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## From the President

# Jeff Bishop



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Dear Members

As I started to write this, I reviewed my previous notes and saw that six months ago, I spoke about how cold it was for most of the country. I suggested utilizing the cold-weather DVD's which the QHSE Committee purchased and are kept at the AWRF Executive's office. Now, a lot of the country is experiencing extremely hot temperatures. There are hot-weather related DVD's for training your personnel. Contact Jeff Gilbert to have them sent to you.

The Summer Board of Directors meeting was held a few weeks ago. This meeting helps determine the future direction for the Association. Each committee gave their report and we developed a long range plan. The association is in very good hands with a great group of committee chairs. I must say that during my 9 years of being on the Board, this is the most proactive and excited group I have seen. Each committee is reviewing their mission and updating as needed. The changes

which have been made have increased the value of your membership. Many of the committees have long-term programs which when complete will revolutionize our association.

The next General Meeting will be held at the Grove Park Inn in Asheville, North Carolina. The Board had a summer meeting at the Grove Park Inn. It is a great location with much history. The dates were picked to coincide with the Fall color change. The topics for the meeting are set and once again, Mike Parham has done an excellent job picking speakers. Please help us make this meeting another success.

Like always, if you have any comments or suggestions for the Board, please contact Jeff Gilbert or me and we will address them.

See you in October.

Jeff Bishop

## member feedback

*Thanks for sending me a copy of Slingmakers Issue 125 dated May/June 2010. This is truly a professional publication and I suppose most members do what I did and that is read the publication from cover to cover.*

*Receiving a copy of this issue of Slingmakers compelled me to pull out and look at my copy of Issue No. 1 of Slingmakers to reflect on the changes. It does not have a date on it but I know from the contents it was printed in the spring/summer of 1978. While it consisted of only 4 pages including front and back cover compared to 64 pages in this issue, I suppose the members were equally excited about AWRF news as they are now.*

*While reading the article on "The First Era of the AWRF Technical Committee" written by Don Sayenga, it brought back many fond memories of my involvement with AWRF and the TC and I appreciate Don sharing them with other "Old Timers". As Fritz knows I am still very much interested in what is happening within AWRF.*

*Thanks again,  
Frank*

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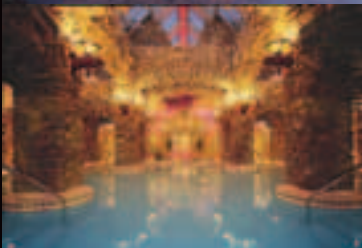


Barbara Gilbert  
Editor  
[barbaraawrf@att.net](mailto:barbaraawrf@att.net)

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# AWRF General Meeting October 24-27

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# THE GOVERNMENT AFFAIRS COMMITTEE

By: J. Barry Epperson,  
General Counsel and  
Chairman of Government  
Affairs Committee



## BULLETIN

## Death Tax Repeal

On Wednesday, July 22, 2010, U.S. death tax repeal was rejected 39 - 59 in the Senate. Senator Jim DeMint (R-SC) introduced a measure that forced the vote.

Senators Lincoln (D-AR) and Nelson (D-NE) joined 37 republicans in voting for repeal.

Other democrats who previously had voted for repeal but who voted against it this time were Senators Baucus (D-MT), Voinovich (R-OH), Wyden (D-OR), Nelson (D-FL), Snowe (D-ME), Collins (D-ME), Specter (D-PA), Landrieu (D-LA) and Feinstein (D-CA).

The best option remaining is a compromise offered by Senators Kyl (R-AZ) and Lincoln which would

exempt \$5 million per individual with a maximum rate of 35%. This concept was previously offered as an amendment to the Small Business Lending Bill, but was blocked by Senator Harry Reid (D-NV) who favors a \$3.5 million exemption with a 45% tax. It appears that he is working behind the scenes to allow repeal to expire in 2011--sticking small business with a \$1 million exemption at a 55% rate. Dr. Douglas Holtz-Eakin predicts that the U.S.A. will lose an additional 500,000 jobs if Congress irresponsibly allows the repeal to expire at the end of 2010.

In 2009 the Senate passed a measure allowing the \$5 million exemption a 35% tax rate. At that time the bill had bipartisan support.

September 10, 2010

Annual A.W.R.F.  
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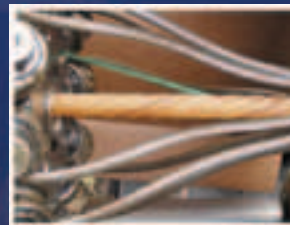
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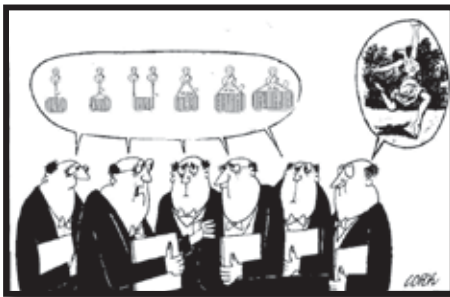
# THE FIRST ERA OF THE AWRF TECHNICAL COMMITTEE

Don Sayenga  
AWRF Historian  
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historyawrf@att.net



## Introduction from PART I – 1976-1995

In July 1976, at Houston, Texas during the first summer meeting of the AWRF Board of Directors, President Emeritus Ken Kirby named three men to form a technical section of the board. In 2002, a survey of AWRF members indicated the Technical Committee was ranked as the association's most important single activity by member companies. In February 2010 at Phoenix, Arizona, Charles Lucas of Tulsa OK arose during the regular winter meeting of the AWRF-TC to announce his retirement. Because The Crosby Group, despite ownership changes, had consistently provided support for the Technical Committee over the years, mainly through Lucas' volunteer services, his retirement perhaps could be said to mark the end of the first era of the AWRF-TC



"This cartoon by European artist Cor Hoekstra (1931-1996) was borrowed and modified by the AWRF-TC to add some humor to the otherwise tedious deliberation of product standards and safety standards"

## PART II – 1995-2009

In 1995, Frank Becker began his 10th consecutive year at the helm of the AWRF-TC. His plans for the future were ambitious. The right of the AWRF-TC chairman to choose his own group of volunteers, seeking AWRF board approval for his choices when assembling his committee, was reaffirmed by the directors. For a full decade, each incoming AWRF President had asked Frank to continue in the AWRF-TC chair.

After reviewing the success and failures of the association, the directors renewed their commitment to the five basic directions previously adopted for achieving the main purposes of AWRF.

These were spelled out and communicated to the members:

- AWRF should follow its six non-profit purposes which are stated clearly in the bylaws
- AWRF should focus its membership recruiting efforts in North America
- AWRF should always try to grow more useful to its members
- AWRF general meetings must be arranged to appeal to a broad spectrum of members
- AWRF must become positioned as the leading trade association of the industry

Continuing the established posture, no AWRF standards were to be adopted. The directors endorsed the ASTM model for making a clear distinction between a *recommended practice* (by prioritizing commonly used methods) and a *recommended guideline* (presenting an advisory for the achieving the best method). The aim was to publish and distribute R P & G documents to the membership as business aids. AWRF members remained free to utilize their own choices for their presentations of methods and data, but were urged to consider following the AWRF suggestions as they emerged from Test Programs and other sources.

The question then became: how can AWRF launch a program of high quality technical advisories as quickly as possible without spending a lot of time and money with verification tests? After discussion, an easy path was chosen. Metal mesh slings were described in Chapter 3 of ASME B30.9 but there were very few fabricators and ever fewer manufacturers involved in that part of the sling business. All of them were members of AWRF. The advisories in earlier editions of B30.9 already were established as an American National Standard. At the time, the B30.9 standard was under complete review but there were no major changes forthcoming in Chapter 3. In response to a request from the AWRF-TC, the ASME granted permission to make copies of that chapter. These were mailed out to be inserted as the first AWRF RP&G in the binders. Becker's role, seemingly a permanent AWRF

assignment, was a wonderful stimulant to continuity of the technical programs from year to year. One unfortunate side-effect was that it raised the question of whether his sub-committee chairmen also held permanent seats on the AWRF-TC. Becker felt obligated to choose people who would work to achieve the goals of his committee but the ALPHA dialogs with other trade associations and technical bodies yielded other nominees. He wanted to bring in as much expertise as possible without enlarging the committee to the point where its efficiency was crippled.

Prior to the establishment of the technical subcommittees, most of the energy of the AWRF-TC had been channeled toward opening lines of communication with other groups such as WRTB, WSTDA, and CI, combined with highly active participation in the standards-writing activity of ASME B30. Augmenting the cadre of AWRF-TC workers by unlimited recruitment of subcommittee members greatly expanded the total number of AWRF member companies involved with technical committee work. The creation of the independent Testing Committee achieved a similar result. New faces such as Dan Merrill, Joe Roberts John Smith, and Mark Kowalick participated in the meetings

and completed assignments, joining Past Presidents Bishop, St. Germain, Mazzella, O'Rourke and Gilbert who had been volunteering for many years.



Dan Merrill



John Smith



Mark Kowalick

It was noted the B30.5 subcommittee did not adopt the earlier AWRF guideline for wedge socket attachments that had been worked out in cooperation with the CSAO. In the case of B30.9, however, with Larry Means as the subcommittee chairman, much progress had been made. A breakthrough was achieved when the B30 Main Committee finally acted, after many years of listening to the AWRF-TC's pleas for standardized practices for shackles (as an addendum to the B30.10 standard) creating an entirely new safety standard for shackles. It soon evolved into B30.26 volume for Rigging Hardware. Although many years passed before a final version was published, Charles Lucas did a superb job of guiding his ASME subcommittee through the snares and pitfalls of standards-writing.

From a technical committee standpoint, the 1996 Fall meeting at Seattle was unique. The hotel selected for the meeting had two identical ballrooms, one above the other. On a trial basis, the educational program was split. The usual lectures were presented in one room while the other room was used for a riggers training seminar organized by Mike Parnell. Although the experiment was a great success, obviously it depended entirely upon a hotel having the availability of two such large rooms, not a very common situation in the North American hotel business except in the largest cities where much bigger conventions were held. Hopefully this approach will be repeated on some occasion in the future.

The AWRF-TC scored a major coup in 1996 by organizing an interface with OSHA on the subject of corrugated sheaves. Very little technical information was in print regarding this common problem. Ken Sellers' subcommittee organized a very complete seminar on the subject. Unfortunately, it proved difficult to get federal OSHA to adopt input from the AWRF-TC. The federal regulations for the safe use of slings were more or less obsolete as far as data was concerned. A copy had been furnished for the 3-ring technical binders but suggestions for updating the advisories went unanswered.

The reason behind OSHA's silence was the passage of Public Law 104-113 signed by Pres. Clinton on March 6, 1996. This law, the National Technology Transfer and Advancement Act came on the scene as a companion to the Paperwork Reduction Act. These laws were interpreted by some people as directives from Congress to get federal employees out of the business of writing and enforcing safety standards but the Department of Labor had no intention to shut down OSHA. They claimed the earlier provisions of the Williams-Steiger Act of 1970 forced them to stay in the driver's seat.

