RECOMMENDED STANDARD SPECIFICATION

For

Interior Van Securement Devices

WSTDA-T-5

This recommended standard specification has been formulated as a guide to users, industry and government to insure the proper use, maintenance and inspection of interior van securement devices. The existence of this recommended standard specification does not, however, prevent members of the Web Sling & Tie Down Association, Inc. and other manufacturers from manufacturing or selling devices beyond the scope of this recommended standard specification.

FOREWORD

This Recommended Standard Specification applies to interior van securement and restraint devices for the purpose of securing cargo. This standard recommends construction as well as identification and marking of these devices. In addition, it gives important practical advice on the use, maintenance and inspection of these load securement devices.

The exclusion from this Recommended Standard Specification of different materials, capacities and devices is not intended to preclude their use and shall not be interpreted in this manner.

Interior van securement devices made from materials or construction other than those detailed in this Recommended Standard Specification shall be used in accordance with the recommendations of the interior securement device manufacturer or qualified person. The specifications contained in this Recommended Standard were formulated under the auspices of the Web Sling & Tie Down Association, Inc. This Recommended Standard Specification is intended to assist users in specifying the proper load securement device for their particular requirements, to serve as a guide to the industry in the construction and use of interior van securement devices, and to serve as a guide to governmental and other regulatory bodies responsible for their proper use and inspection. For information not contained in this Recommended Standard, consult the device manufacturer.

Safety is the paramount consideration involved in the use of any interior van securement device. This standard does not purport to address all safety issues associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of the regulatory limitations prior to use. The appropriate devices shall be selected by the user for their specific application. Users of interior van securement devices shall have knowledge and training on the proper method of using these devices. Also, users shall be knowledgeable about federal, state, provincial, local and industry regulations applicable to the use of interior van securement devices.

Figures shown in this recommended standard are for illustration only and are not intended to represent usage, design or manufacturing processes.

MANDATORY AND ADVISORY RULES

Mandatory rules are characterized by the use of the word “shall” or “must”. If a rule is of an advisory nature, it is indicated by the use of the word “should”, or it is stated as a recommendation.

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CHAPTER 1.0
TERMINOLOGY & DEFINITIONS OF INTERIOR VAN SECUREMENT DEVICES

SECTION 1.1 PURPOSE

1.1.1 This chapter provides a description of interior van securement devices and definitions that apply to such products.

SECTION 1.2 DESCRIPTION

1.2.1 A web tie down is fabricated of synthetic webbing, with or without hardware, for the purpose of securing cargo.

1.2.2 Logistic track is a metal rail affixed to a van's interior surface or recessed surface for the purpose of supplying attachment points for a securement device.
A pan fitting is designed to provide an attachment point for a wide variety of internal van cargo control systems. Basic types include:

1.2.2.1 Series A logistic track
1.2.2.2 Series E logistic track
1.2.2.3 Series F logistic track
1.2.2.4 Series L logistic track
1.2.2.5 Pan fitting with D-ring
1.2.2.6 Pan fitting with D-ring and stud

1.2.3 Logistic beams and bars are typically constructed of metal and used for either restraint or decking, and are attached to logistic tracks.

SECTION 1.3 DEFINITION OF TERMS

ABRASION The mechanical wearing or scuffing of a surface resulting from frictional movement between materials or objects.
AGGREGATE WORKING LOAD LIMIT The summation of the working load limit (WLL) of all devices used to secure an article of cargo in or on a vehicle.

ANCHOR POINT A device or structure permanently attached to a vehicle's sidewall, front-end or floor structure, used to secure the end fitting of a tie down, beam or bar to secure cargo.

BAR A metal tube, round or square, with fittings attached to each end, to lock into Series "F" track, to be used vertically or horizontally for shoring a load.

BEAM An aluminum extrusion, or steel tube, typically rectangular, with fittings attached to each end, to lock into Series "E"/"A" track or specially-designed sliding track, to be used horizontally for decking or shoring a load.

BREAKING STRENGTH The load in pounds or kilograms of force at which any load bearing point of the product fails.

COATING A finish applied to webbing, beams, bars and hardware, to resist liquids, abrasion, environmental deterioration, etc.

CREEP Delayed deformation that is time-dependent and is exhibited by material that is subjected to a continuing load. Delayed deformation may be recoverable or non-recoverable following removal of the applied load.

DECKING A series of beams used to create additional levels or platforms within the interior of the vehicle.

CAPTIVE BEAM SYSTEMS: Custom manufactured track systems using several types of adjustable/moveable self-contained beams.

DESIGN FACTOR The ratio of the breaking strength to the working load limit (WLL). For example, for each new web tie down, the design factor is 3:1, meaning that the working load limit (WLL) is 1/3 of the minimum breaking strength (MBS).

ELONGATION The measurement of stretch at a given load, expressed as a percentage of the original untensioned length.

FITTING A load-bearing component of an assembly that attaches to an anchor point.

LOGISTIC TRACK A rail with rectangular slots or round holes permanently attached to a vehicle's interior surface, used to anchor the end fittings of a tie down, logistic beam or bar.

MANDREL The component of a ratchet into which the webbing is inserted for tensioning the web tie down.

PAN FITTING A recessed or surface mounted device with a D-ring or stud permanently attached to a vehicle's walls or floor structure, used to secure the end fitting of a tie down, rope, strapping and specialty bars to secure cargo.

PROOF LOAD TEST A non-destructive pull test to some multiple of the working load limit (WLL) of the item.

QUALIFIED PERSON A person who by possession of a recognized degree, certificate of professional standing or by extensive knowledge, training and experience has successfully demonstrated the ability to solve or resolve problems related to the subject matter and work.

RATCHET A mechanical device used with web tie downs to incrementally adjust and tension the webbing.

SELVEDGE The narrow edge of woven fabric that runs parallel to the longitudinal fibers and is made in a tighter construction to prevent raveling.

SHORING The prevention of cargo from shifting by use of a load restraining device placed transversely between walls of a vehicle.

SECUREMENT SYSTEM Rated restraining devices combined to prevent cargo from movement.

SYNTHETIC WEBBING A fabric, woven of high tenacity synthetic yarns offering suitable characteristics for use in the manufacture of web tie downs. See *Recommended Standard Specification for Synthetic Webbing used for Tie Downs - WSDTA-T-4.*

TENSILE LOAD The force being applied expressed in pounds or kilograms.

THREAD The synthetic yarn used to sew the web tie down together.

TIE DOWN An assembly fabricated of synthetic webbing, with or without hardware, for the purpose of securing cargo.

VEHICLE Any conveyance for carrying goods or equipment.

WORKING LOAD LIMIT The maximum allowable load assigned by the manufacturer to each securement device not to exceed the design factor determined by industry standards.

YARN The synthetic fiber that is used to make webbing and thread.

CHAPTER 2.0
CONSTRUCTION OF WEB TIE DOWNS

SECTION 2.1 PURPOSE

2.1.1 This chapter provides an outline of materials and construction characteristics of web tie downs.

SECTION 2.2 WEBBING

2.2.1 Webbing shall conform to the *WSTDA Recommended Standard Specification for Synthetic Webbing Used For Tie Downs - WSTDA-T-4.*

2.2.2 The webbing shall be certifiable to tensile strength, have uniform thickness and width and have a uniformed edge or selvedge.

