**Section 441.APPENDIX F Fuel Storage and Delivery System through Horn**

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| a) | FUEL STORAGE  AND DELIVERY  SYSTEM | | | | | | | |  | | | |
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|  | PROCEDURES/SPECIFICATIONS:  Entire fuel system, except extensions for driver control of air or fuel, must be outside passenger and driver compartment. | | | |
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|  | | | | | | | | | REJECT VEHICLE IF:  Any part of fuel system, except extensions for driver control of air or fuel, is within passenger/driver compartment. | | | |
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|  | | | 1) | | Fuel Filler  Cap | | | |  | | | |
|  | | | | | PROCEDURES/SPECIFICATIONS:  Meets manufacturer's specifications. Must be the same as or equivalent to original equipment. | | | |
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|  | | | | | | | | | REJECT VEHICLE IF:  Fuel filler cap is defective or missing. | | | |
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|  | | | 2) | | Fuel Lines | | | | PROCEDURES/SPECIFICATIONS:  Firmly attached. No leakage, seepage, abrasion, or chafing. Must be 11 13/16  inches (300 MM) from any part of exhaust system that contains exhaust gas or be safeguarded by a heat shield. Inside engine compartment, the chassis manufacturer's standard shall govern separation and shielding between parts designed by chassis manufacturer.  Exception: Fuel system components on diesel powered engines that are located within four inches of a component containing exhaust gas must be shielded. | | | |
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|  | | | | | | | | | REJECT VEHICLE IF:  Fuel lines are cracked, leaking, insecure mounting, damaged, clamps missing, mount clips missing or not separated or not shielded properly (if applicable). | | | |
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|  | | | 3) | | Fuel Filler  Tube | | | |  | | | |
|  | | | | | PROCEDURES/SPECIFICATIONS:  Check condition. | | | |
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|  | | | | | | | | | REJCT VEHICLE IF:  Fuel filter tube leaks or is not secure. | | | |
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|  | | | 4) | | Fuel Pump | | | | PROCEDURES/SPECIFICATIONS:  Check condition. | | | |
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|  | | | | | | | | | REJECT VEHICLE IF:  Fuel pump leaks, is damaged or is not secure. | | | |
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|  | | | 5) | | Fuel Tank(s) | | | | PROCEDURES/SPECIFICATIONS:  Tank must be safeguarded by structure that protects from side or angular impact blows. (49 CFR 571.301)  Exception: A bus with chassis (incomplete vehicle) manufactured in March 1977 or earlier is exempt from being equipped with a tank guard structure. | | | |
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|  | | | | | | | | | REJECT VEHCILE IF:  Fuel tank(s) have leakage, seepage, or abrasion; hole or crack that would leak or seep when tank is full. | | | |
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|  | | | 6) | | Fuel Tank  Mount(s) | | | |  | | | |
|  | | | | | PROCEDURES/SPECIFICATIONS:  Check condition. | | | |
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|  | | | | | | | | | REJECT VEHICLE IF:  Fuel tank mount(s) are cracked, loose, or bolts are missing. | | | |
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|  | | | 7) | | Fuel tank  straps | | | | PROCEDURES/SPECIFICATIONS:  Check condition. | | | |
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|  | | | 8) | | Alternate  Fuel Systems  (LPG or CNG) | | | |  | | | |
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|  | | | | | An alternate fuel system which is no longer in use must be completely removed from the vehicle. | | | |
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|  | | | | | A) | | | Carburetion  Equipment |  | | | |
|  | | | | | | | | A fuel filter is required on alternate fuel systems. | | | |
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|  | | | | | B) | | | Container  Installation |  | | | |
|  | | | | | | | | i) | Compressed or liquefied gas containers shall not be mounted in the passenger or driver's compartment. | | |
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|  | | | | | | | | | ii) | | Container vales, appurtenance and connections shall be mounted in an enclosed compartment. | |
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|  | | | | | | | | | iii) | Containers shall be located at least 36 inches from the entrance door and any emergency exit. Due to the smaller size of Type II school buses, space limitations may sometimes make it impossible to locate a fuel tank further than 36 inches from an exit. *A Type II school bus has a gross vehicle weight rating of 10,000 pounds or less* [625 ILCS 5/12-800] as defined in Section 12-800 of the Illinois Vehicle Equipment Law. If the original fuel tank for a Type II bus was located within 36 inches from any exit, the alternate fuel container may be located in the same location as the original tank. | | |
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|  | | | | | C) | | | Identification | The fuel identification decal (See Section 441.Illustration D.) shall be displayed near the rear bumper and visible from the rear of the vehicle. The decal shall not be placed on any black portion of the bus body. | | | |
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|  | | | | | D) | | | Pipe and Hose  Installation |  | | | |
|  | | | | | | | | i) | No fuel supply line shall pass through the driver or passenger's compartment. | | |
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|  | | | | | | | | | ii) | The pressure relief device shall be fabricated so that in the event of stress, the pipe or adapter will break away without impairing the function of the relief valve. | | |
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|  | | | | | | | | | iii) | | | If installed, the adapter connecting the piping system to the pressure relief device shall neither touch nor restrict any movable part of the pressure relief valve. |
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|  | | | | | | | | | iv) | | | The relief valve discharge piping system (piping system) must not be reduced at any point from the relief valve to the point of release into the atmosphere. |
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|  | | | | | | | | | v) | | | The piping system shall be routed to minimize sharp elbows or bends. Installation of any commercially available piping installed to meet the manufacturer's specifications is acceptable. Any fittings that restrict the flow of discharge are prohibited. From the pressure relief device adapter to the atmosphere, the minimum inside diameter of the piping must measure at least ¾ of an inch. |
