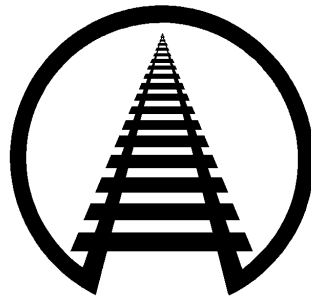


General Information Series No. 786

Aluminum Coils on Platforms/Skids Loaded on Rubber Mats & Secured by Floor Anchored Straps & Supplemental Securement Straps

**(Closed Car Loading Guide, Part 9 Coiled Metal, Section 8.6;
Cancels Section 8.4 Coil Harness Kits – Method 1)**

Approved by
DAMAGE PREVENTION & FREIGHT CLAIM COMMITTEE
Association of American Railroads



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Pueblo, CO 81001

General Information Series No. 786

Aluminum Coils on Platforms/Skids Loaded on Rubber Mats & Secured by Two Floor Anchored Web Straps & Supplemental Securement Straps

GENERAL RULES

The General Rules relating to personal safety and the safe operation of trains, contained in AAR Circular Nos. 42-M and 43-G or supplements thereto, issued by the Association of American Railroads, **must be observed**.

These loading rules and/or practices apply to shipments transported in the USA, Canada and Mexico.

The loading methods in individual closed car loading publications issued by the Damage Prevention and Loading Services Section of the Association of American Railroads are minimum standards that have been evaluated and approved. These minimum standards offer practical guidelines on the subjects covered. Since these are minimum standards, it may be necessary to supplement these methods in some instances.

Securement standards in AAR closed car loading publications are intended for safe transit of the rail car from origin to destination and prevention of lading and equipment damage. These standards do not address unloading practices.

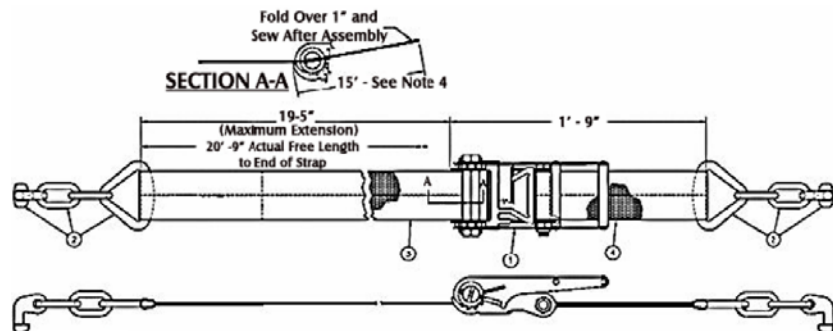
This approval may be withdrawn if the loads using these methods exhibit consistent load failure during actual shipments.

*Loading and bracing methods not presently approved may receive consideration for approval and publication under Section II - Evaluation of New Loading and Bracing Methods and Materials for Closed Cars, Trailers or Containers of **General Information Bulletin No. 2, "Rules and Procedures for Testing of New Loading and Bracing Methods or Materials"**. Submit requests to Director Damage Prevention and Loading Services, AAR/TTCI, 55500 DOT Road, Pueblo, CO 81001.*

GENERAL

5.5 Holland Web Strap Assemblies (Revised)

5.5.1 Web strap assemblies are anchored to the car floor using B-hooks inserted into anchor plates. Anchor plate holes must be clear of debris and in good order. Use web strap assemblies (strap, ratchets, and related hardware) with a minimum assembly breaking strength of 18,000 lbs. Tensioning ratchets are located near the sidewall. See [Figure 5.2](#).



NOTES:

1. WEBBING MATERIAL: POLYESTER
2. ASSEMBLY BREAKING STRENGTH: 18,000 LBS.
3. ASSEMBLY WORKING LOAD LIMIT: 6,000 LBS.
4. EXTRA 16 IN. NECESSARY FOR WRAPS AROUND DRUM

Figure 5.2 Web Strap Assembly

**Aluminum Coils on Platforms/Skids Loaded on Rubber Mats
& Secured by Two Floor Anchored Web Straps & Supplemental Securement Straps**

5.5.2 Inspection of Webbing and Tie-Downs

5.5.2.1 Before any synthetic web tie-down assembly is applied or placed in service, it must be inspected to ensure that the correct assembly is being used and to determine that the assembly meets these requirements.

5.5.2.2 The webbing and associated components must be inspected by the person handling the assembly during application, or just prior to its application by a person specifically designated by the shipper.

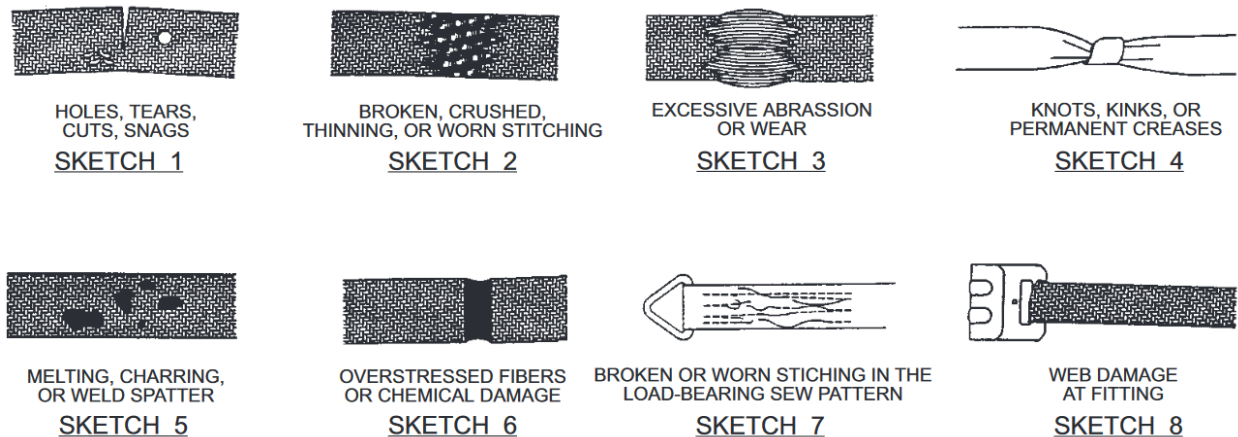


Figure 5.3
Sample Web Defects

5.5.2.3 A synthetic webbing and/or tie-down assembly must be removed from service if any of the following conditions are present. See Figure 5.3.

