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Keep on Greenin’

By Ron Hutchinson, CEM, 2007-2008 National President

Since our last issue of “Equipment Manager,” the Christmas and New Year Holidays have come and gone. I hope the 2007 season was safe and satisfying for everyone involved in our business. This past October, our family was blessed with our first grandchild, Jessica Rae. Her birth was a reminder of our obligation to the environment that will impact her life for many years to come.

Over the past years, we asset managers have seen major changes in the regulations that govern the operation of our asphalt, concrete and aggregate production facilities. Many of our plants have earned environmental awards from various organizations, and we need to commend everyone that has accomplished this.

For the past several years, the engine manufacturers and fuel/oil suppliers have been working to reduce pollutants, including NOx (nitrogen oxide) and PM (particle matter), in the exhaust of new diesel engines that we all use in our new equipment, both on- and off-road. Our next challenge is the reduction of the pollutants put out by our existing equipment. With diesel-powered equipment sometimes lasting in excess of 25 years, there is a large pool of machinery that will be regulated in the near future, and that development will greatly impact the way we as asset managers conduct our business.

Even though the final plans for the various states have not yet been enacted, the Association of Equipment Management Professionals recognize this as an important issue. AEMP is determined to be the place to go to obtain information or education on this subject. We will see new rules enacted in the next three to five years in various locations, and now is the time to start taking a proactive approach to preserve our companies’ strength in the industry. The positive economic impact will be great to the general health and well-being of the public sector. There will be grants available to support asset managers working to obtain the results we need, but homework will be required. We need to survey our fleets and investigate ways to achieve reductions in NOx and PM that will fit into our business plans.

Now back to Jessica Rae, as well as your children and grandchildren. We as leaders in the equipment profession need to recognize our duty to protect the environment and the health of all our children and children’s children. We have been “greening” for years, but the work is not done. Keep up the good work.
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Today, the company is comprised of three segments: cranes, foodservice equipment, and marine. In each of these segments, Manitowoc is the industry leader in market share, product innovation, and product support services.

They have operations in more than 20 countries around the world and will continue to expand the global reach of products and services to meet the needs of their customers.

AEMP spent some time visiting with David Birkhauser, Senior Vice President for Manitowoc Crane Group.

**AEMP:** What motivated Manitowoc to become an AEMP Partner for Growth?

**Dave:** The Manitowoc Crane Group, as a leader in the North American market, felt that becoming a partner with AEMP was the right thing to do. We want to give back to our industry and support and grow the critical equipment management profession.

**AEMP:** You mention growing the equipment management profession. Can you tell us more about that?

**Dave:** We feel it is very important to get more young people involved in the equipment management profession. To that end, we are very supportive of the work being done by the AEMP Foundation. Currently, in conjunction with one of our dealers in Oklahoma, we’re involved with a program to develop, recruit and train equipment managers through local educational institutions. The program is actually administered by the University of Oklahoma.

**AEMP:** Dave, any other thoughts concerning Manitowoc’s affiliation with AEMP?

**Dave:** As we got to know the organization and the focus of its work, we decided to join. With that decision comes the commitment to be fully engaged in helping AEMP to fulfill its mission. To that end we’re already on board to host the opening keynote speaker for the 26th AEMP Management Conference in Las Vegas this coming March.

**AEMP:** Dave, we thank you for that, and for Manitowoc joining forces with AEMP to support the equipment management profession.

Komatsu manufactures and markets a full line of integrated construction equipment from the smallest compact construction size to the largest mining size. The company’s product line includes hydraulic excavators, wheel loaders, crawler dozers, off-highway trucks, motor graders, skid steer loaders, tractor loaders and backhoe loaders. All KAC groups are supported by Komatsu Parts and Service and can be financed through Komatsu Financial.

**Ed Powers of Komatsu America**

AEMP is honored to welcome Komatsu America Corp (KAC) as one of its newest AEMP Partner for Growth members. Komatsu started marketing its products in the U.S. in the 1960s, and established North American operations in 1970. Today, Komatsu is the second-largest fully integrated manufacturer and supplier of construction equipment in North America, employing approximately 2,000 people.

AEMP spent some time visiting with Ed Powers, Vice President & General Manager of the Construction Marketing Division North America.

**AEMP:** What motivated Komatsu America to become an AEMP Partner for Growth?
AEMP NEWS

Ed: Many of the topics and areas of concern that AEMP is addressing are the same ones on which we are focused. AEMP is a good conduit between distribution, OEMs and end-users, especially when it comes to dealing with important industry issues that will impact all of us. We joined the association to assist us in getting a better understanding on today’s industry challenges; how Komatsu is addressing these issues and as a result of AEMP’s member footprint we have an opportunity to receive feedback directly from the market/end-users.

AEMP: What specific industry issues is Komatsu America focused on?

Ed: We are very focused on the “lifecycle cost analysis” which is a key decision-making tool in today’s industry.

As we are all aware, the shortage of qualified personnel at many levels in our industry is a major concern. We are pleased AEMP is addressing this issue, offering scholarships and working with universities to improve the situation, and working on effective ways to recruit and retain personnel.

We are also paying close attention to the new, more stringent emissions regulations and how they will impact our business. Requirements will vary between states, and everyone in the industry needs to be aware of all the various regulations that will exist. We want to be as proactive as possible in support of those customers who maybe negatively affected. I am pleased to know this key concern is on the top of AEMP’s list and that the association is assembling a focus committee specializing in this area serving as a facilitator in keeping all members updated and well informed as each state’s legislation is enacted.

AEMP: You mentioned recruiting more students into the equipment management profession. Can you tell us more about that?

Ed: We currently offer a scholarship to the University of Oklahoma, and subsidize the cost of a college education jointly with our distributors. We work to recruit students into the program, and in the near future we plan to extend scholarship offerings to various other Universities. As an extension of our mission, our distributors and now AEMP will support our efforts toward recruiting interested young talent into our profession. The AEMP recruiting process this will allow us to touch a larger base of potential people to educate and develop about our industry.

