**Proposed Changes to**

**Kentucky Minimum Specifications for School Buses**

**2016 Edition**

Page 14

~~**HYDRAULIC BRAKING SYSTEM**~~

~~All hydraulic brake systems shall utilize the power steering pump as the primary power source, with an electrical driven power source operating as a secondary system in case of failure of the primary power source. The hydraulic power brake system shall be Delco-Moraine Hy-Power or prior approved equal. The brake system shall utilize a power steering pump, or totally separate mounted pump, as the primary power source.~~

~~An electric-driven source to safeguard primary pump failures and electrical protection for the electrical driven power source shall be sized to eliminate the interruption of the circuit breaker during service or continual use.~~

~~The failure warning system shall be both visual and audible. The light is to be mounted on the dash. The audible signal shall be a buzzer-type located in the dash area and shall be loud enough to be easily heard by the driver. A check of the warning system shall be activated for a system check each time the engine is turned on.~~

~~PARKING BRAKE~~

~~The parking brake shall be either the Orscheln lever-type located readily accessible to the driver or the de-energized spring brake type located on the rear axle, rear axle driveline or transmission.~~

~~Orscheln lever-type parking brakes shall meet the holding requirements as outlined by FMVSS 105, with no more than seventy (70) pounds applied to the lever arm for engagement or disengagement. Any Orscheln lever-applied driveline brake shall be of the drum and internal expanding shoe type. A ratchet type, foot operated parking brake shall be acceptable provided it~~

~~meets the holding requirements of FMVSS 105 and is approved by the Pupil Transportation Branch at the pilot inspection.~~

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~~NOTE: ANY CHASSIS MANUFACTURER USING THE ORSCHELN LEVER-TYPE PARKING BRAKE SHALL EQUIP THE ORSCHELN LEVER SO THAT IT WILL REMAIN AT A FULL REST POSITION, ABSENCE OF SLACK TRAVEL, IN A MANNER THAT WOULD NOT CAUSE MORE THAN SEVENTY (70) POUNDS OF LOAD NEEDED FOR ENGAGEMENT. THE PARKING BRAKE FRICTION MATERIAL SHALL BE ASBESTOS-FREE.~~

GENERAL REQUIREMENTS

All brake lining shall be of asbestos-free material. ~~All hydraulic brake systems 16-22 passenger shall be equipped with an antilock brake system.~~

Reason for change: All type C and D buses are equipped with air brakes. This section is no longer needed.

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AIR COMPRESSOR

The air compressor shall be a minimum 13.2 cubic foot capacity. The air compressor shall be Bendix Corporation Tu-Flo 550, Wabco NW-250 15.2 cubic foot capacity or prior approved equal.

NOTE: AIR INTAKE SHALL BE FILTERED THROUGH THE ENGINE AIR FILTER on all diesel powered chassis.

Reason for change: Propane powered buses have a separate compressor filter to maintain air flow readings for engine operation.

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SLACK ADJUSTERS (AUTOMATIC)

Automatic slack adjusters shall be installed as original equipment on all air brake systems and have worm adjustment screws for continuous adjustment with external grease fittings. Automatic slack adjusters shall be Haldex 400-10-001, Meritor A32-3276-H-1152, A15-3275-J-1154 or prior approved equal. Grease fitting shall be indexed for serviceability.

Reason for change: Vendor requested change. Allows more competition.

## COOLING SYSTEM

A coolant recovery system shall be provided. All coolant overflows, if applicable, shall be run outside of the engine compartment and extend below the frame rail. The coolant system shall be monitored by an audible and visual signal for over-temperature conditions and shall be located in the driver compartment (refer to "Engine" section). Coolant shall be fully formulated, ethylene glycol, non-OAT ~~long life~~ diesel coolant ASTM D-6210-08.

Reason for change: Clarifies type of coolant to be used.

