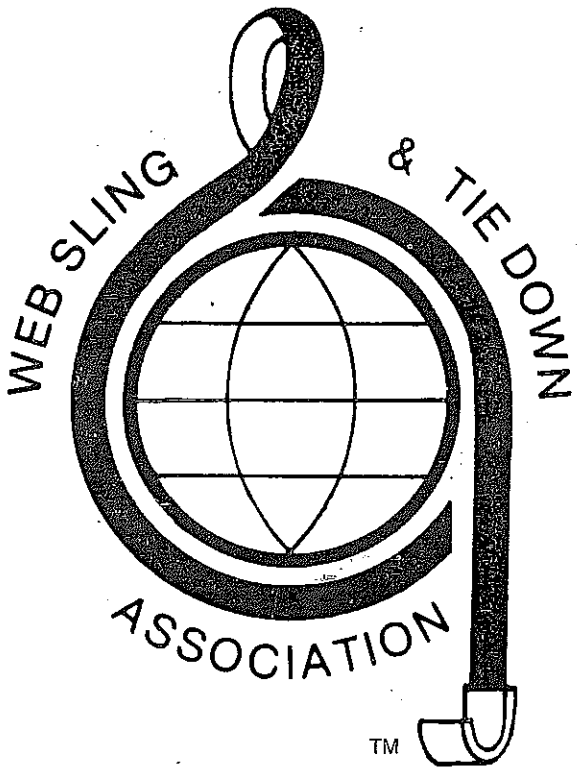
RECOMMENDED OPERATING, CARE AND INSPECTION MANUAL FOR

SYNTHETIC WEB TIE DOWNS

WSTDA-T-2



$6.50

MANDATORY AND ADVISORY RULES

Mandatory rules are characterized by the use of the word "shall". 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.

The Web Sling & Tie Down Association has also formulated a Recommended Standard Specification for Synthetic Web Tie Downs as a guide for users, industry and government to assist in the proper use, maintenance and inspection of synthetic web tie downs.

The Association suggests the purchase and use of the *Recommended Standard Specification for Synthetic Web Tie Downs WSTDA-T-1* by all synthetic web tie down users.

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WEB SLING & TIE DOWN ASSOCIATION ™

INTRODUCTION

The Web Sling & Tie Down Association (WSTDA) is a tax-exempt, non-profit, technical association dedicated to the development and promotion of voluntary recommended standards and associated reference materials. Originally established in 1973 as the Web Sling Association (WSA), the WSA serviced the synthetic web sling industry. In 1988, the WSA further defined its purpose to include synthetic web tie downs and became the Web Sling & Tie Down Association. Today, members of the WSTDA include manufacturers and suppliers of synthetic web slings and tie downs, polyester roundslings, synthetic webbing, fibers, thread and related components.

It is an industry organization of manufacturers of synthetic yarns, webbing, slings, web tie downs and related components. These products are used in the manufacturing, transportation, recreation, construction and forestry industries and by the military and governmental agencies, for lifting, lowering, moving and securing loads.

The WSTDA's mission is to foster and further, in every lawful manner, the common interests of its members and industry. In pursuance of this mission, the association has prepared this manual. It is intended to serve as a general outline of recommended procedures and suggested operating practices and is not intended to be an all-inclusive list of procedures for specific products or applications.

Accordingly, the Web Sling & Tie Down Association, Inc. disclaims any responsibility for the actual use of any synthetic web tie down products. The user should consult the manufacturer for further information concerning the proper care and use of its products.

SYNTHETIC WEB TIE DOWNS

The use of "tie down" throughout this publication shall be defined as a synthetic web tie down which is fabricated of synthetic webbing, with or without hardware, for the purpose of securing cargo.

Safety is the paramount consideration involved in the use of any tie down. The appropriate tie down shall be selected by the user for the specific application. Users of tie downs shall have knowledge on the proper method of cargo securement. Users shall also be knowledgeable about federal, state, provincial, local and industry regulations applicable to cargo securement.

