA**

Type	Outside Diameter	Adjustment Limit
30*	8-1/8	2-1/4

\*This chamber has three air lines and is found on motor coaches.

- Hydraulic Brakes
  - Any fluid leak in the hydraulic system.
  - Power assist motor inoperable.
  - No pedal reserve with engine running (manufacturer specification).
  - Master Cylinder less than ¼ full.
  - Swelling brake hose under application of pressure.
  - Hose abraded (chafed) through outer cover-to-fabric layer.
  - Fluid lines or connections restricted, crimped, cracked, or broken.
  - Brake failure light/low fluid warning light on and/or inoperative.
- Parking Brakes
  - Inoperative.
  - Will not hold vehicle when applied with engine running at idle and in low gear (Do not test drive shaft parking brake in this matter).
  - Parking brake assembly on drive shaft to be free of grease and properly mounted with no loose bolts or nuts.
  - Any wheel equipped with an inoperative parking brake
  - Spring brakes do not set before complete loss of air pressure (air brake).
- Brake Drums or Rotors
  - Drums with any external crack or cracks that open upon brake application.

- Any portion of the drum or rotor (discs) missing or in danger of falling away.



## **(H) Bumpers.**

- (1) Front bumper for all buses having a GVWR of twenty-one thousand five hundred pounds or less shall be manufacturers standard. ("Type A" buses)
- (2) Front bumper for all buses having a GVWR greater than twenty-one thousand five hundred pounds rating:
  - (a) Bumper shall be at least three-sixteenths of an inch thick pressed steel channel, one-piece construction, with a minimum width of eight inches after forming. Materials other than pressed steel may be used if equivalent in strength and durability of pressed steel.
  - (b) Bumper shall be contoured to offer maximum protection of fender lines without permitting snagging or hooking.
  - (c) Bumper shall be attached to the frame and extended forward of grille, head lamps, fender, or hood sections and extend the entire width of the bus to provide maximum protection.
  - (d) The bumper shall be of sufficient strength to permit lifting the bus with a bumper type lift for servicing
- (3) Rear bumper.
  - (a) Bumper shall be of sufficient strength to permit lifting the bus with a bumper type lift for servicing and shall be one piece, heavy-duty type of pressed steel channel, at least three-sixteenths inch of thickness. Materials other than pressed steel may be used if equivalent in strength and durability of pressed steel.
  - (b) Bumper shall be a minimum of eight inches in height after forming.
  - (c) Bumper shall be wrapped around back corners of bus and extend forward at least twelve inches, measured from rear-most point of body at floor line. Rear bumper shall also protect rear corners of body by extending beyond the body exterior side panels. The bend of the rear bumper at the rear body corners shall be sufficient to allow the entire contour of the forward end of the rear bumper to extend no more than one inch beyond the body line of the exterior side panels.
  - (d) Bumper shall be fastened to chassis frame side rails in such a manner as to develop full strength of bumper section from rear or side impact. Bracing materials shall have an impact ratio comparable to that of bumper material and shall be fastened at the ends and radii of the bumper, attached to the side of the frame only and not to the body at any point.
  - (e) Bumper shall extend beyond rear-most part of body surface at least one inch, measured at floor line.
  - (f) No spaces, projections, or cutouts that will permit a handhold are permitted.
  - (g) Front ends of the bumper shall be enclosed by endcaps or other protective metal or shall have the ends rounded or tucked in and shall be free from sharp edges or projections likely to cause injury or

snagging.

- (h) A rubber or metal strip shall be installed to close any opening exceeding one-fourth inch between rear bumper and body metal.
- (i) The vertical distance between the bottom of the bumper and the ground shall not exceed thirty inches when the vehicle is empty.

---

### Inspection Note

- Buses manufactured after 07/01/1988 will have a front bumper at least three-sixteenths of an inch pressed steel, channel one-piece construction, and a minimum of eight inches in width after forming. Type A exemption, factory standard. (Applicable construction standards)
- Shall be black.

---

### Approved Option

- School bus crossing control arms/gates:
  - Gates shall be activated automatically with the initiation of the red warning lights.

---

### Violation

- Wrong Color
- Rusted or cut
- Loose bolts or washers
- Crossing gate fails to fully retract.

---

### Out of Service

- Missing or not securely mounted
- Altered, broken or protruding metal
- Crossing gate inoperable and/or audible air leak.



## **(I) Color.**

- (1) Bumpers shall be black.
- (2) Fender and body shall be painted national school bus yellow.
- (3) Hood may be painted non-reflective national school bus yellow or flat black (except "Type A").
- (4) Frame shall be painted black.
- (5) Grille may be painted national school bus yellow, black or chrome or anodized aluminum in finish. Rear engine bus grille area(s) shall be national school bus yellow.
- (6) Steel wheels shall be black and/or gray. Aluminum wheels are permitted.
- (7) All lettering and numbering on exterior shall be black.
- (8) Background area and optional hoods for warning lights shall be black.
- (9) Rub rails shall be black.
- (10) Service door may be black.

Note:

- (a) Special service doors shall not be black.
- (b) Left side driver's door on "Type A and A II" buses shall not be black.

---

### **Inspection Note**

- Color of wheels to be uniform per bus.

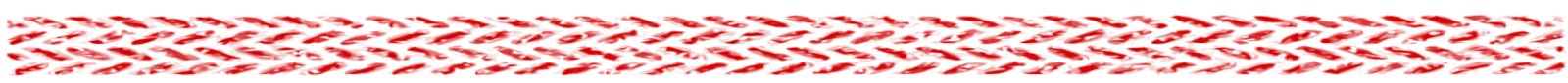
---

### **Approved Option**

- White painted exterior roof panels.

---

### **Violation**

- Damaged, faded, or peeling (age of the vehicle to be taken into consideration)
- 

## Out of Service

- Paint color not in compliance with 4511.77 of the Ohio revised code.
- Reflective paint used on the hood.
- Incorrect color used for the location



## **(J) Cooling system.**

- (1) Cooling system shall be manufacturer's standard.
- (2) Cooling fan(s) may be variable speed.
- (3) The cooling system shall have a means of checking the coolant without having to remove the radiator cap.

---

## Inspection Note

- Radiator
  - Shall be securely mounted.
  - Radiator cap shall be present and fit properly.
- Hoses
  - No leaks permitted.
- Fans and fan shrouds must be securely mounted.
- Fan belt shall be adjusted to proper tension according to Manufacturer specification.

---

## Approved Option

- Automatic radiator shutters.
- Air conditioning.
  - Installed prior to 9-1-2003: Units cannot protrude into the head impact zone of any passenger seat.
  - Installation or bid date of bus after 9-1-2003: Units cannot protrude into the head impact area of any passenger seat as described in FMVSS 571.222. The units cannot decrease the inside body height per rule 4501-5-03 (O) and 4501-5-06 (M) effective 9-1-2003. The units shall not decrease the headroom at the entrance door, steps, aisle way or any emergency door.
- No unit shall interfere with any emergency exit in violation of FMVSS opening requirements.



- Air conditioning units may be installed above the rear emergency door under the following conditions:
  - Shall not interfere with any emergency exit in violation of FMVSS opening requirements.
  - Shall not extend into the passenger area of the vehicle beyond the following dimension:
  - Measuring from the interior surface of the emergency door at the location of the door latch, twelve inches excluding padding.
  - All exposed edges shall be rounded or padded.
    - Padding shall meet FMVSS 571.302
- Air Purification: *(Added 06/15/2020)*
  - Air purifications systems may consist of HEPA and/or UV technology. Installation of the air handlers must meet or exceed all requirements for head impact area, emergency exits, nor may they decrease the inside body height as required. Units must be installed and maintained per the manufactures specifications. Control of fan speed and functionality of the unit(s) shall be installed within reach of the driver.
  - Purifications units may be installed above the rear emergency door under the following conditions:
    - Shall not interfere with any emergency exit in violation of FMVSS opening requirements
    - Shall not extend into the passenger area of the vehicle beyond the following dimension:
    - Measuring from the interior surface of the emergency door at the location of the door latch, twelve inches excluding padding.
    - All exposed edges shall be rounded or padded meeting FMVSS 571.302

### Violation

- Leaks in the cooling system.

### Out of Service

- Unsecure or missing bolts, caps or rubber bushings.
- Leaks pooling onto ground.
- Leaking into the interior of the bus.
- No cracks, frays, chunking or tears in the belt.
- Air Condition/Purification system inoperative.
- Improper installation of the Air Conditioning unit.



### **(K) Defroster.**

- (1) Defroster system shall meet or exceed SAE standard J381 performance requirements without use of auxiliary fan.
- (2) The defroster system shall be of sufficient capacity to keep windshield area, left front side driver's window, and service door glass area free of condensation or ice under all possible combinations of pupil

load and climatic conditions.

- (3) Defroster system shall be capable of providing at least sixty per cent fresh air.
- (4) Two adjustable six-inch auxiliary fans shielded with small mesh metal or polypropylene guards shall be installed. Only one adjustable six-inch auxiliary fan is required for "Type A" buses.
  - (a) Each auxiliary fan(s) shall be controlled individually by a multi-speed switch.
  - (b) The switch shall be located within easy reach of the driver while seated.

---

### Inspection Note

- Defroster and Auxiliary Fans
  - A defroster system is required.

---

### Approved Option

- None

---

### Violation

- Auxiliary fan only operating at one speed.
- Defroster only operating at one speed.

---

### Out of Service

- Defroster not operational.
- Auxiliary fans not operational.



### **(L) Drive shaft and differential.**

- (1) Drive shafts and universal joints are to be original equipment manufacturer standard.
- (2) Metal drive shaft guards are required for each drive shaft section extending lengthwise under the floor of the passenger compartment to prevent projecting through the floor or dropping to the ground if broken. The drive shaft guard shall be at the end of the shaft which is provided with a sliding connection (spline

or other such device) to prevent whipping of the shaft in event of failure thereof or any of its component parts.

(3) The rear axle ratio shall be compatible with engine, transmission and tire size.

---

### Inspection Note

- Drive-line, Universal Joints
  - No evidence of misalignment or unusual noises.
  - There shall be a drive shaft guard for each section of drive shaft.

---

### Approved Option

- Oil-lubricated wheel bearings
- Pressurized automatic lubrication systems:
  - Such systems shall apply lubrication to specific components at a predetermined mileage interval

---

### Violation

- None

---

### Out of Service

- Missing drive shaft guards.
- Carrier bearings or universal joints with play in excess of manufacturer's specifications.



### **(M) Driver's seat.**

- (1) Minimum distance between steering wheel and backrest of driver's seat shall be eleven inches. Driver's seat shall have vertical adjustment of not less than four inches and horizontal adjustment of not less than four inches.
- (2) The driver's seat and driver's area shall have a restraining barrier meeting FMVSS 571.222 positioned immediately behind the driver's area.
- (3) The driver's seat upholstery shall meet FMVSS 571.302 (Flammability of interior materials).

- (4) A "Type II" seat belt is required for the driver. Belts shall be equipped with protective boots of sufficient quality and strength to keep it retracted and off the floor and within easy reach of the driver. Belt shall be adjustable on one side only and keep the driver from sliding sideways under the belt.
- (5) Seating options allowed:
- (a) Adjustable air driver's seat;
  - (b) Internal heating provided by manufacturer; and
  - (c) Driver alert technology.
- 

### Inspection Note

- The base of the seat must be securely attached to metal floor.
  - The adjustable seat shall be secure in any position, no movement.
  - No broken tubing or protruding pieces of metal around the seat.
  - An operational driver's locking type retractor seat belt and upper torso restraint system required.
  - Locking retractor belt shall be equipped with protective boot of sufficient strength to keep belt retracted and off floor (On buses bid on or after 01/01/1990).
  - Covers, cushions, or back supports must be approved by local school officials. The outside cover shall be of fire retardant material (clearly marked) and be securely attached to the seat.
- All upholstery shall meet FMVSS 571.302 (Flammability).
- 

### Approved Option

- Driver seat armrest installed by the manufactory and met FMVSS requirements. *(Updated 8/6/20)*
- **Driver Protective (Hard/Soft) Barrier:**
- The driver protective barrier panel shall be installed directly behind the driver and flush to the outside wall of the bus or at a dimension that will prohibit a passenger from coming in contact with the driver's area. The panel shall be constructed of *either a clear hard material compliant with FMVSS 571.302 such as polycarbonate or a soft barrier application of a clear flexible non-flammable material such as polycarbonate or polyvinyl.*
- The end of the (**HARD**) barrier panel exposed to the passenger compartment shall be secured to a padded stanchion extending from the floor to the ceiling. The stanchion shall be attached to the roof bow or a reinforced panel in the ceiling and a solid connection point on the floor. The barrier panel shall be in compliance with FMVSS 571.302 and FMVSS 571.222. *If a hard barrier is installed, the passenger seat directly behind the driver must be rendered inoperative (this can be accomplished by removing the lower seat cushion) to comply with FMVSS 571.222.*
- Note: If the lower seat cushion is removed, all exposed seat frame must be wrapped in padding in compliance with FMVSS 571.302

- A barrier cannot take the place of a manufactured installed seat as it will compromise the floor integrity
- If the lower seat cushion is removed, all exposed seat frame must be wrapped in padding in compliance with FMVSS 571.302
  - A barrier cannot take the place of a manufactured installed seat as it will compromise the floor integrity.

---

### Violation

- Frayed seatbelt webbing
- Armrest that are loose.



### Out of Service

- Not securely attached to the floor
- Any movement in the seat adjustment, by hand pressure
- Armrest that are missing or broken
- Inoperative or cut seatbelt
- Non-approved seat cushions or back support (Approval letter required)
- Inoperative driver alert technology
- Missing or loose restraining barrier
- Any loose or missing protective barrier/padding
- Failing to render the first seat behind the driver inoperative when a protective barrier has been installed
- Material used that does not meet this standard and/or complies with FMVSS requirements



### **(N) Electrical system.**

#### (1) Alternator.

(a) Minimum of a one hundred forty five ampere alternator on all "Type A" buses.

(b) Minimum of a two hundred ampere alternator on all other buses.

#### (2) All wiring shall conform to current society of automotive engineer's standards.

---

### Inspection Note

- Alternator must be securely mounted

---

## Approved Option

- Electrical fuses:
  - If a bus is equipped with a fuse box, proper assortment of replacement electrical fuses may be carried.

---

## Violation

- Crack in the alternator bracket.

---

## Out of Service

- Alternator or bracket broken, loose or missing bolts.



## **(O) Emergency equipment.**

- (1) All shall be mounted in an easily accessible location.
- (2) Bus shall be equipped with at least one dry-chemical-type fire extinguisher of at least five-pound capacity, 3A - 40 B.C. rating, located outside of the passenger area, mounted in a quick release-type bracket and easily accessible by the driver. The extinguisher shall be equipped with a dial-type graduated gauge, which indicates loss of pressure. Fire extinguisher shall be of the type that permits the dry-chemical base to be refilled by ordinary procedures.
- (3) First aid kits shall be dustproof, plainly labeled, mounted in a location easily accessible to the driver, located outside of the passenger area, and securely mounted in a metal or plastic container.
- (4) A twenty-four unit kit is required for all buses. Note: The first aid kit may be installed at time of manufacture by the manufacturer, installed by dealer, or installed by the owner/operator of the school bus.
- (5) Three triangle reflectors with weighted stands shall be properly encased for easy storage. The triangle reflectors shall meet FMVSS 571.125. The storage container shall be mounted to prevent movement and shall be mounted within easy access of the driver.
- (6) Six thirty-minute fuses are permitted and shall be encased for easy storage. The storage container shall be mounted to prevent movement and within easy access of the driver. The fuses shall not be stored in the passenger area. No spiked fuses are permitted.
- (7) One body fluid kit shall be required. The kit shall contain the following items:
  - (a) Effective chlorine absorbent deodorant.
  - (b) Effective germicidal detergent. If detergent contains alcohol, no more than one fluid ounce is

permitted in a single-use disposable container.

- (c) Single-use, disposable bag.
- (d) Single-use, disposable scraper.
- (e) Minimum of one pair of disposable, single-use, effective protective gloves.
- (f) Effective hand rinse. If hand rinse contains alcohol, no more than one-half fluid ounce is permitted in a single-use disposable container.
- (g) The body fluid clean-up kit shall be easily accessible to the driver in the area of the first aid kit and shall be securely mounted in a metal or plastic container.
- (h) If alcohol is included, the body fluid clean-up kit shall not contain more than one and one-half fluid ounces of alcohol.

Note: The body fluid kit may be installed at time of manufacture, installed by dealer or the owner/operator of the school bus.

---

### Inspection Note

- Emergency equipment shall be securely located outside the passenger area and readily accessible to the driver.
- The equipment shall not interfere with passengers or the operation of the vehicle.
- Three triangle reflectors with weighted stands are required on all school buses.
- A dry chemical type fire extinguisher at least five pounds in capacity is required with a visible gauge and a rating of 10 B.C. prior to 04/01/1978, 20 B.C. to the date of 09/01/1998 and 40 B.C. after 09/01/1998
- Fire extinguisher must have classification and annual inspection tag.
- Visible gauge must show whether extinguisher is pressurized.
- First Aid Kit (*effective prior to July 1, 2019 for all buses*)
  - First aid kit shall be securely mounted and be easily accessible to the driver.
  - The interior of the case shall be clean.
  - All contents in the kit must meet the following requirements:
    - Minimum requirements for less than 50 passengers (16 unit kit).
    - Minimum requirements for 50 or more passengers (24 unit kit).
    - **24 unit kit required on all buses bid/manufactured after July 1, 2019.**
- Body fluid cleanup kit.
  - Aerosol cans are not to be included as part of this kit. Other contents shall meet requirements of applicable Ohio School Bus Construction Standards. The body fluid clean-up kit shall be easily accessible to the driver in the area of the first aid kit, and shall be securely mounted in a plastic or metal container.
- No fussees are allowed on propane buses.

---

### Approved Option

- First Aid (Trauma Kit):
  - Trauma kits may be secured in the driver's area.

- The trauma kit may include:
  - Tourniquet
  - Bandages
  - Chest Seal
  - Tape
  - Trauma shears
  - Gloves
- Seat belt cutter:
  - Will be stored in the first aid kit or securely mounted to the left of the driver.
- Six (6) Thirty (30) minute fuseses (not allowed on propane buses)
- AED (Added 2/20/20)
  - Secure mounted within the driver's area and in such a way as to not cause a catch point. If the AED is stored in the bulkhead, a label shall be clear visible on the door to the compartment. School buses with AEDs installed, the driver must be properly trained in there operation per the manufactures specification.

### Violation

- Missing items in first aid kit.
- Missing items in body fluid clean up kit.
- Broken reflective triangles.

### Out of Service

- Fire extinguisher not securely mounted.
- Fire extinguisher missing or missing inspection tag.
- Fire extinguisher with improper rating and/or classification.
- Fire extinguisher not completely charged.
- First aid kit and body fluid kit not securely mounted.
- First aid or body fluid kit(s) missing.
- Missing reflective triangle(s)
- Reflective triangle box not securely mounted.
- Fuseses on a propane bus.



### **(P) Emergency exits.**

Any installed emergency exit shall comply with the design and performance requirements of FMVSS



571.217 applicable to that type of exit, regardless of whether or not that exit is required by FMVSS 571.217. Further exits are allowed in addition to the minimum required by this rule.

