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Ground Support WORLDWIDE

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The Market is Buying

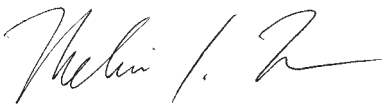
What does the GSE industry need? I'm asking the question, what are we missing? What could we do better, more efficient, what is a game changer?

Having a massive buyers guide on our website AviationPros.com has always been a great resource to buyers and sellers alike. And I know people are using it because I get an email every time a product or company is being asked to send a quote. I occasionally also get asked to quote out products, maybe I should start selling GSE too!

So what does this all mean ... I am hoping that it means that we are in a time of investment and that we will start to see new equipment and new technology and innovations in general. What does the GSE industry need? I'm asking the question, what are we missing? What could we do better, more efficient, what is a game changer?

We at *Ground Support Worldwide* want to hear about it. I know our new editor, Josh Smith, who will be starting in September, would love to hear from you. I am very excited for him to start and meet as many industry leaders as possible at the International Airport GSE Expo.

As always, thanks for reading



▶ Advertiser's Index

TOP NEWS

Internal Memo Reveals Air Canada Must Update Hundreds of Pieces of GSE In Wake of Employee Death

Following an April 20 incident in which a ramp agent was killed at Toronto's Pearson airport, Air Canada has been ordered to fix "hundreds" of baggage trucks at airports across Canada by Labour Canada. According to the report by the CBC, Air Canada has until November 15 to complete the repairs.

An internal memo obtained by the CBC states that Air Canada has been directed to install seat belts on all "ramp and baggage tractors, belt loaders and other motorized material handling equipment" that do not currently have seat belts. According to the airline, the updates will involve 950 of Air Canada's 2,200 pieces of relevant GSE. The updates are already underway according to an Air Canada memo.

Strong Mid-Year Figures for Schiphol Cargo

Schiphol Cargo has seen cargo volumes grow over the first six months of the year, with a particularly strong April seeing 137,666 tonnes of freight transiting Europe's third busiest cargo hub, compared to 128,843 tonnes in April 2015, up 6.8 percent year-on-year.

Cargo throughput for January to June 2016 was 796,801 tonnes compared to 784,567 tonnes in the same period in 2015, up 1.6 percent year-on-year. There were 8,801 freighter movements from January to June, compared to 8,218 in the same period in 2015, up 7.1 percent.

Upcoming Events

September 20-21
NATA Safety 1st Advanced De-Icing Workshop
Salt Lake City, UT

October 17-21
Airport Ramp Safety & Safety Management Systems
Singapore

October 18-20
International Airport GSE Expo
Las Vegas, NV

November 1-3
NBAA
Orlando, FL

May 21-24, 2017
20th IATA Ground Handling Conference
Bangkok, Thailand

SATS Enters Saudi Cargo Ground Handling Market

Singapore–based airport ground handler SATS has expanded its footprint in the Middle East by becoming the first international cargo handler to operate in Saudi Arabia.

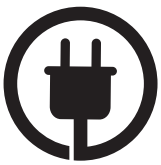
Its SATS Saudi Arabia subsidiary has won a tender for the cargo handling licence to operate at King Fahd International Airport (KFIA) in Dammam.

The concession with KFIA and the General Authority of Civil Aviation of Saudi Arabia (GACA) is valid for 22.5 years and was awarded "subject to terms and conditions being agreed by both parties."

SATS, whose parent group has extensive Asian food production and in–flight catering businesses, will build a new cargo terminal near KFIA, a facility that will handle up to 150,000 tonnes of cargo annually.

The new terminal will also incorporate a dedicated cold chain facility to meet the growing needs of the pharmaceutical and food industries to ship high value, temperature–sensitive goods.

TUG Launches New Electric Tow Tractor



TUG Technologies Corporation has launched a new electric tow tractor known as the M7. This CE–certified vehicle advances the TUG™ product lineup of tow tractors to offer an enhanced operator experience.

With a completely rethought cab design, the new TUG M7 allows the operator to step–through the cab by eliminating the center console and offers left–hand/right–hand drive capabilities with a redesigned, centralized console and illuminated rocker switches. The modern interior provides improved visibility for the operator with a 10–square–foot front windshield and 8.5–square–foot rear window. The M7 also boasts a redesigned hydraulic system, automotive–style feedback steering with a tilt steering wheel, a spring–applied, hydraulically released (SAHR) park brake, and optional sliding doors.

Philadelphia International Airport Workers Reach Deal Before Planned DNC Strike

Philadelphia International Airport workers reached a deal with American Airlines to keep 1,000 employees on the job, which lead

to the cancellation of a planned strike during the Democratic National Convention in July.

On July 12, the workers took a vote of 461–5 in favor of a strike seeking a wage increase from a $12 to $15 minimum wage, improved scheduling, clarity on sick pay and the ability to join a union.

FAA May Fine Amazon $480,000 for 2014 Incident That Injured Handlers

The Federal Aviation Administration (FAA) proposed a $350,000 penalty against Amazon.com for shipping hazardous material incorrectly, which left nine UPS workers with minor injures in 2014.

On Oct. 15, 2014, Amazon shipped a package containing a 1-gallon container of a corrosive drain cleaner from Louisville, Kentucky, to Boulder, Colorado, in an allegedly improperly packaged shipment not labeled or marked to indicate the hazardous contents. The FAA proposed two other penalties against Amazon within the month of June for alleged incidents involving incorrectly packaged hazardous material in 2014. The total number of penalties is now totaling $480,000.

3-D Laser Technology Detection System for Foreign Objects Commissioned at Cologne Bonn Airport (CGN)

LASE PeCo Systemtechnik GmbH, Germany located solution provider for security applications, announces the successful commissioning of a laser-based clearance test system for the detection of foreign objects on the landing fields at Cologne Bonn Airport (CGN).

With its measurement system called "Airfield Luggage Detection" (LaseALD), LASE PeCo has installed a product which fulfills the specific requirements and conditions of the Cologne Bonn Airport. This airport is one the biggest German hubs in the field of freight traffic and a laser-based object detection on the landing fields is necessary due to the existing ban on night flights..

This laser-based application will ensure a reliable detection of fallen items of luggage with minimum dimensions of 50 cm x 40 cm x 20 cm. The scanner has a range of up to 80 m with a high scan frequency of 20/40 Hz.

FAA Reauthorization Bill Includes Baggage Fee Refunds Following Bag Delays

The provision will make sure, "passengers won't have to spend a ton of time tracking down a refund when the airline doesn't deliver," according to U.S. Sen. John Thune, chairman of the Senate Commerce committee, during remarks on the Senate floor. The FAA reauthorization bill directs U.S. Transportation Secretary to issue baggage fee return regulations within a year.

The new regulations would require an airline to "promptly provide to a passenger an automated refund for any ancillary fees paid by the passenger for checked baggage" if the bag is not delivered within 12 hours of arrival of a domestic flight, or within 15 hours of arrival of an international flight.

PEOPLE

Russ Evans joins AeroVironment

Russ Evans joins AeroVironment as director of international sales for PosiCharge. Most recently he was the executive vice president of Harlan Global Mfg. Evans has extensive international experience in the ground support equipment industry.

Aviation Services Promotes Bill Brooks

Xcēd Aviation Services, a subsidiary of Sasser Family Holdings, announced that Bill Brooks, formerly the company's director of operations, ground support equipment, has been promoted to vice president of operations, ground support equipment (GSE). Prior to joining Xcēd Aviation in 2015, Brooks was a GSE maintenance manager for Spirit Airlines.

Sören Stark and Götz Wendenburg Join the Executive Board of Air Cargo Community Frankfurt

As part of its recent general meeting, the Air Cargo Community Frankfurt had two new members join the Executive Board. Thus Sören Stark, executive board member operations at Lufthansa Cargo, became newly elected member and Chairman of the Executive Board of the Community. He succeeds Dr. Karl-Rudolf Rupprecht, who retired from Lufthansa at the end of March and had chaired the

board. Dr. Rupprecht was also co–founder of the Community.

New to the Executive Board is Götz Wendenburg, branch manager of Kühne + Nagel. He represents the member group of freight forwarders on the board. This function was previously held by Markus Kampa of the Cool Chain Group.

FAST Global Solutions Announces VP and General Manager, International

FAST Global Solutions promoted DeWayne Nelson to vice president and general manager, international, for the manufacturer of ground support equipment, conveyors and agricultural sprayers and applicators. Nelson will lead the Minnesota–based company's growth in Asia and Europe, including establishing a new manufacturing facility in the region in 2017. Kevin Hanson, FAST's senior account executive and a 34–year company employee, will lead the sales team that supports North and South American customers.

Dennis Kirkpatrick Joins Legacy Aviation Services to Lead Avionics Department

Dennis Kirkpatrick has joined Legacy Aviation Services as avionics shop manager/supervisor. Beginning his career with avionics in 1968, Kirkpatrick has gained nearly five decades of avionics knowledge and experience. Working for his father's company, Kirkpatrick Electronics, Inc. (KEI), and under contract to Downtown Airpark (DTA) in Oklahoma City, Dennis provided brand new avionics installations to factory green Rockwell Aero Commander aircraft (now Twin Commander) along with providing general avionics services to Downtown Airpark customers for nearly 40 years.

Worldwide Flight Services Names Craig Smyth CEO

Worldwide Flight Services (WFS), the air cargo handler and one of the leading providers of ground handling and technical services to the aviation industry,

announced the appointment of industry veteran Craig Smyth as CEO. Smyth was the former CEO of Menzies Aviation. He will be stationed at WFS's Charles de Gaulle offices in Roissy.