- Holes, tears, cuts, snags or embedded particles in the webbing.
- Broken, crushed, thinning, or worn stitching in the load bearing stitch patterns.
- Excessive abrasion or wear.
- Degradation due to ultraviolet radiation as indicated by excessive fading in conjunction with evidence of overall frayed yarn fibers or other detectable fabric deterioration.
- Knots in any part of the webbing.
- Melting, charring, or weld spatter on any part of the webbing.
- Acid or alkali burns or other chemical contamination that inhibits or may inhibit the performance of the webbing.
- Any other condition that appears to degrade the strength of the webbing or other component of the tie-down assembly (e.g., crushed areas, severe abrasions, etc.).
- Any tie-down assembly that contains broken or nonfunctioning fittings, tensioning devices, or hardware.
- A winch or pawl that fails to operate freely and is not capable of retaining strap tension by engaging the ratchet wheel under gravity. Replacement parts and or repairs must be performed by a qualified vendor and must meet the minimum specifications listed in 5.5

General Information Series No. 786

**Aluminum Coils on Platforms/Skids Loaded on Rubber Mats
& Secured by Two Floor Anchored Web Straps & Supplemental Securement Straps**

8.6 Floor Anchored Coils – Supplemental Securement Requirements

8.6.1 Metal coils secured by floor anchored strap systems (Closed Car Loading Guide Part 9, methods 8.1 & 8.2) may require additional securement to prevent the coils from tipping in transit. Coils having a height to base width (diameter) ratio of 1.0 or greater require supplemental securement. For example a 60 in. diameter coil 72 in. in height has height to base ratio equal to $72/60 = 1.2$, and requires supplemental securement. See Table 1, Coil Metric Summary.

Table 1
Coil Metric Summary
(As Tested)

	Height	Width	Weight	Height: Base Ratio
	(+ Skid)	(Diameter)	(lbs)	
7 Coil Loads:				
Min.	72	66	18,880	1.1
Max.	72	72	22,630	1.0
Average	72	68.6	21,314	1.05
8 Coil Loads:				
Min.	72	60	17,220	1.2
Max.	77.5	72	24,440	1.1
Average	75.5	70.5	23,296	1.1
9 Coil Loads:				
Min.	63.8	54	10,540	1.2
Max.	65	72	23,390	0.9
Average	64.5	69.9	18,473	0.9
11 Coil Loads:				
Min.	71	50	10,890	0.70
Max.	77.625	69	18,390	0.90
Average	74.3125	57.5	14,156	
12 Coil Loads:				
Min.	71	52	11,400	1.4
Max.	72	69	15,040	1.05
Average	71.6	57.5	14,460	
13 Coil Loads:				
Min.	72	52	11,550	1.4
Max.	74	56	13,740	1.3
Average	73.3	52.3	11,873	1.4

General Information Series No. 786

Aluminum Coils on Platforms/Skids Loaded on Rubber Mats & Secured by Two Floor Anchored Web Straps & Supplemental Securement Straps

8.6.2 Use only cushion-equipped boxcars for this loading method. Coils used during testing ranged from 50 in. to 72 in. wide and weighed from 10,500 lb. to 24,500 lb. All loads consisted of 8 to 13 coils loaded in 60 ft. 9 in. IL by 9 ft. 6 in. IW cushioned boxcars having either 12 ft. wide single or 16 ft. wide double doors. Coils were centered in each end of the car. Loads having an odd number of coils had one coil centered diagonally in the doorway; loads with an even number of coils had 2 coils loaded diagonally in the doorway area.

8.6.3 Use this method to load aluminum coils on platforms/skids with the eye vertical. Secure platforms/skids to the coils with AAR approved 1¼ in. × 0.029 in. steel straps or AAR approved Type IV 1 ¼ in. x 0.040 in. PET strapping to restrict movement on the platform/skids during transit. Coils should not have more than 1 inch of underhang on the platform/skid. NOTE: Protect PET strapping from contacting coil edges and other sharp areas.

8.6.4 Load coils down the center of the car with the platforms/skids abutting one another, as shown in Figure 8.6. Note that the doorway unit(s) may be positioned at an approximate 45° angle to the car sides. Some variation may be necessary depending on the weight and number of coils being loaded. Loads having an even number of coils will have 2 coils loaded diagonally in the doorway. Loads having an odd number of coils will have one coil loaded diagonally in the doorway. See Figure 8.6.

8.6.5 Place rubber mats of sufficient size so as to extend a minimum of 3 in. in all directions beyond the runners of the skid, minimum 0.12 in. (3 mm) thick, on the car floor to contact skid runners when positioned. Do not reuse rubber mats if torn or otherwise damaged.

8.6.6 Secure 20.5 in. tall × 8.25 in. wide × 3 in. thick foam cushion pads, with a minimum density of 4 lbs./ft³, between each end wall and adjacent coils, and between coils. Ensure the pads are no closer than 12 inches from the top of the coil.

