

DEPT. OF TRANSPORTATION—MOTOR VEHICLES 115

(23) **SHOCK ABSORBERS.** Shall be equipped with front and rear double acting shock absorbers compatible with manufacturer's rated axle capacity.

(24) **SPRINGS.** (a) Springs or suspension assemblies shall be of ample resiliency under all load conditions and of adequate strength to sustain loaded bus without evidence of overload.

(b) Springs or suspension assemblies shall be designed to carry their proportional share of gross vehicle weight in accordance with requirement for weight distribution as shown in Wis. Adm. Code section MVD 17.40 (28).

(c) If rear springs are used, they shall be of progressive type.

(d) If leaf-type front springs are used, stationary eyes shall be protected by full wrapper leaf in addition to main leaf.

(e) Springs on small buses not originally manufactured as school buses shall be manufacturer's standard.

(25) **STEERING GEAR.** (a) Steering gear shall be approved by chassis manufacturer and designed to assure safe and accurate performance when vehicle is operated with maximum speed.

(b) Steering mechanism shall provide for easy adjustment for lost motion.

(c) No changes shall be made in steering apparatus which are not approved by chassis manufacturer.

(d) There shall be a clearance of at least 2 inches between steering wheel and cowl, instrument panel, windshield, or any other surface.

(e) Power steering is permissible if approved by chassis manufacturer.

(26) **TIRES AND RIMS.** (a) Tire and rim sizes, based upon standards contained in the 1973 Yearbook of Tire and Rim Association, 3200 West Market Street, Akron, Ohio 44313, shall be required. This reference is available in the office of the division of motor vehicles, the secretary of state, and the revisor of statutes.

(b) In order to allow for reasonable tolerance, total weight imposed on any tire shall not be greater than 10% above said standard of tire and rim association.

(c) All tires shall be of same size and ply rating, except where wide single equivalents are used.

(d) Spare tire, if required, shall be suitably mounted in accessible location outside passenger compartment. Spare tire is required unless adequate arrangements for service facilities have been made.

(e) Vehicles not manufactured originally as school buses must comply with paragraphs (a) (b) (c) above. Spare tire mounting may be manufacturer's standards.

(f) All tires must have visible tread around entire periphery.

(g) No recap tires are permitted on steering wheels.

(27) **TRANSMISSION.** Three speed and automatic transmissions are acceptable.

(28) **WEIGHT DISTRIBUTION.** Weight distribution of fully loaded vehicle on level surface shall be such that not more than 75% of gross vehicle weight is on rear tires and not more than 35% is on front tires.

History: Cr. Register, July, 1974, No. 223, eff. 8-1-74.

Register, July, 1974, No. 223

Body

Type II Buses

MVD 17.50 Body, type II buses. (1) **AISLE.** (a) Minimum clearance of all aisles, including aisle (or passageway between seats) leading to emergency door, shall be 12 inches. See Wis. Adm. Code section MVD 17.50 (8) (b) 4.

(b) Aisle supports of seat backs shall be slanted away from aisle sufficiently to give aisle clearance of 15 inches at tops of seat backs.

(2) **BODY SIZE.** (a) Type II bus has a carrying capacity of 16 or less pupils, may be narrower than type I bus, and body may have been converted from one originally manufactured for other purposes.

(b) In no case shall less than 13 inch rump space per pupil be permitted in computing passenger capacity.

(3) **BOOK RACKS.** (a) Book racks, if installed, shall be provided above side windows within range from front cross-seat to rear transverse seat except across or above emergency door.

(b) Book racks made of material which is expanded, woven or punched are prohibited. Any other type having openings large enough to permit insertion of fingers are prohibited.

(c) Racks shall be free of projections or sharp edges likely to cause injury.

(4) **BUMPER, REAR.** See Wis. Adm. Code section MVD 17.40 (6).

(5) **COLOR.** Painting is optional but if a type II bus is painted school bus glossy yellow, the color scheme shall be the same as type I bus, (Section 17.30 (8)). Buses presently using a yellow with black trim color scheme prior to January 1, 1975 are not required to paint to the type I standard. Color chips of federal standard No. 595 glossy yellow enamel No. 13432 and black enamel No. 17038 available from General Services Administration, Business Center, Region 3, Seventh and D Streets, S. W., Washington 25, D. C. This reference is available in the office of the division of motor vehicles, the secretary of state, and the revisor of statutes.

(6) **CONSTRUCTION.** (a) Construction shall be all-steel or other metal with strength at least equivalent to all steel as certified by body manufacturer.

(b) Construction shall provide reasonably dustproof and water-tight unit.

(c) Bus body (including roof bows, body posts, and floor) shall be of sufficient strength to support entire weight of fully loaded vehicle on its top or side if overturned. It shall have sufficient frame members (strainers, stringers, etc.) in roof structure and corners to provide adequate safety and to resist damage on impact.