WFS also announced the appointment of François Mirallié as Group Chief Financial Officer. He assumed his new responsibilities in August.

UniCarriers Americas Hires William E. Wylonis

UniCarriers Americas (UCA) Corporation expanded its team by hiring William E. Wylonis as its senior manager of product and sales training. In this position, Wylonis is responsible for setting the strategic direction for the training department and leading the development and management of all sales and product training programs for UCA. Wylonis has more than 30 years of experience in the material handling industry. Prior to joining UCA, he worked as a training specialist for Toyota Material Handling USA, president of Quality Training Services and as corporate aftermarket sales manager at MH Equipment Co.

BETA Fueling Systems Adds Three To Management Team

Anna W. Barnett joined the team in April 2016 as BETA's chief financial officer. She was included in the Triad Business Journal's 2014 class of honorees for their 40 Leaders Under Forty program.

Robert Shepard joined BETA as vice president of sales and marketing. Bob has an extensive international sales background with territories in Latin America, Middle East, Asia, Australia and New Zealand servicing distributors, retail petroleum and major oil companies.

William Moody has recently been hired as BETA's new field services technical manager. He came from AirBP bringing an extensive knowledge of fleet maintenance and safety practices along with expert technical skills.

NEW DEALS

dnata Announces Acquisition of Air Dispatch

dnata has reached an agreement to purchase a majority stake in Air Dispatch, part of the Chapman Freeborn Group.

Air Dispatch was founded in 2007 and provides centralized load control plan-

ning services, calculating the weight and balance conditions for aircraft prior to flight. Its other services include ULD asset tracking and the development of flight optimization software. The company currently has 200 employees at its operations centers in Prague and Warsaw, as well as a small head office team in the UK.

PAGE Industries to Market, Sell DEKAL Resistive Load Banks

PAGE Industries has entered into an exclusive agreement with DEKAL to market and sell the full line of DEKAL resistive load banks. DEKAL offers the most modern 400 hz and 28v DC digital and analog resistive load banks in the GSE industry.

ContiTech Expands Partnership with Applied Industrial Technologies

ContiTech, a division of Continental, announced that Applied Mexico, S.A. de C.V. and subsidiary RODENSA Mexico, S.A. de C.V. have completed a product changeover to ContiTech as a primary supplier in Mexico for industrial hoses, hydraulics, power transmission belts, and certain other products. Applied Mexico is one of the largest industrial distribution networks in Mexico, with 22 facilities that provide industrial products for maintenance, repair and operational needs.

Bhadra International India Limited is Now the Ground Handler for Scoot Airlines

Scoot Airlines, a long-haul airline owned by Singapore Airlines, now has an official, complete ground handler in Bhadra International India (P) Limited. The inaugural flight of Scoot, where Bhadra handled the ground services, started on May 25, 2016 at the Chennai airport.

SATS and dnata Fight Contract Battles at Lower Rates Despite Operating Costs

Contract renewal battles at Changi Airport Singapore between ground handlers, Singapore Airport Terminal Services (SATS) and dnata, have forced low rates for future operations while operating costs remain high.

By Vesna Brajkovic

For example, according to Today Online, the turnaround cost of operating full-service to a Boeing 737 has gone down around $400 USD, and the charge for handling an Airbus 320 is down 30 percent compared to a few years ago.

"I am still struggling to understand the strategy of my competitor, which only seems to be about cutting prices, even as costs continue to escalate amid headwinds and the manpower shortage," CEO of dnata Singapore Mark Edwards told Today Online.

In some cases at Changi Airport, airlines switch either fully or partially between the two providers. Some, like Etihad Airways, transferred passenger check-in, baggage handling and aircraft ramp handling to dnata while they continued cargo handling and catering services with SATS.

AirAsia switched from dnata to SATS for ground operations, but several others, including China Southern Airlines, Turkish Airlines and Air New Zealand switched to dnata from SATS for other services.

Dnata also contracted with Bhutan Airline and Myanmar National Airlines, which has only just resumed international services in Changi last year. But, SATS still holds 80 percent of the market share at the airport, according to Today Online, serving 93,000 more flights than dnata in Singapore. **GSW**

The Tug of War Between Internati Ground Liability

From the one end airlines need to comply with European Union regulation 261/2004 which was enforced to protect consumers against flight disruptions.

onal Service Concerns

From the other end ground service providers accept liability for ground damage events up to USD $1.5 million for wide-bodies and normally up to USD $750,000 for narrow-bodies via IATA Article 8.

By Mario Pierobon

The European situation with respect to the liability of ground service providers in relation to the disruption of airline services is very peculiar as airlines are faced with diverging requirements they need to abide with. From the one end airlines need to comply with European Union regulation 261/2004 which was enforced to protect consumers against flight disruptions caused by the lack of capability of operating carriers to transport a passenger booked on a certain flight. From the other end ground service providers accept liability for ground damage events up to USD $1.5 million for wide-bodies and normally up to USD $750,000 for narrow-bodies but only for the physical damage and not for consequential losses, in conformity with Article 8 of the IATA standard ground handling agreement (SGHA).

A burden on airlines

"EU 261 is valid for passengers departing from an EU member state or traveling to an EU member state on an airline based in an EU member state," says Ivar Busk, an aviation insurance consultant. "The compensation paid depends on various conditions: distance and delay are the main factors determining the amount to be paid. Besides the compensation, accommodation, meals, etc. should also be paid directly to the passenger. The cost burden is always absorbed by the operating carrier and today there is no way for it to be reimbursed by other suppliers that might have caused the disruption in the first place. The compensation varies from EUR 250 to EUR 600 depending on the distance of the flight. Often the delay or cancellation is caused by a suddenly arising situation and therefore difficult to prevent for an airline."

According to Sean Gates, an aviation lawyer, EU 261 imposes costs and expenses on airlines for delays and cancellations and severely limits their right to defend such claims. "EU 261 is accordingly a very significant burden on airlines operating within Europe. To the extent delays are caused as a consequence of ground handling incidents where the ground handlers are able to take advantage of Article 8 of the SGHA, there is an argu-

ment that the ground handlers are exempt from responsibility particularly for claims pursuant to EU 261," he says. "However, the position varies from one country to another within Europe and care must be taken to examine the actual exposure of handlers before deciding not to pursue them for damages."

"EU 261 reserves the right for airlines to look for compensation from third-party suppliers such as airports, handlers, ATC, etc., if they are responsible for cancellations or delays. We are not aware of this right having been used so far," clarifies Bob Schmitz, legal counsel of the Airport Services Association (ASA) for European regulatory issues.

According to Gates, "There is no doubt that both EU 261 and SGHA Article 8 provisions are 'anti airline', even though the SGHA is nominally a product of IATA." Busk says that since EU 261 was implemented a number of judicial cases have occurred within EU member states and so far the known cases have been judged in accordance with the EU Commission interpretive guidelines on EU 261. "But seen from an airline point of view the guidelines are going too far when it comes to the airlines' efforts to prevent delays or cancellations caused by extraordinary circumstances which could not have been avoided even if all reasonable measures had been taken," he explains.

Article 8

According to Martin Meyer, an IATA Ground Handling Council (IGHC) officer and a member of IATA's Aviation Ground Services Agreements (AGSA) task force, since Article 8 was added to the SGHA and the GSPs accepted a limited liability for physical loss, it has always been a discussion point to increase this limitation. "This has come up from AGSA members representing airlines or from airline risk assessment professionals raising the argument that the total damage for the airline is much higher than physical or direct loss. That was when we started to talk about consequential losses, meaning the additional losses which airlines bear," he says. "The AGSA task force has taken all these change requests on, but up to now has always come to the conclusion that it is best for the industry not to change Article 8."

Busk believes that the discussion on the repayment of consequential losses, namely those arising from the requirements of EU 261, to be incorporated in the SGHA is a valid point. "Should this type of compensation be paid in accordance with an update to Article 8 of the SGHA? The argument already brought on the table will come up

again, and that is that the handling fees need to be increased accordingly," he says.

Gates is of the opinion that "if airlines could recover from handlers, this would improve their bottom line. It should not lead to an increase in handling charges since claims against handlers are covered by insurance and insurance premiums do not go up until after a claims experience of several years has been established. It is suggested that airlines can insure for consequential losses but this is true only to a limited extent of a few hundred thousand dollars. A significant incident can lose an airline millions which they have to absorb themselves or die. In effect they are required to be the insurers of the often much larger and always more profitable handlers. In addition, the proper response of course would be to improve the quality of the handling agents," he explains.

Samim Aydin, chairman of ASA, believes that EU 261 and passenger rights issues are "the real Pandora's box that ground service providers will never accept opening especially in respect of the right to redress and what is a regular and an irregular course of operation. We had many meetings with European Community officials trying to explain," he says. "The right to redress might or will reopen the issue of 'consequential damage claims' which is a no go from the side of handlers, as no one can calculate, guess or predict the 'consequential damage part' which makes insurance premiums go to the sky; this is why we have the indemnity limits in the first place."

"Of course, what we call consequential losses could be insured by the airlines, or if we shift the liability toward the GSPs, then they could be insured by the handlers. However, the airlines choose not to insure this part of the risk, as it is much more cost efficient. If the risk were on the GSPs' side, the handlers would have no choice but to insure that risk. This will in our view increase the total cost," explains Meyer.

While amendments to SGHA Article 8 have been discussed for a long time and not changed, the industry has however committed to improve ground handling safety. "Instead of just shifting liability we started to focus on improving ramp operations to prevent accidents. Initiatives such as IGOM and ISAGO are the result of this effort together with the introduction of quality and safety management systems," says Meyer.

