MASTERLINK

Issue 106

2013

Happy New Year!

What are your 2013 rigging resolutions?

ACRP
Association of Crane & Rigging Professionals

1.800.690.3921
248.994.4312
Fax: 248.994.4313
28175 Haggerty Road
Novi, MI 48377
www.acrp.net

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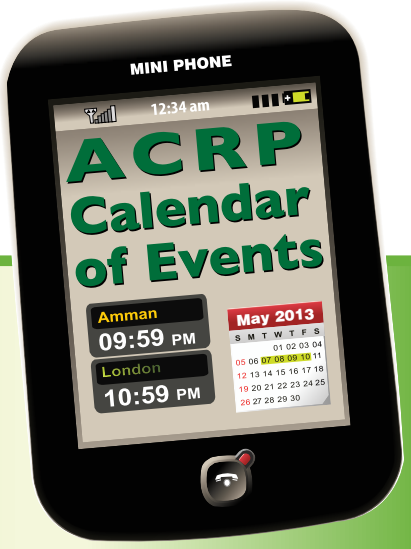
2013 Election Ballots will be sent to the membership

reminder that membership dues must be current in order to vote



2013

April 28 - May 1	AWRF Meeting & P.I.E. Omni Fort Worth Fort Worth, Texas
May 6 - 9	WSTDA Spring Meeting The Meritage Resort & Spa Napa, California
May 7 - 10	**ACRP General Assembly** **El Tropicano Riverwalk Hotel** **San Antonio, Texas**
May 15 - 16	ASME B30 Meeting Holiday Inn Denver Cherry Creek Denver, Colorado
July 19 - 20	AWRF Board of Directors Hotel Viking Newport, RI
August 14 - 15	AWRF Technical Committee Crowne Plaza Novi, MI
October 15 - 17	WSTDA Fall Meeting Sax Chicago - A Thompson Hotel Chicago, IL
October 20 - 23	AWRF General Meeting Century Plaza Hyatt Regency Los Angeles, California

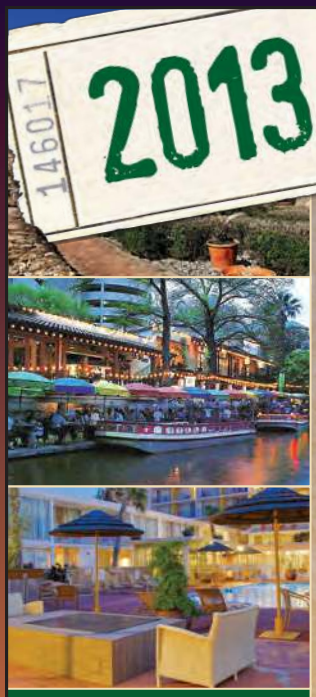
2014

April 27 - 30	AWRF General Meeting Marriott Waterfront Baltimore, MD
October 26 - 29	AWRF General Meeting & P.I.E. Hyatt Regency St. Louis at the Arch, St. Louis, MO

GENERAL ASSEMBLY

May 7th - 10th, 2013

San Antonio, Texas



Special rates available at the beautiful

El Tropicano Hotel
110 Lexington Avenue
San Antonio, TX 78205
1.877.214.9768
www.eltropicanohotel.com
$109.00/Single | $109.00/Double

Come Learn at the

Association of Crane & Rigging Professionals

General Assembly

SAN ANTONIO, TEXAS

May 7-10, 2013

Speakers include:

the Crosby Group Inc. · HI · FLUOR · BARNHART · Vestas · Industrial Training International · MAMMOET · bp

Press Partners include:

CRANE & RIGGING HOT LINE · WIRE ROPE EXCHANGE · AMERICAN CRANES & TRANSPORT ACT

ACRP Association of Crane & Rigging Professionals

Registration Information:
800.690.3921
acrp.net

Dedicated to Improving Crane and Rigging Activities

Agenda:

Tuesday, May 7th
- Golf Tournament & Softball Game

Wednesday, May 8th
Breakfast
- Crane & Rigging Jeopardy: Crosby
- Case Studies of Super Critical Lifts: Mammoet
- Wind Turbine Lifting Considerations: Donald Strong, PE, Vestas
- Offshore Rigging: George Watson, Holloway Houston

Lunch
- Breakout Workshop: Wire Rope Splicing
- Breakout Workshop: Chain Sling Mechanical Assembly & Inspection
- Breakout Workshop: Wire Rope Inspection
- Breakout Workshop: Crane Simulator Rodeo – Mobile, Tower, Overhead Cranes

Thursday, May 9th
Breakfast
- Critical Lift Planning Interactive Workshop: Mike Parnell, Industrial Training International
- What is a Rigging Engineer's Function: FLUOR

Lunch
- Breakout Workshop: Mobile Crane Inspection
- Breakout Workshop: Crane Pads- DICA FIT System Training
- Breakout Workshop: SMPT Transporters
- Crane Operator Rodeo Results

Friday, May 10th
Breakfast
- Heavy Intermodal Lift & Transport- Engineering Considerations: Jim Yates, Barnhart Crane & Rigging
- Oil & Gas Lifting Challenges: Don Jordan, BP

A.C.R.P. GENERAL ASSEMBLY REGISTRATION FORM

May 7th – 10th, 2013 San Antonio, TX

El Tropicano Riverwalk Hotel
110 Lexington Avenue
San Antonio, TX 78205
*Call in: **877.214.9768** OR e-mail to: **reservations@eltropicanohotel.com***
$109.00/night (single or double) + applicable taxes
GROUP CODE: Association of Crane & Rigging Professionals – reserve your room before April 14th.