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## ENGINE

The chassis shall be equipped with one of the following diesel engines:

| Engine | Minimum Horsepower | Chassis |
|---|---|---|
| ~~INTERNATIONAL MAXFORCE DT466~~ | ~~190~~ | ~~34-52 PASSENGER TYPE "C"~~ |
| ~~INTERNATIONAL MAXFORCE DT466~~ | ~~215~~ | ~~66-72 PASSENGER TYPE "C"~~ |
| ~~INTERNATIONAL MAXFORCE DT466~~ | ~~215~~ | ~~66-78 PASSENGER "FC"~~ |
| INTERNATIONAL MAXFORCE DT466 | 230 | 78-84 PASSENGER "RE" |

| | | |
|---|---|---|
| INTERNATIONAL MAXFORCE DT466 | 250 | 78-84 PASSENGER "RE" |
| Cummins ISB | 190 | 34-52 PASSENGER TYPE "C" |
| Cummins ISB | 210 | 66-72 PASSENGER TYPE "C" |
| Cummins ISB | 210 | 66-78 PASSENGER "FE" |
| Cummins ISB | 230 | 78-84 PASSENGER "RE" |
| Cummins ISB | 250 | 78-84 PASSENGER “RE” |

Reason for change: The International DT 466 is no longer being offered in type C buses.

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GROSS VEHICLE WEIGHT RATING

The chassis shall have a GROSS VEHICLE WEIGHT RATING of the following minimums:

| Type | Chassis (Passenger Capacity) | Gross Axle Weight (Pounds) |
|---|---|---|
| **"C"** | **34** | **21,000** |
| **"C"** | **52** | **25,500** |
| **"C"** | **66-72** | **~~29,000~~ 27,000** |
| **"D" FC** | **70-78** | **30,000** |
| **"D" RE** | **78-84** | **35,000** |

Reason for change: Allows the use of lighter front springs resulting in a softer ride.

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SPRINGS (FRONT-REAR)

Each front and rear spring shall have a capacity, at the ground, of the minimums/maximums shown below:

| Type | Chassis (Passenger Capacity) | Front Minimum (Pounds) | Rear Minimum (Pounds) | Rear Maximum (Pounds) |
|---|---|---|---|---|
| "C" | 34 | 4,000 | 6,500 | 6,500 |
| "C" | 52 | 4,000 | 8,750 | |
| "C" | 66-72 | ~~5,000~~ 4200 | 9,250 | |
| "D" FC | 70-78 | 7,000 | 9,250 | |
| "D" RE | 78-84 | 6,500 | 11,500 | |

Reason for change: Allows the use of lighter front springs resulting in a softer ride.

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**TIRES AND RIMS**

Tires supplied on all Kentucky school bus chassis shall be first-line, steel belted, low profile and tubeless with highway-type tread. They shall be supplied by one of the major tire manufacturers under its own brand name and furnished as original equipment as shown in the chassis supplier's most recent data book and specifications literature on file with the Pupil Transportation Branch. The tires shall be of the same manufacture and tread design. The tires shall be Goodyear 295/75R22.5 G661 LR G, 295/75R22.5 G395~~5~~9A LR H, Continental/General 295/75R22.5, Michelin 275/80R22.5 XZE, Bridgestone/Firestone 295/75R22.5 or prior approved equal.

Reason for change: The G395 tire is no longer available and has been superseded by the G399A.

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The following engines shall be equipped with the following automatic transmissions:

| Engine | Horsepower | Capacity | Transmission | Standard/Option |
|---|---|---|---|---|
| ~~INTERNATIONAL DT466E~~ | ~~190~~ | ~~34-52~~ | ~~PTS2500~~ | ~~STANDARD~~ |
| ~~INTERNATIONAL DT466E~~ | ~~215~~ | ~~66~~ | ~~PTS2500~~ | ~~STANDARD~~ |
| ~~INTERNATIONAL~~ | ~~215~~ | ~~66~~ | ~~PTS3000~~ | ~~OPTION~~ |