Revision of EU 261

If from the one end Article 8 of the SGHA does not appear likely to be altered anytime soon, from the other end, says Gates, it is also highly unlikely that EU 261 will be made less of a burden for airlines.

Earlier in 2016 the European Commission published interpretative guidelines on EU 261. The document does not recognise that the collision of mobile boarding stairs with an aircraft can be considered as 'extraordinary circumstances' exempting an air carrier from payment of compensation under EU 261. Schmitz points out that the interpretative guidelines state that "mobile stairs or gangways can be regarded as indispensable to air passenger transport, and therefore air carriers are regularly faced with situations arising from the use of such equipment. A collision between an aircraft and a set of mobile boarding stairs is, hence, an event inherent in the normal exercise of the activity of the air carrier." He believes that this could be interpreted as meaning that collisions causing flight delays or cancellations are a regular and normal phenomenon in air transport, which – he notes – is fortunately not the case.

Schmitz furthermore notes how the interpretative guidelines stress that "extraordinary circumstances would apply, for example, when damage to the aircraft is due to an act external to the airport's normal services, such as an act of terrorism or sabotage." He believes that by denying accidents occurring during normal airport operations the qualification of extraordinary circumstance EU 261 discourages care in the supply chain as it cannot be invoked to limit the financial liabilities of airlines toward stranded passengers.

Concerning the revision of EU 261, the

main effort of ASA has been to overturn the proposal whereby damage caused on the ground may qualify an extraordinary circumstance – meaning no financial compensation for passengers – if caused by third parties for whom the air carrier, in the absence of contractual relationships, is not responsible on the ground prior to departure of the flight and requiring immediate assessment or repair. "ASA's recommendation has been to refer more broadly to 'damage to the aircraft caused by non-controlled third parties on the ground.' This wording should allow damage caused by independent contract and non-contract handlers to qualify as extraordinary circumstances, as carriers do not exercise decisive control over independent handlers, not even those with whom they have a service contract," says Schmitz. "Unfortunately our recommendations are not reflected in the interpretative guidelines."

The revision of EU 261 is stuck at EU Council of Ministers level and even if unblocked one day, it is unlikely that the current passenger compensation rights will be reduced, because of the European Parliament, says Schmitz.

A wider issue

According to Gates, European airlines are facing the burdensome effects of EU 261 also for delays caused by other suppliers such as airports and ATC. "Even these instances are not regarded as extraordinary, so airlines have no defence," he says. There are indeed many cases which actually are outside the responsibility of airlines, e.g. delays or cancellations caused by bird strikes, lightning strikes or ATC, according to Busk. "These are also considered as cases of non-extraordinary circumstance and therefore requiring compensation to be paid in accordance with the regulation," he says.

Should compensation be paid by third parties, the procedure will need to be more clearly defined by the European Commission, says Busk. "In addition, the definition in the regulation of what is within the actual control of the carrier is not clear and is subject to litigation in my European member states. Due to this situation the Commission has proposed several revisions to the regulation which will hopefully clarify the situation," he concludes. **GSW**

ABOUT THE AUTHOR:

Mario Pierobon is a safety management consultant and content producer. He currently is working on a research project investigating aircraft ground handling safety. You may reach him at marioprbn@gmail.com.

KUBOTA ENGINE AMERICA OFFERS EXPANDED SOLUTIONS FOR GSE MARKET

The world's leading manufacturer of compact, industrial based diesel and gasoline engines under 100 horsepower (HP) has expanded its reach into the ground support equipment industry. Kubota Engine America has been building engines since 1922 and has increased its extensive distribution network to include more than 800 dealers in North America, South America and the Caribbean. Now, the company known for its reliability and durability is offering unmatched options for airline carriers and manufacturers. "While Kubota has grown in the industrial, agricultural, construction and generator markets, we have been underrepresented in the ground support equipment market for quite some time," said engine industry expert and Strategic Business Development Manager for Kubota Engine America, Rob Shailes. "However, our company has been ahead of its time with production and innovation, and now has products to fill large gaps existing in the GSE market today."

Unmatched Diesel Options

Kubota is currently the only industrial engine manufacturer in the world already in production of a full range of complimentary compression ignited and spark ignited engines below 100 HP. Kubota's compression ignited diesel engines are available for ground support equipment in 1.8L to 3.8L models with outputs ranging from 49.6 to 74.3 HP. These engines feature heavy-duty gear trains and robust construction to withstand heavy loads and harsh weather, and are available with Diesel Oxidation Catalyst (DOC) after treatment devices to meet Tier IV Final regulations in the United States.

Complimentary Gaseous Solutions

As emission standards for industrial diesel engines become more stringent and Tier V legislation looms on the horizon, Kubota's spark ignited WG line already serves as an accepted solution ahead of the anticipated market shift. Most gaseous engines for ground support equipment are currently automotive based, but the WG series is mirrored after Kubota's own industrial based diesel engine and therefore, inherits its proven strength. The series is available in five models, 0.74L to 3.8L, and offers outputs from 23.5 to 97.9 HP. These gasoline options can be used wherever their diesel equivalents are used without significantly re-engineering the installation envelope, and maintain all major interface and service points to ease installation and familiarity for technicians. They also have similar levels of power and torque, and lower acquisition costs.

"At Kubota, we always strive to provide the most diverse lineup of options for our customers, without sacrificing quality or reliability," Shailes said. "In addition to our diesel and gas engines now available for ground support equipment, several Kubota distributors have developed repower packages for baggage tractors to simplify the repower process for older machines. We plan to have one of these packages on display at the International Airport GSE Expo next month."

Presence at International Airport GSE Expo

Kubota will have a group of company leaders and experts on site during the 2016 International Airport GSE Expo in Las Vegas, Oct. 18 – 20, at booth #200. At the show, Kubota plans to showcase several diesel and gasoline engine models and parts, as well as its distributors' repower package.

"Kubota has an enviable reputation delivering the most dependable products in the diesel and gasoline markets. Our complete, complimentary range of spark ignited and compression ignited engines are backed by a full service network that can support any engine out in the field," Shailes said. "We look forward to serving more of the ground support equipment industry and visiting with the world's largest crowd of aviation attendees at the show."

DIESEL OPTIONS					
Model	D1803-CR-TIE4B	V2403-CR-TIE4B	V2607-CR-TIE4B	V3307-CR-TIE4B	V3800-TIE4B
kW (HP)	37 KW (49.6 HP)	48.6 KW (65.1 HP)	53 KW (71.1 HP)	55.4 kW (74.3 HP)	55.4 kW (74.3 HP)
RPM	2700 RPM	2700 RPM	2700 RPM	2600 RPM	2200 RPM
After treatment	DOC	DOC	DOC	DOC	DOC

SPARK-IGNITED OPTIONS (Gasoline, LPG, Natural Gas)				
Model	WG972	WG1605	WG2503	WG3800
kW HP	kW: 24.2/23.1/17.6 HP: 32.5/31.0/23.6	kW: 42.5 / 41.0 / 38.4 HP: 57.0 / 55.0 / 51.5	kW: 45.5 / 46.0 / 42.4 HP: 61.0 / 61.7 / 56.9	kW: 65.0 / 70.0 / 65.0 HP: 87.2 / 93.9 / 87.2
RPM	3600 RPM	3600 RPM	2700 RPM	2600 RPM

Kubota
KUBOTA ENGINE AMERICA

To learn more about Kubota, visit booth #200 at the expo or the company's website, www.kubotaengine.com/GSE.

Visit us at the GSE Expo, booth number 200.

KUBOTA ENGINES FOR
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INTERNATIONAL AIRPORT GSE EXPO

Kubota

THE ENGINE OF SUCCESS

INTERNATIONAL AIRPORT GSE EXPO

Pre-Show Preview

The International Airport GSE Expo is only one month away, can you believe it? More than 165 vendors from all around the world are set to descend on Las Vegas October 18-20 with GSE innovations and looking for new business. What are they bringing? Check out a sampling of what's coming to the GSE Expo before you hit the show floor.

By Alex Wendland

KUBOTA ENGINE AMERICA (BOOTH 200)

Spark Ignited Engines

Long time engine maker Kubota has expanded its product line into GSE. Its Spark Ignited line of engines offers fuel-efficiency in gas, propane, natural gas or dual fuel configurations. Two members of the series, the WG3800 (3.8L) and WG2503 (2.5L), have outputs of 61.7 and 97.9 horsepower and are mirrored after Kubota's diesel line. These industrial-based gaseous engines have similar power and torque, lower acquisition costs and can be used wherever Kubota diesel equivalents are currently.

HUDSON BEARINGS (BOOTH 233)

Air Cargo Interchangeable Flying Saucer Ball Transfer Unit

New to Hudson Bearings' extensive line of heavy-duty air cargo ball transfers, the Air Cargo Interchangeable Flying Saucer Ball Transfer Unit combines discrete functionality with long-term reliability to meet material rolling and handling requirements in an airport setting. These American-made units contain multiple drainage weep holes and come in two sizes: FSBT 1 SS MW and FSBT 1-1/4 SS MW, capable of withstanding 120 pounds (55 kg) and 275 pounds (125 kg), respectively.

TRANSFLUID (BOOTH 329)

Transfluid's Hybrid System

Transfluid's Hybrid System integrates into propulsion systems providing a simple solution to green power and fuel economy. The modules fit between the engine and transmission providing an integrated implement in the driveline.