Meanwhile the first three AWRF Test Programs were completed by Howard Will's Testing Committee. In September 1997, the AWRF directors debated the success of those programs. At the same



*"Bill Ricketts, Lifter Southwest, volunteered to examine every one of the web sling breaks, a decision he later may have regretted in the hot summer weather."*



*Knut Buschmann, Unirope and Ed Moeller, American Webbing, assisted Ricketts and Sayenga with examination of individual web slings.*



*"The AWRF-TC met at Lehigh University to confirm web sling test results"*

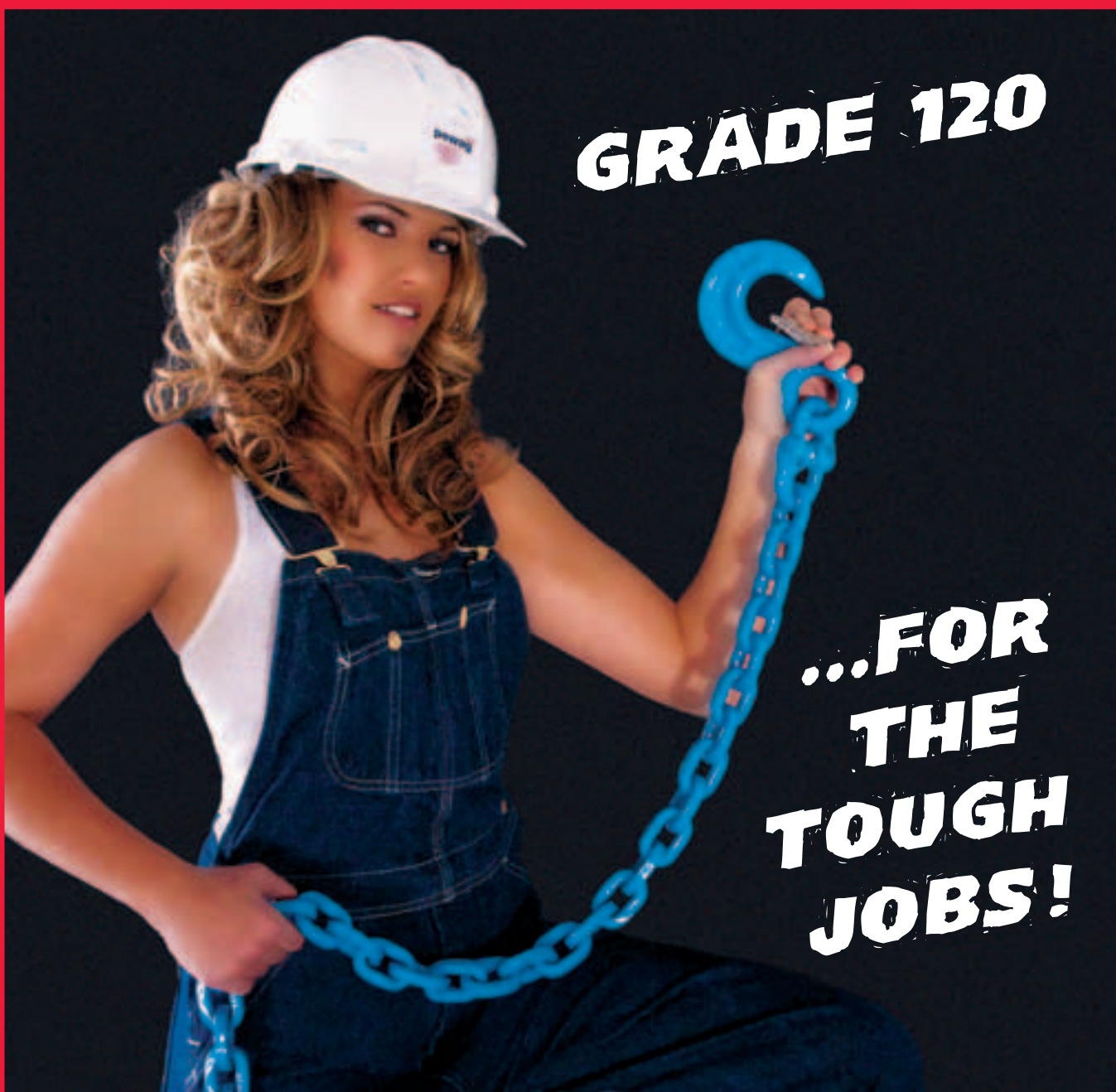
time they established a formal policy to be used to for governing publication of the test results. The results were collated as an efficiency guideline which was submitted to WSTDA and to ASME B30.9 for adoption. Test Program IV, intended to evaluate the methods of tapering in the eyes of synthetic web slings, was already underway. More than one thousand web slings fabricated by AWRF sling shops using webbing supplied by AWRF members that were web suppliers were broken to destruction under lab conditions in these tests, one of the most elaborate studies ever made in the industry.

Because the web sling tests were declared a success, the AWRF-TC directed the Testing Committee to begin Test Program V, also conducted at Fritz Engineering Laboratory in Bethlehem PA. Program V was initiated at the request of the WRTB. The sole aim was to verify WRTB's belief there would be no significant change in efficiencies when 450 traditional slings were made using the new higher strength EEIPS wire rope; i.e. to prove fabrication efficiency was independent of rope strength. As was expected, verification was attained easily in all cases with one exception: braided wire rope slings.

It is simple to understand why this happened. Several differing wire rope braiding techniques were known and used daily in the industry. Because no specific fabrication method had been designated by the WRTB, each donor of the braided slings being tested was free to use his own method. The results varied to a degree that the WRTB has hesitant to calculate any "average" tables for using the higher strength ropes in this category. No one was certain what had caused the anomaly although several theories were proposed. The easiest path for WRTB was to publish the second edition of the Wire Rope Sling Users manual in 1997 by presuming the basic position concerning wire rope sling efficiencies had been verified.

Abruptly, in December 1997, the US Navy Crane Center notified the industry they had conducted their own tests showing that all braided wire rope sling efficiencies were much lower than previously believed. At the request of two AWRF member

*Continued on page 57*



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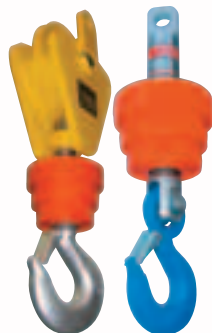
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# QHSE Corner

## Quality, Health, Safety and Environmental Committee

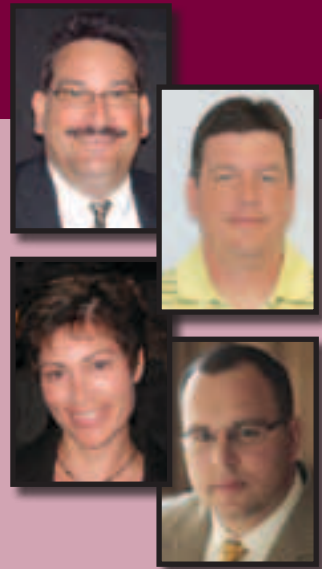
I was involved in a very interesting conversation the other day. It was like most interesting conversations; engaging, thought provoking and informational, but it was different in that it was virtual. I was monitoring and contributing to a conversation on LinkedIn with several quality professionals about formal problem solving methodologies. This was interesting to me because I recently had a customer ask me what formal problem solving methodology we used at my business. I have to admit I wasn't sure... but I am now.

LinkedIn provides access to professional opinions about topics that you are probably interested in. This Social Media website has an easy search feature which allows you to find groups to join and become part of a conversation, read peoples comments or post a question of your own. I have found it to be a very good resource to learn about professional areas I need a little more education in.

For example; if you are thinking about taking the ISO plunge you might want

to join LinkedIn and get involved in some quality groups. American Society for Quality or the Canadian Society for Safety Engineers are good groups to take a look at. What's that; not on LinkedIn? No worries, we put a tutorial together for you to make it as easy as possible. Go to the AWRP website ( [www.awrf.org](http://www.awrf.org) ) and click on the link to the LinkedIn Tutorial. This will take you through a step-by-step guide to set up an account.

To save time, here are some tips you should follow before you go to the tutorial. Get a head shot of yourself in digital format (.JPG) is recommended. Decide what you want your "Professional Headline" to be. Note; it is best to think of this as a place where you can communicate your five-second elevator pitch; so don't put something like Owner of company X. Be more creative, put down your value proposition. The main reason for this is that when you participate in a LinkedIn conversation your picture, name and professional headline appear next to your comment. I want you to think about this, because it is a great marketing opportunity that you can take and it's really simple to do.



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No matter what you call it "sling protection, edge protection, padding or softeners" it all amounts to the same thing. Slings **MUST** be protected from being

damaged or severed. Recent accidents have highlighted the need for edge protection. In the past, use of sling protection was highly recommended. Now, OSHA and ASME standards and regulations **REQUIRE** protection on edges and corners. The use of sling protection saves money by protecting the sling and the load from damage, but more importantly provides protection for the worker.

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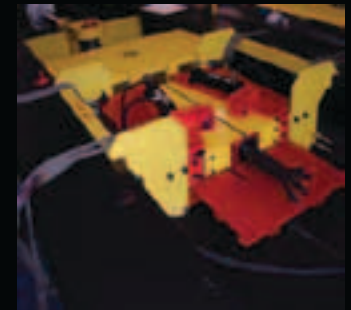
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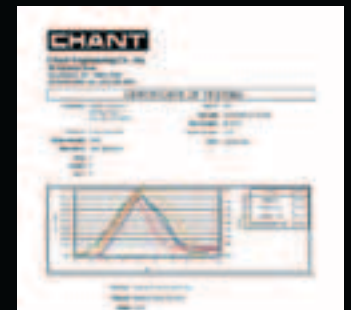


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## A Rigging Business of Father, Son, and AWRF

### Dick and Tom Miller's Marcal Rope & Rigging

- In 1970 the Alton, IL Marcal Rope & Rigging, Inc. was founded, with Dick Miller running it as general manager.
- In 1976 Associated Wire Rope Fabricators (AWRF) was formed, with Miller as its secretary.
- In 1990, Miller purchased Marcal.
- In 2007, Miller, though still active in the company, sold Marcal to his son, Tom Miller, who has also long been active in AWRF.

Now let's go back to the beginning and fill in some details of this two generation family business whose growth has been intertwined with that of AWRF's.

Marcal was started by Mark Katz and Al Weber (hence the name Marcal). They were later joined by Al's son, Jeff Weber. However, they were all silent partners and Dick Miller basically ran all of the operations since day one.