SYNTHETIC WEB TIE DOWN IDENTIFICATION

EACH 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 and/or trademark of the tie down manufacturer

B. Working load limit in pounds and kilograms

RECOMMENDED OPERATING PRACTICES

Proper Selection

Select a tie down having suitable characteristics for the type of load, environment and attachment to vehicle anchor point(s). Fittings shall have the required shape and size to attach properly to the vehicle anchor point(s).

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

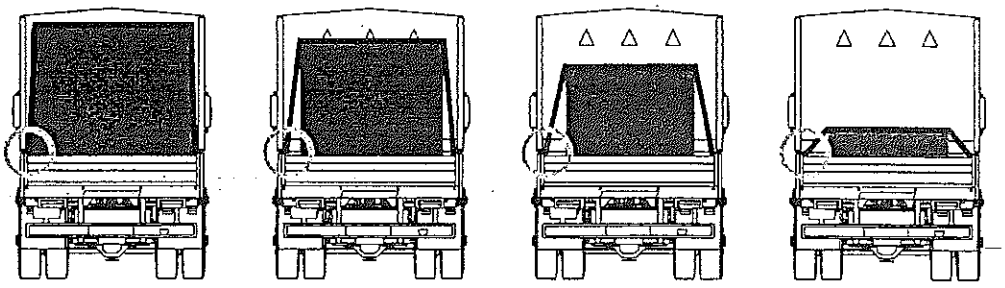
Identify the working load limit of the vehicle anchor point(s). If no rating is visible, contact the vehicle manufacturer for tie down instructions. The lesser-rated working load limit, whether that is the anchor point or the tie down, shall determine the working load limit of the securement system.

Determine the proper number of 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 governing proper tie down determination as published by the Federal Motor Carrier Safety Administration Standard for Protection Against Shifting and Falling Cargo; Final Rule effective June 22, 2006 or latest ruling.

Use and Care

Tie downs shall not be loaded in excess of the working load limit provided by the manufacturer. Consideration shall be given to the angle from the horizontal (tie down to trailer) that affects the downward pressure. (See chart below)



Angle: 90 degrees	60 degrees	45 degrees	30 degrees
Effective Downward Pressure			

Tie downs shall be attached to the vehicle and positioned in accordance with applicable regulations for the commodity being transported to prevent shifting and/or loss of cargo.

Tie downs shall always be protected from corners, edges, protrusions and abrasive surfaces with edge protection that resists abrasion, cutting or crushing.

Tie downs shall not be shortened, joined, repaired or lengthened by being tied in knots.

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

When using any winch a minimum of two (2) and a maximum of four (4) wraps of webbing shall be on the winch mandrel. Two to four wraps will appear like four to eight layers of webbing. Less than two wraps may result in strap slippage; more than four will place unnecessary strain on the winch. Excessive wraps of webbing on the mandrel may reduce the working load limit (WLL) of the winch and may interfere with proper operation.

Before operating any tie down, the user shall secure his/her footing to prevent slipping or falling. In adverse weather conditions, including freezing temperatures, additional caution should be exercised.

Tie downs shall be used, inspected and adjusted during the transportation of cargo per applicable federal, state, provincial, local and industry regulations.

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

Tie downs should not be dropped or dragged on the floor, ground or any abrasive surface.

Environmental Considerations

Tie downs should be stored in a cool, dry and dark place when not in use to prevent loss of strength through exposure to ultraviolet light.

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

Tie downs incorporating aluminum fittings shall not be used where fumes, vapors, sprays, mists or liquids of alkalis and/or acids are present.

Acids

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

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

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

a. Type of acid
b. Exposure conditions
c. Concentration
d. Temperature

Alkalis

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

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

Each application shall be evaluated, taking into consider-ation the following:

a. Type of alkalis
b. Exposure conditions
c. Concentration
d. Temperature

Temperatures

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).

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, the vehicle and the anchor points.

Ultraviolet Light

Environments in which tie downs are continuously exposed to ultraviolet light affect the strength of the tie downs in varying degrees ranging from slight to total degradation.