8.6.7 Inspect web strap assemblies and floor anchor plates before using them for coil securement, see section 5.5.2.

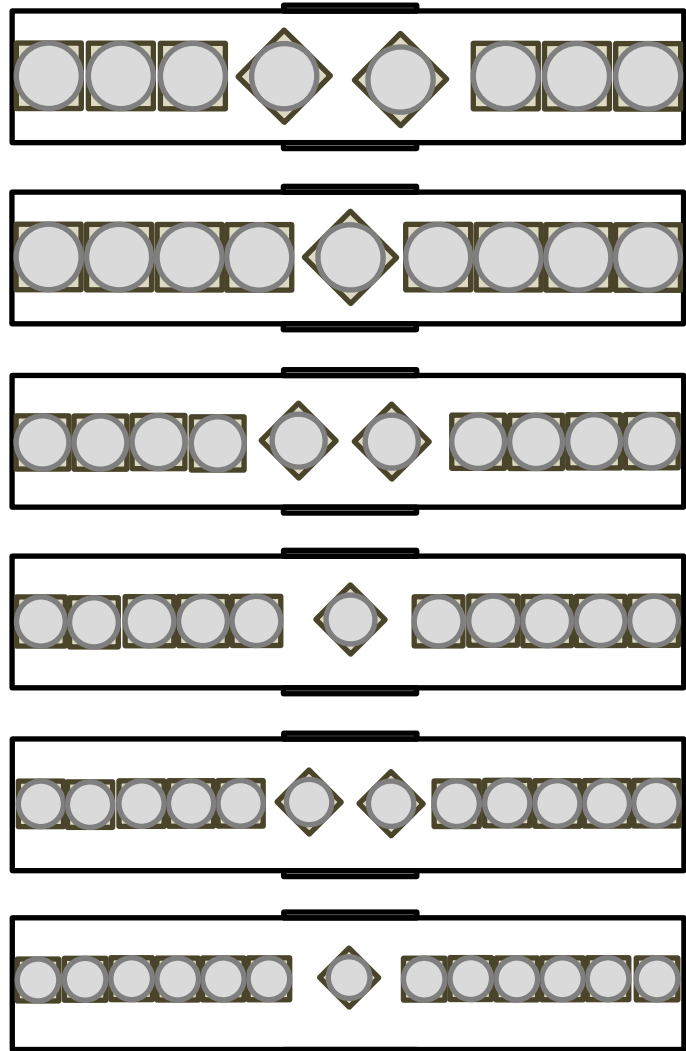


Figure 8.6
8 to 13 Coil Load Plans

General Information Series No. 786

Aluminum Coils on Platforms/Skids Loaded on Rubber Mats & Secured by Two Floor Anchored Web Straps & Supplemental Securement Straps

8.6.8 Anchor each coil using two 4-in.-wide web strap assemblies. Place two strap assemblies around the front and rear of each coil at the base of the coil. Anchor web straps into the floor by inserting B-hooks into the anchor plates. Use web strap assemblies (strap, ratchets, and related hardware) with a minimum breaking strength of 18,000 lb. Tensioning ratchets are located near the sidewall. Ensure that straps are straight and not twisted before tensioning. Once tensioned, ensure B-hook is fully engaged in the slot in the anchor plate. See Figure 8.7.

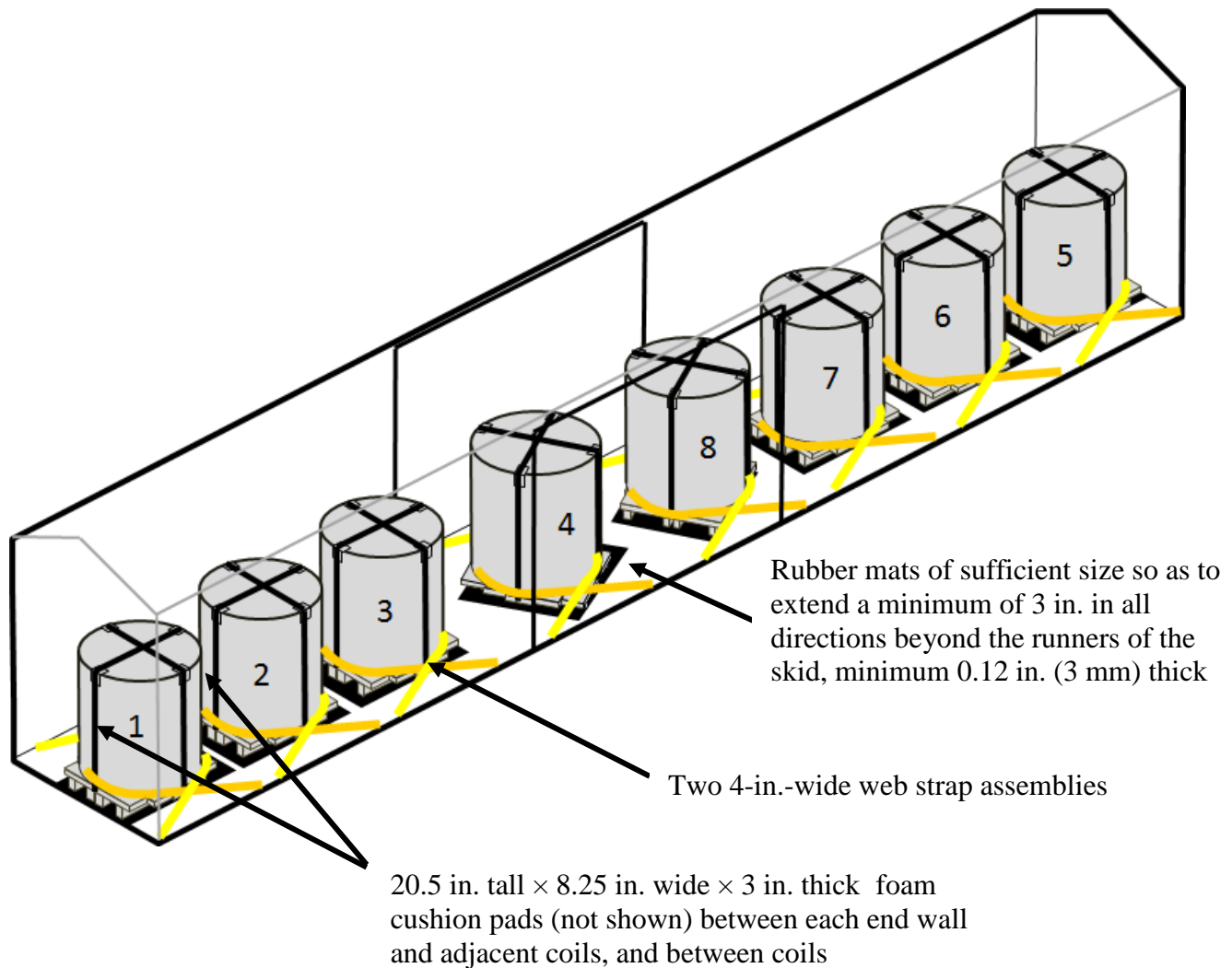


Figure 8.7
Floor Anchored Web Strap Assemblies

**Aluminum Coils on Platforms/Skids Loaded on Rubber Mats
& Secured by Two Floor Anchored Web Straps & Supplemental Securement Straps**

8.7.1 Supplemental Securement Method 1

8.7.1.2 Method 1, Step 1: Anchored Straps

All strapping is placed above the center of gravity line or midpoint of the coils vertical height. Strapping should be placed above foam separator pads.