Miller, then 30, had worked for a number of different companies, but didn't have much experience with wire rope. However he had been involved in the marine industry which, Miller recalls "did have rigging requirements. But there were no guidelines or procedures. There were not many industrial supply houses at the time. One would tend to offer one thing, another something else. So I began calling on my former marine customers."

Miller did hire experienced rigging fabricators and other shop people, but says, "We didn't have anybody outside promoting from an engineering, safety, and marketing perspective." That task fell to Miller. "I learned as I went along," Miller says. "I had to convince potential customers that we knew more about rigging than they did, that we had the products they needed and that we would take care of them."

It turns out that the marine industry that Miller started selling to didn't turn out to be that viable a market for the company, and, today, very little is sold to that industry. There are competitors that focus on marine. So early on, Miller shifted his focus to the industrial sector, even though he didn't have much familiarity with this area. "I did a lot of cold calling," he recalls.

The six major industrial markets Miller developed (along with their various subsections) are steel mills, refineries, coal mines, railroads, utilities, and construction. They are the same markets the company sells to today. They provide a good a good customer mix, as well as good diversification, for if sales to any one category fell off, they could be made up in the others.

"We wanted to differentiate ourselves from industrial supply by being exclusively rigging supply," Miller says. "We didn't sell a wide spectrum of products such as gaskets, bolts, screws, nuts or wrenches, just lifting gear. So we developed the reputation of having a very full line of rigging gear for the Midwest,"



While staying within the category of rigging, Marcal gradually expanded its product offering mix.

First came wire rope, these offerings expanded to encompass the many different types of lifting assemblies. Cordage came in the early 1970s, at that time relatively new to the midwest.

In the mid 1970s the company purchased welding, heat-treating and forming machines to fabricate welded chain slings and engineered lifting devices.

Also in the mid 70s, Marcal started building and purchasing its test machines to provide hydraulic tension tests on the products it made for quality assurance. About this time, Miller says, "We bought sewing machines to sew nylon and polyester web slings. These synthetic products offered a viable alternative to wire rope, with characteristics that the industry had never seen before."

In the mid 1980s the company began selling round slings, and in 1990 purchased its first round sling machine to make its own. In 2000 the company began designing, engineering and fabricating lifting beams, spreader beams, C-hooks and other lifting devices.

Over the past two years, under Tom Miller's direction, the company's load testing business has grown significantly. The original home built testing machine had a 125,000 pound capacity and a standard

horizontal 350,000 pound capacity tester was purchased in 2008. But about two years ago Marcal partnered with AJT/Roberts Testing to build, from the ground up, a totally unique machine capable of testing spreader bars and other lifting devices up to 500,000 pounds and 35 feet lengths.

“Load testing has grown to be a huge part of what we do over the past five years,” says Tom. “Customers are becoming more and more aware of their rigging gear and we as rigging companies need to keep up to stay ahead of the curve. Years ago they thought of the design factor almost as an afterthought and would rely on rigging shops to tell them what they needed. Now they’ll tell us. With the increased liability factor, there’s a huge market for testing.” The new 500,000 pound tester has been in operation for five months and performed over 200 tests. The original 125,000 pound tester has been hitched to a trailer so it’s mobile and can be taken to customer job sites, where, using the Roberts’s software, it can print certificates on the spot.

Dick credits his son with implementing many other changes as well. “We’ve gone from a small family business mentality to a corporate mindset,” says Dick. “We’ve gone from an archaic accounting system to sales and inventory accounting software bundled into one. This has helped us become much more efficient. In the past there was a lot of handwriting and copying going on. This took away from sales efforts, for the sales staff was involved in a lot of clerical duties. Hand-written notes still have their place – as evidenced by Dick’s mastery of the thank you note – but a modern computer system has a much larger one in our day to day routine.” The company website is in the process of being totally redesigned and updated, including incorporating N4 Systems RFID programs.

Procedures have become more defined, which, Dick says, “has taken a certain toll on the employees, for they have had to adjust from a more casual way of doing things.” Whereas, before there was no close supervision, now there is an operations manager who has been hired to enforce accountability. Before, purchasing was a part-time duty. Now there is a full time buyer. Previously design work was outsourced to an outside engineer. Now there is a full-time mechanical engineer on staff. With Marcal Rope & Rigging’s headquarters in Alton, IL the three satellite facilities are well within reach. Olmsted, IL (soon to be Metropolis, IL in a brand new 12,000 sq ft facility) keeps central and southern IL and KY covered while Marcal Lifting Products anchors down the MO and KS side of things with facilities in Springfield, MO as well as downtown St Louis, MO.

Often, in the passing of a family business from one generation to the next, there is conflict, with the Patriarch not wanting to let go, and the younger generation feeling it’s not given enough independence. But, says Dick, “This has been a very smooth transition, with no conflict. But this type of transfer does take a lot



of discussion and a lot of patience. Ultimately, we did have to bring in attorneys, counselors and financial people to help us.”

Father and son agreed that each one should feel comfortable with the situation. “I still enjoy coming to work every day,” says Dick. “But now I have to work only 10 hours instead of 12, and can do some of my work at home.”

“I will not allow him to retire,” says Tom. “Dad is the face of the company, the driving force, and a tremendous inspiration to everyone. All of our customers love him and employees respect him.” Dick, 70, has been married to his wife, Debbie, for 40 years. They have two other sons. Greg, 33, is an account executive for CBS TV; and Mark, 31, is a venture capitalist. They are both married, with children. Dick enjoys being a grandfather and lists his hobbies as boating and golf.

Tom, 35, has been married to his wife, Kim, for 10 years. They have two girls, Madeline, 6; and Mallory, 2. Tom enjoys golfing and is a St Louis sports fan.

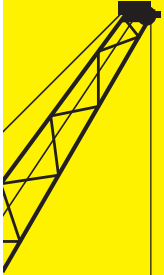
When Dick was present at the formation of AWRP, he recalls that “Marcal was one of the nine companies at that first meeting in 1976. We were involved in putting together an invitation list to all the parties we thought we would be interested in joining,” he says, “to share issues of interest related to rigging. We were in our very formative stages, and it took several meetings before things began to come together. Now, AWRP is 34 years old.”

Dick served as president from 1981-82, and was on the board of directors for many years. Tom is currently Treasurer of the association and has been on the board of directors since 2005.

“This shows our commitment to AWRP,” says Dick. “For the second generation is coming on. Associations like AWRP are very important to the success of the industry. It puts everybody on a similar path toward excellence, whereas before everybody was operating more or less by the seat of their pants. Now we’re all provided with professional advice in terms of technology, safety, and business. The social gatherings help us to know everybody and relate as friends, not enemies. We all then work together to help not only our individual companies but also our industry as a whole be a success.”

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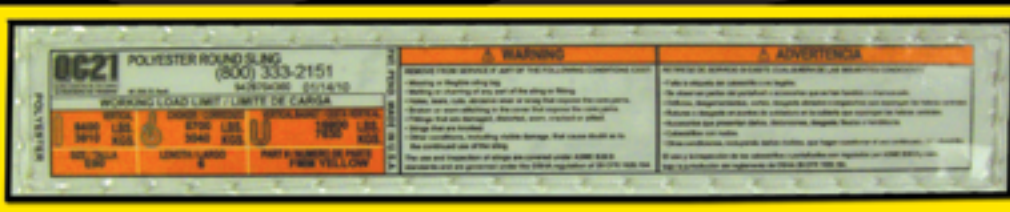


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# LAEDC Economics Corner

## U.S. Economic Outlook: Manufacturing Leads the Recovery, Construction Lags

Last summer the U.S. economy began to recover from a deep recession. The economy has now expanded for three consecutive quarters. In the fourth quarter of 2009, economic activity (GDP) increased by +5.6% and was largely driven by businesses restocking depleted inventories. In the first quarter of 2010, this restocking effect was less pronounced and GDP rose by a more moderate +2.7%.

Hit especially hard during the downturn, manufacturing led the nation into recovery. After falling by -11.1% during 2009, industrial production increased by +3.2% during the first quarter of this year. While these numbers were certainly an improvement, many factories were just producing more goods to bring inventories into line with current sales. This process will soon be completed, causing production growth to slow.

Last year's slowdown in international trade was reversed by a surge in exports, especially to China. More recently, imports have picked up as well, drawn in by the improving U.S. sales picture and inventory restocking. Reflecting the growth in foreign and domestic sales, freight transportation activity finally turned up in early 2010.

Automotive sales are rising from the depths of early-mid 2009, with total light vehicle sales up by +17% in the first half of 2010 and medium-heavies up by +9%.

However, sales levels are still low compared even to 2008. Many retail buyers are having difficulty getting credit; others bought a new vehicle last year using "Cash for Clunkers."

Supported by government incentives, homes sales and prices showed signs of stabilizing this past winter. However, government support may have pulled too many sales forward. Now that the first-time buyers' tax credit has been terminated, home sales are weakening. Low interest rates and affordability may help, but job growth and a manageable level of foreclosures will play a big role in housing's performance during the rest of 2010.

New housing starts appeared to hit bottom in the first quarter, and activity began to pick up. However, compared with peak levels (2006), housing starts were still down by -71%. Single-family housing was doing comparatively well, but multi-family housing was still in the dumps. Credit restrictions continue to be a problem for new projects, though the affordability of single-family housing has encouraged many renters to become first time buyers. New home construction also faces uncertainty now that key government support has been withdrawn.

The outlook for business structures remains poor. Demand for retail, office and hotel space has plunged. Lower property values and reduced rental income have made financing difficult to obtain. Both trends will persist through the rest of the year. On the other hand, government construction has been rising since the early part of the year.

Business spending for software and technology has surged but capital spending outside the tech sector is recovering more slowly. Oil and natural gas drilling activity rose during the first quarter, though offshore activity could be muted by the Gulf oil spill.

Economic policy, both monetary and fiscal, has just begun to draw back from last year's hugely expansionary stance. The Federal Reserve has ended many of the extraordinary measures put in place to combat the financial crisis. Meanwhile, Congress and the Administration are wrestling with huge federal budget deficits.

Outlook: We expect stronger growth in the second quarter of 2010 (+3.6%), but see the pace of growth moderating in the second half as inventory restocking and federal stimulus spending begin to fade. LAEDC forecasts real GDP will increase by +3.1% over the course of 2010. Most sectors, except for nonresidential construction, will see some improvement this year, but it will be well into 2011 before a solid upturn is underway.

