



# The Professional Rigger®

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May 1999

## TECHNICAL NEWS

### How Different yet Similar

Whether we rig a load with slings or use a piece of structural strand to dead-end a power pole, greater tensions are produced if angles are involved. These angles are simply the relationship of three sides of a triangle, in most cases length, height and run.

Though we believe each industry is quite different in its work activity, sometimes the challenges are very similar. By using reference panels from WRRC's rigging cards, solve for the tensions in the two problems shown at the right and below. See Page 4, Column 3 for the Answer Key.

### Problem 1

Find Guy Tension (GT) using the formula below.

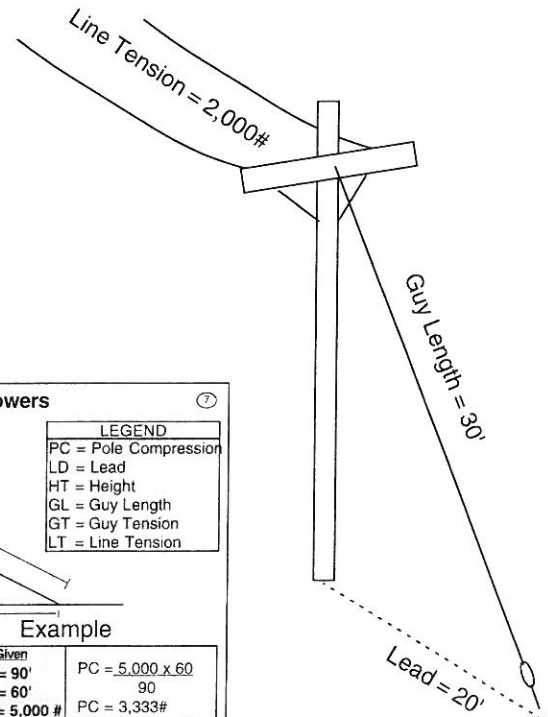
**Dead-ending Poles & Towers**

**LEGEND**  
 PC = Pole Compression  
 LD = Lead  
 HT = Height  
 GL = Guy Length  
 GT = Guy Tension  
 LT = Line Tension

**Example**

FORMULAS		Find	Given
$GL = \sqrt{HT^2 + LD^2}$	$PC = \frac{LT \times HT}{LD}$	PC = ?	LD = 90'
$GT = \frac{LT \times GL}{LD}$	$LT = \frac{LD \times GT}{GL}$	GL = ?	HT = 60'
		GT = ?	LT = 5,000 #

**Lineman's Rigging Reference Card**



### Problem 2

Find Sling Tension (Ts) using the formula below.

**Load Factors & Weight Distribution**

Tension in s =  $\frac{\text{length s}}{\text{length h}} \times \text{share of load wt.}$   $\frac{s}{h} = \text{Load Factor}$

Given: length s = 10' and length h = 8' What is tension in s?

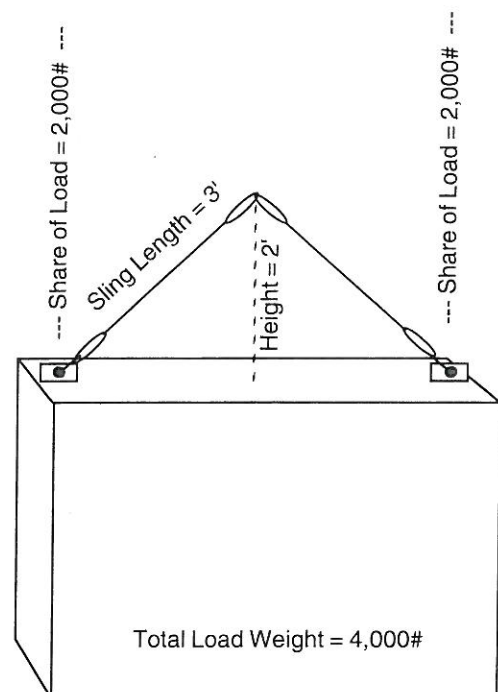
Solution: Tension in s =  $\frac{10}{8} \times 5,000$  Ts = 1.25 x 5,000 Ts = 6,250#

How much tension in chain come-a-long A?

