



OSC | 10
Ohio Safety Congress & Expo

Rig it right and you won't be wrong
(SCH342)
Thursday, April 1, 2010 9:15 to 10:15 a.m.
Al Abel, Mazzella Lifting Technologies



The World's **MOST COMPLETE** Lifting Center

CRANES
WIRE ROPE
FABRICATION
HARDWARE
SLINGS
FIELD SERVICE

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A definition

Rigging is . . .

“Supporting or manipulating an object.”

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A recent article stated . . .

“Rigging is an art and a profession.”

“An improperly rigged load is a death trap waiting for the next unsuspecting victim.”

“Training must be given to any person assigned this responsibility.”

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Risk is . . .

- Possibility of loss or injury
- Someone or something that creates or suggests a hazard
- Peril



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Questions we hear . . .

- How often do I need to inspect my slings . . . cranes?
- I have this hook that Bill, Tom, (add a name) made--is it ok to use?
- I have a sling with a tag--I can't read it--is it ok to use?

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Questions we hear . . .

- Can I lift with eyebolts?
- Is it ok to tie a knot in a sling to make a longer one?
- I didn't rig it--am I responsible?
- Why do I need training--I've been doing it this way for 27 years?

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Headlines . . .

Overhead Sling Causes Injuries
Dropped Load Pins Man
Worker Dies When Load Falls
Worker Severs Finger While Rigging
OSHA Investigating the Accident

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How Can You Manage Risk?

Risk management is a comprehensive set of actions that reduces the risk of a problem, a failure, an accident.



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Rigger's Responsibilities

- The inspection of rigging gear
 - Frequent inspection
 - Periodic inspection
 - Initial inspection
- Responsibilities for rigging
 - Inspection
 - Connection
 - Protection
- The capacity of rigging gear
 - Know the working load limit
 - Use within the working load limit
 - Do not modify

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Rigging a load is like planning an event!

Let's plan:
A Rigging Event

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The Basic Rigging Plan

1. Who is responsible (competent) for the rigging? Communication established?
2. Is the equipment in acceptable condition? Appropriate type, proper identification?
3. Are the working load limits adequate?
 - Capacity of gear known?
 - What is the weight of the load?
 - Where is the center of gravity?
 - What is the sling angle?
 - Will there be any angular or side loading?
 - Are the slings padded against sharp corners?



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The Basic Rigging Plan

4. **Will the load be under control?**
Is the load rigged to the center of gravity?
Is the hitch appropriate?
Tagline needed?
5. **Are there any unusual loading or environmental conditions? (wind, temperature, other?)**
6. **Special requirements?**



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Inspections must take place **BEFORE** the lift begins!

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Crane Inspection

Pre-operation inspection:

- Beginning of each shift.
- Easy and only takes a few minutes.
- Made-up of 2 components:
Visual and Operational

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Visual Inspection

- Look for any “Danger” tags.
 - Red “Danger” tag--terminate the inspection
- Look for any missing parts, physical damage and end stops.
- Check hoist chain.

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Visual Inspection (continued)

- Check wire rope, for twisting, kinking, proper seating on drum, no slack on rope and no overlapping on drum.
- Know where the location of the disconnect switch is located.
- No obstacles or obstructions in path of the crane.

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Operational Inspection

- Operate crane in each direction for several feet:
Listen for unusual noises
Jerky movement
Check condition of control station--all buttons properly marked.

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Operational Inspection

(continued)

- Don't switch wires if not working properly.
- Slowly raise block to upper limit switch and lower block to floor to make sure that there are at least 2 wraps on drum.






Operational Inspection

(continued)

- Hooks must have operational safety latch.
- Check for stretched hook.
- ANSI warning tags must be on push button wire.




The World's

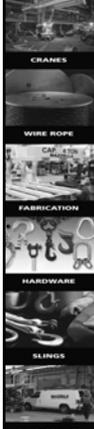
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If hoist fails any part of this inspection--tag-out and notify your supervisor or whatever your internal policy is!!