AEMP: Any other issues that you see challenging the industry in coming years?

Ed: Yes, I’m interested in the compatibility of GPS systems. This technology has revolutionized our business and we have yet barely scratched the surface of what is yet to come. With today’s rapid growth of this technology there are so many different types of software and streams of retrievable information that are not compatible with one another. If you want to utilize various manufacturers’ GPS systems into a mixed fleet, you’re setting yourself up for a huge headache.

The commonality of data and software is a problem, and there needs to be a solution to make different systems more compatible and easier to integrate. AEMP will aid in this effort to build a consensus when it comes to developing industry standards for interoperability.

AEMP: Any closing thoughts concerning Komatsu America’s affiliation with AEMP?

Ed: We’re all in this together, whether you’re from an OEM, dealer or end-user side of the business. It all comes down to relationships, and in reality it’s a family. We may compete in the marketplace, but we all are impacted by the same critical issues. AEMP provides us the opportunity to work together as one team and a voice for the industry.

AEMP: Ed, thank you for your time, and for Komatsu America’s support of AEMP and the profession.

AEMP Foundation Awards First Technician Scholarships to Two

The AEMP Foundation is proud to offer Technician Scholarships to assist students in accredited two-year technical education programs cover the cost of books and tuition. The program is designed to help address a technician shortage.

The AEMP Foundation recently awarded its first two scholarships to a pair of deserving students. The AEMP Foundation’s first technician scholarship was awarded to Matthew P. Trocinski, a 2007 graduate of Lanai High School in Lanai City, Hawaii. Matthew is...
Opportunities to Learn through Online Learning Series, Annual Conference

AEMP’s new online learning series has been a big hit! These webcasts, produced and provided to members in cooperation with Construction Equipment magazine, are focused on key issues facing the construction equipment industry. Members can also earn one CEU for each program they listen to.

Note, this schedule is tentative and subject to change. These webcast programs are free on the date they are broadcast and for 90 days afterward. After 90 days, access to the programs will be $95 each.

- May 7, 2008 – Effective Negotiations
- June 4, 2008 – Shop & Field Safety
  For additional details or to register for one or more events, go to aemp.org and click on the banner.

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Highlights of the education program will include a focus on life cycle issues, data collection and financial management.
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A Certified Equipment Manager Institute will be held in conjunction with the 26th annual conference in Las Vegas.

The program is designed for asset managers seeking a respected industry credential and wishing to learn more about equipment management best practices.

AEMP Asset Management Symposium last fall focused on three key areas: technology, life cycle, and emissions. The format of the event had three different ways that information was presented and shared: lectures, panel presentations, and a world café, or group of small roundtable discussions.

It quickly became apparent that emissions was the topic dominating most of the peer-to-peer discussions. Participating members had serious concerns about some of the challenges that increasingly stringent emissions standards will present to the industry.

“Pending changes in emissions regulations represent a total paradigm shift in the way construction equipment is run and maintained,” says AEMP Executive Director Stan Orr.

The results of these discussions led AEMP to develop a new strategic plan in response to upcoming changes in emissions regulations.

A key part of this new plan is to gather and provide information to AEMP members about emissions regulations. A newly formed emissions task force is the first AEMP leadership group in some time that has been focused outwardly on an industry issue.

By using the organization’s resources to identify and understand the impact of pending emissions standards, and provide that information to its members, AEMP can help our members in the equipment triangle to anticipate, prepare for, and respond to pending changes in an effective manner. It’s clear that this issue will be at the forefront of our members’ concerns for the foreseeable future.

Manufacturers are already addressing emissions issues. They are spending huge amounts in research and development to make engines compliant with next-generation regulations, even as diesel fuel moves from low-sulfur to no-sulfur formulations. Huge effort is being expended to design engines that maintain horsepower yet run cleaner than ever.

But the impact goes beyond engine design and fuel chemistry, encompassing filters, lubes, greases, oils—everything related to heavy equipment manufacturing, operation and maintenance.

The effect will be felt in ways not anticipated. For example, some might anticipate selling off and exporting older equipment to developing nations. Yet many loans to complete deals like these are from the World Bank, and the World Bank has emissions standards that govern what kind of equipment such loans can be used to purchase.

As a result, many of these pieces of equipment are now more likely to be salvaged, parted out, or cut up and recycled. A fleet worth $100 million today might be worth only a fraction of that in a couple of years.

AEMP will become a clearinghouse for emissions-related information, developing resources and events to help members learn what new government regulations mean to the industry and what manufacturers are doing in response. We’ve already covered emissions in a recent webinar, and we’ll be creating knowledge center articles, setting up an online forum to discuss issues via the Web, creating a task force to open dialogue with manufacturers, and more. We’ll continue to communicate and cooperate with the EPA, the Diesel Technology Forum, the Diesel Engine Manufacturers Association, and others.

“This is a critical time to respond based on the equipment triangle,” says Orr. “We’ll do all we can to make sure all the players are working together to get through this.”
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The "greening of America" has come to the off-road market. Fleet-management professionals from Hawaii to the Mainland are finding out that governmental regulations that have jumped the gap from the transportation industry to the off-road segment are affecting how equipment is managed and maintained.

Lorne Fleming, CEM, director of the equipment division of Grace Pacific, a paving contractor in Honolulu, puts it this way: "As fleet professionals, we have two responsibilities. One is to maintain and operate our fleets efficiently and productively to ensure as much equipment as possible is available to operations. The second is to operate our fleets in an environmentally responsible way."

Once upon a time it wasn’t unusual to see engine oil, transmission fluid or fuel spilled on the ground at jobsites. "Now, of course, that’s not done," says Fleming. "As a result, an entire cottage industry of recovery and regeneration has been created by the technology that goes along with cleaning up the environment."

According to Fleming, there’s a power struggle going on in Washington, D.C., and elsewhere in the country over who will run the show.

