

GROUND SUPPORT WORLDWIDE

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Product Focus:
Maintenance/
Shop Equipment
and IT

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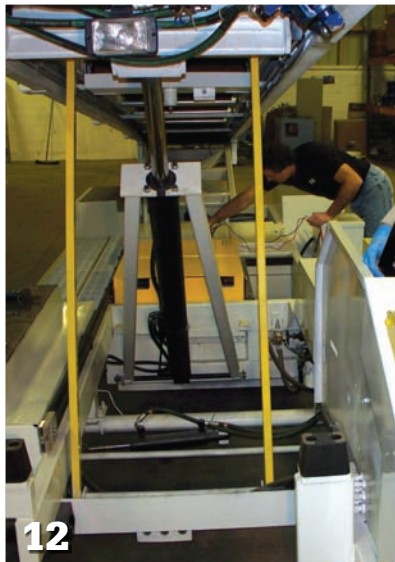
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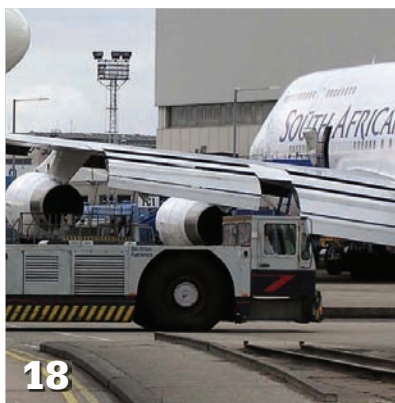
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All Eyes on Fuel Prices



LISA HADDICAN

As oil prices have climbed and topped \$100 a barrel, one can't help but reflect on the fuel spike of 2008 — a circumstance that sent most airline earnings spiraling into the red. Just as signs of strength have returned to the industry — added capacity, improved traffic figures, more encouraging profit outlooks — fuel prices have once again posed a formidable threat.

The industry, of course, has been paying attention. The International Air Transport Association downgraded its profit outlook for the year from \$9.1 billion to \$8.6 billion on account of rising fuel costs. According to the association, oil prices are expected to be about 20 percent higher in 2011 than 2010, representing 29 percent of total operating costs.

The association noted that the higher prices are more likely to affect Asia-Pacific and Latin America regions. In North America, the profit outlook has remained unchanged. "Higher oil

prices will damage profitability in 2011, but earlier cuts in capacity have led to much stronger conditions for yields than elsewhere. The US economy has also been stronger than expected. Compared to our December forecast, better revenues in 2011 will offset higher fuel costs," according to the association in its release.

Even so, North American carriers have begun to brace for the impact with some introducing fuel surcharges on

flights — and such price increases aren't likely to stop. As recently reported by the *Chicago Tribune*, airlines are also looking closely at trimming capacity. United announced plans to reduce

domestic capacity by 5 percent in the fourth quarter.

Fuel prices will likely remain a top concern for the industry in the coming months as figures continue to fluctuate. With lessons from '08 looming, it is hoped that carriers can remain fiscally strong through this latest challenge.

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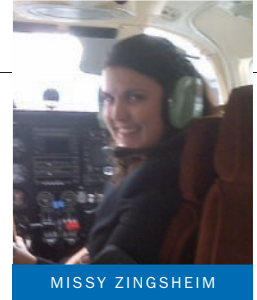
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MISSY ZINGSHEIM

Measures of Success

As I slowly got caught up from Cygnus Aviation Expo this year, I took a minute to really take a look back at the show overall. The natural thought process at a show is to gauge its success by how many people attended the event. But is that really the only criteria we should be looking at?

This year I gauged my success by the amount of contacts that I made — some new, some current and some old. I think that coming to a trade show or a networking event isn't just about gaining new contacts or sales leads, but about reconnecting with our current clients and colleagues within the industry.

In conversations with exhibitors and attendees on the show floor, many say that their favorite aspect of the

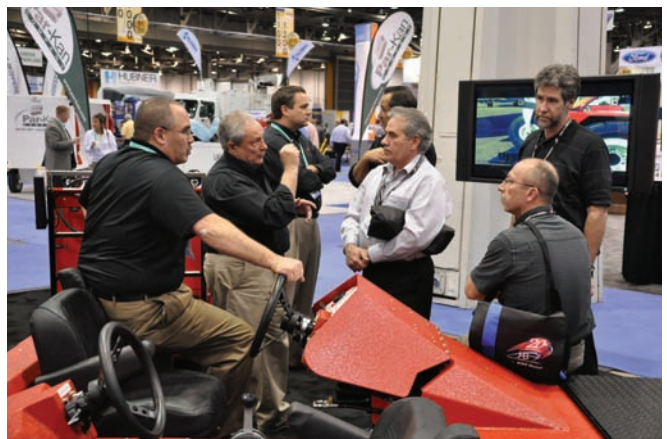
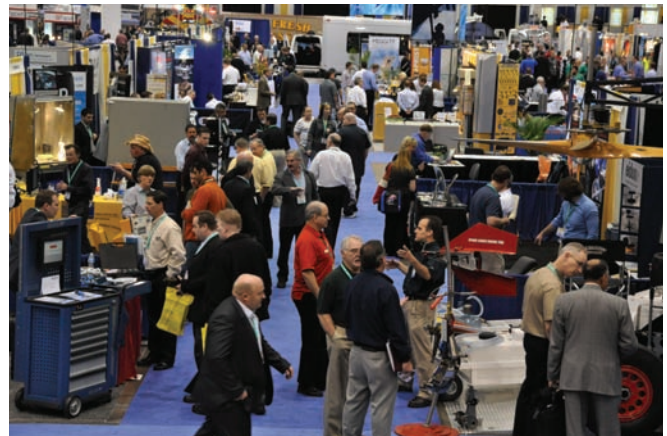
show every year is to have the ability to sit and converse with each other in one location. A trade show brings the ability to have meaningful conversations with individuals in the industry.

Many say that what it all comes down to is the ability to network with people in the ground support industry — making relationships, building relationships, and keeping relationships.

So I would like to ask some questions to exhibitors. How much would it cost you to see everyone on an individual basis that you were able to see this year at Cygnus Aviation Expo? How valuable is it to have all of them in one location? Did you find value in those meetings? I think these are valid questions.

Having the show every year is really a way to celebrate the industry and have one common place where people can meet and come together as a community (whether it is networking at the ITW Golf Invitational, celebrating the winners of the Ground Support Leaders of the Year awards, attending a session to learn more about a specific topic, or even hoping that your name is drawn as the winner of an F-150). Overall, I would give the show two thumbs-up and look forward to seeing everyone in Vegas next year.

Michael J. R.



Cygnus Aviation Expo was held Feb. 23-25, 2011, at the Las Vegas Convention Center.

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Calendar of Events:

April 16-20

45th International Aviation Snow Symposium

Buffalo, New York
 716.630.6136
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May 1-4

Regional Airline Association Annual Convention

Nashville, Tennessee
 972.943.4793
<http://www.raa.org/AnnualConvention/tabid/171/Default.aspx>

May 1-4

IATA Ground Handling Council Annual Meeting

Kuala Lumpur, Malaysia
<http://www.iata.org/workgroups/Pages/ighc.aspx>

Business Buzz

■ **Airline on-time performance improves in 2010:**

Information filed with the Bureau of Transportation Statistics (BTS), a part of DOT's Research and Innovative Technology Administration (RITA), shows that the 18 largest carriers reporting on-time performance recorded an overall on-time arrival rate of 79.8 percent for January through December 2010, an improvement on 2009's 79.5 percent on-time arrival

Fraport AG announces annual results for 2010

At Frankfurt Airport (FRA), both passenger figures and cargo volume have increased significantly. With 2.23 million metric tons, Frankfurt Airport handled more cargo than ever before. This corresponds to an increase of 21.5 percent. Passenger figures, too, showed a noticeable increase of 4.1 percent despite the volcanic ash cloud, airline industrial action and two major disruptions caused by unexpectedly severe winter weather at the beginning and the end of the year. Frankfurt Airport welcomed a total of more than 53 million passengers. Fraport's five majority-owned airports (including FRA) handled a total of 88.6 million passengers, a year-on-year increase of 8.9 percent.

rate. During December 2010, these carriers posted an on-time performance rate of 72.0 percent, equal to the 72.0 percent on-time rate recorded in December 2009, but down from November 2010's 83.2 percent rate.