(1) Emergency doors.

- (a) Emergency doors shall meet FMVSS 571.217. An interior handle shall be provided to pull the door shut from the inside, which may be used as a protection against accidental release.
- (b) When the interior handle is not in the position that causes the emergency door to be closed, a continuous warning sound shall be audible at the driver's seating position and in the vicinity of the emergency door, and the dome lights (driver's dome light excluded) shall illuminate with the ignition switch in any position.
- (c) Exterior door handle shall be of permanent hitch-proof design and mounted with enough clearance to permit opening without touching door surface.
- (d) All emergency door openings shall be completely weather-stripped.
- (e) There shall be no step-type mechanism in the use of the emergency door.
- (f) There shall be a head bumper pad installed on the inside at the top of the emergency exit frame. This pad shall be approximately four inches in width and extend across the entire top of the emergency exit opening and shall meet FMVSS 571.302 for flammability standards of interior materials.

(2) Rear emergency door.

- (a) On all buses, except rear-engine design, an emergency door shall be located in the rear of the school bus body and centered with respect to the body.
- (b) Emergency door shall have a minimum horizontal opening of twenty-four inches and a minimum vertical opening of forty-eight inches measured from floor level.
- (c) Rear emergency door shall be hinged on right side and shall open outward.
- (d) The rear emergency door shall contain upper and lower glass panels. Glass in emergency door shall provide maximum area of visibility for safe operation of the school bus.
- (e) The rear emergency door shall have a prop rod/lock out bar.

(3) Left side emergency door.

- (a) On all rear-engine school buses, a left side emergency door shall be installed.
- (b) If a door sill or heater line extends above the floor line, a ramp shall be provided covering the area over which a foot must pass when an individual exits through the door.
- (c) The left side emergency door shall have a prop rod/lock out bar.

(4) Emergency side window exits.

- (a) Emergency window shall display the words "emergency exit" at the top of, directly above, or at the bottom of the emergency window exit on both the inside and outside of the bus, in a color contrasting the background.
- (b) Emergency windows, when not fully latched, shall activate a continuous warning sound that shall be

audible in driver's compartment and activate all dome lights (driver's dome lights excluded).  
Warning sound and dome lights shall be operational with the ignition switch in any position.

(5) Emergency window, rear-engine buses.

- (a) An emergency window shall be installed above the engine compartment.
- (b) Window shall be hinged from top and provided with a device to ensure against accidental closing when open.
- (c) Emergency window in rear shall be equipped with a latch on the inside, and also be equipped with a handle of hitch-proof design which will permit opening from the outside.
- (d) Emergency window shall display the words "emergency exit" at the top of or directly above, or at the bottom of the emergency window exit on both the inside and outside of the bus, in a color contrasting the background.
- (e) Emergency window, when not fully latched, shall activate a continuous warning sound that shall be audible in the driver's compartment and all dome lights shall activate (driver dome lights excluded). Warning sound and dome lights will be operational with the ignition switch in any position.

(6) Emergency roof exits.

- (a) A continuous warning sound that shall be audible in the driver's compartment and all dome lights shall activate when the hatch is opened in the escape position (driver's dome light excluded). Warning sound and dome lights shall be operational with ignition switch in any position.
- (b) If a bus is not manufactured with a static vent, the emergency roof exit shall be a static-type with exhaust vent.

(7) Number of emergency roof exits required.

- (a) One roof hatch is required for a bus with a manufacturer's rated shell capacity of one to forty-five.
- (b) Two roof hatches are required for a bus with a manufacturer's rated shell capacity of forty-six and above.

---

### Inspection Note

- Reflective tape must be installed along the sides of the bus at the floor line. The marking is required on buses bid or manufactured on or after December 1, 2008
- The emergency door(s) shall be outlined with reflective material as required by FMVSS 571.217 (On buses manufactured on or after 05/02/1994). Shall be yellow in color.
- Emergency window shall bear words "EMERGENCY EXIT" in letters at least two inches high inside the window and in a color contrasting the background. (Applies to buses bid after 01/01/1990).
- Emergency exit windows shall have reflective outlining on the exterior as required by FMVSS 571.217 (On buses manufactured on or after 05/02/1994). Shall be yellow in color.
- Emergency roof exits shall have reflective outlining as required by FMVSS 571.217 (On buses manufactured on or after 05/02/1994). May be white/silver, red or yellow in color.
- No item such as brooms, shovels, etc., shall be permitted in any window or door opening.

o **Emergency Exit Requirements and Federal Motor Vehicle Safety Standard 571.217**

- o All school buses bid or if not bid, manufactured after December 1, 2008 shall be equipped with:
  - o • Seating Capacity from 1 to 45 – one roof exit
  - o • Seating Capacity from 46 and above – two roof exits
- o • In addition to the above required roof exits, shall meet Federal Motor Vehicle Safety Standards for emergency exits as noted below.
  - o S5.2.3 School buses. Except as provided in S5.2.3.4, each school bus shall comply with S5.2.3.1 through S5.2.3.3.
    - o S5.2.3.1. Each school bus shall be equipped with the exits specified in either S5.2.3.1 (a) or S5.2.3.1 (b), chosen at the option of the manufacturer.
      - o (a) One rear emergency door that opens outward and is hinged on the right side (either side in the case of a bus with a GVWR of 10,000 pounds or less), and the additional exits, if any, specified by Table 1.
      - o (b) One emergency door on the vehicle's left side that is hinged on its forward side and meets the requirements of S5.2.3.2 (a), and a push-out rear window that provides a minimum opening clearance 41 centimeters high and 122 centimeters wide and meets the requirements of S5.2.3.2 (c), and the additional exits, if any, specified by Table 2.

o **TABLE 1**

Seating Capacity	Additional Exits Required*
1-45	None.
46-62	1 left side exit door or 2 windows.
63-70	1 left side exit door or 2 windows, and 1 roof exit.
71 and above.	1 left side exit door or 2 exit windows, and 1 roof exit, and any combination of door, roof, or window such that the total capacity credit specified in Table 3 for these exits, plus 70, is greater than the seating capacity of the bus.

\*Side emergency exit doors must meet the requirements of S5.2.3.2 (a), emergency roof exits must meet the requirements of .2.3.2(b), emergency window exits must meet the requirements of S5.2.3.2(c).

o **TABLE 2**

Seating Capacity	Additional Exits Required*
1-57	None.
58-74	1 right side exit door or 2 windows.
75-82	1 right side exit door or 2 windows, and 1 roof exit.
83 and above.	1 right side exit door or 2 windows, and 1 roof exit, and any combination of door, roof, or windows such that the total capacity credit specified in Table 3 for these exits plus 82 is greater than the capacity of the bus.

\*Side emergency exit doors must meet the requirements of S5.2.3.2 (a), emergency roof exits must meet the requirements of S5.2.3.2 (b), emergency window exits must meet the requirements of S5.2.3.2(c).

o **TABLE 3**

Exit Type	Capacity Credit
Side Door	16
Window	8
Roof Exit	8

- o (c) The area of an opening equipped with a wheelchair lift may be credited toward the required additional exits if it meets the requirements of paragraphs (a) or (b) of S5.2.3.1 and if the lift folds or stows in such a

manner that the area is available for use by persons not needing the lift. With the lift in the folded or stowed position, such opening is considered a side emergency exit door.

- S5.2.3.2 All emergency exits required by S5.2.3.1 (a) and S5.2.3.1 (b) shall meet the following criteria:
  - (a) Side emergency exit doors.
    - (1) Each side emergency exit door shall be hinged on its forward side.
    - (2) The first side emergency exit door installed pursuant to Table 1 shall be located on the left side of the bus and as near as practicable to the mid-point of the passenger compartment.
  - A second side emergency exit door installed pursuant to Table 1 shall be located on the right side of the bus. In the case of a bus equipped with three side emergency door exits pursuant to Table 1, the third shall be located on the left side of the bus.
  - (3) The first side emergency exit door installed pursuant to Table 2 shall be located on the right side of the bus. A second side emergency door exit installed pursuant to Table 2 shall be located on the left side of the bus. In the case of a bus equipped with three side emergency door exits pursuant to Table 2, the third shall be located on the right side of the bus.
  - (4) No two side emergency exit doors shall be located, in whole or in part, within the same post and roof bow panel space.
    - (b) Emergency roof exit.
      - (1) Each emergency roof exit shall be hinged on its forward side, and shall be operable from both inside and outside the vehicle.
      - (2) In a bus equipped with a single emergency roof exit, the exit shall be located as near as practicable to the midpoint of the passenger compartment.
      - (3) In a bus equipped with two emergency roof exits, one shall be located as near as practicable to a point equidistant between the midpoint of the passenger compartment and the foremost limit of the passenger compartment and the other shall be located as near as practicable to a point equidistant between the midpoint of the passenger compartment and the rearmost point of the passenger compartment.
      - (4) In a bus equipped with three or more emergency roof exits, the roof exits shall be installed so that, to the extent practicable, the longitudinal distance between each pair of adjacent roof exits is the same and equal to the distance from the foremost point of the passenger compartment to the foremost roof exit and to the distance from the rearmost point of that compartment to the rearmost roof exit.
      - (5) Except as provided in paragraph (b) (6) of this section, each emergency roof exit shall be installed with its longitudinal centerline coinciding with a longitudinal vertical plane passing through the longitudinal centerline of the school bus.
      - (6) In a bus equipped with two or more emergency roof exits, for each roof exit offset from the longitudinal vertical plane specified in paragraph (b)(5) of this section, there shall be another roof exit offset from that plane an equal distance to the other side.
    - (c) Emergency exit windows. A bus equipped with emergency exit windows shall have an even number of such windows, not counting the push-out rear window required by S5.2.3.1 (b). Any side emergency exit windows shall be evenly divided between the right and left sides of the bus. School buses shall not be equipped with horizontally-sliding emergency exit windows. Further, except for buses equipped with rear push-out emergency exit windows in accordance with S5.2.3.1 (b), school buses shall not be equipped with both sliding and push-out emergency exit windows.
  - S5.2.3.3 The engine starting system of a bus shall not operate if any emergency exit is locked from either inside or outside the bus. For purposes of this requirement, "locked" means that the release mechanism cannot be activated and the exit opened by a person at the exit without a special device such as a key or special information such as a combination.
  - S5.2.3.4 Each school bus manufactured before September 1, 1994 may, at the manufacturer's option, comply with either S5.2.3.4 (a) or S5.2.3.4 (b) instead of S5.2.3.1 through S5.2.3.3.

- (a) Each bus shall be equipped with one rear emergency door that opens outward and is hinged on the right side (either side in the case of a bus with a GVWR of 4,536 kilograms or less); or
- (b) Each bus shall be equipped with one emergency door on the vehicle's left side that is hinged on its forward side and meets the requirements of S5.2.3.2 (a), and a push-out rear window that provides a minimum opening clearance 41 centimeters high and 122 centimeters wide and meets the requirements of S5.2.3.2 (c).

---

### Approved Option

- Ramp device:
  - May be installed to load and unload students.
  - Ramps shall be of nonskid construction. Ramp shall be of weight and design, and equipped with handle(s), to permit one person to put ramp in place and return it to its storage place. Ramp storage must protect ramp from dirt and weather.
    - *The construction and installation of the ramp device shall not interfere with the construction standards of the bus and cannot alter the structural design without manufacture approval.*
- Rear emergency door lock. Bus engine will not start when door is locked. (Starter Interlock)

---

### Violation

- Damaged rubber seals or gaskets.
- Damaged, faded, peeling, or cracked retroreflective tape.

---

### Out of Service

- Damaged, faded, peeling, cracked, or missing retroreflective tape in excess of 25% of each required section per emergency exit
- Door or positive locking device inoperable (to include strap in buses manufactured before 5/2/94)
- Emergency door fails to open to a minimum width (90 degrees) without catching or binding
- Any inoperable continuous warning device
- Missing required rubber seals or gaskets
- Locking devices, except approved systems that also prevent the engine from starting.
- Missing or illegible instructions.
- Not marked inside and outside (Includes reflective markings if required.)
- Required dome lights not activating with the warning device (installed in the driver's compartment and at the emergency door on all buses and activated after the door or handle is moved, this applies to buses bid after 09/01/1998)

- Wrong retroreflective material or color
- ANY window missing operating instructions (Instructions must be clearly visible and the wording must be present in its entirety)
- Obstructions reducing size of window or door opening. (Seat backs excluded if opening meets FMVSS standards and School Bus Construction Standards)



**(Q) Engine speed governor**

An engine speed governor shall be installed on all buses. Setting shall comply with manufacturer's maximum recommended governed speed. A revolution per minute limiter in lieu of the engine speed governor is acceptable. Note: Recommended governed speed will reference maximum speed limits established in section 4511.21 of the Revised Code.

---

**Inspection Note**

- None

---

**Approved Option**

- Cruise control:
  - Installed by school bus manufacturer or authorized dealer.

---

**Violation**

- None

---

**Out of Service**

- Cruise control inoperative



**(R) Exhaust system.**

- (1) Exhaust pipe, muffler or a diesel particulate filter in lieu of the muffler, and tailpipe shall be outside bus body and attached to chassis.
- (2) The tailpipe and after-treatment system shall be constructed of a corrosion-resistant tubing material at least equal in strength and durability to 16-gauge steel tubing of equal diameter.
- (3) The tailpipe may be flush with, or shall not extend more than two inches beyond, the perimeter of the body for side-exit pipe or the bumper for rear-exit pipe. The exhaust shall be designed such that exhaust gas will not be trapped under the body of the bus.
- (4) The tailpipe shall exit to the left or right of the emergency exit door in the rear of the vehicle to the left side of the bus, in front of or behind the rear drive axle, or the tailpipe may extend through the bumper. The tailpipe shall not exit beneath any fuel filler location, emergency door, or lift door.
- (5) The exhaust system shall be insulated in a manner to prevent any damage to any fuel system component.
- (6) The design of the after-treatment systems shall not allow active (non-manual) regeneration of the particulate filter during the loading and unloading of passengers. Manual regeneration systems will be designed such that unintentional operation will not occur.
- (7) Right side discharge exhaust systems are not permitted.

---

**Inspection Note**

- When checking exhaust system, do not stop flow of exhaust through the pipe by placing an obstruction in the tailpipe.
- Exhaust system shall be insulated from fuel tank and fuel tank connections on gasoline engines.
- Exhaust system shall be in good condition including hangers and clamps. No holes, cracks, splits or gaps permitted in system that would allow exhaust gases to escape.
- Allow engine to reach normal operating temperature to seal the O-ring on the manifold pipe before checking the system.
- One 1/8" drainage hole may (not required) be drilled in the bottom of the muffler.
- Tail pipe diameter shall not be reduced in size when leaving the muffler.
- On rear discharge exhaust, the tail pipe shall extend to the edge of the bumper but not more than two inch beyond bumper. The tailpipe may pass through the bumper.
- Optional left side exit must be at least three inches (3") and not more than eighteen inches (18") in front of the rear wheel and bent downward at a 45 degree angle six inches (6") from the end of the pipe. Tail pipe shall extend to edge of body.
- No more than 2 feet of flexible pipe for gas and diesel engines is permitted to replace OEM application.
- No part of the exhaust system shall be so located as would be likely to result in burning, charring or damaging the electrical wiring, the fuel supply, or any combustible part of the bus.
- Exhaust Manifolds
  - Shall be no cracks or leaks.

---

### Approved Option

- None

---

### Violation

- More than two (2) feet of flexible pipe used to replace OEM application.

---

### Out of Service

- Exhaust system discharges directly below any emergency window and does not meet construction standards for the placement of a rear discharge.
- Exhaust rear discharge more than two (2) inch past rear bumper.
- Left side discharge not within manual required distance of three (3) inches but not more than eighteen (18) inches in front of rear wheel.
- Missing insulation around fuel tanks and fittings on gas-powered systems.
- Missing or broken hangers or clamps not attached to exhaust system.
- Mud flap coming into contact with exhaust.
- No holes, cracks, splits, gaps, or leaks permitted in system that would allow exhaust gases to escape.
- Parts of the system located which would likely result in burning, charring or damaging the electrical wiring, fuel supply or any combustible part of the bus.
- Diesel particulate filter not securely mounted.



### **(S) For after treatment systems that require diesel exhaust fluid (DEF).**

An optional left side discharge exhaust system is permitted. If a left side discharge, the tailpipe shall be located at least three inches and not more than eighteen inches in front of the rear wheel opening and angled down at a forty-five degree angle six inches from the end of the pipe. The discharge shall extend to the edge of the body.

- (1) The composition of the DEF must comply with ISO 22241-1.
- (2) The DEF supply tank shall be sized to meet a minimum ratio of three diesel fills to one DEF fill.



### Inspection Note

- Must have cap on the fill port.
  - Tank must be securely mounted and free of leaks.
  - A diesel exhaust fluid (DEF) gauge is required for diesel engines
- 

### Approved Option

- None
- 

### Violation

- None
- 

### Out of Service

- Left side discharge not within manual required distance of three (3) inches but not more than eighteen (18) inches in front of rear wheel.
- Leaks
- Missing cap on fill port.



### **(T) Fenders.**

- (1) Total spread at outer edges of front fenders, measured at fender line, shall exceed total spread of front tires when front wheels are in straight ahead position.
  - (2) Front fenders shall be braced and free from any body attachment. Trailing edge of front fender shall extend to bottom of front body section. Fender extensions are acceptable.
  - (3) Fiberglass replacement fenders and cowl pieces are permitted.
- 

### Inspection Note

- None

---

### Approved Option

- Fiberglass replacement fenders are allowed.
- Rubber fender extensions.

---

### Violation

- No looseness in fender or extension attachment points.

---

### Out of Service

- Missing or damaged fenders or extensions.



### **(U) Floor covering.**

- (1) All floor covering shall have a calculated burn rate of 0.1 mm per minute or less using the test methods, procedures and formulas listed in FMVSS 571.302, be permanently bonded to the floor, and must not crack or loose its adhesive power when vehicle is subjected to sudden changes in temperature. Bonding or adhesive material shall be waterproof and recommended by the manufacturer of the floor covering material.
- (2) Under seat areas shall have a fire-resistant floor covering, having a minimum overall thickness of one-eighth inch. The entire joint between the floor covering and the wall of the school bus body shall be covered with a fitted, rust-free metal or composite molding or reformed interior panel.
- (3) Driver's compartment floor area shall be of the same quality material as the under seat floor covering. The driver's compartment floor covering shall be attached to the floor.

Exception - On "Type A" buses, the driver's compartment floor area shall be manufacturer's standard. It shall be attached to the floor.

- (4) Center aisle covering shall be fire-resistant, non-skid and wear-resistant. If ribbed, minimum thickness shall be one hundred eighty-seven thousandths inch measured from the top of the ribs.

