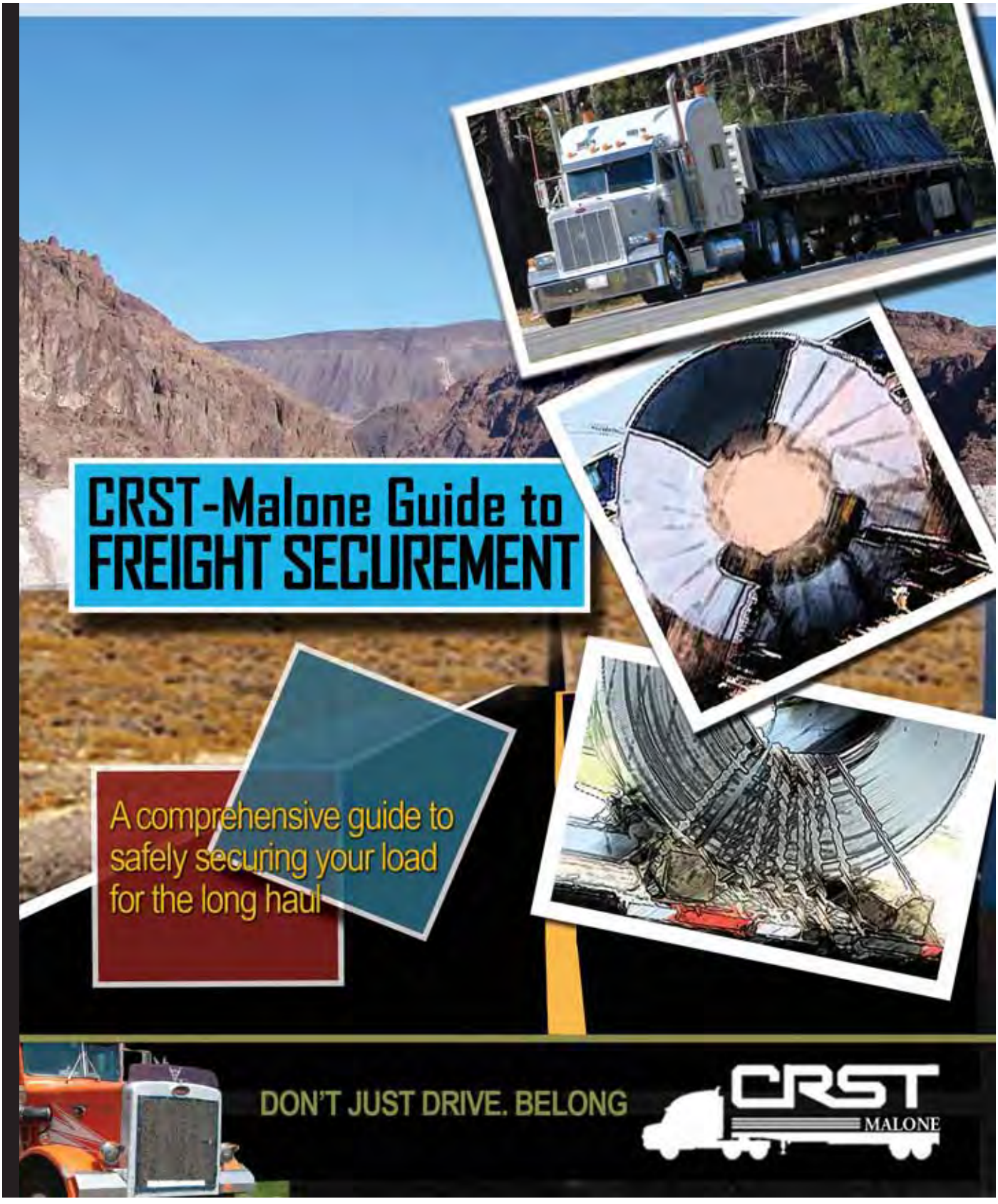

CRST-Malone Guide to
FREIGHT SECUREMENT
A comprehensive guide to
safely securing your load
for the long haul
DON'T JUST DRIVE. BELONG
CRST
MALONE

Read This First

Every time you haul a load of freight — from steel coils to building materials to heavy pipe — you are responsible for the safety of yourself and all those who are sharing the road with you. An improperly secured load can kill. Remember that car running next to you contains part of a family just like your own and their safety depends on how well your load is secured.

This manual was developed as a reference guide to supplement the securement training you receive in our orientation here at CRST/Malone. By following the procedures and diagrams in this manual and the advice of the trainer, you will be able to transport our customers' products without loss or damage.

It is your responsibility to be certain the method and equipment you select for securement prevent the movement of the cargo in any direction. If you are ever unsure about what to do, call your fleet manager.

Trucking is called a profession because not everyone can do it. Only those with proper training, skills, and experience can do a professional job. You were selected by CRST/Malone because we believe you can get the job done properly and safely. At CRST/Malone, we pride ourselves on our record of professionalism and safety and we care about the safety of our drivers and the motoring public. We believe "**S**afety **A**lways **M**atters" and it is everyone's job.

You **can't** control the weather, road conditions or the poor decisions of others on the highway. You **can** control how you secure your load and how well you respond to these challenges.

Welcome aboard and remember to "do it right" the first time – every time.

CRST/Malone:	main phone #:	1-800-366-6350
Over, Short and damaged freight #:		1-866-781-2778 (24/7 hotline)
	Maintenance #	1-800-366-4028 (option #5)
	Accident #	1-800-515-2778

SAFETY IS A CHOICE

Table of Contents

Safety Checklists

The following are some key points to keep in mind for inspecting, loading, and operating your truck. Please review this list regularly to refresh your memory. If you are asked to secure and haul a product that is not covered in this manual, contact your Fleet Manager to determine if it is an acceptable load and how it should be secured safely.

Pre-Trip

- Wear steel-toed, gripping-soled work boots or shoes.
- Wear long pants when going into a mill, and keep a hard hat, safety glasses with side shields, and long-sleeved shirt and/or coveralls on hand, as most mills require them.
- Check your tire pressures with a gauge when tires are cold (before driving). Both under inflation and over inflation can cause unsafe handling, increased risk of tire blowout, and greatly reduced tread life.
- Check all wheel hubs, especially steering axle hubs, and check kingpin connection (fifth wheel) visually and manually. Losing a steering axle wheel or dropping your trailer are as bad or worse than hitting a bridge.
- Do not operate your vehicle if you find an unsafe condition.
- Periodically review the major points of inspection specific to your vehicle. No one remembers them all—including you.
- Inspect ratchets (including spares) to ensure they are in good working order.
- Inspect chains to make sure they are in good condition and they are securely fastened to the pockets or spools.

LOADING

- **When loading coils, always begin by asking the shipper the following questions:**

1. How many coils am I getting?
2. What is the weight of each coil?
3. Which way do they have to be loaded?
4. What is the width of the coils?
5. May I use chains?

Continued on the next page.

Loading, continued from previous page

- Always stay off the trailer while it is being loaded or unloaded.
- Be sure the trailer floor is free of all debris, nails, and oil.
- Never jump off a trailer. Always step down from the rear using a three point stance (two hands and one foot or two feet and one hand).
- A chain is only as strong as its weakest link. Always inspect your chains thoroughly to look for stretched or damaged links.
- The number of chains required is based on CRST/Malone 3-5-7 Rule.
- 4"x4" beveled hardwood lumber for all coils.
- Edge protection and rubber friction mats must be used to prevent securing devices such as chains or straps from coming in contact with cargo.
- Hook chains around pockets or spools using the “four points of contact” rule.
- Do not secure chains or straps to the rub rail, itself or anywhere outside of the rub rail.
- Be sure chains are not twisted or kinked.
- Never use "cheater pipe" on ratchet binders.
- To be sure all chains are settled, strike them at the bottom of the pocket or spool using the end of the load bar, then recheck the tension on all ratchets. Next, strike all chains soundly with the load bar midway between the trailer and the load to be sure they are settled and then check the tension on all ratchets again. **Do not strike ratchets.**
- All loads must be tarped unless shipper’s bill of lading indicates that no tarp is required.

- Know the empty weight of your unit with a full tank of fuel, including the empty weight of each axle. Weigh your loaded unit on a certified scale (such as a C.A.T. scale) before starting your drive to make sure your gross weight and axle weights are within the legal gross weight limits. You are responsible for fines.
- Check your load securement after the first 50 miles or 1 hour, whichever comes first, and then every 3 hours or 150 miles thereafter, whichever comes first. At every change of duty or stop. Be sure nothing has shifted, and re-tighten ratchets if necessary.

Bobtailing (Tractor without Trailer)

Operating a tractor without a trailer — also known as "bobtailing" — is extremely dangerous.

Our trucks are equipped with heavy-duty brakes, tires, and suspensions in order to pull a loaded trailer. While these features help you to control the truck while hauling a trailer, they make handling more difficult when bobtailing. When operating your tractor without a trailer, *reduce your speed* and keep in mind the following cautions:

- **Braking** — Increase your following distance in traffic and approach intersections slowly in case the light should change in order to avoid panic stops.
- **Rough Roads** — The heavy duty tires and suspension on your truck may cause it to bounce in any direction over bumps, dips, and other pavement irregularities, possibly resulting in a loss of control.
- **Jake Brake** — The jake brake should never be used when bobtailing or pulling an empty trailer. Your drive wheels could lock up instantly and cause you to lose control. Never use the jake brake on wet pavement.

Continued on the next page.

Bobtailing, continued from previous page

- **Shifting**—Try to keep shifting to a minimum, and do so smoothly. Downshifting too quickly can cause the drive wheels to skid, causing a loss of control. Upshifting too quickly with too much power can cause the drive wheels to spin, causing a loss of control.
- **Ramps and Curves**—Approach ramps and curves at 10 mph below the posted speed. The heavy suspension on your truck will not allow it to sway very much. As a result, cornering force may cause your truck to flip over instantly, without warning.
- **Height of Tractor**—Know the height of your tractor and stay on the main roads. Tree limbs, low bridges, and other obstacles on back roads, shopping malls, and restaurant parking lots present the same hazards as if you had a trailer.
- **Wet Roads**—Wet roads present the same hazards as if you had a loaded trailer, except that skidding and other dangers may occur more easily. While you drive, periodically apply the brakes gently for a few seconds to clear the moisture out of the brake linings as you would during normal driving, although do so even more gently than you would with a loaded trailer.
- **Snow- or Ice-Covered Roads**—Do not bobtail in snow or ice covered roads under any circumstances. Even the most experienced drivers will tell you they'd rather walk than bobtail in these conditions!

Load Positioning

IMPORTANT: Know the empty weight of your tractor and trailer with a full tank of fuel.

MENTAL NOTE: Edge protectors must be used at all contact points.
CRST/Malone Policy states: 2 securements in the first 4 feet, 2 in the last 4 feet, and 1 every 8 feet in between.

NOTE: Center items on the trailer. For example: lumber should be loaded evenly from front to rear. Coils should be loaded with center over the trailer side turn signal.

- Maximum weights allowed by axle:
  - —On Steering 12,000 pounds
  - —On Drive 34,000 pounds
  - —On Trailer 34,000 pounds Tandem Axle
    40,000 pounds (20,000 pounds per axle) Spread Axle

CAUTION: Total gross weight must not exceed 80,000 pounds.

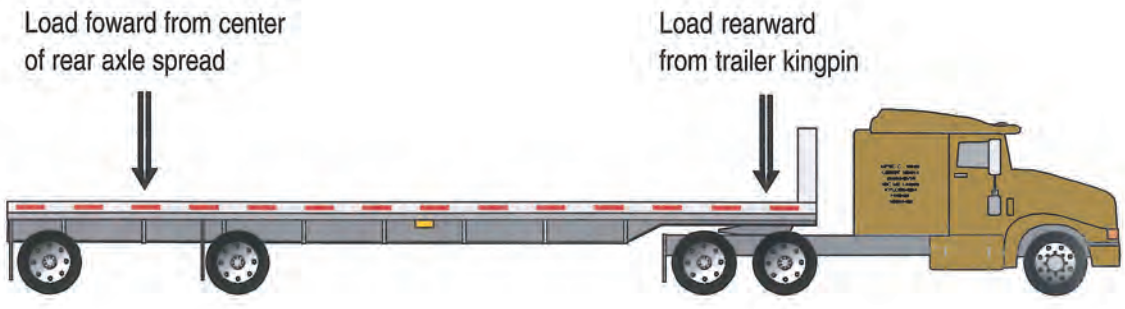


Figure 1. Load Positioning

CRST REQUIRED SECUREMENT

EQUIPMENT CHECKLIST

3/8 inch chains- Grade 70 or higher/6,600 LB. WLL	10 Required
Binders, Ratchet/9,200 LB. WLL	10 Required
Beveled Hardwood Lumber	10 Required
Tarpauline (Steel- 16x24 feet)	2 Required or Lumber set
Tarpauline (Lumber- 8 foot drop)	1 set or 2 Steel TX Reg. Required
Straps, Webbing, 3 inch, Ratchet/5,400 LB. WLL	12 Required (Side Kit Usage)
Straps, Webbing, 4 inch, Winch/5,400 LB. WLL	10 Optional/TX Reg. Required
Straps, Webbing, 2 inch, Ratchet	2 Required
Bungee Straps/NOT A FORM OF SECUREMENT	50 Required
Coil Racks/10,000 LB. WLL	10 Required
Rubber Friction Mats	16 Required
Steel Edge protectors	20 Required
Plastic Edge Protectors	20 Required
Rubber Edge Procters	20 Required
Pipe Stakes	4 Optional/ TX Required
Winch Bar	1 Required
Hard Hat	1 Required
Safety Vest	1 Required
Safety Glasses	1 Required
Tread Depth Gauge: 5/32- 30 DAYS • 4/32 ON STOP	1 Required
Air Pressure Gauge: 100 LB.- MANDATORY	1 Required

CRST-Malone 3-5-7 Rule (For Coiled Steel)

Weight of Coil	Number of Chains Needed
0-20,000 #	3
20,001-40,000 #	5
40,001 + up	7

Don't Forget...