**Table 1  
FACTORS INFLUENCING WIRE ROPE DEMAND\***

	2008	2009	1Q 2010
<b>Real GDP Growth</b>	0.4	-2.4	2.4
<b>Manufacturing Production</b>	-3.1	-11.1	3.2
<b>Real Mfg. &amp; Trade Sales</b>	-3.2	-8.0	1.9
<b>Goods Trade Deficit (\$2005)</b>	639.8	493.8	516.2
<b>Vehicle Sales (Mils. SAAR)</b>			
-Cars	6.8	5.4	5.7
-Light Trucks	6.4	4.9	5.3
-Medium/Heavy Trucks	0.3	0.2	0.2
<b>Construction:</b>			
-Housing Starts (Mils, SAAR)	0.91	0.55	0.62
-Private Nonresid. Bldgs	13.2	-11.1	-24.5
-Gov't Bldgs & Infrastructure	5.7	3.2	-5.2
<b>Bus. Equipment Spending</b>			
-High Tech & Software	6.0	-5.5	11.4
-Other Machinery	-11.4	-30.4	-1.3
<b>Freight Transport'n Index</b>	108.1	96.3	97.1
<b>Oil &amp; Gas Rigs Running</b>	1,878	1,085	1,372

\*Annual percent change unless otherwise noted.  
Sources: BEA, Federal Reserve Board, U.S. Bureau of the Census, U.S. Bureau of Transportation, and Baker Hughes

## Commodity Prices are Recovering too

Industrial commodity prices plunged in 2009. However, prices of most commodities reversed course in 2010 as the economic recovery spread around the world. A turnaround in manufacturing quickly increased demand for many types of industrial materials. Perhaps just as important was the sudden need to raise inventories of all kinds from the rock-bottom levels reached in 2009.

The simultaneous push to refill distribution pipelines and to re-start manufacturing lines accounted for much of the growth we've seen thus far in 2010. The U.S. economy grew by +2.7% (annual rate) in 1st quarter 2010 compared with 4th quarter 2009. Manufacturing production overall was up by +7.1% over this period, with metal-intensive sectors as real standouts: primary metals (+34% over the 4th quarter); non-electrical machinery (+21%); high-technology manufacturing (+20%); motor vehicles & parts and fabricated metal products (both up by +11%).

The global recovery picked up speed first in China, whose economy is expected to grow by at least +10% in 2010. As they ramped up production, China's manufacturers imported huge amounts of industrial materials. Chinese growth likely will abate somewhat in the second half as stockpiles are replenished.

The NAFTA economies of Canada, Mexico and the U.S. are all in recovery mode in 2010. The U.S. in particular should grow by +3% or so this year, with rising business inventories contributing roughly 40% of the increase (or 1.2 percentage points). Canada will record similar numbers, while Mexico's economy could rise by +4%. Elsewhere, Europe and Japan will likely grow more slowly than the U.S. this year—between +1% and +2%. However, the developing nations of Asia and Latin America will outperform.

The World Steel Association (WSA) recently forecast that world demand for steel will increase by +120 million MT (+11%) in 2010. Chinese demand will rise by at least +36 million MT (+7%), which implies a +83 million MT increase (+14%) for the rest of the world.



	2008	2009	Last 3 Months*
<b>Steel Prices (\$/ton):</b>			
-- HR Sheet	843	471	670
-- CR Sheet	931	562	783
-- Wire Rod (low carbon)	874	555	675
-- Rebar #5	787	498	601
-- CF Bar (1018)	1,150	789	846
Steel Scrap (#1HM, \$/gt)	353	208	352
Iron Ore (¢/dmtu)	140.60		
Copper (\$/lb)	3.16	2.34	3.33
Aluminum (\$/lb)	1.17	0.76	0.99
Nickel (\$/lb)	9.58	6.65	
Lumber (\$/Mil Bd Ft)	219	182	291
Diesel No.2 (\$/Gallon)	3.81	2.47	3.02
Crude Oil (WTI, \$/Barrel)	99.57	61.65	79.96
Natural Gas (Henry Hub, \$/Mcf)	8.86	3.95	4.16

\* Average price for March, April and May 2010.

The WSA confirmed that the global steel recovery began around mid 2009, with emerging Asia leading the way and the OECD nations lagging behind.

Industrial commodity prices are very sensitive to the economic cycle. Thus, they declined in 2009—some drastically — and have turned up sharply in early 2010. However, the importance of inventory re-stocking will recede later this year. As it does, prices should return to levels based on the fundamentals of supply and demand.

As for demand, commodity prices should have turned up in 2010, reflecting the need to replenish manufacturers' stocks rapidly. [Financial commodity buyers—hedge funds, pension plans and the like—also returned to the commodity markets in a big way this year] Going forward, however, inventory related demand will diminish. What then?

On the supply side, steel industry production capacity that was shut down during the recession is being re-started, gradually but steadily. The issue for prices is whether the re-starts are leading or lagging the underlying demand fundamentals. If the former, steel prices could ebb once the inventory-related surge in demand has abated. If the latter, prices will continue to increase in the second half of the year.

To gauge underlying demand, focus on trends in the major consuming industries—as shown in Table 1. Beyond those, watch the global economy. Once inventories are replenished, commodity prices shouldn't rise much more—unless economic growth speeds up more than expected. Stay tuned!

*This material was prepared by the Kyser Center for Economic Research, Los Angeles Economic Development Corporation:*

*Nancy D. Sidhu, PhD, Vice President & Chief Economist  
Kimberly A. Ritter, Associate Economist*

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## The Grove Park Inn Resort & Spa Asheville, North Carolina

### Grove Park Inn Dream

#### Dreamnightlife

The Grove Park Inn is home to a fantastic gallery of restaurants, shops, and after-hours destinations. Here you'll discover one of the region's most celebrated restaurants, Horizons, a gourmet's dream that has won the AAA Four Diamond Award and a DiRoNA Award. Other dining options include the Blue Ridge Dining Room, which pairs Southern-Heritage food with spectacular views, and The Sunset Terrace, a classic steakhouse with an award-winning wine list, as well as front-row seats to the sunset over the mountains.

Nighttime entertainment heats up with live music at the Great Hall Bar and Elaine's Dueling Piano Bar. You'll also find concerts, holiday celebrations, and other events happening here DUELING throughout the year.

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For almost a century, our resort has occupied its high perch atop Sunset Mountain in Asheville. Step outside and you are looking out across wave upon wave of the Blue Ridge Mountains. It's an inspiring view: sweeping and magnificent. The resort that grew up here is built on a similarly grand scale. Hewn from native stone and capped by a signature red roof, this landmark hotel has charmed generations. Everything here

is designed to delight, from the two enormous fireplaces that flank our Great Hall to the old-time rocking chairs that line our porches and terrace. Modern amenities, like our luxurious world-class Spa, are equally captivating. Put simply, there is no place else like it.

Since opening in 1913, The Grove Park Inn Resort & Spa has become one of the country's most celebrated resorts, welcoming countless luminaries and multiple presidents through its doors. Along the way, this AAA Four Diamond Property has earned numerous accolades, including a place on Fodor's list of "Top 10 Luxury Spa Resorts" and recognition by Citibank® as one of "America's Great Resorts." by and you'll find two grand pianos sitting side by.





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Framed by the splendor of the Blue Ridge Mountains, our 18-hole, par-70 championship golf course may be the finest expression of mountain golf around. Designed by the legendary Donald Ross, and fully restored in 2002, this is a shotmaker's course, one that emphasizes accuracy over power, making each hole a rewarding challenge for experienced and novice players alike. After your game, spend some time in our clubhouse area, which is home to an outdoor, Olympic-sized pool, as well as the Cabana Grille, an outdoor grill serving snacks and sandwiches.

For more exercise and relaxation, head to our Sports Complex. Measuring more than 50,000 square feet, this facility holds indoor and outdoor tennis courts, a racquetball court, an indoor pool, a weight-training room with Paramount® equipment, and a cardio room. A variety of fitness classes are offered daily, and the Sports Complex also hosts tennis clinics, tournaments, and other activities.

Golfweek's America's Best Resort Courses  
Golfweek's Guidebook Top 10 Golf Courses  
Per State



## Dreamadventure

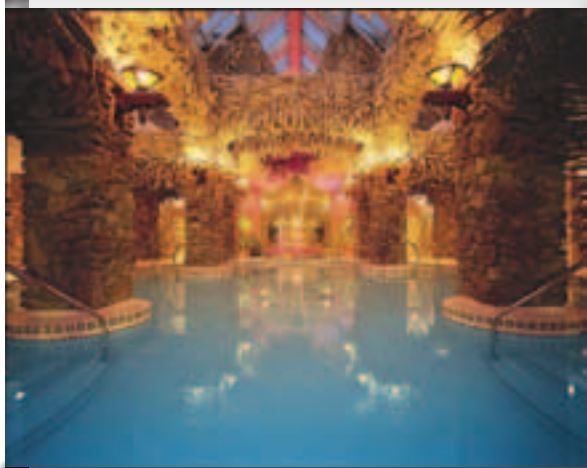
Our resort may feel like a world apart, but our central location is actually an ideal jumping-off point for excursions into Asheville and around the mountains. Called the Paris of the South, Asheville will enchant you with its Art Deco chic, sidewalk cafés, and galleries. Spend an afternoon shopping in historic Biltmore Village. Take a scenic drive along the Blue Ridge Parkway, or set out on a waterfall hike.

## Dreamrelaxation

The Spa at The Grove Park Inn Resort is known as one of the best in the world. This otherworldly retreat, accessed from an entrance within the hotel, is an architectural marvel measuring more than 40,000 square feet. Once inside, you'll feel like you've entered a magical underwater cavern of stone, one with abundant pools (including mineral pools, contrast plunge pools, and a lap pool) set off by the effervescence of myriad indoor waterfalls. It's a place to relax for the day. Bask fireside in one of the lounges. Decompress in the saunas and steam rooms. Take in the mountain views from the Spa's outdoor Jacuzzi®, or idle by our outdoor fireplace.

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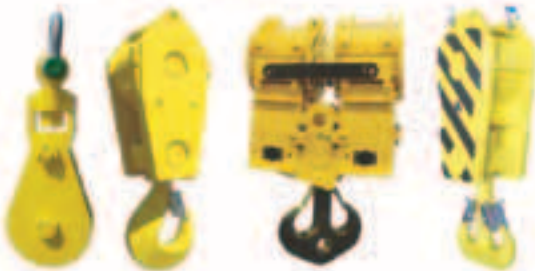


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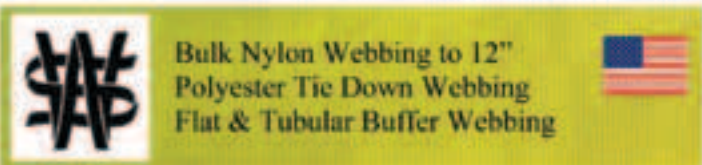
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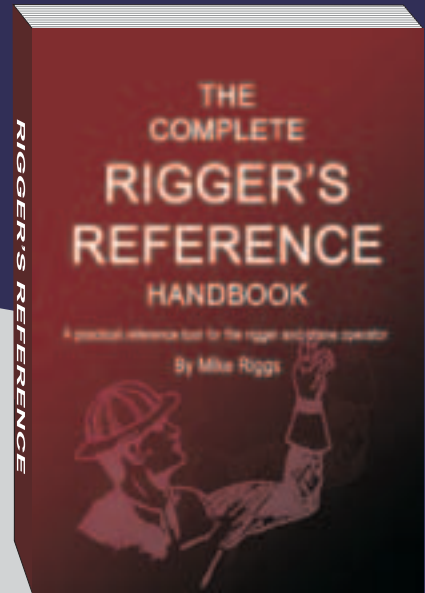
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## New Website Brings Exciting Changes to ITI



Woodland, WA – May 25, 2010 – Industrial Training International (ITI), a leading provider of crane and rigging training and consulting worldwide, announced today that it will be launching a new website in June. The site will feature an all new online store and e-learning platform. Customers will have the ability to enroll in courses at ITI training centers, purchase reference materials, as well as e-learning courses all online.