■ **Michelin introduces new tire for GSE:**

Michelin Earthmover and Industrial Tires has launched the MICHELIN® XZR™ tire for airport ground support vehicles, as well as for lift trucks in the materials handling industry and street sweepers. The XZR tire is designed to provide increased operator comfort, speed capability and traction compared to the current Michelin offering for these applications. The tire is available in two sizes: 6.00R9 and 7.00R12.

■ **JBT Corporation reports fourth quarter 2010 results:**

JBT AeroTech had a record performance in the fourth quarter, both in revenue and operating profits. AeroTech's fourth quarter

revenue of \$124.9 million increased 47 percent from the prior-year quarter. A strong rebound in demand for ground support equipment and continued strength in the company's gate equipment product lines contributed to the record quarterly revenue. JBT AeroTech's operating profit for the quarter was \$13.7 million, up 69 percent year-over-year. Operating profit margin was 11.0 percent, up 140 basis points from the prior-year period, reflecting leverage from higher volume and lower expenses from past restructuring efforts. Inbound orders totaled \$82.9 million, up 24 percent from the prior-year quarter, but down 23 percent sequentially. Backlog of \$183.4 million was up 60 percent year-over-year, but down 19 percent sequentially due to record shipments in the quarter.

■ **Celebi Ground Handling Hungary opens new off-airport warehouse:**

Located five kilometers from Budapest Ferihegy International Airport, the warehouse offers more than 2400 square meters for cargo handling and is equipped to handle both general and special cargo. Lufthansa Truck Cargo and Asiana Truck Cargo are the first clients of CGHH's new warehouse. Within the 25,000 tons of handling capacity area, the warehouse includes separated DGR storage area and two coolers for the storage of cool cargo. Moreover, the warehouse is equipped with a high-technology camera system to ensure maximum security and CGHH offers also a special bomb-check service if

IATA lowers profit outlook for airlines

The International Air Transport Association (IATA) downgraded its airline industry outlook for 2011 to \$8.6 billion from the \$9.1 billion it estimated in December 2010. This is a 46% fall in net profits compared to the \$16 billion (revised from \$15.1 billion) earned by the industry in 2010. On expected industry revenues of \$594 billion, the \$8.6 billion 2011 profit equates to a net profit margin of 1.4%. Political unrest in the Middle East has sent oil over \$100 per barrel. That is significantly higher than the \$84 per barrel that was the assumption in December. At the same time the global economy is now forecast to grow by 3.1% this year — a full 0.5 percentage point better than predicted just three months ago. But stronger revenues will provide only a partial offset to higher costs.

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required. The warehouse's equipment park includes one 20-foot truck dock, one X-ray machine, one eight-ton, four 2.5-ton and two 1.5-ton forklifts.

Partnerships/ Acquisitions/ Contracts

■ **FMG subsidiary signs ground handling contract with Lufthansa:**

Since January 1, 2011, AeroGround, a subsidiary of FMG, the Munich Airport operating company, has been performing ground handling services for most aircraft flying in and out of Munich. AeroGround's largest customer is Lufthansa, with which the new subsidiary has signed a six-year agreement for handling services at Munich Airport. In 2011 alone, AeroGround will complete more than 164,000 handling operations for Lufthansa. The company is responsible for the ground and baggage handling services as well as passenger transportation and various extra services, such as crew transportation for all Lufthansa aircraft with the exception of the regional aircraft Embraer E190/195 and Canadair Regionaljet.

■ **Total Airport Services announces new contract:**

Korean Air Cargo has awarded its ground handling business to TAS starting April 11 of this year. Korean Air flies a freighter into San Francisco (SFO) on a daily basis and will soon be flying the new Boeing 747-8. This also means that the TAS staff in SFO will be growing as it adds on a new team to handle the Korean Air flights.

■ **Hytera announces distributor arrangement with Continental Wireless:**

Hytera Communications and HYT America Inc. have named Continental Wireless as a U.S.-based distributor for two specific HYT analog model portable two-way radios, the HYT TC-500 and HYT TC-600.

■ **Menzies opens new station:** The company announced it has opened a station in Darwin, Northern Territory,

Australia. It is the 10th location in the Oceania region. The company's launch customer is Jetstar, one of the Qantas Group of airlines, and they operate about 65 A321 and A320 flights through Darwin every week connecting Australian cities and Asian locations.

■ **Era selected by Finavia for vehicle tracking:** Era announced that Finavia, Finland's air navigation service provider, has selected Era to supply 135 of its latest-generation Squid® vehicle tracking units at the Helsinki Airport in Finland. The Squid units will support the airport's advanced surface movement guidance and control system. With more than 170,000 take-offs and landings in 2009, Helsinki Airport is Finland's busiest airport and the leading long-haul airport in Northern Europe, as ranked in number of destinations. Due to the amount of ground movements, Finavia sought vehicle tracking units that could best provide air traffic controllers with complete surface situational awareness to enhance the safety and efficiency of ground operations at Helsinki Airport.

■ **Menzies awarded Lufthansa contract at Cluj Airport:** Menzies announced the first contract win since the acquisition of Transilvania Handling Services (THS) in Romania last October. At Cluj airport, Lufthansa has awarded Menzies Aviation with a three-year contract for ramp services starting April 1, 2011, and passenger services starting November 1, 2011.

■ **Total Airport Services announces warehousing contract:** Cathay Pacific awarded TAS its warehousing contract at Chicago's O'Hare International Airport (ORD). Now, TAS does all the ground handling, deicing, and warehousing for Cathay Pacific in Chicago as well as San Francisco. Cathay has been ranked as the largest cargo carrier in ORD, by tonnage, right after FedEx and UPS for the second month in a row.

■ **ASIG commences FIS customer service management contract for MCO:** ASIG® announced that it has been awarded the contract to provide Federal Inspection Stations Customer Service Management at Orlando International Airport (MCO). The contract was awarded by the Greater Orlando Aviation Authority following a competitive bid process and services commenced on February 1. MCO is

one of 20 gateway airports that are part of the U.S. Customs and Border Protection's Model Ports Initiative. This initiative is focused on improving processes for clearing and welcoming travelers into the United States. Under the agreement with GOAA, ASIG will provide Ambassador Services representatives to assist arriving international passengers through customs and ensure the safe and

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efficient transit of these passengers and their luggage through various FIS facilities at the airport.

■ **Menzies receives contract with BA World Cargo in Oslo:** Menzies announced the award of a new full freighter contract with British Airways World Cargo. The contract gives Menzies Aviation Oslo entry into the freighter handling market. British Airways World Cargo operates one weekly B747 freighter from Oslo to Hong Kong.

People in the News

■ **Swissport International appoints new VP corporate controlling & financial analysis:** Nicolas Frochoux assumed his duties March 1 and reports to the Swissport Group CFO Alvaro Gomez-Reino. Frochoux succeeds Dany Nasr, who has been promoted to CFO of the Swissport Americas division, based in Washington, D.C. Nicolas Frochoux

joins Swissport from the Cham Paper Group, where he has been serving as CFO and a member of executive management for the past four years. Prior to this he spent about 15 years with Royal Dutch Shell, holding several executive positions in areas that included finance (controlling and treasury), IT and human resources.

■ **AA Cargo's Carmen Taylor receives International Women's Day Award:**

American Airlines announced that Carmen Taylor, managing director of cargo sales — Mexico, Caribbean and Latin America, has been honored as a recipient of the International Women's Day Award by World Trade Center Miami. The annual award recognizes women who demonstrate exceptional leadership in promoting and enhancing free trade and international business in the Americas. Taylor was recognized at the International Women's Day event luncheon hosted by the World Trade Center Miami for modeling excellence — reflecting the influential role women play in furthering Florida's strategic position as the "Trade Logistics Capital of the Americas."

