

TECHNICAL WORKSHOP

Lift and Turn

A fairly simple method to upright a load is to lift with a crane while moving horizontally. In this workshop you are asked to determine the loading in all five stages of lifting.

Study Panel 2 of the Journeyman Rigger's Reference Card (pictured at right). See how the illustrations on this page relate to the information on the rigging card.

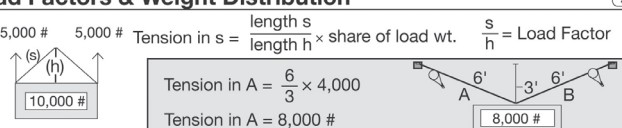
Quiz: Determine the loading in lbs. for each of the following (Check your answers on Page 3).

Journeyman Rigger's Reference Card Panel 2

Load Factors & Weight Distribution (2)

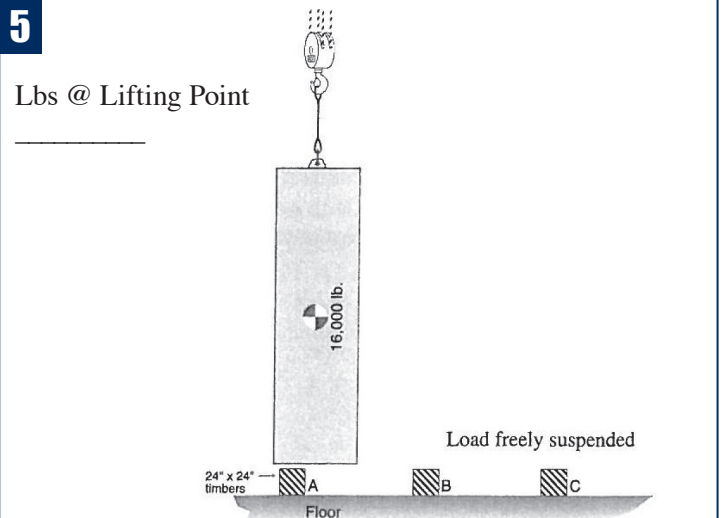
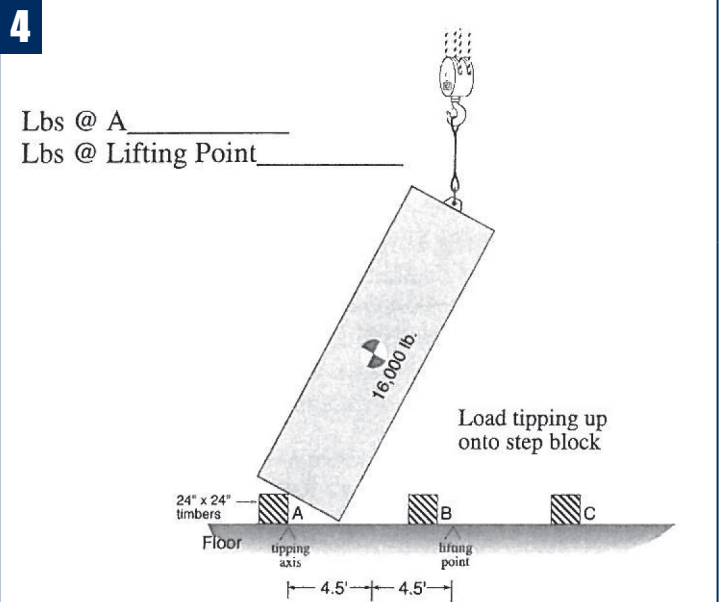
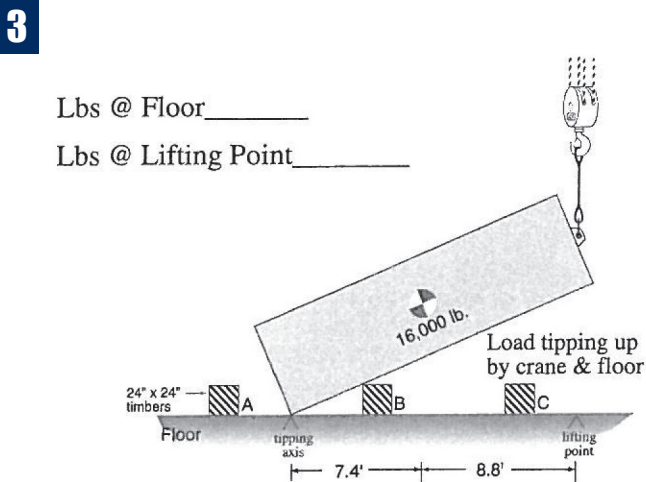
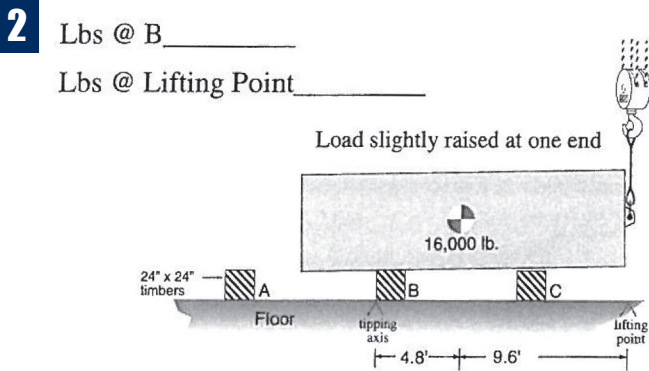
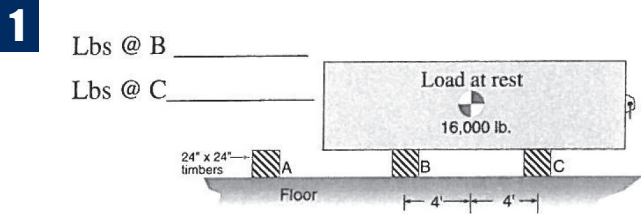
5,000 # 5,000 # Tension in s = $\frac{\text{length } s}{\text{length } h} \times \text{share of load wt.}$ $\frac{s}{h} = \text{Load Factor}$