The site will feature a new online store and e-learning platform, giving customers the ability to enroll in courses at ITI's training centers, and purchase reference materials, as well as e-learning courses all online.

"We are very excited to roll out this new, interactive website for our loyal customer base here at home and around the world," said Mike Parnell, President and CEO of ITI.

The new website will showcase four new divisions under ITI's umbrella. ITI Field Services, Certification, Bookstore, and E-Learning will be added to the brand's existing Training Division.

Formerly known as Wire Rope & Rigging Consultants, the Field Services Division provides accident investigation, crane and rigging audits, lift planning services, and expert witness testimony among other services.

The Certification Division provides training offerings and resources for customers regarding nationally-accredited crane and rigging certifications plus ITI-qualified certifications.

The Bookstore, formerly known as Training & Inspection Resource Center, will continue to offer industry-specific resource materials and products, such as books, reference cards, CDs, and tools.

"We are especially excited about our new E-Learning Division," said Mr. Parnell. "We will be offering most of our rigging and crane courses online and have been encouraged to do so by our customers for some time. E-Learning participants can sign up for hands-on training days at our two national training centers to round out their educational experience."

ITI will release a Basic Rigger and Signalperson online course in September. Other courses will be introduced throughout the year.

You can view ITI's new website in June at [www.iti.com](http://www.iti.com).

**Contact:**

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# Profit Improvement Report

## Asset Reduction Programs: Chopping Versus Pruning

So this distributor walks into a bank and asks for a loan....No need to wait for the punch line as it is no laughing matter. In many cases the credit available to distributors has all but dried up. Where money is available, banking requirements are becoming more restrictive almost every day. The likelihood of things getting better any time soon is remote.

With enough patience and concerted effort, the cash challenge associated with disappearing lines of credit can be overcome by rethinking gross margin and expense levels even during a recession. In fact, this will be the topic of the next PIR. However, many distributors need cash now, not in six months. The conclusion is that inventory and accounts receivable reductions are in order.

The reality is that most of the actions typically taken to lower investment levels are cash positive in the short run and dangerously profit negative in the long run. Given the multiple effects of cash generation programs, AWRP members need to take a step back and rethink their investment levels in some different ways.

This report will examine two very different approaches to reducing the investment levels in accounts receivable and inventory:

- **Chopping**—An immediate reduction in investment levels to generate cash as quickly as possible.
- **Pruning**—A more gradual approach to investment reductions, but one which does not create long-term profit problems.



By Dr. Albert D. Bates  
President, Profit Planning Group



### Exhibit 1 The Impact of an Investment and Sales Reduction For a Typical AWRP Member

		5% Investment and Sales Reduction
<b>Income Statement—\$</b>		
Net Sales	Current \$7,000,000	\$6,650,000
Cost of Goods Sold	4,690,000	4,455,500
Gross Margin	2,310,000	2,194,500
Variable Expenses	350,000	332,500
Fixed Expenses	1,540,000	1,540,000
Total Expenses	1,890,000	1,872,500
Profit Before Taxes	\$420,000	\$322,000
<b>Income Statement—%</b>		
Net Sales	100.0	100.0
Cost of Goods Sold	67.0	67.0
Gross Margin	33.0	33.0
Variable Expenses	5.0	5.0
Fixed Expenses	22.0	23.2
Total Expenses	27.0	28.2
Profit Before Taxes	6.0	4.8
<b>Key Investment Items</b>		
Accounts Receivable	\$750,000	\$712,500
Inventory	\$1,500,000	\$1,425,000
Total Cash Freed Up		\$112,500

### Chopping

Time to state the obvious—chopping is something of a pejorative. However, in extreme circumstances it may be the only alternative. The problem is that it is often applied even when there are other alternatives available. Very serious thought and care needs to be employed when adopting this strategy.

To fully understand the impact of this approach, it is first necessary to review where the typical AWRP firm stands. Exhibit 1 provides a financial overview of this typical firm based upon the PROFIT Report. The first column in the exhibit reflects results before the current economic challenges.

This firm generates \$7,000,000 in revenue, resulting in a pre-tax profit of \$420,000, or 6.0% of sales. Generating this level of performance requires an investment of \$750,000 in accounts receivable and \$1,500,000 in inventory.

Like every firm in every industry, this typical firm has both fixed expenses and variable expenses. Fixed expenses are overhead expenses that tend to be difficult to shed as sales fall. In contrast, variable expenses rise and fall directly with sales. These have been estimated to be 5.0% of sales. According to the PROFIT Report, these figures are reasonably close to most AWRP members.

The last column reflects the impact of a 5% reduction in both accounts receivable and inventory. As can be seen at the bottom of the exhibit, with the 5% reduction in these categories, a total of \$112,500 is converted into cash. It provides the firm with substantial breathing room from a cash-flow perspective.

The challenge is that even with reductions as small as 5%, there is the likelihood of a sales decline because of the reduction in investment levels. If accounts receivable collections are tightened sharply and credit limits are lowered, sales suffer almost automatically. On the inventory side the firm essentially places limits on the amount of merchandise that can be ordered. The result here is that the firm runs out of stock on key items quickly. Again, sales will suffer.

If sales decline by 5% (simply one of many potential scenarios), then pre-tax profit falls by \$98,000. Assuming a 30% tax rate, the after-tax profit decline is \$68,600. It needs to be noted that the \$112,500 conversion of inventory and accounts receivable to cash is a one-time event while the decline in profit after taxes of \$68,600 is an every-year problem. It could even be worse as being out of stock eventually creates serious customer-satisfaction issues.

There are also some other potentially negative effects from chopping that cannot be adequately quantified. An inventory reduction will necessitate ordering in smaller quantities. This could cause the firm to lose some order-quantity discounts. Ordering in smaller quantities also means more frequent ordering which increases receiving and stocking costs.

The case for chopping is much stronger if sales have already declined. In this case the firm is responding to a deteriorating situation. Even here, though, caution is in order. Investment reductions, particularly with regard to inventory, almost always cause a further deterioration in sales volume. If for example, sales decline by 10% and inventory is cut by the same 10%, sales will almost certainly fall ever further because of the inventory reduction.

## Pruning

Time to add another arcane term to the profitability vocabulary. In pruning the inventory, firms need to “de-deadify” the inventory. This means a focus only on dead inventory in an intense effort to eliminate items that have not registered meaningful sales activity over the last year.

Clearly, such inventory generates no sales volume. Converting the inventory to cash would not reduce the firm’s service level in any way. It is as close to a pure cash opportunity as exists today.

The challenge, of course, is that nobody wants to buy the dead inventory or it wouldn’t be dead in the first place. This has caused most firms to ignore the pruning opportunity. However, through a combination of deep

discounting, active promotion and simply dumping some inventory for a tax credit, substantial improvement is possible.

If the firm could eliminate 10% of its inventory, that is a reduction of \$150,000. Since such merchandise is unlikely to generate more than 50% of its cost in discounted sales, the potential cash conversion is around \$75,000. It is not an inconsequential change given that it should not come at the expense of a sales decline.

Another downside to pruning is the time frame involved. A concerted de-deadifying project will take anywhere from three to six months to complete. In order for the project to be successful, somebody must be responsible for the process during that time. The entire firm must support the effort.

## Moving Forward

When lines of credit dry up, changes in investment levels are almost inevitable. If at all possible, such reductions should be driven through pruning rather than chopping. The long-term sales and profit challenge is eliminated with this approach.

However, for firms with serious issues regarding cash flow, there may be no alternative to chopping. When contemplating such a drastic strategy, though, it is essential to be fully informed of the consequences. Unless planned properly, serious profit reductions will follow.

## A Managerial Sidebar:

### The Nature of the Pruning Opportunity

The pruning opportunity is almost entirely concentrated among slower selling items, the so-called D items. However, it is essential to distinguish between dead inventory and simply slow sellers. As long as the D items have some reasonable sales opportunity, they are where the firm’s gross margin dollars are concentrated. They should not be pruned.

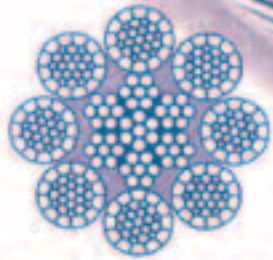
Product Category	Percent of Sales	Percent of Inventory	Comments
A	60	45	Highly price sensitive Must always be in stock Brag about price and in-stock performance
B	20	20	Somewhat price sensitive Typical service level Basic items
C	15	15	Slower sellers Price for margin Maintain adequate in-stock position
D	5	20	Specialty/unique items Price for maximum profit Eliminate dead items
Total	100	100	



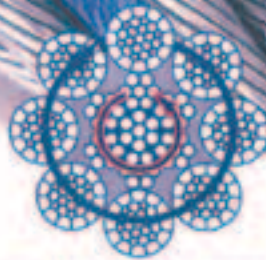
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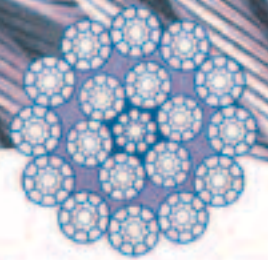
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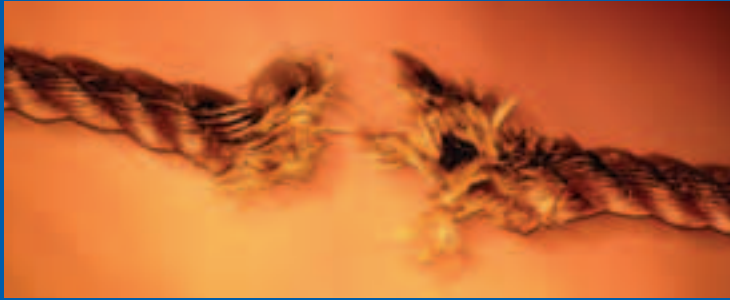
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## First of its Kind Proof Testing Machine Invaluable for Sling Testing

Houston, Texas (Marketwire) August 2, 2010 — Bishop Lifting Products, Inc. (BLP) recently completed construction of its new 3.3 million pound (1500 metric ton) proof tester. With an overall length of 323 feet, and inside pulling length of around 275 feet, it's the most technically advanced proof tester ever built. Designed and fabricated by Chant Engineering and Bishop Lifting, it's a first of a kind 3-in-1 testing machine for proof testing slings, crane blocks, spreader bars, oilfield equipment and rigging gear.