Tension in A =  $\frac{6}{3} \times 4,000$  Tension in A = 8,000 #

**Journeyman Rigger's Reference Card**

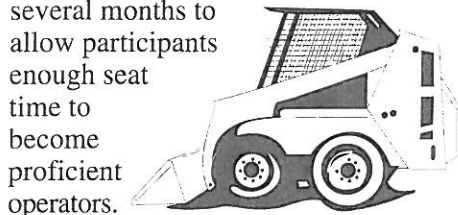
Share of Load Wt. @ A	Share of Load Wt. @ B	Legend
$R_1 + R_2 = TS$	$R_1 + R_2 = TS$	$R_1 = \text{Run, Side 1}$
$R_2 = P$	$R_1 = P$	$R_2 = \text{Run, Side 2}$
$\frac{TS}{P \times W} = \text{Share of Load Wt. @ A}$	$\frac{TS}{P \times W} = \text{Share of Load Wt. @ B}$	$TS = \text{Total Span}$
		$P = \text{Percentage}$



## CLIENT NEWS

### FERMCO

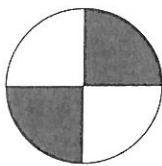
CET was asked to present Heavy Equipment Operator Training for 27 individuals who will be involved in hazardous clean up for the DOE facility. Track Excavators, Frontend Loaders, Rough Terrain Forklifts and Skid Steers are the four types of equipment participants will be instructed on. The training, which consisted of classroom workshops followed by hands-on operating exercises, was conducted over several months to allow participants enough seat time to become proficient operators.



CET instructors then returned to conduct individual operator proficiency evaluations. Subjects addressed included pre-operational inspections.

### Ponderay Newsprint

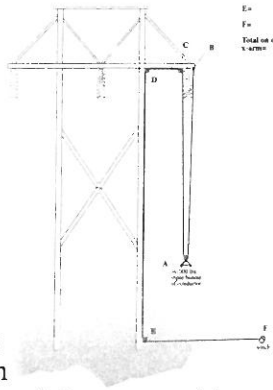
WRRC's Instructor Russ Donaldson conducted a Rigging Fundamentals Program for five plant maintenance personnel. The one day program consisted of both classroom and hands-on workshops addressing such subjects as hitches & pick points, rigger's checklist, rigging gear inspection and jacking & rolling.



The Professional Rigger  
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Wire Rope & Rigging Consultants.  
It is distributed to those whose  
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### Carolina Power & Light

A total of 37 individuals attended two 2-day Lineman Rigging Programs in Raleigh, NC. Determining guy length & guy tension and calculating pole compression were just a few of the many subjects addressed during the programs. Major strong points, as identified by the participants, included load weight calculations, the use of dynamometers and learning how to choose the proper rigging equipment for the job.



### Frick

WRRC was asked to present a two-day Comprehensive Rigging Program for 14 individuals in Waynesboro, PA. Attendees were instructed in rigging gear inspection, load weight calculating and finding the center of gravity.

### PG&E

Ms. Corene Bennett asked CET to provide Heavy Equipment Operator Training for two individuals at PG & E's Wallula, WA site. During the classroom portion, the participants were instructed in pre-operational checks and safe operating practices. After completing written exams, participants practiced operating techniques on the Dozer, backhoe, grader and forklift.

## Mobile Crane Operator Programs

### City of Portland

Mr. Richard Herington contracted CET to present a five-day Mobile Crane Operator Program for 12 operators at their Portland, OR facility. The performance based hands-on sessions required the operators to make a number of decisions and lifts using the crane in a variety of configurations.

### NW Alloys

CET presented a five-day Mobile Crane Operator Program for 7 participants at their Addy, WA site. Mr. Ken Dahlke coordinated the program which was conducted by CET instructor T.J. Tejchman. The course consisted of both classroom and hands-on instruction including a series of "live-load" moving exercises.

### Glenrock Coal

Ten individuals attended a five-day Mobile Crane Operator Program at Glenrock's facility in Wyoming. Participants identified load weight calculating, selecting the proper rigging gear to use and how to read the crane's load chart as the major strong points of the program.

### NW Natural

CET Instructor Dave Pelkey presented a two-day Mobile Crane Operator Program for 4 individuals at NW Natural's Salem, OR location.

Attendees unanimously agreed that the hands-on based program was packed with the kind of good concise information every crane operator should know. Subjects included load chart interpretation, leverage, static/dynamic loading, load weight calculations and daily inspection.

### Idaho Power

Mr. Rod Kolson requested CET to present Mobile and Bridge Crane Operator Certification Programs at their facility in Boise.

A total of 24 participants attended the programs which focused on safe and efficient use of hydraulic boom types cranes and Bridge Cranes. The operators performed a series of lifts and were evaluated according to their abilities with the cranes.