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



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

Known Weights		CG In Feet From A	CG In Feet From B	Legend
$W_1 + W_2 = TW$	$W_1 + W_2 = TW$	$W_1 = \text{Weight at A}$	$W_2 = \text{Weight at B}$	$TW = \text{Total Weight}$
$W_2 = P$	$W_1 = P$	$P = \text{Percentage}$	$P \times S = \text{CG in ft. from A}$	$P \times S = \text{CG in ft. from B}$
$P \times S = \text{CG in ft. from A}$	$P \times S = \text{CG in ft. from B}$			$S = \text{Span}$



During the Ice Age, giant glaciers covered North America for hundreds of square miles surrounding the Great Lakes region. Leaving behind small ponds and giant lakes, the huge ice sheets moved southward. Now, snow-white fallow deer are part of the landscape. And now Bob Schumacher works diligently at this same location which happens to be where Enrico Fermi unleashed the first controlled nuclear chain reaction. Bob, on the other hand, is using his considerable talents to teach new skills to hungry minds. Can you guess where he is?



For those who respond with the correct answer to training@iti.com, we will be sending you a complimentary Mobile Crane Operator Reference Card. These are easy-to-read cards that cover mobile cranes, overhead cranes and rigging. They make excellent training supplements for the workplace.

Hint: Located here is one of the nation's leading federally funded Department of Energy research and development centers, named after a forest in France.



Does Your Company Work Overseas?

ITI is in the process of expanding its services in North and South America and Asia. We are busy fact-finding and researching the landscapes. With the intentions of operating in Brazil, Canada and Singapore, we are interested to know if your company has personnel working in these regions.

In the past 25 years, ITI has grown thanks to our great customers who are dedicated to improving their lifting activities and safety. We have met demand overseas since ITI's inception from our US-base; now, the demand for high-quality training services is calling on ITI to be closer to the customer.

We could use your help! Please let us know about your company's activities in these regions of the world.