The system operates in three modes:

- *Electric:* drive at zero emissions in silence
- *Engine:* uses the electric machine as generator to recharge the batteries
- *Booster:* allows the electric motor to assist the engine to providing extra toque in the driveline

LIFTSAFE FALL PROTECTION (BOOTH 401)

Aircraft Maintenance Stand 6X

Liftsafe Fall Protection's Aircraft Maintenance Stand 6X is designed to allow safe access to all cowlings, pylons and disconnect zones on Pratt & Whitney, GE and Rolls-Royce engines on a multitude of aircraft installations. This new and innovative design provides a safe working solution to many of the traditionally difficult under-cowling maintenance locations. The user-friendly hydraulic pitch and height adjustment allows for diverse angle and height variables; with the flexibility for use on Boeing wide body, B757, Airbus A320 family, and Airbus wide body aircraft. The Aircraft Maintenance Stand 6X incorporates safety features for both the aircraft technicians and the aircraft.

THERM DYNAMICS (BOOTH 444)

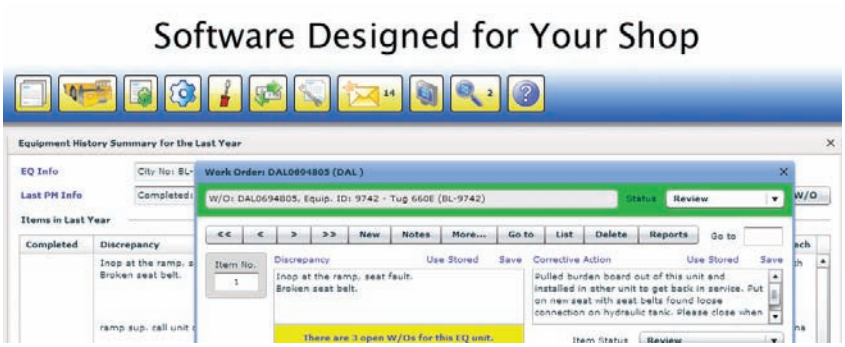
TD500 IDF GSE Cabin Heater

Following the success of the TD500 GSE Cabin Heater, Therm Dynamics has introduced the TD500 IDF. This portable standalone heater is designed to preheat engines and thaw frozen hydraulics or doors. As an added bonus, Therm Dynamics designed the IDF to function as a portable maintenance station with high spot heat and a 6.0 kw generator to run tools and lights. The TD500 IDF heater is designed to meet all of a ground handler's operational needs in the most extreme and demanding conditions.

MODTRUSS (BOOTH 430)

Modular Building Components

The ModTruss system of modular building components is used across many industries to provide easily transportable, infinitely reconfigurable solutions to customer's work and display needs.



DATCOMEDIA (BOOTH 358)

EBis GSE Express

DatcoMedia's EBis GSE Express partners with Access Control Group and Sage Parts for the only complete GSE software system to include complete GO sensing and GPS real–time tracking. Operated by a card reader, auto shutoff by utilizing red zones eliminates vehicle collisions with aircraft or driving outside an approved area. Real–time maintenance into EBis GSE Express is done via electronic meters, allowing for true power by the hour costs, fleet utilization/right–sizing.

ESTEX MANUFACTURING CO. (BOOTH 339)

FR 700 Ripstop Bag Cart Curtains and Curtain Patch Kits

Two times the durability of traditional bag cart curtains drastically increases the life of Estex Manufacturing's new FR700 Ripstop curtains, while decreasing the repair/replacement expense and labor cost. The unique nature of a brand new material prevents punctures from spreading and provides handlers the opportunity to repair the curtain puncture with Estex's new Curtain Patch Kits, as opposed to being replaced like traditional curtains.

RPD SERVICES (BOOTH 252)

RPD Avgas Truck

RPD Services is offering an all new aviation refueler for the discerning aviation market. RPD's Isuzu avgas truck holds 750 gallons, has an aluminum tank, a gas engine and automatic transmission. The 40 gpm pump is hydraulic driven with a vertical filter/monitor. The piston meter has a mechanical register and ticket printer. The hose reel is a multi–wrap style for 1" x 50' overwing hose. RPD has designed and built these trucks with reliability and durability in mind.

ITW GSE HOBART (BOOTH 702)

Preconditioned Air Unit

ITW GSE Hobart announces the release of the ITW GSE Hobart 3400 Pre-Conditioned Air unit to the market. The Hobart 3400 supplies fresh, clean air into parked aircraft at carefully monitored temperatures and provides a pleasant atmosphere for passengers and crew. The ease of replacing the modules can minimize downtime. It is ETL listed to UL1012 requirements. It has multiple, identical cooling modules. Each module can be retracted and replaced, like a drawer, in only 20 minutes by a technician. There are no special skills required. This minimizes downtime which keeps aircraft turnarounds on schedule by allowing the PCA to continue cooling the aircraft by means of the remaining modules. Designed for all types of aircraft from narrow-body to super Jumbos, it is available for bridge – or ground mounting for aircraft parking positions or for hangar applications.

For a Complete Exhibitor Listing, please visit www.GSEexpo.com

10 Questions With...
Continental Specialty Tires

In our first iteration of "10 Questions With..." Chris Bennett, territory manager at Continental Specialty Tires, keys us in on the world of tire maintenance, industry trends and the importance of sustainability measures.

By Alex Wendland

1 What sets a tire apart for GSE? Is it efficiency and durability, or what else do you measure success by?

I would say success is measured on the ramp primarily by the number of service hours a tire provides. We can take this figure, along with other metrics, and calculate the cost per hour a particular tire offers the end user. To achieve a lower cost per hour you ultimately need to be a more durable option, that provides an exceptional rate of tire wear. Equally important is fuel savings. In today's marketplace with more stringent emissions regulations, Continental not only provides a more durable option in our RV20 Velocity tire, but at the same time a more fuel-efficient option through tires with a naturally low rolling resistance. Lower rolling resistance can lead to improved fuel consumption with internal combustion engines, leading to lower exhaust emissions. Additionally, lower rolling resistance leads to extended battery life in battery-powered GSE.

2 What can GSE maintenance teams do to extend the life of their tires?

The primary thing maintenance teams can do is maintain consistent and proper air pressures in their tires. Running on low air pressure is an all-too-common thing that leads to premature wear and tire failure. Second would be avoiding foreign objects that can also lead to premature failure. The latter cannot always be controlled. Conversely, air pressure with a good maintenance protocol can always be controlled.

3 How can regular tire maintenance increase the useful life of high-wear equipment like baggage carts and pushbacks?

Again, air pressure is key in extending any tire's life. Proper inflation can reduce wear and heat buildup due to excessive side wall flex and ultimately help prevent premature failure. This can be especially key in GSE vehicles as most do not have suspension systems to help absorb vehicle shock and thus the tires are the primary suspension. Along with air pressure, regular visual inspection of tires can spot potential issues that may extend the tire's useful life if addressed early.

4 Continental is known as an automotive consumer tire brand, what sort of breadth does the company offer the GSE market?

The Continental Commercial Specialty Tire (CST) business unit offers a complete product portfolio of pneumatic and solid type tires that cover a wide array of applications from material handling to earth moving. This includes everything from forklifts and sea-port cranes to dump trucks and loaders and everything in between. The spectrum of sizes currently represented starts at 4 inches and goes all the way up to 35 inches. The CST product offering for GSE specifically, covers baggage tractors, belt loaders, PCAs, air starters, lav carts, pushbacks, cargo loaders, jet bridges, etc. Additionally, we have our passenger/light truck and medium truck divisions that help supplement our GSE tire offerings.

Seven Things You Should Know About Converting your GSE Fleet to Green Energy

REGULATIONS

Advanced Li-Ion technology delivers a solution that addresses many (if not all) costly regulatory mandates for most motive applications, minimizing or even eliminating their overall financial impact.

COST

With a properly designed and constructed Li-Ion battery system that is tailored specifically to the application, commercial viability is not only possible but in most cases this new technology provides bottom line improvements. With the federal grants that are currently available, the cost to convert is very attractive.

PERFORMANCE

Li-Ion provides a constant (very flat) voltage curve which translates to consistent power delivery, so there is immediate power and torque when the operator requires it. Li-ion battery systems are up to three times more energy dense than their lead acid counterparts.

RELIABILITY

Li-ion battery systems have no moving parts and require no periodic maintenance. Li-ion battery systems tolerate low temperature extremes, ensuring that support equipment is still ready to run when temperatures drop. Redundancy with a properly configured module/pod strategy also offers the benefits of vehicle reliability and performance.

SAFETY

There are three levels to consider: the cell, module, and system level. All three Li-ion chemistries (LTO, LFP and NMC) are safer than lead-acid systems. Discussion areas to cover with your battery system developer should include: over pressure devices, internal fuses, advanced construction materials, thermal management and phase changing material, on board BMS and remote communications, IP ratings, energy management, and optimal sizing. Voltabox's software configuration tool addresses key characteristics and configures the proper solution for each customer's specific application.

INTELLIGENT ENERGY SYSTEMS

Voltabox's Li-ion battery management system adds an advantage to an industry where fleet status is critical: fleet performance monitoring. This enables fleet managers to continuously monitor the state of charge, state of health, battery usage data, energy consumption, detailed load cycles, charging times, usage times, operation times and service notifications.

Automated daily, weekly, and monthly reports are available to monitor metrics in real time, so it becomes easy to optimize charging activity or maintenance and repair activities to minimize fleet or vehicle performance impact. This ability alone has the potential to save millions of dollars per year across domestic fleets.

ENVIRONMENTAL CONSIDERATIONS

Li-ion batteries have no outgassing or emissions during normal operations as do their lead acid counterparts.