2.2.3 Webbing shall be woven from a yarn that is heat and UV-resistant.

2.2.4 Nylon webbing is used in many applications where shock absorption properties are important because nylon webbing has higher elongation than polyester webbing of the same construction and strength. Nylon webbing has better natural abrasion resistance properties than polyester webbing, although some over coatings allow approximately equal performance of both types. Nylon is generally more resistant to most alkalis than polyester.

2.2.5 Polyester webbing is typically used in systems where low elongation and low creep are desirable. Polyester's higher density allows thinner webbing than nylon (at equal strength). Polyester webbing has better natural resistance to moisture than nylon, although some over coatings allow approximately equal performance of both types. Polyester is generally more resistant to acids than nylon.

2.2.6 All webbing ends shall be sealed by heat or other suitable means to prevent raveling.

2.2.7 Webbing may be coated with suitable materials that will impart desirable characteristics, such as:

a. Abrasion resistance
b. Moisture resistance
c. Sealing to prevent penetration of foreign particles and matter.
d. Increased coefficient of friction
e. Ultraviolet light resistance

SECTION 2.3 THREAD

2.3.1 The thread used in the sewing of web tie down assemblies shall conform to the *WSTDA Recommended Standard Specification for Synthetic Sewing Threads for Slings and Tie Downs - WSTDA-TH-1*.

SECTION 2.4 STITCHING

2.4.1 Stitching shall be lock-stitched and preferably continuous. When not continuous, stitching shall be back-stitched at the ends to prevent raveling.

SECTION 2.5 HARDWARE

2.5.1 This section relates to the hardware, made of metal or other suitable materials, which may be attached to a web tie down for the purpose of securing cargo. The hardware may be a permanent or a detachable part of the tie down.

⚠ WARNING

The use of improper fittings and/or materials may result in severe personal injury or death.

2.5.2 **Material** - The material selected shall be compatible with the mechanical and environmental effects on the hardware.

2.5.3 **Finish** - Surfaces shall be cleanly finished and edges shall have sufficient radii to prevent cutting or other forms of damage to the tie down.

2.5.4 **Design Criteria** - Hardware shall have a minimum design factor of 3:1 and have sufficient strength to sustain a proof load test of 1.5 times the WLL without causing any permanent deformation.

2.5.5 **Reuse of Hardware** - Hardware shall be inspected prior to reuse. Hardware shall not be reused if excessive wear, pitting, corrosion, cracks, breaks, distortion, and/or evidence of welds and excessive heat are visible. No repairs shall be permitted.

2.5.6 **Proof Load Test** - Synthetic web tie downs incorporating reused hardware shall be proof tested to a minimum of one and one half (1.5) times the working load limit (WLL) of the synthetic web tie down assembly.

SECTION 2.6 DESIGN FACTOR

⚠ WARNING

The tie down design factor is based on destructive, laboratory controlled testing conditions, which will not be exactly duplicated during actual loading conditions. Never load any tie down in excess of its working load limit (WLL).

2.6.1 The design factor for new web tie downs with, or without hardware, shall be a minimum of 3:1 when tested in accordance with Chapter 6.

SECTION 2.7 IDENTIFICATION / MARKING REQUIREMENTS

2.7.1 Each synthetic web tie down assembly or sub-unit, if it is intended that parts be separable, shall be marked or labeled, by the manufacturer, using an identification tag, stencil or other means with the following required information:

a. Name or trademark of the tie down manufacturer
b. Working load limit (WLL) in pounds and kilograms

Example:

ABC MFG. Co.
Somewhere, USA

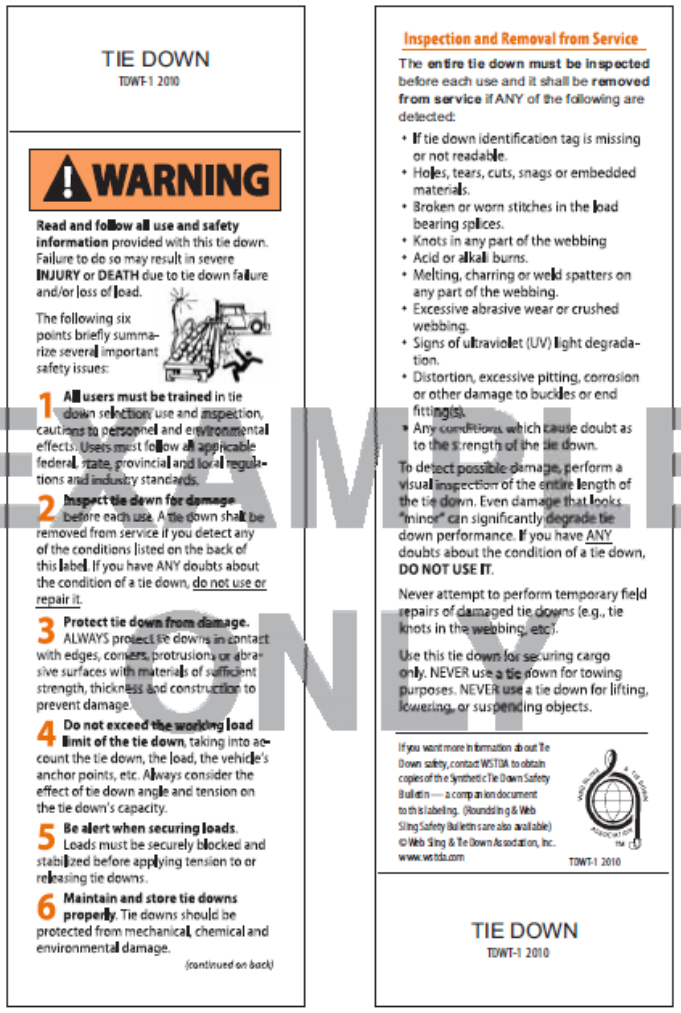
WLL 1,000 lbs (453 kgs)

2.7.1.1. If the required identification markings become illegible or missing, the web tie down shall be removed from service.

2.7.2 Each synthetic web tie down assembly shall be marked or labeled, by the manufacturer, with use, inspection and warning instructions using a tag, stencil or other means.
(Example: Figure 2-1)

Figure 2-1

Figure 2-1



TIE DOWN
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WARNING

Read and follow all use and safety information provided with this tie down. Failure to do so may result in severe **INJURY** or **DEATH** due to tie down failure and/or loss of load.

The following six points briefly summarize several important safety issues:

1 All users must be trained in tie down selection, use and inspection, cautions to personnel and environmental effects. Users must follow all applicable federal, state, provincial and local regulations and industry standards.

2 Inspect tie down for damage before each use. A tie down shall be removed from service if you detect any of the conditions listed on the back of this label. If you have ANY doubts about the condition of a tie down, do not use or repair it.

3 Protect tie down from damage. ALWAYS protect tie downs in contact with edges, corners, protrusions or abrasive surfaces with materials of sufficient strength, thickness and construction to prevent damage.

4 Do not exceed the working load limit of the tie down, taking into account the tie down, the load, the vehicle's anchor points, etc. Always consider the effect of tie down angle and tension on the tie down's capacity.

5 Be alert when securing loads. Loads must be securely blocked and stabilized before applying tension to or releasing tie downs.

6 Maintain and store tie downs properly. Tie downs should be protected from mechanical, chemical and environmental damage.