"Dedicated to Improving Crane and Rigging Activities in all Industries"

- Hands on Break Out Sessions
- Informative Case-Study Topics
- Rigging Jeopardy
- Table top space available for your products and samples. Call our office for sizes.
- Registration fee for ACRP Members is $525.00 per attendee. Non-Member fee is $595.00 per attendee.
- Spouse registration or ACRP retired member fee is $150.00
- The golf fees are in addition to the registration fee
- *The fee includes: 2 receptions, 3 hot breakfasts, 2 lunches, banquet dinner, entertainment and presentation materials.*
- NO REFUNDS AFTER April 15th, 2013

*******On-Line registration at www.ACRP.NET*******

Name of Attendee	Company	Email Address	First Time Attendee?
			___ YES ___ NO
			___ YES ___ NO
			___ YES ___ NO
			___ YES ___ NO
			___ YES ___ NO

Golf Tournament – Tuesday May 7th – The fee is $75.00 per player at **The Quarry** (w/lunch at the turn). The outing is Tuesday afternoon; first tee time is **11:30 am**. Premium clubs $65.00/set ***The Quarry Golf Club*** 444 East Basse Road San Antonio, TX 78209 P: (210) 824-4500 www.Quarrygolf.com

Name of Player	Handicap or Av. Score	Rental Clubs?	Right or Left handed	Transportation Needed? Y/N

SUMMARY OF FEES

ACRP Member Registration @ $525.00 _____ _____ Non-Member Registration @ $595.00 _____ _____

Spouse or
ACRP Retired Member Registration @ $150.00 _____ _____

Tuesday Golf Tournament
Fees @ $75 per player _____ _____

Tuesday Frisbee Golf _____
(Included in registration fee)

Sponsorship Donation _____ **Grand Total** _____

CREDIT CARD INFORMATION

Card Type:_____ Card Number:_____ Expiration Date:_____

CVV2/CID (3 or 4 digit code) _____ Signature:_____

Card Holder's Name:_____ E-mail address for receipt:_____

Press Release

True Rigging & Lifting Pros to Present in San Antonio at ACRP's Annual Event

The Association of Crane & Rigging Professionals (acrp.net) is pulling out all the stops in 2013 for its General Assembly meeting in San Antonio, Texas, May 7 – 10, 2013. The conference is scheduled to include presentations, hands-on breakout sessions on live equipment and the annual ACRP golf tournament.

Presentations include:

- Wind Turbine Transportation, Installation, Service & the Unexpected by Donald Strong, PE, of Vestas Wind Systems
- Offshore Rigging by George Watson of Holloway Houston
- Critical Lift Planning Interactive Workshop by Mike Parnell of Industrial Training International
- What is a Rigging Engineer's Function? by Bryan Miller, PE of Fluor
- Heavy Intermodal Lift & Transport: Engineering Considerations by Jim Yates, PE or Barnhart Crane & Rigging
- Lifting Challenges that face the Oil and Gas Industry by Don Jordan of BP

Breakout sessions include:

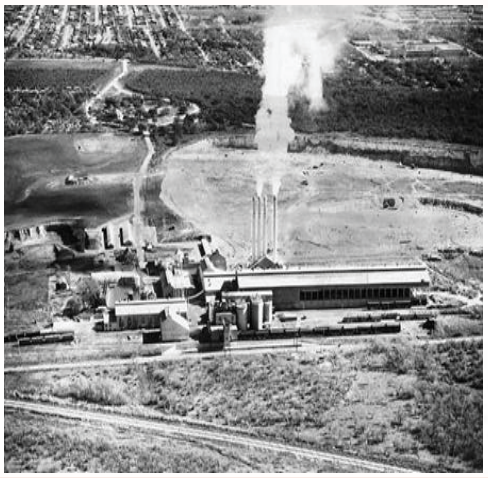
- Crane & Rigging Jeopardy by Danny Bishop of The Crosby Group
- Crane & Rigging Jeopardy by John Hellums of Bishop Lifting
- Wire Rope Splicing, Chain Sling Mechanical Assembly & Inspection, Wire Rope Inspection by Delta Rigging & Tools
- Crane Simulator Rodeo – Mobile, Tower, and Overhead Cranes – by North America Crane Bureau.
- Mobile Crane Inspection by Alamo Crane Service
- Mobile Crane Pads & Crane Setup by DICA
- SPMT Introduction: Transportation through Innovation by Mammoet

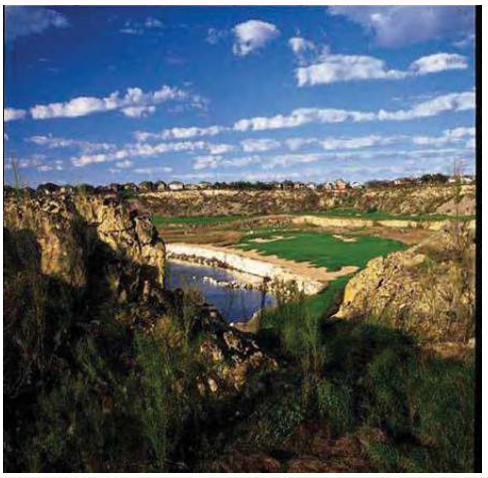
Event media partners include Wire Rope Exchange, Maximum Capacity Media and American Cranes & Transport.

To learn more or register for the event, please visit **acrp.net** or contact Caren VanZant at **1-800-690-3921** (caren@acrp.net).

ACRP 2013 General Assembly Golf Outing

Tuesday, May 7th





The Quarry Golf Club
444 E. Basse Road
San Antonio, Texas

Famous for supplying the cement for the State Capitol of Texas, the original rock quarry closed down in 1983 after nearly 100 years of operation. One tradition simply paved way for another, resulting in the unparalleled Quarry Golf Club Experience.

The Quarry Golf Club opened in 1993 after an award-winning design by Keith Foster. Careful chiseling of stone gave birth to a course unmatched ever since.

7th Most Unique Course in America!

ACRP IS BOOMING

Association of Crane & Rigging Professionals

New Members please give them a warm ACRP welcome!

