Chapter Trans 307

STANDARDS FOR LOAD SECUREMENT

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Trans 307.01 Purpose. The purpose of this rule is to establish standards for tiedown devices used to securely fasten logs to motor vehicles, trailers, or semitrailers operated on Wisconsin highways.

History: Cr. Register, October, 1991, No. 430, eff. 11-1-91.

Trans 307.02 Definitions. Words and phrases used in this chapter have the same meanings as those in ch. 340, Stats., except as otherwise defined in this section.

(1) "Aggregate working load limit" means the working load limit multiplied by the number of tiedowns used to secure cargo to a vehicle.

(2) "Breaking force" means the minimum force, measured in pounds, at which a chain, wire cable, webbing strap, or end device breaks when a constantly increasing force is applied to it.

(3) "Chain" means a flexible series of joined and closed steel links.

(4) "Cross chain" means a load-bearing chain extending through or across a load of logs at right angles to the side of a vehicle and which is connected at each end to a side stake.

(5) "End device" means a metal hook, ratchet, winch, binder clamp or similar device which is attached to an end of a chain, webbing strap, or wire cable and is part of the tiedown assembly.

(6) "Front end structure" means a metal structure that is designed to prevent cargo from shifting forward into the driver compartment, including, but not limited to, a headboard or posts at the front end of the load carrying area of a vehicle.

Note: See also 49 CFR 393.106 as adopted by reference in ss. Trans 325.01 (4) and 327.03 (4), pertaining to front end structures.

(7) "Gusseted bunk" means a welded or bolted "U" shaped frame secured to the frame of a vehicle and consisting of a heavy cross beam, upon which logs rest, with an upright post at either end, each braced at the base by triangular gusset plates.

(8) "Log" means a section of the trunk or branches of a felled tree. The term includes, but is not limited to, similar peeled or unpeeled forest products such as pilings, posts, poles, cordwood, pulpwood, and fuel wood.

(9) "Rear end structure" means a metal structure designed to prevent cargo from shifting to the rear, or falling off the rear, of a vehicle including, but not limited to, a rear endboard or endposts.

(10) "Stake" means a vertical metal post along the side of a vehicle, resting in a stake pocket or otherwise secured to the bed or frame of the load carrying unit. The term does not include any component of a front end structure or a rear end structure.

(11) "Stack" means a group of logs of approximately the same length piled one upon the other.

(12) "Tiedown" or "tiedown assembly" means a chain, wire cable, or webbing strap, with any attached end device, used to secure cargo to a vehicle.

(13) "Webbing strap" means a flat band of woven synthetic fibers used to secure cargo to a vehicle.

(14) "Wire cable" means continuous steel strands that are woven into a length of metal rope used to secure cargo to a vehicle.

(15) "Working load limit" means the maximum load limit, measured in pounds, of a tiedown, established by the manufacturer of a chain, cable, webbing strap, or end device.

History: Cr. Register, October, 1991, No. 430, eff. 11-1-91.

Trans 307.03 Applicability. (1) GENERAL. This chapter applies to any motor vehicle, trailer, or semitrailer transporting logs on a highway within this state.

(2) EXCEPTIONS. This chapter does not apply to any motor vehicle, trailer, or semitrailer, including an implement of husbandry, that is equipped with a body enclosing the load-carrying portion of the vehicle, if the body is constructed and maintained with sides and ends:

(a) Of sufficient strength to restrain the entire cargo and to prevent any shifting, falling or spillage of the logs.

(b) Of sufficient height so that no portion of the cargo is above the sides or ends.

(c) Without any open aperture large enough to pass any log carried while being transported.

History: Cr. Register, October, 1991, No. 430, eff. 11-1-91.

Trans 307.035 General requirements. (1) PROHIBITED OPERATIONS. (a) No person may operate, or allow the operation of, any vehicle carrying logs on a highway, except in compliance with the requirements of this chapter. Any violation of this chapter shall be treated as a violation of s. 348.10 (3), Stats.

(b) A law enforcement officer may require the operator of a vehicle to stop and properly secure a load, including reloading if necessary, to comply with this chapter.