1 Check your log and permits.

2 Check your tire pressure.
– Use a tire gauge.

3 Check wheel hubs and fifth wheel connection.
– Check hub grease.
– Check fifth wheel connection visually and manually.

4 Check the major points of inspection for your vehicle.
– Nobody remembers them all — including you.

5 Complete en route inspections.
– After the first 50 miles or 1 hour (whichever comes first).
– Every 150 miles or 3 hours (whichever comes first).
– At every change of duty or stop.

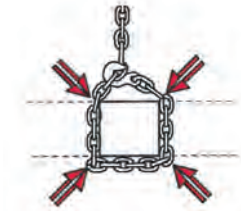
6 Do not drive a vehicle you believe may be unsafe.
– Contact Maintenance immediately.

7 A chain is only as strong as its weakest link.
– Inspect your chains thoroughly for stretched or damaged links.

8 Use enough chains. CRST/Malone 3-5-7 Rule
– **Note:** Trip chain is an extra securement chain which is over and beyond the 3-5-7- rule.

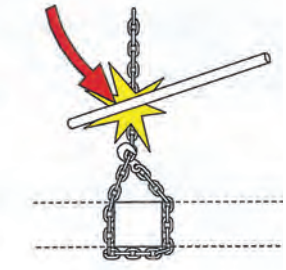
9 Not sure? Don't guess... Ask!
– A simple answer could save your life. Don't be afraid to ask the question!
– If you have *any* questions, call your fleet manager.
– If your fleet manager is unavailable, call the Safety and Training Department at **1-800-366-6350** Ask for Securement help.

Make sure all chains are not twisted or kinked.



Make sure all chains have four points of contact and hooks are facing upward.

Strike all chains at the bottom of the pocket or spools with the end of the load bar and retighten ratchets...



...the strike all chains with the load bar to make sure they are settled, and tighten ratchets again.

Coils, Eye Forward ("Shotgun")

1. Place rubber friction mats for coil racks to rest on.
2. Set one coil rack for each 10,000 pounds of coil weight and lay beveled lumber on each side with the small edge facing up and center.
3. Lay rubber friction mats and waterproof paper on timbers according to shipper's specifications, and set the coil on the timbers.
4. Use edge protection at all points of contact.
5. **Secure a trip chain in front using wood blocking as shown to keep chain from touching the coil. Trip chain is over and beyond the 3-5-7 Rule.**
6. Secure chains based on coil weight: (must use even number of chains through the eye of shotgun coils in order not to pull too much on one side)

   Up to 20,000 pounds: Two chains through the eye of the coil and one over the top

   20,001-40,00 pounds: Four chains through the eye of the coil and one over the top.

   40,000 plus pounds: Six chains through the eye of the coil and one over the top.
7. FIRST: Secure a top chain over the top of the coil.

NOTE: At least one chain or strap as required to be placed over the top of the coil. Use rubber friction mats between the chain and coil.

8. Tarp the load securely as required.
9. Secure all loose equipment, including chains, binders, lumber, tarps, rubber friction mats, coil racks, edge protectors, and winch bar.

NOTE: Pairs of chains in an X is permissible on a shotgun coil.

NO UCHAINS – ONLY XCHAINS

CRST-Malone 3-5-7 Rule (For Coiled Steel)

Weight of Coil	Number of Chains Needed
0-20,000 #	3
20,001-40,000 #	5
40,001 + up	7

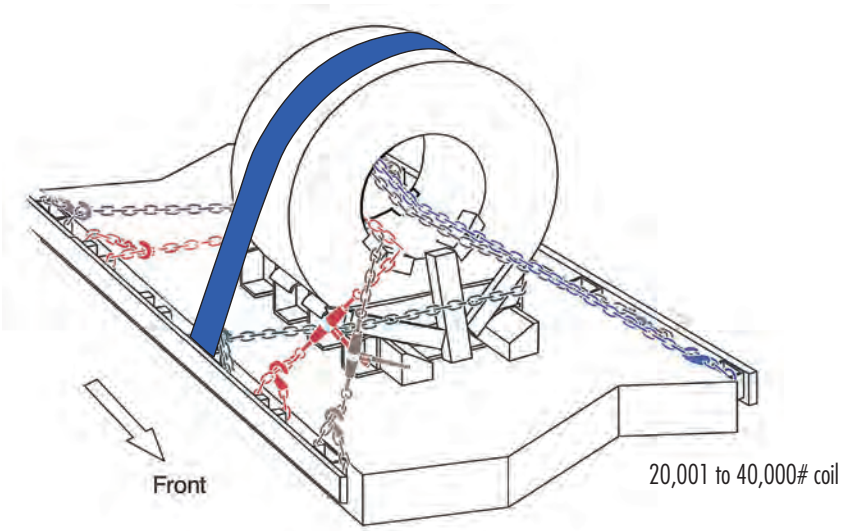
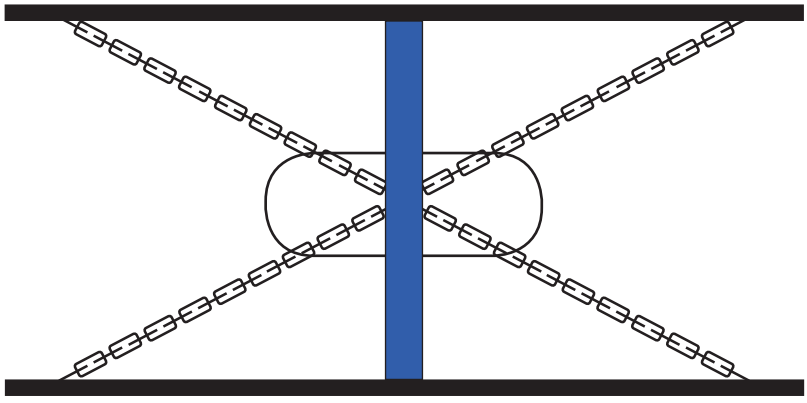


Figure 1. Coil in eye-forward position with pairs of chains in a crisscross, plus top strap and trip chain.
If single coil trip chain front and back.

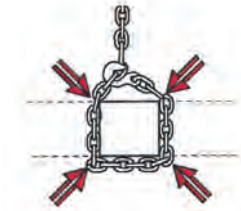


0 - 20,000# coil

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

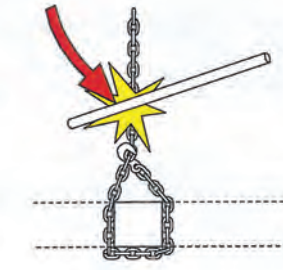
- **After the first 50 miles or 1 hour (whichever comes first).**
- **Every 150 miles or 3 hours (whichever comes first).**
- **At every change of duty or stop.**

Make sure all chains are not twisted or kinked.



Make sure all chains have four points of contact and hooks are facing upward.

Strike all chains at the bottom of the pocket or spools with the end of the load bar and retighten ratchets...



...the strike all chains with the load bar to make sure they are settled, and tighten ratchets again.

Coils, Eye to the Side

1. Place rubber friction mats for coil racks to rest on.
2. Set one coil rack for each 10,000 pounds of coil weight and lay beveled lumber on each side with the beveled edge facing up and center.
3. Lay rubber friction mats and waterproof paper on timbers according to shipper's specifications, and set the coil on the timbers.
4. First chain should pull straight down in the middle.
5. Using edge protection at all points of contact, secure chains based on coil weight and alternating sides of middle chain.

   Up to 20,000 pounds: Three chains through the eye of the coil.

   20,001-40,000 pounds: Five chains through the eye of the coil.

   40,000 plus lbs: Seven chains through the eye of the coil.
6. Tarp the load securely as required.
7. Secure all loose equipment including chains, binders, lumber, tarps, rubber friction mats, coil racks, edge protectors, and winch bar.

NOTE: Chains in an X is Not Permissible. (It is against the law.)

Do not skip anchor points. While securing, alternate points of securement. Example: Start with the center chain, then secure one chain in front of center chain. Next secure a chain behind center chain. Alternate this method until coil is secured. Check that all previous chain are still tight before moving to the next chain.

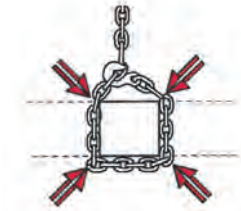
CRST-Malone 3-5-7 Rule (For Coiled Steel)

Weight of Coil	Number of Chains Needed
0-20,000 #	3
20,001-40,000 #	5
40,001 + up	7

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

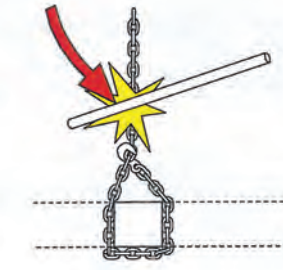
- After the first 50 miles or 1 hour (whichever comes first).
- Every 150 miles or 3 hours (whichever comes first).
- At every change of duty or stop.

Make sure all chains are not twisted or kinked.



Make sure all chains have four points of contact and hooks are facing upward.

Strike all chains at the bottom of the pocket or spools with the end of the load bar and retighten ratchets...



...the strike all chains with the load bar to make sure they are settled, and tighten ratchets again.

Coils, Eye to the Sky

1. After loading the coil on the trailer in the approved location, check the pallet and binding to make sure they are secure and in good condition.
2. Using rubber friction mats, secure one securement device over the top of the coil, centered on each side.
3. Using rubber friction mats, secure two chains in a X over the coil on top of the first chain.
4. Place a "trip" chain or strap around rear of last coil if loaded in a row, or grouping.
5. Be sure that the X is spread over the coil to ensure that the coil will not slip out from under the chains.
6. Using rubber friction mats, secure one trip chain or strap around the front of the coil.
7. Tarp the load securely as required.
8. Secure all loose equipment including chains, binders, lumber, tarps, rubber friction mats, coil racks, edge protectors, and winch bar.

NOTE: If coils are not loaded against each other, then a trip strap or chain is need around the front of each coil.

If chains are allowed on the coil, use all chains to secure including a trip chain.

CRST-Malone 3-5-7 Rule (For Coiled Steel)

Weight of Coil	Number of Chains Needed
0-20,000 #	3
20,001-40,000 #	5
40,001 + up	7

Note: "Trip" straps in front of each if chain will not fit.

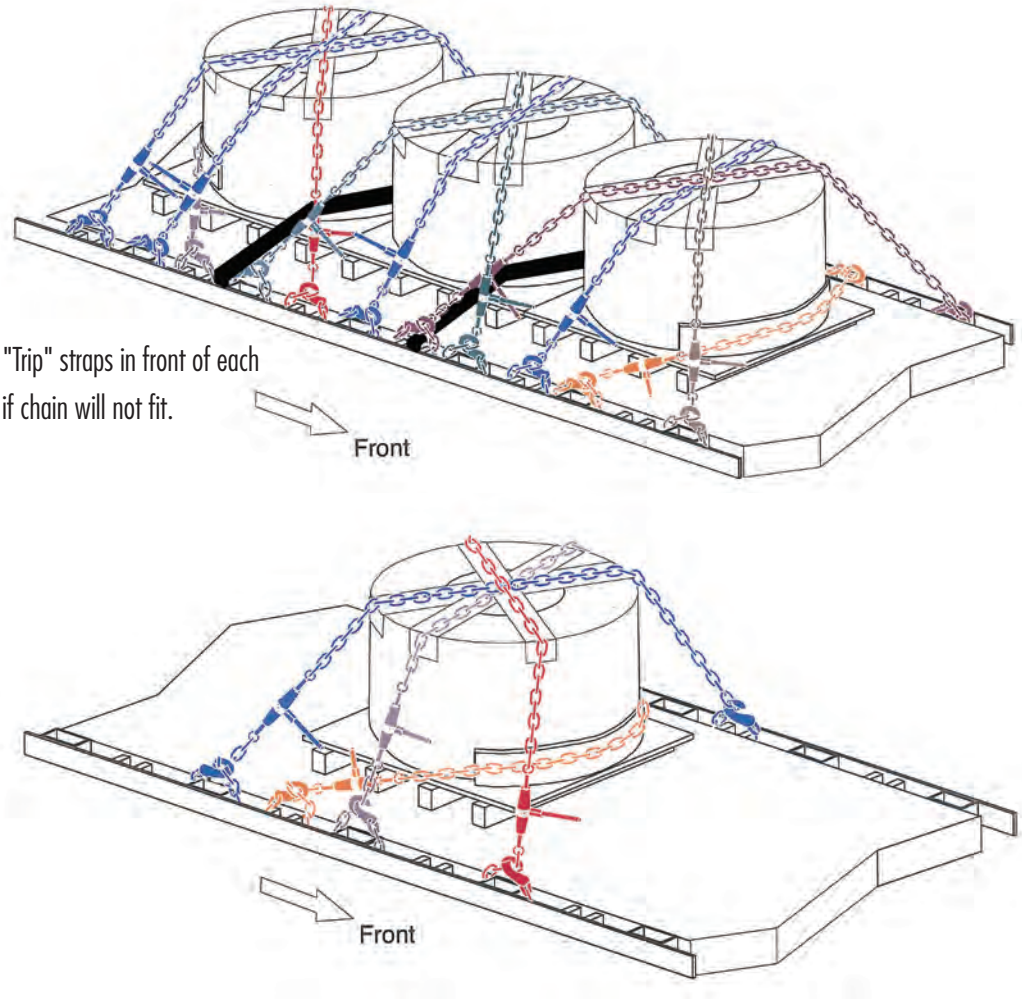


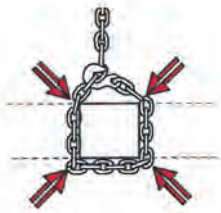
Figure 5. Steel coils in eye-to-the-sky position.