■ **Total Airport Services appoints VP — business development:** The company announced that Daniel Malinowski has

been promoted to vice president — business development for TAS. Malinowski joined TAS more than three years ago and is responsible for the growth the company has experienced at Chicago's O'Hare International Airport. This growth saw TAS go from ground handling 18 747 freighter aircraft per week to more than 350 freighter aircraft and nearly 400 passenger aircraft per month. He also oversaw TAS' expansion into passenger services. In his new position, Malinowski will be responsible for further expansion of TAS in Chicago in all areas. This includes further expansion of its ground handling operations for both freighter and passenger aircraft, passenger services, into-plane fueling, and warehousing.

■ **ATA appoints VP legislative and regulatory policy:** As part of its reorganization targeted at building advocacy and lobbying capabilities, the Air Transport Association of America (ATA) appointed Christopher C. Brown as Vice President Legislative and Regulatory Policy. Brown brings more than 15 years of experience in aviation policy and government affairs to his new position, where he will focus on outreach to key stakeholders to advance policy and legislative issues. ■



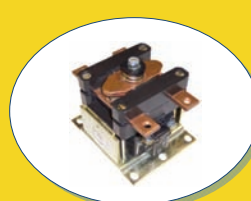
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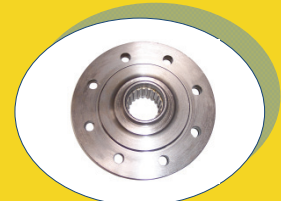
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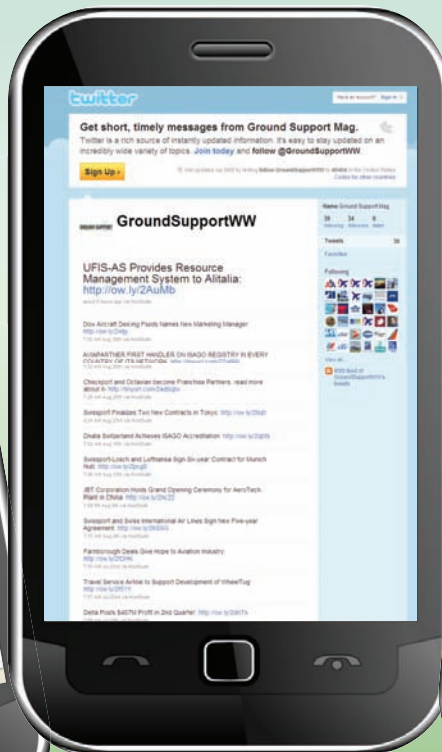
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A technician with Hercules Engine Components completes connections in a new electric dash panel on a belt loader.

Electric

Conversions of GSE

Is the conversion of IC units to electric a viable pursuit?

Lisa Haddican

With a keener eye toward compliance and more environmentally friendly operations, electric has become an industry buzzword. Beyond new units, there has been another alternative for fleet managers looking to go electric — conversion. Long an option, the idea has yet to take hold throughout the industry, though some say the concept is gaining ground.

CONVERSION PROJECTS

In 1997, Electric Power Research Institute funded a project to convert a loader owned by Delta Air Lines. The manufacturer, JBT AeroTech, completed the conversion. The unit was placed into operation in Atlanta where operational results were recorded over a period of four months.

According to the EPRI's report, "The study showed that the electric-

powered demonstration pallet loader performed identically to the diesel IC version. The only difference was the need for routine charging."

The loader was equipped with two 80-volt batteries. Testing showed the unit could operate continuously for 5.8 hours before reaching a 20-percent state-of-charge. "This is more than sufficient for a normal shift, considering the average run time was 1.7

Considerations for Electric Conversion

POINTS TO CONSIDER WHEN CONVERTING FROM A SPARK-IGNITED OR DIESEL ENGINE TO ELECTRIC DRIVE

Motor choice

- AC or DC power (each has advantages and disadvantages)
- Horsepower required (weight of vehicle and application must be considered)
- Volts required for operation. Most electric motors can run on a range of voltage
- How will other accessories running off the engine be accommodated with the electric system? (Examples: hydraulic pump, power steering pump, etc.)
- How and where to mount electric motor

Battery Selection

- Select type of battery system to use — lead, gel, lithium, etc.

- Where will batteries be installed? This can be a challenge in certain applications where space is limited. In some cases, a series of 6- or 12-volt batteries will be required to attain appropriate voltage and amp hours

Drive train considerations

- How will the electric motor interface with drive train? In some cases, a gear box or gear reduction system is required to attain appropriate speed range and desired torque
- Complete axles with an integrated electric motor are available

Other Considerations

- Redesigned dash will be required with gauges to display level of charge in battery, amp meter, volt meter, etc.
- Choice of other components such as the controller, converter, accelerator pedal, relay switches, etc., must be selected

Source: Hercules Engine Components

hours per day. The use of opportunity charging in this and similar operations easily permits multi-shift operation," according to the report.

For JBT, the project provided evidence that conversions could hold up to operational standards of new units. "Some people might expect that if they put in a different motor or different engine in, they would get different performances, and that's not true," says Dale Koger, electrical engineering manager at JBT. "The JBT conversion kit meets all operating parameters of the existing machine. The controls are identical, and the performance of the machine is identical. You just don't have the noise or the smoke."

According to Joe Fuqua, general manager of GSE at Delta, the loader is still in operation today in Atlanta. When asked about potential projects in the pipeline, he says the airline is in talks to convert a pushback tractor.

ONGOING CONVERSION EFFORTS

Southwest Airlines has an ongoing project and has completed the conversion of about 150 units. For more than 15 years, the crew at its Phoenix facility has converted pushbacks and belt loaders.

The conversions have been completed in-house with three technicians dedicated to converting two belt loaders a month. According to Larry Laney, director of GSE at Southwest, the conversions make economic sense — with the average conversion coming in at about half the cost of a new unit.

Southwest has been able to keep costs down, due in large part that the crew has sourced the kits themselves — an endeavor that required a significant initial investment. "We went and did all the research and development, so that was a challenge — the expense of going through the process to get where we are at," Laney says.

Rick Waugh, regional manager of GSE at Southwest Airlines, says the crew worked to find parts that were

cost effective and easily accessible. "We asked ourselves: What can we do to simplify this process completely? And we didn't want to reinvent the wheel," he explains.

"If there is something out there on the market currently that works, that is reasonably priced and it will work in our application, then let's do that," he says, adding, "Through the procurement process, we tried to find products that are

already out there being made. Outside of a gearbox that we need for our belt loaders that was custom made for us, everything else is just off the shelf and it's brought our cost down."

CONVERSION SUPPORT

Many companies have offered kits and conversion services for GSE. JBT, which offers conversion of loaders as part of its refurbishment

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services, has introduced a kit for its model Commander 15 loaders for model years 1996 through 2003 for customers looking to complete the process themselves. "We will quote on the first installation with a JBT field service technician to oversee and train their team on the proper installation of the kit," Koger says. "It's not overly difficult, but the cost of the main components makes it

beneficial for everyone that we make sure it's installed properly."

FMI Truck Sales has offered a kit for its Isuzu vehicles since 1999. The company offers the option of producing kits for other types of GSE, but it's based on volume and demand. "To develop a kit that you put together for a specific model, generally you like to have a little bit of volume, because it's fairly expensive to design and put

together for someone," owner Don Emerson explains. "We've done mostly conversions of on-road vehicles, but have the ability to do belt loaders and anything other than really heavy tugs."

Tug Technologies has also completed the conversion of its belt loader and now offers a kit for customers to install themselves. "Tug is able to offer a range of solutions from the full conversion and factory rebuild with like-new warranty to a customer conversion kit," says Brad Compton, VP sales and marketing at Tug.

Hercules Engine Components has also undertaken conversions for GSE, completing conversions of pushbacks, bag tugs and belt loaders, and offers such services for customers. The company has also developed preassembled kits for belt loaders. The kits are made up of about a dozen items — including a new dashboard with "plug and play" wiring harnesses, according to president Jack Dienes.