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Hardware

“ASME B30.26 requires that rigging hardware users shall be trained in the selection, inspection, cautions to personnel, effects of environment, and rigging practices. All rigging hardware to be identified by manufacturer with name or trademark of manufacturer.”






Inspection Frequency

The inspection of slings and hardware includes:

1. Initial inspection prior to first use
2. Frequent inspection by designated person each day the hardware is used.
3. Periodic, at least annually, inspection accomplished by designated person as part as a thorough inspection program.

ANSI/ASME B30.9






Inspection of Fittings

- Wear
- Legible identification
- Deformation
- Cracks or sharp nicks
- Modification
- Wire rope at termination
- Proper function




**Inspection of Fittings—
Deformation**

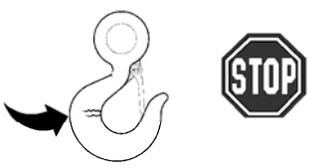


Any significant permanent deformation, or change in shape indicates it has been overloaded and must be removed from service.

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**Inspection of Fittings—
Cracks & Sharp Nicks**

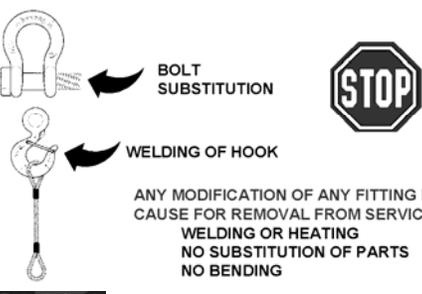


Any crack, sharp nick or gouge in the surface of any fitting is cause for removal from service.

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**Inspection of Fittings—
Modification**



**ANY MODIFICATION OF ANY FITTING IS CAUSE FOR REMOVAL FROM SERVICE:
WELDING OR HEATING
NO SUBSTITUTION OF PARTS
NO BENDING**

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Slings

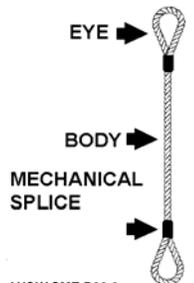
“ASME B30.9 requires that sling users shall be trained in the selection, inspection, cautions to personnel, effects of environment, and rigging practices. Sling identification is required on all types of slings.”

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**Inspection of Wire Rope
Slings—Cause for Removal**

- Broken wires
- Kinking
- Crushing
- Birdcaging
- Damage to rope structure
- Evidence of heat damage
- Corrosion
- Other damage that would cause doubt
- Missing or illegible sling identification
- Damaged end attachments



ANSI/ASME B30.9

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**Inspection of Chain
Slings—Cause for Removal**

- Cracks or breaks
- Excessive wear, nicks or gouges
- Evidence of heat damage
- Excessive pitting or corrosion
- Weld splatter
- Chain or components do not hinge freely
- Stretched, bent, twisted or deformed chain links or components
- Missing or illegible sling identification
- Other damage that would cause doubt



ANSI/ASME B30.9

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**Inspection of Web Slings—
Cause for Removal**

- Acid or caustic burns
- Melting or charring on part of sling
- Holes, tears, cuts, snags
- Broken or worn stitches ANSI/ASME B30.9
- Excessive abrasive wear
- Knots in any part of sling
- Discoloration, brittle or stiff areas on any part of the sling which may mean chemical or ultraviolet damage
- Missing or illegible sling identification
- Other damage that would cause doubt

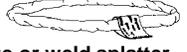


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**Polyester Web Slings—
Removal from Service**

- Acid or caustic burns
- Evidence of heat damage or weld splatter
- Broken or damaged core yarns
- Knots in any part of sling
- Discoloration, brittle or stiff areas on any part of the sling which may mean chemical damage
- Holes, tears, cuts, abrasive wear, or snags that expose the core yarns
- Missing or illegible sling identification
- Other damage that would cause doubt



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Let's do an inspection?