"For example, the California Air Resources Board (CARB) operates pretty much outside the purview of the Environmental Protection Agency (EPA),” he says. “CARB is proposing some of the most restrictive and onerous regulations out there. The question is, are the regulations appropriate?”

CARB has prompted dramatic state-wide reform. "What the off-road industry has to ask itself now is does CARB know what it’s doing or are they restricting our business so much that we won’t be able to compete anymore?” says Fleming. "I think the answer lies somewhere in between."

Not surprisingly, controlling emissions and reducing environmental pollution comes with a hefty price tag.

"There are going to be added costs,” says Thad Pirtle, vice president and equipment manager for Traylor Bros. “By that, I mean in the cradle-to-grave cost of equipment. If you take a piece of equipment and expect the engine to run 15,000 to 20,000 hours and state regulation won’t allow that, you won’t get the full life out of that engine. To comply with state regulations, you either have to rebuild..."
the engine or repower. That’s just one area that will cost us.”

Kevin Fritzinger, CEM, at America Infrastructure’s Independence Construction Materials Division agrees.

“I hear horror stories coming out of California where fleet managers have repowered their fleets, in one case to the tune of $62 million,” he says. “Tougher regulations are going to trigger a cost increase from manufacturers; that’s for sure.”

Another added cost will result from increased technician training.

“Now technicians have to be trained in the repair of Tier 1 through Tier 4 engines,” says Pirtle. “We’ve already seen California change to Tier 3 regulations and soon they’ll change to Tier 4. As it stands now, we have four series of engines operating, and we have to train technicians on all of them. That’s a tremendous amount of training.”

In fact, Pirtle says, training is becoming an increasingly larger portion of the total equipment cost.

“I’d say it’s about 30 percent,” he says. “The biggest problem is that every manufacturer has its own components; Cummins, Mack, Volvo, Caterpillar – each has its own style. For those of us with mixed fleets working across state lines on a national scale, this is a real issue. You have to train one person on everything.”

Another concern with the new regulations is the ability of manufacturers to provide the necessary training, information, parts, rebuilds and service for Tier 1 through Tier 4 engines.

“Right now, OEMs are struggling because there are so many different engines that must be built in a short period of time,” says Pirtle. “There’s no way they can keep up. The costs associated with that are going to be passed along to the end user.”

“As fleet professionals, we have two responsibilities. One is to maintain and operate our fleets efficiently and productively to ensure as much equipment as possible is available to operations. **The second is to operate our fleets in an environmentally responsible way.**”

Lorne Fleming, Director of the Equipment Division, Grace Pacific

**CARB’S “Eco Trip”**

Wherever the California Air Resources Board (CARB) dares to tread, the rest of the United States is sure to follow – at least part of the way.

CARB regulations are often far stricter than those of the Environmental Protection Agency, and, as such, the agency many times sets the standard for environmental regulation nationwide. Rigid regulations designed to reduce engine emissions started with on-highway vehicle engines; then in November 2005, the CARB switched its attention to off-road diesel engines. Public meetings and workshops were organized for the purpose of developing emission-reducing regulations for off-road equipment engines used in construction, mining and other industries operating in California.

On July 26, 2007, CARB voted to adopt regulations targeted at small, medium and large off-road fleets operating in California.

The California agency uses total fleet horsepower to determine whether a fleet is small, medium or large. Small fleets are defined as having up to 2,500 total hp, medium fleets use 2,501-5,000 hp and large fleets use 5,001 hp or more. The only exceptions are low-use vehicles that operate less than 100 hours a year.

Certification by California’s Secretary of State, making the off-road fleet regulations effective, is expected in the spring of 2008. After that comes a phase-in of fleet compliance. Smaller fleets have longer to comply. Here is the time line:

- April-August 2009 – First reporting requirements for all fleets in California with affected vehicles.
- March 1, 2010 – First compliance due for large fleets.
- March 11, 2013 – First compliance due for medium fleets.
- March 2, 2015 – First compliance due for small fleets.

A fleet, regardless of its size, is deemed in compliance when it meets the fleet average emissions rate target for particulate matter or applies the highest level verified diesel emission control system to 20 percent of its horsepower.

Small fleets are exempt from the NOx fleet average portion of the regulations. However, medium and large fleets are required to meet NOx average emissions rates or turn over a certain percent of its horsepower (9 percent in early years and 10 percent in later years).

Annual reporting for all fleets is required beginning April 1, 2009.

A fleet’s particulate matter emissions can be reduced either by applying exhaust retrofits that capture pollutants before they are emitted into the air or by accelerating turnover to equipment with newer, cleaner engines.

Fleming is convinced the latest, more stringent CARB regulations may well bankrupt a lot of smaller companies.
Doing Business on the Islands

For the most part, operating a fleet in the Hawaiian Islands is pretty much the same as on the Mainland, according to Lorne Fleming, CEM, director of the equipment division of Grace Pacific in Honolulu.

For example, new emissions regulations from the Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have just as great an impact on fleet management and vehicles in Hawaii as they do anywhere else on the Mainland.

But, says Fleming, there are a few differences.

“When you do business here, you have to keep in mind that there are no natural deposits of anything in Hawaii except salt,” he says. “We’re just an island built on a volcano. There isn’t anything here that wasn’t – literally – heaved out of the ground.”

The first thing you have to recognize is that if you use it, buy it or run it, it came from somewhere else.

“For example, on this island we have only a three-day supply of food,” he says. “That’s all. We have a one-week supply of fuel. A big part of what we do is planning and logistics.”

Among other considerations, fleet managers have to determine how much in extra parts inventory to stock to make sure the fleet continues operating.

“At Grace Pacific, that’s a little better than $1 million,” he says. “You can’t just go down to the corner to the local Caterpillar dealer and get a hydraulic pump. They can get one in two or three days sometimes, but that means my machine is down two or three days.

Although Grace Pacific operates on other islands, it keeps its parts inventory in Honolulu, making components available wherever they are needed.