TECHNICAL SKILL

For units such as pushbacks and belt loaders, many companies say the process is not overly complicated. Most conversions — excluding any backlog considerations — are about a three-day process.

Emerson of FMI Truck Sales says conversions can be done in-house — when a crew understands the basics. "When you convert a vehicle that is currently set up as a gas or a diesel truck, you obviously have to remove the cooling system, fueling system, the engine, and in some cases utilize the transmission as your drive gear (and some cases you don't, depending on the application you're into)," he explains. "You've got no fuel system and no cooling system, which means no radiator, no fuel tanks, and the engine is gone. You have to stop and think about what gets replaced on those."

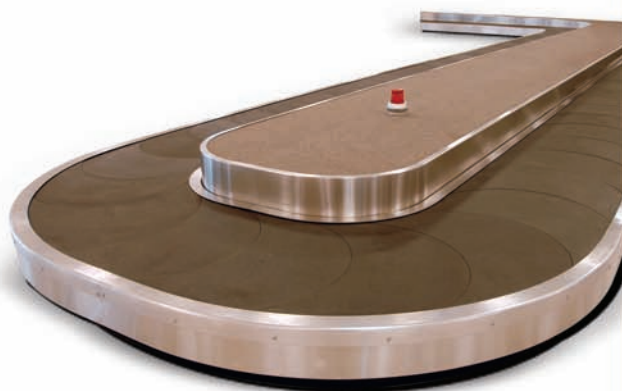
Waugh of Southwest Airlines indicates that technicians should

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L-Tug

A&V Rebuilding, in collaboration with PowerForce, introduced the L-Tug at Cygnus Aviation Expo. The L-Tug, which was converted from a gasoline-engine-powered unit, has been configured with lithium-battery technology. "We found that the L-Tug will do two to three times the amount of work per charge as its lead-acid counterpart and is capable of recharging in a third of the time. The longevity of the battery life is double to triple that of lead-acid with little to no maintenance needed," says Gerry Hoadley at A&V Rebuilding, which offers refurbishment services that include lithium-battery conversions. "We can recharge the batteries from drain to full charge in as little as two hours." The tug can tow up to 50,000 pounds, according to the company. Though the upfront cost is more, A&V says the overall cost of ownership over standard-fueled units is about half.



have a strong familiarity with electric equipment. "It takes a knowledge in electric GSE — what all is involved with it, knowledge of the controllers, knowledge of the chargers," he

says. "All this was picked up through trial and error out here in Phoenix. Phoenix has been working with electric from the mid- to late-90s. They've converted a lot of units, and

they were all steps to learn as we progressed on down the road to the product that we're putting out today."

COST

The cost differential for converting versus buying new can vary by unit type. Southwest, through its continued efforts in-house, has been able to convert at about 50 percent the cost of a new unit. This is the average threshold the carrier uses when evaluating projects. "We look at an asset and if we can dump 50 percent of its value into it to create a new asset, then we go for it," Waugh says. "It makes strong economic sense."

Dienes of Hercules says their conversions have averaged between 50 to 60 percent the cost of new, which includes the complete refurbishment of units.

Emerson of FMI Truck Sales suggests customers should evaluate the cost return for each type of unit.

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"A typical kit — by the time you look at something that has power steering and vacuum assist brakes and all those systems you have to convert over — it's not uncommon for the kit itself to be in the \$15,000 to \$17,000 range (depending on the horsepower you need)," he explains. "Then depending on what you want, you need to add for batteries and so forth, depending on your usage. A battery pack can

be another \$3,000 to \$4,000 if you use lead-acid and more if you go with lithium. You've also got labor, which in most cases is about 100 hours for a conversion, give or take 20, depending on what you're trying and how complicated it is."

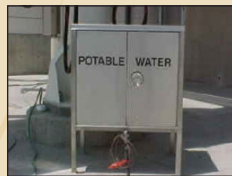
CANDIDATES FOR CONVERSION

So just what type of units are ideal candidates for conversion? There



A converted JBT AeroTech Commander 15 loader. Image courtesy of JBT AeroTech.

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are differing opinions when it comes to such a question. Some contend that belt loaders, pushbacks and loaders remain the best options, because other units may not be as cost-effective or may present too much of a design challenge.

Southwest has kept large-volume conversions limited to belt loaders and pushbacks. Laney says the team has worked on different types of GSE — such as bag tugs — but has not found the process to make economic sense. "Tugs are not really conducive for the conversion because the large battery pack and the way the engine is designed," he says. "We haven't been able to find out a way to really do them that makes sense."

However, some companies insist tugs are another good option. Hercules Engine Components has completed a tug conversion. Dienes concedes that the unit may not be ideal for all operations. "It is more difficult to do the conversion, because it's tougher to arrange the batteries," he says. "And because of that you're limited on the amount of amp hours you can get out of the series of batteries."

However, the company has found that smaller airports are an ideal fit for its units. "They may only do five or six flights a day, and that tractor is perfect for that application," he says.

Another company, A&V Rebuilding, recently debuted a tug that it converted using lithium-battery technology, which the company states is superior



to a standard lead-acid battery — performing up to three times as long on each charge, as well as having a life expectancy of up to 12 years or more. (See L-Tug sidebar)

Wayne Alexander of Electric Blue Auto Conversions — which also offers repowering services for GSE — offers a more liberal view. “Just about any piece of equipment is ideal for conversion,” he says, explaining that while there may be drawbacks associated with some unit types, technology will quickly catch up to address any operational issues.

The true test of candidates for conversion, which nearly everyone agrees upon, is whether or not the infrastructure will support a unit at its location.

MORE TRACTION FOR CONVERSION?

Conversions from IC units to electric have been a largely sporadic undertaking throughout the industry. It has long been an option, but it has not widely taken hold, though some companies say that could be changing.

Brad Compton of Tug notes that the company has seen more interest in conversions. “I think when they look at converting a current asset, it is more economical. And then you look at all the incentives to go electric, it’s going to happen,” he says.

Compton points to emissions regulations as one factor that could push the industry more toward electric in general — not only conversions, but new builds as well.

That sentiment is shared by Emerson at FMI. “I think that we’re seeing much more conversation about it because of the changes that are coming with the emissions,” he says. “I think that the airlines and the service companies are desperately trying to figure out what direction to go here for the long run with the new rules.”

JBT also agrees. “Interest levels have been very high,” Koger

says. “We’re fielding questions on a regular basis. You’re going to see the percentage of electric vehicles, as conversion or new production, continue to grow as money starts becoming available. With the introduction on the Tier 4 engines, customers are looking at the higher cost of Tier 4 and the maintenance involved. They are giving it more of a look to go electric.” ■

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ISAGO Begins to Take Hold

To date, there are 61 ground service providers at 85 locations across the globe listed on the ISAGO registry.

Dr Gareth M. Evans

Three years on from its launch and, although it is still effectively in its infancy, the IATA Safety Audit for Ground Operations (ISAGO) program is undeniably gathering momentum as interest in the potential benefits it has to offer continues to grow around the world. To date, there are 61 ground service providers (GSPs) at 85 locations across the globe which have undergone the necessary corporate audit and full audit of at least

ment typically lacking consistency and simplicity, confusion is inevitable; standardizing procedures worldwide, so the thinking goes, should eventually result in measurable improvements across the industry.

FOSTERING CONTINUOUS IMPROVEMENT

The potential for GSPs is clear, not least because the structure of the program itself, which requires renewal

to check on our ability to continue our registration and those audit findings then helped us in further improving various aspects of operational safety, which are complimented by our OHSAS 18001:2007 certification."

This is something echoed by Sergey Domradov, one of a number of independent safety training consultants riding the rising tide of cultural change amid ground handlers in Russia, the CIS and many of the now independent former Soviet satellites. "Companies here have been quick to see the advantages from the start," he says, pointing to the fact that Lithuanian-based Baltic Ground Services (BGS) was the first handler in Europe — and only the tenth in the world — to be registered. "ISAGO is becoming very popular now. It is partly for the savings. Like everywhere else, reduced costs speak loudly, but mainly for reasons of nationalistic pride to do things better and safer. This program gives a framework to achieve that progress."