Please visit iti.com/global

ITI Bookstore Industrial Training INTERNATIONAL

A World Leader in Crane and Rigging Resources

- Reference Cards
- Handbooks & Manuals
- CD's & Videotapes
- Inspection Forms & Checklists
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- ASME Standards
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- Tools & Field Equipment
- ...and much more



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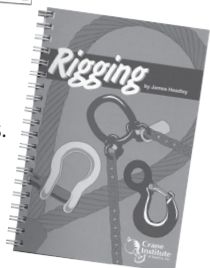
Mike's Rigging Mysteries
(4.25" x 5.5", softbound, 11 booklet boxed set)
This series of books contain over 100 informative and educational rigging workshops, and hours of fun problem-solving activities.
Item 7000 - \$49.95



ITI Qualified Signalperson Testing Package
Includes: an examiner guide, practical examiner script, practical exam score sheet, 15 written exams, answer key, qualification card template and qualification certificate template. Item 4150 - \$395.00

Rigging Handbook

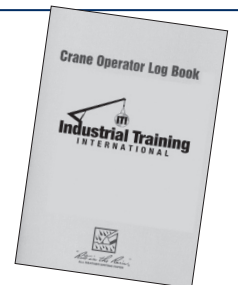
(4.5" x 6.75", softbound)
Contains up-to-date information on wire rope, rigging hardware and slings.
Item 2600 - \$21.95



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Crane Operator Log Book

(4.5" x 7", softbound)
Keep detailed records of operator hours in this unique all-weather book.
Item 9012 - \$9.95



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What is Your Company's Training Strategy?

Does your company have a strategy to train its 50, 200, or 5,000-person workforce in lifting activities? ITI Training Solution Experts are here to help our world-class customers build their Corporate Crane & Rigging Training Strategy.

Our well-rounded training strategy solutions include:

ITI Training Centers

Comments like "the most incredible training facility" is often uttered when customers and students visit ITI Woodland and ITI Memphis. These two, fully-equipped crane & rigging training centers are terrific for sending one to five students to fully understand a program before blending other training solutions.

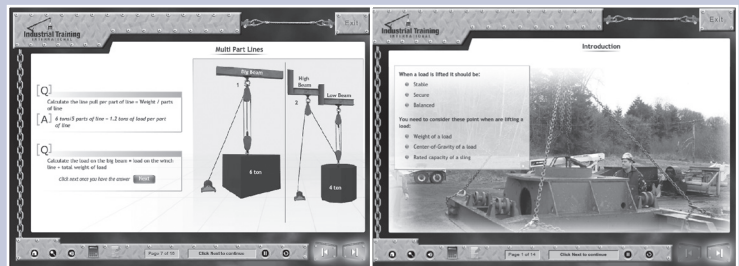


On-Site Training

ITI trainers are the most highly experienced instructors in the industry with extensive backgrounds not only in lifting and rigging activities, but also across all major and general industries. They bring our customized, hands-on programs to your facility with a 100% satisfaction-guarantee.

E-Learning

ITI's online courses will revolutionize how you blend your training experience. E-Learning can be used as course curriculum for your in-house instructors or self-paced learning for all your employees. On-Site and Training Center Hands-On Learning compliment this solution incredibly well.



★ ITI Training Solution Experts ★

ITI is a world leader in crane and rigging training and we will find the most efficient and cost-effective solution to train your workforce.

1.800.727.6355



★ **3 Case Studies** ★
on How to Build a Corporate
Crane & Rigging Training Strategy

Answers to Workshop on Page 1:

- | | | | |
|---|---|--|--|
| 1) $4 + 4 = 8, 4 / 8 = .50$
.50 x 16,000 = 8,000 lbs @ B
$4 + 4 = 8, 4 / 8 = .50$
.50 x 16,000 = 8,000 lbs @ C | 2) $4.8 + 9.6 = 14.4, 9.6 / 14.4 = .67$
.67 x 16,000 = 10,720 lbs @ B
$4.8 + 9.6 = 14.4, 4.8 / 14.4 = .33$
.33 x 16,000 = 5,280 lbs @ LP | 3) $7.4 + 8.8 = 16.2, 8.8 / 16.2 = .54$
.54 x 16,000 = 8,640 lbs @ Flr
$7.4 + 8.8 = 16.2, 7.4 / 16.2 = .46$
.46 x 16,000 = 7,360 lbs @ LP | 4) $4.5 + 4.5 = 9, 4.5 / 9 = .50$
.50 x 16,000 = 8,000 lbs @ A
$4.5 + 4.5 = 9, 4.5 / 9 = .50$
.50 x 16,000 = 8,000 lbs @ LP |
|---|---|--|--|
- 5) 16,000 lbs @ LP

Crane & Equipment Training Programs

These courses are scheduled at ITI Training Centers or customized for presentation at your facility. Course length may vary when conducted at your facility based on the number of participants, availability of equipment, customization, and qualification/certification requested. Continuing Education Units (CEUs) are awarded for all programs.