| Engine | Horsepower | Capacity | Transmission | Standard/Option |
|---|---|---|---|---|
| ~~DT466E~~ | | | | |
| ~~INTERNATIONAL DT466E~~ | ~~215~~ | ~~72-C~~ | ~~PTS3000~~ | ~~STANDARD~~ |
| ~~INTERNATIONAL DT466E~~ | ~~215~~ | ~~72-C~~ | ~~PTS2500~~ | ~~OPTION~~ |
| ~~INTERNATIONAL DT466E~~ | ~~215~~ | ~~70-78 FC~~ | ~~PTS3000~~ | ~~STANDARD~~ |
| INTERNATIONAL DT466E | 230-250 | 78-84 RE | PTS3000 | STANDARD |
| CUMMINS ISB | 190 | 34-52 | PTS2500 | STANDARD |
| CUMMINS ISB | 210 | 66 | PTS2500 | STANDARD |
| CUMMINS ISB | 210 | 66 | PTS3000 | OPTION |
| CUMMINS ISB | 210 | 72-C | PTS3000 | STANDARD |
| CUMMINS ISB | 210 | 72-C | PTS2500 | OPTION |
| CUMMINS ISB | 210 | 70-78 FC | PTS3000 | STANDARD |
| CUMMINS ISB | 230-250 | 78-84 RE | PTS3000 | STANDARD |
| FORD 6.8L V-10 Propane | 330 | 66-72 C | Ford 6R140 | STANDARD |
| FORD 6.8L V-10 Propane | 330 | 70-78 FC | Ford 6R140 | STANDARD |
| GM 8.0L V-8 Propane | 339 | 66-72 C | PTS2500 | STANDARD |
| GM 8.0L V-8 Propane | 339 | 70-78 FC | PTS2500 | STANDARD |
| PSI 8.8L NA V-8 Propane | 270 | 66-72 C | PTS2500 | STANDARD |
| PSI 8.8L NA V-8 Propane | 270 | 70-78 FC | PTS2500 | STANDARD |

Reason for change: The International DT 466 is no longer being offered in type C buses.

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## WARRANTY

Chassis warranties shall be ~~the manufacturer's standard, twelve thousand (12,000) miles or twelve (12) months. Any chassis or chassis component warranty extension greater than standard warranty coverage shall be made available to purchasers.~~ For five years, one-hundred thousand miles, bumper to bumper excluding fair wear and tear items. Repairs under $500 parts and labor may be repaired at the district's maintenance facility with the dealer supplying the parts and the district supplying the labor at the districts discretion. THE IN-SERVICE DATE OF THE CHASSIS WARRANTY SHALL BE STATED AS PART OF THE INVITATION TO BID ON KENTUCKY SCHOOL BUSES. (Normally August 15) One copy of the chassis/body manufacturer's bus warranty and service handbook shall be shipped to each purchasing school district. Pass through warranty shall be handled by the selling dealer without additional charges to the local district. ~~All wiring and electronic modules shall be warranted for five years.~~

~~All drive train (Engine, Transmission, Differential and Drivelines) warranties shall be a minimum five-year unlimited miles with one hundred (100) percent parts and labor.~~

Reason for change: Clarifies various sub-component warranties.

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## WHEEL ALIGNMENT

All steering axles shall have a toe-in set to provide for maneuverability and longevity under a normally loaded school bus axle in a normal driving mode.

~~Unladed axles shall have toe-in preset to one thirty-second (1/32) inches +/- one thirty-second (1/32") inch.~~

~~NOTE: SHOULD THE TIRE (GOODYEAR, CONTINENTAL/GENERAL, MICHELIN AND/OR BRIDGESTONE/FIRESTONE) AND CHASSIS MANUFACTURERS JOINTLY DETERMINE AND CERTIFY A TOE-IN REQUIREMENT OTHER THAN THE REQUIREMENT REFERENCED BY THE ABOVE MENTIONED STANDARD AS THE OPTIMUM SETTING FOR DRIVABILITY,~~

~~MANEUVERABILITY AND LONGETIVITY, THE ABOVE MENTIONED STANDARD WILL ADJUST ACCORDINGLY.~~

Reason for change: Buses are purchased as complete units so there is no longer a need to set wheel alignment responsibility on subcontractors. The bus manufacturer is solely responsible.

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**ANTIFREEZE**

The bus body company shall replenish the cooling system and fill the body heater system with formulated, ethylene glycol, ~~long life,~~ heavy duty diesel coolant ASTM-D-6210. Antifreeze type and additives shall meet the requirements of the respective engine manufacturers and radiator suppliers. ~~The additive levels, when required, shall be recorded by the company performing the pre-delivery service. Prior evidence that antifreeze meets the respective manufacturer's recommendation must be furnished.~~

NOTE: AN ~~EXTENDED LIFE~~ ANTIFREEZE DECAL SHALL BE APPLIED IN THE VICINITY OF THE RADIATOR FILL NECK AND OVERFLOW BOTTLE FILL AND SHALL STATE THE TYPE OF ANTIFREEZE TO BE UTILIZED.