Just as importantly, it also means that the necessary effort involved to subsequently keep up those standards receives a measure of public recognition too. As BGS CEO, Saulius Batavicius, commented on the company's certificate renewal, it "indicates that we maintain the highest level of safety and airline companies we serve at Vilnius airport receive ground handling services that conform to internationally recognized standards."

RAISING AWARENESS ON THE GROUND

Undergoing regular re-examination in this way can also have a wider spin-off effect on workforce awareness, and as Abdellah Ben Lahcen, auditing and quality assurance controller for



Ground operations at Heathrow Airport. Image courtesy of Adrian Pingstone.

one of their stations that is required to be listed on the ISAGO registry. It represents a measure of how the industry has begun to embrace the idea.

The program has three simple aims — to improve ground operations safety, reduce ground damage and bolster the efficiency of auditing — and the logic behind this is compelling. With the current operational environ-

audits every two years, fosters a process of continuous improvement, as Jon Conway, divisional senior VP of Dnata Airport Operations at Dubai International Airport explains. "In May 2008, Dnata entered the ISAGO registry, both headquarters and stations being audited by trained and experienced auditors," he says. "In April 2010, a renewal audit was conducted

Airline Supervisors Experts (ASE) in Morocco, testifies, this has proven to be a valuable bonus. "In addition to the fact that ASE was proud to join the ISAGO program and gain the trust of its customers all over the world, our staff are now more aware about the safety and security issues than ever and are doing their part to implement the safety and security procedures on the ground," he says.

For Dnata, this was one of the key factors behind their decision to be early participants. "We are on a bit of a crusade to raise the safety bar," explains Conway, "and an IATA program which, we believe, will become a minimum requirement for major IATA carriers seemed like a no brainer." Their base operation in Dubai was the first ground-handling agent in the world to gain ISAGO registration, and all of their international businesses are following, with the Zurich and Geneva stations in Switzerland this year. In the words of Stewart Angus, the company's divisional senior VP for international operations, "having an aspiration to be the best has enabled Dnata's international ground-handling business to expand internationally."

Clearly ISAGO could help continue that expansion, particularly if, as Conway suggests, the program does ultimately become established as the *de facto* global benchmark, since the multiple iterations of the routine audit cycle experienced by the likes of Dnata and other early-joiners should help position them ahead of the pack. As many have observed, inspiring a culture of safety can play a major role in driving ground handling costs down, and then keeping them there. There may well be "no competition when it comes to safety," as IATA CEO Giovanni Bisignani has said, but there is certainly an undoubted commercial advantage to be gained from palpable compliance.

In addition, ISAGO continues to grow as more airports and civil aviation authorities mandate the program. GSPs have been required to be ISAGO registered at Seattle Tacoma International Airport, Montego Bay Jamaica Airport, Lebanon and Turkey (for GSPs providing passengers, cargo and ramp services), while on the other side, Amsterdam-Schiphol Airport has named ISAGO as one of its oversight components.

AUDIT EXPERIENCE

Nevertheless, at least for the moment, ISAGO remains the "new kid on the block," which inevitably leaves it needing to work alongside currently established custom and practice. On a positive note, experience has shown that the scheme can dovetail into existing occupational health and safety management initiatives with relative ease, allowing handling companies to benefit from their current quality, environmental and health & safety management know-how. ASE's Ben Lahcen, for instance, has found that this can bring significant potential benefits in terms of reducing the overall resources needed to be allocated as a result. "The process of registration didn't take much time," he says, "as ASE had already prepared for this program by establishing a QES System and security and safety procedures before we started."

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Moreover, although as Groundforce Portugal's Eduardo São Marcos points out, certification involves a level of expenditure for the registration process and the necessary training for implementing this system, the pay-back can be swift. "These initial costs soon became an investment to the extent that the practices that were acquired allowed in fact a more rigorous carrying out of procedures related to security, minimizing operational risks, reducing both accidents and costs," he says. The certification process itself, he continues "was quite a rewarding experience because it allowed the exchange of experiences and adjustment to new work routines."

It seems that the picture is somewhat less rosy, however, when it comes to the widely held expectation that the program would lead to the avoidance of much of the necessity for the multiple and repetitive auditing that has for so long bedeviled the industry.



Borrowing from the ethos of ISAGO, IGOM represents a further attempt at harmonizing the industry worldwide.

Having been involved quite literally from the get-go, Dnata have a unique perspective on the issue. "We have been a little surprised at the volume of airline audits still conducted post registration," says Conway, "even from airlines who subscribe to the audit pool." Any hopes that ISAGO registration would result in a noticeable fall in the numbers of redundant airline audits appear

to have been largely unfulfilled; in 2010 alone, the Dubai operation was audited by no fewer than 29 airlines. When they raised the issue with the relevant authorities, the message came back that the program was still new, and that it would take some time for airlines to accept ISAGO audits in lieu of their own. Three years from the program's inception, this evidently is a less than ideal outcome, but as he readily concedes, for what is effectively work in progress, "it is still relatively early days."

IGOM

That being so, it is even earlier days for the IATA Ground Operation Manual (IGOM) initiative, which aims to overcome the current situation where each airline produces its own ground operations manual, often resulting in variations of procedure, even for the same aircraft type. In addition, some GSPs produce their own manuals for use as the default, when there is no clear direction from an individual airline, which tends to muddy the waters further. Quite apart from the innate time inefficiencies that result from having to meet different standards, the safety risks increase too, in terms of both the potential for worker injuries and damage to aircraft and equipment.

Borrowing from the ethos of ISAGO, IGOM represents a further attempt at harmonizing the industry worldwide, being designed to provide a single, definitive manual, formed

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from the synthesis of existing best practice. Though a challenging task — not least because it will also have to accommodate specific regulatory demands and company policies — the indications from IATA are that it is progressing on schedule, and the first edition will be released during the first quarter of 2012.

IMPLICATIONS FOR OUTSOURCING

It is clearly an ambitious project, but its implications could be especially important in the light of the growing global trend towards outsourcing. The prospect of a standardized, consistent service from third-party handlers around the globe that the arrival of the new manual should bring is something which could influence the decision to outsource ground handling.

Going down the outsourced route inherently means that a large amount of procedural control is surrendered to the “bought-in” servicers, and for airlines, that raises the specter of potential damage if their process is improperly performed or imperfectly supervised. With a core set of agreed ground operations procedures adopted by GSPs, airlines should be able to make the move to outsourcing with much greater confidence, though it is hard to imagine that, as with ISAGO audits, they will not take a while to be entirely comfortable with accepting the new standards manual in place of their own.

Be that as it may, the idea does seem to be pushing on the proverbial open door. As ASE's Ben Lahcen puts it, “our first priority as an airline representative is safety and security for both the airline customer and the airport staff providing services on the ground.” Domradov concurs. “There is a real desire amongst ground handlers to improve what they do, to be better and more able,” he says. “These programs make it possible to raise those competencies — even if it will need a little time.” ■

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Cygnus Aviation Expo 2011

A recap of some of the highlights at this year's show

By Aaron Amundson

This year's Cygnus Aviation Expo featured many opportunities for attendees. Whether for the purpose of making and maintaining industry connections, displaying companies' newest products, or just learning about new technologies and industry issues, crowds of exhibitors and general attendees gathered at the show at the Las Vegas Convention Center.

The show included 227 exhibitors showcasing their products on the floor. The expo included events like the Career Fair to link employers with the qualified experts they seek and networking events to encourage wider interaction. At the same time, sections like the Demos-on-Demand area allowed attendees to experi-

ence equipment first hand, and the Green Pavilion allowed companies to showcase their environmentally friendly product offerings. In addition to these opportunities was a series of seminars, which allowed attendees to learn about issues facing the industry from leading speakers.

