

Title: Crane Hoist Wire Rope Drum Spooling Precautions

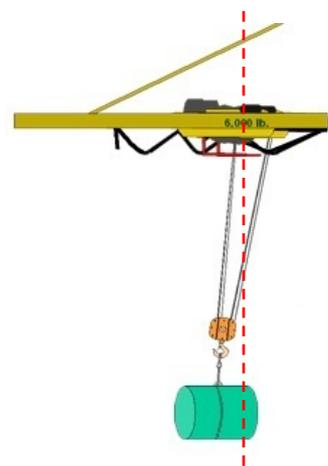
Target Audience: Crane Operators and Supervisors



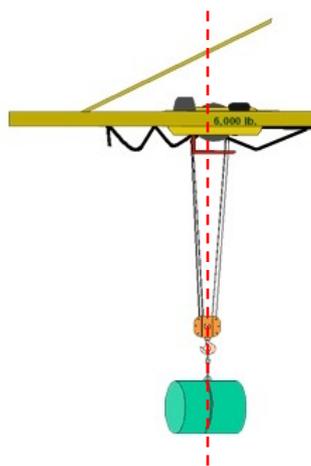
IMPROPER SPOOLING /  
DRUM MIS-SPOOL



Mis-spools cause:  
flattening, crushing,  
abrading, distorting or  
kinking of the wire rope



Incorrect



Correct

Crane near misses occur when an accident is avoided by mere chance or where intervention prevented an ongoing sequence of events that would have resulted in an accident. The most frequently reported near miss involves improper spooling of the hoist wire rope onto the drum (mis-spooling). Mis-spooling occurs when a hoist's wire rope is wrapped on the drum unevenly or is overlapped. If not identified, wire rope mis-spooling can lead to damaged wire rope, possible dropped loads, and loss of crane availability. Eighteen mis-spooling conditions have been reported during this calendar year (most being on category 3 cranes), including four that resulted in crane accidents.

## CAUSES OF IMPROPER DRUM SPOOLING:

- **Rapid movement or sudden stopping** of the crane's bridge and/or trolley motion **while hoisting** can cause the **hoist block to swing excessively** leading to improper reeving of the hoist.
- **Hoisting without sufficient tension** on the wire rope. Commonly occurs during no load hoisting on some mobile cranes.
- Hoisting while **applying an end or side pull** on the hoist.

## DRUM SPOOLING PRECAUTIONS:

- **Operate** the crane in a safe manner, raising the hook block **slowly and smoothly**. Avoid rapid starts and sudden stops to **prevent swinging** the hoist block.
- Operate one function at a time to minimize hook block swing.
- **Pay particular attention to the drum spooling** while hoisting with no load and during stowage of the hook block.
- **Ensure the hoist line is vertical and over the load's center of gravity prior to lifting**. Cranes and hoists are designed to lift straight up and lower straight down! They are not designed to drag or pull a load horizontally!
- For mobile cranes it may be necessary to monitor and guide the rope when spooling without a load. A nominal load may be required when winding the first layer on the drum.

**SAFETY**