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Inspection and Removal from Service

The entire tie down must be inspected before each use and it shall be **removed from service** if ANY of the following are detected:

- If tie down identification tag is missing or not readable.
- Holes, tears, cuts, snags or embedded materials.
- Broken or worn stitches in the load bearing splices.
- Knots in any part of the webbing
- Acid or alkali burns.
- Melting, charring or weld spatters on any part of the webbing.
- Excessive abrasive wear or crushed webbing.
- Signs of ultraviolet (UV) light degradation.
- Distortion, excessive pitting, corrosion or other damage to buckles or end fitting(s).
- Any conditions which cause doubt as to the strength of the tie down.

To detect possible damage, perform a visual inspection of the entire length of the tie down. Even damage that looks "minor" can significantly degrade tie down performance. If you have ANY doubts about the condition of a tie down, **DO NOT USE IT.**

Never attempt to perform temporary field repairs of damaged tie downs (e.g., tie knots in the webbing, etc).

Use this tie down for securing cargo only. NEVER use a tie down for towing purposes. NEVER use a tie down for lifting, lowering, or suspending objects.

If you want more information about Tie Down safety, contact WSTDA to obtain copies of the Synthetic Tie Down Safety Bulletin — a companion document to this labeling. (Roundsling & Web Sling Safety Bulletins are also available)

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SECTION 2.8 RATED CAPACITIES

2.8.1 The working load limit (WLL) of a web tie down shall be based on one-third (1/3) of the minimum breaking strength of the complete assembly and not individual components.

2.8.2 Web tie downs shall not be loaded in excess of the identified working load limit (WLL), shown on its identification markings/label.

2.8.3 Each manufacturer shall retain the test data used to validate the web tie down minimum breaking strength.
A supplier should retain the test data provided by the manufacturer to validate the web tie down minimum breaking strength. Destructive tests shall be conducted periodically, according to the test procedure outlined in Chapter 6.

CHAPTER 3.0
CONSTRUCTION AND INSTALLATION OF LOGISTIC TRACKS AND PAN FITTINGS

SECTION 3.1 PURPOSE

3.1.1 This chapter provides an outline for the minimum materials and construction characteristics of logistic tracks.

SECTION 3.2 MATERIALS

3.2.1 Logistic Tracks shall be Structural Steel, Aluminum or similar proven material. Characteristics like gauge or temper and minimum yield strength of the chosen material, as well as method of mounting to the vehicle's structure, shall be considered and specified for the design and working load limit desired when used with logistic straps, bars or beams.

3.2.2 Logistic track and/or pan fittings should be made of sufficient strength material consistent with other components, equal to or greater than the fitting and attachment point.

SECTION 3.3 FINISHES

3.3.1 Surfaces shall be cleanly finished with smooth edges. Coatings and Finishes shall be suitable to resist corrosion and other harmful environmental conditions.

SECTION 3.4 DESIGN CRITERIA

3.4.1. Logistic Tracks shall have a minimum design factor of three (3) and have sufficient strength to sustain the working load limit without permanent deformation when mounted to a sufficiently strong structure or surface.

3.4.2. Due to the intrinsic nature of the relationship between vehicle wall strength and attachment point ratings, testing of track is the responsibility of the installer or competent person.

SECTION 3.5 IDENTIFICATION

3.5.1 The Logistic Track shall be identified by the following two methods:

- Logistic Track shall have the manufacturer's name or trademark durably marked or stamped on each section of track and be visible after permanent mounting.

- Rating of logistic track as an anchor point is determined by the installation provider. Due to many variables like wall construction and fastener choice, the ultimate rating of the attachment is the sole responsibility of the installer. A rating label or indelible marking shall be durably marked or stamped on the inside of the vehicle.

SECTION 3.6 ENGAGEMENT UNIFORMITY

3.6.1 Logistic Tracks that meet this standard should be constructed with the following slot dimensions and minimum spacing:

- Series E – Upright - 'I-Shaped' Slot (.55" x 2.41")
- Series A – Upright Rectangular Slot (.55" x 2.41")
- Series F –3/4" (.75" Diameter Round Hole) on 1.62" Centers

- Series F –1” (1.00” Diameter Round Hole) on 1.62” Centers
- Series L – .82 Diameter Entry x .55” – on 1.00” Centers

Please note: Proprietary tracks not listed here but available in the marketplace must meet these slot dimensions when used with commercially-available fittings.

SECTION 3.7 INSTALLATION

3.7.1 Consult *TTMA RP 47-03, TESTING, RATING, AND LABELING PLATFORM AND VAN TRAILERS FOR CARGO SECUREMENT* (or latest version) for guidelines outlining proper installation of logistic track as an anchor point for cargo securement.

3.7.2. Contact vehicle manufacturer or qualified installer to determine proper mounting method and recommendations.

3.7.3. The system should be checked for form, fit and function, and shall meet the desired working load limit.

3.7.4. All components shall be in good working order and free of harmful defects or visible damage such as distortion, rust, cracks, excessive wear, or any other visible defects that would compromise the integrity of the system.

CHAPTER 4.0
CONSTRUCTION OF LOGISTIC BEAMS AND BARS

SECTION 4.1 PURPOSE

4.1.1 This chapter provides an outline of the minimum materials and construction characteristics of logistic beams and bars.

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SECTION 4.2 MATERIALS

4.2.1 This section relates to the metal or other suitable materials which may be used to construct beams and bars for the purpose of restraining or decking cargo.

4.2.2 The material selected shall be compatible with the mechanical and environmental effects on the products.

SECTION 4.3 FINISHES

4.3.1 Surfaces shall be finished to remove burrs and sharp edges. Additional corrosion resistance coatings and finishing methods like grinding, sanding, washing and polishing are recommended.

SECTION 4. 4 DESIGN CRITERIA

4.4.1 Beams and bars shall have a minimum design factor of three (3) and have sufficient strength to sustain a proof load test of one and one half (1.5) times the working load limit (WLL) without permanent deformation when tested in accordance with section 8.0.

⚠ WARNING

Never exceed the working load limit (WLL) of any rated beam assembly. The loading of any beams or bars beyond the WLL can result in load shifting, severe personal injury, or death. The beam or bar working load limit is based on evenly distributed, laboratory controlled testing conditions, which will not be exactly duplicated during actual loading conditions. Actual service conditions include: concentrated or off center loads which increase the effective loads applied to the beam or bar; and dynamic G forces encountered during transit that serve to increase the effective loading of the beam or bar. These conditions can reduce the load rating by as much as 50% or more.

SECTION 4.5 IDENTIFICATION

4.5.1 Each beam and logistic bar shall be marked or labeled, by the manufacturer, using an identification label, stencil or by other means with the following information:

a. Name and/or trademark of the manufacturer
b. Working load limit (WLL) in pounds and kilograms for shoring **and** decking (beams), and for shoring (bars). Example:

ABC Manufacturing Corp. WLL 2,500 LBS (1,136 KGS) Shoring – For Uniformly distributed Loads WLL 3,000 LBS (1,363 KGS) Decking – For Uniformly distributed Loads

c. Additional labeling for spring loaded Logistic Bars in a vertical application: "This End Up"
d. Additional labeling for Decking/Shoring Beams: "This Side Up"

SECTION 4.6 RATED CAPACITIES

4.6.1 The working load limit (WLL) of a beam and logistic bar shall be based on one-third (1/3) of the minimum breaking strength of the complete assembly. Rated strengths (WLL) are to be specified for use as a decking beam (vertical loading) and as a shoring beam (horizontal loading).