David Bishop, CEO of Bishop Lifting Products, Inc. headquartered in Houston, TX, managed the testing equipment expansion project. "We've needed a larger proof tester for a long time, and moving to a new 13 acre facility made this dream an easier reality." said David

The use of proof testing equipment is an important function of sling fabrication. More and more customers are now requiring proof testing on all slings. Proof Testing was driven by the offshore drilling industry and is mandated in the ASME B30.0 "Slings" standard on alloy chain slings, metal mesh slings, and any sling that has been modified or repaired.



Bishop Lifting Products fabricates a variety of sling types, and has been an award winning fabricator of Slingmax® Rigging Solutions. Slings are used for lifting any type of load no matter the size, weight or shape. Bishop Lifting Products partnered with Slingmax® to supply the right Twin-Path® or Gator-Laid® sling for each lifting job. Industries that utilize slings for their lifting applications include aerospace, construction, crane and rigging, government and military, manufacturing, commercial fishing, mining, oil & gas, petrochemical, pipeline, and power generation.

## About Blp

Founded in 1984, Bishop Lifting Products, Inc. (BLP) is a leading fabricator and distributor of products, services, and lifting solutions for crane, rigging, and oilfield applications. Our 180+ dedicated employees throughout Texas, Louisiana, and Wyoming supply wire rope, slings, rigging hardware, lifting devices, hoists and winches to customers with lifting, oilfield, towing, and hauling applications.

**For more information, please contact:**  
David "Mo" Moseley, Vice President of Marketing  
Bishop Lifting Products, Inc. (BLP)  
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713-674-2266 office • 713-671-7803 direct  
david.moseley@lifting.com email

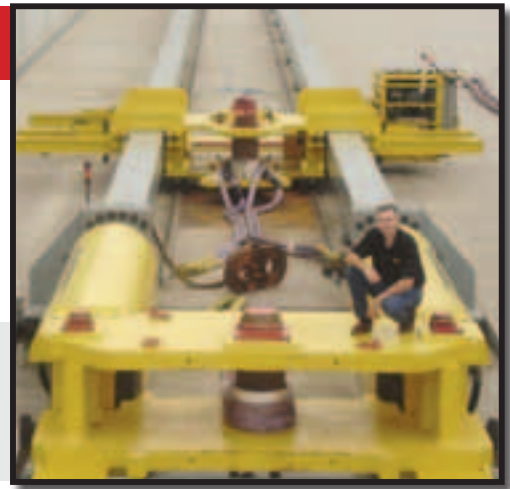


\* pictured left to right: Randy Brown, Mike Davenport, Harold King, Jeff Bishop, Phil Chant, David Bishop



Chant Engineering Co. Inc.  
59 Industrial Drive • New Britain, PA 18901  
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## 1500 MT Proof-Test Machine



1500 MT Proof-Test Machine; Phil Chant

The vision for this project was to design and build a high capacity, multi-faceted proof test machine to service the offshore Oil drilling and rigging industry. The result was a Chant 1500 metric ton, 100-meter proof test machine capable of testing equipment to the industry accuracy standard of ASTM E-4, +/-1%. The machine's capabilities include traditional load, proof cycle and break testing to 80 meters at the full capacity of 1500 metric tons. The second feature of this multiple capability machine is the ability to test spreader bars. This feature is unique in the fact that it utilizes the same push cylinders (for proof testing) to test the spreader bars (pull) in tension. Finally, the machine features a test "pit" to allow the proper centerline positioning for the purpose of load testing large, often cumbersome, offshore crane blocks.

### Features:

The proof-testing portion of this machine is capable of testing slings from 11 meter up to 80 meter long, to the full capacity of 1500 metric tons. It employs a traditional approach to proof testing in that it features two anchor points. The first, being the cylinder section capable of moving the powerhead. The second, a moveable head that travels the entire length of the machine for testing different length slings.

The powerhead portion of the machine employs the use of two 750 metric ton cylinders in push. There is one load cell on each cylinder calibrated to ASTM E-4 and attached to the powerhead.

The moveable head portion of the machine moves the entire length of the machine under its own hydraulic power. It is a two-piece moveable head employing hydraulic cylinders and pins to systematically "walk" down the frame to remove the slack in the largest of specimens.

This moveable head also has hydraulic cylinders built in so that during it's "walking" down the frame it can pre-stretch the test specimen up to 135 mt (300K lbs).

The machine is capable of testing spreader bars. This is achieved utilizing the same 750 metric ton cylinders in compression, to pull the spreader bars to load in tension. The use of a "dead man" at the powerhead section of the machine allows the testing to be completed out of the way of the rest of the machine.

Incorporated into the frame section of the machine is a concrete "pit" that will allow the testing of large crane blocks. The incorporation of the pit allows the

specimen to be placed into the existing framework and utilize the existing "centerline pull" of the machine. These specimens are large and varying in shape. An option, not incorporated on this project, would involve the use of a hydraulic lift table in the pit. This would aid greatly in the rigging process prior to the test.

### In Memory of

## JAMES H. (HOMER) AMICK, SR.

Age 89, of Bethel Park , on Friday, July 9, 2010. Beloved husband of 57 years to the late Grace K. Amick; loving father of James H. Jr. (Janet) and Douglas C. (Judy) Amick; devoted grandfather of Brian (Andrea), Robyn (Marc) Ostryniec, Jennifer (Nick) Crouse, D.J., Ashley and Matthew Amick; dedicated great grandfather of Josie and Adam Ostryniec and Olivia Crouse; brother of the late



Dorothy Morrison, Chester, Marjorie and Herbert. Jim served in the U.S. Army Air Corps during WWII. He was awarded the Distinguished Flying Cross for extraordinary achievement as a pilot of a B-26 aircraft which included 57 missions. After graduating from the University of Pittsburgh, he co-founded with his brother Herb, Amick Associates, Inc., which is now a third generation company. Jim was an avid golfer and Corvette lover. Funeral arrangements by BEINHAUERS. Friends welcome at 2828 Washington Road , McMurray 724-941-3211 on Sunday 2-4 and 6-8pm where service will be held Monday 11am. Interment Jefferson Memorial Park . Memorials may be made to the American Heart Association. Please add or view tributes at [www.beinhauer.com](http://www.beinhauer.com) Send condolences at [post-gazette.com/gb](http://post-gazette.com/gb)



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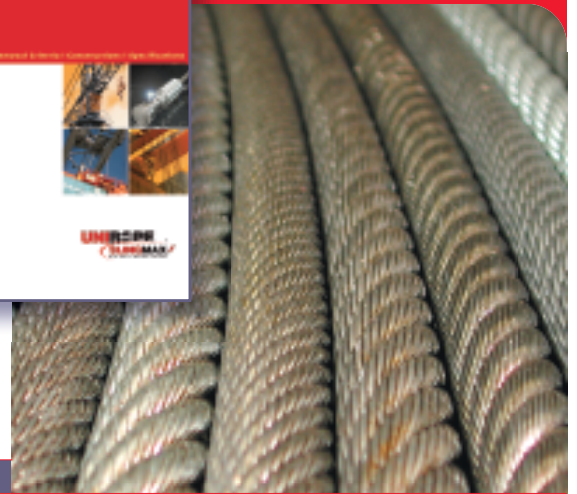
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# Pelican Rope Works Becomes First Cordage Manufacturer Worldwide to Use Stronger, Lighter Weight DuPont(TM) Kevlar(R) AP Technology in Its Products



**Pelican Rope Works**  
Ed McLaughlin • 800-464-7673  
ed@pelicanrope.com

SANTA ANA, Calif., May 27, 2010 (GLOBE NEWSWIRE) – Pelican Rope Works announced today that it is offering a new line of rope and webbing products made with the recently introduced DuPont™ (NYSE:DD) Kevlar® Advanced Performance (AP) fiber technology. The West Coast company is the first cordage manufacturer worldwide to use the stronger, lighter weight Kevlar® fiber in its products.

One of a select few rope manufacturers to meet the stringent ISO 9001:2008 certification requirements, Pelican Rope Works will make this next generation of advanced fiber technology cordage available to the military, law enforcement, fire and rescue professionals, and industrial safety and consumer markets worldwide.

“We at Pelican Rope Works believe in partnering with our customers and suppliers in a collaborative effort to remain on the cutting edge of technology and product performance,” said the company’s president, Terry Walker. “Our new line of Kevlar® AP rope products is the latest step in our continuing commitment to produce the highest performance products available in the market today.”

DuPont™ Kevlar® brand fiber has earned a worldwide reputation for improving the performance of a wide variety of consumer and industrial products. With up to 15% higher tenacity than standard Kevlar® K29, the new Kevlar® AP fiber delivers better performance and provides unique design flexibilities across a wide range of industrial applications.

“Pelican Rope Works is a valued customer and shares our pursuit of innovation and continual improvement to provide the best products and service to its customers,” said Kathy Kowalski, global marketing manager for performance materials, DuPont Protection Technologies. “DuPont™ Kevlar® fiber has evolved over more than four decades in response to changing market and customer requirements. The new Kevlar™ AP formulation underscores our commitment to the high-performance materials market.”