“There are hourly flights to and from the other islands,” he says. “The first one leaves at 5:20 a.m. and the last one leaves at 10 p.m. It’s a bit pricy, but when you’ve got a piece of equipment down, that cost is pretty irrelevant.” Another business management area that’s a little different in the islands is on the personnel side. Fleming says, as a result, he probably keeps some personnel he really shouldn’t keep because of the lack of skilled labor.

“Drug testing has probably impacted our business more than anything else,” he says. “It cost us some pretty good people; but in retrospect, we’re probably better off without them.”

When the company conducted a massive drug test at one of its divisions, Fleming says, half failed.

“That puts a hole in your operation,” he says. “You’ve got work to do, but all of a sudden you only have 30 people to do the work. That’s a problem.”

“When you look at what the costs of the latest regulations are going to be, you’re looking at tens of billions of dollars to replace current equipment,” he says. “New regulations will obsolete many machines with 1, 2 and 3 compliant engines. That’s a lot of equipment that you won’t be able to do anything with. We’re repowering five pieces of equipment right now under an American Lung Association grant administered by the EPA, and it’s costing us $170,000. Although you can make a case that that’s not much for a piece of equipment worth a million bucks, it’s still a substantial amount of money being put back into the machine. We’ll recover some of it, but we’re still looking at a three-year payback.”

According to Fleming, Hawaii has a task force looking into CARB regulations and there’s a good chance some of the standards will be instituted.

“Whether they’ll go all the way or not, I don’t know,” he says. “There are various organizations in our business that have taken a position against CARB. Rumors are flying that they’re trying to put together a task force to negotiate with CARB.”

The move toward cleaner engines didn’t start yesterday.

“We’ve all seen the clean air changes in on-road equipment and realized it would only be a matter of time before they migrated to off-road equipment,” says Fritzinger. “Our purchase decisions over the last few years have been moving us in that direction, positioning us to have a more balanced fleet. In my view, without an obsolescence plan in place, we would have to make some very tough and costly decisions, to remain competitive.

Replace or repower?

“An older fleet can replace or repower,” says Fritzinger. “Sounds simple, but the cost of new or nearly new equipment may be a challenge for some companies, depending on the size and age of the fleet. Repowering is an option if a replacement engine is available. In many cases, however, the replacement engine won’t be just a drop-in; it will require extensive and expensive modifications to the mounting area, frame and cooling system.”

And there will be another cost: lower re-sale value.

“The demand for cleaner engines will negatively affect the re-marketing of older engines, especially in a weak market,” says Fritzinger. “The old days are gone; there’s no longer a dumping ground for tired iron internationally. Peak interest now is in low-hour late-model machines.”

Like the other fleet managers, Fritzinger sees tougher emissions standards forcing fleet operators to dispose of engines prematurely.
“Big 50- to 60-ton haul trucks are a good example,” he says. “If you bought those trucks five or six years ago and they need an engine, transmission or torque converter rebuild, those repairs will cost significantly more because of emissions regulations. “In a case like that, the fleet manager will have to repower with an engine that is in compliance – which is a totally different engine – or get rid of the truck. The used equipment market isn’t going to be what it once was. No one will want to buy that truck and put it in a fleet.”

Pirtle also expects a decline in resale values.

“In the past, you could expect, at a minimum, to get 50 percent of the cost of the equipment back when you sold it,” he says. “That’s not going to be the case anymore. It will be less than 50 percent, so fleet professionals need to make sure they receive enough revenue to pay for the ownership of that equipment.”

Tougher emissions regulations will also require assigning someone to manage the repowering of vehicles.

“That is a big change in how fleets are managed,” Pirtle says. “We didn’t use to have to worry about that cost, but we do now, especially for the next five to seven years.”

After that, he says, attrition will take care of the situation.

“As you buy new equipment,” says Pirtle, “naturally it has new engines in it, so the repower process problem will eventually be eliminated. Once you repower, you’re repowered.”

More restrictive emissions regulations will also change how long a fleet keeps a piece of equipment.

“One of the things we’re doing is instituting a five-year equipment turn,” says Fleming. “In a couple of years, we won’t own a piece of equipment that’s older than five years.

“We’ve got a pretty good cost-analysis system now that tells us what it really costs to run a piece of equipment. We’re beginning to see that the cost of operating a Tier 4-compliant engine is lower than running a mechanical engine. When you start showing that data to the bean counters, you make believers out of them. We try to show our financial people that this is a good business decision, not just something that we can’t afford.”

Pirtle says it’s critical that you know the true cost of the power unit: electric, gas or diesel.

“Instead of just considering diesel, for instance, you have to open the scope a little,” he says. “You might want to go to gasoline or drop a line at a jobsite to run the lighting. Cost is going to be a bigger issue now just because of emissions regulations.”

**CARB Verified Manufacturers**

In addition to the Environmental Protection Agency, the California Air Resources Board (CARB) has compiled its own list of currently verified retrofit technology manufacturers. Here is a partial list provided by CARB at www.arb.ca.gov/diesel/verdev/vt/cvt.htm.

- Cleaibre Horizon (conditionally verified for off-road engines)
- Cummins
- Donaldson
- EGR Technologies (conditional)
- Engine Control Systems
- Environmental Solutions
- HUSS
- International Truck & Engine
- Johnson Matthey
- Lubrizol PuriNOX
- Miratech
- Paceco
- Rypos
- Sud-Chemie.
- Thermo-King
- Vycon Regen System

**EPA Verified Technology Manufacturers**

The Environmental Protection Agency (EPA) has designated certain manufacturers as having currently verified retrofit technology. Here is a partial list from the EPA website, www.epa.gov/epahome/lawregs.htm.

- Caterpillar
- Clean Diesel Technologies
- Cummins Emission Solutions
- Donaldson
- Engelhard
- Engine Control Systems
- International Truck & Engine
- Johnson Matthey
- Lubrizol
- Paceco
- Purem
From Live to On-Line Auctions

The City of Abilene found the move to online auctions relatively seamless.