4.6.2 Beams and logistic bars shall not be subjected to loads greater than the working load limit (WLL) assigned by the manufacturer. The user needs to take into account concentrated loads and the dynamic forces that will be encountered during transit and allow for them accordingly so that the WLL of the beam is not exceeded when these forces take effect.

CHAPTER 5.0
CONSTRUCTION OF ANCHOR POINTS

SECTION 5.1 PURPOSE

5.1.1 This chapter provides an outline for the minimum materials and construction characteristics of anchor points.

SECTION 5.2 MATERIALS

5.2.1 Anchor points can be steel, aluminum, plastic or similar proven material. Characteristics like recessed or flush mount, angle of pull and product placement, as well as method of mounting to the vehicle's structure, shall be considered and specified for the design and working load limit desired.

5.2.2 Floor-mounted pans or other recessed mountings should have a gravity-fed escape for liquids or condensate.

SECTION 5.3 FINISHES

5.3.1 Surfaces shall be cleanly finished with smooth edges. Coatings and finishes or specified material shall be suitable to resist corrosion.

SECTION 5.4 DESIGN CRITERIA

5.4.1 The anchor point shall have a minimum design factor of three (3) of the minimum breaking strength after permanent mounting and have sufficient strength to sustain the rated working load limit capacity without permanent deformation. The method of attachment impacts rating.

CHAPTER 6.0
STANDARD PROCEDURES FOR TESTING WEB TIE DOWNS

SECTION 6.1 PURPOSE

6.1.1 This chapter provides standard procedures for the testing of web tie downs.

SECTION 6.2 TYPES OF TESTS

6.2.1 **Destructive** – A tensile test of a web tie down for the purpose of verifying the minimum breaking strength. The tie down shall be pulled in a straight line pull until any load bearing component fails.

6.2.2 **Proof Load** - A non-destructive load test of a web tie down, including hardware if applicable, to 1.5 times the working load limit (WLL).

SECTION 6.3 TEST CHARACTERISTICS

6.3.1 **Sample** – When testing for the purpose of verification of the minimum breaking strength, the web tie down samples shall be made in the same manner used to produce production tie downs.

6.3.2 **Hardware** – Tie downs incorporating hardware (fittings and/or tensioning devices) shall be tested with the hardware attached.

6.3.3 A minimum of three (3) samples shall be tested to establish the breaking strength of a web tie down. The lowest result shall be used to determine the breaking strength of the assembly.

6.3.4 All web tie downs are to be tested in a straight-line pull with force applied to both ends of the assembly. The ram shall be retracted at a uniform speed of 2 to 10 inches (50 to 250 mm) per minute, or 100 to 1,000 pounds (45 to 454 kg) per second until failure. The tensile load at failure is the breaking strength. Tie downs should be tested at ambient temperature unless otherwise noted.

6.3.5 The test machine shall be certified annually to ASTM E4 or equivalent.

6.3.6 Test results shall be kept on file by the web tie down manufacturer. Suppliers should retain the test data provided by the manufacturer to validate the web tie down minimum breaking strength.

SECTION 6.4 PROOF TESTING REQUIREMENTS

6.4.1 **Proof Testing** – Unless specified by the purchaser, new web tie downs are not required to be proof tested prior to their initial use.

6.4.2 **Proof Testing Procedures** – When web tie downs are proof tested, the proof load shall be a minimum of 1.5 times the working load limit (WLL).

6.4.3 **Proof Test Certificate** – When a certificate of testing is required, the certificate, issued by the company performing the test, shall show:

- The test date
- A description of the test method
- Product stock and serial number (if applicable)

- The applied load expressed in pounds or kilograms
- Product working load limit (WLL)
- Any indicated result

SECTION 6.5 PROCEDURES FOR SAMPLE DESTRUCTIVE PULL TESTING

6.5.1 **Pull Testing to Destruction of Web Tie Downs** – Web tie down samples, that are produced by regular production methods, shall be tested to destruction in accordance with Section 6.2.1 of this Standard to determine the breaking strength of the tie down assembly. Additionally this testing shall be completed by the manufacturer again when any changes are made to the composition of the webbing materials, thread, hardware or the manufacturing process.

6.5.2 **Pass Criteria** – If all three tests meet or exceed the required breaking strength value, the sample group meets these test criteria.

6.5.3 **Retest Criteria** – If any single test value falls below the required breaking strength value, two additional samples shall be tested. These two additional samples shall meet or exceed the required breaking strength value or the manufacturing process is rejected.

6.5.4 **Random Pull Testing to Destruction of Web Tie Downs** – Web tie down samples, that are produced by regular production methods, may randomly be tested to destruction in accordance with Section 6.2.1 of this Standard. Additionally, this testing shall be completed by the manufacturer when any changes are made to the composition of the tie down materials or manufacturing process.

6.5.5 **Corrective Action** – Following a rejection, the manufacturing process shall be examined and adjusted as necessary. After corrective action, the product shall be retested to determine compliance with the Pass Criteria prior to any production.

CHAPTER 7.0
STANDARD PROCEDURES FOR TESTING BEAMS, LOGISTIC BARS

SECTION 7.1 PURPOSE

7.1.1 This chapter provides standard procedures for the testing of beams and logistic bars.

SECTION 7.2 TYPES OF TESTS

7.2.2 **Destructive Test** - Testing of a beam, logistic bar or beam socket for the purpose of verifying the breaking strength. The products shall be tested in a static mode using evenly distributed loading points until failure.

SECTION 7.3 TEST PROCEDURES FOR THE VERIFICATION OF BEAM AND BAR BREAKING STRENGTH

7.3.1 A minimum of three (3) samples shall be tested to establish the breaking strength of a beam or logistic bars. The lowest test result shall be used to determine the breaking strength of the item.

7.3.2 Test samples shall be of standard production length.

7.3.3 All beams and logistic bars are to be tested to simulate a uniformly distributed static force applied to the beam assembly. **The length of the beam should be adjusted to its installed length**. The load shall be applied at a uniform speed of 2 to 10 inches (50 to250mm) per minute, or 100 to 1,000 pounds per second until failure. The applied load at failure is the breaking strength.

7.3.4 The test machine shall be certified annually to ASTM E4.

7.3.5 Test results shall be kept on file by the manufacturer. Each manufacturer should retain test data for a minimum of twenty (20) years to verify breaking strengths. Destructive tests shall be conducted according to the test procedure outlined in Chapter 3 of this Standard Specification.

7.3.6 Testing shall be performed by an independent testing laboratory or the beam or bar manufacturer.

7.3.7 When certification is required, a certificate shall be issued describing the type, date and results of test by the company performing the test.

CHAPTER 8.0
RECOMMENDED OPERATING PRACTICES FOR WEB TIE DOWNS

SECTION 8.1 PURPOSE

8.1.1 The purpose of this chapter is to provide guidelines to the qualified personnel responsible for tie down selection, inspection and usage in accordance with recommended operating practices.

SECTION 8.2 TRAINING REQUIREMENTS

⚠ WARNING

Before using tie downs, users must be properly trained. The use of tie downs by untrained personnel is potentially hazardous.