Factors that affect the degree of strength loss:

1. Length of time of continuous exposure
2. Webbing construction and design
3. Other environmental factors such as weather conditions and geographic location

Suggested procedures to minimize the effects of ultraviolet light:

1. Store tie downs in a cool, dry and dark place when not in use
2. Consult tie down manufacturer for coatings that may be applied to the webbing

Some visual indications of possible ultraviolet light degradation are:

1. Bleaching out of webbing color
2. Increased stiffness of webbing
3. Surface abrasion in areas not normally in contact with the load

CAUTION: Degradation can take place without visible indications. If in doubt, contact the tie down manufacturer for a possible proof load test or simply remove from service.

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

INSPECTION, REMOVAL AND REPAIR

For the purpose of this chapter, a designated person is defined as personnel selected or assigned by the employer as being competent to perform specific duties.

A qualified person is one 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

Types of Inspections

Initial Inspection

Prior to use, tie downs shall be inspected by a designated person to verify compliance with the applicable provisions of this chapter.

Frequent Inspection

(a) A visual inspection for damage shall be performed by the user or other designated person before each use.

(b) Conditions such as those listed in the removal from service criteria shall cause a tie down to be removed from service. Tie downs removed shall not be returned to service until approved by a qualified person

Periodic Inspection

(a) A complete inspection for damage to the tie down shall be performed periodically by a qualified person. Each tie down shall be examined individually, taking care to expose and examine all surfaces and components. The tie down shall be examined for conditions such as those listed in the removal from service criteria.

(b) Frequency of a periodic inspection shall be based on, but not limited to:

1) Frequency of tie down use

2) Severity of service conditions

3) Experience gained on the service life of tie downs used in similar applications

(c) A written record of periodic inspections should be kept on file. These records should show a description of the tie down, the condition at the time of the inspection, the date the inspection was performed and the qualified person who performed the inspection.

Removal From Service

A tie down shall be removed from service if any of the following are visible:

a. Holes, tears, cuts, snags or embedded particles which cause doubt as to the strength of the tie down.

b. Broken or worn stitching in load-bearing stitch patterns.

c. Excessive Abrasion Wear.

d. Knots in any part of the webbing.

e. Melting, charring or weld spatter on any part of the webbing.

f. Acid or alkali burns.

g. Signs of ultraviolet light degradation.

h. Pitting, corrosion, cracked, distorted or broken buckles or end fittings.

i. The working load limit assigned by the tie down manufacturer is no longer visible.

j. Any other visible damage which causes doubt as to the strength of the tie down.