Li-Ion offers a near perfect technology for alternate energy storage to be commercially viable by providing a path where end-of-life cells can either be repurposed or remanufactured for continued life in the stationary energy market.

For more information, request our detailed whitepaper, *"Seven Things You Should Know About Converting Your Fleet to Green Energy"* at **http://www.voltabox.com/fileadmin/images/Downloads/voltabox_green_energy.pdf**.

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5 You and Continental (Booth 432) will be exhibiting at the International Airport GSE Expo in October. What's new in the industrial tire world and what will attendees see?

Continental will have several of our popular GSE tires on display such as the RV20 and RT20 as well as some of our more material handling related tires. One of the things Continental benefits from is we are more than just a tire manufacturer. We are one of the leading original equipment automotive suppliers for both electronic technology as well as chassis and interior products. Continental leads the way on many innovative passenger car products such as lane detection technology, infotainment, engine and vehicle management systems to name a few. We supply many, if not most of the major vehicle manufacturers. As such we are able to leverage and utilize these technologies for use in other divisions. One such innovation is our ContiPressureCheck™ system. This is an onboard vehicle system that monitors both heat and pressure in the tires and alerts the operator to issues with either. The system can be adapted to a wide array of applications, including many GSE vehicles. We will have this on display as well.

6 How important are sustainability and emission-reduction programs in the current economic environment?

I read a recent GSE equipment market study that indicated that electric (battery) operated ground support equipment is forecasted to be the fastest growing segment over the next five years. This is due in large part I am certain by the regulated push for lower emissions. As I mentioned previously, tires with lower rolling resistance have a part to play in helping reduce these emissions. Continental has been a proven leader in achieving lower rolling resistance across all segments of our tire divisions: Passenger, Medium Truck and Industrial. It is a pillar of our tire building technology if you will, and is very important to sustainability and emission reduction strategies now and into the future.

7 What's the most important thing you've learned as you work to expand Continental's GSE customer base?

I would say the most important thing I have learned is that value in terms of durability, reliability and operating savings is key. Everyday the GSE and airline industry as a whole conducts a very orchestrated and fine-tuned operation which relies on a lot of moving parts. Delays happen if any of these moving parts break down. Delays cost time and time costs money. Our goal at Continental is to help our customers reduce these "breakdowns," specifically as they relate to GSE tires, as much as we can. That is why we overengineer our tires, so they deliver the best overall value to our customers.

8 What changes would you like to see in the industry?

From a tire manufacturer's perspective, I would like to see more of the airlines and GSE equipment manufacturers take their GSE tires more seriously. I can say this is actually happening now. In my experience, I have seen all kinds of "odd ball" tire applications on the ramp. One good example: baggage tractors are not cars, they don't handle like cars, they are subjected to different weights, speeds and forces, so why do we continue to see passenger type tires used in a GSE "industrial type" application? The same can be said for many other types of GSE equipment.

9 From a business perspective, we've seen a lot of consolidation as companies combine to create complete product portfolios. How have the dynamics of the industry changed the way you do business?

To be honest, not much really. We do rely on several different business segments (passenger, commercial truck and commercial specialty tire business units) within our organization to help deliver a vast and complete product portfolio. Additionally, we have our other automotive and technology divisions that we are incorporating more into our tire business to help progress and develop new products that benefit our customers.

10 Many of the environmental factors on the ramp (maneuverability, weather, foreign objects) are similar to driving on the road, but the vehicles are obviously vastly different – even from each other. Is Continental able to share IP across applications, with different product requirements?

Yes, absolutely. I think one of our key strengths is the diversity of technologies within Continental and our ability to share these technologies through out the different divisions of the company. We are always looking for ways to improve our products and implement knowledge and/or innovation within the organization. As technology continues to grow, we'll look to stay nimble and continue applying these innovations into tires and supporting products that move the industry forward toward smart and sustainable solutions. **GSW**

▶ ABOUT THE AUTHOR:

Chris Bennett is a territory sales manager with Continental Tire. He has 20 plus years of experience in both marketing and sales within the automotive aftermarket. His tire background covers all facets; Passenger/Light Truck, Medium Truck and Industrial. He has been with Continental since 2008. For more information visit www.continental-specialty-tires.com.

Man vs. M

Unlike human teams that can take weeks to analyze just one segment of a dataset in order to accurately install predictive maintenance models, automated solutions can discover critical points in the data in mere seconds

By Sundeep Sanghavi

Even though big data may seem like a buzzword that has permeated almost every industry on the planet, this near limitless source of information can drive unprecedented company growth and efficiency. Unfortunately, a large part of this potentially useful data is generated by industrial sensors and dumped – largely untapped – into vast data lakes. The noise created by the sheer amount of data we accrue everyday from thousands of sources makes it almost impossible for a human team to analyze. It's a catch-22.

These hurdles can be easily applied to predictive maintenance in the aviation sector, which like many other industries around the world has not reached its full, data-enabled potential. However, with 10 times return on investment for aviation companies and a potential 70 to 75 percent reduction in airplane breakdowns, there is a clear case for automated predictive maintenance in the aviation industry.

One Piece At a Time

If we look at a solitary part of an aeroplane we can start to gauge the challenges that a manufacturer, a company, or ground support provider can have when aiming to gain effective equipment performance insights by using data generated by sensors. Take an average jet engine from a commercial airliner, which can be equipped with over 5,000 individual sensors, as an example. According to SAP business software, these engines can generate around 20 terabytes of data per hour. Taking a few steps back, an entire plane – such as the A380 superjumbo – can generate information on 200,000 different aspects of every flight, allowing it to create immense pools of data.

While the connectivity of planes is increasing, the data generated has already gone beyond what a human team of data scientists can handle and dipped into the realm of automated big data solutions.

The key for companies and providers within the industry is knowing how to fine tune the ear of data

Photo: Ron Donner

Machine: AVIATION'S PREDICTIVE MAINTENANCE CHALLENGE

teams and implement rapidly evolving cognitive models to effectively analyze and harness this data.

But how does aviation leverage these data insights to reduce downtime of planes, decrease bottom line costs and increase component life and efficiency? Is it down to finding the right team or the right solution? Beyond these, however, and as traditional models of data science continue to become outdated, it is important for companies to seek out the successful trends that will enable optimal use of their sensor data.

Diamond in the Rough, Identifying the Right Data Signal

The 2015 McKinsey Global Institute report points out the economic impact generated by the Industrial Internet of Things (IIoT) market, which incorporates machine learning and big data technology, to be $11.1 trillion by 2025. For aviation, this economic impact can be felt directly in the predictive maintenance sector, as leveraging this information and conversing with it to get actionable answers remains one of its biggest challenges.

According to SAP, 42 percent of delayed flights are caused primarily by airline processes, such as maintenance. When you take into account that a grounded plane can cost an airline $10,000 per hour, an efficient predictive maintenance process to reduce downtime for an aircraft can save millions of dollars every year.

The expanding connectivity of planes and the wave of data that this generates, has enabled the increased targeting of predictive analysis to certain areas, components and systems to better inform the engineers on the ground. Right now, basically every part of a plane can tell crews what needs replacing, or if something is faltering.

Ironically, this is also where the issues of information overload arise as thousands of data nodes can overwhelm teams and decision makers who look to streamline processes and implement accurate models.

But finding the true signal of a datapoint generated by machine sensors and hidden in a diverse pool of sources – all of which are constantly generating information at different times – has become impossible for a human team to process.

Even with the resources leading airlines have to store and analyze this information, much of the big data generated by sensors on a plane remains largely unexploited, according to the *Financial Times*. Paul Stein, chief scientific officer of Rolls-Royce, identified the industry's lack of sufficient communications infrastructure to harvest and transmit the data as the industry's leading short-term obstacle, the *FT* stated.

However, it's not about constantly analyzing every line of data as it comes in. It is important to note that the terabytes gathered by millions of parts on a daily basis are not all necessarily useful.

At the 2014 "The Data Driven Business of Winning" summit, managing director of CMS Motor Sports Ltd., Mark Gallagher stated that Formula 1 teams efficiently analyze data to win races by identifying anomalies, reported TechRadar. "99 percent of the information we get, everything is fine [...] we're looking for the data that tells us there's a problem or that tells us there's an opportunity," Gallagher was quoted as saying.

Due to the degradation of monitored equipment and variations in sensory output, identifying these anomalies by a human team can be exceptionally complex. Furthermore, rules are hard to implement as the natural lifecycle of a component within an aircraft's ecosystem can be unpredictable.

To reduce the loss of valuable data, which can be timely and therefore perishable, data automation solutions for areas like predictive maintenance can be invaluable. More than just analyzing the data, being able to interact with the information and extrapolate particular anomalies that can offer differential perspectives on the state of a component, engine, or aircraft navigation board, can answer the important questions.

Monitoring Each Sensor in Isolation Doesn't Work

Components, whether in an aircraft or in a car, often fail due to numerous factors within the entire ecosystem. Because of this, monitoring just one sensor within an aircraft is unlikely to produce a complete dataset that depicts an accurate view of what is actually occurring.

What's more, the manual effort required to combine a series of individually monitored sensors to successfully extrapolate alerts and filter critical signals from large amounts of data is very high. Not only is this method inefficient and expensive, but it also fails to successfully scale in the long run.

But just like finding the needle in the noise of data stack, this level of data generation falls into the realm beyond human teams due to the sheer volume of information and the ambiguity that the raw data can produce. However, through automated predictive maintenance, decision makers can successfully leverage part harmonization to gain a clearer overview of specific sensor insights. These help create accurate predictive models that can show the parts that are set to fail first and help schedule replacements, which in turn improves the management of part inventories.