8.2.1 The following six points briefly summarize some important safety issues. All tie down users shall be trained in the following areas:

- **Tie Down Selection** – Understand the limitations of each tie down type.
- **Tie Down Inspection** – Understand how to properly inspect tie downs, so damaged tie downs can immediately be removed from service.
- **Prevention of Tie Down Damage** – Know how to prevent tie down damage, including how to properly protect them from being cut or damaged from direct contact with corners, edges, protrusions or abrasive surfaces.
- **Proper Use of Tie Downs** – Each tie down user shall be competent in considering all risk factors prior to securing cargo and be able to verify that each tie down will not be loaded in excess of its working load limit.
- **Be alert when securing loads** – Loads must be securely blocked and stabilized before applying tension to or releasing tie downs.
- **Proper Storage of Tie Downs** – Users should know how to store tie downs in an environment where they will not become damaged, such as by exposure to heat, chemicals and sunlight or other UV light.

Users should read, understand and follow the information contained in this publication, as well as all local, state, federal and provincial regulations applicable to cargo securement.

SECTION 8.3 PROPER SELECTION

8.3.1 Select a web tie down having suitable characteristics for the type of load, environment and attachment to vehicle and cargo anchor/attachment points. Fittings shall have the required shape and size to attach properly to the anchor/attachment points.

8.3.2 Identify the working load limit (WLL) marked on the web tie down by the manufacturer. If the required markings are missing or illegible, remove the tie down from service. Read all warnings and/or instructions provided by the manufacturer.

8.3.3 Identify the working load limit (WLL) of the anchor/attachment points. If no rating is visible contact the vehicle owner/manufacturer and/or the manufacturer of the cargo. **The working load limit (WLL) of the cargo securement system shall be based on the lowest-rated component.**

8.3.4 Determine the proper number of web tie downs required based upon the weight of the

cargo, the type of commodity, the aggregate working load limit of the securement system and the length/weight ratio of the cargo being secured. Additionally, end users and enforcement personnel are required to know commodity specific rules, if applicable, governing proper tie down determination as published by the Federal Motor Carrier Safety Administration *Standard for Protection Against Shifting and Falling Cargo*; Final Rule currently in effect.

SECTION 8.4 TIE DOWN INSPECTIONS

8.4.1 **Initial Inspection** - Prior to use, all tie downs shall be inspected by a qualified person to verify compliance with all applicable provisions of this Standard.

8.4.2 **Frequent Inspection** - A visual inspection for damage shall be performed by the user or other qualified person before each use.

8.4.2 **Periodic Inspection** - A complete inspection for damage shall be performed by a qualified person. This inspection should be done by someone other than the individual(s) that most commonly performs the frequent inspection.

a. *Periodic Inspection Frequency.* Periodic inspection intervals shall not exceed 1 year. The frequency of periodic inspections should be based on:
    1. frequency of tie down use
    2. severity of service conditions
    3. nature of cargo being secured
    4. experience gained on the service life of web tie downs used in similar conditions
b. *Written Records.* A written record of the most recent periodic inspection should be maintained.

SECTION 8.5 REMOVAL FROM SERVICE

8.5.1 A web tie down shall be removed from service if any of the following forms of damage are visible. See Figures 1 – 9 for illustrative examples.

a. Holes, tears, cuts, snags or embedded particles which cause doubt as to the strength of the tie down (see Figures 1 & 8).
b. Broken or worn stitching in load bearing sew patterns (see Figure 2).
c. Excessive abrasive wear (see Figure 3).
d. If any load bearing part of the tie down has been tied into one or more knots (see Figure 4).
e. Melting, charring or weld spatter on any part of the tie down (see Figure 5).
f. Acid or alkali burns on the tie down (see Figure 6).
g. Signs of ultraviolet light degradation such as bleaching, increased stiffness or surface abrasion in areas not in contact with the load. See Section 8.8.8
h. Distortion, excessive pitting, corrosion, or other damage to hardware.
i. If either the tie down manufacturer or supplier identification is illegible or missing, or the assigned working load limit (WLL) is no longer visible.
j. Any other visible damage which causes doubt as to the strength of the tie down (see Figures 7, 8 and 9).

FIGURES - DAMAGED WEB TIE DOWNS

Figure 1
Holes, Tears
Cuts, Snags.

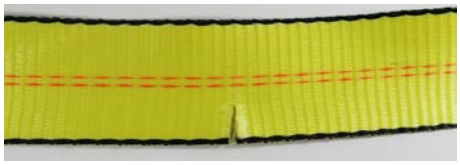


Figure 2
Broken or Worn Stitching
in Load Bearing Sew Patterns.

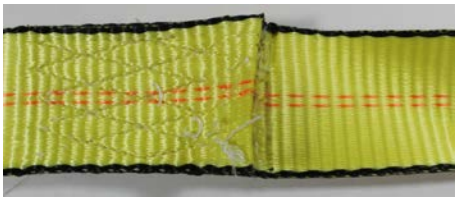


Figure 3
Excessive
Abrasive Wear.

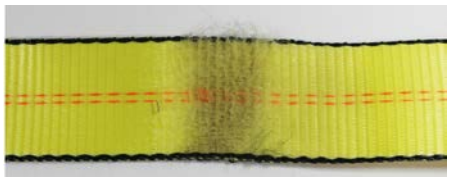


Figure 4
Knots in the
Tie Down.

Figure 5
Melting, Charring or Weld Spatter
Spatter on Any Part of the Tie Down.

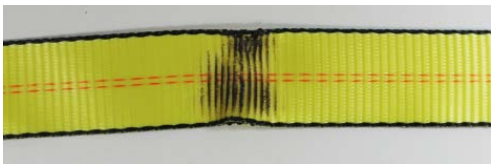


Figure 6
Acid or Alkali burns
on the Tie Down.

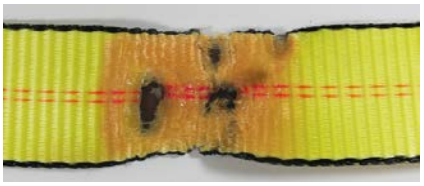


Figure 7
Damaged Loop,
Eye Hook Too
Small or too Rough.

Figure 8
Tear in Webbing
at the Fitting.

Figure 9a
Other Visible Damage Which
Causes Doubt as to the
Strength of the Tie Down,
such as Crushed Webbing,
Embedded Materials, etc.

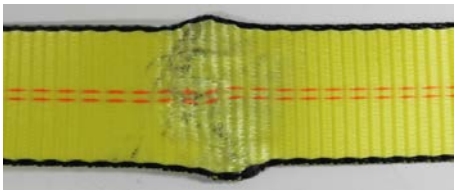
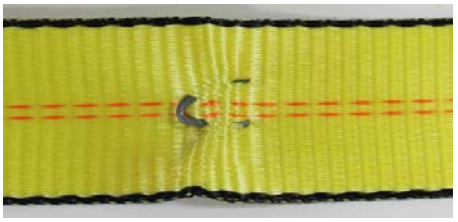


Fig 9b



SECTION 8.6 SECUREMENT PLANNING CONSIDERATIONS

8.6.1. Select a web tie down having suitable characteristics for the type of load, environment and attachment to vehicle anchor point. Fittings shall be the proper shape and size to ensure that they will attach properly to the vehicle and cargo anchor / attachment points.

