**Section 443.APPENDIX D Electrical System through Fenders**

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| a) ELECTRICAL SYSTEM | | |  | | |
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|  | | 1) Circuits | PROCEDURE/SPECIFICATIONS: | | |
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|  | | | Circuits arranged to manufacturer's specifications are acceptable. An additional circuit shall be added for the alternate flashing signal lamps and the stop signal lamps. Circuits may be added as necessary. | | |
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|  | | | REJECT VEHICLE IF: | | |
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|  | | | Breaks in insulation are present. Not on proper circuit or properly wired. | | |
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|  | | 2) Fuses |  | | |
|  | | | PROCEDURES/SPECIFICATIONS: | | |
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|  | | | Two extra fuses for each size fuse used on the bus shall be conveniently mounted on the bus body. | | |
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|  | | | REJECT VEHICLE IF: | | |
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|  | | | Fuses are not present or are not conveniently mounted. | | |
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|  | | 3) Switches |  | | |
|  | | | PROCEDURES/SPECIFICATIONS: | | |
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|  | | | Check operation and condition. | | |
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|  | | | REJECT VEHICLE IF: | | |
|  | | |  | | |
|  | | | Switches not operating properly or are missing. | | |
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|  | | 4) Wiring |  | | |
|  | | | PROCEDURES/SPECIFICATIONS: | | |
|  | | |  | | |
|  | | | All wires shall be properly insulated and securely attached at not more than 18.1 inches (460 mm) intervals. Check condition. | | |
|  | | |  | | |
|  | | | REJECT VEHICLE IF: | | |
|  | | |  | | |
|  | | | Insulation is frayed or missing. Wiring not securely attached. | | |
| b) EMERGENCY EXITS | | |  | | |
|  | | |  | | |
|  | | | PROCEDURES/SPECIFICATIONS: | | |
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|  | | | All buses must be equipped with either a rear emergency door or a left side emergency door and a rear emergency window. (49 CFR 571.217) | | |
|  | | |  | | |
|  | | | Additional emergency exits, including roof hatches, may be required on uses manufactured on or after September 1, 1994. (49 CFR 571.217) (See Section 443.Illustration F) | | |
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|  | | | For buses manufactured on or after May 2, 1994, each opening for a required emergency exit must be outlined around its outside perimeter with a minimum 1 inch (2.54 cm) wide yellow retroreflective tape. This yellow retroreflective tape must be on the exterior surface of the bus. (49 FCR 571.217) | | |
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|  | | | Optional emergency roof hatches are allowed. They must be installed according to manufacturer's specifications. | | |
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|  | | | Open and close roof hatches (required or optional) to verify their operation. | | |
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|  | | | REJECT VEHICLE IF: | | |
|  | | |  | | |
|  | | | Emergency exits do not meet requirements. Roof hatches do not open. | | |
|  | | |  | | |
|  | | 1) Slide |  | | |
|  | | | PROCEDURES/SPECIFICATIONS: | | |
|  | | |  | | |
|  | | | Inside release mechanism must be protected against accidental operation and must be easily accessible from the inside. Must be operated only by moving handle as shown by arrow and without use of remote control, power device, key tool, or any attached or unattached object other than the release handle. (49 CFR 571.217) | | |
|  | | |  | | |
|  | | | Shall be hinged on front side and open outward. Shall be equipped with safety glass (or equivalent) located in upper portion of the door. Door shall be of at least the same guage metal as the body. Shall be 24 inches or more clear horizontal opening, with forward edge of opening in line with the rearmost edge of a seat back. Shall have 45 inches or more clear vertical opening. Inside release mechanism must be protected against accidental release; easily accessible; readily operated manually without the use of remote control, power device or tool. Door and rubber seal must not be defective. (See Alarms and Locks in this subsection for requirements.) | | |
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|  | | | For buses manufactured on or after September 1, 1994, there must be at least 11.7 inches (30 cm) measured from the door opening to the seat back in front. (49 CFR 571.217) | | |
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|  | | | REJECT VEHICLE IF: | | |
|  | | |  | | |
|  | | | Inside release mechanism is not protected. Inside and outside release mechanisms are not accessible, or operable; unable to open easily; hinge is located at incorrect location; location and size of opening is incorrect. General condition of door and/or rubber seal is defective. | | |
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|  | | 2) Rear |  | | |
|  | | | PROCEDURES/SPECIFICATIONS: | | |
|  | | |  | | |