- (5) Metal, composite molding, bonding or non-metal welding shall cover all floor-covering joints.
- (6) Molding around the wheel-well and floor covering shall be provided to seal floor covering with the wheel well.
- (7) A fuel access plate shall be installed for easy access to fuel gauge mechanism and shall be installed above the regular floor covering when possible. The access plate shall not be undercoated. Panel shall be sealed to prevent any leakage or moisture. Diamond plate may be used as an access panel. ("Type A" buses and alternative fuel systems excluded)
- (8) Floor covering on top step landing shall be one piece.
- (9) A plywood floor shall be applied on top of the steel floor. Floor covering shall be applied on top of the plywood. Plywood shall be five-eighths inch five-ply type CD exterior grade. Plywood shall extend to fire-wall and under the driver's seat. Plywood shall be sanded and vacuumed before covering is applied. Waterproof sealing material shall be applied to seams in the sections of plywood floor. Plywood shall be four feet by eight feet sections, pieced only as necessary. Waterproof sealing applied on top of the plywood to hold the floor covering is considered as one method of sealing the seams in the plywood floor.
- (10) Equivalent material applied to top of steel floor may be used in lieu of plywood, provided it has equal or greater insulation R-value, sound abatement, deterioration-resistant and moisture-resistant properties.
- (11) If alternate materials are used in lieu of plywood, manufacturer must certify that FMVSS 571.222 and 571.302 are met.

---

### Inspection Note

- Shall be sound in construction and meet applicable Ohio School Bus Construction Standards.
- Brake and clutch boots shall not be worn. If the size of the opening is larger than required for component, such as emergency brake or gearshift, boot shall be used to prevent dirt or contaminants from entering the passenger compartment.
- Spot floor covering is permitted where needed to cover worn areas. One-piece floor covering is not required to run full length of the bus. Loose pieces of carpet or other covering shall not be permitted.
- Floor covering shall cover all floor base except where inspection plates are used and exposed.

---

### Approved Option

- None

---

### Violation

- Missing screw in floor trim that does not cause trip hazard.

---

## Out of Service

- Bumps or waves that could create a trip hazard (plywood needs to be solid).
- Unsecured trim strips that have sharp edges or create a trip hazard.
- Unsecured aisle trim that have sharp edges or create a trip hazard.
- Unsecured stairwell treads (No trip points).
- Holes in flooring that exposed wood sub floor.
- Unauthorized carpet or other coverings on floor.
- Missing non-skid or wear resistant in aisle way.



## **(V) Frame.**

- (1) Frame shall be designed to correspond with or exceed standard practice performance criteria for trucks of same general load specifications used for highway service.
- (2) Chassis frame shall extend to rear edge of rear body cross member.
- (3) Frame side members shall be one-piece construction with the following exceptions:
  - (a) Extension of these members shall be designed, furnished, and guaranteed by chassis or body manufacturer. Installation shall be guaranteed by the company installing the extension. Extension of frame lengths shall not be for the purpose of extending wheel base.
  - (b) No holes shall be permitted in the chassis rails except those drilled at the chassis plant or authorized by the frame manufacturer.
- (4) Welding to chassis rails is permitted only when guaranteed by the company making the modifications and authorized by the frame manufacturer. The Ohio state highway patrol shall be notified after the repair and authorized inspection have been completed and prior to the school bus being operated with students on board.

---

## Inspection Note

- No cracked, broken, loose, sagging frame members or separation from the main frame.
- Body and Mounting Pads
  - Body shall be securely fastened (J-Bolts, or spring clamps).
  - Mounting pads or insulating material shall be held in place between floor sills and chassis frame and must be of good quality.

---

## Approved Option

- None

---

## Violation

- One missing body pad/isolator. (Adjacent not missing)
- Cracks less than one (1) inch in length on bottom rail flange.
- Cracks less than one and one-half inches or longer in frame side rail web, which is directed towards the bottom flange.

---

## Out of Service

- Loose or missing cross members, bolts, body tie downs.
- More than one adjacent body pad missing.
- Any cracked, loose, sagging, or broken frame side rail permitting shifting of the body onto moving parts or other condition indicating an imminent collapse of the frame.
- Any cracked, lose or broken frame member adversely affecting support of functional components such as steering gear, engine, transmission, body parts, or suspension.
- One inch or longer crack in side rail bottom flange.
- Metal floor, including stairwell, not solid (no holes caused by rust or damage.)
- Cracks one and one-half inches or longer in frame side rail web, which is directed towards the bottom flange.
- Any condition that caused the body or frame to be in contact with a tire or any part of the wheel assemblies.
- Any frame modification/repair not certified/approved by the frame manufacturer.
- Any floor support rusted through at any location.
- Any floor support cracked at a body mount location.
- Any welds that are not authorized by the frame manufacturer.
- Any non-factory or authorized holes in chassis rails.



### **(W) Fuel fill opening**

Fuel fill opening shall be in the body and shall be equipped with a hinged cover held closed by a spring or other conveniently operated device. The mechanism that holds this cover closed shall be sufficient to keep it closed under severe operating conditions. "Type B, C, and D" buses may be provided without a door only if a fuel bucket/spill containment is provided. Exception: On "Type A" buses, the fuel fill opening shall be manufacturer's standard.

## Inspection Note

- Hinged or locking fuel door over fill port when required.
- Filler hose shall be in good condition.

---

## Approved Option

- None

---

## Violation

- Inoperative spring or lock on fuel door.

---

## Out of Service

- Missing fuel door as required.
- Missing fuel bucket/spill containment on Type B, C, or D buses with no fuel door.



## **(X) Fuel System**

All fuel storage specifications shall conform to FMVSS 571.301 (fuel system integrity). In addition:

- (1) Fuel tank shall have a minimum capacity of twenty-five gallons, for buses up to and including a shell capacity of fifty-nine passengers. School buses of sixty passengers and above shall have a minimum capacity of sixty gallons. It shall be filled and vented outside of the body. Construction will prevent the spillage or drainage of fuel on any part of the exhaust system.
- (2) Fuel filter with replaceable element shall be installed.
- (3) In addition to the fuel filter, all diesel-fueled engines shall have a water separator installed between fuel tank and the injector pumps. The fuel/water separator may be incorporated with the fuel filter but the fuel/water separator shall not serve as the fuel filter.
- (4) Drain plug of at least one-fourth inch pipe thread shall be located in center of the bottom of gas and diesel fuel tanks.

## Inspection Note

- Fuel pump, fuel lines and filter system - no leaks, check with engine running.
- Exhaust system shall be insulated from fuel tank and fuel tank connections on gasoline engines.
- Fittings securely connected.
- Fuel cage attached securely around the fuel tank.
- Fuel cage must be free of rust holes.
- Tank shall be shielded when any part of the exhaust system is adjacent to the tank on gasoline, propane or natural gas powered buses. No shield is required on diesel-powered buses.
  
- COMPRESSED NATURAL GAS (CNG)
  - The focus of our inspection procedure is on safety rather than installation procedure for the conversion. The inspecting officer should point out and require corrections in installations that are safety related.
- General
  - The system shall be maintained to the manufacturer's specifications.
  - All school buses equipped with dual fuel equipment shall be operated in both the natural gas and gasoline mode during inspection.
  - All devices used in the CNG system shall meet the appropriate ratings.
  - The CNG system consists of high-pressure equipment: storage cylinders or tanks, fuel lines, regulator(s), solenoids, mixer, check valve, switches or levers, and fuel gauge.
  - School bus is to have appropriate signs or decals inside and outside to identify operation by natural gas.
  - Equipment is to be securely mounted and appropriately protected.
- Fuel Cylinders
  - Visually check for:
    - Protective paint coating.
    - Mountings for looseness, signs of movement, and corrosion.
    - Looseness or wear of bolts and brackets.
    - Proper label "CNG USE ONLY"; or "FOR CNG ONLY" (decals or stencil).
    - DOT markings (2400 PSI).
    - Valve guards or expanded steel grating.
    - Minimum of four inches (4") clearance from tail pipe.
    - Minimum of eight (8") clearance from muffler or manifold exhaust.
    - Clearance: cylinder shall not hang below the centerline of the drive shaft.
- Fuel Lines
  - Visually check for:
    - Signs of movement, vibration, looseness, wear, corrosion or stress.
    - Grommets around the fuel lines where passing through frame.
    - Mountings with rubberized clamps at no more than twenty-four inch (24") intervals. Check all fittings with soap and water solution or electronic natural gas detector.
- HYBRID
  - Our inspection procedure should focus on safety rather than installation procedure for the conversion. The inspecting officer should point out and require corrections in installations that are safety related.
  - No inspection will occur if the unit is plugged into a charging unit or located in a moist or wet environment.
  - The inspector needs to be aware of the volts, amps and kilowatts this system contains whether or not it is plugged into a charging unit.
  - Before the inspection starts, ensure:
    - The driver interface panel switch is in the off position.

- The service disconnect switch in the battery box is in the off position.
  - The service disconnect switch in each battery pack is in the off position.
- General
  - The system shall be maintained to the manufacturer's specifications.
  - All school buses equipped with dual fuel equipment shall be operated in both the diesel and electric mode during inspection.
  - All high voltage cables shall be orange colored and isolated from the chassis.
  - All high voltage components shall have warning labels.
  - There shall be a service disconnect switch on each battery pack.
  - The hybrid system shall have an on/off switch within the driver's reach.
  - The hybrid system turns off when the key is turned off.
  - All battery packs shall be installed in a heavy-duty crash protection cage.
  - The vehicle must continue to be operable even when the hybrid system is off.
- Grommets on the bottom of the Control Electronics Unit (CEU) shall be in place and in good shape.
- All wires shall be properly insulated as they pass through any metal surrounding.
- Ensure that all panel lights are operational and functioning correctly. The lights must be color specific: Green – ready, Yellow – charging, Amber – system fault.
- Check the hybrid system coolant level in the reservoir under the hood. Inspect the hose connections for leaks or damage.
  - The charge cable and its connector must be inspected for damage.
  - Inspect the pins of the bus side receptacle for damage or foreign material.
- Propane Fuel System
  - Our inspection procedure focus is on safety rather than installation procedure for the conversion. The inspecting officer should point out and require corrections in installations that are safety related.
- General
  - The system shall be maintained to the manufacturer's specifications.
  - All school buses equipped with dual fuel carburetor equipment using liquefied petroleum or natural gas shall be operated in the L.P.G., natural gas and gasoline mode.
  - All devices used in the propane system subject to container pressure shall have a design pressure of at least 250 PSI The inspecting officer should visually check for markings (except carburetor).
  - Visually check for grommets around all electrical wiring and control cables passing through metal.
  - Visually check for fusing of wiring under dashboard.
  - Visually check fittings for signs of wear, leaking, tightness or undo stress (Oil residue around fitting often indicates leaks. Use soap leak detector to check if necessary).
- Tanks
  - Visually check the manual 80% liquid level gauge and float gauge. Require replacement if not working properly. Liquid level gauge should open and close using finger pressure – check using gloves.
  - Check data plate on tank. Tanks shall be marked. Markings shall be on a metal nameplate attached to the container so located as to remain visible after the container is installed. The data plate shall include:
    - Service for which the container is designed. (Liquefied petroleum gas or Propane)
    - Name and address of container supplier or trade name of container
    - Water capacity of container in pounds or US gallons.
    - Design pressure in PSI
    - The wording, "This container shall not contain a product having a vapor pressure in excess of PSI at 100 degrees F."
    - Outside service area in square feet.
    - Relief valve of 312 PSI working pressure after 03/23/1981.



- Visually check tank mounting for looseness, signs of movement, bolts, nuts, brackets, and corrosion.
- Visually check road clearance of tank, it should not be lower than step well.
- Check for shield if tank or any of its fixed parts are within six (6) inches of exhaust system. The brackets and bolts are not to be considered a part of the tank. Exhaust system shall not be supported by tank bracket. The shield may be closer than six (6) inches.
- Check relief vent piping. Must be mounted securely enough to withstand 312 PSI discharge (Top vent is permissible).
- Fuel Lines
  - Check fuel lines for security, strain, wear, rubbing, vibration and grommets or bulkhead fittings.
  - Check fuel line routing.
  - Fuel lines shall be secured at approximately two-foot intervals.
  - Fuel lines routed through structural members shall be protected by grommets or bulkhead fittings. Bulkhead fittings are preferred.
  - Fuel lines shall be stainless steel, wire braid reinforced and labeled at ten-foot intervals either Liquefied Petroleum Gas or Propane Gas, 350 PSI working pressure, 1750 PSI burst pressure.
  - Automatic lock-off solenoid valve should be checked by converting from one fuel to the other with the dashboard mounted while the engine is running. Hydrostatic relief valve must be installed in fuel line between tank and fuel filter lock off.
- Fueling Compartment
  - Remote fill type shall be securely locked by key.
  - Direct fill shall be securely locked - key not necessary.
  - Fuel inlet line fitting shall have a cap covering.
- Relief Valve
  - Relief valve should be located on same side of bus as the fuel supply tank. The vent line should be no longer than two feet and discharged towards the ground at a 45-degree angle away from the bus.
  - Note: Due to different type vent installations, the inspecting officer must be flexible – safety is the key. A 45-degree angle is preferred for the relief valve vent.
- Automatic Shut Off
  - Check for operation-designed to prevent flow of gasoline when the ignition is in the off position or the bus is operating on propane.
- Other
  - Make a visual check to make sure the lock-off valve has not been omitted on the gasoline supply line. (Dual fuel only)
  - Make sure the electronic solenoid is not wired direct. It is required to pass through a fuse.
  - Visually check for gasoline leaks at the carburetor.

---

### Approved Option

- None

---

### Violation

- Damage to fuel cage not into contact with fuel tank.
- Fuel cap loose

---

## Out of Service

- Any leak in any part of fuel system.
- Fuel cap missing or defective.
- Fuel tanks damaged.
- Fuel tanks not properly mounted.
- Fuel tanks fail to meet FMVSS 571.301.
- Fuel cage with rust hole (must be repaired to manufactures specifications).
- Insulation missing around exhaust near fuel tank or connections on gasoline engines.
- Missing or damaged fuel cage around tank or contacting tank.



## **(Y) Glass.**

- (1) All glass shall be manufactured and maintained as follows:

Glass table

Location	Glass type	Rating
Service door	Laminated	AS 1 or AS 2
Emergency door	Tempered or laminated	AS 2 or AS 3
Emergency window	Tempered or laminated	AS 2 or AS 3
Windshield	Laminated	AS 1
Driver's side glass	Laminated	AS 1 or AS 2
All other glass in passenger's area	Tempered or laminated	AS 2 or AS 3

Exception- On "Type A" buses the driver's door glass shall be manufacturer's standard.

- (2) All other glass not noted in table shall meet FMVSS 571.205 glazing materials.

---

## Inspection Note

- Glass shall be free of chips or cracks that could create a hazard or impair the driver's vision.
  - Example: Windshield wiper blade scratches.

- Discoloration on windshield/windows shall not be more than one and one-half inch and shall not obstruct driver's view to mirrors or roadway.
- The glass must be marked and meet FMVSS standard 571.205 for glazing.
- Effective 11/1/2006, all glass must meet appropriate construction standards that apply to the year of manufacture of the bus.
- Frames around glass shall be secure.
- Cracks in the windows shall not be over one (1) inch in length.
- No broken or cracked glass permitted in the entrance door.

### Approved Option

- Prism:
  - Mounted to the upper window of the rear emergency door, designed to give the driver a wide-angle view of the area immediately behind the school bus.
- Tinted glass pursuant to section 4513.241 of the Revised Code and in compliance with FMVSS 571.205.

### Violation

- Discoloration of any glass
- Chips or cracks

### Out of Service

- Improperly secured or mounted
- Any defect over one inch in length (does not apply to windshield)
- Chips or cracks that create a hazard or impairs the driver's vision.
- Discoloration on windshield/windows shall not obstruct driver's view to pupils, mirrors, or roadway.
- Improper glass for its location (tempered/laminated).



### **(Z) Heaters.**

- (1) Heating systems shall provide evenly distributed heat throughout the bus body and provide defrosting for windshield, driver's left side window and service door.
- (2) Buses shall be equipped with heaters capable of maintaining inside temperature of fifty degrees Fahrenheit using an ambient temperature of zero degrees Fahrenheit as measured per SAE standard J2233.
- (3) Buses shall be equipped with a front heater.

- (4) Heaters shall display the nameplate rating in accordance with the standard code for testing and rating automotive bus hot water heater and ventilating equipment.
- (5) All heaters shall be independently controlled by multi-speed switches.
- (6) All hot water lines inside the driver /passenger's area shall be enclosed.
- (7) Heater cores and fans shall be completely encased, but designed to permit servicing heating assembly by removing all or part of the case.
- (8) Heater hose installation in the engine compartment shall include two shut-off valves able to shut off coolant completely when necessary.
  - (a) One shut-off valve shall be mounted between the water pump inlet and heater hose connection.
  - (b) One shut-off valve shall be mounted between the engine block and the heater hose connection.
- (9) There shall be a heater flow-regulating valve installed for convenient operation when the driver is in a normal seated position.

---

### Inspection Note

- Check heaters one at a time with waterlines open.
- Heater cores shall be clean with no leaks or obstructions to block flow of air or hit heater fan.
- All heaters must be operational.
- An additional heater(s) may be installed in the rear portion of the bus behind the wheel well. Auxiliary fuel-fired heaters are permitted.


---

### Approved Option

- Auxiliary fuel-fired heaters:
  - These auxiliary heaters should use the same fuel as the engine is designed to use. These heaters can be either direct hot air systems or connected to the engine's coolant system. When connected to the engine, the heaters can be used to preheat the engine for starting, or to preheat and add supplementary heat to the bus's heating system. These heaters must be installed pursuant to manufacturer's recommendations so as not to exhaust in a manner which will endanger passengers. The heater should not require adjustment if fuel is being changed from "Diesel-1" to "Diesel- 2" or a blend, and should be equipped with low voltage protection. These heaters must meet all applicable federal and society of automotive engineers' tests.

---

### Violation

- Independent switches not working at all speeds.
  - One heater inoperable in the passenger compartment.
- 

---

## Out of Service

- Coolant leak into the interior of the bus.
- Any heater inoperable in the driver compartment.
- More than one heater inoperable in the passenger compartment.
- Heater switches missing for each independent heater.



## **(AA) Hoods.**

"Type D" buses with an interior engine cover shall have a device or design to secure the engine cover when in the open position, or shall be fully removable.

"Type C" buses shall have a design for the hood that minimizes the risk of accidental closing.

---

## Inspection Note

- Hood assemblies should operate properly.
- When equipped with a hinge spring or bar and latch assembly, the hood shall stay in the raised position.
- No frayed, broken or damaged components on hood assemblies.
- Grille color should be maintained as manufactured. Chrome or corrosion resistant materials are permitted. All rear engine grilles shall be national school bus yellow. Hoods requiring refinishing shall be painted with non-reflective National School Bus Yellow or flat black paint.

---

## Approved Option

- None

---

## Violation

- Any loose components in hood assembly. (i.e. Splash shields, loose hood latch etc...)

---

## Out of Service

- Safety latch is broken, and hood will not lock into the open position.
- Any frayed, broken or damaged components on hood assemblies.
- Hood assembly inoperable.



**(BB) Horns.**

Buses shall be equipped with a horn(s) of standard make capable of producing complex sound in band of audio frequencies from two hundred fifty to two thousand hertz and having total sound level of one hundred to one hundred twenty decibels within these frequency limits when measured at fifty feet from the vehicle. Air horns are permitted.

---

Inspection Note

- Horns shall be operative, and capable of emitting a complex sound that is audible, under normal conditions from a distance of not less than two hundred feet.
- The horn button must be located in the center of the steering wheel and clearly marked as such.

---

Approved Option

- None

---

Violation

- Horn control not clearly marked on steering wheel

---

Out of Service

- Horn button not located as OEM (center of steering wheel).
- Horn not producing a complex sound.