Reason for change: Clarifies type of coolant to be used.

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HEAD BUMPER PAD (ENTRANCE DOOR, EMERGENCY DOOR SIDE AND REAR)

There shall be a head bumper pad installed on the inside door header. This bumper pad shall be approximately three (3) inches in width and shall extend across the entire width of the entrance door opening. The head bumper shall be padded a minimum of one-half (1/2) inch foam, covered with the same upholstery material as covering the seats. The upholstery shall enclose all sides and ends. Exposed screws shall be installed with counter sunk finish washers or other means to protect the riders from impacts. When the head bumper pad mount is used to enclose door retention hardware the cover over the hardware shall be capable of supporting a 120 lb weight

when dropped from a height of four (4) feet. The weight shall be attached to the cover at a single point.

NOTE: SELF-SKINNING FOAM HEADER PADS MEETING ALL OTHER REQUIREMENTS ARE PERMITTED.

EMERGENCY DOOR (REAR)

The upper portion of the emergency door shall be equipped with approved safety glass. The exposed area shall not be less than four hundred (400) square inches. The lower portion of the emergency door shall be equipped with approved ASA laminated glass. The exposed area shall be approximately three hundred and fifty (350) square inches.

Reason for change: Allows the use of self-skinning foam for header pads.

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**FANS (AUXILIARY)**

A body header mounted squirrel cage type fan, or approved equal, shall be installed on thirty-four (34) through eighty-four (84) passenger buses. This system shall be equipped with automotive type louvers that can be directed toward the driver. A single auxiliary fan shall be added ~~to the left of the driver~~ to the left side of the windshield located to provide maximum windshield coverage. This Auxiliary fan shall be a heavy duty type, six inch (6") blades and caged with a small mesh corrosion-resistant metal guard.

NOTE: If the bus is equipped with bulkhead air conditioning, the header mount squirrel cage fan shall be deleted and the air conditioner shall have a portion of its output directed toward the windshield.

Reason for change: Clarifies the location and the requirement for auxiliary fans.

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**FLOOR**

The floor and floor covering material shall have an opening cut over the fuel tank, in the area of the fuel-sending unit, to allow the removal of the fuel-sending unit (Diesel buses only). This opening shall be sealed and covered by a metal plate that is attached to the flooring with metal screws.

Propane powered buses do not require a fuel sending unit of this type and no access opening is required.

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STEP COVERING

Steps shall be covered with first quality, specially processed step covering material. Koroseal pebble top, Blue #71; RCA Rubber, Apex, Color #702; SMI Studded Step flooring, Color #702 or approved equal shall be used. Step covering material shall have non-skid characteristics. The step covering shall have a contrasting white, turndown nosing. The lip of the turndown shall be molded in an approximate 90º shape and shall be an integral part of the tread. Pebble pattern shall extend to the leading edge of the nosing on all but the top step and shall have corrosion and impact resistant polymeric or galvanized metal backing.

The 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. All floor covering seams, joints and termination edges shall be sealed.

~~NOTE: ALL FLOOR COVERING SEAMS, JOINTS AND TERMINATION EDGES SHALL BE SEALED.~~

NOTE: Body companies may coat the step well with "Proflex", "Rhino Liner" or similar material provided The pebble pattern is maintained on the tread and the white nosing is maintained as an added component. This material may be black in color. All surfaces, inside and out, shall be coated. The material used shall meet Wear Resistance ASTMD5963, ASTMD4060 and Slip Resistance ASTM D2047.

Reason for change: Allows body companies to use "Proflex" type material on step wells when practical.