Houston International Insurance Group
Kevin Cunningham

Industrial Training International
Patrick Dower
Fernando Ferraz Alves
Alberto Gomez Rocha
Alex Faris
Steve Miles

Cortland Company
John Sheehan

The Crosby Group
Steven Walker

Stephenson Equipment
Ray Feidt

Wire Rope Exchange
Melissa Hood

ExxonMobil Corporation
John Fisher

Flint Hill Resources
Joe Peterson

Jeff Boat LLC.
Troy Higdon

J.F.White Construction
Marty Golden

Apex Tool Group/Campbell Chain
Rodney Long

Columbus McKinnon
Rodney Reynolds

Tec Associates
Jack Wentzell

Overton Safety Training
Cody Fisher
Richard Hernandez
Tim Fay

Allied Insurance Brokers
Jeffrey McGeary

DICA
Kevin Koberg

Retired Member
Roger "Skip" Ohman

Systems Engineering and Forensic Services
Bransford Pickett

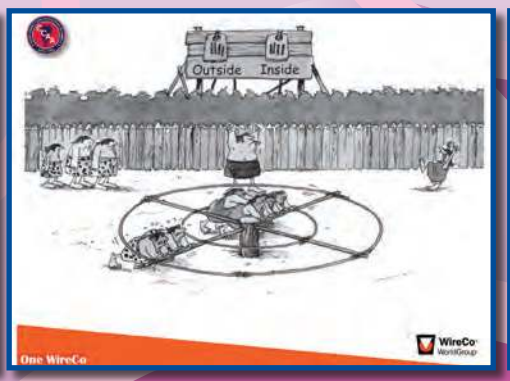
Basic Rigging Answers

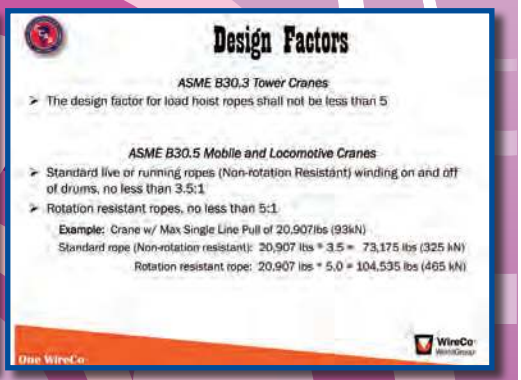
s g s e c i t c a r p e f a s w s e
w e d g e s o c k e t s t l t h s h
s s s g n i l s b e w a i a a g c o
s e h c t i h r e k o h c c n n i o
m a s t e r l i n k s s k i d i t k
t n a e r a h s d a o l r t a g e s
e g s d o a i g h i e t b r r g h k
s s t o f c e s n s s r e d i t c
l s l u g r o u l i e n i v s r n o
d t o d r a t i o i l m d e r o y l
t e b i a n c h a i n s l i n g s b
e n e c v e b l e d d g e a e s i e
k s y i i s l u i e n s s l t j s h
s i e p t o e r c a l t l w d e o e
a o i e y b a k s k e a i r i i m c
b n e r r o u n d s l i n g s v r a
s l v n w i r e r o p e g t l s e b
e l s o y i s l a n g i s d n a h l

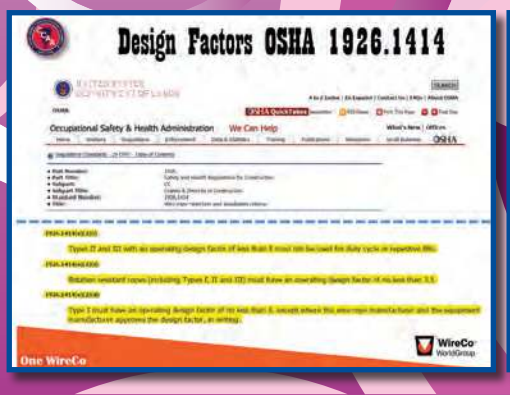
WireCo WorldGroup

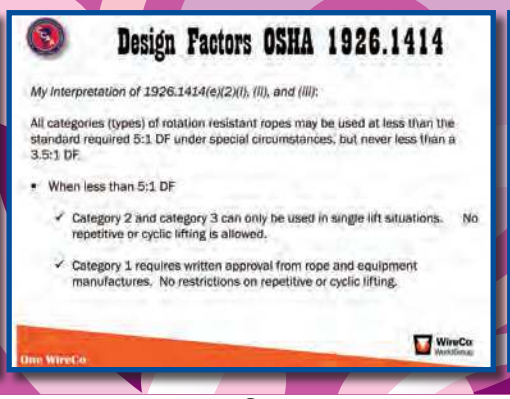
John F. Groce, P.E.
Senior Product Engineer
WireCo WorldGroup
816-270-4757

Rotation Resistant Wire Ropes









Category 1 Rotation Resistant Ropes

35X7 (34X7) Compacted & Standard Strand Classes

Main Hoist
- Lattice Boom Crane
- Telescopic Mobile Crane
- Hydraulic Truck Crane
- Pedestal Crane
- Tower Crane

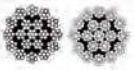
Auxiliary Hoist
- Lattice Boom Crane
- Telescopic Mobile Crane
- Pedestal Crane

Category 2 Rotation Resistant Ropes

19X7 & 19X19 Compacted & Standard Strand Classes

Significant resistance to rotation
At least 10 outer strands
Two or more layers around a center

Union 19X7 & 19X19 – 12 standard outer strands
FLEX-X 19 – 12 compacted outer strands



LT 24 K – 12 compacted outer strands OLIVEIRA

Category 2 Rotation Resistant Ropes

19X7 & 19X19 Compacted & Standard Strand Classes

Main Hoist
- Lattice Boom Crane
- Telescopic Mobile Crane
- Hydraulic Truck Crane
- Pedestal Crane
- Tower Crane

Auxiliary Hoist
- Lattice Boom Crane
- Telescopic Mobile Crane
- Pedestal Crane

IMPORTANT
should not be used with a swivel !

Category 3 Rotation Resistant Ropes

8-strand & 9 -strand

Limited resistance to rotation
No more than 9 outer strands
Two layers around a center

8X19S-IWRC RTW – 8 standard outer strands

Union

8X19S/25F RTW

Category 3 Rotation Resistant Ropes

8-strand & 9 -strand

Auxiliary Hoist
- Lattice Boom Crane
- Telescopic Mobile Crane
- Pedestal Crane

IMPORTANT
should not be used with a swivel !