## **(CC) Electronic stability control**

**Electronic stability control shall be equipped on:**

- (1) Air brake equipped school buses with a build date of August 1, 2019 or later.
- (2) All school buses with a build date of August 1, 2020 or later.

---

### Inspection Note

- None

---

### Approved Option

- None

---

### Violation

- None

---

### Out of Service

- Light indicating the system is inoperative.



## **(DD) Instruments and instrument panel.**

- (1) Chassis shall be equipped with the following instruments and gauges. Lights in lieu of gauges are not acceptable.
    - (a) Speedometer.
    - (b) Odometer which will show accrued mileage up to nine hundred ninety-nine thousand nine hundred ninety-nine.
    - (c) A voltmeter showing the battery voltage. The voltmeter shall be off when the ignition switch is in the off position.
    - (d) Oil pressure gauge.
    - (e) Engine temperature gauge.
    - (f) Fuel gauge.
    - (g) Air brake systems shall have independent gauges indicating air pressure in the primary and secondary air tanks.
    - (h) Buses may be equipped with a tachometer.
    - (i) A diesel exhaust fluid (DEF) gauge is required for diesel engines.
  - (2) All buses shall have a warning system consisting of a light and optional audible warning to notify driver of low engine oil pressure, low engine coolant level, and coolant overheating. System shall not automatically shut off engine, unless warning signals have been displayed to the driver and the engine has derated for a period of time.
  - (3) The visibility and illumination of the instruments must comply with FMVSS 571.101.
- 

### **Inspection Note**

- Dashboard Instrument Panel
  - All gauges shall be operative and clearly visible to driver in a seated position.
  - Unused gauges shall be painted black.
  - Indicator lights are required to show operation of turn signals and the four-way hazard flashers.
  - Master pilot light to show that the eight-way warning system is operable.
  - Dashboard instruments shall be illuminated.
- Control Panel Switches
  - All switches shall be marked.
  - Any unused switch must be removed or painted black without markings.
  - A red colored or red outlined emergency override switch shall be installed.
    - This shall be the only red colored or red outlined switch on the switch panel. (Effective 12/1/2008)
  - Shall have a red or green master pilot as determined by year manufactured.
- Other
  - All school buses which transport special need pupils shall be equipped with two-way communication devices.



---

## Approved Option

- Audio Devices:
  - AM/FM radios, cassette, compact disc players must be permanently mounted, either OEM or automotive style aftermarket. If aftermarket, must be installed per manufacturers instruction
- Clocks:
  - Either OEM or automotive style aftermarket. If aftermarket, must be installed per manufacturers specifications.
- Electronic Pre-Trip Recorders:
  - The installation of sensors on the bus is allowed if:
    - Does not interfere with the safe operation of the bus.
    - Does not cover any required markings.
    - No larger than two (2) inches by two (2) inches in size.
- Engine hour meter
- Engine monitoring systems:
  - These systems shall warn the driver, by use of a light or audible signal that the engine is in need of attention. Such systems may not automatically shut off the engine.
- Power Outlet:
  - 12-volt dc covered power outlet in driver's area.
  - USB power connection in the driver area and the passenger compartment so long as not to interfere with the requirements of FMVSS 222. (Added 2/20/20)
- Power ventilator
- Programmable engine idle time limit.
- Public address system:
  - An outside speaker is permitted. If an outside speaker is used, it shall be yellow or gray in color.
- Student tracking device (RFID) readers:
  - RFID readers will be mounted to the right of the driver/controls and at the top of the stairwell.
    - Cannot require driver interaction and must be free of catch points.
  - Computer based systems may display photos of the students.
    - Computer based systems cannot require driver interaction while loading and unloading students.
- Tachograph
- Two-way radios:
  - Either OEM or aftermarket. If aftermarket, must be installed per manufacturers specifications.
- Alarm systems:
  - Audible warning alarm may be located on the firewall or the front of the school bus, to work in conjunction with the warning light system. May do one or both:
  - The audible warning will sound to alert pedestrians that the bus is about to move. The audible warning will sound after the entrance door has been closed. The alarm shall be installed to manufacturer's recommendations.

- The audible warning will sound to alert pedestrians that the bus is approaching the bus stop. The warning shall activate with the cycling of the amber warning lights. The audible warning will stop when the entrance door has been opened. The alarm shall be installed to manufacturer's recommendations.
- No automated warning sounds or announcements shall be permitted when the entrance door is open and students are boarding or leaving the school bus.
- Alarm system may be installed which requires the driver to go the rear of the bus to deactivate. An on-board internal alarm on the system may also be used. Directions for disarming these types of alarms shall be displayed on the front bulkhead in the driver's area.
- Drawstring alarm system in the entrance door.
- Driver Assist Equipment:
  - Communication Equipment: Wireless web connectivity equipment may be installed on a school bus.
  - GPS:
    - GPS tracking and telemetry equipment may be installed on a school bus that provides a record of the vehicle's position and operations. The device shall not require any driver intervention to operate while the vehicle is in motion.
    - GPS routing assistance equipment may be used, but does not replace the driver's responsibility to study the route prior to travel, and the school must provide all required elements of Ohio school bus route sheets as mandated by ODE.
  - Interior/exterior Cameras:
    - Display(s) shall be in the rear view mirror.
    - The camera(s) will be mounted in such a way that they will not interfere with the safe operation of the bus, cause vision obstruction for the driver, or cause harm to any passenger.
    - Camera(s) that provide a picture or video of a red light violations shall be used in conjunction with driver testimony in accordance with all applicable sections of the Ohio Revised Code. Refer to 4511.751 of the Ohio Revised Code.
    - Exterior modular video cameras must have a permanent mounting source that allows the system to lock securely onto the vehicle. The mounting location cannot interfere with the safe operation of the bus. Exposed connection wires must be secured to the side of the bus and cannot exceed 4 feet in length. *(Added 06/15/2020)*
- Monitoring Devices:
  - The use of electronic vehicle monitoring devices is allowed. Some examples would be, vehicle information, detect speed, lane departure, following distance, brake assist, and identify persons and or objects in and around the school bus.
  - All alerts from these devices may be visual, audible, and or haptic warnings that provide tactile alerts (e.g. a driver's seat or steering wheel vibrates).
- ***Equipment shall be installed so that it does not interfere with the driver's ability to operate the OEM controls of the vehicle, and shall be completely isolated from the vehicle's electrical system by means of a fuse or breaker. All devices shall be mounted in such a way that they will not interfere with the safe operation of the bus, cause vision obstruction for the driver, or cause harm to any passenger. These devices do not negate the responsibility of the driver to remain in the driver's seat and at the controls at all times. Prior to the use of any new equipment, school bus operators should be trained in their use as outlined by the manufactures.***

---

### Violation

- Any switch not marked clearly.
- Any missing switch cover.
- Any multiple function switch that does not operate in all functions.
- Back lighting of switches inoperable.

---

### Out of Service

- Master pilot light inoperative.
- Any inoperative gauge and/or switch.
- Non-illuminated dashboard.
- Improper colored switch.
- Any missing gauge required by the Construction Standards.



### **(EE) Insulation.**

- (1) Bus body shall be fully insulated in the roof and all body panels to deaden sound, reduce vibrations, and reduce heat transfer. One-inch minimum thickness, in addition to the usual sprayed on material, shall be a fiberglass or equal material and fire-resistant.
- (2) Fire resistant fiberglass insulation or equivalent material of at least one-inch thickness shall be added in the roof, in addition to the usual sprayed on material.

---

### Inspection Note

- None

---

### Approved Option

#### Insulation:

- Equivalent non-wood material may be applied on top of the steel floor in lieu of plywood provided the material has equal or greater insulation R-value. The material shall be moisture resistant. Prior to

installation, the installer/manufacturer of the product must provide in writing that the material meets the appropriate construction standards for insulation. All optional insulation products shall be approved by the Ohio School Bus Construction Standards Advisory Committee before installation.

- Sound abatement package:
  - Overall length of the bus.

---

### Violation

- None

---

### Out of Service

- Missing insulation as required by Construction Standards.
- Any unauthorized insulation material.



### **(FF) Interior.**

- (1) Interior of the school bus shall be free of all projections.
- (2) All school buses shall require inner lining on ceiling and walls and shall include acoustical (perforated) headlining in the driver area.
- (3) The interior sound level at the driver's seating position shall not exceed ninety decibels when measured in accordance with test procedures found in 49 CFR 393.94(C).
- (4) Cameras and other monitoring devices may be installed inside the bus as long as they do not intrude into the head impact zone. For "Type C and D" buses, cameras may be installed in the ceiling as long as they are above the window line. Cameras mounted on the sidewall cannot protrude more than three inches. All camera mounting shall meet FMVSS 571.222.
- (5) Padded/foam covered panels may be installed on the interior walls to prevent head injuries by self-abusive pupils.
  - (a) The padded panels shall be constructed of the same materials used in the construction of the bus seats.
  - (b) The padded panel may cover the window.
  - (c) The padded panel shall be attached to the sidewall of the bus.
  - (d) The padded panels shall not obstruct any portion of an emergency window or exit.
  - (e) Materials used in the padded panel shall comply with FMVSS 571.302.

---

### Inspection Note

- Ceiling
  - Protruding or sharp edges.
- Unauthorized racks, hangars or other items attached to the ceiling.

---

### Approved Option

- None

---

### Violation

- Torn or damaged padding on panels.

---

### Out of Service

- Any unauthorized objects hanging or protruding into the passenger compartment.
- Cameras not mounted in accordance with Construction Standards.
- Padded panel obstructing any emergency exit.



### **(GG) Inside body height**

Inside body height shall be a minimum of seventy-two inches measured from floor to ceiling at any point on longitudinal centerline from the beginning of the aisle of the passenger compartment to the end of the aisle.

For "Type A" buses, the inside body height shall be a minimum of sixty-eight inches measured from floor to ceiling at any point on longitudinal center line from the beginning of the aisle of the passenger compartment to the end of the aisle.

Inside height measurement does not apply to air conditioning equipment.

---

### Inspection Note

- None

---

### Approved Option

- None

---

### Violation

- None

---

### Out of Service

- Inside height does not meet Construction Standards.



### **(HH) Lamps, signals and backing warning device.**

- (1) All lamps herein listed and their installation shall conform to current standards and recommendations of the society of automotive engineers and meet FMVSS 571.108.
- (2) Construction of components:
  - (a) Directional signal, stop light, taillight, marker light, clearance light, identification light, back up light and reflector lenses shall meet applicable society of automotive engineers standards.
  - (b) All exterior lamp sockets shall be zinc-plated or chromated steel, or other suitable non-corrosive materials such as plastic or stainless steel.
  - (c) Alternately flashing warning signal lamps, body-mounted directional signals and stop lamps shall be grounded.
- (3) When the ignition switch is in the off position, the hazard warning, stop light, marker lights, headlamps, passenger dome lights and emergency exit audible warnings shall be operational.

- (4) The service door step-well light shall automatically operate when the headlights are in operation and be activated by a switch controlled by the service door.
- (5) High beams are to be controlled by a column mounted dimmer switch.
- (6) A maximum of two fog lamps may be installed. Fog lamps shall be amber in color.
- (7) Daytime running lamps are required.
- (8) One white strobe light shall be installed on the roof of the bus. The strobe light shall cycle sixty to two-hundred forty flashes per minute. The roof strobe light shall be installed on the top of the bus toward the rear as close to the center of the bus as is practical.
- (9) Interior dome lights.
  - (a) Passenger dome lights when activated shall adequately and uniformly illuminate aisle way to three to four foot-candles.
  - (b) All dome lights shall be equipped with clear/white shatterproof lenses.
  - (c) Passenger dome lights shall be controlled by switches in the driver's console. Passenger zones may be switched separately. Power shall be provided when the ignition switch is in the "On" or "Accessory" position and shall be on a protected circuit.
  - (d) A separate driver dome light shall be provided and controlled by a single switch in the driver's console.
- (10) Directional signals.
  - (a) Side and rear directional signals shall be wired to operate properly with the front directional signals.
  - (b) Manufacturer shall install required signal lamps to the directional signal control switch so all directional signal lamps shall be operative. The directional signal system shall be installed on an integral part of the hazard warning signal switch activated by an independent switch furnished.
  - (c) Direction signals, when illuminated, shall be amber in color and shall meet society of automotive engineers' specifications.
  - (d) Rear directional signals shall have a minimum of thirty-eight square inches of illuminated surface each. The rear directional signals shall be identical in type, shape, size, and location.
- (11) Backing warning devices.
  - (a) Two back up lights are required and shall be mounted on or below the belt line on the school bus body. Back up lights shall conform to FMVSS 571.108.
  - (b) All school buses shall be equipped with an audible electrical warning device, automatically actuated when the bus is in reverse gear. Device shall be one hundred seven decibels or more, meeting SAE standard J994. Device shall be installed in an area on or behind the rear axle. A variable volume sounding device ranging from eighty-seven to one hundred twelve decibels may be used, maintaining a minimum of five decibels above the ambient noise level. Audible electric warning devices shall meet FMVSS 571.112.
- (12) Stop/tail lights.

- (a) Each bus shall have two combination stop/tail lamps as required in FMVSS 571.108. These two lamps shall be identical in type, shape, and size.
- (b) In addition to the two stop/tail lamps required by FMVSS 571.108, each bus shall be equipped with two combination stop/tail lamps with a minimum illuminated surface area of thirty-eight square inches, emitting red light plainly visible from a distance of five hundred feet to the rear. These lamps shall be as high as practical but below the window line and spaced as far apart laterally as practicable, but not less than three feet. Measurements shall be taken from lamp centers. These additional two lamps shall be identical in type, shape, and size.

- (13) A white light shall be installed to illuminate the area on the body near the left lower brake/tail lamp to illuminate the state identification number. This light may be incorporated into the lower left brake/tail lamp.

This light may be incorporated into the lower left brake/tail lamp.

- (14) All school bus body lamps and reflectors shall comply with FMVSS 571.108.

Reflectors shall not be combined with any other lamp or items of associated equipment. Exception-front amber reflectors may be incorporated into a front lamp.

- (15) All marker, clearance and identity lamps shall conform to society of automotive engineer's standards for the type of lamp. These lamps shall be activated by the chassis headlight switch.

(II) Alternately flashing warning signal lamps.

- (1) Each school bus shall be equipped with a system of four red signal lamps and four amber signal lamps. Both red and amber lamps shall be installed in accordance with FMVSS 571.108 and the SAE standard J887. The four red signal lamps shall be identical in type, shape, and size.

- (a) There shall be a system in place to allow the deactivation of the amber signal lamps without the need to open the service door or placing the ignition switch in the off position.
- (b) These lamps shall alternately flash at a designated rate from sixty to one hundred twenty cycles per minute.

- (2) Operation of alternately flashing warning signal lamps, stop signal arm and optional crossing control arm.

- (a) Power for these devices shall be provided when the ignition switch is in the on position. An optional master switch may be installed for these devices. If installed, a green pilot light shall illuminate to indicate the system is ready for operation.
- (b) With the service door closed and the manual momentary (amber) start switch activated and released, the amber pilot light and amber warning lamps shall flash.
- (c) When the service door is moved toward the open position, the amber pilot light and the amber warning lamps shall turn off and the red pilot light and red warning lamps shall flash.
- (d) The stop signal arm and, if installed, the crossing control arm shall automatically extend when the red warning lamps flash. The stop arm signal lamps shall flash when extended.
- (e) When the service door is closed, the red warning lights shall deactivate the stop signal arm and, if installed, crossing control arm shall retract.



- (f) With the service door open and the manual momentary (amber) start switch activated and released, the red pilot light and the red warning lamps shall flash and the stop signal arm and, if equipped, the crossing control arm shall extend. The stop signal arm lamps shall flash when extended.
- (g) The service door switch that activates the red warning lamps shall be located in a position by a cover or guard that will prevent the switch from being activated or deactivated by persons boarding or leaving the bus.
- (h) An emergency override system for activating the red warning lamps and extending the stop signal arm shall be installed. This emergency override system shall be operational with the ignition switch in any position.
  - (i) A red colored or red outlined emergency override switch shall be installed. This switch shall be marked with the words "Emergency warning lights" (abbreviation is acceptable). This shall be the only red colored or red outlined switch on the switch panel.
  - (ii) When the emergency override system is activated, the red pilot light and the red warning lamps shall flash and the stop signal arm shall extend with the door in any position.
    - (A) The stop signal arm lamps shall flash when extended.
  - (iii) Power for the system shall be on a protected circuit.
- (3) Hoods may be installed above the lamps. If installed, all the lamps shall have hoods.
- (4) Eight lamp warning system.
  - (a) LED "strobe like" effects may be used in the eight lamp warning system. All lamps shall conform to FMVSS 571.108.
  - (b) All eight amber and red lamps must alternate between left and right at a rate of sixty to one-hundred twenty cycles per minutes.
  - (c) The "strobe" effect must appear as a flash of varying intensity and not as separate flashes.
  - (d) All the warning lamps, amber and red, must "strobe" in the same pattern. The same pattern is defined as the same number of flashes per lamp before the system alternates to the other side.

---

### Inspection Note

- Directional signals shall be amber in color and may be with or without arrows.
- Directional signals must be securely mounted (front, rear and side)
  - Lens shall not be cracked or broken
- Lamp shall flash not less than 60 or more than 120 times per minute with the engine operating under normal conditions.
- Interior dome lights and emergency audible warnings must be operational with the key in any position after 9/1/1998.
- All lamps shall be visible from five hundred feet distance on a clear day.
- Turn signals shall be self-canceling.
- Step well lamp

- Step well lamp shall light automatically when marker lights are on and the service door is open.
- Four-way emergency hazard switch shall be installed with the directional signals and shall override the directional signals when activated.
- Stop and Tail Lamps
  - Must be red in color
  - Tail lamps to be operated in connection with headlamp switch.
- Stop lamps must be operative with brake pedal
- Back-up Lamps
  - Optional flashing “backing” light box shall be located on the left rear of bus as high as possible under the left rear window. If installed, the optional light shall be mounted in contact with the bus body panel.
  - The lamps shall be controlled by an automatic switch on the reverse gear on school buses manufactured after 01/01/2006.
  - If controlled by a manual switch, an indicator light is required when back-up lights are in use.
  - Backing lights shall be mounted on the rear of bus no higher than the stoplights.
- Additional backing lights may be mounted in compliance with guidelines established under “optional equipment”.
- Flashing Warning signal lamp (Eight-way Pick-up lamps)
  - Stop Signal Arm is required on buses manufactured after 05/01/1979.
  - Yellow flashers are required on buses manufactured after 04/01/1978.
  - With the master switch on (when required), service door closed and engine running, activate the sequence switch. The amber lights shall start to flash.
  - The stop arm, when activated, shall extend to 90 degrees from the body of the bus. The stop arm lights shall flash on an alternating pattern.
- Roof mounted white strobe light required on all buses after July 1, 2019.
  - Strobe light must have separate and independent manually operated control switch.
  - Strobe light must be white in color when illuminated.
  - Strobe light must project a flashing beam signal throughout 360 degrees on the horizontal plane passing through the center of the light source.
  - The flash rate when observed from a fixed position shall be between 60 and 240 flashes per minute
- Required Reflectors
  - 2 Amber – On each side as far to the front as practicable (not less than 15”, nor more than 60” in height)
  - 2 Red – On each side as far to the rear as practicable (not less than 15”, nor more than 60” in height)
  - 2 Red – On the rear, at the same height, symmetrically about the vertical centerline, as far apart as practicable.
- Special Light
  - Lights shall be placed inside the bus to sufficiently illuminate lift area and shall be activated when the door is open.
- Headlamp Assembly
  - Two headlamps required with upper and lower beams. Four headlamps are permissible.
  - Headlights shall be properly aimed. No broken or cracked lens.
  - Parking lights shall be wired to operate on the headlamp switch.