Combining all these factors helps teams successfully implement complete and functional predictive maintenance, which according to an International Journal of Applied Mathematics and Informatics study, can decrease total maintenance costs by 30 percent and reduce stationary time of aircraft by up to 45 percent.

Additionally, the successful application of predictive maintenance can avoid the knock on effects that unscheduled emergency maintenance can have. Increased downtime generated by this spontaneous maintenance, for example, can have detrimental effects on customer views and company reputation.

Beyond Human-scale

Although data analysis as a process requires the input of human teams and professionals, the sphere of industrial data has already surpassed dated models that revolved around reports and charts.

It is here that the timely analysis of datasets is crucial. By having a machine do the job, for example, companies can see a problem within an aircraft before it occurs, a task that is now practically impossible for data science teams with the advent of increased component connectivity.

Furthermore, and not to definitively relegate humans to the corner, the mass shortage of data scientists simply requires the automation of certain processes. Plain and simple. Not only are these solutions able to collate a week's (or a year's) worth of data to build the most optimal model for the job, but they can facilitate the real-time execution of decisions based on timely data.

For predictive maintenance in the aviation sector, the ability of these automated machine solutions to compare, contrast and segment massive aircraft datasets for more accurate predictions is a near perfect fit. Unlike human teams that can take weeks to analyze just one segment of a dataset in order to accurately install predictive maintenance models, automated solutions can discover critical points in the data in mere seconds.

As industrial data continues to evolve and expand, predictive maintenance will require the agile analysis afforded by automated systems and retreat from human engagement sphere. For the aviation industry, the ability to execute practical business solutions in this area will require automated near real-time analysis and accurate interpretation of aircraft machine and sensor data conversations. **GSW**

▶ ABOUT THE AUTHOR:
Sundeep Sanghavi is the co-founder and CEO of DataRPM, an industry pioneer in automating predictive maintenance. For more information visit datarpm.com.

Can Training Help the Talent Pool Shortage?

Ground Support Worldwide **and Global Aviation Services (GAS) sent Sidd Finch to investigate.**

By Rob Root

In its 10th annual 2015 Talent Shortage Survey [1], ManpowerGroup describes how "The working population is declining, forcing employers to select from shrinking talent pools." One out of three hiring managers in the USA (41,700 hiring managers were interviewed worldwide) indicated they were having difficulty filling jobs. No. 1 on the list for most difficult jobs to fill: Skilled Trades (aka Mechanics).

With that as the backdrop, I got to thinking: What could those of us who have been at this for some time learn from a newly hired training manager? *GSW* and GAS sent crack reporter Sidd Finch to interview Joe Newguy, a new training manager at "Acme GSE Maintenance."

SIDD FINCH: Congratulations on your new position. Tell me about your background.

JOE: Thank you. I spent the past 20 years in the U.S. Air Force working in aerospace ground equipment. Most recently as a trainer.

SF: How did you come to work for Acme?

JOE: I finished a tour abroad and was preparing to re-enter civilian life. Acme was actively searching for a training manager for GSE. We were able to use technology like Skype for the interviews. My experience and Acme's training needs were a good fit.

SF: Our readers know that the talent pool for GSE mechanics is shrinking. Where do you start as the manager of technical training for a GSE maintenance company?

One out of three hiring managers in the USA (**41,700** hiring managers were **interviewed** worldwide) indicated they were having **difficulty filling** jobs. **No. 1** on the list for **most difficult jobs** to fill: Skilled Trades (aka **Mechanics**).

JOE: That is a great question. We started by clarifying who we are and what we do. Then we made a list, a big list, of our needs. Then came prioritization of the needs."

As an example, 'Who are we?'

As you know, a mechanic is a technician who repairs and maintains machinery. The aviation industry is the global transportation network that carries passengers and cargo by air. Ground support equipment (GSE) is the machinery on the tarmac of an airport which helps passengers, cargo and airplanes come and go from the airport. A GSE mechanic then is a technician who repairs and maintains equipment for businesses serving the aviation industry.

'What do we do?'

Acme hires, trains and deploys GSE mechanics at airports around the country. All we do is GSE and fleet maintenance for the aviation industry. Our customers are airports, passenger airlines, cargo airlines and the companies that provide services to airports and airlines.

Here's where it gets dicey. GSE mechanics fix catering trucks, baggage tractors, deice trucks, passenger stairs, cargo loaders, GPUs, AC units, baggage carts, buses, pushback tractors and more. They work on equipment from the 1980s, '90s, 2000s, 2010s, and I can't even list all of the different manufacturers.

Technically speaking they need to be able to paint, weld, and complete diagnostics and repairs on electrical systems, fuel systems, gas, diesel, propane and electric, and hydraulic systems. They have to be technically proficient on chassis, engines, transmissions, lift systems, pumping systems and more. We could add safety training and computer data entry training but

We expect mechanics with **better diagnostic skills** will spend **less time** trying to figure out a mechanical problem. They are also **less likely to fix the wrong problem** which should **reduce** repeat repairs.

Acme has a manager of HSE to handle safety training and our national managers handle customer-specific data entry training.

SF: That sounds daunting. Where do you start?

JOE: "We did an assessment of the most important needs:

Improving the technical proficiency of our existing staff. There are really three reasons for this need:

- Customers expect us to get the work done regardless of vacancies, vacations or any other reason a position is open on a given day. Mechanics on the job must be very productive to meet daily demand. Best practice training can improve daily productivity.
- Aviation industry customers expect their costs to go down despite increasing wage rates, higher benefit costs, higher real estate costs and aging GSE fleets. Teaching mechanics better diagnostic skills can directly impact customer costs.
- Retiring mechanics take with them a lot of tribal knowledge. It takes a lot of hands-on experience to become a GSE mechanic that is very good at fixing cargo loaders, GPUs and deice trucks. All those new mechanics will have to be trained on all of that specialized aviation industry machinery.

Training new hires. These fall into two categories.

- First, Acme has roughly 200 mechanics. On average our monthly job vacancy rate is 5-6%, meaning 10-12 positions are open. Those positions exist to meet customer commitments. They generate revenue every day. Ten open positions represents about $1 million. We need to get those positions filled and the new hires quickly up-to-speed.
- Second, Acme added 50 new positions last year and is budgeted to add 50 more again this year. There aren't 50 qualified GSE mechanics looking for work in the U.S. To fill those positions we'll likely have to hire non-GSE mechanics and teach them how to be GSE mechanics.

SF: Some might say that is more work than one manager of training can accomplish.

JOE: Very true.

SF: So what comes first?

JOE: We've decided to focus on two needs we think will have the most impact:

- Electrical diagnostics training: Just about every GSE mechanic could use either a refresher course or certification on electrical diagnostics of motorized, GSE equipment. Better diagnostic skills should then impact technician productivity as well as customer costs. We expect mechanics with better diagnostic skills will spend less time trying to figure out a mechanical problem. They are also less likely to fix the wrong problem which should reduce repeat repairs.
- Preventative maintenance (PM) methods: Doing PMs and doing them well improves asset reliability and safety while reducing customer costs. PMs performed efficiently improve mechanic productivity helping with the need to 'do more with less.'

SF: I travel a lot. Looking out the window of the airplane when it's at the gate, I'm always hopeful the people that work on all that equipment have done a good job keeping it maintained. Good luck with your new position. **GSW**

(1) www.manpowergroup.com, 2015 Talent Shortage Survey White Paper (Excerpt), accessed July 17, 2016 http://www.manpowergroup.com/wps/wcm/connect/manpowergroup-en/home/thought-leadership/research-insights/talent-shortage-2015/talent-shortage-2015

▶ ABOUT THE AUTHOR:
Rob Root, VP of Business Development, Global Aviation Services, a leading GSE maintenance provider headquartered in Eagan, MN.

Often Forgotten, ULD Are a Critical Part of Everyday Aircraft Operations

There are about 800,000 unit load devices (ULD), totaling more than $1 billion in replacement value, around the world. The number of the cargo storage containers has grown consistently since their introduction along with the Boeing 747-100 in 1971, and they have become an essential fixture of both passenger and cargo operations. Yet how many people are aware that ULD are actually aircraft equipment, designed and manufactured under aviation rules, and when loaded on board the aircraft are required to ensure that their contents, which may be many tonnes of cargo, remain in exactly the desired location throughout the flight regardless of flight conditions?

By Bob Rogers

Everyone taking a flight on an aircraft would expect their seat to be firmly attached to the cabin floor and their seat belt be available to secure them in the seat, the same exact situation holds true for baggage and cargo, ULD is the "seat" – think about what is happening during turbulence, maybe you fasten your seat belt and grab hold of your glass to make sure your drink does not spill, but just a few inches below your feet many tonnes of cargo is actually only staying in place because of the job done by the ULD.

There are two components to what ULD do, the first can be described as "ULD Operation," this is when the loaded ULD is placed on board the aircraft and is performing its function of cargo restraint, the second component can be described as "ULD Handling," and this is basically anything and everything that gets the ULD and its load into the aircraft; it includes storage, transport, movement around the cargo terminal and build up to name just some aspects.

▲ *A ULD is not just a cargo container, but they're a part of the aircraft.*

Clearly without suitable handling there is no chance that a ULD will be able to operate correctly, yet sad to say a short walk around many aircraft loading bays will uncover containers, pallets and cargo nets, built up and just awaiting loading into the aircraft, or even worse having just been offloaded from the aircraft, with damages that are beyond allowed limits, and a longer walk will most likely turn up poorly stored ULD, poor quality dollies and extensive use of forklifts to move ULD in the cargo sheds.