For more information, visit [www.pelicanrope.com](http://www.pelicanrope.com). The company is also reachable at 800-464-ROPE or via email to [info@pelicanrope.com](mailto:info@pelicanrope.com)

## About Pelican Rope Works

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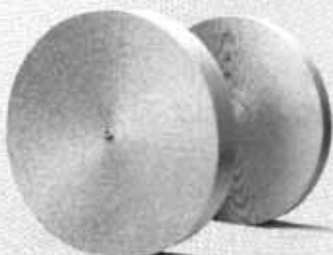
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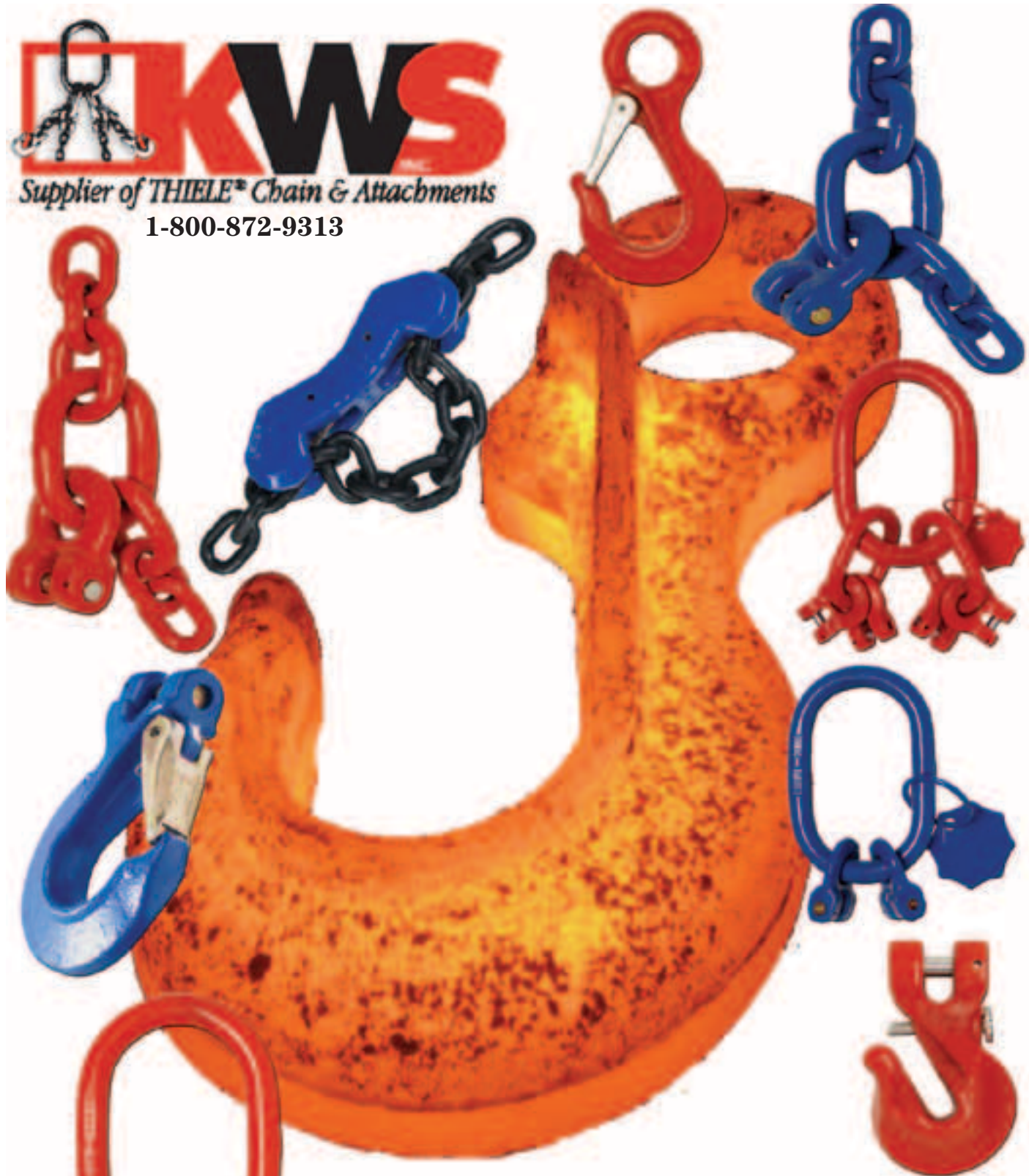
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## Understanding wire rope crushing and how to minimize it

By Dennis Fetter



Dennis Fetter is senior vice president / chief technical officer for WireCo WorldGroup, Kansas City, Mo. This article is excerpted from a presentation he made at the Crane & Rigging Conference in May 2010 in Houston, Texas. He can be reached at

dennisfetter@wirecoworldgroup.com. Additional information on crushing can be found in a product bulletin on WireCo's website. Go to [www.unionrope.com](http://www.unionrope.com) and enter "drum crushing" in the search field.



Drum crushing is a mode of rope deterioration that must be considered when there are multiple layers of wire rope on a drum. OSHA and industry standards recognize that some wire rope deterioration doesn't reach the "appreciable loss of original strength" level and that crushing can be less than severe. That leaves it to the person doing wire rope inspections to evaluate the severity of crushing. By identifying the points where crushing is likely to occur, the inspector will be armed with greater information to determine the level of deterioration.

This article will provide basic background on spooling, crushing and the causes and locations of crushing. It does not cover crushing caused by uncontrolled spooling.

### Spooling

Crushing can occur in multi-layer spooling regardless of the drum type - it occurs on smooth face drums, spiral grooved drums, and counterbalanced grooved drums. It most commonly is seen at the crossover points and is indicated by a distinctive pattern. The crossover points occur where the rope spooling on the drum moves from the valley between two ropes on the layer below to the next valley. This happens twice on every revolution of the drum because the bottom rope layer is moving one direction across the drum and the top rope layer is moving the opposite direction.

On both smooth drums and spiral grooved drums, these two crossover points are usually not equally spaced. There's a crossover, a short distance, a crossover, and a long distance in a repeating pattern.

On a counterbalanced drum, the crossovers are controlled and positioned 180 degrees apart on the drum. When observed on a length of rope, the repeating pattern will exhibit the same distance between each crossover location. This type of drum was originally developed for sandlines in the oil field where rope

lengths are measured in thousands of feet and subsequently there are many layers of rope on a drum. Since each crossover slightly increases the rope's distance from the drum's center axis, unequal spacing causes the drum to be out of balance at high rotation speeds. The effect is similar to what a car experiences when a tire is out of balance. Counterbalance grooving, because the crossovers are on exactly opposite sides of the drum, prevents the out-of-balance condition in multi-layer spooling.

Another location where crushing potentially occurs is at the point the rope reaches the end of a layer and is

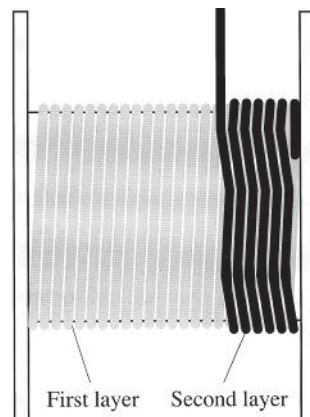
forced up to the next layer. The rope is "pinched" between the last wrap on the layer and the drum flange. This occurs only once on each layer.

Under certain severe conditions, crushing can occur to a properly spooled rope even when it is sitting in the valley between the two ropes on the layer below. This is not a common occurrence.

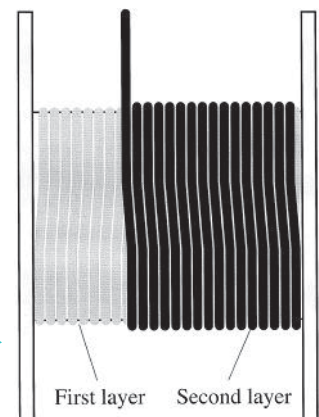
There are many things that cause wear or damage to wire rope. Crushing is unique because it is a common mode of deterioration that changes the roundness of a rope. This photo shows crushing that has occurred at a crossover point.

At the location in the rope length where crushing occurs, another type of wear, called scrubbing, also occurs. While crushing happens on the top and bottom of the wire rope winding on the drum, scrubbing occurs on the sides of the wire rope at the same point. When the rope spooling on the drum "runs into" the previous wrap already resting in the same valley, it slides against this wrap and is forced over into the next valley. This sliding or scrubbing results in wires being damaged and pushed out of place, but the rope is still round.

If you notice broken wires or other types of wear occurring only at certain places in a rope, mark the locations with paint or chalk to see if there is a repetitive pattern. A repetitive pattern is a good indication that the damage is occurring on the drum at the crossover points.



← Crossover pattern for spiral groove or smooth drum



→ Crossover pattern for counter-balanced groove drum



This photo shows crushing that has occurred at a crossover point.

## Why do ropes crush?

**Pressure:** The more load you put on a rope, the more radial pressure you put on the rope layers on the drum. The amount of pressure is also influenced by the D/d ratio (the diameter of the drum divided by the diameter of the rope). The smaller this ratio, the higher the pressure and the more likely that crushing will be a problem. Consider a five gallon bucket with a wire handle. When you lift a bucket full of water, the pressure on your hand is great since the load must be transferred through the limited contact area with the wire handle. However, if plastic or wood encases the wire handle, the contact area is greater and the contact pressure on your hand is lower – even though the weight remains the same. Likewise, the bigger the drum, the lower the crushing pressure on the wire rope.

**Tension:** Consider a boom hoist used to raise the mast and boom on a lattice boom crane. The first two to three layers of rope on the drum raise only the mast and are under very little tension. But when the boom is raised, there is much greater tension in the rope as it spools on the drum. The rope raising the boom may not crush, but it frequently crushes the rope on the layer below it on the drum that raised only the mast. This is the same rope – the only difference is the tightness of the rope from the increased tension in the rope when it raises the boom.

**Rope construction:** The most common boom hoist rope used for years was 6x26 WS IWRC. That construction has been improved upon. Now there are six strand ropes that feature compacted strands which increase the rope's resistance to crushing. In addition, WireCo produces a rope specifically for use on boom hoists called Flex-X9, which is a nine-strand rope that is double compacted to maximize resistance to crushing. Choosing the right rope to fit your requirements can reduce your problems and minimize your costs.

## How to evaluate crushing:

Regulations and standards (including OSHA 1910.184, 1926.550, 1926.1413 and ASME B30.5) require that examination of rope for crushing be part of rope inspections. WireCo tensile tested the crushed area shown in this photo and compared the results to the tensile test conducted at the time the rope was manufactured. This crushed area had an approximate five percent loss of strength. In the field, evaluation is subjective and you have to weigh the severity of the crushing in an inspection. Keep in mind that crushing inhibits wires and strands from moving, which also decreases the rope's service life.



The crushed area of this rope had an approximate 5 percent loss of strength.

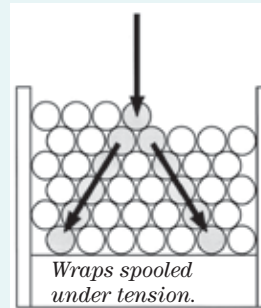
Here are three points to consider when evaluating crushing.

- 1. Location:** In the earlier example of the lattice boom crane, the bottom layers on the drum that raise only the mast are more susceptible to crushing than the top layers. However, because the load the rope that comprises the base layers must lift is significantly less than the layers that raise the boom, crushing in this location of the rope is not as critical. The bottom layers that raise the mast essentially become like dead wraps on the drum when the main boom is raised.
- 2. Severity.** Compare the amount of crushing to the photo above that had a five percent loss of strength. Consider the crushing found in an inspection in conjunction with all other conditions such as wire wear, broken wires and corrosion when determining rope serviceability.
- 3. Remember** that new rope crushes more rapidly than it does after it has been in service for a while. As a rope is used, loading of the rope pulls the wires and strands tighter around the core, thus increasing its resistance to crushing.

## Steps to minimize crushing

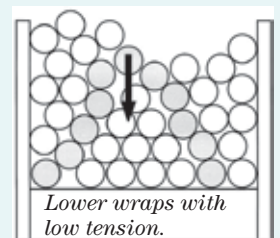
Many of the factors related to rope crushing are a function of how the crane is designed, including the number of parts of line and the type of rope recommended. The crane manufacturer also made choices regarding drum diameter and type. Some of these are factors that can't be changed but have an impact on drum crushing.