Thread AAR approved Type 1A Grade 7 through strapping anchor plate on side wall in proximity to coil 1 (belt loop method). Thread straps between the coil and the end wall and secure thru the corresponding anchor plate on opposite side wall. Anchor plates selected should be located in front (towards center of car) of coil center. Tension per manufacturer's instructions using ladder buckles.

Repeat the strapping method between coils 1 & 2, coil 5 and opposite end wall, and coils 5 & 6.

For coils loaded in the center of the rail car reverse the direction of the strapping to pull the coils toward the end of the railcar versus the center of the railcar. Anchor plates selected should be located behind the center of the coil (towards end of car).

Thread and secure reversed strapping between rolls 3 & 4, 7 & 8, and secure end of load coils 4 & 8.

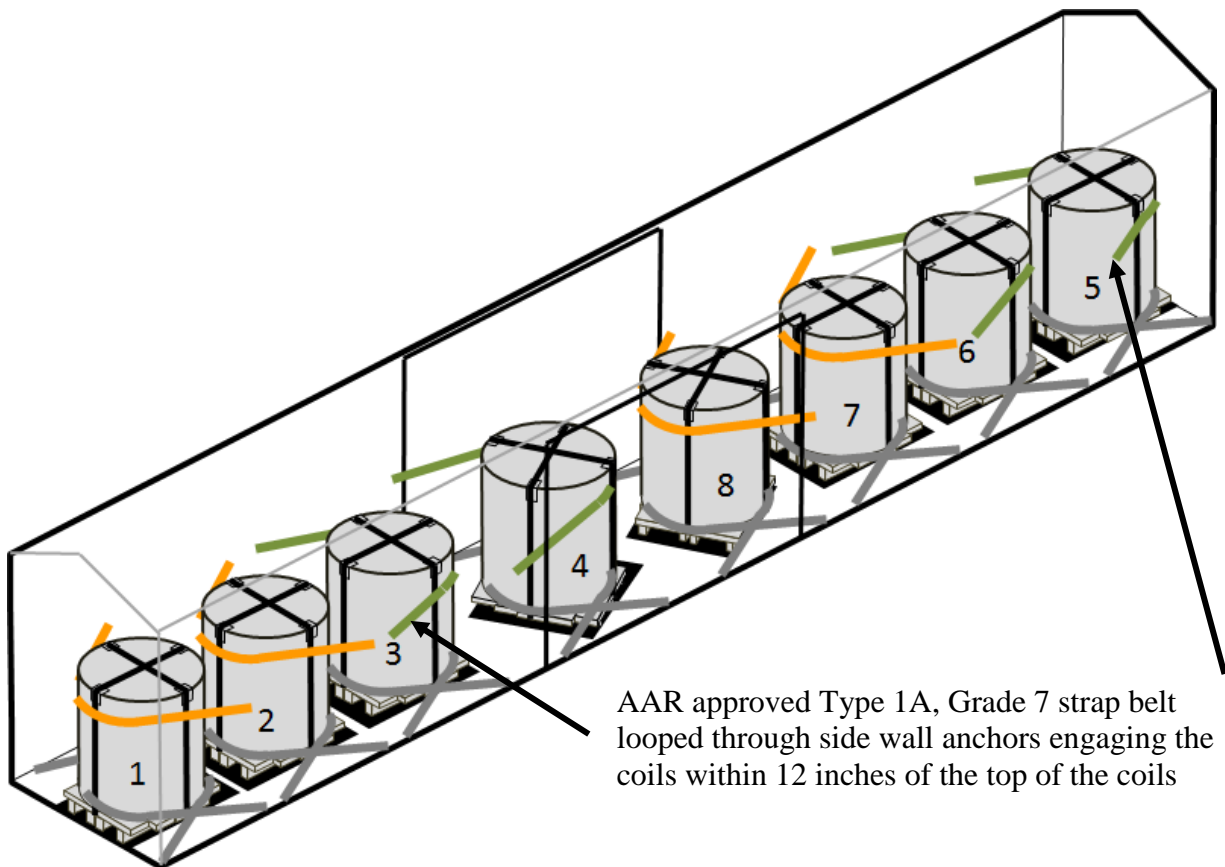


Figure 8.8
Supplemental Securement Method 1, Step 1, Anchored Straps

**Aluminum Coils on Platforms/Skids Loaded on Rubber Mats
& Secured by Two Floor Anchored Web Straps & Supplemental Securement Straps**