0-20,000 pound coil

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

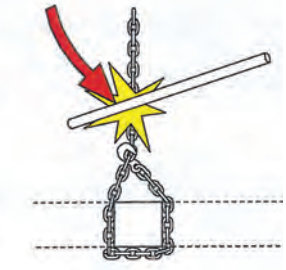
- **After the first 50 miles or 1 hour (whichever comes first).**
- **Every 150 miles or 3 hours (whichever comes first).**
- **At every change of duty or stop.**

Make sure all chains are not twisted or kinked.



Make sure all chains have four points of contact and hooks are facing upward.

Strike all chains at the bottom of the pocket or spools with the end of the load bar and retighten ratchets...



...the strike all chains with the load bar to make sure they are settled, and tighten ratchets again.

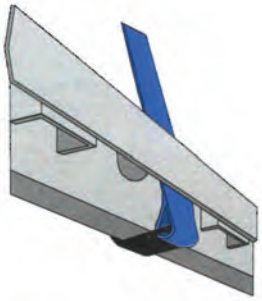
Aluminum Coils, Eye to the Sky

1. After loading the coil on the trailer in the approved location, check the pallet and binding to make sure they are secure and in good condition.
2. Using rubber friction mats, place one 4" strap straight over the top of the coil, and then two 4" straps in an X over the top of the pallet.
3. Use rubber friction mats, secure a trip strap around the front of the coil. If securing more than one coil, use one trip strap around the front of the front of each coil.
4. Tarp the load securely as required.
5. Secure all loose equipment including chains, binders, lumber, tarps, rubber friction mats, coil racks, edge protectors, and winch bar.

NOTE: If coils are not loaded against each other, then place a trip strap in front of each coil. Pallets touching is not the same as if the coils are touching.

CRST-Malone 3-5-7 Rule (For Coiled Steel)

Weight of Coil	Number of Chains Needed
0-20,000 #	3
20,001-40,000 #	5
40,001 + up	7



Under the current cargo securement regulations, all straps and chains must be secured inboard of the rub rails on both sides of the trailer unless load extends to or beyond rub rails.

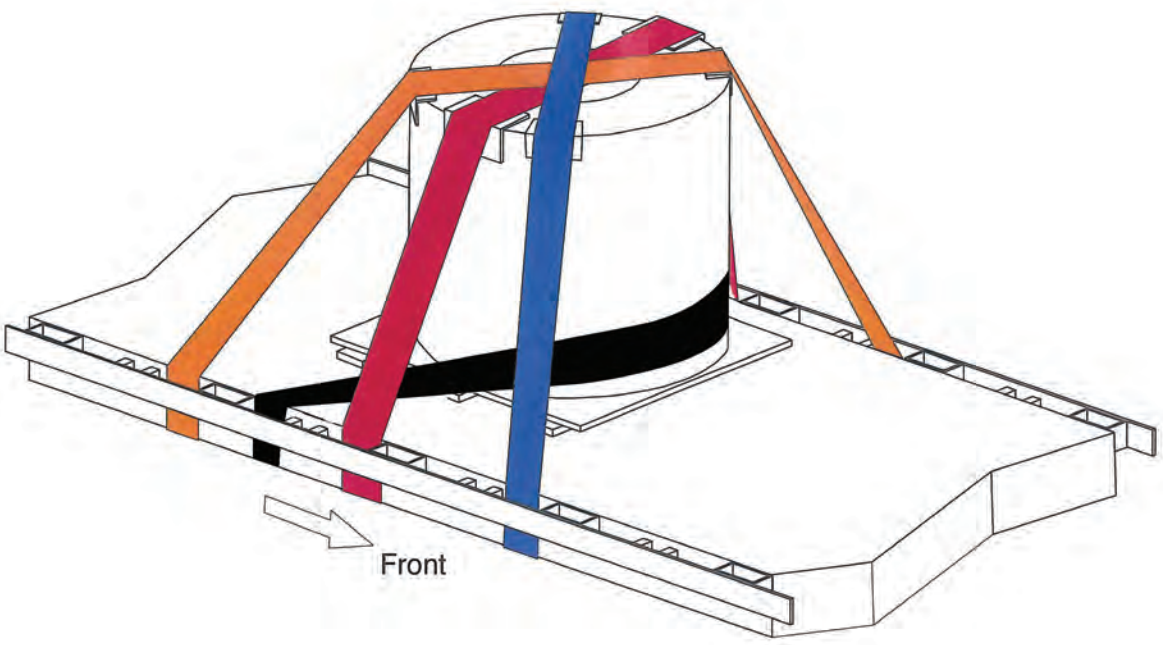
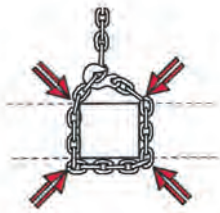


Figure 6. Aluminum coil in eye-to-the-sky position.
0-20,000 pound coil

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

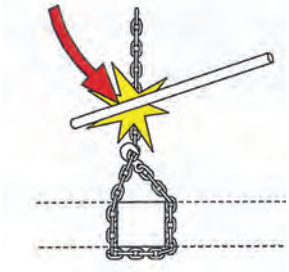
- **After the first 50 miles or 1 hour (whichever comes first).**
- **Every 150 miles or 3 hours (whichever comes first).**
- **At every change of duty or stop.**

Make sure all chains are not twisted or kinked.



Make sure all chains have four points of contact and hooks are facing upward.

Strike all chains at the bottom of the pocket or spools with the end of the load bar and retighten ratchets...



...the strike all chains with the load bar to make sure they are settled, and tighten ratchets again.

Slit Coils, Eye Forward ("Shotgun")

1. Place rubber belting for coil racks to rest on.
2. Set one coil rack for each 10,000 pounds of coil weight (minimum of three) and lay beveled lumber on each side with the small edge facing up.
3. Lay rubber belting and waterproof paper on timbers according to shipper's specifications, and set the coil on the timbers.
4. Place water proof paper over the top of the coil.
5. Once the coil is loaded on the trailer, inspect the banding on the coils to be sure they are secure and in good condition.
6. Secure a choker chain around the top of the coils to insure coils stay together.
7. First, place one securement device over the top of the coil.

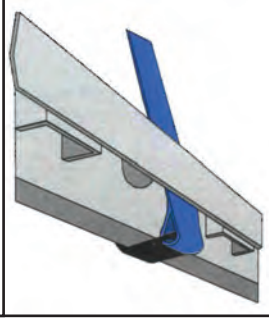
NOTE: At least one strap is required to be placed over the top of the coil.

8. Secure a trip chain in front using wood blocking as shown to keep chain form touching the coil. Trip chain is over and beyond the 3-5-7 Rule.
9. Secure chains based on coil weight: (must use an even number of chains on shotgun coils in order not to pull too much on one side).

   Up to 20,000 pounds: Two chains through the eye of the coil.

   20,001-40,000 pounds: Four chains through the eye of the coil.

   40,000 plus lbs: Six chains through the eye of the coil.
10. Tarp the load securely as required.
11. Secure all loose equipment including chains, binders, lumber, tarps, rubber friction mats, coil racks, edge protectors, and winch bar.



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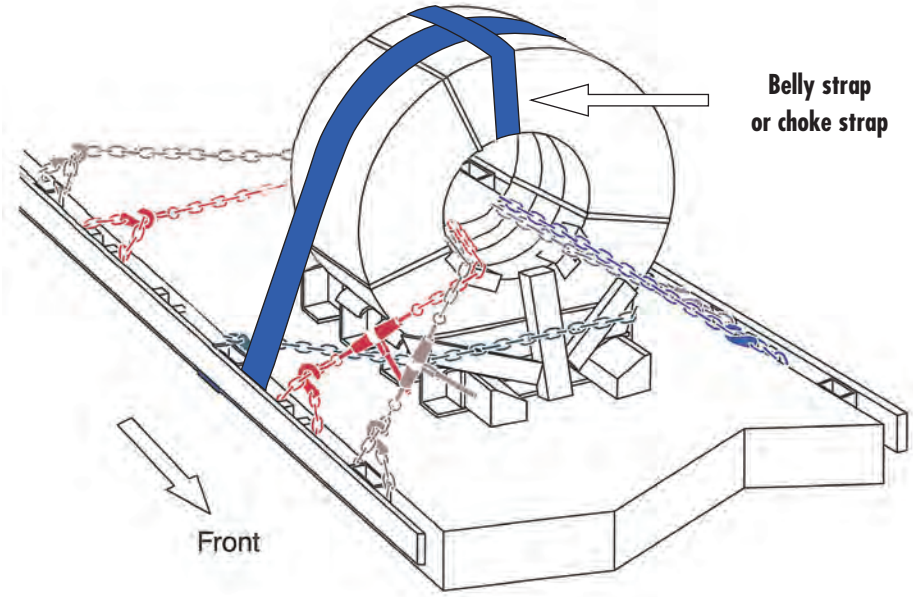


Figure 7A. 20,001 - 40,000 pound coil

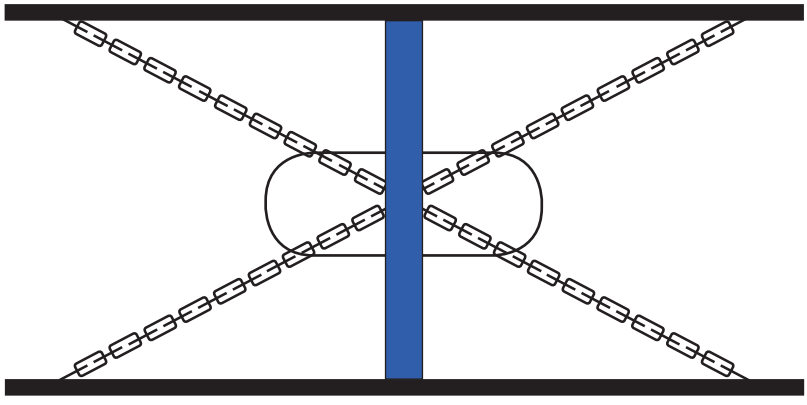


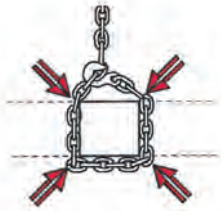
Figure 7B. 0 - 20,001 pound coil

COIL RACKS UNDER ALL COILS

CRST-Malone 3-5-7 Rule (For Coiled Steel)

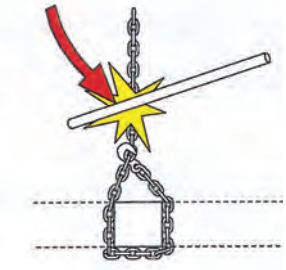
Weight of Coil	Number of Chains Needed
0-20,000 #	3
20,001-40,000 #	5
40,001 + up	7

Make sure all chains are not twisted or kinked.



Make sure all chains have four points of contact and hooks are facing upward.

Strike all chains at the bottom of the pocket or spools with the end of the load bar and retighten ratchets...



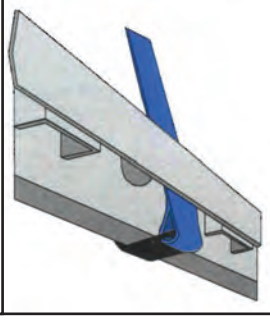
...the strike all chains with the load bar to make sure they are settled, and tighten ratchets again.

Coiled Rod ("Slinkys"), Eye to the Side

1. Place rubber friction mats for coil racks to rest on.
2. Set up coil racks for each row.
3. After coiled rods are loaded into coil racks, run a strap through the eye of each coil, then back over the top, back through the eye again, to the opposite side of the trailer. (See diagram on next page.)
4. Next, place a securement device straight through the eye pulling rearward on the coilded rod. Use edge protectors to prevent damage.
5. Then place a securement device straight through the eye pulling forward on the coiled rod Use edge protectors to prevent damage.
6. Tarp the load securely as required.
7. Secure all loose equipment, including chains, binders, lumber, tarps, rubber friction mats, coil racks, edge protectors, and winch bar.