Here is a look at the GSE seminars and the topics discussed.

Alternative Technology for GSE: Fuel Cells the Future? Speakers: **Lennie Klebanoff**, director, Sandia National Laboratory; **Greg Moreland**, representative, Department of Energy

The seminar focused on developments in fuel cell technology, and options for a sustainable introduction of this technology into ground support operations. This technology includes use of fuel cells as a power source for ground equipment, as well as use as a backup power source in emergency situations. Klebanoff shared information on the development of a mobile light stand, and the marketability of hydrogen cell technology. He sees fuel cells as one of the more viable options for the industry as carbon reduction standards combine with rising fuel prices to

necessitate alternative fuel operations. Moreland focused on the advances in fuel hydrogen production through more sustainable methods, including the conversion of decomposition gasses. Discussion also covered government emission regulations, funding options, and overall operational sustainability.

Electric GSE Speakers: Wayne Alexander, Electric Blue Auto Conversions; **Ryan Gibson**, GSE general manager, AeroVironment

This seminar focused on the implementation of electric GSE and the conversion of diesel to electric as a cost-saving measure. The integration of electric into existing diesel fleets and effective uses of electric systems were featured in discussion. Alexander explained the process of conversion and the difficulties inherent in first-time conversions of new systems, as well as the successes he has had in standardizing conversion kits and methods. The cost and operational effects of the implementation were also featured. Alexander discussed initial costs and the overall effects on the necessary operational and repair budgets as well, and shares insight into effective practices and use of this equipment.

Gibson discussed emerging battery technology and its effects on equipment function. He explained that as batteries are becoming more



Attendees try out products on the show floor.

advanced, their charge speed and duration improves, along with their cycle life, reducing the replacement costs that plagued older batteries. He also explained the financial effects of investments, and that by viewing costs on an amortized basis a company sees remarkable returns on their investment.

VALE Funding Speakers: **Calvin**

Davenger, deputy director of aviation, planning & environmental stewardship division of aviation, Philadelphia International Airport; **Bruce Miller**, corporate real estate, PHL-Properties/facilities, US Airways

This session focused on VALE funding, giving detailed information on the available grant options and the requirements linked with this funding. Davenger discussed the variety of projects for which this funding can be used, and the restrictions and guidelines linked with these projects. He placed a focus on the airports ability to grow infrastructure such as chargers, electrical capacity and auxiliary power stations through this program, and gave specific focus to the relationship between the airport and its clients required to make effective use of these funds. Although these funds are commonly focused on the implementation of electric infrastructure, he is quick to point out that they

can be applied to other alternative fuel systems as well, so long as the positive environmental impact is sufficient.

He specifically emphasized the necessity of individual situational awareness and evaluation as groups seek to take advantage of this and other federal grants.

California LSI and Off-road Diesel Regulations for GSE Fleets

Speakers: **Mark Williams**, air pollution specialist, California Air Resources Board; and **Elizabeth Yura**, air resources engineer, California Air Resources Board

This session focused on CARB emission requirements, the timetables involved in their implementation, and the variety of options available to companies as they seek to meet the emission mandates. In this informative session, Williams explained the calculations used to determine a fleet's emission requirements and the varied deadlines involved, as well as related restrictions being implemented in conjunction with emission reductions. The extended timetables on implementation of the restrictions were discussed, as were the projected adjusted implementation dates. Yura discussed fleet



GSE seminars offered insight on an array of topics.

behavior standards and tagging regulations targeted at limiting extended idling and other wasteful practices.

Human Factors on the Ramp Speaker:

Dr. Bill Johnson, chief scientific and technical advisor human factors in aircraft maintenance systems, FAA

The seminar focused on human factor mishaps on the ramp and techniques that can be used to minimize the frequency of these errors. Dr. Johnson focused on awareness of personnel characteristics and task requirements to set up a work environment that is conducive to safety. The discussion included various ways to improve staff's fitness for duty, including scheduling restrictions to avoid fatigue and periodic observation periods. It also covered ways to



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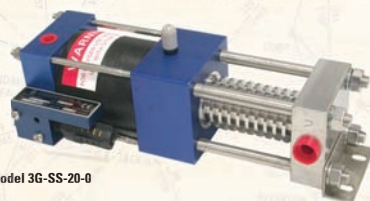
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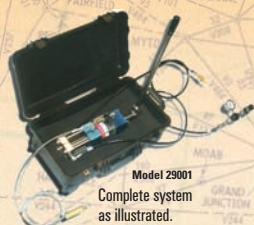
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make the facility more staff friendly and enhance efficiency and usability, decreasing worker distraction and stress. It is Johnson's belief that through improved work conditions and a greater awareness of workers' needs and abilities, the incidents of human error can be greatly reduced.

Deicing Operations and the

Environment Speaker: **Tim Pohle**,
managing director - US environmental
affairs, ATA

This session featured new EPA regulation of deicing run off and glycol recovery requirements. Pohle discussed the proposed 3-tiered approach to regulation, and the requirements of each tier's mandates. In the top tier, there will be a requirement for 60% of expended glycol to be collected, stored and treated. The middle tier would be required to collect 20%, and the lowest would be immune from collection requirements, but must cease the use of urea treatment fluid. Discussion also covered available technologies designed to assist with the recovery, including deicing pads and glycol recovery units, which would be required in the larger operations to meet EPA recovery standards. Advances in deicing fluid and the improved environmental safety they entail was also a focus. The difficulties involved in the implementation of new systems and improved deicing methods were also discussed.

NETWORKING PARTY

This year the expo featured a networking party for attendees to interact with representatives of the 227 exhibiting companies. The event featured live music, food, drinks, and a drawing for a 2011 Ford F-150. Congratulations to Cordell LaBrier, president of Ideal Aviation, Inc. in Sauget, IL, who was the winner of the drawing; as well as the other finalists, one of whom won a Snap-on toolbox, and the rest Snap-on tool kits. ■

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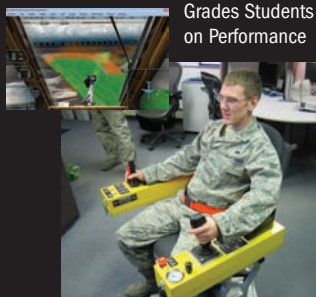
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In Recognition of Leadership

The 2011 Ground Support Leaders of the Year awards acknowledged five individuals for their contributions to the industry.

By Lisa Haddican

Great leadership deserves a nod — not only to commend the individual but to inspire others.

In an effort to recognize and inspire the GSE community, *Ground Support Worldwide* presented the Leaders of the Year awards at Cygnus Aviation Expo in Las Vegas. Nominations were submitted by the industry and voted upon by our editorial advisory board. At a ceremony held during a luncheon at the convention center, five individuals were recognized for the contributions.

And this year's recipients are ...

Safety Leader of the Year: for a person or company who has introduced a new method, procedure or product to improve industry safety records



Don Redwine,
reliability
analyst,
Southwest
Airlines

Don Redwine envisioned a career in aviation at a young age. "On my first flight in the early 1970s, I informed my mother I would be in this business somehow," he says. "It was just way too cool." He has since spent 26 years in the industry, which initially began at Horton Aero Service in Lubbock Texas in 1978 where he was an apprentice A&P for three years. He then worked outside aviation before returning in 1988 as a production



The awards were presented during a luncheon at Cygnus Aviation Expo.

painter at E.B.A. in Texas, where he eventually became a production manager building small-scale GSE for corporate and commuter markets. Redwine then took on the position of field service technician when E.B.A. was acquired by DevTec. When the company became known as TLD, Redwine led a team of field service technicians that covered North and Central America, as well as English-speaking countries in the Pacific Rim.

Redwine transitioned into an airline career with Southwest in 2004 as a reliability analyst. He has since become involved in many aspects of airline ground safety, sitting in on several internal committees and groups focused on safety and reducing injuries. He has also been involved in the SAE G12 and AGE2 groups and the ANSI A92.7 working group. Redwine has responsibility for creating and facilitating safety/technical training programs for the Southwest GSE group worldwide.