*\*\*\* Any LED fixture (lamp) will be considered inoperable if 50% or more of the diodes are inoperable. Any LED fixtures (lamps) with 25 to 49% inoperable diodes will be considered a violation. \*\*\**

---

### Approved Option

- Eight lamp warning system:
  - LED “strobe like” effects may be used in the eight lamp warning system. All lamps shall conform to Federal Motor Vehicle Safety Standards 571.108 S5.1.4, SAE J887 and Ohio School Bus Construction Standards. All eight yellow and red lamps must alternate between left and right at a rate between sixty and one hundred twenty cycles per minute.
  - The “strobe” effect must appear as a flash of varying intensity and not as separate flashes.
  - All the warning lamps, amber and red, must “strobe” in the same pattern. The same pattern is defined as the same number of flashes per lamp before the system alternates to the other side.
- Lights/Lamps:
  - Supplemental warning lights:
    - Grill mounted - Four LED lights may be installed on the front grill, the flash pattern/speed and color will match the required overhead warning lights.
    - The upper lights will be mounted as least 12” and no more than 16” from the center of the bus. The lower lights will be mounted above the bumper and at least 4” from the headlight assembly.
    - The lights must be capable of two colors (amber and red) in the same fixture.
    - The lights shall be: 4” and no more than 6” in width / 1” and no more than 2” in height
    - The focus/aim shall not be directed into oncoming lanes of travel.
  - Bumper mounted - Two LED lights may be installed just above the front and rear bumper the flash pattern/speed and color will match the required overhead warning lights.
    - The front lights will be mounted above the bumper and at least 4” from the headlight assembly. The rear lights will be mounted as least 12” and no more than 16” from the edge of the bus.
    - The lights must be capable of two colors (amber and red) in the same fixture.
    - The lights shall be: 4” and no more than 6” in width / 1” and no more than 2” in height
    - The focus/aim shall not be directed into oncoming lanes of travel.
- The supplemental warning light approved combination:
  - Grill mount
  - Grill mount with High Visibility on the rear
  - Bumper mount (this option cannot be used with the rear high visibility tape)
- Ground-wash / pedestrian lights:
  - Forward facing undercarriage lights shall activate with the Red (may activate with the Amber) warning lights and stay on until the service door closes.
  - Rear facing undercarriage lights will activate only when the bus is placed in reverse.
  - All lights will be installed pointing towards the ground, providing a ground wash effect no less than 15 feet from the bus.
  - The light fixture shall not be visible to approaching traffic.
  - All undercarriage lights will activate when the Ground-Wash switch is activated. This switch shall be located near service door controls and clearly mark “Ground Wash”

- As of July 31, 2018, the two surface or flush mounted on rear of body behind the axel must be shielded from the driver view. These lights may only work when the bus is in reverse.
- Lamp monitoring system.
- Red emergency exit lights to mark inside emergency doors/windows.
- Fog lamps. A maximum of two-fog lamps amber in color. Daytime running lights.
- Lighted “School Bus” signs:
  - Shall emit a background color that matches the required National School Bus yellow.
  - The fixture shall be permanently mounted and of sufficient area allowing for the required lettering and meet all retro reflector requirements.
  - Illumination will operate with the bus ignition system.
  - The frame cannot interfere with the operation of the eight way pickup lights nor the required ID marker lights.
  - If installed, this device must be mounted securely to the front and rear of the bus and in the position as required in section KK (1) of this document.
- Lighted stop signal arm:
  - Shall emit a background color that matches the required red and white portions of the stop arm.
  - The fixture shall be permanently mounted and of sufficient area allowing for the required lettering and meet all retro reflector requirements.
  - Illumination will operate with the stop arm and override functions of the school bus pickup light requirements.
  - The illuminated stop arm will still require alternate flashing upper and lower warning lights where mandated by FMVSS.
- White strobe light. One allowed, between sixty (60) to two hundred forty (240) flashes per minute. Strobe light shall be installed on the top center of the bus toward the rear.
- A twenty-candlepower under-hood light.
- Light emitting diode lamps and halogen lamps, which meet applicable requirements of FMVSS 571.108.
- Additional lighting as approved by the Americans with Disabilities Act and installed by the school bus manufacturer.
- Headlight Shields:
  - Installed to reduce glare from crossover mirrors.
  - The shields (eyebrows) shall not cover, reduce the effectiveness or interfere with the headlight.
- Headlight Warning Tone:
  - An audible tone or buzzer will make the driver aware that the headlights are still on. This would occur when the key is in the off position or removed from the ignition.
- Body mounted service door step-well light shall automatically operate when the headlights are in operation and be activated by a switch controlled by the service door.

---

## Violation

- Turn signals that fail to self-cancel
- Lamps not visible from five hundred feet.
- Clearance, ID, or registration lamp inoperative
- Any required tail, brake, reverse, or dome lamp inoperative
- Faded, or discolored lenses or reflector
- Mismatched lamp fixtures
- LED fixtures (lamps) with 25 to 49% inoperable diodes

---

## Out of Service

- Any eight-way, headlight, directional signal, stop arm, interior or exterior step well or roof mounted strobe lamp inoperative.
- More than 25 % of any one group: tail, brake, reverse, or dome lamp inoperative.
- Lens shall not be broken, cracked or missing.
- Lighted "School Bus" or stop signal arm inoperative.
- Lamp fixture wrong color for the location
- Lamp fixtures not securely mounted
- Missing required reflector
- Inoperative audible back up alarm
- Emergency hazard lights not operating as required
- Eight-way (Student Pick-up Lights)
  - Inoperative 8-Way System (Must work through both the sequence switch and the over-ride or fail-safe switch.
  - Mismatched light fixtures
  - Master pilot light inoperative.

**\*\*\* Any LED fixture (lamp) will be considered inoperable if 50% or more of the diodes are inoperable. \*\*\***



## **(JJ) Length of a school bus**

Length of a school bus shall not exceed forty-five feet, excluding safety devices/bumpers.

---

### Inspection Note

- None

---

### Approved Option

- None

---

### Violation

- None

---

### Out of Service

- Length does not meet Construction Standards.



## **(KK) Markings**

Body shall display the following identification (in black lettering):

- (1) "School Bus" at least eight inches high on both the front and rear of the body. Lettering shall be placed as high as possible without impairment of visibility. The "School Bus" marking shall be on a background of retro reflective national school bus yellow material. The material shall be the same quality and type as Federal Motor Vehicle Safety Standards requires for the marking of emergency exits.
- (2) "Stop" on the rear of the bus in letters not less than ten inches centered on the metal panel of the rear emergency door or for rear engine buses, centered on the rear of the bus.
- (3) Name of the private school, school district, school bus owner or operator shall appear on both sides of the vehicle at the belt line and be at least five inches high.
- (4) The county in which the private school or the school district resides shall appear on both sides of the vehicle in a minimum of three-inch letters, unless the name of the city or exempted village appears as a

part of the school district or private school name.

- (5) When required by FMCSR 390.21, the ownership of the school bus (company name, city, state, and USDOT number as required by FMCSR 390.21) shall appear on both sides of the bus. The right side markings shall be to the rear of the service door below the floor rub rail. The left side markings shall be in the area of the stop signal arm below the floor rub rail. The markings shall be in two-inch high letters. Only the information required by FMCSR 390.21 shall be displayed.
- (6) Local school bus numbers approximately five inches high and shall be located as follows:
  - (a) On body near the service door.
  - (b) On the body, near the right lower tail light.
  - (c) On the left side of the body in the area of the driver's window.
  - (d) Visible to the front, in an area designated by the operator.
- (7) Buses shall be marked with reflectorized material as follows: All reflectorized material shall be a retro reflective material that meets FMVSS 517.217 for marking of emergency exits. In addition:
  - (a) All reflective material shall be able to retain at least fifty per cent of the reflective values for a minimum of seven years.
  - (b) All reflective material shall be warranted against peeling, cracking, separation and lifting due to weather conditions, pressure and mechanical washing for a minimum of seven years.
  - (c) Reflective yellow material two inches in width (plus/minus one fourth inch) shall be applied to both corners of the rear of the bus and extend from the bumper vertically up to the top of the rear windows.
  - (d) All emergency doors and windows shall be outlined in yellow only. Emergency roof exits shall be outlined in either red, yellow or white around the outside perimeter with reflective material as required by FMVSS 571.217.
  - (e) Both sides of the bus body shall be marked with retro reflective national school bus yellow material, extending the length of the body (passenger area) and located at approximately the floor line. This marking shall be two inches in width and run parallel with the rub rails.
  - (f) Three seven by fourteen-inch wide pieces of white to white-silver in color reflective material shall be applied to the front and rear of the bus to accommodate the state identification and local bus numbers as follows:
    - (i) State identification number on the front of the vehicle shall be placed on a seven by fourteen-inch piece of reflective material which shall be applied and centered on the front bumper. If the bumper is manufactured with the holes in the center for two hooks, the seven by fourteen-inch piece of material may be located on the driver's side of the bumper. If the bumper is less than six inches in height, a seven by fourteen-inch plate will be permanently attached to the bumper to accommodate the seven by fourteen-inch reflective material.
    - (ii) In the rear, the state identification number and the local number shall be placed on individual seven by fourteen-inch pieces of reflective material which shall be applied and centered on the flat surface near the left and right lower taillights as the bus body design will allow.

(8) Additional markings are permitted as follows and are optional:

- (a) Vinyl stick-on lettering in lieu of painted-on letters, either on original equipment or as replacement letters.
- (b) Maximum of two American flags, overall size of each decal shall not exceed six inches by eleven inches, shall not interfere with required markings and shall not obstruct the view of the driver.
- (c) Buses used for transporting special needs may display two universal handicap emblems. The emblems shall be reflectorized white on blue located on the front and rear bumpers.
- (d) Route number or marker bracket beside entrance door.
- (e) Optional roof ID numbers, if used, shall be black in color and must measure eighteen inches tall by ten inches wide with a brush stroke of three inches.

---

### Inspection Note

- All numbers shall be not less than six inches high and each stroke shall be not less than 9/16 inches in width.
- As of 09/01/1998, the ID numbers must be placed on a reflective background.
- “SCHOOL BUS” shall not be less than eight inches (8”) high, located above windshield and above rear emergency door or exit (Section 4511.77 of the Ohio Revised Code).
- “SCHOOL BUS” must be placed on a reflective background after 12/01/2009.
- No other markings, lettering, symbols, bumper stickers, window decals or decorations are authorized on or in the school bus except the School Safety Zone decal and authorized optional decals and lettering. (School bus company logo on mud flaps permitted with no advertisement.)
- School Safety Zone Decal shall be displayed to the left of the service door just above the seat level rub rail. Shall be placed as close as possible to the service door as the bus design will allow.
- **(Required as of 9/1/1998)** Reflective yellow material two inches in width (plus/minus one fourth inch) shall be applied to both corners of the rear of the bus and extend from the bumper vertically up to the top of the rear windows.
- **(Required after 12/1/2008)** Both sides of the bus body shall be marked with retro reflective national school bus yellow material, extending the length of the body (passenger area) and located at approximately the floor line. This marking shall be two inches in width and run parallel with the rub rails.
- Ownership of vehicle, two inches at service door. (Optional)
  - Operating instructions shall be lettered or decaled at the emergency window in compliance with FMVSS 571.217.
- Decals:
  - Decals stating “Powered by Compressed Natural Gas”, with black lettering on a white background, shall be affixed to the school bus body within two inches (2”) of the fueling opening or on fueling opening door, under the hood, and on rear bumper curbside.
  - Cylinder I.D. data.
  - Instructions for mechanics in engine compartment.
- Decals Stating “Powered by Propane”



- Decals shall be affixed to school bus body within two inches (2”) of the fueling opening or on fueling opening door, under hood, and on rear bumper, curbside. Black lettering shall state, “POWERED BY PROPANE”, with a green background.

---

### Approved Option

- Retroreflective markings:
  - Rear “High Visibility” markings.
    - The rear portion of the school bus may be marked from just above the bumper to the window line. The word “STOP” will be placed over the top of the High Visibility markings.
    - All markings will be retroreflective tape six inches in width set at a forty-five degree angle pointing to the top of the school bus.
    - Only fluorescent yellow/green and fluorescent orange will be used in an alternating pattern.
  - All required retroreflective markings shall remain outlining the bus and the emergency door / window (depending on bus type).
  - Optional Decal
    - 6” X 8” Magnetic decal with white background and the image of an animal. The decal shall be displayed to the left of the pickup door.

---

### Violation

- Faded, peeling, or cracked black lettering
- Missing local bus number
- Extended STOP sign faded
- Retroreflective material missing, faded, peeling, or cracked

---

### Out of Service

- “SCHOOL BUS” lettering not in compliance or missing.
- “STOP” lettering not in compliance or missing.
- Retroreflective markings missing more than 25% of the total length required for that section.
- Extended STOP sign improperly marked or unreadable.
- Emergency exits not marked
- Wrong retroreflective material or color
- Missing or wrong bus registration
- School Safety Zone Decal missing or not legible.
- Obscured required markings.



## **(LL) Mirrors.**

- (1) The buses shall be equipped with mirrors meeting the requirements of FMVSS 571.111 for school buses.
- (2) Interior rear view mirror shall be a minimum of six by thirty inches. Exception: "Type A" - Six by sixteen inches.
- (3) All exterior mirrors shall be heated and fully adjustable.
- (4) Mirror assemblies shall be warranted one hundred per cent replacement coverage for thirty-six months against rust, and corrosion, and against any reduction in clarity of view due to discoloration or other deterioration of the lens.

---

### Inspection Note

- Driver shall have an unobstructed view of all exterior and interior mirrors.
- All mirrors shall be fully adjustable and securely mounted to reduce vibration.
- No cracks, breaks, or discoloration that causes view obstructions are permitted as viewed from the driver's seated position.

---

### Approved Option

- Interior observation mirror.
  - One may be mounted at the rear of the school bus above the emergency door. This mirror must be made of shatterproof high-stress Plexiglas or equivalent. The edges of mirror must be protected with heavy vinyl coating. This mirror shall not exceed eighteen inches by twenty-four inches and shall have dual-mounting brackets.
- Remote-controlled mirrors. Must meet FMVSS 571.111 for school buses.
- These mirrors must be controlled from the driver compartment and may include the day/night option.

---

### Violation

- Any cracks, breaks, or discoloration on the mirror.
- Damaged protective vinyl coating around mirror.

---

## Out of Service

- Not securely mounted to eliminate vibrations.
- Not in compliance with Construction Standards and FMVSS.
- Cracks, breaks, or discoloration that cause view obstructions.
- Heated mirror not operational.
- Rear view or Interior observation mirror improper size.
- Inoperable remote control mirrors.
- Missing protective coating around mirror.



## **(MM) Mounting of body on chassis.**

- (1) Isolators shall be placed between the frame and body main cross-sill and intermediate members. The isolators shall be at least one-fourth inch thick and shall be attached to chassis frame or body members in a fashion to prevent the isolators from shifting, separating or displacement of the isolators under severe operating conditions.
- (2) Bus body shall be attached to chassis frame in such a manner as to prevent shifting or separation of the body from the chassis under severe operating conditions.
- (3) Body front shall be attached and sealed to the chassis cowl in such a manner as to prevent entry of moisture.

---

## Inspection Note

- Body shall be securely fastened (J-Bolts, or spring clamps).
- Mounting pads or insulating material shall be held in place between floor sills and chassis frame and must be of good quality.

---

## Approved Option

- None

---

## Violation

- Any body pad missing.

---

## Out of Service

- Any loose or missing body tie-down (J-Bolts or spring clamps).
- Any two (2) adjacent body pads missing.



## **(NN) Mud flaps**

All buses shall be equipped with mud flaps at all wheel positions. The mud flaps shall be installed as close as practical to the wheel. May use a system for suppressing flying spray on a wet surface. Such system may consist of filament type, which is installed around the fender wheels. A full width mud flap or a full-width filament type plastic skirt may be placed at the rear wheels. May utilize rubber fender extensions. Length shall be in accordance with section 5577.11 of the Revised Code.

---

## Inspection Note

- None

---

## Approved Option

- Mud Flaps/Fender Moldings:
  - A system for suppressing flying spray on a wet surface. Such a system may consist of filament-type, which is installed around the fender wheels.
  - A full width mud flap or a full width filament type plastic skirt may be placed at the rear wheels.
  - Rubber fender extensions

---

## Violation

- Torn
- Missing or not secured front mud flaps

---

## Out of Service

- Missing or not secured rear mud flaps
- Does not meet 5577.11 ORC



**(OO) Noise suppression switch.**

- (1) Shall be installed within easy reach of the driver in a seated position.
- (2) Switch shall be an on/off type.
- (3) Shall deactivate factory-installed devices that produce noise. (Exception - devices installed in "Type A" buses during the manufacture of the chassis/cowl).
  - (a) AM/FM radios
  - (b) Heaters
  - (c) Air conditioner fans
  - (d) Fans
  - (e) Defrosters
- (4) This switch shall not deactivate safety systems, such as windshield wipers, lighting systems or two-way communication systems.

---

**Inspection Note**

- None

---

**Approved Option**

- None

---

**Violation**

- Improper or missing switch marking.

---

**Out of Service**

- Inoperative Noise suppression switch.
- Switch overrides safety systems (such as windshield wipers, lighting systems or two-way communication systems).
- No operational switch or system installed.



## **(PP) Openings**

Openings created in mounting of bus body to chassis shall be sealed by manufacturer to prevent entrance of gases, dust or moisture into passenger and driver's compartments. All openings made by the manufacturer in the floorboard and firewall shall be sealed by the manufacturer to prevent gases from entering the driver's compartment.

---

### Inspection Note

- Holes through the firewall are permitted so wiring and various body components may enter the passenger compartment. Unused holes shall be plugged.
- If diameter of hole or opening is larger than required for the component or wiring, fire resistant material such as plastic putty, grommets, or metal shall be used to prevent air, or contaminants from entering the passenger compartment.

---

### Approved Option

- None

---

### Violation

- Any crack in the firewall.

---

### Out of Service

- Unused holes not plugged.
- Any hole allowing fumes into the passenger compartment.



### **(QQ) Paint standard.**

- (1) Paint finish coats to bus body, hood, cowl and all attaching sheet metal and fiberglass parts shall be warranted for sixty months or one-hundred thousand miles whichever comes first, one hundred per cent parts and labor, for adhesion and color retention.
- (2) Paint finish to bus body, hood, cowl, and all attaching sheet metal and fiberglass parts shall be applied for a total dry thickness at a minimum of one and eight tenths mils over all painted surfaces.
- (3) Body exterior.  
  
All exterior body and chassis sheet metal including fiberglass shall be painted with polyurethane paint or equivalent.
- (4) All interior panels, walls, and roof surfaces shall be painted. Finished metal/plastic may be unpainted.