(d) 1. Floor shall be of prime commercial quality steel of at least 14-gauge or other metal or other material at least equal in strength to 14-gauge steel. If plywood is used, it shall be 5-ply, at least $\frac{5}{8}$ -inch thick and it shall equal or exceed properties of exterior-type Douglas fir plywood, B-B Grade, as specified in standard issued by U. S. department of commerce. Floor shall be level from front to back and from side to side except in wheel housing, toeboard, and driver's seat

DEPT. OF TRANSPORTATION—MOTOR VEHICLES 127

(c) Inside height of wheel housings above floor line shall not exceed 10 inches.

(d) Wheel housings shall provide clearance for loaded bus and the use of anti-skid chains.

(e) Above sections do not apply to small vehicles not originally manufactured as school buses.

(37) WIDTH. Overall width of bus shall not exceed 96 inches.

(38) WINDSHIELD AND WINDOWS. (a) All glass in windshield, windows, and doors shall be of safety glass, so mounted that permanent mark is visible, and of sufficient quality to prevent distortion of view in any direction.

(b) Windshield shall be large enough to permit driver to see roadway clearly, shall be slanted to reduce glare, and shall be installed between front corner posts that are so designed and placed as to afford minimum obstruction to driver's view of roadway.

(c) All regular side windows shall provide an opening from the top of not more than 10 inches obtained by lowering window. Windows which are hinged at top and push out from the bottom must be fastened so that they cannot be pushed out from the bottom when being used in school transportation. Windows may be reversed to push out from the top. Such installation shall have the window hinged at the bottom and the top shall be restrained so it does not push out further than it would if hinged at the top.

(d) All exposed edges of glass shall be banded.

(e) Glass in all side and rear windows shall be of AS-2 or better grade, as specified in American National Standards Institute code Z26.1.

(f) Knockout-type, split sash windows may be used.

(g) Current Safety Code for Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highways (Z26.1) obtainable from American National Standards Institute, 10 East Fortieth Street, New York, N. Y. 10016. This reference is available in the office of the division of motor vehicles, the secretary of state and the revisor of statutes.

(39) WINDSHIELD WASHERS. Windshield washers shall be optional, but where installed they shall conform to manufacturer's specifications as to type and size of bus on which they are to be used.

(40) WINDSHIELD WIPERS. Bus shall be equipped with 2 positive-action variable-speed windshield wipers of vacuum, air, or electric type.

(41) WIRING. (a) All wiring shall conform to standard of Society of Automotive Engineers, SAEJ555 (a) of 1962 revision. This standard obtainable from Society of Automotive Engineers, 485 Lexington Avenue, New York, N. Y. 10017. This reference is available in the office of the division of motor vehicles, the secretary of state, and the revisor of statutes.

(b) Circuits:

1. Wiring shall be arranged in at least 8 regular circuits as follows:

- a. Head, tail, stop (brake), and instrument panel lamps.
- b. Clearance lamps.

- c. Dome.
 - d. Starter motor.
 - e. Ignition and emergency door signal.
 - f. Turn signal lamps.
 - g. Alternately flashing red signal lamps.
 - h. Horn.
 - i. Step-well lamps, with door-actuated switch, shall be on the clearance light circuit or separate circuit.
2. Any of the above combination circuits may be subdivided into additional independent circuits.
3. Whenever heaters and defrosters are used, at least one additional circuit shall be installed.
4. Whenever possible, all other electrical functions (such as sanders and electric-type windshield wipers) shall be provided with independent and properly protected circuits.
5. Each body circuit shall be color coded and a diagram of the circuits shall be attached to the body in a readily accessible location.
- (c) A separate fuse or circuit breaker shall be provided for each circuit except starter motor and ignition circuits.
- (d) All wires within body shall be insulated and protected by covering of fibrous loom (or equivalent) which will protect them from external damage and minimize dangers from short circuits. Whenever wires pass through body member, additional protection in form of appropriate type of insert shall be provided.
- (e) Wires not enclosed within body shell shall be fastened securely at intervals of not more than 24 inches. All joints shall be soldered or joined by equally effective connectors.
- (f) Above sections do not apply to type II bus not originally manufactured as school buses.

History: Cr. Register, July, 1974, No. 223, eff. 8-1-74.

MVD 17.55 Applicability. Wis. Adm. Code sections MVD 17.40 and 17.50 apply only to type II buses as defined in Wis. Adm. Code section MVD 17.01 (2) (b).

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Subchapter IV

SCHOOL VANS

Note: For purposes of this order, an automobile is considered as a school bus when it is used for the transportation of pupils and has a seating measurement of less than 200 inches based on seat measurements of 20 inches per person, including the driver's seat.

Note: See explanation in section 17.01 (1).

Chassis

MVD 17.60 Chassis, school vans. (1) AIR CLEANER. Vehicle shall be equipped with adequate oil-bath or dry-element type air cleaner mounted outside passenger compartment.

(2) BATTERY. (a) Storage battery, as established by manufacturer's rating, shall be of sufficient capacity to care for starting, lighting, signal devices, heating and other electrical equipment.

(b) Battery shall be mounted outside passenger compartment in

Register, July, 1974, No. 223