CRST-Malone 3-5-7 Rule (For Coiled Steel)

Weight of Coil	Number of Chains Needed
0-20,000 #	3
20,001-40,000 #	5
40,001 + up	7



Under the current cargo securement regulations, all straps and chains must be secured inboard of the rub rails on both sides of the trailer unless load extends to or beyond rub rails.

Note:

1. Use the "3-5-7 rule" for each row - same method as any suicide coil
2. Use coil racks for each row if over 5,000#
3. Ask if chains may be used

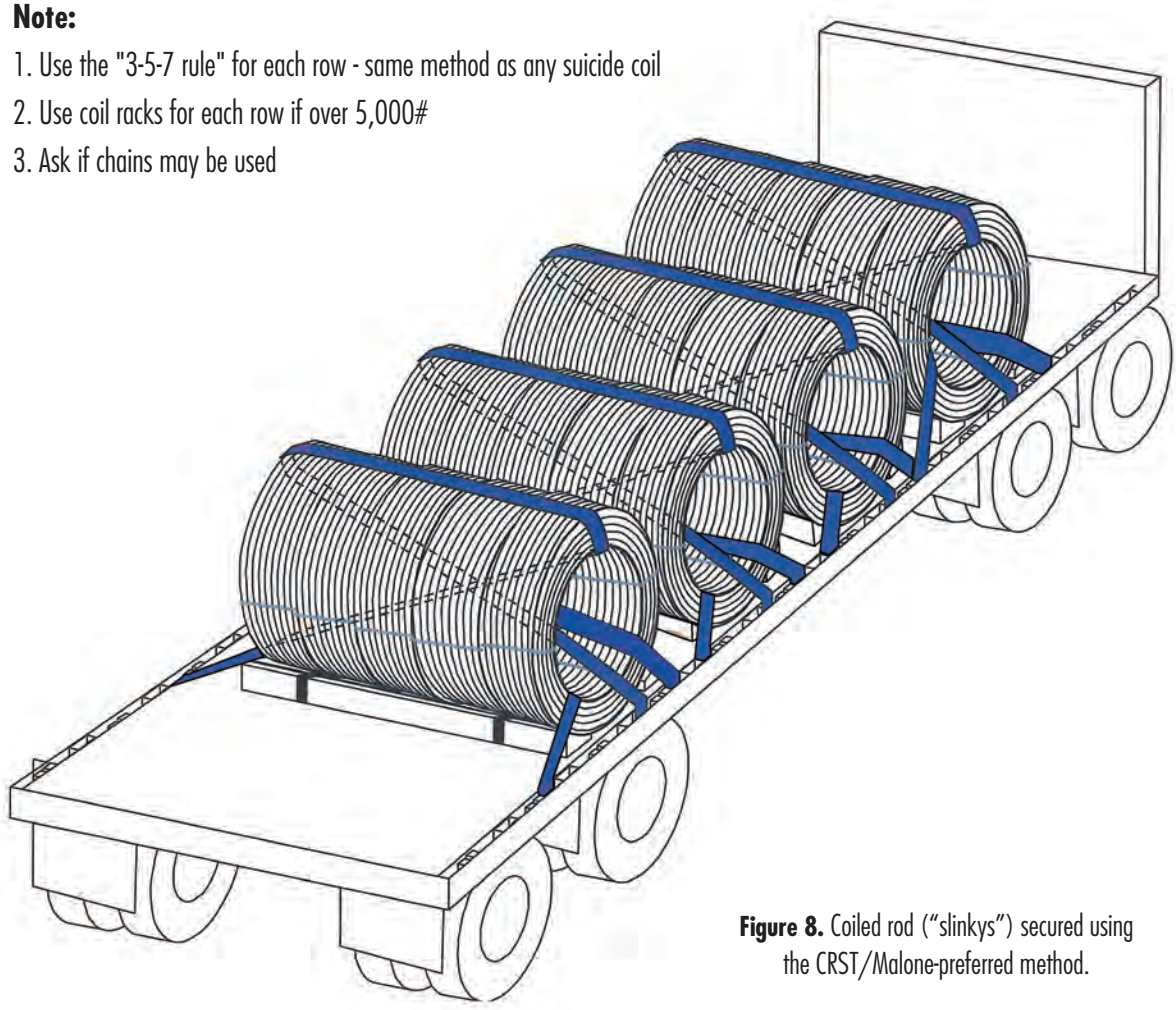


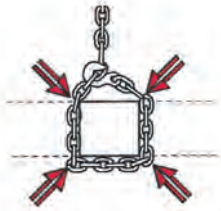
Figure 8. Coiled rod ("slinkys") secured using the CRST/Malone-preferred method.

COIL RACKS UNDER ALL COILS

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

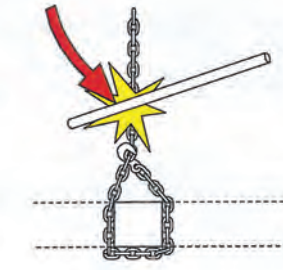
- **After the first 50 miles or 1 hour (whichever comes first).**
- **Every 150 miles or 3 hours (whichever comes first).**
- **At every change of duty or stop.**

Make sure all chains are not twisted or kinked.



Make sure all chains have four points of contact and hooks are facing upward.

Strike all chains at the bottom of the pocket or spools with the end of the load bar and retighten ratchets...



...the strike all chains with the load bar to make sure they are settled, and tighten ratchets again.

NOTE: CRST/Malone policy states: 2 securement devices in the first 4 feet, 2 securement devices in the last 4 feet, and every 8 feet in between.

Coiled Rod ("Slinkys"), Shotgun

The alternate method of securing coiled rod is to construct a "spider web" over the front and rear coils in a row as follows:

CAUTION: Do not secure coiled rod against the permanent bulkhead of the trailer.

1. Set up the small coil racks and 4"x4" beveled lumber (one set for each coil).

NOTE: Use three coil racks for each set of 8-foot beveled lumber.

2. Lay the first coil on the racks.
3. Pass the first chain in front of the coil and secure on both sides. Use a binder to make a loop out of the slack in the chain and drape the loop over the top of the coil.
4. Secure a chain toward the rear of the coil, pass it up through the top of the loop made from the other chain, and secure it to the other side of the trailer. Tighten using binders on both sides as shown.
5. Lay the remaining coils on the racks against the front coil.
6. Secure the chains diagonally across each coil using rubber friction mats under the chains.
7. Secure the final coil using a "spider web" of two chains in the same manner as with the first, facing the opposite direction.
8. Tarp the load securely as required.
9. Secure all loose equipment including binders, chains, lumber, tarps, rubber friction mats, coil racks, edge protectors, and winch bar.

CRST-Malone 3-5-7 Rule (For Coiled Steel)

Weight of Coil	Number of Chains Needed
0-20,000 #	3
20,001-40,000 #	5
40,001 + up	7

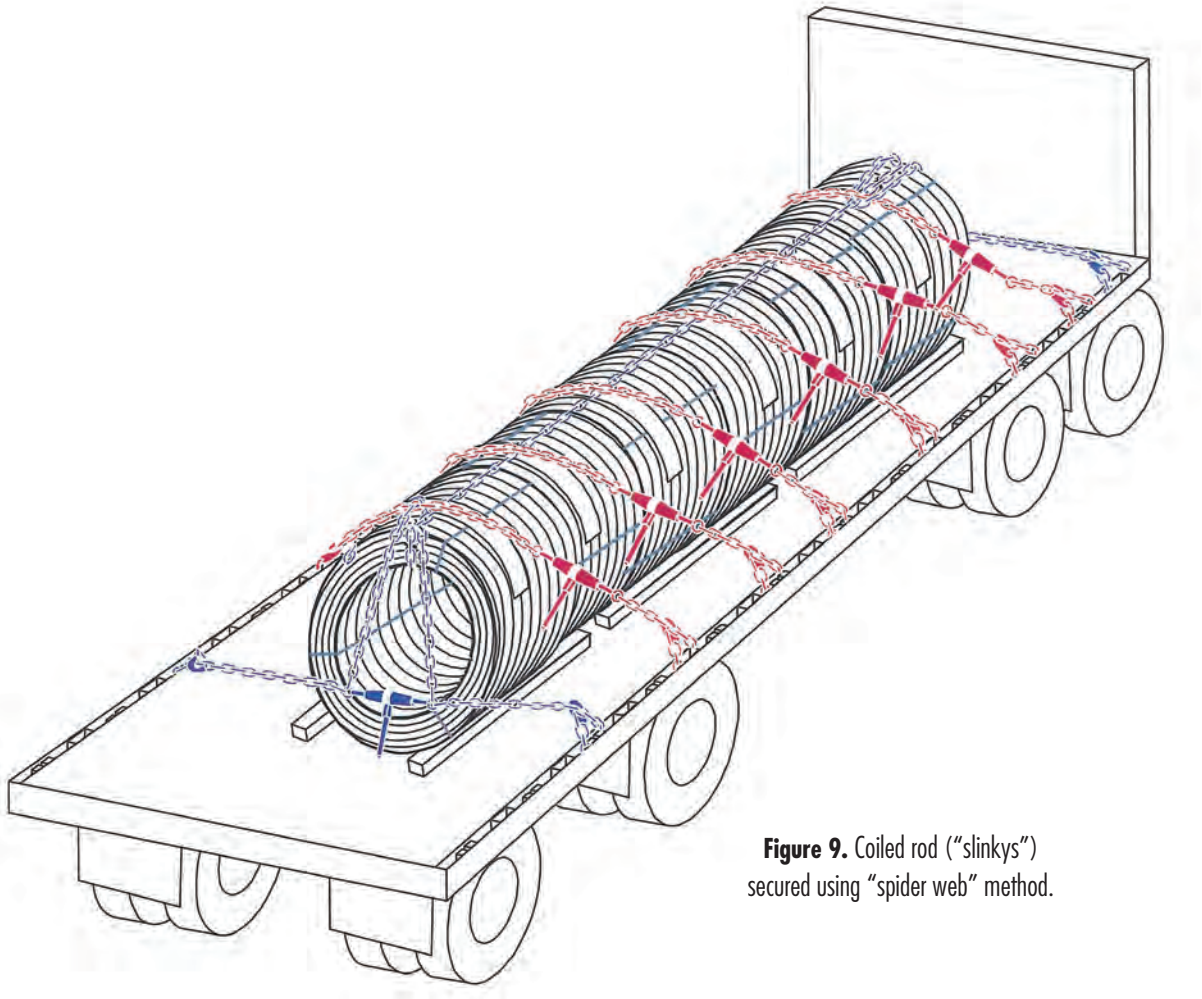


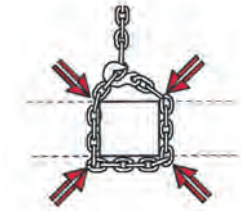
Figure 9. Coiled rod ("slinkys") secured using "spider web" method.

COIL RACKS UNDER ALL COILS

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

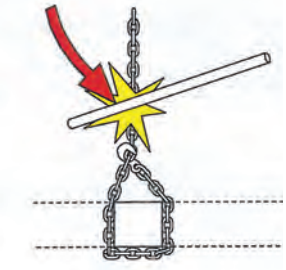
- After the first 50 miles or 1 hour (whichever comes first).
- Every 150 miles or 3 hours (whichever comes first).
- At every change of duty or stop.

Make sure all chains are not twisted or kinked.



Make sure all chains have four points of contact and hooks are facing upward.

Strike all chains at the bottom of the pocket or spools with the end of the load bar and retighten ratchets...



...the strike all chains with the load bar to make sure they are settled, and tighten ratchets again.

Single Millroll

1. Set of V-blocks (supplied by shipper) in the proper location on the trailer bed and cover with bearing paper.

NOTE: Rubber friction mats may be used between V-blocks and bearing paper if necessary to keep millroll off the trailer floor.

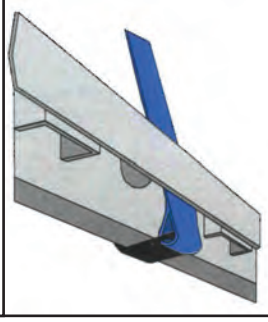
2. Set the millroll on V-blocks.
3. Loop chains around end grooves in the millroll journals and secure to both sides of the trailer.

⚠ **CAUTION:** Do not use chains anywhere on finished millroll except journal grooves. If there are no grooves, wrap rubber belting around journal ends and wrap chains in the same manner.

4. Secure the millroll with three 4" straps using edge protectors.
5. Secure all loose equipment including chains, binders, lumber, tarps, rubber friction mats, coil racks, edge protectors, and winch bar.

CRST-Malone 3-5-7 Rule (For Coiled Steel)

Weight of Coil	Number of Chains Needed
0-20,000 #	3
20,001-40,000 #	5
40,001 + up	7



Under the current cargo securement regulations, all straps and chains must be secured inboard of the rub rails on both sides of the trailer unless load extends to or beyond rub rails.