---

### **Inspection Note**

- Hoods requiring refinishing shall be painted with non-reflective National School Bus Yellow or flat black paint.
- *Normal usage and age of bus shall be taken into consideration with regards to paint condition.*

---

### **Approved Option**

- Paint trim:
  - *This option is no longer in effect as of January 1, 2007.*  
Window sash, window posts and window trim may be black in color. Any bus manufactured prior to January 1, 2007, with this option is allowed to continue to be painted as from the manufacturer. This option may not be added to any bus, if the option was not applied at time of manufacture.

---

### **Violation**

- Damaged, faded, peeling, or cracked

---

### **Out of Service**

- Paint color not in compliance with 4511.77 of the Ohio revised code.



**(RR) Passenger seats.**

- (1) All seating and restraining barrier design and construction must meet the provisions of FMVSS 571.222. The top surface of the restraining barriers shall be the same height as the top surfaces of the seat backs
- (2) All seats shall have a minimum depth of fifteen inches.
- (3) Equipment installed above the seating area must comply with head impact zone requirements found in FMVSS 571.222.
- (4) All school buses equipped with attachment points, securement devices (seatbelts), and/or wheelchair securement systems shall also be equipped with a durable webbing cutter having a full width handgrip and protected blade. The cutter must be appropriately stored in the driver's compartment to the left of the driver. This equipment may be excluded from the manufacturer's bid and purchased separately.
- (5) Seat construction.
  - (a) Seat, seat back cushion, seat bottom and restraining barrier shall be covered with flame-barrier fire-retardant seating material. Such material must pass the "National School Transportation Specifications and Procedures" school bus seat upholstery "Fire Block" test.
    - (i) The flame will not spread to seat back in front of the fire.
    - (ii) The flames on the rear seat will self-extinguish.
    - (iii) The flame-barrier, fire retardant seating material will successfully prevent the underlying padding material from being exposed to the flames.
  - (b) All seat backs and restraining barriers shall be covered with energy-absorbing padding material as required by FMVSS 571.222.

---

**Inspection Note**

- Passenger Seats and Stanchions
  - Seat backs and cushions shall be firmly attached to the frame, and must be checked to make sure they are secure.
  - Metal seat frames - seat covering shall have no sharp edges protruding.
  - Any kit designed to repair seats equal to or better than original equipment is acceptable. Tape shall not be used as a seat repair.
  - Seat frame shall be securely fastened to the floor and/or side mounting rail. Some footpads may have an extra hole without a fastener.
  - Ensure that the bottom seat cushion is secured.
  - All types of buses bid after 01/01/1991 shall have a full barrier on both sides that is compliant with FMVSS 571.222.



- Stanchions shall be padded to within at least three inches of the bus ceiling and floor.
- On Type “A” buses, wheelchair positions and fastening devices are not permitted immediately adjacent to the lift entrance in order to have easy access in case of emergency.
- Safety belts are required for all seating positions on school buses with a GVWR of 10,000 lbs. or less.
- Safety belts are required for all seating positions on school buses with a GVWR of 10,000 lbs. or less.
- Child seats shall not block the emergency exit opening.
- Seating Arrangements
  - Flexibility in seat spacing to accommodate special devices shall be permitted due to the constant changing of passenger requirements.
  - Effective 03/01/1994, there shall be no passenger seats installed directly across the aisle way from the lift mechanism.
  - No mobile seating devices shall be secured which blocks access to the lift door or emergency exit on buses manufactured on or after 09/01/1998.
- Occupant Restraint – Wheelchairs
  - A system of positive occupant restraint shall be provided that secures the occupant. The lap belt shall be attached to the vehicle or to the wheelchair securing fastening devices.
  - The upper torso restraint shall be provided and attached to the vehicle and/or the wheelchair securing fastening devices on vehicles manufactured after 09/01/1998.

### Approved Option

- Child restraint seats built into regular school bus seats that meet FMVSS 571.213.
- Seat belt seats or seat belt ready seats. Seat belt seats and seat belt ready seats shall meet all applicable FMVSS.
- Seat belt, must be a three point type belt – 07/01/2020 (**Added 1/10/2020**)
- Seat belt, two or three point type belt – Prior to 07/01/2020
- Minimum width of isle between seats shall be twelve inches at seat level and top of seat back.

### Violation

- Less than 20% seat bottoms not secured.
- Less than 20% of seat covers with tears or cuts that expose seat foam.
- Tear is stanchion padding.
- Worn/frayed seatbelt webbing.

### Out of Service

- Foam that is split and/or does not cover the seat frame in its entirety.

- Ineffective padding on passenger seats (if disputed, inspector may request seat cover be removed to aid inspection).
- In excess of 20% seat covers with tears or cuts that expose the seat foam.
- In excess of 20% of the seat bottoms not secured.
- Seats not secure to floor and/or sidewall.
- Seat backs not secure to seat frame.
- Seatbelts improperly attached, cut and/or inoperative.
- Seat Frames-with modifications, rust, busted bolts, and broken welds.
- Stanchion padding missing in requirement location.



### **(SS) Engine power.**

- (1) Diesel engines shall have a minimum of two-hundred horsepower and five-hundred twenty foot pounds of torque.
- (2) Gasoline engines shall have a minimum of two-hundred sixty-five horsepower and four-hundred sixty foot pounds of torque.
- (3) All diesel engines shall be equipped with a block heater. Heater shall be a minimum of seven hundred fifty watts.
- (4) Dry type air cleaner with an air filter restriction indicator is required.
- (5) Engine shall be equipped with a fast idle (air, electronic, or manual) throttle.

---

### **Inspection Note**

- Engine running and water lines open.
- Engine shall not have any visible fluid leaks to include fuel, oil, coolant and transmission fluid.
- Engine and transmission mounts
  - Shall be secure and in good condition.

---

### **Approved Option**

- Full Electric School Bus (*Added 1/10/2020*)  
 (This option does not exempt the vehicle from meeting all other school bus standards unless expressly noted here.)
  - A. An electric powered school bus shall meet all Federal Motor Vehicle Safety Standards and all Society of Automotive Engineers standards that are applicable at time of manufacture. The school bus shall meet Ohio School Bus Construction Standards under Ohio Revised Code 4501-5 in effect at the time of manufacture or bid date.
  - B. Full electric school bus aftermarket conversion kits will not be permitted in Ohio.

### C. Additional requirements

#### 1. Markings

a. The outer layer of insulation or wiring conduit for drive system high-voltage wiring shall be bright orange.

b. All enclosed compartments which contain high-voltage components shall be labeled with a High Voltage marking/warning.

c. "Green Placard" shall appear on the school bus body in the following locations:

- At the immediate rear of the service door below the floor level rub rail.
- At or near the driver's side window below the floor level rub rail.
- On the front, lower driver side (bumper preferred)
- On the rear, lower passenger side (bumper preferred)



SAMPLE

- All placards shall be 4 inches, have a fluorescent green (Pantone802C2X color range) background with a black border. The placard shall have the letters "EV", one and a quarter inches (1 ¼") tall, centered.

#### 2. Electric power source (Battery).

a. Shall not be located in or accessible from the interior of the school bus.

b. Shall be contained within the frame rails or if installed outside the frame rails protected with a cage.

- The cage/compartments shall provide protection to the components in event of a crash.

Protection cage design for batteries located outside the frame rails shall withstand similar standards as outlined in FMVSS 571.301.

c. Shall be designed to prevent the passenger compartment from becoming energized.

d. All batteries shall be designed to prevent any dangerous fluids or fumes from entering the passenger area.

e. There shall be at least one or more of the following: disconnect switch, device to shut-off, or an automatic impact-actuated cut-off to the high voltage components at the power source in the event of a crash.

#### 3. A power disconnect device or switch shall be provided at or near the power source of the electric propulsion system.

a. This disconnect device or switch shall be clearly marked.

b. If located inside a compartment, the compartment shall be clearly marked.

c. This device or switch shall not be in or accessible from the passenger area.

#### 4. Range

OEM design which is capable of operating with a range of 100 miles or more.

#### 5. Instrument Display

The instrument display panel must also contain an indication showing the state of charge (power and/or range) and include a visual warning for low power.

#### 6. Sound Generation

All electric school buses must comply with FMVSS 141 producing sound while in motion below 20 mph.

#### 7. Charging

Charging connection point shall be outside the passenger compartment and clearly marked

All charging connections must contain an inter-locking mechanism

While charging, the transmission/propulsion system shall be rendered inoperative

#### 8. Propulsion system (Exempted from all engine specifications)

Shall be of sufficient power to propel the vehicle fully loaded up to highway speeds (70mph).

The propulsion system may be mounted utilizing a normal drivetrain or positioned in a way to provide direct power to the wheels. All propulsion systems must be contained below the floor line and cannot come into contact with the road surface.

## 9. Brakes

May produce regenerated power

- Diesel engine starting systems
- Hybrid:

This standard is to address a hybrid-electric school bus that is powered by a combination of an electric motor and an internal combustion engine.

A. Factory build hybrid electric school bus shall meet all Federal Motor Vehicle Safety Standards and all Society of Automotive Engineers standards that are applicable at time of manufacture. The school bus shall meet Ohio School Bus Construction Standards under Ohio Revised Code 4501-5 in effect at the time of manufacture or bid date.

B. Retro-fitted or converted school bus shall meet all Federal Motor Vehicle Safety Standards and all Society of Automotive Engineers standards in effect at the time of the retrofit or conversion. The school bus shall meet Ohio School Bus Construction Standards under Ohio Revised Code 4501-5 in effect at the time of the conversion or retrofit.

C. Additional requirements if not addressed in paragraph A or B.

### 1. Markings

- a. The outer layer of insulation or wiring conduit on high-voltage wiring shall be bright orange.
- b. All enclosed compartments which contain high-voltage components shall be labeled with a High Voltage marking/warning.
- c. "HYBRID ELECTRIC POWERED" shall appear on the school bus body in the following locations:

- 1) At the immediate rear of the service door below the floor level rub rail.
- 2) At or near the driver's side window.
- 3) On the rear of the bus below the widow line.
- 4) All marking shall be black in color, two inch uppercase lettering and the maximum width consistent with the size of the lettering. Option color for the rear marking may be white if located on the rear bumper.

(a) If a manufacturer wishes to deviate from these marking requirements, the manufacturer shall submit a request in writing for consideration.

2. A power disconnect device or switch shall be provide at or near the power source of the electric propulsion system.

- a. This disconnect device or switch shall be clearly marked.
- b. If located inside a compartment, the compartment shall be clearly marked also.
- c. This device or switch shall not be in or accessible from the passenger area.

3. Electric propulsion system power source.

- a. Shall not be located in or accessible from the interior of the school bus.
- b. Shall be contained in compartment/s
- c. The compartment shall provide protection to the components in event of a crash.
- d. The compartment shall be designed to prevent any dangerous fluids or fumes from entering the passenger area.

4. There shall be an automatic impact-actuated cut-off or disconnect switch or device to shut- off the high voltage components at the power source in the event of a crash.

5. A heat shield shall be installed at any point where the distance is 12 inches or less between the high voltage system and exhaust system.
  6. The failure of the electrical system of the hybrid system shall not disable the school bus from operating with the internal combustion engine.
  7. A retro-fitted/conversion school bus which modifies the drive train/chassis from original manufacture specifications shall maintain the structural integrity as originally designed.
- Speed retarder system:
    - Performance standard – shall maintain the speed of a fully loaded school bus at 19.0 mph on a seven (7) percent grade for 3.6 miles.
    - If equipped with electro-magnetic retarder(s) shall have increased electrical system capacity commensurate with the needs of the retarder system.
    - Pilot lights shall indicate when retarder is in operation.
    - The driver shall be able to disengage the system when road/weather conditions warrant.

### Violation

- None

### Out of Service

- Engine power must meet Construction standards.
- Noncompliant with any requirements listed for the all-electric or hybrid bus in the Approved Option.



### **(TT) School safety zone decal**

- (1) The decal shall be approximately seven inches by seven inches. At the top of the decal shall be the word "NOTICE", underlined, and immediately below the word "NOTICE" the symbol for no handgun allowed. Below the no handgun symbol, the decal shall state in black lettering on a white background "Unless Otherwise Authorized By Law, Pursuant to Ohio Revised Code Section 2923.122, No Person Shall Knowingly Possess, Have Under The Person's Control, Convey Or Attempt To Convey A Deadly Weapon Or Dangerous Ordnance Onto A School Bus (School Safety Zone)."
- (2) No other markings, symbols or lettering are allowed on the decal.
- (3) The location of the decal shall be on the flat metal surface just above the seat rub rail to the immediate left of the service door. The right edge of the decal shall be within two inches of the end of the rub rail.

---

### Inspection Note

- School Safety Zone Decal shall be displayed to the left of the service door just above the seat level rub rail. Shall be placed as close as possible to the service door as the bus design will allow.

---

### Approved Option

- None

---

### Violation

- Improper location of decal.

---

### Out of Service

- Missing or worn School Safety Zone Decal



### **(UU) Service door.**

- (1) Service door shall be outward-opening, split-type on all buses. Service door shall be air, electric, or manually operated. Door shall be under the control of the driver and designed to afford easy release and prevent accidental opening.
- (2) Service door shall be located on right side of bus opposite the driver and within the driver's direct view.
- (3) Service door entrance shall have minimum horizontal opening of twenty-four inches and minimum vertical opening of sixty-eight inches.
- (4) Glass in service door shall provide maximum area of visibility for operation of the bus.
- (5) All edges of service door shall be sealed by a flexible material to prevent air from entering the door entrance when closed.
- (6) There shall be no safety rail or handholds mounted on the inside of the service door.
- (7) Only one handle or handhold may be placed on the outside of the service door.

- (8) There shall be a head bumper pad installed on the inside at the top of the service doorframe. This pad shall be approximately four inches in width and extend across the entire top of the service door opening and shall meet FMVSS 571.302 for flammability standards of interior materials.
- (9) Service door shall have suitable access for easy lubrication.
- (10) Manual service door.
- (a) When a manual lever is used, no parts shall come together so as to shear or crush fingers. Lever shall be equipped with an approved safety latch to prevent accidental opening which will lock in the over-center position when door is fully opened. Manually operated doors shall require no more than twenty-five pounds of pull to close and may be hydraulically assisted.
  - (b) Manual door control mechanism shall be heavy-duty bearing type, adjustable for wear, non-corrosive, anodized steel, or equivalent.
- (11) On power-operated service doors, the emergency release valve, switch or device to release the service door must be placed above the required head bumper or at the same height to the immediate left or right of the service door and must be clearly labeled.
- (a) When the switch or lever is in the released position, it will override door control in driver's area making it non-operational in any of the door control positions.
  - (b) Whenever the switch or lever is placed in the released position, it will allow the service door to be opened or closed freely.
  - (c) This switch and distribution block that control eight light warning system shall be securely fastened near the door control valve and shall be easily accessible for service and repair.
- 

### Inspection Note

- Door shall be outward opening split type on all buses (Bid after 9/01/1998). \* Exception – Sedan type door on certain type “A” buses.
- Shall be equipped with a securely fastened handrail. School buses manufactured after 07/01/1988 shall be equipped with handrail on both sides of the interior step well area.
- Light requirements see Lamps and Signal section.
- Door shall fit properly and open freely.
- Weather stripping shall be in good condition. Must not be cracked, broken and shall seal the opening.
- Special Service Entrance Doors
  - All doors shall have positive fastening devices to hold doors in the open position and door bumpers to prevent door-to-body contact.
  - All doors shall have weather seals that are in good condition.
  - On buses bid after 07/01/1988, doors shall be equipped with a device that will actuate a green flashing visible signal located in the driver's compartment when the door is open and ignition is in “on” position.

---

## Approved Option

- Service door obstruction detection device may be installed in the entrance door. The device must detect both pinch and drag potentials and must notify the operator audibly and can also provide a visual alert. (*Added 2/20/20*)
- Entrance service door lock. This lock may only be installed if a key is required to move the lock from the unlocked position to the locked position.
- Service door may be black.
  - Note: Special service doors shall not be black.
  - Note: Left side driver's door on type A and A II buses shall not be black.

---

## Violation

- Weather stripping shall not be cracked, broken and must seal the opening.
- Visible rust or corrosion
- Any visible non-separating crack in the door or at any connection point.
- Head bumper loose, or damaged.

---

## Out of Service

- Inoperative
- Unable to be opened to maximum opening.
- Head bumper missing
- Will not close securely or prevent exhaust fumes from entering the cabin.
- Any visible separating crack in the door or at any connection point.
- Any rust hole in the service door.
- Any air leak in the controls of an air operated service door.



### **(VV) Service door steps.**

- (1) The first step of the service door shall be not less than six inches and not more than sixteen inches from the ground.
- (2) Service door entrance shall be equipped with step risers that do not exceed ten inches. Risers in each case shall be approximately equal.
- (3) Steps shall be enclosed to prevent accumulation of ice and snow.
- (4) Steps shall not protrude beyond side bodyline.



- (5) Hand rails of maximum length, but not less than ten inches long, shall be installed on both sides of the interior step-well area. These handles shall be stainless steel clad. Both handrails shall be securely fastened and designed so as to prevent clothing or any other item from being caught. Handrails may also be yellow polymer coated.
- (6) Surface of steps shall be of non-skid material.
- (a) Steps shall be covered with a covering material which shall have non-skid characteristics. Step covering shall have a turned-down nosing of a contrasting color of either white, silver, yellow, or bright orange.
- (b) Step covering shall be securely fastened to the steps in a manner that will minimize tripping. This requires that the heads of mounting screws or bolts be below the top surface of the step tread.
- (7) The service door steps shall have a restraining barrier that is in compliance with FMVSS 571.222 positioned between the stairwell and the passenger compartment. This barrier shall be equipped with a modesty panel.
- 

### Inspection Note

- Shall be equipped with a securely fastened handrail. School buses manufactured after 07/01/1988 shall be equipped with handrail on both sides of the interior step well area.
  - Handrail Inspection Procedure - From outside the school bus entrance door the inspector shall drop the nut end of the handrail inspection tool (1/2" nut measuring 3/4" across the flats, tied to a 1/8" diameter nylon or cotton string 36" in length with a single overhand knot) into the crevice formed where the lower end of the handrail is attached to the lower area of the step well. The tool shall then be pulled toward the outside of the school bus through the crevice while the inspector is standing outside the bus service entrance on the ground. The vehicle will be rejected if the tool gets caught, the nut separates from the drawstring, or the drawstring material breaks. If the tool pulls freely through the crevice without catching in the handrail, the vehicle will not be rejected.
  - Handrails shall be free of any obstructions or items which interfere with the use of the handrail.
  - Step well area shall be reasonably free from rust and corrosion. If the step well area has been weakened to the extent that a hazard exists, it must be repaired/replaced.
- 

### Approved Option

- Fold-out step:
    - Installed at the regular service entrance that will provide for the step level to be no more than six inches to ground level. The foldout step may be power activated or manually operated.
- 

### Violation

- Wrong color or missing contrasting color of the step nose.

---

### Out of Service

- Obstructed handrail
- Loose handrail
- Loose or broken step or step covering
- Steps not meeting construction requirements
- Step well area shall not reasonably free from rust and corrosion



### **(WW) Steering system.**

- (1) All school buses shall be equipped with heavy-duty, truck-type integral power steering.
- (2) Steering mechanism shall provide for easy adjustment for lost motion.
- (3) No changes shall be made in the steering mechanism unless approved by manufacturer.
- (4) There shall be a clearance of at least two inches between steering wheel and any other surface or control.