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**Critical Dimensions - Wheelbase, Passenger Capacity, Rear Axle Overhang**

School bus body shells shall be mounted on the following school bus chassis and shall meet the following performance specification:

| | Minimum Wheelbase | Passenger Capacity | Maximum Rear Axle Overhang |
|---|---|---|---|
| **Type "C"** | **167 inches** | **34** | **10 feet, 6 inches** |
| | **215 inches** | **52** | **11 feet** |
| | **273 inches** | **66** | **12 feet, ~~6~~9 inches** |
| | **273 inches** | **72** | **13 feet, 6 inches** |
| **Type "D" FC** | **228 inches** | **70** | **11 feet** |
| | | **74** | **12 feet, ~~6~~9 inches** |
| | | **78** | **13 feet, 4 inches** |
| **Type "D" RE** | **Shall be manufacturer's standard** | | |

Reason for change: Three to six extra inches of body length is needed to properly seat buses and maintain access to emergency exits.

Page 52

**FUEL FILL COVER**

The fuel fill opening in the body skirt shall be equipped with a spring loaded hinged cover held closed by a driver positioned latch. This latch SHALL BE METAL and shall require prior approval. Locking fuel fill doors are acceptable on propane buses only.

"DIESEL FUEL" shall be painted or decaled on or adjacent to the fuel fill access cover in approximately one (1) inch black lettering.

"LIQUIFIED PETROEUM GAS" shall be painted or decaled on or adjacent to the fuel fill access cover in approximately one inch black lettering for propane-fueled engines installation.

Reason for change: These changes are to assure compliance with NFPA 58 Liquefied Petroleum Gas Code.

Page 54

HEATER DEFROSTER

Defrosters shall be included in the total electrical load for heaters and meet the following criteria:

A. Capable of defrosting the total windshield area in a reasonable period of time under all normal driving conditions.
B. Shall provide means of defrosting service door glass independent of the windshield.
C. Capable of mixing a minimum fifty (50) percent outside fresh air with defrosting air.
D. System shall exceed the SAE standard J381~~ J382~~ performance requirement without the use of an auxiliary fan and with three (3) gallons per minute one hundred seventy (170) degree water applied.

NOTE: ALL MANUFACTURERS SHALL DEMONSTRATE THE CAPABILITIES OF THEIR HEATING AND DEFROSTING SYSTEM PRIOR TO THE BID AWARD. COOLANT USED FOR HEATER SYSTEMS SHALL MEET ENGINE OEM SPECIFICATIONS.

Reason for change: SAE standard J382 is no longer an active standard.

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**LAMPS AND SIGNALS**

CLEARANCE LAMPS

The body shall be equipped with armored (unless flush mounted) clearance and mid-body lamps. These lamps shall be manufactured by Grote, Weldon, Optronics or Sound Off Inc., LED lamps, minimum of four (4) candlepower, or prior approved equal. These lamps are to be mounted at the highest and widest position on the corners.

IDENTIFICATION LAMPS

Identification lamps shall be individually mounted, connected to the chassis headlight circuit and be activated by the chassis headlight switch relay. Lamps shall be manufactured by Weldon, Grote, Optronics or Sound Off Inc LED lamps or prior approved equal.

Reason for change: Vendor requested change. Allows more competition

Page 63

NAME OF PRIVATE OWNER

On the bodies of those school buses leased to the board by private owners, the name of the owner and the word "OWNER" shall be painted or decaled in two-inch black letters just back of the entrance door. ~~in the area just above the fuel fill opening.~~

EXAMPLE: OWNER

JOHN Q. ADAMS

Reason for change: Fuel fill doors have been relocated and should not be used to describe the location of this lettering.

Page 64

REAR VISION (OUTSIDE)

The mirror system shall be capable of providing the driver with a view along the left and right sides of the vehicle as required by FMVSS 111. These mirrors shall be heated and remotely adjustable. The heating element shall be equipped with a timer. The mirrors shall be mounted so as to prevent vertical and horizontal vibration. This standard shall be met using Rosco Eurostyle, AccuStyle or approved equal. These mirrors shall be mounted on breakaway arms and breakaway brace.

Reason for change: This mirror is equal to the Eurostyle mirror.

Page 65

**OPERATING MECHANISMS (IDENTIFICATION)**

All operating mechanisms or controls installed by the bus ~~body~~ supplier shall be identified by the decal or lettering as to its function and operation. These would include such items as electrical switches, levers, the stop arm control valve, the driver's foot warmer vent, the heater fresh air intake, etc.