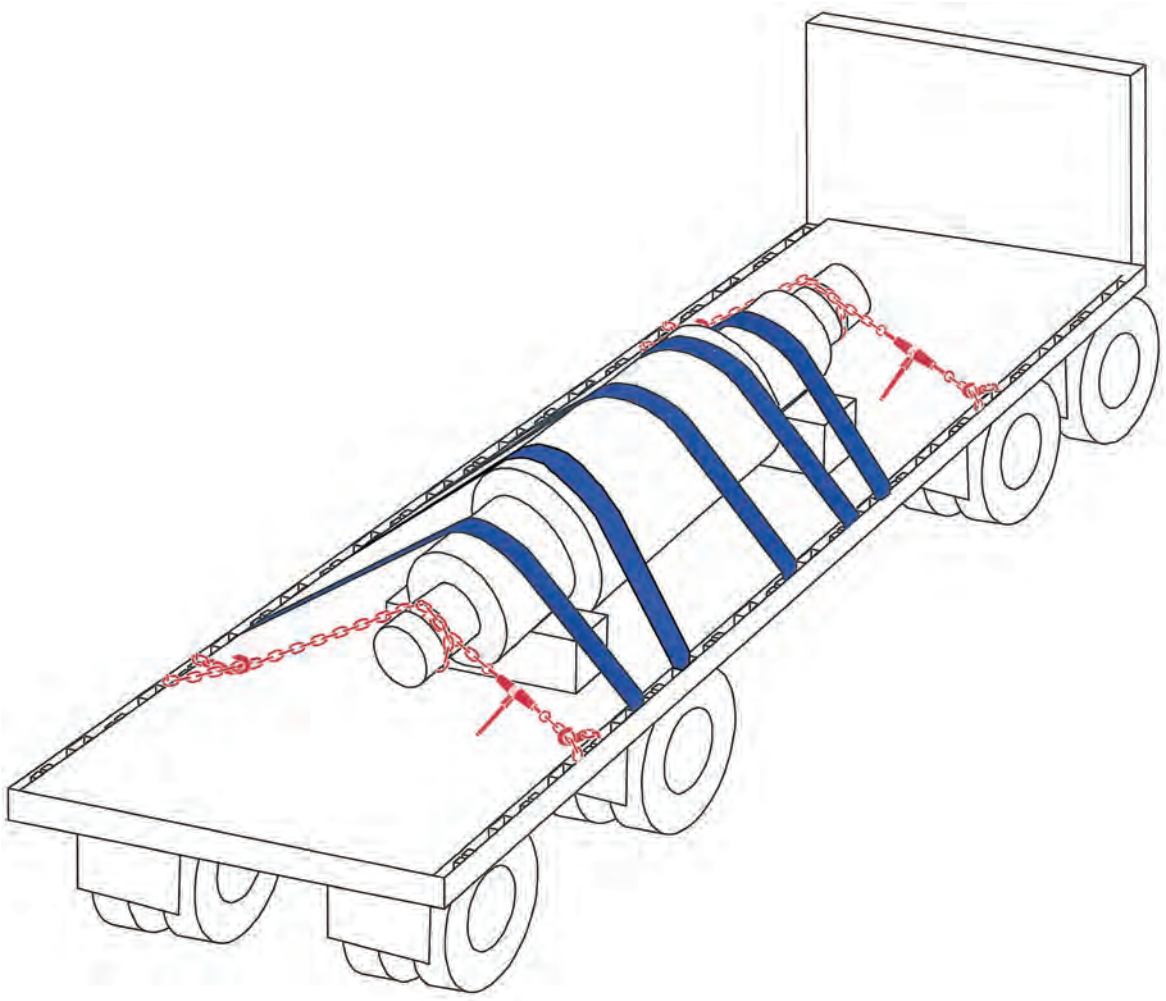
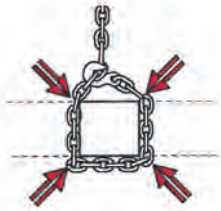


Figure 10. Single (large) millroll secured in center of trailer.

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

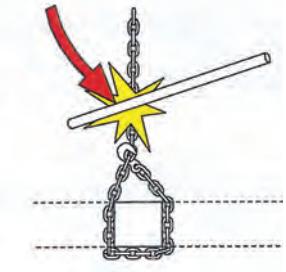
- After the first 50 miles or 1 hour (whichever comes first).
- Every 150 miles or 3 hours (whichever comes first).
- At every change of duty or stop.

Make sure all chains are not twisted or kinked.



Make sure all chains have four points of contact and hooks are facing upward.

Strike all chains at the bottom of the pocket or spools with the end of the load bar and retighten ratchets...



...the strike all chains with the load bar to make sure they are settled, and tighten ratchets again.

Multiple Millrolls

1. Set V-blocks (supplied by shipper) in the proper location on the truck bed so that millrolls will be in sets of two across. Cover Vblocks with bearing paper.

NOTE: Rubber friction mats may be used between V-blocks and bearing paper if necessary to keep millrolls off the trailer floor.

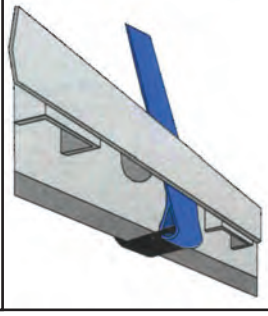
2. Set each pair of millrolls on V-blocks so they are tight against one another.
3. Secure chains over end grooves in the millroll journals.

⚠ **CAUTION:** Do not use chains anywhere on finished millrolls except journal grooves. If there are no grooves, wrap rubber belting around journal ends and secure chains in the same manner.

4. Secure the millrolls with 4" straps using edge protectors.
5. Secure all loose equipment including chains, binders, lumber, tarps, rubber friction mats, coil racks, edge protectors, and winch bar.

CRST-Malone 3-5-7 Rule (For Coiled Steel)

Weight of Coil	Number of Chains Needed
0-20,000 #	3
20,001-40,000 #	5
40,001 + up	7



Under the current cargo securement regulations, all straps and chains must be secured inboard of the rub rails on both sides of the trailer unless load extends to or beyond rub rails.

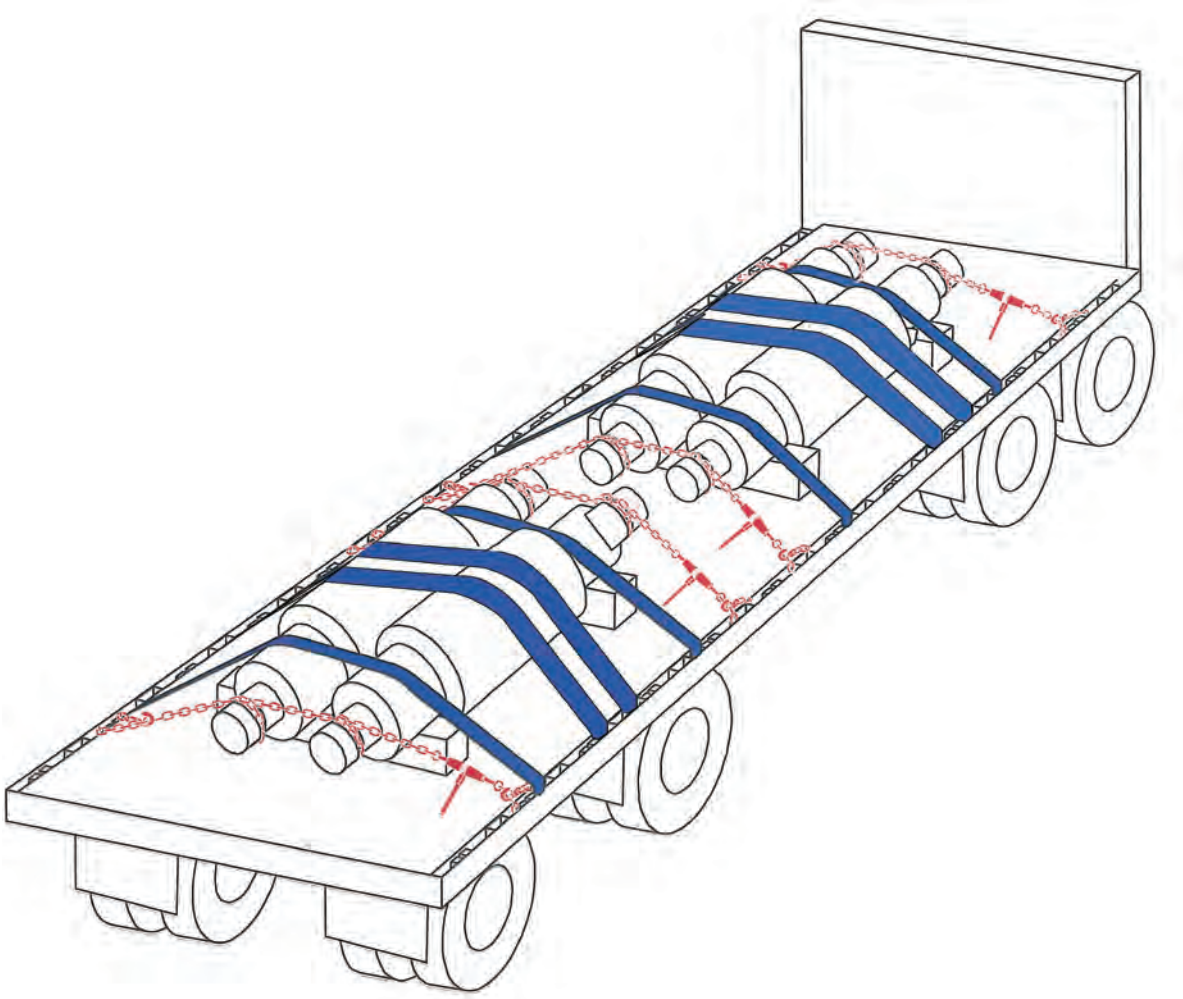
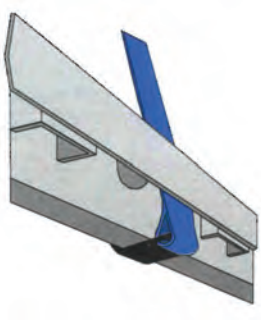


Figure 11. Multiple (small) millrolls secured in pairs.

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

- **After the first 50 miles or 1 hour (whichever comes first).**
- **Every 150 miles or 3 hours (whichever comes first).**
- **At every change of duty or stop.**



Under the current cargo securement regulations, all straps and chains must be secured inboard of the rub rails on both sides of the trailer. The image above indicates CRST/Malone's required method of securing straps.

Bundled Pipe in Tiers

NOTE: The use of chains or straps for securing bundled pipe depends on shipper requirements.

1. Place 4"x4" timbers on the trailer every 8 feet for the length of the pipe.
2. Lay the bundles across the timbers, separated by wood blocking.
3. Secure the bundles with straps or chains, depending on the shipper requirements.
4. Lay another set of timbers on the first tier of pipe, directly above the bottom timbers.
5. Lay another tier of pipe bundles across the timbers and secure over the top of both tiers with straps or chains.
6. Secure additional tiers in the same manner with the top tier chained or strapped according to CRST/Malone policy.

NOTE: CRST/Malone Policy states 2 securements in the first 4 feet, 2 in the last 4 feet, and 1 every 8 feet in between.

⚠ **CAUTION:** Do not stack pipe higher than the bulkhead of the trailer (if possible).

7. Secure all loose equipment including chains, binders, lumber, tarps, rubber friction mats, coil racks, edge protectors, and winch bar.

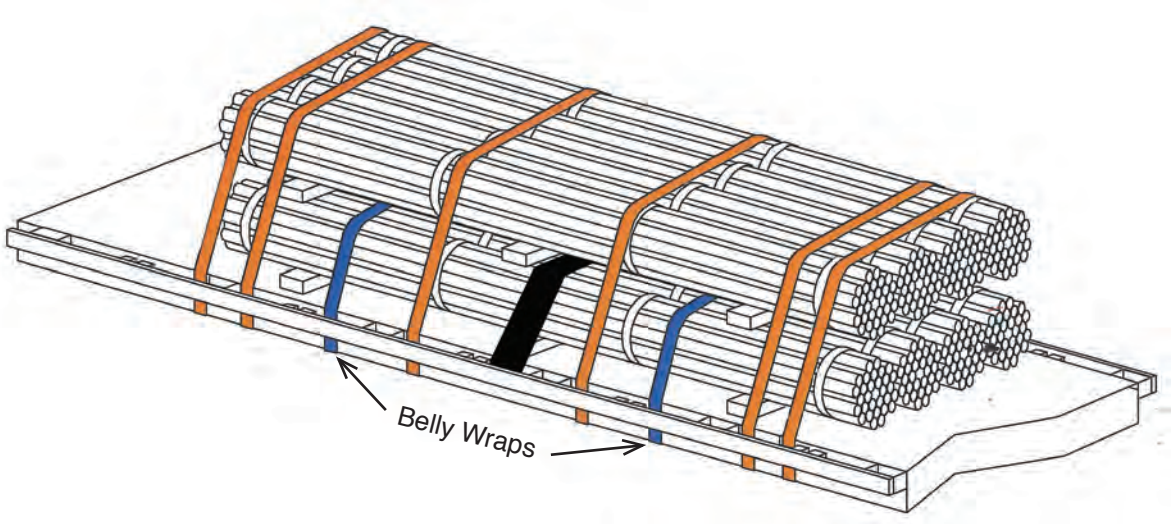
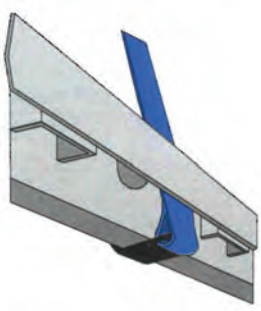


Figure 12. Bundled pipe secured in tiers.