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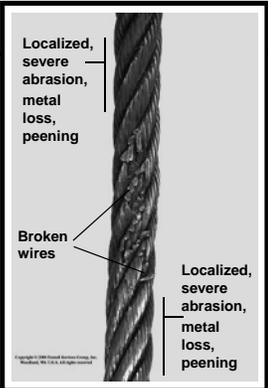
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Identify the Damage

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answer



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Identify the Damage



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<p>CRANES</p> <p>WIRE ROPE</p> <p>FABRICATION</p> <p>HARDWARE</p> <p>SLINGS</p> <p>FIELD SERVICE</p>		answer

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<p>CRANES</p> <p>WIRE ROPE</p> <p>FABRICATION</p> <p>HARDWARE</p> <p>SLINGS</p> <p>FIELD SERVICE</p>		Identify the Damage

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<p>CRANES</p> <p>WIRE ROPE</p> <p>FABRICATION</p> <p>HARDWARE</p> <p>SLINGS</p> <p>FIELD SERVICE</p>		answer

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<p>CRANES</p> <p>WIRE ROPE</p> <p>FABRICATION</p> <p>HARDWARE</p> <p>SLINGS</p> <p>FIELD SERVICE</p>		Identify the Damage

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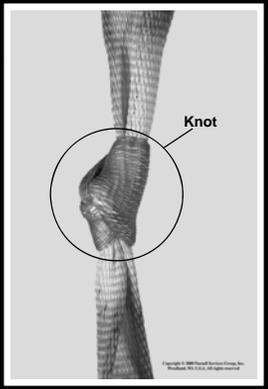
<p>CRANES</p> <p>WIRE ROPE</p> <p>FABRICATION</p> <p>HARDWARE</p> <p>SLINGS</p> <p>FIELD SERVICE</p>		answer

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<p>CRANES</p> <p>WIRE ROPE</p> <p>FABRICATION</p> <p>HARDWARE</p> <p>SLINGS</p> <p>FIELD SERVICE</p>		Identify the Damage

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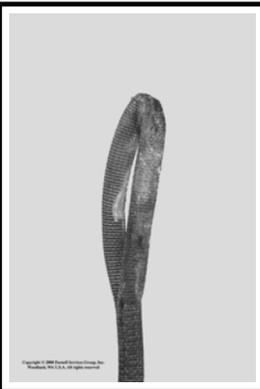


Knot

answer

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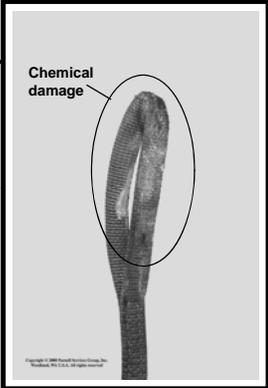
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HARDWARE
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Identify the Damage

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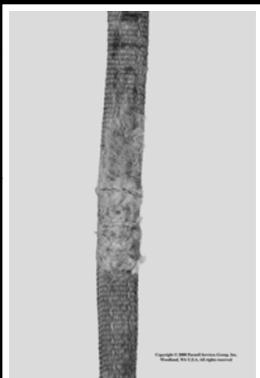


Chemical damage

answer

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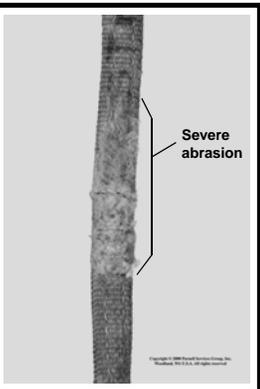
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Identify the Damage

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Severe abrasion

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Identify the Damage

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Elongation

Severe gouge

Twisted links

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Identify the Damage

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Bent link

Elongation

answer

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Identify the Damage

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Homemade master link

Missing identification

Bent, twisted and elongated links

answer

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Identify the Damage

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Deformation
Homemade device
Missing identification

answer

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Identify the Damage

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No mfr's markings (other side?)
Welded, Heat damage
Substandard bolt

answer

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Oval Safety Coupling & End

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Thank You for Attending!

Want more information?

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- Office: 440.239.7000 ext. 212
- Cell: 216.410.1765
- www.mazzellalifting.com

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