Tower Crane

Main Hoist
- Category 1 Rotation Resistant
- XLT®
- Category 2 Rotation Resistant
- FLEX-X 9 Regular Lay
- 8X26WS-IWRC Regular Lay

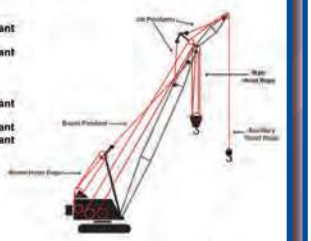
Trolley Rope
- FLEX-X 7 CC
- TURBOPLAST
- STRATOPLAST
- HD 8 K PPI
- 7-FLEX Regular Lay
- 6X26WS-IWRC Regular Lay

Lattice Boom / Crawler Crane

Main Hoist
- Category 1 Rotation Resistant
- XLT®
- Category 2 Rotation Resistant
- FLEX-X 6 Regular Lay
- 6X26WS-IWRC Regular Lay

Auxiliary Hoist
- Category 1 Rotation Resistant
- XLT®
- Category 2 Rotation Resistant
- Category 3 Rotation Resistant

Boom Hoist
- FLEX-X 9
- TURBOPLAST
- HD 8 K PPI
- FLEX-X 6 Regular Lay
- Flattened Strand
- 6X26WS-IWRC Regular Lay

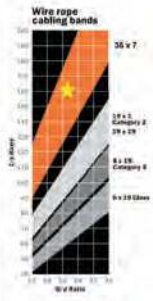


Determining Rigging Geometry

- Length of Fall = L
- Number of parts of line
  - ✓ Odd # of lines - Dead end @ block
  - ✓ Even # of lines - Dead end @ point
- Sheave Spacing = S
  - ✓ Point
  - ✓ Load block
- Diameter of sheaves = D
  - ✓ Point
  - ✓ Load block
- Diameter of rope = d

L/S = length of fall ÷ average sheave spacing
D/d – average sheave diameter ÷ diameter of the rope

- L – length of fall from center point of load block to center point of point sheave
- S – average diagonal spacing of point sheaves and load block
  - 2 – part reeving
    S = average diagonal spacing of point sheaves and load block
  - 3 – part reeving
    S = 2/3 of 2 – part
  - 4 – part reeving
    S = average diagonal spacing of point sheaves and load block
  - 5 – part reeving
    S = 4/5 of 4 – part
  - 6 – part reeving
    S = average diagonal spacing of point sheaves and load block
  - 7 – part reeving
    6/7 of 6 – part reeving



End Terminations

- Wedge Sockets
- Swaged Buttons
- Spelter Buttons
- Taper Welds
- Seized Ropes

End Terminations

Approximate efficiencies applicable to a rope's minimum breaking force (MBF)

	Efficiency	
Type of Termination	Rope with IWRC	Rope with fiber core
Wire Rope Socket (Spelter or Resin)	100%	100%
Swaged Socket (Regular lay ropes only)	100%	Not Recommended
Wedge Sockets*	75% to 80%	75% to 80%
Wire Rope Clips*	80%	80%

* Refer to fittings' and clips' manufacturers for exact values and methods of attachment.

Source: Wire Rope Technical Board's *Wire Rope User's Manual 4th Edition*

WEDGE SOCKET

BASIC REQUIREMENTS FOR PROPER TERMINATION

LIVE LINE IN LINE WITH PIN

PROPER TAIL LENGTH:
(6 to 8 strand wire rope)
AT LEAST 6 DIAMETERS, NOT LESS THAN 6"
(rotation resistant wire rope)
AT LEAST 20 DIAMETERS, NOT LESS THAN 6"

SECURE TAIL, DO NOT "CLIP" TO LIVE LINE

APPLY FIRST LOAD TO SEAT WEDGE

Resin Spelter Buttons for Terex Crane Hoist Ropes

Resin Spelter Buttons for Liebherr Crane Hoist Ropes

Continued on page 16

Association of Crane and Rigging Professionals – ACRP

Why Join?

The Purpose:

The Association is dedicated to Improving Crane Operations & Rigging Activities in all Industries.

Everyone benefits by:

Receiving up-to-date information through e-mail, newsletter briefs and national meetings. This relevant information helps to support smart, on-the- job crane and rigging decisions.

Acquiring effective training procedures that eliminate redundant efforts, reduces employee injuries and decreases risk management costs.

Gaining new techniques in providing superior quality crane and rigging training from a membership of industry experts.

Having better trained employees. Specific training is conducted at each General Assembly with the emphasis placed on continuing education within the membership.

Networking opportunities. Having access to communicate and interact with members from corporations to independent business owners.

Why join ACRP? - Isn't it better to be SAFE on the job, rather than SORRY?

ACRP – 28175 Haggerty Rd., Novi, MI 48377 • Phone: 800.690.3921 • Fax: 248.994.4313
www.acrp.net • caren@acrp.net

Association of Crane & Rigging Professionals

Membership Application Form

Company Name: _____ **Website:** _____

Primary Member Name: _____ **Title:** _____

Additional Member Name(s): _____

Mailing Address: _____

City: _____ **State / Province:** _____

Zip or Postal Code: _____ **Email Address:** _____

Phone: _____ **Fax:** _____

Membership Category (Select One):

Professional Member:	☐	an individual or entity that provides crane, rigging or lift equipment training, consulting, engineering, inspection or related services for hire as its primary revenue source.
Corporate Member:	☐	an individual or entity that provides crane, rigging or lift equipment training, consulting, engineering, inspection or related services; not for hire; for fellow employees of a single employer, as an in-house service.
Associate Member:	☐	an individual that does not qualify as a professional or corporate member, but has an interest in the crane, rigging and lift equipment industries and the work of the ACRP group.