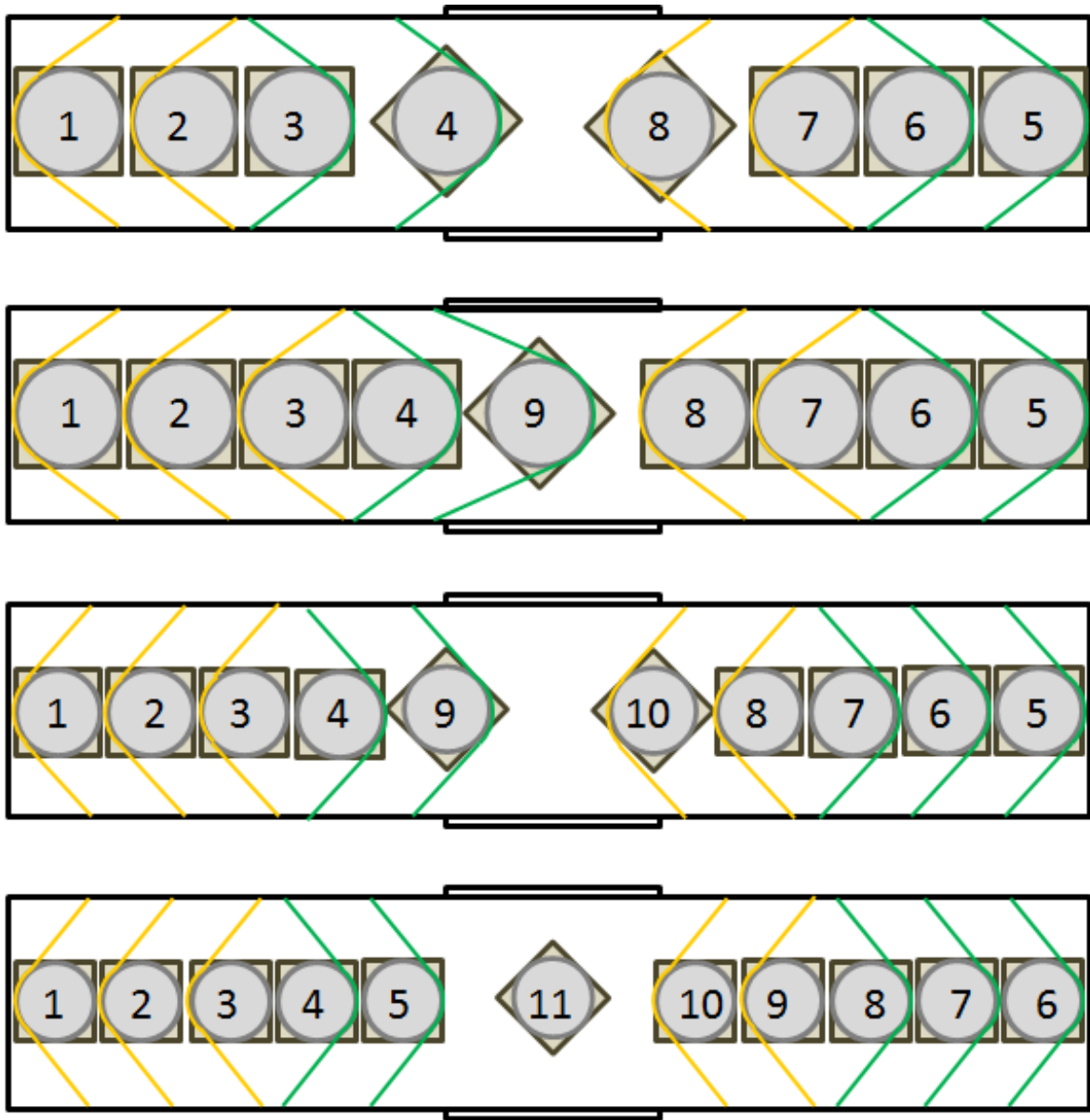


Figure 8.8A
Supplemental Securement Method 1, Step 1, Anchored Straps

General Information Series No. 786

Aluminum Coils on Platforms/Skids Loaded on Rubber Mats
& Secured by Two Floor Anchored Web Straps & Supplemental Securement Straps

For eight coil loads:

- Encircle coils 1, 2 & 3 (Red)
- Encircle coils 5, 6 & 7 (Red)
- Encircle coils 2, 3 & 4 (Blue)
- Encircle coils 6, 7 & 8 (Blue)
- Encircle coils 4 & 8 (Green)

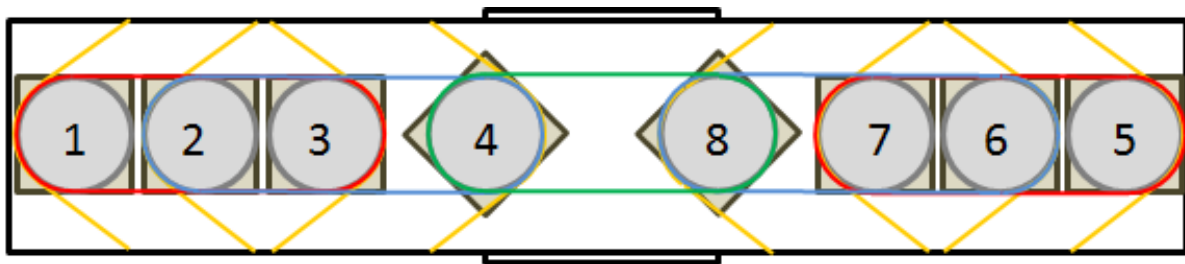


Figure 8.9A
Supplemental Securement Method 1, Step 2, Encircling Straps, 8 Coils

For nine coil loads:

- Encircle coils 1, 2 & 3 (Red)
- Encircle coils 5, 6 & 7 (Red)
- Encircle coils 2, 3 & 4 (Blue)
- Encircle coils 6, 7 & 8 (Blue)
- Encircle coils 3, 4 & 9 (Green)

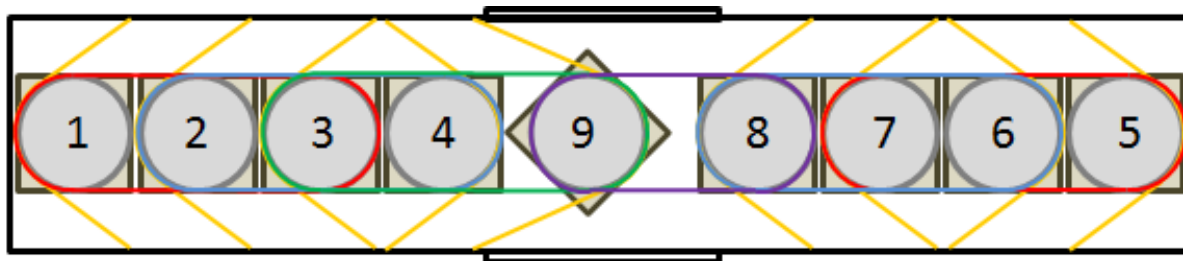


Figure 8.9B
Supplemental Securement Method 1, Step 2, Encircling Straps, 9 Coils

General Information Series No. 786

**Aluminum Coils on Platforms/Skids Loaded on Rubber Mats
& Secured by Two Floor Anchored Web Straps & Supplemental Securement Straps**