By Irene M. Grant, CAFM, Fleet Manager, City of Abilene

Disposal of vehicles and equipment is, for most organizations, a tedious process involving various areas of expertise. This includes accounting, knowledge of market resale averages, legal and liability constraints and the ability to choose a viable process.

Live auctions have constituted a major method of equipment disposal for decades and have often been favored in lieu of trade-ins by many larger organizations since they are not tied to the purchase of a new machine and bring a larger interest and subsequent selling price when many items are auctioned off at the same time.

Smaller outfits, however, with only a small number of pieces of equipment for sale each year, continued to benefit more from the trade-in approach since quite often, personnel were lacking to coordinate the process and results did not tend to be highly cost-effective.

The advent of online auctions has reduced staff work load and leveled the playing field for organizations regardless of size.

The City of Abilene owns approximately 1,200 vehicles and pieces of motorized equipment, with about one-third of this fleet consisting of trucks, large specialized units and construction equipment. Between 50 and 100 units are sold at auction every year.

Live auctions have constituted a major method of equipment disposal for decades and have often been favored in lieu of trade-ins by many larger organizations.

In earlier years, auctioneers were generally picked from the local pool, whose followings consisted primarily of junk dealers, local auto resellers and local citizenry. In the mid-1980s, however, standardized auction bid processes were established and professional auctioneers with larger followings entered the equation.

These auctioneers after they submitted proof of a history of conducting vehicle and motorized equipment, as well as general auctions, on a national basis.

Auctions were held annually and the Purchasing Division was responsible for developing and coordinating the bid process and setting the date. Auction sites were the city’s Civic Center exhibit hall for smaller equipment and the Civic Center parking lot for vehicles and larger items.

The auctioneer stood in a pickup bed while calling the auction, and one or more staff members would be at his side to provide clarification and general information as needed. One of the advantages of conducting live auctions was the easy one-on-one interaction between staff and the auctioneer during the auction, which enabled ready communication and quick resolution of potential problems.

A potential concern was that the auction could only be scheduled when both the Civic Center facility and the auctioneer were available.
Liability was another issue, since the public had extensive access to the equipment while it was sitting overnight in a relatively unsecured parking lot. Keys sometimes disappeared just prior to an auction, decreasing interest in the item since it could not be started. As a result, a locksmith was hired to be on standby during the auction.

**Taking the show online**

One of the primary reasons for Abilene’s decision to go with an online auction process, in addition to reducing liability and site costs, was the lack of storage space.

As a rule, new vehicles generally arrive between December and January, followed by dump trucks and construction equipment in March and April. However, the auction to dispose of the items that had been replaced would be held between late July and early September. During that time, auction items would sit idle on the fleet services parking lot while continuing to depreciate and take up valuable space.

Purchases with long lead times, would often be delivered in mid-September or October, which meant the phased-out units would sit in the parking lot for an entire year until the next auction.

With online auctions, there is no need to store equipment for months or years.

When selecting an online auction service, there are several considerations to be weighed. For live auctions, the actual vehicle is available for inspection and those who travel to the auction can view it prior to bidding. This can create more enthusiasm and seeing other bidders face to face often generates a ‘fever’ for the purchase. With an online auction, not everyone will make an inspection trip on days provided for the online auction.

In some ways, live auctions are easier to administer because money is collected on-site. On the other hand, Internet auctions furnish an almost unlimited viewing base, potentially in the millions, and the more views, the more customers. However, Internet auctions require primarily long-distance interaction where crucial information can be lost in translation. Emails and phone calls do not always lend themselves to good communication.

We initially explored the possibility of auction intermediaries, companies that, for a fee, pick up the auction units and take them to one of their network of on-site auctioneers. Although that approach would have eliminated the problem of prolonged storage, it increased the cost of conducting the auction since both a fee to the auctioneer and a fee to the middleman would be required. Added to that would be the cost of hauling the equipment to wherever the auction was taking place.

A request for proposal (RFP) was developed by the staff that incorporated the terms of the online auction, handling of documents, liability issues, computer and online access requirements, transfer of titles, and payment requirements. The RFP process also included interviews with prospective auction companies, a demo of their processes and a list of average auction returns for various pieces of equipment.

Once a choice had been made based on the best overall profile, meetings were held with the auctioneer to develop the specific plan of action. The first online auction was held in February 2007 and a second was held in April. Altogether, a total of 118 pieces of equipment were sold between the two events, including 32 vehicles (pickups and patrol sedans), a motor grader, a wheel loader, an asphalt recycler, a truck-mounted sweeper, a sewer camera van, six dump trucks, and four solid waste trucks. The remaining equipment consisted of trailers, large mowers and other miscellaneous items.

The auction return for the vehicles, wheel loader and sweeper was equivalent to what we had experienced in the past during live auctions, but the return on the motor grader and solid waste trucks was more than double what had been realized before for the same type of unit in the same condition. Dump trucks also fared slightly higher than previous averages, as did the mowing equipment, trailers and smaller items. No history had been established for the camera van and asphalt recycler. A third online event is being planned for the near future.

In spite of a few snags, the City of Abilene found the online auction process relatively seamless. The vehicles were detailed prior to taking pictures for the online auction, and all the other equipment was cleaned to maximize its appearance. It also helps to submit all known mechanical problems, and it’s essential to disclose accident damage information to potential buyers.

We have added directions to our physical pick up site on the Internet because we got a flood of phone calls for this information at the end of the first auction. Reconciliation of audit returns was also time-consuming due to the volume of units sold at the same time. In the future, we plan to auction off equipment and vehicles as they are replaced.
Getting a Safe Lift

After all is said and done, it’s still the same crane technology performing the same tasks in the same way – only better.

By G. C. Skipper

In the beginning, the crane device was simply called a computer. Then it became known as a load-moment indicator (LMI) and in some cases the technology has been referred to as a rate capacity indicator (RCI) or a rate capacity limiter (RCL). Whatever the moniker, LMI technology gives the crane operator a continuous read-out of the boom length, boom angle, and the radius – and usually an actual load weight.

