

- E. Each bus shall be equipped with a durable webbing cutter having a full width handgrip and a protected, replaceable or non-corrodible blade. The required webbing cutter shall be mounted in a location accessible to the seated driver in an easily detachable manner.

### **SHOCK ABSORBERS**

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

### **SIDE SKIRTS**

School bus body side skirts between the front and rear axles shall extend down to within two inches plus or minus, of the horizontal line from the center of the front spindle to the center of the rear axle. The manufacturer may offer optional side skirt lengths that extend lower than this requirement. This measurement shall apply to a new unloaded school bus located on a flat, level surface.

### **STEERING GEAR**

- A. The steering gear shall be approved by the chassis manufacturer and designed to ensure safe and accurate performance when the vehicle is operated with maximum load and at maximum speed.
- B. If external adjustments are required, the steering mechanism shall be accessible to make adjustments.
- C. Changes shall not be made to the steering apparatus which are not approved by the chassis manufacturer.
- D. There shall be a clearance of at least two inches between the steering wheel and cowl, instrument panel, windshield or any other surface.
- E. Power steering is required and shall be of the integral type with integral valves.
- F. The steering system shall be designed to provide a means for lubrication of all wear-points that are not permanently lubricated.

### **STEPS**

- A. The first step at the entrance door shall be not less than 10 inches and not more than 14 inches from the ground when measured from the top surface of the step

to the ground, based on standard chassis specifications, except that on Type D vehicles, the first step at the entrance door shall be 12 inches to 16 inches from the ground. An auxiliary step may be provided to compensate for the increase in ground-to-first-step clearance. The auxiliary step is not required to be enclosed.

- B. Step risers shall not exceed a height of 10 inches.

**Note:** When plywood is used on a steel floor or step, the riser height may be increased by the thickness of the plywood.

- C. Steps shall be enclosed to prevent accumulation of ice and snow.

- D. Steps shall not protrude beyond the side body line.

### **STEP TREADS**

- A. All steps, including the floor line platform area, shall be covered with an elastomer floor covering having a minimum overall thickness of .0187 inch.

- B. The step covering shall be permanently bonded to a durable backing material that is resistant to corrosion.

- C. Steps, including the floor line platform area, shall have a 1 ½-inch nosing that contrasts in color by at least 70 percent measured in accordance with the contrasting color specification in 36 CFR, Part 1192, ADA, *Accessibility Guidelines for Transportation Vehicles*.

- D. Step treads shall have the following characteristics:

1. Abrasion resistance: Step tread material weight loss shall not exceed 0.40 percent, as tested under ASTM D-4060, *Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser*, (CS-17 Wheel, 1000-gram, 1000 cycle).
2. Weathering resistance: Step treads shall not break, crack, or check after ozone exposure (seven days at 50 pphm at 40 degrees C) and Weatherometer exposure (ASTM D-750, *Standard Test Method for Rubber Deterioration in Carbon-Arc Weathering Apparatus*, seven days).
3. Flame resistance: Step treads shall have a calculated burn rate of .01 mm per minute or less using the test methods, procedures and formulas listed in FMVSS No. 302, *Flammability of Interior Materials*.



**Note:** A spray on application type material may be used in lieu of item A. that meets the requirements of items B. through D. The material shall be applied not only to the interior surfaces of the service doorstep treads but also to the exterior, if not covered by undercoating.

### **STIRRUP STEPS**

If the windshield and lamps are not easily accessible from the ground, there may be at least one folding stirrup step or recessed foothold installed on each side of the front of the body for easy accessibility for cleaning. There also may be a grab handle installed in conjunction with the step. Steps are permitted in or on the front bumper in lieu of the stirrup steps if the windshield and lamps are easily accessible for cleaning from that position.