For ten coil loads:

- Encircle coils 1, 2 & 3 (Red)
- Encircle coils 5, 6 & 7 (Red)
- Encircle coils 2, 3 & 4 (Blue)
- Encircle coils 6, 7 & 8 (Blue)
- Encircle coils 3, 4 & 9 (Green)
- Encircle coils 7, 8 & 10 (Green)
- Encircle coils 9 & 10 (Purple)

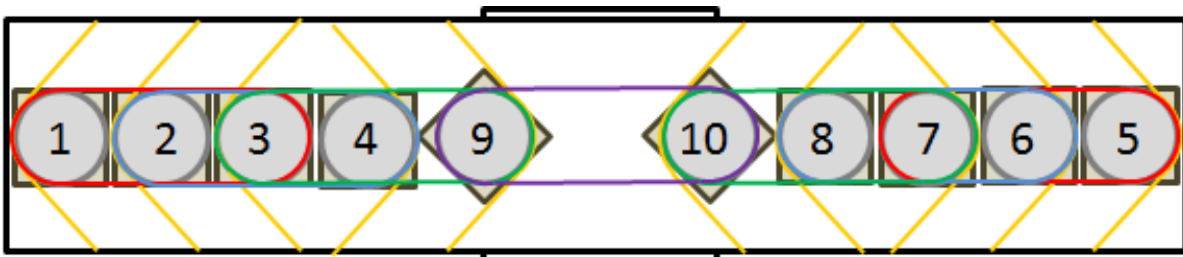
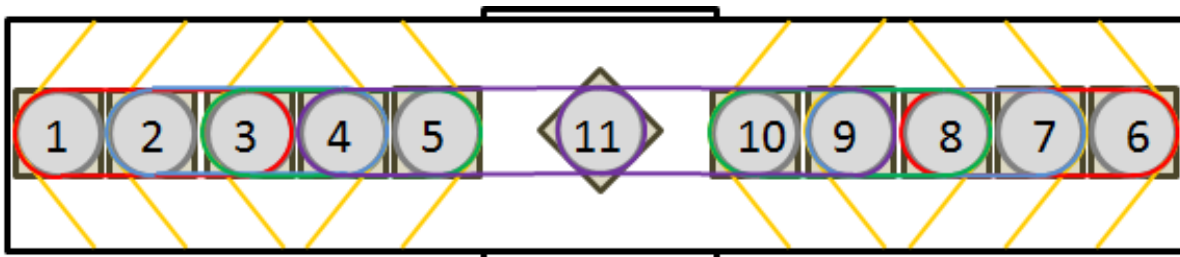


Figure 8.9C
Supplemental Securement Method 1, Step 2, Encircling Straps, 10 Coils

For eleven coil loads:

- Encircle coils 1, 2 & 3 (Red)
- Encircle coils 6, 7 & 8 (Red)
- Encircle coils 2, 3 & 4 (Blue)
- Encircle coils 7, 8 & 9 (Blue)
- Encircle coils 3, 4 & 5 (Green)
- Encircle coils 8, 9 & 10 (Green)
- Encircle coils 4, 5 & 11 (Purple)
- Encircle coils 9, 10 & 11 (Purple)
- Encircle coils 5, 11 & 10 (Purple)



General Information Series No. 786

Aluminum Coils on Platforms/Skids Loaded on Rubber Mats & Secured by Two Floor Anchored Web Straps & Supplemental Securement Straps

Figure 8.9D

Supplemental Securement Method 1, Step 2, Encircling Straps, 11 Coils

8.7.2 Supplemental Securement Method 2

8.7.2.1 Method 2, Step 1: Anchored Straps

Secure coils loaded at each car end wall to permanent sidewall anchors with 1 AAR approved Type 1A, Grade 7 strap belt looped through side wall anchors engaging the coils within 12 inches of the top of the coils. Tension per manufacturer's instructions using ladder buckles. Use tape, strap hangers or other suitable material to maintain straps in position should they become slackened. See Figure 8.10.