Ken Martinek, crane specialist with Walter Payton Power Equipment, describes LMI this way: “It measures load moment, which is weight times distance. It’s not weight on hook. It’s not the actual load, but the load exerted on the crane.”

At the jobsite that takes the guesswork out.

“An operator can set up a machine and place the hook where they are going to set the load,” says Martinek. “That’s really the function of a crane, to set the load, not lift it. The operator places the hook where the load is going to set, then reads the LMI and that
tells him he’s good for 12,000 pounds. He picks up the load and knows before he gets into it whether he can do it or not.”

“It provides a chart load based on boom length, boom angle and radius,” says Bob Bellman, training manager at Link Belt Construction Equipment. “It’s an operator’s aid that has become a valuable tool in crane operation, but LMI technology is only as good as the guy sitting in the crane inputting the data.”

When crane monitoring technology was introduced in the United States about 15 years ago, it met with a cold reception from crane operators. Although the technology had been successfully used in Europe for many years, U.S. operators were wary.

“We’ve come full circle with LMI,” says Martinek. “When it was introduced, there was resistance, particularly from crane operators. Now many operators won’t run a machine that doesn’t have a fully functional LMI.”

Bellman, who has spent more than 32 years in the business, has also seen the change.

“There was a lot of resistance in the early days to computers,” he says. “Crane operators didn’t want to get into the cab if the equipment had a computer in it. Now it’s gone full circle. Today, crane operators don’t want to operate a crane unless it has some type of operating aid on it.”

According to a recent article in Lift & Access, the computer in a crane cab today is not just an LMI. It’s also a data logger, lift planner, GPS system, engine management system, and diagnostic system. Systems like Link Belt’s CAIC, for example, include sensors on the outriggers that even take into account when the outriggers are partially extended or not extended at all.

Some larger crawler cranes have multiple LMI systems with three monitors. One faces the derrick mast, one faces the boom, and a reference screen displays load charts and lift plans.

“Increasing integration of LMI with the overall computerized crane control system is pretty typical of what we are seeing today,” says Bellman. “You’ve got transmissions, engines and electronic systems talking to each other, and boom-control systems and LMI systems are talking to
each other. I think that is the shape of things to come.”

All new machines come with factory-installed LMI systems, says Martinek. However, there are aftermarket units available for older machines or for equipment that wasn’t specified with a factory-installed LMI.

“Most major manufacturers of rated capacity limiter systems have retrofit products that can be installed on older equipment,” says Bellman.

According to Lift & Access, off-the-shelf systems include Greer’s MicroGard-434 designed exclusively for Link Belt and Rayco-Wylie Systems 15,000-rated-capacity indicator, which allows operators to view all parameters of the machine in a graphical format and enables the operator to add features such as data logging, outrigger monitoring, and range limiting.

“You can buy the hardware off the shelf from almost anybody, but the real value is in the software. What needs to be considered is how easy it is to use and how easy it is for the operator to drill down to get the information he needs.”

Ken Martinek, Crane Specialist, Walter Payton Power Equipment

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hardware off the shelf from almost anybody, but the real value is in the software. What needs to be considered is how easy it is to use and how easy it is for the operator to drill down to get the information he needs.”

In fact, trends indicate LMI technology is becoming even easier to use.

“The Manitowoc 14000 has a graphic computer integrated screen that allows their rated capacity limiter, to give load conditions, boom geometry, and the loaded condition on the machine,” says Martinek. “It also provides the operator with machine information, such as diagnostics and other machine functions.”

As LMI systems become more sophisticated, the technology is moving toward more graphical displays, which crane operators seem to prefer over old-style text displays with green, yellow and red bars that light up as lift capacity is approached.

“Graphic symbols are a lot easier to understand than verbiage,” says Bellman. “You have international symbols, as well, which supports the old adage, ‘A picture is worth a thousand words.’”

Another technological advancement with LMI systems is the move to wireless operation. Wireless systems are particularly popular for retrofitting on large three-boom crawler cranes because they are simpler to install, according to Lift & Access. Instead of using wires, load cells transmit information by radio waves.

Kevin Blaney, product manager for the Manitowoc 14000, says there is a risk with wireless operation.

“With hard wire, you know it’s always connected,” he says. “With wireless, you could run into some interference at times.”

Although LMI experts won’t come right out and say the technology makes crane operation safer, Martinek did say: “From a practical standpoint, the operator is constantly aware of lifting conditions. There is no guess work involved, and guess work is where people get into trouble. As for financial benefits, I’m sure an insurance company would encourage you to purchase any machine that performs the job in a safer way.”

And safety is the top priority at any jobsite.

RCL Highlights

The rated capacity limiter (RCL) on the Manitowoc 14000 crane may be the company’s newest technological development, but according to the company, this high-tech approach to taking the guess work out of machine maneuvers was never intended to replace an operator’s experience and knowledge.

“It’s an aid to the operator,” says Kevin Blaney, product manager for the 14000. “In the end, it’s up to the operator to make safe lifts. The RCL provides a very good backup to make sure the lifts are safe.”

Manitowoc dropped the term load-moment indicator (LMI) in favor of rated capacity limiter.

One reason for the change, says Blaney, is that “LMI implies it will limit your lifting capacity. For example, if the crane over-steps its parameters, the machine will come to an immediate halt.

“Before a load is picked up, the operator enters certain data into the computer, such as information on the configuration he’s using, the boom angle and the jib length,” he says. “When he makes a lift, the boom angle sensors that are located throughout the crane and the angle indicators feed back to the computer the crane’s configuration. Once you get near the limit, an audio and visual indicator in the cab warns the operator he’s approaching a dangerous limit.”

According to Blaney, the basic design of the system is pretty straightforward.

“The rated capacity limiter is just another set of eyes and ears on the lift the operator is making,” he says. “It looks at the angles and loading conditions, and compares them to what our charts allow. It’s not very complex.”