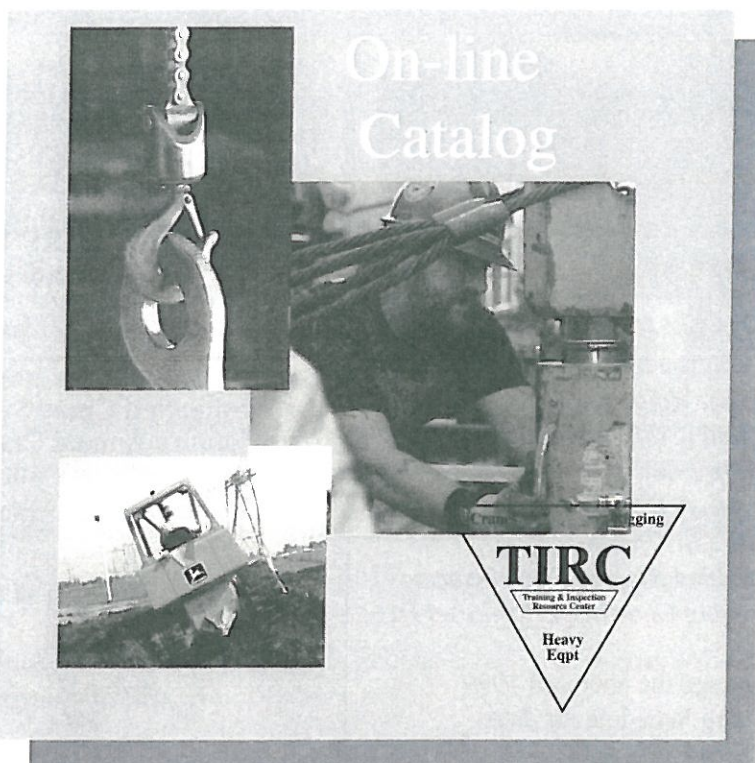
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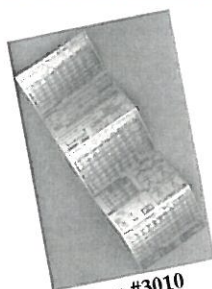
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### Training & Inspection Resource Center



- Welcome
- Books & Reference Manuals
- Handbooks & Guides
- Videotapes
- Pocket Reference Cards
- Tools & Field Equipment
- Training & Instructional Sets
- Models & Miscellaneous
- Calendar of Events

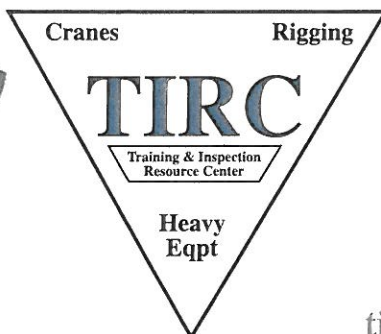
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## WRRC NEWS

### Training Facility E-X-P-A-N-D-S

In order to accommodate the increased demands for open enrollment training programs, WRRC & CET have expanded their Woodland based training facility.

The new facility will include a 3,000 sq. ft. classroom, accommodating 50 additional students, and a 6,000 sq. ft.



indoor area, containing WRRC's entire Mobile Learning Center, which will be available for use year-round.

Attendees will be able to move from the classroom directly to the hands-on workshops and apply the techniques used and discussed in the class. This approach to training helps attendees better absorb and retain the information presented.

The new training facility is expected to open July 1, 1999.



### SIGN UP NOW!

WRRC & CET are offering training at their *new* corporate facility in Woodland, WA. The programs, which have been well attended, offer instruction in a variety of subjects.

All of the programs consist of written workshops followed by hands-on exercises which help put into practice the concepts and techniques taught in the classroom.

**The remaining programs scheduled for 1999 include:**



- *Journeyman Rigger*
- *Master Rigger*
- *Mobile Crane Inspector*
- *Boom Truck Operator*
- *Crane & Rigging Management*
- *Fork Lift Operator*
- *Certified Rigging Gear Inspector*
- *Rigging Gear Inspector-Level III*

Please see the enclosed 1999 Training Schedule for dates and times.

To register call WRRC & CET today at: **(800) 727-6355**



## INDUSTRY NEWS

### ACRP

The Association of Crane and Rigging Professionals is gearing up for their 5th National Assembly and Workshop which is scheduled to take place June 3rd-5th, 1999 in Harrisburg, PA. Some of the special events planned include field trips to Grove Cranes, ACCO Chain & Lifting Products Div., and Campbell Chain.

For more information about the ACRP contact Suzanne Stilwill, Executive Director at:

### ACRP

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Email: [acrp.net](mailto:acrp.net)

\* Visit the new ACRP Web Site:  
[www.acrp.net](http://www.acrp.net)

Over 150 individuals attended the Washington Crane Safety Association's Annual Crane Safety Conference February 4th & 5th in Tacoma, WA.



## WORKSHOP

Answer Key for Page 1

1.  $GT = (LT \times GL) / LD$   
 $GT = (2,000 \times 30) / 20$   
 $GT = 60,000 / 20$   
 $GT = 3,000 \text{ lbs.}$
2.  $Ts = (Ls / Lh) \times \text{Share of Load}$   
 $Ts = (3 / 2) \times 2,000$   
 $Ts = 1.5 \times 2,000$   
 $Ts = 3,000 \text{ lbs.}$