|  | | | Shall open outward with a 120 degree minimum swing. Upper portion of each door shall contain fixed safety glazing. Shall be equipped with a fastening device which can be quickly released from inside and outside the body. The outside fastening device must be non-hitchable. Door and rubber seal must not be defective. (See Alarms and Locks in this subsection for requirements.) | | |
|  | | |  | | |
|  | | | Inside release mechanism must be protected against accidental operation and must be easily accessible from the inside. Must be operated only by moving handle as shown by arrow and without use of remote control, power device, key, tool, or any attached or unattached object other than the release handle. (49 FCR 571.217) | | |
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|  | | | Exception: On a bus manufactured in August 1974 or earlier, the emergency exit shall be in the center of the rear end, exempt from 120 degree swing and may open either vertically or horizontally. | | |
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|  | | | REJECT VEHICLE IF: | | |
|  | | |  | | |
|  | | | Inside release mechanism is not protected. Inside and outside release mechanisms are not accessible or do not operate properly. Outside release mechanism is hitchable. Door does not open easily. Location of hinge is incorrect. Size of opening is incorrect. Glazing does not meet requirements. General condition of door and/or rubber seal is defective. | | |
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|  | | 3) Windows |  | | |
|  | | | PROCEDURES/SPECIFICATIONS: | | |
|  | | |  | | |
|  | | | When the emergency door is located on the left side, a rear emergency window shall be provided. Minimum 16 inches high and 48 inches wide. Designed to be opened from the inside or the outside. Hinged on top, designed and operated to insure against accidental closing in an emergency. Inside handle shall provide for quick release. Outside handle shall be nondetachable and nonhitchable. (See Alarms and Locks in this subsection for requirements.) | | |
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|  | | | REJECT VEHICLE IF: | | |
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|  | | | If equipped, operating mechanisms do not function. Glass is cracked or broken. | | |
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|  | | 4) Alarms and Locks |  | | |
|  | | | PROCEDURES/SPECIFICATIONS: | | |
|  | | |  | | |
|  | | | Both audible and visible alarms shall alert the driver when the engine is running and any emergency exit door either: | | |
|  | | |  | | |
|  | | | A) | | Is not fully latched; or |
|  | | |  | | |
|  | | | B) | | Is locked and not readily operated manually. |
|  | | |  | | |
|  | | | An audible alarm shall alert the driver when the engine is running and any emergency exit window either: | | |
|  | | |  | | |
|  | | | A) | | Is not fully latched; or |
|  | | |  | | |
|  | | | B) | | Is locked and not readily operated manually. |
|  | | |  | | |
|  | | | The engine starting system shall not operate while any emergency exit door or window (optional or required) is locked from either inside or outside the bus. "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. | | |
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|  | | | An alarm cut-off or "squelch" control is prohibited. | | |
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|  | | | On a van conversion, any rear cargo door inside lock(s) of the type installed by the chassis manufacturer (such as commonly used in cars – "push/pull" type) shall be made inoperable. The mechanism cannot, through jarring, vibration, etc. cause the door to become locked and be inoperable from the inside or outside. | | |
|  | | |  | | |
|  | | | Exception: No alarm is required for roof hatches. | | |
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|  | | | Exception: On a bus with chassis (incomplete vehicle) manufactured in March 1977 or earlier, the engine starting system may operate while the emergency door is locked. The "Not Stop Engine" requirement applies to every bus. | | |
|  | | |  | | |
|  | | | Exception: On a bus manufactured in August 1974 or earlier, the "Not Fully Latched" alarm is optional. The "Door Locked" alarm is required on each bus with a lockable emergency door. | | |
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|  | | | REJECT VEHICLE IF: | | |
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|  | | | Alarms do not alert driver as required. Locks do not meet requirements. | | |
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| c) ENTRANCE DOOR | | |  | | |
|  | | |  | | |
|  | | 1) Physical Requirements | PROCEDURS/SPECIFICATIONS: | | |
|  | | |  | | |
|  | | | Door shall be located to right of operator and operated by an over-center control. Upper portions of door shall be safety glass or equivalent. Vertical closing edges shall be equipped with flexible material for a proper seal and to prevent injury. | | |
|  | | |  | | |
|  | | | Each door on the right side of the vehicle, hinged or sliding, except the service door shall be made permanently inoperable by means other than the rub rail on the outside of the body. | | |
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|  | | | REJECT VEHICLE IF: | | |
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|  | | | Binding or jamming is evident, malfunctions, over-ride device on power operated door does not function, control not accessible by driver. | | |
|  | | |  | | |
|  | | | Door is missing, loose, or damaged. Rubber seal is missing or torn. | | |
|  | | |  | | |
|  | | 2) Locks and Alarms |  | | |
|  | | | PROCEDURES/SPECIFICATIONS: | | |