Annual Membership Dues

$495.00 – primary member per calendar year
$135.00 – each additional member from the same organization

Payment Method (all funds are USD): ☐ Check (payable to "ACRP") Check #

☐ Visa ☐ Mastercard ☐ American Express

Credit Card #: _____ Expiration Date: _____

Name on Card / Signature: _____ Date: _____

Association of Crane & Rigging Professionals
28175 Haggerty Road
Novi, MI 48377
P: 800.690.3921 / +248.994.4312 (international) www.acrp.net Fax: +248.994.4313

In Memory Of

Travis L. Buhler

"I have lost my love and my best friend, Travis, of 14 years, on Sunday, October 14, 2012". He was a loving husband, partner, dad, brother and uncle. His joy was spending time fishing and hunting with his family and friends, as well as restoring classic automobiles, which was his passion that he learned from his dad. Travis was born in Baton Rouge on March 19, 1968, and grew up in Baker where he graduated from high school in 1986. He resided in Watson, LA with his wife, Chris. He was employed at ExxonMobil in Baton Rouge as a lift specialist and motorized task force supervisor, and also served as a member of the ExxonMobil ELIRT Strike Team. Pallbearers will be Chad Randall, Donnie Neilson, Donnie Samson, John "Opec" Fisher, Hosie Hayes, and Horace Young. Honorary pallbearers are Todd Thompson, Jeff Allen, Ray Hardison, Billy Williams, and David Bush. Travis had a big heart when it came to helping people, and would therefore like donations made to St. Jude Children's Research Hospital.

Basic Rigging Word Search

s g s e c i t c a r p e f a s w s e
w e d g e s o c k e t s t l t h s h
s s s g n i l s b e w a i a a g c o
s e h c t i h r e k o h c c n n i o
m a s t e r l i n k s s k i d i t k
t n a e r a h s d a o l r t a g e s
e g s d o a i g h i e t b r r g h k
s s t o f c e s n s s s r e d i t c
l s l u g r o u l i e n i v s r n o
d t o d r a t i o i l m d e r o y l
t e b i a n c h a i n s l i n g s b
e n e c v e b l e d d g e a e s i e
k s y i i s l u i e n s s l t j s h
s i e p t o e r c a l t l w d e o e
a o i e y b a k s k e a i r i i m c
b n e r r o u n d s l i n g s v r a
s l v n w i r e r o p e g t l s e b
e l s o y i s l a n g i s d n a h l

Alloy
Blocks
Center of Gravity
Cranes
Hand Signals
Hoists
Load Share
OSHA
Round Slings
Slings
Swivel
Tension
Web Slings

Angle
Bridle Sling
Chain Slings
D to d ratio
Hitches
Hooks
Masterlinks
Pins
Safe Practices
Standards
Synthetics
Turnbuckles
Wedge Sockets

Basket
Bridle Slings
Choker HItch
EyeBolts
Hoist Rings
JIB
Metal Mesh Slings
Rigging
Shackles
Steel
Tags
Vertical
Wire Rope

ACRP Association of Crane & Rigging Professionals + Top Trainer 2013 = AWESOME

Momentum for your Marketing Message

Mighty MO Media Partners LLC

Media Contact:
Tracy Bennett
816-536-7903
tbennett@mightymomedia.com

ACRP Endorses 2013 and 2014 Top Trainer Program

Top Trainer 2013

January 14, 2013—Maximum Capacity Media, publisher of *Crane & Rigging Hot Line* magazine, announces that the Association of Crane & Rigging Professionals (ACRP) will continue its endorsement of the annual Top Trainer recognition program into 2014. ACRP has supported the program since 2011.

Each year trainers are recognized in two categories, Professional and Corporate, for having a positive impact on students, the work environment, or the industry. ACRP's mission of improving crane operations and rigging activities through education is closely aligned with the purpose of the Top Trainer program.

"It is a natural fit and honor for ACRP to endorse the Top Trainer awards program," said Danny Bishop, ACRP Chairman of the Board and Corporate Director of Training for The Crosby Group, Tulsa, Okla. "The crane and rigging industry is safer because of the efforts of trainers, consultants, inspectors, and others who teach others how to apply standards and regulations and who provide sound, practical advice for improving crane and rigging operations. The program acknowledges their work and contribution to the industry."

"Whether it's recognizing innovative equipment or outstanding individuals, Maximum Capacity Media (MCM) has a long history of supporting and promoting excellence in the crane, rigging, and lifting equipment markets. ACRP's expertise in the development of national quality standards for training and qualification processes is invaluable to the Top Trainer program," said Katie Parrish, Editorial Director of MCM.

ACRP member representatives will assist the MCM editorial staff with judging the nominations. The association will also provide complimentary registrations to each of the Top Trainer winners in 2013 and 2014 to attend the 2014 and 2015 General Assembly meetings. Other prizes, including training or educational scholarships, are supported by sponsors.

According to Guy Ramsey, MCM President and Publisher, last year's Top Trainer program was a resounding success. "Several changes to the rules and submission process contributed to a 48 percent increase in nominations in 2012 over the previous year. In addition, the quality of submissions has dramatically improved since the Top Trainer program was established in 2008," he said.

The 2012 winners, Brian Fuller, Southeast Regional Safety Manager for All Erection & Crane Rental Corp., and Don Jordan, President of American International Crane, will be recognized at an awards ceremony at the 2013 ACRP General Assembly meeting to be held May 7-10 in San Antonio, Texas.

Nominations for this year's program can be made online , and will be accepted through August 31, 2013.Go to: https://maxcapmedia.wufoo.eu/forms/2013-top-trainer-awards-nomination/

The Association of Crane and Rigging Professionals (ACRP) is a nonprofit association whose mission is dedicated to improving crane operations and rigging activities in all industries. For more information, visit www.acrp.net.

Maximum Capacity Media is publisher of *Crane & Rigging Hot Line, Lift and Access, Industrial Lift & Hoist*, and *Lift & Hoist International*. It also produces CRC/ICHC, Lift and Access Showcase & Symposium, The Crane Operator Rodeo, and other industry events.

Hotel Information for General Assembly

In August of 1962, El Tropicano Riverwalk Hotel opened its doors and what a glorious hotel it was. Having the distinction of being the first hotel built on the beautiful, historic San Antonio River, El Tropicano Motor Hotel – as it was known then – was the local headquarters for visiting presidents and movie stars. Named the "Texas Whitehouse" when President Johnson was in office, El Tropicano served as a second home for the first family.

And now, El Tropicano is back, with its familiar name and trademark philodendron leaf. Our doors are open to all of San Antonio and visitors alike as you take the opportunity to see this iconic hotel – a tribute to the original but with a modern, tropical, Latin flair.