(2) STACKING LOGS. Logs shall be stacked parallel to one another in an orderly fashion.

(3) ATTACHMENTS AND FASTENINGS. All attachments and fastening devices mounted on a vehicle, and used with a tiedown assembly, shall have

a tensile strength at least as great as the tensile strength of the tiedown assembly alone.

History: Cr. Register, October, 1991, No. 430, eff. 11-1-91.

Trans 307.04 Approved means of securing logs. (1) VEHICLES TRANSPORTING LOGS GENERALLY. Except as provided in sub. (3), each stack of logs shall be secured to a vehicle by tiedowns in the manner required by this chapter.

(2) VEHICLES CARRYING LOGS CROSSWISE. (a) Vehicles carrying logs crosswise, or at right angles to the side of the vehicle, shall be equipped with both a front end structure and a rear end structure of sufficient strength to support the load.

(b) Front and rear end structures shall be securely bolted or welded to the frame of the vehicle, except that front or rear end structures consisting of metal posts may be secured in pockets in the same manner as required for stakes by s. Trans 307.09 (2) (b).

(c) Posts which are part of a front or rear end structure shall be made of metal.

(d) Logs shall be stacked so as to be firmly wedged against the front and rear end structures, and any required center device, so that the logs cannot roll or shift forwards or backwards.

(e) Logs carried crosswise shall also be secured to the vehicle frame by longitudinal tiedowns.

(3) VEHICLES EQUIPPED WITH STAKES. Vehicles equipped with stakes are required to use tiedowns to secure loads of logs to the vehicle, unless all of the following apply:

(a) The requirements of s. 348.10 (3), Stats.

(b) The requirements of s. Trans 307.09.

(c) The logs are stacked lengthwise.

(d) The vehicle is equipped with cross chains or steel gusseted bunks.

(e) The top of the load of logs is lower than the top of all stakes.

Note: See s. 348.10(3), Stats., for the statutory exemption. Nevertheless, the department recommends for additional safety that tiedowns, as approved in this chapter, also be used to secure logs even on vehicles equipped with stakes. However, Michigan law requires the use of tiedowns even if a vehicle is also equipped with stakes. See Mich. Comp. Laws Ann. s. 257.720 (5) (c) (iii).

History: Cr. Register, October, 1991, No. 430, eff. 11-1-91.

Trans 307.05 Chains. (1) All chain used as a tiedown device shall be free of cracks, breaks and separations.

(2) Chain shall be constructed of welded steel links, at least 5/16 inch diameter and rated grade 7 or higher, with a minimum working load limit of 4,700 pounds. Grade 4 chain may be used if the diameter of each link of the chain is at least 3/8 inch diameter, with a minimum working load limit of 5,400 pounds. The department may, in its discretion, approve other grades of chain.

Note: Grade 7 chain is commonly known as "transport grade." Grade 4 chain is commonly known as "high test grade."

(3) Chain shall be marked with a grade code embossed at least once every 20 links. Grade codes are shown in Table 1.

TABLE 1: CHAIN GRADE MARKINGS USED BY U.S. CHAIN MANUFACTURERS

Company Name	Proof Coil Grade 3 (not acceptable)	High Test Grade 4 (Minimum acceptable diameter is 3/8 inch)	Transport Grade 7 (Minimum acceptable diameter is 5/16 inch	Alloy Grade 8 (Minimum acceptable diameter is 5/16 inch)
Acco	"G3"	"G4"	"G7"	"A8A"
Boltmaster-Taylor	"PC" or "BPC"	"HT"	(not manufactured)	(not manufactured)
Campbell	"C3," "P" or "MP"	"C4" or "MH"	"C7" or "MT"	"C8" or "CA8"
Columbus McKinnon	"G30"	"G43"	"G70"	"HA800"
Crosby	"CG/PC/3"	"CG/C/4"	"CG/C/7"	"CB/A/8"
Hodell	Unmarked	"G4"	"G7"	(not manufactured)
Laclede	"L3"	"L4"	"L7"	"G8"
Peerless	"PC"	"PH"	"P7"	"P8"
Teledyne McKay	Unmarked	"MKH"	"MK7"	"MK8"
Turner & Seymour	Unmarked	"TS4" or "4"	"TS7" or "7"	(not manufactured)
Western	"PC"	"HT"	"S7" or "70"	(not manufactured)

