



Load Securement Strap Options

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Road Transport Safety

Background

- Ainsworth Trucking has been working on finding ways to remove the risk of winch bars.
- They started looking at this issue back in October of 2009.
- The original problem was that they had a winch bar load bearing tip snap off one of the winch bars.
- After Their investigation and asking several drivers input we found that this was not the first time this happen in our industry.
- This investigation has caught Shell's attention as we have had similar incidents resulting in injuries and a fatality
- Ainsworth Trucking bought and field tested five different types of set ups.

Winch bar issue



Standard Winch and Pry Bar



Winch Bar



7590 Sliding Under Mount Winch

Porta Winch



For use with standard winch straps (up to 4" wide) and winch bars

Features 3-bar design mandrel; cap has four holes and accommodates standard winch bars

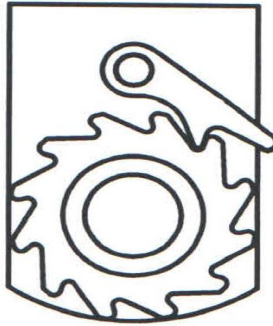
Patented spring-loaded front hook design distributes load evenly across the stake pocket

Installs easily without tools and works over tires and toolboxes

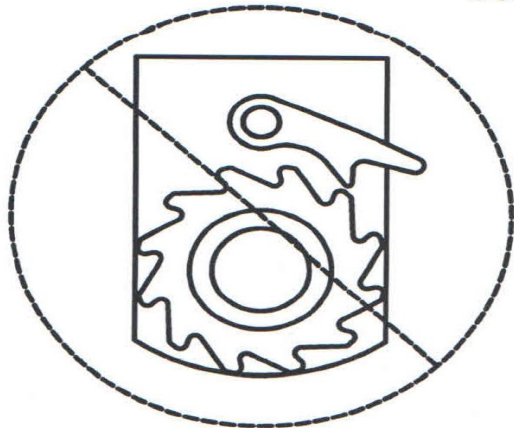
Removable when not in use

Made of powder-coated steel

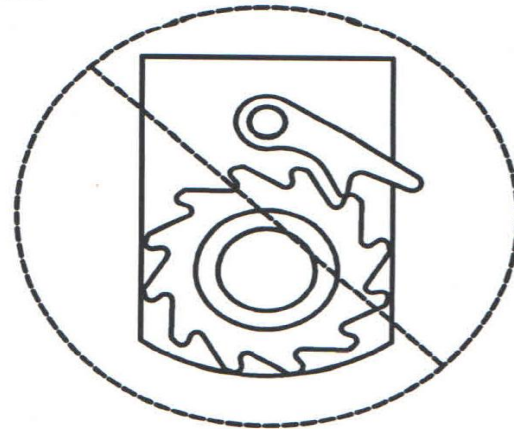
Working Load Limit (WLL) of 5,500 lbs



CORRECT ENGAGEMENT



WRONG!
PAWL DISENGAGED



WRONG!
PAWL NOT FULLY ENGAGED

Figure 2
Pawl Engagement

Winch Bars

Smart Bar



Ergo 360 Winch Bars



Standard Winch Bar



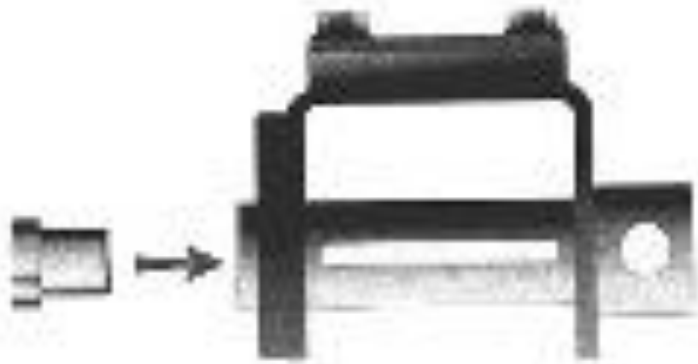
- Used to release stored tension energy from winch and to tighten the winch

Winch Bar WARNING

WINCH BAR WARNINGS:

- Failure to comply with this warning may result in **serious personal injury or death**.
- Inspect winch or chain binder and winch bar for defects before each use. Do not use if defective, broken, worn, cracked or deformed. Do not repair, remove from service immediately.
- Never extend or alter the winch bar. Keep both feet flat on ground during use.
- This product is used entirely at the user's own risk. Use of this product demonstrates understanding of this warning and the risks involved.
- Refer to applicable federal, state or local regulations for loading & transportation requirements.
- **When using a winch bar with winches:**
- Winch bar point must be inserted through two holes in winch cap during use. Failure to properly insert winch bar point may cause damage or failure of the winch or winch bar, leading to serious personal injury and death
- Position body out of rotation path in case of winch bar slippage.
- During tightening and before releasing the tiedown assembly, the winch pawl must be checked for correct engagement.
- **If using a winch bar with optional chain binder cradle with chain binders:**
- Follow chain binder manufacturer's recommendations.
- Chain binder handle must be fully inserted and securely locked in winch bar cradle. Failure to properly secure chain binder handle in winch bar may cause damage or failure of the winch bar or chain binder, leading to serious personal injury or death
- Position body out of rotation path in case of winch bar slippage.

QUICK WINCH Permanent Ratchet Drive System



Quick Winch Results

- Four drivers issued ratchet bar set up
- Feed back from drivers after 30 loads each (average)
- Drivers feed back was the ratchet would skip and some times slip when applying pressure.
- Hand grips (foam) would tear easy and expose a smooth bar causing driver with less hand grip.
- Ratchet head was made of low quality.
- Could not repair ratchet head.
- Driver could fall to the ground if ratchet skipped.
- **If used incorrectly could still cause driver injury**
- Does not address the safety issue of releasing the tension

Kindyne Ratchet/Winch Bar



The Ratchet Winch Bar is a revolutionary development to the standard winch bar, as it turns all winches into ratcheting winches and provides a safe, efficient and convenient way to tension and release winch straps. It features a traditional winch bar tip on the opposing end for quick winch pawl disengagement. It comes standard with two Lock Keys

Length: 39.0"
Chrome Plated



Kindyne Ratchet/Winch Bar Results

- Three drivers issued Kindyne Ratchet/Winch Bar
- Feed back from drivers after 25 loads each (average)
- Ratchet was stiff.
- Liked the overall quality of the ratchet
- Did not like the lock insert. Easy to lose and with out it could not operate ratchet. Would have to keep spares on hand.
- **If used incorrectly could cause driver injury**
- Does not address the safety issue of releasing the tension

SilverCap Outer Drive System



Simple 1, 2, 3 installation.



**Easy to install on any existing winch by sliding the unit over the cap of the old winch, spinning it in place, and securing it with the bolt
Ratcheting action allows you to keep the winch bar in the cap until the winch strap is tightened to help cut loading time and reduce injuries**

Made of high-strength alloy

Fitted with a weather-tight rubber seal to protect key moving parts from the elements

Measures 4.2"; cap diameter measures 2.8"

SilverCap Outer Drive System Results

- Installed SilverCap Outer Drive on two trailers
- Driver feed back after 15 loads each (Average)
- Worked ok
- Dust cover would not keep all dirt from entering mechanism
- Stiff operation
- Made work a littler easier
- **If used incorrectly could cause injury to driver**
- Does not address the safety issue of releasing the tension

EZ Torque Crank System

EZ Torque Winch



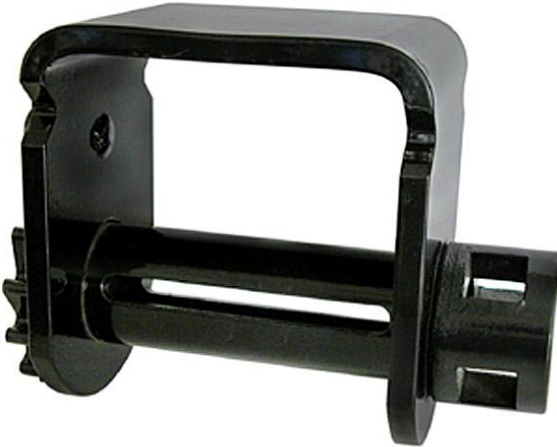
EZ Torque Crank Handle



EZ Torque Winch

- Installed on one trailer
- Driver feed back after 4 loads
- Driver did not like could not get the straps tight enough
- Dust and dirt entered the mechanism
- Driver complained the straps would loosen up in travel
- Could possibly lose the required wrench
- Would have to carry extra wrench
- Did address the safety issue for tension release
- Good idea needs to be improved to increase load Securement