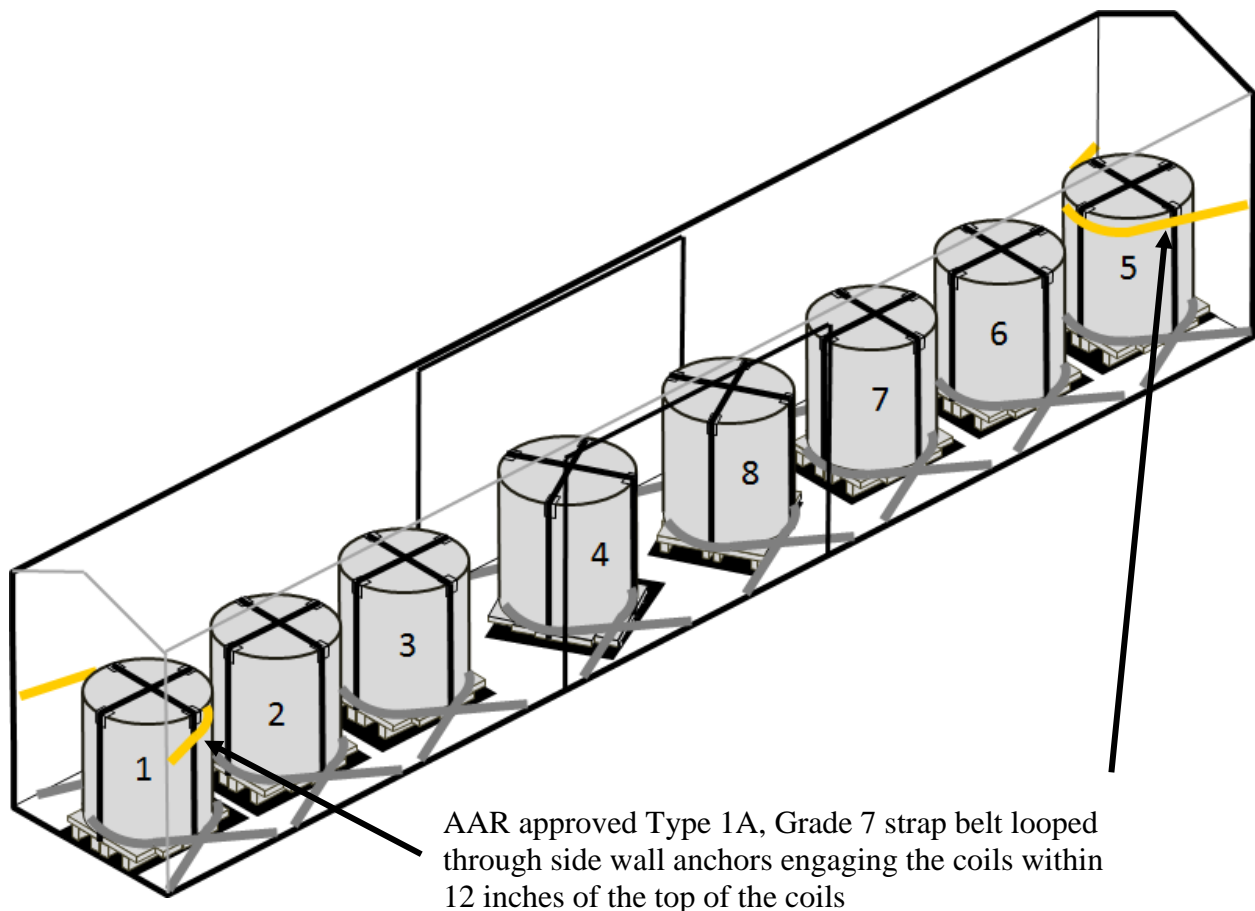


Figure 8.10

Supplemental Securement Method 2, Step 1, Anchored Straps

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Aluminum Coils on Platforms/Skids Loaded on Rubber Mats & Secured by Two Floor Anchored Web Straps & Supplemental Securement Straps

8.7.2.2 Method 2, Step 2: Encircling Straps

Unitize coils in groups of 2 with 1 AAR approved Type 1A, Grade 7 strap encircling the coils within 12 inches of the top of the coils. Tension per manufacturer's instructions using ladder buckles. Use tape, strap hangers or other suitable material to maintain strap in position should they become slackened. See Figure 8.11.

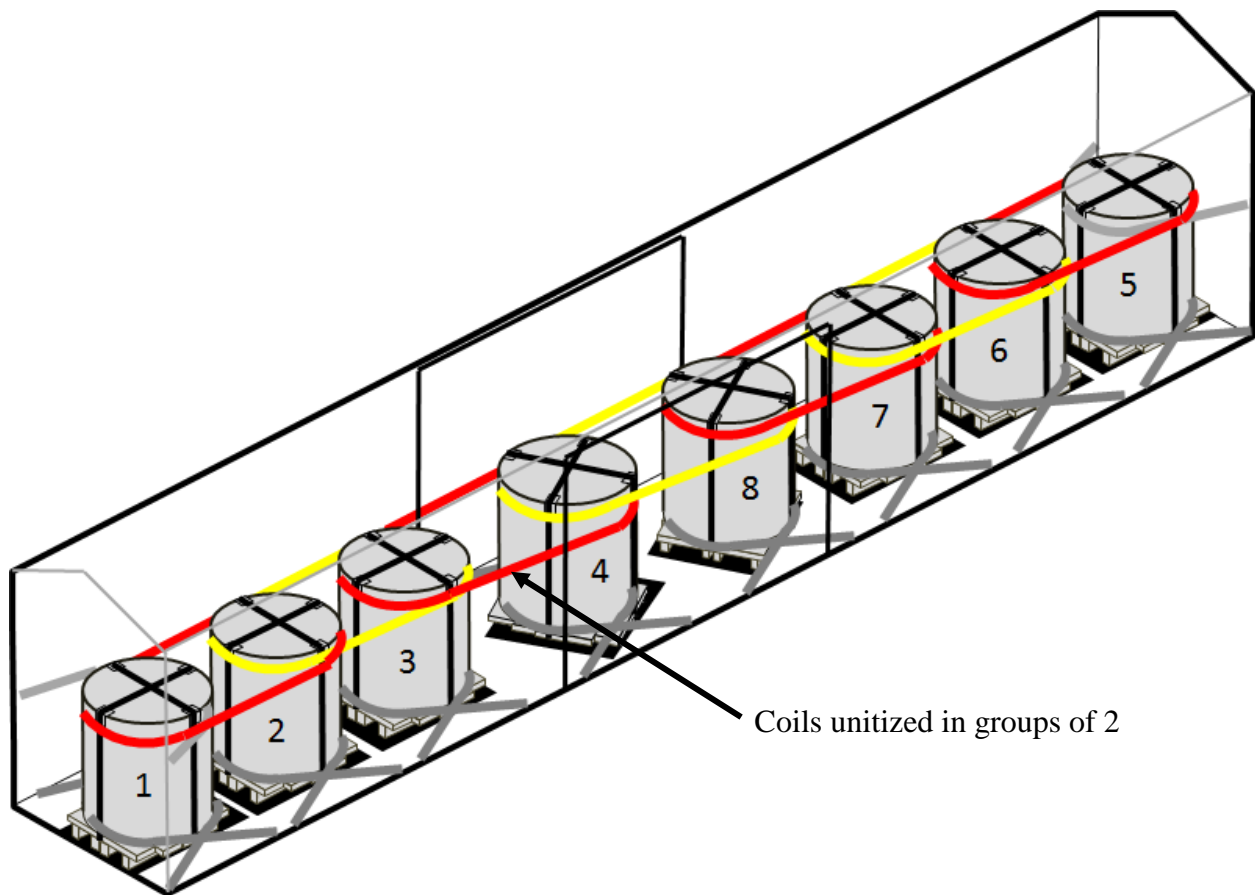


Figure 8.11
Supplemental Securement Method 2, Step 2, Encircling Straps, 8 Coils

General Information Series No. 786

**Aluminum Coils on Platforms/Skids Loaded on Rubber Mats
& Secured by Two Floor Anchored Web Straps & Supplemental Securement Straps**