8.6.2. Identify the working load limit (WLL) marked on the tie down.

8.6.3. Identify the working load limit (WLL) of all anchor / attachment points. If no rating is visible, contact the owner or vehicle manufacturer for tie down instructions. The lesser rated working load limit (WLL), whether that is the anchor point or the web tie down, shall determine the working load limit (WLL) of the entire securement system.

8.6.4. Determine the proper number of web tie downs required based on the weight, size and shape of the cargo, the type of commodity, and the aggregate working load limit of the securement system.

8.6.5 Web tie downs shall not be loaded in excess of the working load limit (WLL) provided by the manufacturer. When securing cargo to the floor, consideration should be given to the angle created by the tie down to the anchor point from the horizontal (tie down to trailer) that affects the downward pressure.

8.6.6 Effect of Angle - Example: If using tie downs at 30 degrees the effective downward pressure is reduced to 50% of the vertical strap assembly efficiency. Multiply the working load limit (WLL) by 50% to get the reduced effectiveness of the tie down and add additional tie downs necessary to secure the load properly**.** The effectiveness examples pictured below are only true of indirect tie downs. (See Figure 10)

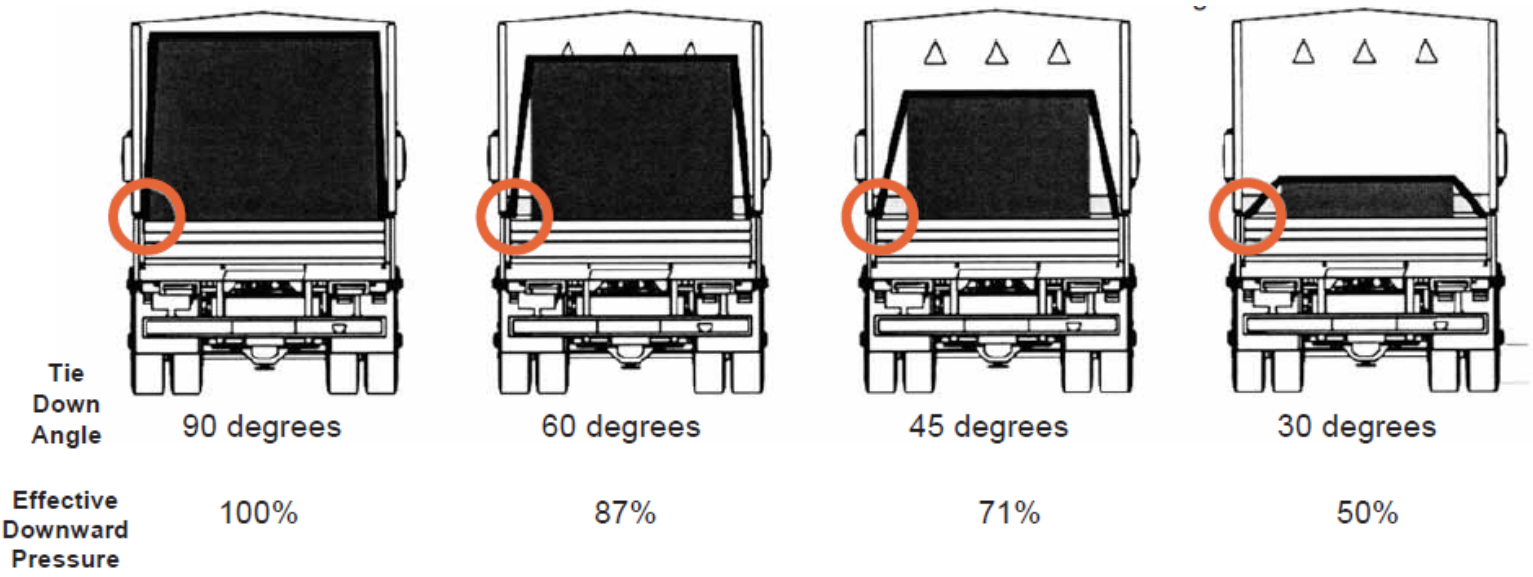


Figure 10

8.6.7 Web tie downs shall be attached to the vehicle and positioned in accordance with applicable regulations for the commodity being transported to prevent against shifting and/or loss of cargo. Additionally, tie down users are required to know commodity-specific rules governing proper tie down determination as published by the Federal Motor Carrier Safety Administration, *Standard for Protection Against Shifting and Falling Cargo: 49 CFR 393.100 ~ 393.136 Final Rule published June 22, 2006* and/or Canadian Council of Motor Transport Administrators, *National Safety Code Standard 10, amended June 2013* or current regulations in effect.

SECTION 8.7 OTHER CONSIDERATIONS

8.7.1 Web tie downs shall be used, inspected and adjusted during the transportation of cargo per manufacturer recommendations and all applicable federal, state, provincial, local and industry regulations.

8.7.2 Web tie downs in contact with edges, corners, or protrusions MUST ALWAYS be protected with materials of sufficient strength, thickness, and construction to prevent tie down damage. This protection must prevent abrasion, cutting and/or crushing.

8.7.3 Web tie downs should not be dragged on the floor, ground or over an abrasive surface.

8.7.4 Web tie downs shall not have knotting in any load bearing section of the tie down.

8.7.5 Web tie downs should not be pulled from under cargo when the cargo is resting on the tie down.

8.7.6 Web tie downs designed to secure cargo shall not be used for lifting, lowering or suspending cargo or for towing.

8.7.7 Before operating any web tie down assembly, users shall secure their footing to prevent slipping or falling.

8.7.8 When using web tie downs with a winch or ratchet, a minimum of 2 and a maximum of 4 wraps of webbing shall be wound on the winch or ratchet mandrel. Excessive wraps of webbing on the mandrel may reduce the working load limit (WLL) of the web tie down and may interfere with proper operation.

8.7.9 Web tie downs that appear to be damaged shall not be used unless inspected and accepted as usable under Section 8.4.

8.7.10 Nylon and polyester elongate at different rates when under tension. Web tie downs of different materials shall not be used together when restraining cargo in the same direction due to different elongation characteristics.

8.7.11 When web tie downs are attached directly to cargo, they should be attached symmetrically and above the cargo's center of gravity to reduce the tendency of cargo to overturn.

SECTION 8.8 ENVIRONMENTAL CONSIDERATIONS

8.8.1 Web tie downs should be stored in a cool, dry and dark place to prevent loss of strength through exposure to ultra-violet light. Tie downs shall not be stored in chemically active areas.

8.8.2 Chemically active environments can affect the strength of web tie downs in varying degrees ranging from little to total degradation. The tie down manufacturer or qualified person should be consulted before any web tie down is used in chemically active environments.

8.8.3 **ACIDS**

8.8.3.1 Nylon is subject to degradation in acids, ranging from little to total degradation.

8.8.3.2 Polyester is resistant to many acids, but is subject to degradation ranging from little to moderate with some acids.

8.8.3.3 Each application shall be evaluated, taking into consideration the following:

i. Type of Acid
ii. Exposure Conditions
iii. Concentration
iv. Temperature

8.8.4 **ALKALIS**

8.8.4.1 Polyester is subject to degradation in alkalis, ranging from little to total degradation.

8.8.4.2 Nylon is resistant to many alkalis, but is subject to degradation ranging from little to moderate with some alkalis.