Square Hole Winch System



Square Hole Winch System

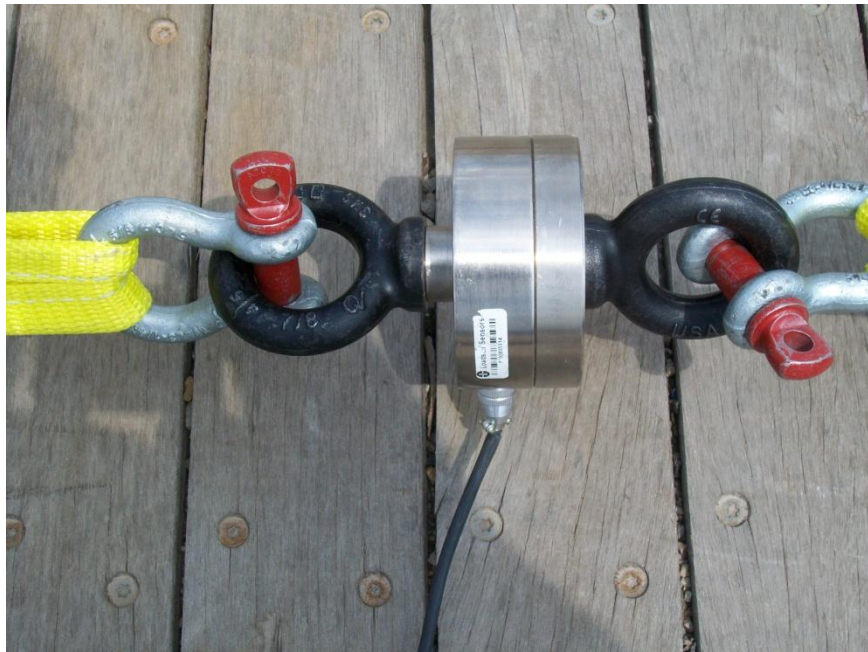
- Have not tested
- Address the possibility of the winch bar twisting when applying pressure.
- If driver lost special winch bar. The driver could not secure load.
- **If used incorrectly could cause injury to driver.**
- Does not address the safety issue of releasing the tension.

4" Ratchet Strap w/tail chain

Length: 30'
Width: 4"
Weight: 22.60 lbs
Assembly Break Strength: 16,200 lbs
Work Load Limit: 5,400 lbs



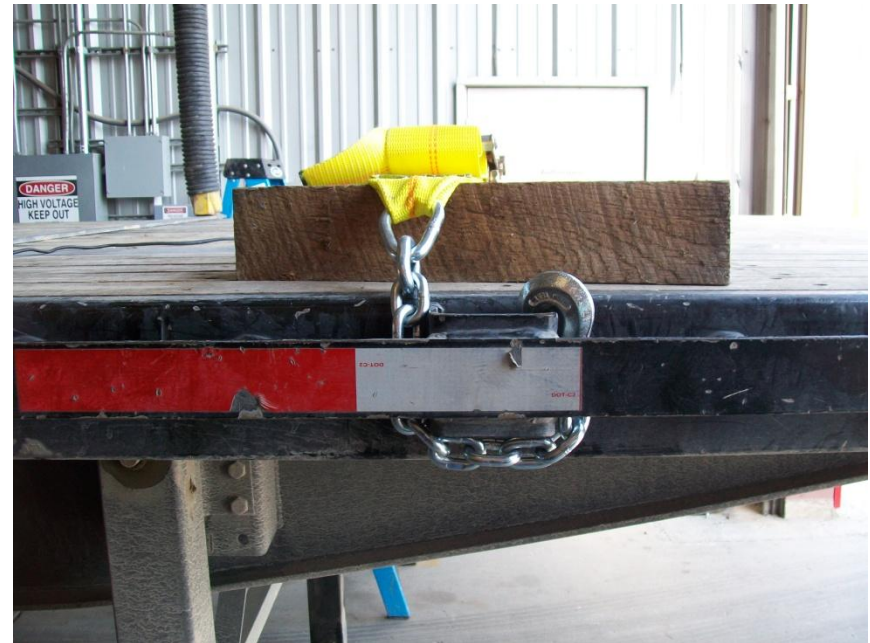
4" Ratchet Strap pull test with standard winch set up. Pull test was 1556.79lbs.



Standard winch set up (Pull Test)



4" Ratchet Strap pull test with 4" ratchet with tail chain set up. Pull test was 1595.32lbs.



4" Ratchet with tail chain (Pull Test).



4" Ratchet w/tail chain

- In Testing Now
- They will be testing it on four trucks
- Have completed pull test to compare overall load Securement
- Using the 4" ratchet with 4" strap with tail chain driver will be able to meet or exceed the tension that is used with the standard winch and winch bar setup
- **Will address the tension release safety issue**
- **Will eliminate the winch bar**
- Will eliminate the possibility of winch bar accidents

Questions?