From an operational standpoint though, you do have a choice when it comes to rope selection. If, for example, the 6x26 Warrington Seale that came on the crane experiences crushing, you need to decide whether you should replace it with the same rope or perhaps select a more expensive rope that offers better resistance to crushing. That's an economic decision.



It's also important to try to install rope under tension, putting base layers on as tightly as possible to keep them in place. Once

installed, especially for hoist ropes, take the time to break in the wire rope. Reeve the crane with enough parts of line to get all but the required dead wraps off the drum and then run it through a number of cycles with increasing loads. This removes constructional stretch and makes the rope more resistant to crushing. Also consider how much rope you actually need. Just because your crane came with 1,200 feet of hoist rope and is designed for 10 parts of line, if you are consistently only using six parts of line, then there are several hundred feet of rope that you are not using. That extra rope is likely going to crush or cause other spooling problems. Use the length required for the job you have if possible.



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# THE FIRST ERA OF THE AWRF TECHNICAL COMMITTEE

*Continued from page 9*

companies, twelve more braided slings were fabricated by two commonly-used methods. These became AWRF / WRTB Test Program V-b which was performed gratis in Missouri by Wire Rope Corporation of America. An unfortunate dispute arose over the information derived from Testing Program V. The AWRF-TC's analysis of the resulting data was disputed by one of the two participants causing an independent minority report to be circulated in 1998. This action, which contravened AWRF's refereed conclusions, could have placed the entire AWRF Test Program concept in jeopardy, but Pres. Ned Librock handled the issue very diplomatically. He aired details of the dispute in a neutral manner before the membership at a general meeting.

President Librock and Vice President Bob Myers, both of whom spoke from the stance of being Associate Members from multi-national companies, held a belief the purposes of the association would be well served by establishing closer ties with all or any of the trade and technical associations similar to AWRF in Western Europe. The emergence of unified EU standards for lifting and rigging products, and the future advent of a single unified eurodollar currency, were timely reasons to consider a possible expansion of AWRF into Europe. Librock suggested a good way to begin the effort would be for the association to send a good will ambassador to Europe in 1998, making connections with as many of the other associations as possible.

It was agreed that Sayenga, as executive and also as secretary of AWRF-TC and the AWRF Testing Committee, should make the trip as AWRF's emissary. He was instructed to travel at AWRF expense, and report results to the Directors during the PIE meeting at Nashville. The most important new contact established was with LEEA, the Lifting Equipment Engineers Association based in the UK. Derrick Bailes who directed LEEA was invited to make a presentation at an AWRF general meeting. Through LEEA

contacts were made with individuals working on the unified EU standards and the CEN systems for product certification.

Also, Sayenga had been serving for almost ten years as a Board member of OIPEEC, the France-based international organization for the study of wire rope. There had been some discussion within OIPEEC of conducting an exchange of meetings with AWRF. These ideas were brought into focus as an outcome of AWRF's initiative. In 1999, during a meeting at Krakow, Poland it was announced Don Sayenga had been elected President of OIPEEC, the first non-European to serve in that role. Soon after, a follow-up announcement called for papers to be presented at a joint meeting of OIPEEC and AWRF-TC to be held in the USA in 2001.



*"At Crosby's lab in Tulsa, TP VI results were studied by Dr. Tipton, Smith, Kowalick, Will, Roberts, Lucas, Sellers, Sayenga and Buschmann"*

In the summer of Y2K 2000 the results of the sixth AWRF testing program were made public. The tests, which were an expansion of TP IV, were conducted at Crosby's lab in Tulsa. The tests demonstrated conclusively that fabrication of a tapered eye does not affect the strength of a web sling, but a detrimental effect on strength will result if an untapered eye is subjected to bunching on a hook or other curved fitting,

In August 2001, the AWRF-TC conducted a triple joint meeting with the Cordage Institute and OIPEEC. This joint gathering at Lehigh University took a giant step toward enhancing AWRF's technical presence internationally. The

very successful OIPEEC Roundtable attracted numerous delegates from other countries. It concluded Sayenga's first term as President of OIPEEC. Although it was traditional to re-elect OIPEEC presidents for a second 2-year term, he declined the honor because his transition into retirement in 2004 at AWRF was already underway. As of August 2001, none of the international attendees (nor any average person in the USA) could have guessed the global political situation was about to take a turn for the worse one month later.

In addition, a few questions had been raised about possible bias in tests conducted by members at their own facilities. To avoid future criticism of such tests, Hardy Will introduced idea of making a formal contract with Sherry Laboratory in Tulsa to conduct all future testing programs. This would be appropriate for continuation of Dr. Steve Tipton as AWRF's independent referee.

Also in the summer of 2001, the ASME B30 committee changed the schedule of its meetings, switching to a January-May-September pattern thereby creating a minor conflict with the AWRF board meeting, AWRF-TC meetings and General Meetings schedule. AWRF President Knut Buschmann, who had been very active with the AWRF-TC, handled all these changes carefully along with managing the executive search interviews at the same time.

After the search was concluded in 2002, Jeff Gilbert, (the AWRF Past President who had preceded Librock) was announced as the new AWRF Chief Executive. A staged transition plan was devised to phase-in a relocation of the AWRF headquarters to Michigan. The new office set-up at Novi had facilities



*Jeff Gilbert*



*Frank Becker*

for meetings. Jeff had been very active with the AWRF-TC making it logical to presume he would step into the role of B30 delegate, and serve as secretary for the AWRF-TC and the Testing Committee. In connection with this, Becker notified the association he would like to end his voluntary service as AWRF-TC chairman at the end of 2003.



*"Frank Becker conducted the last of the AWRF-TC meetings under his leadership in 2003."*

The 27th AWRF President, Jim Fletcher, announced Sayenga's final duty in the timed phase out would be to temporarily take over the volunteer role being vacated by Becker. Sayenga, however, proposed to call himself a coordinator rather than a committee chairman. He then made the first of two drastic proposals; to merge the technical and testing efforts into a single entity. He believed the need to establish credibility, which had caused the Testing Committee to be set up as fully independent, had been satisfied by the remarkable success of the test programs. The Technical Committee and Testing Committee agreed to the change.



*"Sayenga discussed the transition to new management with Frank Becker and Howard Will."*

However, when a second drastic proposal was announced, to dissolve the combined Technical & Testing Committee, substituting an assembly of short term, single focus, task groups, the committee rebelled. As a result, Sayenga stepped out of the chairman role. AWRF President Mark Metz named Don Pellow to become Becker's successor of the AWRF-TC. It was understood Pellow would continue AWRF-TC in its traditional format including ten products-related subcommittees, with testing added as one of the subcommittees.

Meanwhile, the results of TP IX were assimilated. The program had sought information about the effect of cyclic loading on the breaking strength of roundslings fabricated from eight different synthetic yarns. and also it was hoped to identify which, if any, of the synthetics performed better than the others. No significant differences were noted and the general feeling was that an insufficient number of cycles had been implemented in the test.

Pellow gave his first report at the Savannah Georgia general meeting in May 2004. Under his leadership new subcommittees were established to look toward new horizons of technical information. By 2005 progress was underway in several new areas including Risk Management, Mechanical & Non-Electric Hoists, Load Securement, and Testing Methods. Ron Raymond of J C Renfroe took an active role with ASME B30.20 Below-the-Hook Lifting Devices subcommittee. He reported on activity with ASME to launch a new design specification known as BTH-1. Raymond's activities led toward a proposal to test the gripping characteristics of plate clamps.

One of the biggest changes instituted by Pellow was to ask the association to purchase copies of the ASME B30 safety standards deemed of use for the members. The directors agreed with this change. In June 2006 he presented an ambitious 3-5 year plan with heavy emphasis on providing formal documents to the members. This included not only

B30.9 but also portions of B30.10 and the new BTH-1 and some of the CI standards. His program called for a presentation by two speakers at every general meeting, and listed twelve objectives including testing plate clamps, developing warning & tagging advisories, assisting WRTB with revisions to the WRTB's Sling Users Manual, distributing a new chain ID guide, and a new guideline for proof testing.



*Don Pellow*



*Knut Buschmann*

Pellow was able to continue the schedule of two AWRF-TC meetings each year. He had hoped to hold his summer meetings at a central location (Kansas City) but an existing contract problem caused the summer 2009 meeting to be held in Austin TX. Gilbert had been attending meetings and voting on ballots while waiting to be seated on the ASME B30 Committee.

In 2008 it was announced an OIPEEC conference would be held in connection with the 3rd International Ropedays seminar at the technical university in Stuttgart, Germany. This gathering was intended to celebrate the "175th Anniversary of Modern Wire Rope". One dramatic outcome of the conference was that AWRF Past President Knut Buschmann was elected as President of OIPEEC and Jeff Gilbert was elected the Secretary Treasurer. When they took office in 2009, the transition of the AWRF-TC into an internationally recognized technical organization was at last completed.

*By Don Sayenga, AWRF Historian*

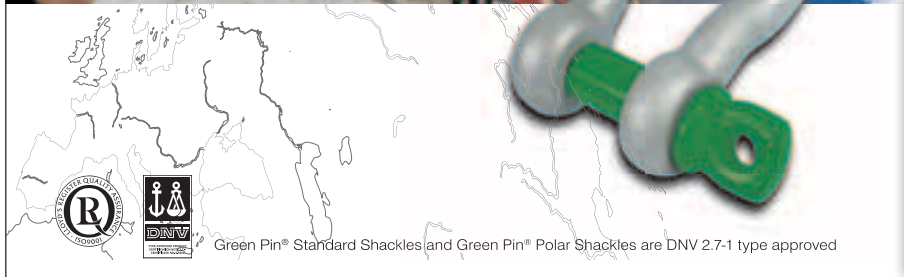


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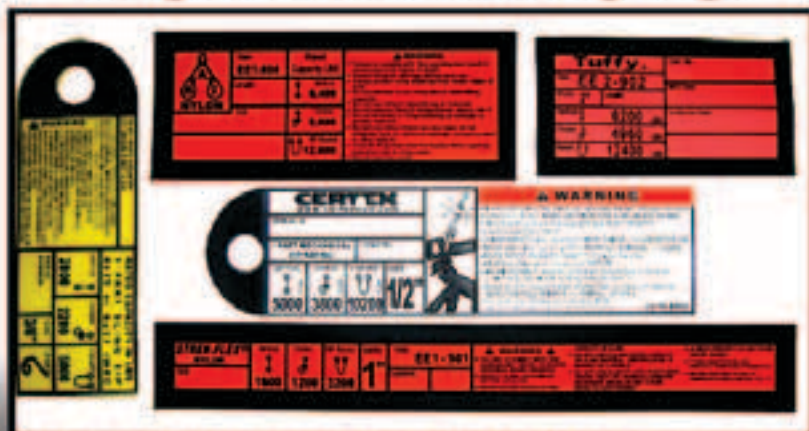


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