General Information Series No. 786

Aluminum Coils on Platforms/Skids Loaded on Rubber Mats & Secured by Two Floor Anchored Web Straps & Supplemental Securement Straps

General Information Series Publications

- 749** 50 in. Diameter Roll Paperboard in 50 ft. Cushioned Boxcars with Horizontal Airbags (8/16)
- 750** Double Layer Loads of 55 Gallon Closed Head Steel Drums Secured with Cordstrap® Barriers in a 20-ft Container (Intermodal Loading Guide Method I-4HM) (8/16)
- 752** Large Diameter Paper Rolls in 60 ft. Cushioned Boxcars with Anchored Straps (10/16)
- 753** 60 in. Diameter Roll Paperboard in 60 ft. Boxcars with Doorway Stacks on Risers (10/16)
- 754** Wood Bins Braced by Disposable Inflatable Dunnage Bags and Lengthwise Fillers (CCLG Part 7, Section 6.3 Revised 10/16)
- 755** 55-Gallon Steel Drums on Pallets Secured with Cordstrap® Barriers in 40-ft ISO Containers (Nonhazardous Materials only) (Intermodal Loading Guide Method I-6) (new 11/16)
- 757** 46 in. to 57 in. Diameter Roll Paper on End Using Rubber Mats (Revised Intermodal Loading Guide Method E-21) (1/17)
- 758** 58 in. Diameter Roll Pulpboard with an Incomplete Second Layer Loaded On End (Former Pamphlet No. 39, Method 11) (2/17)
- 759** Revision to Paragraph 2.5, Distribution of Weight Crosswise in Cars, CCLG Part 10, Primary Metals (2/17)
- 760** Incomplete Layers of Plywood Secured in Boxcars with Nonmetallic Straps, CCLG Part 3, Plywood (2/17)
- 761** 37 in. Diameter Plastic Stretch Wrapped Kraft Rolls Loaded in a Single Layer in 60 ft. Cushioned Boxcars Using Rubber Mats and Lengthwise Filler Panels (3/17)
- 763** Roll Paperboard in Boxcars with Doorway Stacks on Risers and Rubber Mats (6/17)(Cancels GIS 762)
- 764** Non-metallic Strap Substitution for Steel Strap as Doorway Protection in Boxcars (Cancels GIS 756) (06/17)
- 765** Wood Bins Braced by Disposable Inflatable Dunnage Bags and Shock-Gard® Lengthwise Void Fillers (7/17)
- 766** 45 in. Diameter Roll Paper in 60 ft. Cushioned Boxcars with Double Plug Doors (8/17)
- 768** Gearboxes Mounted on Sleds in 20 ft. Long ISO Containers (9/17)
- 769** 42 in. Diameter Roll Paper in 60 ft. Cushioned Boxcars Using Rubber Mats and Airbags (CCLG Part 2, 8.3.2.6)(9/17)
- 770** 48 in. Diameter Roll Paper in 50 ft. Cushioned Boxcars Using Horizontal Airbags (CCLG, Part 2, Section 8) (9/17)
- 771** 50 in. Diameter Roll Paper in 50 ft. Cushioned Boxcars Using Sidewall Fillers and Horizontal Airbags (CCLG, Part 2, Sections 5.6.10 & 8.2.4.4 Revised)(10/17)
- 772** 81 in. Diameter Roll Paperboard in 50 ft. Standard Draft Gear Boxcars with Sliding Doors (CCLG Part 2, Section 8.2.8.1) (10/17)
- 773** 42 in. Diameter Roll Paper in 50 ft. Cushioned Boxcars with 12 ft. Doors (CCLG Part 2, Section 8.2.2.5) (12/17)
- 774** 48 in. Diameter Roll Paper in 60 ft. Cushioned Boxcars with 16 ft. Double Doors (CCLG Part 2, Section 8.3.4.5) (12/17)
- 775** 54 in. Diameter Paperboard on End Using Rubber Mats (New Intermodal Loading Guide Method E-22)(January 2018)
- 776** 45 in. Diameter Roll Paper in 50 ft. Cushioned Boxcars with 12 ft. Doors (CCLG Part 2, Section 8.2.3.8) (2/18)
- 777** Double Layer Loads of 76-55 Gallon Drums Secured with Ty-Gard DS™ Barriers in 20-ft Containers (Intermodal Loading Guide Method B-9)(3/18)
- 778** Split Loads of 58 in. Diameter Roll Pulpboard on End Using Rubber Mats when Stowed in Trailers Having Large Metal Plates Approximately 9 ft. in Length at the Nose (Intermodal Loading Guide Method E-22)(3/18)
- 779** Double Layer Loads of Hazardous or Nonhazardous Materials Secured with Cordstrap® Barriers in a 20-ft Container (ILG Method I-4HM) (4/18) Cancels GIS 744
- 780** Hazardous or Nonhazardous Loads Secured with Cordstrap® Barriers in 40-ft Containers (ILG Method I-5HM) (4/18) Cancels GIS 745
- 781** Wood Bins Braced by Disposable Inflatable Dunnage Bags and BIN-PAK or M-PAK Lengthwise Void Fillers (4/18)
- 782** Plastic Intermediate Bulk Containers with Disposable Inflatable Dunnage Bags and Lengthwise Void Fillers – Schoeller Allibert (CCLG Part 7, Section 6.2)(4/18)
- 783** Cased Goods Secured by Tuff Wrap™ D.I.D. Bags (Intermodal Loading Guide Method F-4 New)(4/18)
- 784** Cased Goods Secured by Rothschenk S.A.M. D.I.D. Bags (Intermodal Loading Guide Method F-4 New)(5/18)
- 785** Intermodal Loads Secured with TyGard DS™ (Intermodal Loading Guide Method B-9 New)(5/18)
- 786** Aluminum Coils on Platforms/Skids Loaded on Rubber Mats & Secured by Two Floor Anchored Web Straps & Supplemental Securement Straps (CCLG Part 9, Section 8.6) (6/18)