Page 68

Seat cushions shall be constructed not to depress more than eighty (80) percent when pupil weight equal to three hundred sixty (360) pounds is applied to the total seat

area. Cushions shall be constructed for a mid-cushion height of approximately four (4) inches bonded in a manner to provide seating stability and minimize breakage. All seat backs shall have a minimum height of ~~twenty-eight (28) inches.~~ twenty-four (24) inches above seat reference point.

Reason for change: Clarifies the point of measurement for seat back height and uses the same language as FMVSS 222.

Page 70

Crash Barriers

All crash barriers ~~installed in front of all seated positions, including seated locations specially adapted for handicap wheelchair locations,~~ shall be closed to the floor level.

Reason for change: Clarifies the need for all barriers to be closed to the floor.

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**SUPPORT EQUIPMENT**

BELT CUTTER

All school bus bodies shall be equipped with a belt cutter installed **in** ~~the driver's accessory compartment.~~ a location accessible and within view of the seated driver. This belt cutter shall be a full handgrip type subject to approval of the Pupil Transportation Branch. If the belt cutter is attached inside the compartment ~~The belt cutter shall be permanently attached to an approved surface area within the accessory compartment~~. the lid of the ~~accessory~~ compartment (outside) shall readily identify the belt cutter located within.

NOTE: ANY ~~OTHER~~ LOCATION SHALL REQUIRE APPROVAL OF THE PUPIL TRANSPORTATION BRANCH AT THE PILOT INSPECTION.

Reason for change: Clarifies the required location of belt cutter and allows the belt cutter to be located outside the accessory compartment.

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## WARRANTY

~~The normal body warranty shall be the manufacturer's standard, twelve thousand (12,000) miles or twelve (12) months. Any body or body component warranty extension greater than standard warranty coverage shall be made available to purchasers.~~ Body warranty shall be five years, 100,000 miles, bumper to bumper, excluding normal wear and tear items. Repairs under $500 parts may be repaired at the district's maintenance facility with the dealer supplying the parts and the district supplying the labor.at the districts discretion. The date in which the body warranty shall begin will be stated as part of the invitation to bid on Kentucky school buses. Major component pass through warranty shall be filed with the Kentucky Department of Education at the pre-bid award conference. All bus bodies shall be warranted against rust through for ten years (not pro-rated).

Reason for change: Clarifies various sub-component warranties.

Page 74

PUSH-OUT WINDOWS

Type "A", "C", and "D" school buses shall be equipped with push-out windows. The windows shall meet the requirements of FMVSS 217. The windows may be horizontally or vertically hinged provided the same type is used for the entire order. ~~They shall require a maximum clear area available, as referenced to the position of the seat backs (refer to "SEATS (PUPIL)").~~ The windows shall be identified for emergency egress with decals on the inside and outside. Decals shall be of the same manufacturer and type as used on the emergency door (refer to "EMERGENCY DOOR"). Decals may be placed on the lower glass area near the release handle subject to the approval of the Pupil Transportation Branch. Decals shall be applied on the outside of the glass so the student cannot peel the decal off. (Requires reverse print decal).

Reason for change: All push out windows are now 22 by 24 inches and are hinged forward. This old standard was written for 22 by 18 inches top hinged windows. This part of the standard is obsolete.

Page 80

## BRAKES

GENERAL REQUIREMENTS

All brake lining shall be of asbestos-free material. All hydraulic brake systems 16-22 passenger shall be equipped with an antilock brake system

Reason for change: This section is transferred from Section I, Part 1 to Section II, Part 1. The 16 -22 passenger buses are the only hydraulic buses still being purchased. All hydraulic brake information is now in one location.

Page 88

The controls pennant shall be mounted and accessible to the operator from the outside of the bus. It shall be protected by a re-settable circuit breaker within the lift manufacturer's specifications. ~~The outside vertical post shall be padded to below barrier height.~~ The platform shall be thirty-inches wide at a minimum, with the power provided through the ignition switch energizing a separate solenoid. The solenoid on all twenty-four (24)-passenger buses shall be located under the hood. A ground cable shall be installed from the lift frame to the vehicle frame of the bus.