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|  | | | | | | | | | vi) | | | The piping system shall neither block nor hamper the operation of any window or door. The piping system shall preserve widths of passageways, aisles and emergency exits. |
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|  | | | | | | | | | vii) | | | Every portion of the piping system shall be gas tight (except the outlet) and shall be able to withstand forces from the discharge when the relief valve is in full open position. If for any reason the discharge outlet becomes blocked, the piping system must be capable of holding the full system pressure. |
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|  | | | | | | | | | viii) | | | To facilitate the removal of accumulated water, a drain cock shall be installed at the lowest point of the piping system. The drain must be capable of being held open manually and close automatically to prevent expelling LPG if discharged through the relief valve. A weep hole, or other opening that may result in discharged LPG flaming beneath the bus is prohibited. |
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|  | | | | | | | | | ix) | | | The portion of the piping system that leads upward to the atmosphere shall be installed either inside the passenger compartment, on the outside of the bus, or in the body wall between the inner and outer "skins" of the bus body. |
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|  | | | | | | | | | x) | | | Piping on the outside of the body shall be shielded below the window line to prevent "grabbing hold" or "hitching to." However, discharge piping that is located between the windshield and the vent window at the left front corner of the body need not be shielded. |
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|  | | | | | | | | | xi) | | | Any portion of the piping system that is installed either inside the passenger compartment or inside the body wall shall consist of one piece originating below the bus floor and exiting outside the bus roof. Every hole where piping passes through the floor or roof shall be sealed. |
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|  | | | | | | | | | xii) | | | The piping system must terminate above the eave lines of the bus body. |
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|  | | | | | | | | | xiii) | | | The outlet of the piping system shall be located at least 36 inches from the air inlet or outlet of a ventilator or similar device installed on or near the roof. A "similar device" includes the fresh air intake of a heating, ventilating or air conditioning system. It does not include a side window that opens near the roof. |
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|  | | | | | | | | | xiv) | | | A rain cap is required where the piping system exits into the atmosphere to minimize water or dirt from entering into either the relief valve or its discharge piping. Installation of any commercially available rain cap installed to meet the manufacturer's specifications is acceptable. The cap shall be installed to minimize the entrance of water or dirt while the vehicle is in motion. |
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|  | | | | | | | | | xv) | | | The discharge piping system on a special education school bus shall conform to all provisions of this Part. |
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|  | | | | | | | | | REJECT VEHICLE IF:  Alternate fuel system does not meet requirements listed above. | | | |
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| b) | GRAB HANDLES | | | | | | | |  | | | |
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|  | | | | 1) | | | Exterior | |  | | | |
|  | | | | | | | | | PROCEDURES/SPECIFICATIONS:  At least one step grab handle shall be located on each side at front of body so as to provide easy access to windshield. | | | |
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|  | | | | | | | | | REJECT VEHICLE IF:  Exterior grab handles are missing or loose. | | | |
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|  | | | | 2) | | Interior | | |  | | | |
|  | | | | | | | | | PROCEDURES/SPECIFICATIONS:  Stainless clad steel with measurements not less than 10 inches long located in unobstructed location inside doorway.  As instructed by an officer of the Department, draw a ½ inch hexagon nut attached to a string through the junction where the grab handle attaches to the lower stepwell. | | | |
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|  | | | | | | | | | REJECT VEHICLE IF:  Interior grab handles are missing or are not solidly attached.  Nut becomes lodged on the grab handle. (Retrofit kit is required). | | | |
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| d) | HEATERS | | | | | | | |  | | | |
|  | | | | | | | | | PROCEDURES/SPECIFICATIONS:  Nameplate must identify manufacturer and heater rating capacity. Must be capable of maintaining inside temperature of 50 degrees. The heater hoses shall be supported to guard against excessive wear due to vibration and shall not interfere with or restrict the operation of any engine function. Any hose in the passenger compartment shall be protected to prevent injury from burns in the event of rupture. If heater is not protected by a seat, it must be padded. | | | |
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|  | | | | | | | | | REJECT VEHICLE IF:  Heater is missing; in poor working condition; defective hoses, supports or baffles; not firmly attached or not padded when required. | | | |
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| d) | | HOOD | | | | | | |  | | | |
|  | | | | | | | | | PROCEDURES/SPECIFICATIONS:  Open hood and inspect safety catch and hinges for proper operation. Close hood and inspect for proper full closure. Manually inspect latches or remote control for proper operation. | | | |
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|  | | | | | | | | | REJECT VEHICLE IF:  Hood does not open or hood latches do not securely hold hood in its proper fully-closed position. Secondary or safety catch does not function properly. Hinge is broken, missing, or not attached to body. | | | |
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| e) | HORN | | | | | | | |  | | | |
|  | | | | | | | | | PROCEDURES/SPECIFICATIONS:  *At least one horn shall be provided giving an audible warning at a distance of 200 feet and shall be conveniently controlled from the operator's seated position.* (Section 12-601 of the Illinois Vehicle Equipment Law) | | | |
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(Source: Amended at 22 Ill. Reg. 11889, effective June 29, 1998)