CRST/Malone Policy states: 2 securements in the first 4 feet, 2 in the last 4 feet, and 1 every 5 feet in between.

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

- **After the first 50 miles or 1 hour (whichever comes first).**
- **Every 150 miles or 3 hours (whichever comes first).**
- **At every change of duty or stop.**



Under the current cargo securement regulations, all straps and chains must be secured inboard of the rub rails on both sides of the trailer. The image above indicates CRST/ Malone's required method of securing straps.

Loose Pipe in Tiers

⚠ **CAUTION:** Be sure your truck is sitting on level ground before attempting to load loose pipe.

⚠ **CAUTION:** If loading coated pipe, be aware that it is extremely slippery when wet or covered with ice or snow and may easily slide to the front or rear of the trailer.

NOTE: The use of chains or straps for securing loose pipe depends on shipper requirements.

1. Place 4"x4" timbers on the trailer every 8 feet for the length of the pipe. Nail wedges to one side of each timber on the same side to keep the first pipe from rolling off.
2. Lay the first pipe across the timbers up against wedges.
3. Lay the remaining pipes next to each other to complete the row and nail wedges to keep the pipe together.
4. Secure the row using two straps or chains, depending on shipper requirements.
5. Place another set of timbers on the first row of pipe directly above the bottom timbers. Nail wedges to one side of each timber.
6. Lay the first pipe of the next new tier across the timbers against the wedges.
7. Lay the remaining pipe next to each other to complete the row and nail wedges to keep pipes together.
8. Secure the tier using two straps or chains over top of both tiers.
9. **CRST/Malone Policy states:** 2 securements in the first 4 feet, 2 in the last 4 feet, and 1 every 8 feet in between.

⚠ **CAUTION:** Do not stack pipe higher than the bulkhead of the trailer (if possible).

10. Secure all loose equipment including chains, binders, lumber, rubber friction mats, tarps, coil racks, edge protectors, and winch bar.

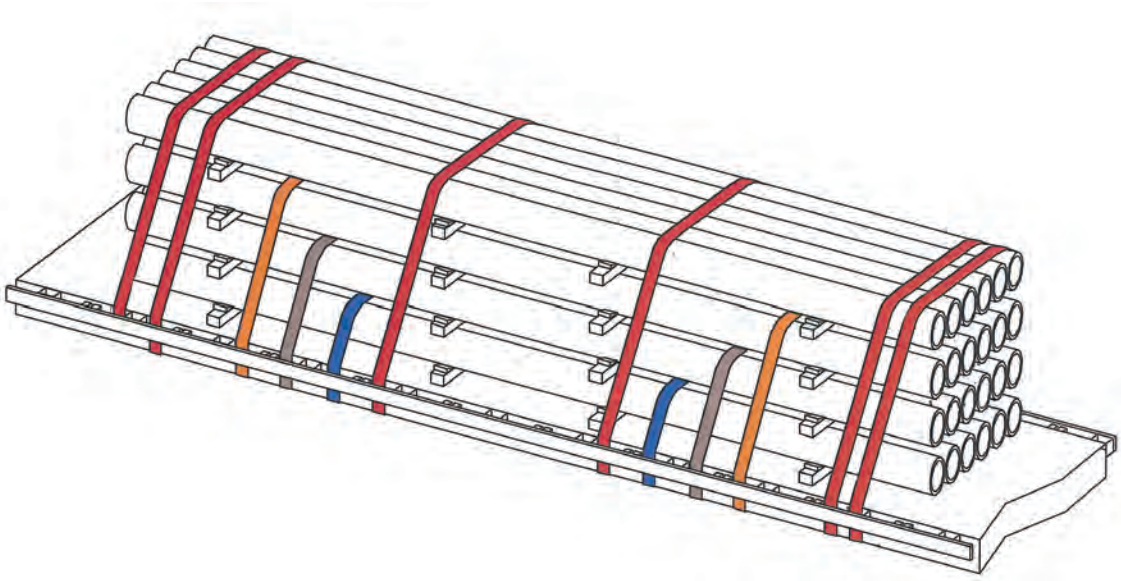


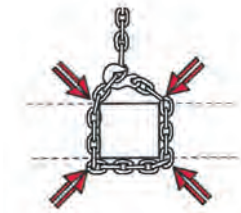
Figure 13. Loose pipe secured in tiers.

CRST/Malone Policy states: 2 securements in the first 4 feet, 2 in the last 4 feet, and 1 every 8 feet in between.

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

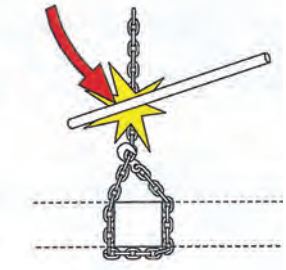
- **After the first 50 miles or 1 hour (whichever comes first).**
- **Every 150 miles or 3 hours (whichever comes first).**
- **At every change of duty or stop.**

Make sure all chains are not twisted or kinked.



Make sure all chains have four points of contact and hooks are facing upward.

Strike all chains at the bottom of the pocket or spools with the end of the load bar and retighten ratchets...



...the strike all chains with the load bar to make sure they are settled, and tighten ratchets again.

Steel Sheets

1. Lay 4"x4" timbers on the trailer deck (four for each stack of steel sheets), and set the first layer of steel sheets on the timbers.
2. Secure the first layer of steel sheets using two chains straight over each bundle. Position edge protectors at every contact point.
3. Place 4"x4" timbers horizontally on top of the first layer of sheets and align them with the timbers below.
4. Secure the top layer of steel sheets using two chains straight over each bundle. Position edge protectors at every contact point.

⚠ **CAUTION:** To increase the stability of this type of load, keep the number of layers to a minimum, and, whenever possible, place two stacks alongside one another. Do not stack more than two layers high.

5. Secure two chains in an X around the front and back of the load being sure to wrap the chains underneath the outside corners.
6. Fully tarp the load. Do not leave any steel sheets exposed (untarped)
7. Secure all loose equipment including chains, binders, lumber, tarps, rubber friction mats, coil racks, edge protectors, and winch bar.

NOTE: CRST/Malone Policy states: 2 securements in the first 4 feet, 2 in the last 4 feet, and 1 every 8 feet in between.

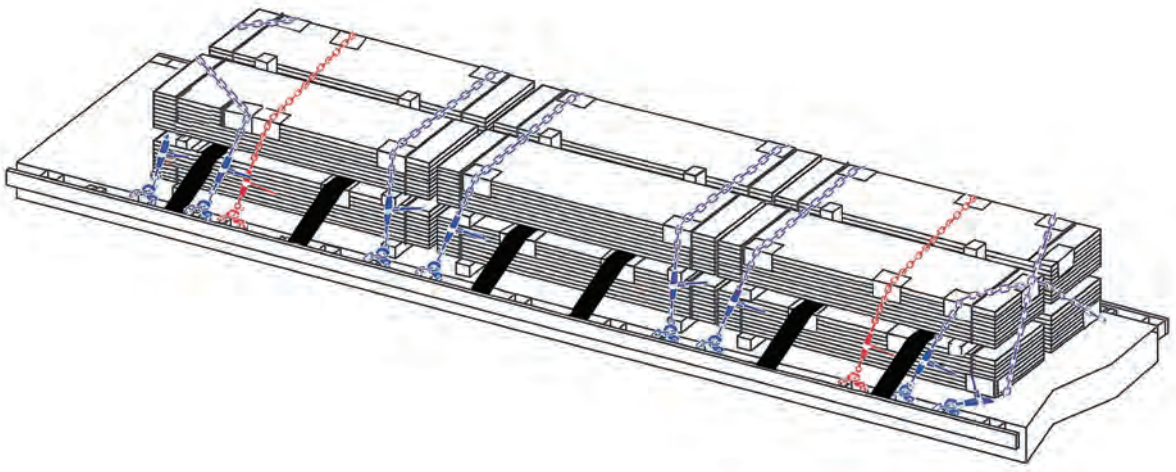
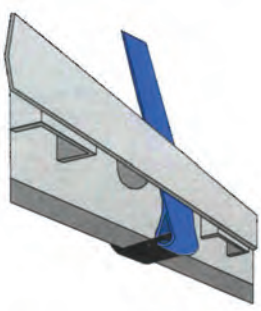


Figure 14. Steel sheets secured on 4"x4" timbers.

CRST/Malone Policy states: 2 securements in the first 4 feet, 2 in the last 4 feet, and 1 every 8 feet in between.

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

- **After the first 50 miles or 1 hour (whichever comes first).**
- **Every 150 miles or 3 hours (whichever comes first).**
- **At every change of duty or stop.**



Under the current cargo securement regulations, all straps and chains must be secured inboard of the rub rails on both sides of the trailer. The image above indicates CRST/ Malone's required method of securing straps.

Wallboard, Single Row Load—54" Board

NOTE: Use straps, not chains, to secure wallboard.

1. Lay a minimum of 3 wallboard spacer boards on the trailer deck.
2. Set one bundle of wallboard on the spacer boards.
3. Load additional bundles, except the top layer in the same manner.
4. Before loading the last layer of spacer and wallboard, secure one strap over the middle of each bundle.
5. Load the top spacers and bundles of wallboard.
6. Fully tarp the load, leaving at least 12" overlap. Do not leave any boards exposed.
7. Secure two straps straight over and near both ends of each stack.
8. Position edge protectors at every contact point.
9. Tighten the straps until they are snug, but do not over-tighten as this may damage the wallboard edges.
10. Secure all loose equipment including chains, binders, lumber, tarps, rubber friction mats, coil racks, edge protectors, and winch bar.

NOTE: Make sure straps are aligned with the dunnage.

CRST/Malone Policy states: 2 securements in the first 4 feet, 2 in the last 4 feet, and 1 every 8 feet in between.

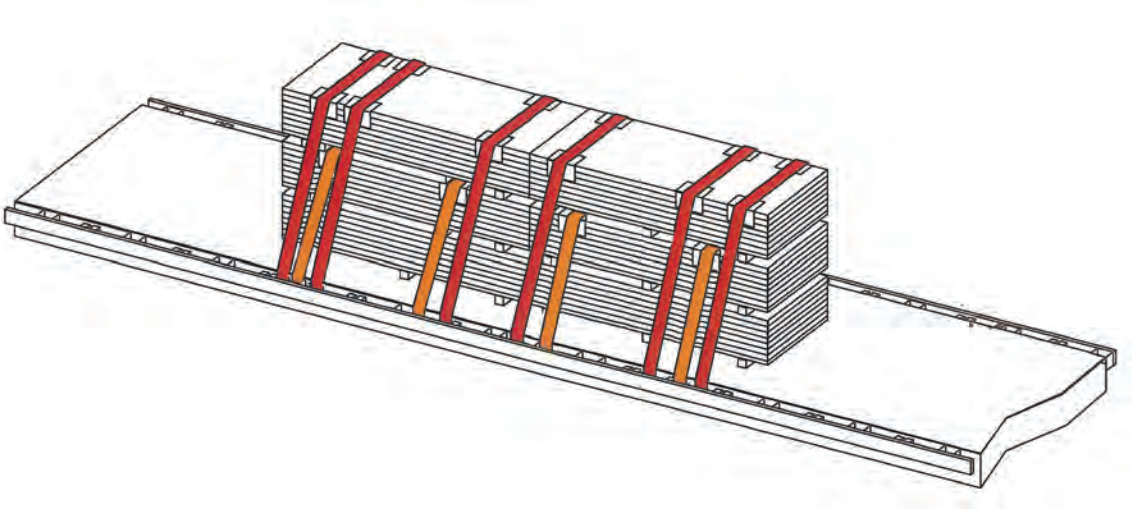
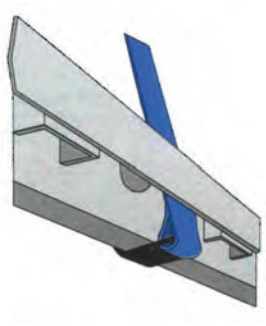


Figure 15. A single row of 54" wallboard secured on spacer boards.

CRST/Malone Policy states: 2 securements in the first 4 feet, 2 in the last 4 feet, and 1 every 8 feet in between.

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

- **After the first 50 miles or 1 hour (whichever comes first).**
- **Every 150 miles or 3 hours (whichever comes first).**
- **At every change of duty or stop.**



Under the current cargo securement regulations, all straps and chains must be secured inboard of the rub rails on both sides of the trailer. The image above indicates CRST/ Malone's required method of securing straps.