---

### Inspection Note

- Grasp steering wheel and pull upward.
- Shaft shall not have excessive movement per manufacturer's specifications.
- Tie Rod Ends, Crossbar, and Drag Links
  - Looseness at the steering linkage pivot points can be visually detected during movement of the vehicle steering wheel during a dry park test.
  - Apply vertical hand pressure at tie rod and drag link sockets to check for movement.
  - Vehicle will be rejected if any movement is found in the joint. (Refer to manufacturer specifications.)
  - Check crossbar for structural damage and crossbar clamps for secure mounting.
- Steering and Suspension (Type A & B Buses)
  - Checking these components is rather detailed and proper adjustment will be left to the local mechanic, however, any indication of excessive wear should warrant further checking of the complete assembly by a mechanic.
  - Steering wheel free play and steering column.
- Steering Gear Box
  - Shall have no leaks.
  - Shall be securely mounted. No welding on steering system permitted.
  - No changes shall be made in the steering mechanism unless approved by manufacturer.

- Check steering lash by turning steering wheel left and then right until resistance is met. This may indicate loose universal joints or excessive play in gearbox.

### Approved Option

- Tilt or tilt telescoping steering wheel.

### Violation

- Any leaks from the steering gearbox.
- Any excessive vertical movement in the steering wheel.

### Out of Service

- No welded repairs in the steering components
- Steering Column:
  - Any absence or looseness of U-bolts or positioning part(s).
  - Any obviously welded repair of a universal joint.
- Steering wheel not properly secured or lacking 2 inches of clearance.
- Any cracks or obvious repairs on the front axle beam and all steering components.
- Steering Gear Box:
  - Any crack(s) in gearbox or mounting brackets.
  - Any leaks from the steering gear box that is dripping on other components or the ground.
- Steering wheel lash:  
Maximum Lash Allowed

	Manual System	Power System
16" or less	2"	4-1/2"
18"	2-1/4"	4-3/4"
20"	2-1/2"	5-1/4"
22"	2-3/4"	5-3/4"

- Pitman Arm:
  - Any looseness of the pitman arm on the steering gear output shaft.
- Power steering auxiliary power assist cylinder loose.
- Ball and Socket Joints:
  - Any movement under steering load of a stud nut.
  - Any motion, other than rotational, between any linkage member and its attachment point of more than 1/8 inch measured with hand pressure only.
- Tie Rods and Drag Links:

- Loose clamp or clamp bolt on tie rods or drag links.
- Any looseness in any threaded joint.
- Nuts – Any loose or missing on tie rods, pitman arm, drag link, steering arm, or tie rod.
- Any modification or other condition that interferes with free movement of any steering component.



## **(XX) Stop signal arm.**

The stop signal arm(s) shall comply with the requirements of FMVSS 571.131 (School bus pedestrian devices).

---

### Inspection Note

- Check for air leaks on an air assisted stop sign assembly.
- May have LED lights on Stop Sign.
- Stop Signal Arm is required on buses manufactured after 05/01/1979.
- The stop arm, when activated, shall extend to 90 degrees from the body of the bus. The stop arm lights shall flash on an alternating pattern.

---

### Approved Option

- Stop Arm Extension:  
Stop Arm extensions may be installed with, but not in place of, the required Stop Arm as described in FMVSS 571.131. All extensions may not exceed 4.5' in length. The extension will have reflective red and white material on the lower portion of the frame or gate. If the device has a secondary Stop Sign at the end of the extension, red flashing lights must be installed and function as the required stop arm. If a gate style is used, the length of the gate must be illuminated with red flashing lights. All extension must active with the Stop Arm warning system and have a breakaway function.

---

### Violation

- Worn or faded stop sign.
- LED assembly with 25 to 49% inoperable diodes.

---

### Out of Service

- Any missing or inoperative Stop Sign.
- Any audible air leak at stop sign.

- Inoperative lights on stop sign.
- LED assembly with 50% or more diodes that are inoperable.
- Second stop sign with any lettering on the front side.
- Unreadable Stop Sign



**(YY) Sun visor.**

The school bus shall be equipped with at least one interior adjustable transparent sun visor, folding type, which is a minimum of six by thirty inches in size. If only one sun visor is installed, it shall be positioned for use by the driver. Exception - "Type A" shall be manufacturer's standard.

---

**Inspection Note**

- None

---

**Approved Option**

- Passenger side sun visor.
- Driver side (side window) adjustable transparent sun visor, folding type, contained within the framework of the window and mounted securely. (Added 2/20/2020)

---

**Violation**

- Loose, cracks or breaks in the visor.
- Improper size as required.
- Sun visor that is positioned to interfere with the driver's vision of the rearview mirror

---

**Out of Service**

- Sun visor that is installed so as to interfere with the driver's vision of the rearview mirror
- Sun Visor not securely attached.



### **(ZZ) Tires, rims and wheels.**

- (1) Manufacturer or authorized dealer shall balance all wheels and make necessary alignments prior to delivery.
- (2) Dual rear tires and wheels shall be provided (except "Type A".)
- (3) All tires on a given axle shall be of same size, tread design, construction and capacity.
- (4) All shall be equipped with tubeless radial tires of proper size and load range that meets or exceeds chassis gross vehicle weight ratings and body combinations as required by FMVSS 571.120.
- (5) Disc wheels shall be used.
- (6) Wheel composition - wheels shall be made of steel or aluminum.

---

### **Inspection Note**

- Tires shall have a tread depth of not less than 4/32 inch for steering axle and not less than 2/32 inch for rear tires, measured anywhere on any major groove.
- No bus shall be operated on any tire that has body ply or belt material exposed through the tread or sidewall or has any tread or sidewall separation.
- All valve stems shall be capped.
- No retreads, recapped, re-grooved, patched or plugged tires are permitted on the steering axle. No re-grooved tires allowed on a bus.
- All lugs shall be present & properly tightened.
- Tires shall be properly inflated. Refer to tire manufacture recommended inflation pressure.
- Tires rated as a snow tire only are not permitted on steering axle.
- Rims and wheels shall be black and/or natural iron gray in color and shall not be bent or twisted.
- Color of wheels to be uniform per bus.
- All tires per axle shall be the same size (height and design). Buses bid prior to 07/01/1988 may have bias-ply or radial tires. No mixing of bias-ply and radial tires permitted.
- Buses bid prior to 07/01/1988 may have tubeless radial tires on the steering axle and tube radial tires on the rear axle in order to upgrade steering axle rims.
- Buses bid after 07/01/1988 shall have tubeless radial tires
- Load rating of tires shall meet or exceed manufacture's rating.
- ***If the tire size or type differs from the attached spec plate; The school must provide documentation that the bus was ordered/purchased with the current tire size/type or a letter from the manufacture stating the tire size/type is acceptable.***

---

## Approved Option

- Aluminum rims
- Dual tire air pressure equalizing system
- Automatic tire chains:
  - Power-operated but must be controlled from the driver compartment.
- Drive wheel sanders.
- Safety lugs and clamps:
  - May be used on wheels that use multi-piece rims.
- Spare tire and rim:
  - Must be securely mounted underneath the vehicle.
- Tires and Lug Nut Indicators:
  - Multi-seal; Water-based high performance tire sealant.
  - Indicators must match the color of the rim.

---

## Violation

- Non-matching color on rims on same axle.
- Any crack less than three (3) inches in length.
- Any spot on Front tire with less than 4/32 inch tread.
- Any spots on Rear tires with less than 2/32 inch tread.
- Any missing valve stem cap.

---

## Out of Service

- General:
  - Front tires – below 4/32 inch when measured in any two adjacent major tire groves at any location on the tire.
  - Rear tires – below 2/32 inch when measured in any two adjacent major tread grooves at 3 separate locations on tire.
- Tire is flat or has a noticeable leak.
- Mounted or inflated so that it comes into contact with any part of the vehicle.
- Visually observable bump, bulge, or knot apparently related to tread or sidewall separation.
- Weight carried exceeds tire load limit.
- Automatic tire chains inoperative
- Drive wheel sanders inoperative
- Any foreign object puncturing the tire.
- Rear inner tire valve stems must be accessible.
- Front Tires:
  - Any part of the breaker strip or casing ply showing in the tread.
  - When sidewall is cut, worn, or damaged to the extent that the plycord is exposed.
  - Labeled “Not for Highway Use” or carrying other markings that would exclude use on steering axles.

- Retreaded, recapped or re-grooved tires.
- Rear Tires:
  - Bias Ply – when more than one ply is exposed in the tread area or sidewall or when the exposed area of the top ply exceeds 2 square inches
  - Radial Ply – when two or more plies are exposed in the tread area, or damaged cords are evident in the sidewall or when the exposed area exceeds 2 square inches in the sidewall.
- 75% or more of the tread width loose or missing in excess of 12 inches in circumference.
- Re-grooved tire in use.
- Has 50% or less of the maximum inflation pressure marked on the tire sidewall.
- Any loose or missing lug.
- Rims:
  - Any circumferential crack.
  - Any crack exceeding three (3) inches in length.
  - Any crack extending between any two holes. (Hand Holes, Stud holes and Center holes).
  - Any weld on an aluminum rim.
  - More than two cracks on the wheel.
  - Any elongated bolt or stud hole.
  - Spare tire not secured properly.
  - Must be of the same material.



**(AAA) Tow hooks.**

- (1) Two rear tow hooks shall be installed, with the hooks and their mounting of sufficient strength to tow the vehicle at the vehicle's curb weight.
- (2) Two front tow hooks may be installed, with the hooks and their mounting of sufficient strength to tow the vehicle at the vehicle's curb weight.

**Inspection Note**

- None

**Approved Option**

- None

**Violation**

- Missing one tow hook



---

### Out of Service

- Missing more than one to the front or rear as required.
- Cracked weld at any point
- Located or installed past the bumper.



### **(BBB) Transmission.**

- (1) Manufacturer shall furnish an automatic transmission or automated manual transmission.
- (2) The torque rating of the transmission shall meet or exceed the maximum torque output of the engine.

---

### Inspection Note

- Clutch Operation:
  - Pedal linkage shall be free of obstructions.
  - Clutch shall engage and disengage as designed by the manufacturer.
  - Pedal blocks or adjustable pedals, if used, shall be installed by manufacturer after 01/01/1991.

---

### Approved Option

- None

---

### Violation

- Worn pad on clutch pedal showing metal.

---

### Out of Service

- Leaking
- Clutch does not operate as designed by the manufacturer.
- Loose pedal linkage
- Non Manufactured pedal blocks or pedal adjusters



### **(CCC) Vehicle identification plates**

All chassis serial number identification plates shall be attached to the bus and be clearly identifiable and legible for the entire life of the bus.

---

### **Inspection Note**

- The Vehicle Identification Number of each vehicle shall appear clearly and indelibly upon either a part of the vehicle, other than the glazing, that is not designed to be removed except for repair or upon a separate plate or label that is permanently affixed to such a part.

---

### **Approved Option**

- None

---

### **Violation**

- Damaged or unreadable

---

### **Out of Service**

- Missing or altered.



### **(DDD) Wheel-housings.**

- (1) Wheel-house shall be attached to floor components in such a manner to prevent water, dust or fumes from entering the bus body.
- (2) Wheel-house openings shall allow for easy tire removal and service.
- (3) Inside height of wheel housing above floor line shall not exceed ten inches.
- (4) Wheel-housing shall provide clearance to permit the installation of tire chains per SAE standard J683.

---

### Inspection Note

- None

---

### Approved Option

- None

---

### Violation

- Missing an attachment point

---

### Out of Service

- Not attached to the floor allowing water, dust or fumes into the bus body.
- Cracked or separated housing causing a hazard to the passengers.
- Any holes from the underside of the wheel housing.



### **(EEE) Width**

Overall width of a bus shall not exceed one hundred and two inches, excluding mirrors.

---

### Inspection Note

- None

---

### Approved Option

- None

---

### Violation

- None

---

## Out of Service

- In excess of one hundred and two inches, excluding mirrors.



### **(FFF) Windows.**

- (1) Driver's side window shall be capable of opening and be equipped with a lock-type closure. Exception - "Type A" buses shall be manufacturer's standard.
- (2) Each side window in the passenger area shall be split sash and provide unobstructed opening at least nine inches high and twenty-two inches wide, obtained by lowering the upper sash. If the bus body design does not allow all windows to meet the width dimension requirement, up to two side windows per side in the passenger area may be less than the twenty-two inches. They may or may not open.
- (3) Individual windows shall not have a vertical opening greater than twelve inches. Stops shall be installed where needed to obtain this dimension.
- (4) Windows may be tinted pursuant to section 4513.241 of the revised code. Any window tinting must also meet FMVSS 571.205.

---

## Inspection Note

- Frames around glass shall be secure.
- Cracks in the windows shall not be over one (1) inch in length.
- Windows must be operational.
- Buses must have tempered or laminated glass in windows behind the driver.
- The glass must be marked and meet FMVSS standard 571.205 for glazing. Effective 11/1/2006, all glass must meet appropriate construction standards that apply to the year of manufacture of the bus.
- Windshield, original or replacement, may have a sunscreen strip at top that meets manufacturer's specifications. (AS1 line)
- Windshield shall be securely mounted.

---

## Approved Option

- Tinted windows pursuant to section 4513.241 of the Revised Code and in compliance with FMVSS 571.205.
- Insulated windows
  - Window frame shall not protrude into the passenger compartment.
- Rear window air dam:
  - To direct wind down across the back of the bus to keep the rear window clean.

---

### Violation

- Crack in window less than one (1) inch in length.

---

### Out of Service

- Cracks in excess of one (1) inch in length.
- Frame not securely fastened to the window.
- Improper glass for window.
- Inoperable window.
- Limited visibility (dirty, objects in the line-of-sight of the operator)
- Window not securely fastened to the frame.



### **(GGG) Windshield washers.**

- (1) The windshield washer fluid reservoir shall have a minimum capacity of two quarts in a rigid plastic container. It shall be mounted outside the interior of the bus and in a position readily accessible for refilling,
- (2) Windshield washer shall incorporate a check valve in supply line. Check valve will not allow washer fluid to drain back into washer tank when not in use.
- (3) Heated windshield wipers and heated washer fluid units are permitted.

---

### Inspection Note

- Windshield washer must be operative.

---

### Approved Option

- None

---

## Violation

- Washer check valve not operational

---

## Out of Service

- Windshield washer inoperative or not spraying onto the windshield effectively.
- Improper mounting location.



### **(HHH) Windshield wipers.**

- (1) Two heavy-duty windshield wipers are required.
- (2) Windshield wipers to be operated by one or more electric motors.
- (3) Windshield wipers shall be controlled with one switch. Switch shall provide multi-speed operation and shall incorporate an intermittent position.
- (4) Wipers shall be wet arm type.
- (5) The windshield wiper motor or motors shall have sufficient power and the wiper arms and blades shall be of sufficient length to provide the largest cleaning area possible.

---

## Inspection Note

- Must be operative.
- Wiper blades that could damage windshield or do not wipe the windshield clean shall be replaced.
- Windshield wipers shall be controlled with one switch. Switch shall provide multi-speed operation and shall incorporate an intermittent position. (Effective 9/1/1998)

---

## Approved Option

- None

---

## Violation

- Wiper blade torn

---

## Out of Service

- Missing or ineffective blade or blade swipe.
- Multi speed or intermittent position not working.
- Windshield wiper inoperative.



## **(III) Wiring.**

- (1) All wiring shall conform to current society of automotive engineer's standards. Wiring diagrams must be made available to school bus owners.
- (2) Short circuit protective devices shall be provided for each major circuit and all other electrical functions, except starter motor and ignition circuits.
- (3) All wires within body shall be insulated and protected by a covering that will protect them from external damage and minimize dangers from short circuits. Whenever wires pass through body members, additional protection in the form of an appropriate type of insert shall be provided.
- (4) Wires not enclosed within body shell shall be fastened securely at intervals of not more than twenty-four inches.
- (5) All joints shall be soldered or joined by equally effective connectors.

---

## Inspection Note

- Insulation shall not be cracked, worn, chaffing, or frayed.
- Electrical tape may be used to protect wiring where insulation has worn.
- No missing bolts/fasteners or components as manufactured.

---

### Approved Option

- None

---

### Violation

- Chaffed wiring not through the protective coating.
- Loose or unconnected wiring.

---

### Out of Service

- Missing insulation.
- When passing through body members, additional protection in the form of grommets or an appropriate type of material is not present.
- Charred or burnt.
- Damaged extending through the protective coating and or insulation.
- Any wiring not OEM must be protected by fuse, circuit breaker or equivalent protection device.



### **(JJJ) Lift equipped buses.**

Buses equipped with wheel chair lifts shall also meet all applicable paragraph of rule 4501-5-03 of the Administrative Code. The bus is used to transport pupils with disabilities; the bus shall also meet all applicable paragraphs of rule 4501-5-03 of the Administrative Code.

---

### Inspection Note

- Lift shall be confined within the perimeter of the school bus body when not extended and shall not be attached to the exterior of the bus. Lift shall be securely mounted with no missing or loose fasteners. No hydraulic leaks.
- When the lift platform is in the fully up position, it shall be locked in position mechanically by means other than a support lug on the door on buses bid after 07/01/1988.
- Controls shall be provided that enable the operator to activate the lift mechanism from inside and outside of the bus.
- Lift travel shall allow the lift platform to rest securely on the ground.



- All edges of the platform shall be designed to restrain wheelchair and operator's feet from becoming entangled during the raising and lowering process. Protective shields shall be in place and operable.
- Platform shall be fitted on both sides with full-width shields which extend above the floor line of the lift platform. The bus or platform shall be designed to prevent the wheel chair from rolling off the rear of the platform.
- A restraining device shall be affixed to the outer edge (curb end) of the platform that will prohibit the wheelchair from rolling off the platform when the lift is in any position other than fully extended to ground level.
- A self-adjusting skid-resistant plate shall be installed on the outer edge of the platform to minimize the incline from the lift platform to the ground level. This plate, if so designed, may also suffice as the restraining device explained in paragraph (G) (7) of this rule. The lift platform must be skid resistant.
- A current interruption device shall be installed between the power source and lift motor if electrical power is used.
- Rapid descent of lift is not acceptable.
- An actuating switch shall be installed in the circuit to prevent the lift mechanism from operating when doors are closed.
- Lift structure must have adequate padding and barriers for passengers' protection.
- All lifts installed after 07/01/2005 shall meet FMVSS 403/404 (interlock systems).
- Not securely mounted with no loose bolts/nuts.
- Hydraulic leaks.
- When lift platform is in the up position, it does not lock into place (Lift platform shall not rest against lift door).
- A restraining device that is affixed to the outer edge (curb end) of the platform that will prohibit the wheelchair from rolling off the platform when the lift is in any position other than fully extended to ground level not working properly.
- Installations after 07/01/2005 which fail to have operational interlock systems as required by FMVSS 571.403/404.
- Wheelchair mounting track shall be secure in the floor.
- Special Service Entrance
  - A head bumper pad shall be installed above lift door and or on lift frame.
- Fastening Devices
  - Wheelchair securing devices shall be provided and attached to the floor, walls, or both to enable securing of wheelchairs in the vehicle. The devices must be of the types that require human intervention to unlatch or disengage. Restraint devices for wheelchairs, car seats, care chairs, etc. shall be installed according to restraint manufacturer's instructions.
  - Additional fastening devices may be needed to restrain the student due to the many different chair configurations. Devices not in use shall be stored or secured.
  - All buses equipped with attachment points securement devices and/or wheelchair securement systems shall also be equipped with a durable webbing cutter having a full width handgrip and protected blade. The cutter must be appropriately stored in the driver's compartment to the left of the driver.