El Tropicano Riverwalk Hotel

110 Lexington Avenue *Call: 877.214.9768*
San Antonio, TX 78205

www.eltropicanohotel.com

Group Code: Association of Crane and Rigging Professionals

SPECIAL ACRP RATE!
$109.00/night + taxes SINGLE OR DOUBLE ROOM
Book your reservation before
Sunday, April 14th!

Did You Know?

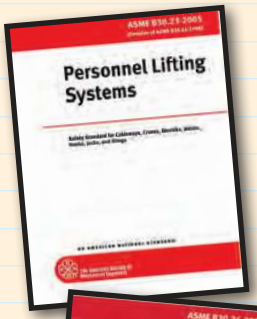
Danny Bishop
Corporate Director of
Value Added Training
The Crosby Group LLC

I hope that each of my fellow ACRP members is doing well! And most importantly it is my sincere desire that each of you will be making plans to attend the May 2013 General Assembly in San Antonio, TX. One of the main reasons for coming for a lot of members is to increase their awareness and knowledge of manufacturer recommendations, and standards that pertain to our industry. With that said please take a few minutes to tackle the "Rigging Standards Quiz" below:

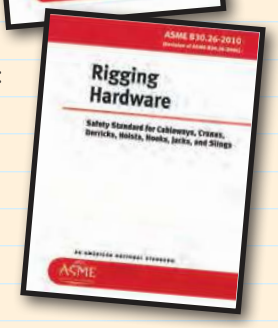
Rigging Standards Quiz

1. OSHA (29 CFR) standards are considered as:
   - A. Third Party Standard
   - B. Industry Consensus Standard
   - C. Statutory (Legal Requirements)

2. CFR stands for:
   - A. Code of Federal Register
   - B. Common Federal Requirements
   - C. Code of Federal Regulations
   - D. Clearly Fun Requirements

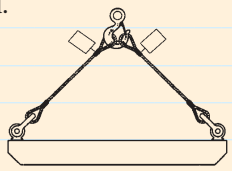


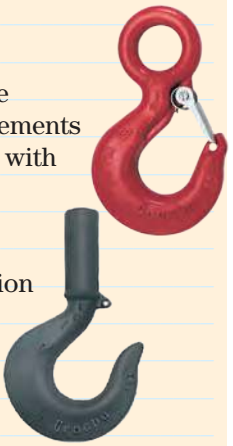
3. ASME Standards are considered as:
   - A. Third Party Standards
   - B. Consensus Standards
   - C. Statutory (Legal Requirements)



4. Consensus Standards are legally required:
   - A. Never
   - B. When incorporated into CFR
   - C. When insurance companies require

5. Per ASME B30.9, slings formed by _____ do not need to be proof tested.
   - A. Flemish Eyes
   - B. Turnback Eyes
   - C. Swage and Spelter sockets





6. ASME B30.10 (2009) added the following identification requirements for hooks used in conjunction with other B30 equipment:
   - A. Type of material
   - B. Manufacturer's identification
   - C. Rated load identification
   - D. Both B & C are correct

7. According to the new OSHA Standard 1926.1400, a "qualified" rigger is required:
   - A. During assembly & disassembly of the crane
   - B. When employees are engaged in hooking and unhooking or guiding the load, or in initial connection of the load & are in the fall zone
   - C. Only when load exceeds 2,000 pounds
   - D. Both A & B are correct (More than one answer may be possible)

Answer key:
1. C
2. C
3. B
4. B
5. A
6. D
7. D

Perhaps the quiz was a breeze for many of you, or perhaps it posed a few challenges to some. Either way, it is a small sample of the type of knowledge that can be obtained when you choose to attend the ACRP General Assembly. I hope to see each of you in San Antonio!

Danny Bishop
ACRP Board Member
The Crosby Group

Continued from page 7

End Terminations

A high performance, category 1, rotation resistant rope is one that displays little or no tendency to rotate under its associated normal industry standard loading. This rope property is a result of special designs and unique rope structures. The structure of one of these ropes must be maintained and requires special care when terminating the ends. Loss of structure can result in unbalances in the rope's individual strand components that will affect its strength and rotation resistant properties. For rope lengths that do not require special button terminations, a proper taper weld termination is required to keep the rope's structure intact thereby preserving its category 1 rotation resistant property and its strength.

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End Terminations

With the exception of category 1 rotation resistant ropes and ropes possessing the same rotational characteristics as one, any end preparation that results in the welding, brazing, or fusing of the rope must be cut off in a manner that leaves the strands and wires free to adjust before the rope is clamped or seated in an end termination. Welded ends must remain on the ends of category 1 rotation resistant ropes.

TAPERED AND WELDED END

SEIZED AND TORCH CUT WITH ENDS FUSED

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End Terminations

Even though a standard rope may have been preformed, when it is to be cut, it should be carefully seized to prevent displacement or relative movement of the wires or strands. At least one tightly wrapped seizing equal to one rope diameter should be applied to either side of the cut area prior to cutting.

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PRODUCT BULLETIN

Wire Rope Installation on Mobile Cranes

Wire rope is an integral part of the mechanics that are necessary for mobile crane operation and, like any other mechanical part, it performs best when installed correctly.

Two factors are key to proper installation no matter what type of equipment, or which wire rope is being used: making sure the rope is free of twist and assuring that the rope is tightly spooled on the drum.

CASAR Germany | OLIVEIRA Portugal | Union USA

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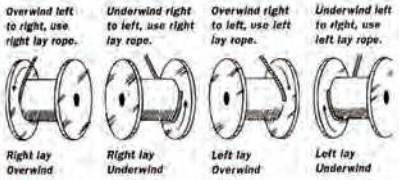
Rope Installation

HOW TO DETERMINE THE PROPER DIRECTION OF DRUM WINDING.



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Rope Installation

- Entire Length (best method)
  - Apply Pre-tension
  - Lower Layers Must be Tight

- Tight Quarters (method may trap twist)
  - As far apart as possible
  - Apply Pre-tension
  - Lower Layers Must be Tight
  - Watch the fleet angles during installation

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Rope Installation

A wire rope must never be passed through wood or other material blocks to pre-tension a rope during installation

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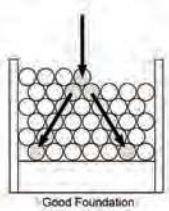
Rope Installation



Good Foundation

Make sure the foundation layer is spooled tightly.