While historically, these types of devices have been used primarily on larger cranes, today the in-cab operator’s aid is factory installed on every crane, big or small, that Manitowoc manufactures.

In keeping with industry trends, the Manitowoc 14000 uses more visuals than previous models. In the cab, large color screens provide easy at-a-glance information, all done through graphic icons.

With graphics, there are no language barriers. For example, one of the screens depicts a large, green triangle. On the outside of the triangle is the color yellow and outside the yellow is a red outline. As the operator booms down or increases the load, an icon within that triangle moves indicating if the crane is operating in a safe area. If the operator approaches capacity, the icon will move out toward the yellow, and if the operator gets into an overload situation, the icon will move into the red area.

“It gives the operator up-to-the-minute information on the load he is lifting,” says Blaney.
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Tracking Fleet Assets Through Technology

External factors are playing a major part in the development and adoption of asset-management software.

By G. C. Skipper

Asset-management software to track construction equipment and personnel “is about 10 years behind over-the-road fleets,” says Ken Calvert, IT support director for Komatsu America. Highway fleets quickly embraced asset-management software because of spiraling fuel costs, U.S. Department of Transportation regulations, and the fact that trucking companies tend to have more equipment dispersed to more locations, he says. Another factor, says Calvert, is the increasing number of states that are enforcing restrictions on idling.

As economic and regulatory developments start to push their way into the construction industry, the need for an asset-management solution that improves utilization and productivity climbs ever higher on the fleet professional’s priority list.

“The main benefit of asset-management software,” says Daniel Wallace, business area manager for construction services at Trimble, “is that it converts what has previously been qualitative data to quantitative data. Our management solution, Trimble Construction Manager, gives contractors not just numbers, data and trends, but also exceptions. It can monitor bottlenecks in the movement of equipment and allow contractors to understand more clearly what’s going on at any given project.”

Caterpillar also has its own system, says Brent Tilly, with NACD Product Link.

“The benefit of Caterpillar’s basic solution, Asset Watch, which is powered by the Product Link hardware and the
Equipment Manager software, is the ability of the customer to track the hours and location of their equipment,” says Tilly.

Although Cat does offer more detailed data, such as maintenance and repair scheduling, fault codes and diagnostic code information, and even troubleshooting capabilities, the “quick win” for the customer, he says, is the cost savings and machine uptime they can realize by effectively managing their assets and performing preventive maintenance on time.

“This is done by leveraging the hours and location information and is something the average customer can easily adopt into their business,” says Tilly. “By controlling the flow of information from the machine, backed by our dealer network, customers can realize the value of the technology.

“Asset Watch focuses on utilizing hours and location. Maintenance Watch builds on this by integrating planned maintenance and repair with the Asset Watch information. Health Watch goes a step further by focusing on condition monitoring information, such as fault codes and diagnostic information.”

Nina McCoy, president of CCG Systems says, “Our software, called Faster, can predict maintenance, so the equipment manager knows when to repair or replace the equipment.

“Equipment ownership is the most expensive part of managing a fleet. Asset management software helps fleet professionals understand where the real costs are and allows them to right size the number of equipment units they need to appropriately serve their customers.”

Murray Lodge, director of construction sales at Topcon Positioning Systems, says the Topcon system, SiteLink, gives contractors the ability to better control equipment. That “better control” translates into better utilization and efficiency.

“If fleet managers are utilizing their equipment to the fullest, they are getting the most out of the money they put into the equipment,” he says.

For example, a superintendent tells the fleet manager he has to have a certain piece of equipment. The unit is put on the jobsite and used only once a week.

“He doesn’t really need it,” says Lodge. “He uses it only periodically, so a machine could be rented for a short term and the equipment that’s owned could be used on a different job. “

Asset-management software can also monitor the health of the machine.

“You make sure maintenance is done at the appropriate time,” says Lodge. “The more equipment you have in a fleet, the harder it is to stay on top of the maintenance. If you have the ability to monitor the performance of that machine, you can even determine if maintenance is needed prior to the scheduled PM. That avoids more serious problems later.”

There’s also the security factor, says Ken Poppe, product marketing manager for construction at John Deere Construction and Forestry. With JDLink, a system developed by Deere and Qualcomm, fleet professionals can protect their rolling stock from what Poppe calls “midnight acquisition.”

Using GPS-based technology, JDLink hardware is connected directly into the electrical system of a machine to monitor location, functions, hours, fuel information, alerts, and other critical data.

“It includes geo-fencing, which means any time a tractor moves outside a boundary, an alert is sent out and the tractor location is monitored until the tractor is recovered,” he says.

Another security product, Curfew, was recently introduced.

“Generally, contractors operate during set hours,” says Poppe. “With Curfew, if a tractor is started outside the normal working hours, an alert is sent out. This helps to stop a lot of ‘mischief’.”

New software features on the Advanced JDLink package, include the ability to send e-mails or text messages, and low fuel warnings.
A third package, Ultimate, is also available.

“On Ultimate, utilization becomes a little bit better defined,” says Poppe. “For example, Standard utilization triggers off of whether the engine is running or not. But Ultimate actually looks at whether the engine is idling, working or not being used at all.”

A fourth package, called Direct, is designed for jobsites where all the equipment is kept geographically close and maintenance is done at the site.

“With Direct, we hook up directly to a laptop or PC on the machine and download the information,” says Poppe.

Steve McGough, COO at HCSS, points out another benefit of asset-management software.

“It allows you to check how you are doing based on production, the bid and the estimate,” he says. “You get real-time feedback as opposed to waiting two or three weeks or even a month for the accounting department to get back to you with a cost report.”

During numerous visits to construction sites, McGough says he’s found a lot of people still keep track of machines and manpower on a magnet board.

“If you pick up a magnet that represents a piece of equipment and move it half a dozen times, you don’t know the true history of where that unit has been” he says.