---

### Approved Option

- None

---

## Violation

- Damaged padding or protection barrier on lift platform or supports.
- Missing full-width shields which extend above the floor line of the lift platform.

---

## Out of Service

- Shall not be attached to the exterior of the bus.
- Lift shall be securely mounted with no missing or loose fasteners.
- Shall be free of any hydraulic leaks.
- Lift travel not within specified regulations.
- Lift platform shall not rest against lift door.
- No or inoperative restraining device
- Missing actuating switch preventing operation when doors are closed.
- Missing current interruption device shall be installed between the power source and lift motor if electrical power is used.
- Missing padding or protection barrier on lift platform or supports.
- Inoperative controls from inside or out.
- Missing full-width shields which extend above the floor line of the lift platform.
- Non-skid resistant platform on lift.



## ***4501-5-03 SCHOOL BUSES USED TO TRANSPORT PUPILS WITH SPECIAL NEEDS.***

### **(A) General requirements.**

(1) All school buses equipped with wheelchair lifts shall comply with rules [4501-5-01](#) to 4501-5-3 of the Administrative Code, when applicable.

(2) School buses used for the transportation of pupils with special needs that require the use of a wheelchair and/or other mobile seating devices which prohibit use of the regular service entrance shall be equipped with a power lift.

(3) The lift shall be located on the right side of the body, in no way attached to the exterior sides of the bus. When not extended, the lift shall be confined within the perimeter of the school bus body. Buses equipped with a lift shall not have passenger seats installed directly across the aisle way from the lift unless they are seats that have been designed to be removed for the purposes of alternative passenger securement.

(4) All school buses equipped with wheelchair lifts shall be equipped with an electronic communication system. The electronic communication system shall be capable of constant contact with the school or dispatch point. This equipment may be excluded from the bus manufacturer's bid and purchased separately.

---

Inspection Note

- None
- 

Approved Option

- None
- 

Violation

- None
- 

Out of Service

- Inoperative or missing electronic communication system.
  - Communication system interfering with OEM controls.
- 

**(B) Aisle width.**

All school buses equipped with a power lift shall provide a minimum thirty-inch pathway leading from any wheelchair position to an emergency door that is at least thirty inches wide.

---

Inspection Note

- All aisles leading from the wheelchair area to an emergency door and the lift shall be of sufficient width, minimum of thirty inches, to permit passage of maximum size wheelchair.
- 

Approved Option

- None
-

---

### Violation

- None

---

### Out of Service

- Minimum width of aisles does not meet Construction Standards.
- Hold down on engine cover not secured or creates trip hazard.

### **(C) Attachment points.**

All school buses equipped with attachment points, securement devices and/or wheelchair securement systems shall also be equipped with a durable webbing cutter having a full width handgrip and protected blade. The cutter must be appropriately stored in the driver's compartment to the left of the driver. This equipment may be excluded from the bus manufacturer's bid and purchased separately.

---

### Inspection Note

- None

---

### Approved Option

- None

---

### Violation

- None

---

### Out of Service

- Missing, inoperative, or not secured seatbelt cutter.
- Missing or inoperative attachment points, securement devices and/or wheelchair securement systems.

### **(D) Wheelchair securement.**

School buses designed for the transportation of pupils using wheelchairs or special mobility devices shall have wheelchair securement and occupant restraint systems that comply with SAE standard J2249 installed as specified in FMVSS 571.222, sections 5.4.1 to 5.4.4 at each wheelchair location.

### **(E) Wheelchair tie down systems.**

Securement system for mobile seating device and occupant.

(1) The designated area for the wheelchair/mobile seating devices shall be a minimum of fifty inches longitudinally by thirty inches laterally. The designated area shall be free of all obstructions pursuant to FMVSS 571.222.

(2) All securement system attachments or coupling hardware not permanently attached shall be designed to prohibit accidental disconnecting.

(3) All attachment or coupling systems designed to be connected or disconnected frequently shall be accessible and operable without the use of tools or other mechanical assistance.

(4) No mobile seating device securement system hardware shall be placed so that a mobile seating device can be placed blocking access to lift door or emergency door(s) with the exception of track hardware.

(5) Detailed instructions, including a parts list, regarding installation and use of the system shall be provided with each vehicle equipped with an occupant securement system.

(6) Detailed instruction, including a diagram regarding the proper placement and position of the system including correct belt angles, shall be provided with each vehicle equipped with an occupant securement system.

### **Inspection Note**

- None

---

### **Approved Option**

- None

---

### **Violation**

- Frayed seatbelt or securement webbing

---

### **Out of Service**

- Not securely attach to the floor
- Attachment points and or devices not operating within standards.
- Inoperative or cut seatbelt

**(F) Seat spacing.**

Flexibility in seat spacing and floor plan layout to accommodate special devices shall be permitted.

---

Inspection Note

- None
- 

Approved Option

- None
- 

Violation

- None
- 

Out of Service

- None
- 

**(G) Special service entrance.**

(1) The special service entrance door(s) shall be at any convenient point on the right curbside of the bus. When the special service entrance is located forward of the rear wheels, the special service entrance door(s), in the open position, shall not obstruct the regular service entrance.

(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 and give the same strength as other floor openings.

(3) The opening, with doors open, shall be of sufficient width and depth to allow the passage of wheelchairs/mobile seating devices and mobility aids. The minimum clear opening shall be fifty-six inches in height

(4) A drip molding shall be installed above the opening to effectively divert water from the opening. Door posts and headers for the special service entrance shall be reinforced sufficiently to provide support and strength equivalent to the areas of the side of the bus not used for service doors. A head bumper pad shall be installed above the special service entrance and/or on the lift frame.

---

Inspection Note

- None

---

### Approved Option

- None

---

### Violation

- Loose head bumper pad

---

### Out of Service

- Missing drip molding
- Missing head bumper pad

### **(H) Special service entrance doors.**

(1) A single door or double door may be used.

(2) All doors shall open outwardly. The special service entrance doors shall have a positive fastening device/s to hold doors in the open position and door bumpers to prevent door-to-body contact.

(3) All doors shall be weather-sealed. Buses with double doors shall be so constructed that a flange on the forward door overlaps the edge of the rear door when closed.

(4) When manually operated dual doors are provided, the rear door shall have at least a one-point fastening device to the header. The forward mounted door shall have at least three-point fastening devices. One shall be to the header, one to the floor line of the body, and the other shall be into the rear door. These locking devices shall afford maximum safety when the doors are in the closed position.

(5) The door and hinge mechanism shall be of a strength that is greater than, or equivalent to, the emergency door exit. Door materials, panels and structural strength shall be equivalent to the conventional service and emergency doors. Color, lettering and other exterior features shall match adjacent sections of the body.

(6) Each door shall have a window compatible within one inch of the lower line of adjacent sash. The window shall be installed to provide a dustproof/watertight fit.

(7) The special service entrance shall be equipped with a device that will actuate a visible signal located in the driver's compartment when the door or doors are not securely closed and the ignition is in on position.

---

### Inspection Note

- None

---

### Approved Option

- None

---

### Violation

- Damaged weather seal
- Missing door bumper

---

### Out of Service

- Positive fastening device missing or inoperative.
- Missing weather seal
- Inoperative locking device
- Special service entrance signal light inoperative (green flashing light).

### **(I) Lift area lighting.**

Adequate lighting of the lift area (both inside and outside) shall be provided. The light(s) used to illuminate the interior and exterior of the lift area shall be activated when the lift door is open.

---

### Inspection Note

- None

---

### Approved Option

- None

---

### Violation

- None

---

### Out of Service

- Lift area lighting inoperative.



**(J) Weight distribution.**

On buses equipped with a power lift, the battery box and fuel tank may be located by the manufacturer to provide equal weight distribution to compensate for the weight of the power lift mechanism.

**(L) Alternator.**

Alternator shall have a minimum power output of two-hundred forty amps. "Type A" buses must be the largest alternator output available from the original equipment manufacturer.

**(K) Alternator and power supply.**

A circuit breaker shall be installed between the power source and the lift motor. It shall be located as close to the power source as possible but not within the passenger/ driver compartment.

Inspection Note

- None

Approved Option

- None

Violation

- None

Out of Service

- None

**(M) Power lift.**

The lift and installation shall comply with the requirements set forth in FVMSS 571.403 (platform lift systems for motor vehicles) and FMVSS 571.404 (platform lift installations in motor vehicles).

(1) Design

- (a) The lifting mechanism and platform shall be able to lift a minimum payload of eight hundred pounds.
- (b) Lifts installed in all school buses shall be fully automatic, including folding and unfolding of the platform.

(2) Controls shall be provided that enable the operator to activate the lift mechanism from either inside or outside of the bus.

(3) School buses delivered to Ohio owners after the effective date of this rule shall have the lift installed by the body manufacturer or authorized agent. The installation shall be certified and the documentation shall be provided by the installer. It shall be the responsibility of the installer to ensure the levelness of the vehicle after installation. The location of the lift shall not adversely affect the legal axle loading, the maneuverability, structural, or the safe operation of the vehicle in which it is installed.

(4) When the special service entrance is installed adjacent to the stepwell or has a seat or wheelchair position directly in front of or behind the special service entrance, a barrier panel shall be installed. The barrier panel shall prevent the possibility of a body limb from becoming entangled in the lift mechanism. The barrier panel may be flush to the outside wall of the bus or at a dimension that will prohibit a passenger from coming in contact with the lift mechanism. The panel may be constructed of aluminum or polycarbonate. The end of the barrier panel exposed to the passenger compartment shall be secured to a padded stanchion extending from the floor to the ceiling. The stanchion shall be attached to the roof bow or a reinforced panel in the ceiling. If the barrier panel is used in conjunction with a padded stanchion and modesty panel, it shall extend approximately six inches above the lift platform and extend beyond the stationary frame or the inner most part of the lift exposed to the passenger compartment. If the barrier panel is a separate installation, it shall be constructed of the same materials and extend from the floor to approximately six inches above the lift platform and extend beyond the stationary frame or the most inner part of the lift exposed to the passenger compartment. The barrier panel shall be in compliance with FMVSS 571.302 and FMVSS 571.222.

---

### Inspection Note

- None

---

### Approved Option

- None

---

### Violation

- Missing fastener on the barrier panel
- Damaged padding on barrier panel

---

### Out of Service

- Automatic lift inoperative.
- Lift controls inoperative or inaccessible.
- Missing or loose barrier panel

# INSPECTION SEQUENCE

A logical inspection sequence must be used to inspect a bus with a minimum amount of lost time and steps. The inspector should check all components in one location before moving to the next to reduce retracing steps. It is imperative that all buses be inspected using the same criteria. A uniform inspection process should be developed and followed so that defects/violations can be readily identified. The same sequence should be followed to ensure an accurate and thorough inspection report.

## **Communication:**

Prior to beginning an inspection the inspector shall discuss with the facility personnel the method that will be employed to conduct the inspections. Topics should include what the inspector requires the operator of the bus to do and what hand or verbal commands will be given. It shall also be stressed that NO bus control be operated without first being requested to do so by the inspector. Any other topics that will contribute to the inspection and the safety of the inspector should be addressed.

## **Safety:**

Immediately after the bus is presented and before any portion of the inspection is performed, the rear wheels shall be chocked. Chocks shall be used in front of and to the rear of either side rear wheel assembly. The inspector shall not be under the bus while the engine is running. The only exception to this is if the inspector needs to check the exhaust system for leaks. Prior to the engine being started, the inspector will position himself/herself from under the bus and only go back under the bus after advising the operator of the bus of their intentions. After the exhaust system is checked, the inspection will continue only after the engine is turned off. Safety glasses and mechanics type gloves should be worn by the inspector to aid in the prevention of injuries during the inspection process.

## ***Inspection methodology:***

### **Exterior Inspection**

The inspector shall position themselves at the right front corner of the bus and have the operator activate all lights. This position provides a clear view to the front and right side lights including the step well lights.

Walk across the front of the bus and check all components including but not limited to the bumper, cross view mirrors and wipers. Check that all electrical wires entering the body are protected by grommet or a material to prevent wear to the insulation of the wire.

Check all of the required markings on the front of the bus including the identification number, local number and all reflective markings visible from the front of the bus. Also, check the windshield for cracks or discoloration.

- Begin to check the left side of the bus.
  - The paint and body panel condition.
  - Examine the left side extending stop sign and its' wiring.
  - Left front tire condition and all lug nuts.
  - Left side mirrors for cracking, secureness, and spotting.

- Open the electrical panel. Insulation shall not be cracked, worn or frayed.
- Open the battery box
- All glass for the proper type and cracking.
- All required reflective material and required markings.
- Ensure any left side exhaust meets requirements.
- Examine the left rear wheel and tire assembly.
  
- The inspector now positions themselves at the left rear corner of the bus. (NOT DIRECTLY BEHIND)
  - Observe the function of the required lighting on the rear of the bus.
  - Listen for the required back up warning device.
  - The condition of all required school bus and reflective markings.
  - After the engine is turned off, check the operation of the emergency door.
  
- Right side
  - The paint and body condition.
  - All required reflective material and markings
  - Examine the right rear wheel and tire assembly.
  - The fuel cap.
  - All glass for proper type and cracking.
  - The service door.
  - The right front tire and wheel assembly.
  - The right side view mirrors for cracking, secureness and spotting.

### **Engine Compartment (Type AI, Type A-II, Type B and Type C buses)**

- From right side of the engine compartment:
  - Exhaust system that is visible from above.
  - Frame
  - All hoses for leaks and chafing
  - Electrical components for broken insulation, chafing and burnt wires.
  - Check hood assembly
  - Cracks or holes in the firewall
  - Loose or missing hood stops
  - Fluid leaks from fuel and cooling systems.
  - Oil leaks
  - The condition of the brake airlines or hydraulic hoses.
  - Suspension components.
  - Exterior engine components.
  
- From the left side of the engine compartment:
  - Steering shaft
  - Pitman arm
  - Steering gearbox
  - Fluid leaks from the engine, fuel system, steering components, brake system and cooling system.
  - Check the hood assembly.
  - Suspension components.
  - Frame
  - Electrical components for broken insulation, chafing and burnt wires.

- The condition of the brake airlines or hoses.
- Cracks or holes in the firewall.

**NOTE:** It is recommended that air brake slack adjuster measurements be obtained on type B and type C buses at this time. If the bus is equipped with hydraulic brakes check for fluid leakage at the wheel cylinder, calipers and all brake line fittings.

The engine compartment on Type D buses should be checked upon entering the bus to perform the driver area and passenger compartment inspection. The interior engine cover (doghouse) shall be opened on all Type D buses.

### **Undercarriage/Brake Inspection**

*(It is imperative that all efforts be made to begin and end each inspection at the same location on the bus to limit missed violations.)*

Confirm that the bus wheels are chocked and discuss with the driver what you are going to require them to do as you are under the bus.

- Begin the inspection at the right front corner of the vehicle and check the following:
  - Condition of all brake components.
  - Suspension Components.
  - Frame condition
  - Bottom of radiator
  - Check under side of engine for fluid leaks.
    - Instruct the driver to rock the steering wheel and check for vertical play in the right tie rod end.
    - If a Type D bus, check the right side brake slack adjuster measurement.
    - Re-position across the front of the engine compartment and check the condition of all engine mounts and frame cross supports.
    - Instruct the driver to rock the steering wheel back and forth and check the pitman arm at the steering gear box for looseness. While the driver is rocking the wheel, check the ball and socket joints at both ends of the drag link and the left tie rod end.
    - Check all brake components and if a Type D bus check the slack adjuster measurement.
    - Check all engine and transmission mounts.
    - Check the front shocks for leaks and looseness.
- Re-position around the LF wheel and begin inspecting the components behind the front axle.
  - Battery box for rust holes and wire grommets
  - Condition of the air tanks and mounts
  - Engine and transmission mounts.
  - Examine all floor cross supports for rust damage and cracking.
  - Check all carrier bearings and Universal joints for excessive play.
  - Check the condition of the steel floor for rust damage.
  - On air brake equipped buses, check all airlines for wear and ensure that they are not rubbing the frame or any other components.
  - Examine the exhaust system including the muffler and all seal clamps for leaks. Also check all mounting brackets for securement.
  - Examine the frame to include the main frame, cross members and body insulator pads.

- At the rear axle check the following:
  - The rear brake slack adjuster measurements.
    - **NOTE:** During this operation, be sure that the bus operator clearly understands all instructions from the inspector. Also, the inspector shall position themselves out from under the bus as the operator is activating the service brake, releasing the service brake and setting the parking brake.
    - If the bus is equipped with hydraulic brakes check for fluid leakage around all wheel cylinders, calipers and brake line fittings.
- Re-position around the rear axle.
  - Check the condition of the tires and wheels
  - Check the condition of the shocks and/or air bag suspension components.
  - Check the exhaust system for leaks and secureness.
  - If the fuel tank is positioned behind the axle, check the condition of the fuel tank cage and mounting straps as well as for leakage.
  - Check all floor supports and frame condition.
  - Check the condition of the rear bumper and the mounting points.
- Re-position to the right side of the bus and forward of the rear axle.
  - Examine the tire and wheel condition.
  - Check all floor cross supports and mounting locations as well as the right frame rail and body pads.
  - Examine the fuel tank components.
  - Examine the condition of the stepwell for rust holes and loose supports.
- After exiting from under the bus, ensure that the parking brake is set and remove the wheel chocks.

## **Driver compartment inspection**

- Enter the bus and check the following:
  - The inspector shall check all controls in the driver area.
  - With the key in the ON position, engine off and the parking brake released, repeatedly depress the service brake pedal until the low air warning beeper and light activate ( prior to reaching 60 PSI ) and the parking brake sets. The parking brake may not set at an air pressure higher than 40 PSI

## **Passenger Area**

- Check the condition of the entire rubber floor covering and any trim pieces.
- Trim pieces must be present where required, fastened securely to the floor and be without sharp edges.
- Seat bottoms must be secure to the seat frames and the metal backs should be secure to the seat.
- Seats shall be securely mounted to the floor.
- There shall be no rust holes in any component in the interior of the bus.
- All emergency exits shall open fully with no catching or binding.
- **ONLY ITEMS NECCESARY FOR THE SAFE OPERATION OF THE SCHOOL BUS ARE ALLOWED.**
- Lost and found articles should be removed at the end of each day.
- Check the interior cleanliness of the school bus. There shall be no loose items in the driver area or passenger area that could cause distraction to the driver or injury to a passenger.

- If the school bus has passed inspection, affix a current inspection decal in the locations specified in the Ohio School Bus Inspection manual.
- The inspector shall refer to the Ohio School Bus Inspection manual for all specific requirements and this outline should only be used as a guide for the inspection process.

Air brake system checks shall be performed on twenty (20%) percent of a schools' bus fleet.

Signed:   
\_\_\_\_\_  
Captain David R. Allwine, Commander  
Ohio State Highway Patrol  
Licensing and Commercial Standards

Signed:   
\_\_\_\_\_  
Lieutenant Aaron J. Reimer, Commander  
Ohio State Highway Patrol  
Licensing and Commercial Standards