Note: Chain manufactured by Acco, Boltmaster-Taylor, Hodell, and Teledyne McKay is marked with a grade stamp on each link. The other chain manufacturers above mark their chain with a grade stamp, as indicated, every 10 to 20 links or 2 to 3 linear feet. This table is compiled from information published by the National Association of Chain Manufacturers. The department will update and revise this table periodically. New or additional marking information may be submitted by chain manufacturers to the Wisconsin Department of Transportation, Division of State Patrol, Motor Carrier and Inspection Services Section, P.O. Box 7912, Madison, Wisconsin 53707.

(4) No person may use grade 3, proof coil, or ungraded chain as a tiedown for logs.

(5) No person may use chain if any link is elongated due to stress.

(6) No person may use chain that has been repaired, unless the working load limit of the repaired chain is at least as great as the working load limit of the original chain.

History: Cr. Register, October, 1991, No. 430, eff. 11-1-91.

Trans 307.06 End devices. (1) All end devices shall be installed and used in accordance with the manufacturer's instructions and operate properly. All end devices shall be free of cracks, breaks, and excessive wear.

(2) All end devices shall be constructed of metal with a manufacturer working load limit or breaking force limit at least as great as the chain, webbing strap, or wire cable to which the end device is attached.

(3) Adjustable end devices shall be designed, constructed, and maintained so that the operator of a vehicle can adjust the end devices.

(4) All end devices shall be securely attached to the vehicle.

(5) No person may use an end device which has been repaired, unless there has been a total replacement of the load-bearing component with a replacement component meeting the requirements of this section and the manufacturing standards of the original manufacturer of the tiedown assembly.

(6) The anchorages by which a tiedown device is attached to a vehicle shall have a tensile strength at least as great as the tensile strength of the tiedown assembly.

History: Cr. Register, October, 1991, No. 430, eff. 11-1-91.

Trans 307.07 Webbing straps. (1) Webbing straps shall have a minimum working load limit of 1,000 pounds per inch of width.

(2) Webbing straps shall be marked by the manufacturer to indicate its working load limit or breaking force limit.

(3) Webbing straps that have been repaired shall bear a clearly legible label stating the name of the company that made the repair and the load rating of the repaired strap.

(4) Webbing straps consisting of woven strands may not be used as a tiedown if:

(a) Cuts, burns or holes through the webbing total more than

1. ¾ inch for webbing which is 4 inches wide.

2. ⅝ inch for webbing which is 3 inches wide.

3. ⅜ inch for webbing which is 2 inches wide.

(b) Separation of its load-carrying stitch pattern exceeds ¼ of the total stitch area.

(c) Severe abrasion or other damage reduces the strength of the tiedown by at least 20%.

History: Cr. Register, October, 1991, No. 430, eff. 11-1-91.

Trans 307.08 Wire cable. (1) All wire cable shall be a minimum of 3/8 inch diameter with a minimum rated working load limit of 3,000 pounds.

(2) No person may use wire cable that has been repaired or spliced.

(3) No person may use wire cable with more than 3 broken wires in any strand or excessive deterioration.

(4) Wire cable shall have a uniform diameter and may not have any detectable reduction in diameter at any point.

History: Cr. Register, October, 1991, No. 430, eff. 11-1-91.

Trans 307.09 Stakes. (1) All stakes shall be metal and of sufficient strength to support the load carried.

(2) Each stake shall be secured to the bed or frame of the vehicle by one of the following means:

(a) Welded to the bed or frame of the vehicle, including as an upright part of a gusseted bunk.

