We Rig It Right!

The Professional Rigger®

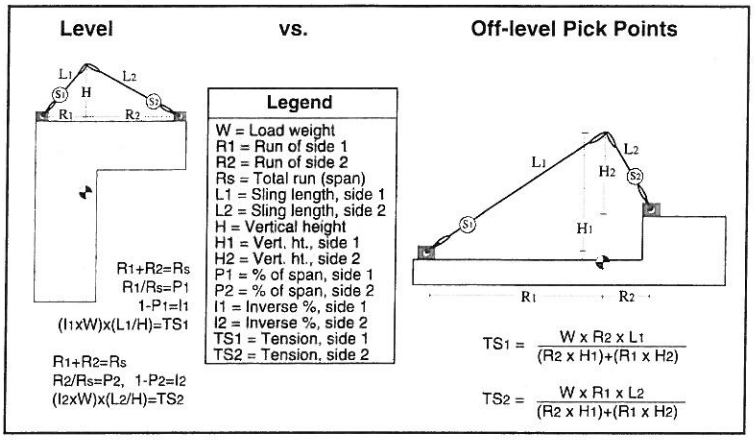
Volume 10 Number 1 Circulation 5,020 February 1995

TECHNICAL NEWS

Level vs. Off-level Pick Points

For a standard same-elevation lift, we first determine the distribution of weight at each pick point. Then we divide the sling's length by the head height, and multiply that "load factor" by the pick point weight. Arriving at the sling's tension, we can determine if the proper rigging is being used.

A phenomenon occurs in rigging when we are faced with hoisting a load which has its pick points on two different elevations. We can not use the simplified system described above but must use the long-hand method to determine sling tensions. If we attempt to use the simplified method to find sling tension in off-elevation picks, we discover that the lower elevation pick point and its sling are realizing more tension than anticipated. We can mistakenly overload the rigging gear if we do not predetermine the actual tensions to each sling leg.



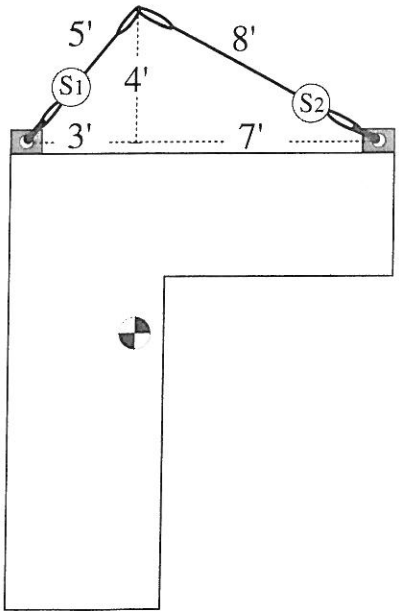
WRRC's - Master Rigger Card, Section 10

Try your hand at determining sling tensions for the following examples, using WRRC's Master Rigger Card, Section 10 . (Answer key on page 3, column 3.)

Load A - Level pick points
Load A Weighs 22,500 lbs.

TS1 = _____

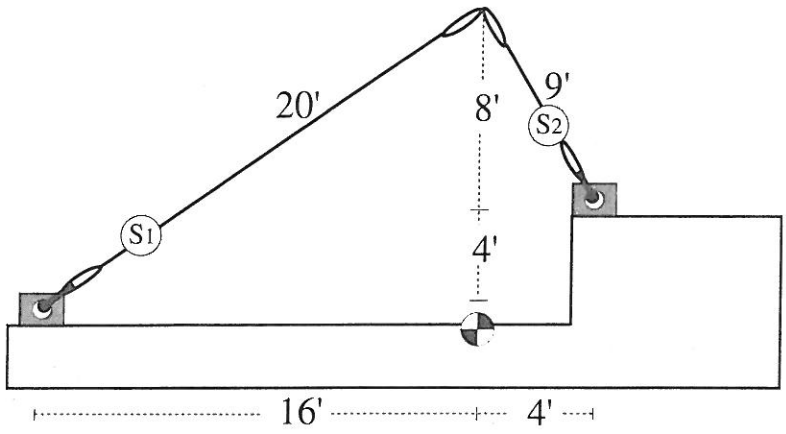
TS2 = _____



Load B - Off-level pick points
Load B Weighs 18,000 lbs

TS1 = _____

TS2 = _____



Attention Readers!