Mobile Crane Operator Nationally Accredited Certification— Meets New OSHA Rule

This program is designed to prepare participants to take the general and crane-specific written exams for National Accreditation. The 3-day test prep is followed on days 4 and 5 by the Written and Practical Exams.

Course Length: 5 Days

Mobile Crane Inspector ITI Qualification Available

This program is designed for crane maintenance mechanics and inspectors. It focuses on spotting the problems and identifying the damage that can be discovered through external evaluation. The course curriculum identifies and instructs students to crane components by the acronym “MESH” (mechanical, electrical, structural and hydraulic). It is an ideal preparation course for those who are governed by unique state or federal laws requiring “certified” inspectors.

Course Length: 5 Days

Forklift & Telehandler Operator Meets OSHA Requirements

All personnel who operate forklifts to conduct their work activities are required to be trained and qualified per OSHA. This program meets the OSHA requirements.

Course Length: 1 Day



Mobile Crane Operator ITI Qualified

This program is designed to increase the crane operator’s knowledge, skill and proficiency level through classroom and hands-on training. Students can achieve qualified operator status by successfully completing written and hands-on segments. Qualification is for LBT (Lattice Boom Crane) and TLL (Large Telescopic, above 17.5 tons). Qualification for other types and capacities is available by special arrangement and for additional fees. This is an excellent prep course for those who wish to take the NCCCO or CIC national certification exams.

Course Length: 5 Days

Aerial Work Platform Operator ITI Qualification Available

Candidates for this course are those who operate Aerial Work Platforms to conduct their work activities. Manually Propelled, Self-Propelled and Boom Supported equipment is covered.

Course Length: 1 Day

Skid Steer Operator

Candidates for this course will be required to perform a pre-operational inspection and operating control demonstration. A work assignment must be performed using the loader bucket in a variety of applications, while traveling and turning with the bucket loaded and empty.

Course Length: 1-5 Days

Mobile Crane Operator Initial

This program is designed to assist a person who has little or no experience with mobile crane operation to establish good operating practices while gaining seat-time and real-life operating experience. Participants will conduct pre-operational inspections of hydraulic and lattice/conventional cranes, receive individual instruction regarding crane operating basics, and will gain seat-time while handling an empty and loaded hook.

Course Length: 10 Days

Overhead Crane Inspector ITI Qualification Available

Candidates for this course include journeyman electricians and lead millwrights who are assigned to perform Frequent and Periodic Inspections on overhead lifting devices, which include bridge, gantry, monorail, fixed hoists, and jib wall mounts.

Course Length: 3 Days

Overhead Crane Operator ITI Qualification and Nationally Accredited Certification Available

Anyone who is required to operate an overhead lifting device, which include bridge, gantry, monorail, fixed hoists, and jib wall mounts, while performing their work activities or who is a crane operations trainee or crane maintenance personnel should attend this program. Certification is available.

Course Length: 1 Day

Rigging Training Programs

These courses are scheduled at ITI Training Centers or customized for presentation at your facility. Course length may vary when conducted at your facility based on the number of participants, availability of equipment, customization and qualification/certification requested. Continuing Education Units (CEUs) are awarded for all programs.

Crane Assembly & Disassembly Director

All of those that are responsible for the assembly and the disassembly of a crane should attend this program. The Crane Assembly & Disassembly Director Course identifies required applicable procedures for the assembly and disassembly of the crane booms and extensions, understanding capacities and identifying areas of hazard. Previous training or experience with a variety of rigging tasks will help the participant ramp up quicker in the applications described during the course.

Course Length: 2 Days

Lift Director & Site Supervisor

All those who are responsible to oversee lift activities should attend this program. Participants should have some exposure to mobile crane activity and load chart usage. Knowledge of overhead crane and tower crane operations is also useful. Previous training or experience with a variety of rigging tasks will help the participant quickly grasp the applications described during the course. Having served as a crane operator or rigger in the field is not a requirement for this program.