Never Use a Steel Hammer

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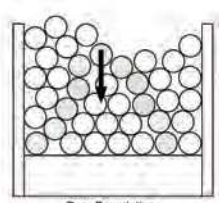
Rope Installation



Poor Foundation

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Rope Installation

- Before proceeding with reeving, check for twist

- Break-in period
  - Reeve so that with boom fully extended, 3 wraps left on drum
  - Lift 2%-3% MBF load and hold off of ground for a few moments
  - Raise and lower completely several cycles
  - Increase load to 20% - 50% of maximum working load
  - Raise and lower completely through several cycles

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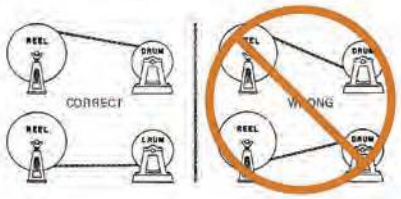
Sources of Twist



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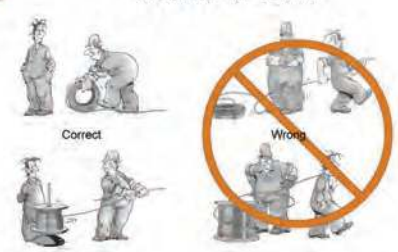
Sources of Twist



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Sources of Twist

- Never weld the ends of ropes together to string up a crane (or any other application)

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Sources of Twist

- Never weld the ends of ropes together to string up a crane (or any other application)
- Use Kellems® Grips or similar type product with swivel

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Sources of Twist

- Improper rope transfer from drum to drum and handling
- Welding old rope to new rope for installation
- Load induced torque due to the use of swivels
  - Swivel must be locked prior to lifting when using standard ropes (non-rotation resistant) or Category 2 & Category 3 rotation resistant ropes
  - Category 1 rotation resistant and low torque ropes may be used with a swivel
- Excessive fleet angles – Plastic vs Steel sheaves
- Running rope through wood (or other material) blocks to pre-tension.
- Running rope over shape edges or over small diameter objects

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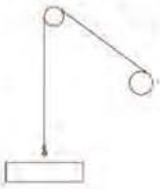
Sources of Twist



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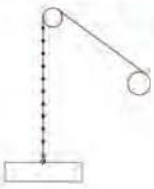

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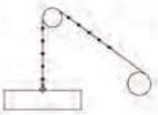

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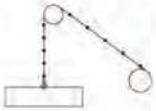

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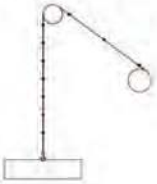
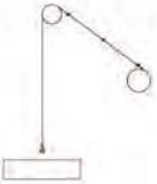


Sources of Twist



Block Twisting/Cabling/Rotation

- Torque
  - Torque in the rope that is not free to rotate causes twist
- Twist
  - Is what you see in the rope

Diagnosing Source of Block Rotation

- Block Twisting Dynamics
- Diagnosing Cause of Block Rotation

	Loaded – Block Rotates	Loaded Block Doesn't Rotate
Unloaded – Block Rotates	Probably Geometry	Twist in Rope
Unloaded – Block Doesn't Rotate	Unstable Geometry	No Problem!

Wire Rope Manufacturing Specifications

- USA
  - *ASTM A 1023 – Standard Specification for Stranded Carbon Steel Wire Ropes for General Purposes*
  - *RR-W-410 – Federal Specification, Wire Rope and Strand*
- Europe
  - *EN 10264-1 – Steel wire and wire products, Steel wire for wire rope*
  - *EN 12385-4 – Steel wire ropes–Safety, Stranded ropes for general lifting applications*
  - *DIN 3057 thru DIN 3071*
- China
  - *GB/T 20118 – Steel wire ropes for general purpose*
  - *GB 8918 – Steel wire ropes for important purposes*
- Japan
  - *JIS G 3525 – Wire ropes*

Crane Rope Usage Standards (Safety)

- USA – ASME B30 Series Standards
  - Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings
- Germany – DIN 15020
  - Lifting Appliances; Principles Relating to Rope Drives
- ISO 4309
  - Cranes – Wire ropes – Care, maintenance, installation, examination and discard

These are not wire rope manufacturing specifications.
Ropes cannot be produced to 'meet' these documents.

Crane Rope Usage Standards (Safety)

ASME B30 – Safety Standards for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings

- B30.2 Overhead and Gantry Cranes
- B30.3 Tower Cranes
- B30.4 Portal and Pedestal Cranes
- B30.5 Mobile and Locomotive Cranes
- B30.6 Derricks
- B30.7 Winches
- B30.8 Floating Cranes and Floating Derricks
- B30.16 Overhead Hoists (Underhung)

Crane Rope Inspection and Retirement Criteria are Found Within These Volumes

Crane Rope Inspections

- Wire rope is a consumable item
- Inspection is necessary to determine remaining useful service life
- All ropes should be visually inspected each day
- A thorough inspection should be performed at least monthly
- Inspection records should be kept
- Inspections need to be performed while the rope is unloaded and relaxed
- Inspections need to be performed by a competent person
- Rope Retirement is Based on Local Governing Standards

Crane Rope Inspections

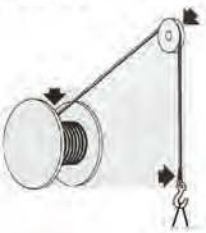
Recommended Tools

- An awl or Martin spike
- Caliper, Circumference Tape (pi tape)
- Tape measure
- Two groove gauges
- Paper
- Marking chalk or stick
- Writing utensil
- Experience and application may lead to additional tools

Crane Rope Inspections

Critical Inspection Areas

- Pick-up points
- Diameter and lay length
- Broken wires
- End connections
- Sheave and drum grooving
- Drum pitch
- Abuse points
- Equalizer sheaves
- Heat exposure



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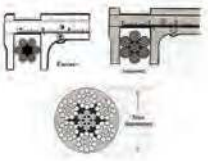
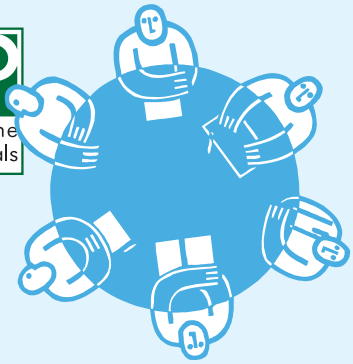


ACRP Association of Crane & Rigging Professionals



At the Board of Director's meeting on February 1st, each of the Committee Chairs reported an outline of their plan for 2013.