Furthermore if one wishes to dig deeper than just anecdotal visual evidence one needs look no further than two IATA safety databases which collect information from a wide range of airlines:

Data from the IATA STEADES database (http://www.iata.org/services/statistics/gadm/steades/Pages/index.aspx) indicates that industry-wide 16 unsafe loading conditions occur on a daily basis, a proportion of these are documentation errors on load sheets but a substantial number also apply to ULD that are not in a condition to operate correctly. Furthermore the same database indicates that the majority of these unsafe events are only discovered

▲ ***Airworthy? Definitely not, but looks like someone tried to fix it with sticky tape!***
Provided by Bob Rogers

▲ ***Damaged ULD can have catastrophic, tragic results***
Provided by Bob Rogers

▲ ***Does this look safe to use in flight?***
Provided by Bob Rogers

▲ ***Looks good, but is it safe for flight?***
Provided by Bob Rogers

on the arrival of the flight rather than being caught before departure!

Data from the IATA Ground Damage Database (http://www.iata.org/services/statistics/gadm/Pages/GDDB.aspx) places ULD in the No. 1 position for damage to aircraft! Further analysis of this data shows that almost all the reports are for damage to the interior of the cargo holds and are caused by ULD that are out of contour or otherwise not in the correct condition being loaded rather than rejected ship side. Maybe these events are not as spectacular as a loader hitting an engine or wing flap, but the sheer number of reports indicates a widespread practice of "anything goes as long as the flight leaves on time!"

How has this situation come to pass? When airlines first started to outsource their ground handling and cargo terminal operations to independent service providers ULD operations went along for the ride. What was never clearly defined and understood by everyone was that a ULD, when positioned in the aircraft prior to takeoff must be in compliance with the aircraft Weight and Balance Manual (WBM), a document that is just as important as the flight operations manual or maintenance manual. During a presentation on ULD operations at the recent IATA groundhandling conference the audience, comprising mainly of ground handlers, was asked for a show of hands if they were aware of the existence of WBM, less than 10 percent could raise their hand, and when asked the further question of whether they had ever read the ULD requirements in detail perhaps 2 percent had done so.

How does this play out? Three lines summarizes the situation:

- An improperly handled ULD will probably be damaged
- A damaged ULD may very well no longer be airworthy
- A non airworthy ULD may not be loaded onto the aircraft

Is this so hard to understand? Not really, but the bigger question is how to embed a culture of respect for ULD into the global handling environment? Since 2010 IATA has undertaken a great deal of work to create a greater awareness of the importance of satisfactory ULD operations. To be sustainable the airline industry needs to be assured that only safe and airworthy ULD are making it onto their aircraft and secondly they need protection against the ever increasing cost of repairing damaged ULD and damaged aircraft as well as disruption to flights which is estimated to be in the order of $400 million a year.

And it is not just the airlines who are thinking about this, in the aftermath of two fatal

▶ *ULD on the ground are always at risk for damage.* ***Provided by Bob Rogers***

crashes involving misloaded cargo, Fine Air in 1997 and National Air Cargo in 2013 the U.S. Federal Aviation Administration (FAA) has taken a very close look at cargo operations and in response to their findings have issued extensive guidelines as to how U.S. airlines are expected to carry out their cargo operations. The latest version of the Advisory Circular AC 120-85A may be downloaded from http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1027808 and is recommended reading for anybody managing any part of the process of loading cargo to aircraft. Of special relevance to the ground handling and cargo industry are the multiple references to vendors, a term used by the FAA to define non-airline third parties, and emphasis is placed on the necessity that vendor employees have undergone satisfactory levels of training.

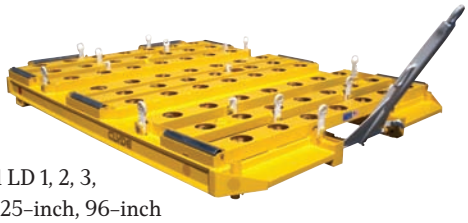
Is it so unreasonable to ask that the operators who are loading hundreds of tonnes of cargo into ULD every day have been properly trained? After all when we take a flight we would expect that the flight crew are trained, the cabin crew are trained, the mechanics are trained, the air traffic controllers are trained, so where is the logic that says that the people loading the cargo into ULD which will in turn be loaded into the aircraft do not require similar levels of training? Is the job so simple or is it that the industry does not feel these people are worthy of training or is it just a matter of let's hope we can get away without spending any money on training for a bit more time?

In the time it has taken you to read this article numerous ULD around the world have been handled or mishandled, have been operated in an airworthy or non-airworthy condition. Is this a sustainable situation or are we just one step away from the next cargo restraint related accident, not to mention the continued waste of money repairing unnecessarily damaged ULD?

This is the first of two articles on the subject, in next month's edition we will dig deeper into the underlying problems that impact ULD, and explore the available solutions for the industry, meanwhile we could recommend visiting: http://www.iata.org/whatwedo/cargo/unit-load-devices/Pages/index.aspx and http://www.uldcare.com. **GSW**

CARGO TRAILER

Clyde Machines Inc.



The 15F2862 15,000–pound capacity trailer has a new recessed frame to protect customer markings. This Covered Pallet Trailer will hold LD 1, 2, 3, 4, 7, and 8 containers, or 88–inch x 125–inch, 96–inch x 125–inch and 88–inch x 108–inch pallets. Also in the protection package are protected cross members for the casters and side pockets for the rollers.

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BAGGAGE CARTS

Par-Kan Company

Par–Kan Company offers both open and covered baggage carts.

- 4,000–pound capacity
- 5,000–pound capacity
- 8,000–pound capacity
- 5th wheel steering
- Towbar activated braking system
- Pneumatic or solid tire options
- Fixed or torsion axle options available
- Curtains and tarp systems available
- Knock down cart options available for sea container shipments
- Powdercoat finish

AviationPros.com/10025701

COMMANDER CARGO LOADERS

JBT AeroTech, Jetway Systems

JBT AeroTech offers a range of cargo loaders capable of servicing lower and main deck cargo. All Commanders use the HeliRoll conveys system, which has revolutionized aircraft container and pallet handling. A PLC–based electrical system and swing out power model provide quick access for maintenance servicing. JBT's cargo loaders are available in a wide variety of sizes and configurations and have load ranges of 8,000 to 60,000 pounds.

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ZERO EMISSION GSE

Harlan Global Manufacturing LLC

The Harlan Charger is zero emission, high power, low maintenance and operator–friendly electric GSE. This 80–volt, 4,500–pound DBP electric unit is designed for the needs of today's GSE. The high–power, zero–emission Charger will meet most baggage and regional aircraft towing requirements, allowing the GSE world to remain productive.

AviationPros.com/10027051

ELECTRIC TUGS/ BELTLOADERS

Somerset Aviation Capital

New electric baggage tugs and beltloaders from 12,000–pound capacity to 30,000–pound capacity. Models include eTug Lite, DC20, DC30 and the eBeltloader.

AviationPros.com/10276573

BAGGAGE LOADER

BEUMER Group

The Baggage Loader from BEUMER Group was developed to reduce manual lifting of in–gauge bags in the make–up area in the airport. It significantly increases workplace safety for baggage handling staff and provides physically efficient loading and unloading of bags into unit load devices (ULDs) or other departure handling systems and vehicles.

AviationPros.com/12125651

100 CARGO TRACTOR
NMC-Wollard Inc.

The 100 cargo tractor has 8,000- to 12,000-pound DBP ratings. An industry leader in airline cargo applications, the 100 tow tractor has proven itself in many airline and service company applications. Features include heavy-duty planetary reduction drive axle, dual drive wheels, automatic transmission and many other features. Model 100 can be powered with gas, diesel, LPG or CNG.

AviationPros.com/12228912

GSETRACK
Undagrid

GSETrack offers an outstanding solution for localization of non-motorized ground support equipment (GSE) at airports. There's is nothing like it anywhere in the world. Receive valuable location and equipment data, without network installation or communication costs. The small device can be installed in less than one minute, without needing IT skills. The devices can be used worldwide, without special permissions. All information is available anytime, anywhere via the GSETrack web based software solution.

AviationPros.com/12127143

FIRE-RESISTANT CARGO CONTAINERS
AAR Corp.

AAR announced a new Nordisk ULD design, which during testing was proven to contain a fire for up to six hours. Partnering with DuPont, AAR was able to replace traditional construction with innovative materials for a unit that is lighter than any similar product on the market.

AviationPros.com/11135441

CONVEYOR BELTING
Thermoid Inc.

Thermoid PACK-EZ S/Weave conveyor belting is approved and preferred by all major, package handling companies. Suited for slider bed systems, these belts are built to resist abrasion, stretching and fire.

AviationPros.com/11191802

ENCLOSED BAGGAGE CARTS
FAST Global Solutions

FAST Global Solutions engineers its large-capacity enclosed baggage carts with reinforced steel so they can endure years of rugged use. FAST's baggage carts feature ample ribs, high-quality welds and webbing-lined vinyl curtains for resilience on the tarmac. FAST forms its baggage cart floors with 12-gauge steel, and 16-gauge steel frames the front and back panels. Beyond the heavy-gauge components, FAST uses more ribs than other manufacturers to ensure strength and durability. Welders certified by the American Welding Society ensure quality welds and tight seams on every product. Durable vinyl curtains feature webbing every 10-12 inches (25-30 centimeters) – more than any other model on the market – to combat against rips and tears. If a curtain does get damaged, FAST's two-bolt design makes it easily and quickly replaceable.