Reason for change: This standard was written for the Braun 211 series lifts. The state now uses the Braun 917 series. This portion of the standard is no longer needed.

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## ENGINE BRAKE

An engine brake may be factory installed on type C and D buses. The engine brake shall be integrated into the engine and shall not be a stand-alone or aftermarket addition. The engine brake shall not increase the noise level, when activated by more than two (2) decibels.

Reason for change: Allows the use of engine brakes as a local district option.

**Compliance with FMVSS**

All propane powered buses shall be in full compliance with all applicable Federal Motor Vehicle Safety standards as well as CMVSS 301.1 (LPG Fuel System Integrity).

## Propane Powered Chassis Modification

A propane fueled engine may be installed on sixty-six (66) and seventy-two(72) passenger type C and Seventy-eight (78) passenger type D, FE school buses as a local district purchase option. These propane powered buses shall be designed to improve fuel economy while decreasing emissions.

All propane powers buses shall be equipped clearly marked ~~in one inch block letters~~ with lettering and decals as required by NFPA 58 'Liquefied Petroleum Gas Code' to enable first responders to readily identify the vehicle as being fueled by propane.

All propane systems shall be factory installed by the Original Equipment Manufacture on new buses only.

The propane powered chassis shall comply with all specifications for a Type C school bus with the following exceptions and additions:

**Fuel tanks**

1. Minimum ~~70~~ 60 gallon mounted between the vehicle frame rails and shielded under the bus.
2. Optional ~~100~~ 90 gallon mounted between the vehicle frame rails and shielded under the bus.

**Propane Identification**

A propane vehicle emblem or label shall be affixed to the ~~rear bumper.~~ right tag panel. An emblem or label shall also be affixed to the right side of the bus rearward of the entrance door and to the left side of the bus aft of the driver's window. LIQUIFIED PETROLEUM GAS ~~ONLY~~ sign shall be affixed above the fuel fill door in minimum one inch block letters. The fuel door shall be lockable. Cut off valves to the tanks shall be clearly labeled.

**Transmission**

A propane fueled bus shall use a Ford 6R140 or an Allison 2300/2500 series transmission. Transmission shall be filled with ~~TES 295 fluid.~~ synthetic fluid approved by the transmission supplier

**Warranty**

All propane systems shall be factory installed and backed by a five year unlimited mileage warranty on components related to the fuel system (tanks, valves, injectors) all other warranties shall be as stated in the Kentucky Minimum Specifications, Section I parts 1-2.

Reason for change: Clarifies the fuel leakage standard, Useable storage capacity, propane identification language and allows the uses of proper transmission fluid for various transmission options.

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**STORAGE COMPARTMENTS**

Kentucky school districts may install under floor, skirt-mounted key-locked storage compartments as optional equipment on fifty-two (52) through eighty-four (84) passenger school buses. Storage compartments shall be of the largest capacity available as standard production for the rated pupil capacity school bus. Kentucky school districts may install one (1) storage compartment on the left side center of a fifty-two (52) passenger school bus body and three (3) storage compartments, on a sixty-six (66) through seventy-eight (78) passenger buses, or any

combination thereof, on the left side center, left side rear and/or right side rear (depending on exhaust routing) and the right side center. The storage box shall be sealed to minimize dust and water leakage.

Kentucky school districts may retrofit under floor, skirt-mounted key-locked storage compartments in Kentucky school buses. Catches shall utilize a rod type mechanism. (Cable release catch mechanisms may be utilized if provisions are made in the compartment design to permit opening of the compartment door in the event that the cable breaks or becomes detached.) Storage compartments must be manufactured by the body company who originally manufactured the school bus body on which they are to be installed. Under skirt storage compartments shall be installed as per original equipment the manufacturer's instructions.

Reason for change: Allows the use of cable type releases on storage boxes.

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**WINDSHIELD TINTING**

Local districts may, at their discretion, tint the upper one-fourth (¼) of the windshield and driver window. Tinting shall not exceed 28% light transmittance. Drivers window tinting may not interfere with the drivers sight line of the rearview mirrors.

Reason for change: Local districts have requested the tinting on the drivers upper window glass be allowable.