(b) Set into a metal stake pocket which is part of the bed or frame and secured into the stake pocket by:

1. A metal bolt, or

2. A metal clevis pin, or

3. A retaining chain, which shall be a separate length of chain not also serving as a tiedown, cross chain or retaining chain for another stake, or

4. Any other metal device which locks the stake into the stake pocket so that the stake cannot be removed from the stake pocket without first releasing the retaining mechanism.

(3) Each stack of logs shall be supported by a minimum of 4 stakes, 2 on each side of the vehicle, or by 2 complete gusseted bunks.

(4) Each stack of logs shall be supported by at least 2 stakes on each side of the stack. Stacks of logs exceeding 10 feet in length shall be supported by stakes or gusseted bunks at linear intervals of no more than 10 feet. For stacks of logs over 20 feet in length, the number of stakes on each side of a stack of logs, or of gusseted bunks, shall at least equal the length of the longest log in the stack divided by 10, with any fractions rounded up to the next whole number. This subsection does not apply to pole trailers.

(5) If any portion of any log is stacked higher than the top of any stake on the vehicle, then that stack shall also be secured by tiedowns.

(6) Logs shall be stacked firmly against the stakes on each side of the vehicle or secured by tiedown devices to prevent rolling or shifting.

(7) Logs stacked higher than 5 feet above the bed of a vehicle shall be secured to the vehicle by any of the following:

(a) Tiedowns; or

(b) Cross chains, of the same grade and diameter as tiedowns, which connect the stakes on the opposite sides of each stack of logs; or

(c) A steel gusseted bunk.

Note: A stack of logs higher than the top of the stakes must be secured to the vehicle by tiedowns. s. 348.10(3), Stats.

History: Cr. Register, October, 1991, No. 430, eff. 11-1-91, except (1), eff. 2-1-92.

Trans 307.10 Center device. (1) A vehicle with a load surface more than 33 feet in length, transporting logs carried crosswise, or at right angles to the side of the vehicle, shall be equipped with a center device located approximately one-half the distance from the front to the rear of the load surface of the vehicle.

(2) A center device may consist of:

(a) A solid partition, or

(b) Two or more center-mounted metal posts or a hydraulic log loader securely fastened to the frame of the vehicle, or

(c) Two or more metal rings or hooks, bolted or welded to the frame of the vehicle.

(3) The tiedowns on vehicles with a center device shall be attached to, or threaded through, the center device at least one foot below the level of the load height and satisfy all requirements of s. Trans 307.11.

History: Cr. Register, October, 1991, No. 430, eff. 11-1-91, except (1), eff. 2-1-92.

Trans 307.11 Tiedowns. (1) Tiedowns shall encompass the entire load of logs and extend from frame to frame for each stack of logs on the vehicle, except as otherwise provided by s. Trans 307.10 (3).

(2) The aggregate working load limit of tiedowns shall be at least ½ times the total weight of the cargo.

(3) Each stack of logs shall be secured to the vehicle by at least 2 tiedowns.

(4) The linear interval between tiedowns securing the same stack of logs may not exceed 10 feet. For stacks of logs containing logs over 20 feet in length, the number of tiedowns shall at least equal the length of the longest log in the stack divided by 10, with any fractions rounded up to the next whole number. This subsection does not apply to pole trailers.

(5) All logs transported on pole trailers shall be securely fastened by at least 1 tiedown to the front bolster and by at least 1 tiedown to the rear bolster of the vehicle.

(6) All logs on the outer surface of the load shall be secured either by direct contact with the tiedowns or by being firmly held in place by other logs on the outer surface of the load which are in direct contact with the tiedowns.

Trans 307.12 Other regulations. In addition to compliance with this chapter the operator of a vehicle shall exercise reasonable care under the circumstances and shall comply with all applicable federal and state statutes and regulations. The requirements of this chapter are in addition to any other applicable provisions of state and federal law.

Note: The federal load securing requirements of 49 CFR ss. 393.100, 393.102, 393.104, and 393.106, which have been adopted by reference in ss. Trans 325.01 (4) and 327.03 (4), will also apply.

History: Cr. Register, October, 1991, No. 430, eff. 11-1-91.