Lumber

NOTE: Use straps, not chains, to secure lumber.

1. Lay 4"x4" timbers on the trailer deck, then set the first layer of bundled lumber on the timbers.

2. Secure the first layer of lumber using two straps straight over each bundle. Position edge protectors at every contact point.

NOTE: Use edge protectors on OSB and plywood.

1. Tighten the straps until they are snug, but do not tighten, as this may damage the edges of the lumber.
2. Fully tarp the load. Do not leave any lumber exposed (untarped).
3. Secure all loose equipment including chains, binders, lumber, tarps, rubber friction mats, coil racks, edge protectors, and winch bar.

NOTE: CRST/Malone Policy states: 2 securements in the first 4 feet, 2 in the last 4 feet, and 1 every 8 feet in between.

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

- **After the first 50 miles or 1 hour (whichever comes first).**
- **Every 150 miles or 3 hours (whichever comes first).**
- **At every change of duty or stop.**

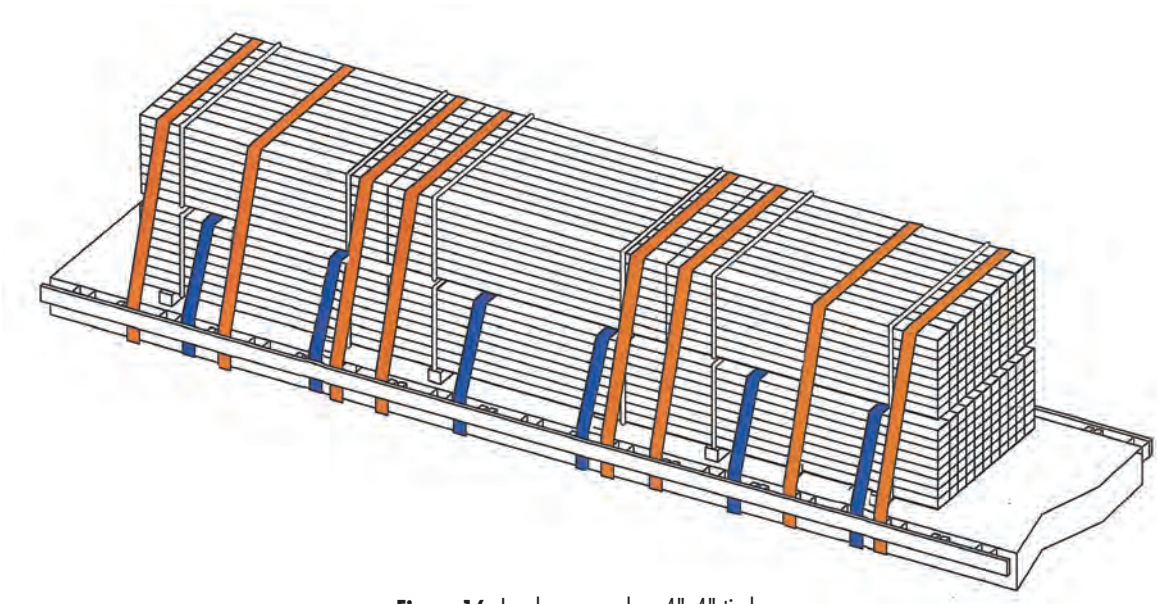
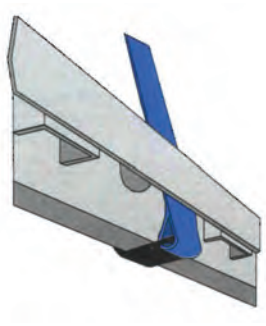


Figure 16. Lumber secured on 4"x4" timbers.

CRST/Malone Policy states: 2 securements in the first 4 feet, 2 in the last 4 feet, and 1 every 8 feet in between.

Great Dane and Utility Trailers have a 4" rise.

Reitnover Trailers have a 6" rise.



Under the current cargo securement regulations, all straps and chains must be secured inboard of the rub rails on both sides of the trailer. The image above indicates CRST/ Malone's required method of securing straps.

Mulch, Shingles, and Super Sacks

1. After loading the mulch, shingles, or super sacks on the truck, check the pallet and banding to make sure they are secure and in good condition.
2. Secure one strap over the top of each double stack of mulch, shingles, or super sacks.
3. Secure straps horseshoed or crossed around the front and back stacks to prevent forward and backward movement.
4. Tarp the load securely.
5. Secure all loose equipment including chains, binders, lumber, tarps, rubber friction mats, coil racks, edge protectors, and winch bar.

NOTE: CRST-Malone requires all loads to be tarped unless specifically noted not to on the bill of lading.

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

- **After the first 50 miles or 1 hour (whichever comes first).**
- **Every 150 miles or 3 hours (whichever comes first).**
- **At every change of duty or stop.**

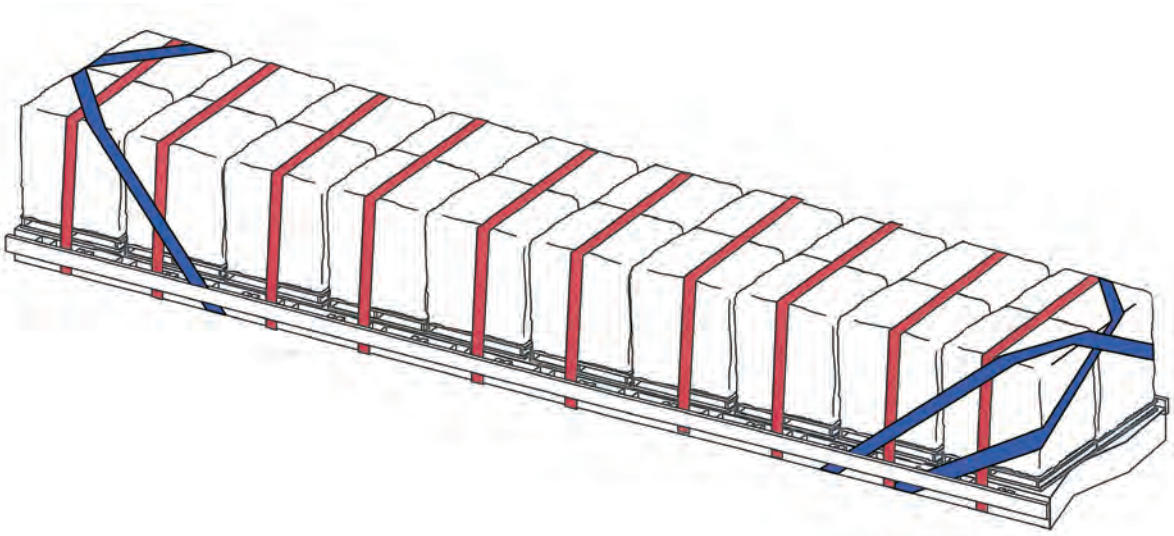


Figure 17. Mulch, shingles, or super sacks secured with horseshoed straps.

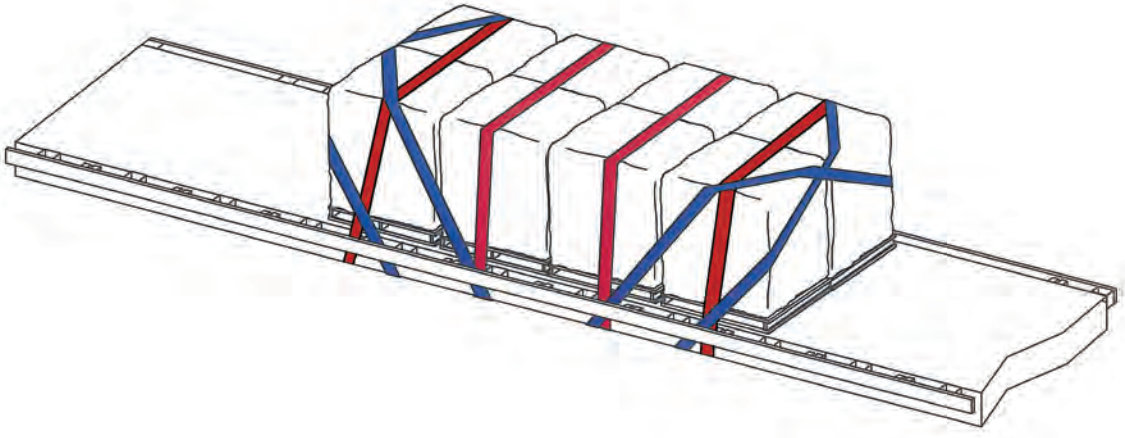
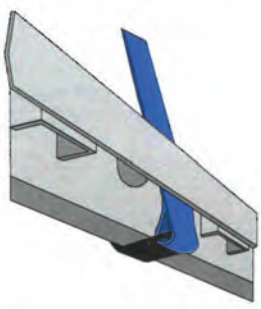


Figure 18. Mulch, shingles, or super sacks secured with horseshoed or crossed straps.

CRST/Malone Policy states: 2 securements in the first 4 feet, 2 in the last 4 feet, and 1 every 8 feet in between.



Under the current cargo securement regulations, all straps and chains must be secured inboard of the rub rails on both sides of the trailer. The image above indicates CRST/ Malone's required method of securing straps.

Paper Rolls

NOTE: The paper rolls have already been tethered and loaded eye forward at the paper plant. Each roll is 8 feet (96") wide with a 3" diameter eye.

1. Secure the first roll with two straps over either side of the center.
2. Secure the middle rolls with at least two straps. Use more if available.
3. Secure the last roll with two straps over either side of the center.
4. Fully tarp the load. Do not leave any paper exposed (untarped).

CRST-MALONE
COMPLETE EN ROUTE INSPECTIONS

- **After the first 50 miles or 1 hour (whichever comes first).**
- **Every 150 miles or 3 hours (whichever comes first).**
- **At every change of duty or stop.**

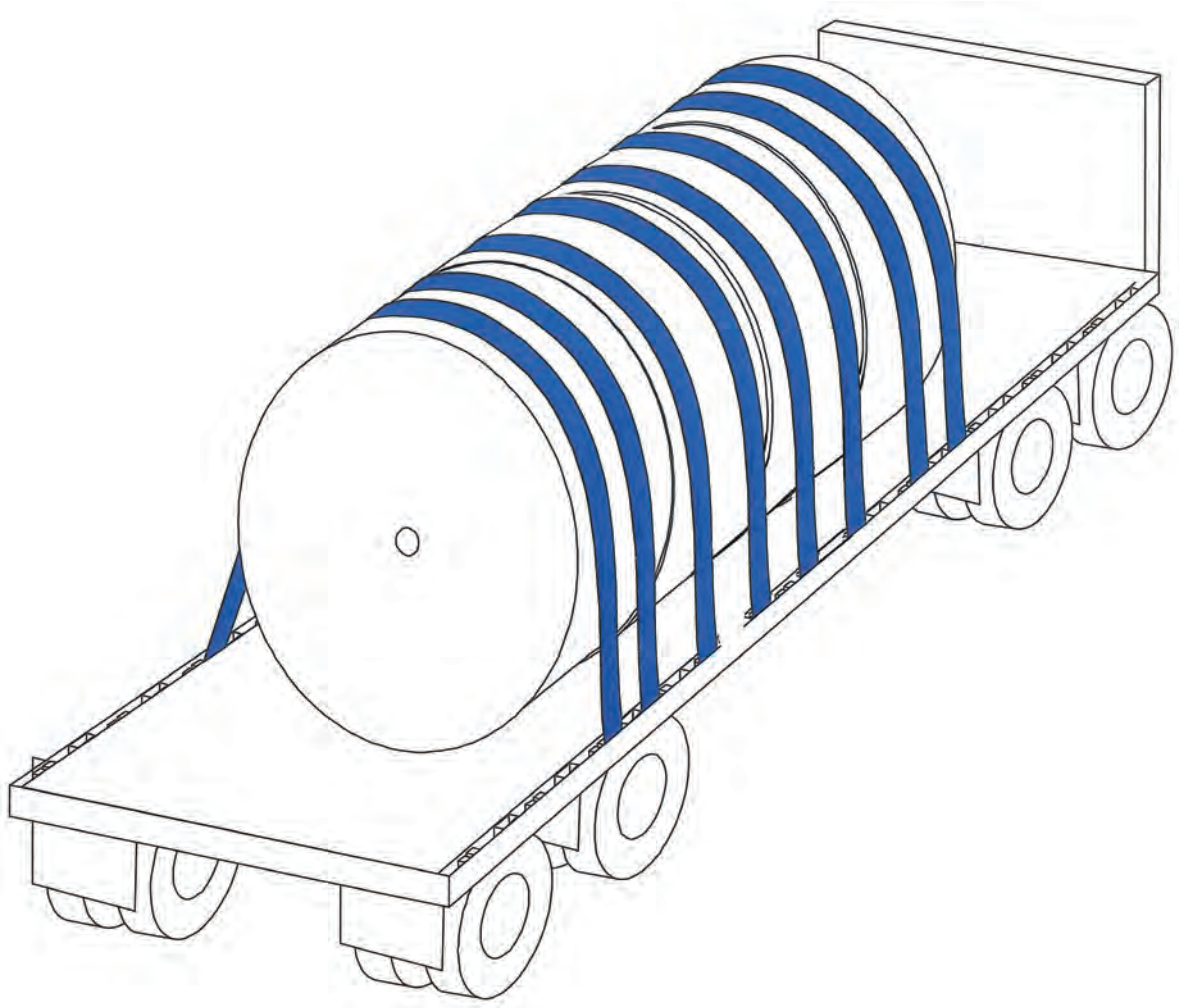
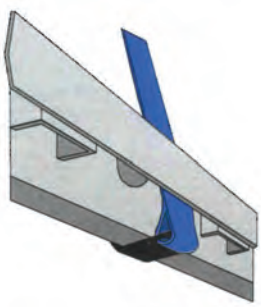


Figure 19. Paper rolls.



