

§ 393.201

(3) Rock which has been formed or cut to a shape and which provides a stable base for securement must also be secured, either in accordance with the provisions of this section, or in accordance with the provisions of §§ 393.100 through 393.114.

(b) *General requirements for the positioning of boulders on the vehicle.* (1) Each boulder must be placed with its flattest and/or largest side down.

(2) Each boulder must be supported on at least two pieces of hardwood blocking at least 10 cm × 10 cm (4 inches × 4 inches) side dimensions extending the full width of the boulder.

(3) Hardwood blocking pieces must be placed as symmetrically as possible under the boulder and should support at least three-fourths of the length of the boulder.

(4) If the flattest side of a boulder is rounded or partially rounded, so that the boulder may roll, it must be placed in a crib made of hardwood timber fixed to the deck of the vehicle so that the boulder rests on both the deck and the timber, with at least three well-separated points of contact that prevent its tendency to roll in any direction.

(5) If a boulder is tapered, the narrowest end must point towards the front of the vehicle.

(c) *General tiedown requirements.* (1) Only chain may be used as tiedowns to secure large boulders.

(2) Tiedowns which are in direct contact with the boulder should, where possible, be located in valleys or notches across the top of the boulder, and must be arranged to prevent sliding across the rock surface.

(d) *Securement of a cubic shaped boulder.* In addition to the requirements of paragraphs (b) and (c) of this section, the following rules must be satisfied:

(1) Each boulder must be secured individually with at least two chain tiedowns placed transversely across the vehicle.

(2) The aggregate working load limit of the tiedowns must be at least half the weight of the boulder.

(3) The tiedowns must be placed as closely as possible to the wood blocking used to support the boulder.

(e) *Securement of a non-cubic shaped boulder—with a stable base.* In addition

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to the requirements of paragraphs (b) and (c) of this section, the following rules must be satisfied:

(1) The boulder must be secured individually with at least two chain tiedowns forming an “X” pattern over the boulder.

(2) The aggregate working load limit of the tiedowns must be at least half the weight of the boulder.

(3) The tiedowns must pass over the center of the boulder and must be attached to each other at the intersection by a shackle or other connecting device.

(f) *Securement of a non-cubic shaped boulder—with an unstable base.* In addition to the requirements of paragraphs (b) and (c) of this section, each boulder must be secured by a combination of chain tiedowns as follows:

(1) One chain must surround the top of the boulder (at a point between one-half and two-thirds of its height). The working load limit of the chain must be at least half the weight of the boulder.

(2) Four chains must be attached to the surrounding chain and the vehicle to form a blocking mechanism which prevents any horizontal movement. Each chain must have a working load limit of at least one-fourth the weight of the boulder. Whenever practicable, the angle of the chains must not exceed 45 degrees from the horizontal.

[67 FR 61225, Sept. 27, 2002, as amended at 78 FR 58484, Sept. 24, 2013]

Subpart J—Frames, Cab and Body Components, Wheels, Steering, and Suspension Systems

SOURCE: 53 FR 49402, Dec. 7, 1988, unless otherwise noted.

§ 393.201 Frames.

(a) The frame or chassis of each commercial motor vehicle shall not be cracked, loose, sagging or broken.

(b) Bolts or brackets securing the cab or the body of the vehicle to the frame must not be loose, broken, or missing.

(c) The frame rail flanges between the axles shall not be bent, cut or notched, except as specified by the manufacturer.

(d) Parts and accessories shall not be welded to the frame or chassis of a commercial motor vehicle except in accordance with the vehicle manufacturer's recommendations. Any welded repair of the frame must also be in accordance with the vehicle manufacturer's recommendations.

(e) No holes shall be drilled in the top or bottom rail flanges, except as specified by the manufacturer.

[53 FR 49402, Dec. 7, 1988, as amended at 70 FR 48055, Aug. 15, 2005]

§ 393.203 Cab and body components.

(a) The cab compartment doors or door parts used as an entrance or exits shall not be missing or broken. Doors shall not sag so that they cannot be properly opened or closed. No door shall be wired shut or otherwise secured in the closed position so that it cannot be readily opened. EXCEPTION: When the vehicle is loaded with pipe or bar stock that blocks the door and the cab has a roof exit.

(b) Bolts or brackets securing the cab or the body of the vehicle to the frame shall not be loose, broken, or missing.

(c) The hood must be securely fastened.

(d) All seats must be securely mounted.

(e) The front bumper must not be missing, loosely attached, or protruding beyond the confines of the vehicle so as to create a hazard.

[53 FR 49402, Dec. 7, 1988, as amended at 78 FR 58484, Sept. 24, 2013]

§ 393.205 Wheels.

(a) Wheels and rims shall not be cracked or broken.

(b) Stud or bolt holes on the wheels shall not be elongated (out of round).

(c) Nuts or bolts shall not be missing or loose.

§ 393.207 Suspension systems.

(a) *Axles.* No axle positioning part shall be cracked, broken, loose or miss-

ing. All axles must be in proper alignment.

(b) *Adjustable axles.* Adjustable axle assemblies shall not have locking pins missing or disengaged.

(c) *Leaf springs.* No leaf spring shall be cracked, broken, or missing nor shifted out of position.

(d) *Coil springs.* No coil spring shall be cracked or broken.

(e) *Torsion bar.* No torsion bar or torsion bar suspension shall be cracked or broken.

(f) *Air suspensions.* The air pressure regulator valve shall not allow air into the suspension system until at least 55 psi is in the braking system. The vehicle shall be level (not tilting to the left or right). Air leakage shall not be greater than 3 psi in a 5-minute time period when the vehicle's air pressure gauge shows normal operating pressure.

(g) *Air suspension exhaust controls.* The air suspension exhaust controls must not have the capability to exhaust air from the suspension system of one axle of a two-axle air suspension trailer unless the controls are either located on the trailer, or the power unit and trailer combination are not capable of traveling at a speed greater than 10 miles per hour while the air is exhausted from the suspension system. This paragraph shall not be construed to prohibit—

- (1) Devices that could exhaust air from both axle systems simultaneously; or
- (2) Lift axles on multi-axle units.

[53 FR 49402, Dec. 7, 1988, as amended at 70 FR 48055, Aug. 15, 2005]

§ 393.209 Steering wheel systems.

(a) The steering wheel shall be secured and must not have any spokes cracked through or missing.

(b) *Steering wheel lash.* (1) The steering wheel lash shall not exceed the following parameters:

Steering wheel diameter	Manual steering system	Power steering system
406 mm or less (16 inches or less)	51 mm (2 inches)	108 mm (4¼ inches).
457 mm (18 inches)	57 mm (2¼ inches)	121 mm (4¾ inches).
483 mm (19 inches)	60 mm (2⅜ inches)	127 mm (5 inches).
508 mm (20 inches)	64 mm (2½ inches)	133 mm (5¼ inches).
533 mm (21 inches)	67 mm (2⅝ inches)	140 mm (5½ inches).