Course Length: 1 Day

Critical Lift Planning

All those who are responsible to oversee lift activities should attend this program. Participants should have some exposure to mobile crane activity and load chart usage. Knowledge of overhead crane and tower crane operations is also useful. Previous training or experience with a variety of rigging tasks will help the participant quickly grasp the applications described during the course. Having served as a crane operator or rigger in the field is not a requirement for this program.

Course Length: 2 Days

Journeyman Rigger (Comprehensive Rigging)

This course is designed for the beginner to intermediate level person whose work assignments involve some rigging activity. The participants could include millwrights, boilermakers, pipe fitters, electricians, maintenance mechanics, construction workers, carpenters, welders, machinists, and all other trades that participate in rigging activity during their work day.

Course Length: 2 Days

Master Rigger

Although anyone wanting to gain rigging knowledge and skill would benefit from this program, most master rigger students have had some exposure (2-10 years) to crane and rigging operations. Participants include lead field personnel, safety coordinators, and senior trades personnel, such as a millwright, boilermaker, pipe fitter, mechanic, rigger, machinery mover and other trades.

Course Length: 4 Days

CIC Qualified Signalperson & Rigger-Basic

CIC Qualified Rigger-Advanced Nationally Accredited Certification

ITI is now offering preparatory courses and certification exams that are Nationally Accredited through Crane Institute Certification (CIC). Candidates include signalpersons and riggers who are required to become qualified, meeting the new OSHA Rule. CIC offers a 5 year certification to all candidates who successfully pass written and practical exams.

Course Length: 1-5 Days

Qualified Rigger – Meets New OSHA Rule

The ITI Qualified Rigger Prep Course is conducted by ITI's Qualified Trainer and Third Party Evaluator and prepares participants to take the ITI Qualified Rigger Written and Practical Exams. Candidates include riggers who are required to be qualified, meeting the new OSHA 1926.1400 Rule. This course and qualification can also benefit management personnel who oversee crane operations and lifts. The test prep course is conducted in two days with the written and practical exams being administered on the third day.

Course Length: 3 Days

Qualified Signalperson Meets New OSHA Rule

The ITI Qualified Signalperson Prep Course is conducted by ITI's Qualified Trainer and Third Party Evaluator and prepares participants to take the ITI Qualified Signalperson Written and Practical Exams. Candidates include signalpersons who are required to be qualified, meeting the new OSHA 1926.1400 Rule. This course and qualification can also benefit management personnel who oversee crane operations and lifts. The test prep course is conducted in a four hour session with the written and practical exams administered the same day.

Course Length: 1 Day

Rigging Gear Inspector Level I & II ITI Qualification – Meets OSHA requirement of “competent” person/inspector

Anyone who performs rigging inspection for an employer as an assigned task, such as a tool room check-out/in person or a supervisor who is responsible for the quality of rigging gear in a facility should attend this program, as well as crane maintenance personnel who inspect running and standing ropes, sheaves, drums and associated equipment during monthly and annual equipment reviews. Every company should have a few personnel qualified to perform gear inspections, meeting the OSHA requirement for “competent” person.

Course Length: 3 Days

UPCOMING EVENTS at our Woodland, WA & Memphis, TN Training Centers

JANUARY

10-11	CIC Qualified Signalperson-Basic Prep Course & Exams	Woodland
12-13	Journeyman Rigger	Woodland
23-26	Master Rigger	Woodland
27	CIC Qualified Signalperson-Basic and Qualified Rigger-Advanced Exams	Woodland
1/30-2/02	Master Rigger	Memphis
1/31-2/2	Rigging Gear Inspector Level III	Woodland

FEBRUARY

3	CIC Qualified Signalperson-Basic and Qualified Rigger-Advanced Exams	Memphis
6-7	Crane Assembly & Disassembly Director	Woodland
8	Lift Director and Site Supervisor	Woodland
9-10	Critical Lift Planning	Woodland
20-24	Mobile Crane Inspector	Woodland
20-24	CIC Mobile Crane Operator	Memphis
2/27-3/1	Master Rigger	Woodland

MARCH

2	CIC Qualified Signalperson-Basic and Qualified Rigger-Advanced Exams	Woodland
6-9	Rigging Gear Inspector Level I & II	Woodland
12-23	Mobile Crane Operator Initial	Woodland
19-20	CIC Qualified Signalperson-Basic Prep Course & Exams	Memphis
26-30	CIC Mobile Crane Operator	