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BAGGAGE CHUTE

Page Industries

PAGE, the innovator of the baggage chute in 1997, introduces the P6000 which utilizes modern manufacturing techniques and materials. The P6000 is the best and most advanced method for transferring passenger luggage to the tarmac while being the easiest to install and maintain. PAGE – Your CONDUIT to Performance.

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AIRCRAFT CARGO LOADERS

Trepel Airport Equipment GmbH

Trepel Airport Equipment designs and manufactures a complete range of commercial aircraft cargo loaders, with lift capacities from 3.5 tons up to 30 tons. Trepel loaders benefit from a simple, yet rugged and reliable design, with low maintenance and repair costs providing attractive long–term life cycle costs for your cargo handling operations.

AviationPros.com/10024634

TD500 IDF CABIN HEATER

Frend-Therm Inc.

Following the success of the TD500 GSE cabin heater, Therm Dynamics has introduced the TD500 IDF. This portable standalone heater is designed to preheat engines and thaw frozen hydraulics or doors. As an added bonus, it is designed to function as a portable maintenance station with High Spot Heat and a 6.0 kw generator to run tools and lights. This heater will meet all your operational needs in the most extreme and demanding conditions.

AviationPros.com/12238806

CONVEYOR BAGGAGE TRANSPORT SYSTEM

R.J. Design LLC

The Conveyor Baggage Transport System was designed to eliminate shoulder and back injuries for ground personnel and save time transporting baggage, which in turn saves the airport or airlines money. Passengers receive their luggage much faster and with less congestion in the loading bridge. This equipment also eliminates additional congestion on the airport ramp under and around the loading bridge.

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CARGO RESTRAINT PRODUCTS

Cargo Systems Inc.

Cargo Systems provides a full line of cargo restraint products. If you need something simple like a mil-spec strap, tie-downs, fittings or attachment hardware, the company keeps hundreds of parts in stock. If you require a custom-designed cargo restraint system for your aircraft, or ground vehicle, the company can assist with that as well. It has engineering capabilities, and a production team that can design and produce something to meet your needs within days.

AviationPros.com/11117483

CARGO, BAGGAGE TRACTOR

SCHOPF Maschinenbau GmbH

The Rofan ZH5 is capable of towing loads up to 35 tonnes. With a drawbar pull of more than 20,000 N and equipped with the 64 kw Deutz TD2012 engine, the ZH5 can be used for heavy-duty cargo and baggage applications. The fast, flexible PowerHybrid system is unique in providing both diesel speeds outdoors and emission-free operations indoors, which enables the ZH5 to deliver goods in half the time.

AviationPros.com/10027541

BALL TRANSFER UNITS

Alwayse Engineering Limited

Alwayse Engineering has further developed the quietness of its new 807 Air Cargo Ball Transfer. This unit has received acceptance from a number of international companies. They are also pleased to announce that they have been honored again with The Queen's Awards for Enterprise – International Trade 2008.

AviationPros.com/10025177

CONTAINER/PALLET LOADER

TLD

TLD offers three main container and pallet loaders: Model 838 with 16,500-pound capacity; Model 929 with 33,000-pound and 44,000-pound capacity and the Model 121 with 66,000-pound capacity. Operators and maintenance personnel can appreciate the speed, ease-of-operation and industry-leading diagnostics on all TLD loaders.

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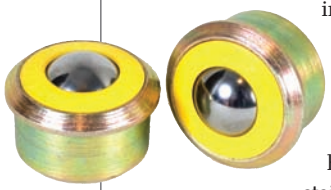
BALL TRANSFER UNITS

B&T Bearing Inc.



B&T Bearing Inc. provides ball transfer units, pop-up stops and conveyor rollers to the air cargo industry. The ball transfers come in either a plated carbon steel housing or an all stainless housing. All of the units use stainless-steel balls. The company also provides a multihole unit, which was developed and has been approved for military applications.

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CONTACT DETECTION

Tapeswitch Corporation

Tapeswitch Corporation is the leading manufacturer of safety edges for contact detection applications and passenger boarding bridges.

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HIGHLIFT TRUCK

Stinar Corporation

The HLV-2557 highlift truck has a 6,000-pound payload capacity and can service aircraft door sill heights up to 325 inches. Mounted on ULSD or Export model diesel chassis. Available on the GSA schedule along with the HLV-2559, HLF-2550 and HLF-2741 highlifts. All models are designed, engineered and built to USAF PD or CIDs.

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HIGH SPEED CARGO TRACTOR

Eagle Tugs a Tronair Company

Eagle Tugs was the originator of the Bob Tail high-speed cargo tractor more than 40 years ago and is still the leader today. Eagle Bob Tails can tow cargo up to 90,000 pounds (40,823 kilograms).

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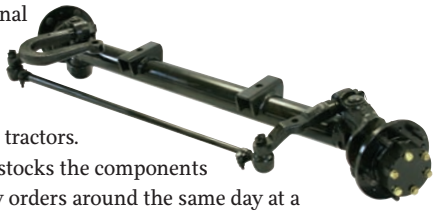
AXLES AND COMPONENTS

Taylor-Dunn Manufacturing



Metro Crown International is a premier supplier of front steer axles and components to fit most major brands of baggage tractors. MCI manufactures and stocks the components parts and can turn many orders around the same day at a significant cost savings to our customers.

AviationPros.com/10441757

Leaving on a Jet Plane

"So long, and thanks for all the fish."
— Douglas Adams

▲ Editor - Alex Wendland
awendland@aviationpros.com
920-563-1644

After more than a year at the helm of *Ground Support Worldwide magazine*, this will be my last issue as your editor.

I'm happy to say that over the past year we redesigned and diversified the voice of the magazine, put together a gigantic GSE Expo (coming up quickly, October 18–20) and expanded our coverage across all segments of ground support manufacturing and operations. And I think you'll find more changes coming over the next year to improve the magazine and hopefully the industry at large.

I want to specifically thank Missy Zingsheim, the publisher of *Ground Support Worldwide*, for her help, guidance and patience in getting me up to speed on GSE and ground handling last summer. Missy's dedication to this magazine and her passion in this industry is tremendous, and contagious. This magazine, this company and this industry are fortunate to have her. I know I was fortunate to learn from her decade-plus of experience – and all of the people who came with it.

In addition to Missy, there's a long list of people from a litany of manufacturers, FBOs, airlines, ground handlers and more who have made this job a great one. Given the volume of you, and the paralyzing fear of forgetting someone, I can't list you individually. Know that you're the ones who make this industry tick.

My hope has always been for you to see *Ground Support Worldwide* as your voice in the industry. In a traditionally underserved segment, I've prided myself on providing as many different voices as possible an opportunity to talk about whatever's keeping them up at night.

Over the course of the past year I've enjoyed sneaking in various music, television and literary references, including a tribute to David Bowie that I hope you enjoyed reading as much as I enjoyed getting into print.

I don't know who will be the next editor of *Ground Support Worldwide*, but I know they'll have tremendous leadership and a healthy magazine to guide into 2017.

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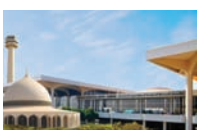
TOP ARTICLE



SATS Enters Saudi Cargo Ground Handling Market
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ONLINE PRODUCT GUIDE

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The only show dedicated to ground support equipment

International Airport Equipment Manufacturers' Association (IAEMA) and Ground Support Worldwide are joining forces to produce this not-to-be-missed event, which will bring the entire industry to Las Vegas, Nevada for three days of networking, opportunity and enjoyment.

Why Attend?

International Airport GSE Expo is the only event solely focused on Ground Support Equipment for aviation.

Atmosphere—Focused, Energized, Informative, Helpful.

Global—Air transportation and ground support are global by nature.

Networking—Visitors and exhibitors are here for only one reason ... the interval between landing and take-off.

Equipment—Get hands-on, kick the tires, go for a drive.

Maintenance—Think about what can be learned from in-depth conversations with the manufacturers, suppliers, and distributors that know your equipment better than you do.

Technology—There is always something new to be discovered that can have a direct impact on the success of your business.

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* Qualified Attendees (Airlines, Airports, FBOs, Ground Handlers, Military)

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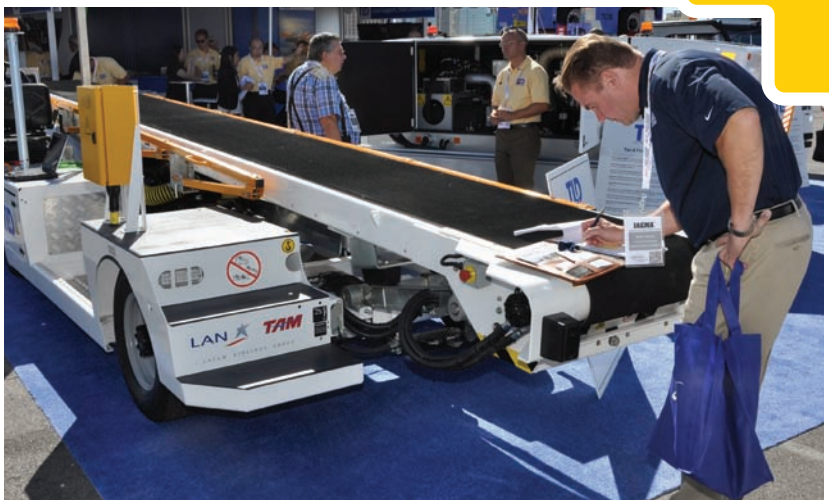

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