Introducing him at the reception, Rick Waugh, regional GSE manager at Southwest, says Redwine "does a tremendous job of working with our end users of our equipment." Waugh

adds, "He explains the error in their rationale at times, or gives credit where credit is due when they come up with something that has merit."

Redwine says, "I owe much of my success to the exceedingly competent group of people I have the pleasure of working with here at Southwest Airlines."

Engineer/Innovator Leader of the Year: for a company or a person who has introduced a revolutionary product



Gene Velazquez,
president and
founder, One
Mile Up Inc.

Gene Velazquez is president and founder of One

Mile Up Inc., a software company that has developed computer graphic solutions. In 1998 the company stepped into the aviation market, developing software for aircraft interior rendering, paint scheme design, instrument panel layout, and a software program for parking and stacking of aircraft

called Hangar & Ramp Planner. One Mile Up's Hangar & Ramp Planner was designed for better planning of aircraft parking to improve both profits and safety.

According to Velazquez, about 500 companies have purchased the software to assist in parking of aircraft. In 2010, One Mile Up implemented a beta testing site at Centennial Airport in Englewood, Colo., for a new web-based version of Hangar & Ramp Planner.

Introducing Velazquez at the reception, Mike Zimpel of Vail Valley Jet Center spoke about the benefits of the program. "Vail Valley Jet Center uses the One Mile Up Hangar Planner as a helpful tool for planning aircraft moves, ramp and hangar stacking," he says. "We look forward to the latest version and improved levels of safety and efficiency this will bring."

Green Leader of the Year: for a person or a company who has introduced environmentally friendly equipment or processes



Ryan Gibson,
GSE general
manager,
AeroVironment
Inc.

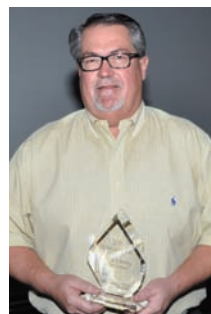
Ryan Gibson stepped into the aviation business

in 1998 as a senior commodity manager at American Airlines. In 2002, he moved into a position with AeroVironment, a company specializing in fast-charging technology for electric vehicles. Gibson currently holds the title of GSE general manager at AeroVironment. In addition to his responsibilities with the company, Gibson regularly speaks at industry functions to explain the benefits of turning to electric GSE.

Introducing Gibson at the reception, Debra Guinand says, "He has assisted in electrification of many airports, not only in the United States, but abroad."

Accepting the award, Gibson says, "I just want to thank all of the users that buy the equipment. They're the ones that do the most for the environment; I just facilitate it."

Team Leader of the Year: similar to the original Leader of the Year Award, this title is for an individual who has taken a leadership role with personnel



Larry Laney,
director of GSE,
Southwest
Airlines

Larry Laney is a two-time recipient of the Team Leader of the Year award. Laney began

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his career in 1986 with America West Airline. He joined Southwest in 1997 where he has been instrumental in developing maintenance programs and guiding his team through fleet requirements. Rick Agnor, manager GSE eastern region at Southwest, introduced Laney at the reception, saying he deserves the award for his dedication to his position. "They say fortune favors the brave, and it indeed takes a lot for GSE leaders to perform in these tough times," he says. "Many of us can lead, but hopefully the exhibition of talent we saw this year might inspire our hidden talents to come forward. One person stood out because of his sheer determination, talent and energy in his GSE leadership performance."

Laney accepted the award on behalf of the entire GSE team at Southwest. "I'm going to take credit for one thing, that I've done a great job of surrounding myself with talent," he says. "I'm honored to receive this award for our team — certainly I didn't do everything — and also for all the hard working GSE mechanics in our system that really get the work done."

Lifetime Achievement Award: for a person who has demonstrated commitment to the industry through a lifetime of dedicated service



Patrick O'Brien,
president and
CEO, MCM
Engineering
Inc.

Patrick O'Brien has been in GSE

for more than 40 years, contributing his talent to 400 Hz applications. According to colleagues, his innovations helped transform the industry from mobile equipment to central system design. He founded MCM Engineering in 1991. Prior to that, O'Brien served as a chief engineer at companies such as



Ground Support Leaders of the Year (from left to right): Ryan Gibson, Larry Laney, Gene Velazquez, Patrick O'Brien, and Don Redwine.

Hobart Brother, Devtec (now TLD) and McCormick-Morgan.

Introducing him at the luncheon, colleague Paul Bade reflected on his experience working with O'Brien. "It's not about putting in a lot of years, it's about the body of work," he says. "He's been an innovator and a creator. I know that he's made a big difference. Over the years, he's taught a lot of us to do the

right thing and that's to serve our customers, to look out for quality, and don't let our customers make mistakes."

Accepting the award, O'Brien offered advice to the crowd, advising them to "strengthen your strengths." He also indicated that he did not plan to step away from the industry anytime soon. "I'm thinking about retiring in about 20 years," he says. ■



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MAINTENANCE/SHOP EQUIPMENT & IT

Web-based Solutions for GSE Maintenance

Applications promote more cost-effective operations for parts ordering and labor.

Michael Lentini, president, DatcoMedia

In the past, the GSE departments of commercial airlines were an overlooked operation that money was simply thrown at to keep airplanes and equipment moving. Around 2004, airlines started to really look at the costs of GSE departments — how to control them, budget their costs and lower the cost of operation per hour. Most of the GSE industry had no methods to track parts needed, or controls to see where parts and labor were being applied.

Recognizing the need, web-based maintenance tracking programs have been created to help reduce costs. With the advent of such solutions, companies can save money with key benefits that include:

- tracking of parts ordered
- reduced parts inventory levels
- cost comparisons for parts
- reduced maintenance downtime
- set preventative maintenance schedules with automatic generation of work orders

EVOLUTION OF A SOLUTION

One program that has been created specifically for GSE maintenance is EBis GSE Express. DatcoMedia, a computer software company that had designed general and commercial aviation maintenance software to bring the industry into the paperless age back in the 1990s, began creating the program to help streamline maintenance needs. EBis GSE Express was born in 2005.

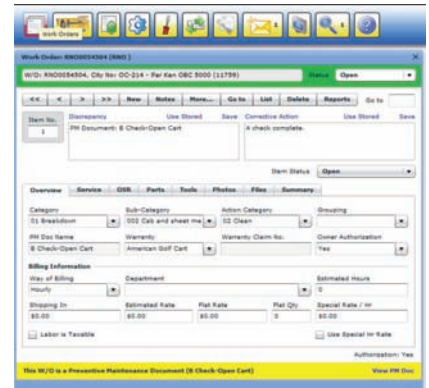
PARTS ORDERING & INVENTORY CONTROL

The basic needs started with the tracking of parts ordered. The system was designed to direct a part to a specific piece of equipment when it is ordered. Companies now know the cost of each unit and can plan to have these required parts in stock when preventive maintenance tasks are upcoming. This can increase the work flow and decrease unit downtime.

The next step was to greatly reduce the parts inventory levels and unit costs company-wide. Once the parts are loaded into EBis GSE Express, a user can easily see which parts are current movers and which parts are dead stock. The program allows users to identify thousands of parts no longer needed, because most of the dead stock was originally ordered for equipment that has been retired or shipped to the boneyard years ago.

The program was also integrated with NAPA and Sage Parts so users can create on-demand parts ordering directly from the application. This can ultimately help the departments return all stock that is no longer needed and replace these parts with current and relevant inventory. Technicians can also order parts directly from the work order. After pressing a few buttons, their parts supplier would show up at their door with the parts needed to complete the work order. This can save hours, eliminate parts that were previously unaccounted for, and can cut a company's inventory.

Parts can also be automatically ordered based on the preventive maintenance schedules using



The main work order screen allows users to add what task was due and completed, add service time, outside repair, parts, tools, and any associated photos and files.

just-in-time inventory controls. This has helped cut inventory and space required to stock parts, which is essential when dealing with square footage at any airport. This savings, in both dollars and square footage, can be used for other vital items.