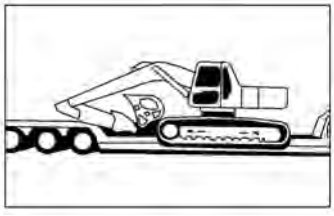
Under the current cargo securement regulations, all straps and chains must be secured inboard of the rub rails on both sides of the trailer. The image above indicates CRST/ Malone's required method of securing straps.

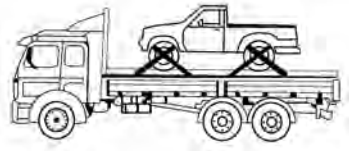
One securement per every anchor point, minimum.

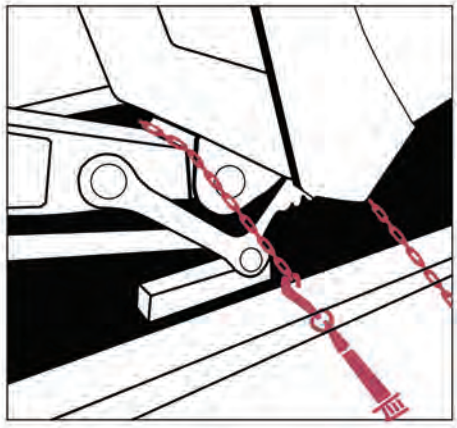
Heavy Equipment, Vehicles, and Machinery.

Note: The securement of heavy equipment and/or machinery must follow CRST -Malone rules of securement. A minimum of four securement devices must be used on heavy equipment, vehicles, and machinery. If the equipment is a front loader, back hoe, etc., then those accessories must be secured as well.

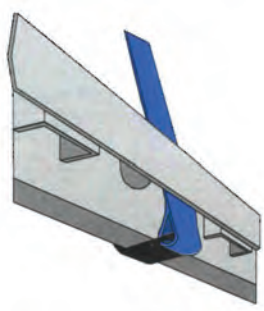
1. ***Securement devices must be used at <u>all four corners</u> of the heavy equipment and/or machinery.***
2. Accessories must be secured. - Such as boom, arm or bucket
3. Depending on the weight and length, extra securement devices may be needed.
4. For example, if the machinery weighs in excess of 20,000 #, then at least 5 securement devices must be used. If the machinery weighs in excess of 40,000 #, then at least seven securement devices would be required. Extra devices would be required depending on length, width, and accessories.





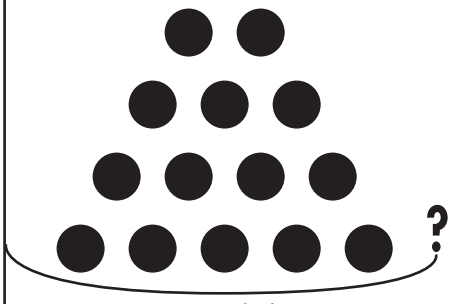


Cargo is restrained using at least 4 tiedowns.

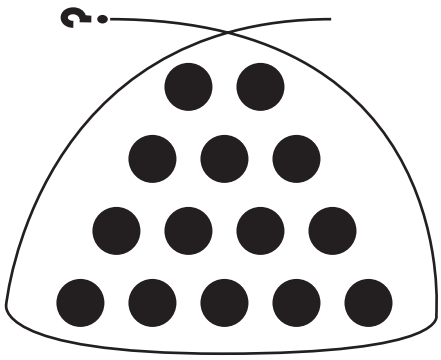


Under the current cargo securement regulations, all straps and chains must be secured inboard of the rub rails on both sides of the trailer. The image above indicates CRST/ Malone's required method of securing straps.

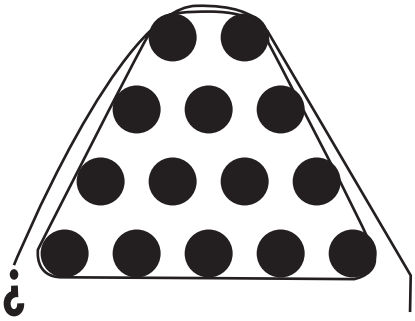
Belly Wrapping Loose Pipe



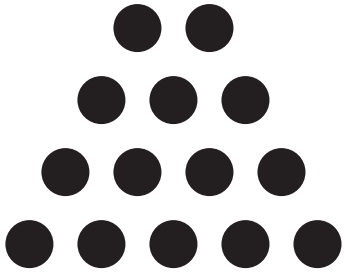
1: Lay strap under loose pipe



2: Place strap over top crossing



3: Extend straps down place between rub rail and bed



4: After belly wrapping at least three times down the length of the pipe, place straps over the top in the recommended securement manner.

NOTE: CRST/Malone Policy states: 2 securements in the first 4 feet, 2 in the last 4 feet, and 1 every 8 feet in between.

Glossary

Beveled lumber — Wooden timbers with a slanted edge that are placed in pairs on the coil racks to stabilize a coil and keep it from touching the floor of the trailer.

Binder — Equipment used to tighten a chain for securing cargo. A ratchet binder (preferred) draws chains together using a built-in handle and ratchet. A snap binder requires a load bar to tension a folding hasp mechanism.

Blocking — Various sizes of wood used to prevent the movement of cargo or to separate cargo.

Chain — Various sizes of approved rated chains used in combination with binders to secure cargo (G70 rating).

Coil, eye forward — Coil loaded on the trailer with the hole or "eye" of the coil facing the front and rear of the trailer. Also called a "shotgun" coil.

Coil, eye to the side — Coil loaded on the trailer with the hole or "eye" of the coil facing out the sides of the trailer.

Coil, eye to the sky — Coil loaded flat on the trailer with the hole or "eye" of the coil facing up.

Coil rack — Flat steel with a stop at each end to hold beveled lumber in place for transporting a coil.

Edge protector — Angled steel plates that are placed on coils to prevent damage from chains. Some edge protectors are lined with rubber.

Friction Mats — Some strips of rubber placed under coil racks to prevent movement.

Jake brake — An engine retarder.

Load bar — A metal bar used to tension snap binders and to strike chains to test their tension.

Rubber belting — Approximately 8"x48" strips of rubber placed on beveled lumber in coil racks to prevent damage to coils.

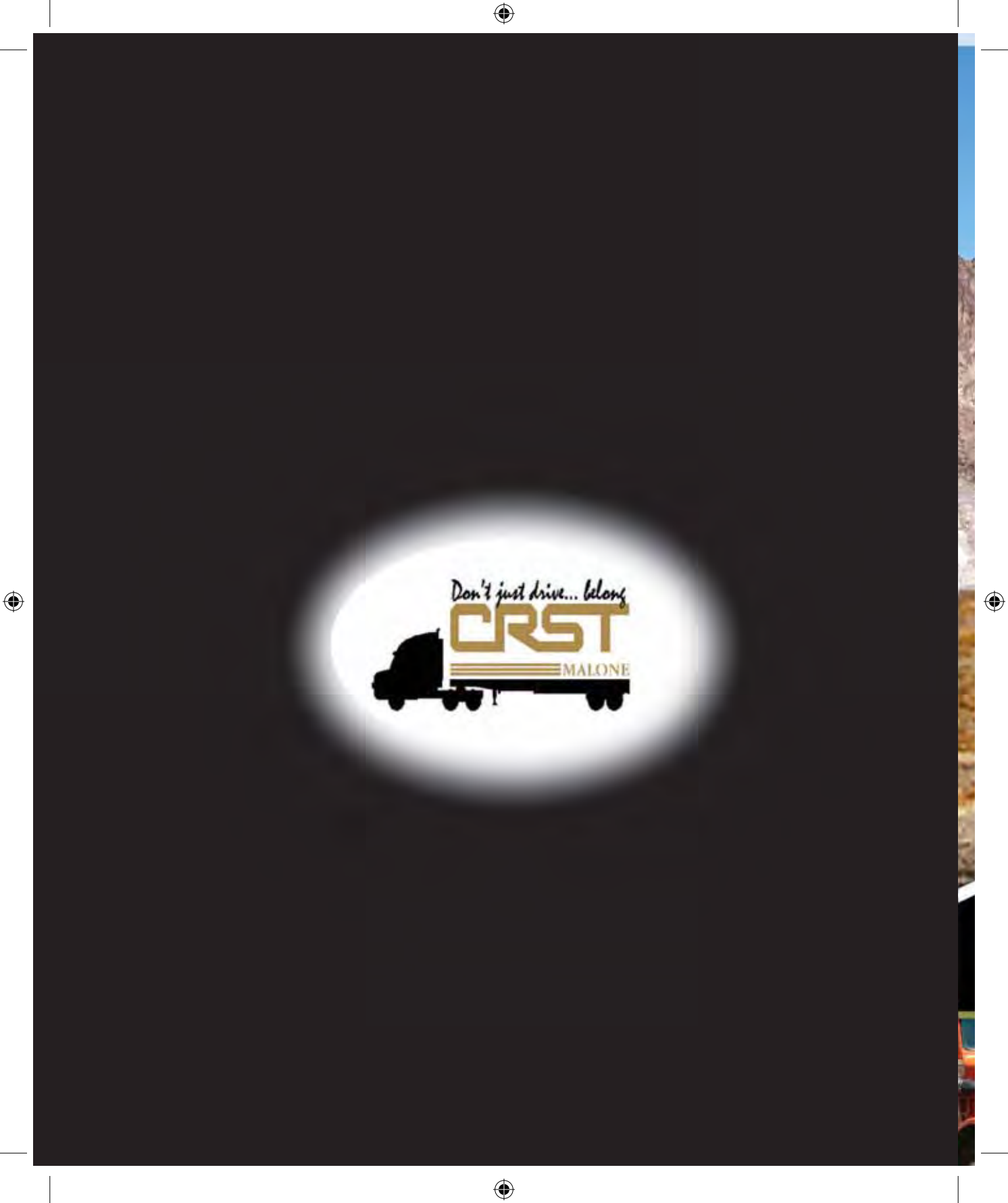
Shotgun coil	Coil loaded on the trailer with the hole or "eye" of the coil facing the front and rear of the trailer. Also called an "eye forward" coil.
Spread axle trailer	A trailer equipped with two axles 10'2" apart. This allows each axle to be considered a single axle, and the allowable gross weight for each axle amounts to more than the maximum limit for a tandem assembly.
Stationary tandem trailer	A trailer with two axles (one directly in front of the other) permanently fastened in a fixed position.
Tie-down straps	Synthetic (nylon or polyester) webbing with hooks that are used to secure cargo that might be damaged by chains. Tie-down straps come in a variety of types and widths. CRST/Malone requires 4" straps for securement.
Tier	Rows of cargo in a stacked load (such as pipe) that are stacked one above another and usually separated by blocking.
Trailer kingpin	Device permanently attached to the bottom front end of the trailer that enables the trailer to be towed when hooked to the fifth wheel on the power unit.
Trip chain	Chain placed in front of cargo to prevent its forward movement; always used for coils loaded in the "shotgun" or "eye to the sky" method.
Trip straps	Straps placed in front of cargo to prevent its forward movement; always used for coils loaded in the "shotgun" or "eye to the sky" method.

U.S. Steel Questions

1. Have you been trained in proper coil securement according to the FMCSR? **Yes**
2. Does US Steel require friction mats to load their coils? **Yes**
3. Is it your responsibility to direct the crane or forklift operator where to place the coil or coils on the trailer? **Yes**
4. Can the driver be on the trailer while the coils are being loaded? **No**
5. Do all chains have a working load limit of 10,000 lbs. or more? **No**
6. Once you leave shipper, must you stop in the first 50 miles to check securement? **Yes**
7. Is the speed limit on US Steel property 30 mph? **No**
8. Do you have all of your safety equipment? **Yes**
9. Are you responsible for you own securement? **Yes**
10. If coil is loaded suicide is it OK to cross chains through the eye of the coil? **No**
11. Are you allowed to move trailer to a different bay while coils are unsecured? **No**
12. Must coils be suspended off trailer floor by using racks and timbers? **Yes**
13. If coil is loaded shotgun, are you required to put at least 1 chain or securement over top of coil? **Yes**
14. Can you cross a RR track while lights are flashing? **No**
15. Are vehicles allowed to stop on railroad tracks and within 7 feet of the tracks? **No**
16. Are vehicles allowed to stop within 15 feet of the tracks inside US Steel facility? **Yes**
17. Are you required to inspect all securement equipment on a regular basis? **Yes**

NOTES

NOTES


Don't just drive... belong
CRST
MALONE