We are updating our mailing list. Please fill out the enclosed orange card and **return to us immediatly if you wish to continue receiving** issues of **"The Professional Rigger".** You **will not receive** future issues if this form is not returned.


IMPORTANT!
We are updating our mailing list
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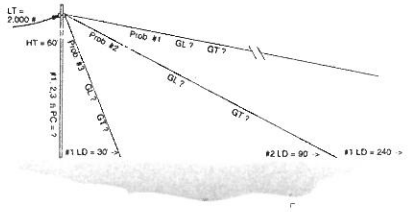
SAFETY TIPS

Taglines
Taglines should be used whenever possible when moving a load with either an overhead or mobile crane to inhibit the load from swinging and arrest its rotation. The use of taglines can help maintain stability. In cases where the use of a tagline could incur high voltage contact or cause other extreme hazards to the rigger, then taglines would not be advisable.

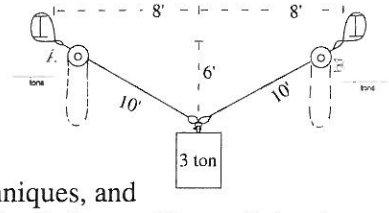
CLIENT NEWS

Bonneville Power Administration
WRRC was contracted to conduct 4 weeks of training for BPA. Subjects addressed were Rigging Gear Inspection, Traffic Control, Load Securement & Tie Down, Crane & Rigging Procedures, Crane Dynamics and Route Planning.

Carolina Power & Light
WRRC's Mr. Russ Donaldson conducted 5-weeks of Line Crew Rigging training for individuals at Carolina Power & Light's various plant sites. A combination of load rigging and line crew specific workshops were conducted during the hands-on sessions. Dynamometers were connected to various attachments on their practice dead-ending structure to help teach crew members how to calculate actual loads when securing guys and anchors.



Pacificorp
WRRC presented a 3-day Master Rigger Program for 12 participants at their Wyoming site. The program included drifting loads using two hoists, jacking & rolling, picking & turning, load leveling techniques, and inclined planes. The participants were required to predetermine loading within the rigging system before making the lift or movement.



The use of dynamometers during the hands-on sessions helped to reinforce or correct the estimation method used to calculate the actual loading being introduced at various points in the rigging system.

The Professional Rigger is a quarterly publication of Wire Rope & Rigging Consultants, Inc. It is distributed to those whose occupations require the safe and effective use of lifting and rigging equipment. For more information contact: Editor, The Professional Rigger, PO Box 728, Vancouver, WA 98666 (360) 256-5730.

OSHA / ANSI

Regulations and Standards
OSHA regulations or ASME/ANSI standards are printed here as a service to our clients.

SLINGS
[The following are from ASME B30.9-1991 - Slings]

Section 9-2.9 Operating Practices

(b) The weight of the load shall be within the rated load of the sling.

(c) Slings shall not be shortened or lengthened by knotting, by wire rope clips, or other methods not approved by the sling manufacturer.

(i) Personnel shall not ride the sling.

(k) Slings should not be pulled from under a load when the load is resting on the sling.

(s) Slings should be long enough so that the rated load is adequate when the angle of the legs is taken into consideration.

(t) Slings should not be dragged on the floor or over an abrasive surface.

(u) In a choker hitch, slings shall be long enough so that the choker fitting chokes on the wire rope body and never on the other fitting.

(v) Do not inspect a sling by passing bare hands over the wire rope body. Broken wires, if present, may puncture hands.