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|  | | | A service door lock is not required but if any type of service door locking system is installed on the bus, the system shall conform to one of the following: | | |
|  | | |  | | |
|  | | | A) | The locking system shall not be capable of preventing the driver from easily and quickly opening the service door from inside the vehicle; or | |
|  | | |  | | |
|  | | | B) | A locking system that is capable of preventing the bus driver from easily and quickly opening the service door shall include an audiovisual alarm. The alarm shall be audible and visible and must alert the driver when the engine is running and the service door is locked. An alarm disconnect, "squelch control," or other alarm defeating or weakening device shall not be installed; or | |
|  | | |  | | |
|  | | | C) | A locking system shall not be capable of preventing the bust driver from easily and quickly opening the service door except when a person outside the bus uses a key that is not capable of locking more than one of at least 1000 of the door manufacturer's key locking systems. | |
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|  | | | REJECT VEHICLE IF: | | |
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|  | | | Locks and alarms do not meet requirements. Bent, worn, or dislocated parts that would delay quick door release and opening are present. | | |
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| d) EXHAUST SYSTEM | | |  | | |
|  | | |  | | |
|  | | 1) General |  | | |
|  | | | PROCEDURES/SPECIFICATIONS: | | |
|  | | |  | | |
|  | | | "Exhaust System" includes each component used to conduct gas from an engine exhaust port (manifold) to authorized exit point, including each sealing, connecting, and supporting component. Exhaust system shall be outside body and attached to chassis. Size of tail pipe shall not be reduced after it leaves muffler. Any flexible component that contains exhaust gas shall be of stainless still. System shall not leak. System shall have an outlet at its discharge end(s) only. | | |
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|  | | | REJECT VEHICLE IF: | | |
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|  | | | All parts of system are not securely fastened and supported. | | |
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|  | | | Any part of system is leaking or missing. | | |
|  | | |  | | |
|  | | | Any part of system contains holes not made by manufacturers. | | |
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|  | | 2) Shielding |  | | |
|  | | | PROCEDURES/SPECIFICATIONS: | | |
|  | | |  | | |
|  | | | Any flammable material, electrical insulation, brake hose, or fuel system component containing fuel that is located within 113/16 inches (300 mm) of a component containing exhaust gas shall be safeguarded by a heat shield. | | |
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|  | | | Exhaust system shall be shielded from either accidental contact, "hitching to," or "standing on," except at discharge end. A chassis or body component may provide required shield. | | |
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|  | | | REJECT VEHICLE IF: | | |
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|  | | | Shielding is not present (if applicable). | | |
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|  | | | Exception: Fuel system components on diesel powered engines that are located within four inches of a component containing exhaust gas shall be shielded. | | |
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|  | | 3) Discharge |  | | |
|  | | | PROCEDURES/SPECIFICATIONS: | | |
|  | | |  | | |
|  | | | The exhaust system's discharge end (tail pipe) shall be within .98 inch (25 mm) of bus side, rear, or rear corner. It must not extend more than one inch past the bumper. Exhaust fumes shall not be directed towards a door or other opening into bus body. In addition, the discharge end, or ends, shall not be located in any prohibited zone shown in Section 443.Illustration B. | | |
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|  | | | REJECT VEHICLE IF: | | |
|  | | |  | | |
|  | | | Exhaust discharges into prohibited zone. (See Illustration B.) | | |
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|  | | | Exhaust system (tail pipe) does not discharge in proper location. | | |
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|  | | | Tail pipe extends more than one inch past the bumper. | | |
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|  | | | Exhaust fumes are released towards a door or other opening into bus body. | | |
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| e) FENDERS | | |  | | |
|  | | | PROCEDURES/SPECIFICATIONS: | | |
|  | | |  | | |
|  | | | Shall be properly braced and free from any body attachment. | | |
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|  | | | There shall be approximately one inch located between front fenders and back face to cowl. | | |
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|  | | | REJECT VEHICLE IF: | | |
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|  | | | Fenders are not solid or in bad condition. | | |
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|  | | | Sharp edges are evident. | | |
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|  | | | Fenders are loose or protrude out. | | |

(Source: Amended at 22 Ill. Reg. 15371, effective August 7, 1998)