APRIL

2-6	ITI Mobile Crane Operator	Woodland
3-4	CIC Qualified Signalperson-Basic Prep Course & Exams	Woodland
4	E-Learning Hands-on (4.0 hours)	Woodland
5-6	Journeyman Rigger	Woodland
9-10	Journeyman Rigger	Memphis
9-12	Master Rigger	Woodland
11	Lift Director and Site Supervisor	Memphis
12-13	Critical Lift Planning	Memphis
13	CIC Qualified Signalperson-Basic and Qualified Rigger-Advanced Exams	Woodland
16	ITI Qualified Signalperson Prep & Exams	Woodland
17-19	ITI Qualified Rigger Prep & Exams	Woodland
18	Forklift/Telehandler	Woodland
19	Skid Steer	Woodland
20	ITI Qualified Signalperson & Qualified Rigger Practical Examiner Workshop	Woodland
23-26	Master Rigger	Memphis
27	CIC Qualified Signalperson-Basic and Qualified Rigger-Advanced Exams	Memphis

MAY

1-4	Rigging Gear Inspector Level I & II	Woodland
14-17	Master Rigger	Woodland
18	CIC Qualified Signalperson-Basic and Qualified Rigger-Advanced Exams	Woodland
22-24	Rigging Gear Inspector Level I & II	Memphis

JUNE

4	ITI Qualified Signalperson Prep & Exams	Woodland
5-7	ITI Qualified Rigger Prep & Exams	Woodland
18-19	Crane Assembly & Disassembly Director	Woodland
20	Lift Director and Site Supervisor	Woodland
21-22	Critical Lift Planning	Woodland

JULY

17-18	CIC Qualified Signalperson-Basic Prep Course & Exams	Woodland
19-20	Journeyman Rigger	Woodland
24-26	Rigging Gear Inspector Level III	Memphis

AUGUST

6-10	Mobile Crane Inspector	Woodland
6	ITI Qualified Signalperson Prep & Exams	Woodland
7-9	ITI Qualified Rigger Prep & Exams	Woodland
14-17	Rigging Gear Inspector Level I & II	Woodland
20-23	Master Rigger	Woodland
24	CIC Qualified Signalperson-Basic and Qualified Rigger-Advanced Exams	Woodland

SEPTEMBER

17-18	Journeyman Rigger	Memphis
17-21	CIC Mobile Crane Operator	Woodland
19	Lift Director and Site Supervisor	Memphis
20-21	Critical Lift Planning	Memphis
24-28	ITI Mobile Crane Operator	Woodland

OCTOBER

2-3	CIC Qualified Signalperson & Qualified Rigger-Basic: Prep Course & Exams	Woodland
4-5	Journeyman Rigger	Woodland
8	ITI Qualified Signalperson Prep & Exams	Woodland
9-11	ITI Qualified Rigger Prep & Exams	Woodland
16-19	Rigging Gear Inspector Level I & II	Woodland
22-23	Crane Assembly & Disassembly Director	Woodland
22-25	Master Rigger	Memphis
24	Lift Director and Site Supervisor	Woodland
25-26	Critical Lift Planning	Woodland
26	CIC Qualified Signalperson & Qualified Rigger-Basic and CIC Qualified Rigger-Advanced: Exams	Memphis

NOVEMBER

5-7	Rigging Gear Inspector Level I & II	Memphis
6-8	Rigging Gear Inspector Level III	Woodland
8-9	Journeyman Rigger	Memphis
12-15	Master Rigger	Woodland
16	CIC Qualified Signalperson-Basic and Qualified Rigger-Advanced Exams	Woodland

DECEMBER

3	ITI Qualified Signalperson Prep & Exams	Woodland
4-6	ITI Qualified Rigger Prep & Exams	Woodland
4-7	Rigging Gear Inspector Level I & II	Woodland
10-13	Master Rigger	Woodland
14	CIC Qualified Signalperson-Basic and Qualified Rigger-Advanced Exams	Woodland

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The Professional Rigger is a publication of Industrial Training International, Inc. It is distributed to those whose occupations require the safe and proper use of lifting and rigging equipment.

For more information contact:

The Professional Rigger

PO Box 1660, Woodland WA 98674 • 360.225.1100 • iti.com

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