### **STOP ARM SIGNAL**

- A. The stop signal arm(s) shall comply with the requirements of FMVSS No. 131, *School Bus Pedestrian Safety Devices*. MFSABs are exempt from these requirements.
- B. Buses shall be equipped with one stop arm, air or electrically driven, meeting SAE J1133 and the following requirements:
  - 1. An additional stop signal arm may be added to all Type C and D school buses. It shall be installed on the left side of the bus near the rear section of the bus and shall have one (1) "STOP" emblem facing the rear of the bus when the stop sign is in the open position (optional).
  - 2. A light lit illuminated "Stop" sign may be installed on the rear emergency door between the upper and lower glass panels to alert a motorist directly behind the school bus (optional).

### **STORAGE COMPARTMENT (OPTIONAL)**

- A. A storage container for tools, tire chains and/or other equipment may be located either inside or outside the passenger compartment. If inside, it shall be fastened to the floor and have a cover with a positive fastening device.
- B. If luggage and/or equipment is to be carried on the bus, a compartment of adequate strength and capacity may be provided. The compartment shall be side mount under body type with flush mount door and recess handle and may range from ten (10) to thirty (30) cubic feet in size.

## **SUN SHIELD**

- A. Each Type C and D school bus shall have an interior adjustable sun visor with minimum measurements of 6 inches by 30 inches. It shall be installed in a position convenient for use by the driver, anchored on both ends, and shall be tinted transparent plastic or plexiglass.
- B. On all Type A buses, the sun shield shall be manufacturer's standard.

## **SUSPENSION SYSTEMS**

- A. The capacity of springs or suspension assemblies shall be commensurate with the chassis manufacturer's GVWR.
- B. Rear leaf springs shall be of a progressive rate or multi-stage design. Front leaf springs shall have a stationary eye at one end and shall be protected by a wrapped leaf, in addition to the main leaf.

## **THROTTLE**

The force required to operate the throttle shall not exceed 16 pounds throughout the full range of accelerator pedal travel.

## **TIRE AND RIMS**

- A. Rims and tires of the proper size and load rating commensurate with the chassis manufacturer's GVWR shall be provided. The use of multi-piece rims and/or tube-type tires shall not be permitted on any school bus ordered after December 31, 1995.
- B. Dual rear tires shall be provided on Type A-2, Type C and Type D school buses.
- C. All tires on a vehicle shall be of the same size, and the load range of the tires shall meet or exceed the GVWR, as required by FMVSS No. 120, *Tire Selection and Rims for Vehicles other than Passenger Car*.
- D. If the vehicle is equipped with a spare tire and rim assembly, it shall be the same size as those mounted on the vehicle.
- E. If a tire carrier is required, it shall be suitably mounted in an accessible location outside of the passenger compartment.

## **TOWING ATTACHMENT POINTS**

Front and/or rear towing devices (i.e., tow hooks, tow eyes, or other designated towing attachment points) shall be furnished to assist in the retrieval of buses that are stuck and/or for towing buses when a wrecker with a "wheel lift" or an "axle lift" is not available or cannot be applied to the towed vehicle.

- A. Towing devices shall be attached to the chassis frame either by the chassis manufacturer or in accordance with the chassis manufacturer's specifications.
- B. Each towing device shall have a strength rating of 13,500 pounds each, for a combined rating of 27,000 pounds with the force applied in the rearward direction, parallel to the ground, and parallel to the longitudinal axis of the chassis frame rail. For pulling and lifting purposes, tow hooks are meant to be used simultaneously. For pulling, angularity applied to the tow hooks will decrease the capacities of the tow hooks.
- C. The towing devices shall be mounted such that they do not project forward of the front bumper or rearward of the rear bumper.

**Note:** Type A buses are exempt from the requirement for front tow hooks or eyes due to built-in crush zones.

## **TRACTION ASSISTING DEVICES (OPTIONAL)**

- A. Where required or used, sanders shall:
  - 1. Be hopper cartridge-valve type;
  - 2. Have a metal hopper with all interior surfaces treated to prevent condensation of moisture;
  - 3. Have at least 100 pounds (grit) capacity;
  - 4. Have a cover that screws in place on the filler opening of the hopper, thereby, sealing the unit airtight;
  - 5. Have discharge tubes extending under the fender wheel housing to the front of each rear wheel;
  - 6. Have non-clogging discharge tubes with slush-proof, non-freezing rubber nozzles.