The Chairmen of the Committees below would also like to bring you the membership up to speed on their programs.

Any Member interested in joining a Committee, please contact the Chairman directly.

Training and Public Safety

The Committee is dedicated to publishing guidelines for Tower Crane Inspectors and Tower Crane Operator training.

Michael Barrett, J.F. White Contracting

Regulations and Standards

The Committee presented the document, Top 10 Crane Standards Cited by OSHA.

Ron Overton, Overton Safety Training

Member Services

The focus will remain on Membership Recruitment both main memberships as well as increasing members from the same company. As well as, Quarterly Mailings to provide added value for the membership and reviewing the ACRP logo for a possible updated look.

Terry Driscoll, John Sakach Company of St. Louis

Long Range Planning

Looking to project 1+ year out on General Assembly locations.

Tom De Soo, I & I Sling/SlingMax

Nominations

The Nominations have been completed and the Ballot will be sent out by Wednesday, March 6th

The Committee would like to remind you - Dues must be paid current for the right to vote.

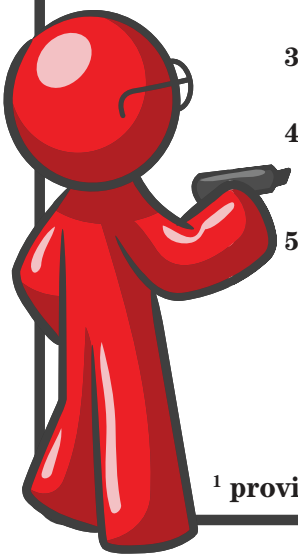
Mike Riggs, The Rigging Institute

General Assembly Meeting

Solid speakers and topics for General Assembly. Hands-On Training. Centrally located in San Antonio, TX. Traffic generated from marketing efforts are trending to be the best attended General Assembly in ACRP history.

Tom Gilbert, Cianbro & Zack Parnell, ITI

OSHA Top 10 Crane Standards Cited[1]



1. **1926.1428(a)**
   Signal person not qualified
2. **1926.1425(c) (3)**
   Materials not rigged by qualified rigger.
3. **1926.1428((a)(3)**
   No documentation for signal person
4. **1926.1412(f)(1)**
   No annual inspections performed by a qualified person
5. **1926.1408(a)(2)**
   No determination for working radius closer than 20 feet to a power line.
6. **1926.1417(c)(1)**
   Operators manual, load charts, hazard warnings, ect. not in the cab at all times
7. **1926.1412(d)(1)**
   A determination for safety was not made by competent person after a deficiency was noted during a visual inspection.
8. **1926.1412(e)(3)i)**
   Monthly crane inspection results, missing or signed documentation not maintained.
9. **1926.1412(f)(2)**
   Inspections not performed annually by a qualified person or as specified.
10. **1926.1411(f)(2)(xvii)**
    Missing labels supplied by the manufacturer.

[1] **provided by Wayne Oswald, Executive Director, Houston Business Roundtable**

Crane Rope Inspections

Critical Inspection Areas

- Pick-up points
- Diameter and lay length
- Broken wires
- End connections
- Sheave and drum grooving
- Drum pitch
- Abuse points
- Equalizer sheaves
- Heat exposure

ASME B30.3–2009 Tower Cranes

Rope Diameter	Maximum Allowable Reduction From Nominal Diameter
Up to 5/16 in. (8 mm)	1/64 in. (0.4 mm)
Over 5/16 in. to 1/2 in. (13 mm)	1/32 in. (0.8 mm)
Over 1/2 in. to 3/4 in. (19 mm)	3/64 in. (1.2 mm)
Over 3/4 in. to 1 1/8 in. (29 mm)	1/16 in. (1.6 mm)
Over 1 1/8 in. to 1 1/2 in. (38 mm)	3/32 in. (2.4 mm)

One WireCo

WireCo WorldGroup

Crane Rope Inspections

Critical Inspection Areas

- Pick-up points
- Diameter and lay length
- Broken wires
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- Sheave and drum grooving
- Drum pitch
- Abuse points
- Equalizer sheaves
- Heat exposure

ASME B30.5–2011 Mobile & Locomotive Cranes

Reduction from nominal diameter of more than 5%

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Crane Rope Inspections

Critical Inspection Areas

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- Broken wires
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- Heat exposure

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Crane Rope Inspections

Rotation Resistant Rope Broken Wire Replacement Criteria

- Pick-up points
- Diameter and lay length
- Broken wires
- End connections
- Sheave and drum grooving
- Drum pitch
- Abuse points
- Equalizer sheaves
- Heat exposure

Standard	Title	# of Broken Wires Away from End Connection *		At End Connection
ASME B30.3	Tower Cranes	7 over 6 diameter s	4 over 30 diameter s	≠ 2
ASME B30.5	Mobile and Locomotive Cranes	2 over 6 diameter s	4 over 30 diameter s	≠ 2

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Crane Rope Inspections

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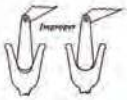

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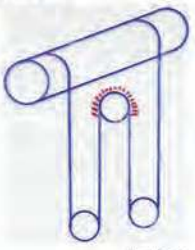

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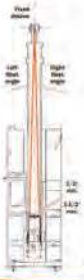
Equipment Evaluation Points

- Is an Active Swivel in use?
- Drum Alignment
- Installation Procedure
- Fleet Angles
- Point Sheaves
- Drum & Sheave Grooving
- Drum Flanges
- Lubrication



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Thank you for your attention

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Any questions please call

John F. Groce, P.E.
Senior Product Engineer
WireCo WorldGroup
12200 NW Ambassador Drive
Kansas City, MO 64163-1244
+1 (816) 270-4700

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