(w) Fiber core wire rope should not be subjected to degreasing or a solvent because of possible damage to the core.

(x) Single leg slings with hand tucked splices can be unlaid by rotation. Care should be taken to minimize sling rotation.

ANNOUNCEMENT

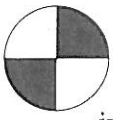
As of **Jan. 15, 1995** all (206) area codes for Parnell Services Group (PSG) phone numbers have changed to area code (360). Please make a note in your files and let your purchasing department know. The new numbers are listed below:

Wire Rope & Rigging Consultants
(360) 256-5730
Crane & Equipment Training
(360) 256-5832
Crane & Lift Inspections
(360) 256-2862
PSG's fax number will remain the same at (503) 286-8012

WRRC NEWS (CONT)

Rigging Rodeo will Highlight RTW 1995 - Portland, OR

WRRC will be presenting our Rigging Training Workshop 1995 in **Portland, OR April 4 - 6** (please see enclosed flyer). Workshop attendees will participate in Rigging Level I, II and III followed by Master Rigger sessions. Problem-solving training sessions address rigging applications which will challenge those who are new to rigging as well as the seasoned veteran. A crane & rigging accident case study and trainers' forum round out the event.



WRRC's Mobile Learning Center is used during the hands-on workshop and work stations include jacking & rolling, load drifting, crane dynamics, rigging towers, new material handling devices, rigging gear inspection, mobile cranes, wire rope applications, load control and hitch systems.

A highlight to the program will be a **Rigging Rodeo** with teams competing by rigging and moving a series of loads while receiving points and prizes for accurate load weight calculation, safety, communication and efficiency in accomplishing the task. **Call today to register, as seating is limited.**

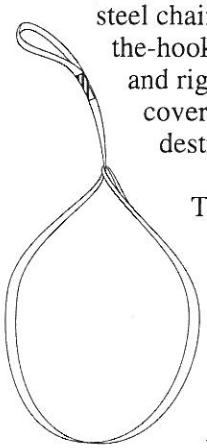
WRRC's Certified Inspector Program

Don't miss out on our next Rigging Gear Inspector's Course. The 1995 course dates for programs in Vancouver, WA are:

March 6-9, 1995
September 11-14, 1995
December 11-14, 1995

(Please see the enclosed flyer for more information.) Call WRRC today to register and reserve your place!

This course addresses inspection of wire rope, wire rope slings, synthetic web slings, alloy steel chain slings, below-the-hook lifting devices, and rigging gear, and covers proof and destructive testing.



The instructional format is based on OSHA CFR 29 1910, ASME B 30 series, ASTM A-391, and ASTM E-4. Participants are required to pass written tests and hands-on field inspections to successfully complete each section.

WRRC Training Programs

- Rigging Fundamentals
- Comprehensive Rigging
- Master Rigging
- Line Crew Rigging
- Rigging Gear Inspections
- On-site Rigging Inspections
- Crane & Rigging Management
- Socket Pouring Instruction
- Rigging Gear Testing
- Rigging Accident Investigation
- Lift Plan Procudures
- Fall Protection Testing
- Risk Hazard Analysis

These *activity-centered* and *performance-based* programs are conducted on site and can be customized to meet the individual needs of our clients. Call today for a proposal.

Level vs. Off-level Pick Points

[from pg. 1]

Load A - TS1
3 + 7 = 10
3/10 = .30
1 - .30 = .70
(.70 x 22,500) x (5/4) = 19,688
19,688 lbs. = TS1 (Tension Side 1)

Load A - TS2
3 + 7 = 10,
7/10 = .70
1 - .70 = .30
(.30 x 22,500) x (8/4) = 13,500
13,500 lbs. = TS2 (Tension Side 2)

Load B - TS1

$$TS1 = \frac{18{,}000 \times 4 \times 20}{(4 \times 12) + (16 \times 8)}$$

$$TS1 = \frac{1{,}440{,}000}{176}$$

TS1 = 8,181 lbs.