In 2004 when HCSS took its product, The Dispatcher, mainstream, one of its features was deliberately designed to mimic the magnet board. The difference, however, is that the HCSS system automatically keeps a log of the machines, which allows the fleet manager to go back and get a history of where the unit has been and how long it was there. The system monitors the health of the machine as well.

“From a GPS standpoint, our system is different in that we interface with other suppliers, in addition to selling our own units, says McGough. “For example, if a fleet professional is responsible for 200 pieces of equipment, more than likely there will be a wide range of age among the units. The new equipment that comes from Caterpillar will come with a Cat GPS unit already installed. As an equipment manager, you’d have to go to Cat’s website to look at your reports. The equipment manager can now look at his equipment with Cat GPS and HCSS GPS using our software.”

HCSS integrates with Trimble, TCM and Qualcomm units.

SUPPLIER WATCH

The Dynapac paver shown here is equipped with Topcon GPS+ Glonass satellite system receivers.
“We can pull data into The Dispatcher once a day for Caterpillar customers,” he says.

The second part of the system, because it is integrated with Microsoft Map Point, allows fleet managers to see where equipment and employees are geographically.

“This allows you to schedule moves and dispatch moves within the system for machines that need lowboys,” says McGough.

The software also has a planner view that allows you to plan out in advance where you’ll need the equipment.

According to Topcon, the company’s software also works with multiple equipment brands.

“All OEMs have some type of system,” says Lodge. “Caterpillar has one, Komatsu has one, John Deere has one: But the equipment is set up just for their new machines. Our system will work with any manufacturer and with both new and older machines.

Before now, there was no software on the market that would work with any brand of machine.”

Although Topcon competitors are working toward the same goal, Lodge says, what’s unique about Topcon’s system is the way it networks the machines, jobsite and main office to allow communication and information sharing. The information can be accessed from anywhere in the world using the Internet.

“Not only can an operator, a job superintendent or the home office asset-management staff access instantaneous data on rolling stock at every jobsite, it also provides real-time theft protection for valuable equipment,” he says.

Another feature of the system, says Lodge, is that it has the ability to link working machines.

“Operators can actually ‘talk’ to one another to maximize productivity at every step of the operation,” he says.

At Komatsu, Ken Calvert views the benefits of asset-management software in various levels of sophistication. At a very basic level, the advantages are knowing where the machine is and knowing how many hours it’s working so maintenance can be planned.

The next level, he says, is to know if the machine has any problems and to be proactive in fixing small problems while they are small.

The third level adds information about the machine and the operator, such as load factors, how hard the machine is working, when it started and stopped work, how long it was shut off between work periods, etc.

“Today, fleet managers can know if the machine was going forward or backward, and whether or not loads were light or heavy,” says Calvert. “A progressive thinker who is provided with this information can get important insights into his operation.”

Forcing the issue

External factors are playing a major part in development and adoption of today’s software technology, says Trimble’s Daniel Wallace. A good example of this is the increase in fuel prices.

“Fuel prices obviously have an impact on fleet operations, so recently we announced a fuel monitoring solution to keep track of fuel consumption either by individual equipment or for the entire fleet, all presented in a graphic view,” says Wallace.

Another external factor is emissions control, especially proposals pushed by the California Air Resources Board.

“We can help contractors be in compliance,” says Wallace, “and provide the documentation that shows they are in compliance.”

As fleet managers begin to use asset-management software on a much wider scale, software technology will continue to be tweaked and improved to meet off-road industry needs.

Among the coming trends, says Nina McCoy at CCG Systems, is more “dashboarding,” using more visuals in management reports.

“People want to be able to see things now,” she says. “They want real-time information and graphics so they can better respond if something comes up unexpectedly. Dashboard-type visuals in real time can reflect 12-month trends. We will introduce that capability in January.”

Komatsu’s Calvert foresees all manufacturers providing more information, so much so, that technology is running ahead of the customer’s ability to assimilate and use the information. The challenge is to keep it simple and usable.”

Looking ahead, McGough at HCSS says, “During the next few years, you’ll see more and more GPS technology. You’ll also see some of the smaller GPS providers being rolled up. Eventually, I think we’re going to see some dominant players throughout the industry. There are a whole lot of providers out there now; the key will be who shakes out from the OEM standpoint.” EM
Product Gallery: Asset-Management Software

**CCG Systems**
This example of a display from CCG’s Faster Service Center software provides equipment managers with quick access to information, such as current and past work orders, PM schedules and other data. The software provides real time information and includes a graphics program as part of the standard software package.

For more information, visit: www.ccgsystems.com

**HCSS**
The Dispatcher from HCSS, an asset-management software package, uses a traditional magnet board design to provide instant access to fleet information. A grid layout provides a complete history of equipment activity and jobsite locations.

For more information, visit www.HCSS.com

**Komatsu America**
Komtrax, Komatsu’s asset-management software program, uses both text and color graphics, as shown here. The center section of the graph shows operation analysis, followed by fuel consumption information and machine load analysis.

For more information, visit www.komatsu.com

**RTA Fleet Management**
The RTAFleet Management software package can be easily customized and has numerous features for immediate feedback on fleet performance. Software capabilities include vehicle inventory, parts inventory, work order system, fuel inventory and usage, tire inventory and tracking, and administrative functions, such as billing.

For more information, visit www.RTAFleet.com

**Caterpillar**
Caterpillar’s asset-management modules include Asset Watch, which focuses on hours and location; Maintenance Watch, which integrates planned maintenance and repair information with Asset Watch; and Health Watch, which focuses on condition monitoring information, such as fault codes and diagnostics.

For more information, visit www.Caterpillar.com

**John Deere**
JDLink from John Deere Construction and Forestry monitors location, maintenance schedules, machine health, and more. The system can produce management summary reports of each machine’s usage over time. The Alert Log compiles all yellow warning and red stop-engine data, alerting equipment managers to potential downtime and providing a maintenance log with documented details of maintenance and repair work.

For more information, visit www.JohnDeere.com/JDLink
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