

The art of rigging, that part of a lifting operation which forms the link between a crane and its load, is one of man's oldest skills. It has also traditionally been one of the most underrated. That, at least, is the view of safety consultant, *James Headley*. Here, he examines why this should be and, in the process, uncovers some false perceptions about what kind of a person a rigger is, or should be. He begins with a personal testimony to the fatal consequences of overlooking the important role of correct rigging practices in safe crane operation.

RIGGING: AN OVERLOOKED AREA

During my twenty years working with cranes, both as a crane operator and, latterly, as a crane safety consultant, I have been exposed to numerous accidents of varying severity — including one on my very first job.

But the rigging accident that will forever serve as a reminder of the importance of safety, happened while I was operating a mobile crane in South Florida. We had stopped for lunch, and, during the break, I happened to sit beside a man who worked on a machine used in foundation construction on the same site. After finishing our lunch we returned to work — that was the last time I ever saw him alive.

He and his fellow craftsmen had hoisted a heavy load about 15 feet (4.6m) above the ground, where it was left suspended. Ignorant of basic rigging practices, they had rigged the load in such a way as to let the wire rope slip through the attachment, causing the load to fall — and, in the process, decapitating my lunchtime companion.

The worst part of such accidents, apart from the fact that they need never happen in the first place, is that they usually hurt more than just those directly involved; this particular fatality left a widow and made two young children fatherless.

Seldom receive training

Rigging accidents happen in almost every trade since virtually every craftsman's job requires him to rig. For example, electricians move conduits and motors, carpenters set forms, and main-

tenance mechanics and millwrights lift and set machinery. Even laborers seldom receive training, yet are responsible for performing vital rigging tasks.

Since many rigging accidents are not reported, statistics in the USA are incomplete. A statistical summary made by OSHA of over 1000 crane accidents involving damage to equipment found poor rigging or slings to be the cause in 34% of cases.

More alarming still is the fact that there seems to be little effort directed toward solving the problem. Most companies are failing to provide the required training necessary for rigger competency. The decline in unions, especially trade unions, and a move toward multi-crafts is resulting in the demise of apprenticeship and training programs.

In the past, rigging was performed — at least, in North America — by a designated 'rigging craft,' or by a union which specialized in this area, such as the Ironworkers. Today, a craftsman is required to perform the tasks of all trades. In reality, he becomes 'a jack of all trades and master of none.'

One can sympathize with those forced into this situation for economic reasons. But such a development can only prove costly in terms of accidents. Moreover, preventative efforts have proved to be effective in reducing crane related accidents. A case in point is the initiative taken in Ontario. In a ten-year period (1969-1978), rigging failures accounted for 23% of crane related fatalities in construction. But since then, and through the efforts of

some concerned individuals, that percentage has been lowered to 14%.

Most employers would be shocked to discover that many riggers, whom they rely on to ensure safety, cannot even read simple capacity charts and perform basic mathematical calculations.

A 'good old boys' trade

If we expect to decrease the number of accidents, a number of existing perceptions have to change.

Firstly, no longer can we adhere to the view that rigging consists merely of wrapping a sling around a load and telling the operator to take it away. For too long, rigging has been thought of as a 'good old boy's' trade.

According to this perception, all you need is a strong back and a weak mind, a size 17 shirt and a number 3 hat, coupled with nerves of steel and a fearless attitude. Many of those in the trade have little formal education and training. Planning, mathematics, and calculations are thought to be only for the engineers, not the rigger.

Secondly, rigging is viewed by most management personnel as requiring little skill. This must be so since, otherwise, more emphasis would be placed on training, competency, and qualifications in job selection.

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A practical example serves to illustrate the point. A supervisor for a large crane rental company, which also performed heavy rigging, was taking part in a mobile crane and rigging training program. A conscientious man, he had acquired a tremendous amount of practical experience during his years in the trade. When asked about his planning and calculations for a particular job requiring three cranes to lift and turn a 170 ton load, he responded by saying that he and the site crew usually 'feel their way through', relying on the outriggers raising off the ground to determine if they could handle the load.

Thirdly, most safety professionals have had little or no exposure to rigging or hoisting operations. The safety field is very broad. College safety curriculums generally contain only that crane and rigging information which is mentioned briefly in OSHA standards.

The safety professional's attention and efforts have traditionally been given to other areas, such as industrial hygiene, workers compensation, and fire protection. They usually have a great deal of respect for crane related areas, but rely on either the craftsmen or supervisors for the safety of operation. It is thus very uncommon to find a crane and rigging safety specialist in this area, even on large jobs employing hundreds of cranes.

Finally, riggers often measure their level of competency by the success of a lift. If he has had no major accidents, a rigger may be led into believing he must be doing things right. The fallacy of this assumption is clear: without him knowing it, he may have been close to disaster many times.

Rigging equipment is required by standards to include minimum design factors, thus providing a margin of safety. However, this safety margin is designed to help cover, not to borrow from, the unexpected and unanticipated. To lift loads beyond the manufacturer's capacity ratings is to flirt with danger, and continuing this practice will eventually result in an accident. The question then is, not *if* you are going to have an accident, but rather, *when*.

Discovering that the area of rigging has been overlooked in this way is a first step in preventing accidents. But we can't stop there. We need to look at what actually happens when loads are lifted and consider the rigger, his qualifications, and responsibilities. This will give us the criteria needed to select the personnel we designate as riggers, and also provide us with the necessary training requirements to ensure their competency.