8.8.4.3 Each application shall be evaluated, taking into consideration the following:

i. Type of Alkali
ii. Exposure Conditions
iii. Concentration
iv. Temperature

8.8.5 Tie downs using nylon or polyester webbing shall not be used at temperatures in excess of 194 degrees F (90 degrees C) or below -40 degrees F (-40 degrees C).

8.8.6 Tie downs using nylon or polyester webbing shall not come in contact with any object with a temperature in excess of 194 degrees F (90 degrees C) or below -40 degrees F (-40 degrees C). This includes the cargo being secured, vehicle and anchor points.

8.8.7 Web tie downs incorporating aluminum fittings shall not be used where fumes, vapors, sprays, mists or liquids of alkalis or acids are present unless the compatibility of this material is verified.

8.8.8 The strength of tie downs exposed to ultraviolet light will be affected from slight to total degradation. Consult tie down manufacturer for coatings that may be applied to the webbing to minimize the effects of ultra-violet light exposure.

8.8.8.1 Each application shall be evaluated, taking into consideration the following:

i. Length of time of continuous exposure
ii. Webbing construction and design
iii. Other environmental factors such as weather conditions and geographic location

8.8.8.2 Some visual indications of possible ultra-violet light degradation are:

i. Bleaching out of webbing color
ii. Increased stiffness of webbing
iii. Surface abrasion in areas not normally in contact with the cargo

Degradation can take place without visible indications. If in doubt, contact the tie down manufacturer for possible proof load test and/or replacement.

8.8.9 Web tie downs and associated hardware may be subjected to dirt, mud, snow, ice, road salt, cleaning solutions, etc. Frequent inspection, clean water rinsing and lubrication as appropriate will ensure proper operating condition. Aluminum fittings should not be cleaned with chlorine based cleaning agents, or used in high chlorine environments.

8.8.10 Washing of tie down webbing (including pressure washing) is not recommended as any washing can cause accelerated degradation of the webbing and loss of strength due to mechanical/chemical damage.

SECTION 8.9 REPAIRS OF WEB TIE DOWNS

8.9.1 There shall be no repairs of webbing, hardware or stitching/sew patterns.

CHAPTER 9.0
RECOMMENDED OPERATING PRACTICES FOR LOGISTIC TRACKS AND PAN FITTINGS

SECTION 9.1 PURPOSE

9.1.1 The purpose of this chapter is to provide recommendations for the qualified person responsible for the selection, installation, inspection and use of logistic tracks, pan fittings and associated components.

SECTION 9.2 MECHANICAL CONSIDERATIONS

9.2.1 Select logistic track, pan fitting and attachment components which are appropriate for the type of cargo being secured and for the load being applied.

9.2.2 Logistic track, pan fittings and attachment components shall not be loaded in excess of their rated capacities. Consideration shall be given to the load angle, and other factors which affect rated capacities.

9.2.3 The logistic track, pan fittings and attachment components shall be the proper size and shape to ensure all fittings will seat properly.

9.2.4 Logistic track, pan fittings and attachment components shall be inspected for damage by a qualified person.

SECTION 9.3 SELECTION OF PROPER HARDWARE

9.3.1 **DEFINITION -** Connection hardware includes any method, mechanical or otherwise, used to attach logistic track or pan fittings to an appropriate substrate as determined by a qualified person.

9.3.2 Connection hardware shall be selected such that the working load limit of the logistic track or pan fitting installation can be achieved without failure of the mechanical connection. Due to the intrinsic nature of the relationship between vehicle wall and floor strength and attachment point ratings, selection of connection hardware is the responsibility of a qualified person in accordance with the vehicle manufacturer's recommendations.

SECTION 9.4 ENVIRONMENTAL CONSIDERATIONS

9.4.1 Chemically active or extreme climactic environments can affect the overall strength of the logistic track, pan fittings, and attachment components. A qualified person should be consulted before the above mentioned items are used in these environments.

SECTION 9.5 INSPECTION

9.5.1 Logistic track and pan fittings shall be visually inspected for damage by a qualified person before each use.

9.5.2 **Initial Inspection -** Prior to use, all logistic track and pan fittings shall be inspected by a qualified person to verify compliance with all applicable provisions of this Standard.

9.5.3 **Frequent Inspection -** A visual inspection for damage shall be performed by the user or other qualified person before each use.

9.5.4 **Periodic Inspection -** A complete inspection for damage shall be performed by a qualified person. This inspection should be done by someone other than the individual(s) that most commonly performs the frequent inspection.

a. *Periodic Inspection Frequency.* Periodic inspection intervals shall not exceed 1 year. The frequency of periodic inspections should be based on:

1. Frequency of use
2. Severity of service conditions
3. Nature of cargo being secured
4. Experience gained on the service life of logistic track and pan fittings used in similar conditions

b. *Written Records:* A written record of the most recent periodic inspection should be maintained.

SECTION 9.6 REMOVAL FROM SERVICE

10.6.1 Logistic track or pan fittings shall be removed from service if any of the following are visible:

a. If the logistic track or pan fitting is corroded, cracked or distorted in any way.
b. If the connection hardware is corroded, cracked or distorted in any way.
c. Logistic track, pan fittings or attachment points are not in operable condition.
d. Logistic track, pan fittings or attachment points are not properly fastened to the vehicle.
e. Any other conditions which cause doubt as to the strength of the logistic track or pan fitting.

SECTION 9.7 REPAIR

9.7.1 There shall be no repairs of logistic track or pan fittings.

CHAPTER 10.0
RECOMMENDED OPERATING PRACTICES FOR BEAMS AND BARS

SECTION 10.1 PURPOSE

10.1.1 The purpose of this chapter is to provide guidelines to end users and enforcement personnel for proper selection, use and care, environmental considerations and inspection of beams and bars. These guidelines are not intended to replace proper training, experience and learned knowledge regarding proper loading procedures.

SECTION 10.2 PROPER SELECTION, CARE AND USE

10.2.1 All users and enforcement personnel are required to know commodity specific rules governing proper load securement determination as published by the Federal Motor Carrier Safety Administration Standard for Protection Against Shifting and Falling Cargo.

10.2.2 Select a beam or bar having suitable characteristics for the application, type of cargo, dynamic (G) forces, environmental conditions, and attachment to vehicle logistic track or anchor point. Beams and bars shall have a positive locking mechanism to ensure against inadvertent release during transit.

10.2.3 Identify the working load limit (WLL) marked on the beam or bar by the manufacturer. Never exceed the working load limit (WLL). If the required markings are illegible or missing, remove from service. Read all warnings and/or instructions provided by the manufacturer.

10.2.4 Determine the proper number and type of beams and/or bars required based upon the following:
- the weight and size of the cargo
- the type of cargo and its packaging
- the aggregate working load limit of the beams and/or bars
- the dynamic (G) forces acting on the cargo being secured
- suitability of the cargo for restraint and/or decking

10.2.5 **DYNAMIC FORCES:** The added effect of dynamic conditions encountered during transit and concentrated loads if not evenly distributed will increase the stress levels in the beams by increasing the effective weight of the loads being supported by the beams when used for decking. The vertical G force dynamics are a variable that depends on many factors but a typical design factor is 2.5 G in the design of a trailer structure. Higher G factors from extreme conditions are possible. In order to avoid exceeding the WLL rating of the beam, the actual weight of cargo shouldn't exceed 25% of the WLL value to account for the potential dynamic forces of transit in a typical LTL environment.