With the parts being ordered directly from the application, standardizing the cost of a part companywide can be accomplished. Using the data collected, companies are now able to easily compare the cost of any part used during any period of time across all locations. In several cases, the resulting mined data showed the same part number could cost up to 60 percent more from one supplier to another. Reports showing the true cost of each unit can be seen, helping companies decide if a unit should be kept and repaired, or retired to take the tax write-off and a new unit purchased to take its place.

Companies are able to work with the major suppliers to standardize their supply chain management by setting companywide price levels. This can

save companies money and stabilize the pricing of all parts. This can also give companies the ability to track the lifecycle of parts, proving at times parts can cost a little more but ultimately cost less due to extended durability.

The collected parts information is also used in standardizing the maintenance process and making parts catalogs and maintenance manuals available while in a work order. Without leaving their workstations, technicians can pull up any parts catalog or maintenance manual and get the appropriate information needed for any piece of equipment.

PREVENTATIVE MAINTENANCE SCHEDULING

For labor, the collection of hours allows for managers to easily compare the hours billed to any job by company and third-party shops. In some cases, the same task was found to have a cost difference of more than 73 percent

companywide between company and third-party shops. With this information, the standard cost for each process could be obtained, again saving companies costs for each piece of equipment.

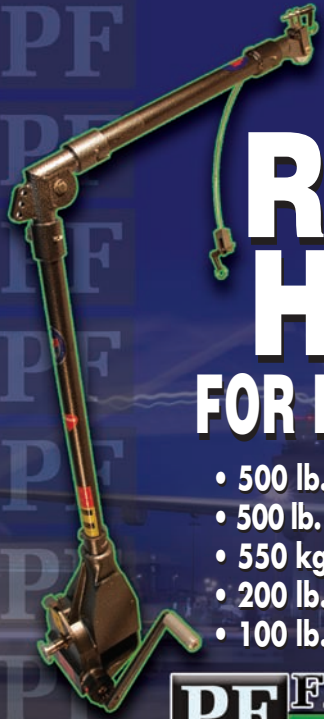
Managers can set preventive maintenance schedules due by a variety of criteria including week numbers, months to next, and weekly recurring. Work orders are created automatically and listed for the appropriate workstation where the equipment is physically located. This automated process keeps units from accidentally missing a scheduled check. The unit, when transferred from one location to another with the click of a mouse, automatically moves the necessary work orders. However, if transferred to a boneyard, all maintenance schedules would be stopped for that unit.

Service bulletins can be issued easily to the indicated units. Work orders are created to the appropriate locations in seconds, with only a

few clicks of the mouse. Criteria can include make, model, engine type, serial number, VIN, and more. Storing files and photos to each unit or job task helps technicians companywide share new problems found and, in the end, help keep these issues from turning into a larger concern.

Internal e-mail allows any person companywide to send messages to any users; parts requests can also be sent via the message system. A company can set their third-party vendor's access levels so a single database contains all maintenance and parts costs, allowing full reporting regardless of who completes each task.

Web-based maintenance applications have begun to change the face of how the GSE industry operates. By saving money in labor and parts, and complying with new requirements as they are introduced, this shared solution for the GSE industry is one everyone can benefit from. ■



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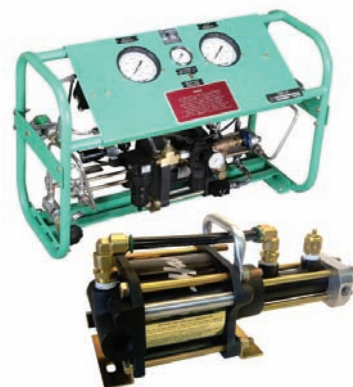
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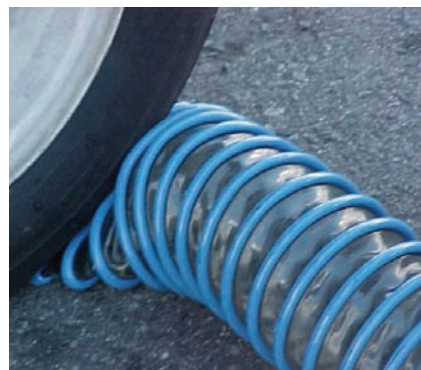
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1982 United, SML-80 low profile, JD diesel, 8K DBP.
1988 NMC-Wollard, Model 1212, V8 Gas, 12K DBP.
1996 NMC-Wollard, Model 140, Perkins diesel, 10K DBP. (8 avail)
2002 NMC-Wollard, Model 200, Cummins diesel, 20K DBP.
1996 S&S, Model GT-35, Deutz diesel, 30K GVW, 24K DBP.
1985 S&S, Model MB-2 (GT-40) 54,000 GVW, 4-wheel steer.
1986 Grove, MB-2, w/cab, 54,000 lb GVW, 4-wheel steer.

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What Turbochargers & Catalytic Converters have in Common

They are both expensive, and the death of one can lead to the death of the other.

Scott Strong, national manager, Global Aviation Services LLC

A recent issue in one of our shops has pointed out yet another area of the maintenance side of our business that is changing. Catalytic converters have been installed on some medium- and heavy-duty trucks since as early as 2001, but with the tightening federal emission standards, they have been installed on most medium-duty trucks since 2006. As of now, equipment manufacturers are producing airstarts and GPUs equipped with catalytic converters on their diesel engines as well.

While the fact that a catalytic converter by itself does not change how we repair the equipment, we need to keep in mind how a turbocharger failure can cause expensive, avoidable and irreparable damage to a catalytic converter.

Our customer had an oil seal fail on a turbocharger on a 6.0l powerstroke engine recently, which dumped copious amounts of oil into the intake. That oil ended up exiting the exhaust manifolds and promptly deposited itself into the cat, where it not only produced extreme temperatures and began to melt the internal stratus, but at some point completely clogged the cat with soot.

Our initial concerns about the condition of the catalytic converter proved well founded when, upon replacing the turbocharger, the engine would not run for more than a few seconds before the extreme exhaust backpressure shut off the

engine. The first moral of the story is that when we have a complete turbo failure such as this, we must keep in mind that we may also have a converter failure.

RETHINKING GUIDELINES

The second moral of this story is that we need to rethink the PM inspections guidelines that we use for turbos. Most of our industry's PM procedures ask us to check the condition of the turbocharger, which has been historically done by removing the intake air boot and

We need to keep in mind how a turbocharger failure can cause expensive, avoidable and irreparable damage to a catalytic converter.

looking for visual signs of damage or leaks. This part of the procedure has not changed, but what will need to change are the guidelines that we use to recommend a turbo replacement.

We have all had trucks where we knew the turbo was causing oil injection into the intake and, because of the cost of the repair, we often recommend that we keep an eye on the issue. If the unit begins smoking badly or the consumption gets to be greater than a quart every 15 hours or so, we would recommend replacing it.

If the unit has a catalytic converter on it, however, this is no longer a prudent course of action.

The converter that we had to replace was more than \$1600, and I have seen some of these converters top out at more than \$2800. If the turbo is leaking into the intake, it will begin to clog the converter, which is an irreparable condition. While the converter is operating, also keep in mind it is converting HC (oil and fuel) into CO₂ and H₂O, which means that the oily smoke entering the catalytic converter is being converted and will not come out the tailpipe as the usual grey smoke that we associate with burning oil. The unit

may continue to run smoke-free right up until the time that the cat becomes clogged, and the engine begins to run poorly or not at all. The amount of smoke exiting the tailpipe on one of these trucks is no longer an indicator of how badly the turbo is leaking.

One last point: The catalytic converter should also be something to keep in mind when diagnosing running problems such as sag, rough idle, extended crank, etc. The technical way of checking for a clogged cat is to use a backpressure gauge installed in the exhaust system prior to the cat. You should have no more than 2 pounds of backpressure at 1000 RPMs. If you don't have a gauge or can't hook it up to your particular unit, dropping the catalytic converter out of the system and running the engine with wide open pipes is an assured way of determining if that cat may be clogged and causing the problem. 

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