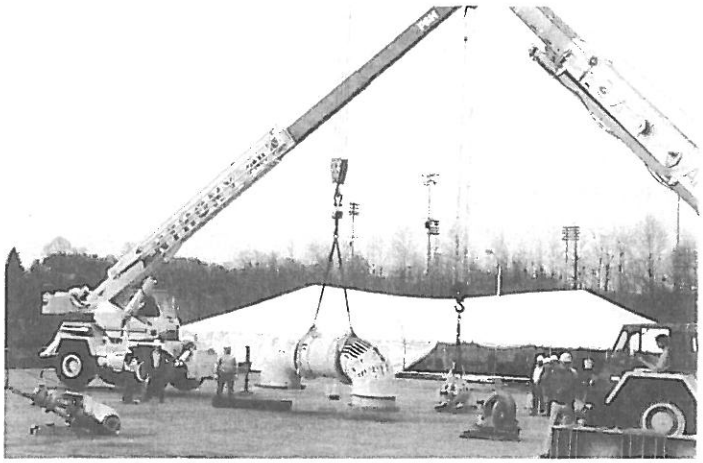
Load B - TS2

$$TS1 = \frac{18{,}000 \times 16 \times 9}{(4 \times 12) + (16 \times 8)}$$

$$TS1 = \frac{2{,}592{,}000}{176}$$

TS1 = 14,727 lbs.

Rigging Training Workshop 1995



PORTLAND

CRANE & EQUIPMENT TRAINING, INC. • PO Box 728, Vancouver, WA 98666 • Bus (360)256-5832

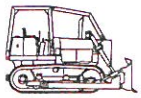
Training Services

- Mobile Cranes
- Overhead Cranes
- Bulldozers
- Backhoes
- Front-end Loaders
- Fork Lifts
- Man-Baskets (SPP)
- Scrapers
- Trenchers
- Bucket Trucks
- CDL
- Load Securement
- Aerial Work Platforms
- Snow Cats

FERMCO

CET's Mr. Harley Gist conducted three weeks of Heavy Equipment Operator Training and one week of Mobile Crane Inspector Training for individuals at FERMCO's Cincinnati, OH location.

The course focused on upgrading the operators' skill level and the quality of pre-operational inspection practices. Participants were given various job task assignments to complete, and evaluations of their operating techniques were documented.



Idaho Power

CET was contracted to provide Mobile and Bridge Crane Operator Training for operators at IPCo's Hells Canyon location. A mix of mobile hydraulic, lattice boom and overhead bridge and gantry cranes were in the collection of qualifying equipment.

Sulzer Bingham

Portland, OR was the site of a 3-day Bridge and Gantry Crane Inspector Program. A total of four operators participated in the training which required hands-on performance inspections using daily, monthly and annual checklists.

CRANE & LIFT INSPECTIONS, INC. • PO Box 728, Vancouver, WA 98666 • Bus (360)256-2862

Inspection Services

- Overhead Cranes
- Gantry Cranes
- Forklifts
- Mobile Cranes
- Aerial Work Platforms
- Bucket Trucks
- Man-Baskets (SPP)
- Container Cranes
- Monorail Cranes
- Manual, Air & Elec. Hoists
- Jib Cranes
- Winching Systems

Oregon / Washington

CLI's Dave Pelkey performed a series of tests/inspections for the following clients over the last 3 months.

- U.S. Coast Guard
- Burlington Northern Railroad
- Associated Seafood Co.
- Nelson Crab
- Valley Rental, Inc.
- Brumfield Construction Co.
- Boise Cascade
- Westport Seafood Exchange
- Marinos Seafoods Inc.
- Northwest Pipe & Casting
- Chinook Packing Co.

On the "Slope"

CLI's affiliate company in Anchorage, AK, Alaska Crane & Lift Inspections, Inc. (ACLI) recently renewed their contract with ARCO to perform annual inspections on ARCO's various cranes.