FIGURES - DAMAGED SYNTHETIC WEB TIE DOWNS

Figure 1
Holes, Tears
Cuts, Snags

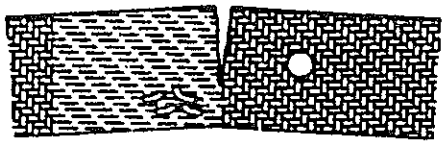


Figure 2
Broken Or Worn Stitching
In Load Bearing Sew
Patterns

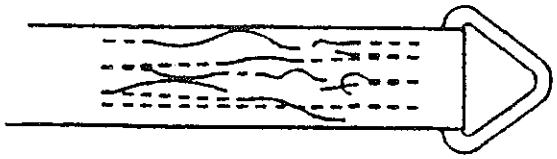


Figure 3
Excessive
Abrasive Wear

Figure 4
Knots In The
Tie Down

Figure 5
Melting Or Charring
Of The Tie Down,
Or Weld Spatter
On The Tie Down

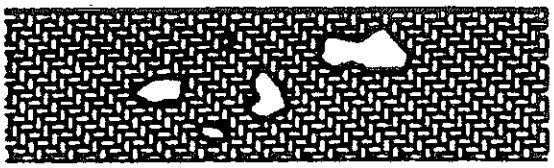


Figure 6
Chemical
Burns

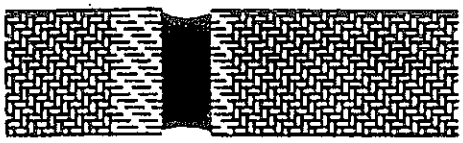


Figure 7
Damaged Loop

Figure 8
Tear In Webbing
At The Fitting

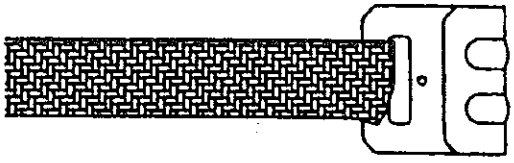
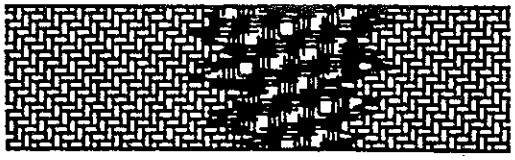


Figure 9
Other Apparent Damages That May Affect Strength Ratings; Such As Crushed Webbing, Etc.



Repairs of Synthetic Web Tie Downs

No repairs of webbing, fittings, buckles or stitching/sew patterns shall be permitted.

Tie downs may be re-webbed utilizing existing hardware if the tie down manufacturer determines the hardware is reusable.

Each tie down re-webbed utilizing used hardware shall be proof load tested to one and one half (1.5) times the working load limit. The tie down manufacturer performing the re-web shall conduct this proof test and a certificate shall be provided to the user with a copy kept on file by the tie down manufacturer.

When re-webbed, the tie down shall be marked with a label to identify when the re-web was performed and the name or trademark of the tie down manufacturer that performed the work.

Temporary repairs of webbing, fittings or stitching shall not be permitted.

OTHER
WEB SLING & TIE DOWN ASSOCIATION
PUBLICATIONS

Recommended Standard Specifications:

Printed Books

Synthetic Web Slings	WSTDA-WS-1
Synthetic Polyester Roundslings	WSTDA-RS-1
Webbing for Synthetic Web Slings	WSTDA-WB-1
Sewing Threads for Slings & Tie Downs	WSTDA-TH-1
Synthetic Web Tie Downs	WSTDA-T-1
(French) Synthetic Web Tie Downs	WSTDA-T-1
Winches Used With Web Tie Downs	WSTDA-T-3
Synthetic Webbing Used for Tie Down	WSTDA-T-4
Load Binders Used with Chain Tie Downs	WSTDA-T-6
All Standards In A Three-Ring Binder	WSTDA-ASB-2006

Recommended Standard Specifications:

PDF Files On CD

Synthetic Web Slings	WSTDA-SCD-WS-1
Synthetic Polyester Roundslings	WSTDA-SCD-RS-1
Webbing for Synthetic Web Slings	WSTDA-SCD-WB-1
Sewing Threads for Slings & Tie Downs	WSTDA-SCD-TH-1
Synthetic Web Tie Downs	WSTDA-SCD-T-1
(French) Synthetic Web Tie Downs	WSTDA-SCD-T-1
Winches Used With Web Tie Downs	WSTDA-SCD-T-3
Synthetic Webbing Used for Tie Downs	WSTDA-SCD-T-4
Load Binders Used with Chain Tie Downs	WSTDA-SCD-T-6
All Standards CD - (All above on one CD)	WSTDA-ASCD-2006

Operating & Inspection Manuals

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

SEE NEXT PAGE FOR MORE PRODUCTS

Video

Synthetic Web Sling Care & Inspection WSTDA-WSV-1-CD

Illustrated Wall Chart

Inspection of Web Slings & Round Slings WSTDA-WSWC-1

UV Degradation Reports

Summary Report UV Degradation WSTDA-UV-Sling-2003
UV Degradation Mini Manual WSTDA-UV-MM-2005
UV Degradation Report WSTDA-UVDR-1981
(Revised 2005)

Training CD-Rom

North America Cargo Securement Standard WSTDA-CD-TP-2003

Fabric Warning Tags

Web Slings WSWT-1
Tie Downs TDWT-1
Round Slings RSWT-1

Paper Safety Bulletins

Web Slings WSSB-1
Roundslings RSSB-1
Tie Downs TDSB-1

All Fabric Warning Labels and Safety Bulletins are available in three languages; English, French and Spanish

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

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