10.2.6 Beams and bars shall not be dropped or thrown to prevent damage.

10.2.7 Beams shall not be pulled from under cargo when the cargo is resting on the beam.

10.2.8 Beams shall not be moved or adjusted while in the track, with or without a load resting on the beam, with a forklift or other mechanical device.

10.2.9 Beams and bars shall always be protected from punctures, protrusions and bending.

10.2.10 Beams and bars shall be used and inspected during the transportation of cargo per applicable federal, state, provincial, local and industry regulations.

10.2.11 Beams and bars may be subjected to dirt, mud, snow, ice, road salt, cleaning solutions, etc. Frequent inspection, cleaning and lubrication as appropriate will ensure proper operating condition. Aluminum beams should not be cleaned with chlorine based cleaning agents.

SECTION 10.3 ENVIRONMENTAL CONSIDERATIONS

10.3.1 Chemically active environments can degrade the materials in beams and bars in varying degrees, ranging from little to total degradation. The manufacturer should be consulted before any beam or bar is used or stored in chemically active environments.

SECTION 10.4 INSPECTIONS

10.4.1 Type of Inspection

a. INITIAL INSPECTION - A qualified person shall inspect any beams and bars before being placed in service to ensure that the correct assembly is being used.
b. FREQUENT INSPECTION - Beams and bars shall be inspected each time they are placed in use.
c. PERIODIC INSPECTION - Qualified personnel shall conduct this inspection. Frequency of a periodic inspection shall be based on, but not limited to:
    i. Frequency of use
    ii. Severity of service conditions
    iii. Experience gained on the service life of beam assemblies used in similar applications

SECTION 10.5 REMOVAL FROM SERVICE

10.5.1 A beam or bar shall be removed from service if any of the following are visible:

a. Holes, bends, cracks or damaged locking mechanism which cause doubt as to the strength or functionality of the beam or bar.
b. The working load limit (WLL) assigned by the beam or bar manufacturer is no longer visible.
c. Any other visible damage which causes doubt as to the strength or functionality of the beam or bar.

SECTION 10.6 REPAIR

10.6.1 Simple replacement of damaged ends shall be permitted.

10.6.2 Beams and bars may be repaired utilizing existing hardware if a qualified person determines the hardware is repairable.

10.6.3 Replacement of damaged ends is permitted with replacement parts from the manufacturer or with fully functional ends. Under no circumstances shall the extrusions or the tubes be welded, riveted, repaired or modified.

RESOURCES

U.S. Department of Transportation
Federal Motor Carrier Safety Administration (FMCSA)
Federal Motor Carrier Safety Regulations
(FMCSRs) 392.9, Safe Loading; 393.100 – 393.136
Subpart I – Protection Against Shifting and Falling Cargo
1200 New Jersey Avenue SE
Washington, DC 20590
Telephone: (800) 832-5660
www.fmcsa.dot.gov

Commercial Vehicle Safety Alliance (CVSA)
"North American Standard Out of Service Criteria" (OOSC)
6303 Ivy Lane, Suite 310
Greenbelt, MD 20770
Phone (301) 830-6143
Fax (301) 830-6144
www.cvsa.org

SPECIALIZED CARRIERS & RIGGING ASSOCIATION
Specialized Carriers & Rigging Association
"Cargo Securement On Motor Vehicles; Steel".
Specialized Carriers & Rigging Association,
2750 Prosperity Avenue, Suite 620
Fairfax, VA 22031-4312
Telephone (703) 698-0291
Fax (703) 698-0297
Email: info@scranet.org
www.scranet.org

WEB SLING & TIE DOWN ASSOCIATION, INC.
2331 Rock Spring Road
Forest Hill, Maryland 21050
Phone (443) 640-1070
Fax (443) 640-1031
Email: wstda@stringfellowgroup.net
www.wstda.com

California Administrative Code:
Office of Public Affairs or Commercial Vehicle Section
California Highway Patrol, Enforcement Services Division
P.O. Box 942898
Sacramento, CA 94298-0001
www.chp.ca.gov

In Canada Contact:
The Ministry of Transportation
In Each Province.

Canadian Council of Motor Transport Administrators
2323 St. Laurent Blvd.
Ottowa, Ontario K1G 4J8
Telephone: (613) 736-1003
Fax: (613) 736-1395
Email: ccmta-secretariat@ccmta.ca

Canadian Ministry of Transportation
Queen's Park/Minister's Office
77 Wellesley Street West
Ferguson Block, 3rd Floor
Toronto, Ontario M7A 1Z8
Telephone: (416) 327-9200

In Mexico Contact:
MEXICO CITY - MEXICO
Mauricio Hinojosa
Director General Adjunto de Supervisión
Autotransporte Federal
Czda. de las Bombas No. 411, 10 Piso Col. Los
Girasoles, C.P. 04920 Delegación Coyoacan, México D.F.
Telephone: +52-55-54824100
Fax: +52-55-46849628
Email: ohinojos@sct.gob.mx
http://dgaf.sct.gob.mx/

WEB SLING & TIE DOWN ASSOCIATION PUBLICATIONS

Recommended Standard Specifications for:

- Synthetic Web Slings (WSTDA-WS-1)
- Synthetic Webbing for Slings(WSTDA-WB-1)
- Synthetic Polyester Roundslings (WSTDA-RS-1)
- High Performance Yarn (HPY) Roundslings (RS-1HP)
- Synthetic Web Tie Downs (WSTDA-T-1)
- Sewing Threads for Slings & Tie Downs (WSTDA-TH-1)
- Winches Used With Web Tie Downs (WSTDA-T-3)
- Synthetic Webbing Used for Tie Downs (WSTDA-T-4)
- Interior Van Securement Devices (WSTDA-T-5)
- Load Binders Used with Chain Tie Downs (WSTDA-T-6)
- Strength & Elongation Test Method for Sling & Tie Down Webbings (WSTDA-TM-1)

Operating, Care & Inspection Manuals for:

- Synthetic Web Slings (WSTDA-WS-2)
- Synthetic Polyester Roundslings (WSTDA-RS-2)
- Synthetic Web Tie Downs (WSTDA-T-2)

Download free, single-use copies of the above Standards and Manuals at www.wstda.com

Available for Purchase from Web Sling & Tie Down Association:

Warning Products: Available in English, Spanish and French

- Warning Labels for Synthetic Web Slings, Roundslings, High Performance Yarn Roundslings, and Synthetic Tie Downs
- Safety Bulletins for Synthetic Web Slings, Roundslings, High Performance Yarn Roundslings, and Synthetic Tie Downs

Illustrated Wall Chart

- Inspection of Web Slings & Roundslings (WSTDA-WSWC-1)

UV Degradation Reports

- UV Degradation Testing Program for Web Slings: Summary Report (2003) (WSTDA-UV-Sling-2003)
- UV Degradation Testing Program for Web Slings: Graphs (Mini Manual) (WSTDA-UV-MM-2005)
- UV Degradation Testing Program for Web Slings: Report (1981, revised 2005) (WSTDA-UVDR-1981)

For ordering information and prices, contact the association office or visit our website:

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Web Site: www.wstda.com

This recommended standard specification has been formulated as a guide to users, industry and government to ensure the proper use, maintenance and inspection of interior van securement devices . The existence of this recommended standard specification does not, however, prevent members of the Web Sling & Tie Down Association, Inc. and other manufacturers from manufacturing or selling products not conforming to this standard.